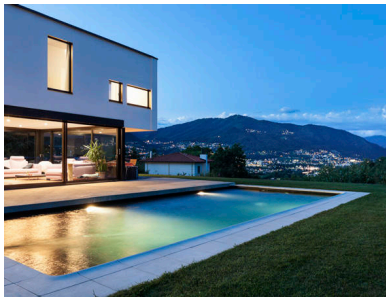
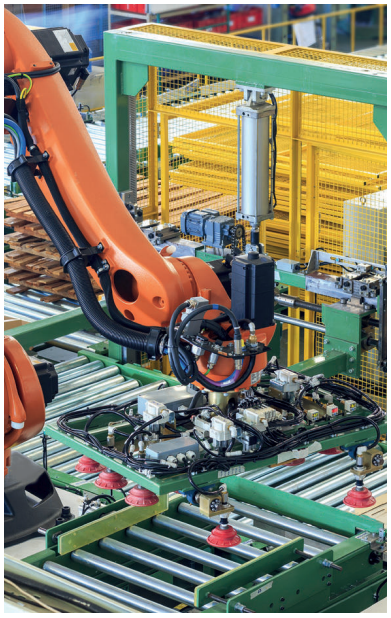
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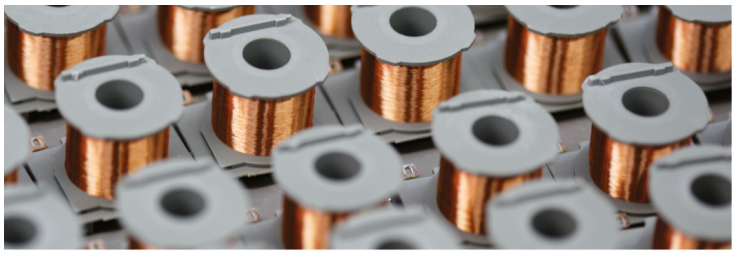
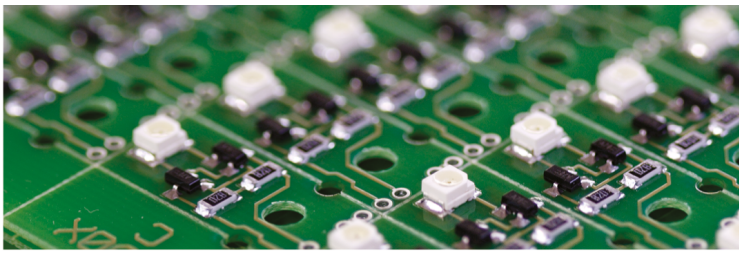




WORLD OF RELAYS

# GENERAL CATALOGUE

## WoR 3.2 | English



## ComatReleco at a glance

ComatReleco is one of the world's leading suppliers of high-quality relays and contactors of all kinds. With one of the broadest product portfolios, including customized solutions, ComatReleco serves customers in the industrial automation and building installation, rail and transportation segments. Our core competencies are industrial relays, timing relays, monitoring relays and contactors. These are installed with the latest semiconductor technologies or also with the traditional electromechanical design.

**Designed in Switzerland, assembled in…**
ComatReleco continuously invests in research and development, thus ensuring a consistently high rate of innovation. Several international patent applications support this fact. Our research and development team is headquartered in Switzerland and has access to additional qualified employees in our subsidiaries in Germany and China. With a share of more than 20% of total research and development costs, we outperform many global players in our segment.

**Customer orientation and quality management**
ComatReleco has a group-wide quality management system with real-time access to test and inspection protocols. Our relays and contactors are 100% tested at the end of the production line. On arrival of the goods at our central warehouse in Switzerland, another quality test is carried out.

Are you using a ComatReleco product or are you looking for a suitable solution? Our support centre in Switzerland will be happy to help you find the right relay or contactor for your application. ComatReleco is known for the world's largest number of customized solutions for industrial, time and monitoring relays and contactors.

**Headquarters in Switzerland – international presence**
The warehouse and logistics are managed centrally at the headquarters in Switzerland. Production is diversified and optimized in terms of quality, costs and logistics criteria. Our production sites are located in Europe and Asia. Through our network of distribution partners, the Group is present on all world markets. ComatReleco has been part of the management team since 2003.

W O R L D  O F  R E L A Y S

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ComatReleco offers a variety of customized solutions. We therefore have different documentation for different areas of application.




**CATALOGUES: GENERAL, TRANSPORTATION & RAILWAY, MARINE & SHIPPING, SOLID STATE RELAY, PLC & HMI**

Please visit **comatreleco.com** or contact our support at **support@comatreleco.com** for more information.

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# Relays

## General Information

**Product range**
ComatReleco offers a wide range of relay types and versions and associated sockets and accessories.

**Relays C2, C3, C4, C5, R4**
35 x 35 mm round plug-in relay, 8- or 11-terminals multipole connectors with 2 or 3 contacts up to 10 A and different contact types and contact materials.
Standard relay 35 x 35 mm with flat blade connectors with up to 4 contacts and up to 16 A with 4 contacts.

**Relays C7, C9, R7, R9**
22.5 mm series with up to 4 contacts and up to 10 A with 1 or 2 contacts.

**Interface Relays, C10, C12, C16, C18, R10, R12**
Overall width 13 mm with up to 2 electromechanical or fully electronic contacts.

**Special relays, remanence relays**
While «normal» relays are monostable, i.e. they return to the idle state when the excitation is switched off, remanence relays are bistable, i.e. the current switching state is retained irrespective of the excitation. Relays of this type are available in different versions.

**Solid State Relay SSR**
Solid State Relays are suitabe to either switch AC or DC loads. For AC relays a distinction is made between synchronously (zero crossing) and asynchronously switching versions. For switching transformer loads we recommended using asynchronously switching semi-conductor switches. For incandescent lamp loads etc. synchronously switching switches are ideal for avoiding high switch-on currents.

**Accessories**
Suitable sockets are available for the different relay series for DIN rail mounting or panel mounting. In addition, retaining clips are available for the relays, some of which are included in the scope of supply. Suitable bridges for cost-saving wiring in series are also available.

**Basic identification principle (type designation code electromechanical relays)**

| 1 | 2 | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **C** | **n(n)** | **-** | **T** | **1** | **0** | **z** | **(*)** | **X** | **/...V** | **RF-nnnn** |

**1. Relay application**
**C** = Industrial relays
**R** = Railway relays

**2. Product family**
**n(n)** = Basic type refers to the product line

**3. Relay type**
**A** = Standard (general-purpose) contact
**G** = Refers to a NO contact
**N** = Sensitive drive 800 mW coil power
**S** = Sensitive drive with 250 mW exciter input
**R** = Code for remanence relays, drive-specific ID
**T** = Twin contact for signal and control circuit
**X** = Relay high power, double make contact.
**W** = With tungsten contact for maximum switch-on currents
**Z** = Solid State
**E** = Sensitive drive with 500 mW coil power
**H** = Single-point contact + twin contact load to signal current circuit for switching state feed back. Mixed contact configuration
**M** = Relay with highly effective neodymium blow magnet for fast quenching of the arc. This relay is particularly suitable for high DC loads.
**B** = Single CO contact with two pins per connection

**4. Number of contacts**
**1-4** = Number of contacts

**5. Definition of contact material / SSR type**
This code may differ depending on type.
Examples:

**0** = In the standard range stands for AgNi
**1-9** = See contact material for each type
**N** = NPN negative common (DC)
**P** = PNP positive common (DC)
**I** = Instantaneous, random-on (AC)
**Z** = Zero-crossing synchronised (AC)

**6. Describes the options**
D = Integrated free-wheeling diode
F = Integrated free-wheeling diode and series diode e.g. for common alarm circuits
R = RC connection for the coil
B = Bridge rectifier

**7. (*) Special requirements**
**H** = Orange button. No lockable function
**N** = Black button. No function
**U** = DIN rail mounting

**PT** = PCB pins, 3.5 mm grid, transparent cover
**PTL** = PCB pins, 5 mm grid, transparent cover

**8. Relay with LED**
**X** = relays with LED

**9. Nominal coil voltage specification**
AC...V = AC 50/60 HZ, voltage 6 - 250 (400) V
AC...V 60 Hz = AC 60 Hz, 120, 240 V
DC...V = DC, voltage 5 - 220 V
UC...V = AC/DC

**10. Ref. nnnn**
Relays with a reference number are versions with special (e.g. customised) features. These features may relate to special test criteria, tolerances or other properties.

Availability of such relays may be limited to certain customers or applications.

# Coil accessories
## General Information

### Relays C2-C9, R3-R9

**Protection against transients**

When the coil is disconnected from an electromagnet, peaks of inverse voltage appear at the terminals which can reach very high values. These pulses can be transmitted down the line associated with the coil and could possibly affect other components.
In the case of a realy being operated by such devices as transistors, Triacs, etc; it may be necessary to protect against transients.

**Transients carried in the line**

High voltage surges can be carried in the supply line to the relay coil. These may appear in the form of peaks or bursts and are generated by the connection and disconnection of electric motors, transformers, capacitors etc.
Normally a relay is unaffected by these pulses, but if a diode is connected in association with the coil, it must be capable of withstanding an inverse voltage higher than those of the incoming peaks.

**Protection circuits**

A protection circuit must efficiently cope with pulses generated by the coil as well as incoming line surges (surges $U_{1.2/50\mu s.}$)
ComatReleco Relays are available with integrated protection circuits.

**X** LED indication with rectifier.
For DC and AC relays up to 250 V

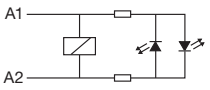
**DX** Free-wheeling diode + LED
Dampens transients caused by the relay coil on de-energisation.

**FX** Polarity + free wheeling diode + LED
A diode in series with the coil protects the relay from reverse connection.

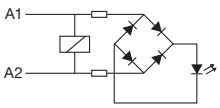
**BX** Bridge rectifier + LED indication
Allows the relay to operate in both AC or DC without any polarity inconvience.
Available only in voltages up to 60 V.

**R** Resistor and capacitor.

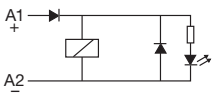
**X(C7/R7, C9/R9)**



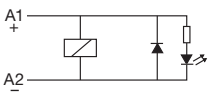

**X**



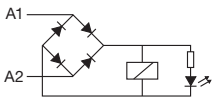

**FX**



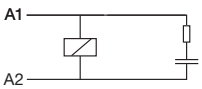

**DX**




**BX**




**R**




### Relays C10-C12, R10-R12

**LED and protection circuit connected to coil.**

**X** LED with no polarity, (standard)
Coils ≤ 12 V A DC coils
LED rectifier bridge in parallel

**X** LED with no polarity, (standard)
Coils ≥ 24 V A DC coils
LED rectifier bridge in series

**FX** LED with polarity A1+ (option)
Every DC coil voltage
Polarity and Free-wheeling diodes

**BX** LED with no polarity, (option)
Only 24 V and 48 V A DC coils
Rectifier bridge for AC/DC relays

**R** LED not available (option)
RC protection against pulses on AC

**Protection against pulses**

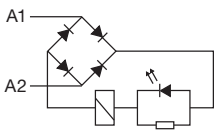
When a relay coil is disconnected, reverse voltage peaks may arise and reach very high values. Said peaks can transmit to the coil associated line and other relays or semiconductors can be affected.

If Triac, transistor, etc. controls a relay, appropiate steps must be taken to avoid or decrease peaks down to a non risky level.

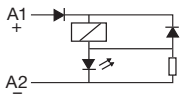
Both Polarity and Free-wheeling diodes (FX), must protect coils, to avoid malfunctions provided DC relays in battery are installed.

Making or breaking engines, transformers or contactors in an industrial environmental, may generate high voltage pulses, either isolated or burst, through the main line.
The voltage level of those pulse may be high enough to affect the isolation of the coil.

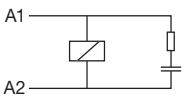
**BX**



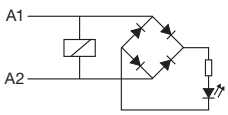

**FX**



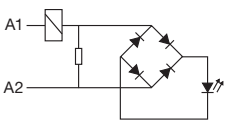

**R**




**X≤12V**




**X≥24V**



# Relays

## General Information

## Contacts

There are different contact types. The main distinction is between single contacts and twin contacts. While single contacts are more suitable for higher loads, twin contacts are significantly more reliable at small loads, i.e. < 24 V, < 100 mA.

**Contact Material**

There is no all-purpose contact!

AgNi is used as standard material for a wide range of applications. AgNi contacts with hard gold plating (up to 5µm) are offered for applications in aggressive atmosphere.

Relays with gold contacts are approved for relatively high currents (e.g. 6 A, 250 V), but in practice values of 200 mA, 30 V should not be exceeded for operation with intact gold plating.

Relays with a tungsten pre-contact are available for very high switch-on currents (up to 500 A, 2.5 ms). For some applications AgNi contacts with gold flashing (0.2 µm) are available. The purpose is corrosion protection during storage. Tin oxide is specially appropiated for load with high-inrush current.

**Minimum load**

The minimum load value is a recommended value under normal conditions such as regular switching, no special ambient conditions, etc. Under these conditions reliable switching behaviour can be expected.

**Contact resistance**

Initial values of resistance of contact can vary with the use, load and others conditions.

Typical values when the relay is new is about 50 mΩ.

**Contact spacing**

Normally all contacts have an air gap between 0.5 … 1.5 mm when they are open. They are referred to as µ contacts. According to the Low-Voltage Directive and the associated standards these contacts are not suitable for safe disconnection.

For switching of DC loads large contact clearances are beneficial for quenching the arc. See relays with "Cx-Gyz" naming. "G" stands for extended contact gap of 3 mm.

**Switching capacity**

The contact switching capacity is the product of switching voltage and switching current.

For AC the permitted switching capacity is generally high enough to handle the max. continuous AC-1 current over the whole voltage range. For DC the load limit curve must never be exceeded, because this would lead to a remaining switch-off arc and immediate destruction of the relay. The order of magnitude of the DC switching capacity is a few 100 W (DC-1).

## Drive (coil)

The drive of a relay refers to the coil plus connections. The coil has special characteristics, depending on the rated voltage and the type of current.

**Coil design**

The coil consists of a plastic former (resistant up to about 130 °C) and doubly insulated high-purity copper wire, temperature class F. The winding must withstand threshold voltages (EN 61000-4-5) of more than 2000 V. This is ensured through forced separation of the start and end of the winding.

**Coil resistance and other properties**

Each coil has an ohmic coil resistance that can be verified with an ohmmeter. The specified coil resistance applies to a temperature of 20 °C. The tolerance is ±10 %.

For AC operation the coil current will not match the ohmic value, because self-inductance plays a dominant role. At 230 V this may reach more than 90H. When a relay is switched off, self-inductance results in a self-induced voltage that may affect the switching source (destruction of transistors, EMC problems).

**Drive voltages**

A distinction is made between the standardised voltages according to EN 60947 as guaranteed values, and typical values that can be expected with a high degree of probability.

**Pick-up voltage, Release voltage**

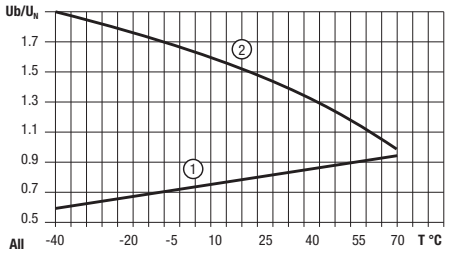
The pick-up voltage is the voltage at which the relay engages safely. For DC the typical trip voltage is approx. 65 % of Unom, for AC approx. 75 %. The release voltage, on the other hand, is approx. 25 % or 60 % respectively.

For DC these voltages are strongly temperature-dependent, according to the temperature coefficient of Cu (See curve 1). This is not the case for AC, where the inductive resistance is the controlling factor, which is practically constant over a wide temperature range. With AC, in a certain undervoltage range the relay may hum, and the armature may flutter. This voltage range must be avoided.

**Operating voltage range**

Unless specified otherwise, the following characteristic curve applies for the operating voltage range (See curve 2). The upper limit of the coil voltage is determined by self-heating and the ambient temperature. Self-heating through contacts under high load must not be underestimated. It may be higher than the power dissipation in the drive.

During intermittent operation significantly higher overvoltages temporary may occur for short periods. If in doubt please consult our specialists.




## General design

ComatReleco Relays are made from high-quality, carefully selected materials. They comply with the latest environmental regulations such as RohS. Their meticulous design makes them particularly suitable for industrial applications and installation engineering. They are particularly service-friendly through robust terminals, mechanical position indicating device a standard, manual operation, dynamic, permanent characteristics.

Colour coding for manual operation as a function of the coil voltage is another useful feature. Further options such as different coil connections, free-wheeling diode, LED display, bridge rectifier for AC/DC drives etc., and short-term availability of special versions for practically any drive voltage up to DC 220 V / AC 400 V leave nothing to be desired.

Apart from a few special versions, in general, ComatReleco industrial relays feature manual operation (push/pull) and a mechanical position indicating device.

For safety reasons, manual operation may be replaced with a black button, if required.

**Coil connections**

Different coil connections can be integrated in the relay as an option.

For DC a cost-effective free-wheeling diode is available. Please note that the stated release times are generally specified without the coil connection. While an additional LED status indicator has practically no effect, a free-wheeling diode (D) will lead to an increase in release time by a factor 2 to 5, or 10 ms to 30 ms. For AC VDRs or RC elements may be used. In this case resonance effects may have to be considered. VDRs and common RC elements may increase release times by less than 5 ms.

# Relays

## General Information

**Standards, conformities**
The relays feature various technical approvals depending on the respective relay code, and they can comply with further standards and guidelines. The main technical approvals include CE, UKCA, cURus, CSA, and CCC. The associated information is provided in the respective data sheets.

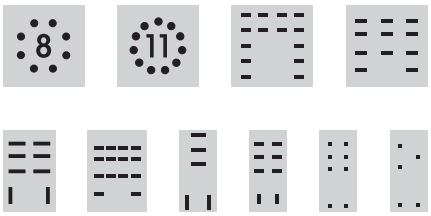
**Switching classes**
EN 60947 defines different switching classes that specify the suitability of contacts for different load types.

**Example:**

| | | |
|---|---|---|
| AC-1 | = | Ohmic AC load |
| AC-3 | = | Motor loads |
| AC-15 | = | Power contactors, solenoid valves, solenoids |
| DC-1 | = | Ohmic DC load |
| DC-13 | = | DC contactors, solenoids |

UL 60947 contains different technical approval criteria such as general purpose, control application etc. Switching classes are defined based on the electrical switching capacity, e.g. B600 etc.

**Choosing the right Socket**
For plug-in industry, interface, time, and monitoring relays, we offer sockets with the corresponding pin configuration and various layouts for the terminal connectors. For easy identification, you'll find those symbol referring to the matching socket.




**Protection class IP** according to EN 60529 and other standards. Industrial relays and their sockets can be classified as follows:
Socket IP20: Contact safety
Relay IP40/IP50: not watertight, but protected against ingress of coarse contaminants.

**Main technical approvals and standards**

| Country | Technical approval |
|---|---|
| *China* | Authority: CQC |
| *Europe* | Authority: CEN-CENELEC |
| *Canada* | Authority: CSA Group |
| *Armenia / Belarus / Kazakhstan / Kyrgyzstan / Russia* | Authority: KORPORATSIA STANDART |
| *USA* | Authority: Federal Communication Commission USA |
| *USA / Canada* | Authority: UL |
| *Australia / New Zealand* | Authority: Australia/New Zealand |
| *England / Scotland / Wales* | Authority: GB |
| *Worldwide* | Authority: Lloyd´s Register |
| *Europe / Worldwide* | Railway EN 50155 |

**Utilisation categories according to**
EN 60947-4-1/-5-1

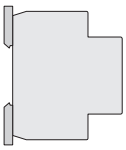
**Pollution category**
**Cat. 1**
Dry, non-conductive contamination without further effect

**Cat. 2**
Occasional conductive contamination, short duration due to moisture condensation

**Cat. 3**
Dry, non-conductive and conductive contamination with moisture condensation

**Cat. 4**
Contamination with persistent conductivity through conductive dust, rain

**DIN standard cutout 45 mm**
All devices with a housing fitting in an electrical distributor with a front of 45mm (DIN 43880) are marked with the following symbol.



**DIN rail 35 mm (TH 35)**
All units with a housing that can be mounted on a 35 mm DIN rail (DIN EN 60715) are marked with the following symbol.



**Further information and tips**
The main operational criteria for relays such as number of cycles, switching frequency, ambient conditions, reliability requirements, load type, switch-on current, load switch-off energy must be clarified in order to ensure reliable operation and long service life.

**Example**
If the number of cycles is expected to exceed several 100 000 operations per year (e.g. clock generators, fast running machines), an electronic solution is no doubt more appropriate, although we also offer solutions for this type of application. In AC applications crosstalk caused by long control leads is often a problem and can result in constant humming of the relay or even inadvertent triggering due to interference.

Different harmless loads may lead to very high switch-on currents or switch-off energy values, resulting in an unacceptable reduction in service life.
Particularly tricky are DC inductive loads.

**Characteristics of various loads:**

**Heating circuits**
No higher switch-on currents, no higher switch-off loads.

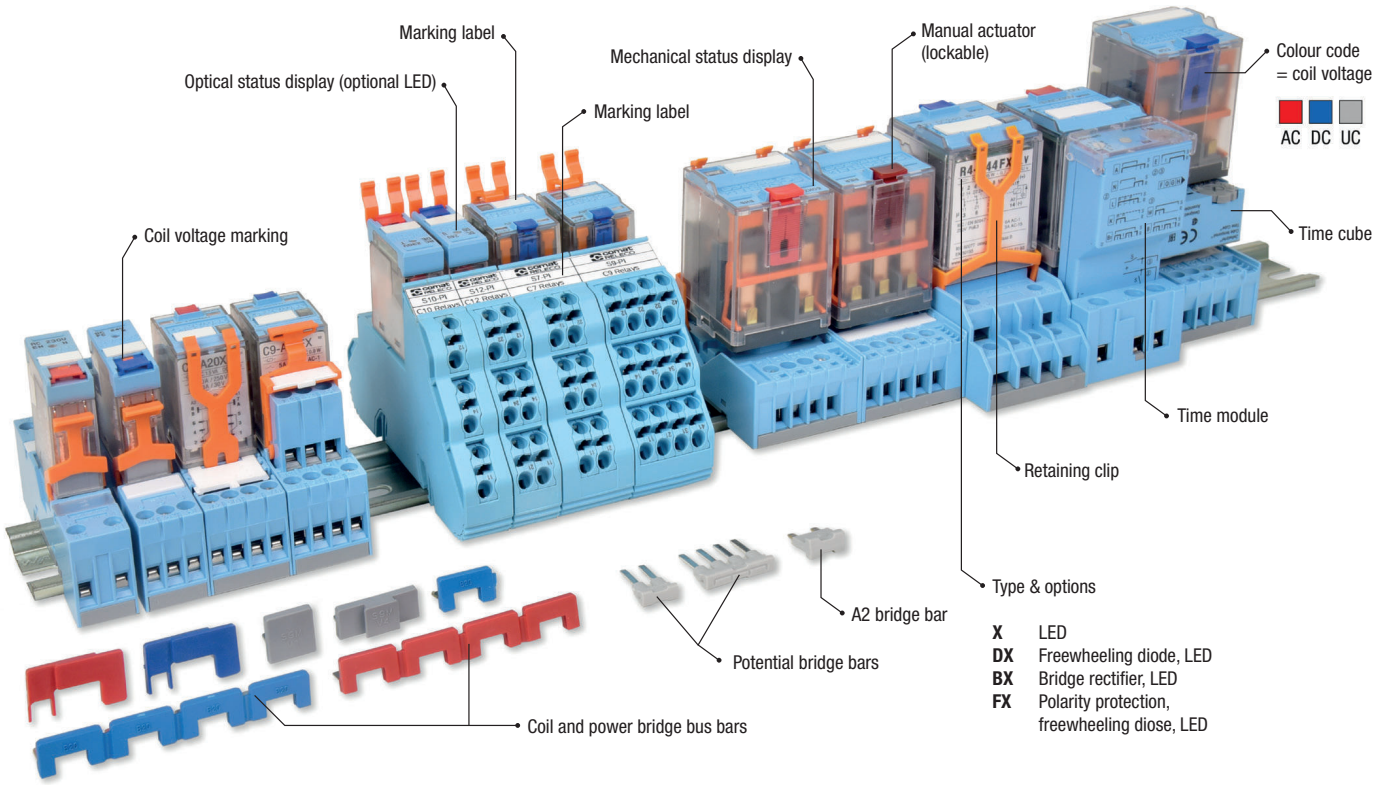
**Incandescent lamps, halogen lamps**
Switch-on currents during a few ms in the range 10 … 18 x rated. Switch-off at rated load.

**Low-energy lamps**
Very high, but very short switch-on currents due to built-in decoupling capacitors. Contacts have a tendency to fuse.

**Transformers, AC contactors**
Switching on during zero-transition may lead to switch-on currents of 8 … 15 x rated values.
High inductive switch-off energy is possible. The load must be connected.

# Relays

## Full Features System




## Five colours for an easier identification of coil voltage

**AC** red: 230 V AC (North America 120 V AC)

**AC** dark red: others V AC

**UC** grey: V AC/DC

**DC** blue: 24 V DC

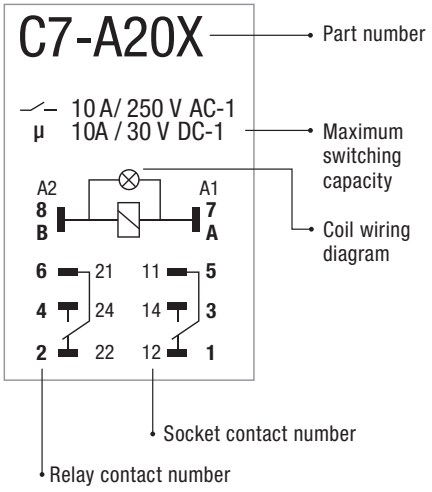
**DC** dark blue: others V DC

If you don´t want to have the lockable function, you can use the orange button.

Orange button, no lockable function, push only

Black button, no function

## Comprehensive technical label



# Relays

## How to select the correct relay?

Use the table below to quickly find the right relay for your appication. All relays in this cataloque are marked with a symbol corresponding to the respective field of application. Please also note the following parameters for correct dimensioning:

| | Type of signal | Switching frequency and service life |
|---|---|---|
| ❶ | What is the switching current and voltage of the application? | - |
| ❷ | Is DC or AC voltage switched?<br>Is the load inductive or capacitive? | How many switching cyvles per time unit are to be expected? |

| | Typical field of application | | | Contact | |
|---|---|---|---|---|---|
| Symbol | ❶ Voltage | ❶ Current | ❷ Application | Type | Material |
| Signal relays | 100 mV…5V | 10 uA…1 mA | Low-level signals, Standard signals ( 0…10 V / 4…20 mA ) | Gold-plated double contact | AgNi + Au |
| | | | | Gold-plated Single Contact | AgNi + Au |
| Control relays | 5V…30V | 1 mA…100 mA | PLC inputs, Control circuits | double contact | AgNi |
| | | | | Gold-plated Single Contact | AgNi + Au |
| | | | Frequent, rapid switching procedures | Semiconductor | MOSFET (DC)<br>Triac (AC) |
| Power relays | 30V…400V | 100 mA…16A | Increased AC or DC loads | Single Contact | AgNi |
| | | | Electromagnets ( utilisation cat. AC-15 / DC-13 ) | Single Contact | $AgSnO_2$ |
| | | | Frequent, rapid switching procedures, high reliability, noiseless switching | Semiconductor | MOSFET (DC)<br>Triac (AC) |
| High-power relays | 12V…400V | 100 mA…16A | Capacitive loads | Early make contact | AgNi + W<br>$AgSnO_2$+ W |
| | | | High DC loads, inductive loads | Series contacts | AgNi<br>$AgSnO_2$ |
| | | | Frequent, rapid switching procedures, high reliability, noiseless switching | Semiconductor | MOSFET (DC)<br>Triac (AC) |

## Notes

# 1.1 Interface Relays - pluggable


| | Type | Pin | Page |
|---|---|---|---|
| **C10 / R10 Series** | | | |
| 1 pole \| changeover contact \| Faston | C10-A1x |  | 18 |
| 1 pole \| changeover contact | C10-A1x+S10-PI |  | 19 |
| 1 pole \| changeover contact \| Faston | R10-A10 |  | 20 |
| 1 pole \| normally open contact \| Faston | C10-G1x |  | 21 |
| 1 pole \| changeover twin contact \| Faston | C10-T1x |  | 22 |
| **C12 / R12 Series** | | | |
| 2 pole \| changeover contact \| Faston | C12-A2x |  | 23 |
| 2 pole \| changeover contact | C12-A2x+S12-PI |  | 24 |
| 2 pole \| changeover contact \| Faston | R12-A21 |  | 25 |
| 2 pole \| normally open contact \| Faston | C12-G2x |  | 26 |
| **C16 Series** | | | |
| 2 pole \| changeover contact \| grid 5 mm | C16-A25PTL |  | 27 |
| **C18 Series** | | | |
| 1 pole \| changeover contact \| grid 3.5 mm | C18-A15PT |  | 28 |
| 1 pole \| changeover contact \| grid 5 mm | C18-A15PTL |  | 29 |
| 1 pole \| changeover contact \| grid 5 mm | C18-B15PTL |  | 30 |

# C10-A1x

## 1 pole | changeover contact | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C10-A10 |
| | $AgSnO_2$ for C10-A15 |
| | AgNi + 5 µ Au for C10-A18 |
| Recommended minimum contact load | 10 mA / 10 V for C10-A10 |
| | 10 mA / 10 V for C10-A15 |
| | 5 mA / 5 V for C10-A18 |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms (120 A for C10-A15) |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.1 VA / 0.7 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 82 | 71 | 12 | 224 | 54 |
| 24 | 290 | 45 | 24 | 742 | 32 |
| 48 | 1 206 | 23 | 48 | 3 400 | 13.5 |
| 115 | 7 290 | 9.5 | 110 | 19 923 | 5.5 |
| 230 | 28 874 | 4.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 21 g |
| Housing material | PA / PC |

### Product references

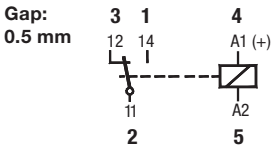
| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|
| AC 50 Hz | C10-A1x/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| LED | C10-A1xX/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| RC - Suppressor | C10-A1xR/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| DC | C10-A1x/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED | C10-A1xX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED & Pol. & Free wheeling diode | C10-A1xFX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| AC / DC bridge rec. & LED | C10-A1xBX/UC...V | | ✓ | ✓ | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

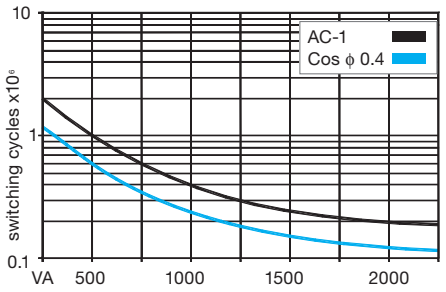
### Accessories

Socket S10, S10-PI, S10-P

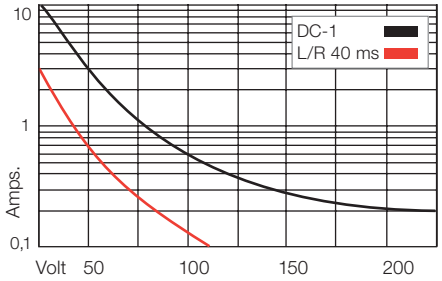
### fig. 1. Wiring diagram



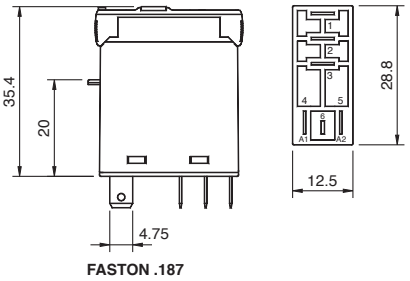

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)

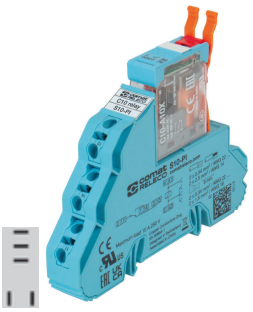



### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# 1.1 Interface Relays - pluggable
# C10-A1x+S10-PI
## 1 pole | changeover contact



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Rated load | 10 A / 250 V |
| Inrush current | 30 A, 20 ms (120 A for C10-A15) |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.1 VA / 0.7 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 120 | 7 091 | 9 | 24 | 742 | 32 |
| 230 | 28 874 | 4.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage all terminals / DIN rail | 2.5 kV rms / 1 min |
| Test voltage terminal / terminal | 2.5 kV rms / 1 min |
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage contact / coil | 5 kV rms / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree relay | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Conductor cross section control / main circuit | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 54 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 24 | 120 | 230 |
|---|---|---|---|---|
| LED | C10-A10X/AC...V+S10-PI | | | ✓ |
| LED | C10-A10X/AC...V 60HZ+S10-PI | | ✓ | |
| LED | C10-A10X/DC...V+S10-PI | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

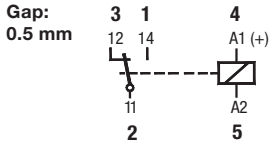
### Included Accessories

| | |
|---|---|
| Retaining clip | plastic | S10-CPI |

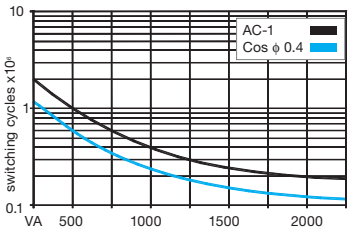
### Optional Accessories

| | |
|---|---|
| Retaining clip | plastic | S10-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

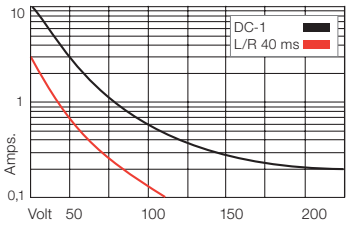
### fig. 1. Wiring diagram



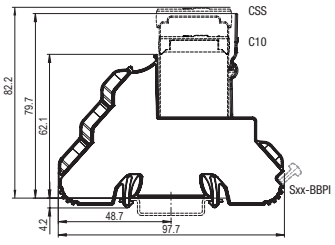

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)







### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# R10-A10

## 1 pole | changeover contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption DC | 0.7 W |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 12 | 224 | 54 |
| 24 | 742 | 32 |
| 36 | 1 815 | 20 |
| 48 | 3 400 | 14 |
| 60 | 5 400 | 11 |
| 72 | 8 467 | 9 |
| 110 | 19 923 | 6 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 21 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 36 | 48 | 60 | 72 | 110 |
|---|---|---|---|---|---|---|---|---|
| LED & Pol. & Free wheeling diode | R10-A10FX/DC…V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LED | R10-A10X/DC…V | | ✓ | | ✓ | | | |

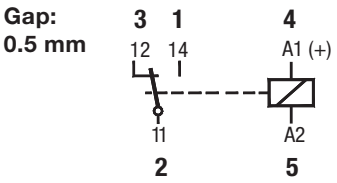
Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### Accessories

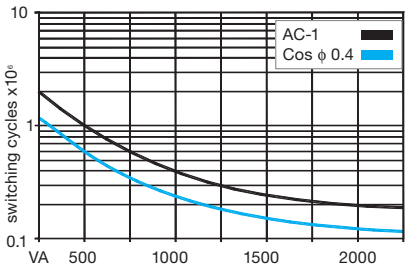
| | |
|---|---|
| Socket | S10-GR, S10-PIR |



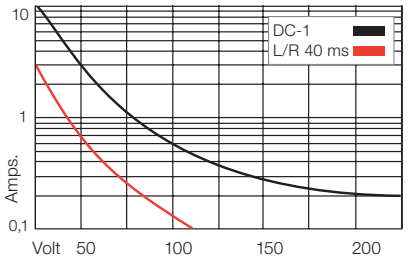
### fig. 1. Wiring diagram



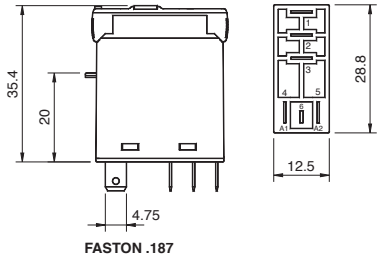

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810
Railway EN 45545-2; EN 50155
Approvals

1.1 Interface Relays - pluggable

# C10-G1x

## 1 pole | normally open contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C10-G10 |
| | $AgSnO_2$ for C10-G15 |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms (120 A for C10-G15) |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.1 VA / 0.7 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 82 | 71 | 12 | 224 | 54 |
| 24 | 290 | 45 | 24 | 742 | 32 |
| 48 | 1 200 | 23 | 48 | 3 400 | 13.5 |
| 115 | 7 290 | 9.5 | 110 | 19 923 | 5.5 |
| 230 | 28 874 | 4.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 8 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 21 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|
| LED | C10-G1xX/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| LED | C10-G1xX/DC...V | | ✓ | | | | |
| LED & Pol. & Free wheeling diode | C10-G1xFX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| AC / DC bridge rec. & LED | C10-G1xBX/UC...V | | ✓ | ✓ | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

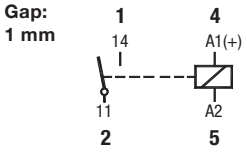
### Accessories

| | |
|---|---|
| Socket | S10, S10-PI, S10-P |

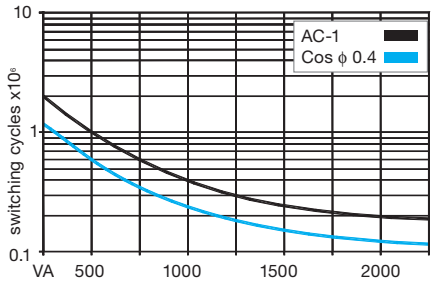




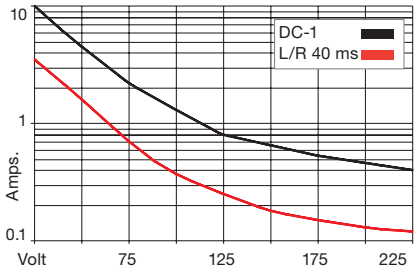
### fig. 1. Wiring diagram



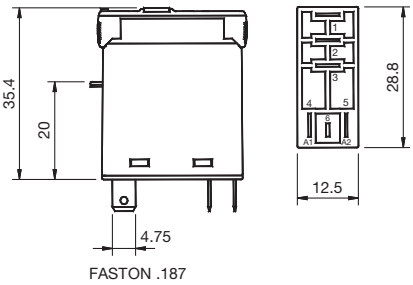

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C10-T1x

## 1 pole | changeover twin contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au for C10-T11 |
| | AgNi + 5 µ Au for C10-T13 |
| Recommended minimum contact load | 5 mA / 5 V for C10-T11 |
| | 1 mA / 5 V for C10-T13 |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.1 VA / 0.7 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 290 | 45 | 12 | 224 | 54 |
| 48 | 1 206 | 23 | 24 | 742 | 32 |
| 115 | 7 290 | 9.5 | 48 | 3 400 | 13.5 |
| 230 | 28 874 | 4.7 | 110 | 19 923 | 5.5 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 21 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|
| AC 50 Hz | C10-T1x/AC...V | | ✓ | ✓ | | ✓ | ✓ |
| LED | C10-T1xX/AC...V | | ✓ | ✓ | | ✓ | ✓ |
| RC - Suppressor | C10-T1xR/AC...V | | ✓ | ✓ | | ✓ | ✓ |
| DC | C10-T1x/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED | C10-T1xX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED & Pol. & Free wheeling diode | C10-T1xFX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| AC / DC bridge rec. & LED | C10-T1xBX/UC...V | | ✓ | ✓ | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

Socket S10, S10-PI, S10-P



**fig. 1. Wiring diagram**

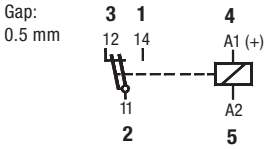



**fig. 2. AC voltage endurance**

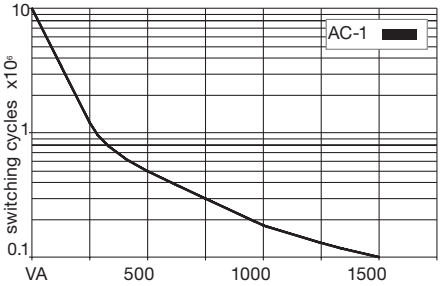



**fig. 3. DC load limit curve**

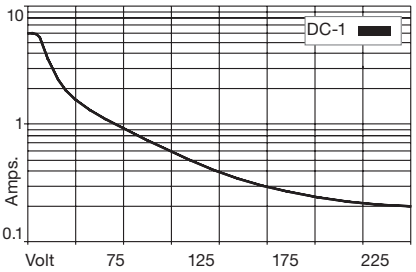
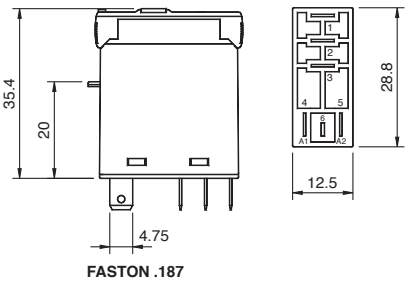



**fig. 4. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.1 Interface Relays - pluggable

# C12-A2x

## 2 pole | changeover contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au for C12-A21 |
| | AgNi + 5 µ Au for C12-A22 |
| Recommended minimum contact load | 10 mA / 10 V for C12-A21 |
| | 5 mA / 5 V for C12-A22 |
| Maximum contact load AC | 5 A / 250 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 200 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.1 VA / 0.7 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 82 | 71 | 12 | 224 | 54 |
| 24 | 290 | 45 | 24 | 742 | 32 |
| 48 | 1 206 | 23 | 48 | 3 400 | 13.5 |
| 115 | 7 290 | 9.5 | 110 | 19 923 | 5.5 |
| 230 | 28 874 | 4.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 3 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 21 g |
| Housing material | PA / PC |

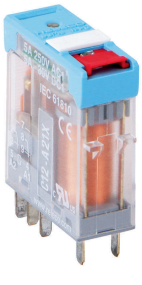
### Product references

| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|
| AC 50 Hz | C12-A2x/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| LED | C12-A2xX/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| RC - Suppressor | C12-A2xR/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| DC | C12-A2x/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED | C12-A2xX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED & Pol. & Free wheeling diode | C12-A2xFX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| AC / DC bridge rec. & LED | C12-A2xBX/UC...V | | ✓ | ✓ | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

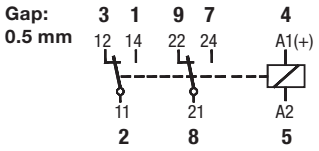
### Accessories

| | |
|---|---|
| Socket | S12, S12-PI, S12-P |

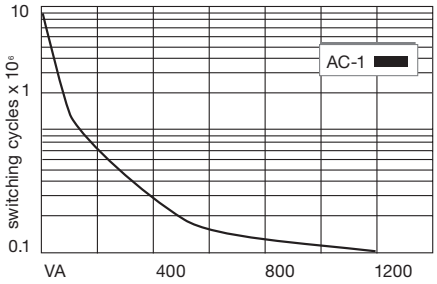




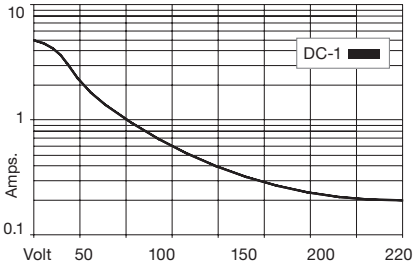
### fig. 1. Wiring diagram



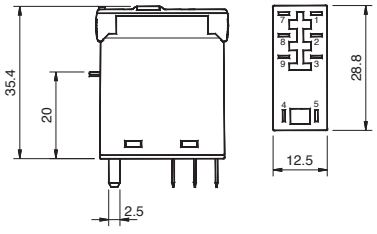

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C12-A2x+S12-PI

## 2 pole | changeover contact

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 5 A / 250 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Rated load | 5 A / 250 V |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 200 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.1 VA / 0.7 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 120 | 7 091 | 9 | 24 | 742 | 32 |
| 230 | 28 874 | 4.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage all terminals / DIN rail | 2.5 kV rms / 1 min |
| Test voltage terminal / terminal | 2.5 kV rms / 1 min |
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage contact / coil | 5 kV rms / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree relay | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Conductor cross section control / main circuit | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 60 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 24 | 120 | 230 |
|---|---|---|---|---|
| LED | C12-A21X/AC...V + S12-PI | | | ✓ |
| LED | C12-A21X/AC...V 60HZ+S12-PI | | ✓ | |
| | | | | |
| LED | C12-A21X/DC...V + S12-PI | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### Included Accessories

| | |
|---|---|
| Retaining clip I plastic | S10-CPI |

### Optional Accessories

| | |
|---|---|
| Retaining clip I plastic | S10-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

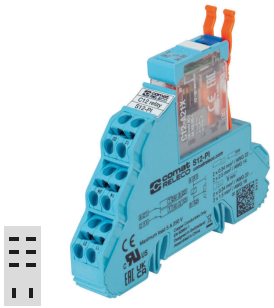


fig. 1. Wiring diagram

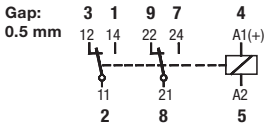



fig. 2. AC voltage endurance

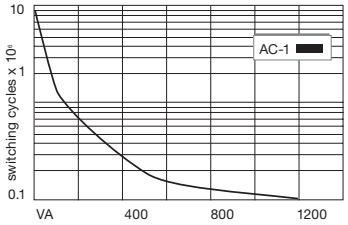



fig. 3. DC load limit curve

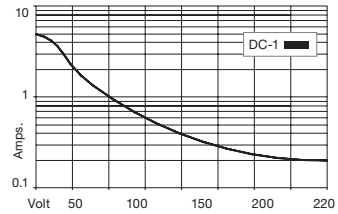
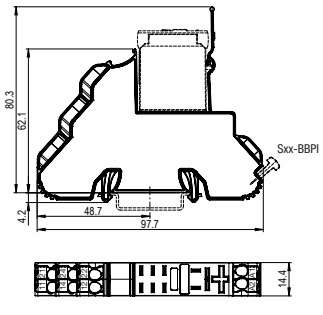



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN60947; IEC/EN 61810

Approvals

1.1 Interface Relays - pluggable

# R12-A21

## 2 pole | changeover contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 5 A / 250 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 200 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption DC | 0.7 W |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 12 | 224 | 54 |
| 24 | 742 | 32 |
| 36 | 1 815 | 20 |
| 48 | 3 400 | 14 |
| 60 | 5 400 | 11 |
| 72 | 8 467 | 9 |
| 110 | 19 923 | 6 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 3 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 21 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 36 | 48 | 60 | 72 | 110 |
|---|---|---|---|---|---|---|---|---|
| LED & Pol. & Free wheeling diode | R12-A21FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

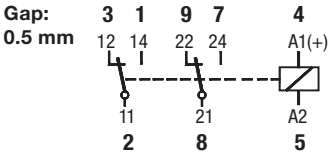
### Accessories

| | |
|---|---|
| Socket | S12-GR, S12-PIR |

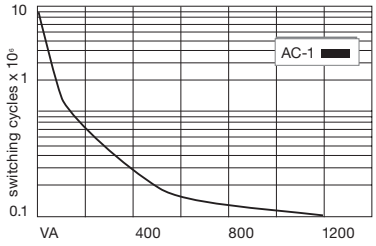




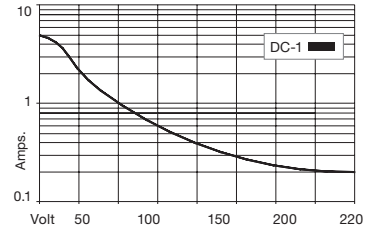
### fig. 1. Wiring diagram



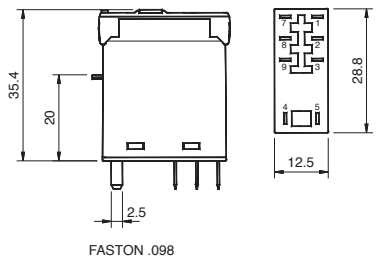

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

| | |
|---|---|
| Standards | IEC/EN 60947; IEC/EN 61810 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | |

# C12-G2x

## 2 pole | normally open contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au for C12-G21 |
| | AgNi + 5 µ Au for C12-G22 |
| Recommended minimum contact load | 10 mA / 10 V for C12-G21 |
| | 5 mA / 5 V for C12-G22 |
| Maximum contact load AC | 5 A / 250 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 200 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.1 VA / 0.7 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 82 | 71 | 12 | 224 | 54 |
| 24 | 290 | 45 | 24 | 742 | 32 |
| 48 | 1 206 | 23 | 48 | 3 400 | 13.5 |
| 115 | 7 290 | 9.5 | 110 | 19 923 | 5.5 |
| 230 | 28 874 | 4.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2 kV / 1 min |
| Test voltage contact / contact | 3 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 21 g |
| Housing material | PA / PC |

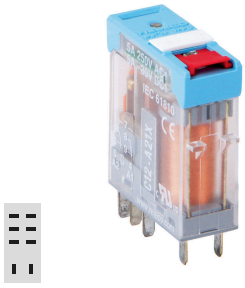
### Product references

| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|
| AC 50 Hz | C12-G2x/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| LED | C12-G2xX/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| | | | | | | | |
| DC | C12-G2x/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED | C12-G2xX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED & Pol. & Free wheeling diode | C12-G2xFX/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| | | | | | | | |
| AC / DC bridge rec. & LED | C12-G2xBX/UC...V | | ✓ | ✓ | | | |

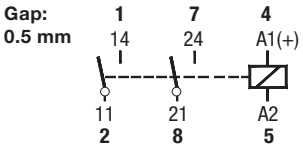
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

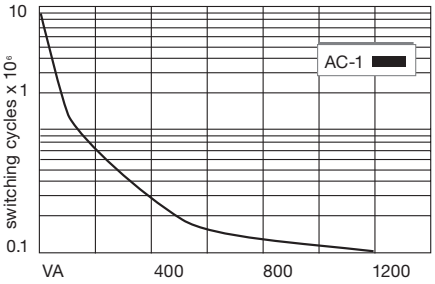
| | |
|---|---|
| Socket | S12, S12-PI, S12-P |



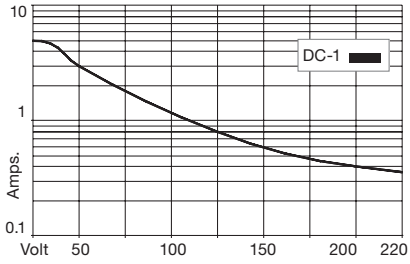
### fig. 1. Wiring diagram



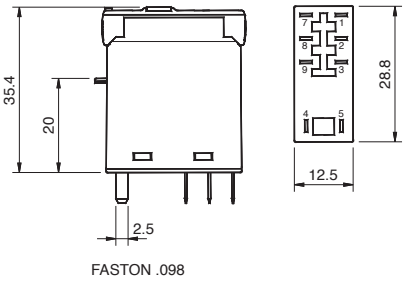

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.1 Interface Relays - pluggable

# C16-A25PTL

## 2 pole | changeover contact | grid 5 mm




### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Recommended minimum contact load | 1 mA / 1 V |
| Maximum contact load AC | 7 A / 250 V AC-1 |
| Maximum contact load DC | 7A / 30 V DC-1 |
| Inrush current | 15 A, 500 ms |
| Maximum operating power curve | fig. 2. |
| Rated current | 7 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage AC / DC | ≤ 0.8 UN / ≤ 0.75 UN |
| Release voltage AC / DC | ≥ 0.3 UN / ≥ 0.1 UN |
| Power consumption AC / DC | 1 VA / 0.53 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 253 | 95 | 12 | 270 | 44 |
| 115 | 5 819 | 20 | 24 | 1 080 | 22 |
| 230 | 23 276 | 10 | 36 | 1 350 | 27 |
| | | | 48 | 4 340 | 11 |
| | | | 110 | 22 830 | 5 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 1 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 100 MΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -55 … 70 °C |
| Operation temperature | -55 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 17 g |
| Housing material | PA / PC |

### Product references

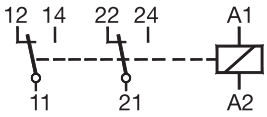
| Description | Type | 12 | 24 | 36 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz / 60 Hz | C16-A25PTL/AC...V | | ✓ | | | | ✓ | ✓ |
| DC | C16-A25PTL/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

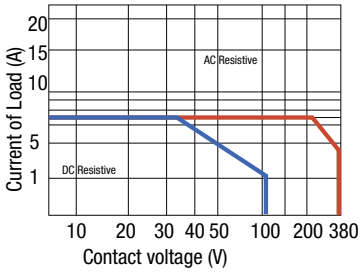
### Accessories

| | |
|---|---|
| Socket | S16-M |
| Retaining clip I plastic | CP-16 |
| Modules | See datasheet socket |

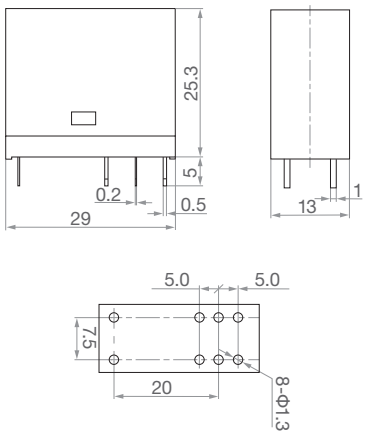
### fig. 1. Wiring diagram




### fig. 2. AC voltage endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C18-A15PT

## 1 pole | changeover contact | grid 3.5 mm




### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Recommended minimum contact load | 1 mA / 1 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 25 A, 500 ms |
| Maximum operating power curve | fig. 2. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage AC / DC | ≤ 0.8 $U_N$ / ≤ 0.75 U |
| Release voltage AC / DC | ≥ 0.3 $U_N$ / ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1 VA / 0.53 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 253 | 95 | 12 | 270 | 44 |
| 115 | 5 819 | 20 | 24 | 1 080 | 22 |
| 230 | 23 276 | 10 | 36 | 1 350 | 27 |
| | | | 48 | 4 340 | 11 |
| | | | 110 | 22 830 | 5 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 100 MΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -55 … 70 °C |
| Operation temperature | -55 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 17 g |
| Housing material | PA / PC |

### Product references

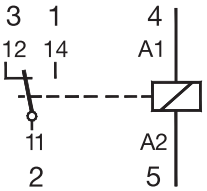
| Description | Type | 12 | 24 | 36 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz / 60 Hz | C18-A15PT/AC...V | | ✓ | | | | ✓ | ✓ |
| DC | C18-A15PT/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

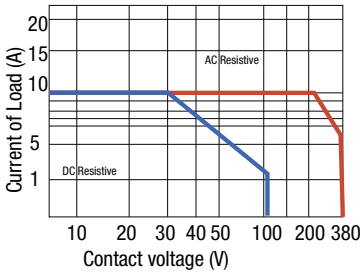
### Accessories

| | |
|---|---|
| Socket | S18-M |
| Retaining clip I plastic | CP-16 |
| Modules | See datasheet socket |

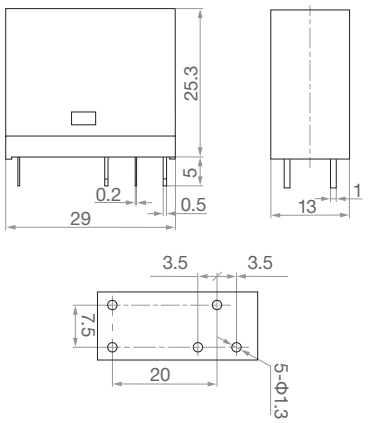
### fig. 1. Wiring diagram




### fig. 2. AC voltage endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C18-A15PTL

## 1 pole | changeover contact | grid 5 mm



### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Recommended minimum contact load | 1 mA / 1 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 25 A, 500 ms |
| Maximum operating power curve | fig. 2. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage AC / DC | ≤ 0.8 $U_N$ / ≤ 0.75 U |
| Release voltage AC / DC | ≥ 0.3 $U_N$ / ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1 VA / 0.53 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 253 | 95 | 12 | 270 | 44 |
| 115 | 5 819 | 20 | 24 | 1 080 | 22 |
| 230 | 23 276 | 10 | 36 | 1 350 | 27 |
| | | | 48 | 4 340 | 11 |
| | | | 110 | 22 830 | 5 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 100 MΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -55 … 70 °C |
| Operation temperature | -55 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 17 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 36 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz / 60 Hz | C18-A15PTL/AC...V | | ✓ | | | | ✓ | ✓ |
| DC | C18-A15PTL/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

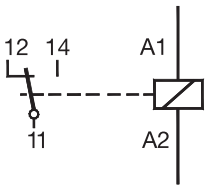
### Accessories

| | |
|---|---|
| Socket | S16-M |
| Retaining clip I plastic | CP-16 |
| Modules | See datasheet socket |

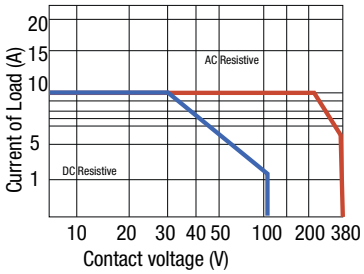




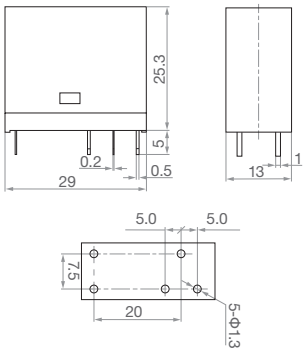

### fig. 1. Wiring diagram




### fig. 2. Maximum operating power curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C18-B15PTL

## 1 pole | changeover contact | grid 5 mm

### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Recommended minimum contact load | 1 mA / 1 V |
| Maximum contact load AC | 16 A / 250 V AC-1 |
| Maximum contact load DC | 16 A / 30 V DC-1 |
| Inrush current | 25 A, 500 ms |
| Maximum operating power curve | fig. 2. |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ / 0.75 $U_N$ |
| Release voltage | ≥ 0.3 $U_N$ / 0.1 $U_N$ |
| Power consumption AC / DC | 1 VA / 0.53 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 253 | 95 | 12 | 270 | 44 |
| 115 | 5 819 | 20 | 24 | 1 080 | 22 |
| 230 | 23 276 | 10 | 36 | 1 350 | 27 |
| | | | 48 | 4 340 | 11 |
| | | | 110 | 22 830 | 5 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 100 MΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -55 … 70 °C |
| Operation temperature | -55 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 1 ms |
| Release time / bounce time | 5 ms / ≤ 3 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 17 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 36 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz / 60 Hz | C18-B15PTL/AC...V | | ✓ | | | | ✓ | ✓ |
| DC | C18-B15PTL/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | |

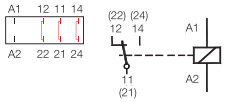
Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### Accessories

| | |
|---|---|
| Socket | S16-M |
| Retaining clip I plastic | CP-16 |
| Modules | See datasheet socket |

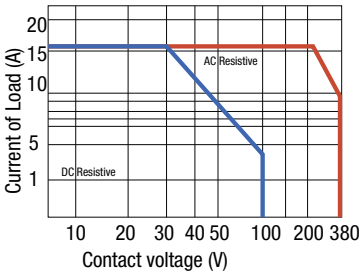



### fig. 1. Wiring diagram

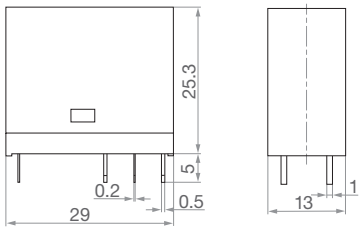


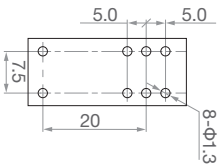

For usage of the relay up to 16A, pin 22+12 (open), pin 21+11 (common) and pin 24+14 (closing) need to be bridged on the socket terminals to prevent overheating. Each contact on this relay is connected to two pins each.

### fig. 2. Maximum operating power curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# 1.2 Interface Relays

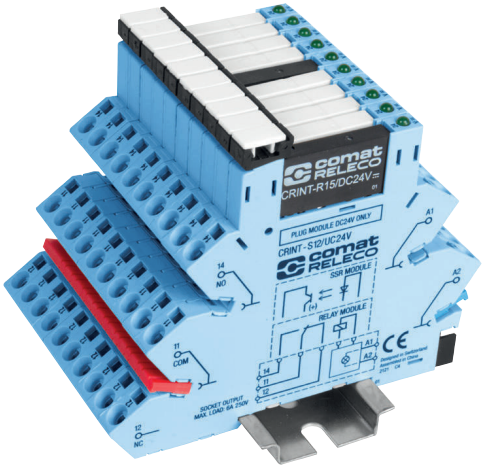

| | Type | Pin | Page |
|---|---|---|---|
| **CRINT Series** | | | |
| 1 pole \| changeover contact | CRINT-C1x1 | | 33 |
| 1 pole \| changeover contact | CRINT-C1x2 | | 34 |
| 1 pole \| changeover contact | CRINT-C1x1R | | 35 |
| 1 pole \| changeover contact | CRINT-C1x2R | | 36 |
| **CINT Series** | | | |
| 1 pole \| changeover contact | CINT-51 / CINT-61 | | 37 |
| 2 pole \| changeover contact | CINT-52 / CINT-62 | | 38 |
| 2 pole \| changeover contact | CINT-53 / CINT-63 | | 39 |
| **CHA Series** | | | |
| 1 pole \| changeover contact \| auxiliary contact | CHA1 | | 40 |

# CRINT-C1xx & CINT-C5x/c6x

## Product Key and dimensions

### Interface Module CRINT

- Relay module up to 6 A 250 V, different contact materials
- Solid state modules for most loads DC and AC up to 2 A / 4 A
- Coil UC = AC/DC, no protection circuit required
- LED status display
- Push-in terminals
- Jumper link
- Super small mounting: 6.2 mm width




### CRINT Product Key

| 1 | | 2 | 3 | 4 | 5 | 6 | | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| CRINT | - | C | 1 | 3 | 1 | R | / | UC | 24V |

**1. Product family**
CRINT

**2. Type**
C = Combined version (Socket and Relay)

**3. Contact**
1 = One change-over contact
2 = Two change-over contact

**4. Connection type**
1 = Screw terminal
2 = Cage clamp terminal
3 = Push-in

**5. Output**
1 = $AgSnO_2$
2 = $AgSnO_2$ + 5 µ Au
3 = AgNi
5 = NO / Solid-state DC
8 = NO / Solid-state AC

**6. Options**
– = Standard version
R = Railway version

**7. Supply voltage**
UC = AC/DC
DC = Only for C1x5 and C1x8

**8. Nominal voltage**
12V, 24V, 48V, 60V, 110-125V, 220-240V

### RELAY Only

| 1 | | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| CRINT | - | R | 11 | DC | 12V |

**1. Product family**
CRINT

**2. Type**
R = Relay

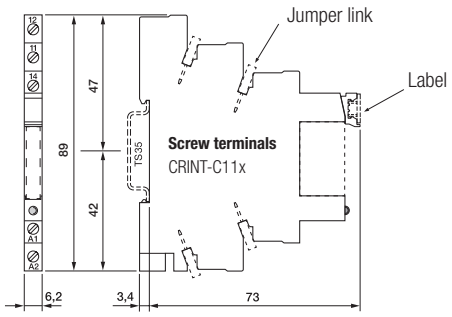
**3. Contact**
11 = 1x $AgSnO_2$
12 = 1x AgSnO2 + 3µ Au
15 = NO / Solid-state DC
18 = NO / Solid-state AC
21 = 2x $AgSnO_2$
22 = 2x AgNi + 3µ Au
23 = 2x AgNi

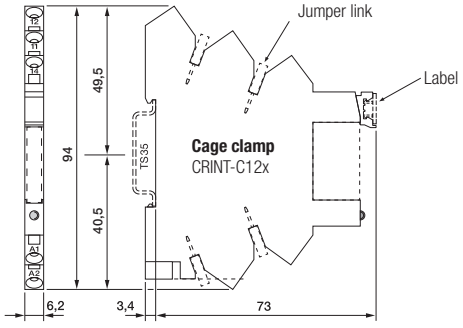
**4. Control voltage**
DC

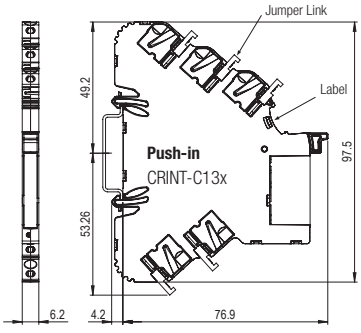
**5. Rated control voltage**
12 V, 24 V, 48 V, 60 V*

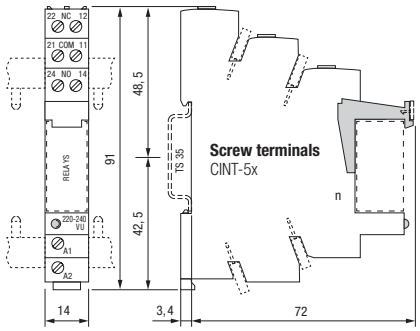
*60 V Relay used for all sockets with a nominal voltage higher or equal 60V

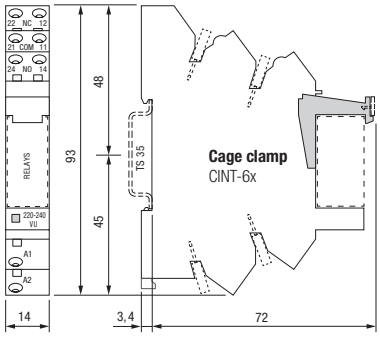
## CRINT-C1xx & CINT-C5x/C6x — Dimension (mm)



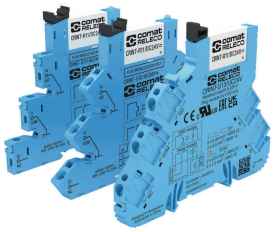



# 1.2 Interface Relays
# CRINT-C1x1
## 1 pole | changeover contact





### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Recommended minimum contact load | 100 mA / 12 V |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 2.5 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 1 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 10 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.9 VA / 0.4 W |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 6 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C (-40 ... 55 °C for control voltage > 60 V) |
| Pick-up time / bounce time | 7 ms / ≤ 8 ms |
| Release time / bounce time | 15 ms / ≤ 4 ms |
| Conductor cross section screw terminal | 0.34 ... 2.5 mm² |
| Conductor cross section cage clamp | 0.75 … 2.5 mm² |
| Conductor cross section control / main circuit | Push-in terminal |
| - Single wire | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 0.34 mm² / AWG 22 … 1.5 mm² / AWG 16 |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 30 g |
| Housing material | PA |

### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110-125 | 220-240 |
|---|---|---|---|---|---|---|---|
| Screw terminal | CRINT-C111/UC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cage clamp terminal | CRINT-C121/UC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Push-in terminal | CRINT-C131/UC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

«…» List control voltage to complete product references

### Accessories

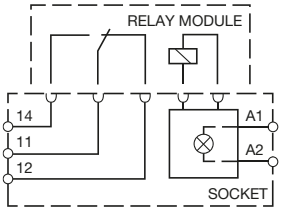
| | |
|---|---|
| Jumper link | CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS) |
| Label plate | CRINT-LAB (BAG 4X16 PCS) |
| Spacer | CRINT-SEP (BAG 5 PCS) |
| Marking strip for Push-in | BS11-PI (50m tape) |

### Replacement relays

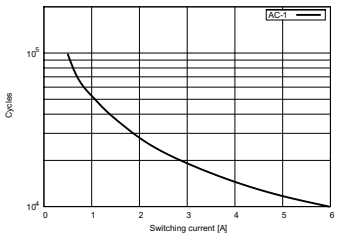
| Description | Type | 12 | 24 | 48 | 60 |
|---|---|---|---|---|---|
| DC | CRINT-R11/DC...V | ✓ | ✓ | ✓ | ✓ |

«…» List control voltage to complete product references
60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

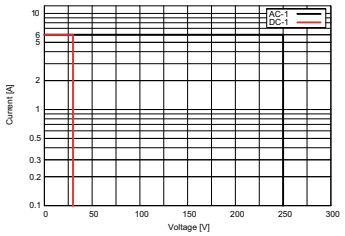
### fig. 1. Wiring diagram



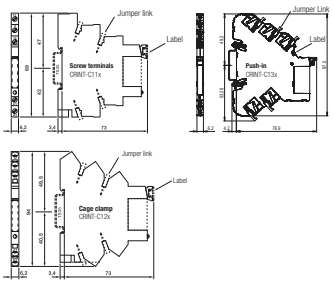

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



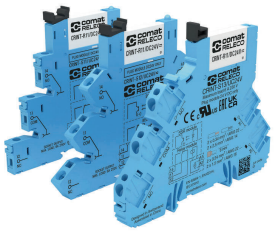
### Technical approvals, conformities

Standards EN 60664-1; IEC/EN 61810-1

Approvals CRINT-C111 & CRINT-C121 only

# CRINT-C1x2

## 1 pole | changeover contact



### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ + Au |
| Recommended minimum contact load | 10 mA / 5 V |
| Maximum contact load AC | 6A / 250 V AC-1 |
| Maximum contact load DC | 6A / 30 V DC-1 |
| Inrush current | 15 A, 2.5 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 1 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 10 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.9 VA / 0.4 W |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 6 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C (-40 ... 55 °C for control voltage > 60 V) |
| Pick-up time / bounce time | 7 ms / ≤ 8 ms |
| Release time / bounce time | 15 ms / ≤ 4 ms |
| Conductor cross section screw terminal | 0.34 .. 2.5 mm² |
| | 0.34 ... 2.5 mm² |
| Conductor cross section cage clamp | 0.75 … 2.5 mm² |
| Conductor cross section control / main circuit | Push-in terminal |
| - Single wire | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 0.34 mm² / AWG 22 … 1.5 mm² / AWG 16 |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 30 g |
| Housing material | PA |

### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110-125 | 220-240 |
|---|---|---|---|---|---|---|---|
| Screw terminal | CRINT-C112/UC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cage clamp terminal | CRINT-C122/UC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Push-in terminal | CRINT-C132/UC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

«…» List control voltage to complete product references

### Accessories

| | |
|---|---|
| Jumper link | CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS) |
| Label plate | CRINT-LAB (BAG 4X16 PCS) |
| Spacer | CRINT-SEP (BAG 5 PCS) |
| Marking strip for Push-in | BS11-PI (50m tape) |

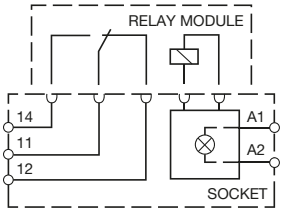
### Replacement relays

| Description | Type | 12 | 24 | 48 | 60 |
|---|---|---|---|---|---|
| DC | CRINT-R12/DC…V | ✓ | ✓ | ✓ | ✓ |

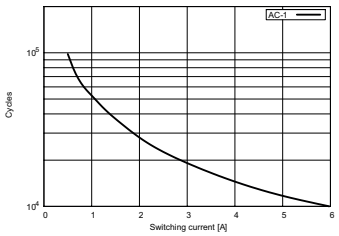
«…» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

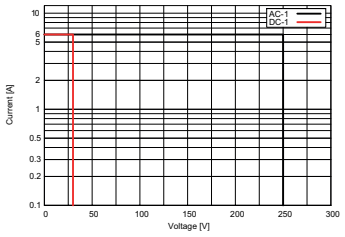
### fig. 1. Wiring diagram



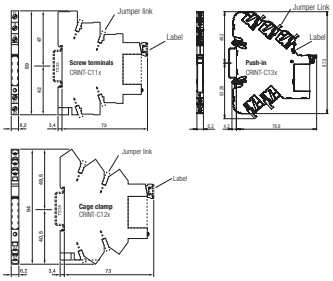

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60664-1; IEC/EN 61810-1

Approvals CRINT-C112 & CRINT-C122 only

# 1.2 Interface Relays
# CRINT-C1x1R
## 1 pole | changeover contact

### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Recommended minimum contact load | 100 mA / 12 V |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 2.5 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 1 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 10 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.9 VA / 0.4 W |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 6 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C (-40 ... 55 °C for control voltage > 60 V) |
| Pick-up time / bounce time | 7 ms / ≤ 8 ms |
| Release time / bounce time | 15 ms / ≤ 4 ms |
| Conductor cross section cage clamp | 0.75 … 2.5 mm² |
| Conductor cross section control / main circuit | Push-in terminal |
| - Single wire | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 0.34 mm² / AWG 22 … 1.5 mm² / AWG 16 |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 30 g |
| Housing material | PA |

### Product references

| Description | Type | 24 | 110-125 | 220-240 |
|---|---|---|---|---|
| Cage clamp terminal | CRINT-C121R/UC...V | ✓ | ✓ | |
| Push-in terminal | CRINT-C131R/UC...V | ✓ | ✓ | ✓ |

«…» List control voltage to complete product references

### Accessories

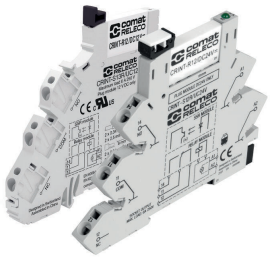
| | |
|---|---|
| Jumper link | CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS) |
| Label plate | CRINT-LAB (BAG 4X16 PCS) |
| Marking strip for Push-in | BS11-PI (50m tape) |

### Replacement relays

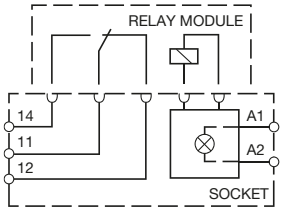
| Description | Type | 24 | 60 |
|---|---|---|---|
| DC | CRINT-R11/DC...V | ✓ | ✓ |

«…» List control voltage to complete product references

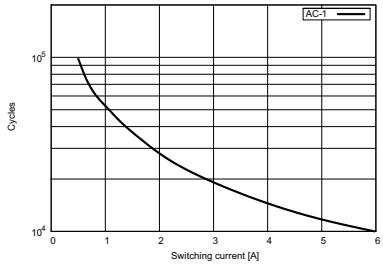
60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V



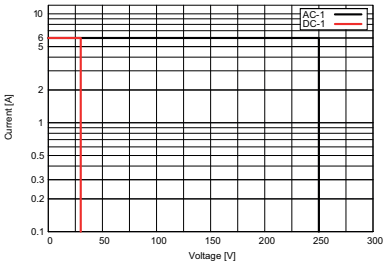
### fig. 1. Wiring diagram



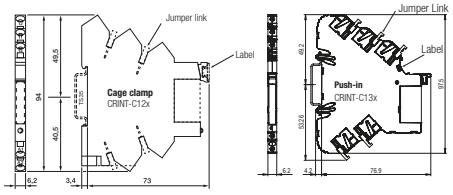

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1; IEC/EN 61810-1

Railway EN 45545-2; EN 50155

Approvals

# CRINT-C1x2R

## 1 pole | changeover contact

### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ + Au |
| Recommended minimum contact load | 10 mA / 5 V |
| Maximum contact load AC | 6A / 250 V AC-1 |
| Maximum contact load DC | 6A / 30 V DC-1 |
| Inrush current | 15 A, 2.5 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 1 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 10 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.9 VA / 0.4 W |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 6 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C (-40 ... 55 °C for control voltage > 60 V) |
| Pick-up time / bounce time | 7 ms / ≤ 8 ms |
| Release time / bounce time | 15 ms / ≤ 4 ms |
| Conductor cross section cage clamp | 0.75 … 2.5 mm² |
| Conductor cross section control / main circuit | Push-in terminal |
| - Single wire | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 0.34 mm² / AWG 22 … 1.5 mm² / AWG 16 |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 30 g |
| Housing material | PA |

### Product references

| Description | Type | 24 | 110-125 | 220-240 |
|---|---|---|---|---|
| Cage clamp terminal | CRINT-C122R/UC...V | ✓ | ✓ | ✓ |
| Push-in terminal | CRINT-C132R/UC...V | ✓ | ✓ | ✓ |

«…» List control voltage to complete product references

### Accessories

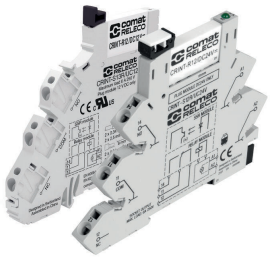
| | |
|---|---|
| Jumper link | CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS) |
| Label plate | CRINT-LAB (BAG 4X16 PCS) |
| Marking strip for Push-in | BS11-PI (50m tape) |

### Replacement relays

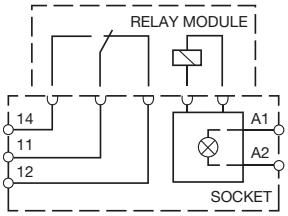
| Description | Type | 24 | 60 |
|---|---|---|---|
| DC | CRINT-R12/DC…V | ✓ | ✓ |

«…» List control voltage to complete product references

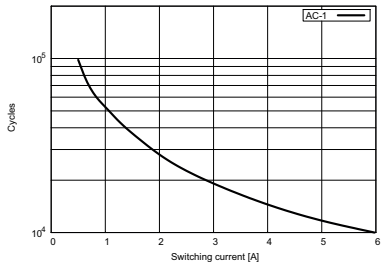
60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V



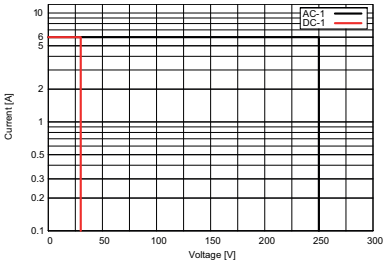
### fig. 1. Wiring diagram



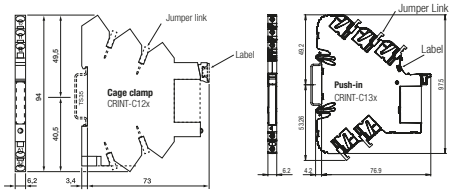

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1; IEC/EN 61810-1

Railway EN 45545-2; EN 50155

Approvals

# CINT-51 / CINT-61

## 1 pole | changeover contact



### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Recommended minimum contact load | 10 mA / 24 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Rated current | 10 A / 16 A ( dual terminal use ) |
| Inrush current | 80 A, 5 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 250 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.75 VA / 0.5 W |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -20 … 55 °C |
| Pick-up time / bounce time | 5 ms / ≤ 8 ms |
| Release time / bounce time | 10 ms / ≤ 6 ms |
| Conductor cross section screw terminal | 2.5 mm² |
| Conductor cross section cage clamp | 0.5 … 2.5 mm² |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 63 g |
| Housing material | PA |

### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| Screw terminal | CINT-51/AC…V | | ✓ |
| Cage clamp terminal | CINT-61/AC...V | | ✓ |
| | | | |
| Screw terminal | CINT-51/UC…V | ✓ | |
| Cage clamp terminal | CINT-61/UC...V | ✓ | |

«…» List coil voltage to complete product references

### Accessories

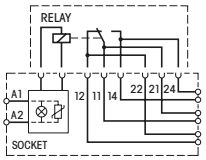
| | |
|---|---|
| Jumper link | CINT-BR8/5 |
| Label plate | CINT5-BEZ/18 |

### Replacement relays

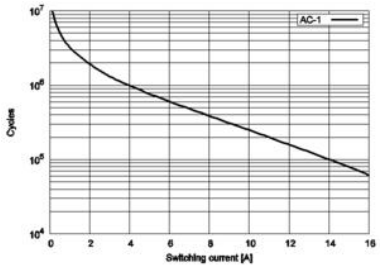
| Description | Type | 24 | 110 |
|---|---|---|---|
| DC | CINT-R21/DC...V | ✓ | ✓ |

«…» List coil voltage to complete product references
24 V relay used for 24 V sockets, 110 V relay used for 230 V sockets.

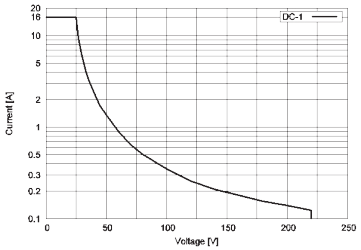
### fig. 1. Wiring diagram



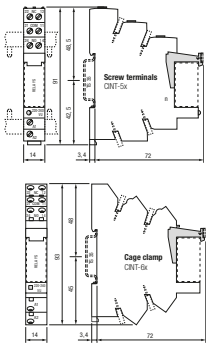

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals

# CINT-52 / CINT-62

## 2 pole | changeover contact

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 5 µ Au |
| Recommended minimum contact load | 5 mA / 5V |
| Maximum contact load AC | 8 A / 250 V AC-1<br>8A / 250 V AC-1 |
| Maximum contact load DC | 8 A / 30 V DC-1<br>8A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 2 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 8 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 80 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.75 VA / 0.5 W |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -20 … 55 °C |
| Pick-up time / bounce time | 5 ms / ≤ 8 ms |
| Release time / bounce time | 10 ms / ≤ 6 ms |
| Conductor cross section screw terminal | 2.5 mm² |
| Conductor cross section cage clamp | 0.5 … 2.5 mm²<br>0.5 … 2.5mm² |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 63 g |
| Housing material | PA |

### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| Screw terminal | CINT-52/AC…V | | ✓ |
| Cage clamp terminal | CINT-62/AC…V | | ✓ |
| | | | |
| Screw terminal | CINT-52/UC…V | ✓ | |
| Cage clamp terminal | CINT-62/UC…V | ✓ | |

«…» List coil voltage to complete product references

### Accessories

| | |
|---|---|
| Jumper link | CINT-BR8/5 |
| Label plate | CINT5-BEZ/18 |

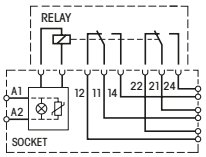
### Replacement relays

| Description | Type | 24 | 110 |
|---|---|---|---|
| DC | CINT-R22/DC…V | ✓ | ✓ |

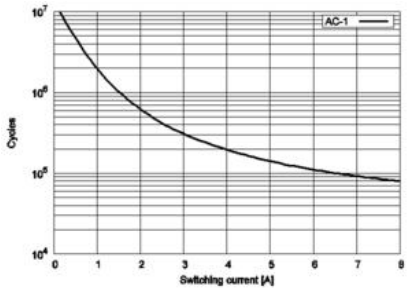
«…» List coil voltage to complete product references
24 V relay used for 24 V sockets, 110 V relay used for 230 V sockets.



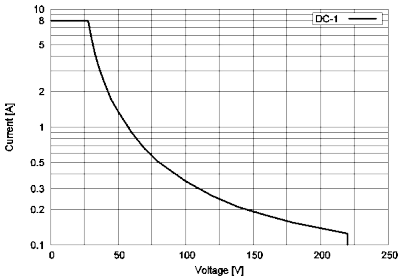
### fig. 1. Wiring diagram



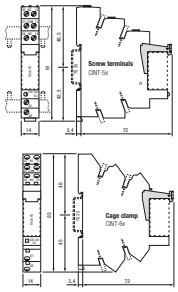

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



### Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals

# CINT-53 / CINT-63

## 2 pole | changeover contact



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 24 V |
| Maximum contact load AC | 8 A / 250 V AC-1 |
| Maximum contact load DC | 8 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 2 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 8 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 80 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.75 VA / 0.5 W |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -20 … 55 °C |
| Pick-up time / bounce time | 5 ms / ≤ 8 ms |
| Release time / bounce time | 10 ms / ≤ 6 ms |
| Conductor cross section screw terminal | 2.5 mm² |
| Conductor cross section cage clamp | 0.5 … 2.5 mm²<br>0.5 … 2.5 mm² |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 63 g |
| Housing material | PA |

### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| Screw terminal | CINT-53/AC…V | | ✓ |
| Cage clamp terminal | CINT-63/AC…V | | ✓ |
| | | | |
| Screw terminal | CINT-53/UC…V | ✓ | |
| Cage clamp terminal | CINT-63/UC…V | ✓ | ✓ |

«…» List coil voltage to complete product references

### Accessories

| | |
|---|---|
| Jumper link | CINT-BR8/5 |
| Label plate | CINT5-BEZ/18 |

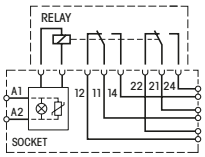
### Replacement relays

| Description | Type | 24 | 110 |
|---|---|---|---|
| DC | CINT-R23/DC…V | ✓ | ✓ |

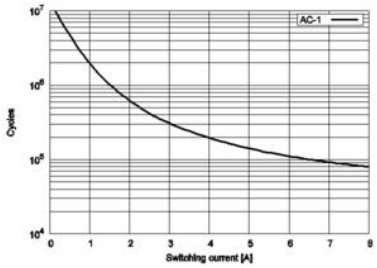
«…» List coil voltage to complete product references
24 V relay used for 24 V sockets, 110 V relay used for 230 V sockets.



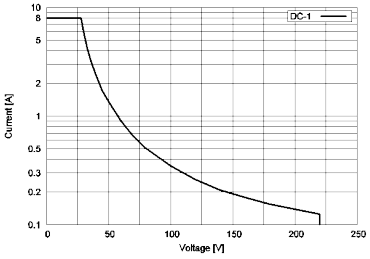
### fig. 1. Wiring diagram



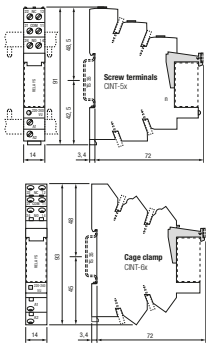

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals

# CHA1

## 1 pole | changeover contact | auxiliary contact

### Main circuit

| | Power contact (11 / 12 / 14) | Signal contact (B1 / B2) |
|---|---|---|
| Contact type control / main circuit | | |
| Available contact materials | $AgSnO_2$ | AgNi |
| Maximum contact load | 10 A / 250 V AC-1 | 0.3 A / 30V DC-1 |
| Recommended minimum contact load | 10 mA / 12 V | 1 mA / 6V |
| Rated load | 10 A | 0.3 A |
| Inrush current | 15 A, 20 ms | 0.5 A, 20 ms |
| Rated load AC | 2 500 VA | 9 VA |
| Rated load DC | 250 W | |
| Mechanical endurance (cycles) | ≥ 10 000 000 | ≥ 1 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 | ≥ 1 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.75 VA / 0.5 W |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 3 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -25 … 85 °C |
| Operation temperature | -20 … 50 °C |
| Pick-up time / bounce time | 10 ms / 2 ms |
| Release time / bounce time | 12 ms / 2 ms |
| Conductor cross section screw terminal | 2.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 42 g |
| Housing material | PA |

### Product references

| Description | Type | 24 |
|---|---|---|
| AC / DC supply | CHA1/UC...V | ✓ |

«…» List coil voltage to complete product references



fig. 1. Wiring diagram

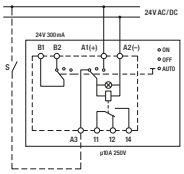
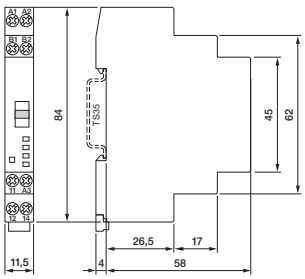



fig. 2. Function diagram

| Green ON-OFF-switch | Control input A3 | Relay / LED | Check back contact |
|---|---|---|---|
| AUTO | 1 | 1 | 1 |
| | 0 | 0 | 1 |
| ON | - | 1 | 0 |
| OFF | - | 0 | 0 |

fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 61810-1

Approvals CE UKCA

# 1.3 Industrial Relays - pluggable


| | Type | Pin | Page |
|---|---|---|---|
| **C2 Series** | | | |
| 2 pole \| changeover contact | C2-A2x |  | 44 |
| **C3 Series / R3 Series** | | | |
| 3 pole \| changeover contact | C3-A3x |  | 45 |
| 3 pole \| changeover contact | C3-A30x/AC230V 16.7 Hz |  | 46 |
| 3 pole \| normally open contact | C3-G30 |  | 47 |
| 1 pole \| normally open serial contact with blow magnet | C3-M10 |  | 48 |
| 3 pole \| changeover contact \| sensitive coil | C3-N34 |  | 49 |
| 3 pole \| changeover contact \| sensitive coil | R3-N34 |  | 50 |
| 2 pole \| changeover contact \| remanence | C3-R2xN |  | 51 |
| 2 pole \| changeover contact \| remanence | R3-R20N |  | 52 |
| 3 pole \| changeover twin contact | C3-T3x |  | 53 |
| 1 pole \| normally open serial contact | C3-X10 |  | 54 |
| **C4 Series / R4 Series** | | | |
| 4 pole \| changeover contact \| Faston | C4-A4x |  | 55 |
| 4 pole \| changeover contact \| Faston | R4-A40 |  | 56 |
| 3 pole \| changeover contact \| remanence \| Faston | C4-R3x |  | 57 |
| 2 pole \| normally open serial contact \| Faston | C4-X20 |  | 58 |
| **C5 Series** | | | |

| | Type | Pin | Page |
|---|---|---|---|
| 2 pole \| changeover contact \| Faston | C5-A20 |  | 59 |
| 3 pole \| changeover contact \| Faston | C5-A3x |  | 60 |
| 3 pole \| changeover contact \| Faston | R5-A30U |  | 61 |
| 3 pole \| normally open contact \| Faston | C5-G3x |  | 62 |
| 1 pole \| normally open serial contact with blow magnet \| Faston | C5-M10 |  | 63 |
| 1 pole \| normally open serial contact with blow magnet \| Faston | R5-M10 |  | 64 |
| 2 pole \| normally open contact with blow magnet \| Faston | C5-M20 |  | 65 |
| 2 pole \| changeover contact \| remanence \| Faston | C5-R20 |  | 66 |
| 1 pole \| normally open serial contact \| Faston | C5-X10 |  | 67 |

## C7 Series / R7 Series

| | | | |
|---|---|---|---|
| 1 pole \| changeover contact \| Faston | C7-A10 |  | 68 |
| 2 pole \| changeover contact \| Faston | C7-A2x |  | 69 |
| 2 pole \| changeover contact | C7-A2x+S7-PI |  | 70 |
| 2 pole \| changeover contact \| Faston | R7-A20 |  | 71 |
| 2 pole \| normally open contact \| Faston | C7-G20 |  | 72 |
| 2 pole \| changeover power and twin contact \| Faston | C7-H23 |  | 73 |
| 2 pole \| changeover twin contact \| Faston | C7-T2x |  | 74 |
| 2 pole \| changeover twin contact \| Faston | R7-T2x |  | 75 |
| 1 pole \| normally open tungsten pre-contact \| Faston | C7-W10 |  | 76 |
| 1 pole \| normally open serial contact \| Faston | C7-X10 |  | 77 |

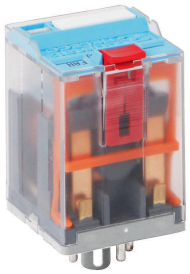
## C9 Series / R9 Series

| | | | |
|---|---|---|---|
| 4 pole \| changeover contact \| Faston | C9-A4x |  | 78 |
| 4 pole \| changeover contact | C9-A4x+S9-PI |  | 79 |

| | Type | Pin | Page |
|---|---|---|---|
| 4 pole \| changeover contact \| Faston | R9-A41 | | 80 |
| 2 pole \| changeover contact \| sensitive coil \| Faston | C9-E21 | | 81 |
| 2 pole \| changeover contact \| remanence \| Faston | C9-R21 | | 82 |

# C2-A2x

## 2 pole | changeover contact



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C2-A20 |
| | AgNi + 5 µ Au for C2-A28 |
| Recommended minimum contact load | 10 mA / 10 V for C2-A20 |
| | 5 mA / 5 V for C2-A28 |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.2 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 16 | 185 | 12 | 115 | 104 |
| 24 | 67 | 96 | 24 | 480 | 50 |
| 48 | 296 | 45 | 48 | 1 850 | 26 |
| 60 | 405 | 36 | 110 | 9 216 | 12 |
| 115 | 1 753 | 19 | 220 | 38 720 | 5.7 |
| 230 | 7 078 | 10 | | | |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 79 g |
| Housing material | PA / PC |

### Product references

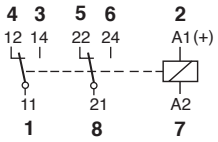
| Description | Type | 12 | 24 | 48 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C2-A2x/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| LED | C2-A2xX/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| RC - Suppressor | C2-A2xR/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| DC | C2-A2x/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED | C2-A2xX/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C2-A2xDX/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Pol. & Free wheeling diode | C2-A2xFX/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| AC / DC bridge rec. & LED | C2-A2xBX/UC...V | | ✓ | ✓ | | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

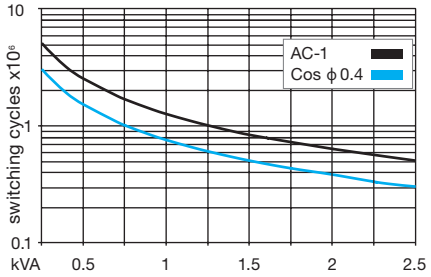
### Accessories

| | |
|---|---|
| Socket | S2-B, EC-11 |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test button without locking | S3-HP (BAG 10 PCS) |

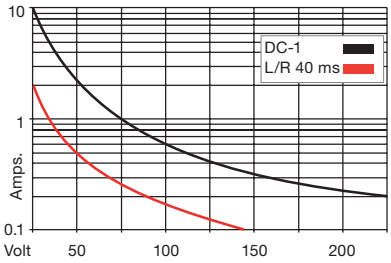
### fig. 1. Wiring diagram



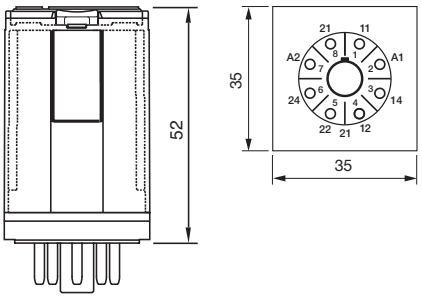

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

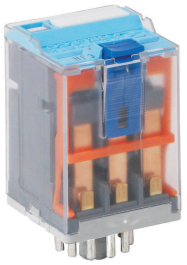
Standards IEC/EN 60947; IEC/EN 61810

Approvals C2-A20 only

1.3 Industrial Relays - pluggable

# C3-A3x

## 3 pole | changeover contact



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C3-A30 |
| | AgNi + 5 µ Au for C3-A38 |
| | AgNi + 0.2 µ Au for C3-A39 |
| Recommended minimum contact load | 10 mA / 10 V for C3-A30, C3-A39 |
| | 5 mA / 5 V for C3-A38 |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.2 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 16 | 185 | 12 | 115 | 104 |
| 24 | 67 | 96 | 24 | 480 | 50 |
| 48 | 296 | 45 | 48 | 1 850 | 26 |
| 60 | 405 | 36 | 60 | 2 900 | 21 |
| 115 | 1 753 | 19 | 110 | 9 216 | 12 |
| 230 | 7 078 | 10 | 220 | 38 720 | 5.7 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 81 g |
| Housing material | PA / PC |

### Product references

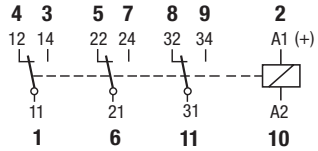
| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C3-A3x/AC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| LED | C3-A3xX/AC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| RC - Suppressor | C3-A3xR/AC...V | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| DC | C3-A3x/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED | C3-A3xX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C3-A3xDX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Pol. & Free wheeling diode | C3-A3xFX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| AC / DC bridge rec. & LED | C3-A3xBX/UC...V | ✓ | ✓ | ✓ | ✓ | | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

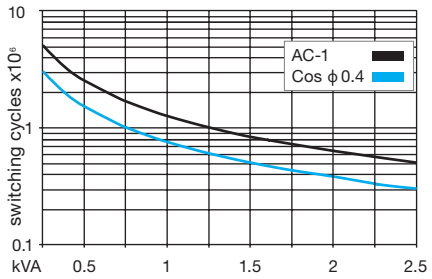
### Accessories

| | |
|---|---|
| Socket | S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11 |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test button without locking | S3-HP (BAG 10 PCS) |

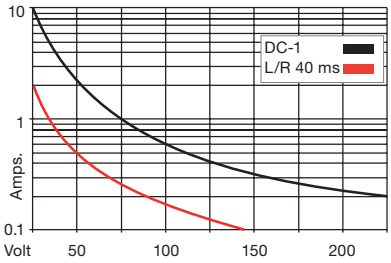
### fig. 1. Wiring diagram



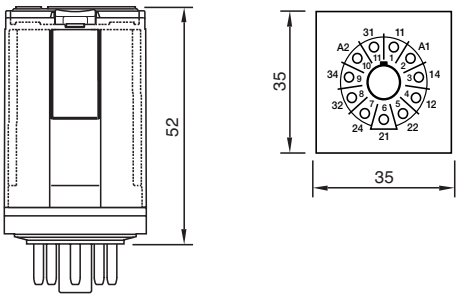

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



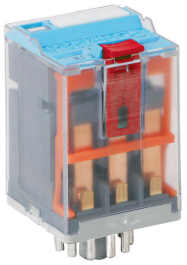

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C3-A30x/AC230V 16.7 Hz

## 3 pole | changeover contact



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.2 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA |
|---|---|---|
| 230 | 18 900 | 7.5 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 26 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 81 g |
| Housing material | PA / PC |

### Product references

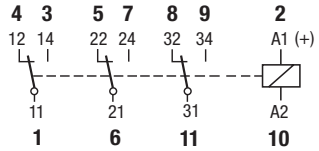
| Description | Type | 230 |
|---|---|---|
| LED | C3-A30/AC230V 16.7 Hz | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

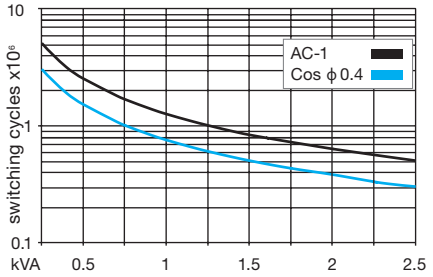
### Accessories

| | |
|---|---|
| Socket | S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11 |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test button without locking | S3-HP (BAG 10 PCS) |

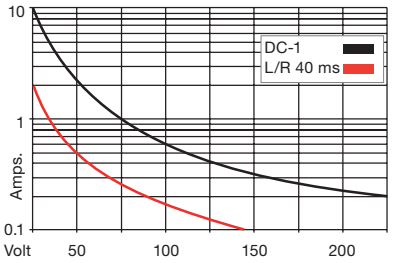
### fig. 1. Wiring diagram



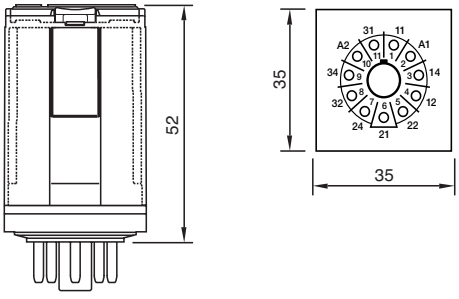

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



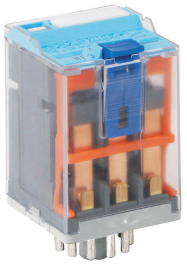

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C3-G30

## 3 pole | normally open contact



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 A / 30 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.6 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 16 | 214 | 12 | 90 | 104 |
| 24 | 67 | 100 | 24 | 440 | 66 |
| 48 | 286 | 50 | 48 | 1 788 | 34 |
| 115 | 1 697 | 17 | 60 | 2 117 | 20.7 |
| 230 | 6 850 | 10.4 | 110 | 9 334 | 15 |
| | | | 220 | 30 307 | 7.5 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 81 g |
| Housing material | PA / PC |

### Product references

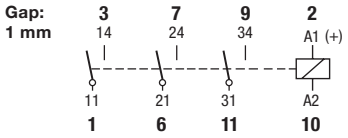
| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C3-G30/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| LED | C3-G30X/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| RC - Suppressor | C3-G30R/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| DC | C3-G30/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED | C3-G30X/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C3-G30DX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Pol. & Free wheeling diode | C3-G30FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

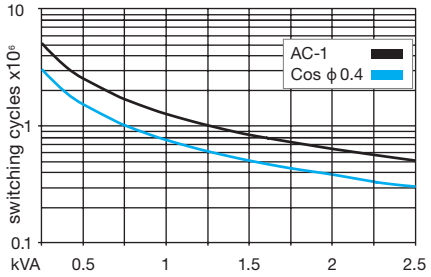
### Accessories

| | |
|---|---|
| Socket | S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11 |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test button without locking | S3-HP (BAG 10 PCS) |

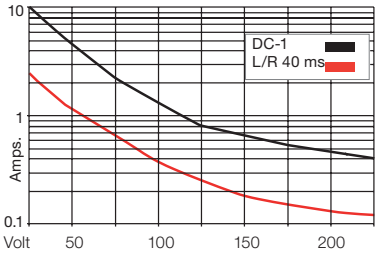
### fig. 1. Wiring diagram



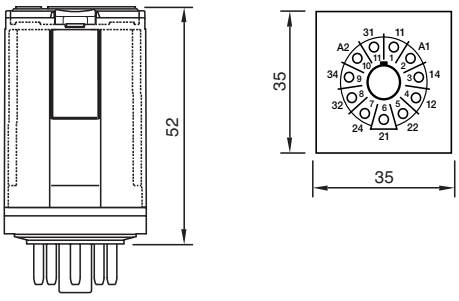

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



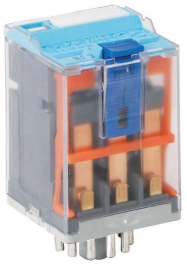

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C3-M10

## 1 pole | normally open serial contact with blow magnet



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 220 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 16 | 214 | 12 | 115 | 104 |
| 24 | 67 | 100 | 24 | 440 | 55 |
| 48 | 286 | 50 | 48 | 1 750 | 27 |
| 115 | 1 697 | 17 | 110 | 9 216 | 12 |
| 230 | 6 850 | 10.4 | 220 | 38 720 | 5.7 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

### Product references

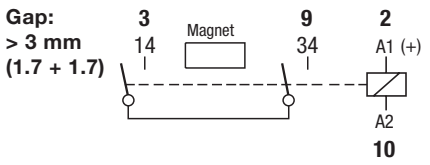
| Description | Type | 12 | 24 | 48 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C3-M10/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| LED | C3-M10X/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| RC - Suppressor | C3-M10R/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| DC | C3-M10/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED | C3-M10X/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C3-M10DX/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Pol. & Free wheeling diode | C3-M10FX/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

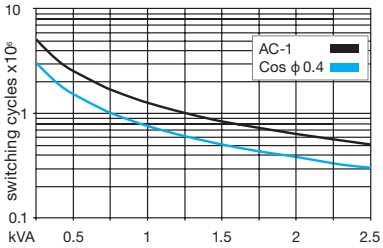
### Accessories

| | |
|---|---|
| Socket | S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11 |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test button without locking | S3-HP (BAG 10 PCS) |

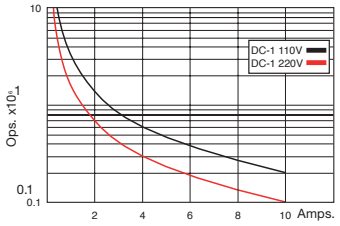
### fig. 1. Wiring diagram



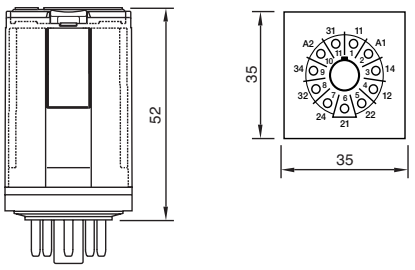

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



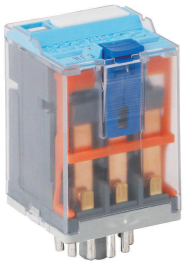

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C3-N34

## 3 pole | changeover contact | sensitive coil



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 800 mW |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 12 | 186 | 65 |
| 24 | 693 | 35 |
| 48 | 2 844 | 17 |
| 60 | 4 482 | 13 |
| 110 | 14 872 | 7.4 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 18 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

### Product references

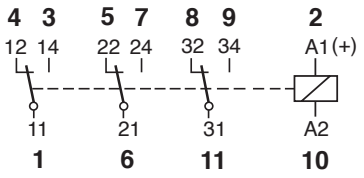
| Description | Type | 12 | 24 | 48 | 60 | 110 |
|---|---|---|---|---|---|---|
| DC | C3-N34/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

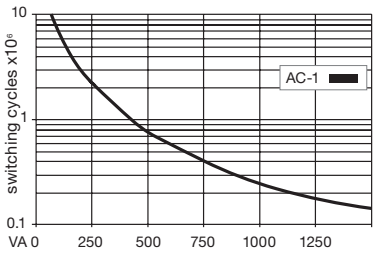
### Accessories

| | |
|---|---|
| Socket | S3-B, S3-S, S3-M0, S3-M1, EC-11 |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test button without locking | S3-HP (BAG 10 PCS) |

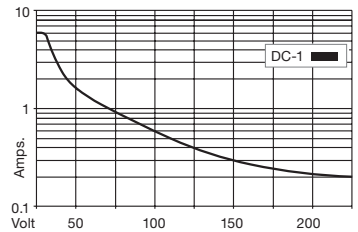
### fig. 1. Wiring diagram



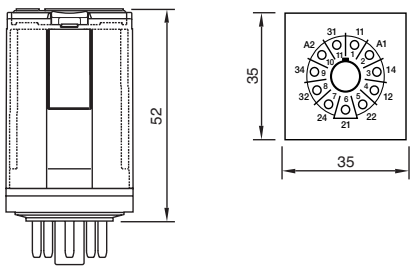

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# R3-N34

## 3 pole | changeover contact | sensitive coil

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ ... 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 800 mW |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 72 | 4 844 | 15 |
| 110 | 12 900 | 9 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 18 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 72 | 110 |
|---|---|---|---|
| Freewheeling diode module | R3-N34D/DC...V | ✓ | ✓ |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

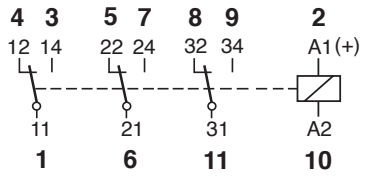
### Accessories

| | |
|---|---|
| Socket | S3-MR, S3-M0R, S3-M1R |
| Blanking plug | SO-NP (BAG 10 PCS) |

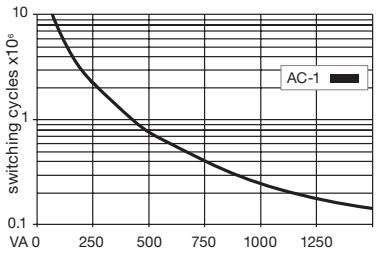




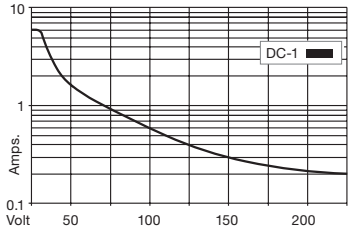
### fig. 1. Wiring diagram



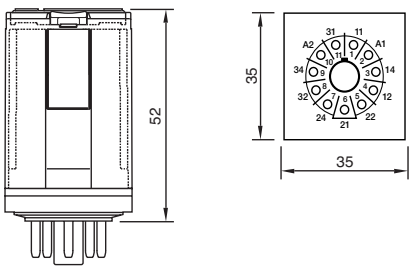

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

# C3-R2xN

## 2 pole | changeover contact | remanence



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C3-R20N |
| | AgNi + 5 µ Au for C3-R28N |
| Recommended minimum contact load | 10 mA / 10 V for C3-R20N |
| | 5 mA / 5 V for C3-R28N |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

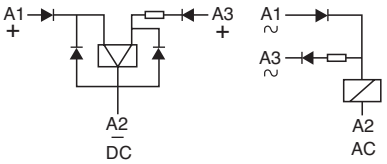
### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≤ 0.8 $U_N$ |
| ON pulse power | AC 1.8 VA, DC 1.5 W |
| OFF pulse power | AC 0.3 VA, DC 0.5 W |

### Coil table

| V AC | mA ON | mA OFF | V DC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 88 | 8 | 12 | 121 | 32 |
| 48 | 31 | 5 | 24 | 60 | 18 |
| 115 | 13 | 2 | 36 | 45 | 15 |
| 230 | 8 | 0.7 | 48 | 32 | 7 |
| | | | 60 | 25 | 9 |
| | | | 72 | 21 | 9 |
| | | | 110 | 12.4 | 3.2 |

### Internal diagram




### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Minimum pulse length ON / OFF | 50 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 81 g |
| Housing material | PA / PC |

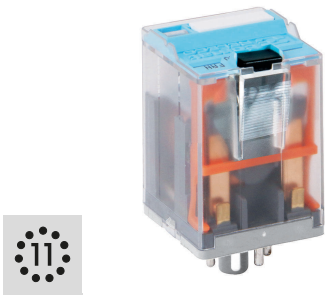
### Product references

| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|
| AC 50 Hz | C3-R2xN/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| DC | C3-R2xN/DC...V | ✓ | ✓ | ✓ | ✓ | | |

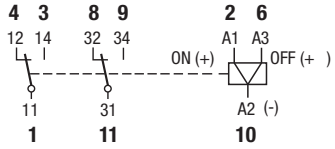
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references
Test Dani

### Accessories

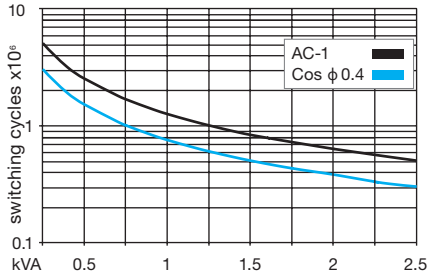
| | |
|---|---|
| Socket | S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11 |
| Blanking plug | SO-NP (BAG 10 PCS) |



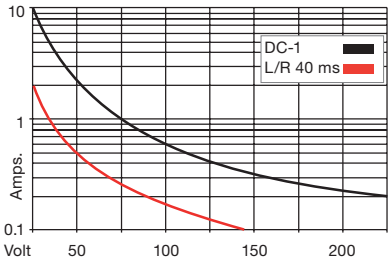
### fig. 1. Wiring diagram



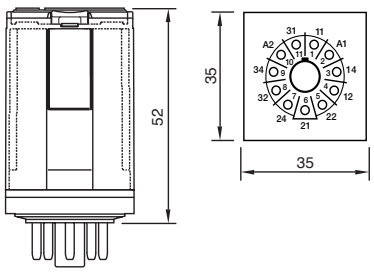

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# R3-R20N

## 2 pole | changeover contact | remanence

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

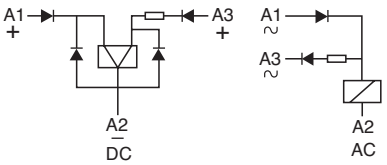
### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≤ 0.7 $U_N$ |
| ON pulse power | DC 1.5 W |
| OFF pulse power | DC 0.5 W |

### Coil table

| V DC | mA ON | mA OFF |
|---|---|---|
| 24 | 60 | 18 |
| 36 | 45 | 15 |

### Internal diagram




### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Minimum pulse length ON / OFF | 50 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 81 g |
| Housing material | PA / PC |

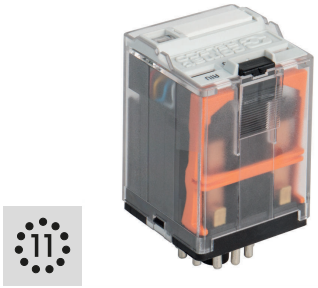
### Product references

| Description | Type | 24 | 36 |
|---|---|---|---|
| DC | R3-R20N/DC...V | ✓ | ✓ |

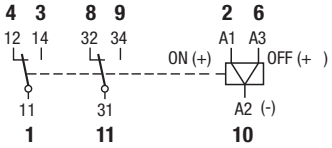
Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### Accessories

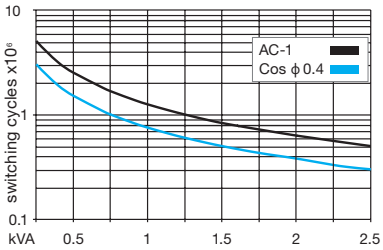
| | |
|---|---|
| Socket | S3-MR, S3-M0R, S3-M1R |
| Blanking plug | SO-NP (BAG 10 PCS) |



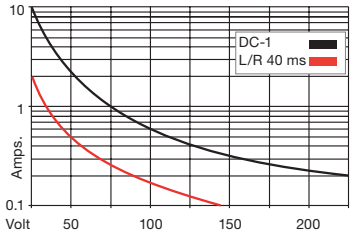
### fig. 1. Wiring diagram



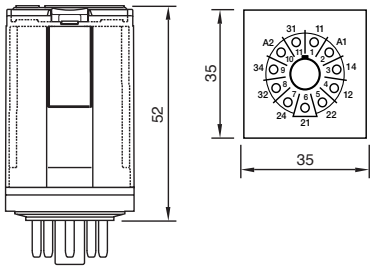

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

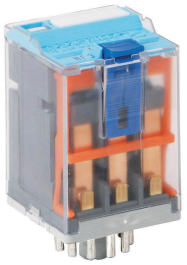
Railway EN 45545-2; EN 50155

Approvals

1.3 Industrial Relays - pluggable

# C3-T3x

## 3 pole | changeover twin contact



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au for C3-T31 |
| | AgNi + 5 µ Au for C3-T32 |
| Recommended minimum contact load | 5 mA / 5 V for C3-T31 |
| | 1 mA / 5 V for C3-T32 |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 200 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 180 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.2 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 16 | 185 | 12 | 115 | 104 |
| 24 | 67 | 96 | 24 | 480 | 50 |
| 48 | 296 | 45 | 48 | 1 850 | 26 |
| 115 | 1 753 | 19 | 60 | 2 900 | 21 |
| 230 | 7 078 | 10 | 110 | 9 216 | 12 |
| | | | 220 | 38 720 | 5.7 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 8 ms / ≤ 3 ms |
| Release time / bounce time | 18 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 81 g |
| Housing material | PA / PC |

### Product references

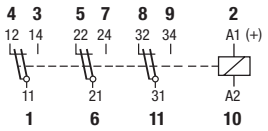
| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C3-T3x/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| LED | C3-T3xX/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| RC - Suppressor | C3-T3xR/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| DC | C3-T3x/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED | C3-T3xX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C3-T3xDX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Pol. & Free wheeling diode | C3-T3xFX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

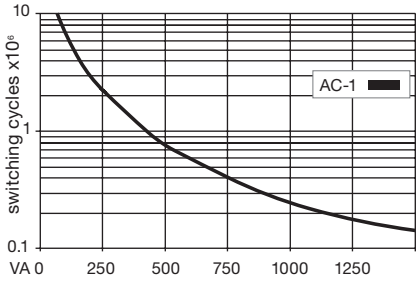
### Accessories

| | |
|---|---|
| Socket | S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11 |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test button without locking | S3-HP (BAG 10 PCS) |

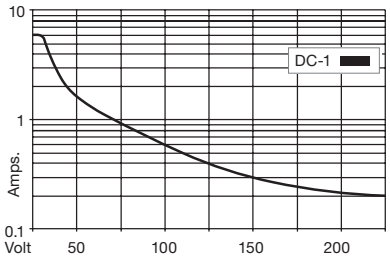
### fig. 1. Wiring diagram



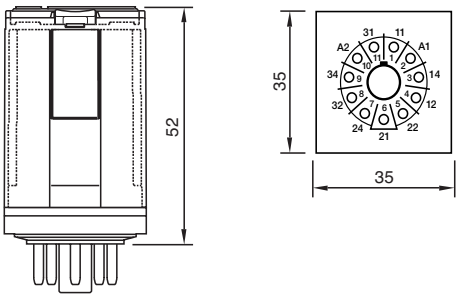

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C3-X10

## 1 pole | normally open serial contact

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 16 | 214 | 12 | 115 | 104 |
| 24 | 67 | 100 | 24 | 440 | 55 |
| 48 | 286 | 50 | 48 | 1 750 | 27 |
| 115 | 1 697 | 17 | 60 | 2 900 | 21 |
| 230 | 6 850 | 10.4 | 110 | 9 216 | 12 |
| | | | 220 | 38 720 | 5.7 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 18 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 83 g |
| Housing material | PA / PC |

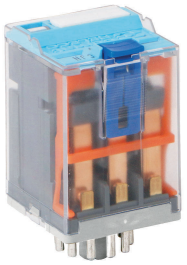
### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C3-X10/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| LED | C3-X10X/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| RC - Suppressor | C3-X10R/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| DC | C3-X10/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED | C3-X10X/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C3-X10DX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Pol. & Free wheeling diode | C3-X10FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |

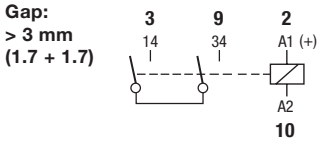
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

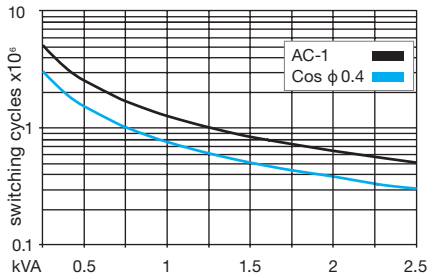
| | |
|---|---|
| Socket | S3-B, S3-S, S3-M, S3-M0, S3-M1 |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test button without locking | S3-HP (BAG 10 PCS) |



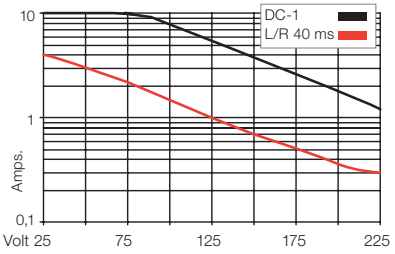
### fig. 1. Wiring diagram



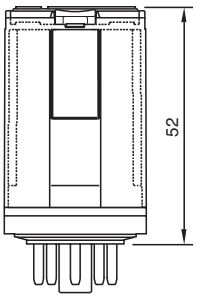

### fig. 2. AC voltage endurance

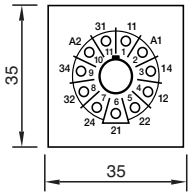



### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

# C4-A4x

## 4 pole | changeover contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C4-A40 |
| | AgNi + 5 µ Au for C4-A48 |
| Recommended minimum contact load | 10 mA / 5 V for C4-A40 |
| | 5 mA / 5 V for C4-A48 |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.4 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 16 | 214 | 12 | 105 | 115 |
| 24 | 65 | 103 | 24 | 414 | 58 |
| 48 | 286 | 51 | 48 | 1 664 | 29 |
| 115 | 1 697 | 22 | 60 | 2 581 | 24 |
| 230 | 6 850 | 10.4 | 110 | 8 117 | 14 |
| 400 | 18 802 | 5.9 | 220 | 30 307 | 6.2 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

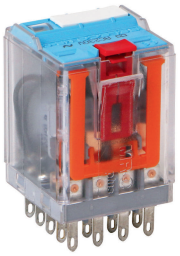
### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C4-A4x/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| LED | C4-A4xX/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| RC - Suppressor | C4-A4xR/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | |
| DC | C4-A4x/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED | C4-A4xX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Free wheeling diode | C4-A4xDX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Pol. & Free wheeling diode | C4-A4xFX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| AC / DC bridge rec. & LED | C4-A4xBX/UC...V | ✓ | ✓ | ✓ | | | | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

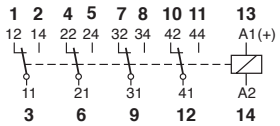
### Accessories

| | |
|---|---|
| Socket | S4-J, S4-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |

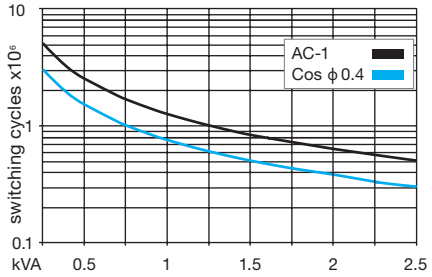




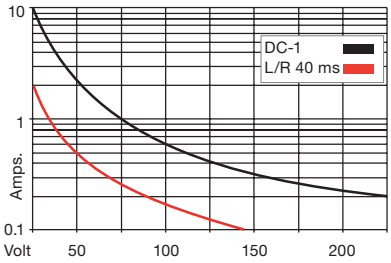
### fig. 1. Wiring diagram



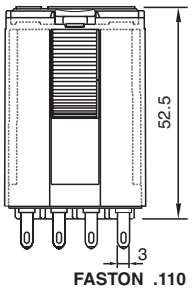

### fig. 2. AC voltage endurance

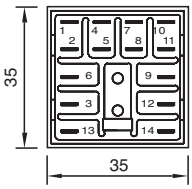



### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals C4-A40 only

# R4-A40

## 4 pole | changeover contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 5 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.4 W |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 12 | 105 | 114 |
| 24 | 414 | 58 |
| 36 | 916 | 39 |
| 48 | 1 664 | 29 |
| 60 | 2 581 | 23 |
| 72 | 3 775 | 20 |
| 110 | 8 117 | 14 |
| 220 | 35 696 | 6.2 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 36 | 48 | 60 | 72 | 110 | 220 |
|---|---|---|---|---|---|---|---|---|---|
| LED & Pol. & Free wheeling diode | R4-A40FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### Accessories

| | |
|---|---|
| Socket | S4-GR |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |

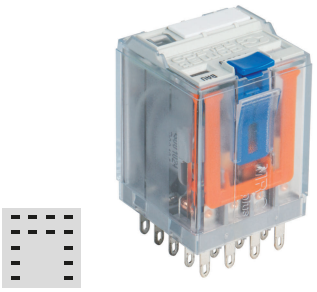


fig. 1. Wiring diagram

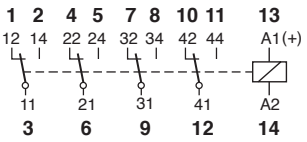



fig. 2. AC voltage endurance

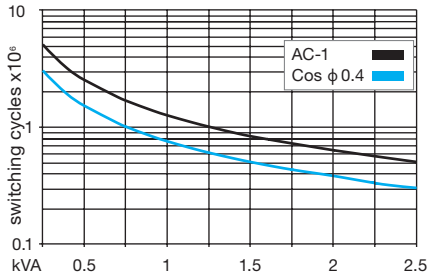



fig. 3. DC load limit curve

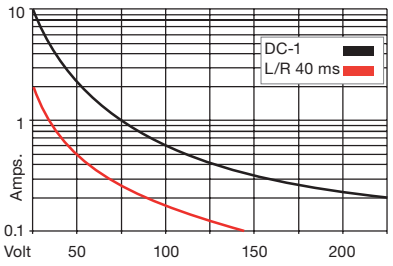
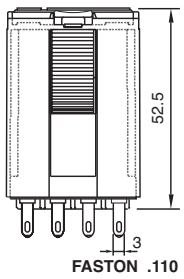
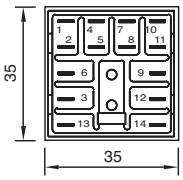



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

# C4-R3x

## 3 pole | changeover contact | remanence | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C4-R30 |
| | AgNi + 5 µ Au for C4-R38 |
| Recommended minimum contact load | 10 mA / 10 V for C4-R30 for C4-R30<br>5 mA / 5 V for C4-R38 for C4-R38 |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

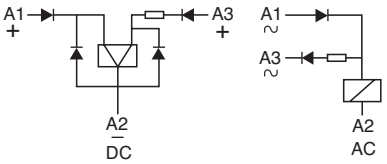
### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≤ 0.8 $U_N$ |
| ON pulse power | AC 1.8 VA, DC 1.5 W |
| OFF pulse power | AC 0.3 VA, DC 0.5 W |

### Coil table

| V AC | mA ON | mA OFF | V DC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 75 | 12 | 12 | 145 | 25 |
| 48 | 54 | 6 | 24 | 71 | 12 |
| 115 | 22 | 2.5 | 48 | 33 | 6 |
| 230 | 8 | 1.3 | 60 | 26.1 | 8.5 |
| | | | 110 | 14 | 5 |

### Internal diagram




### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Minimum pulse length ON / OFF | 50 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 95 g |
| Housing material | PA / PC |

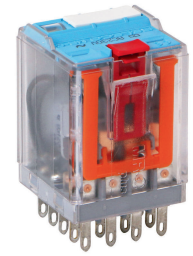
### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C4-R3x/AC...V | | ✓ | ✓ | | | ✓ | ✓ | ✓ |
| DC | C4-R3x/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

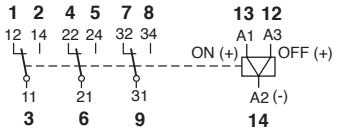
### Accessories

| | |
|---|---|
| Socket | S4-J, S4-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |

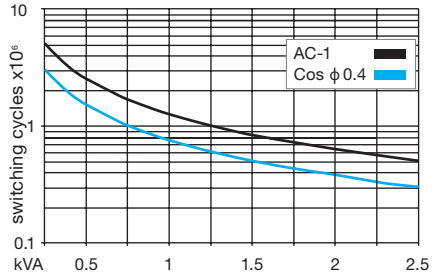




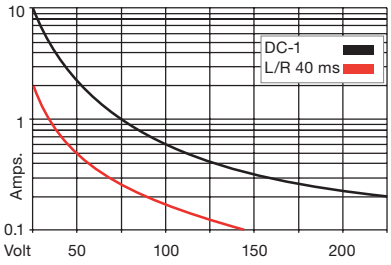
### fig. 1. Wiring diagram



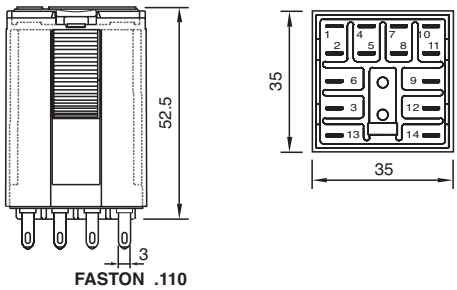

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C4-X20

## 2 pole | normally open serial contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 15.6 | 769 | 12 | 111 | 109 |
| 24 | 65 | 100 | 24 | 443 | 55 |
| 48 | 286 | 50 | 48 | 1 796 | 27 |
| 115 | 1 700 | 21 | 60 | 2 829 | 21 |
| 230 | 6 800 | 10 | 110 | 9 216 | 12 |
| 400 | 18 802 | 5.9 | 220 | 36 155 | 7 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2.5 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

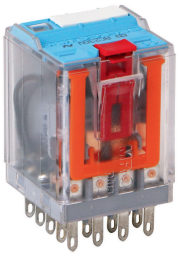
### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C4-X20/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| LED | C4-X20X/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| RC - Suppressor | C4-X20R/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | |
| DC | C4-X20/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED | C4-X20X/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Free wheeling diode | C4-X20DX/DC...V | ✓ | ✓ | ✓ | | ✓ | | | | |
| LED & Pol. & Free wheeling diode | C4-X20FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

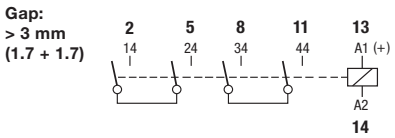
### Accessories

| | |
|---|---|
| Socket | S4-J, S4-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |

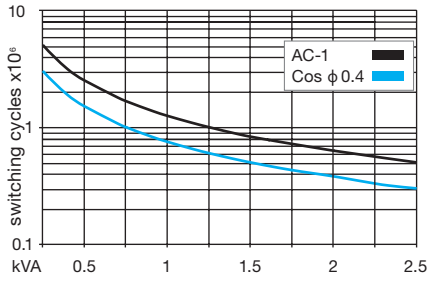




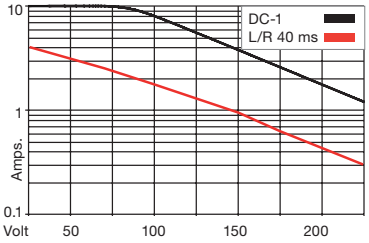
### fig. 1. Wiring diagram



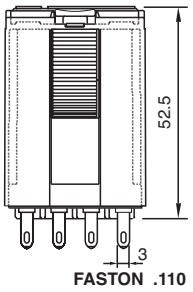

### fig. 2. AC voltage endurance

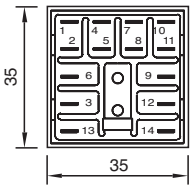



### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



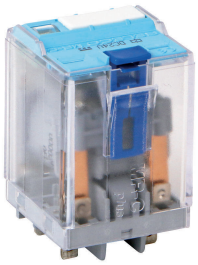

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C5-A20

## 2 pole | changeover contact | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 400 V AC-1 |
| Maximum contact load DC | 16 A / 30 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.4 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 15.6 | 769 | 12 | 111 | 109 |
| 24 | 65 | 100 | 24 | 443 | 58 |
| 48 | 286 | 50 | 48 | 1 796 | 30 |
| 115 | 1 700 | 21 | 60 | 2 829 | 21.2 |
| 230 | 6 800 | 10 | 110 | 9 216 | 13 |
| 400 | 18 802 | 5.9 | 220 | 36 155 | 6.2 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 4 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

### Product references

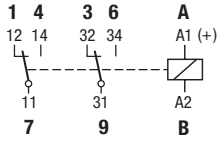
| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C5-A20/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| LED | C5-A20X/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| RC - Suppressor | C5-A20R/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| DC | C5-A20/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED | C5-A20X/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Free wheeling diode | C5-A20DX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | | | |
| LED & Pol. & Free wheeling diode | C5-A20FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| AC / DC bridge rec. & LED | C5-A20BX/UC...V | ✓ | ✓ | | | | | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

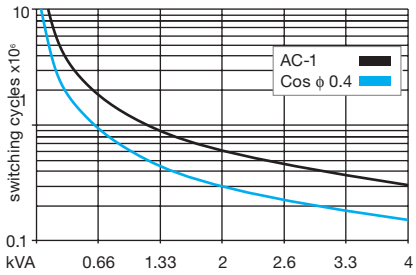
### Accessories

| | |
|---|---|
| Socket | S5-M, S5-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |

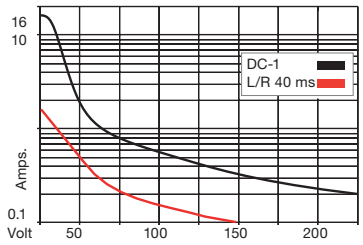
### fig. 1. Wiring diagram



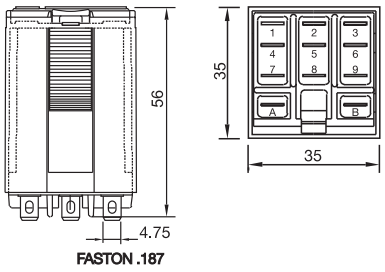

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C5-A3x

## 3 pole | changeover contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C5-A30 |
| | $AgSnO_2$ for C5-A35 |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 400 V AC-1 |
| Maximum contact load DC | 16 A / 30 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.4 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 15.6 | 769 | 12 | 111 | 109 |
| 24 | 65 | 100 | 24 | 443 | 58 |
| 48 | 286 | 50 | 48 | 1 796 | 30 |
| 115 | 1 700 | 21 | 60 | 2 829 | 21.2 |
| 230 | 6 800 | 10 | 110 | 9 216 | 13 |
| 400 | 18 802 | 5.9 | 220 | 36 155 | 6.2 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 4 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 95 g |
| Housing material | PA / PC |

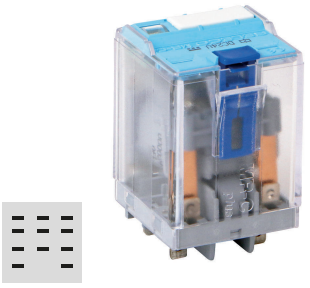
### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C5-A3x/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| LED | C5-A3xX/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| RC - Suppressor | C5-A3xR/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| DC | C5-A3x/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED | C5-A3xX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Free wheeling diode | C5-A3xDX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Pol. & Free wheeling diode | C5-A3xFX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| AC / DC bridge rec. & LED | C5-A3xBX/UC...V | ✓ | ✓ | | | | | | | |

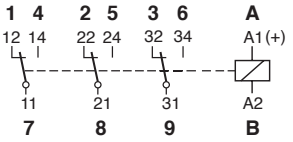
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

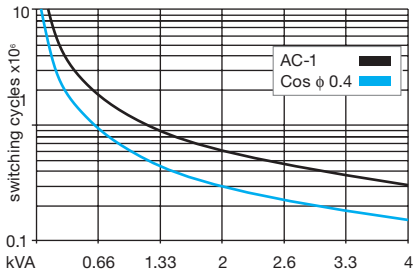
| | |
|---|---|
| Socket | S5-M, S5-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |



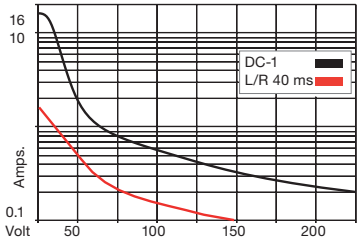
### fig. 1. Wiring diagram



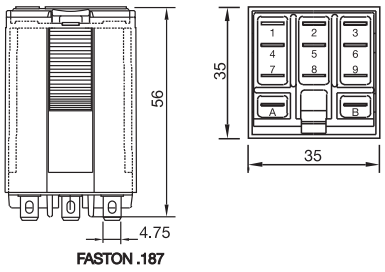

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals C5-A30 only

# 1.3 Industrial Relays - pluggable
# R5-A30U
## 3 pole | changeover contact | Faston

**Main circuit**

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 400 V AC-1 |
| Maximum contact load DC | 16 A / 30 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

**Control circuit**

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.4 W |

**Coil table**

| V DC | Ohm | mA |
|---|---|---|
| 24 | 414 | 58 |

**Insulation**

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 4 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

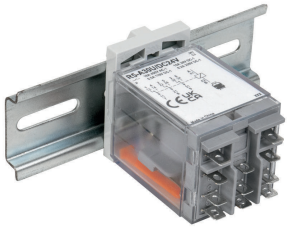
**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 95 g |
| Housing material | PA / PC |

**Product references**

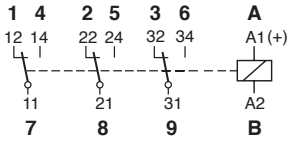
| Description | Type | 24 |
|---|---|---|
| DC | R5-A30U/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

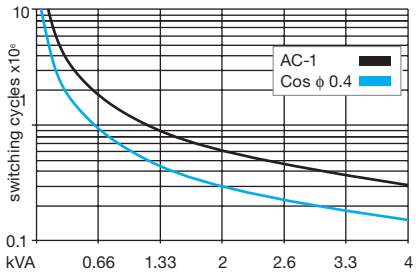




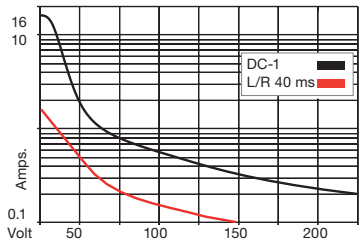
### fig. 1. Wiring diagram



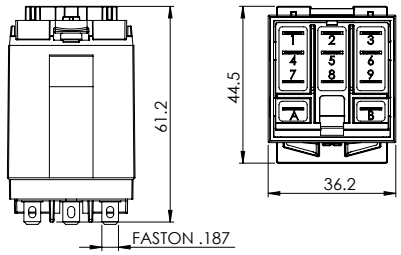

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810
Railway EN 45545-2; EN 50155
Approvals

# C5-G3x

## 3 pole | normally open contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C5-G30 |
| | $AgSnO_2$ for C5-G35 |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 400 V AC-1 |
| Maximum contact load DC | 16 A / 30 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.6 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 15.6 | 769 | 12 | 111 | 109 |
| 24 | 65 | 100 | 24 | 443 | 58 |
| 48 | 286 | 50 | 48 | 1 796 | 30 |
| 115 | 1 700 | 21 | 60 | 2 829 | 21.2 |
| 230 | 6 800 | 10 | 110 | 9 216 | 13 |
| 400 | 18 802 | 5.9 | 220 | 36 155 | 6.2 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2 kV / 1 min |
| Test voltage contact / contact | 4 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 95 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C5-G3x/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| LED | C5-G3xX/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| RC - Suppressor | C5-G3xR/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| DC | C5-G3x/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED | C5-G3xX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Free wheeling diode | C5-G3xDX/DC...V | ✓ | ✓ | ✓ | ✓ | | | ✓ | | |
| LED & Pol. & Free wheeling diode | C5-G3xFX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

| | |
|---|---|
| Socket | S5-M, S5-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |

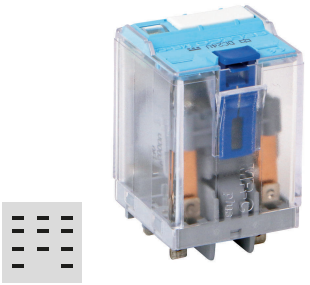


fig. 1. Wiring diagram

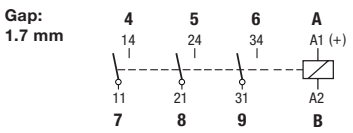



fig. 2. AC voltage endurance

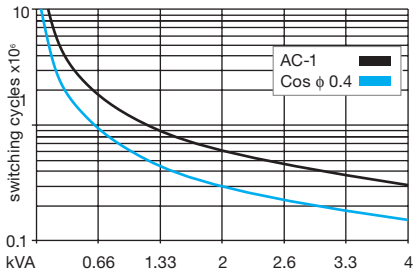



fig. 3. DC load limit curve

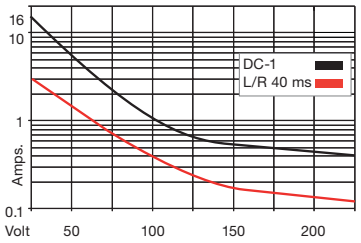
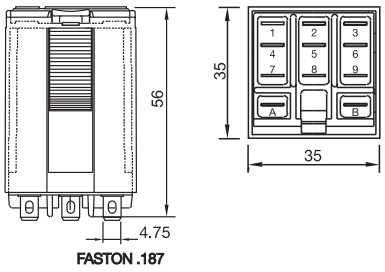



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C5-M10

## 1 pole | normally open serial contact with blow magnet | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 400 V AC-1 |
| Maximum contact load DC | 10 A / 220 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | 2 200 W |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 15.6 | 769 | 12 | 111 | 109 |
| 24 | 65 | 100 | 24 | 443 | 55 |
| 48 | 286 | 50 | 48 | 1 796 | 27 |
| 115 | 1 700 | 21 | 60 | 2 829 | 21.2 |
| 230 | 6 800 | 10 | 110 | 9 216 | 12 |
| 400 | 18 802 | 5.9 | 220 | 36 155 | 7 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 4 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

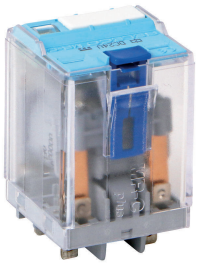
### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C5-M10/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| LED | C5-M10X/AC...V | | ✓ | | | | ✓ | | ✓ | |
| RC - Suppressor | C5-M10R/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| DC | C5-M10/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED | C5-M10X/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Free wheeling diode | C5-M10DX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Pol. & Free wheeling diode | C5-M10FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| RC - Suppressor | C5-M10R/DC...V | | ✓ | | | | | | | |

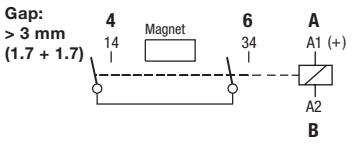
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

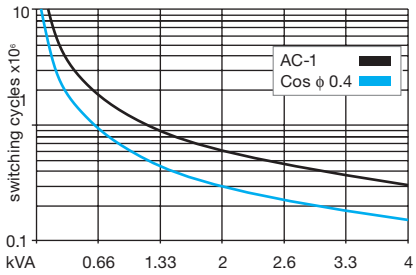
| | |
|---|---|
| Socket | S5-M, S5-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |



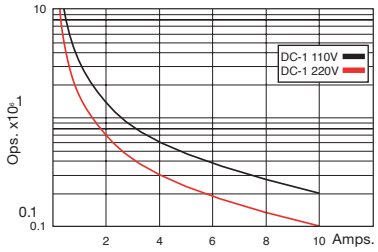
### fig. 1. Wiring diagram



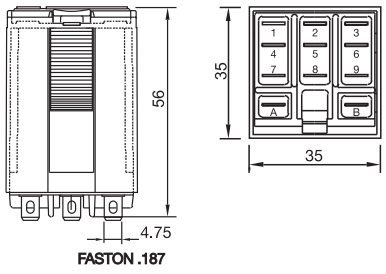

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# R5-M10

## 1 pole | normally open serial contact with blow magnet | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 400 V AC-1 |
| Maximum contact load DC | 10 A / 220 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | 2 200 W |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.3 W |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 24 | 443 | 54 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 4 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

### Product references

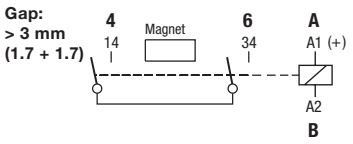
| Description | Type | 24 |
|---|---|---|
| LED & Pol. & Free wheeling diode | R5-M10FX/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

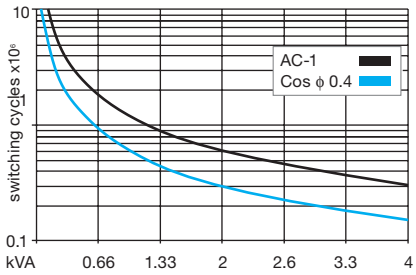
### Accessories

| | |
|---|---|
| S5-MR | S5-MR |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |

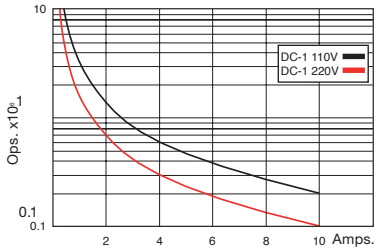
### fig. 1. Wiring diagram



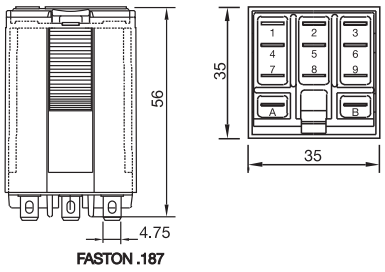

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

# C5-M20

## 2 pole | normally open contact with blow magnet | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 250 V AC-1 |
| Maximum contact load DC | 7 A / 110 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.6 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 15.6 | 769 | 12 | 111 | 109 |
| 24 | 65 | 100 | 24 | 443 | 58 |
| 48 | 286 | 50 | 48 | 1 796 | 30 |
| 115 | 1 700 | 21 | 110 | 9 216 | 13 |
| 230 | 6 800 | 10 | 220 | 36 155 | 6.2 |
| 400 | 18 802 | 5.9 | | | |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2 kV / 1 min |
| Test voltage contact / contact | 4 kV / 1 min |
| Test voltage contact / coil | 3 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

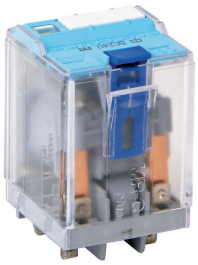
### Product references

| Description | Type | 12 | 24 | 48 | 110 | 115 | 220 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C5-M20/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ |
| LED | C5-M20X/AC...V | | ✓ | | | | | ✓ | |
| | | | | | | | | | |
| DC | C5-M20/DC...V | | ✓ | | ✓ | | ✓ | | |
| LED | C5-M20X/DC...V | | ✓ | | ✓ | | ✓ | | |
| LED & Free wheeling diode | C5-M20DX/DC...V | | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Pol. & Free wheeling diode | C5-M20FX/DC...V | ✓ | ✓ | ✓ | | | ✓ | | |

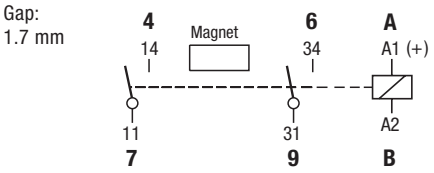
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

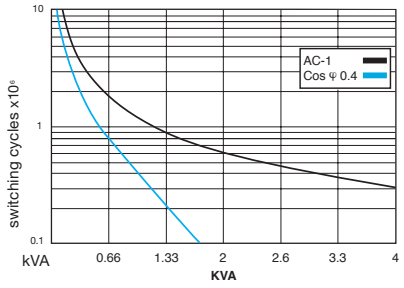
| | |
|---|---|
| Socket | S5-M, S5-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |



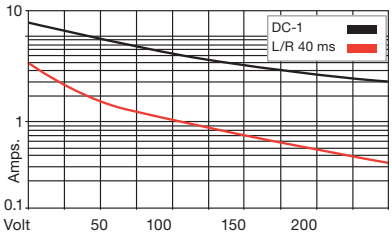
### fig. 1. Wiring diagram



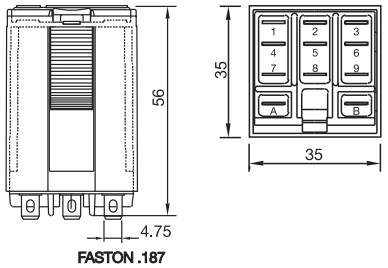

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C5-R20

## 2 pole | changeover contact | remanence | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 400 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

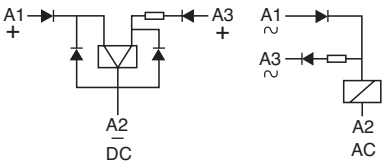
### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage (latch) | ≤ 0.8 $U_N$ |
| Release voltage (delatch) | ≤ 0.8 $U_N$ |
| ON pulse power | AC 1.8 VA, DC 1.5 W |
| OFF pulse power | AC 0.3 VA, DC 0.5 W |

### Coil table

| V AC | mA ON | mA OFF | V DC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 75 | 12 | 12 | 145 | 25 |
| 48 | 54 | 6 | 24 | 71 | 12 |
| 115 | 22 | 2.5 | 48 | 33 | 6 |
| 230 | 8 | 1.3 | 110 | 14 | 5 |

### Internal diagram




### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 4 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Minimum pulse length ON / OFF | 50 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 95 g |
| Housing material | PA / PC |

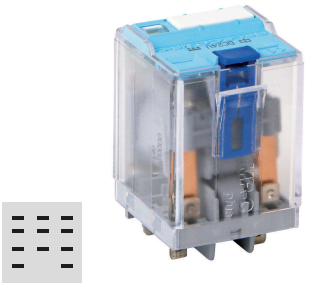
### Product references

| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C5-R20/AC...V | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| DC | C5-R20/DC...V | ✓ | ✓ | ✓ | ✓ | | | |

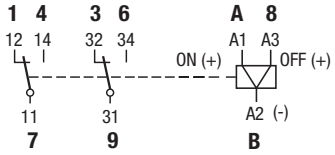
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

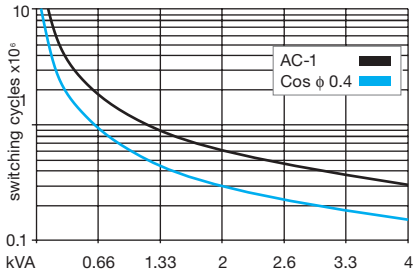
| | |
|---|---|
| Socket | S5-M, S5-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |



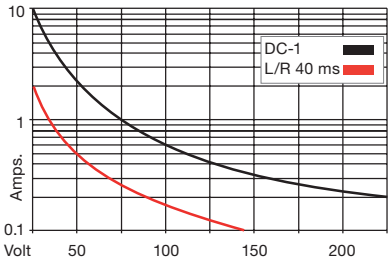
### fig. 1. Wiring diagram



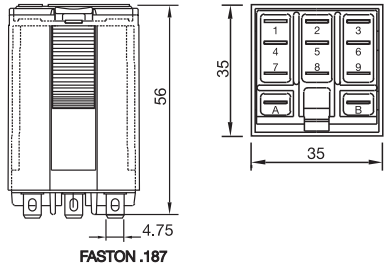

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

# C5-X10

## 1 pole | normally open serial contact | Faston

**Main circuit**

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 400 V AC-1 |
| Maximum contact load DC | 16 A / 30 V DC-1 |
| Inrush current | 40 , 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 |

**Control circuit**

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 2.4 VA / 1.3 W |

**Coil table**

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 15.6 | 769 | 12 | 111 | 109 |
| 24 | 65 | 100 | 24 | 443 | 58 |
| 48 | 286 | 50 | 48 | 1 796 | 30 |
| 115 | 1 700 | 21 | 110 | 9 216 | 13 |
| 230 | 6 800 | 10 | 220 | 36 155 | 6.2 |
| 400 | 18 802 | 5.9 | | | |

**Insulation**

| | |
|---|---|
| Test voltage open contact | 4 kV / 1 min |
| Test voltage contact / coil | 4 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 3 GΩ |
| Pollution degree | 3 |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 90 g |
| Housing material | PA / PC |

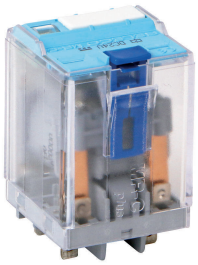
**Product references**

| Description | Type | 12 | 24 | 48 | 110 | 115 | 220 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C5-X10/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ |
| LED | C5-X10X/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ |
| RC - Suppressor | C5-X10R/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ | |
| DC | C5-X10/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED | C5-X10X/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Free wheeling diode | C5-X10DX/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | | |
| LED & Pol. & Free wheeling diode | C5-X10FX/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | | |

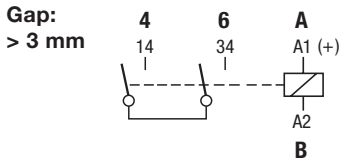
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

**Accessories**

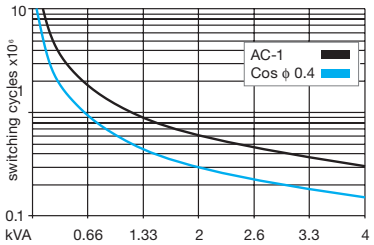
| | |
|---|---|
| Socket | S5-M, S5-P |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |
| Test button without locking | S5-HP (BAG 10 PCS) |



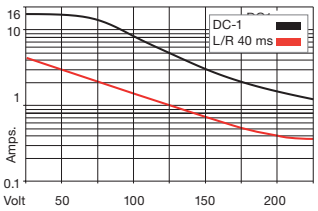
### fig. 1. Wiring diagram



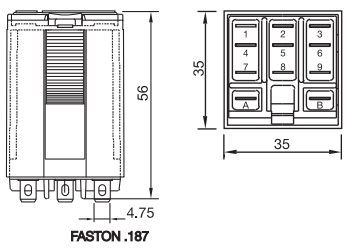

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



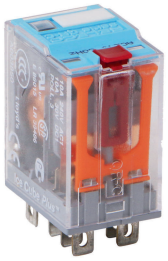

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C7-A10

## 1 pole | changeover contact | Faston





### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 16 A / 250 V AC-1 |
| Maximum contact load DC | 16 A / 24 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 4 000 VA |
| Rated load DC | fig. 3. |
| Rated current | 16 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 / DC-1 (cycles) | ≥ 300 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 42 | 122 | 12 | 158 | 76 |
| 24 | 166 | 59 | 24 | 632 | 38 |
| 48 | 681 | 26.2 | 48 | 2 530 | 19 |
| 115 | 3 812 | 12.5 | 60 | 3 953 | 15 |
| 230 | 15 248 | 6.7 | 110 | 13 286 | 8 |
| | | | 220 | 53 146 | 4 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

### Product references

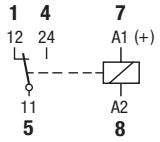
| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|
| LED | C7-A10X/AC...V | ✓ | ✓ | ✓ | | | ✓ | | ✓ |
| LED | C7-A10X/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C7-A10DX/DC...V | | ✓ | | | | | | |
| LED & Pol. & Free wheeling diode | C7-A10FX/DC...V | ✓ | ✓ | | | | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

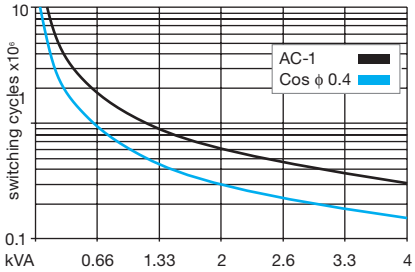
### Accessories

| | |
|---|---|
| Socket | S7-C, S7-IO, S7-P, S7-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

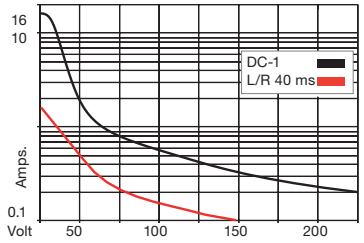
### fig. 1. Wiring diagram



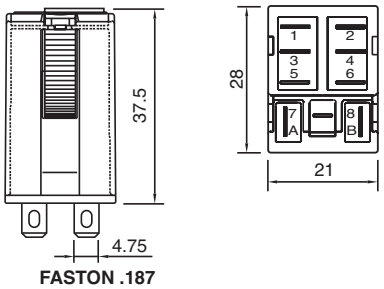

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




FASTON .187

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

# C7-A2x

## 2 pole | changeover contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi for C7-A20 |
| | AgNi + 5 µ Au for C7-A28 |
| Recommended minimum contact load | 10 mA / 10 V for C7-A20 |
| | 1 mA / 1 V for C7-A28 |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 / DC-1 (cycles) | ≥ 300 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 42 | 122 | 12 | 158 | 76 |
| 24 | 166 | 59 | 24 | 632 | 38 |
| 48 | 681 | 26.2 | 48 | 2 530 | 19 |
| 115 | 3 812 | 12.5 | 60 | 3 953 | 15 |
| 230 | 15 248 | 6.7 | 110 | 13 286 | 8 |
| | | | 220 | 53 146 | 4 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 35 g |
| Housing material | PA / PC |

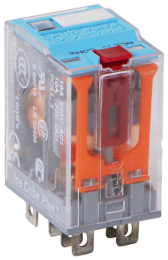
### Product references

| Description | Type | 12 | 24 | 48 | 60 | 72 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C7-A2x/AC.V | ✓ | ✓ | ✓ | | | | ✓ | | ✓ |
| LED | C7-A2xX/AC.V | ✓ | ✓ | ✓ | | | | ✓ | | ✓ |
| | | | | | | | | | | |
| DC | C7-A2x/DC.V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED | C7-A2xX/DC.V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C7-A2xDX/DC.V | | ✓ | | | | | | | |
| LED & Pol. & Free wheeling diode | C7-A2xFX/DC.V | ✓ | ✓ | ✓ | | | ✓ | | | |
| | | | | | | | | | | |
| AC / DC bridge rec. & LED | C7-A2xBX/UC.V | ✓ | ✓ | ✓ | ✓ | | | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

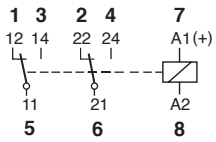
### Accessories

| | |
|---|---|
| Socket | S7-C, S7-IO, S7-P, S7-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

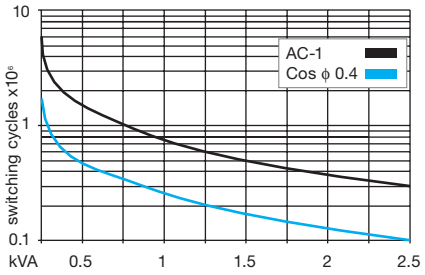




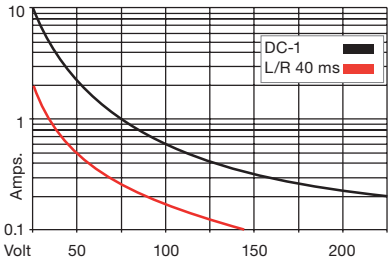
### fig. 1. Wiring diagram



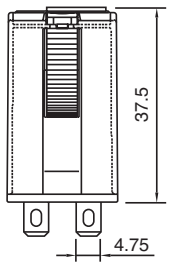

### fig. 2. AC voltage endurance

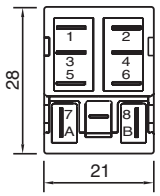



### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C7-A2x+S7-PI

## 2 pole | changeover contact



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 24 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 / DC-1 (cycles) | ≥ 300 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 120 | 3 973 | 9.5 | 24 | 632 | 38 |
| 230 | 15 248 | 6.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage all terminals / DIN rail | 2.5 kV rms / 1 min |
| Test voltage terminal / terminal | 2.5 kV rms / 1 min |
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage contact / coil | 2.5 kV rms / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree relay | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Conductor cross section control / main circuit | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 81 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 24 | 120 | 230 |
|---|---|---|---|---|
| LED | C7-A20X/AC...V+S7-PI | | | ✓ |
| LED | C7-A20X/AC...V 60HZ+S7-PI | | ✓ | |
| | | | | |
| LED & Free wheeling diode | C7-A20DX/DC...V+S7-PI | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

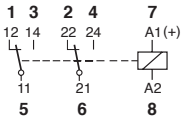
### Included Accessories

| | |
|---|---|
| Retaining clip | plastic | S7-CPI |

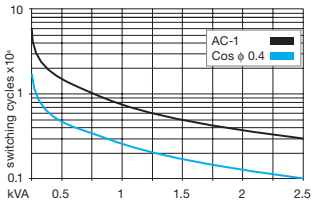
### Optional Accessories

| | |
|---|---|
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |
| Retaining clip | plastic | S7-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

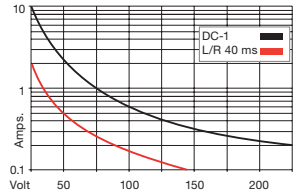
### fig. 1. Wiring diagram



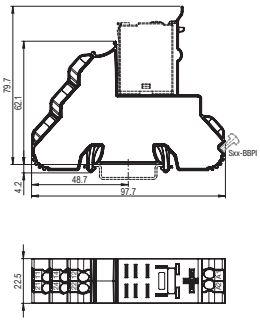

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# R7-A20

## 2 pole | changeover contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 24 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 300 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 12 | 158 | 76 |
| 24 | 632 | 38 |
| 24 | 5 692 | 13 |
| 36 | 1 423 | 25 |
| 60 | 3 953 | 15 |
| 72 | 5 692 | 13 |
| 110 | 13 286 | 8 |
| 220 | 53 146 | 4 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 35 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 36 | 60 | 72 | 110 | 220 |
|---|---|---|---|---|---|---|---|---|
| LED & Free wheeling diode | R7-A20DX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

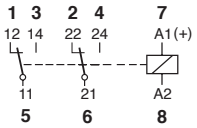
### Accessories

| | |
|---|---|
| Socket | S7-GR, S7-PIR |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

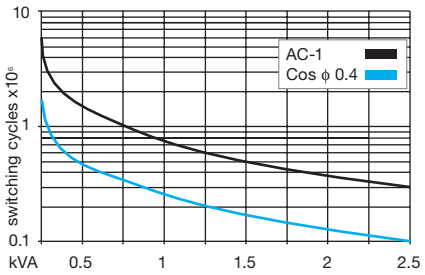




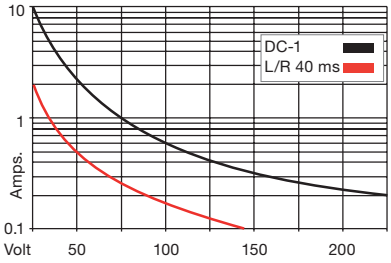
### fig. 1. Wiring diagram



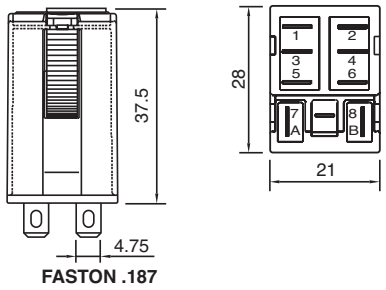

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

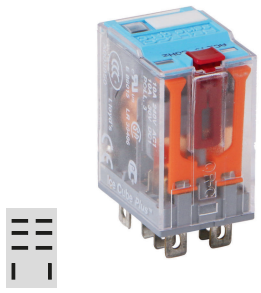
Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

# C7-G20

## 2 pole | normally open contact | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 / DC-1 (cycles) | ≥ 300 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.5 VA / 1.5 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 42 | 122 | 12 | 95 | 127 |
| 24 | 166 | 59 | 24 | 379 | 63 |
| 48 | 681 | 26.2 | 48 | 1 518 | 30 |
| 115 | 3 812 | 12.5 | 110 | 7 973 | 14 |
| 230 | 15 248 | 6.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

### Product references

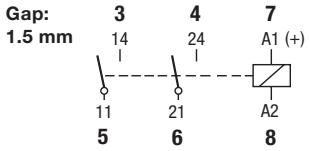
| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|
| AC 50 Hz | C7-G20/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| LED | C7-G20X/AC...V | ✓ | ✓ | ✓ | | ✓ | ✓ |
| | | | | | | | |
| DC | C7-G20/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED | C7-G20X/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED & Free wheeling diode | C7-G20DX/DC...V | | ✓ | | | | |
| LED & Pol. & Free wheeling diode | C7-G20FX/DC...V | ✓ | ✓ | ✓ | ✓ | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

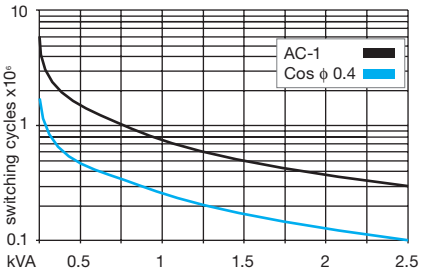
### Accessories

| | |
|---|---|
| Socket | S7-C, S7-IO, S7-P, S7-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

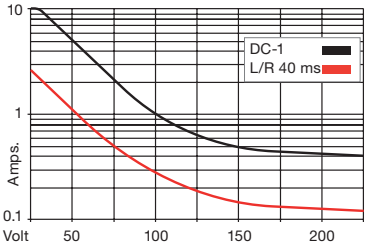
### fig. 1. Wiring diagram



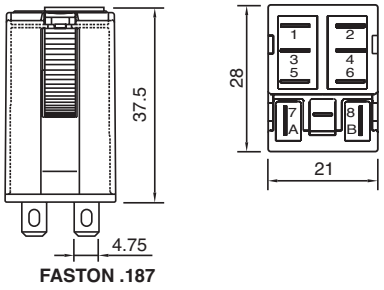

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C7-H23

## 2 pole | changeover power and twin contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi = Power contact<br>AgNi + 5 µ Au = Twin contact |
| Recommended minimum contact load | 10 mA / 10 V on power contact<br>5 mA / 5 V on twin contact |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 / DC-1 (cycles) | ≥ 300 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 230 | 15 248 | 6.7 | 24 | 632 | 38 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

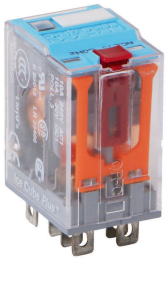
### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| LED | C7-H23X/AC...V | | ✓ |
| LED | C7-H23DX/DC...V | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

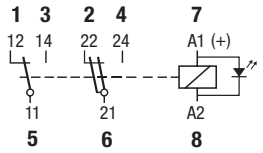
### Accessories

| | |
|---|---|
| Socket | S7-C, S7-IO, S7-P, S7-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

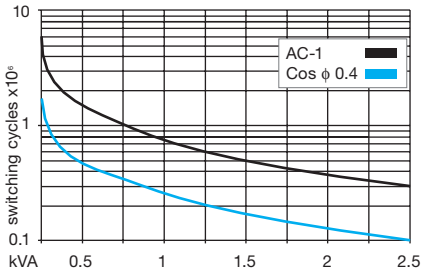




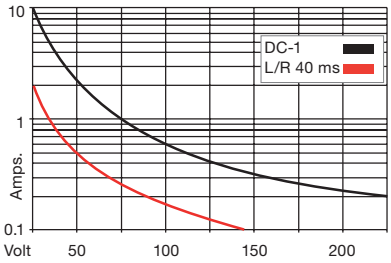
### fig. 1. Wiring diagram



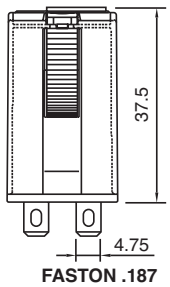

### fig. 2. AC voltage endurance

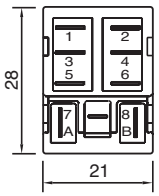



### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



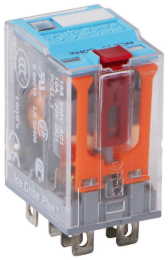

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C7-T2x

## 2 pole | changeover twin contact | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au for C7-T21 |
| | AgNi + 5 µ Au for C7-T22 |
| Recommended minimum contact load | 5 mA / 5 V for C7-T21 |
| | 1 mA / 1 V for C7-T22 |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 200 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 / DC-1 (cycles) | ≥ 150 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 42 | 122 | 12 | 158 | 76 |
| 24 | 166 | 59 | 24 | 632 | 38 |
| 48 | 664 | 26.2 | 48 | 2 530 | 19 |
| 115 | 3 812 | 12.5 | 72 | 5 760 | 12.5 |
| 230 | 15 248 | 6.7 | 110 | 13 286 | 8 |
| | | | 125 | 1 736.1 | 72 |
| | | | 220 | 53 146 | 4 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

### Product references

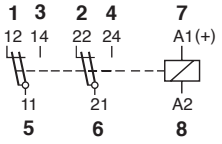
| Description | Type | 12 | 24 | 48 | 72 | 110 | 115 | 125 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C7-T2x/AC...V | ✓ | ✓ | ✓ | | | ✓ | | | ✓ |
| LED | C7-T2xX/AC...V | ✓ | ✓ | ✓ | | | ✓ | | | ✓ |
| | | | | | | | | | | |
| DC | C7-T2x/DC...V | ✓ | ✓ | ✓ | | ✓ | | | ✓ | |
| LED | C7-T2xX/DC...V | ✓ | ✓ | ✓ | | ✓ | | | ✓ | |
| LED & Free wheeling diode | C7-T2xDX/DC.V | | ✓ | | | | | | | |
| LED & Pol. & Free wheeling diode | C7-T2xFX/DC.V | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | |
| | | | | | | | | | | |
| AC / DC bridge rec. & LED | C7-T2xBX/UC.V | ✓ | ✓ | ✓ | | | | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

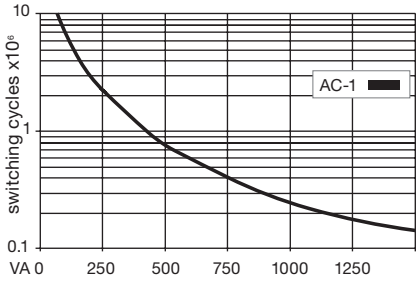
### Accessories

| | |
|---|---|
| Socket | S7-C, S7-IO, S7-P, S7-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

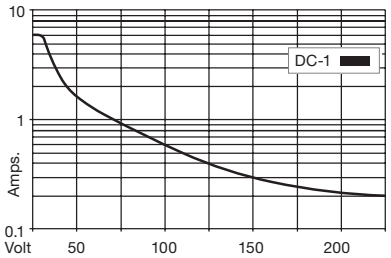
### fig. 1. Wiring diagram



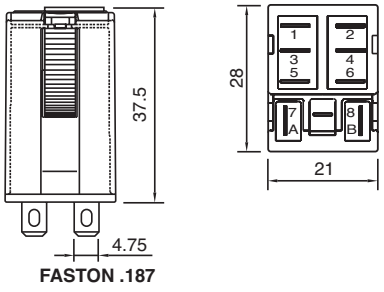

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

1.3 Industrial Relays - pluggable

# R7-T2x

## 2 pole | changeover twin contact | Faston

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au for R7-T21 |
| | AgNi + 5 µ Au for R7-T22 |
| Recommended minimum contact load | 5 mA / 5 V for R7-T21 |
| | 1 mA / 1 V for R7-T22 |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 200 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 150 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 12 | 158 | 76 |
| 24 | 632 | 38 |
| 36 | 1 423 | 25 |
| 48 | 2 530 | 19 |
| 60 | 3 953 | 15 |
| 72 | 5 692 | 13 |
| 110 | 13 286 | 8 |
| 220 | 53 146 | 4 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 16 ms / ≤ 3 ms |
| Release time / bounce time | 8 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 35 g |
| Housing material | PA / PC |

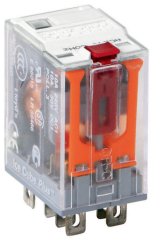
### Product references

| Description | Type | 12 | 24 | 36 | 48 | 60 | 220 |
|---|---|---|---|---|---|---|---|
| LED & Pol. & Free wheeling diode | R7-T2xFX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

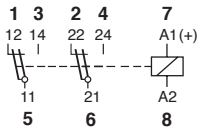
### Accessories

| | |
|---|---|
| Socket | S7-GR, S7-PIR |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

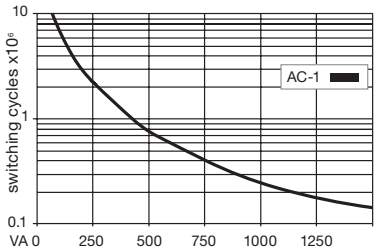




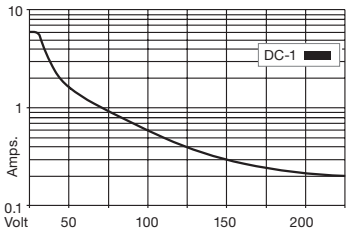
### fig. 1. Wiring diagram



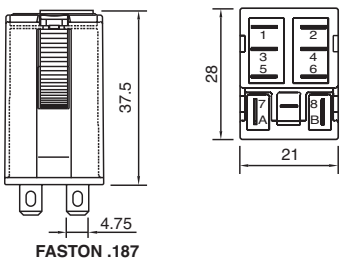

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

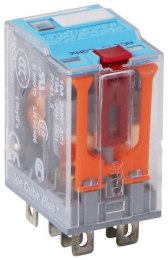
Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

# C7-W10

## 1 pole | normally open tungsten pre-contact | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | Tungsten = Pre-contact<br>AgNi = Main contact |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Inrush current | 500 A, 2.5 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 / DC-1 (cycles) | ≥ 300 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.5 VA / 1.5 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 166 | 59 | 12 | 95 | 127 |
| 48 | 681 | 26.2 | 24 | 379 | 63 |
| 115 | 3 812 | 12.5 | 48 | 1 518 | 30 |
| 230 | 15 248 | 6.7 | 60 | 4 000 | 15 |
| | | | 110 | 7 973 | 14 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

### Product references

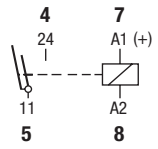
| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C7-W10/AC...V | | | ✓ | | | ✓ | ✓ |
| LED | C7-W10X/AC...V | | | ✓ | | | ✓ | ✓ |
| | | | | | | | | |
| DC | C7-W10/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| LED | C7-W10X/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| LED & Pol. & Free wheeling diode | C7-W10FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | |
| | | | | | | | | |
| AC / DC bridge rec. & LED | C7-W10BX/UC...V | | ✓ | | | | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

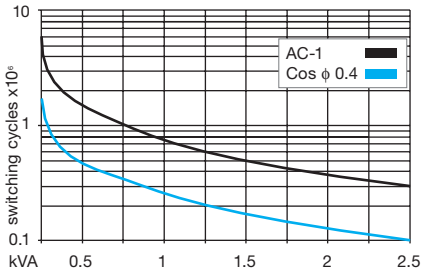
### Accessories

| | |
|---|---|
| Socket | S7-C, S7-IO, S7-P, S7-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

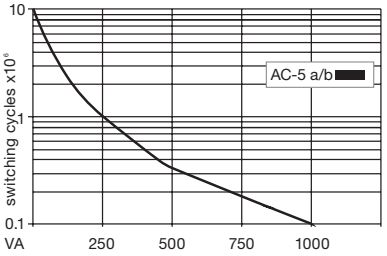
### fig. 1. Wiring diagram



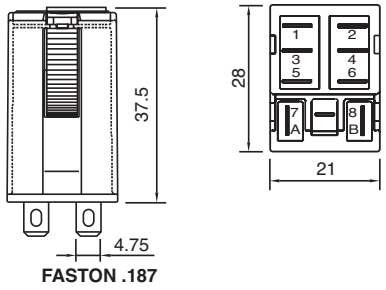

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



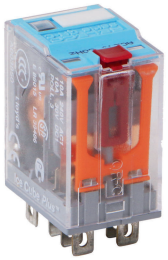

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C7-X10

## 1 pole | normally open serial contact | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 30 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 / DC-1 (cycles) | ≥ 300 000 / ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.5 VA / 1.3 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 166 | 59 | 12 | 95 | 127 |
| 115 | 3 812 | 12.5 | 24 | 379 | 63 |
| 230 | 15 248 | 6.7 | 48 | 1 518 | 30 |
| | | | 110 | 7 973 | 14 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 20 ms / ≤ 3 ms |
| Release time / bounce time | 10 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

### Product references

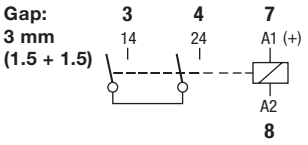
| Description | Type | 12 | 24 | 48 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|
| AC 50 Hz | C7-X10/AC...V | | | | | | ✓ |
| LED | C7-X10X/AC...V | | ✓ | | | ✓ | ✓ |
| | | | | | | | |
| DC | C7-X10/DC...V | ✓ | ✓ | ✓ | ✓ | | |
| LED | C7-X10X/DC...V | ✓ | ✓ | ✓ | | | |
| LED & Free wheeling diode | C7-X10DX/DC...V | | ✓ | | | | |
| LED & Pol. & Free wheeling diode | C7-X10FX/DC...V | ✓ | ✓ | ✓ | ✓ | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

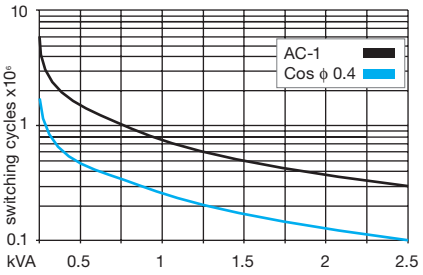
### Accessories

| | |
|---|---|
| Socket | S7-C, S7-IO, S7-P, S7-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

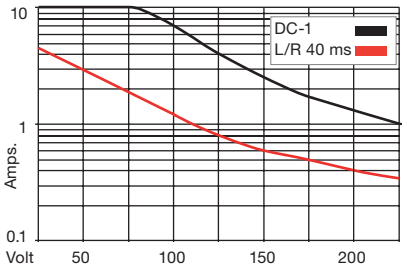
### fig. 1. Wiring diagram



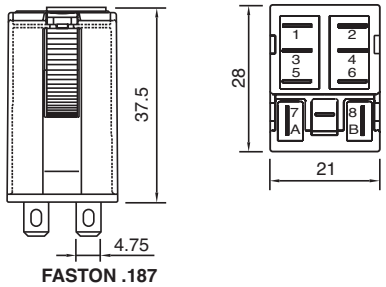

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



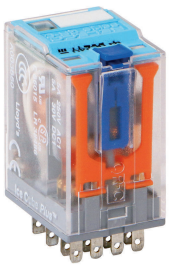

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C9-A4x

## 4 pole | changeover contact | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au for C9-A41 |
| | AgNi + 5 µ Au for C9-A42 |
| Recommended minimum contact load | 1 mA / 1 V |
| Maximum contact load AC | 5 A / 250 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 250 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 42 | 122 | 12 | 158 | 76 |
| 24 | 166 | 59 | 24 | 632 | 38 |
| 48 | 681 | 26.2 | 48 | 2 530 | 19 |
| 60 | 1 038 | 0 | 60 | 3 953 | 15 |
| 230 | 15 248 | 6.7 | 110 | 13 286 | 8 |
| | | | 220 | 53 146 | 4 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 10 ms / ≤ 3 ms |
| Release time / bounce time | 6 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C9-A4x/AC...V | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| LED | C9-A4xX/AC...V | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| | | | | | | | | |
| DC | C9-A4x/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| LED | C9-A4xX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| LED & Free wheeling diode | C9-A4xDX/DC...V | | ✓ | | | | | |
| LED & Pol. & Free wheeling diode | C9-A4xFX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| | | | | | | | | |
| AC / DC bridge rec. & LED | C9-A4xBX/UC...V | ✓ | ✓ | ✓ | ✓ | | | |

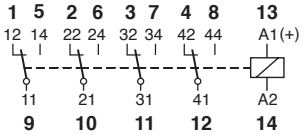
AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

### Accessories

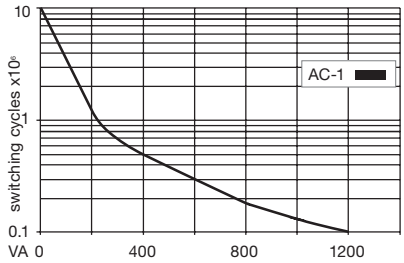
| | |
|---|---|
| Socket | S9-M, S9-P, S9-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

Maximum voltage between two separate circuits on neighbouring contacts: 150 V
**Not permitted:** 24 V DC next to 230 V AC, 230 V AC next to neutral, 230 V AC next to 230 V AC of different phases
**Permitted:** 230 V AC next to 230 V AC same phase

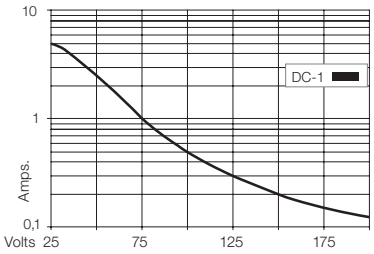
### fig. 1. Wiring diagram



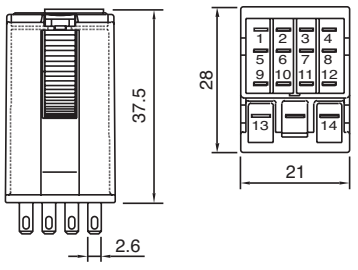

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




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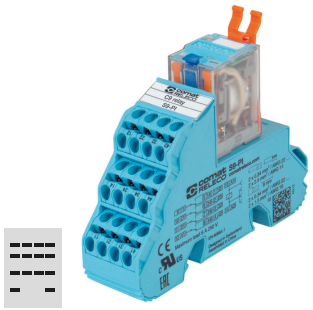
### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# 1.3 Industrial Relays - pluggable
# C9-A4x+S9-PI
## 4 pole | changeover contact





### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au |
| Recommended minimum contact load | 1 mA / 1 V |
| Maximum contact load AC | 5 A / 250 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 250 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 120 | 3 973 | 9.5 | 24 | 632 | 38 |
| 230 | 15 248 | 6.7 | | | |

### Insulation

| | |
|---|---|
| Test voltage all terminals / DIN rail | 2.5 kV rms / 1 min |
| Test voltage terminal / terminal | 2.0 kV rms / 1 min |
| Test voltage open contact | 1 kV rms / 1 min |
| Test voltage contact / coil | 2.5 kV rms / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree relay | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 10 ms / ≤ 3 ms |
| Release time / bounce time | 6 ms / ≤ 1 ms |
| Conductor cross section control / main circuit | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 105 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 24 | 120 | 230 |
|---|---|---|---|---|
| LED | C9-A41X/AC...V+S9-PI | | | ✓ |
| LED | C9-A41X/AC...V 60HZ+S9-PI | | ✓ | |
| | | | | |
| LED & Free wheeling diode | C9-A41DX/DC...V+S9-PI | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

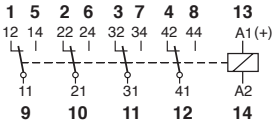
### Included Accessories

| | |
|---|---|
| Retaining clip \| plastic | S7-CPI |

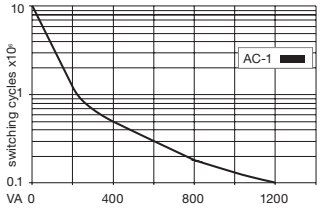
### Optional Accessories

| | |
|---|---|
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| 4-pole potential bridge bar | Sxx-BBPI4 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |
| Retaining clip \| plastic | S7-CPI (BAG 10 PCS) |

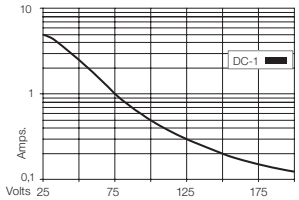
### fig. 1. Wiring diagram



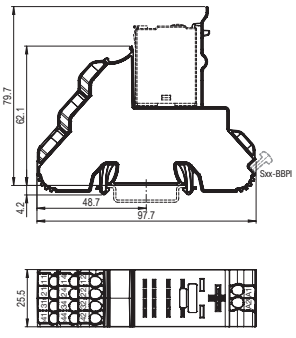

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# R9-A41

## 4 pole | changeover contact | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 5 A / 250 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 250 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 1.2 VA / 1 W |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 12 | 158 | 76 |
| 24 | 632 | 38 |
| 36 | 1 423 | 25 |
| 48 | 2 530 | 19 |
| 60 | 3 953 | 15 |
| 72 | 5 692 | 13 |
| 110 | 13 286 | 8 |
| 220 | 53 146 | 4 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time / bounce time | 10 ms / ≤ 3 ms |
| Release time / bounce time | 6 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

### Product references

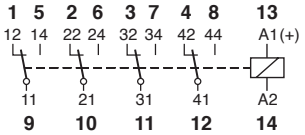
| Description | Type | 12 | 24 | 36 | 48 | 60 | 72 | 110 | 220 |
|---|---|---|---|---|---|---|---|---|---|
| LED & Pol. & Free wheeling diode | R9-A41FX/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

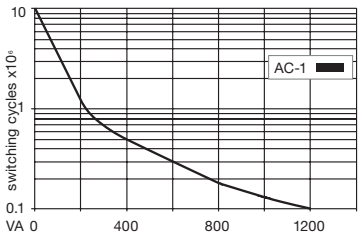
### Accessories

| | |
|---|---|
| Socket | S9-PIR |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

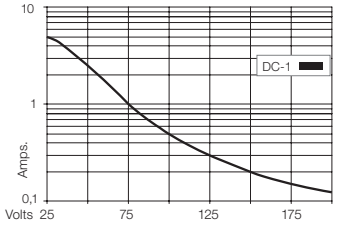
### fig. 1. Wiring diagram



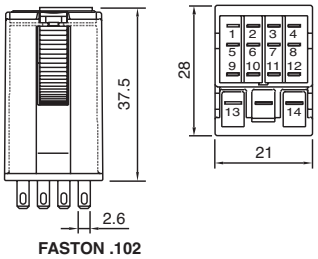

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




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### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

# C9-E21

## 2 pole | changeover contact | sensitive coil | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 5 A / 250 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 200 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC / DC | 0.8 VA / 0.5 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 12 | 65 | 68 | 12 | 279 | 43 |
| 24 | 255 | on req. | 24 | 1140 | 21 |
| 48 | 1022 | on req. | 48 | 4467 | 10.7 |
| 60 | 1516 | 13.6 | 60 | 7053 | 8.5 |
| 115 | 5865 | on req. | 110 | 23449 | 4.7 |
| 230 | 23900 | 3.2 | | | |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2.5 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Pick-up time / bounce time | 10 ms / ≤ 3 ms |
| Release time / bounce time | 6 ms / ≤ 1 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 40 g |
| Housing material | PA / PC |

### Product references

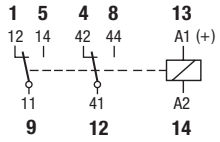
| Description | Type | 6 | 12 | 24 | 48 | 60 | 72 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C9-E21/AC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| LED | C9-E21X/AC...V | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ |
| | | | | | | | | | | | |
| DC | C9-E21/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| LED | C9-E21X/DC...V | | ✓ | ✓ | ✓ | | | ✓ | | | |
| LED & Free wheeling diode | C9-E21DX/DC...V | | | ✓ | | | | | | | |
| LED & Pol. & Free wheeling diode | C9-E21FX/DC...V | | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

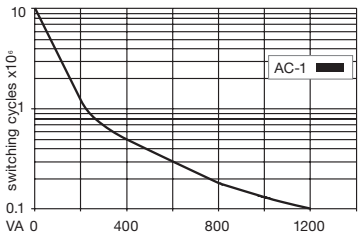
### Accessories

| | |
|---|---|
| Socket | S9-M, S9-P, S9-PI |
| Blanking plug | S9-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

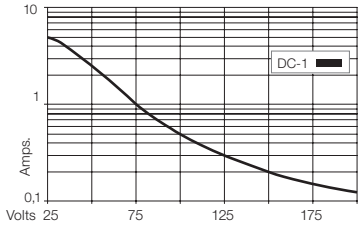
### fig. 1. Wiring diagram



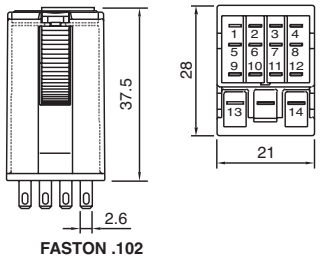

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



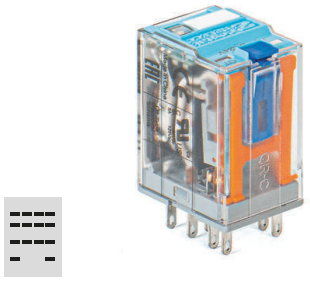

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C9-R21

## 2 pole | changeover contact | remanence | Faston



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi + 0.2 µ Au |
| Recommended minimum contact load | 10 mA / 10 V |
| Maximum contact load AC | 5 A / 120 V AC-1 |
| Maximum contact load DC | 5 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 600 VA |
| Rated load DC | fig. 3. |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |

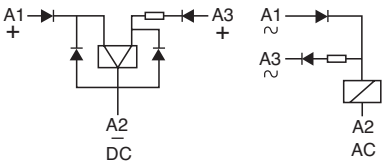
### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≤ 0.8 $U_N$ |
| ON pulse power | AC 1.2 VA, DC 1.2 W |
| OFF pulse power | 0.2 VA / 0.3 W |

### Coil table

| V AC | mA ON | mA OFF | V DC | mA ON | mA OFF |
|---|---|---|---|---|---|
| 24 | 62 | 6 | 12 | 105 | 19 |
| 48 | 25 | 4 | 24 | 51 | 8 |
| 115 | 14 | 1 | 48 | 26 | 4 |
| 230 | 5 | 1 | 60 | 21 | 5 |

### Internal diagram




### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / contact | 2 kV / 1 min |
| Test voltage contact / coil | 2 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Minimum pulse length ON / OFF | 50 ms |
| Maximum switching frequency at rated load | 1 200 / h |
| Weight | 43 g |
| Housing material | PA / PC |

### Product references

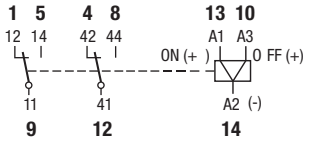
| Description | Type | 12 | 24 | 48 | 60 | 110 | 115 | 230 |
|---|---|---|---|---|---|---|---|---|
| AC 50 Hz | C9-R21/AC...V | ✓ | ✓ | ✓ | | | ✓ | ✓ |
| DC | C9-R21/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

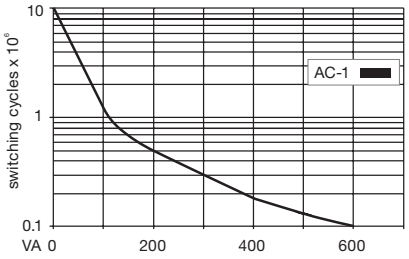
### Accessories

| | |
|---|---|
| Socket | S9-M, S9-P, S9-PI |
| Blanking plug | SO-NP (BAG 10 PCS) |
| Test Button w/o locking | S9-OP (BAG 10 PCS) |

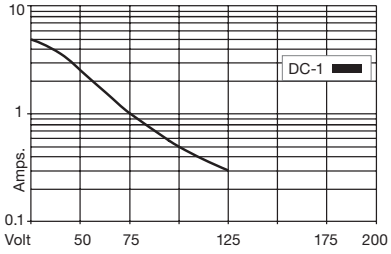
### fig. 1. Wiring diagram



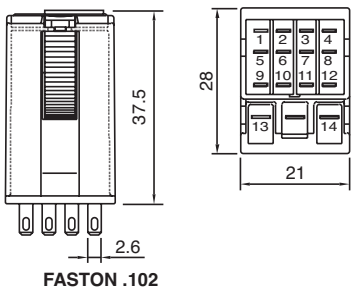

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




FASTON .102

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# 1.4 Long Life Relays


| | Type | Pin | Page |
|---|---|---|---|
| **C2x Series** | | | |
| 2 pole \| changeover contact \| Power relay | C21 | | 84 |
| 2 pole \| changeover twin contact \| Control relay | C22 | | 85 |
| **C3 Series** | | | |
| 3 pole \| changeover contact \| Power relay | C31 | | 86 |
| 3 pole \| changeover contact \| Power relay \| Railway | C31x/R | | 87 |
| 3-pole \| change-over double contact \| Control relay | C32 | | 88 |
| 3 pole \| changeover twin contact \| Control relay \| Railway | C32x/R | | 89 |

# C21

## 2 pole | changeover contact | Power relay



### Main circuit

| | |
|---|---|
| Available contact materials | AgCuNi |
| Recommended minimum contact load | 50 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 700 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage AC / DC | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Power consumption AC / DC | 2.5 VA / 1.2 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 52 | 104 | 12 | 115 | 104 |
| 48 | 1 850 | 26 | 24 | 480 | 50 |
| 230 | 5 600 | 11.5 | 48 | 1 850 | 26 |
| | | | 110 | 9 000 | 12 |
| | | | 220 | 29 000 | 7.6 |

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

### Insulation

| | |
|---|---|
| Test voltage open contact | 1.5 kV / 1 min |
| Test voltage contact / contact | 1.5 kV / 1 min |
| Test voltage contact / coil | 2 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 70 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 ... 6 ms / approx. ≤ 3.5 ms |
| Maximum switching frequency at rated load | 360 / h |
| Weight | 80 g |
| Housing material | PA / PC |

### Product references

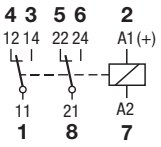
| Description | Type | 12 | 24 | 48 | 110 | 220 | 230 |
|---|---|---|---|---|---|---|---|
| LED | C21L/AC...V | ✓ | ✓ | ✓ | | | ✓ |
| LED & Free wheeling diode | C21DL/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

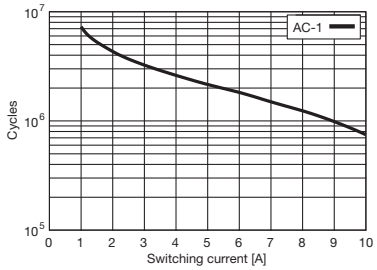
### Accessories

Socket S2-B

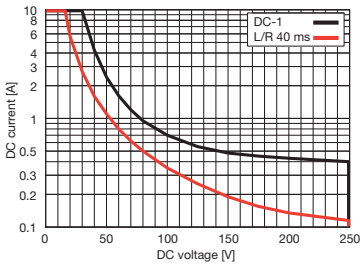
### fig. 1. Wiring diagram



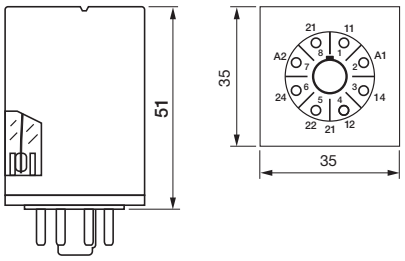

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C22

## 2 pole | changeover twin contact | Control relay



### Main circuit

| | |
|---|---|
| Available contact materials | AgCuNi |
| Recommended minimum contact load | 10 mA / 5 V |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 1 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage AC / DC | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Power consumption AC / DC | 2.5 VA / 1.2 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 52 | 104 | 12 | 115 | 104 |
| 48 | 240 | 55 | 24 | 480 | 50 |
| 115 | 1 350 | 23 | 48 | 1 850 | 26 |
| | | | 110 | 9 000 | 12 |
| | | | 220 | 29 000 | 7.6 |

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

### Insulation

| | |
|---|---|
| Test voltage open contact | 1.5 kV / 1 min |
| Test voltage contact / contact | 1.5 kV / 1 min |
| Test voltage contact / coil | 2 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 70 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 ... 6 ms / approx. ≤ 3.5 ms |
| Maximum switching frequency at rated load | 360 / h |
| Weight | 80 g |
| Housing material | PA / PC |

### Product references

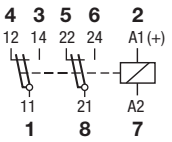
| Description | Type | 12 | 24 | 48 | 110 | 115 | 220 |
|---|---|---|---|---|---|---|---|
| LED | C22L/AC...V | ✓ | ✓ | ✓ | | ✓ | |
| LED & Free wheeling diode | C22DL/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

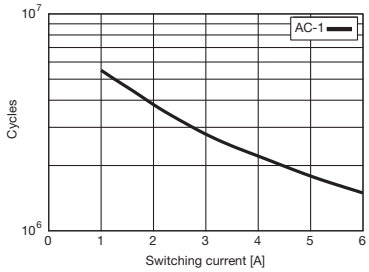
### Accessories

Socket S2-B

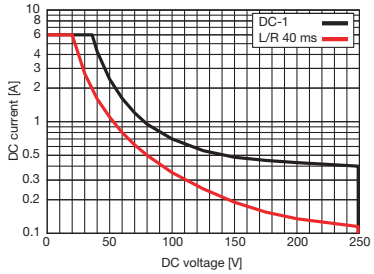
### fig. 1. Wiring diagram



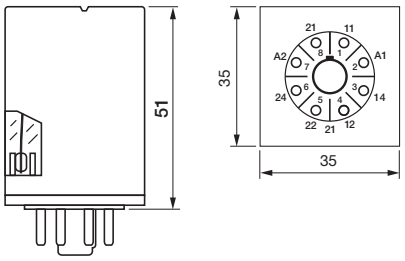

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C31

## 3 pole | changeover contact | Power relay



### Main circuit

| | |
|---|---|
| Available contact materials | AgCuNi |
| Recommended minimum contact load | 50 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 700 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.20 $U_N$ |
| Pick-up voltage | 0.8 $U_N$ |
| Release voltage | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Power consumption AC / DC | 2.5 VA / 1.2 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 24 | 52 | 104 | 12 | 115 | 104 |
| 48 | 240 | 55 | 24 | 480 | 50 |
| 115 | 1 350 | 23 | 48 | 1 850 | 26 |
| 230 | 5 600 | 11.5 | 72 | 3 200 | 23 |
| | | | 110 | 9 000 | 12 |
| | | | 220 | 29 000 | 7.6 |

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

### Insulation

| | |
|---|---|
| Test voltage open contact | 1.5 kV / 1 min |
| Test voltage contact / contact | 1.5 kV / 1 min |
| Test voltage contact / coil | 2 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 ... 6 ms / approx. ≤ 3.5 ms |
| Maximum switching frequency at rated load | 360 / h |
| Weight | 80 g |
| Housing material | PA / PC |

### Product references

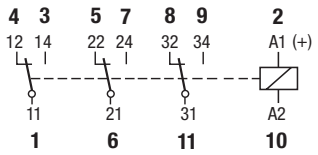
| Description | Type | 12 | 24 | 48 | 110 | 115 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|
| LED | C31L/AC...V | ✓ | ✓ | ✓ | | ✓ | | ✓ |
| LED & Free wheeling diode | C31DL/DC...V | ✓ | ✓ | ✓ | ✓ | | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

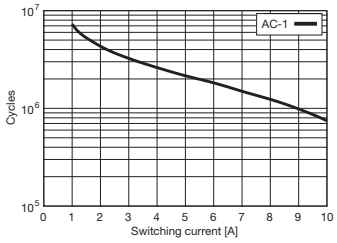
### Accessories

Socket S3-B, S3-S, S3-M, S3-M0, S3-M1, EC-11

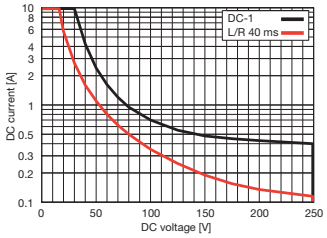
### fig. 1. Wiring diagram



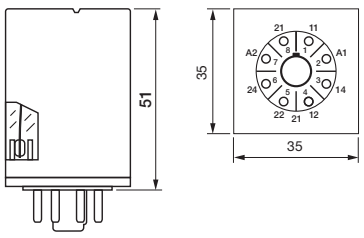

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# 1.4 Long Life Relays
# C31x/R
## 3 pole | changeover contact | Power relay | Railway



### Main circuit

| | |
|---|---|
| Available contact materials | AgCuNi |
| Recommended minimum contact load | 50 mA / 10 V |
| Maximum contact load AC | 10 A / 250 V AC-1 |
| Maximum contact load DC | 10 A / 30 V DC-1 |
| Inrush current | 40 A, 20 ms |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 10 A |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 700 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | 0.7 $U_N$ |
| Release voltage | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Power consumption AC / DC | 2.5 VA / 1.2 W |

### Coil table

| V DC | Ohm | mA |
|---|---|---|
| 12 | 115 | 104 |
| 24 | 340 | 70 |
| 36 | 780 | 46 |
| 48 | 1 850 | 26 |
| 72 | 3 200 | 23 |
| 110 | 9 700 | 11 |
| 220 | 29 000 | 7.6 |

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

### Insulation

| | |
|---|---|
| Test voltage open contact | 1.5 kV / 1 min |
| Test voltage contact / contact | 1.5 kV / 1 min |
| Test voltage contact / coil | 2 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 ... 6 ms / approx. ≤ 3.5 ms |
| Maximum switching frequency at rated load | 360 / h |
| Weight | 80 g |
| Housing material | PA / PC |

### Product references

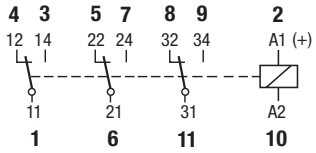
| Description | Type | 12 | 24 | 36 | 48 | 72 | 110 | 220 |
|---|---|---|---|---|---|---|---|---|
| Railway & Free wheeling diode | C31D/R DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

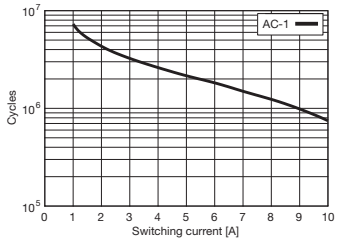
### Accessories

| | |
|---|---|
| Socket | S3-MR, S3-M0R, S3-M1R |

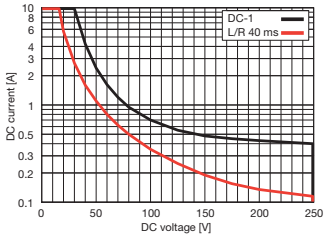
### fig. 1. Wiring diagram



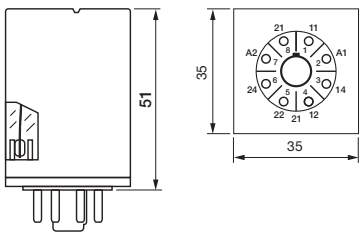

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

# C32

## 3-pole | change-over double contact | Control relay



### Main circuit

| | |
|---|---|
| Available contact materials | AgCuNi |
| Recommended minimum contact load | 1 mA / 5 V |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 1 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.20 $U_N$ |
| Pick-up voltage | 0.8 $U_N$ |
| Release voltage | > 0.15 x $U_N$ / > 0.05 x $U_N$ |
| Power consumption AC / DC | 2.5 VA / 1.2 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 48 | 240 | 55 | 12 | 115 | 104 |
| 115 | 1 350 | 23 | 24 | 480 | 50 |
| 230 | 5 600 | 11.5 | 48 | 1 850 | 26 |
| | | | 220 | 29 000 | 7.6 |

Types with LED indicator take additional 5 ... 10 mA @ < 80 V

### Insulation

| | |
|---|---|
| Test voltage open contact | 1.5 kV / 1 min |
| Test voltage contact / contact | 1.5 kV / 1 min |
| Test voltage contact / coil | 2 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time AC / DC | 3 … 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 … 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 ... 6 ms / approx. ≤ 3.5 ms |
| Maximum switching frequency at rated load | 360 / h |
| Weight | 80 g |
| Housing material | PA / PC |

### Product references

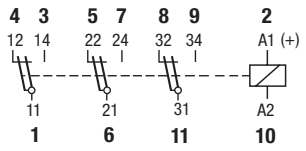
| Description | Type | 12 | 24 | 48 | 220 | 230 |
|---|---|---|---|---|---|---|
| LED | C32L/AC...V | ✓ | ✓ | ✓ | | ✓ |
| LED & Free wheeling diode | C32DL/DC...V | ✓ | ✓ | ✓ | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

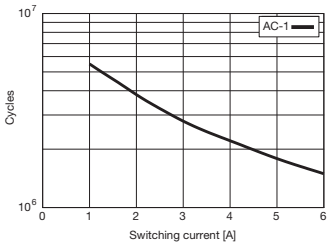
### Accessories

| | |
|---|---|
| Socket | S3-B, S3-S, S3-M, S3-M0, S3-M1, S3-MR, S3-M0R, S3-M1R, EC-11 |

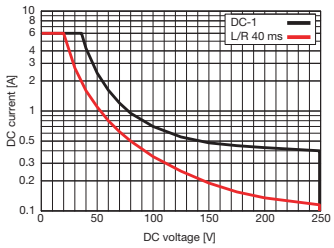
### fig. 1. Wiring diagram



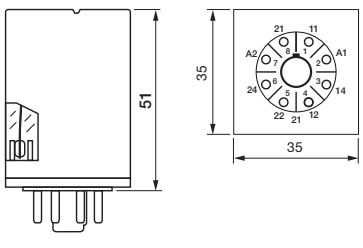

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Approvals

# C32x/R

## 3 pole | changeover twin contact | Control relay | Railway

### Main circuit

| | |
|---|---|
| Available contact materials | AgCuNi |
| Recommended minimum contact load | 1 mA / 5 V |
| Maximum contact load AC | 6 A / 250 V AC-1 |
| Maximum contact load DC | 6 A / 30 V DC-1 |
| Inrush current | 15 A, 20 ms |
| Rated load AC | 1 500 VA |
| Rated load DC | fig. 3. |
| Rated current | 6 A |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 1 500 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | 0.7 $U_N$ |
| Release voltage | >0.15 x $U_N$ / > 0.05 x $U_N$ |
| Power consumption AC / DC | 2.5 VA / 1.2 W |

### Coil table

| V AC | Ohm | mA | V DC | Ohm | mA |
|---|---|---|---|---|---|
| 230 | 5 600 | 11.5 | 12 | 115 | 104 |
| | | | 24 | 340 | 70 |
| | | | 36 | 780 | 46 |
| | | | 48 | 1 850 | 26 |
| | | | 72 | 3 200 | 23 |
| | | | 110 | 9 700 | 11 |
| | | | 220 | 29 000 | 7.6 |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1.5 kV / 1 min |
| Test voltage contact / contact | 1.5 kV / 1 min |
| Test voltage contact / coil | 2 kV / 1 min |
| Overvoltage category | III |
| Insulation resistance at 500 V | ≥ 1 GΩ |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time AC / DC | 3 ... 10 ms / ≤ 12 ms |
| Release time AC / DC | 2 ... 15 ms / ≤ 3.5 ms |
| Bounce time NO contact AC / DC | 3 ... 6 ms / approx. ≤ 3.5 ms |
| Maximum switching frequency at rated load | 360 / h |
| Weight | 80 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 12 | 24 | 36 | 48 | 72 | 110 | 220 | 230 |
|---|---|---|---|---|---|---|---|---|---|
| Railway & LED | C32L/R AC...V | | | | | | | | ✓ |
| Railway & Free wheeling diode | C32D/R DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |

AC relays also available as 60 Hz. Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references.

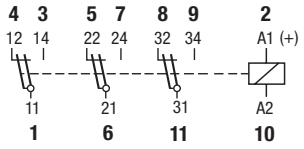
### Accessories

Socket S3-MR, S3-M0R, S3-M1R

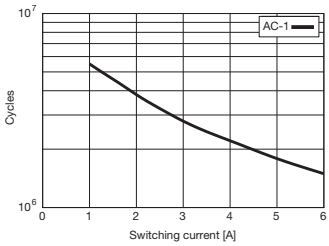




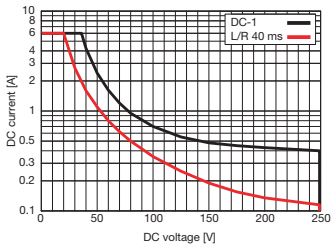
### fig. 1. Wiring diagram



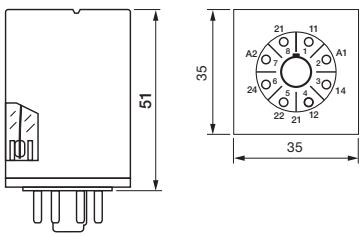

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61810

Railway EN 45545-2; EN 50155

Approvals

## Notes

# 1.5 Solid State Relays


| | Type | Pin | Page |
|---|---|---|---|
| **CSS Series / R10 Series** | | | |
| 1 pole \| normally open solid state AC \| Faston | CSS-I | | 94 |
| 1 pole \| normally open solid state AC \| Faston | R10-Z1I | | 95 |
| 1 pole \| normally open solid state AC \| Faston | CSS-Z | | 96 |
| 1 pole \| normally open solid state AC \| Faston | R10-Z1Z | | 97 |
| 1 pole \| normally open solid state DC \| Faston | CSS-N | | 98 |
| 1 pole \| normally open solid state DC \| Faston | R10-Z1N | | 99 |
| 1 pole \| normally open solid state DC \| Faston | CSS-P | | 100 |
| 1 pole \| normally open solid state DC \| Faston | R10-Z1P | | 101 |
| **CRINT Series** | | | |
| 1 pole \| normally open solid state DC | CRINT-C1x5 | | 103 |
| 1 pole \| normally open solid state DC | CRINT-C1x5R | | 104 |
| 1 pole \| normally open solid state AC | CRINT-C1x8 | | 105 |
| 1 pole \| normally open solid state AC | CRINT-C1x8R | | 106 |
| **SP1M Series** | | | |
| SSR \| 1 phase \| NO \| up to 280 V AC, 25 A \| instantaneous \| Faston \| IP 00 | SP1MXF-TIX0240-10/16/25 | | 108 |
| SSR \| 1 phase \| NO \| up to 440 V AC, 25 A \| instantaneous \| Faston \| IP 00 | SP1MXF-TIX0380-10/16/25 | | 109 |
| SSR \| 1 phase \| NO \| up to 280 V AC, 25 A \| synchr zero \| Faston \| IP 00 | SP1MXF-TZX0240-10/16/25 | | 110 |
| SSR \| 1 phase \| NO \| up to 440 V AC, 25 A \| synchr zero \| Faston \| IP 00 | SP1MXF-TZX0380-10/16/25 | | 111 |

| | Type | Pin | Page |
|---|---|---|---|
| SSR \| 1 phase \| NO \| up to 280 V AC, 25 A \| instantaneous \| screw \| IP 00 | SP1MXN-TIX0240-10/16/25 | | 112 |
| SSR \| 1 phase \| NO \| up to 440 V AC, 25 A \| instantaneous \| screw \| IP 00 | SP1MXN-TIX0380-10/16/25 | | 113 |
| SSR \| 1 phase \| NO \| up to 280 V AC, 25 A \| synchr zero \| screw \| IP 00 | SP1MXN-TZX0240-10/16/25 | | 114 |
| SSR \| 1 phase \| NO \| up to 440 V AC, 25 A \| synchr zero \| screw \| IP 00 | SP1MXN-TZX0380-10/16/25 | | 115 |

## SP1E Series

| | | | |
|---|---|---|---|
| SSR \| 1 phase \| NO \| up to 280 V AC, 60 A \| instantaneous \| screw \| IP 20 | SP1EXS-TIX0240-25/40/60 | | 116 |
| SSR \| 1 phase \| NO \| up to 280 V AC, 125 A \| instantaneous \| screw \| IP 20 | SP1EXS-TIX0240-80/100/125 | | 117 |
| SSR \| 1 phase \| NO \| up to 530 V AC, 60 A \| instantaneous \| screw \| IP 20 | SP1EXS-TIX0480-25/40/60 | | 118 |
| SSR \| 1 phase \| NO \| up to 530 V AC, 125 A \| instantaneous \| screw \| IP 20 | SP1EXS-TIX0480-80/100/125 | | 119 |
| SSR \| 1 phase \| NO \| up to 660 V AC, 60 A \| instantaneous \| screw \| IP 20 | SP1EXS-TIX0600-25/40/60 | | 120 |
| SSR \| 1 phase \| NO \| up to 660 V AC, 125 A \| instantaneous \| screw \| IP 20 | SP1EXS-TIX0600-80/100/125 | | 121 |
| SSR \| 1 phase \| NO \| up to 280 V AC, 60 A \| synchr zero \| screw \| IP 20 | SP1EXS-TZX0240-25/40/60 | | 122 |
| SSR \| 1 phase \| NO \| up to 280 V AC, 125 A \| synchr zero \| screw \| IP 20 | SP1EXS-TZX0240-80/100/125 | | 123 |
| SSR \| 1 phase \| NO \| up to 530 V AC, 60 A \| synchr zero \| screw \| IP 20 | SP1EXS-TZX0480-25/40/60 | | 124 |
| SSR \| 1 phase \| NO \| up to 530 V AC, 125 A \| synchr zero \| screw \| IP 20 | SP1EXS-TZX0480-80/100/125 | | 125 |
| SSR \| 1 phase \| NO \| up to 660 V AC, 60 A \| synchr zero \| screw \| IP 20 | SP1EXS-TZX0600-25/40/60 | | 126 |
| SSR \| 1 phase \| NO \| up to 660 V AC, 125 A \| synchr zero \| screw \| IP 20 | SP1EXS-TZX0600-80/100/125 | | 127 |

# CSS SSR

## Product Key & general information

### CSS product key

| 1 | | 2 | 3 | 4 | 5 | | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| **CSS** | **-** | **P** | **1** | **1** | **X** | **/** | **DC** | **5-48V** |

**1. Solid State Relay**
CSS = C-Series (Plug-in) solid state

**2. Logic**
P = PNP, Instantaneous (DC)
N = NPN, Instantaneous (DC)
I = Random-on, Instantaneous (AC)
Z = Zero crossing (AC)

**3. Channels**
1 = Single-channel relay

**4. Semiconductor type**
2 = TRIAC
3 = MOSFET

**5. Indication**
X = LED

**6. Control circuit voltage**
DC = DC Voltage

**7. Control circuit rated voltage**
5 ... 48 V

| Type |
|---|
| CSS-P13X/DC5-48V |
| CSS-N13X/DC5-48V |
| CSS-I12X/DC5-48V |
| CSS-Z12X/DC5-48V |

# CSS-I

## 1 pole | normally open solid state AC | Faston



### Main circuit

| | |
|---|---|
| Output type | TRIAC |
| Type | Instantaneous |
| Output voltage range | 24 ... 250 V AC |
| Recommended minimum contact load | 35 mA |
| Residual current | 1 mA |
| Maximum voltage drop | ≤ 1.1 V AC |
| Rated current | 3 A |
| Inrush current | 150 A, 10 ms |
| Rated limit load $I^2t$ | 210 $A^2s$ |
| Rated load AC | 750 VA |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 5 … 48 V DC |
| Input voltage range | 4.75 … 60 V DC |
| Input current | 10 mA |
| Pick-up voltage | 5 V DC |
| Release voltage | < 4.75 V |
| Power consumption DC | 300 mW |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time | 0.06 ms |
| Release time | 0.06 ms |
| Ingress Protection | IP 40 |
| Weight | 28 g |
| Housing material | PA / PC |

### Product references

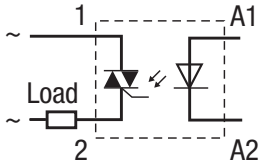
| Description | Type | 5-48 |
|---|---|---|
| DC | CSS-I12X/DC...V | ✓ |

«…» List control voltage to complete product references

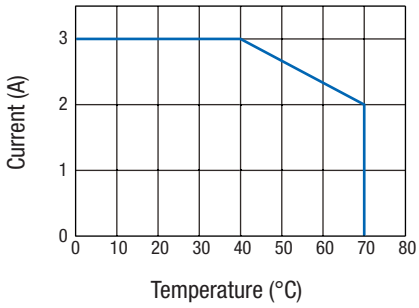
### Optional Accessories

| | |
|---|---|
| Socket | S10, S10-P, S10-PI |

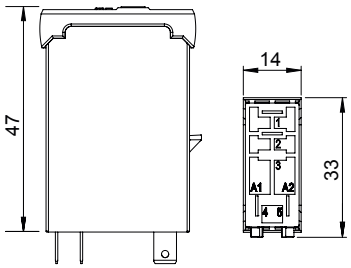
### fig. 1. Wiring diagram




### fig. 2. AC derating curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

1.5 Solid State Relays

# R10-Z1I

## 1 pole | normally open solid state AC | Faston

**Main circuit**

| | |
|---|---|
| Output type | TRIAC |
| Type | Instantaneous |
| Output voltage range | 24 ... 250 V AC |
| Recommended minimum contact load | 35 mA |
| Residual current | 1 mA |
| Maximum voltage drop | ≤ 1.1 V AC |
| Rated current | 3 A |
| Inrush current | 150 A, 10 ms |
| Rated limit load $I^2t$ | 210 $A^2s$ |
| Rated load AC | 750 VA |

**Control circuit**

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 5 … 48 V DC |
| Input voltage range | 4.75 … 60 V DC |
| Input current | 10 mA |
| Pick-up voltage | 5 V DC |
| Release voltage | < 4.75 V |
| Power consumption DC | 300 mW |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time | 0.06 ms |
| Release time | 0.06 ms |
| Ingress Protection | IP 40 |
| Weight | 28 g |
| Housing material | PA |

**Product references**

| Description | Type | 5-48 |
|---|---|---|
| DC | R10-Z1IX/DC...V | ✓ |

«…» List coil voltage to complete product references

**Accessories**

| | |
|---|---|
| Socket | S10-GR, S10-PIR |

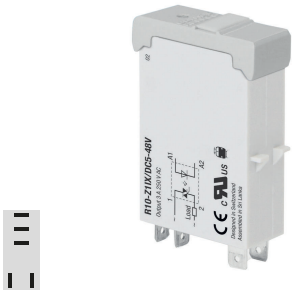


**fig. 1. Wiring diagram**

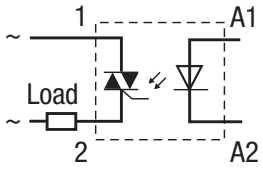



**fig. 2. AC derating curve**

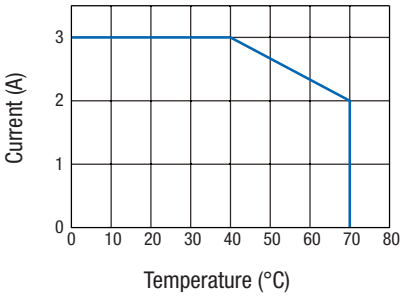
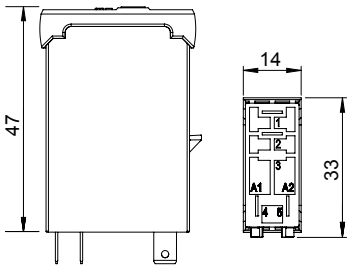



**fig. 3. Dimensions (mm)**




**Technical approvals, conformities**

| | |
|---|---|
| Standards | IEC/EN 60947 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE UK CA |

# CSS-Z

## 1 pole | normally open solid state AC | Faston

### Main circuit

| | |
|---|---|
| Output type | TRIAC |
| Type | Synchronized zero |
| Output voltage range | 24...250 V AC |
| Recommended minimum contact load | 35 mA |
| Residual current | 1 mA |
| Maximum voltage drop | ≤ 1.1 V AC |
| Rated current | 3 A |
| Inrush current | 150 A, 10 ms |
| Rated limit load $I^2t$ | 210 $A^2s$ |
| Rated load AC | 750 VA |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 5 … 48 V DC |
| Input voltage range | 4.75 … 60 V DC |
| Input current | 10 mA |
| Pick-up voltage | 5 V DC |
| Release voltage | < 4.75 V |
| Power consumption DC | 300 mW |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Ingress Protection | IP 40 |
| Weight | 28 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 5-48 |
|---|---|---|
| DC | CSS-Z12X/DC...V | ✓ |

«…» List control voltage to complete product references

### Optional Accessories

| | |
|---|---|
| Socket | S10, S10-P, S10-PI |



fig. 1. Wiring diagram

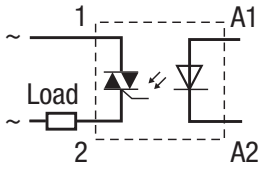



fig. 2. AC derating curve

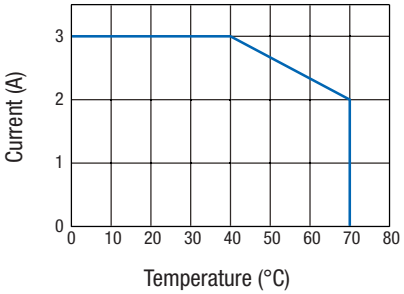
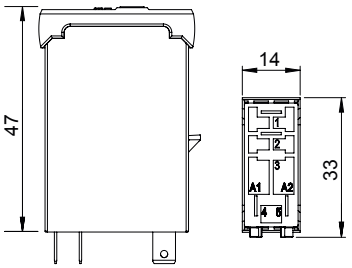



fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

1.5 Solid State Relays

# R10-Z1Z

## 1 pole | normally open solid state AC | Faston

**Main circuit**

| | |
|---|---|
| Output type | TRIAC |
| Type | Synchronized zero |
| Output voltage range | 24 ... 250 V AC |
| Recommended minimum contact load | 35 mA |
| Residual current | 1 mA |
| Maximum voltage drop | ≤ 1.1 V AC |
| Rated current | 3 A |
| Inrush current | 150 A, 10 ms |
| Rated limit load $I^2t$ | 210 $A^2s$ |
| Rated load AC | 750 VA |

**Control circuit**

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 5 … 48 V DC |
| Input voltage range | 4.75 … 60 V DC |
| Input current | 10 mA |
| Pick-up voltage | 5 V DC |
| Release voltage | < 4.75 V |
| Power consumption DC | 300 mW |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Ingress Protection | IP 40 |
| Weight | 28 g |
| Housing material | PA |

**Product references**

| Description | Type | 5-48 |
|---|---|---|
| DC | R10-Z1ZX/DC...V | ✓ |

«…» List coil voltage to complete product references

**Accessories**

| | |
|---|---|
| Socket | S10-GR, S10-PIR |

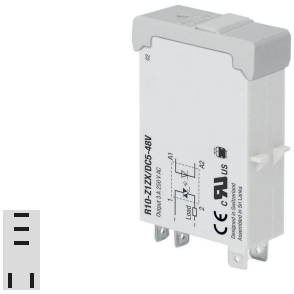


**fig. 1. Wiring diagram**

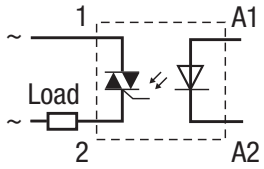



**fig. 2. AC derating curve**

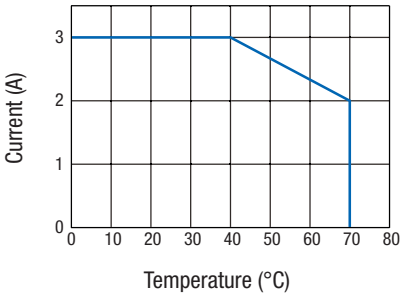
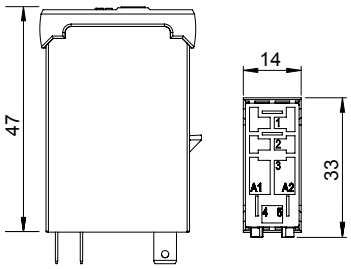



**fig. 3. Dimensions (mm)**

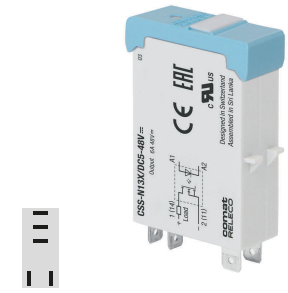



**Technical approvals, conformities**

| | |
|---|---|
| Standards | IEC/EN 60947 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE UK CA |

# CSS-N

## 1 pole | normally open solid state DC | Faston



### Main circuit

| | |
|---|---|
| Output type | MOSFET |
| Type | Instantaneous |
| Logic | N-Channel |
| Output voltage range | 5 ... 48 V DC |
| Recommended minimum contact load | 1 mA |
| Residual current | 0.1 mA |
| Maximum voltage drop | ≤ 0.14 V DC |
| Rated current | 6 A |
| Inrush current | 40 A, 10 ms |
| Rated load DC | 360 W |
| | Current derating curve versus operation temperature: fig. 2. |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 5 … 48 V DC |
| Input voltage range | 4.75 … 60 V DC |
| Input current | 4 mA |
| Pick-up voltage | 5 V DC |
| Release voltage | < 4.75 V |
| Power consumption DC | 300 mW |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time | 0.06 ms |
| Release time | 0.06 ms |
| Ingress Protection | IP 40 |
| Weight | 28 g |
| Housing material | PA / PC |

### Product references

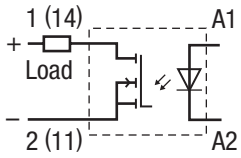
| Description | Type | 5-48 |
|---|---|---|
| DC | CSS-N13X/DC…V | ✓ |

«…» List control voltage to complete product references

### Optional Accessories

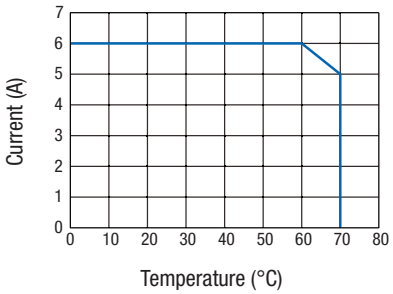
| | |
|---|---|
| Socket | S10, S10-P, S10-PI |

### fig. 1. Wiring diagram

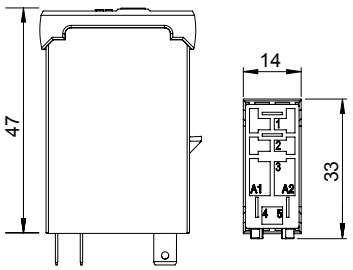



Negative common

### fig. 2. DC derating curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

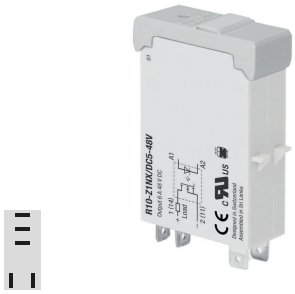
Standards IEC/EN 60947

Approvals

1.5 Solid State Relays

# R10-Z1N

## 1 pole | normally open solid state DC | Faston



### Main circuit

| | |
|---|---|
| Output type | MOSFET |
| Type | Instantaneous |
| Logic | NPN |
| Output voltage range | 5 ... 48 V DC |
| Recommended minimum contact load | 1 mA |
| Residual current | 0.1 mA |
| Maximum voltage drop | ≤ 0.14 V DC |
| Rated current | 6 A |
| Inrush current | 40 A, 10 ms |
| Rated load DC | 360 W |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 5 … 48 V DC |
| Input voltage range | 4.75 … 60 V DC |
| Input current | 4 mA |
| Pick-up voltage | 5 V DC |
| Release voltage | < 4.75 V |
| Power consumption DC | 300 mW |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time | 0.06 ms |
| Release time | 0.06 ms |
| Ingress Protection | IP 40 |
| Weight | 28 g |
| Housing material | PA |

### Product references

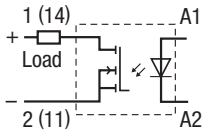
| Description | Type | 5-48 |
|---|---|---|
| DC | R10-Z1NX/DC...V | ✓ |

«…» List coil voltage to complete product references

### Accessories

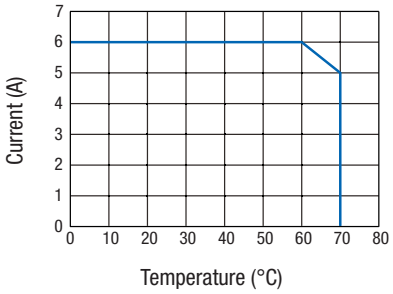
| | |
|---|---|
| Socket | S10-GR, S10-PIR |

### fig. 1. Wiring diagram

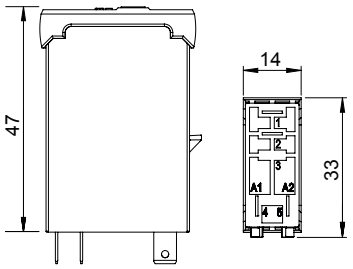



Negative common

### fig. 2. DC derating curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

| | |
|---|---|
| Standards | IEC/EN 60947 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE UK CA |

# CSS-P

## 1 pole | normally open solid state DC | Faston

### Main circuit

| | |
|---|---|
| Output type | MOSFET |
| Type | Instantaneous |
| Logic | P-Channel |
| Output voltage range | 5 ... 48 V DC |
| Recommended minimum contact load | 1 mA |
| Residual current | 0.1 mA |
| Maximum voltage drop | ≤ 0. 14 V DC |
| Rated current | 6 A |
| Inrush current | 40 A, 10 ms |
| Rated load DC | 360 W |
| | Current derating curve versus operation temperature: fig. 2. |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 5 … 48 V DC |
| Input voltage range | 4.75 … 60 V DC |
| Input current | 4 mA |
| Pick-up voltage | 5 V DC |
| Release voltage | < 4.75 V |
| Power consumption DC | 300 mW |

### Output current

| | |
|---|---|
| Type | Instantaneous |
| Logic | P-Channel |
| Maximum output current | 6 A |
| Minimum output current | 1 mA |
| Output voltage range | 5 … 48 V DC |
| Residual current | 0.1 mA |
| Maximum voltage drop | ≤ 0.14 V DC |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time | 0.06 ms |
| Release time | 0.06 ms |
| Ingress Protection | IP 40 |
| Weight | 28 g |
| Housing material | PA / PC |

### Product references

| Description | Type | 5-48 |
|---|---|---|
| DC | CSS-P13X/DC...V+S10-PI | ✓ |

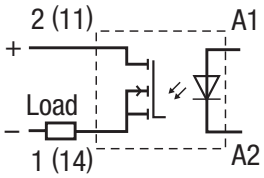
«…» List control voltage to complete product references

### Optional Accessories

| | |
|---|---|
| Socket | S10, S10-P, S10-PI |

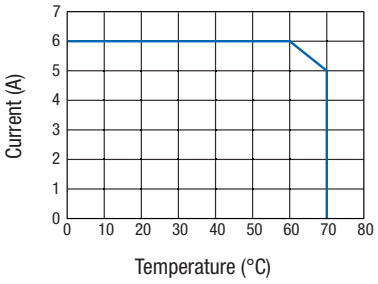


### fig. 1. Wiring diagram

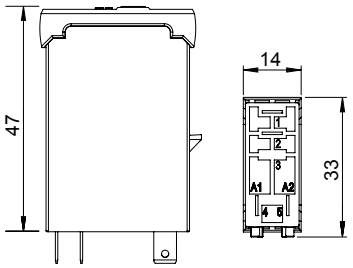



Positive common

### fig. 2. DC derating curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

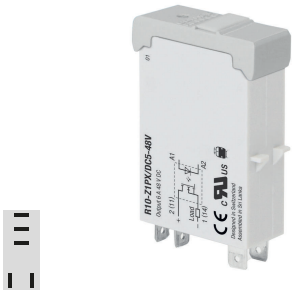
Standards IEC/EN 60947

Approvals

1.5 Solid State Relays

# R10-Z1P

## 1 pole | normally open solid state DC | Faston



### Main circuit

| | |
|---|---|
| Output type | MOSFET |
| Type | Instantaneous |
| Logic | PNP |
| Output voltage range | 5 ... 48 V DC |
| Recommended minimum contact load | 1 mA |
| Residual current | 0.1 mA |
| Maximum voltage drop | ≤ 0.14 V DC |
| Rated current | 6 A |
| Inrush current | 40 A, 10 ms |
| Rated load DC | 360 W |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 5 … 48 V DC |
| Input voltage range | 4.75 … 60 V DC |
| Input current | 4 mA |
| Pick-up voltage | 5 V DC |
| Release voltage | < 4.75 V |
| Power consumption DC | 300 mW |

### Output current

| | |
|---|---|
| Type | Instantaneous |
| Logic | PNP |
| Maximum output current | 6 A |
| Minimum output current | 1 mA |
| Output voltage range | 5 … 48 V DC |
| Residual current | 0.1 mA |
| Maximum voltage drop | ≤ 0.14 V DC |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Pick-up time | 0.06 ms |
| Release time | 0.06 ms |
| Ingress Protection | IP 40 |
| Weight | 28 g |
| Housing material | PA |

### Product references

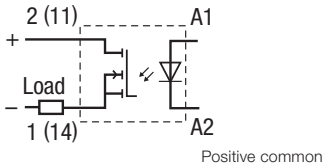
| Description | Type | 5-48 |
|---|---|---|
| DC | R10-Z1PX/DC...V | ✓ |

«…» List coil voltage to complete product references

### Accessories

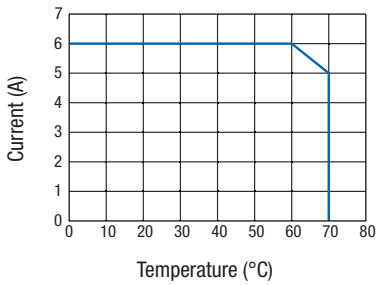
| | |
|---|---|
| Socket | S10-GR, S10-PIR |

### fig. 1. Wiring diagram

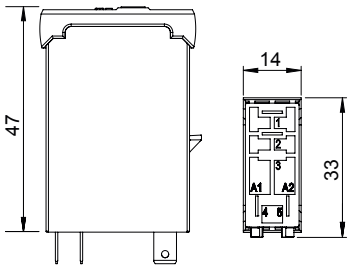



Positive common

### fig. 2. DC derating curve




### fig. 3. Dimensions (mm)



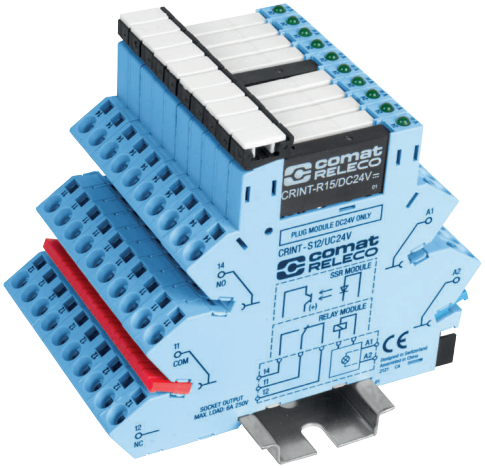

### Technical approvals, conformities

| | |
|---|---|
| Standards | IEC/EN 60947 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE UK CA |

# CRINT-C1xx
## Product Key and dimensions

### Interface Module CRINT

- Relay module up to 6 A 250 V, different contact materials
- Solid state modules for most loads DC and AC up to 2 A / 4 A
- Coil UC = AC/DC, no protection circuit required
- LED status display
- Push-in terminals
- Jumper link
- Super small mounting: 6.2 mm width



### CRINT Product Key

| 1 | | 2 | 3 | 4 | 5 | 6 | | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| **CRINT** | **-** | **C** | **1** | **3** | **1** | **R** | **/** | **UC** | **24V** |

**1. Product family**
CRINT

**2. Type**
C = Combined version (Socket and Relay)

**3. Contact**
1 = One change-over contact
2 = Two change-over contact

**4. Connection type**
1 = Screw terminal
2 = Cage clamp terminal
3 = Push-in

**5. Output**
1 = $AgSnO_2$
2 = $AgSnO_2$ + 5 µ Au
3 = AgNi
5 = NO / Solid-state DC
8 = NO / Solid-state AC

**6. Options**
– = Standard version
R = Railway version

**7. Supply voltage**
UC = AC/DC
DC = Only for C1x5 and C1x8

**8. Nominal voltage**
12V, 24V, 48V, 60V, 110-125V, 220-240V

### RELAY Only

| 1 | | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **CRINT** | **-** | **R** | **11** | **DC** | **12V** |

**1. Product family**
CRINT

**2. Type**
R = Relay

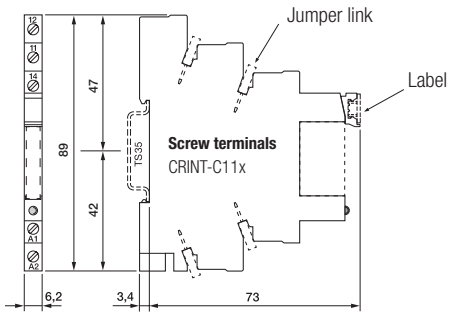
**3. Contact**
11 = 1x $AgSnO_2$
12 = 1x AgSnO2 + 3µ Au
15 = NO / Solid-state DC
18 = NO / Solid-state AC
21 = 2x $AgSnO_2$
22 = 2x AgNi + 3µ Au
23 = 2x AgNi

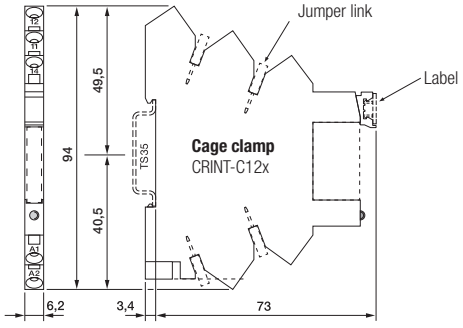
**4. Control voltage**
DC

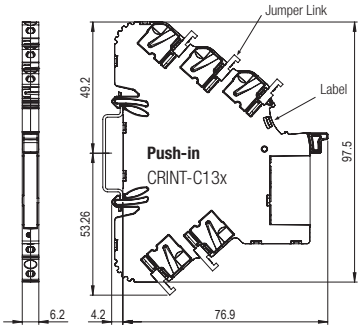
**5. Rated control voltage**
12 V, 24 V, 48 V, 60 V*

*60 V Relay used for all sockets with
a nominal voltage higher or equal 60V

### CRINT-C1xx — Dimension (mm)



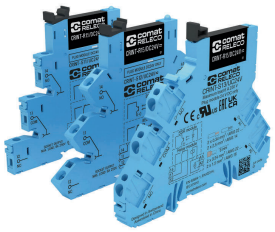



1.5 Solid State Relays

# CRINT-C1x5

## 1 pole | normally open solid state DC



### Main circuit

| | |
|---|---|
| Output type | MOSFET |
| Type | Instantaneous |
| Output voltage range | 3 ... 28.8 V DC |
| Recommended minimum contact load | 20 mA |
| Residual current | 0.1 mA |
| Maximum voltage drop | 0.35 V DC |
| Rated current | 4 A |
| Inrush current | 48 A, 10 ms |
| Rated load DC | 115 W |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 … 1.2 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≤ 0.25 $U_N$ |
| Power consumption DC | 160 mW |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 85 °C |
| Operation temperature | -30 … 70 °C |
| Pick-up time | ≤ 50 µs |
| Release time | ≤ 300 µs |
| Conductor cross section screw terminal | 0.34 ... 2.5 mm² |
| Conductor cross section cage clamp | 0.75 … 2.5 mm² |
| Conductor cross section control / main circuit | Push-in terminal |
| - Single wire | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 0.34 mm² / AWG 22 … 1.5 mm² / AWG 16 |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 30 g |
| Housing material | PA |

### Product references

| Description | Type | 12 | 24 | 48 | 60 | 110-125 | 220-240 |
|---|---|---|---|---|---|---|---|
| Screw terminal | CRINT-C115/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cage clamp terminal | CRINT-C125/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Push-in terminal | CRINT-C135/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

«…» List control voltage to complete product references

### Accessories

| | |
|---|---|
| Jumper link | CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS) |
| Label plate | CRINT-LAB (BAG 4X16 PCS) |
| Spacer | CRINT-SEP (BAG 5 PCS) |
| Marking strip for Push-in | BS11-PI (50m tape) |

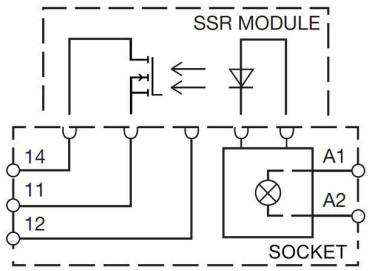
### Replacement relays

| Description | Type | 12 | 24 | 48 | 60 |
|---|---|---|---|---|---|
| DC | CRINT-R15/DC…V | ✓ | ✓ | ✓ | ✓ |

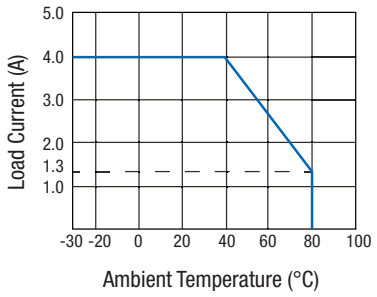
«…» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

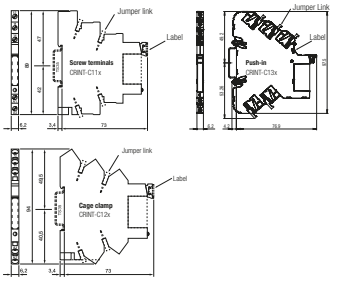
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60664-1; EN 62314

Approvals

# CRINT-C1x5R

## 1 pole | normally open solid state DC

### Main circuit

| | |
|---|---|
| Output type | MOSFET |
| Type | Instantaneous |
| Output voltage range | 3 ... 28.8 V DC |
| Recommended minimum contact load | 20 mA |
| Residual current | 0.1 mA |
| Maximum voltage drop | 0.35 V DC |
| Rated current | 4 A |
| Inrush current | 48 A, 10 ms |
| Rated load DC | 115 W |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 … 1.2 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≤ 0.25 $U_N$ |
| Power consumption AC / DC | 160 mW |
| Power consumption DC | 160 mW |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 85 °C |
| Operation temperature | -30 … 70 °C |
| Pick-up time | ≤ 50 µs |
| Release time | ≤ 300 µs |
| Conductor cross section cage clamp | 0.75 … 2.5 mm² |
| Conductor cross section control / main circuit | Push-in terminal |
| - Single wire | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 0.34 mm² / AWG 22 … 1.5 mm² / AWG 16 |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 30 g |
| Housing material | PA |

### Product references

| Description | Type | 24 | 110-125 |
|---|---|---|---|
| Cage clamp terminal | CRINT-C125R/DC...V | ✓ | ✓ |
| Push-in terminal | CRINT-C135R/DC...V | ✓ | ✓ |

«…» List control voltage to complete product references

### Accessories

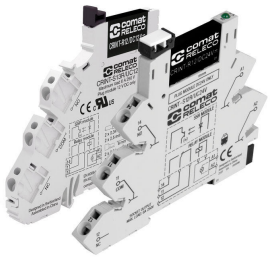
| | |
|---|---|
| Jumper link | CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS) |
| Label plate | CRINT-LAB (BAG 4X16 PCS) |
| Marking strip for Push-in | BS11-PI (50m tape) |

### Replacement relays

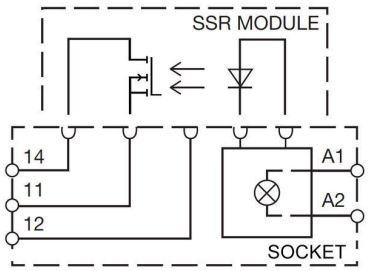
| Description | Type | 24 | 60 |
|---|---|---|---|
| DC | CRINT-R15/DC…V | ✓ | ✓ |

«…» List control voltage to complete product references

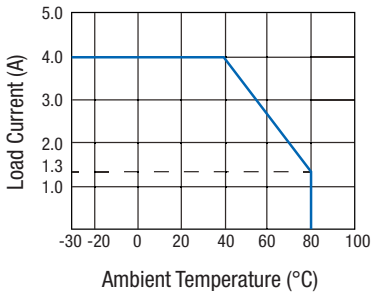
60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V



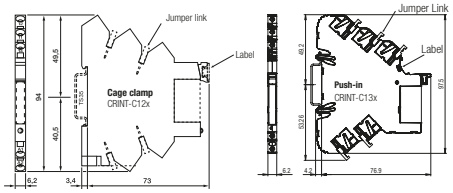
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)



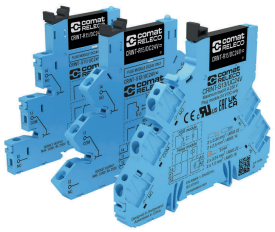

### Technical approvals, conformities

| | |
|---|---|
| Standards | EN 60664-1; EN 62314 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | |

1.5 Solid State Relays

# CRINT-C1x8

## 1 pole | normally open solid state AC



### Main circuit

| | |
|---|---|
| Output type | TRIAC |
| Type | Synchronized zero |
| Output voltage range | 48 ... 280 V AC |
| Recommended minimum contact load | 100 mA |
| Residual current | 1.5 mA |
| Maximum voltage drop | 1.2 V AC |
| Rated current | 2 A |
| Inrush current | 80 A, 10 ms |
| Rated load AC | fig. 2. |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 … 1.2 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≤ 0.25 $U_N$ |
| Power consumption DC | 150 mW |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 85 °C |
| Operation temperature | -30 … 70 °C |
| Pick-up time | 1/2 Cycle +1 ms |
| Release time | 1/2 Cycle +1 ms |
| Conductor cross section screw terminal | 0.34 ... 2.5 mm² |
| Conductor cross section cage clamp | 0.75 … 2.5 mm² |
| Conductor cross section control / main circuit | Push-in terminal |
| - Single wire | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 0.34 mm² / AWG 22 … 1.5 mm² / AWG 16 |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 30 g |
| Housing material | PA |

### Product references

| Description | Type | 12 | 24 | 60 | 110-125 | 220-240 |
|---|---|---|---|---|---|---|
| Screw terminal | CRINT-C118/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cage clamp terminal | CRINT-C128/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ |
| Push-in terminal | CRINT-C138/DC...V | ✓ | ✓ | ✓ | ✓ | ✓ |

«…» List control voltage to complete product references

### Accessories

| | |
|---|---|
| Jumper link | CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS) |
| Label plate | CRINT-LAB (BAG 4X16 PCS) |
| Spacer | CRINT-SEP (BAG 5 PCS) |
| Marking strip for Push-in | BS11-PI (50m tape) |

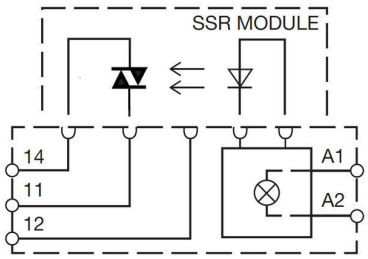
### Replacement relays

| Description | Type | 12 | 24 | 60 |
|---|---|---|---|---|
| DC | CRINT-R18/DC...V | ✓ | ✓ | ✓ |

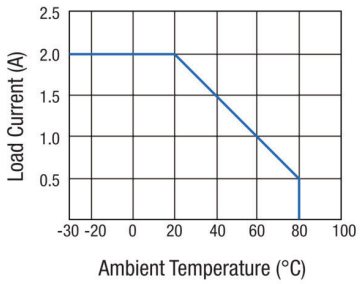
«…» List control voltage to complete product references

60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V

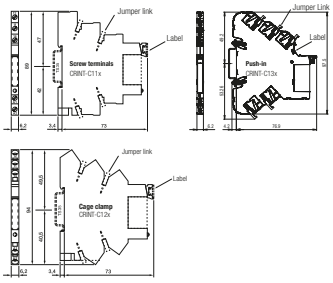
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60664-1; EN 62314

Approvals

# CRINT-C1x8R

## 1 pole | normally open solid state AC

### Main circuit

| | |
|---|---|
| Output type | TRIAC |
| Type | Synchronized zero |
| Output voltage range | 48 ... 280 V AC |
| Recommended minimum contact load | 100 mA |
| Residual current | 1.5 mA |
| Maximum voltage drop | 1.2 V AC |
| Rated current | 2 A |
| Inrush current | 80 A, 10 ms |
| Rated load AC | fig. 2. |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 … 1.2 $U_N$ |
| Pick-up voltage | ≤ 0.8 $U_N$ |
| Release voltage | ≤ 0.25 $U_N$ |
| Power consumption DC | 150 mW |

### Insulation

| | |
|---|---|
| Test voltage open contact | 1 kV / 1 min |
| Test voltage contact / coil | 2.5 kV / 1 min |
| Overvoltage category | III |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 85 °C |
| Operation temperature | -30 … 70 °C |
| Pick-up time | 1/2 Cycle +1 ms |
| Release time | 1/2 Cycle +1 ms |
| Conductor cross section cage clamp | 0.75 … 2.5 mm² |
| Conductor cross section control / main circuit | Push-in terminal |
| - Single wire | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 0.34 mm² / AWG 22 … 1.5 mm² / AWG 16 |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 30 g |
| Housing material | PA |

### Product references

| Description | Type | 24 | 110-125 |
|---|---|---|---|
| Cage clamp terminal | CRINT-C128R/DC...V | ✓ | ✓ |
| Push-in terminal | CRINT-C138R/DC...V | ✓ | ✓ |

«…» List control voltage to complete product references

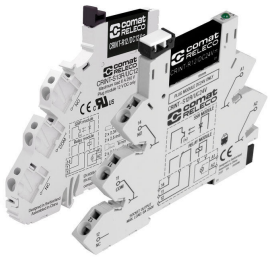
### Accessories

| | |
|---|---|
| Jumper link | CRINT-BR20-BU (BAG 5 PCS), CRINT-BR20-RD (BAG 5 PCS), CRINT-BR20-BK (BAG 5 PCS) |
| Label plate | CRINT-LAB (BAG 4X16 PCS) |
| Marking strip for Push-in | BS11-PI (50m tape) |

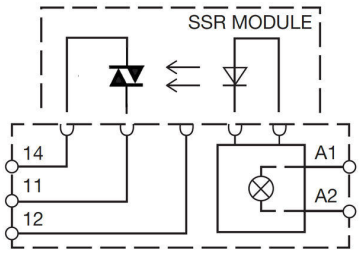
### Replacement relays

| Description | Type | 24 | 60 |
|---|---|---|---|
| DC | CRINT-R18/DC...V | ✓ | ✓ |

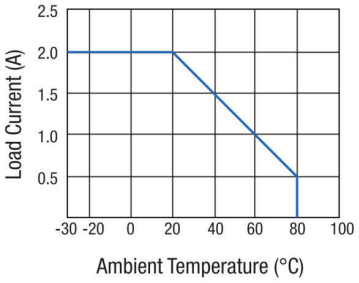
«…» List control voltage to complete product references
60 V relay used for all sockets with a minimum nominal voltage higher or equal 60 V



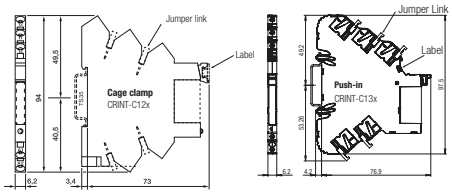
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1; EN 62314

Railway EN 45545-2; EN 50155

Approvals

# SP SSR

## Product Key & general information

### SP product key

| Main parameters | | | | | | Control | | | Output parameters | | | | | Control parameters | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | 13 | 14 |
| **SP** | **1** | **M** | **X** | **F** | **-** | **T** | **Z** | **X** | **0600** | **V** | **025** | **X** | **/** | **DC** | **24V** |

**1. Solid State Relay**
SP = Solid state Panel mounting
SD = Solid state DIN rail mounting

**2. Channels**
1 = Single-channel relay
2 = Two-channel relay
3 = Three-channel relay

**3. Size H x W x D (mm)**
M = 38.5 x 28.5 x max. 25.2
P = 58.6 x 45.7 x max. 33.5
E = 45.4 x 58.5 x max. 79.4
… = other series

**4. Free Key**
X

**5. Terminals / IP Protection**
F = Faston / IP00
L = Faston large / IP00
S = Screw / IP20
N = Screw / IP00

**6. Semiconductor type**
T = Triac / SCR (AC)
M = MOSFET (DC)
I = IGBT (DC)
R = Transistor (DC)

**7. Logic**
Z = Zero-crossing (AC)
I = Random-on, Instantaneous (AC)
N = NPN, Instantaneous (DC)
P = PNP, Instantaneous (DC)
Q = Zero crossing / PNP (AC)
S = Zero crossing, NPN (AC)

**8. Free key**
X

**9. Output circuit rated voltage**
0030 = 30 V
⋮ ⋮
0250 = 250 V
⋮ ⋮
1200 = 1200 V

**10. Surge protection**
N = RC protection
V = Varistor and RC
T = Transient voltage suppressor and RC
None = without protection

**11. Output circuit current**
001 = 1 A
⋮ ⋮
025 = 25 A
⋮ ⋮
125 = 125 A

**12. Indication**
N = No LED
X = LED
A = Alarm output
B = LED and alarm output

**13. Control circuit voltage**
AC = AC Voltage
DC = DC Voltage
UC = AC/DC Voltage

**14. Control circuit rated voltage**
4–15 V
⋮
3–32 V
⋮
48 V
⋮
90–280 V
⋮
600 V

### General information

#### General remarks

As any solid state relays, they don't provide a galvanic insulation between the load and the mains. Therefore the solid state relay must be always used in conjunction with an adhequate circuit breaker with insulation performances or a similar device, in order to ensure a reliable insulation in case of malfunction or when the relay must be insulated from the mains (eg. due to maintenance).

Each solid state relay can be DIN-Rail mounted as soon as a specific heatsink is used.

#### Mounting

The heat generated by the relay must be removed through its entire bottom plate. Therefore an adhequate heat exchanger (either any of the recommended heatsinks listed in the datasheets under "heatsinks" or an equivalent product) must be firmly fixed to the solid state relay bottom plate.

ComatReleco's heatsink offering consists of 2 clusters:
- DIN rail mounted heatsinks (trough a DIN rail clip, supplied with the product)
- Panel mounted heatsinks (by means of screws)

Between the solid state relay bottom plate and the heat exchanger either the conducting pad or the conducting grease (refer to `accessories` in the datasheets) must be added.
Each terminal connector of the relay must be firmly fixed to the electric cables, to avoid that loose wiring leads to abnormal heating and thus to product damages and malfunctionings. The recommended mounting torques for the terminals are 0.58-0.98 Nm, 0.98-1.37 Nm respectively for M3 and M4 terminals.

#### Overvoltage protection

The overvoltage protection of the solid state relay can be increased by choosing either (refer under `product reference` in the datasheets):

- **RC** protection
- **MOV** (Metal Oxide Varistor) and RC protection or
- **TVS** (Transient Voltage Suppressor) and RC protection

When selecting any of those options by ordering, the delivered product will include the specified feature, no further wiring will be necessary.

In case of an overvoltage, **MOV** clamps it by shunting through itself, where **TVS** triggers the solid state relay. The following table provides a principle guidance for selecting the right protection option:

| Protection | Surge energy | Resonse time |
|---|---|---|
| **MOV** | high | fast |
| **TVS** | medium | very fast |
| **RC** | medium | slow |

The improved protection levels are stated in the specific datasheet.

# SP1MXF-TIX0240-10/16/25

## SSR | 1 phase | NO | up to 280 V AC, 25 A | instantaneous | Faston | IP 00



### Main circuit

| | | | |
|---|---|---|---|
| Output type | TRIAC | | |
| Type | Instantaneous | | |
| Rated voltage AC | 240 V | | |
| Output voltage range | 24 ... 280 V | | |
| Operating frequency | 47 ... 63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 5 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 200 V / µs | | |
| Maximum non repetitive di/dt | 50 A / µs | | |
| Type of terminal | Faston | | |
| Contact | 1 NO | | |
| Rated current | **10 A** | **16 A** | **25 A** |
| Thermal derating, refer to: | fig. 2. | fig. 3. | fig. 4. |
| Inrush current @ 10 ms | 120 A | 160 A | 250 A |
| Rated limit load I2t @ 10 ms | 50 $A^2s$ | 128 $A^2s$ | 312 $A^2s$ |

### Control circuit

| | |
|---|---|
| Operating voltage range | 4 … 32 V DC |
| Max. input current @ max. operating voltage | 25 mA |
| Pick-up voltage | 4 V DC |
| Release voltage | 1 V DC |
| Power consumption DC | 0.8 W |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 2 500 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 1 ms |
| Release time | 10 ms |
| Power Factor | > 0.5 |
| Ingress Protection | IP 00 |
| Dimensions | fig. 5. |
| Weight | 35 g |
| Housing material | PBT |

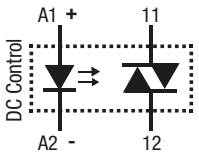
### Product references

| Description | Type | 010 | 016 | 025 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1MXF-TIX0240N...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1MXF-TIX0240T...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1MXF-TIX0240V...X/DC4-32V | o.r. | o.r. | o.r. |

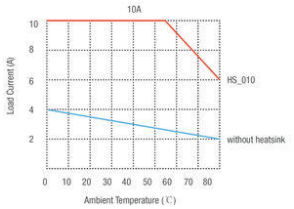
### Accessories

| | |
|---|---|
| Thermal conducting pad | SP1M/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003 |
| Heatsinks (panel mounted with screws) | HS_010, HS_012 |

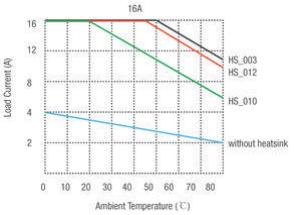
### fig. 1. Wiring diagram



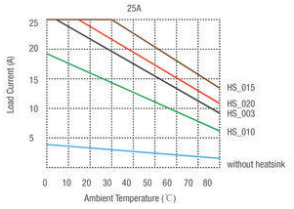

### fig. 2. Thermal derating curve 10 A



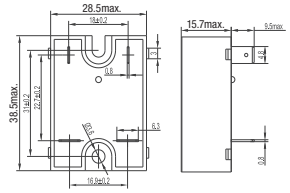

### fig. 3. Thermal derating curve 16 A




### fig. 4. Thermal derating curve 25 A




### fig. 5. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1MXF-TIX0380-10/16/25

## SSR | 1 phase | NO | up to 440 V AC, 25 A | instantaneous | Faston | IP 00

### Main circuit

| | | | |
|---|---|---|---|
| Output type | TRIAC | | |
| Type | Instantaneous | | |
| Rated voltage AC | 380 V | | |
| Output voltage range | 24 ... 440 V | | |
| Operating frequency | 47 ... 63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 5 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 200 V / µs | | |
| Maximum non repetitive di/dt | 50 A / µs | | |
| Type of terminal | Faston | | |
| Contact | 1 NO | | |
| Rated current | **10 A** | **16 A** | **25 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 120 A | 160 A | 250 A |
| Rated limit load I2t @ 10 ms | 50 $A^2s$ | 128 $A^2s$ | 312 $A^2s$ |

### Control circuit

| | |
|---|---|
| Operating voltage range | 4 … 32 V DC |
| Max. input current @ max. operating voltage | 25 mA |
| Pick-up voltage | 4 V DC |
| Release voltage | 1 V DC |
| Power consumption DC | 0.8 W |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 2 500 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 1 ms |
| Release time | 10 ms |
| Power Factor | > 0.5 |
| Ingress Protection | IP 00 |
| Dimensions | fig. 5. |
| Weight | 35 g |
| Housing material | PBT |

### Product references

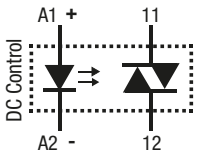
| Description | Type | 010 | 016 | 025 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1MXF-TIX0380N...X/DC4-32V | ✓ | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1MXF-TIX0380T...X/DC4-32V | o.r. | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1MXF-TIX0380V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

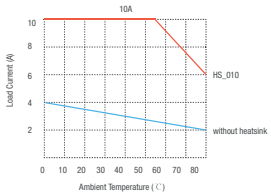
| | |
|---|---|
| Thermal conducting pad | SP1M/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003 |
| Heatsinks (panel mounted with screws) | HS_010, HS_012 |



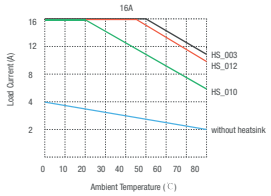
### fig. 1. Wiring diagram



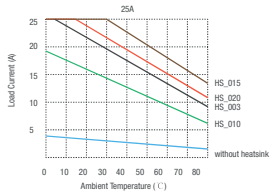

### fig. 2. Thermal derating curve 10 A



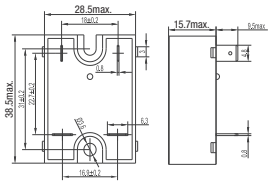

### fig. 3. Thermal derating curve 16 A




### fig. 4. Thermal derating curve 25 A




### fig. 5. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1MXF-TZX0240-10/16/25

## SSR | 1 phase | NO | up to 280 V AC, 25 A | synchr zero | Faston | IP 00

### Main circuit

| | | | |
|---|---|---|---|
| Output type | TRIAC | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 240 V | | |
| Output voltage range | 24 ... 280 V | | |
| Operating frequency | 47 ... 63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 5 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 200 V / µs | | |
| Maximum non repetitive di/dt | 50 A / µs | | |
| Type of terminal | Faston | | |
| Contact | 1 NO | | |
| Rated current | **10 A** | **16 A** | **25 A** |
| Thermal derating, refer to: | fig. 2. | fig. 3. | fig. 4. |
| Inrush current @ 10 ms | 120 A | 160 A | 250 A |
| Rated limit load I2t @ 10 ms | 50 $A^2s$ | 128 $A^2s$ | 312 $A^2s$ |

### Control circuit

| | |
|---|---|
| Operating voltage range | 4 … 32 V DC |
| Max. input current @ max. operating voltage | 25 mA |
| Pick-up voltage | 4 V DC |
| Release voltage | 1 V DC |
| Power consumption DC | 0.8 W |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 2 500 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Power Factor | > 0.5 |
| Ingress Protection | IP 00 |
| Dimensions | fig. 5. |
| Weight | 35 g |
| Housing material | PBT |

### Product references

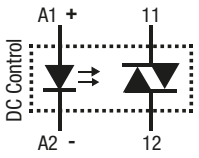
| Description | Type | 010 | 016 | 025 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1MXF-TZX0240N...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1MXF-TZX0240T...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1MXF-TZX0240V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

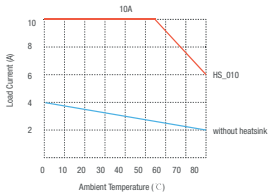
| | |
|---|---|
| Thermal conducting pad | SP1M/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003 |
| Heatsinks (panel mounted with screws) | HS_010, HS_012 |



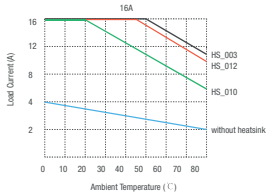
### fig. 1. Wiring diagram



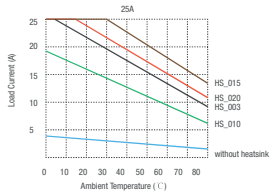

### fig. 2. Thermal derating curve 10 A



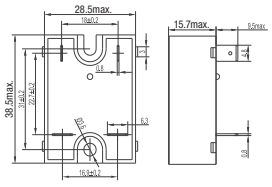

### fig. 3. Thermal derating curve 16 A




### fig. 4. Thermal derating curve 25 A




### fig. 5. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1MXF-TZX0380-10/16/25

## SSR | 1 phase | NO | up to 440 V AC, 25 A | synchr zero | Faston | IP 00

### Main circuit

| | | | |
|---|---|---|---|
| Output type | TRIAC | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 380 V | | |
| Output voltage range | 24 ... 440 V | | |
| Operating frequency | 47 ... 63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 5 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 200 V / µs | | |
| Maximum non repetitive di/dt | 50 A / µs | | |
| Type of terminal | Faston | | |
| Contact | 1 NO | | |
| Rated current | **10 A** | **16 A** | **25 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 120 A | 160 A | 250 A |
| Rated limit load I2t @ 10 ms | 50 $A^2s$ | 128 $A^2s$ | 312 $A^2s$ |

### Control circuit

| | |
|---|---|
| Operating voltage range | 4 … 32 V DC |
| Max. input current @ max. operating voltage | 25 mA |
| Pick-up voltage | 4 V DC |
| Release voltage | 1 V DC |
| Power consumption DC | 0.8 W |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 2 500 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Power Factor | > 0.5 |
| Ingress Protection | IP 00 |
| Dimensions | fig. 5. |
| Weight | 35 g |
| Housing material | PBT |

### Product references

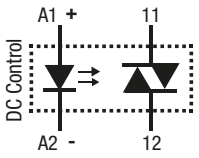
| Description | Type | 010 | 016 | 025 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1MXF-TZX0380N...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1MXF-TZX0380T...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1MXF-TZX0380V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

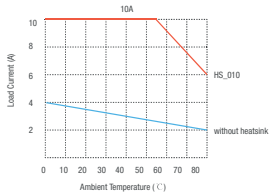
| | |
|---|---|
| Thermal conducting pad | SP1M/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003 |
| Heatsinks (panel mounted with screws) | HS_010, HS_012 |



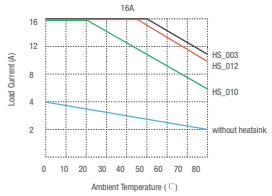
### fig. 1. Wiring diagram



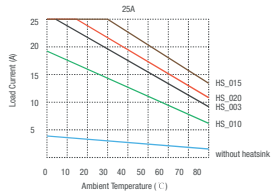

### fig. 2. Thermal derating curve 10 A



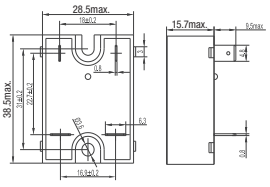

### fig. 3. Thermal derating curve 16 A




### fig. 4. Thermal derating curve 25 A




### fig. 5. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1MXN-TIX0240-10/16/25

## SSR | 1 phase | NO | up to 280 V AC, 25 A | instantaneous | screw | IP 00

### Main circuit

| | | | |
|---|---|---|---|
| Output type | TRIAC | | |
| Type | Instantaneous | | |
| Rated voltage AC | 240 V | | |
| Output voltage range | 24 ... 280 V | | |
| Operating frequency | 47 ... 63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 5 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 200 V / µs | | |
| Maximum non repetitive di/dt | 50 A /µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **10 A** | **16 A** | **25 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 120 A | 160 A | 250 A |
| Rated limit load I2t @ 10 ms | 50 $A^2s$ | 128 $A^2s$ | 312 $A^2s$ |

### Control circuit

| | |
|---|---|
| Operating voltage range | 4 … 32 V DC |
| Max. input current @ max. operating voltage | 25 mA |
| Pick-up voltage | 4 V DC |
| Release voltage | 1 V DC |
| Power consumption DC | 0.8 W |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 2 500 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 1 ms |
| Release time | 10 ms |
| Power Factor | > 0.5 |
| Ingress Protection | IP 00 |
| Dimensions | fig. 5. |
| Weight | 35 g |
| Housing material | PBT |

### Product references

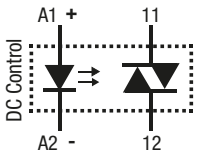
| Description | Type | 010 | 016 | 025 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1MXN-TIX0240N...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1MXN-TIX0240T...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1MXN-TIX0240V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

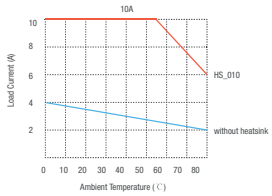
| | |
|---|---|
| Thermal conducting pad | SP1M/pad |
| Transparent cover | SP1MXN/cover |
| Heatsinks (DIN rail mounted with clip) | HS_003 |
| Heatsinks (panel mounted with screws) | HS_010, HS_012 |



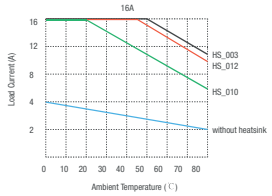
### fig. 1. Wiring diagram



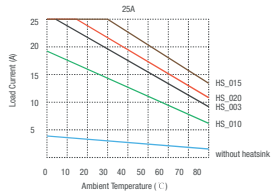

### fig. 2. Thermal derating curve 10 A



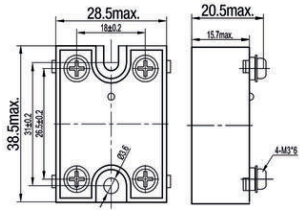

### fig. 3. Thermal derating curve 16 A




### fig. 4. Thermal derating curve 25 A




### fig. 5. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1MXN-TIX0380-10/16/25

## SSR | 1 phase | NO | up to 440 V AC, 25 A | instantaneous | screw | IP 00



### Main circuit

| | | | |
|---|---|---|---|
| Output type | TRIAC | | |
| Type | Instantaneous | | |
| Rated voltage AC | 380 V | | |
| Output voltage range | 24 ... 440 V | | |
| Operating frequency | 47 ... 63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 5 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 200 V / µs | | |
| Maximum non repetitive di/dt | 50 A / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **10 A** | **16 A** | **25 A** |
| Thermal derating, refer to: | Fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 120 A | 160 A | 250 A |
| Rated limit load I2t @ 10 ms | 50 $A^2s$ | 128 $A^2s$ | 312 $A^2s$ |

### Control circuit

| | |
|---|---|
| Operating voltage range | 4 … 32 V DC |
| Max. input current @ max. operating voltage | 25 mV |
| Pick-up voltage | 4 V DC |
| Release voltage | 1 V DC |
| Power consumption DC | 0.8 W |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 2 500 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 1 ms |
| Release time | 10 ms |
| Power Factor | > 0.5 |
| Ingress Protection | IP 00 |
| Dimensions | fig. 5. |
| Weight | 35 g |
| Housing material | PBT |

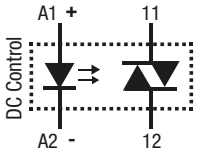
### Product references

| Description | Type | 010 | 016 | 025 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1MXN-TIX0380N...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1MXN-TIX0380T...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1MXN-TIX0380V...X/DC4-32V | o.r. | o.r. | o.r. |

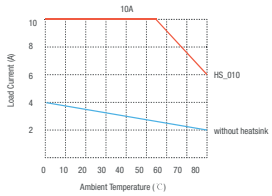
### Accessories

| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Transparent cover | SP1MXN/cover |
| Heatsinks (DIN rail mounted with clip) | HS_003 |
| Heatsinks (panel mounted with screws) | HS_010, HS_012 |

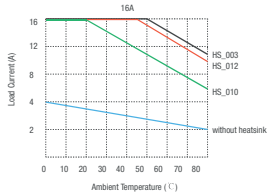
### fig. 1. Wiring diagram



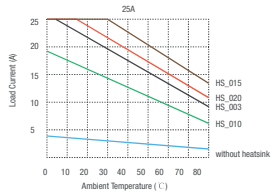

### fig. 2. Thermal derating curve 10 A



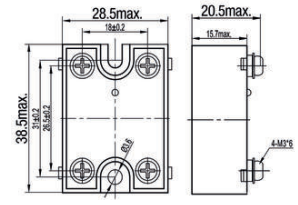

### fig. 3. Thermal derating curve 16 A




### fig. 4. Thermal derating curve 25 A




### fig. 5. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1MXN-TZX0240-10/16/25

## SSR | 1 phase | NO | up to 280 V AC, 25 A | synchr zero | screw | IP 00

### Main circuit

| | | | |
|---|---|---|---|
| Output type | TRIAC | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 240 V | | |
| Output voltage range | 24 ... 280 V | | |
| Operating frequency | 47 ... 63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 5 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 200 V / µs | | |
| Maximum non repetitive di/dt | 50 A / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **10 A** | **16 A** | **25 A** |
| Thermal derating, refer to: | Fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 120 A | 160 A | 250 A |
| Rated limit load I2t @ 10 ms | 50 $A^2s$ | 128 $A^2s$ | 312 $A^2s$ |

### Control circuit

| | |
|---|---|
| Operating voltage range | 4 … 32 V DC |
| Max. input current @ max. operating voltage | 25 mA |
| Pick-up voltage | 4 V DC |
| Release voltage | 1 V DC |
| Power consumption DC | 0.8 W |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 2 500 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Power Factor | > 0.5 |
| Ingress Protection | IP 00 |
| Dimensions | fig. 5. |
| Weight | 35 g |
| Housing material | PBT |

### Product references

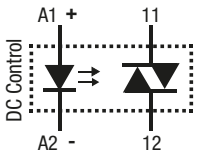
| Description | Type | 010 | 016 | 025 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1MXN-TZX0240N...X/DC4-32V | ✓ | o.r. | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1MXN-TZX0240T...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1MXN-TZX0240V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

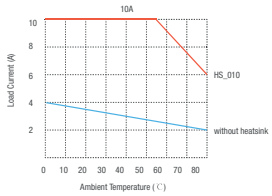
| | |
|---|---|
| Thermal conducting pad | SP1M/pad |
| Transparent cover | SP1MXN/cover |
| Heatsinks (DIN rail mounted with clip) | HS_003 |
| Heatsinks (panel mounted with screws) | HS_010, HS_012 |



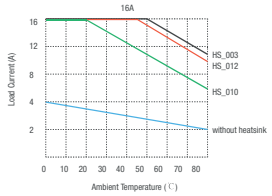
### fig. 1. Wiring diagram



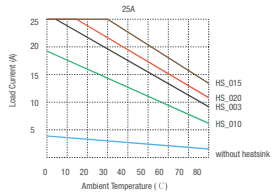

### fig. 2. Thermal derating curve 10 A



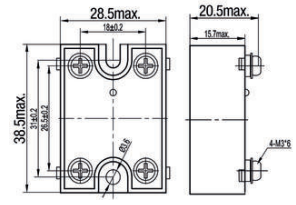

### fig. 3. Thermal derating curve 16 A




### fig. 4. Thermal derating curve 25 A




### fig. 5. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1MXN-TZX0380-10/16/25

## SSR | 1 phase | NO | up to 440 V AC, 25 A | synchr zero | screw | IP 00



### Main circuit

| | | | |
|---|---|---|---|
| Output type | TRIAC | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 380 V | | |
| Output voltage range | 24 ... 440 V | | |
| Operating frequency | 47 ... 63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 5 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 200 V / µs | | |
| Maximum non repetitive di/dt | 50 A / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **10 A** | **16 A** | **25 A** |
| Thermal derating, refer to: | fog. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 120 A | 160 A | 250 A |
| Rated limit load I2t @ 10 ms | 50 $A^2s$ | 120 $A^2s$ | 312 $A^2s$ |

### Control circuit

| | |
|---|---|
| Operating voltage range | 4 … 32 V DC |
| Max. input current @ max. operating voltage | 25 mA |
| Pick-up voltage | 4 V DC |
| Release voltage | 1 V DC |
| Power consumption DC | 0.8 W |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 2 500 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Power Factor | > 0.5 |
| Ingress Protection | IP 00 |
| Dimensions | fig. 5. |
| Weight | 35 g |
| Housing material | PBT |

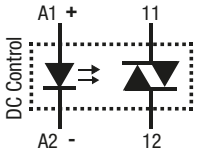
### Product references

| Description | Type | 010 | 016 | 025 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1MXN-TZX0380N...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1MXN-TZX0380T...X/DC4-32V | ✓ | o.r. | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1MXN-TZX0380V...X/DC4-32V | o.r. | o.r. | o.r. |

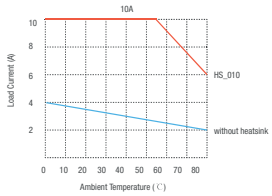
### Accessories

| | |
|---|---|
| Thermal conducting pad | SP1M/pad |
| Transparent cover | SP1MXN/cover |
| Heatsinks (DIN rail mounted with clip) | HS_003 |
| Heatsinks (panel mounted with screws) | HS_010, HS_012 |

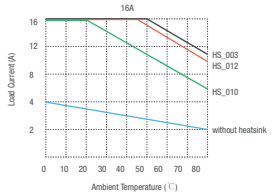
### fig. 1. Wiring diagram



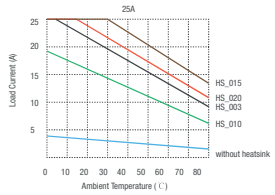

### fig. 2. Thermal derating curve 10 A



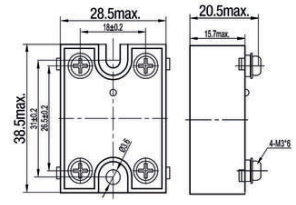

### fig. 3. Thermal derating curve 16 A




### fig. 4. Thermal derating curve 25 A




### fig. 5. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1EXS-TIX0240-25/40/60

## SSR | 1 phase | NO | up to 280 V AC, 60 A | instantaneous | screw | IP 20

### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Instantaneous | | |
| Rated voltage AC | 240 V | | |
| Output voltage range | 24…280 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **25 A** | **40 A** | **60 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 300 A | 500 A | 700 A |
| Rated limit load I2t @ 10 ms | 450 $A^2s$ | 1 250 $A^2s$ | 2 450 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1 ms (DC) / 40 ms (AC) |
| Release time | ≤ 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

### Product references

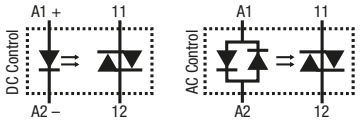
| Description | Type | 025 | 040 | 060 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TIX0240N...X/AC90-280V | ✓ | ✓ | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0240T...X/AC90-280V | ✓ | ✓ | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0240V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TIX0240N...X/DC4-32V | o.r. | ✓ | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0240T...X/DC4-32V | o.r. | ✓ | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0240V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

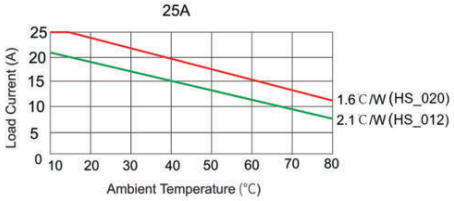
| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |



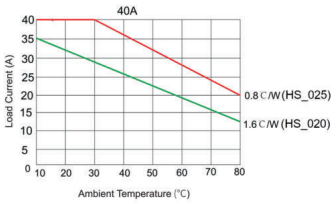
### fig. 1. Wiring diagram



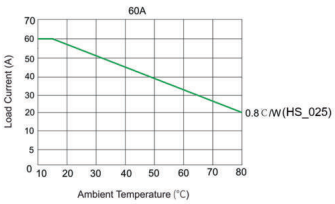

### fig. 2. Thermal derating curve 25 A



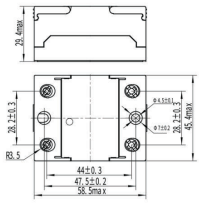

### fig. 3. Thermal derating curve 40 A




### fig. 4. Thermal derating curve 60 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1EXS-TIX0240-80/100/125

## SSR | 1 phase | NO | up to 280 V AC, 125 A | instantaneous | screw | IP 20



### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Instantaneous | | |
| Rated voltage AC | 240 V | | |
| Output voltage range | 24…280 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **80 A** | **100 A** | **125 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 800 A | 1 500 A | 2 250 A |
| Rated limit load I2t @ 10 ms | 3 200 $A^2s$ | 11 250 $A^2s$ | 25 000 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1 ms (DC) / 40 ms (AC) |
| Release time | ≤ 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

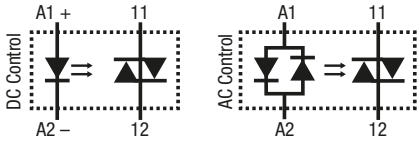
### Product references

| Description | Type | 080 | 100 | 125 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TIX0240N...X/AC90-280V | o.r. | | |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0240T...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0240V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TIX0240N...X/DC4-32V | o.r. | o.r. | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0240T...X/DC4-32V | o.r. | o.r. | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0240V...X/DC4-32V | o.r. | o.r. | o.r. |

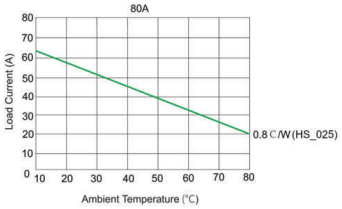
### Accessories

| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |

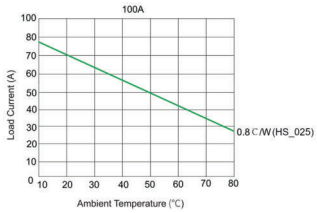
### fig. 1. Wiring diagram



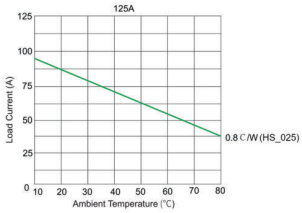

### fig. 2. Thermal derating curve 80 A



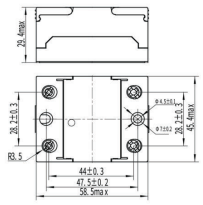

### fig. 3. Thermal derating curve 100 A




### fig. 4. Thermal derating curve 125 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1EXS-TIX0480-25/40/60

## SSR | 1 phase | NO | up to 530 V AC, 60 A | instantaneous | screw | IP 20

### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Instantaneous | | |
| Rated voltage AC | 480 V | | |
| Output voltage range | 24…530 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,200 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **25 A** | **40 A** | **60 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 300 A | 500 A | 700 A |
| Rated limit load I2t @ 10 ms | 450 $A^2s$ | 1 250 $A^2s$ | 2 450 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1 ms (DC) / 40 ms (AC) |
| Release time | ≤ 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

### Product references

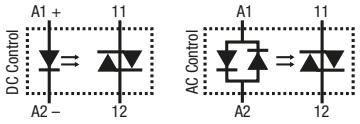
| Description | Type | 025 | 040 | 060 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TIX0480N...X/AC90-280V | ✓ | ✓ | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0480T...X/AC90-280V | ✓ | ✓ | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0480V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TIX0480N...X/DC4-32V | o.r. | ✓ | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0480T...X/DC4-32V | o.r. | ✓ | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0480V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

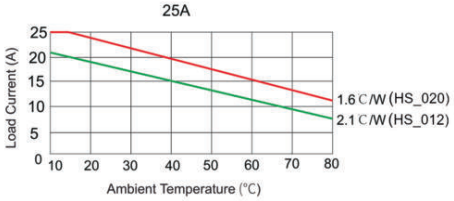
| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |



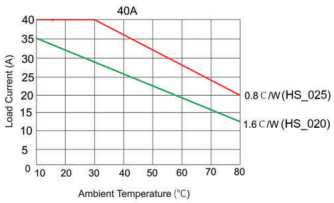
### fig. 1. Wiring diagram



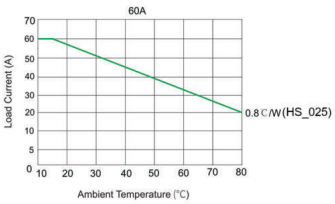

### fig. 2. Thermal derating curve 25 A



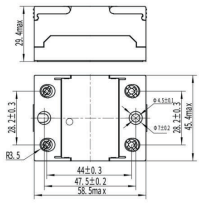

### fig. 3. Thermal derating curve 40 A




### fig. 4. Thermal derating curve 60 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1EXS-TIX0480-80/100/125

## SSR | 1 phase | NO | up to 530 V AC, 125 A | instantaneous | screw | IP 20



### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Instantaneous | | |
| Rated voltage AC | 480 V | | |
| Output voltage range | 24…530 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **80 A** | **100 A** | **125 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 1 | | |
| | 800 A | 1 500 A | 2 250 A |
| Rated limit load I2t @ 10 ms | 3 200 A²s | 11 250 A²s | 25 000 A²s |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1 ms (DC) / 40 ms (AC) |
| Release time | ≤ 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

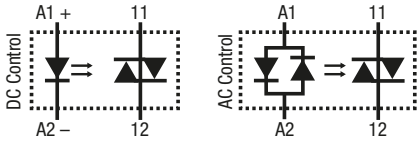
### Product references

| Description | Type | 080 | 100 | 125 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TIX0480N...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0480T...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0480V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TIX0480N...X/DC4-32V | o.r. | o.r. | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0480T...X/DC4-32V | o.r. | o.r. | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0480V...X/DC4-32V | o.r. | o.r. | o.r. |

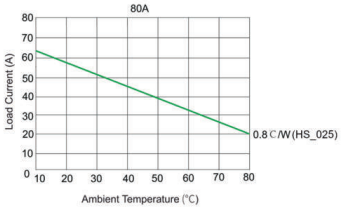
### Accessories

| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |

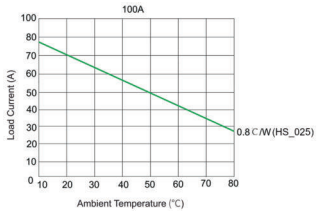
### fig. 1. Wiring diagram



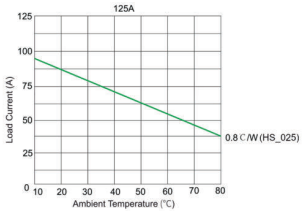

### fig. 2. Thermal derating curve 80 A



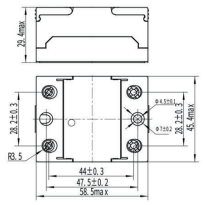

### fig. 3. Thermal derating curve 100 A




### fig. 4. Thermal derating curve 125 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1EXS-TIX0600-25/40/60

## SSR | 1 phase | NO | up to 660 V AC, 60 A | instantaneous | screw | IP 20

### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Instantaneous | | |
| Rated voltage AC | 600 V | | |
| Output voltage range | 24…660 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **25 A** | **40 A** | **60 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 300 A | 500 A | 700 A |
| Rated limit load I2t @ 10 ms | 450 $A^2s$ | 1 250 $A^2s$ | 2 450 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1 ms (DC) / 40 ms (AC) |
| Release time | ≤ 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

### Product references

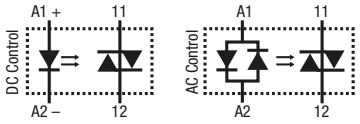
| Description | Type | 025 | 040 | 060 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TIX0600N...X/AC90-280V | ✓ | ✓ | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0600T...X/AC90-280V | ✓ | ✓ | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0600V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TIX0600N...X/DC4-32V | o.r. | ✓ | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0600T...X/DC4-32V | o.r. | ✓ | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0600V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

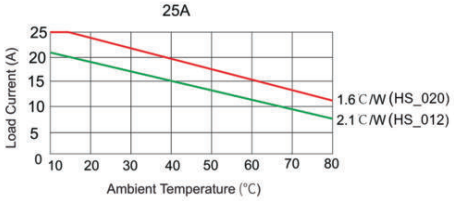
| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |



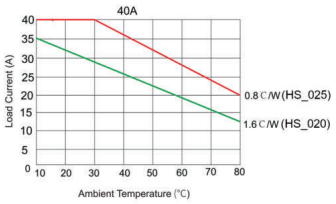
### fig. 1. Wiring diagram



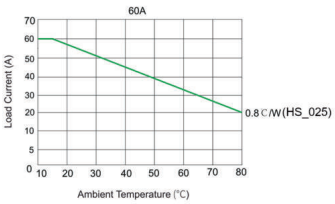

### fig. 2. Thermal derating curve 25 A



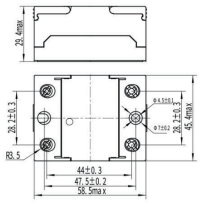

### fig. 3. Thermal derating curve 40 A




### fig. 4. Thermal derating curve 60 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals CE cULus UKCA

1.5 Solid State Relays

# SP1EXS-TIX0600-80/100/125

## SSR | 1 phase | NO | up to 660 V AC, 125 A | instantaneous | screw | IP 20



### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Instantaneous | | |
| Rated voltage AC | 600 V | | |
| Output voltage range | 24…660 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **80 A** | **100 A** | **125 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 800 A | 1 500 A | 2 250 A |
| Rated limit load I2t @ 10 ms | 3 200 A²s | 11 250 A²s | 25 000 A²s |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1 ms (DC) / 40 ms (AC) |
| Release time | ≤ 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

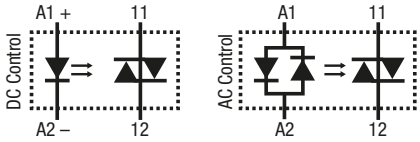
### Product references

| Description | Type | 080 | 100 | 125 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TIX0600N...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0600T...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0600V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TIX0600N...X/DC4-32V | o.r. | o.r. | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TIX0600T...X/DC4-32V | o.r. | o.r. | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TIX0600V...X/DC4-32V | o.r. | o.r. | o.r. |

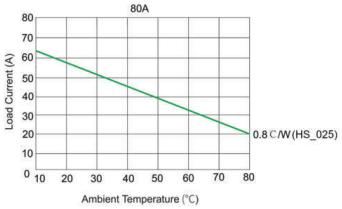
### Accessories

| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |

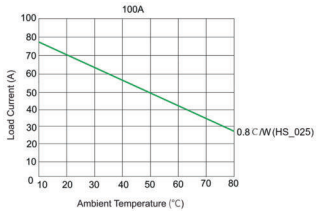
### fig. 1. Wiring diagram



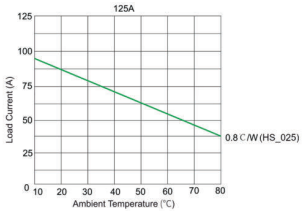

### fig. 2. Thermal derating curve 80 A



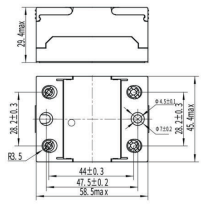

### fig. 3. Thermal derating curve 100 A




### fig. 4. Thermal derating curve 125 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1EXS-TZX0240-25/40/60

## SSR | 1 phase | NO | up to 280 V AC, 60 A | synchr zero | screw | IP 20

### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 240 V | | |
| Output voltage range | 24…280 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **25 A** | **40 A** | **60 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 300 A | 500 A | 700 A |
| Rated limit load I2t @ 10 ms | 450 $A^2s$ | 1 250 $A^2s$ | 2 450 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 1/2 cycle + 10 ms (DC) / 40 ms (AC) |
| Release time | 1/2 cycle + 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 3 |
| Weight | 113 g |
| Housing material | PBT |

### Product references

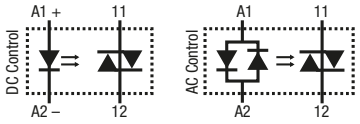
| Description | Type | 025 | 040 | 060 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TZX0240N...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0240T...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0240V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TZX0240N...X/DC4-32V | o.r. | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0240T...X/DC4-32V | o.r. | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0240V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

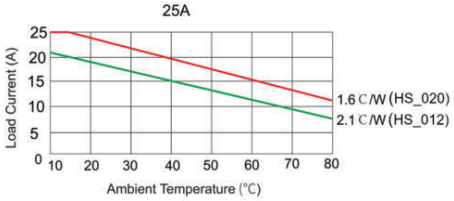
| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |



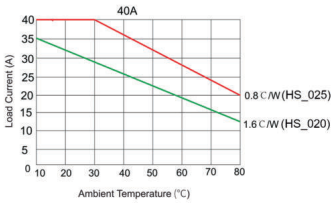
### fig. 1. Wiring diagram



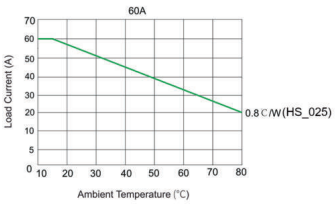

### fig. 2. Thermal derating curve 25 A



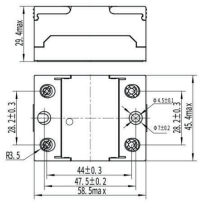

### fig. 3. Thermal derating curve 40 A




### fig. 4. Thermal derating curve 60 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1EXS-TZX0240-80/100/125

## SSR | 1 phase | NO | up to 280 V AC, 125 A | synchr zero | screw | IP 20



### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 240 V | | |
| Output voltage range | 24…280 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **80 A** | **100 A** | **125 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 800 A | 1 500 A | 2 250 A |
| Rated limit load I2t @ 10 ms | 3200 $A^2s$ | 11250 $A^2s$ | 25000 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1/2 cycle + 10 ms (DC) / 40 ms (AC) |
| Release time | ≤ 1/2 cycle + 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

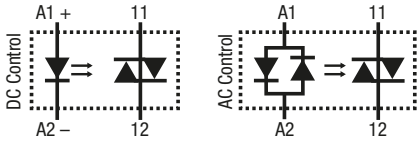
### Product references

| Description | Type | 080 | 100 | 125 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TZX0240N...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0240T...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0240V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TZX0240N...X/DC4-32V | ✓ | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0240T...X/DC4-32V | ✓ | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0240V...X/DC4-32V | o.r. | o.r. | o.r. |

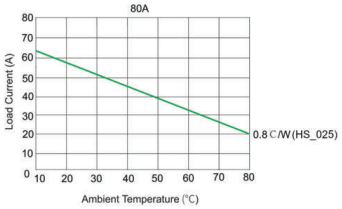
### Accessories

| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |

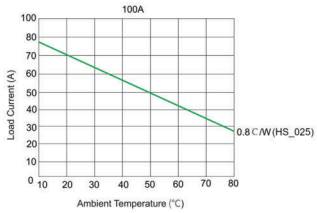
### fig. 1. Wiring diagram



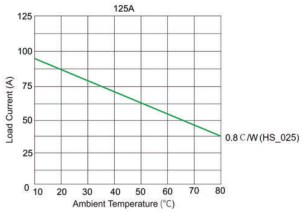

### fig. 2. Thermal derating curve 80 A



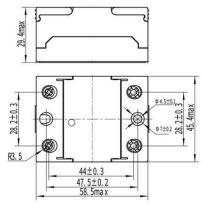

### fig. 3. Thermal derating curve 100 A




### fig. 4. Thermal derating curve 125 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1EXS-TZX0480-25/40/60

## SSR | 1 phase | NO | up to 530 V AC, 60 A | synchr zero | screw | IP 20

### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 480 V | | |
| Output voltage range | 24…530 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,200 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **25 A** | **40 A** | **60 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 300 A | 500 A | 700 A |
| Rated limit load I2t @ 10 ms | 450 $A^2s$ | 1 250 $A^2s$ | 2 450 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 1/2 cycle + 10 ms (DC) / 40 ms (AC) |
| Release time | 1/2 cycle + 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

### Product references

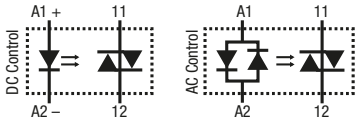
| Description | Type | 025 | 040 | 060 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TZX0480N...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0480T...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0480V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TZX0480N...X/DC4-32V | o.r. | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0480T...X/DC4-32V | o.r. | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0480V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

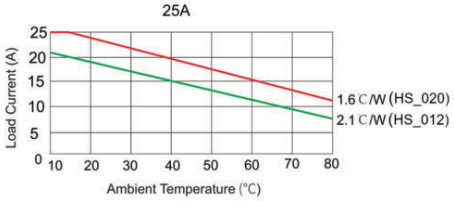
| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |



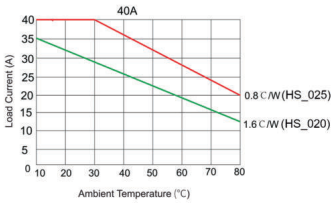
### fig. 1. Wiring diagram



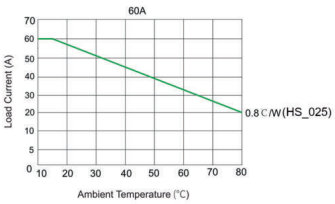

### fig. 2. Thermal derating curve 25 A



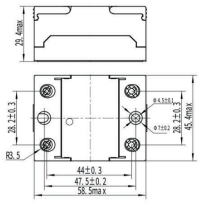

### fig. 3. Thermal derating curve 40 A




### fig. 4. Thermal derating curve 60 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1EXS-TZX0480-80/100/125

## SSR | 1 phase | NO | up to 530 V AC, 125 A | synchr zero | screw | IP 20

### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 480 V | | |
| Output voltage range | 24…530 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,200 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **80 A** | **100 A** | **125 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 800 A | 1 500 A | 2 250 A |
| Rated limit load I2t @ 10 ms | 3 200 $A^2s$ | 11 250 $A^2s$ | 25 000 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3… 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1/2 cycle + 10 ms (DC) / 40 ms (AC) |
| Release time | ≤ 1/2 cycle + 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

### Product references

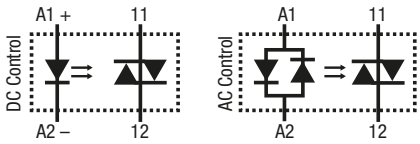
| Description | Type | 080 | 100 | 125 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TZX0480N...X/AC90-280V | ✓ | o.r. | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0480T...X/AC90-280V | ✓ | o.r. | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0480V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TZX0480N...X/DC4-32V | ✓ | o.r. | o.r. |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0480T...X/DC4-32V | ✓ | o.r. | o.r. |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0480V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

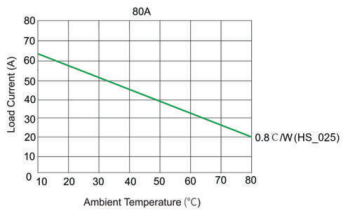
| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |



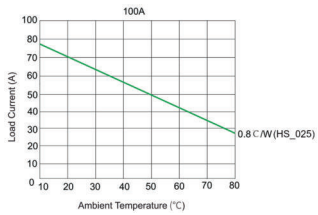
### fig. 1. Wiring diagram



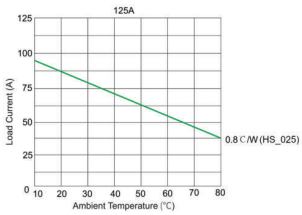

### fig. 2. Thermal derating curve 80 A



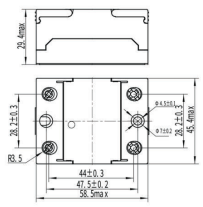

### fig. 3. Thermal derating curve 100 A




### fig. 4. Thermal derating curve 125 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

# SP1EXS-TZX0600-25/40/60

## SSR | 1 phase | NO | up to 660 V AC, 60 A | synchr zero | screw | IP 20

### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 600 V | | |
| Output voltage range | 24…660 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **25 A** | **40 A** | **60 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 300 A | 500 A | 700 A |
| Rated limit load I2t @ 10 ms | 450 $A^2s$ | 1 250 $A^2s$ | 2 450 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | 1/2 cycle + 10 ms (DC) / 40 ms (AC) |
| Release time | 1/2 cycle + 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

### Product references

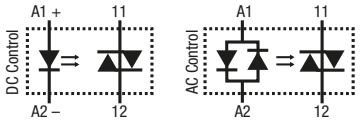
| Description | Type | 025 | 040 | 060 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TZX0600N...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0600T...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0600V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TZX0600N...X/DC4-32V | o.r. | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0600T...X/DC4-32V | o.r. | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0600V...X/DC4-32V | o.r. | o.r. | o.r. |

### Accessories

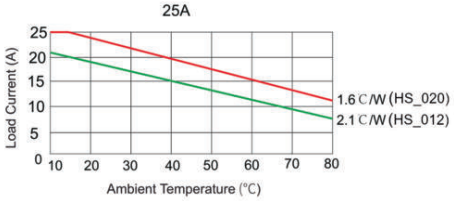
| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |



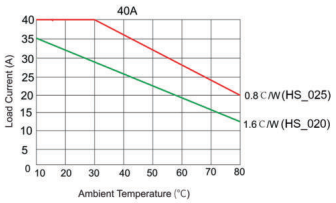
### fig. 1. Wiring diagram



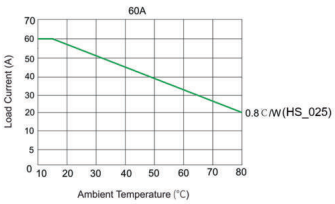

### fig. 2. Thermal derating curve 25 A



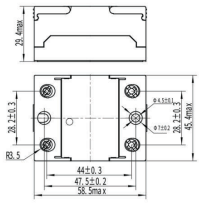

### fig. 3. Thermal derating curve 40 A




### fig. 4. Thermal derating curve 60 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

1.5 Solid State Relays

# SP1EXS-TZX0600-80/100/125

## SSR | 1 phase | NO | up to 660 V AC, 125 A | synchr zero | screw | IP 20



### Main circuit

| | | | |
|---|---|---|---|
| Output type | SCR | | |
| Type | Synchronised zero | | |
| Rated voltage AC | 600 V | | |
| Output voltage range | 48…660 V | | |
| Operating frequency | 47…63 Hz | | |
| Recommended minimum contact load | 100 mA | | |
| Maximum leakage current @ rated voltage mA | 3 mA | | |
| Maximum voltage drop @ rated current | ≤ 1.5 V rms | | |
| Repetitive peak voltage in off-state | 1,600 Vpk | | |
| Maximum switch off slew rate dv/dt | 500 V / µs | | |
| Type of terminal | Screw | | |
| Contact | 1 NO | | |
| Rated current | **80 A** | **100 A** | **125 A** |
| Thermal derating, refer to: | fig. 2 | fig. 3 | fig. 4 |
| Inrush current @ 10 ms | 800 A | 1 500 A | 2 250 A |
| Rated limit load I2t @ 10 ms | 3 200 $A^2s$ | 11 250 $A^2s$ | 25 000 $A^2s$ |

### Control circuit

| | | |
|---|---|---|
| Operating voltage range | 3 … 32 V DC | 90 … 280 V AC |
| Max. input current @ max. operating voltage | 25 mA | 35 mA |
| Pick-up voltage | 3 V DC | 90 V AC |
| Release voltage | 1 V DC | 15 V AC |
| Power consumption DC | 0.8 W | 9.8 VA |

### Insulation

| | |
|---|---|
| Rated test voltage input/output | 4 000 Vrms / 1 min |
| Rated test voltage input output/base | 4 000 Vrms / 1 min |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 100 °C |
| Operation temperature | -30 … 80 °C |
| Pick-up time | ≤ 1/2 cycle + 10 ms (DC) / 40 ms (AC) |
| Release time | ≤ 1/2 cycle + 10 ms (DC) / 20 ms (AC) |
| Power Factor | > 0.5 |
| Ingress Protection | IP 20 |
| Dimensions | fig. 5 |
| Weight | 80 g |

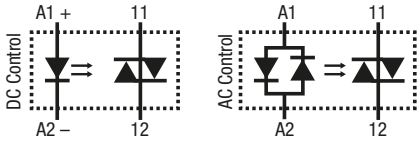
### Product references

| Description | Type | 080 | 100 | 125 |
|---|---|---|---|---|
| 1 NO, LED, RC Protection | SP1EXS-TZX0600N...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0600T...X/AC90-280V | ✓ | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0600V...X/AC90-280V | o.r. | o.r. | o.r. |
| 1 NO, LED, RC Protection | SP1EXS-TZX0600N...X/DC4-32V | ✓ | ✓ | ✓ |
| 1 NO, LED, TVS (*2) and RC protection | SP1EXS-TZX0600T...X/DC4-32V | ✓ | ✓ | ✓ |
| 1 NO, LED, MOV (*1) and RC protection | SP1EXS-TZX0600V...X/DC4-32V | o.r. | o.r. | o.r. |

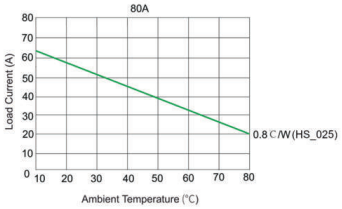
### Accessories

| | |
|---|---|
| Thermal conducting pad | SP1P/pad |
| Heatsinks (DIN rail mounted with clip) | HS_003, HS_004, HS_005, HS_006, HS_007, HS_008 |
| Heatsinks (panel mounted with screws) | HS_012, HS_015, HS_020, HS_022, HS_025 |

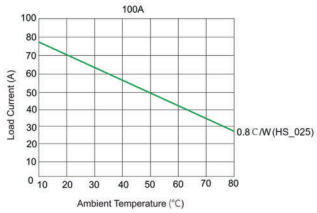
### fig. 1. Wiring diagram



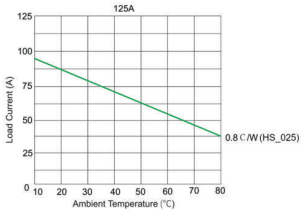

### fig. 2. Thermal derating curve 80 A



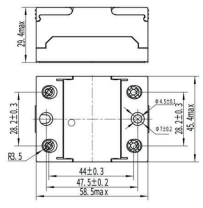

### fig. 3. Thermal derating curve 100 A




### fig. 4. Thermal derating curve 125 A




### fig. 5. Dimensions (mm)



### Technical approvals, conformities

Standards EN 60950-1, EN 62314

Approvals

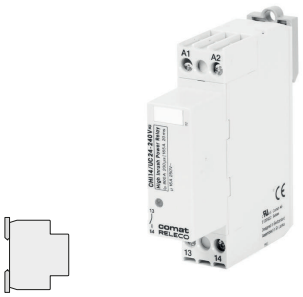
## Notes

# 1.6 Installation Relays


| | Type | Pin | Page |
|---|---|---|---|
| **CHI Series** | | | |
| 1 pole \| High Inrush Relay with tungsten pre-contact | CHI14 | | 130 |
| 3 pole \| High Inrush Relay with tungsten pre-contact | CHI34 | | 131 |
| **C100/200/300 Series** | | | |
| 2 pole \| Power Relay | C133.01 | | 132 |
| 2 pole \| 2 coil \| Control Relay | C203.01 | | 133 |
| 2 pole \| 2 coil \| Control Relay | C203.04 | | 134 |
| 2 pole \| 2 coil \| Signal Relay | C203.06 | | 135 |
| 2 pole \| 2 coil \| Signal Relay | C203.06R | | 136 |
| 2 pole \| 3 coil \| Signal Relay | C301.04 | | 137 |
| **CR Series** | | | |
| 2 pole \| Signal Relay | CR11C | | 138 |
| 1 pole \| Power Relay | CR16CX | | 139 |
| 1 pole \| Power Relay \| Step Switch | CRS1C | | 140 |
| **B Series** | | | |
| 1 pole \| Power Relay | B103 | | 141 |

# CHI14

## 1 pole | High Inrush Relay with tungsten pre-contact



### Main circuit

| | | |
|---|---|---|
| Available contact materials | W + $AgSnO_2$ | |
| Recommended minimum contact load | 100 mA / 12 V | |
| Maximum contact load AC-1 | 16 A / 250 V | |
| Rated current | 16 A | |
| Inrush current | 165 A, 20 ms | 800 A, 200 µs |
| Operating voltage AC / DC | 80 ... 250 V | |
| Rated load AC | 4 000 VA | |
| Rated load DC | fig. 2. | |
| Mechanical endurance (cycles) | ≥ 5 000 000 | |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 5000 | |
| Number of contacts | 1 NO | |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 0.7 $U_N$ … 1.05 $U_N$ |
| Max. Pick-up time | 500 ms |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption AC | 1.2 VA |
| Power consumption DC | 0.43 W |
| Frequency range | 16 … 63 Hz |

### Insulation

| | |
|---|---|
| Contact/coil | 2.5 kV / 1 min |
| Overvoltage category | II |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 2 |

### General data

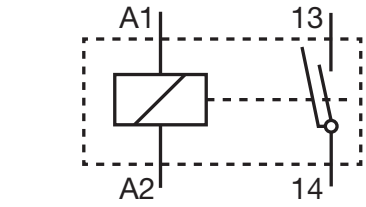
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section | solid wire 1 x 4 $mm^2$, 2 x 1.5 $mm^2$,<br>stranded & crimped wire 1 x 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 70 g |
| Housing material | PA / PC |

### Product references

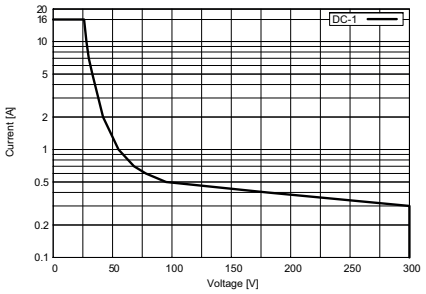
| Description | Type | 24-240 |
|---|---|---|
| 1 NO | CHI14/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

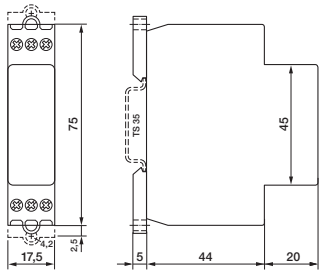
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60730-1; EN 61000-6-2; EN 61000-6-3

Approvals

# CHI34

## 3 pole | High Inrush Relay with tungsten pre-contact



### Main circuit

| | | |
|---|---|---|
| Available contact materials | W + $AgSnO_2$ | |
| Recommended minimum contact load | 100 mA / 12 V | |
| Maximum contact load AC-1 | 16 A / 250 V | |
| Rated current | 16 A | |
| Inrush current | 165 A, 20 ms | 800 A, 200 µs |
| Operating voltage AC / DC | 80 ... 250 V | |
| Rated load AC | 16 A / 250 V | |
| Rated load DC | fig. 2. | |
| Mechanical endurance (cycles) | ≥ 5 000 000 | |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 5 000 | |
| Number of contacts | 3 NO | |

### Auxiliary contact

| | |
|---|---|
| Output type | MOSFET |
| Rated current | 90 mA at 25 °C / 60 mA at 60°C |
| Inrush current | 1A / 100 µs |
| Recommended minimum contact load | 1 mA / 5 V |
| Operating voltage AC / DC | 24 V AC/DC |
| Voltage drop max. | ≤ 1.5 V |
| Switching point | Synchronized with last switching main contact |
| Number of contacts | 1 NO |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 0.7 $U_N$ … 1.05 $U_N$ |
| Max. Pick-up time | 500 ms |
| Pick-up voltage | ≤ 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Power consumption supply (1-N) AC / DC | 3.45 VA / 3.45 W |
| Power consumption control (A1-A2) AC / DC | ≤ 30 mVA / ≤ 30 mW |
| Frequency range | 47 … 63 HZ |

### Insulation

| | |
|---|---|
| Contact/coil | 2.5 kV / 1 min |
| Overvoltage category | II |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 2 |

### General data

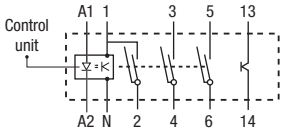
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section | solid wire 1 x 4 $mm^2$, 2 x 1.5 $mm^2$,<br>stranded & crimped wire 1 x 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 125 g |
| Housing material | PA / PC |

### Product references

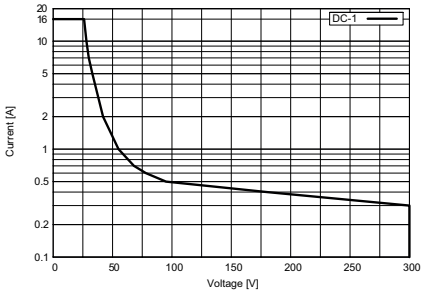
| Description | Type | 24-240 |
|---|---|---|
| 3 NO + 1 NO | CHI34/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

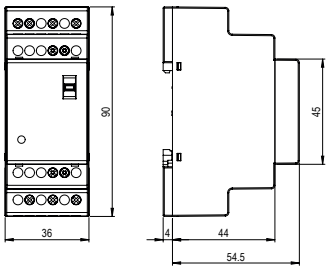
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61000-6-2; EN 61000-6-3

Approvals

# C133.01

## 2 pole | Power Relay




### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 100 mA / 12 V |
| Maximum contact load AC-1 | 6 A / 250 V |
| Rated current | 6 A |
| Inrush current | 15 A, 20 ms |
| Operating voltage | See table product refeences |
| Rated load AC | 1 500 VA |
| Rated load DC | 300 W |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load (cycles) | ≥ 300 000 |
| Number of contacts | 2 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 $U_N$ … 1.15 $U_N$ |
| Pick-up voltage | 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Power consumption AC | 1.1 VA |
| Power consumption DC | 1.1 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

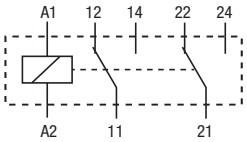
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 89 g |
| Housing material | PA / PC |

### Product references

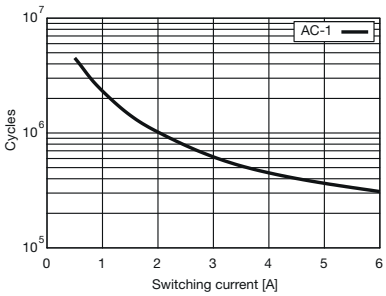
| Description | Type | 12 | 24 | 48 | 220-240 |
|---|---|---|---|---|---|
| 2 CO | C133.01/AC...V | | | | ✓ |
| 2 CO | C133.01/DC...V | ✓ | | | |
| 2 CO | C133.01/UC...V | | ✓ | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

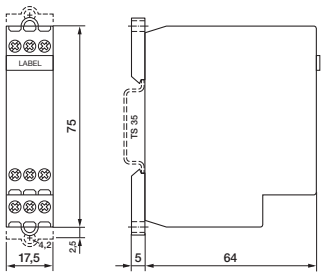
### fig. 1. Wiring diagram




### fig. 2. AC voltage endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61810

Approvals

# 1.6 Installation Relays
# C203.01
## 2 pole | 2 coil | Control Relay





### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 100 mA / 12 V |
| Maximum contact load AC-1 | 6 A / 250 V |
| Maximum contact load DC-1 | 6 A / 25 V |
| Rated current | 6 A |
| Inrush current | 15 A, 20 ms |
| Operating voltage | See table product references |
| Rated load AC | 1 250 VA |
| Rated load DC | 330 W |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load (cycles) | ≥ 300 000 |
| Number of contacts | 2 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 $U_N$ … 1.15 $U_N$ |
| Pick-up voltage | 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 10 ms |
| Release time | 10 ms |
| Power consumption AC | 2 x 0.6 VA |
| Power consumption DC | 2 x 0.6 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

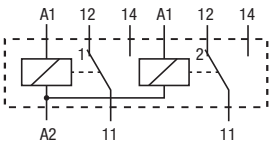
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 89 g |
| Housing material | PA / PC |

### Product references

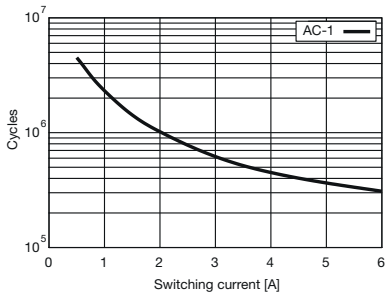
| Description | Type | 24 | 220-240 |
|---|---|---|---|
| 2 CO | C203.01/AC...V | | ✓ |
| 2 CO | C203.01/UC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

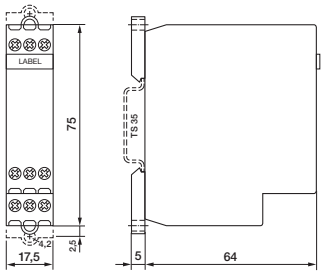
### fig. 1. Wiring diagram




### fig. 2. AC voltage endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61810

Approvals

# C203.04

## 2 pole | 2 coil | Control Relay

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 1 mA / 0.1 V |
| Maximum contact load AC-1 | 5 A / 250 V |
| Maximum contact load DC-1 | 5 A / 30 V |
| Operating voltage | See table product references |
| Rated load AC | 1 250 VA |
| Rated load DC | 150 W |
| Rated current | 5 A |
| Mechanical endurance (cycles) | ≥ 50 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Number of contacts | 2 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.2 $U_N$ |
| Pick-up voltage | 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 6 ms |
| Release time | 30 ms |
| Power consumption AC | 2 x 0.25 VA |
| Power consumption DC | 2 x 0.25 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 65 g |
| Housing material | PA / PC |

### Product references

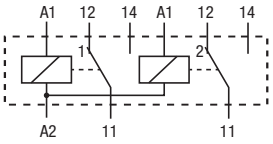
| Description | Type | 24 |
|---|---|---|
| 2 CO | C203.04/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

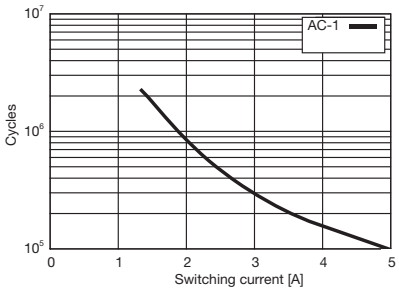




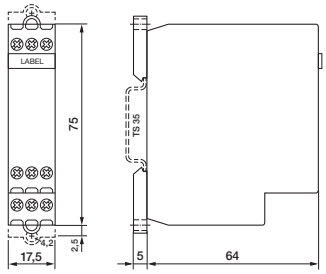
### fig. 1. Wiring diagram




### fig. 2. AC voltage endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61810

Approvals

# 1.6 Installation Relays
# C203.06
## 2 pole | 2 coil | Signal Relay



### Main circuit

| | |
|---|---|
| Available contact materials | AgAu |
| Recommended minimum contact load | 10 µA / 10 mV |
| Maximum contact load AC-1 | 0.5 A / 125 V |
| Maximum contact load DC-1 | 2 A / 30 V |
| Operating voltage | See table product references |
| Rated load AC | 100 VA |
| Rated load DC | 60 W, fig. 2. |
| Rated current | 0.5 A |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Number of contacts | 2 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.2 $U_N$ |
| Pick-up voltage | 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 10 ms |
| Release time | 20 ms |
| Power consumption AC | 2 x 0.25 VA |
| Power consumption DC | 2 x 0.25 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

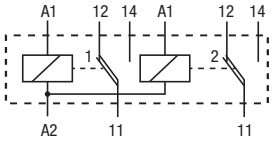
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 65 g |
| Housing material | PA / PC |

### Product references

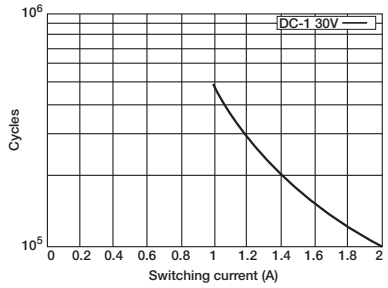
| Description | Type | 48 | 220-240 |
|---|---|---|---|
| 2 CO | C203.06/AC...V | | ✓ |
| 2 CO | C203.06/UC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

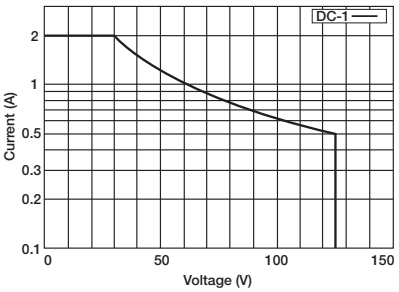
### fig. 1. Wiring diagram



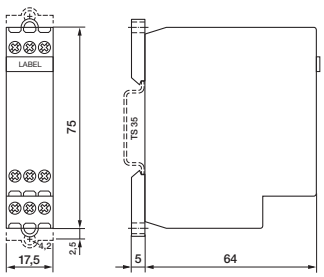

### fig. 2. DC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61810

Approvals

# C203.06R

## 2 pole | 2 coil | Signal Relay

### Main circuit

| | |
|---|---|
| Available contact materials | AgAu |
| Recommended minimum contact load | 10 µA / 10 mV |
| Maximum contact load AC | 0.5 A / 125 V |
| Maximum contact load DC | 2 A / 30 V |
| Operating voltage AC / DC | See table product references |
| Rated load AC | 100 VA |
| Rated load DC | 60 W, fig. 2. |
| Rated current | 0.5 A |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Number of contacts | 2 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.7 $U_N$ … 1.25 $U_N$ |
| Pick-up voltage | 0.7 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 10 ms |
| Release time | 20 ms |
| Power consumption AC | 2 x 0.25 VA |
| Power consumption DC | 2 x 0.25 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 65 g |
| Housing material | PA / PC |

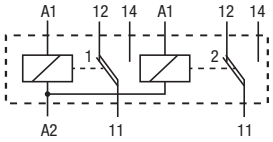
### Product references

| Description | Type | 24 | 36 |
|---|---|---|---|
| 2 CO | C203.06R/UC...V | ✓ | ✓ |

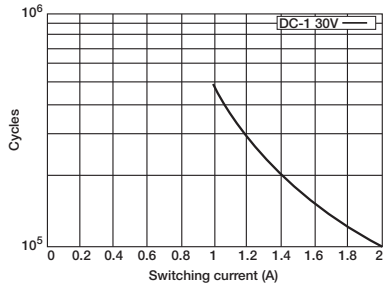
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



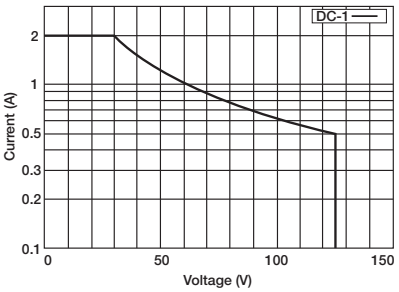
### fig. 1. Wiring diagram



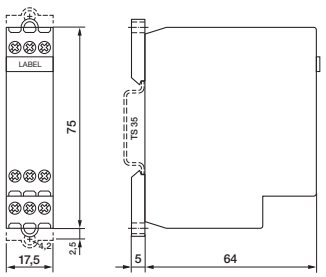

### fig. 2. DC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61810

Railway EN 45545-2; EN 50155

Approvals

# 1.6 Installation Relays
# C301.04
## 2 pole | 3 coil | Signal Relay





### Main circuit

| | |
|---|---|
| Available contact materials | AgAu |
| Recommended minimum contact load | 1 mA / 0.1 V |
| Maximum contact load AC-1 | 5 A / 250 V |
| Maximum contact load DC-1 | 5 A / 30 V |
| Rated current | 5 A |
| Operating voltage | See table product references |
| Rated load AC | 1 250 VA |
| Rated load DC | 150 W |
| Mechanical endurance (cycles) | ≥ 50 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Number of contacts | 3 NO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.2 $U_N$ |
| Pick-up voltage | 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 6 ms |
| Release time | 30 ms |
| Power consumption AC | 3 x 0.25 VA |
| Power consumption DC | 3 X 0.25 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

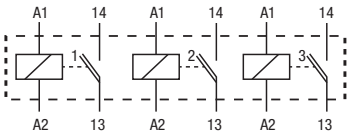
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -20 … 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 65 g |
| Housing material | PA / PC |

### Product references

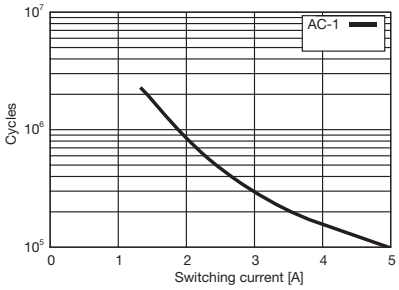
| Description | Type | 24 |
|---|---|---|
| 3 NO | C301.04/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

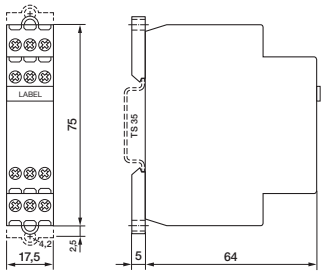
### fig. 1. Wiring diagram




### fig. 2. AC voltage endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61810

Approvals

# CR11C

## 2 pole | Signal Relay

### Main circuit

| | |
|---|---|
| Available contact materials | AgAu |
| Recommended minimum contact load | 10 µA / 10 mV |
| Maximum contact load AC-1 | 0.5 A / 125 V |
| Maximum contact load DC-1 | 1 A / 30 V |
| Rated current | 1 A |
| Operating voltage | See table product references |
| Rated load AC | 62.5 VA |
| Rated load DC | 30 W |
| Mechanical endurance (cycles) | ≥ 100 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Number of contacts | 2 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.2 $U_N$ |
| Pick-up voltage | 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 3 ms |
| Release time | 4 ms |
| Power consumption AC | 0.25 VA |
| Power consumption DC | 0.25 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 38g |
| Housing material | PA |

### Product references

| Description | Type | 24 |
|---|---|---|
| 2 CO | CR11C/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



**fig. 1. Wiring diagram**

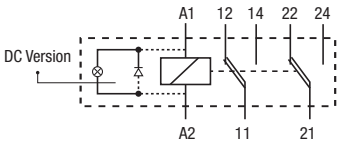



**fig. 2. AC voltage endurance**

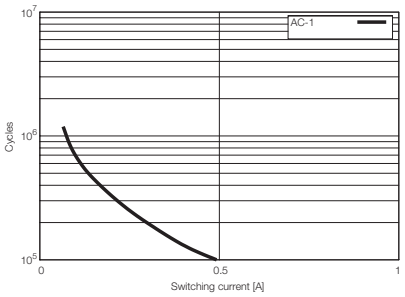
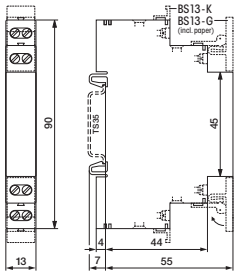



**fig. 3. Dimensions (mm)**




### Technical approvals, conformities

Standards EN 61810

Approvals

# 1.6 Installation Relays
# CR16CX
## 1 pole | Power Relay



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 12 V |
| Maximum contact load AC-1 | 6 A / 250 V |
| Maximum contact load DC-1 | 6 A / 30 V |
| Rated load | 6 A |
| Operating voltage | See table product references |
| Rated load AC | 1 500 VA |
| Rated load DC | 180 W |
| Mechanical endurance (cycles) | ≥ 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 190 000 |
| Number of contacts | 1 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 10 ms |
| Release time | 20 ms |
| Power consumption AC | 2 VA |
| Power consumption DC | 0.25 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

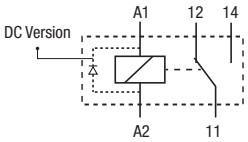
| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -25 ... 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 45 g |
| Housing material | PC |

### Product references

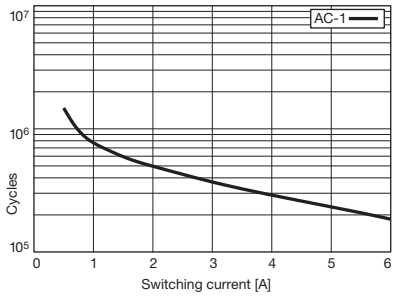
| Description | Type | 24 | 230 |
|---|---|---|---|
| 1 CO | CR16CX/AC...V | | ✓ |
| 1 CO | CR16CX/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

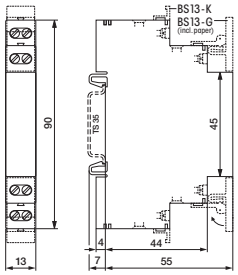
### fig. 1. Wiring diagram




### fig. 2. AC voltage endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61810

Approvals

# CRS1C

## 1 pole | Power Relay | Step Switch

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Recommended minimum contact load | 10 mA / 12 V |
| Maximum contact load AC-1 | 6 A / 250 V |
| Maximum contact load DC-1 | 6 A / 30 V |
| Rated current | 6 A |
| Operating voltage | See table product references |
| Rated load AC | 1 500 VA |
| Rated load DC | 180 W |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Number of contacts | 1 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.8 $U_N$ … 1.1 $U_N$ |
| Pick-up voltage | 0.8 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | ≥ 50 ms |
| Release time | ≥ 50 ms |
| Power consumption AC | 2 VA |
| Power consumption DC | 1.5 W |
| Frequency range | 50 Hz / 60 Hz |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 ... 60 °C |
| Conductor cross section | solid wire 1 x 4 mm², 2 x 1.5 mm², stranded & crimped wire 1 x 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 45 g |
| Housing material | PC |

### Product references

| Description | Type | 24 |
|---|---|---|
| 1 CO | CRS1C/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



**fig. 1. Wiring diagram**

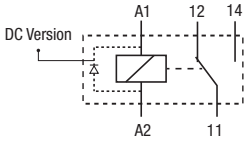



**fig. 2. AC voltage endurance**

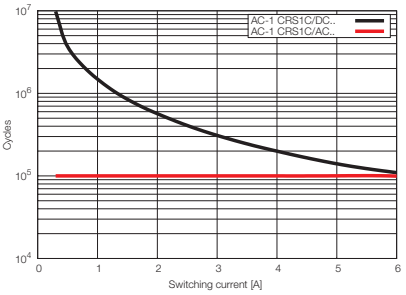
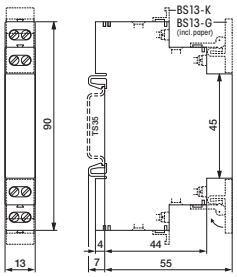



**fig. 3. Dimensions (mm)**




### Technical approvals, conformities

Standards EN 61810

Approvals

# 1.6 Installation Relays
# B103
## 1 pole | Power Relay



### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Recommended minimum contact load | 10 mA / 12 V |
| Maximum contact load AC-1 | 10 A / 250 V |
| Maximum contact load DC-1 | 6 A / 30 V |
| Rated current | 10 A |
| Inrush current | 16 A, 20 ms |
| Operating voltage | See table product references |
| Rated load AC | 2 500 VA |
| Rated load DC | fig. 3. |
| Mechanical endurance (cycles) | ≥ 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |
| Number of contacts | 1 CO |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 $U_N$ … 1.15 $U_N$ |
| Pick-up voltage | 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 20 ms |
| Release time | 12 ms |
| Power consumption AC | 5.5 VA |
| Power consumption DC | 1.2 W |

### Insulation

| | |
|---|---|
| Contact/contact | 4 kV / 1 min |
| Contact/coil | 2 kV / 1 min |
| Overvoltage category | III |
| Rated impulse withstand voltage open contact | 1 kV / 1 min |
| Pollution degree | 3 |

### General data

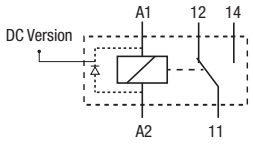
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -20 … 55 °C |
| Conductor cross section | solid wire 1 x 4 $mm^2$, 2 x 1.5 $mm^2$,<br>stranded & crimped wire 1 x 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque | 0.5 Nm |
| Ingress Protection | IP 20 |
| Mounting | TH35 (EN 60715) |
| Weight | 60 g |
| Housing material | PA / PC |

### Product references

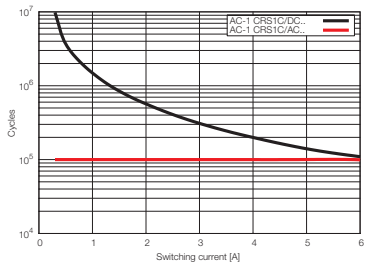
| Description | Type | 8-12 | 24 | 220-240 |
|---|---|---|---|---|
| 1 CO | B103/AC...V | | | ✓ |
| 1 CO | B103/UC...V | ✓ | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

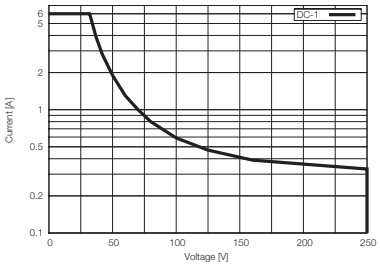
### fig. 1. Wiring diagram



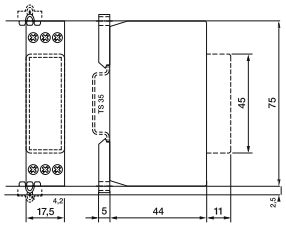

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 61810

Approvals

Notes

# 1.7 Installation Contactors


| | Type | Pin | Page |
|---|---|---|---|
| **RIC Series** | | | |
| 1, 2 or 4 pole \| 16 A \| 3.5 kW | RIC16 | | 145 |
| 2 pole \| 20 A \| 4 kW | RIC20 | | 146 |
| 2 pole \| 20 A \| 7 kW \| DC-5 \| 4 A 110 V DC | RIC20-xxx-R4A110V | | 147 |
| 2 pole \| 20 A \| 7 kW \| DC-5 \| 4 A 110 V DC \| TVS Suppressor | RIC20-xxx-SR | | 148 |
| 2 or 4 pole \| 25 A \| 5.4 kW | RIC25 | | 149 |
| 4 pole \| 25 A \| 5.4 kW | RIC25-xxx-R | | 150 |
| 2 or 4 pole \| 32 A \| 7 kW | RIC32 | | 151 |
| 4 pole \| 40 A \| 8.7 kW | RIC40 | | 152 |
| 4 pole \| 63 A \| 13.3 kW | RIC63 | | 153 |
| **RAC Series** | | | |
| 2 pole \| 20 A \| 4 kW \| manual lever Auto - 1 - Lock | RAC20 | | 154 |
| 2 pole \| 25 A \| 5.4 kW \| manual lever Auto - 1 - Lock | RAC25 | | 155 |
| 4 pole \| 40 A \| 8.7 kW \| manual lever Auto - 1 - Lock | RAC40 | | 156 |
| 4 pole \| 63 A \| 13.3 kW \| manual lever Auto - 1 - Lock | RAC63 | | 157 |
| **RBC Series** | | | |
| 2 or 4 pole \| 20 A \| 4.4 kW \| Step switch, manual lever 0 - 1 - Lock | RBC20 | | 158 |
| 4 pole \| 32 A \| 7 kW \| Step switch, manual lever 0 - 1 - Lock | RBC32 | | 159 |

# Installation Contactors

## Product Key Installation Contactors

| 1 | 2 | | 3 | 4 | 5 | | 6 | 7 | 8 | | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RIC** | **20** | **-** | **2** | **0** | **0** | **-** | | | **R** | **/** | **DC** | **24V** |

**1. Product Name**

RIC Installation Contactor
RAC Installation Contactor with manual control (Actuator)
RBC Installation Bi-stable Contactor

**2. Rated current AC-1 [A]**

16, 20, 25, 32, 40 or 63 A

**3. Number of main contacts NO (normally open)**

**4. Number of main contacts NC (normally closed)**

**5. Number of main contacts CO (change over)**

**6. Terminal**

- Screw
1 Cage Clamp
2 Push-in

**7. Surge protection**

- none
S Transient voltage suppressor

**8. Options**

- Standard version
R Railway version

**9. Supply voltage**

DC Direct current
AC Alternate current
UC AC/DC with built-in bridge rectifier and varistor

**10. Coil nominal voltage**

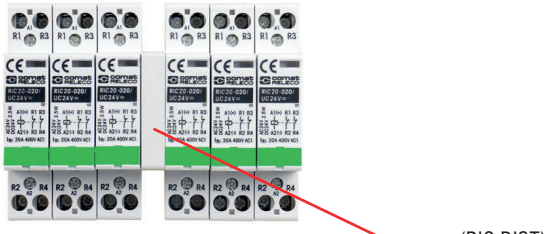
12, 24, 36, 48, 72, 110, 230 or 400 V

**Assembly information**

If several contactors are installed next to each other, spacers (RIC DIST) must be installed for heat dissipation.

**Example:**

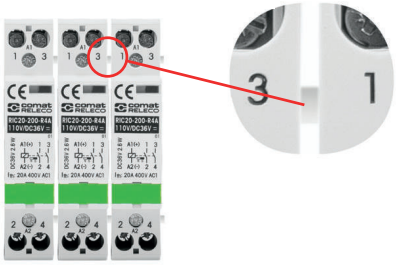
Ambient temperature up to 40 °C:
1 spacer (9 mm) after every third RIC, RAC, RBC




Ambient temperature 40 ... 50 °C:
1 spacer (9 mm) after every second RIC, RAC, RBC



The RIC20 rail contactors have an integrated spacer (3 mm).



# RIC16

## 1, 2 or 4 pole | 16 A | 3.5 kW





### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 16 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 50 A, 100 ms |
| Rated load AC-1 | 3.5 kW |
| Rated load AC-3 | 1.1 kW (NO) / 0.55 kW (NC) |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 300 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 45 ms |
| Release time | 20 ... 50 ms |
| Power consumption AC / DC | 2.1 VA / 2.1 W |
| Frequency range | 40 ... 500 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 130 g (1, 2 pole) / 170 g (4 pole) |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

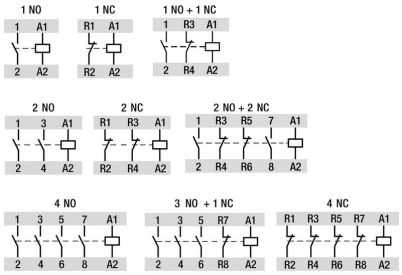
| Description | Type | 230 |
|---|---|---|
| 1 NC | RIC16-010/UC...V | ✓ |
| 2 NC | RIC16-020/UC...V | ✓ |
| 4 NC | RIC16-040/UC...V | ✓ |
| 1 NO | RIC16-100/UC...V | ✓ |
| 1 NO + 1 NC | RIC16-110/UC...V | ✓ |
| 2 NO | RIC16-200/UC...V | ✓ |
| 2 NO + 2 NC | RIC16-220/UC...V | ✓ |
| 3 NO + 1 NC | RIC16-310/UC...V | ✓ |
| 4 NO | RIC16-400/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

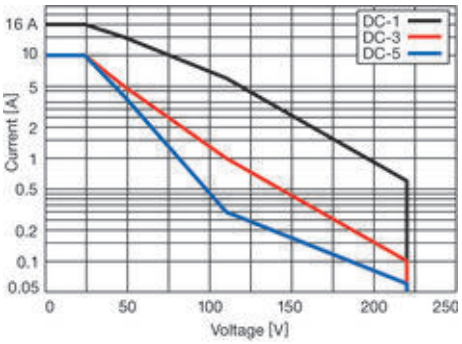
### Accessories

| | |
|---|---|
| Sealing cover | RIC-SEAL20 |
| Spacer | RIC-DIST |
| Busbar | RIC-NS-1-1, RIC-PS-1-2, RIC-PS-2-3, RIC-PS-2-4, RIC-NS-2-1 |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS) |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |

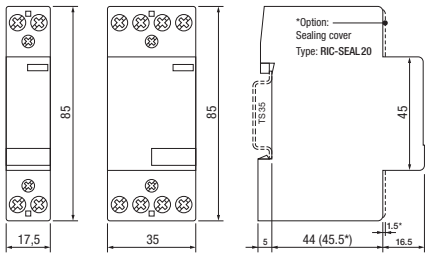
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RIC20

## 2 pole | 20 A | 4 kW

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 20 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 50 A, 100 ms / 180 A, 300 µs |
| Rated load AC-1 | 4 kW |
| Rated load AC-3 | 1.3 kW (NO) / 0.75 kW (NC) |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 300 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 45 ms |
| Release time | 20 ... 50 ms |
| Power consumption AC / DC | 2.1 VA / 2.1 W |
| Frequency range | 40 ... 500 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 130 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

| Description | Type | 12 | 24 | 36 | 110 | 230 |
|---|---|---|---|---|---|---|
| 2 NC | RIC20-020/UC...V | | ✓ | ✓ | | ✓ |
| 1 NO + 1 NC | RIC20-110/UC...V | ✓ | ✓ | ✓ | | ✓ |
| 2 NO | RIC20-200/UC...V | | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«...» List coil voltage to complete product references

### Accessories

| | |
|---|---|
| Sealing cover | RIC-SEAL20 |
| Spacer | RIC-DIST |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS) |
| Busbar | RIC-NS-1-1, RIC-PS-1-2 |



fig. 1. Wiring diagram

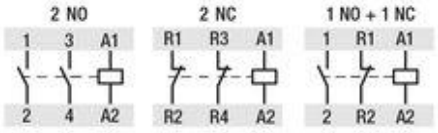



fig. 2. DC load limit curve

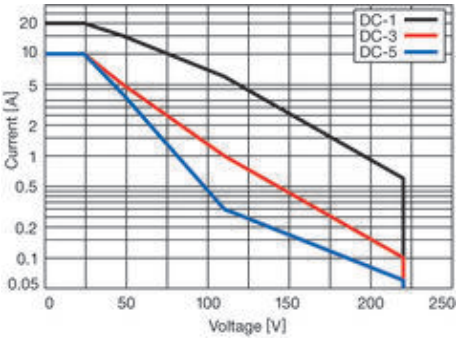
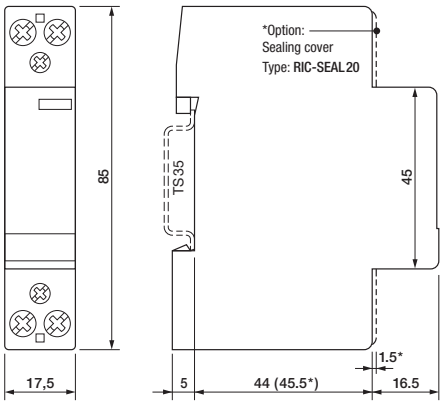



fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RIC20-xxx-R4A110V

## 2 pole | 20 A | 7 kW | DC-5 | 4 A 110 V DC

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 20 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 50 A, 100 ms / 180 A, 300 µs |
| Rated load AC-1 | 7 kW |
| Rated load AC-3 | 1.3 kW (NO) / 0.75 kW (NC) |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 150 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load DC-5 (cycles) | ≥ 300 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |
| Switching frequency at rated load DC-5 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.70 ... 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.70 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 45 ms |
| Release time | 20 ... 50 ms |
| Power consumption DC | 2.6 W |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 80 °C |
| Operation temperature | -40 ... 70 °C |
| Ingress Protection | IP 20 |
| Weight | 133 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

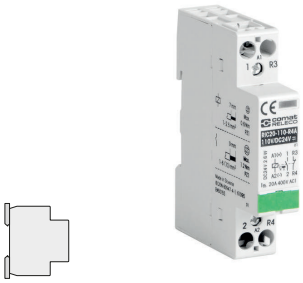
### Product references

| Description | Type | 24 | 36 | 72 | 110 |
|---|---|---|---|---|---|
| 2 NC | RIC20-020-R4A110V/DC...V | ✓ | ✓ | ✓ | ✓ |
| 1 NO + 1 NC | RIC20-110-R4A110V/DC...V | ✓ | ✓ | ✓ | ✓ |
| 2 NO | RIC20-200-R4A110V/DC...V | ✓ | ✓ | ✓ | ✓ |

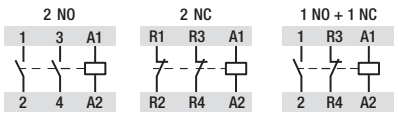
Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

### Accessories

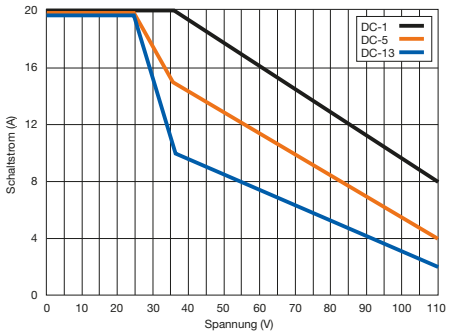
| | |
|---|---|
| Sealing cover | RIC-SEAL20 |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS) |
| Busbar | RIC-NS-1-1-R, RIC-PS-1-2-R |



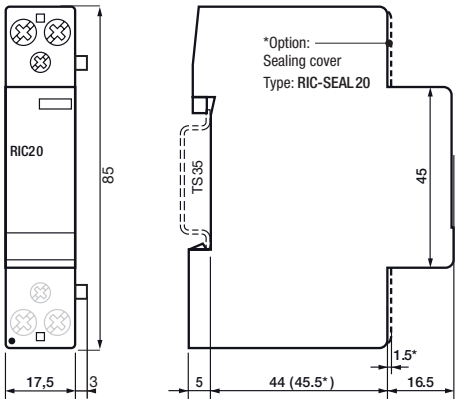
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

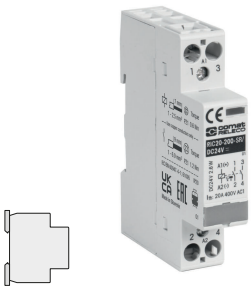
Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# RIC20-xxx-SR

## 2 pole | 20 A | 7 kW | DC-5 | 4 A 110 V DC | TVS Suppressor



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 20 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 50 A, 100 ms / 180 A, 300 µs |
| Rated load AC-1 | 7 kW |
| Rated load AC-3 | 1.3 kW (NO) / 0.75 kW (NC) |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 150 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load DC-5 (cycles) | ≥ 300 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |
| Switching frequency at rated load DC-5 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.70 ... 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.70 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 45 ms |
| Release time | 20 ... 50 ms |
| Power consumption DC | 2.6 W |
| TVS Diode type | Bidirectional surge TVS |
| TVS Diode failure mode | defined short cut |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm², use copper conductors only |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 80 °C |
| Operation temperature | -40 ... 70 °C |
| Ingress Protection | IP 20 |
| Weight | 135 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

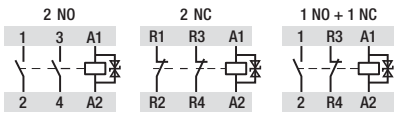
| Description | Type | 24 | 36 | 72 | 110 |
|---|---|---|---|---|---|
| 2 NC | RIC20-020-SR/DC...V | ✓ | ✓ | ✓ | ✓ |
| 1 NO + 1 NC | RIC20-110-SR/DC...V | ✓ | ✓ | ✓ | ✓ |
| 2 NO | RIC20-200-SR/DC...V | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

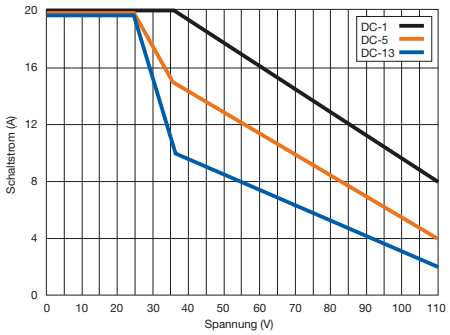
### Accessories

| | |
|---|---|
| Sealing cover | RIC-SEAL20 |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS) |
| Busbar | RIC-NS-1-1-R, RIC-PS-1-2-R |

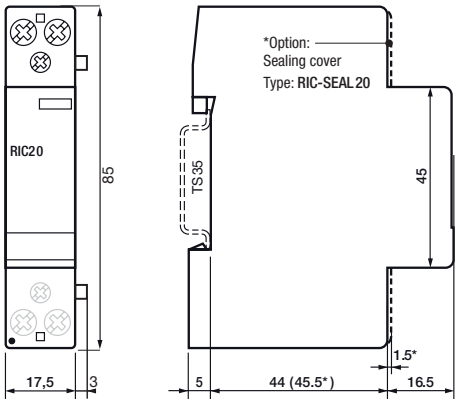
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# RIC25

## 2 or 4 pole | 25 A | 5.4 kW



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 25 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 60 A, 100 ms / 280 A, 300 µs |
| Rated load AC-1 | 5.4 kW |
| Rated load AC-3 | 1.3 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 500 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | see table product references | |
| Operating voltage range | 0.85 ... 1.1 $U_N$ | |
| Pick-up voltage | ≤ 0.85 $U_N$ | |
| Release voltage | ≥ 0.1 $U_N$ | |
| Pick-up time | 15 ... 45 ms | |
| Release time | 20 ... 70 ms | |
| Power consumption AC / DC | 2.6 VA / 2.6 W | |
| Frequency range | 50 / 60 Hz (AC) | 40 ... 500 Hz (UC) |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP20 |
| Weight | 250 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

| Description | Type | 24 | 36 | 48 | 72 | 110 | 230 | 400 |
|---|---|---|---|---|---|---|---|---|
| 4 NC | RIC25-040/AC...V | | ✓ | | | | | ✓ |
| 2 NO + 2 NC | RIC25-220/AC...V | | | | | | | ✓ |
| 4 NO | RIC25-400/AC...V | | | ✓ | | | | ✓ |
| 2 CO | RIC25-002/UC...V | ✓ | | | | | ✓ | |
| 2 NC | RIC25-020/UC...V | | | | | | ✓ | |
| 4 NC | RIC25-040/UC...V | ✓ | | | | | ✓ | |
| 2 NO | RIC25-200/UC...V | | | | | | ✓ | |
| 2 NO + 2 NC | RIC25-220/UC...V | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| 4 NO | RIC25-400/UC...V | ✓ | ✓ | | | | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Accessories

| | |
|---|---|
| Sealing cover | RIC-SEAL25 |
| Spacer | RIC-DIST |
| Busbar | RIC-NS-2-1, RIC-PS-2-3, RIC-PS-2-4 |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS) |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |



fig. 1. Wiring diagram

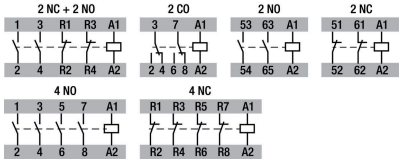



fig. 2. DC load limit curve

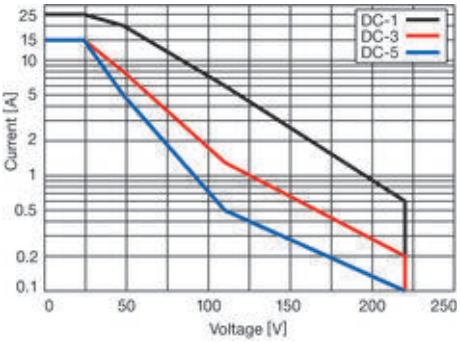
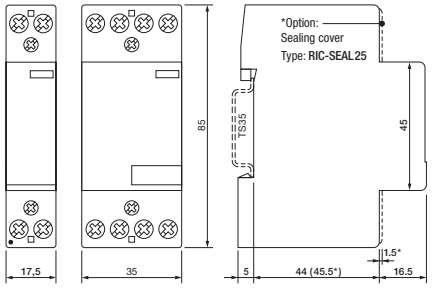



fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RIC25-xxx-R

## 4 pole | 25 A | 5.4 kW

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 25 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 60 A, 100 ms / 280 A, 300 µs |
| Rated load AC-1 | 5.4 kW |
| Rated load AC-3 | 1.3 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 500 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load DC-5 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |
| Switching frequency at rated load DC-5 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.70 ... 1.25 $U_N$ |
| Pick-up voltage | ≤ 0.70 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 45 ms |
| Release time | 20 ... 70 ms |
| Power consumption DC | 4.6 W |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 80 °C |
| Operation temperature | -40 ... 70 °C |
| Ingress Protection | IP 20 |
| Weight | 250 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

| Description | Type | 24 | 36 | 72 | 110 |
|---|---|---|---|---|---|
| 2 CO | RIC25-002-R/DC...V | ✓ | ✓ | ✓ | ✓ |
| 4 NC | RIC25-040-R/DC...V | ✓ | ✓ | ✓ | ✓ |
| 2 NO + 2 NC | RIC25-220-R/DC...V | ✓ | ✓ | ✓ | ✓ |
| 4 NO | RIC25-400-R/DC...V | ✓ | ✓ | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

### Accessories

| | |
|---|---|
| Sealing cover | RIC-SEAL25 |
| Spacer | RIC-DIST |
| Busbar | RIC-NS-2-1, RIC-PS-2-3, RIC-PS-2-4 |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS) |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |



fig. 1. Wiring diagram

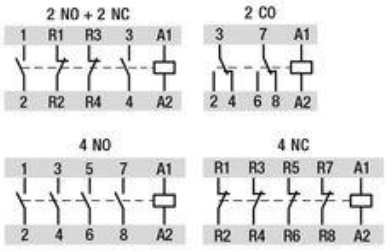



fig. 2. DC load limit curve

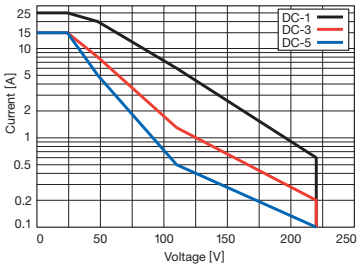
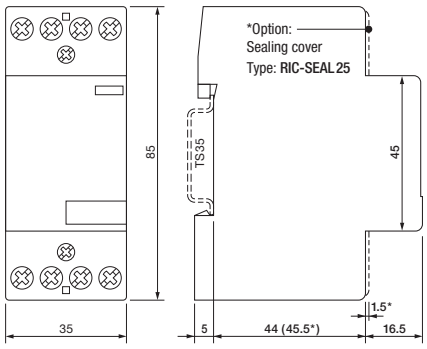



fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# RIC32

## 2 or 4 pole | 32 A | 7 kW



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 32 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 60 A, 100 ms |
| Rated load AC-1 | 7 kW |
| Rated load AC-3 | 1.3 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 500 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 45 ms |
| Release time | 20 ... 70 ms |
| Power consumption AC / DC | 2.6 VA / 2.6 W |
| Frequency range | 40 ... 500 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 140 g (2 pole) / 250 g (4 pole) |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

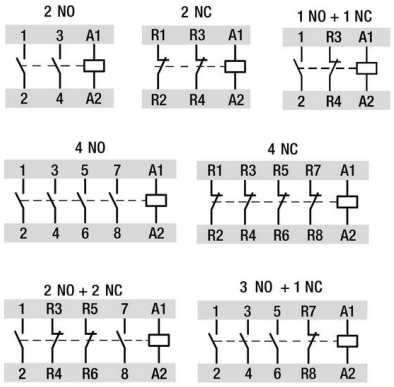
| Description | Type | 230 |
|---|---|---|
| 2 NC | RIC32-020/UC...V | ✓ |
| 4 NC | RIC32-040/UC...V | ✓ |
| 1 NO + 1 NC | RIC32-110/UC...V | ✓ |
| 2 NO | RIC32-200/UC...V | ✓ |
| 2 NO + 2 NC | RIC32-220/UC...V | ✓ |
| 3 NO + 1 NC | RIC32-310/UC...V | ✓ |
| 4 NO | RIC32-400/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

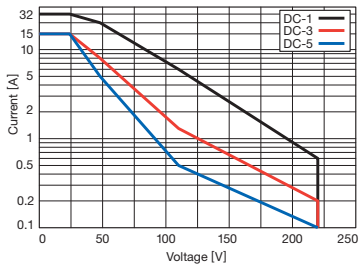
### Accessories

| | |
|---|---|
| Sealing cover | RIC-SEAL25 |
| Spacer | RIC-DIST |
| Busbar | RIC-NS-1-1, RIC-PS-1-2, RIC-PS-2-3, RIC-PS-2-4, RIC-NS-2-1 |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS) |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |

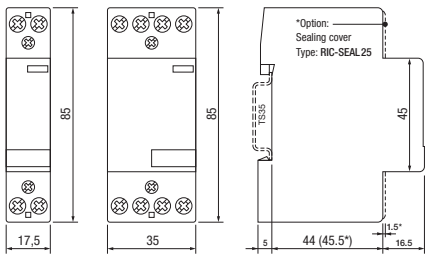
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RIC40

## 4 pole | 40 A | 8.7 kW

### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 40 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 170 A, 100 ms / 970 A, 300 µs |
| Rated load AC-1 | 8.7 kW |
| Rated load AC-3 | 3.7 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 150 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | see table product references | |
| Operating voltage range | 0.85 ... 1.1 $U_N$ | |
| Pick-up voltage | ≤ 0.85 $U_N$ | |
| Release voltage | ≥ 0.1 $U_N$ | |
| Pick-up time | 15 ... 20 ms | |
| Release time | 35 ... 45 ms | |
| Power consumption AC / DC | 5 VA / 5 W | |
| Frequency range | 50 / 60 Hz (AC) | 40 ... 500 Hz (UC) |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 16 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 420 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

| Description | Type | 24 | 48 | 230 |
|---|---|---|---|---|
| 4 NC | RIC40-040/UC...V | ✓ | | ✓ |
| 2 NO + 2 NC | RIC40-220/UC...V | ✓ | ✓ | ✓ |
| 4 NO | RIC40-400/UC...V | ✓ | | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Accessories

| | |
|---|---|
| Sealing cover | RIC-SEAL40/63 |
| Spacer | RIC-DIST |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |

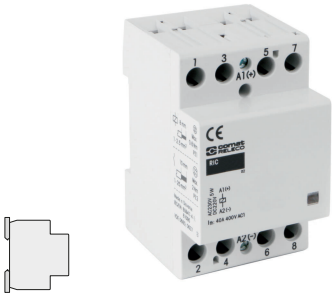


fig. 1. Wiring diagram

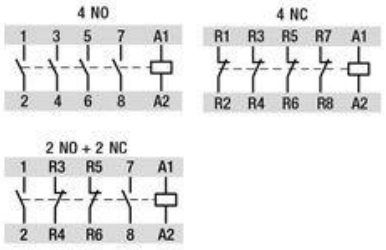



fig. 2. DC load limit curve

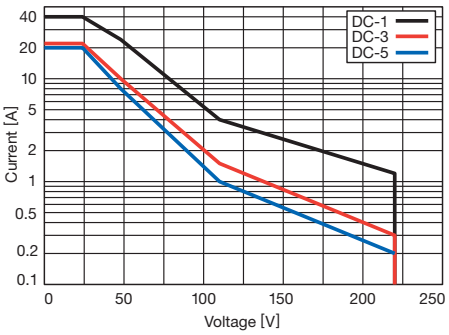
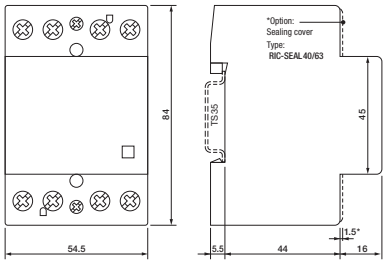



fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RIC63

## 4 pole | 63 A | 13.3 kW



### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 63 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 240 A, 100 ms / 1 500 A, 300 µs |
| Rated load AC-1 | 13.3 kW |
| Rated load AC-3 | 6 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 150 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | see table product references | |
| Operating voltage range | 0.85 ... 1.1 $U_N$ | |
| Pick-up voltage | ≤ 0.85 $U_N$ | |
| Release voltage | ≥ 0.1 $U_N$ | |
| Pick-up time | 15 ... 20 ms | |
| Release time | 35 ... 45 ms | |
| Power consumption AC / DC | 5 VA / 5 W | |
| Frequency range | 50 / 60 Hz (AC) | 40 ... 500 Hz (UC) |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 16 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 420 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

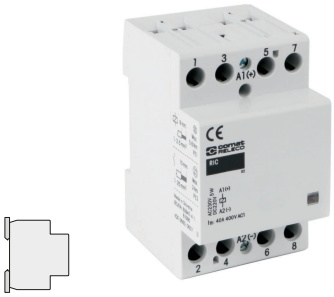
### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| 4 NC | RIC63-040/UC...V | ✓ | ✓ |
| 2 NO + 2 NC | RIC63-220/UC...V | ✓ | ✓ |
| 4 NO | RIC63-400/UC...V | ✓ | ✓ |

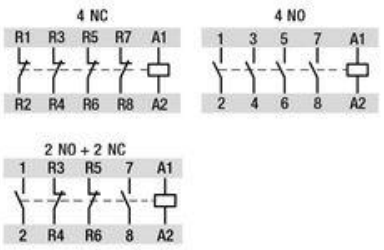
Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

### Accessories

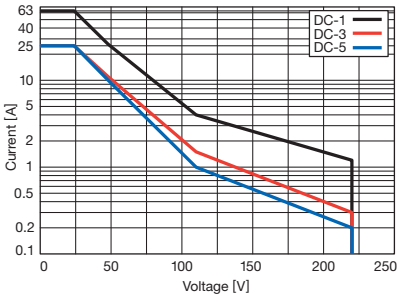
| | |
|---|---|
| Sealing cover | RIC-SEAL40/63 |
| Spacer | RIC-DIST |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |



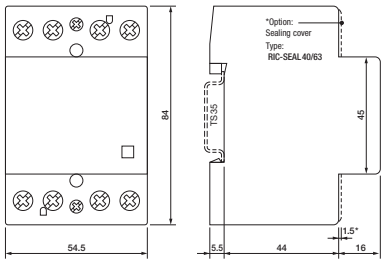
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RAC20

## 2 pole | 20 A | 4 kW | manual lever Auto - 1 - Lock

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 20 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 50 A, 100 ms / 180 A, 300 µs |
| Rated load AC-1 | 4 kW |
| Rated load AC-3 | 1.3 kW (NO) / 0.75 kW (NC) |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 300 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 45 ms |
| Release time | 20 ... 50 ms |
| Power consumption AC / DC | 2.1 VA / 2.1 W |
| Frequency range | 40 ... 500 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 … 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 130 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

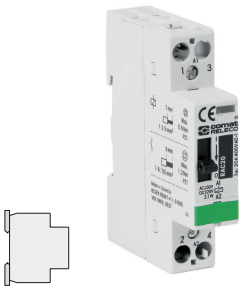
### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| 2 NC | RAC20-020/UC...V | ✓ | ✓ |
| 1 NO + 1 NC | RAC20-110/UC...V | ✓ | ✓ |
| 2 NO | RAC20-200/UC...V | ✓ | ✓ |

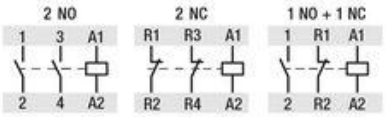
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Accessories

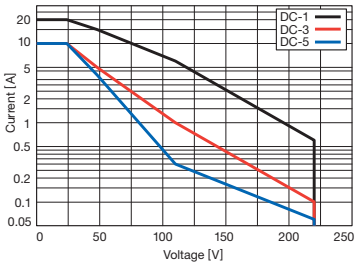
| | |
|---|---|
| Sealing cover | RIC-SEAL20 |
| Spacer | RIC-DIST |
| Busbar | RIC-NS-1-1, RIC-PS-1-2 |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS) |



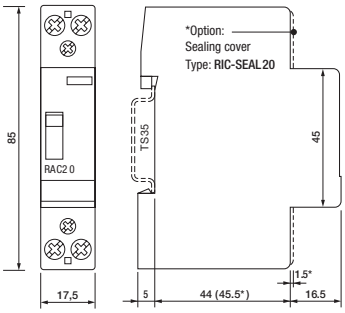
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RAC25

## 2 pole | 25 A | 5.4 kW | manual lever Auto - 1 - Lock

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 25 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 60 A, 100 ms / 280 A, 300 µs |
| Rated load AC-1 | 5.4 kW |
| Rated load AC-3 | 1.3 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 500 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 45 ms |
| Release time | 20 ... 70 ms |
| Power consumption AC / DC | 2.6 VA / 2.6 W |
| Frequency range | 40 ... 500 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 250 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| 4 NC | RAC25-040/UC...V | | ✓ |
| 2 NO + 2 NC | RAC25-220/UC...V | ✓ | ✓ |
| 4 NO | RAC25-400/UC...V | ✓ | ✓ |

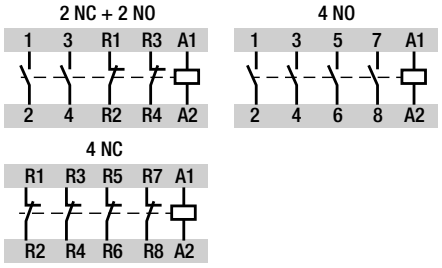
Other voltages on request. Please contact support@comatreleco.com.
«...» List control circuit voltage to complete product references.

### Accessories

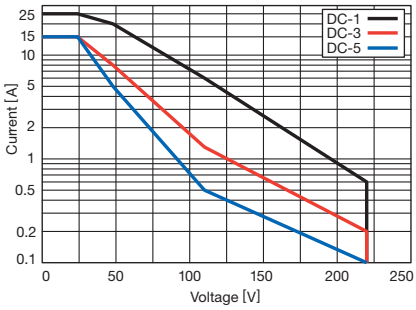
| | |
|---|---|
| Sealing cover | RIC-SEAL25 |
| Spacer | RIC-DIST |
| Busbar | RIC-NS-2-1, RIC-PS-2-3, RIC-PS-2-4 |
| End covers | RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS), RIC-EK-40 (BAG 10 PCS) |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |



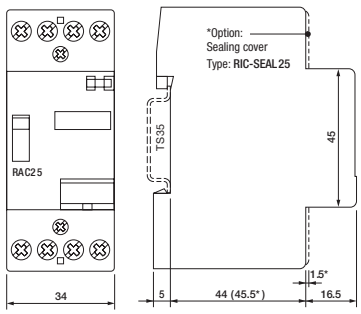
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RAC40

## 4 pole | 40 A | 8.7 kW | manual lever Auto - 1 - Lock

### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 40 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 170 A, 100 ms / 970 A, 300 µs |
| Rated load AC-1 | 8.7 kW |
| Rated load AC-3 | 3.7 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 150 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 20 ms |
| Release time | 35 ... 45 ms |
| Power consumption AC / DC | 5 VA / 5 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 16 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 420 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

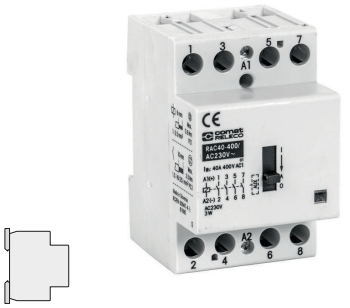
### Product references

| Description | Type | 230 |
|---|---|---|
| 3 NO + 1 NC | RAC40-310/AC...V | ✓ |
| 4 NO | RAC40-400/AC...V | ✓ |

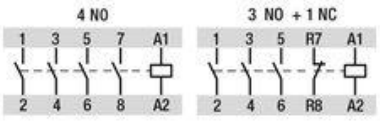
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Accessories

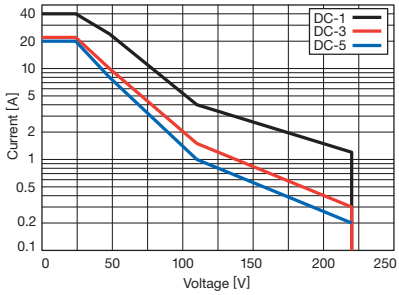
| | |
|---|---|
| Sealing cover | RIC-SEAL40/63 |
| Spacer | RIC-DIST |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |



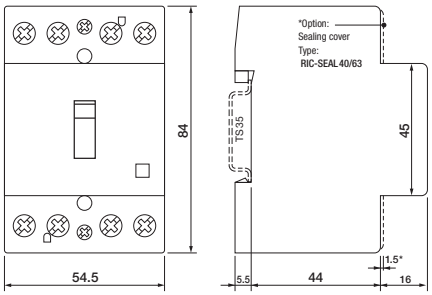
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RAC63

## 4 pole | 63 A | 13.3 kW | manual lever Auto - 1 - Lock

### Main circuit

| | |
|---|---|
| Available contact materials | $AgSnO_2$ |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 63 A |
| Recommended minimum contact load | 50 mA, 17 V |
| Inrush current | 240 A, 100 ms / 1 500 A, 300 µs |
| Rated load AC-1 | 13.3 kW |
| Rated load AC-3 | 6 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 150 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Pick-up time | 15 ... 20 ms |
| Release time | 35 ... 45 ms |
| Power consumption AC / DC | 5 VA / 5 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 16 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 420 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

| Description | Type | 230 |
|---|---|---|
| 3 NO + 1 NC | RAC63-310/AC...V | ✓ |
| 4 NO | RAC63-400/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Accessories

| | |
|---|---|
| Sealing cover | RIC-SEAL40/63 |
| Spacer | RIC-DIST |
| Auxiliary contact | RIC-AUX02, RIC-AUX11, RIC-AUX20 |

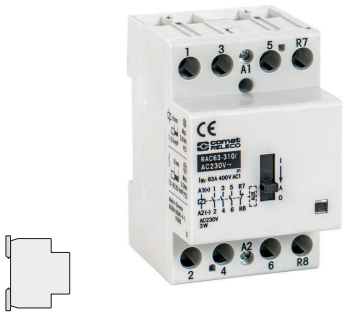


fig. 1. Wiring diagram

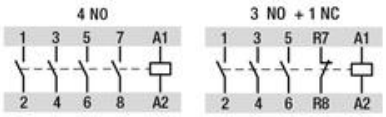



fig. 2. DC load limit curve

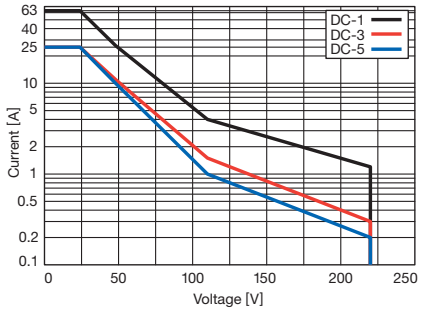
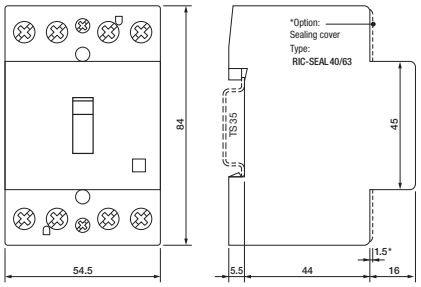



fig. 3. Dimensions (mm)



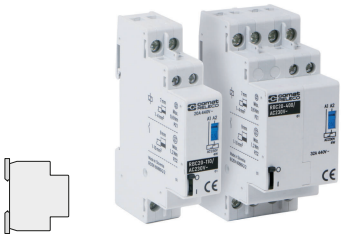

### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RBC20

## 2 or 4 pole | 20 A | 4.4 kW | Step switch, manual lever 0 - 1 - Lock



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 20 A |
| Recommended minimum contact load | 100 mA, 10 V |
| Inrush current | 50 A, 100 ms / 180 A, 300 µs |
| Rated load AC-1 | 4.4 kW |
| Rated load AC-3 | 0.55 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 1 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.9 … 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.75 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Minimal impulse duration at rated voltage $U_n$ | 50 ms |
| Minimal impulse duration at 0.9 $U_n$ | 100 ms |
| Minimal pause beteen two impulses | 150 ms |
| Maximal impulse duration | ≤ 15 / min |
| Maximal number of impulses | ≤ 60 / min |
| Pick-up time | 5 ... 35 ms |
| Release time | 5 ... 35 ms |
| Power consumption AC / DC | 9 VA / 4 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | > 3 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 4 mm² / 10 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 … 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 135 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

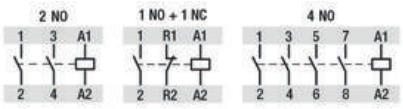
| Description | Type | 24 | 230 |
|---|---|---|---|
| 1 NO + 1 NC | RBC20-110/AC...V | | ✓ |
| 2 NO | RBC20-200/AC...V | ✓ | ✓ |
| 4 NO | RBC20-400/AC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

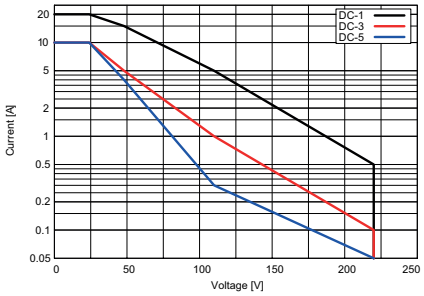
### Accessories

| | |
|---|---|
| Auxiliary contact | RBC-AUX11 |
| Spacer | RIC-DIST |
| Auxiliary module for centralized control | RBC-AUX-CM |
| Auxiliary module for group control | RBC-AUX-GM |

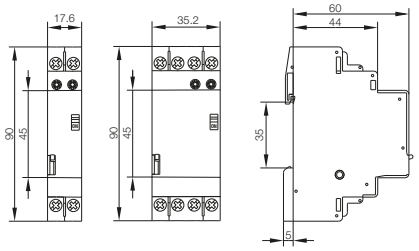
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

# RBC32

## 4 pole | 32 A | 7 kW | Step switch, manual lever 0 - 1 - Lock



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 400 V AC |
| Rated current AC-1 | 32 A |
| Recommended minimum contact load | 100 mA, 10 V |
| Inrush current | 50 A, 100 ms / 180 A, 300 µs |
| Rated load AC-1 | 7 kW |
| Rated load AC-3 | 1.1 kW |
| Rated load DC-1 | see fig. 2 |
| Mechanical endurance (cycles) | ≥ 1 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load AC-3 (cycles) | ≥ 100 000 |
| Electrical endurance at rated load DC-1 (cycles) | ≥ 100 000 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 450 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 450 |
| Switching frequency at rated load DC-1 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.9 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.75 $U_N$ |
| Release voltage | ≥ 0.1 $U_N$ |
| Minimal impulse duration at rated voltage $U_n$ | 50 ms |
| Minimal impulse duration at 0.9 $U_n$ | 100 ms |
| Minimal pause beteen two impulses | 150 ms |
| Maximal impulse duration | ≤ 8 / min |
| Maximal number of impulses | ≤ 60 / min |
| Pick-up time | 5 ... 35 ms |
| Release time | 5 ... 35 ms |
| Power consumption AC / DC | 9 VA / 4 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 440 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | > 3 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 4 mm² / 10 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ambient temperature operation 2 devices, 1 spacer | 40 ... 55 °C |
| Ambient temperature operation 3 devices, 1 spacer | -15 ... 40 °C |
| Ingress Protection | IP 20 |
| Weight | 135 g |
| Housing material | PA 6 |
| Dimensions | see fig. 3 |

### Product references

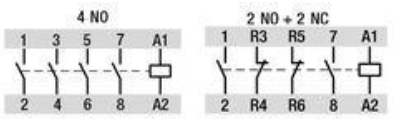
| Description | Type | 230 |
|---|---|---|
| 2 NO + 2 NC | RBC32-220/AC...V | ✓ |
| 4 NO | RBC32-400/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

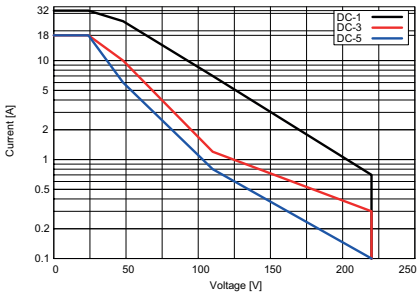
### Accessories

| | |
|---|---|
| Auxiliary contact | RBC-AUX11 |
| Spacer | RIC-DIST |
| Auxiliary module for centralized control | RBC-AUX-CM |
| Auxiliary module for group control | RBC-AUX-GM |

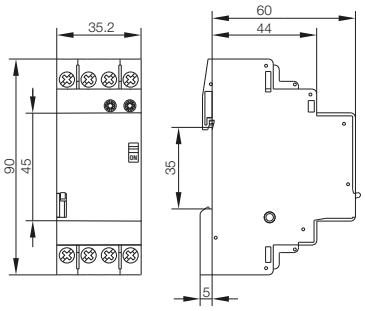
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947; IEC/EN 61095

Approvals

## Notes

# 1.8 Industrial Contactors


| | Type | Pin | Page |
|---|---|---|---|
| **RMC Series** | | | |
| 4 pole \| 8.5 A \| 4 kW | RMC08 | | 162 |
| 4 pole \| 11.3 A \| 5.5 kW | RMC11 | | 163 |
| **RSC Series** | | | |
| 3 or 4 pole \| 9 A \| 4 kW | RSC09 | | 164 |
| 3 or 4 pole \| 12 A \| 5.5 kW | RSC12 | | 165 |
| 3 or 4 pole \| 16 A \| 7.5 kW | RSC16 | | 166 |
| 3 pole \| 22 A \| 11 kW | RSC22 | | 167 |
| 3 pole \| 30 A \| 15 kW | RSC30 | | 168 |
| 3 pole \| 38 A \| 18.5 kW | RSC38 | | 169 |
| 5 pole \| 43 A \| 22 kW | RSC43 | | 170 |
| 5 pole \| 63 A \| 30 kW | RSC63 | | 171 |

# RMC08

## 4 pole | 8.5 A | 4 kW

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 690 V AC |
| Rated current AC-1 | 20 A |
| Rated current AC-3 | 8.5 A, 400 V |
| Rated current DC-3 | 0.25 A, 110 VDC |
| Rated load AC-1 | 13 kW |
| Rated load AC-3 | 4 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC / ≥ 0.1 $U_N$ DC |
| Pick-up time | 10 ... 15 ms |
| Release time | 6 ... 15 ms |
| Power consumption AC / DC | 8.1 VA / 4 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 690 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 2.5 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP20 |
| Weight | AC: 160 g / DC: 215 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO + 1 NC | RMC08-301/AC...V | ✓ | ✓ |
| 3 NO + 1 NO | RMC08-310/AC...V | ✓ | ✓ |
| | | | |
| 3 NO + 1 NC | RMC08-301/DC...V | ✓ | |
| 3 NO + 1 NO | RMC08-310/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

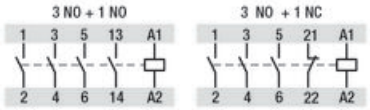
### Accessories

| | |
|---|---|
| Auxiliary contact | RMC-AUX02, RMC-AUX04, RMC-AUX11, RMC-AUX20, RMC-AUX22, RMC-AUX40 |
| DI - Suppressor | RMC-DI |
| MBL - Mechanical interlock | RMC-MBL |
| RC - Suppressor | RMC-RC1, RMC-RC2 |

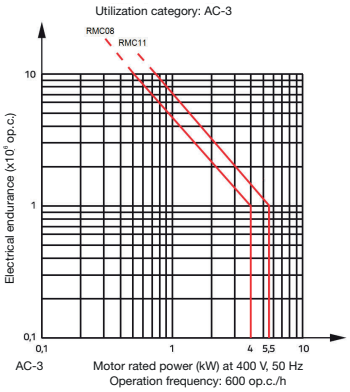




### fig. 1. Wiring diagram

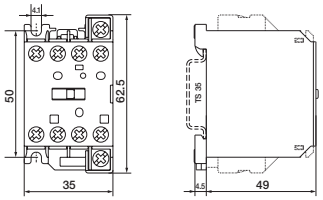



### fig. 2. Electrical endurance

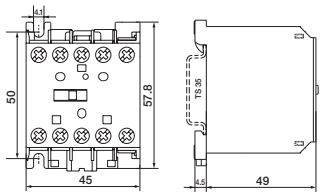



### fig. 3. Dimensions (mm)

**RMC08 (AC)**




**RMC08 (DC)**




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# 1.8 Industrial Contactors
# RMC11
## 4 pole | 11.3 A | 5.5 kW



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 690 V AC |
| Rated current AC-1 | 20 A |
| Rated current AC-3 | 11.3 A, 400 V |
| Rated current DC-3 | 0.25 A, 110 VDC |
| Rated load AC-1 | 13 kW |
| Rated load AC-3 | 5.5 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC / ≥ 0.1 $U_N$ DC |
| Pick-up time | 10 ... 15 ms |
| Release time | 6 ... 15 ms |
| Power consumption AC / DC | 8.1 VA / 4 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 690 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 2.5 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | AC: 170 g / DC: 215 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

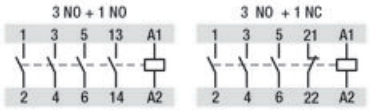
| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO + 1 NC | RMC11-301/AC...V | ✓ | ✓ |
| 3 NO + 1 NO | RMC11-310/AC...V | ✓ | ✓ |
| | | | |
| 3 NO + 1 NC | RMC11-301/DC...V | ✓ | |
| 3 NO + 1 NO | RMC11-310/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

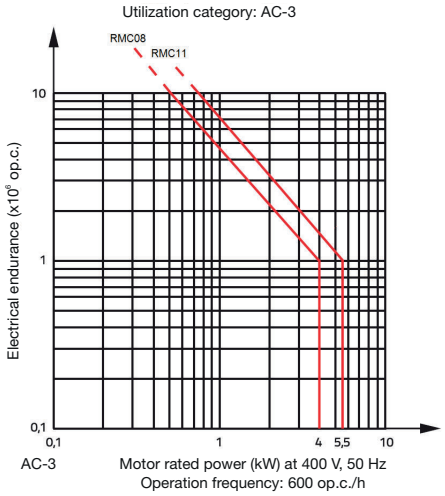
### Accessories

| | |
|---|---|
| Auxiliary contact | RMC-AUX02, RMC-AUX04, RMC-AUX11, RMC-AUX20, RMC-AUX22, RMC-AUX40 |
| DI - Suppressor | RMC-DI |
| MBL - Mechanical interlock | RMC-MBL |
| RC - Suppressor | RMC-RC1, RMC-RC2 |

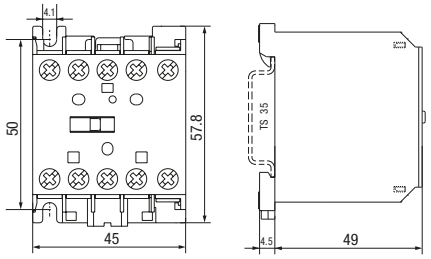
### fig. 1. Wiring diagram




### fig. 2. AC voltage endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# RSC09

## 3 or 4 pole | 9 A | 4 kW





### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 690 V AC |
| Rated current AC-1 | 25 A |
| Rated current AC-3 | 9 A, 400 V |
| Rated current DC-3 | 0.75 A, 220 V DC |
| Rated load AC-1 | 16 kW |
| Rated load AC-3 | 4 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Overload current | 72 A (10 s) / 220 A (0.001 s) |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC / ≥ 0.1 $U_N$ DC |
| Pick-up time | 10 ... 25 ms |
| Release time | 5 ... 15 ms |
| Power consumption AC / DC | 8.0 VA / 2.5 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 690 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | 300 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

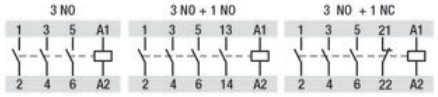
| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO + 1 NC | RSC09-301/AC...V | ✓ | ✓ |
| 3 NO + 1 NO | RSC09-310/AC...V | ✓ | ✓ |
| | | | |
| 3 NO | RSC09-300/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

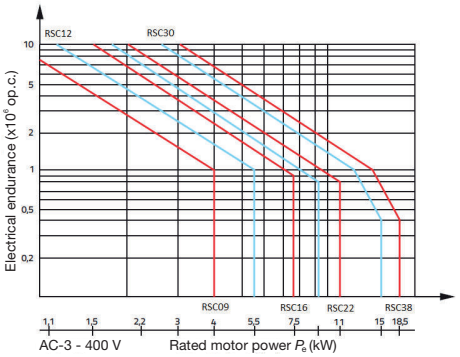
### Accessories

| | |
|---|---|
| Auxiliary contact | RSC-AUX02, RSC-AUX11, RSC-AUX04, RSC-AUX20, RSC-AUX22, RSC-AUX40 |
| RC - Suppressor | RSC-RC1, RSC-RC2 |
| Bimetallic thermal relay | RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5, RSC-MP-1.0 |
| MBL - Mechanical interlock | RSC-MBL1, RSC-MBL2 |
| DI - Suppressor | RMC-DI |

### fig. 1. Wiring diagram

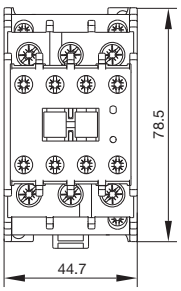



### fig. 2. Electrical endurance

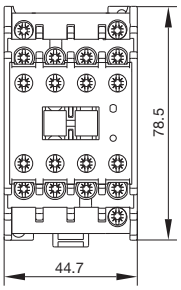


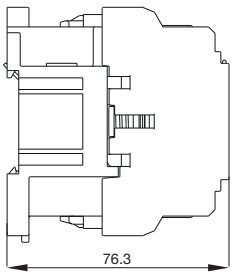

### fig. 3. Dimensions (mm)

**3 pole**




**4 pole**




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# 1.8 Industrial Contactors
# RSC12
## 3 or 4 pole | 12 A | 5.5 kW





### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 690 V AC |
| Rated current AC-1 | 25 A |
| Rated current AC-3 | 12 A, 400 V |
| Rated current DC-3 | 0.75 A, 220 V DC |
| Rated load AC-1 | 16 kW |
| Rated load AC-3 | 5.5 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Overload current | 96 A (10 s) / 330 A (0.001 s) |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC / ≥ 0.1 $U_N$ DC |
| Pick-up time | 10 ... 25 ms |
| Release time | 5 ... 15 ms |
| Power consumption AC / DC | 8.0 VA / 2.5 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 690 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | 300 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

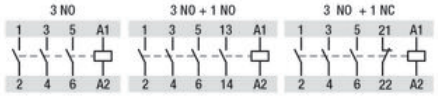
| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO + 1 NC | RSC12-301/AC...V | ✓ | ✓ |
| 3 NO + 1 NO | RSC12-310/AC...V | ✓ | ✓ |
| | | | |
| 3 NO | RSC12-300/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

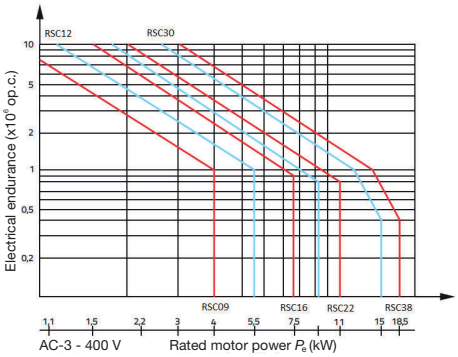
### Accessories

| | |
|---|---|
| Auxiliary contact | RSC-AUX02, RSC-AUX11, RSC-AUX04, RSC-AUX20, RSC-AUX22, RSC-AUX40 |
| RC - Suppressor | RSC-RC1, RSC-RC2 |
| Bimetallic thermal relay | RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5 |
| MBL - Mechanical interlock | RSC-MBL1, RSC-MBL2 |
| DI - Suppressor | RMC-DI |

### fig. 1. Wiring diagram

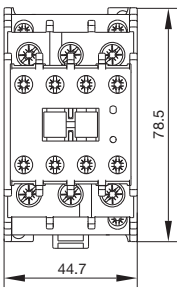



### fig. 2. Electrical endurance

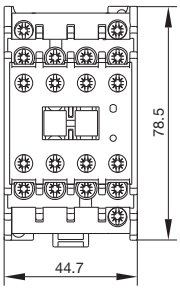


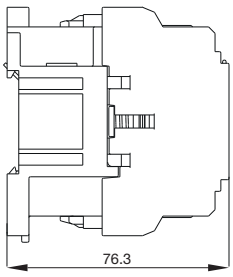

### fig. 3. Dimensions (mm)

**3 pole**




**4 pole**



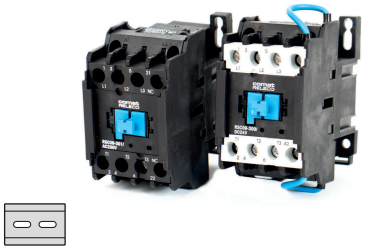

### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# RSC16

## 3 or 4 pole | 16 A | 7.5 kW



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 690 V AC |
| Rated current AC-1 | 25 A |
| Rated current AC-3 | 16 A, 400 V |
| Rated current DC-3 | 0.75 A, 220 V DC |
| Rated load AC-1 | 16 kW |
| Rated load AC-3 | 7.5 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Overload current | 128 A (10 s) / 450 A (0.001 s) |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC / ≥ 0.1 $U_N$ DC |
| Pick-up time | 10 ... 25 ms |
| Release time | 5 ... 15 ms |
| Power consumption AC / DC | 8.0 VA / 2.5 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 690 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | 300 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

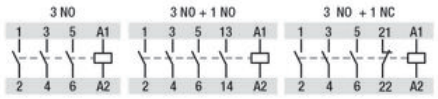
| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO + 1 NC | RSC16-301/AC...V | ✓ | ✓ |
| 3 NO + 1 NO | RSC16-310/AC...V | ✓ | ✓ |
| | | | |
| 3 NO | RSC16-300/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

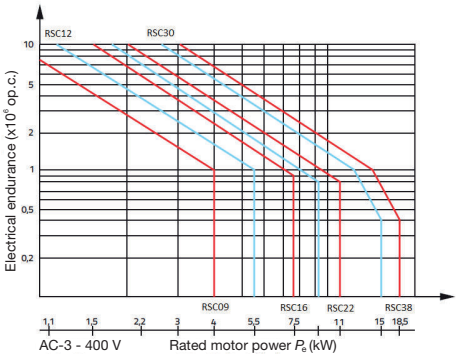
### Accessories

| | |
|---|---|
| Auxiliary contact | RSC-AUX02, RSC-AUX11, RSC-AUX04, RSC-AUX20, RSC-AUX22, RSC-AUX40 |
| RC - Suppressor | RSC-RC1, RSC-RC2 |
| Bimetallic thermal relay | RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5 |
| MBL - Mechanical interlock | RSC-MBL1, RSC-MBL2 |
| DI - Suppressor | RMC-DI |

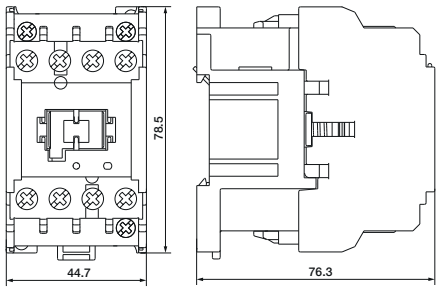
### fig. 1. Wiring diagram




### fig. 2. Electrical endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# 1.8 Industrial Contactors
# RSC22
## 3 pole | 22 A | 11 kW





### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 1 000 V AC |
| Rated current AC-1 | 35 A |
| Rated current AC-3 | 22 A, 400 V |
| Rated current DC-3 | 1 A, 220 V DC |
| Rated load AC-1 | 23 kW |
| Rated load AC-3 | 11 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Overload current | 176 A (10 s) / 600 A (0.001 s) |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC / ≥ 0.1 $U_N$ DC |
| Pick-up time | 10 ... 20 ms |
| Release time | 5 ... 15 ms |
| Power consumption AC / DC | 8.0 VA / 2.5 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 1 000 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 10 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | AC: 320 g / DC: 360 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

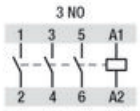
| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO | RSC22-300/AC...V | ✓ | ✓ |
| 3 NO | RSC22-300/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

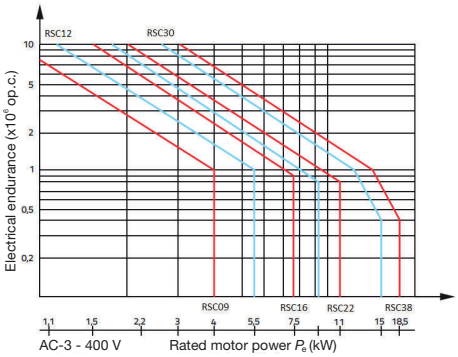
### Accessories

| | |
|---|---|
| Auxiliary contact | RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40 |
| RC - Suppressor | RSC-RC1, RSC-RC2 |
| Bimetallic thermal relay | RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5 |
| MBL - Mechanical interlock | RSC-MBL1, RSC-MBL2 |
| DI - Suppressor | RMC-DI |

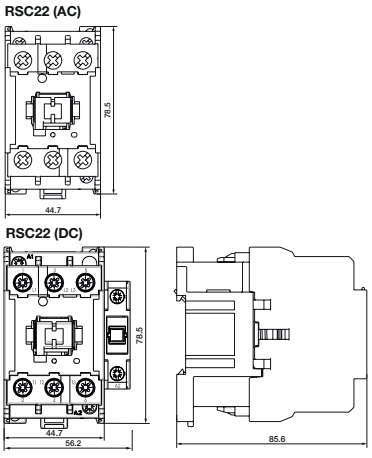
### fig. 1. Wiring diagram




### fig. 2. Electrical endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# RSC30

## 3 pole | 30 A | 15 kW





### Main circuit

| | |
|---|---|
| Available contact materials | $AgNiO_2$ |
| Rated voltage | 1 000 V AC |
| Rated current AC-1 | 35 A |
| Rated current AC-3 | 30 A, 400 V |
| Rated current DC-3 | 1 A, 220 V DC |
| Rated load AC-1 | 23 kW |
| Rated load AC-3 | 15 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Overload current | 240 A (10 s) / 900 A (0.001 s) |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC / ≥ 0.1 $U_N$ DC |
| Pick-up time | 10 ... 20 ms |
| Release time | 5 ... 15 ms |
| Power consumption AC / DC | 8.0 VA / 2.5 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 1 000 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 10 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | AC: 320 g / DC: 360 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

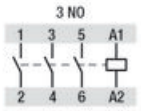
| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO | RSC30-300/AC...V | ✓ | ✓ |
| 3 NO | RSC30-300/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

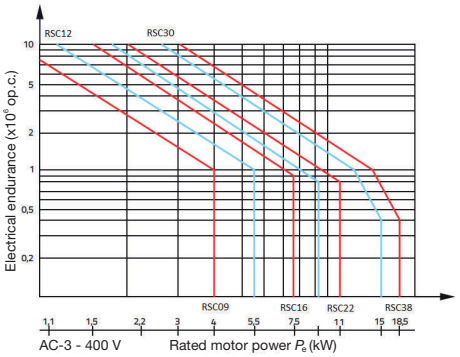
### Accessories

| | |
|---|---|
| Auxiliary contact | RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40 |
| RC - Suppressor | RSC-RC1, RSC-RC2 |
| Bimetallic thermal relay | RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5 |
| MBL - Mechanical interlock | RSC-MBL1, RSC-MBL2 |
| DI - Suppressor | RMC-DI |

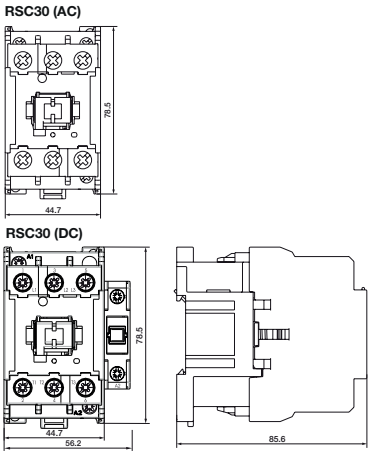
### fig. 1. Wiring diagram




### fig. 2. Electrical endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# 1.8 Industrial Contactors
# RSC38
## 3 pole | 38 A | 18.5 kW





### Main circuit

| | |
|---|---|
| Available contact materials | $AgNiO_2$ |
| Rated voltage | 1 000 V AC |
| Rated current AC-1 | 45 A |
| Rated current AC-3 | 38 A, 400 V |
| Rated current DC-3 | 1 A, 220 V DC |
| Rated load AC-1 | 29 kW |
| Rated load AC-3 | 18.5 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Overload current | 304 A (10 s) / 900 A (0.001 s) |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC / ≥ 0.1 $U_N$ DC |
| Pick-up time | 10 ... 20 ms |
| Release time | 5 ... 15 ms |
| Power consumption AC / DC | 10 VA / 2.5 W |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 1 000 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | AC: 320 g / DC: 360 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

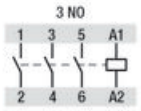
| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO | RSC38-300/AC...V | ✓ | ✓ |
| 3 NO | RSC38-300/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

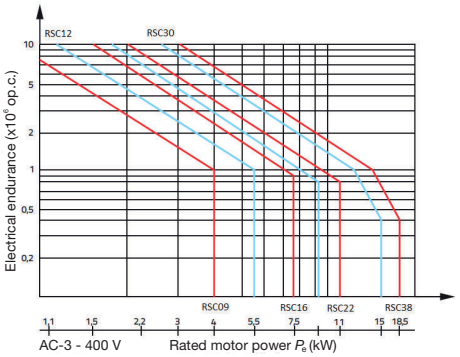
### Accessories

| | |
|---|---|
| Auxiliary contact | RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40 |
| RC - Suppressor | RSC-RC1, RSC-RC2 |
| Bimetallic thermal relay | RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5 |
| MBL - Mechanical interlock | RSC-MBL1, RSC-MBL2 |
| DI - Suppressor | RMC-DI |

### fig. 1. Wiring diagram

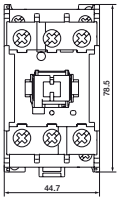



### fig. 2. Electrical endurance

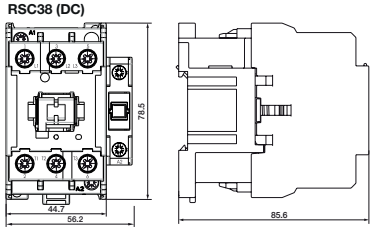



### fig. 3. Dimensions (mm)

RSC38 (AC)




RSC38 (DC)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# RSC43

## 5 pole | 43 A | 22 kW

### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 1 000 V AC |
| Rated current AC-1 | 75 A |
| Rated current AC-3 | 43 A, 400 V |
| Rated current DC-3 | 6 A, 220 V DC |
| Rated load AC-1 | 56 kW |
| Rated load AC-3 | 22 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Overload current | 344 A (10 s) |
| Mechanical endurance (cycles) | 3 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC |
| Pick-up time | 10 ... 20 ms |
| Release time | 8 ... 15 ms |
| Power consumption AC / DC | 10 VA |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 1 000 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 25 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | 930 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO + 1 NO + 1 NC | RSC43-311/AC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

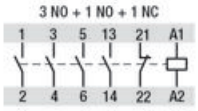
### Accessories

| | |
|---|---|
| Auxiliary contact | RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40 |
| RC - Suppressor | RSC-RC1, RSC-RC2 |
| Bimetallic thermal relay | RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5 |
| MBL - Mechanical interlock | RSC-MBL1, RSC-MBL2 |
| DI - Suppressor | RMC-DI |

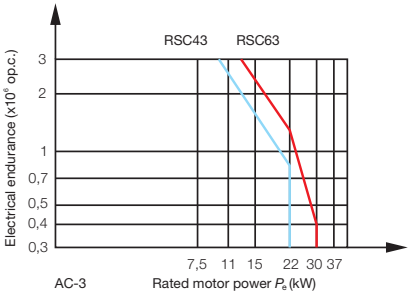




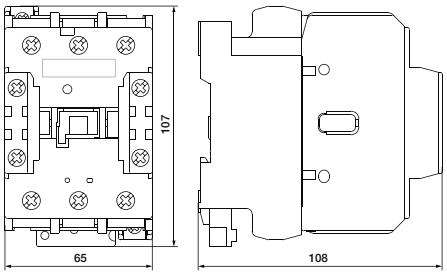
### fig. 1. Wiring diagram




### fig. 2. Electrical endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# 1.8 Industrial Contactors
# RSC63
## 5 pole | 63 A | 30 kW



### Main circuit

| | |
|---|---|
| Available contact materials | AgNi |
| Rated voltage | 1 000 V AC |
| Rated current AC-1 | 85 A |
| Rated current AC-3 | 63 A, 400 V |
| Rated current DC-3 | 6 A, 220 V DC |
| Rated load AC-1 | 66 kW |
| Rated load AC-3 | 30 kW |
| Recommended minimum contact load | 50 mA, 17 V |
| Overload current | 504 A (10 s) |
| Mechanical endurance (cycles) | 3 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 200 000 |
| Electrical endurance at rated load AC-3 (cycles) | see fig. 2 |
| Switching frequency at rated load AC-1 (cycles / h) | ≤ 600 |
| Switching frequency at rated load AC-3 (cycles / h) | ≤ 600 |
| Switching frequency at rated load DC-3 (cycles / h) | ≤ 300 |

### Control circuit

| | |
|---|---|
| Nominal voltage | see table product references |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | ≤ 0.85 $U_N$ |
| Release voltage | ≥ 0.2 $U_N$ AC |
| Pick-up time | 10 ... 20 ms |
| Release time | 8 ... 15 ms |
| Power consumption AC / DC | 10 VA |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 1 000 V |
| Rated impulse withstand voltage open contact | 6 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |
| Clearance of open contact | 3.6 mm |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm² / 25 mm² |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Ingress Protection | IP 20 |
| Weight | 930 g |
| Housing material | PA 66 |
| Dimensions | see fig. 3 |

### Product references

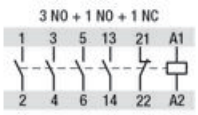
| Description | Type | 24 | 230 |
|---|---|---|---|
| 3 NO + 1 NO + 1 NC | RSC63-311/AC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

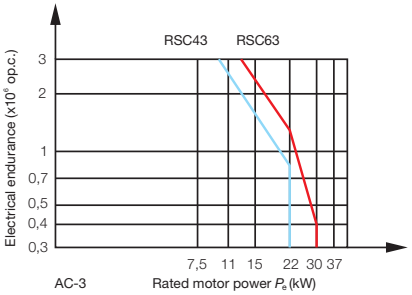
### Accessories

| | |
|---|---|
| Auxiliary contact | RSC-AUX02, RSC-AUX04, RSC-AUX11, RSC-AUX20, RSC-AUX22, RSC-AUX40 |
| RC - Suppressor | RSC-RC1, RSC-RC2 |
| Bimetallic thermal relay | RSC-MP-0.16, RSC-MP-0.25, RSC-MP-0.4, RSC-MP-0.5, RSC-MP-0.63, RSC-MP-0.8, RSC-MP-1.0, RSC-MP-1.3, RSC-MP-1.6, RSC-MP-10.0, RSC-MP-2.0, RSC-MP-2.5, RSC-MP-3.2, RSC-MP-4.0, RSC-MP-4.8, RSC-MP-6.3, RSC-MP-7.5 |
| MBL - Mechanical interlock | RSC-MBL1, RSC-MBL2 |
| DI - Suppressor | RMC-DI |

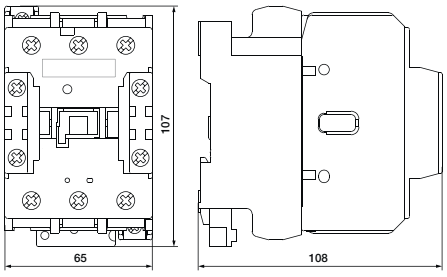
### fig. 1. Wiring diagram




### fig. 2. Electrical endurance




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

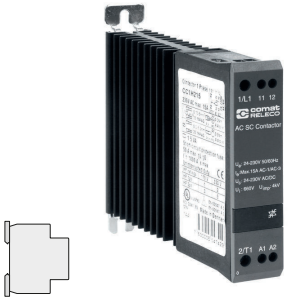
Notes

# 1.9 Solid State Contactors


| | Type | Pin | Page |
|---|---|---|---|
| **CC1 Series** | | | |
| 1 phase \| 230 V \| 15 A | CC1H215 | | 174 |
| 1 phase \| 230 V \| 30 A | CC1H230 | | 175 |
| 1 phase \| 230 V \| 50 A | CC1H250 | | 176 |
| 1 phase \| 400 V \| 15 A | CC1H415 | | 177 |
| 1 phase \| 400 V \| 30 A | CC1H430 | | 178 |
| 1 phase \| 400 V \| 50 A | CC1H450 | | 179 |
| 1 phase \| 400 V \| 63 A | CC1H463 | | 180 |
| **CC3 Series** | | | |
| 3 phase \| 400 V \| 10 A | CC3H410 | | 181 |
| 3 phase \| 400 V \| 20 A | CC3H420 | | 182 |
| **CCR Series** | | | |
| 3 phase \| 400 V \| 10 A \| Reversing | CCR3H410 | | 183 |
| **CPC Series** | | | |
| 1 phase \| 230 V \| 30 A \| Power Controller | CPC1230 | | 184 |
| 1 phase \| 230 V \| 50 A \| Power Controller | CPC1250 | | 185 |
| 1 phase \| 400 V \| 30 A \| Power Controller | CPC1430 | | 186 |
| 1 phase \| 400 V \| 50 A \| Power Controller | CPC1450 | | 187 |

# CC1H215

## 1 phase | 230 V | 15 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 230 V AC |
| Output voltage range | 12 … 240 V AC |
| Reverse voltage | 1,000 Vrrm |
| Peak reverse voltage | 1,100 Vrrm |
| Rated current AC-1 | 15 A |
| Rated current AC-3 | 15 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 270 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

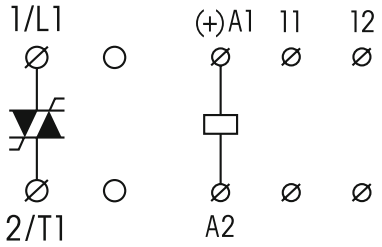
### Product references

| Description | Type |
|---|---|
| Solid State Contactor, 1 phase | CC1H215 |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

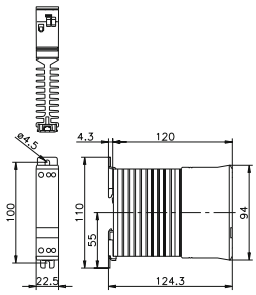
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)



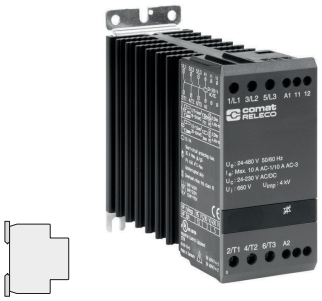

### Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

# CC1H230

## 1 phase | 230 V | 30 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 230 V AC |
| Output voltage range | 12 … 240 V AC |
| Reverse voltage | 1,000 Vrrm |
| Peak reverse voltage | 1,100 Vrrm |
| Rated current AC-1 | 30 A |
| Rated current AC-3 | 15 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

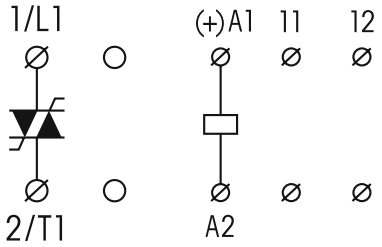
| Description | Type |
|---|---|
| Solid State Contactor, 1 phase | CC1H230 |

Other devices on request. Please contact support@comatreleco.com.

### Accessories

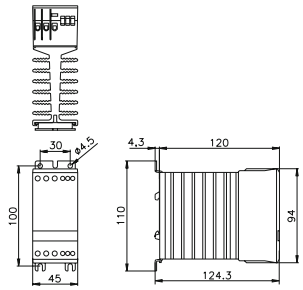
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

# CC1H250

## 1 phase | 230 V | 50 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 230 V AC |
| Output voltage range | 12 … 240 V AC |
| Reverse voltage | 1,000 Vrrm |
| Peak reverse voltage | 1,100 Vrrm |
| Rated current AC-1 | 50 A |
| Rated current AC-3 | 15 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 1 050 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

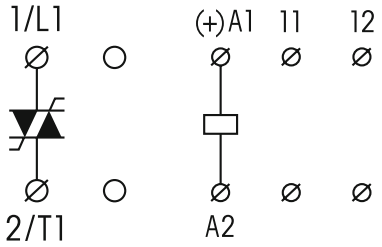
| Description | Type |
|---|---|
| Solid State Contactor, 1 phase | CC1H250 |

Other devices on request. Please contact support@comatreleco.com.

### Accessories

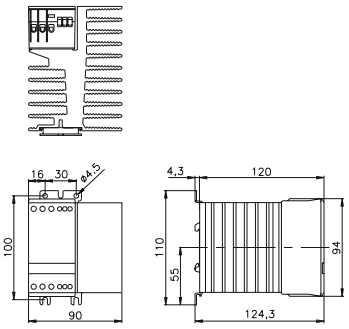
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)



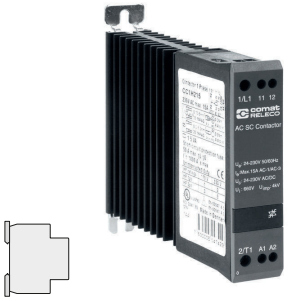

### Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

# CC1H415

## 1 phase | 400 V | 15 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 400 V AC |
| Output voltage range | 24 … 480 VAC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 15 A |
| Rated current AC-3 | 15 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 270 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

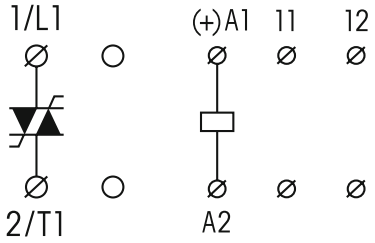
### Product references

| Description | Type |
|---|---|
| Solid State Contactor, 1 phase | CC1H415 |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

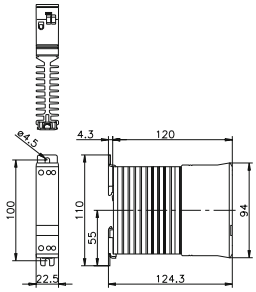
| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**




11-12: Thermostat

**fig. 2. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

# CC1H430

## 1 phase | 400 V | 30 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 400 V AC |
| Output voltage range | 24 … 480 VAC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 30 A |
| Rated current AC-3 | 15 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

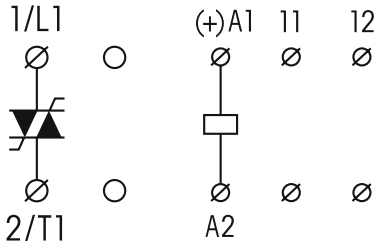
| Description | Type |
|---|---|
| Solid State Contactor, 1 phase | CC1H430 |

Other devices on request. Please contact support@comatreleco.com.

### Accessories

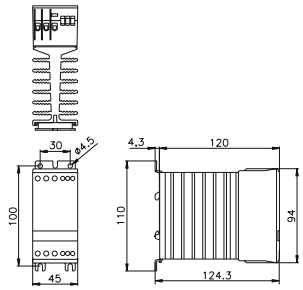
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

# CC1H450

## 1 phase | 400 V | 50 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 400 V AC |
| Output voltage range | 24 … 480 VAC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 50 A |
| Rated current AC-3 | 15 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 1 050 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

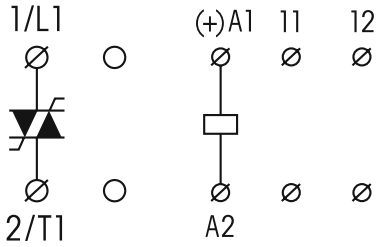
| Description | Type |
|---|---|
| Solid State Contactor, 1 phase | CC1H450 |

Other devices on request. Please contact support@comatreleco.com.

### Accessories

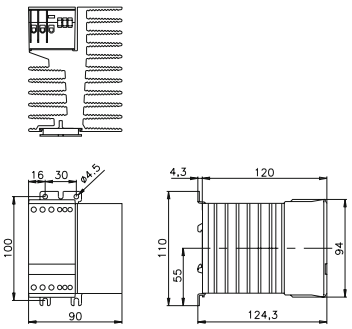
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 50022; IEC/EN 60068; IEC/EN 60947

Approvals

# CC1H463

## 1 phase | 400 V | 63 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 400 V AC |
| Output voltage range | 24 … 480 VAC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 63 A |
| Rated current AC-3 | 30 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 1 050 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

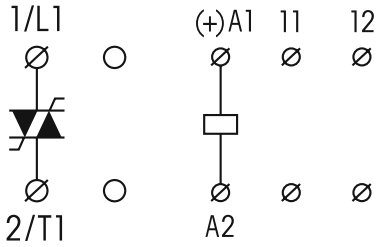
| Description | Type |
|---|---|
| Solid State Contactor, 1 phase | CC1H463 |

Other devices on request. Please contact support@comatreleco.com.

### Accessories

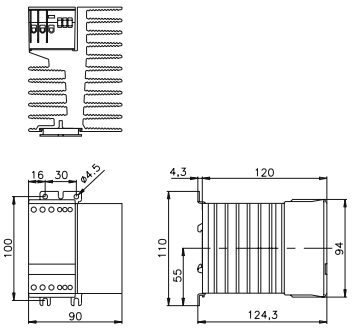
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)



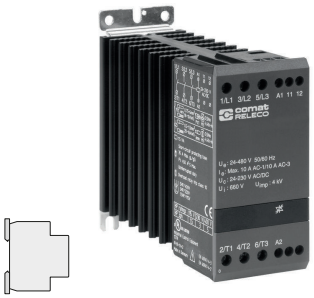

### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CC3H410

## 3 phase | 400 V | 10 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 3 |
| Rated voltage | 400 V AC |
| Output voltage range | 24 … 480 VAC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 10 A |
| Rated current AC-3 | 10 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 610 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

| Description | Type |
|---|---|
| Solid State Contactor, 3 phase | CC3H410 |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

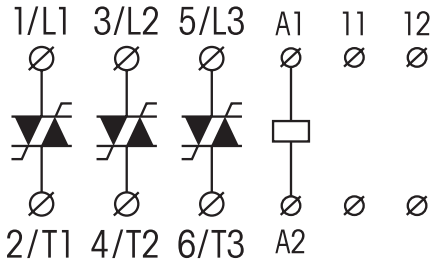
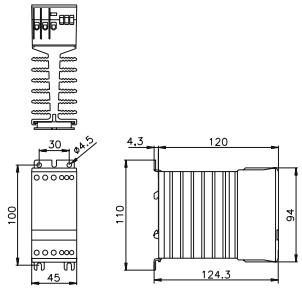



**fig. 2. Dimensions (mm)**




### Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

# CC3H420

## 3 phase | 400 V | 20 A



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 3 |
| Rated voltage | 400 V AC |
| Output voltage range | 24 … 480 VAC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 20 A |
| Rated current AC-3 | 10 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 610 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 1 050 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

| Description | Type |
|---|---|
| Solid State Contactor, 3 phase | CC3H420 |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

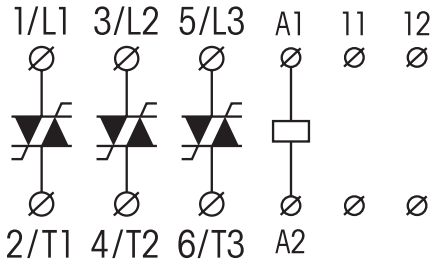
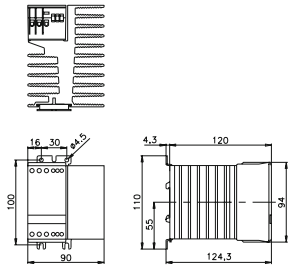



**fig. 2. Dimensions (mm)**



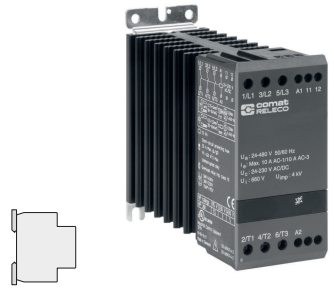

### Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

# CCR3H410

## 3 phase | 400 V | 10 A | Reversing



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 3 |
| Rated voltage | 400 V AC |
| Output voltage range | 24 … 480 VAC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 10 A |
| Rated current AC-3 | 10 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 610 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 230 V AC/DC |
| Operating voltage range | 0.85 ... 1.1 $U_N$ |
| Pick-up voltage | 20.4 V |
| Release voltage | 7.2 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Interlock time | 150 ms |
| Power consumption AC / DC | 1.5 VA / 150 mW |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

| Description | Type |
|---|---|
| Solid State Contactor, 3 phase | CC3H420 |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

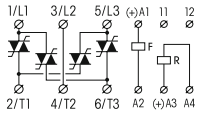
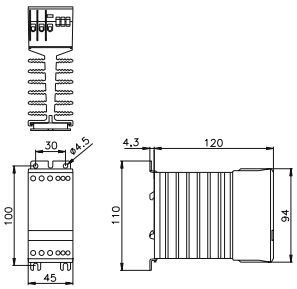



**fig. 2. Dimensions (mm)**



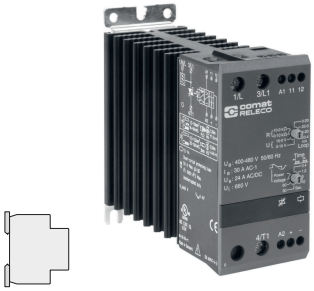

### Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

# CPC1230

## 1 phase | 230 V | 30 A | Power Controller



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 230 V AC |
| Output voltage range | 380 … 480 V |
| Reverse voltage | 1,000 Vrrm |
| Peak reverse voltage | 1,100 Vrrm |
| Rated current AC-1 | 30 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 V AC/DC |
| Operating voltage range | 0.5 ... 1.5 $U_N$ |
| Pick-up voltage | ≤ 12 V |
| Release voltage | ≥ 12 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Control input | 0 … 20 mA / 4 … 20 mA / 0 - 10 V |
| Potentiometer input | 0 - 10 kOhm |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

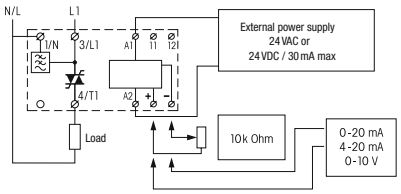
### Product references

| Description | Type |
|---|---|
| Power controller, 1 phase | CPC1230 |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

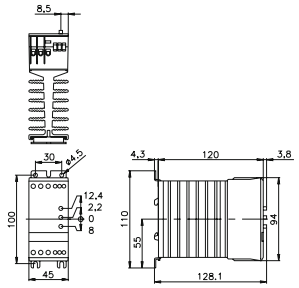
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

# CPC1250

## 1 phase | 230 V | 50 A | Power Controller



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 230 V AC |
| Output voltage range | 380 … 480 V |
| Reverse voltage | 1,000 Vrrm |
| Peak reverse voltage | 1,100 Vrrm |
| Rated current AC-1 | 50 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 V AC/DC |
| Operating voltage range | 0.5 ... 1.5 $U_N$ |
| Pick-up voltage | ≤ 12 V |
| Release voltage | ≥ 12 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Control input | 0 … 20 mA / 4 … 20 mA / 0 - 10 V |
| Potentiometer input | 0 - 10 kOhm |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

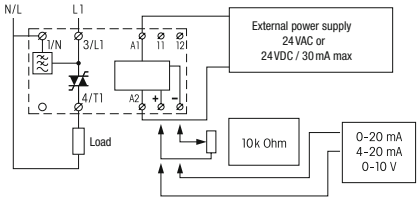
### Product references

| Description | Type |
|---|---|
| Power controller, 1 phase | CPC1250 |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

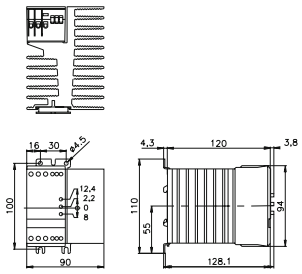
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)



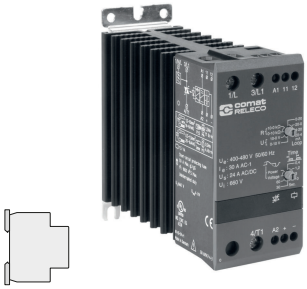

### Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

# CPC1430

## 1 phase | 400 V | 30 A | Power Controller



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 400 V AC |
| Output voltage range | 380 … 480 V |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 30 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 V AC/DC |
| Operating voltage range | 0.5 ... 1.5 $U_N$ |
| Pick-up voltage | ≤ 12 V |
| Release voltage | ≥ 12 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Control input | 0 … 20 mA / 4 … 20 mA / 0 - 10 V |
| Potentiometer input | 0 - 10 kOhm |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

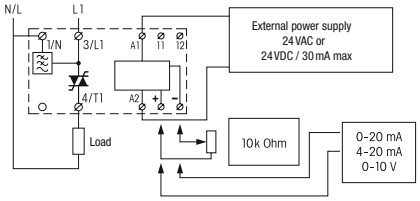
### Product references

| Description | Type |
|---|---|
| Power controller, 1 phase | CPC1430 |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

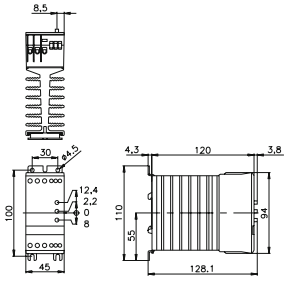
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

# CPC1450

## 1 phase | 400 V | 50 A | Power Controller



### Main circuit

| | |
|---|---|
| Output type | SCR |
| Number of outputs | 1 |
| Rated voltage | 400 V AC |
| Output voltage range | 380 … 480 V |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-1 | 50 A |
| Recommended minimum contact load | 10 mA |
| Leakage current | 1 mA |
| Rated limit load | 1,800 $A^2s$ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 V AC/DC |
| Operating voltage range | 0.5 ... 1.5 $U_N$ |
| Pick-up voltage | ≤ 12 V |
| Release voltage | ≥ 12 V |
| Pick-up time | 20 ms |
| Release time | 20 ms |
| Control input | 0 … 20 mA / 4 … 20 mA / 0 - 10 V |
| Potentiometer input | 0 - 10 kOhm |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 10 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

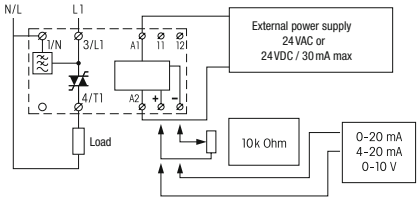
### Product references

| Description | Type |
|---|---|
| Power controller, 1 phase | CPC1450 |
| Other power and voltages on request. Please contact support@comatreleco.com. | |

### Accessories

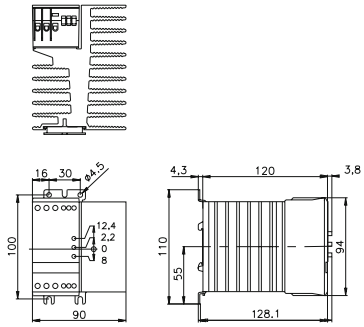
| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




11-12: Thermostat

### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards 50022; 60068; IEC/EN 60947

Approvals

## Notes

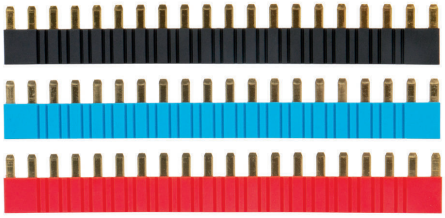
# 1.10 Relays Accessories


| | Type | Pin | Page |
|---|---|---|---|
| **Relays Accessories** | | | |
| Jumper link for CRINT-C1xx | CRINT-BR20 | | 191 |
| Test button without locking | S3-HP | | 191 |
| Test button without locking | S5-HP | | 191 |
| Blanking plug | S9-NP | | 191 |
| Test Button w/o locking | S9-OP | | 191 |
| Heatsink for passive cooling \| 1.9 °C/W | HS_003 | | 191 |
| Heatsink for passive cooling \| 1.7 °C/W | HS_004 | | 191 |
| Heatsink for passive cooling \| 1.6 °C/W | HS_005 | | 192 |
| Heatsink for active cooling, with fan \| 0.6 °C/W | HS_006 | | 192 |
| Heatsink for passive cooling \| 0.8 °C/W | HS_007 | | 192 |
| Heatsink for active cooling, with fan \| 0.35 °C/W | HS_008 | | 193 |
| Heatsink for passive cooling \| 2.8 °C/W | HS_010 | | 193 |
| Heatsink for passive cooling \| 2.1 °C/W | HS_012 | | 193 |
| Heatsink for active cooling, with fan \| 0.6 °C/W | HS_015 | | 194 |
| Heatsink for passive cooling \| 1.6 °C/W | HS_020 | | 194 |
| Heatsink for passive cooling \| 1.7 °C/W | HS_022 | | 194 |
| Heatsink for passive cooling \| 0.8 °C/W | HS_025 | | 194 |
| Thermal overload protection | P82-100C | | 195 |

| | Type | Pin | Page |
|---|---|---|---|
| | SP1M/pad | | 195 |
| | SP1P/pad | | 195 |

## CRINT-BR20

### Jumper link for CRINT-C1xx



**Product references**

| Description | Type |
|---|---|
| Jumper link blue | CRINT-BR20-BU (BAG 5 PCS) |
| Jumper link red | CRINT-BR20-RD (BAG 5 PCS) |
| Jumper link black | CRINT-BR20-BK (BAG 5 PCS) |

## S3-HP

### Test button without locking

**Product references**

| Description | Type |
|---|---|
| Test button without locking | S3-HP |

## S5-HP

### Test button without locking

**Product references**

| Description | Type |
|---|---|
| Test button without locking | S5-HP |

## S9-NP

### Blanking plug



**Product references**

| Description | Type |
|---|---|
| Blanking plug | S9-NP (BAG 10 PCS) |

## S9-OP

### Test Button w/o locking

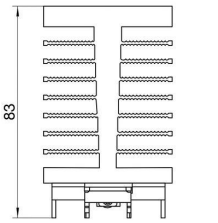


**Product references**

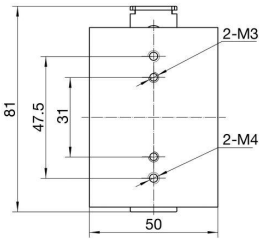
| Description | Type |
|---|---|
| Test Button | S9-OP (BAG 10 PCS) |

## HS_003

### Heatsink for passive cooling | 1.9 °C/W






**General data**

| | |
|---|---|
| Thermal Resistance | 1.9 °C/W |
| Dimensions | 81 x 50 x 82.5 mm (H x W x D) |
| Weight | 328 gr |
| Mounting | TH35 (EN 60715) with clip |
| Suitable for solid state relays type | SP1M, SP1P |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_003 |

## HS_004

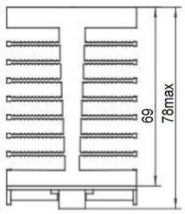
### Heatsink for passive cooling | 1.7 °C/W

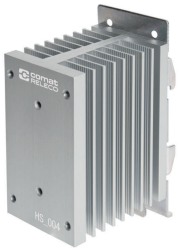
**General data**

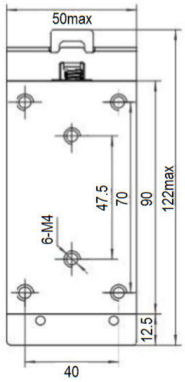
| | |
|---|---|
| Thermal Resistance | 1.7 °C/W |
| Dimensions | 122 x 50 x 78 mm (H x W x D) |
| Weight | 422 gr |
| Mounting | TH35 (EN 60715) with clip |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_004 |






## HS_005

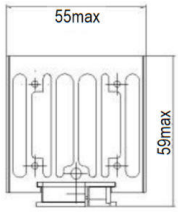
### Heatsink for passive cooling | 1.6 °C/W

**General data**

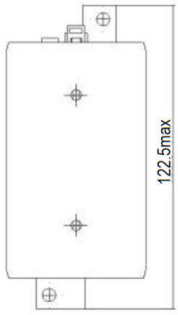
| | |
|---|---|
| Thermal Resistance | 1.6 °C/W |
| Dimensions | 122 x 55 x 59 mm (H x W x D) |
| Weight | 347 |
| Mounting | TH35 (EN 60715) with clip |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_005 |






## HS_006

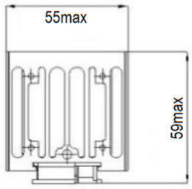
### Heatsink for active cooling, with fan | 0.6 °C/W

**General data**

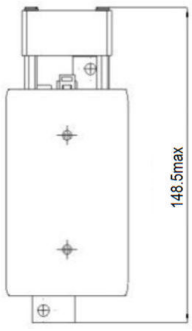
| | |
|---|---|
| Thermal Resistance | 0.6 °C/W |
| Dimensions | 148.5 x 55 x 59 mm (H x W x D) |
| Weight | 397 gr |
| Mounting | TH35 (EN 60715) with clip |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, forced convection (fan) |
| FAN voltage | 230 V AC |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_006 |





## HS_007

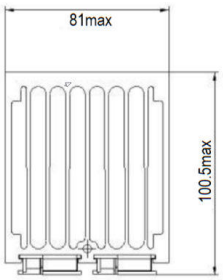
### Heatsink for passive cooling | 0.8 °C/W

**General data**

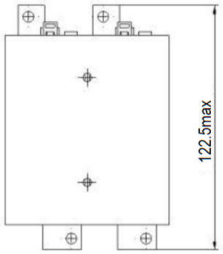
| | |
|---|---|
| Thermal Resistance | 0.8 °C/W |
| Dimensions | 122.5 x 81 x 100.5 mm (H x W x D) |
| Weight | 714 gr |
| Mounting | TH35 (EN 60715) with clip |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_007 |






## HS_008

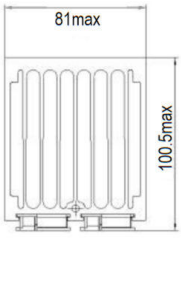
### Heatsink for active cooling, with fan | 0.35 °C/W

**General data**

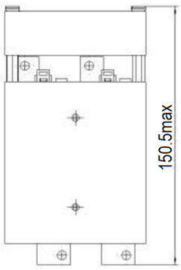
| | |
|---|---|
| Thermal Resistance | 0.35 °C/W |
| Dimensions | 150.5 x 81 x 100.5 mm (H x W x D) |
| Weight | 817 gr |
| Mounting | TH35 (EN 60715) with clip |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, forced convection (fan) |
| FAN voltage | 230 V AC |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_008 |






## HS_010

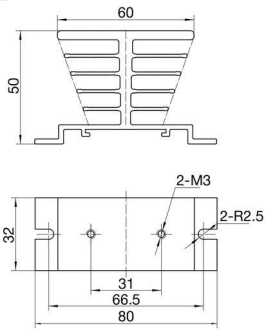
### Heatsink for passive cooling | 2.8 °C/W

**General data**

| | |
|---|---|
| Thermal Resistance | 2.8 °C/W |
| Dimensions | 80 x 32 x 50 mm (H x W x D) |
| Weight | 70 gr |
| Mounting | Panel (with screws, not incl. in the delivery) |
| Suitable for solid state relays type | SP1M |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_010 |






## HS_012

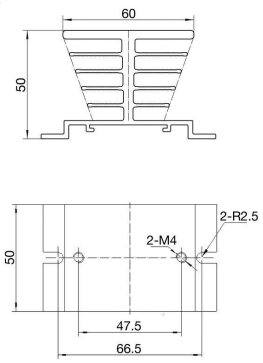
### Heatsink for passive cooling | 2.1 °C/W

**General data**

| | |
|---|---|
| Thermal Resistance | 2.1 °C/W |
| Dimensions | 80 x 50 x 50 mm (H x W x D) |
| Weight | 115 gr |
| Mounting | Panel (with screws, not incl. in the delivery) |
| Suitable for solid state relays type | SP1P , SP1M |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_012 |






## HS_015

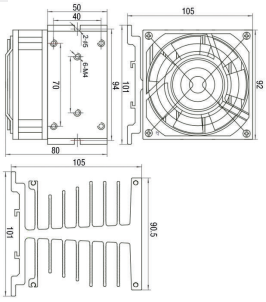
### Heatsink for active cooling, with fan | 0.6 °C/W

**General data**

| | |
|---|---|
| Thermal Resistance | 0.6 °C/W |
| Dimensions | 106 x 80 x 96 mm (H x W x D) |
| Weight | 645 gr |
| Mounting | Panel (with screws, not incl. in the delivery) |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, forced convection (fan) |
| FAN voltage | 230 V AC |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_015 |






## HS_020

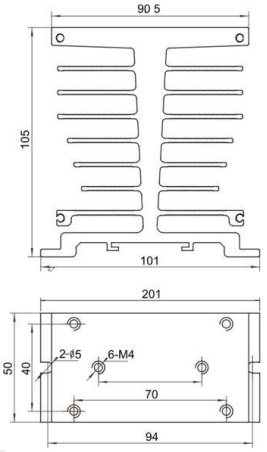
### Heatsink for passive cooling | 1.6 °C/W

**General data**

| | |
|---|---|
| Thermal Resistance | 1.6 °C/W |
| Dimensions | 106 x 50 x 96 mm (H x W x D) |
| Weight | 375 gr |
| Mounting | Panel (with screws, not incl. in the delivery) |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_020 |






## HS_022

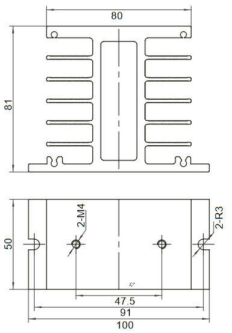
### Heatsink for passive cooling | 1.7 °C/W

**General data**

| | |
|---|---|
| Thermal Resistance | 1.7 °C/W |
| Dimensions | 100 x 50 x 81 mm (H x W x D) |
| Weight | 255 gr |
| Mounting | Panel (with screws, not incl. in the delivery) |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_022 |






## HS_025

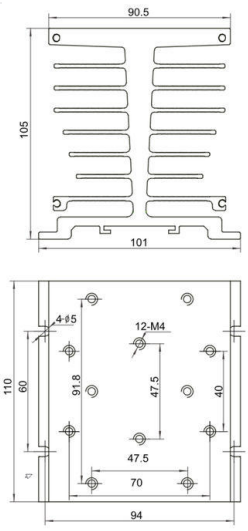
### Heatsink for passive cooling | 0.8 °C/W

**General data**

| | |
|---|---|
| Thermal Resistance | 0.8 °C/W |
| Dimensions | 106 x 110 x 96 mm (H x W x D) |
| Weight | 895 gr |
| Mounting | Panel (with screws, not incl. in the delivery) |
| Suitable for solid state relays type | SP1P |
| Cooling | Air, natural convection |

**Product references**

| Description | Type |
|---|---|
| Heatsink | HS_025 |






## P82-100C

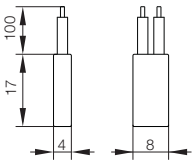
### Thermal overload protection

**General data**

| | |
|---|---|
| Dimensions | fig. 1 |
| Weight | 3 g |
| Ingress Protection | IP 66 |
| Mounting | Slot on contactor |

**Product references**

| Description | Type |
|---|---|
| Thermal overload protection | P82-100C |






## SP1M/pad

**General data**

| | |
|---|---|
| Dimensions | 36.2 x 26.2 x 0.15 mm (H x W x D) |
| Suitable for solid state relays type | SP1M |

**Product references**

| Description | Type |
|---|---|
| SP1M/pad | SP1M/pad |



## SP1P/pad

**General data**

| | |
|---|---|
| Dimensions | 55 x 42 x 0.15 mm (H x W x D) |
| Suitable for solid state relays type | SP1P |

**Product references**

| Description | Type |
|---|---|
| SP1P/pad | SP1P/pad |



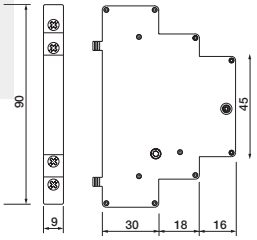
## Notes

# 1.11 Contactors Accessories


| | Type | Pin | Page |
|---|---|---|---|
| **Contactors Accessories** | | | |
| Auxiliary module for step switch installation contactors \| 2 pole \| 6 A | RBC-AUX |  | 198 |
| Aux. module for step switch inst. contactors - centralized control ON - OFF | RBC-AUX-CM |  | 198 |
| Aux. module for step switch inst. contactors - group control ON - OFF | RBC-AUX-GM |  | 198 |
| Auxiliary module for RIC / RAC installation contactors \| 2 pole \| 6 A | RIC-AUX |  | 198 |
| Auxiliary spacer module for RIC / RAC / RBC installation contactors | RIC-DIST |  | 199 |
| End covers for RIC-NS / RIC-PS Busbar \| set with left and right | RIC-EK | | 199 |
| Neutral busbar for RIC / RAC \| 10 mm² \| 690V \| 63A \| 1m | RIC-NS | | 199 |
| Phase busbar for RIC / RAC \| 10 mm² \| 690V \| 63A \| 1m | RIC-PS | | 199 |
| Auxiliary sealing cover for RIC20 / RAC20 | RIC-SEAL | | 200 |
| Auxiliary contacts for RMC contactors \| 2 or 4 pole \| 6 A | RMC-AUX | | 200 |
| DI - Suppressor for RMC contactors \| 6 - 250 V DC | RMC-DI | | 200 |
| MBL - Mechanical interlock for RMC contactors | RMC-MBL | | 200 |
| RC - Suppressor for RMC contactors | RMC-RC | | 201 |
| Auxiliary contacts for RMC contactors \| 2 or 4 pole \| 6 A | RSC-AUX | | 201 |
| MBL - Mechanical interlock for RSC contactors | RSC-MBL | | 201 |
| Bimetallic thermal relay for RSC09 … RSC16 contactor \| 5 pole \| 0.1 … 10 A | RSC-MP | | 201 |
| RC - Suppressor for RSC contactor | RSC-RC | | 202 |

## RBC-AUX

### Auxiliary module for step switch installation contactors | 2 pole | 6 A






**Housing and environmental conditions**

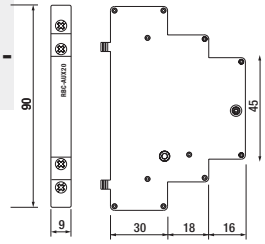
| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Operation temperature | -25 ... 70 °C |
| Ingress Protection | IP 20 |
| Weight | 30 g |
| Housing material | PA 6 |
| Dimensions | see fig. 2 |

**Product references**

| Description | Type |
|---|---|
| 1 NO + 1 NC | RBC-AUX11 |
| 2 NO | RBC-AUX20 |

## RBC-AUX-CM

### Aux. module for step switch inst. contactors - centralized control ON - OFF






**Housing and environmental conditions**

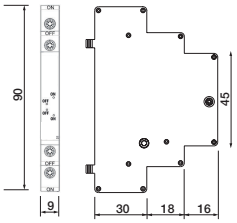
| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Operation temperature | -25 ... 70 °C |
| Ingress Protection | IP 20 |
| Weight | 30 g |
| Housing material | PA 6 |
| Dimensions | see fig. 2 |

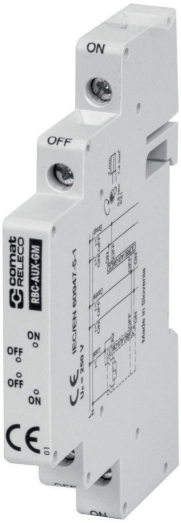
**Product references**

| Description | Type |
|---|---|
| Centralized control ON – OFF | RBC-AUX-CM |

## RBC-AUX-GM

### Aux. module for step switch inst. contactors - group control ON - OFF



**Housing and environmental conditions**

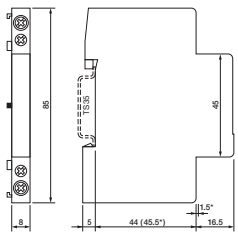
| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Operation temperature | -25 ... 70 °C |
| Ingress Protection | IP 20 |
| Weight | 30 g |
| Housing material | PA 6 |
| Dimensions | see fig. 2 |

**Product references**

| Description | Type |
|---|---|
| Group control ON – OFF | RBC-AUX-GM |

## RIC-AUX

### Auxiliary module for RIC / RAC installation contactors | 2 pole | 6 A






**Housing and environmental conditions**

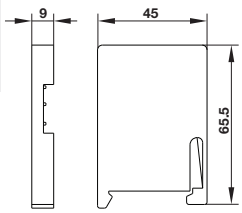
| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Operation temperature | -25 ... 55 °C |
| Ingress Protection | IP 20 |
| Weight | 30 g |
| Housing material | PA 6 |
| Dimensions | see fig. 2 |

**Product references**

| Description | Type |
|---|---|
| 2 NC | RIC-AUX02 |
| 1 NO + 1 NC | RIC-AUX11 |
| 2 NO | RIC-AUX20 |

## RIC-DIST

### Auxiliary spacer module for RIC / RAC / RBC installation contactors






**General data**

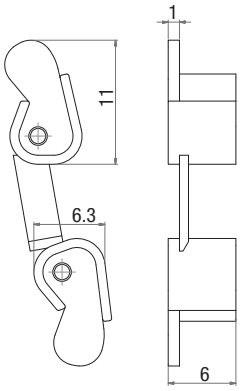
| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Dimensions | see fig. 1 |
| Weight | 13 g |
| Housing material | PA 6 |

**Product references**

| Description | Type |
|---|---|
| Auxiliary spacer module (9 mm) | RIC-DIST |

## RIC-EK

### End covers for RIC-NS / RIC-PS Busbar | set with left and right






**General data**

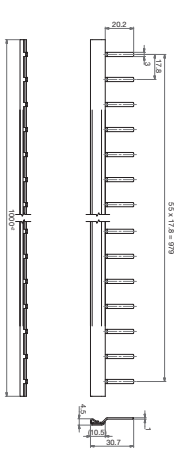
| | |
|---|---|
| Dimensions | 12 x 6 x 6 mm |
| Weight | 0.17 g |
| Housing material | PC/ABS |

**Product references**

| Description | Type |
|---|---|
| End cover for 1 pole busbar | RIC-EK-11 |
| End cover for 2/3 pole busbar | RIC-EK-23 |
| End cover for 4 pole busbar | RIC-EK-40 |

## RIC-NS

### Neutral busbar for RIC / RAC | 10 mm² | 690V | 63A | 1m






**General data**

| | |
|---|---|
| Conductor cross section control / main circuit | 10 mm² |
| Dimensions | see fig. 1 |
| Weight | 159 g |
| Ingress Protection | IP 20 |
| Housing material | PC/ABS |

**Product references**

| Description | Type |
|---|---|
| Neutral busbar for RIC / RAC | RIC-NS-1-1 |
| Neutral busbar for RIC / RAC | RIC-NS-1-1-R |
| Neutral busbar for RIC / RAC | RIC-NS-2-1 |

## RIC-PS

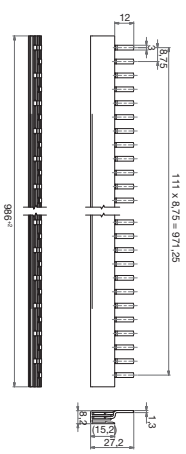
### Phase busbar for RIC / RAC | 10 mm² | 690V | 63A | 1m

**General data**

| | |
|---|---|
| Conductor cross section control / main circuit | 10 mm² |
| Dimensions | see fig. 1 |
| Weight | 480 g |
| Ingress Protection | IP 20 |
| Housing material | PC/ABS |

**Product references**

| Description | Type |
|---|---|
| Phase busbar for RIC / RAC | RIC-PS-1-2 |
| Phase busbar for RIC / RAC | RIC-PS-1-2-R |
| Phase busbar for RIC / RAC | RIC-PS-2-3 |
| Phase busbar for RIC / RAC | RIC-PS-2-4 |






## RIC-SEAL

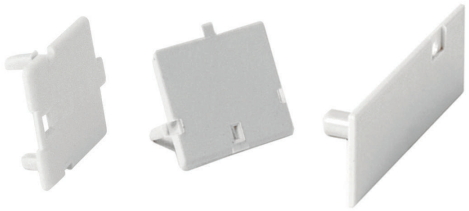
### Auxiliary sealing cover for RIC20 / RAC20

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 80 °C |
| Dimensions | 21 x 16 x 1 mm (20), 21 x 35 x 1 mm (25), 18 x 53 x 16 mm (40/63) |
| Weight | 1 g (20), 2 g (25), 3 g (40/63) |
| Housing material | PA |

**Product references**

| Description | Type |
|---|---|
| Auxiliary sealing module for RIC / RAC installation contactors | RIC-SEAL20 |
| Auxiliary sealing module for RIC / RAC installation contactors | RIC-SEAL25 |
| Auxiliary sealing module for RIC / RAC installation contactors | RIC-SEAL40/63 |

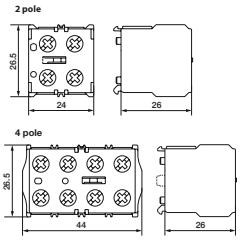


## RMC-AUX

### Auxiliary contacts for RMC contactors | 2 or 4 pole | 6 A

**Product references**

| Description | Type |
|---|---|
| 2 NC | RMC-AUX02 |
| 4 NC | RMC-AUX04 |
| 1 NO + 1 NC | RMC-AUX11 |
| 2 NO | RMC-AUX20 |
| 2 NO + 2 NC | RMC-AUX22 |
| 4 NO | RMC-AUX40 |






## RMC-DI

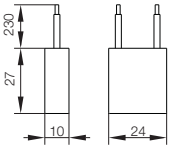
### DI - Suppressor for RMC contactors | 6 - 250 V DC

**General data**

| | |
|---|---|
| Dimensions | see fig. 1 |
| Weight | 16 g |

**Product references**

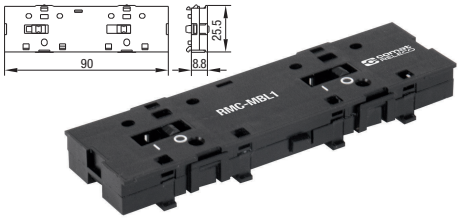
| Description | Type |
|---|---|
| DI – Suppressor Diode 6 – 250 V | RMC-DI |






## RMC-MBL

### MBL - Mechanical interlock for RMC contactors




**General data**

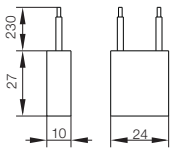
| | |
|---|---|
| Storage temperature (no ice) | -30 … 80 °C |
| Ambient temperature operation open contact | -20 … 60 °C |
| Dimensions | see fig. 1 |
| Weight | 12 g |

**Product references**

| Description | Type |
|---|---|
| Mechanical interlock | RMC-MBL |

## RMC-RC

### RC - Suppressor for RMC contactors






**General data**

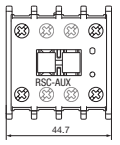
| | |
|---|---|
| Dimensions | see fig. 1 |
| Weight | 16 g |

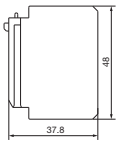
**Product references**

| Description | Type |
|---|---|
| RC - Suppressor 12 - 48 V | RMC-RC1 |
| RC - Suppressor 48 - 250 V | RMC-RC2 |

## RSC-AUX

### Auxiliary contacts for RMC contactors | 2 or 4 pole | 6 A





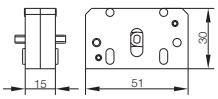

**Product references**

| Description | Type |
|---|---|
| 2 NC | RSC-AUX02 |
| 4 NC | RSC-AUX04 |
| 1 NO + 1 NC | RSC-AUX11 |
| 2 NO | RSC-AUX20 |
| 2 NO + 2 NC | RSC-AUX22 |
| 4 NO | RSC-AUX40 |

## RSC-MBL

### MBL - Mechanical interlock for RSC contactors

RSC-MBL1






RSC-MBL2

on request

**General data**

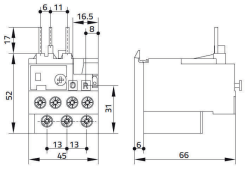
| | |
|---|---|
| Dimensions | see fig. 1 |
| Weight | 14 g |

**Product references**

| Description | Type |
|---|---|
| Mechanical interlock for RSC09-38 | RSC-MBL1 |
| Mechanical interlock for RSC43/63 | RSC-MBL2 |

## RSC-MP

### Bimetallic thermal relay for RSC09 … RSC16 contactor | 5 pole | 0.1 … 10 A





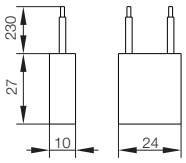

**Product references**

| Description | Type |
|---|---|
| Bimetallic thermal relay 0.1 – 0.16 | RSC-MP-0.16 |
| Bimetallic thermal relay 0.16 – 0.25 | RSC-MP-0.25 |
| Bimetallic thermal relay 0.25 – 0.4 | RSC-MP-0.4 |
| Bimetallic thermal relay 0.35 – 0.5 | RSC-MP-0.5 |
| Bimetallic thermal relay 0.45 – 0.63 | RSC-MP-0.63 |

| Description | Type |
|---|---|
| Bimetallic thermal relay 0.55 – 0.8 | RSC-MP-0.8 |
| Bimetallic thermal relay 0.75 – 1 | RSC-MP-1.0 |
| Bimetallic thermal relay 0.9 – 1.3 | RSC-MP-1.3 |
| Bimetallic thermal relay 1.1 – 1.6 | RSC-MP-1.6 |
| Bimetallic thermal relay 7.2 – 10 | RSC-MP-10.0 |
| Bimetallic thermal relay 1.4 – 2 | RSC-MP-2.0 |
| Bimetallic thermal relay 2.3 – 3.2 | RSC-MP-3.2 |
| Bimetallic thermal relay 2.9 – 4 | RSC-MP-4.0 |
| Bimetallic thermal relay 3.5 – 4.8 | RSC-MP-4.8 |
| Bimetallic thermal relay 4.5 – 6.3 | RSC-MP-6.3 |
| Bimetallic thermal relay 5.5 – 7.5 | RSC-MP-7.5 |

## RSC-RC

### RC - Suppressor for RSC contactor






**General data**

| | |
|---|---|
| Dimensions | see fig. 1 |
| Weight | 16 g |

**Product references**

| Description | Type |
|---|---|
| RC - Suppressor 12 - 48 V | RSC-RC1 |
| RC - Suppressor 48 - 250 V | RSC-RC2 |

Notes

## Notes

# 2 Time Relays


| Chapter | Page |
|---|---|
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# Time functions

## Delay functions

**E** **On delay**




S ⇒ R on with delay
SOFF ⇒ R off

**A** **Off delay**




S ⇒ R on
SOFF ⇒ R off with delay

**F** **On and off delay**




S ⇒ R on with delay (t1)
SOFF ⇒ R off with delay (t2)

## Puls shaping

**K** **Puls shaping**




S (pulse or continuous contact)
⇒ R on for t
S ‒ ‒ no influence on R and t

**L** **Pulse shaping,** retrigger (subsequ.time operation from 0)




S (pulse or continuous contact)
⇒ R on for t
S on for t = tRESET

**M** **Puls shaping**




SOFF ⇒ R on for t
S ‒ ‒ no influence on R and t

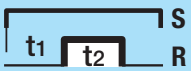
## Delayed pulse

**G** **On delay single shot**




S (pulse or continuous contact)
⇒ R after t1 on for t2
S ‒ ‒ no influence on R and t

**H** **On delay single shot**




S ⇒ R after t1 on for t2
SOFF ⇒ R off

## Special functions

**Y** **Star-delta timer**




S ⇒ Y on for tY
YOFF ⇒ Δ on with delay for tY-Δ
SOFF ⇒ Δ off

## Shot timing modes

**W** **One shot leading edge**




S ⇒ R on for t
SOFF ⇒ R off
(pulse clipping)

**N** **One shot trailing edge**




SOFF ⇒ R on for t
S on for t ⇒ R off

**Q** **One shot leading and trailing edge**




S ⇒ R on for t1
SOFF ⇒ R on for t2
SOFF off for t1 ⇒ R off

## Blinker functions

**B** **Blinker,** pulse start




S ⇒ R on/off periodically
according to t
SOFF ⇒ R off

**B1** **Blinker,** pulse start, trailing pulse




S ⇒ R on/off periodically
according to t
SOFF: last pulse = t

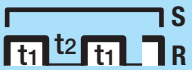
**B2** **Blinker,** interval start




S ⇒ R after t on/off periodically
according to t
SOFF ⇒ R off

## Repeat cycle timer

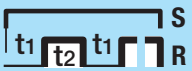
**I** **Repeat cycle timer,** pulse start




S ⇒ R on/off periodically
according to t1 and t2
SOFF ⇒ R off

**P** **Repeat cycle timer,** interval start

C55, CT1: t2/t1




S ⇒ R after t1 (t2) on/off periodically according to t2 and t1
SOFF ⇒ R off

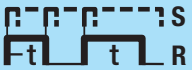
## Special functions

**S** **Step-on / Step-off switch**




S ⇒ R on/off

**LS** **Step-switching** (staircase lighting timer), with time lapse




S ⇒ R on and starts t
S on for t ⇒ R off

## Stop / Reset

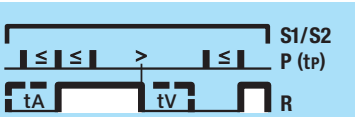
| | | | |
|---|---|---|---|
| tSTOP | SSTOP interrupts t (t-addition) | T | t is stopped ⇒ R on/off |
| tRESET | SRESET reset t<br>t restarts immediately | T | Test |

S = Triggering
R = Output circuit
⇒ = switches…

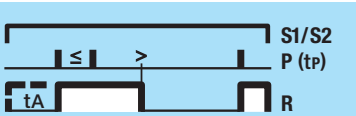
ON OFF

## Pulse sequence monitoring

**U**




**V**




S1/S2 = Monitoring start
P = Pulse sequence
tP = Pulse separation

≤: Pulse separation is **smaller** than the time tP
>: Pulse separation is **larger** than the time tP

Start with **S1** = **without** start-up short-out tA
Start with **S2** = start-up short-out tA

tV = settable alarm delay
delay (tA = tV)

# Time functions

## Time Cubes

| Type | Function | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | Manual actuator |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | Y | U | V | | | | sec | min | h | d | |
| CT..-E 30 | ● | | | | | | | | | | | | | | | | | | | | | | | | | 30 | | | |
| CT..-A 30 | | ● | | | | | | | | | | | | | | | | | | | | | | | | 30 | | | |
| CT..-K 30 | | | | ● | | | ● | | | | | | | | | | | | | | | | | | | 30 | | | |
| CT..-B 30 | | | | | | | | | | ● | | | | | | | | | | | | | | | | 30 | | | |

## Modular plug-in Time Relays (CT-System)

| Type | Function | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | Manual actuator |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | Y | U | V | | | | sec | min | h | d | |
| CT32… | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | | | | | | | | | | 60* | | | |
| CT33… | ● | ● | △ | ● | ● | △ | ● | ● | | ● | ● | | ▲ | ▲ | | | | | | | | | | | | | 60* | | |
| CT36… | | | | | | | | | | | | | | | ● | ● | | | | | | | | | | | 60* | | |

## Plug-in Time Relays

| Type | Function | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | Manual actuator |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | Y | U | V | | | | sec | min | h | d | |
| C55 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | ● | ● | | | | ● | ● | ● | ● | | | | | 60 | |
| C55.3 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | ● | ● | | | | ● | ● | ● | ● | | | | | 60 | |
| C55.4 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | ● | ● | | | | ● | ● | ● | ● | | | | | 60 | |
| C56 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | | | ● | ● | ● | ● | | | | ● | ● | ● | ● | | | | | 60 | |
| C64 | | ■ | | | ■ | | | | | | | | | | | | | | | | | | | | | 20 | | | |
| CS2 | ● | ● | | ● | ● | | ● | | | ● | | ● | | | | | | | | | | | ● | | | | 60* | | |
| CS3 | ● | ● | | ● | ● | | ● | | | ● | | ● | | | | | | | | | | | | | | | 60* | | |
| RS 41-M | ● | ● | | ● | | | ● | | | ● | | | | | | | | | | | | | | | | 15 | | | |

## Plug-in Time Relays

| Type | Function | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | Manual actuator |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | Y | U | V | | | | sec | min | h | d | |
| C83 | ● | ● | △ | ● | ● | △ | ● | ● | | ● | ● | | ▲ | ▲ | | | | | | | | | | | | | 60* | | ● |
| C85 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | ● |

## DIN Time Relays

| Type | Function | | | | | | | | | | | | | | | | | | | | t-Stop | t-Reset | Ext. Poti | t max. | | | | Manual actuator |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | A | F | W | N | Q | K | L | M | B | $B_1$ | $B_2$ | G | H | I | P | S | LS | Y | U | V | | | | sec | min | h | d | |
| AA2 - AA2M | | ● | | | | | | | | | | | | | | | | | | | | | | | | 1,5/12 | | | |
| AE2 - AE2M | ● | | | | | | | | | | | | | | | | | | | | | | | | | 1,5/12 | | | |
| AL1 | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | ● |
| AL3 | | | | | | | | ● | | | | | | | | | ● | ● | | | | | | | | 60 | | | ● |
| AL4 | | | | | | | | ● | | | | | | | | | ● | ● | | | | | | | | 60 | | | ● |
| AL5 | | | | | | | | | | | | | | | | | ● | | | | | | | | | | | | ● |
| AM1 | ● | | | ● | | | | | | ● | | ● | | | | | | | | | | | | | | 60 | | | |
| AM2 | ● | ● | | ● | | | ● | | | | | | | | | | | | | | | | | | | 60 | | | |
| AM3 [1] | ● | ● | | ● | | | ● | | | | | | | | | | | | | | | | | | | 60 | | | |
| CM2 | ● | ● | | ● | | | ● | | | | | | | | | | | | | | | ● | ● | ● | | | 12 | | |
| CM3 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | | | | | | | | | | | 60* | | |
| CMD11 A | | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | ● |
| CMD11 E | ● | | | | | | | | | | | | | | | | | | | | | | | | | | | | ● |
| CIM1 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | ● |
| CIM12 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | ● |
| CIM13 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | ● |
| CIM14 | ● | ● | | ● | ● | | ● | | | ● | ● | | | | | | ● | ● | | | | | | | | | 60* | | ● |
| CIM2 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | ● |
| CIM22 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | ● |
| CIM23 | ● | ● | | | | | | ● | ● | | | ● | ● | ● | | | | | | | | | | | | | 60* | | ● |
| CIM3 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | |
| CIM32 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | |
| CIM33 | | | ● | | | ● | | | | | | | ● | ● | ● | ● | | | | | | | | | | | 60* | | |
| CRV4 | ● | ● | △ | ● | ● | △ | ● | ● | ● | ● | ● | ● | ● | ● | | | ● | ● | | | | | | ● | | | 60* | | |
| CSV4 | ● | ● | △ | ● | ● | △ | ● | ● | ● | ● | ● | ● | ● | ● | | | ● | ● | | | | | | ● | | | 10* | | |
| CPF11 | | ● | | | | | ● | ● | | | | | | | | | | | | | | | | | | 0.6 | | | |
| CY1 | | | | | | | | | | | | | | | | | | | ● | | | | | | | | | | |

*** TF-60 Setting of long times**

The TF60 time setting methode permits short examination of long delay time settings. Elapsing times of hours can be monitored in the sec. range.

Example for a delay time of 38 h:

1. Set range switch to 60 sec
2. Set 38 sec on the potentiometer (e.g. check 38 sec by chronometer)
3. Set range switch to 60 h

The delay time now amounts to 38 h.

[1] alternatively with instantaneous contact
■ without auxiliary voltage (relay bistable)
□ without auxiliary voltage (relay monostable)
△ $t_2 = t_1$
▲ $t_2 = 0.5$ s

## Notes

# 2.1 ON and OFF delay Relays


| | Type | Pin | Page |
|---|---|---|---|
| **CMD Series** | | | |
| Off delay \| single voltage \| 1 CO | CMD11-A |  | 210 |
| On delay \| single voltage \| 1 CO | CMD11-E |  | 211 |
| **AA2, AE2 Series** | | | |
| Off delay \| 24 V AC / DC \| 220 … 240 V AC \| 1 CO | AA2, AA2M |  | 212 |
| On delay \| 24 V AC / DC \| 220 … 240 V AC \| 1 CO | AE2, AE2M |  | 213 |

# CMD11-A

## Off delay | single voltage | 1 CO

### Time data

| | |
|---|---|
| Timing functions | A |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 8 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 15 A, 20 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,000 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 12 V AC / DC | 24 V AC / DC |
| Operating voltage range | 0.8 … 1.2 $U_N$ | 0.8 … 1.2 $U_N$ |
| Power consumption AC / DC | 0.6 VA / 0.4 W | 0.5 VA / 0.3 W |
| Current consumption on supply A1-A2 AC / DC | 50 mA / 32 mA | 21 mA / 12 mA |
| Current consumption on input control B1 AC / DC | 4.3 mA / 2.7 mA | 9.5 mA / 11.6 mA |
| Threshold voltage on input control B1 AC / DC | 5.2 V / 8.8 V | 9.5 V / 14 V |
| Frequency range | 0; 48 ... 62 Hz | 0; 48 ... 62 Hz |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 115 V AC | 230 V AC |
| Operating voltage range | 0.8 … 1.2 $U_N$ | 0.8 … 1.2 $U_N$ |
| Power consumption AC / DC | 5.3 VA / - | 14.3 VA / - |
| Current consumption on supply A1-A2 AC / DC | 47 mA / - | 60 mA / - |
| Current consumption on input control B1 AC / DC | 1.7 mA / - | 1.9 mA / - |
| Threshold voltage on input control B1 AC / DC | 42 V / - | 80 V / - |
| Frequency range | 48 … 62 Hz | 48 … 62 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 48 g |
| Ingress Protection | IP 20 |
| Housing material | PA66 |

### Product references

| Description | Type | 12 | 24 | 115 | 230 |
|---|---|---|---|---|---|
| AC supply | CMD11-A/AC...V | | | ✓ | ✓ |
| AC / DC supply | CMD11-A/UC...V | ✓ | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

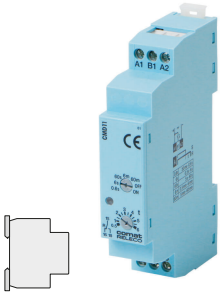



fig. 1. Wiring diagram

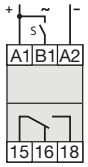



fig. 2. AC voltage endurance

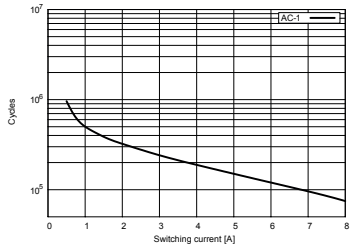



fig. 3. DC load limit curve

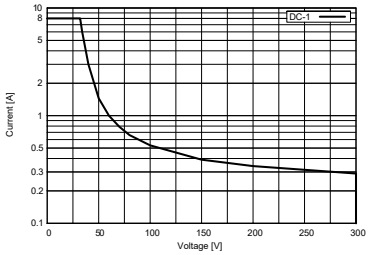
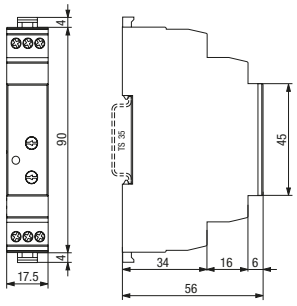



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CMD11-E

## On delay | single voltage | 1 CO



### Time data

| | |
|---|---|
| Timing functions | E |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 8 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 15 A, 20 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,000 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 12 V AC / DC | 24 V AC / DC |
| Operating voltage range | 0.8 … 1.2 $U_N$ | 0.8 … 1.2 $U_N$ |
| Power consumption AC / DC | 32 mVA / 50 mW | 12 mVA / 21 mW |
| Current consumption on supply A1-A2 AC / DC | 50 mA / 32 mA | 21 mA / 12 mA |
| Threshold voltage on input control B1 AC / DC | 5.2 V / 8.8 V | 9.5 V / 14 V |
| Frequency range | 0; 48 ... 62 Hz | 0; 48 ... 62 Hz |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 115 V AC | 230 V AC |
| Operating voltage range | 0.8 … 1.2 $U_N$ | 0.8 … 1.2 $U_N$ |
| Power consumption AC / DC | 5.3 VA / - | 14.3 VA / - |
| Current consumption on supply A1-A2 AC / DC | 47 mA / - | 60 mA / - |
| Current consumption on input control B1 AC / DC | 1.7 mA / - | 1.9 mA / - |
| Threshold voltage on input control B1 AC / DC | 42 V / - | 80 V / - |
| Frequency range | 48 … 62 Hz | 48 … 62 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 48 g |
| Ingress Protection | IP 20 |
| Housing material | PA66 |

### Product references

| Description | Type | 12 | 24 | 115 | 230 |
|---|---|---|---|---|---|
| AC supply | CMD11-E/AC...V | | | ✓ | ✓ |
| AC / DC supply | CMD11-E/UC...V | ✓ | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

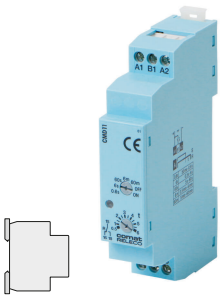



**fig. 1. Wiring diagram**

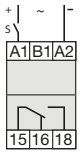



**fig. 2. AC voltage endurance**

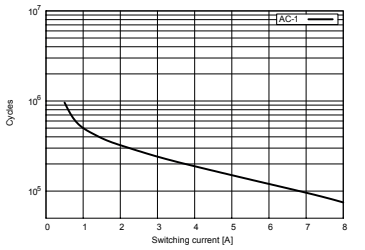



**fig. 3. DC load limit curve**

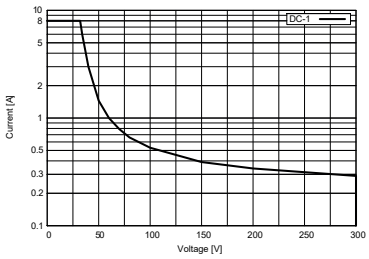
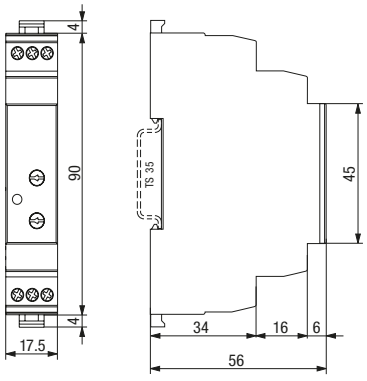



**fig. 4. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# AA2, AA2M

## Off delay | 24 V AC / DC | 220 … 240 V AC | 1 CO

### Time data

| | |
|---|---|
| Timing functions | A |
| Timing range | AA2: 0.8 s … 1.5 min / AA2M: 0.1 min … 12 min |
| Timing scale | AA2: 12 s / 1.5 min / AA2M: 1.5 min / 12 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 16 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 V AC/DC | 220 … 240 V AC |
| Operating voltage range | 0.8 … 1.3 $U_N$ | 0.8 … 1.1 $U_N$ |
| Power consumption AC / DC | 0.84 VA / 0.84 W | 2.4 VA / - |
| Current consumption on supply A1-A2 AC / DC | 35 mA / 35 mA | 10 mA / - |
| Current consumption on input control B1 AC / DC | 25 mA / 25 mA | 5 mA / - |
| Threshold voltage on input control B1 AC / DC | 10 V / 10 V | 176 V / - |
| Frequency range | 0; 48 ... 63 Hz | 48 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 65 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24 | 220-240 |
|---|---|---|---|
| AC supply | AA2/AC...V | | ✓ |
| AC / DC supply | | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

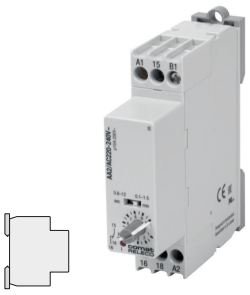


fig. 1. Wiring diagram

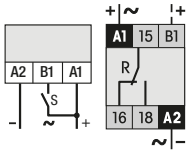



fig. 2. AC voltage endurance

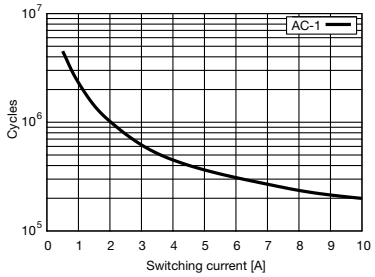



fig. 3. DC load limit curve

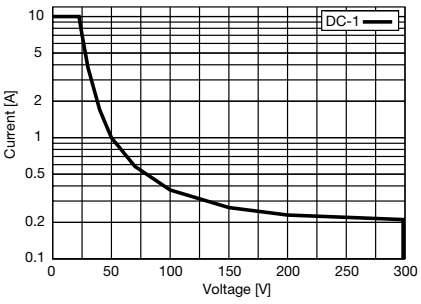
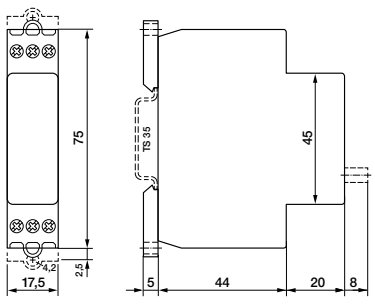



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# AE2, AE2M

## On delay | 24 V AC / DC | 220 … 240 V AC | 1 CO

### Time data

| | |
|---|---|
| Timing functions | E |
| Timing range | AE2: 0.8 s … 1.5 min / AE2M: 0.1 min … 12 min |
| Timing scale | AE2: 12 s / 1.5 min / AE2M: 0.8 min / 12 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 16 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 V AC/DC | 220 … 240 V AC |
| Operating voltage range | 0.8 … 1.3 $U_N$ | 0.8 … 1.1 $U_N$ |
| Power consumption AC / DC | 1.1 VA / 1.1 W | 3.6 VA / - |
| Current consumption on supply A1-A2 AC / DC | 25 mA / 25 mA | 5 mA / - |
| Threshold voltage on input control B1 AC / DC | 10 V / 10 V | 176 V / - |
| Frequency range | 0; 48 ... 63 Hz | 48 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 65 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Housing and environmental conditions

| | |
|---|---|
| Operation Position | Any |

### Product references

| Description | Type | 24 | 220-240 |
|---|---|---|---|
| AC supply | AE2/AC...V | | ✓ |
| AC supply | AE2M/AC...V | | ✓ |
| AC / DC supply | AE2/UC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

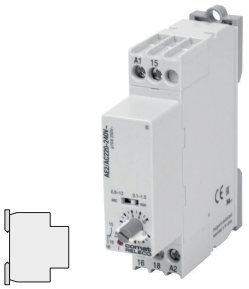


fig. 1. Wiring diagram

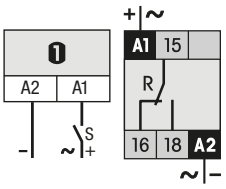



fig. 2. AC voltage endurance

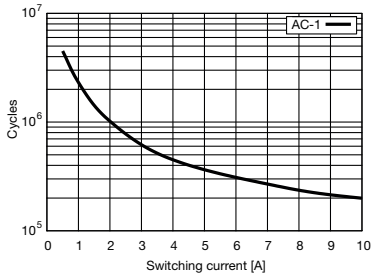



fig. 3. DC load limit curve

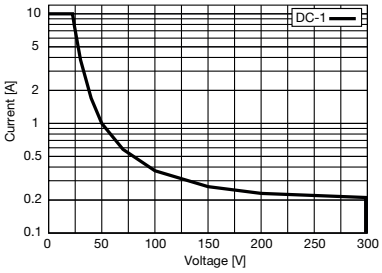
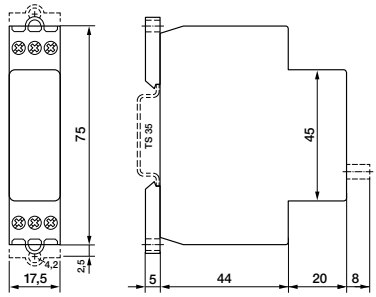



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

## Notes

# 2.2 Multifunction Time Relays


| | Type | Pin | Page |
|---|---|---|---|
| **CIM Series** | | | |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO | CIM1 | | 217 |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO | CIM1R | | 218 |
| Multifunction \| 24 … 240 V AC / DC \| 1 TRIAC | CIM12 | | 219 |
| Multifunction \| 24 … 240 V AC / DC \| 1 TRIAC | CIM12R | | 220 |
| Multifunction \| 24 … 240 V AC / DC \| 1 MOSFET | CIM13 | | 221 |
| Multifunction \| 24 … 240 V AC / DC \| 1 MOSFET | CIM13R | | 222 |
| Multifunction \| 24 … 240 V AC / DC \| 1 NO, pre-contact | CIM14 | | 223 |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO | CIM2 | | 224 |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO | CIM2R | | 225 |
| Multifunction \| 24 … 240 V AC / DC \| 1 TRIAC | CIM22 | | 226 |
| Multifunction \| 24 … 240 V AC / DC \| 1 TRIAC | CIM22R | | 227 |
| Multifunction \| 24 … 240 V AC / DC \| 1 MOSFET | CIM23 | | 228 |
| Multifunction \| 24 … 240 V AC / DC \| 1 MOSFET | CIM23R | | 229 |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO | CIM3 | | 230 |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO | CIM3R | | 231 |
| Multifunction \| 24 … 240 V AC / DC \| 1 TRIAC | CIM32 | | 232 |
| Multifunction \| 24 … 240 V AC / DC \| 1 TRIAC | CIM32R | | 233 |
| Multifunction \| 24 … 240 V AC / DC \| 1 MOSFET | CIM33 | | 234 |

| | Type | Pin | Page |
|---|---|---|---|
| Multifunction \| 24 … 240 V AC / DC \| 1 MOSFET | CIM33R | | 235 |
| **AL Series** | | | |
| Staircase switch \| Auto - ON \| 220 … 240 V AC \| 1 NO | AL1 | | 236 |
| Staircase switch \| Auto-ON \| 24 V AC / DC \| 220…240 V AC \| 1 NO, pre-contact | AL3 | | 237 |
| Staircase switch \|Auto-ON\| Central ON-OFF\| 220..240 V AC \|1 NO,pre-contact | AL4 | | 238 |
| Step switch \| Auto - ON \| Central ON - OFF \| 230 V AC \| 1 NO, pre-contact | AL5 | | 239 |
| **AM Series** | | | |
| Multifunction \| 24 … 60 V AC / DC \| 110 … 240 V AC / DC \| 1 CO | AM1 | | 240 |
| Multifunction \| 24 … 60 V AC / DC \| 220 … 240 V AC \| 1 CO | AM2 | | 241 |
| Multifunction \| 24 … 60 V AC / DC \| 110 … 240 V AC / DC \| 2 CO | AM3 | | 242 |
| **CM Series** | | | |
| Multifunction \| 24 … 60 V AC / DC \| 110 … 240 V AC / DC \| 1 NO + 1 CO | CM2 | | 243 |
| Multifunction \| 12 … 24 V DC \| 24 … 48 V DC, 24 … 240 V AC \| 2 CO | CM3 | | 244 |
| **CPF Series** | | | |
| Pulse extension \| 24 V DC \| 1 PNP Transistor | CPF11 | | 245 |
| **CRV Series** | | | |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO \| External potentiometer | CRV4 | | 246 |
| **CSV Series** | | | |
| Multifunction \| 12 … 36 V DC \| 1 MOSFET \| External potentiometer | CSV4 | | 247 |

# CIM1

## Multifunction | 24 … 240 V AC / DC | 1 CO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 16 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 4,000 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

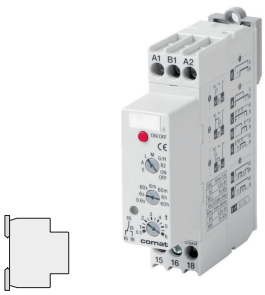
### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

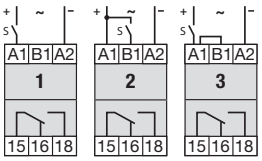
### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM1/UC...V | ✓ |

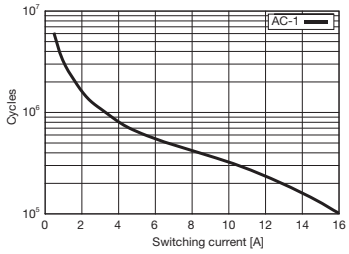
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



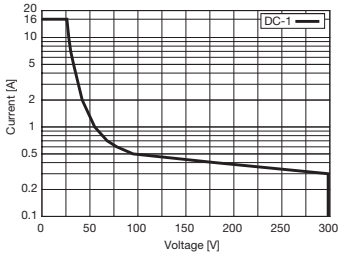
### fig. 1. Wiring diagram



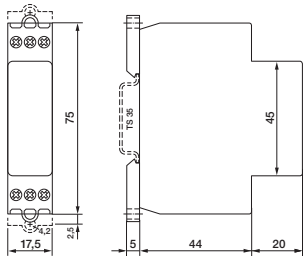

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CIM1R

## Multifunction | 24 … 240 V AC / DC | 1 CO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 16 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 4,000 VA |
| Mechanical endurance (cycles) | ≥ 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

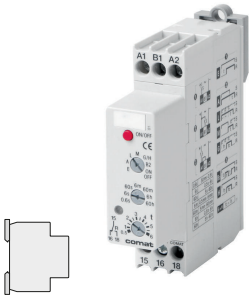
### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

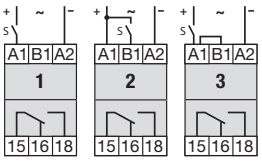
### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM1R/UC...V | ✓ |

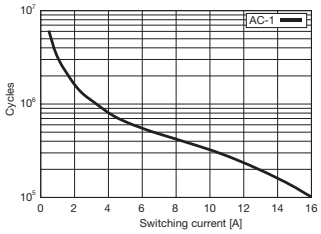
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



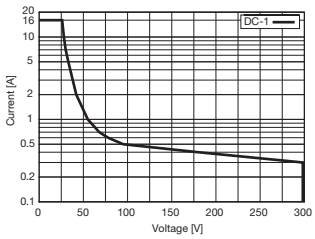
### fig. 1. Wiring diagram



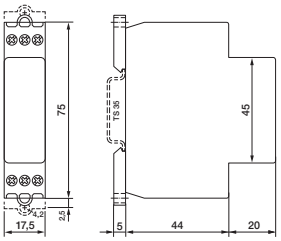

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# CIM12

## Multifunction | 24 … 240 V AC / DC | 1 TRIAC

### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | TRIAC |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 2 A |
| Minimum load | 50 mA, 12 V |
| Inrush current | 100 A, 10 ms |
| Rated limit load | 78 A²s |
| Typ. leakage current | 1 mA |
| Rated load AC-1 | 300 VA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load AC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

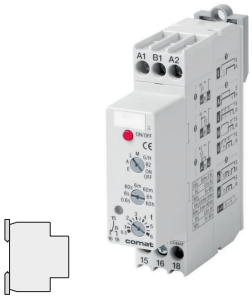
### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

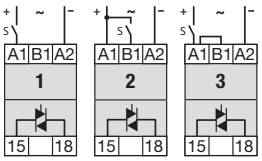
### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM12/UC...V | ✓ |

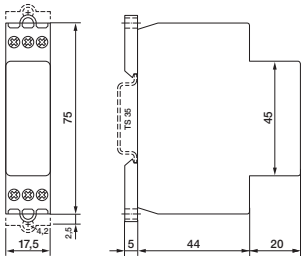
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CIM12R

## Multifunction | 24 … 240 V AC / DC | 1 TRIAC



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | TRIAC |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 2 A |
| Minimum load | 50 mA, 12 V |
| Inrush current | 100 A, 10 ms |
| Rated limit load | 78 $A^2s$ |
| Typ. leakage current | 1 mA |
| Rated load AC-1 | 300 VA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load AC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

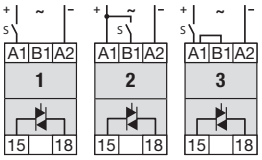
| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

### Product references

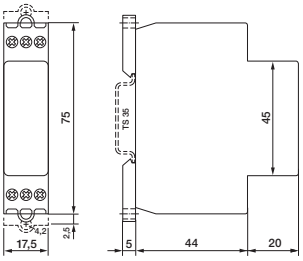
| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM12R/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

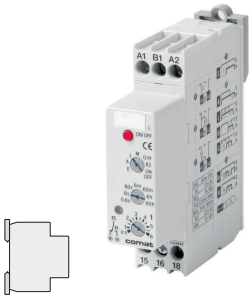
Railway EN 45545-2; EN 50155

Approvals

# CIM13

## Multifunction | 24 … 240 V AC / DC | 1 MOSFET





### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Rated current | 5 A |
| Minimum load | 1 mA, 1 V |
| Inrush current | 40 A, 10 us |
| Typ. leakage current | 10 µA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM13/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

**fig. 1. Wiring diagram**

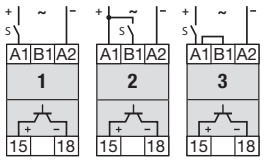
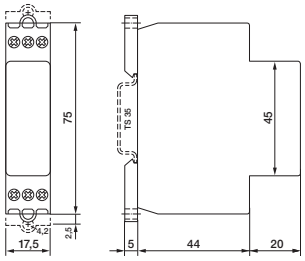



**fig. 2. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CIM13R

## Multifunction | 24 … 240 V AC / DC | 1 MOSFET



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Rated current | 5 A |
| Minimum load | 1 mA, 1 V |
| Inrush current | 40 A, 10 us |
| Typ. leakage current | 10 µA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

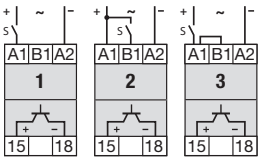
| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Ambient temperature operation derated power | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

### Product references

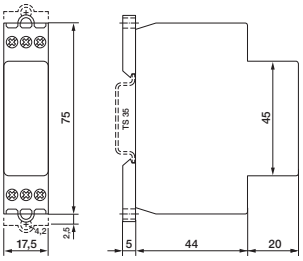
| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM13R/UC…V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# CIM14

## Multifunction | 24 … 240 V AC / DC | 1 NO, pre-contact

### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K, N, B1, S, LS 3: B, W |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 NO |
| Available contact materials | W + $AgSnO_2$ |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 16 A |
| Minimum load | 100 mA, 12 V |
| Inrush current | 800 A, 200 us / 165 A, 20 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 4,000 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

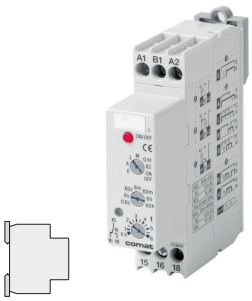
### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

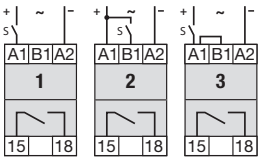
### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM14/UC...V | ✓ |

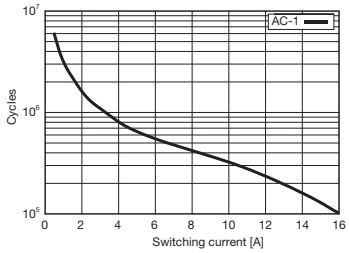
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



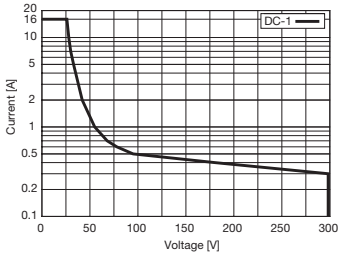
### fig. 1. Wiring diagram



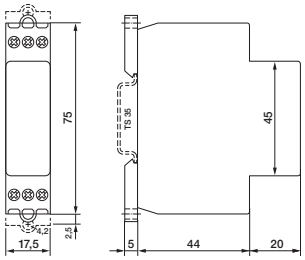

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CIM2

## Multifunction | 24 … 240 V AC / DC | 1 CO

**Time data**

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, L, M, G 3: B2, H |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 16 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 4,000 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Ambient temperature operation derated power | -40 … 60 °C ($I_N$ 13 A) |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM2/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

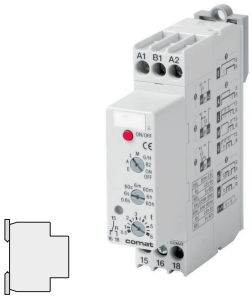



**fig. 1. Wiring diagram**

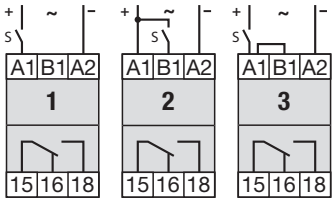



**fig. 2. AC voltage endurance**

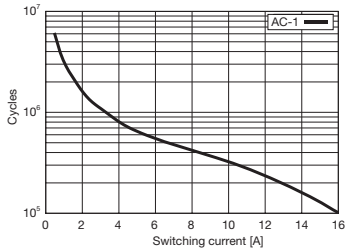



**fig. 3. DC load limit curve**

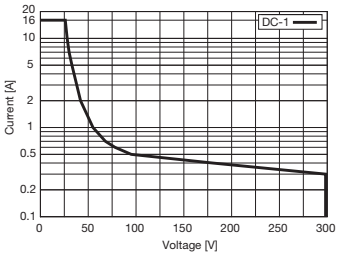
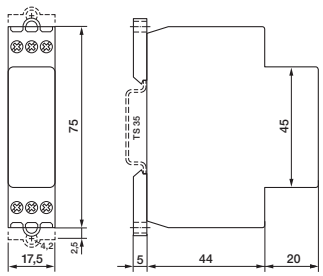



**fig. 4. Dimensions (mm)**




## Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CIM2R

## Multifunction | 24 … 240 V AC / DC | 1 CO

**Time data**

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, L, M, G 3: B2, H |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 16 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 4,000 VA |
| Mechanical endurance (cycles) | ≥ 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

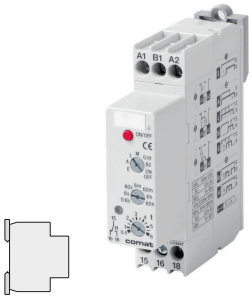
**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

**Product references**

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM2R/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



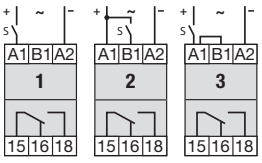



fig. 1. Wiring diagram

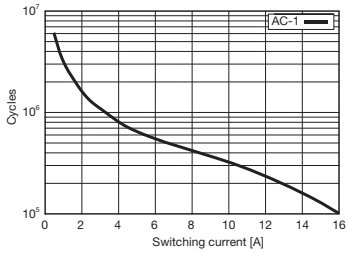



fig. 2. AC voltage endurance

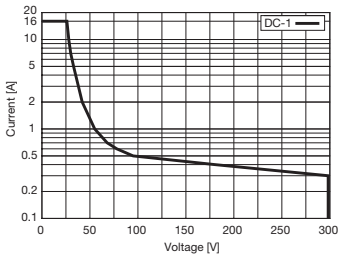



fig. 3. DC load limit curve

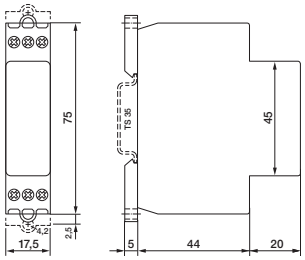



fig. 4. Dimensions (mm)

**Technical approvals, conformities**

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# CIM22

## Multifunction | 24 … 240 V AC / DC | 1 TRIAC



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, L, M, G 3: B2, H |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | TRIAC |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 2 A |
| Minimum load | 50 mA, 12 V |
| Inrush current | 100 A, 10 ms |
| Rated limit load | 78 A²s |
| Typ. leakage current | 1 mA |
| Rated load AC-1 | 300 VA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load AC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

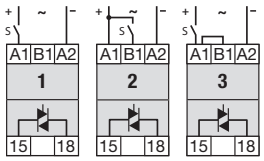
| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

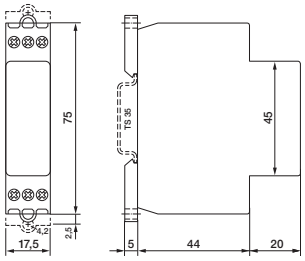
| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM22/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CIM22R

## Multifunction | 24 … 240 V AC / DC | 1 TRIAC



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, L, M, G 3: B2, H |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | TRIAC |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 2 A |
| Minimum load | 50 mA, 12 V |
| Inrush current | 100 A, 10 ms |
| Rated limit load | 78 A²s |
| Typ. leakage current | 1 mA |
| Rated load AC-1 | 300 VA |
| Electrical endurance at rated load AC-1 (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

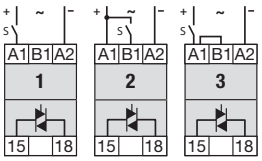
| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

### Product references

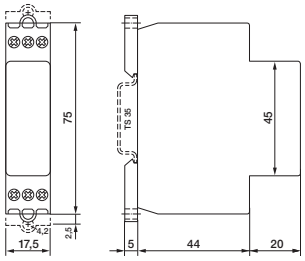
| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM22R/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# CIM23

## Multifunction | 24 … 240 V AC / DC | 1 MOSFET

**Time data**

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, L, M, G 3: B2, H |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

**Main circuit**

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Rated current | 5 A |
| Minimum load | 1 mA, 1 V |
| Inrush current | 40 A, 10 us |
| Typ. leakage current | 10 µA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM23/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



**fig. 1. Wiring diagram**

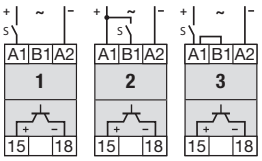
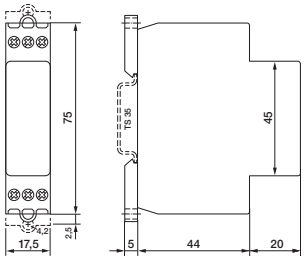



**fig. 2. Dimensions (mm)**



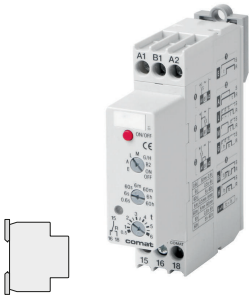

**Technical approvals, conformities**

Standards IEC/EN 60947

Approvals

# CIM23R

## Multifunction | 24 … 240 V AC / DC | 1 MOSFET



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, L, M, G 3: B2, H |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Rated current | 5 A |
| Minimum load | 1 mA, 1 V |
| Inrush current | 40 A, 10 us |
| Typ. leakage current | 10 µA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

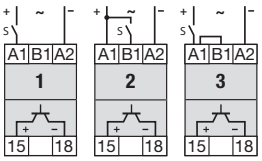
| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

### Product references

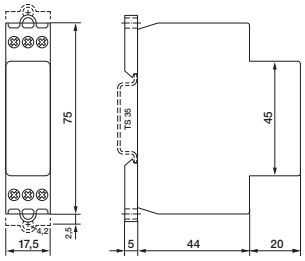
| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM23R/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# CIM3

## Multifunction | 24 … 240 V AC / DC | 1 CO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: F, Q, G 3: I, P, H |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 16 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 4,000 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

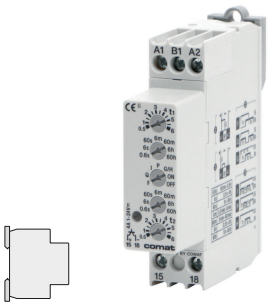
### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

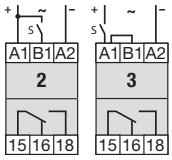
### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM3/UC...V | ✓ |

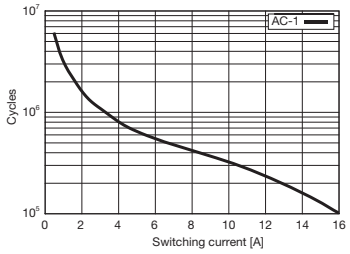
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



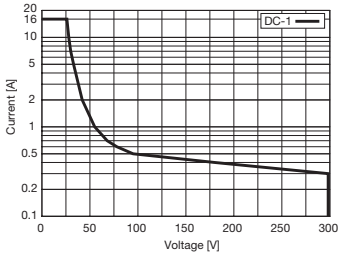

### fig. 1. Wiring diagram



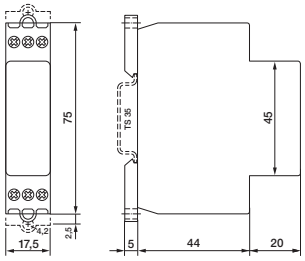

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CIM3R

## Multifunction | 24 … 240 V AC / DC | 1 CO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: F, Q, G 3: I, P, H |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 16 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 4,000 VA |
| Mechanical endurance (cycles) | ≥ 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

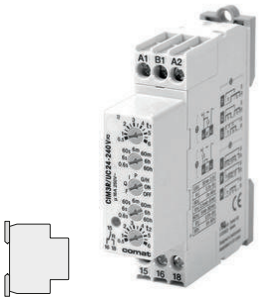
### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

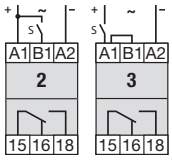
### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM3R/UC...V | ✓ |

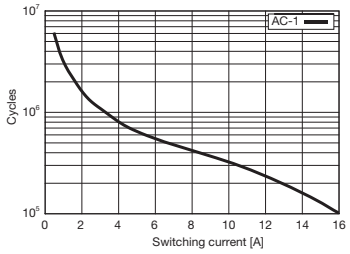
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



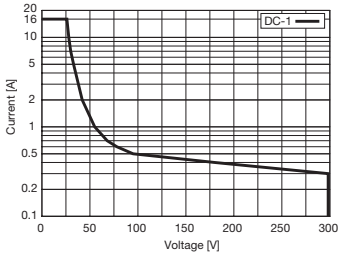

### fig. 1. Wiring diagram



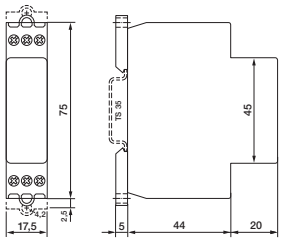

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# CIM32

## Multifunction | 24 … 240 V AC / DC | 1 TRIAC




### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: F, Q, G 3: I, P, H |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | TRIAC |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 2 A |
| Minimum load | 50 mA, 12 V |
| Inrush current | 100 A, 10 ms |
| Rated limit load | 78 A²s |
| Typ. leakage current | 1 mA |
| Rated load AC-1 | 300 VA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load AC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

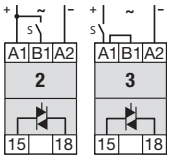
| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

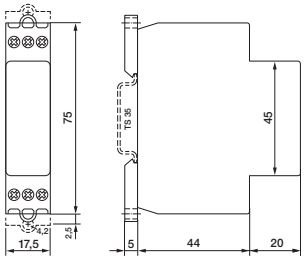
| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM32/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CIM32R

## Multifunction | 24 … 240 V AC / DC | 1 TRIAC

### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: F, Q, G 3: I, P, H |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | TRIAC |
| Rated voltage | 250 V AC |
| Switching at zero crossing | yes ($t_d$ > 0.6 s) |
| Rated current | 2 A |
| Minimum load | 50 mA, 12 V |
| Inrush current | 100 A, 10 ms |
| Rated limit load | 78 A²s |
| Typ. leakage current | 1 mA |
| Rated load AC-1 | 300 VA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load AC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM32R/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

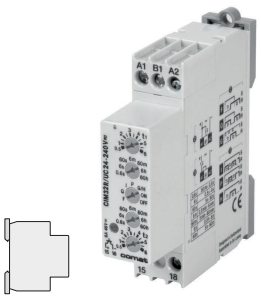


**fig. 1. Wiring diagram**

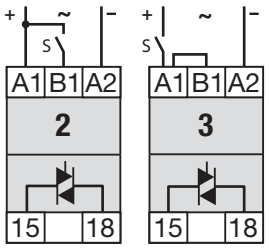
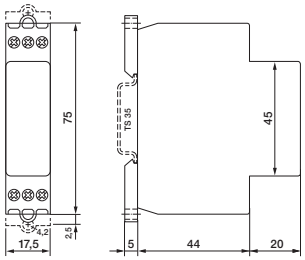



**fig. 2. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# CIM33

## Multifunction | 24 … 240 V AC / DC | 1 MOSFET

**Time data**

| | |
|---|---|
| Timing functions | fig. 1 2: F, Q, G 3: I, P, H |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

**Main circuit**

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Rated current | 5 A |
| Minimum load | 1 mA, 1 V |
| Inrush current | 40 A, 10 us |
| Typ. leakage current | 10 µA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 60 °C |
| Ambient temperature operation derated power | -40 … 60 °C ($I_N$ 4 A) |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM33/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.




**fig. 1. Wiring diagram**

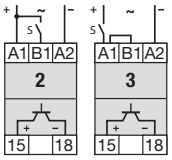
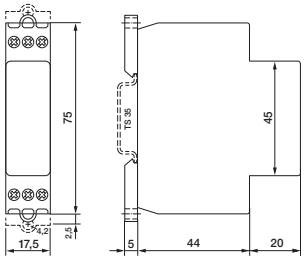



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947

Approvals

# 2.2 Multifunction Time Relays
## CIM33R
### Multifunction | 24 … 240 V AC / DC | 1 MOSFET

**Time data**

| | |
|---|---|
| Timing functions | fig. 1 2: F, Q, G 3: I, P, H |
| Timing range | 50 ms … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

**Main circuit**

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Rated current | 5 A |
| Minimum load | 1 mA, 1 V |
| Inrush current | 40 A, 10 us |
| Typ. leakage current | 10 µA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 16.8 … 250 V AC / DC |
| Power consumption AC / DC | 1.2 VA / 430 mW |
| Current consumption on supply A1-A2 AC / DC | < 23 mA / < 23 mA |
| Current consumption on input control B1 AC / DC | < 22 mA / < 22 mA |
| Threshold voltage on input control B1 AC / DC | 13 V / 15 V |
| Frequency range | 0; 16 ... 63 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -40 ... 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

**Product references**

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CIM33R/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

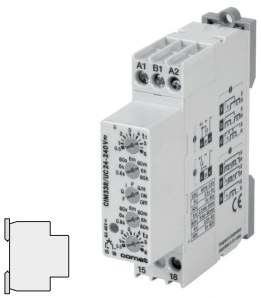


**fig. 1. Wiring diagram**

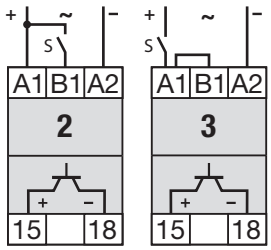
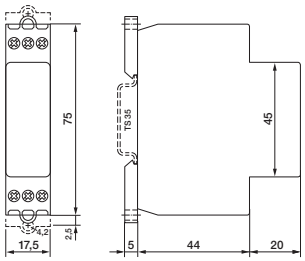



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# AL1

## Staircase switch | Auto - ON | 220 … 240 V AC | 1 NO





### Time data

| | |
|---|---|
| Timing functions | L |
| Timing range | 30 s ... 10 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 NO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 16 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 220 … 240 V AC |
| Operating voltage range | 187 ... 265 V AC |
| Power consumption AC / DC | 10.8 VA / - |
| Current consumption on supply A1-A2 AC / DC | < 45 mA / - |
| Current consumption on input control B1 AC / DC | < 28 mA / - |
| Threshold voltage on input control B1 AC / DC | 154 V / - |
| Frequency range | 48 … 62 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 40 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 71 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 220-240 |
|---|---|---|
| AC supply | AL1/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

**fig. 1. Wiring diagram**

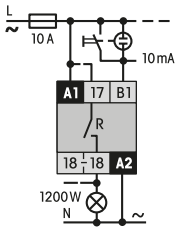



**fig. 2. AC voltage endurance**

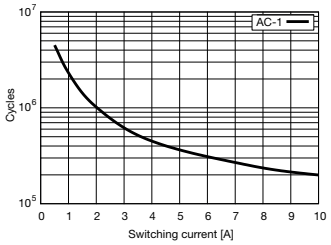



**fig. 3. DC load limit curve**

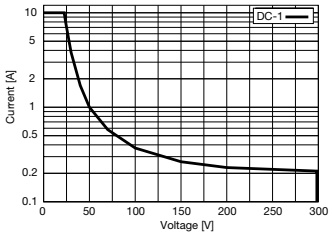
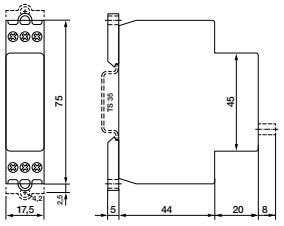



**fig. 4. Dimensions (mm)**




## Technical approvals, conformities

Standards: IEC/EN 60947

# AL3

## Staircase switch | Auto-ON | 24 V AC / DC | 220…240 V AC | 1 NO, pre-contact

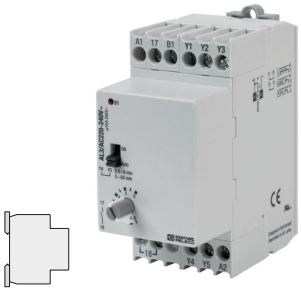


fig. 1. Wiring diagram

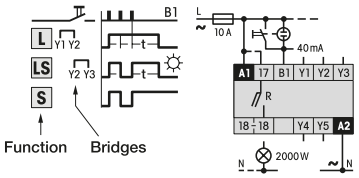
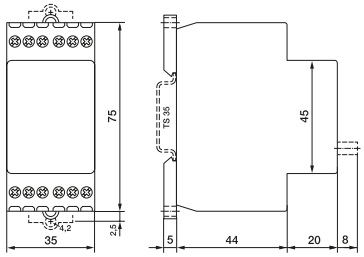



fig. 2. Dimensions (mm)




### Time data

| | |
|---|---|
| Timing functions | L, LS, S |
| Timing range | 30 s - 60 min |
| Timing scale | 6 min / 60 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 NO |
| Available contact materials | W + $AgSnO_2$ |
| Rated voltage | 250 V |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 600 A, 2.5 ms / 120 A, 20 ms |
| Rated load DC | 210 W, 30 V |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 5 000 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 V AC/DC | 220 … 240 V AC |
| Operating voltage range | 19.2 .. 30 V AC/DC | 187 .. 265 V AC |
| Power consumption AC / DC | 2.5 VA / 2.5 VA | 2.5 VA / - |
| Current consumption on supply A1-A2 AC / DC | < 130 mA / < 130 mA | < 13 mA / - |
| Current consumption on input control B1 AC / DC | < 500 mA / < 500 mA | < 120 mA / - |
| Threshold voltage on input control B1 AC / DC | 9 ... 18 V / 9 ... 18 V | 130 ... 175 V / - |
| Frequency range | 0; 48 … 62 Hz | 48 … 62 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 98 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24 | 220-240 |
|---|---|---|---|
| AC supply | AL3/AC...V | | ✓ |
| AC / DC supply | AL3/UC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# AL4

## Staircase switch |Auto-ON| Central ON-OFF| 220..240 V AC |1 NO,pre-contact



### Time data

| | |
|---|---|
| Timing functions | fig. 1 L, LS, S |
| Timing range | 30 s - 60 min |
| Timing scale | 6 min / 60 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 NO |
| Available contact materials | W + $AgSnO_2$ |
| Rated voltage | 250 V |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 600 A, 2.5 ms / 120 A, 20 ms |
| Rated load DC | 210 W, 30 V |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 5 000 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 220 … 240 V AC |
| Operating voltage range | 187... 265 V AC |
| Power consumption AC / DC | 2.5 VA / - |
| Current consumption on supply A1-A2 AC / DC | < 13 mA / - |
| Current consumption on input control B1 AC / DC | < 120 mA / - |
| Threshold voltage on input control B1 AC / DC | 130 ... 175 V / - |
| Frequency range | 48 … 62 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 98 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 220-240 |
|---|---|---|
| AC supply | AL4/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

**fig. 1. Wiring diagram**

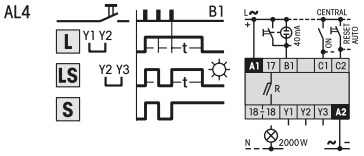
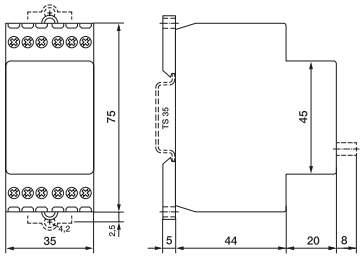



**fig. 2. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# AL5

## Step switch | Auto - ON | Central ON - OFF | 230 V AC | 1 NO, pre-contact

**Time data**

| | |
|---|---|
| Timing functions | S |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 NO |
| Available contact materials | W + $AgSnO_2$ |
| Rated voltage | 250 V |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 600 A, 2.5 ms / 120 A, 20 ms |
| Rated load DC | 210 W, 30 V |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 5 000 |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 230 V AC |
| Operating voltage range | 187 .. 265 V AC |
| Power consumption AC / DC | 2.5 VA / - |
| Current consumption on supply A1-A2 AC / DC | < 13 mA / - |
| Current consumption on input control B1 AC / DC | < 120 mA / - |
| Threshold voltage on input control B1 AC / DC | 130 ... 165 V / - |
| Frequency range | 48 ... 62 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 2.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 98 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 230 |
|---|---|---|
| AC supply | AL5/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



**fig. 1. Wiring diagram**

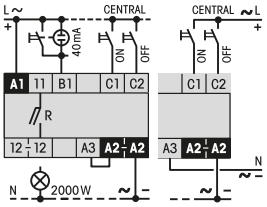
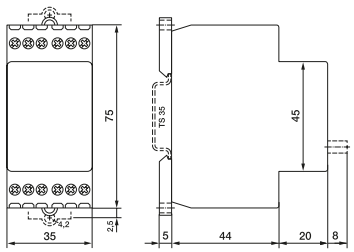



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947

Approvals

# AM1

## Multifunction | 24 … 60 V AC / DC | 110 … 240 V AC / DC | 1 CO

**Time data**

| | |
|---|---|
| Timing functions | E, W, B |
| Timing range | 0.5 s … 6 s / 5 s ... 60 s / 0.5 min … 6 min / 5 min … 60 min |
| Timing scale | 6 min / 60 min |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | $AgSnO_2$ |
| Rated voltage | 250 V |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 16 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Control circuit**

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC |
| Operating voltage range | 20 … 75 V AC / DC | 90 … 265 V AC / DC |
| Power consumption AC / DC | 1.8 VA / 1.8 W | 2.4 VA / 2.4 W |
| Current consumption on supply A1-A2 AC / DC | < 30 mA / < 30 mA | < 10 mA / - |
| Threshold voltage on input control B1 AC / DC | 10 V /10 V | 40 V / 40 V |
| Frequency range | 0; 40 ... 60 Hz | 0; 40 ... 60 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$ / 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 24-60 | 110-240 |
|---|---|---|---|
| AC / DC supply | AM1/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



fig. 1. Wiring diagram

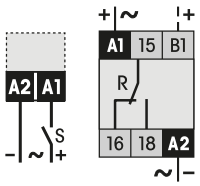



fig. 2. AC voltage endurance

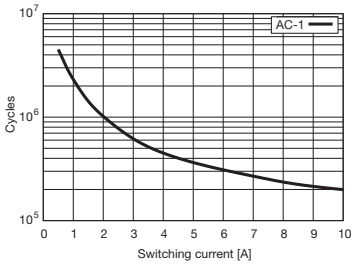



fig. 3. DC load limit curve

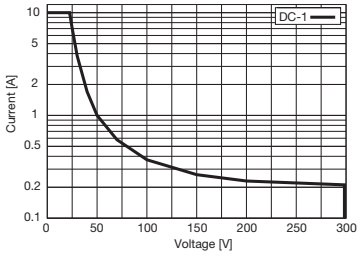
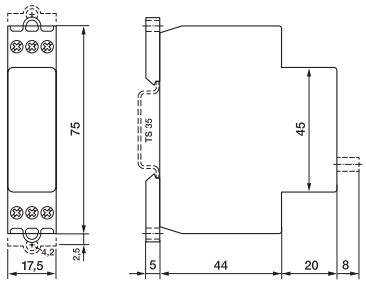



fig. 4. Dimensions (mm)




## Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# AM2

## Multifunction | 24 … 60 V AC / DC | 220 … 240 V AC | 1 CO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K 3: W |
| Timing range | 0.5 s … 6 s / 5 s ... 60 s / 0.5 min … 6 min / 5 min … 60 min |
| Timing scale | 6 min / 60 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | $AgSnO_2$ |
| Rated voltage | 250 V |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 16 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 220 ... 240 V AC |
| Operating voltage range | 20 … 75 V AC / DC | 180 … 265 V AC |
| Power consumption AC / DC | 2.4 VA / 2.4 W | 3.6 VA / - |
| Current consumption on supply A1-A2 AC / DC | < 40 mA / < 40 mA | < 15 mA / - |
| Current consumption on input control B1 AC / DC | < 25 mA / < 25 mA | < 10 mA / - |
| Threshold voltage on input control B1 AC / DC | 18 V /18 V | 170 V / - |
| Frequency range | 0; 40 ... 60 Hz | 0; 40 ... 60 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 70 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24-60 | 220-240 |
|---|---|---|---|
| AC supply | AM2/AC...V | | ✓ |
| AC / DC supply | AM2/UC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

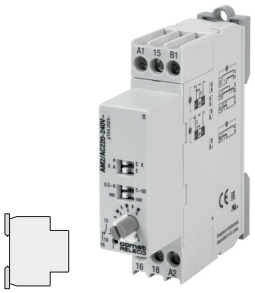


fig. 1. Wiring diagram

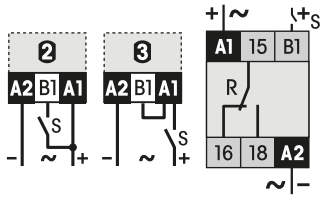



fig. 2. AC voltage endurance

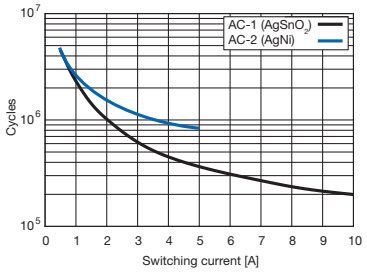



fig. 3. DC load limit curve

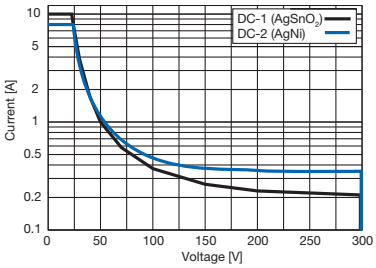
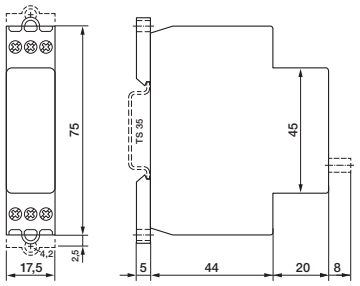



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# AM3

## Multifunction | 24 … 60 V AC / DC | 110 … 240 V AC / DC | 2 CO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K 3: W |
| Timing range | 0.5 s … 6 s / 5 s ... 60 s / 0.5 min … 6 min / 5 min … 60 min |
| Timing scale | 6 min / 60 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | $AgSnO_2$ |
| Rated voltage | 250 V |
| Rated current | 10 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 16 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,500 VA |
| Mechanical endurance (cycles) | 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 220 ... 240 V AC |
| Operating voltage range | 19 … 75 V AC / DC | 187 … 265 V AC |
| Power consumption AC / DC | 3.0 VA / 3.0 W | 3.6 VA / - |
| Current consumption on supply A1-A2 AC / DC | < 50 mA / < 50 mA | < 15 mA / - |
| Current consumption on input control B1 AC / DC | < 20 mA / < 20 mA | < 5 mA / - |
| Threshold voltage on input control B1 AC / DC | 19 V /19 V | 187 V / - |
| Frequency range | 0; 40 ... 60 Hz | 0; 40 ... 60 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$, 2 x 1.5 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 110 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24-60 | 220-240 |
|---|---|---|---|
| AC supply | AM3/AC...V | | ✓ |
| AC / DC supply | AM3/UC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

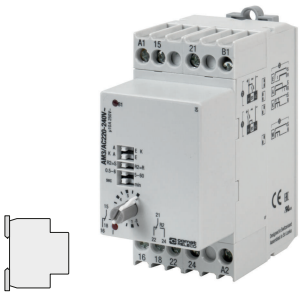


fig. 1. Wiring diagram

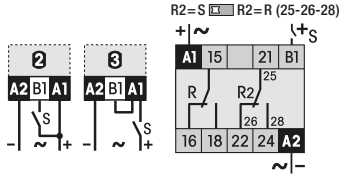



fig. 2. AC voltage endurance

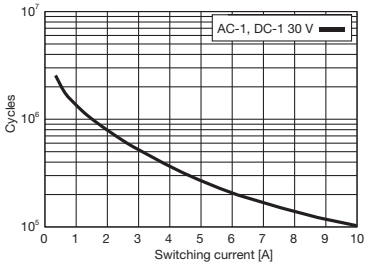



fig. 3. DC load limit curve

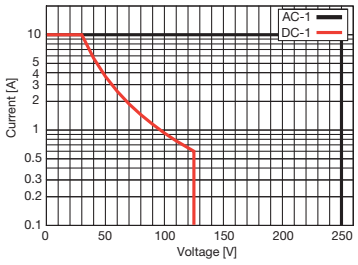
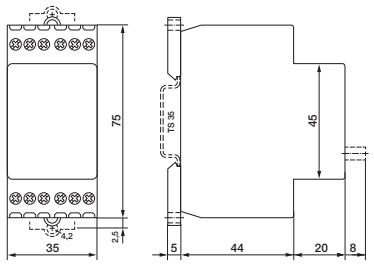



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CM2

## Multifunction | 24 … 60 V AC / DC | 110 … 240 V AC / DC | 1 NO + 1 CO



### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: E, A, K 3: E, W |
| Timing range | 0.3 s … 3 s / 1.2 s … 12 s / 0.15 min … 1.5 min / 1.2 min … 12 min / 0.15 h … 1.5 h / 1.2 h … 12 h |
| Timing scale | 3 s / 12 s / 1.5 min / 12 min / 1.5 h / 12 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 NO + 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 6 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | 100 W, 24 V |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 10 000 000 |
| Electrical endurance at rated load DC-1 (cycles) | 5 000 000 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC |
| Operating voltage range | 19 … 75 V AC / DC | 90 … 265 V AC |
| Power consumption AC / DC | 3.6 VA / 4.8 W | 6 VA / 6 W |
| Current consumption on supply A1-A2 AC / DC | < 60 mA / < 80 mA | < 25 mA / < 25 mA |
| Current consumption on input control B1 AC / DC | < 20 mA / < 20 mA | < 10 mA / < 10 mA |
| Threshold voltage on input control B1 AC / DC | 18 V /20 V | 70 V / 85 V |
| Frequency range | 0; 40 ... 60 Hz | 0; 40 ... 60 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

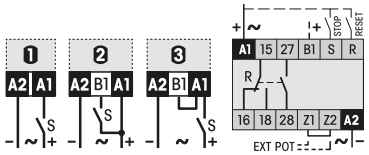
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 139 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

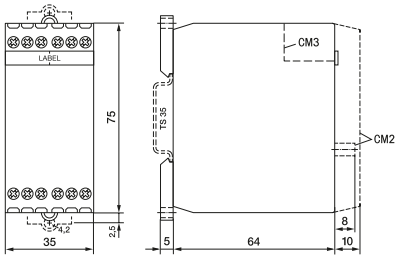
| Description | Type | 24-60 | 110-240 |
|---|---|---|---|
| AC / DC supply | CM2/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)



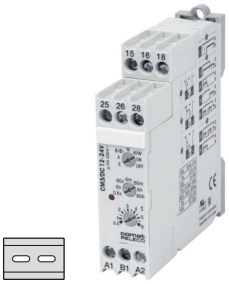

### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CM3

## Multifunction | 12 … 24 V DC | 24 … 48 V DC, 24 … 240 V AC | 2 CO



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: A, K, N, B1 3: B, W |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 5 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 15 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 12 ... 24 V DC | 24 ... 48 V DC / 24 ... 240 V AC |
| Operating voltage range | 9.6 … 28.8 V DC | 19 … 250 V AC / 19 ... 60 V DC |
| Power consumption AC / DC | - / 1.2 W | 15 VA / 1.2 W |
| Current consumption on supply A1-A2 AC / DC | - / < 45 mA | < 40 mA / < 40 mA |
| Current consumption on input control B1 AC / DC | - / < 13.8 mA | < 6 mA / < 6 mA |
| Threshold voltage on input control B1 AC / DC | - / 5.8 ... 6.5 V | 11 ... 13 V / 13 ... 18 V |
| Frequency range | - | 0; 45 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage main / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

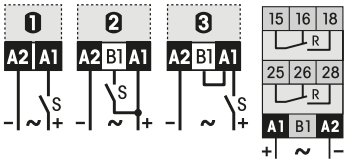
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 72 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

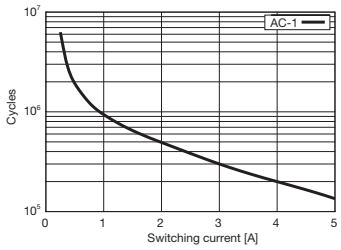
| Description | Type | 12-24 | 24-48 |
|---|---|---|---|
| AC / DC supply | CM3/DC…V/AC…V | | ✓ |
| DC supply | CM3/DC...V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

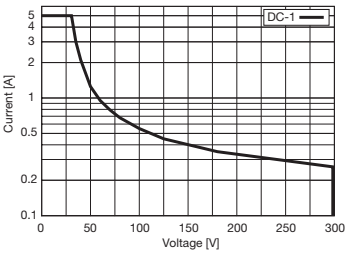
### fig. 1. Wiring diagram



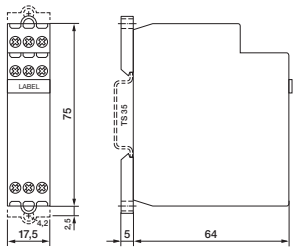

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



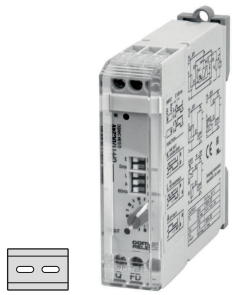

### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CPF11

## Pulse extension | 24 V DC | 1 PNP Transistor



### Time data

| | |
|---|---|
| Timing functions | A, K, L |
| Timing range | 5 ms … 60 ms / 50 ms … 600 ms |
| Timing scale | 60 ms / 600 ms |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | PNP Transistor |
| Output voltage range | 10 … 32 V (Potential of +) |
| Rated current | 0.8 A |
| Inrush current | 2 A, 5 s |
| Typ. leakage current | 1 µA |
| Rated load DC | 0.8 A, 32 V |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 15 … 32 V DC |
| Power consumption AC / DC | - / 0.4 W |
| Current consumption on supply A1-A2 AC / DC | - / 16 mA |
| Current consumption on input control B1 AC / DC | E1: 5 mA @ 24 V; E2: 1.8 mA @ 24 V |
| Threshold voltage on input control B1 AC / DC | E1: 10 V; E2: 16 V |
| Frequency range | DC |

### Insulation

| | |
|---|---|
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 50 °C |
| Ambient temperature operation derated power | -25 … 60 °C ($I_N$ 0.7 A) |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 60 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

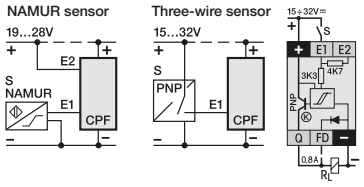
| Description | Type | 24 |
|---|---|---|
| DC supply | CPF11/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

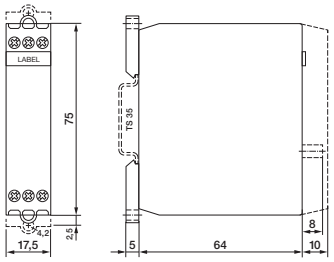
### Accessories

| | |
|---|---|
| Labels | BZS DIN 175MM |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CRV4

## Multifunction | 24 … 240 V AC / DC | 1 CO | External potentiometer

**Time data**

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: E, A, K, N, M, B1, F, G, Q, L, S, LS 3: W, B, B2, H |
| Timing range | t (t1) 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h … 6 h / 5 h … 60 h t2 (G/H 1) 60 ms / 0.6 s / 6 s / 0.6 min / 6 min / 0.6 h / 6 h t2 (G/H 2) 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 15 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 19.2 … 250 V AC / DC |
| Power consumption AC / DC | 0.55 VA / 0.55 W |
| Current consumption on supply A1-A2 AC / DC | 6 mA / 6 mA |
| Current consumption on input control B1 AC / DC | 4 mA / 7 mA |
| Threshold voltage on input control B1 AC / DC | 14.5 V / 17.5 V |
| Frequency range | 0; 40 ... 60 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Nominal screw torque control / main circuit | 0.5 Nm |

**Housing and environmental conditions**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Ingress Protection | IP 20 |
| Weight | 50 g |
| Operation Position | Any |
| Housing material | PC |
| Dimensions | fig. 4 |

**Wiring**

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1 mm² |

**Product references**

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | CRV4/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

**Accessories**

| | |
|---|---|
| External potentiometer | SP-01/100K |

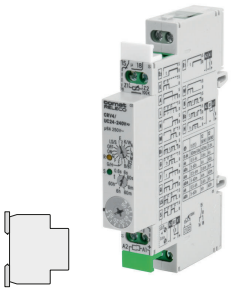


fig. 1. Wiring diagram

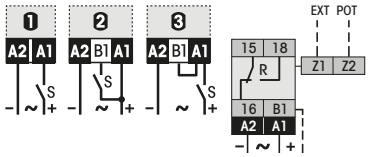



fig. 2. AC voltage endurance

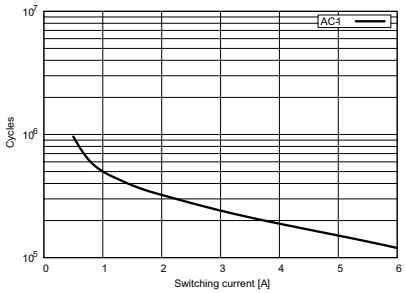



fig. 3. DC load limit curve

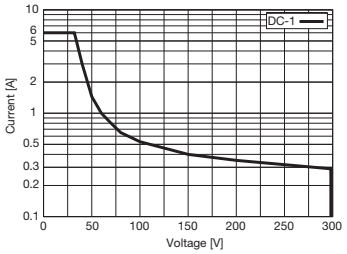
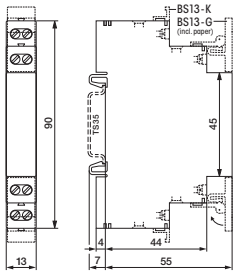



fig. 4. Dimensions (mm)




**Technical approvals, conformities**

Standards IEC/EN 60947

Approvals

# CSV4

## Multifunction | 12 ... 36 V DC | 1 MOSFET | External potentiometer

**Time data**

| | |
|---|---|
| Timing functions | fig. 1 1: E 2: E, A, K, N, M, B1, F, G, Q, L, S, LS 3: W, B, B2, H |
| Timing range | t (t1) 0.8 ms … 10 ms / 8 ms … 100 ms / 80 ms … 1 s / 0.8 s … 10 s / 5 s … 1 min / 0.8 min … 10 min / 8 min … 1 h / 0.8 h … 10 h t2 (G/H 1) 1 ms / 10 ms / 0.1 s / 1 s / 6 s / 1 min / 6 min / 1 h t2 (G/H 2) 10 ms / 0.1 s / 1 s / 10 s / 1 min / 10 min / 1 h / 10 h |
| Timing scale | 0.1 s / 1 s / 10 s / 1 min / 10 min / 1 h / 10 h |

**Main circuit**

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET |
| Output voltage range | 10.2 ... 45 V (Potential of A1) |
| Rated current | 1.5 A |
| Minimum load | 1 mA, 10.2 V |
| Inrush current | 4 A, 100 ms |
| Typ. leakage current | 10 µA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 12 ... 36 V DC |
| Operating voltage range | 10.2 ... 45 V DC |
| Power consumption AC / DC | - / 0.2 W |
| Current consumption on supply A1-A2 AC / DC | - / 8 mA |
| Current consumption on input control B1 AC / DC | - / 4 mA |
| Threshold voltage on input control B1 AC / DC | - / 7.3 V |
| Frequency range | DC |

**Insulation**

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Nominal screw torque control / main circuit | 0.5 Nm |

**Housing and environmental conditions**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Ingress Protection | IP 20 |
| Weight | 50 g |
| Operation Position | Any |
| Housing material | PC |
| Dimensions | fig. 2 |

**Wiring**

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1 mm² |

**Accessories**

| | |
|---|---|
| External potentiometer | SP-01/100K |

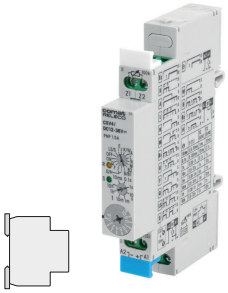


**fig. 1. Wiring diagram**

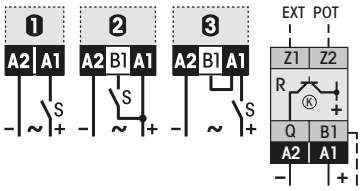
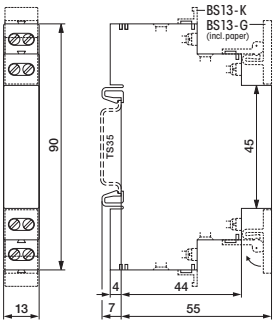



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947

Approvals

## Notes

# 2.3 Star-Delta Relays


| | Type | Pin | Page |
|---|---|---|---|
| **CY Series** | | | |
| Star-Delta \| 24 ... 60 V AC / DC \| 110 ... 240 V AC / DC \| 1 NO + 1 CO | CY1 | | 250 |

# CY1

## Star-Delta | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC | 1 NO + 1 CO



### Time data

| | |
|---|---|
| Timing functions | Y |
| Timing range | Star time: 0.5 s … 6 s / 5 s … 60 s Switchover time: 50 ms / 100 ms |
| Timing scale | 6 s / 60 s |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 NO + 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC |
| Operating voltage range | 20 … 75 V AC/DC | 90 … 265 V AC/DC |
| Power consumption AC / DC | 1 VA / 1 W | 1 VA / 1 W |
| Current consumption on supply A1-A2 AC / DC | 35 mA / 35 mA | 10 mA / 10 mA |
| Frequency range | 0; 40 ... 60 Hz | 0; 40 ... 60 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 4 |
| Weight | 76 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24-60 | 110-240 |
|---|---|---|---|
| AC / DC supply | CY1/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Accessories

| | |
|---|---|
| Labels | BZS DIN 175MM |



**fig. 1. Wiring diagram**

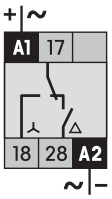



**fig. 2. AC voltage endurance**

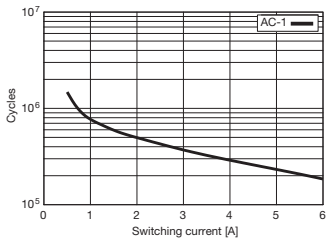



**fig. 3. DC load limit curve**

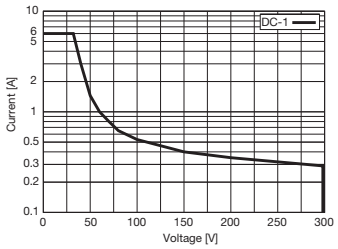
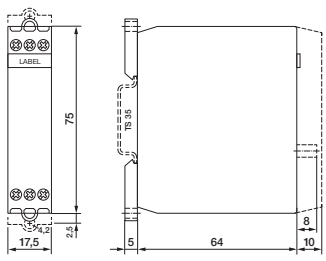



**fig. 4. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# 2.4 Time Relays - pluggable


| | Type | Pin | Page |
|---|---|---|---|
| **C Series** | | | |
| Multifunction \| 24 … 60 V AC / DC \| 110 … 240 V AC / DC \| 2 CO | C55 | | 252 |
| Multifunction \| 24 … 60 V AC/DC \| 110 … 240 V AC/DC \| 1 MOSFET | C55.3 | | 253 |
| Multifunction \| 24 V DC \| 1 MOSFET | C55.4 | | 254 |
| Multifunction \| 24…60 V AC / DC \| 110…240 V AC / DC \| 1 CO, 1 NO | C56 | | 255 |
| Multifunction \| 24 … 60 V AC / DC \| 110 … 240 V AC / DC \| 2 CO | C64 | | 256 |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO | C83 | | 257 |
| Multifunction \| 24 … 240 V AC / DC \| 1 CO | C85 | | 258 |
| **CS Series** | | | |
| Multifunction \| 12 … 240 V AC / DC \| 1 CO \| External potentiometer | CS2 | | 259 |
| Multifunction \| 12 … 240 V AC / DC \| 2 CO | CS3 | | 260 |
| **RS Series** | | | |
| Multifunction \| 24 … 48 V AC / DC \| 220 … 240 V AC \| 1 CO | RS 41-M | | 261 |

# C55

## Multifunction | 24 … 60 V AC / DC | 110 … 240 V AC / DC | 2 CO



### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: E, A, K, W, H, N, M, B, G, F, Q, I, P 3: E, W, H, B, I, P 4: U, V |
| Timing range | 0.01 s … 60 d |
| Timing scale | digital |

### Main circuit

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 5 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC |
| Operating voltage range | 19 … 75 V AC / DC | 88 … 265 V AC / DC |
| Power consumption AC / DC | 2 VA / 2 W | 2 VA / 2 W |
| Current consumption on supply A1-A2 AC / DC | 80 mA/ 80 mA | 15 mA / 15 mA |
| Current consumption on input control B1 AC / DC | 6.3 mA / 6.3 mA | 4.2 mA / 4.2 mA |
| Threshold voltage on input control B1 AC / DC | 11 V / 11 V | 50 V / 50 V |
| Frequency range | 0; 50 ... 400 Hz | 0; 50 ... 400 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

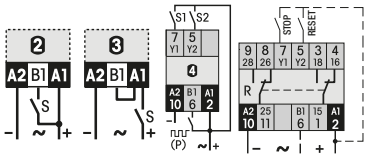
| Description | Type | 24-60 | 110-240 |
|---|---|---|---|
| AC / DC supply | C55/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

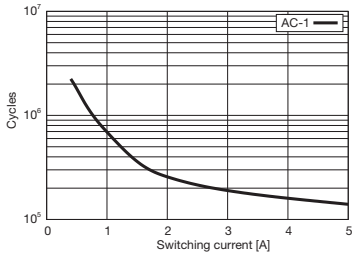
### Accessories

| | |
|---|---|
| Socket | S3-M |
| Frontpanel mounting set | FZ-50L |
| Retaining spring | steel | HF-50 (BAG 10 PCS) |

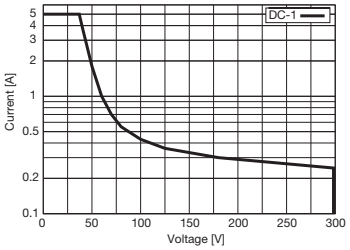
### fig. 1. Wiring diagram



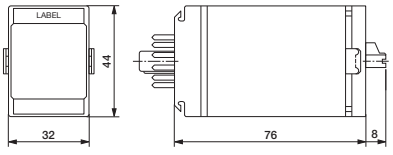

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# C55.3

## Multifunction | 24 … 60 V AC/DC | 110 … 240 V AC/DC | 1 MOSFET



### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: E, A, K, W, H, N, M, B, G, F, Q, I, P 3: E, W, H, B, I, P 4: U, V |
| Timing range | 0.01 s … 60 d |
| Timing scale | digital |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET AC and DC |
| Output voltage range | 10 … 265 V |
| Rated current | 0.5 A |
| Minimum load | 1 mA, 10 V |
| Inrush current | 6 A, 2 us |
| Rated load AC-1 | 132 VA |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load AC-1 (cycles) | ∞ |
| Electrical endurance at rated load DC-1 (cycles) | ∞ |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC |
| Operating voltage range | 19 … 75 V AC / DC | 88 … 265 V AC / DC |
| Power consumption AC / DC | 2 VA / 2 W | 2 VA / 2 W |
| Current consumption on supply A1-A2 AC / DC | 80 mA/ 80 mA | 15 mA / 15 mA |
| Current consumption on input control B1 AC / DC | 6.3 mA / 6.3 mA | 4.2 mA / 4.2 mA |
| Threshold voltage on input control B1 AC / DC | 11 V / 11 V | 50 V / 50 V |
| Frequency range | 0; 50 ... 400 Hz | 0; 50 ... 400 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 2 |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

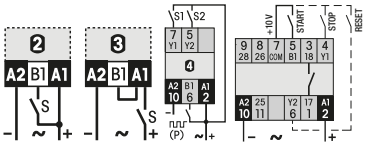
| Description | Type | 24-60 | 110-240 |
|---|---|---|---|
| AC / DC supply | C55.3/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

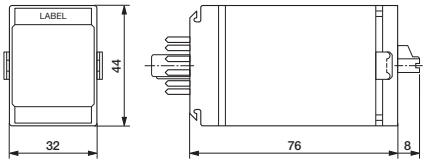
### Accessories

| | |
|---|---|
| Socket | S3-M |
| Frontpanel mounting set | FZ-50L |
| Retaining spring I steel | HF-50 (BAG 10 PCS) |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# C55.4

## Multifunction | 24 V DC | 1 MOSFET



### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: E, A, K, W, H, N, M, B, G, F, Q, I, P 3: E, W, H, B, I, P 4: U, V |
| Timing range | 0.01 s … 60 d |
| Timing scale | digital |

### Main circuit

| | |
|---|---|
| Number of outputs | 1 NO |
| Output type | MOSFET |
| Output voltage range | 19 … 30 V |
| Rated current | 2 A |
| Minimum load | 1 mA, 5 V |
| Inrush current | 40 A, 150 us |
| Mechanical endurance (cycles) | ∞ |
| Electrical endurance at rated load AC-1 (cycles) | ∞ |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 19 … 30 V DC |
| Power consumption AC / DC | - / 300 mW |
| Current consumption on supply A1-A2 AC / DC | - / 80 mA |
| Current consumption on input control B1 AC / DC | - / 5.5 mA |
| Threshold voltage on input control B1 AC / DC | - / 10 V |
| Frequency range | DC |

### Insulation

| | |
|---|---|
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 2 |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

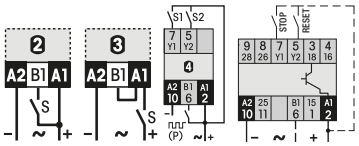
| Description | Type | 24 |
|---|---|---|
| DC supply | C55.4/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

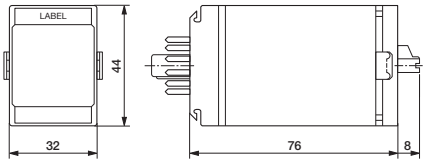
### Accessories

| | |
|---|---|
| Socket | S3-M |
| Frontpanel mounting set | FZ-50L |
| Retaining spring | steel | HF-50 (BAG 10 PCS) |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# C56

## Multifunction | 24…60 V AC / DC | 110…240 V AC / DC | 1 CO, 1 NO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 6: E, A, K, W, H, N, M, B, G, F, Q, I, P 7: E, W, H, B, I, P 5: U, V |
| Timing range | 0.01 s … 60 d |
| Timing scale | digital |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO, 1 NO ( Potential-free control ) |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 5 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC |
| Operating voltage range | 19 … 75 V AC / DC | 88 … 265 V AC / DC |
| Power consumption AC / DC | 2 VA / 2 W | 2 VA / 2 W |
| Current consumption on supply A1-A2 AC / DC | 80 mA/ 80 mA | 15 mA / 15 mA |
| Frequency range | 0; 50 ... 400 Hz | 0; 50 ... 400 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24-60 | 110-240 |
|---|---|---|---|
| AC / DC supply | C56/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

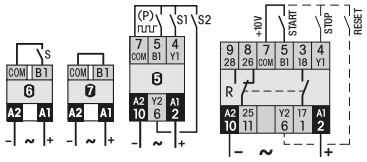
### Accessories

| | |
|---|---|
| Socket | S3-M |
| Frontpanel mounting set | FZ-50L |
| Retaining spring I steel | HF-50 (BAG 10 PCS) |

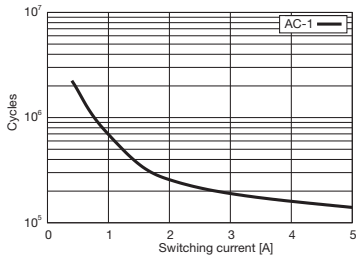




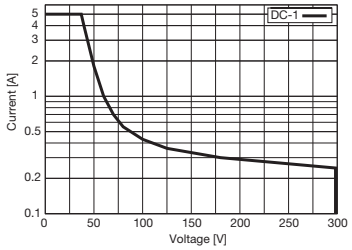
### fig. 1. Wiring diagram



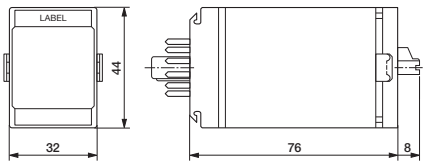

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# C64

## Multifunction | 24 … 60 V AC / DC | 110 … 240 V AC / DC | 2 CO



### Time data

| | |
|---|---|
| Timing functions | A, N ( Off delay without control voltage ) |
| Timing range | 0.1 s … 1.2 s / 1 s … 12 s / 10 s … 120 s / 1.7 min … 20 min |
| Timing scale | 1.2 s / 12 s / 120 s / 20 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 5 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 24 ... 60 V AC / DC | 110 ... 240 V AC / DC |
| Operating voltage range | 20 ... 75 V AC / DC | 88 ... 265 V AC / DC |
| Power consumption AC / DC | 0.9 VA / 0.9 W | 1.2 VA / 1.2 W |
| Current consumption on supply A1-A2 AC / DC | 15 mA / 15 mA | 5 mA / 5 mA |
| Frequency range | 0; 50 ... 400 Hz | 0; 50 ... 400 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 75 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

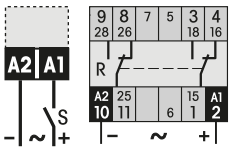
| Description | Type | 24-60 | 110-240 |
|---|---|---|---|
| AC / DC supply | C64/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

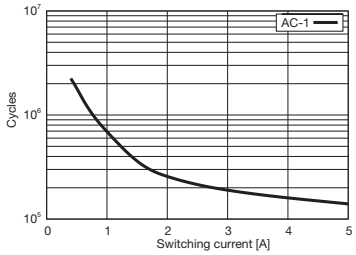
### Accessories

| | |
|---|---|
| Socket | S3-M |
| Retaining spring I steel | HF-50 (BAG 10 PCS) |

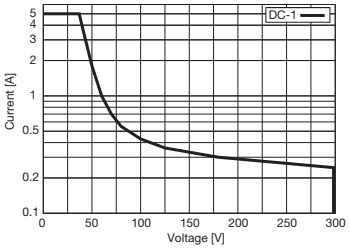
### fig. 1. Wiring diagram



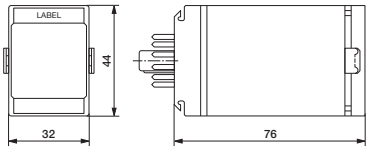

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)



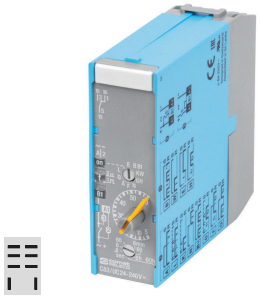

### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# C83

## Multifunction | 24 … 240 V AC / DC | 1 CO



### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: E, A, N, L, F, K, G, B1, Q 3: E, W, H, B |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h ... 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 8 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,000 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 20 ... 265 V AC / DC |
| Power consumption AC / DC | 10 VA / 1.8 W |
| Current consumption on supply A1-A2 AC / DC | < 40 mA / < 35mA |
| Current consumption on input control B1 AC / DC | 6.5 mA / 3.5 mA |
| Threshold voltage on input control B1 AC / DC | = 0.32 x Operating Voltage + 6 (min)<br>= 0.38 x Operating Voltage + 9 (max) |
| Frequency range | 0; 45 … 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 85 °C |
| Operation temperature | -25 ... 60 °C |
| Dimensions | fig. 4 |
| Weight | 60 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

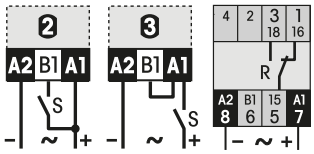
| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | C83/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control voltage to complete product references.

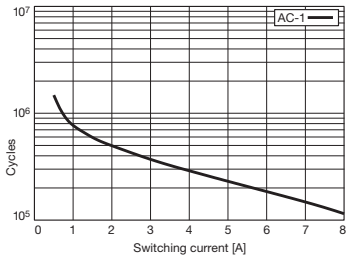
### Accessories

| | |
|---|---|
| Socket | S7-C |

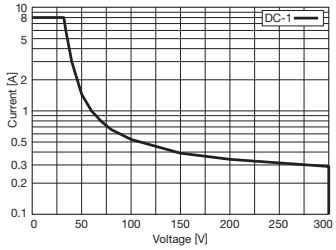
### fig. 1. Wiring diagram



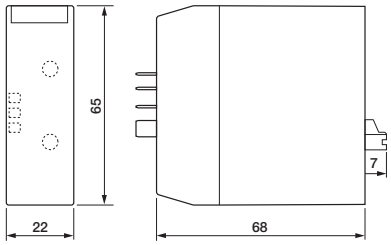

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# C85

## Multifunction | 24 … 240 V AC / DC | 1 CO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 2: F, G, Q, I, P 3: H, I, P |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h ... 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 8 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 24 … 240 V AC / DC |
| Operating voltage range | 20 ... 265 V AC/DC |
| Power consumption AC / DC | 10 VA / 1.8 W |
| Current consumption on supply A1-A2 AC / DC | < 40 mA / < 35mA |
| Current consumption on input control B1 AC / DC | 6.5 mA / 3.5 mA |
| Threshold voltage on input control B1 AC / DC | = 0.32 x Operating Voltage + 6 (min)<br>= 0.38 x Operating Voltage + 9 (max) |
| Frequency range | 0; 45...63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 63 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24-240 |
|---|---|---|
| AC / DC supply | C85/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### Accessories

| | |
|---|---|
| Socket | S7-C |

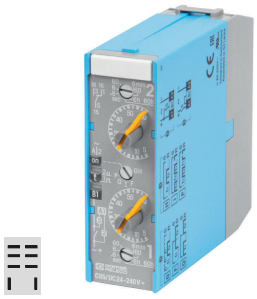


fig. 1. Wiring diagram

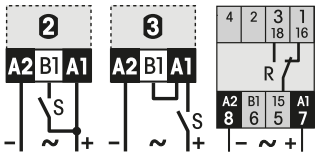



fig. 2. AC voltage endurance

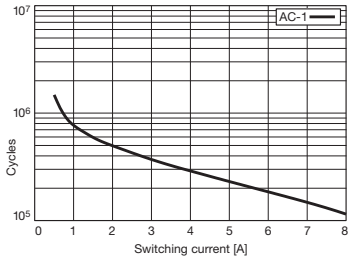



fig. 3. DC load limit curve

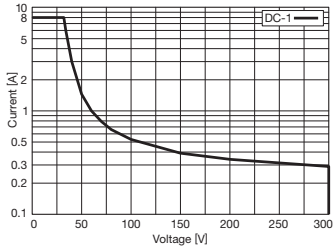
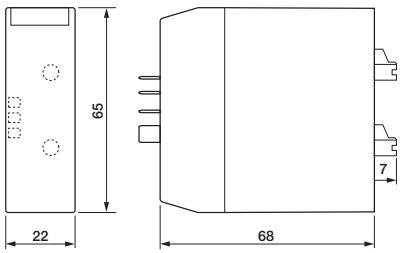



fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CS2

## Multifunction | 12 … 240 V AC / DC | 1 CO | External potentiometer



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E, W, B, B2 2: A, E, K, N |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h ... 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 8 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 30 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 2,000 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 12 … 240 V AC / DC |
| Operating voltage range | 10 … 265 V AC / DC |
| Power consumption AC / DC | 1.4 VA / 0.8 W |
| Current consumption on supply A1-A2 AC / DC | 50 mA / 7 mA |
| Current consumption on input control B1 AC / DC | 6 mA / 2 mA |
| Threshold voltage on input control B1 AC / DC | 6.5 V / 7 V |
| Frequency range | 0; 45 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 75 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

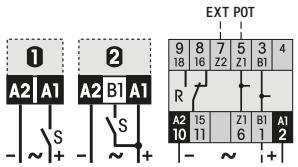
| Description | Type | 12-240 |
|---|---|---|
| AC / DC supply | CS2/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control voltage to complete product references.

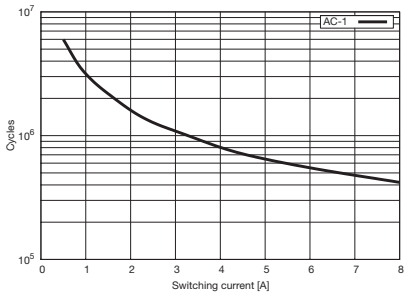
### Accessories

| | |
|---|---|
| External potentiometer | SP-01/1M |
| Socket | S3-M |
| Retaining spring I steel | HF-50 (BAG 10 PCS) |

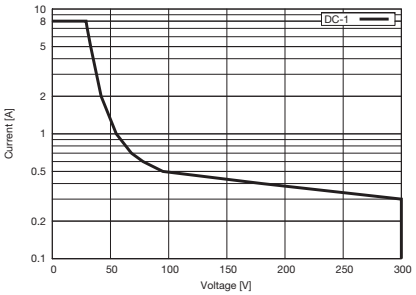
### fig. 1. Wiring diagram



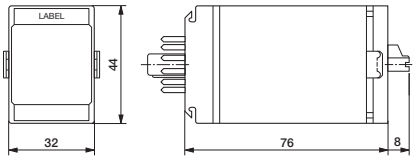

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# CS3

## Multifunction | 12 … 240 V AC / DC | 2 CO

### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E, W, B, B2 2: A, E, K, N |
| Timing range | 50 ms … 0.6 s / 0.5 s … 6 s / 5 s … 60 s / 0.5 min … 6 min / 5 min … 60 min / 0.5 h ... 6 h / 5 h … 60 h |
| Timing scale | 0.6 s / 6 s / 60 s / 6 min / 60 min / 6 h / 60 h |

### Main circuit

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 12 … 240 V AC / DC |
| Operating voltage range | 10 … 265 V AC / DC |
| Power consumption AC / DC | 1.4 VA / 0.8 W |
| Current consumption on supply A1-A2 AC / DC | 50 mA / 7 mA |
| Current consumption on input control B1 AC / DC | 6 mA / 2 mA |
| Threshold voltage on input control B1 AC / DC | 6.5 V / 7 V |
| Frequency range | 0; 45 ... 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage main / main circuit | 2.5 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 75 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 12-240 |
|---|---|---|
| AC / DC supply | CS3/UC...V | ✓ |

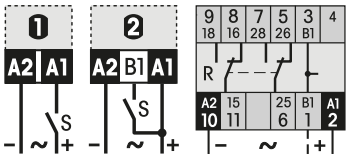
Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### Accessories

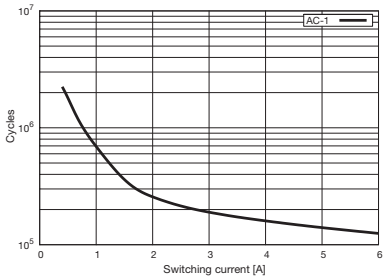
| | |
|---|---|
| Socket | S3-M |
| Retaining spring I steel | HF-50 (BAG 10 PCS) |



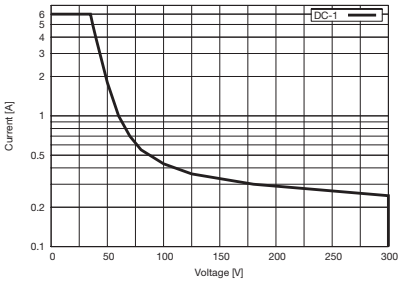
### fig. 1. Wiring diagram



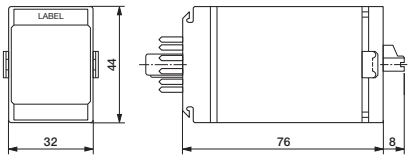

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# RS 41-M

## Multifunction | 24 … 48 V AC / DC | 220 … 240 V AC | 1 CO



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: W, I 4: E 5: A 6: K |
| Timing range | 0.1 s … 1.5 s / 1 s … 15 s / 0.1 min … 15 s / 1 min … 15 min |
| Timing scale | 1.5 s / 15 s / 15 min |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO ( floating ) |
| Available contact materials | AgNi |
| Rated voltage | 250 V |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Control circuit

| | | | |
|---|---|---|---|
| Nominal voltage | 24 … 48 V AC / DC | 110……120 V AC | 220 … 240 V AC / DC |
| Operating voltage range | 19 … 53 V AC / DC | 93…132 V AC | 187 … 265 V AC / DC |
| Power consumption AC / DC | 0.48 VA / 0.48 W | 2.4 VA / - | 2.4 VA / 2.4 W |
| Current consumption on supply A1-A2 AC / DC | 10 mA / 10 mA | 21 mA / - | 10 mA / 10 mA |
| Current consumption on input control B1 AC / DC | 2 mA / 2 mA | 2 mA / - | 2 mA / 2 mA |
| Threshold voltage on input control B1 AC / DC | 8 V from terminal 4 | 8 V from terminal 4 | 8 V from terminal 4 |
| Frequency range | 0; 45 … 63 Hz | 45 … 63 Hz | 0; 45 … 63 Hz |

### Insulation

| | |
|---|---|
| Rated test voltage control / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 75 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

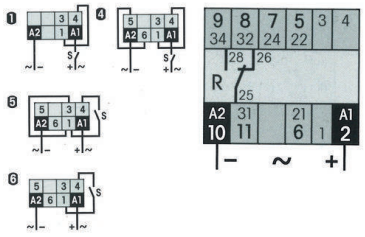
| Description | Type | 24-48 | 220-240 |
|---|---|---|---|
| AC supply | RS 41-M/ATX AC…V | | ✓ |
| AC / DC supply | RS 41-M/UFK UC…V | ✓ | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

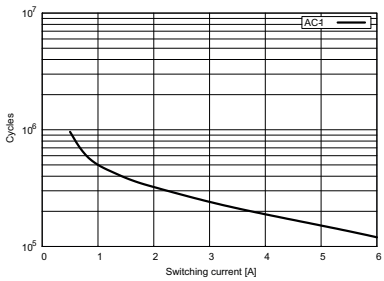
### Accessories

| | |
|---|---|
| Socket | S3-M |
| Retaining spring I steel | HF-50 (BAG 10 PCS) |

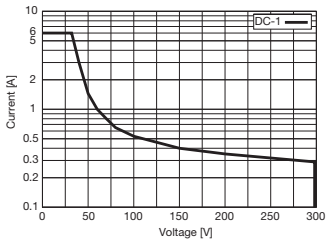
### fig. 1. Wiring diagram



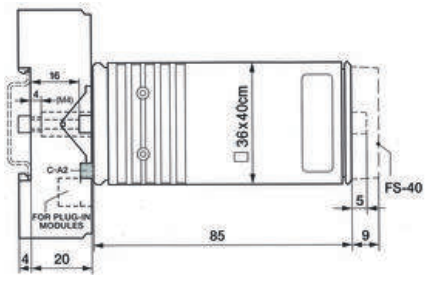
### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

## Notes

# 2.5 Timers & Twilight Switches


| | Type | Pin | Page |
|---|---|---|---|
| **CPU Series** | | | |
| Digital Timer 16 A / 230 V AC-1 | CPU |  | 264 |
| **QSU Series** | | | |
| Mechanical timer 16 A / 230 V AC-1 | QSU |  | 265 |
| **EDS Series** | | | |
| Twilight switch 16 A / 230 V AC-1 | EDS17 |  | 266 |
| Twilight switch 16 A / 230 V AC-1 | EDS35 |  | 267 |

# CPU

## Digital Timer 16 A / 230 V AC-1

**General**

| Type | 35WU-JS | 35W2U-JS | 35WU-LCD | 35W2U-LCD |
|---|---|---|---|---|
| | Digital weekly menu guided timer, multilingual, single channel, min. switching time 1 min | Digital weekly menu guided timer, multilingual, dual channel, min. switching time 1 sec | Digital weekly menu guided timer, multilingual, single channel, min. switching time 1 min | Digital weekly menu guided timer, multilingual, dual channel, min. switching time 1 sec |
| Time program | standart, random, cyclic, holiday. 64 timing programs. | | Week | Week |
| Memory Spaces | 64 | 64 | 20 | 20 |
| Shortest switching time | 1 min | 1 min | 1 sec | 1 sec |
| Summer/winter time changeover | automatic | automatic | automatic | automatic |
| Power backup | 6 Years | 6 Years | 15 Days | 15 Days |
| Number of contacts | 1 | 2 | 1 | 2 |
| Rated load AC-1 | 16 A / 230 V | 16 A / 230 V | 16 A / 230 V | 16 A / 230 V |
| Operating voltage | 230 V AC | 230 V AC | 230 V AC | 230 V AC |
| Operating temperature | 0…+50 °C<br>0…+50 °C | 0…+50 °C<br>0…+50 °C | -10…+50 °C<br>-10…+50 °C (No ice) | -10…+50 °C<br>-10…+50 °C (No ice) |

**Specifications**

| | |
|---|---|
| Ingress Protection | IP 20 |
| Weight | 163 g |

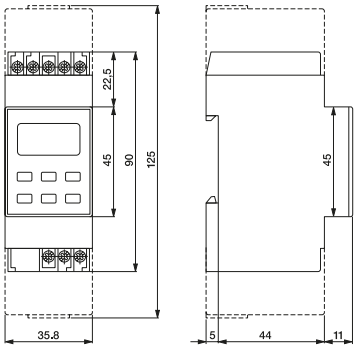
**Product references**

| Description | Type | 230 |
|---|---|---|
| AC 230 V | CPU 35W2U-JS/AC...V | ✓ |
| AC 230 V | CPU 35W2U-LCD/AC...V | ✓ |
| AC 230 V | CPU 35W2U-M/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.




**fig. 1. Dimensions (mm)**




**Technical approvals, conformities**

Approvals CE UK CA

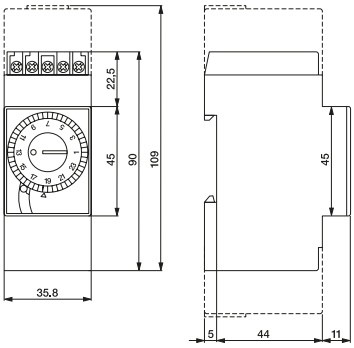
# QSU

## Mechanical timer 16 A / 230 V AC-1





**fig. 1. Dimensions (mm)**




### General

| Type | QSU 35U | QSU 35WU |
|---|---|---|
| | Mechanical day timer | Mechanical week timer |
| | **QSU 35U** Mechanical day timer | **QSU 35WU** Mechanical week timer |
| Time program | Day | Week |
| Memory Spaces | 1 | 1 |
| Shortest switching time | 30 min | 30 min |
| Summer/winter time changeover | - | - |
| Power backup | 150 h | 150 h |
| Number of contacts | 1 | 1 |
| Rated load AC-1 | 16 A / 230 V | 16 A / 230 V |
| Operating voltage | 230 V AC | 230 V AC |
| Operating temperature | 0…+50 °C | 0…+50 °C |

### Specifications

| | |
|---|---|
| Ingress Protection | IP 20 |
| Weight | 134 g |

### Product references

| Description | Type | 230 |
|---|---|---|
| AC 230 V | QSU 35U/AC230V | ✓ |
| AC 230 V | QSU 35WU/AC230V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control voltage to complete product references.

### Technical approvals, conformities

Approvals CE UK CA

# EDS17

## Twilight switch 16 A / 230 V AC-1

**Specifications**

| | |
|---|---|
| Setting ranges | 0…100 Lux<br>0…1000 Lux<br>OFF<br>permanent light |
| Turn-on delay | 15 s |
| Off-delay | 30 s |
| Number of contacts | 1 |
| Rated load AC-1 | 16 A / 230 V |
| Operating voltage | 230 V AC |
| Operating temperature | -10…55 °C (kein Eis) |
| Ingress Protection | IP 20 |
| Weight | 100 g |

**Product references**

| Description | Type | 230 |
|---|---|---|
| AC 230 V | EDS17A/AC230V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control voltage to complete product references.

**Accessories**

| | |
|---|---|
| Light sensor EDS/LF for EDS17A and EDS35 | EDS/LF |

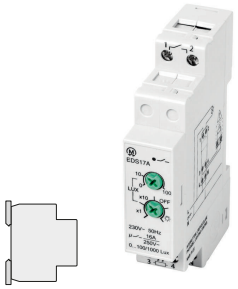
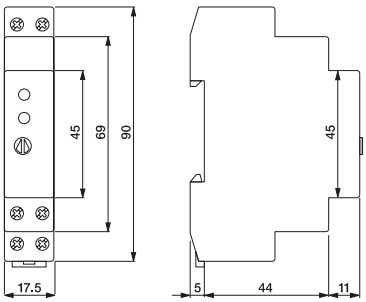


fig. 1. Dimensions (mm)




## Technical approvals, conformities

Approvals CE UK CA

# EDS35

## Twilight switch 16 A / 230 V AC-1

**Specifications**

| | |
|---|---|
| Setting ranges | 0…100 Lux<br>0…1000 Lux<br>0…10000 Lux |
| Turn-on delay | 8 s |
| Off-delay | 38 s |
| Number of contacts | 1 |
| Rated load AC-1 | 16 A / 230 V |
| Operating voltage | 230 V AC |
| Operating temperature | -10…55 °C (kein Eis) |
| Ingress Protection | IP 20 |
| Weight | 234 g |

**Product references**

| Description | Type | 230 |
|---|---|---|
| AC 230 V | EDS35/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

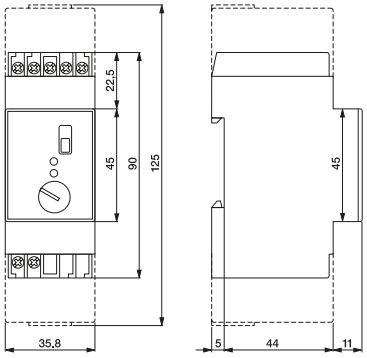
**Accessories**

| | |
|---|---|
| Light sensor EDS/LF for EDS17A and EDS35 | EDS/LF |





**fig. 1. Dimensions (mm)**




**Technical approvals, conformities**

Approvals CE UK CA

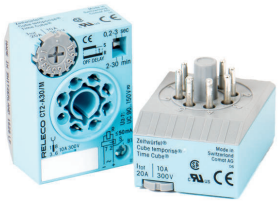
## Notes

# 2.6 Time Cubes


| | Type | Pin | Page |
|---|---|---|---|
| **CT Series** | | | |
| Single function \| multivoltage | CT2 | | 270 |
| Single function \| multivoltage | CT3 | | 271 |

# CT2

## Single function | multivoltage



### Time data

| | |
|---|---|
| Timing functions | fig. 1 1: E, B 2: A, K 3: W |
| Timing range | 0.2 s … 3 s / 2 s … 30 s / 0.2 min … 3 min / 2 min … 30 min |
| Timing scale | 3 s / 30 s / 3 min / 30 min |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 9,5 … 18 V AC / DC | 20 … 65 V AC / DC |
| Operating voltage range | 9.5 ... 17 V AC / DC | 20 … 65 V AC / DC |
| Power consumption AC / DC | 0.2 VA / 0.4 W | 0.4 VA / 0.4 W |
| Current consumption on supply A1-A2 AC / DC | 12 mA / 12 mA | 6 mA / 6 mA |
| Current consumption on input control B1 AC / DC | - / 0.2 mA | 0.2 mA / 0.2 mA |
| Threshold voltage on input control B1 AC / DC | 9 V / 9 V | 18 V / 18 V |
| Frequency range | DC | 0; 40 ... 60 Hz |

### Control circuit

| | | |
|---|---|---|
| Nominal voltage | 9,5 … 18 V AC / DC | 9,5 … 18 V AC / DC |
| Operating voltage range | 80 ... 150 V AC / DC | 150 ... 265 V AC / DC |
| Power consumption AC / DC | 0.3 VA / 0.4 W | 0.5 VA / 0.5 W |
| Current consumption on supply A1-A2 AC / DC | 2 mA / 2 mA | 2 mA / 2 mA |
| Current consumption on input control B1 AC / DC | 0.2 mA / 0.2 mA | 0.2 mA / 0.2 mA |
| Threshold voltage on input control B1 AC / DC | 75 V / 75 V | 140 V / 140 V |
| Frequency range | 0; 40 ... 60 Hz | 0; 40 ... 60 Hz |

### Control circuit

| | |
|---|---|
| Nominal voltage | 90 … 265 V AC / DC |
| Operating voltage range | 90 ... 265 AC / DC |
| Power consumption AC / DC | 0.5 VA / 0.5 W |
| Current consumption on supply A1-A2 AC / DC | 2 mA / 2 mA |
| Current consumption on input control B1 AC / DC | 0.2 mA / 0.2 mA |
| Threshold voltage on input control B1 AC / DC | 75 V / 75 V |
| Frequency range | 0; 40 ... 60 Hz |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 35 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 9.5 | 9.5-18 | 20 | 90-150 | 90-265 | 180-265 |
|---|---|---|---|---|---|---|---|
| Off-delay | CT2-A30/S DC...V | ✓ | | | | | |
| On delay | CT2-E30/S DC...V | | ✓ | | | | |
| Pulse shaping, one shot | CT2-K30/S DC...V | | ✓ | | | | |
| | | | | | | | |
| Off-delay | CT2-A30/L UC...V | | | ✓ | | | |
| Off-delay | CT2-A30/M UC...V | | | | ✓ | | |
| Blinker | CT2-B30/H UC...V | | | | | ✓ | |
| On delay | CT2-E30/H UC...V | | | | | ✓ | |
| Pulse shaping, one shot | CT2-K30/L UC...V | | | ✓ | | | |
| Pulse shaping, one shot | CT2-K30/U UC...V | | | | | | ✓ |

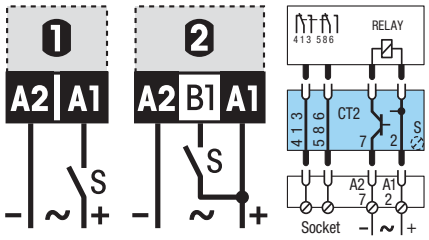
Other voltages on request. Please contact support@comatreleco.com.
«…» List control voltage to complete product references.

### Accessories

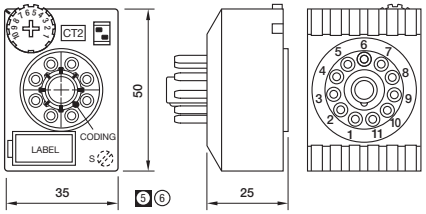
| | |
|---|---|
| Socket | S2-B |
| Retaining spring | steel | HF-33 (BAG 10 PCS) |



### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

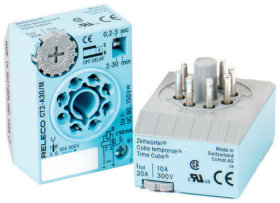
Standards IEC/EN 60947

Approvals

# CT3

## Single function | multivoltage





**Time data**

| | |
|---|---|
| Timing functions | fig. 1 1: E, B 2: A, K 3: W |
| Timing range | 0.2 s … 3 s / 2 s … 30 s / 0.2 min … 3 min / 2 min … 30 min |
| Timing scale | 3 s / 30 s / 3 min / 30 min |

**Control circuit**

| | | |
|---|---|---|
| Nominal voltage | 9,5 … 18 V AC / DC | 20 … 65 V AC / DC |
| Operating voltage range | 80 … 150 V AC / DC | 150 … 265 V AC / DC |
| Power consumption AC / DC | 0.2 VA / 0.4 W | 0.4 VA / 0.4 W |
| Current consumption on supply A1-A2 AC / DC | 12 mA / 12 mA | 6 mA / 6 mA |
| Current consumption on input control B1 AC / DC | - / 0.2 mA | 0.2 mA / 0.2 mA |
| Threshold voltage on input control B1 AC / DC | 9 V / 9 V | 18 V / 18 V |
| Frequency range | DC | 0; 40 … 60 Hz |

**Control circuit**

| | | |
|---|---|---|
| Nominal voltage | 9,5 … 18 V AC / DC | 20 … 65 V AC / DC |
| Operating voltage range | 9,5 … 17 V AC / DC | 20 … 65 V AC / DC |
| Power consumption AC / DC | 0.3 VA / 0.4 W | 0.5 VA / 0.5 W |
| Current consumption on supply A1-A2 AC / DC | 2 mA / 2 mA | 2 mA / 2 mA |
| Current consumption on input control B1 AC / DC | 0.2 mA/ 0.2 mA | 0.2 mA/ 0.2 mA |
| Threshold voltage on input control B1 AC / DC | 75 V / 75 V | 140 V / 140 V |
| Frequency range | 0; 40 … 60 Hz | 0; 40 … 60 Hz |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 90 … 265 V AC / DC |
| Operating voltage range | 90 … 265 V AC / DC |
| Power consumption AC / DC | 0.5 VA / 0.5 W |
| Current consumption on supply A1-A2 AC / DC | 2 mA / 2 mA |
| Current consumption on input control B1 AC / DC | 0.2 mA / 0.2 mA |
| Threshold voltage on input control B1 AC / DC | 75 V / 75 V |
| Frequency range | 0; 40 … 60 Hz |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 2 |
| Weight | 35 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 9.5 | 9.5-18 | 20-65 | 90-150 | 90-265 | 180-265 |
|---|---|---|---|---|---|---|---|
| Off-delay | CT3-A30/S DC...V | | ✓ | | | | |
| On delay | CT3-E30/S DC...V | ✓ | | | | | |
| Pulse shaping, one shot | CT3-K30/S DC...V | | ✓ | | | | |
| Off-delay | CT3-A30/L UC...V | | | ✓ | | | |
| Off-delay | CT3-A30/M UC...V | | | | ✓ | | |
| Off-delay | CT3-A30/U UC...V | | | | | | ✓ |
| Blinker | CT3-B30/H UC...V | | | | | ✓ | |
| Blinker | CT3-B30/L UC...V | | | ✓ | | | |
| On delay | CT3-E30/H UC...V | | | | | ✓ | |
| On delay | CT3-E30/L UC...V | | | ✓ | | | |
| Pulse shaping, one shot | CT3-K30/L UC...V | | | ✓ | | | |
| Pulse shaping, one shot | CT3-K30/M UC...V | | | | ✓ | | |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control voltage to complete product references.

**Accessories**

| | |
|---|---|
| Socket | S3-B, S3-M |
| Retaining spring I steel | HF-33 (BAG 10 PCS) |

**fig. 1. Wiring diagram**

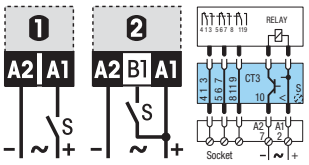
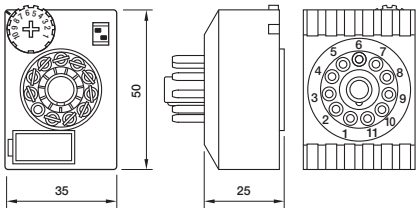



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947

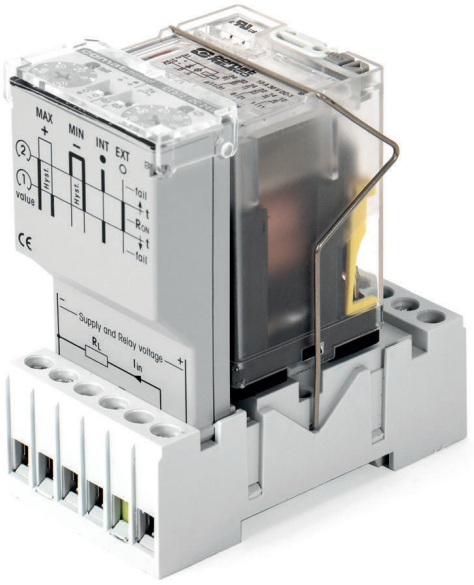
Approvals

## Notes

# 2.7 Time Modules


| | Type | Pin | Page |
|---|---|---|---|
| **CT Series** | | | |
| Multifunction \| 24 … 48 V AC / DC \| 115 V AC / DC \| 230 V AC / DC | CT33R | | 275 |

# ComatReleco timer / monitoring CT modules




The time delay relays and monitoring relays consist of plug-in CT electronic modules and 11 pole output relays. Both system components can be combined in a variety of combinations. This allows adapting the system for the specific application.
Subsequent modifications, for example a change from mechanical contacts to solid-state outputs, are possible at any time just by replacing the relay.
This system provides the user a complete universal system with worldwide unmatched flexibility.

**The system sockets** S3-M0R or S3-M1R serve as a basis for the secure reception of electronic modules. The sockets have a 4 pole module slot in which the CT modules lock firmly and vibration proof also without the output relay. Contact is made with reliable twin knife contacts.
With the A2 connector bridge "C-A2", the neutral conductor (N/-) can be connected from socket to socket. It reduces wiring work considerably.
Robust terminals for wires up to 4mm2 and spacious labelling are other advantages of this practical ComatReleco modular system.
Clear markings close to the terminal connections on the sockets make it easy to identify the connections for wiring and servicing.

**The CT modules** are proof of the practical oriented experiences of ComatReleco in the field of industrial electronics. All control and display elements are arranged easy accessible at all times on the front side of the modules. The functions and settings are self-explanatory schematically illustrated on the front and allow to review the set values also during operation.
A transparent cover over the module setting components provides protection from unintentional settings and additionally links the module to the output relay.
Triggering is performed with the operating voltage. (L1 or +). No potential-free contacts are therefore required. The triggering complies to machine standards. Parallel connection to B1 is admissible.

**The standard contacts** have proven its reliability for high switching current applications over many years. The contact material AgCuNi permits a wide switching range and due to the large dimensioning they are designed for a high number of switching cycles. The high breaking capacity of up to 10 A / 250 V and a low load switching capability of 10 V / 50 mA makes the contact suitable for the use in main circuits as well as for low voltage applications.

**The twin contacts** are switching the load circuit with 2 independent contact tongues. The switching safety for low currents is therefore 100 times higher compared to a single contact relay. Despite the high switching capacity of up to 6 A / 250 V, these contacts are very suitable to switch low currents and voltages up to 1 mA / 5 V.

# CT33R

## Multifunction | 24 ... 48 V AC / DC | 115 V AC / DC | 230 V AC / DC

**Product references**

| Description | Type | 24-48 | 115 | 230 |
|---|---|---|---|---|
| AC / DC supply | CT33R/UC...V | ✓ | ✓ | ✓ |

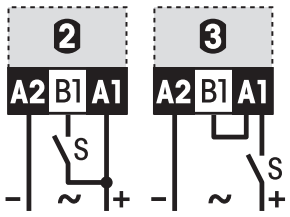
Other voltages on request. Please contact support@comatreleco.com.
«…» List control voltage to complete product references.

**Accessories**

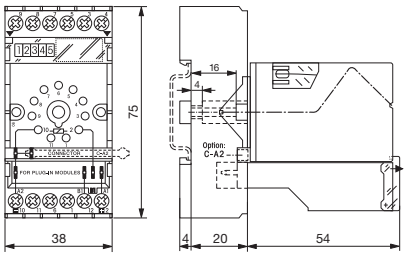
| | |
|---|---|
| Socket | S3-M0R, FS-C/5 (BEUTEL/UNIT 5 STK/PCS) |
| S5-MR | S5-MR |



### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

## Notes

# 2.8 Time Relay Accessories


| | Type | Pin | Page |
|---|---|---|---|
| **Time Relay Accessories** | | | |
| Nameplate C10 White | BZS DIN | | 278 |
| Light sensor for EDS17A | EDS/LF | | 278 |
| Transparent front cover kit for CT3x | FA-50 | | 278 |
| Transparent front cover kit for CT3x | FS-C | | 278 |
| Front panel mounting set \| Socket S3-L \| Retaining clip | FZ-50L | | 278 |
| Potentiometer \| 100 kΩ \| 1 MΩ \| 0.2 W | SP-01 | | 279 |

## BZS DIN

### Nameplate C10 White



**Product references**

| Description | Type |
|---|---|
| Label plate | BZS DIN 17.5MM |

## EDS/LF

### Light sensor for EDS17A



**General data**

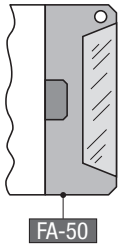
| | |
|---|---|
| Dimensions | 56 x 28 x 48 |
| Weight | 35 g |

**Product references**

| Description | Type |
|---|---|
| Light sensor | EDS/LF |

## FA-50

### Transparent front cover kit for CT3x






**General data**

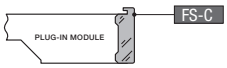
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Weight | 5 g |
| Housing material | PC |

**Product references**

| Description | Type |
|---|---|
| Transparent front cover kit for CT3x | FA-50 |

## FS-C

### Transparent front cover kit for CT3x






**General data**

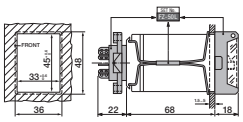
| | |
|---|---|
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | 6.6 x 19.2 x 36.5 |
| Weight | 5 g |

**Product references**

| Description | Type |
|---|---|
| Transparent front cover kit for CT3x | FS-C/5 (BEUTEL/UNIT 5 STK/PCS) |

## FZ-50L

### Front panel mounting set | Socket S3-L | Retaining clip






**General data**

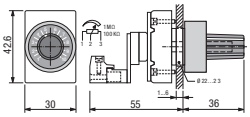
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 1 |
| Weight | 40 g |
| Housing material | PC |

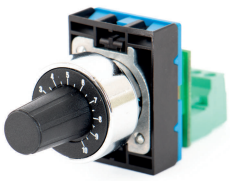
**Product references**

| Description | Type |
|---|---|
| Front panel mounting kit | FZ-50L |

## SP-01

### Potentiometer | 100 kΩ | 1 MΩ | 0.2 W



**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² Stripping length 7.5 mm |
| Nominal screw torque control / main circuit | 0.5 Nm |
| Dimensions | fig. 1 |
| Weight | 85 g |
| Ingress Protection | IP 65 |

**Product references**

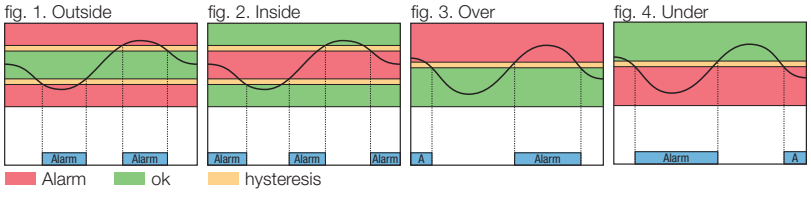
| Description | Type |
|---|---|
| Potentiometer | SP-01/100K |
| Potentiometer | SP-01/1M |

## Notes

# 3 Monitoring & Measuring Devices


| Chapter | Page |
|---|---|
| 3.1 Multifunction Monitoring | 283 |
| 3.2 Voltage Monitoring | 289 |
| 3.3 Voltage Monitoring - pluggable | 297 |
| 3.4 Current Monitoring | 301 |
| 3.5 Motor Protection - pluggable | 307 |
| 3.6 Isolation Monitoring | 309 |
| 3.7 Monitoring Modules | 311 |
| 3.8 Suppressor module | 315 |
| 3.9 Monitoring relay accessories | 319 |
| 3.10 Current transformer | 321 |

| | Description | MRM11 | MRM11R | MRM32 | MRM32R | MRU11 | MRU32 | MV53 | SSU34 | SSU31 | SSU33L | MRI11 | MRI32 | TSR19 | ESU-D2R | CT515R | CT524R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monitoring | One phase voltage monitoring | ● | ● | | | ● | | ● | | | | | | | | | |
| | Three phase voltage monitoring | | | ● | ● | | ● | | ● | | ● | | | | | | |
| | Four channel voltage measuring | | | | | | | | | | | | | | | | |
| | DC Voltage monitoring | ● | ● | ● | ● | ● | ● | | | | | | | | | | ● |
| | One phase current monitoring | ● | ● | | | | | | | | | ● | | | | | |
| | Three phase current monitoring | | | ● | ● | | | | | | | | ● | | | | |
| | Four channel current measuring | | | | | | | | | | | | | | | | |
| | DC current monitoring | ● | ● | ● | ● | | | | | | | ● | ● | | | ● | |
| | Phase failure | | | ● | ● | | ● | | ● | ● | ● | | | | | | |
| | Phase sequence monitoring | | | ● | ● | | ● | | ● | ● | ● | | | | | | |
| | Phase angle monitoring / measuring* | | | ● | ● | | ● | | ● | | ● | | | | | | |
| | Differential voltage monitoring / measuring* | | | | | | | | ● | | ● | | | | | | |
| | Neutral failure monitoring | | | | | | | | ● | | ● | | | | | | |
| | Frequency monitoring / measuring* | ● | ● | ● | ● | ● | ● | | ● | | ● | ● | ● | | | | |
| | Apparent power monitoring / measuring* | ● | ● | ● | ● | | | | | | | | | | | | |
| | Active power monitoring / measuring* | ● | ● | ● | ● | | | | | | | | | | | | |
| | Power factor monitoring / measuring* | ● | ● | ● | ● | | | | | | | | | | | | |
| | Active energy measuring | | | | | | | | | | | | | | | | |
| | THDI / THDU measuring | | | | | | | | | | | | | | | | |
| | PTC monitoring | | | | | | | | | | | | | ● | | | |
| | Earth failure monitoring | | | | | | | | | | | | | | ● | | |
| Functions | Treshold „over“ exceeded fig. 3. | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | | ● | ● |
| | Theshold „under“ exceeded fig. 4. | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | „Inside“ band entered fig. 2. | ● | ● | ● | ● | ● | ● | | | | | ● | ● | | | ● | ● |
| | „Outside“ band entered fig. 1. | ● | ● | ● | ● | ● | ● | | | | | ● | ● | | | ● | ● |
| | Alarm on-delay | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | | ● | ● | ● |
| | Alarm off-delay | ● | ● | ● | ● | ● | ● | ● | | | | ● | ● | | | | |
| | Latching alarm output function | ● | ● | ● | ● | ● | ● | | | | | ● | ● | ● | | | |
| | Threshold selectable | ● | ● | ● | ● | ● | ● | ● | ● | | | ● | ● | ● | ● | ● | ● |
| | Threshold fixed | | | | | | | | | ● | ● | | | ● | | | |
| Power supply | Supply isolated from measuring circuit | ● | ● | ● | ● | ● | ● | | | | | ● | ● | ● | ● | | |
| | Supply from measure circuit | | | | | | | ● | ● | ● | ● | | | | | ● | ● |
| Mounting | DIN rail mounting | ● | ● | ● | ● | ● | ● | ● | ● | | | ● | ● | | ● | | |
| | Housing according IEC/EN 43880 (electrical distribution mounting) | ● | ● | ● | ● | ● | ● | ● | | | | ● | ● | | | | |
| | Plug-in (socket mounting) | | | | | | | | | ● | ● | ● | | ● | | ● | ● |

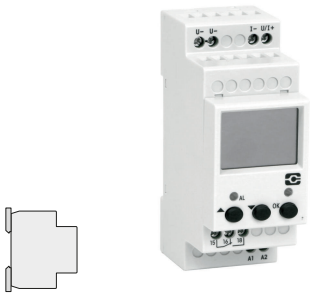


# 3.1 Multifunction Monitoring

| | Type | Pin | Page |
|---|---|---|---|
| **MRM Series** | | | |
| 1 phase \| 1 CO \| multifunction monitoring | MRM11 | | 284 |
| 1 phase \| 1 CO \| multifunction monitoring | MRM11R | | 285 |
| 3 phase \| 2 CO \| multifunction monitoring | MRM32 | | 286 |
| 3 phase \| 2 CO \| multifunction monitoring | MRM32R | | 287 |

# MRM11

## 1 phase | 1 CO | multifunction monitoring



**Power supply**

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V UC | 110 … 240 V UC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | U, I, P, S, f, Cosϕ |
| Min. setting step, resolution | 0.1 V / 0.1 A / 1 W / 1 VA / 1 Hz / 0.05 |
| Monitoring functions | Under, over, inside, outside |
| Number of voltage measurement inputs | 1 |
| Rated AC voltage L-N / L-L | 230 V / - |
| Rated DC voltage U+ / U- | 300 V |
| DC voltage measurement range U+ / U- | +0.1 … +690 V, -0.1 … -690 V |
| Undervoltage setting range | +0.1 … +700 V, -0.1 ... -700 V |
| Overvoltage setting range | +0.1 … +700 V, -0.1 ... -700 V |
| AC voltage measurement range L-N / L-L | 0.1 … 480 V |
| Number of current measurement inputs | 1 |
| Rated measurement current | 5 A |
| Measurement current range | 0.1 … 5 A |
| Undercurrent setting range | 0.1 … 6 A |
| Overcurrent setting range | 0.1 … 6 A |
| Rated base frequency | 15 … 150 Hz |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 107 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Single phase monitoring | MRM11/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references



**fig. 1. Wiring diagram**

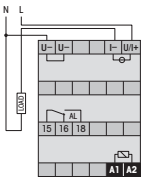



**fig. 2. AC voltage endurance**

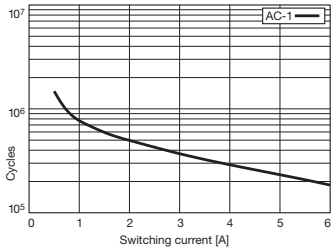



**fig. 3. DC load limit curve**

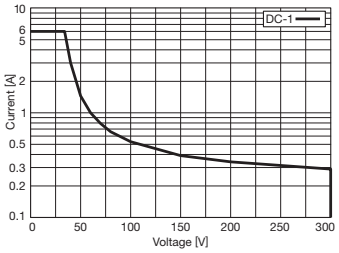
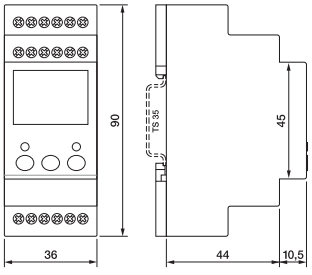



**fig. 4. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

# MRM11R

## 1 phase | 1 CO | multifunction monitoring



**Power supply**

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V AC / DC | 110 … 240 V AC / DC |
| Operating voltage range | 10 … 60 V | 77 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | U, I, P, S, f, Cosϕ |
| Min. setting step, resolution | 0.1 V / 0.1 A / 1 W / 1 VA / 1 Hz / 0.05 |
| Monitoring functions | Under, over, inside, outside |
| Number of voltage measurement inputs | 1 |
| Rated AC voltage L-N / L-L | 230 V / - |
| Rated DC voltage U+ / U- | 300 V |
| DC voltage measurement range U+ / U- | +0.1 … +690 V, -0.1 … -690 V |
| Undervoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| Overvoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| AC voltage measurement range L-N / L-L | 0.1 … 480 V |
| Number of current measurement inputs | 1 |
| Rated measurement current | 5 A |
| Measurement current range | 0.1 … 5 A |
| Undercurrent setting range | 0.1 … 6 A |
| Overcurrent setting range | 0.1 … 6 A |
| Rated base frequency | 15 … 150 Hz |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 3 |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70°C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 107 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

**Product references**

| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Single phase monitoring | MRM11R/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references



**fig. 1. Wiring diagram**

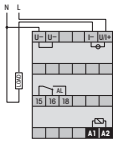


**fig. 2. AC voltage endurance**

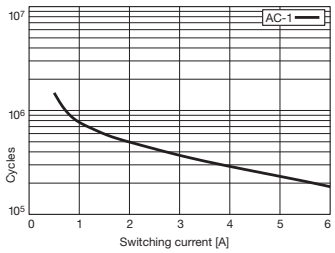



**fig. 3. DC load limit curve**

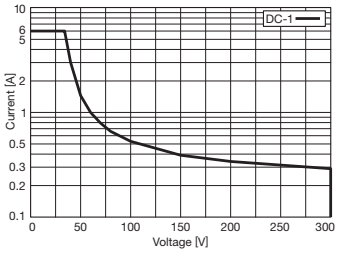
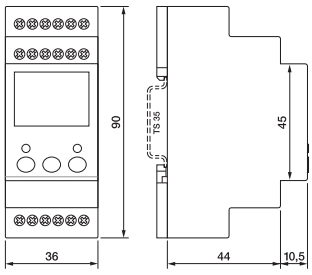



**fig. 4. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155
Approvals

# MRM32

## 3 phase | 2 CO | multifunction monitoring





### Power supply

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V UC | 110 … 240 V UC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

### Measuring circuit

| | |
|---|---|
| Measured parameters | U, I, P, S, f, Cosϕ, ΔPhi, phase sequence |
| Min. setting step, resolution | 0.1 V / 0.1 A / 1 W / 1 VA / 1 Hz / 0.05 / 1° |
| Monitoring functions | Under, over, inside, outside, phase sequence, phase failure |
| Number of voltage measurement inputs | 3 |
| Rated AC voltage L-N / L-L | 230 V / 400 V |
| Rated DC voltage U+ / U- | 300 V |
| DC voltage measurement range U+ / U- | +0.1 … +690 V, -0.1 … -690 V |
| Undervoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| Overvoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| AC voltage measurement range L-N / L-L | 0.1 … 480 V |
| Number of current measurement inputs | 3 |
| Rated measurement current | 5 A |
| Measurement current range | 0.1 … 5 A |
| Undercurrent setting range | 0.1 … 6 A |
| Overcurrent setting range | 0.1 … 6 A |
| Rated base frequency | 15 … 150 Hz |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

### Main circuit

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Insulation

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 1.5 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 125 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Three phase monitoring | MRM32/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

**fig. 1. Wiring diagram**

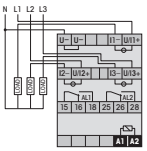



**fig. 2. AC voltage endurance**

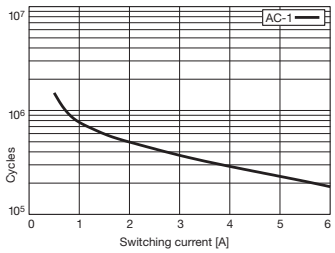



**fig. 3. DC load limit curve**

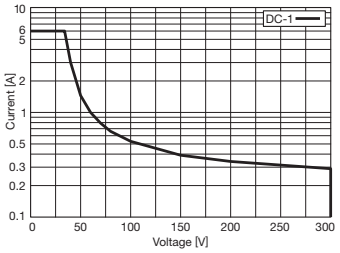
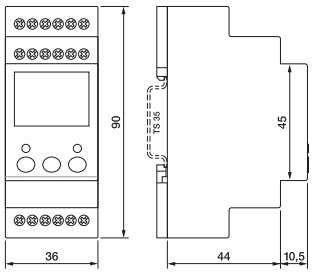



**fig. 4. Dimensions (mm)**




### Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

# MRM32R

## 3 phase | 2 CO | multifunction monitoring





**Power supply**

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V AC / DC | 110 … 240 V AC / DC |
| Operating voltage range | 10 … 60 V | 77 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | U, I, P, S, f, Cosϕ, ΔPhi, phase sequence |
| Min. setting step, resolution | 0.1 V / 0.1 A / 1 W / 1 VA / 1 Hz / 0.05 / 1° |
| Monitoring functions | Under, over, inside, outside, phase sequence, phase failure |
| Number of voltage measurement inputs | 3 |
| Rated AC voltage L-N / L-L | 230 V / 400 V |
| Rated DC voltage U+ / U- | 300 V |
| DC voltage measurement range U+ / U- | ± 0.1 … 690 V |
| Undervoltage setting range | ± 0.1 … 700 V |
| Overvoltage setting range | ± 0.1 … 700 V |
| AC voltage measurement range L-N / L-L | 0.1 … 480 V |
| Number of current measurement inputs | 3 |
| Rated measurement current | 5 A |
| Measurement current range | 0.1 … 5 A |
| Undercurrent setting range | 0.1 … 6 A |
| Overcurrent setting range | 0.1 … 6 A |
| Rated base frequency | 15 … 150 Hz |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

**Main circuit**

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 1.5 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

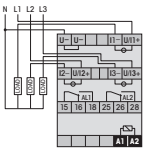
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 125 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

**Product references**

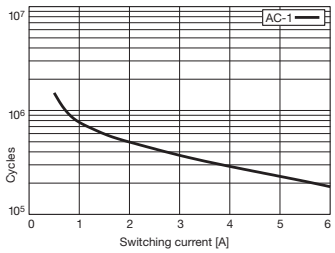
| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Single phase monitoring | MRM32R/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

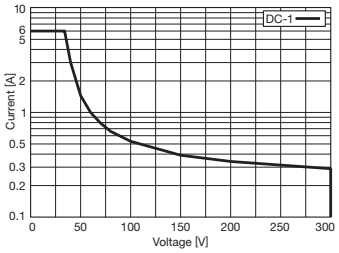
### fig. 1. Wiring diagram



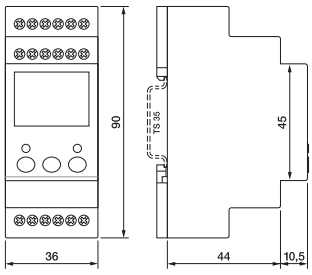

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155
Approvals

## Notes

# 3.2 Voltage Monitoring


| | Type | Pin | Page |
|---|---|---|---|
| **MRU Series** | | | |
| 1 phase \| 1 CO \| voltage monitoring | MRU11 | | 290 |
| 1 phase \| 1 CO \| voltage monitoring | MRU11R | | 291 |
| 3 phase \| 2 CO \| voltage monitoring | MRU32 | | 292 |
| 3 phase \| 2 CO \| voltage monitoring | MRU32R | | 293 |
| **MV Series** | | | |
| 1 phase \| 1 CO \| voltage monitoring | MV53 | | 294 |
| **SSU Series** | | | |
| 3 phase + N \| 2 CO \| voltage monitoring | SSU34 | | 295 |

# MRU11

## 1 phase | 1 CO | voltage monitoring

| | | |
|---|---|---|
| **Power supply** | | |
| Nominal voltage | 12 … 48 V UC | 110 … 240 V UC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

| | |
|---|---|
| **Measuring circuit** | |
| Measured parameters | U, f |
| Min. setting step, resolution | 0.1 V / 1 Hz |
| Monitoring functions | Under, over, inside, outside |
| Number of voltage measurement inputs | 1 |
| Rated AC voltage L-N / L-L | 230 V / - |
| Rated DC voltage U+ / U- | 300 V |
| DC voltage measurement range U+ / U- | +0.1 … +690 V, -0.1 … -690 V |
| Undervoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| Overvoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| AC voltage measurement range L-N / L-L | 0.1 … 480 V |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

| | |
|---|---|
| **Main circuit** | |
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

| | |
|---|---|
| **Insulation** | |
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

| | |
|---|---|
| **General data** | |
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 107 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Single phase monitoring | MRU11/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

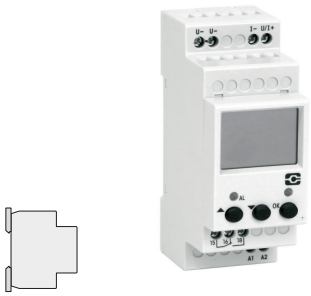


**fig. 1. Wiring diagram**

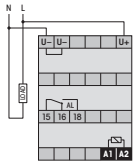



**fig. 2. AC voltage endurance**

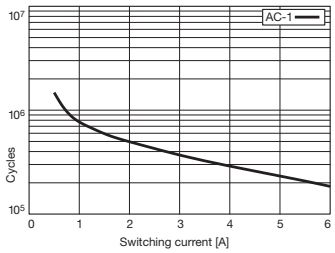



**fig. 3. DC load limit curve**

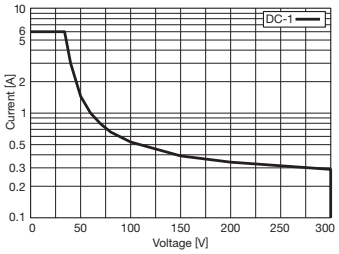
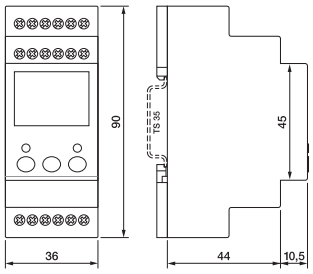



**fig. 4. Dimensions (mm)**



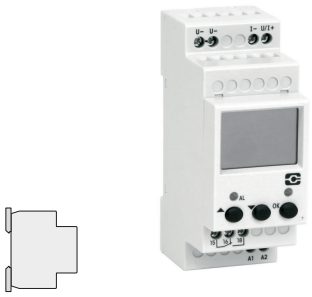

**Technical approvals, conformities**

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

# MRU11R

## 1 phase | 1 CO | voltage monitoring





### Power supply

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V AC / DC | 110 … 240 V AC / DC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

### Measuring circuit

| | |
|---|---|
| Measured parameters | U, f |
| Min. setting step, resolution | 0.1 V / 1 Hz |
| Monitoring functions | Under, over, inside, outside |
| Number of voltage measurement inputs | 1 |
| Rated AC voltage L-N / L-L | 230 V / - |
| Rated DC voltage U+ / U- | 300 V |
| DC voltage measurement range U+ / U- | +0.1 … +690 V, -0.1 … -690 V |
| Undervoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| Overvoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,200 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Insulation

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

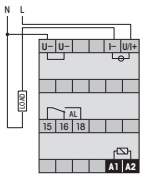
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 107 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

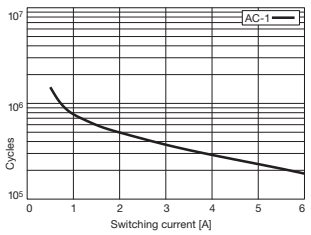
| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Single phase monitoring | MRU11R/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

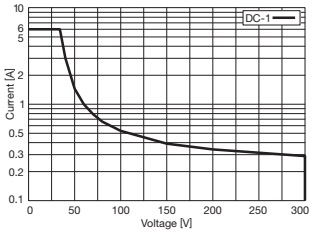
### fig. 1. Wiring diagram



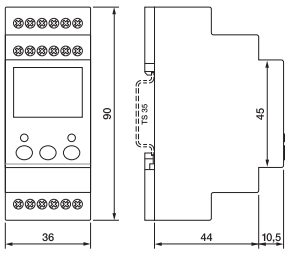

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60730-1; EN 60947; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155
Approvals

# MRU32

## 3 phase | 2 CO | voltage monitoring





**Power supply**

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V UC | 110 … 240 V UC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | U, f, ΔPhi, phase sequence |
| Min. setting step, resolution | 0.1 V / 1 Hz / 1° |
| Monitoring functions | Under, over, inside, outside, phase sequence, phase failure |
| Number of voltage measurement inputs | 3 |
| Rated AC voltage L-N / L-L | 230 V / 400 V |
| Rated DC voltage U+ / U- | 300 V |
| DC voltage measurement range U+ / U- | +0.1 … +690 V, -0.1 … -690 V |
| Undervoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| Overvoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| AC voltage measurement range L-N / L-L | 0.1 … 480 V |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

**Main circuit**

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 1.5 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

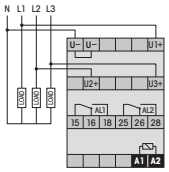
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 125 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

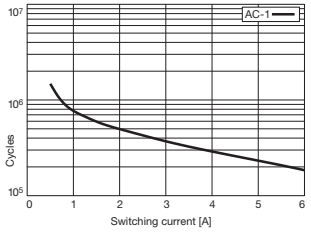
| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Three phase monitoring | MRU32/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

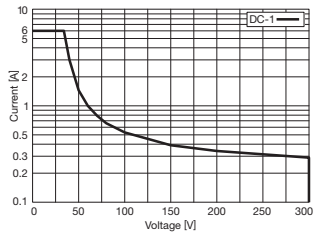
### fig. 1. Wiring diagram



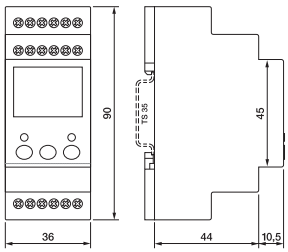

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

# MRU32R

## 3 phase | 2 CO | voltage monitoring





**Power supply**

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V AC / DC | 110 … 240 V AC / DC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | U, f, ΔPhi, phase sequence |
| Min. setting step, resolution | 0.1 V / 1 Hz / 1° |
| Monitoring functions | Under, over, inside, outside, phase sequence, phase failure |
| Number of voltage measurement inputs | 3 |
| Rated AC voltage L-N / L-L | 230 V / 400 V |
| Rated DC voltage U+ / U- | 300 V |
| DC voltage measurement range U+ / U- | +0.1 … +690 V, -0.1 … -690 V |
| Undervoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| Overvoltage setting range | +0.1 … +700 V, -0.1 … -700 V |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

**Main circuit**

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 1.5 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

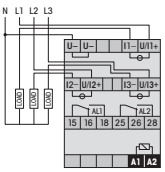
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 125 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

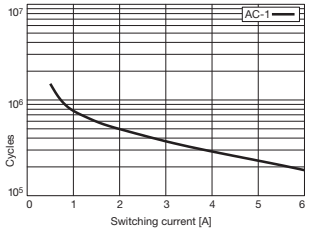
| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Three phase monitoring | MRU32R/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

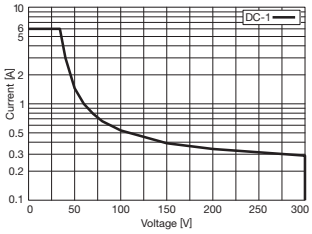
### fig. 1. Wiring diagram



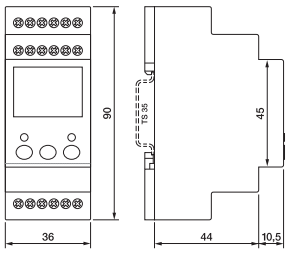

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155
Approvals

# MV53

## 1 phase | 1 CO | voltage monitoring



### Power supply

| | |
|---|---|
| Nominal voltage | 230 V AC |
| Operating voltage range | 149 … 270 V |
| Power consumption AC / DC | < 10 VA / < 1.5 W |
| Frequency range | 45 … 65 Hz |

### Measuring circuit

| | |
|---|---|
| Measured parameters | U |
| Monitoring functions | Under, over |
| Number of voltage measurement inputs | 1 (A1 / A2) |
| Rated AC voltage L-N / L-L | 230 V / - |
| Undervoltage setting range | 149 … 218 V |
| Overvoltage setting range | 236 … 270 V |
| AC voltage measurement range L-N / L-L | 149 … 270 V |
| Rated base frequency | 45 … 65 Hz |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 5 V |
| Inrush current | 20 A, 20 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,750 VA |
| Mechanical endurance (cycles) | 20 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Insulation

| | |
|---|---|
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

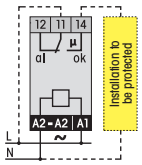
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.8 |
| Dimensions | fig. 4 |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

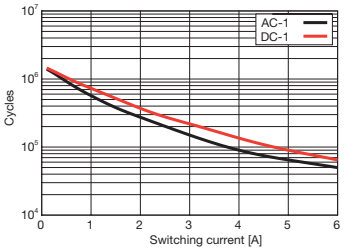
| Description | Type | 115 | 230 |
|---|---|---|---|
| AC 50 Hz / 60 Hz | MV53/AC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

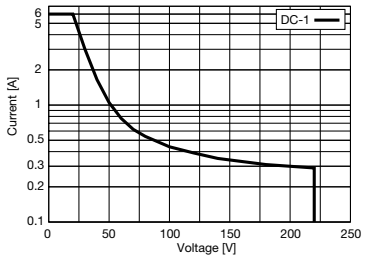
### fig. 1. Wiring diagram



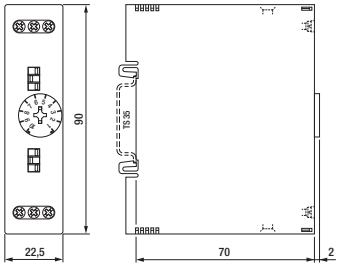

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60065

Approvals

# SSU34

## 3 phase + N | 2 CO | voltage monitoring



**Power supply**

| | |
|---|---|
| Nominal voltage | 400 V AC |
| Operating voltage range | 240 … 495 V |
| Power consumption AC / DC | < 5 VA / - |
| Frequency range | 50 Hz |

**Measuring circuit**

| | | |
|---|---|---|
| Measured parameters | U, ΔPhi, Δf | |
| Monitoring functions | Under, over, phase failure, phase sequence | |
| Number of voltage measurement inputs | 4 (L1 / L2 / L3 / N) | |
| Rated AC voltage L-N / L-L | 230 V / 400 V | |
| Undervoltage setting range | 160 … 225 V / 280 … 390 V | |
| Overvoltage setting range | 235 … 275 V / 410 … 480 V | |
| AC voltage measurement range L-N / L-L | 160 … 275 V / 280 … 480 V | |
| Voltage difference setting range L-N / L-L | 20 … 100 V | 35 … 173 V |
| Rated base frequency | 50 Hz | |
| Frequency difference setting range L-N / L-L | 3 ... 15 Hz | |
| Phase angle difference setting range L-N / L-L | 3 ... 15° | |
| Alarm delay | 0.2 … 5 s | |

**Main circuit**

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 5 A |
| Minimum load | 10 mA, 12 V |
| Inrush current | 15 A, 20 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 3 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 3 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

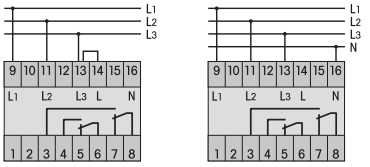
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -10 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 |
| Dimensions | fig. 4 |
| Weight | 350 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 400 |
|---|---|---|
| Three phase monitoring | SSU34/AC...V 50HZ S | ✓ |

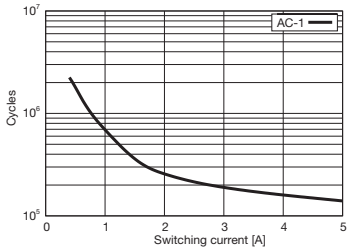
Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### fig. 1. Wiring diagram

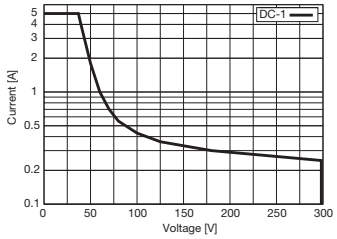



**DO NOT CONNECT AT THE SAME TIME:**
**Neutral conductor N and bridge L3-I!**

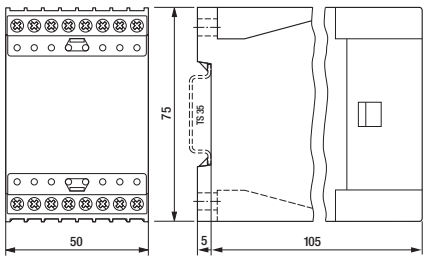
### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

## Notes

# 3.3 Voltage Monitoring - pluggable


| | Type | Pin | Page |
|---|---|---|---|
| **SSU Series** | | | |
| 3 phase \| 1 CO \| phase sequence monitoring | SSU31 | | 298 |
| 3 phase + N \| 1 CO \| voltage monitoring | SSU33L | | 299 |
| 3 phase + N \| 1 CO \| voltage monitoring | SSU33R | | 300 |

# SSU31

## 3 phase | 1 CO | phase sequence monitoring

**Power supply**

| | |
|---|---|
| Nominal voltage | 400 V AC |
| Operating voltage range | 360 … 470 V |
| Power consumption AC / DC | 10 VA / 1.5 W |
| Frequency range | 45 … 65 Hz |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | U |
| Monitoring functions | Under, phase failure, phase sequence |
| Number of voltage measurement inputs | 3 (L1 / L2 / L3) |
| Rated AC voltage L-N / L-L | - / 400 V |
| Undervoltage setting range | ≤ 320 V |
| AC voltage measurement range L-N / L-L | 320 … 400 V |
| Rated base frequency | 45 … 65 Hz |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 5 V |
| Inrush current | 15 A, 20 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 300 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 400 |
|---|---|---|
| Three phase monitoring | SSU31/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

**Accessories**

| | |
|---|---|
| Socket | S3-M |
| Retaining spring I steel | HF-24 |
| Transparent front cover kit for CT3x | FS-23 |
| Frontpanel mounting set | FZ-23 |



**fig. 1. Wiring diagram**

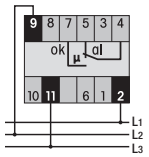



**fig. 2. AC voltage endurance**

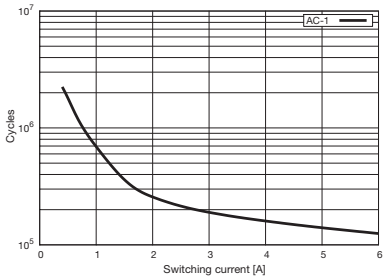



**fig. 3. DC load limit curve**

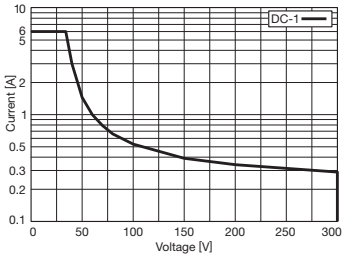
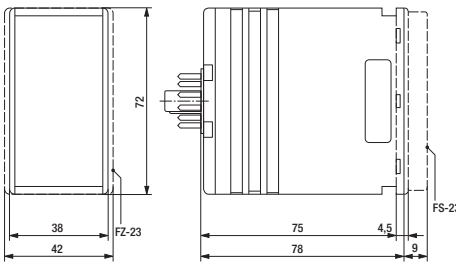



**fig. 4. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947

Approvals

# SSU33L

## 3 phase + N | 1 CO | voltage monitoring



### Power supply

| | | |
|---|---|---|
| Nominal voltage | 230 V AC | 400 V AC |
| Operating voltage range | 160 … 275 V | 280 … 470 V |
| Power consumption AC / DC | 3 VA / - | 3 VA / - |
| Frequency range | 50 Hz | 50 Hz |

### Measuring circuit

| | | |
|---|---|---|
| Measured parameters | U, ΔPhi, Δf | |
| Monitoring functions | Under, over, phase failure, phase sequence | |
| Number of voltage measurement inputs | 4 (L1 / L2 / L3 / N) | 3 (L1 / L2 / L3) |
| Rated AC voltage L-N / L-L | 230 V / - | - / 400 V |
| Undervoltage setting range | ≤ 160 V | ≤ 280 V |
| Overvoltage setting range | ≥ 275 V | ≥ 480 V |
| AC voltage measurement range L-N / L-L | 160 … 275 V / - | - / 280 … 480 V |
| Voltage difference setting range L-N / L-L | 20 … 100 V / 35 … 173 V | 20 … 100 V / 35 … 173 V |
| Rated base frequency | 50 Hz | 50 Hz |
| Frequency difference setting range L-N / L-L | 3 … 15 Hz | 3 … 15 Hz |
| Phase angle difference setting range L-N / L-L | 3 … 15° | 3 … 15° |
| Alarm delay | 0.2 … 5 s | 0.2 … 5 s |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 5 V |
| Inrush current | 15 A, 20 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Insulation

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 300 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 230 | 400 |
|---|---|---|---|
| Three phase monitoring + N | SSU33L/AC230V | ✓ | |
| Three phase monitoring | SSU33L/AC400V | | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

### Accessories

| | |
|---|---|
| Socket | S3-M |
| Retaining spring I steel | HF-24 |
| Transparent front cover kit for CT3x | FS-23 |
| Frontpanel mounting set | FZ-23 |

**fig. 1. Wiring diagram**

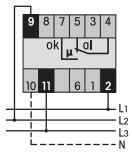



**fig. 2. AC voltage endurance**

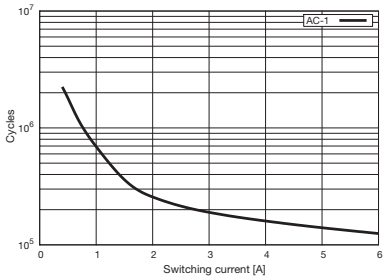



**fig. 3. DC load limit curve**

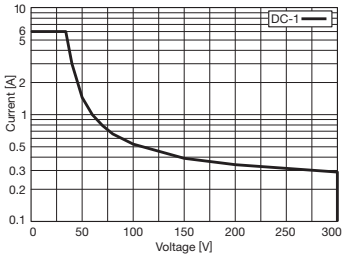
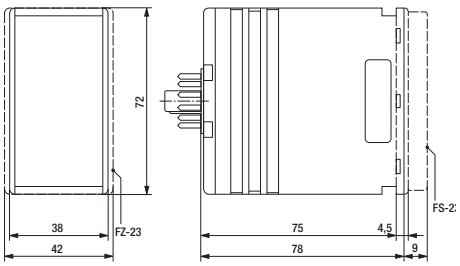



**fig. 4. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947

Approvals

# SSU33R

## 3 phase + N | 1 CO | voltage monitoring



### Power supply

| | | |
|---|---|---|
| Nominal voltage | 230 V AC | 400 V AC |
| Operating voltage range | 160 … 275 V | 280 … 470 V |
| Power consumption AC / DC | 3 VA / - | 3 VA / - |
| Frequency range | 50 Hz | 50 Hz |

### Measuring circuit

| | | |
|---|---|---|
| Measured parameters | U, ΔPhi, Δf | |
| Monitoring functions | Under, over, phase failure, phase sequence | |
| Number of voltage measurement inputs | 4 (L1 / L2 / L3 / N) | 3 (L1 / L2 / L3) |
| Rated AC voltage L-N / L-L | 230 V / 400 V | - / 400 V |
| Undervoltage setting range | ≤ 160 V | ≤ 280 V |
| Overvoltage setting range | ≥ 275 V | ≥ 480 V |
| AC voltage measurement range L-N / L-L | 160 … 275 V / - | - / 280 … 480 V |
| Voltage difference setting range L-N / L-L | 20 … 100 V / 35 … 173 V | - / 35 … 173 V |
| Rated base frequency | 50 Hz | 50 Hz |
| Frequency difference setting range L-N / L-L | 3 … 15 Hz | 3 … 15 Hz |
| Phase angle difference setting range L-N / L-L | 3 … 15° | 3 … 15° |
| Alarm delay | 0.2 … 5 s | 0.2 … 5 s |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 5 V |
| Inrush current | 15 A, 20 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,500 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Insulation

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 1 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 300 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 400 |
|---|---|---|
| Three phase monitoring | SSU33R/AC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Accessories

| | |
|---|---|
| Socket | S3-MR |
| Retaining spring | steel | HF-24 |
| Transparent front cover kit for CT3x | FS-23 |
| Frontpanel mounting set | FZ-23 |



**fig. 1. Wiring diagram**

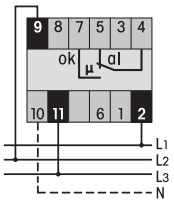



**fig. 2. AC voltage endurance**

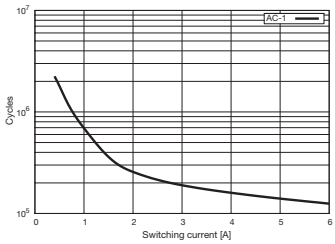



**fig. 3. DC load limit curve**

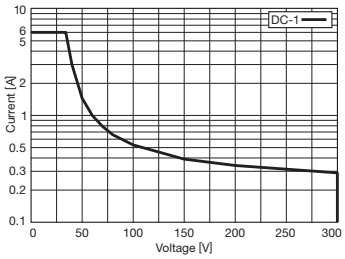
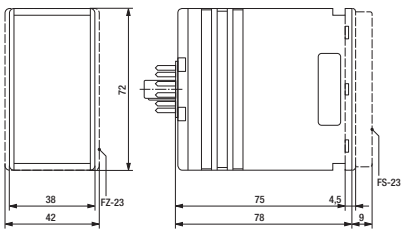



**fig. 4. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 45545-2; EN 50155

Approvals

# 3.4 Current Monitoring


| | Type | Pin | Page |
|---|---|---|---|
| **MRI Series** | | | |
| 1 phase \| 1 CO \| current monitoring | MRI11 | | 302 |
| 1 phase \| 1 CO \| current monitoring | MRI11R | | 303 |
| 3 phase \| 2 CO \| current monitoring | MRI32 | | 304 |
| 3 phase \| 2 CO \| current monitoring | MRI32R | | 305 |

# MRI11

## 1 phase | 1 CO | current monitoring

| | | |
|---|---|---|
| **Power supply** | | |
| Nominal voltage | 12 … 48 V UC | 110 … 240 V UC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

| | |
|---|---|
| **Measuring circuit** | |
| Measured parameters | I, f |
| Min. setting step, resolution | 0.1 A / 1 Hz |
| Monitoring functions | Under, over, inside, outside |
| Number of voltage measurement inputs | 1 |
| Number of current measurement inputs | 1 |
| Rated measurement current | 5 A |
| Measurement current range | 0.1 … 5 A |
| Undercurrent setting range | 0.1 … 6 A |
| Overcurrent setting range | 0.1 … 6 A |
| Rated base frequency | 15 … 150 Hz |
| Alarm delay | Settings: "No Delay" = 10 ms; "ON Delay" = 0.5 … 999.9 s; "OFF Delay": 0.5 ... 999.9 s |
| Alarm reset delay | Settings: "No Delay" = 10 ms; "ON Delay" = 0.5 … 999.9 s; "OFF Delay": 0.5 ... 999.9 s |

| | |
|---|---|
| **Main circuit** | |
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

| | |
|---|---|
| **Insulation** | |
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

| | |
|---|---|
| **General data** | |
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 107 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Single phase monitoring | MRI11/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

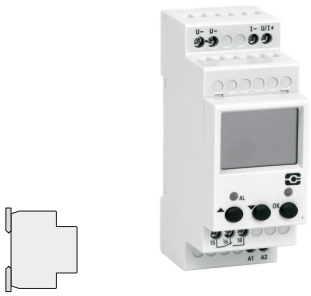


**fig. 1. Wiring diagram**

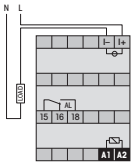



**fig. 2. AC voltage endurance**

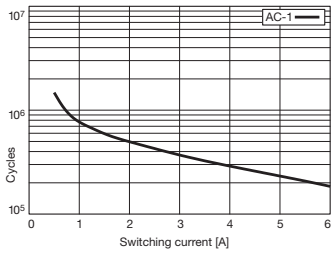



**fig. 3. DC load limit curve**

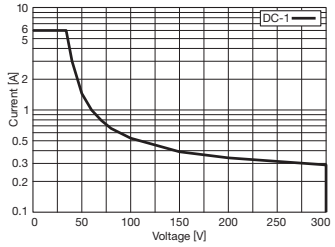
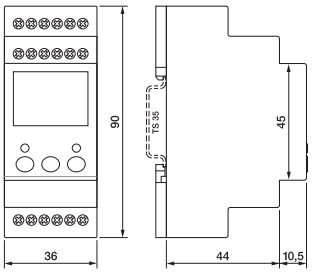



**fig. 4. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

# MRI11R

## 1 phase | 1 CO | current monitoring



### Power supply

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V AC / DC | 110 … 240 V AC / DC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

### Measuring circuit

| | |
|---|---|
| Measured parameters | I, f |
| Min. setting step, resolution | 0.1 A / 1 Hz |
| Monitoring functions | Under, over, inside, outside |
| Number of voltage measurement inputs | 1 |
| Rated measurement current | 5 A |
| Measurement current range | 0.1 … 5 A |
| Undercurrent setting range | 0.1 … 6 A |
| Overcurrent setting range | 0.1 … 6 A |
| Rated base frequency | 15 … 150 Hz |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Insulation

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 107 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

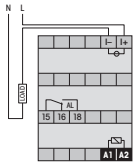
### Product references

| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Single phase monitoring | MRI11R/UC...V | ✓ | ✓ |

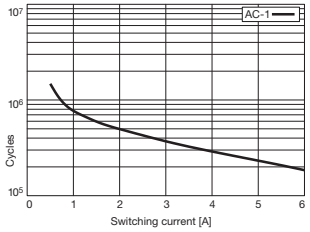
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



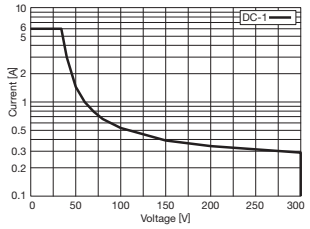
### fig. 1. Wiring diagram



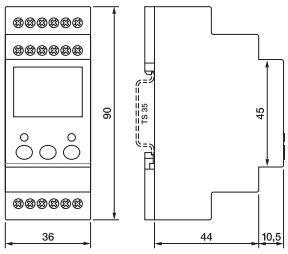

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)

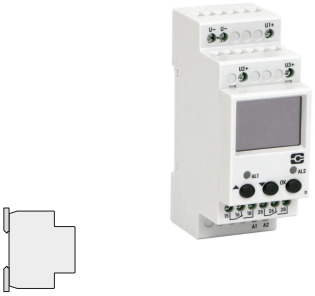



### Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155
Approvals

# MRI32

## 3 phase | 2 CO | current monitoring



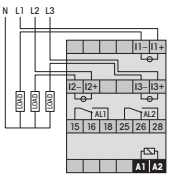
| | | |
|---|---|---|
| **Power supply** | | |
| Nominal voltage | 12 … 48 V UC | 110 … 240 V UC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |
| **Measuring circuit** | | |
| Measured parameters | I, f | |
| Min. setting step, resolution | 0.1 A / 1 Hz | |
| Monitoring functions | Under, over, inside, outside | |
| Number of current measurement inputs | 3 | |
| Rated measurement current | 5 A | |
| Measurement current range | 0.1 … 5 A | |
| Undercurrent setting range | 0.1 … 6 A | |
| Overcurrent setting range | 0.1 … 6 A | |
| Rated base frequency | 15 … 150 Hz | |
| Alarm delay | 0.5 … 999.9 s | |
| Alarm reset delay | 0.5 … 999.9 s | |
| **Main circuit** | | |
| Number of contacts | 2 CO | |
| Available contact materials | AgNi | |
| Rated voltage | 250 V AC | |
| Rated current | 6 A | |
| Minimum load | 10 mA, 10 V | |
| Inrush current | 10 A, 10 ms | |
| Rated load DC | fig. 3 | |
| Rated load AC-1 | 1,250 VA | |
| Mechanical endurance (cycles) | 30 000 000 | |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 | |
| **Insulation** | | |
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min | |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min | |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min | |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min | |
| Rated test voltage main / main circuit | 1.5 kV rms / 1 min | |
| Rated test voltage open contact | 1.5 kV rms / 1 min | |
| Pollution degree | 2 | |
| Overvoltage category | III | |
| **General data** | | |
| Storage temperature (no ice) | -40 … 85 °C | |
| Operation temperature | -40 … 60 °C | |
| Conductor cross section control / main circuit | 2.5 mm² | |
| Nominal screw torque control / main circuit | 0.6 | |
| Dimensions | fig. 4 | |
| Weight | 125 g | |
| Ingress Protection | IP 20 | |
| Housing material | PC | |

**Product references**

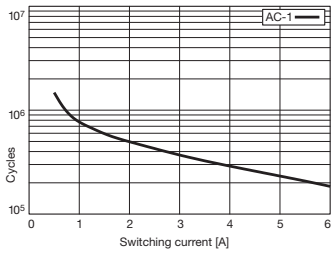
| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Three phase monitoring | MRI32/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

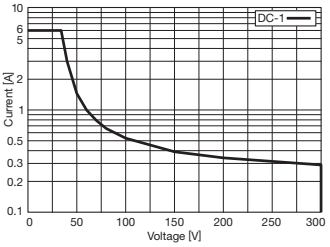
### fig. 1. Wiring diagram



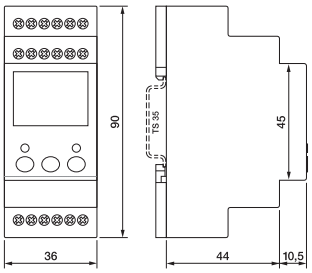

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3

Approvals

# MRI32R

## 3 phase | 2 CO | current monitoring





**Power supply**

| | | |
|---|---|---|
| Nominal voltage | 12 … 48 V AC / DC | 110 … 240 V AC / DC |
| Operating voltage range | 10 … 60 V | 85 … 250 V |
| Power consumption AC / DC | 3.2 VA / 1.6 W | 2.6 VA / 1.5 W |
| Frequency range | 16 … 63 Hz | 16 … 63 Hz |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | I, f |
| Min. setting step, resolution | 0.1 A / 1 Hz |
| Monitoring functions | Under, over, inside, outside |
| Number of voltage measurement inputs | 3 |
| Rated measurement current | 5 A |
| Measurement current range | 0.1 … 5 A |
| Undercurrent setting range | 0.1 … 6 A |
| Overcurrent setting range | 0.1 … 6 A |
| Rated base frequency | 15 … 150 Hz |
| Alarm delay | 0.5 … 999.9 s |
| Alarm reset delay | 0.5 … 999.9 s |

**Main circuit**

| | |
|---|---|
| Number of contacts | 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 10 V |
| Inrush current | 10 A, 10 ms |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 1.5 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 1.5 kV rms / 1 min |
| Rated test voltage open contact | 1.5 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

**General data**

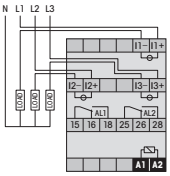
| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 |
| Dimensions | fig. 4 |
| Weight | 125 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

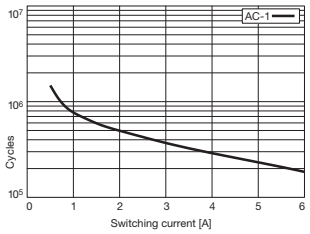
| Description | Type | 12-48 | 110-240 |
|---|---|---|---|
| Three phase monitoring | MRI32R/UC...V | ✓ | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

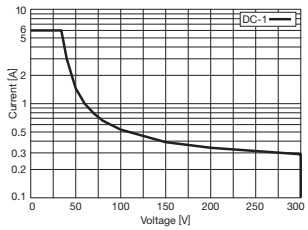
### fig. 1. Wiring diagram



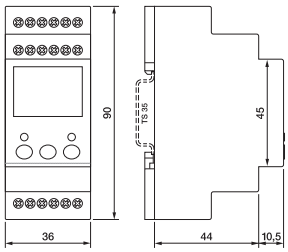

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60730-1; EN 60947-1; EN 61000-6-2; EN 61000-6-3
Railway EN 45545-2; EN 50155
Approvals

## Notes

# 3.5 Motor Protection - pluggable

| | Type | Pin | Page |
|---|---|---|---|
| **TSR Series** | | | |
| Motor protection \| PTC \| 1 + 1 CO | TSR19 | | 308 |

# TSR19

## Motor protection | PTC | 1 + 1 CO

### Power supply

| | | |
|---|---|---|
| Nominal voltage | 24 … 48 V UC | 230 V AC |
| Operating voltage range | 0.85 … 1.15 $U_N$ | 0.85 … 1.15 $U_N$ |
| Power consumption AC / DC | 2.5 VA / 1.5 W | 2.5 VA / 1.5 W |
| Frequency range | 0, 50, 60 Hz | 50, 60 Hz |

### Measuring circuit

| | |
|---|---|
| Measured parameters | Ω |
| Monitoring functions | over, sensor ground fault, sensor break |
| Resistance, OK range | 100 … 1 800 Ω |
| Clixon, OK range | 0 … 1 800 Ω |
| Failure threshold | ≤ 50 Ω, ≥ 2 250 Ω, ≤ 1 kΩ (to ground) |
| Alarm delay | 2.5 s |

### Main circuit

| | |
|---|---|
| Number of contacts | 1 + 1 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 6 A |
| Minimum load | 10 mA, 12 V |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 30 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | fig. 2 |

### Insulation

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage measuring circuit / main circuit | 2 kV rms / 1 min |
| Rated test voltage main circuit / power supply | 2 kV rms / 1 min |
| Rated test voltage main / main circuit | 2 kV rms / 1 min |
| Rated test voltage open contact | 2 kV rms / 1 min |
| Pollution degree | 2 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4 |
| Weight | 210 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

### Product references

| Description | Type | 24-48 | 230 |
|---|---|---|---|
| Motor protection, AC supply | TSR19/AC...V | | ✓ |
| Motor protection, AC/DC supply | TSR19/UC...V | ✓ | |

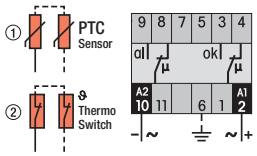
Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

### Accessories

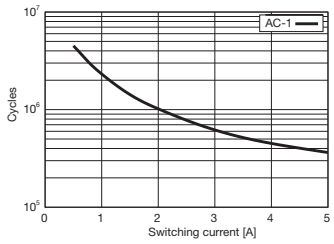
| | |
|---|---|
| Socket | S3-M |
| Retaining spring I steel | HF-24 |
| Transparent front cover kit for CT3x | FS-23 |
| Frontpanel mounting set | FZ-23 |



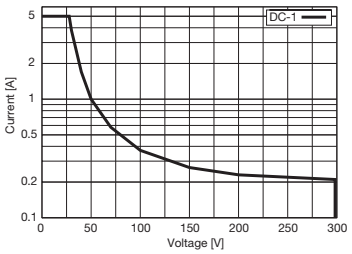
### fig. 1. Wiring diagram



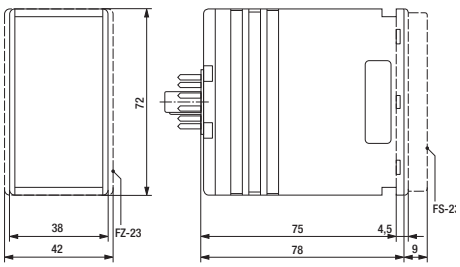

### fig. 2. AC voltage endurance




### fig. 3. DC load limit curve




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947

Approvals

# 3.6 Isolation Monitoring

| | Type | Pin | Page |
|---|---|---|---|
| **ESU Series** | | | |
| DC Isolation monitoring \| 1 NO + 2 CO | ESU-D2.C2354 | | 310 |

# ESU-D2.C2354

## DC Isolation monitoring | 1 NO + 2 CO

**Power supply**

| | |
|---|---|
| Nominal voltage | 24 … 48 V UC |
| Operating voltage range | 16.8 … 60 V |
| Power consumption AC / DC | 2 VA / 2 W |
| Frequency range | 0, 40 … 60 Hz |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | Ω |
| Monitoring functions | under, ground fault |
| Rated DC voltage U+ / U- | 60 V |
| Overvoltage setting range | > 60 VDC |
| Circuit / ground resistance measurement range | 1 … 50 kΩ |
| Pre alarm setting range | 4 … 30 kΩ |
| Main alarm | ≤ 4 kΩ |
| Alarm delay | 0.1 ... 10 s |

**Main circuit**

| | |
|---|---|
| Number of contacts | 1 NO + 2 CO |
| Available contact materials | AgNi |
| Rated voltage | 250 V AC |
| Rated current | 5 A |
| Minimum load | 10 mA, 12 V |
| Rated load DC | fig. 3 |
| Rated load AC-1 | 1,250 VA |
| Mechanical endurance (cycles) | 5 000 000 |
| Electrical endurance at rated load AC-1 (cycles) | 1 000 000 |

**Insulation**

| | |
|---|---|
| Pollution degree | 2 |
| Overvoltage category | III |

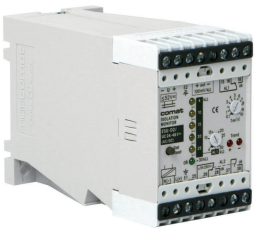
**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.5 |
| Dimensions | fig. 4 |
| Weight | 250 g |
| Ingress Protection | IP 20 |
| Housing material | PA |

**Product references**

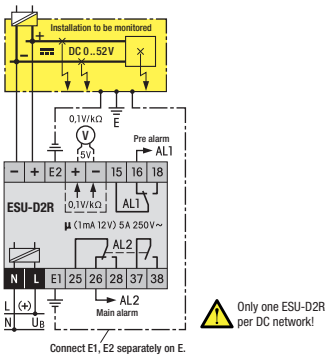
| Description | Type | 24-48 |
|---|---|---|
| DC Isolation monitoring, railway version | ESU-D2.C2354/UC…V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

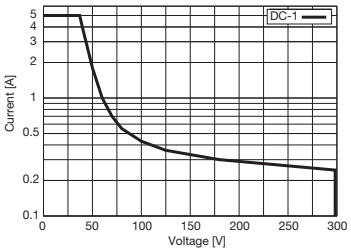




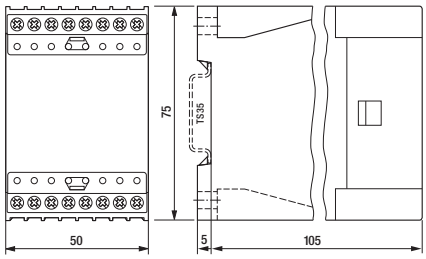
### fig. 1. Wiring diagram




### fig. 2. DC load limit curve




### fig. 3. Dimensions (mm)




### Technical approvals, conformities

| | |
|---|---|
| Standards | EN 61000-3; EN 61000-6-2; IEC/EN 60947 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE UKCA |

# 3.7 Monitoring Modules


| | Type | Pin | Page |
|---|---|---|---|
| **CT Series** | | | |
| Current Monitoring | CT515R | | 312 |
| Voltage Monitoring | CT524R | | 313 |

# CT515R

## Current Monitoring



**Power supply**

| | |
|---|---|
| Nominal voltage | 36 V DC |
| Operating voltage range | 18 … 45 V |
| Power consumption DC | ≤ 0.5 W |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | I |
| Monitoring functions | Under, over, inside, outside |
| Rated measurement current | 2 A |
| Measurement current range | 0 … 3 A |
| Undercurrent setting range | 0 … 2 A |
| Overcurrent setting range | 0 … 2 A |
| Alarm delay | 100 ms / 500 ms / 2 s |
| Alarm reset delay | 100 ms |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Dimensions | fig. 2 |
| Weight | 25 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

| Description | Type | 36 |
|---|---|---|
| Current Monitoring | CT515R/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

**Accessories**

| | |
|---|---|
| Socket | S3-M0R, FS-C/5 (BEUTEL/UNIT 5 STK/PCS) |
| S5-MR | S5-MR |

**fig. 1. Wiring diagram**

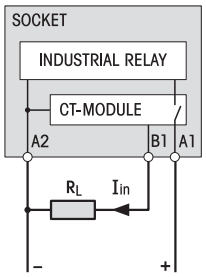
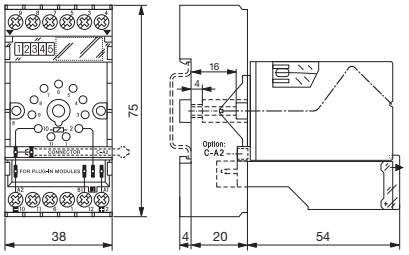



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

| | |
|---|---|
| Standards | EN 60947-1; EN 61000-6-2; EN 61000-6-3 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE EAC UKCA |

# CT524R

## Voltage Monitoring



**Power supply**

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 18 … 30 V |
| Power consumption AC / DC | ≤ 0.5 W |

**Measuring circuit**

| | |
|---|---|
| Measured parameters | U |
| Monitoring functions | Under, over, inside, outside |
| DC voltage measurement range U+ / U- | 0 … 30 V |
| Undervoltage setting range | 0 … 30 V |
| Overvoltage setting range | 0 … 30 V |
| Alarm delay | 100 ms / 500 ms / 2 s |
| Alarm reset delay | 100 ms |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -40 … 70 °C |
| Dimensions | fig. 2 |
| Weight | 25 g |
| Ingress Protection | IP 20 |
| Housing material | PC |

**Product references**

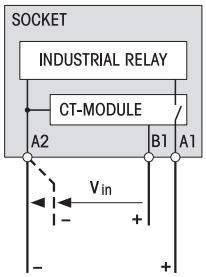
| Description | Type | 24 |
|---|---|---|
| Voltage monitoring, railway version | CT524R/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

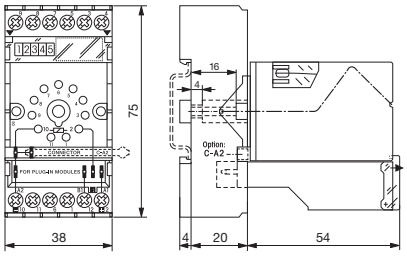
**Accessories**

| | |
|---|---|
| Socket | S3-M0R, FS-C/5 (BEUTEL/UNIT 5 STK/PCS) |
| S5-MR | S5-MR |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

| | |
|---|---|
| Standards | EN 60947-1; EN 61000-6-2; EN 61000-6-3 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE EAC UK CA |

Notes

# 3.8 Suppressor module


| | Type | Pin | Page |
|---|---|---|---|
| **CEM Series** | | | |
| Suppressor module | CEM01 | | 316 |
| **CRC Series** | | | |
| Overvoltage protection | CRC02 | | 317 |

# CEM01

## Suppressor module

**Power supply**

| | |
|---|---|
| Nominal voltage | 24 … 240 V UC |
| Operating voltage range | 19 … 250 V |
| Frequency range | 15 … 63 Hz |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 0.08 … 2.5 $mm^2$ |
| Dimensions | fig. 2 |
| Weight | 15 g |
| Ingress Protection | IP20 |
| Housing material | PA 66 |

**Product references**

| Description | Type | 24-240 |
|---|---|---|
| Suppressor module | CEM01/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.

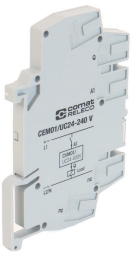




**fig. 1. Wiring diagram**

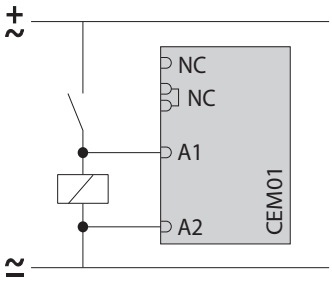
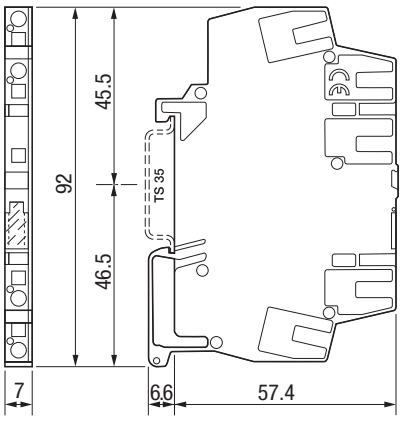



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60730-1; EN 61000-6-2; EN 61000-6-3

Approvals CE UKCA

# CRC02

## Overvoltage protection

**Power supply**

| | |
|---|---|
| Nominal voltage | 24 V UC |
| Operating voltage range | 0 … 30 V DC / 0 … 38 V AC |
| Frequency range | 47 … 63 Hz |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm², 2 x 1.5 mm² |
| Nominal screw torque control / main circuit | 0.4 Nm |
| Dimensions | fig. 2 |
| Weight | 70 g |
| Ingress Protection | IP20 |
| Housing material | PC |

**Product references**

| Description | Type | 24 |
|---|---|---|
| Overvoltage protection | CRC02/UC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List control circuit voltage to complete product references.



**fig. 1. Wiring diagram**

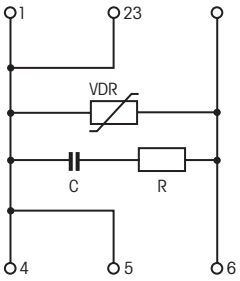
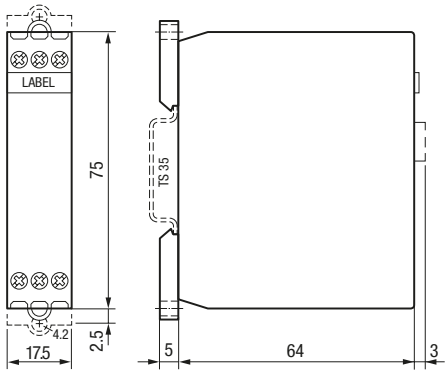



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60730-1; EN 61000-6-2; EN 61000-6-3

Approvals

## Notes

# 3.9 Monitoring relay accessories

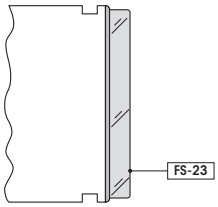
| | Type | Pin | Page |
|---|---|---|---|
| **Accessories** | | | |
| Transparent front cover kit for CT3x | FS-23 | | 320 |
| Front panel mounting set \| Retaining clip | FZ-23 | | 320 |

## FS-23

### Transparent front cover kit for CT3x

**Product references**

| Description | Type |
|---|---|
| Transparent front cover kit for CT3x | FS-23 |



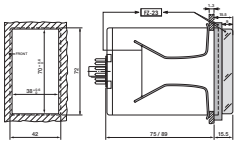



## FZ-23

### Front panel mounting set | Retaining clip

**Product references**

| Description | Type |
|---|---|
| Front panel mounting kit | FZ-23 |





# 3.10 Current transformer


| | Type | Pin | Page |
|---|---|---|---|
| **MRE-CT Series** | | | |
| Current Transformer \| up to 100 / 5 A | MRE-CT313 | | 322 |
| Current Transformer \| up to 750 / 5 A | MRE-CT314 | | 323 |
| Current Transformer \| up to 1500 / 5 A | MRE-CT614 | | 324 |
| Current Transformer \| up to 2000 A / 5 A | MRE-CT1233 | | 325 |

# MRE-CT313

## Current Transformer | up to 100 / 5 A

**Power supply**

| | |
|---|---|
| Operating voltage range | < 720 V |

**Measuring circuit**

| | |
|---|---|
| Measurement current range | ≤ 1 x $I_N$ |
| Max. current | 60 x $I_N$, 1 s (max. 100 kA) |
| Power consumption at 5 A | 0.36 VA/m (2.5 mm² wire) |
| Rated base frequency | 50 … 60 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 3 kV rms / 1 min, $U_m$ < 720 V |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -25 … 70 °C |
| Operation temperature | -5 … 50 °C |
| Dimensions | fig. 2 |
| Ingress Protection | IP20 |
| Housing material | ABS |

**Product references**

| Description | Type | 50 | 100 |
|---|---|---|---|
| Class 1, power 2.5 VA | MRE-CT313-100/5A/2.5-1 | | ✓ |
| Class 1, power 1 VA | MRE-CT313-50/5A/1-1 | ✓ | |

Other transmission ratio on request. Please contact support@comatreleco.com.
"..." List primary current to complete product references.



**fig. 1. Wiring diagram**

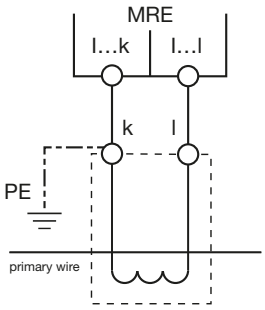
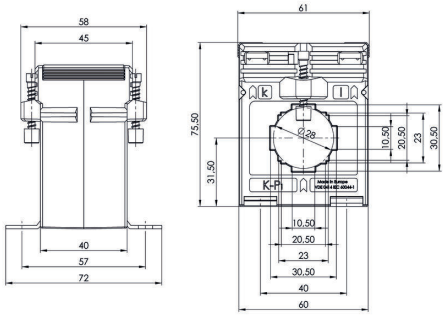



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 61869

Approvals CE UKCA

# MRE-CT314

## Current Transformer | up to 750 / 5 A

**Power supply**

| | |
|---|---|
| Operating voltage range | < 720 V |

**Measuring circuit**

| | |
|---|---|
| Measurement current range | ≤ 1 x $I_N$ |
| Max. current | 60 x $I_N$, 1 s (max. 100 kA) |
| Power consumption at 5 A | 0.36 VA/m (2.5 mm² wire) |
| Rated base frequency | 50 … 60 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 3 kV rms / 1 min, $U_m$ < 720 V |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -25 … 70 °C |
| Operation temperature | -5 … 50 °C |
| Dimensions | fig. 2 |
| Ingress Protection | IP20 |
| Housing material | ABS |

**Product references**

| Description | Type |
|---|---|
| Class 0.5, power 2.5 VA | MRE-CT314-100/5A/2.5-0.5 |
| Class 0.2s, power 2.5 VA | MRE-CT314-150/5A/2.5-0.2S |
| Class 0.5, power 2.5 VA | MRE-CT314-150/5A/2.5-0.5 |
| Class 0.2s, power 2.5 VA | MRE-CT314-200/5A/2.5-0.2S |
| Class 0.5, power 2.5 VA | MRE-CT314-200/5A/2.5-0.5 |
| Class 0.2s, power 2.5 VA | MRE-CT314-250/5A/2.5-0.2S |
| Class 0.5, power 2.5 VA | MRE-CT314-250/5A/2.5-0.5 |
| Class 0.2s, power 5 VA | MRE-CT314-300/5A/5-0.2S |
| Class 0.5, power 5 VA | MRE-CT314-300/5A/5-0.5 |
| Class 0.2s, power 5 VA | MRE-CT314-400/5A/5-0.2S |
| Class 0.5, power 5 VA | MRE-CT314-400/5A/5-0.5 |
| Class 0.2s, power 5 VA | MRE-CT314-500/5A/5-0.2S |
| Class 0.5, power 5 VA | MRE-CT314-500/5A/5-0.5 |
| Class 0.2s, power 5 VA | MRE-CT314-600/5A/5-0.2S |
| Class 0.5, power 5 VA | MRE-CT314-600/5A/5-0.5 |
| Class 0.2s, power 5 VA | MRE-CT314-750/5A/5-0.2S |
| Class 0.5, power 5 VA | MRE-CT314-750/5A/5-0.5 |

Other transmission ratio on request. Please contact support@comatreleco.com.
"..." List primary current to complete product references.



**fig. 1. Wiring diagram**

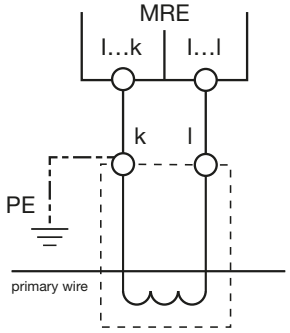
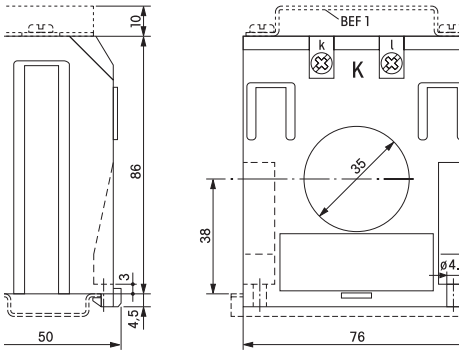



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 61869

Approvals CE UKCA

# MRE-CT614

## Current Transformer | up to 1500 / 5 A



**Power supply**

| | |
|---|---|
| Operating voltage range | < 720 V |

**Measuring circuit**

| | |
|---|---|
| Measurement current range | ≤ 1 x $I_N$ |
| Max. current | 60 x $I_N$, 1 s (max. 100 kA) |
| Power consumption at 5 A | 0.36 VA/m (2.5 mm² wire) |
| Rated base frequency | 50 … 60 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 3 kV rms / 1 min, $U_m$ < 720 V |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -25 … 70 °C |
| Operation temperature | -5 … 50 °C |
| Dimensions | fig. 2 |
| Ingress Protection | IP20 |
| Housing material | ABS |

**Product references**

| Description | Type |
|---|---|
| Class 0.2s, power 10 VA | MRE-CT614-1000/5A/10-0.2S |
| Class 0.5, power 10 VA | MRE-CT614-1000/5A/10-0.5 |
| Class 0.2s, power 10 VA | MRE-CT614-1250/5A/10-0.2S |
| Class 0.5, power 10 VA | MRE-CT614-1250/5A/10-0.5 |
| Class 0.2s, power 10 VA | MRE-CT614-1500/5A/10-0.2s |
| Class 0.5, power 10 VA | MRE-CT614-1500/5A/10-0.5 |

Other transmission ratio on request. Please contact support@comatreleco.com.
"..." List primary current to complete product references.

**fig. 1. Wiring diagram**

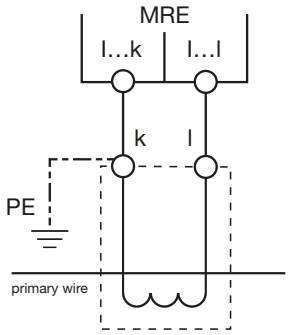
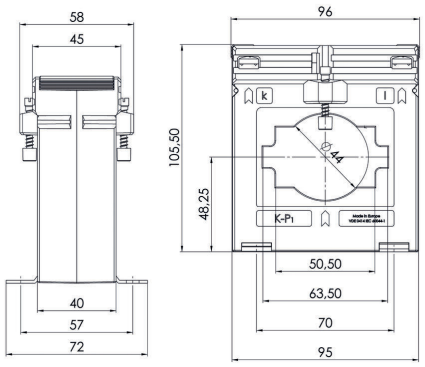



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 61869

Approvals CE UKCA

# MRE-CT1233

## Current Transformer | up to 2000 A / 5 A

**Power supply**

| | |
|---|---|
| Operating voltage range | < 720 V |

**Measuring circuit**

| | |
|---|---|
| Measurement current range | ≤ 1 x $I_N$ |
| Max. current | 60 x $I_N$, 1 s (max. 100 kA) |
| Power consumption at 5 A | 0.36 VA/m (2.5 mm² wire) |
| Rated base frequency | 50 … 60 Hz |

**Insulation**

| | |
|---|---|
| Rated test voltage measuring / measuring circuit | 3 kV rms / 1 min, $U_m$ < 720 V |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -25 … 70 °C |
| Operation temperature | -5 … 50 °C |
| Dimensions | fig. 2 |
| Ingress Protection | IP20 |
| Housing material | ABS |

**Product references**

| Description | Type |
|---|---|
| Class 0.2s, power 10 VA | MRE-CT1233-2000/5A/10-0.2S |

Other transmission ratio on request. Please contact support@comatreleco.com.
"..." List primary current to complete product references.



**fig. 1. Wiring diagram**

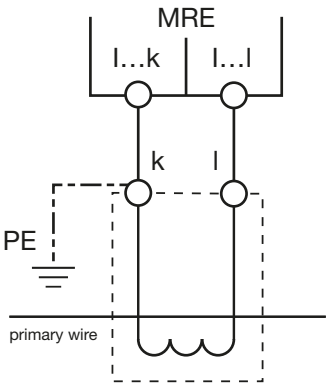
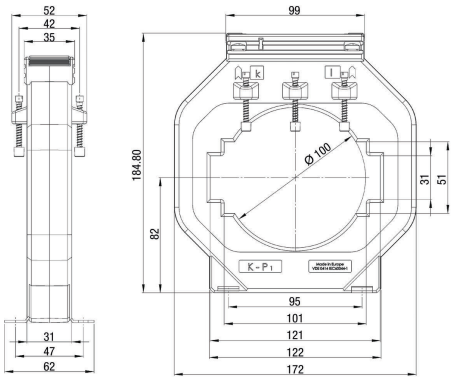



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 61869

Approvals CE UKCA

## Notes

# 4 Sockets


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# Socket Accessoires

| Type | Description | EC-11 | S2-B | S2-PO | S3-B | S3-S | S3-MR | S3-MO / S3-M1 | S3-MOR / S3-M1R | S4-J | S4-GR | S4-P | S5-M | S5-P | S5-SSY | S7-C | S7-IO | S7-GR | S7-P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B20-A (BAG 5 PCS) | A2-Connector I blue | | | | | | | | | | | | | | | | | | |
| B20-G (BAG 5 PCS) | A2-Connector I grey | | | | | | | | | | | | | | | | | | |
| B20-R (BAG 5 PCS) | A2-Connector I red | | | | | | | | | | | | | | | | | | |
| C-A2 (BAG 50PCS) | A2-Connector | | | | | | ● | | ● | | | | | | | | | | |
| C-A2 (BAG 5PCS) | A2-Connector | | | | | | | ● | | | | | ● | | | | | | |
| CP-07B (BAG 50PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | ● | | | ● |
| CP-16 (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | | | |
| CP-24B (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | | | |
| HF-32 (BAG 10 PCS) | Retaining clip, steel | | ● | ● | ● | ● | ● | ● | ● | | | | ● | | | | | | |
| HF-33 (BAG 10 PCS) | Retaining clip, steel | | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| RC0047-100/AC250V (BAG 5PCS) | RC-Suppressor module | | | | | | | | | | | | | | | ● | | | |
| RC1/UC110-240V | RC-Suppressor module | | | | | | ● | ● | ● | | | | ● | | | | | | |
| RD1/DC12-220V | Freewheeling diode module | | | | | | ● | ● | ● | | | | ● | | | | | | |
| RD2/DC12-220V | Freewheeling diode module | | | | | | | ● | | | | | ● | | | | | | |
| RDL2/DC24-60V | Freewheeling diode module with LED | | | | | | | ● | | | | | ● | | | | | | |
| RDL2/DC6-24V | Freewheeling diode module with LED | | | | | | | ● | | | | | ● | | | | | | |
| RDL2/UC110-240V | Freewheeling diode module with LED | | | | | | | ● | | | | | ● | | | | | | |
| S10-BB (BAG 20 PCS) | A2-Connector | | | | | | | | | | | | | | | | | | |
| S10-C/CP-17B (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | | | |
| S10-CPI (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | | | |
| S30-CM (BAG 10 PCS) | Retaining clip, plastic | | ● | | ● | ● | | | | | | | | | | | | | |
| S3-BC (BAG 5 PCS) | Coding ring I 5 PCS | | | | ● | ● | ● | | ● | | | | | | | | | | |
| S3-C (BAG 10 PCS) | Retaining clip, steel | | | | | | | | | ● | ● | | | | | | | | |
| S4-CL (BAG 10 PCS) | Retaining clip, steel | | | | | | | | | | | ● | | | | | | | |
| S5-C (BAG 10 PCS) | Retaining clip, steel | | | | | | | | | | | | | ● | ● | | | | |
| S5M-CP | Retaining clip, plastic | | | | | | | | | | | | ● | | | | | | |
| S7-BB (BAG 20 PCS) | A2-Connector | | | | | | | | | | | | | | | ● | ● | ● | |
| S7-CPI (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | | | |
| S9-C/CP-01B (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | | ● | |
| S9-G (BAG 10 PCS) | Panel adapter | | | | | | | | | | | | | | | ● | ● | ● | |
| S9M-BX (BAG 5 PCS) | Bridge bar | | | | | | | | | | | | | | | | | | |
| S9M-V1 (BAG 5 PCS) | Bridge bar | | | | | | | | | | | | | | | | | | |
| S9M-V4 (BAG 5 PCS) | Bridge bar | | | | | | | | | | | | | | | | | | |
| SC-3 (BAG 10 PCS) | A1-, B1-connector | | | | | | | | | | | | ● | | | | | | |
| Sxx-BBPI (BAG 20 PCS) | A2-Connector | | | | | | | | | | | | | | | | | | |
| TM-1 | Push-in tool | | | | | | | | | | | | | | | | | | |
| V10-A (BAG 5 PCS) | Bridge bar twofold blue | | | | | | | | | | | | | | | | | | |
| V10-G (BAG 5 PCS) | Bridge bar twofold grey | | | | | | | | | | | | | | | | | | |
| V10-R (BAG 5 PCS) | Bridge bar twofold red | | | | | | | | | | | | | | | | | | |
| V40-A (BAG 5 PCS) | Bridge bar fourfold blue | | | | | | | | | | | | | | | | | | |
| V40-G (BAG 5 PCS) | Bridge bar fourfold grey | | | | | | | | | | | | | | | | | | |
| V40-R (BAG 5 PCS) | Bridge bar fourfold red | | | | | | | | | | | | | | | | | | |

# Socket Accessoires

| Type | Description | S7-PI | S7-PIR | S9-M | S9-P | S9-PI | S9-PIR | S10 | S10-GR | S10-P | S10-PI | S10-PIR | S12 | S12-P | S12-PI | S12-PIR | S16-M | S18-M | S18-M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B20-A (BAG 5 PCS) | A2-Connector I blue | | | | | | | | | | | | ● | | | | | | |
| B20-G (BAG 5 PCS) | A2-Connector I grey | | | | | | | | | | | | ● | | | | | | |
| B20-R (BAG 5 PCS) | A2-Connector I red | | | | | | | | | | | | ● | | | | | | |
| C-A2 (BAG 50PCS) | A2-Connector | ● | ● | | | ● | ● | | | | ● | ● | | | ● | ● | | | |
| C-A2 (BAG 5PCS) | A2-Connector | | | | | | | | | | | | | | | | | | |
| CP-07B (BAG 50PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | | | |
| CP-16 (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | ● | ● | |
| CP-24B (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | ● | | | | ● | | | | | |
| HF-32 (BAG 10 PCS) | Retaining clip, steel | | | | | | | | | | | | | | | | | | |
| HF-33 (BAG 10 PCS) | Retaining clip, steel | | | | | | | | | | | | | | | | | | |
| RC0047-100/AC250V (BAG 5PCS) | RC-Suppressor module | | | | | | | | | | | | | | | | | | |
| RC1/UC110-240V | RC-Suppressor module | | | | | | | | | | | | | | | | | | |
| RD1/DC12-220V | Freewheeling diode module | | | | | | | | | | | | | | | | | | |
| RD2/DC12-220V | Freewheeling diode module | | | | | | | | | | | | | | | | | | |
| RDL2/DC24-60V | Freewheeling diode module with LED | | | | | | | | | | | | | | | | | | |
| RDL2/DC6-24V | Freewheeling diode module with LED | | | | | | | | | | | | | | | | | | |
| RDL2/UC110-240V | Freewheeling diode module with LED | | | | | | | | | | | | | | | | | | |
| S10-BB (BAG 20 PCS) | A2-Connector | | | | | | | ● | ● | | | | | | | | | | |
| S10-C/CP-17B (BAG 10 PCS) | Retaining clip, plastic | | | | | | | ● | ● | | | | | | | | | | |
| S10-CPI (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | ● | ● | | | ● | ● | | | |
| S30-CM (BAG 10 PCS) | Retaining clip, plastic | | | | | | | | | | | | | | | | | | |
| S3-BC (BAG 5 PCS) | Coding ring I 5 PCS | | | | | | | | | | | | | | | | | | |
| S3-C (BAG 10 PCS) | Retaining clip, steel | | | | | | | | | | | | | | | | | | |
| S4-CL (BAG 10 PCS) | Retaining clip, steel | | | | | | | | | | | | | | | | | | |
| S5-C (BAG 10 PCS) | Retaining clip, steel | | | | | | | | | | | | | | | | | | |
| S5M-CP | Retaining clip, plastic | | | | | | | | | | | | | | | | | | |
| S7-BB (BAG 20 PCS) | A2-Connector | | | | | | | | | | | | | | | | | | |
| S7-CPI (BAG 10 PCS) | Retaining clip, plastic | ● | ● | | | ● | ● | | | | | | | | | | | | |
| S9-C/CP-01B (BAG 10 PCS) | Retaining clip, plastic | | | ● | | | | | | | | | | | | | | | |
| S9-G (BAG 10 PCS) | Panel adapter | | | ● | | | | | | | | | | | | | | | |
| S9M-BX (BAG 5 PCS) | Bridge bar | | | ● | | | | | | | | | | | | | | | |
| S9M-V1 (BAG 5 PCS) | Bridge bar | | | ● | | | | | | | | | | | | | | | |
| S9M-V4 (BAG 5 PCS) | Bridge bar | | | ● | | | | | | | | | | | | | | | |
| SC-3 (BAG 10 PCS) | A1-, B1-connector | | | | | | | | | | | | | | | | | | |
| Sxx-BBPI (BAG 20 PCS) | A2-Connector | ● | ● | | | ● | ● | | | | ● | ● | | | ● | ● | | | |
| TM-1 | Push-in tool | ● | ● | | | ● | ● | | | | ● | ● | | | ● | ● | | | |
| V10-A (BAG 5 PCS) | Bridge bar twofold blue | | | | | | | | | | | | ● | | | | | | |
| V10-G (BAG 5 PCS) | Bridge bar twofold grey | | | | | | | | | | | | ● | | | | | | |
| V10-R (BAG 5 PCS) | Bridge bar twofold red | | | | | | | | | | | | ● | | | | | | |
| V40-A (BAG 5 PCS) | Bridge bar fourfold blue | | | | | | | | | | | | ● | | | | | | |
| V40-G (BAG 5 PCS) | Bridge bar fourfold grey | | | | | | | | | | | | ● | | | | | | |
| V40-R (BAG 5 PCS) | Bridge bar fourfold red | | | | | | | | | | | | ● | | | | | | |

# Retaining clip selection for socket and relay

| Socket type | C2 | C2 + CT2 Timecube | C3 / R3 | C3 + CT3 Timecube | C4 / R4 | C5 | C7 | C9 | C10 / CSS | C12 | C16 PTL / C18 PTL | C18-A15PT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EC-11 | | | HF-32 | | | | | | | | | |
| S2-B | S30-CM<br>HF-32 | HF-33 | | | | | | | | | | |
| S2-PO | HF-32 | | | | | | | | | | | |
| S3-B | | | S30-CM<br>HF-32 | HF-33 | | | | | | | | |
| S3-S | | | S30-CM<br>HF-32 | HF-33 | | | | | | | | |
| S3-M(x) | | | HF-32 | HF-33 | | | | | | | | |
| S4-J / -GR | | | | | S3-C<br>CP-15B<br>S3-C | | | | | | | |
| S4-P | | | | | S4-CL | | | | | | | |
| S5-SSY | | | | | | S5-C | | | | | | |
| S5-M | | | | | | S5M-CP<br>HF-32 | | | | | | |
| S7-C | | | | | | | S7-CPO<br>CP-07B | | | | | |
| S7-IO / -GR | | | | | | | S9-C<br>CP-01B | | | | | |
| S7-P | | | | | | | S7-CPO<br>CP-07B | | | | | |
| S7-PI | | | | | | | S7-CPI | | | | | |
| S7-PIR | | | | | | | S7-CPI | | | | | |
| S9-M | | | | | | | | S9-C<br>CP-01B | | | | |
| S9-P | | | | | | | | S7-CPO<br>CP-07B | | | | |
| S9-PI | | | | | | | S7-CPI | S7-CPI | | | | |
| S9-PIR | | | | | | | S7-CPI | S7-CPI | | | | |
| S10 / -GR | | | | | | | | | S10-C<br>CP-17B | | | |
| S10-P | | | | | | | | | CP-24B | | | |
| S10-PI | | | | | | | | | S10-CPI | S10-CPI | | |
| S10-PIR | | | | | | | | | S10-CPI | S10-CPI | | |
| S12 / -GR | | | | | | | | | | S10-C<br>CP-17B | | |
| S12-P | | | | | | | | | | CP-24B | | |
| S12-PI | | | | | | | | | S10-CPI | S10-CPI | | |
| S12-PIR | | | | | | | | | S10-CPI | S10-CPI | | |
| S16-M | | | | | | | | | | | CP-16 | |
| S18-M | | | | | | | | | | | | CP-16 |

# Retaining clip selection for socket and relay

| Socket type | C21 | C21 + CT2 Timecube | C22 | C22 + CT2 Timecube | C31 | C31 + CT3 Timecube | C32 | C32 + CT3 Zeitwürfel | R7 | R9 | R10 | R12 | CSS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EC-11 | | | | | HF-32 | HF-33 | HF-32 | HF-33 | | | | | |
| S2-B | HF-32 | HF-33 | HF-32 | HF-33 | | | | | | | | | |
| S2-PO | | | | | | | | | | | | | |
| S3-B | | | | | S30-CM HF-32 | HF-33 | S30-CM HF-32 | HF-33 | | | | | |
| S3-S | | | | | S30-CM HF32 | HF-33 | S30-CM HF32 | HF-33 | | | | | |
| S3-M(x) | | | | | HF-32 | HF-33 | HF-32 | HF-33 | | | | | |
| S4-J / -GR | | | | | | | | | | | | | |
| S4-P | | | | | | | | | | | | | |
| S5-SSY | | | | | | | | | | | | | |
| S5-M | | | | | | | | | | | | | |
| S7-C | | | | | | | | | | | | | |
| S7-IO / -GR | | | | | | | | | S7-CPO CP-07B | | | | |
| S7-P | | | | | | | | | | | | | |
| S7-PI | | | | | | | | | | | | | |
| S7-PIR | | | | | | | | | S7-CPI | | | | |
| S9-M | | | | | | | | | | | | | |
| S9-P | | | | | | | | | | | | | |
| S9-PI | | | | | | | | | | | | | |
| S9-PIR | | | | | | | | | | S7-CPI | | | |
| S10 / -GR | | | | | | | | | | | S10-C CP-17B | | |
| S10-P | | | | | | | | | | | | | |
| S10-PI | | | | | | | | | | | | | S10-CPI |
| S10-PIR | | | | | | | | | | | S10-CPI | | |
| S12 / -GR | | | | | | | | | | | | S10-C CP-17B | |
| S12-P | | | | | | | | | | | | | |
| S12-PI | | | | | | | | | | | | | |
| S12-PIR | | | | | | | | | | | | S10-CPI | |
| S16-M | | | | | | | | | | | | | |
| S18-M | | | | | | | | | | | | | |

# Socket selection for industrial & railway Relays

| Socket Type | C2 | C3 / R3 | C4 / R4 | C5 | C7 | C9 | C10 | C12 | C16PTL / C18PTL | C18-A15PT | C21 | C22 | C31 | C32 | R7 | R9 | R10 | R12 | R-Module | CSS | CS2 / CS3 / C64 | C55 / C56 | C83 / C85 | CT2 | CT3 | CT32 / CT33 / CT36 | CT515 / CT524 | KDM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EC-11 | | ● | | | | | | | | | | | ● | ● | | | | | | | | | | | | | | |
| S2-B | ● | | | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| S2-P0 * | ● | | | | | | | | | | | | | | | | | | | | | | | ● | | | | |
| S3-B | | ● | | | | | | | | | | | ● | ● | | | | | | | ● | ● | | | ● | | | |
| S3-C | | ● | | | | | | | | | | | ● | ● | | | | | | | ● | ● | | | ● | | | |
| S3-S | | ● | | | | | | | | | | | ● | ● | | | | | | | ● | ● | | | ● | | | |
| S3-P0 * | | | | | | | | | | | | | | | | | | | | | ● | ● | | | ● | | | |
| S3-M0 / S3-M0R | | ● | | | | | | | | | | | ● | ● | | | | | ● | | | | | | | ● | ● | |
| S3-M1 / S3-M1R | | ● | | | | | | | | | | | ● | ● | | | | | | | ● | ● | | | ● | | | |
| S3-M / S3-MR | | ● | | | | | | | | | | | ● | ● | | | | | | | ● | ● | | | ● | | | |
| S4-J / -GR | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | |
| S4-L * | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | |
| S4-P | | | ● | | | | | | | | | | | | | | | | | | | | | | | | | |
| S5-M | | | | ● | | | | | | | | | | | | | | | ● | | | | | | | ● | ● | |
| S5-L * | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| S5-P | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| S5-SSY | | | | ● | | | | | | | | | | | | | | | | | | | | | | | | |
| S7-C | | | | | ● | | | | | | | | | | ● | | | | ● | | | | ● | | | | | ● |
| S7-I0 / -GR | | | | | ● | | | | | | | | | | ● | | | | ● | | | | | | | | | |
| S7-16 * | | | | | ● | | | | | | | | | | ● | | | | ● | | | | | | | | | |
| S7-P * | | | | | ● | | | | | | | | | | ● | | | | | | | | | | | | | |
| S7-PI | | | | | ● | | | | | | | | | | | | | | | | | | | | | | | |
| S7-PIR | | | | | | | | | | | | | | | ● | | | | | | | | | | | | | |
| S9-M | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | |
| S9-P | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | |
| S9-PI | | | | | | ● | | | | | | | | | | | | | | | | | | | | | | |
| S9-PIR | | | | | | | | | | | | | | | | ● | | | | | | | | | | | | |
| S10 / -GR | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | |
| S10-P | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | |
| S10-PI | | | | | | | ● | | | | | | | | | | | | | | | | | | | | | |
| S10-PIR | | | | | | | | | | | | | | | | | ● | | | ● | | | | | | | | |
| S12 | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| S12-P | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| S12-PI | | | | | | | | ● | | | | | | | | | | | | | | | | | | | | |
| S12-PIR | | | | | | | | | | | | | | | | | | ● | | | | | | | | | | |
| S16-M | | | | | | | | | ● | | | | | | | | | | ● | | | | | | | | | |
| S18-M | | | | | | | | | | ● | | | | | | | | | ● | | | | | | | | | |

* Discontinued, limited units may be still available from stock.

# 4.1 8-Pin Sockets

| | Type | Pin | Page |
|---|---|---|---|
| **8-Pin Sockets** | | | |
| 8-pin C2 Relay socket \| Time Cubes compatible \| screw terminal | S2-B | | 334 |

# S2-B

## 8-pin C2 Relay socket | Time Cubes compatible | screw terminal



**General data**

| | |
|---|---|
| Rated load | 10 A / 300 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12 or 2 x 2.5mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 48 g |
| Housing material | PA / PC |

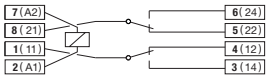
**Included Accessories**

| | |
|---|---|
| Retaining clip I plastic | S30-CM/10 (BAG 10 PCS) |

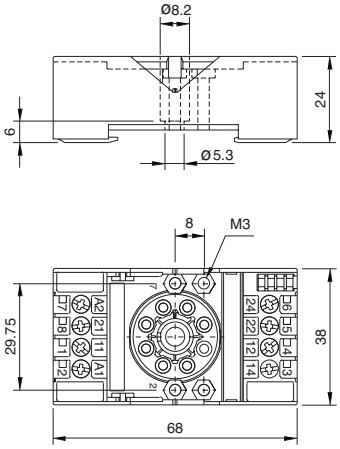
**Optional Accessories**

| | |
|---|---|
| Retaining spring I steel | HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS) |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Approvals

# 4.2 11-Pin-Sockets


| | Type | Pin | Page |
|---|---|---|---|
| **11-Pin Series** | | | |
| 11-pin C3 Relay socket \| Time Cubes compatible \| screw terminal | S3-B | | 336 |
| 11-pin C3 Relay socket \| Time Cubes compatible \| screw terminal | S3-S | | 337 |
| 11-pin C3 Relay socket \| Time Cubes compatible \| screw terminal | EC-11 | | 338 |
| 11-pin C3 Relay socket \| Time & Monitoring Module compatible \| screw terminal | S3-M | | 339 |
| 11-pin R3 Relay socket \| Time & Monitoring Module compatible \| screw terminal | S3-MR | | 340 |
| 11-pin C3 Relay socket \| Time & Monitoring Module compatible \| screw terminal | S3-M0 / S3-M1 | | 341 |
| 11-pin R3 Relay socket \| Time & Monitoring Module compatible \| screw terminal | S3-M0R / S3-M1R | | 342 |
| 11-pin C5 Relay socket \| screw terminal | S5-M | | 343 |
| 11-pin C5 Relay socket \| screw terminal | S5-MR | | 344 |
| 11-pin C5 Relay socket \| PCB | S5-P | | 345 |
| 11-pin C5 Relay socket \| screw terminal | S5-SSY | | 346 |

# S3-B

## 11-pin C3 Relay socket | Time Cubes compatible | screw terminal

| General data | |
|---|---|
| Rated load | 10 A / 300 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12 or 2 x 2.5mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 55 g |
| Housing material | PA / PC |

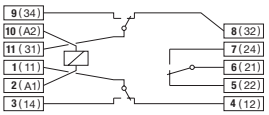
| Included Accessories | |
|---|---|
| Retaining clip I plastic | S30-CM/10 (BAG 10 PCS) |

| Optional Accessories | |
|---|---|
| Retaining spring I steel | HF-33 (BAG 10 PCS), HF-32 (BAG 10 PCS) |
| Coding ring | S3-BC (BAG 5 PCS) |

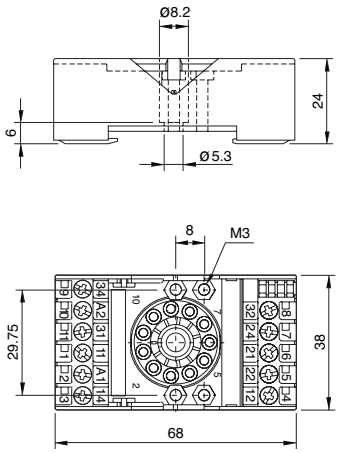




### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S3-S

## 11-pin C3 Relay socket | Time Cubes compatible | screw terminal

| | |
|---|---|
| **General data** | |
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12 or 2 x 2.5mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.8 Nm |
| Screw Dimension | M3.5 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 69 g |
| Housing material | PA / PC |

| | |
|---|---|
| **Included Accessories** | |
| Retaining clip | plastic | S30-CM/10 (BAG 10 PCS) |

| | |
|---|---|
| **Optional Accessories** | |
| Retaining spring | steel | HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS) |
| Coding ring | S3-BC (BAG 5 PCS) |

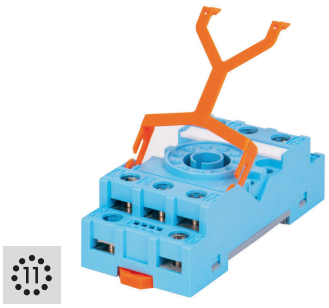


**fig. 1. Wiring diagram**

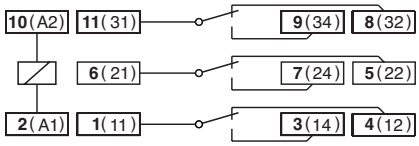
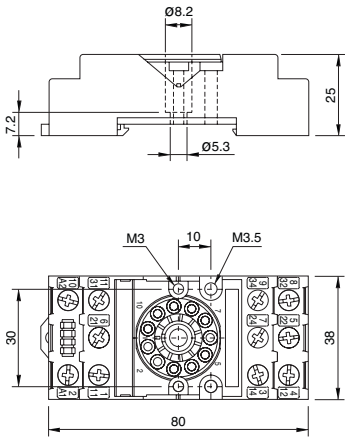



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# EC-11

## 11-pin C3 Relay socket | Time Cubes compatible | screw terminal

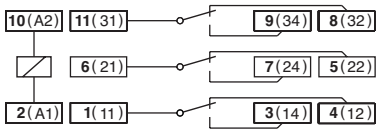
**General data**

| | |
|---|---|
| Rated load | 10 A / 400 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12 or 2 x 2.5mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.8 Nm |
| Screw Dimension | M3.5 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -25 … 60 °C |
| Weight | 56 g |
| Housing material | PA / PC |

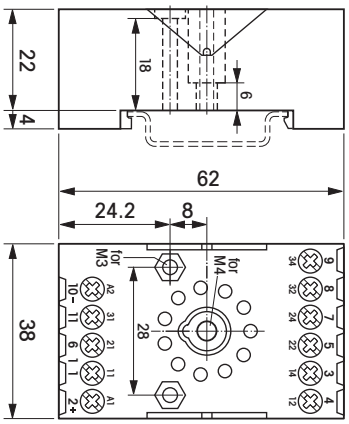




### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)



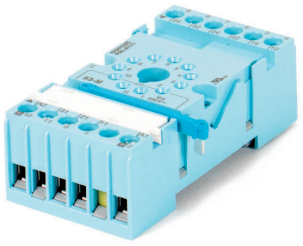

### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S3-M

**11-pin C3 Relay socket | Time & Monitoring Module compatible | screw terminal**



**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1 x 6 mm² / AWG 10, 2 x 1.5 mm² / AWG 16 |
| - Multi wire (un-crimped) | 1 x 4 mm² / AWG 12, 2 x 1.5 mm² / AWG 16 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -25 … 60 °C |
| Weight | 61 g |
| Housing material | PA / PC |

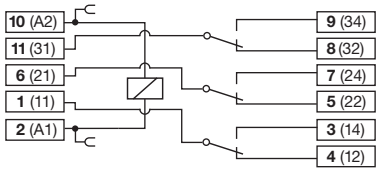
**Included Accessories**

| | |
|---|---|
| 4-pole potential bridge bar | C-A2 (BAG 5PCS) |

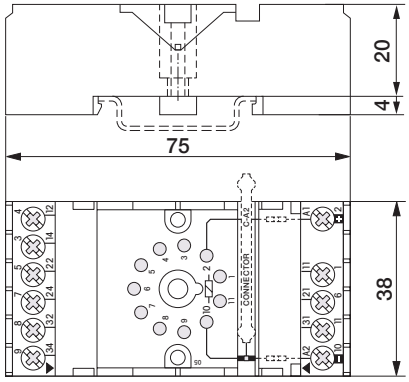
**Optional Accessories**

| | |
|---|---|
| Retaining spring I steel | HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS) |
| Coding ring | S3-BC (BAG 5 PCS) |
| Freewheeling diode module for S3-M, S3-M0, S5-M | RD1/DC12-220V |
| RC-Suppressor module | RC1/UC110-240V |
| 4-pole potential bridge bar | C-A2 (BAG 50PCS) |

## fig. 1. Wiring diagram




## fig. 2. Dimensions (mm)




## Technical approvals, conformities

Standards EN 60664-1

Approvals

# S3-MR

**11-pin R3 Relay socket | Time & Monitoring Module compatible | screw terminal**





**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1 x 6 mm² / AWG 10, 2 x 1.5 mm² / AWG 16 |
| - Multi wire (un-crimped) | 1 x 4 mm² / AWG 12, 2 x 1.5 mm² / AWG 16 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 61 g |
| Housing material | PA |

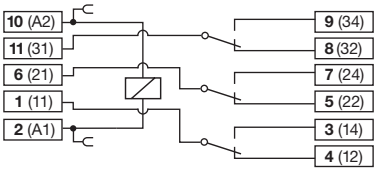
**Included Accessories**

| | |
|---|---|
| 4-pole potential bridge bar | C-A2 (BAG 5PCS) |

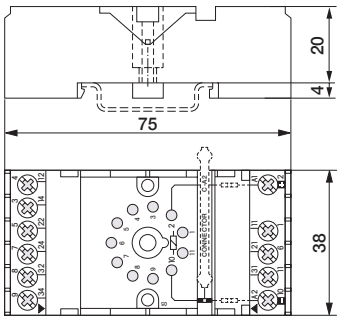
**Optional Accessories**

| | |
|---|---|
| Retaining spring I steel | HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS) |
| Coding ring | S3-BC (BAG 5 PCS) |
| Freewheeling diode module for S3-M, S3-M0, S5-M | RD1/DC12-220V |
| RC-Suppressor module | RC1/UC110-240V |
| 4-pole potential bridge bar | C-A2 (BAG 50PCS) |

## fig. 1. Wiring diagram




## fig. 2. Dimensions (mm)




## Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

# S3-M0 / S3-M1

**11-pin C3 Relay socket | Time & Monitoring Module compatible | screw terminal**

| **General data** | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1 x 6 mm² / AWG 10, 2 x 1.5 mm² / AWG 16 |
| - Multi wire (un-crimped) | 1 x 4 mm² / AWG 12, 2 x 1.5 mm² / AWG 16 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -25 … 60 °C |
| Weight | 61 g |
| Housing material | PA / PC |

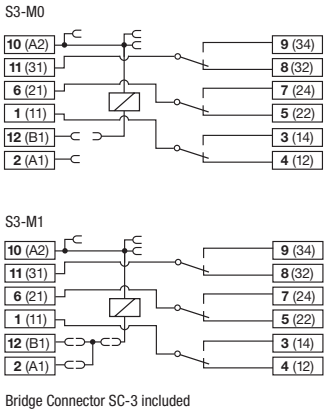
| **Included Accessories** | |
|---|---|
| 4-pole potential bridge bar | C-A2 (BAG 5PCS) |

| **Optional Accessories** | |
|---|---|
| Retaining spring I steel | HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS) |
| Coding ring | S3-BC (BAG 5 PCS) |
| Freewheeling diode module for S3-M, S3-M0, S5-M | RD1/DC12-220V |
| RC-Suppressor module | RC2/UC110-240V, RC1/UC110-240V |
| 4-pole potential bridge bar | C-A2 (BAG 50PCS) |

-

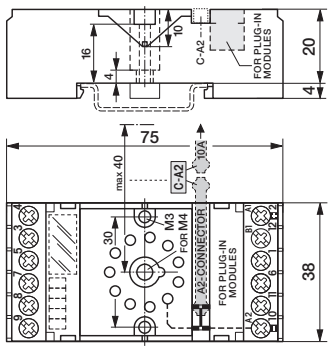


## fig. 1. Wiring diagram




Bridge Connector SC-3 included

## fig. 2. Dimensions (mm)




## Technical approvals, conformities

Standards EN 60664-1

Approvals

# S3-M0R / S3-M1R

**11-pin R3 Relay socket | Time & Monitoring Module compatible | screw terminal**

**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1 x 6 mm² / AWG 10, 2 x 1.5 mm² / AWG 16 |
| - Multi wire (un-crimped) | 1 x 4 mm² / AWG 12, 2 x 1.5 mm² / AWG 16 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 61 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| 4-pole potential bridge bar | C-A2 (BAG 5PCS) |

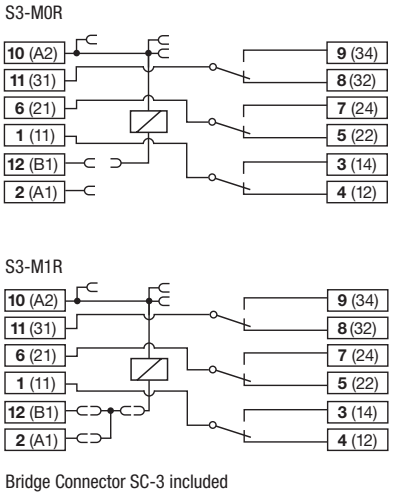
**Optional Accessories**

| | |
|---|---|
| Retaining spring I steel | HF-32 (BAG 10 PCS), HF-33 (BAG 10 PCS) |
| Coding ring | S3-BC (BAG 5 PCS) |
| Freewheeling diode module for S3-M, S3-M0, S5-M | RD1/DC12-220V |
| RC-Suppressor module | RC1/UC110-240V |
| 4-pole potential bridge bar | C-A2 (BAG 50PCS) |



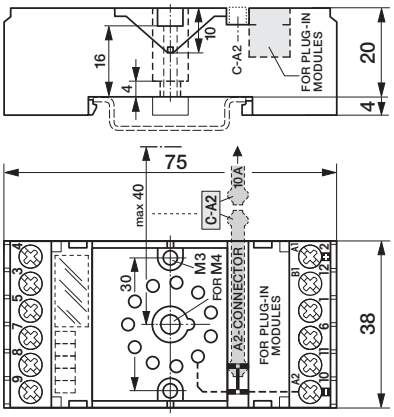


## fig. 1. Wiring diagram




Bridge Connector SC-3 included

## fig. 2. Dimensions (mm)




## Technical approvals, conformities

| | |
|---|---|
| Standards | EN 60664-1 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE UK CA |

# S5-M

## 11-pin C5 Relay socket | screw terminal

| General data | |
|---|---|
| Rated load | 16 A / 400 V |
| Dielectric strength | |
| - All terminals / DIN rail | 4 kV rms / 1 min |
| - Terminal / terminal | 4 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1 x 6 mm² / AWG 10, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 1 x 6 mm² / AWG 10, 2 x 1.5 mm² / AWG 16 |
| Nominal screw torque | 0.8 Nm |
| Screw Dimension | M3.5 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 92 g |
| Housing material | PA / PC |

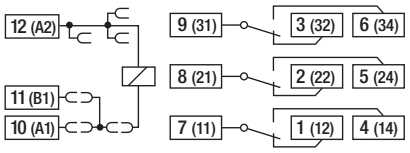
| Included Accessories | |
|---|---|
| Retaining clip I plastic | S5M-CP |
| 4-pole potential bridge bar | C-A2 (BAG 5PCS) |

| Optional Accessories | |
|---|---|
| Retaining spring I steel | HF-32 (BAG 10 PCS) |
| A1-, B1-connector for S3-Mx, S5-M | SC-3 (BAG 10 PCS) |
| 4-pole potential bridge bar | C-A2 (BAG 50PCS) |



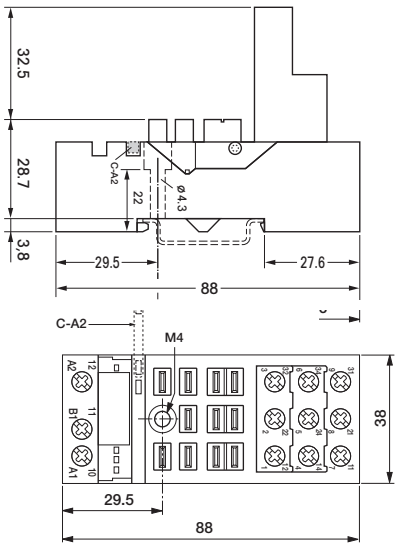


### fig. 1. Wiring diagram




With Bridge Connector SC-3

### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S5-MR

## 11-pin C5 Relay socket | screw terminal

**General data**

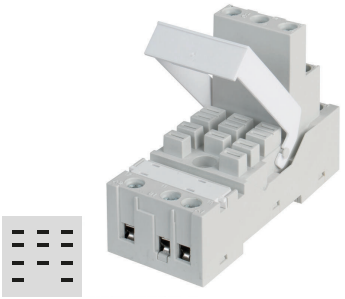
| | |
|---|---|
| Rated load | 16 A / 400 V |
| - All terminals / DIN rail | 4 kV rms /1 min |
| - Terminal / terminal | 4 kV rms /1 min |
| - Single wire | 1 x 6 mm² / AWG 10, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 1 x 6 mm² / AWG 10, 2 x 2.5 mm² / AWG 16 |
| Nominal screw torque | 0.8 Nm |
| Screw Dimension | M3.5 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 92 g |
| Housing material | PA |

**Included Accessories**

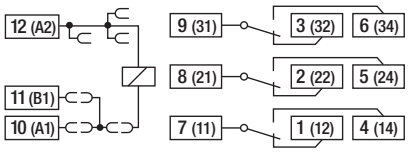
| | |
|---|---|
| Retaining clip | plastic | S5M-CP |
| 4-pole potential bridge bar | C-A2 (BAG 5PCS) |

**Optional Accessories**

| | |
|---|---|
| Retaining spring | steel | HF-32 (BAG 10 PCS) |
| A1-, B1-connector for S3-Mx, S5-M | SC-3 (BAG 10 PCS) |
| 4-pole potential bridge bar | C-A2 (BAG 50PCS) |

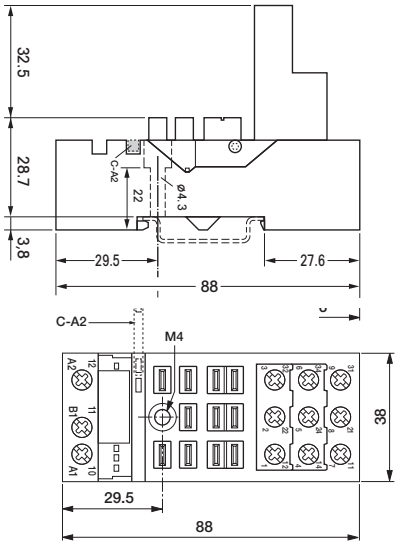


### fig. 1. Wiring diagram




With Bridge Connector SC-3

### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

# S5-P

## 11-pin C5 Relay socket | PCB

**General data**

| | |
|---|---|
| Rated load | 16 A / 400 V |
| Dielectric strength | |
| - Pin / pin | 2.5 kV rms / 1 min |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 20 g |
| Housing material | PBT |

**Optional Accessories**

| | |
|---|---|
| Retaining spring | steel | S5-C (BAG 10 PCS) |





**fig. 1. Printed circuit lay-out (mm)**

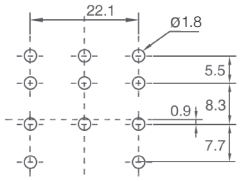
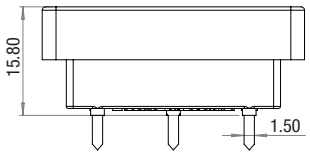
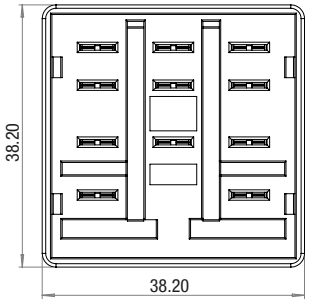



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S5-SSY

## 11-pin C5 Relay socket | screw terminal

**General data**

| | |
|---|---|
| Rated load | 16 A / 400 V |
| Dielectric strength | |
| - All terminals / DIN rail | 4 kV rms / 1 min |
| - Terminal / terminal | 4 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1 x 6 mm² / AWG 10, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 1 x 6 mm² / AWG 10, 2 x 1.5 mm² / AWG 16 |
| Nominal screw torque | 0.8 Nm |
| Screw Dimension | M3.5 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 92 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining spring | steel | S5-C |

**Optional Accessories**

| | |
|---|---|
| Retaining spring | steel | S5-C (BAG 10 PCS) |
| 4-pole potential bridge bar | C-A2 (BAG 5PCS), C-A2 (BAG 50PCS) |
| A1-, B1-connector for S3-Mx, S5-M | SC-3 (BAG 10 PCS) |



**fig. 1. Wiring diagram**

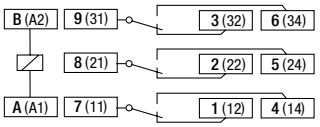
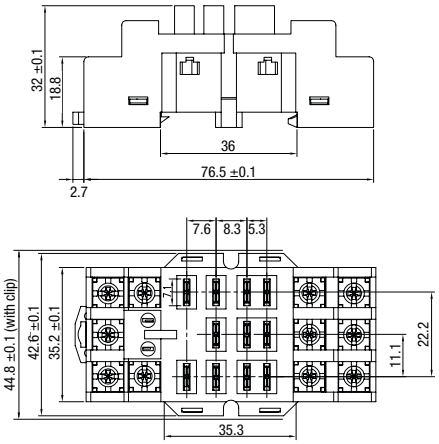



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# 4.3 14 Pin Sockets


| | Type | Pin | Page |
|---|---|---|---|
| **14-Pin Series** | | | |
| 14-pin C4 Relay socket \| screw terminal | S4-J |  | 348 |
| 14-pin R4 Relay socket \| screw terminal | S4-GR |  | 349 |

# S4-J

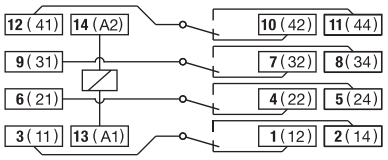
## 14-pin C4 Relay socket | screw terminal

| General data | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1.5 mm² / AWG 16 or 2 x 1.5 mm² / AWG 16 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 1 mm² / AWG 18 |
| Nominal screw torque | 0.8 Nm |
| Screw Dimension | M3.5 Philips-slot (combo) |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 80 g |
| Housing material | PA / PC |

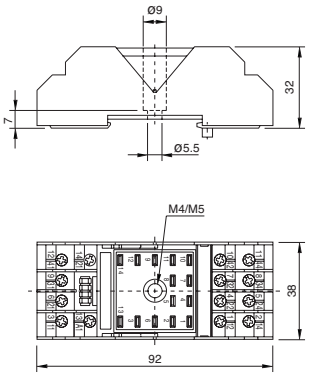
| Optional Accessories | |
|---|---|
| Retaining clip | plastic | S3-CM/CP-15B |



### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S4-GR

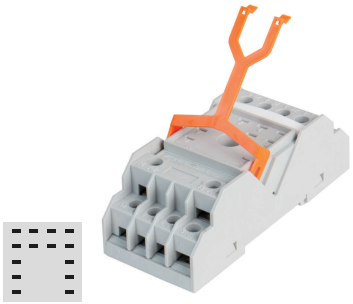
## 14-pin R4 Relay socket | screw terminal

**General data**

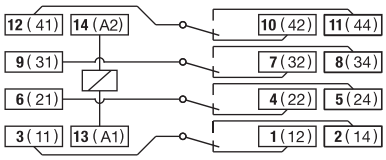
| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1.5 mm² / AWG 16 or 2 x 1.5 mm² / AWG 16 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 1 mm² / AWG 18 |
| Nominal screw torque | 0.8 Nm |
| Screw Dimension | M3.5 Philips-slot (combo) |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 80 g |
| Housing material | PA |

**Optional Accessories**

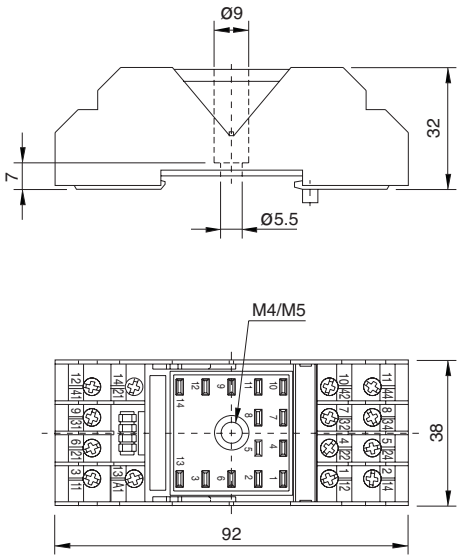
| | |
|---|---|
| Retaining clip | plastic | S3-CM/CP-15B |



### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

| | |
|---|---|
| Standards | EN 60664-1 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE UK CA |

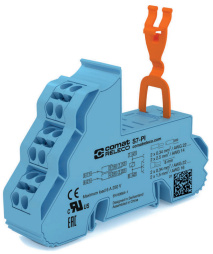
## Notes

# 4.4 8/14-Pin Sockets

| | Type | Pin | Page |
|---|---|---|---|
| **8/14-Pin Series** | | | |
| 8-pin C7 Relay socket \| Push-In | S7-PI |  | 352 |
| 8-pin socket for R7 relay \| Push-In | S7-PIR |  | 353 |
| 8-pin C7 Relay socket \| RC-Suppressor module compatible \| screw terminal | S7-C |  | 354 |
| 8-pin C7 Relay socket \| screw terminal | S7-IO |  | 355 |
| 8-pin socket for R7 relay \| screw terminal | S7-GR |  | 356 |
| 8-pin C7 Relay socket \| PCB | S7-P |  | 357 |
| 14-pin C9 Relay socket \| Push-In | S9-PI |  | 358 |
| 14-pin socket for R9 relay \| Push-In | S9-PIR |  | 359 |
| 14-pin C9 Relay socket \| screw terminal | S9-M |  | 360 |
| 14-pin C9 Relay socket \| PCB | S9-P |  | 361 |

# S7-PI

## 8-pin C7 Relay socket | Push-In





**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 46 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip | plastic | S7-CPI |

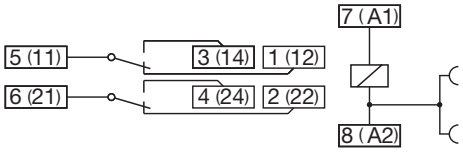
**Optional Accessories**

| | |
|---|---|
| Retaining clip | plastic | S7-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

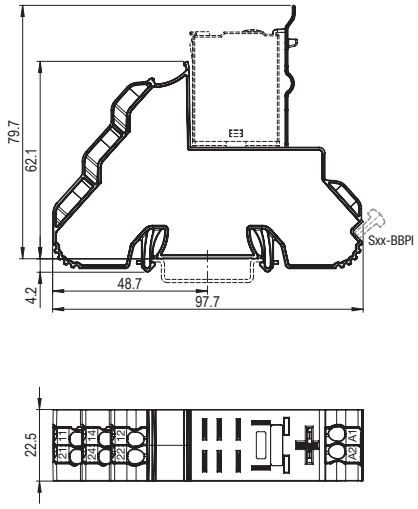
**Applicable tools**

| | |
|---|---|
| Operation tool | ISO 2380-1 Shape A, width: 2.5 mm |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S7-PIR

## 8-pin socket for R7 relay | Push-In

**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 46 g |
| Housing material | PA |

**Included Accessories**

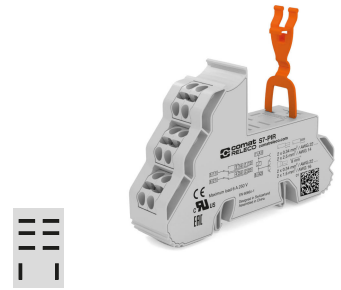
| | |
|---|---|
| Retaining clip | plastic | S7-CPI |

**Optional Accessories**

| | |
|---|---|
| Retaining clip | plastic | S7-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

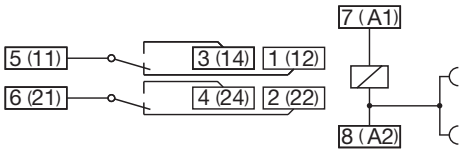
**Applicable tools**

| | |
|---|---|
| Operation tool | ISO 2380-1 Shape A, width: 2.5 mm |

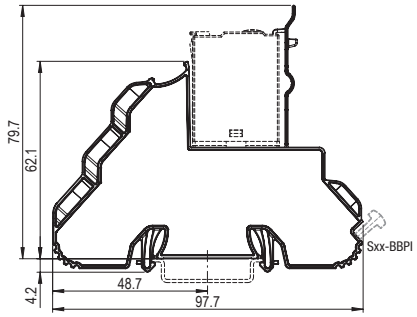


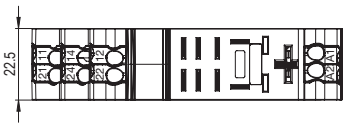


### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

# S7-C

## 8-pin C7 Relay socket | RC-Suppressor module compatible | screw terminal

**General data**

| | |
|---|---|
| Rated load | 10 A, 16 A for 1 pole / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12, 2 x 1.5 mm² / AWG 16 |
| - Multi wire (un-crimped) | 2.5 mm² / AWG 14, 2 x 1 mm² / AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C (50 °C for 16 A) |
| Weight | 37 g |
| Housing material | PA / PC |

**Included Accessories**

| | |
|---|---|
| Retaining clip I plastic | CP-07B |

**Optional Accessories**

| | |
|---|---|
| Retaining clip I plastic | CP-07B (BAG 50PCS)<br>S7-BB (BAG 20 PCS) |
| Panel adapter for S7-C, S7-IO, S9-M | S9-G (BAG 10 PCS) |
| RC-Suppressor module | RC0047-100/AC250V (BAG 5PCS) |

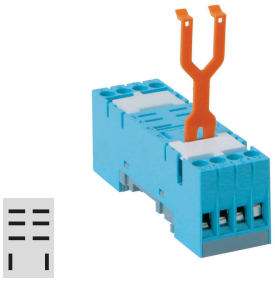


**fig. 1. Wiring diagram**

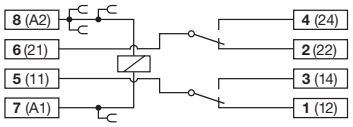
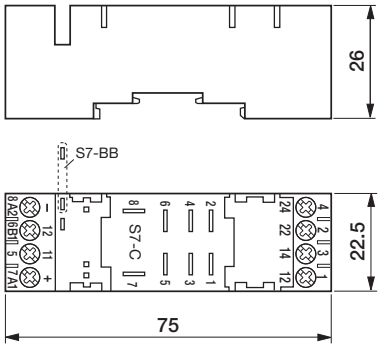



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S7-IO

## 8-pin C7 Relay socket | screw terminal

**General data**

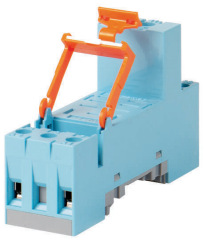
| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 38 g |
| Housing material | PA / PC |

**Included Accessories**

| | |
|---|---|
| Retaining clip | plastic | S9-C |

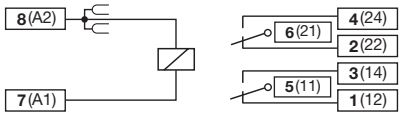
**Optional Accessories**

| | |
|---|---|
| Retaining clip | plastic | S9-C (BAG 10 PCS)<br>S7-BB (BAG 20 PCS) |
| Panel adapter for S7-C, S7-IO, S9-M | S9-G (BAG 10 PCS) |

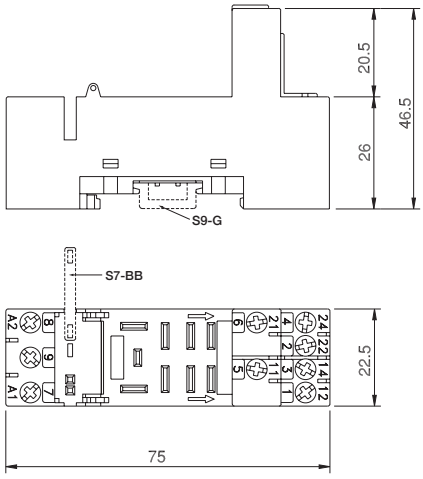




### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)



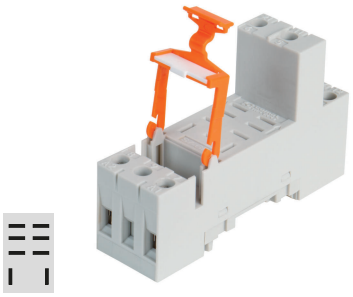

### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S7-GR

## 8-pin socket for R7 relay | screw terminal



**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 38 g |
| Housing material | PA |

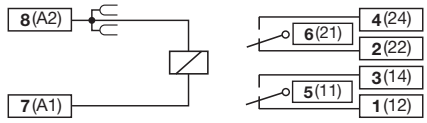
**Included Accessories**

| | |
|---|---|
| Retaining clip I plastic | S9-C |

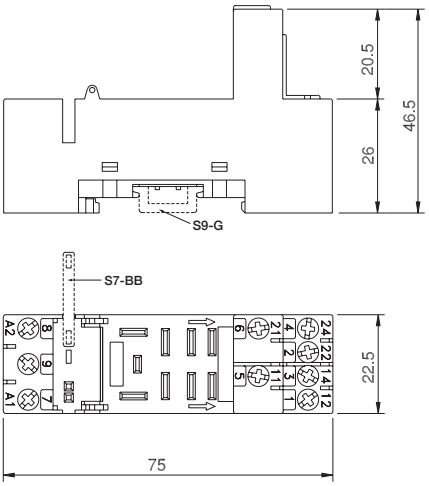
**Optional Accessories**

| | |
|---|---|
| Retaining clip I plastic | S9-C (BAG 10 PCS)<br>S7-BB (BAG 20 PCS) |
| Panel adapter for S7-C, S7-IO, S9-M | S9-G (BAG 10 PCS) |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

# S7-P

## 8-pin C7 Relay socket | PCB

**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - Pin / pin | 2.5 kV rms / 1 min |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 10 g |
| Housing material | PBT |

**Included Accessories**

| | |
|---|---|
| Retaining clip I plastic | CP-07B |

**Optional Accessories**

| | |
|---|---|
| Retaining clip I plastic | CP-07B (BAG 50PCS) |

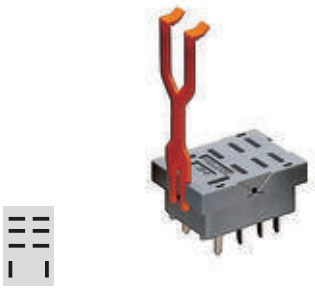




**fig. 1. Printed circuit lay-out (mm)**

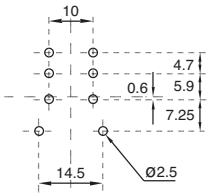
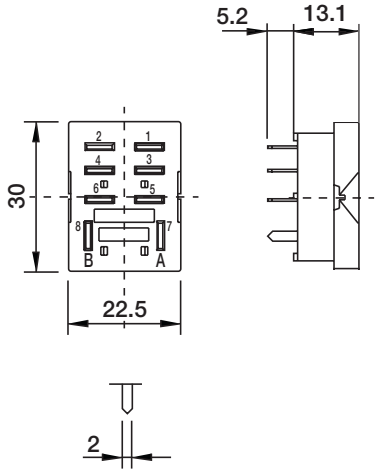



**fig. 2. Dimensions (mm)**



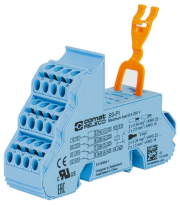

**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S9-PI

## 14-pin C9 Relay socket | Push-In



**General data**

| | |
|---|---|
| Rated load | 6 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 62 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip | plastic | S7-CPI |
| Marking strip for Push-in | BS11-PI (50m tape) |

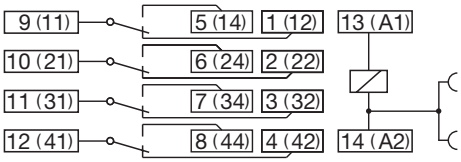
**Optional Accessories**

| | |
|---|---|
| Retaining clip | plastic | S7-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| 4-pole potential bridge bar | Sxx-BBPI4 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |

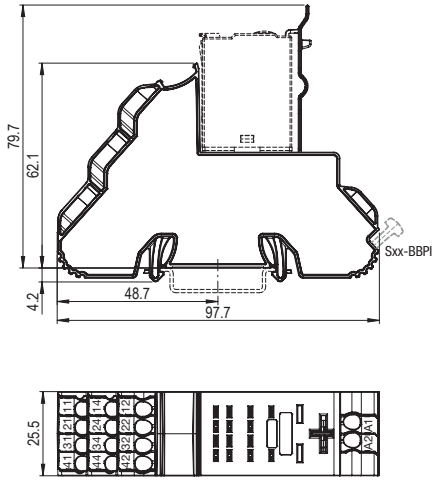
**Applicable tools**

| | |
|---|---|
| Operation tool | ISO 2380-1 Shape A, width: 2.5 mm |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)



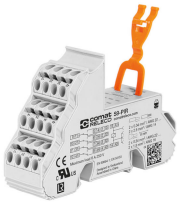

### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S9-PIR

## 14-pin socket for R9 relay | Push-In



**General data**

| | |
|---|---|
| Rated load | 6 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 62 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip | plastic | S7-CPI |

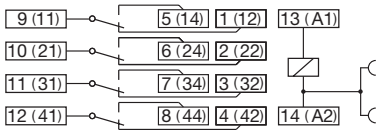
**Optional Accessories**

| | |
|---|---|
| Retaining clip | plastic | S7-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| 4-pole potential bridge bar | Sxx-BBPI4 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

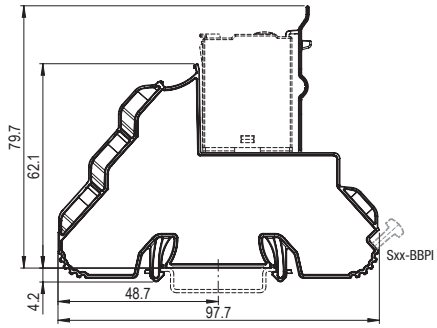
**Applicable tools**

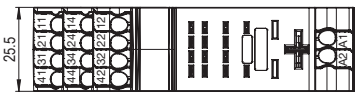
| | |
|---|---|
| Operation tool | ISO 2380-1 Shape A, width: 2.5 mm |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

# S9-M

## 14-pin C9 Relay socket | screw terminal

**General data**

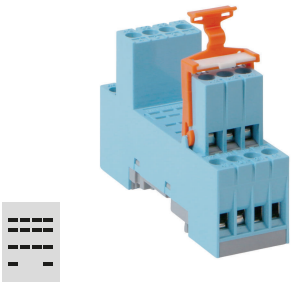
| | |
|---|---|
| Rated load | 6 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 54 g |
| Housing material | PA / PC |

**Included Accessories**

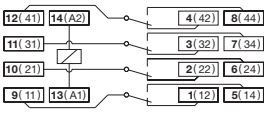
| | |
|---|---|
| Retaining clip | plastic | S9-C |

**Optional Accessories**

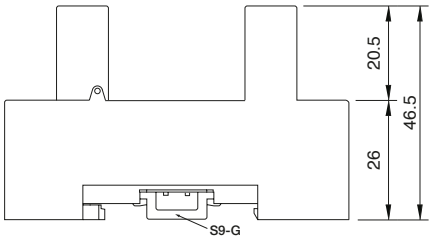
| | |
|---|---|
| Retaining clip | plastic | S9-C (BAG 10 PCS) |
| Panel adapter for S7-C, S7-IO, S9-M | S9-G (BAG 10 PCS) |
| 2-pole potential bridge bar for S9-M | S9M-V1 (BAG 5 PCS), S9M-V4 (BAG 5 PCS), S9M-BX (BAG 5 PCS) |

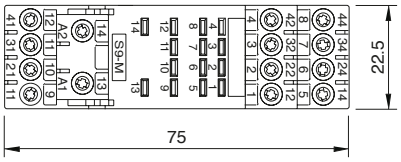


### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S9-P

## 14-pin C9 Relay socket | PCB

**General data**

| | |
|---|---|
| Rated load | 6 A / 150 V |
| Dielectric strength | |
| - Pin / pin | 1.5 kV rms / 1 min |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 12 g |
| Housing material | PBT |

**Accessories**

| | |
|---|---|
| Retaining clip \| plastic | CP-07B (BAG 50PCS) |



**fig. 1. Printed circuit lay-out (mm)**

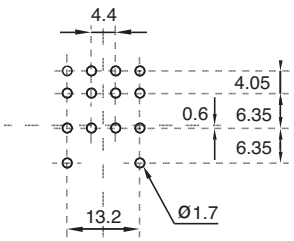
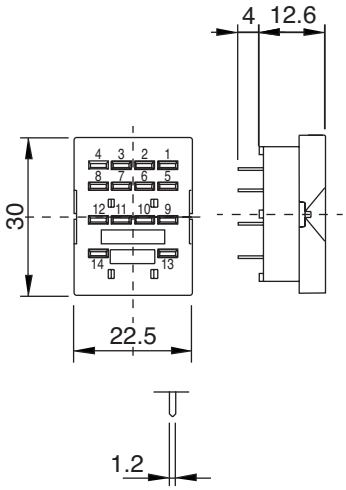



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

## Notes

# 4.5 5/8-Pin Sockets


| | Type | Pin | Page |
|---|---|---|---|
| **5/8-Pin Series** | | | |
| 5-pin C10 Relay socket \| Push-In | S10-PI |  | 364 |
| 5-pin socket for R10 relay \| Push-In | S10-PIR |  | 365 |
| 5-pin C10 Relay socket \| screw terminal | S10 |  | 366 |
| 5-pin socket for R10 relay \| screw terminal | S10-GR |  | 367 |
| 5-pin C10 Relay socket \| PCB | S10-P |  | 368 |
| 8-pin C12 Relay socket \| Push-In | S12-PI |  | 369 |
| 8-pin socket for R12 relay \| Push-In | S12-PIR |  | 370 |
| 8-pin C12 Relay socket \| screw terminal | S12 |  | 371 |
| 8-pin socket for R12 relay \| screw terminal | S12-GR |  | 372 |
| 8-pin C12 Relay socket \| PCB | S12-P |  | 373 |
| 8-pin C16/C18 Relay socket \| grid 5 mm \| screw terminal | S16-M |  | 374 |
| 8-pin C16/C18 Relay socket \| grid 3.5 mm \| screw terminal | S18-M |  | 375 |

# S10-PI

## 5-pin C10 Relay socket | Push-In

**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 33 g |
| Housing material | PA |

**Included Accessories**

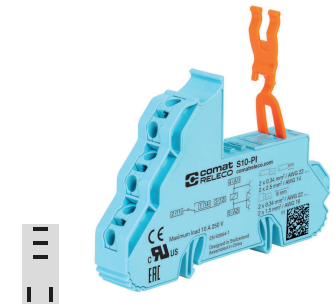
| | |
|---|---|
| Retaining clip | plastic | S10-CPI |

**Optional Accessories**

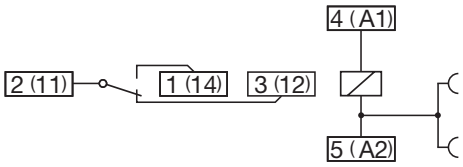
| | |
|---|---|
| Retaining clip | plastic | S10-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

**Applicable tools**

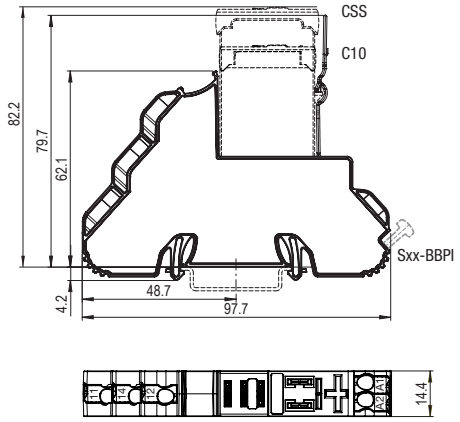
| | |
|---|---|
| Operation tool | ISO 2380-1 Shape A, width: 2.5 mm |



### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Approvals

# S10-PIR

## 5-pin socket for R10 relay | Push-In

**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 33 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip | plastic | S10-CPI |

**Optional Accessories**

| | |
|---|---|
| Retaining clip | plastic | S10-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

**Applicable tools**

| | |
|---|---|
| Operation tool | ISO 2380-1 Shape A, width: 2.5 mm |

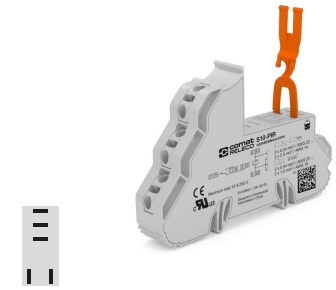


**fig. 1. Wiring diagram**

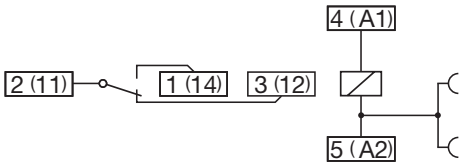
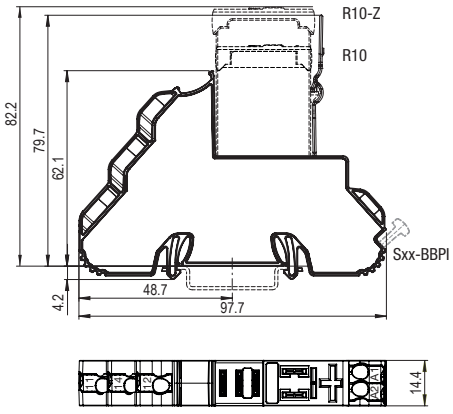



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

# S10

## 5-pin C10 Relay socket | screw terminal

| General data | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 23 g |
| Housing material | PA / PC |

| Included Accessories | |
|---|---|
| Retaining clip | plastic | S10-C |

| Optional Accessories | |
|---|---|
| Retaining clip | plastic | S10-C/CP-17B (BAG 10 PCS) |
| A2-Bridge for S10 | S10-BB (BAG 20 PCS) |
| Bridge bar twofold | V10-A (BAG 5 PCS), V10-G (BAG 5 PCS), V10-R (BAG 5 PCS) |
| 4-pole potential bridge bar for S10 / S12 | V40-A (BAG 5 PCS), V40-G (BAG 5 PCS), V40-R (BAG 5 PCS) |

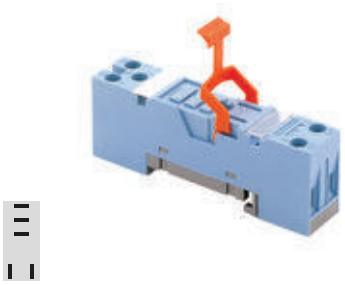


**fig. 1. Wiring diagram**

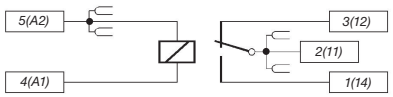
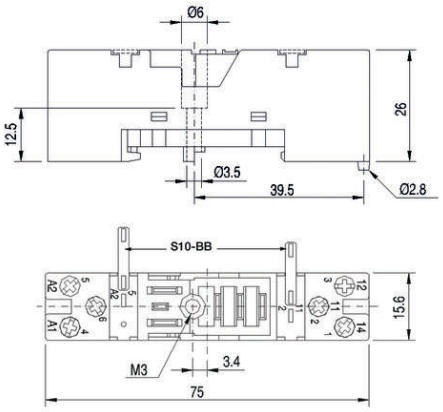



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S10-GR

## 5-pin socket for R10 relay | screw terminal

**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 23 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip I plastic | S10-C |

**Optional Accessories**

| | |
|---|---|
| Retaining clip I plastic | S10-C/CP-17B (BAG 10 PCS) |
| A2-Bridge for S10 | S10-BB (BAG 20 PCS) |
| Bridge bar twofold | V10-A (BAG 5 PCS), V10-G (BAG 5 PCS), V10-R (BAG 5 PCS) |
| 4-pole potential bridge bar for S10 / S12 | V40-A (BAG 5 PCS), V40-G (BAG 5 PCS), V40-R (BAG 5 PCS) |

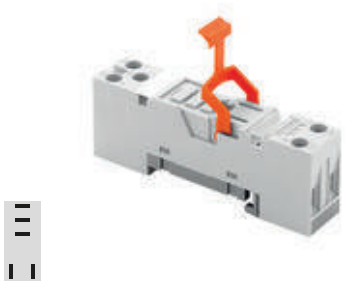


**fig. 1. Wiring diagram**

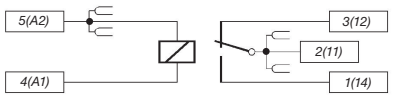
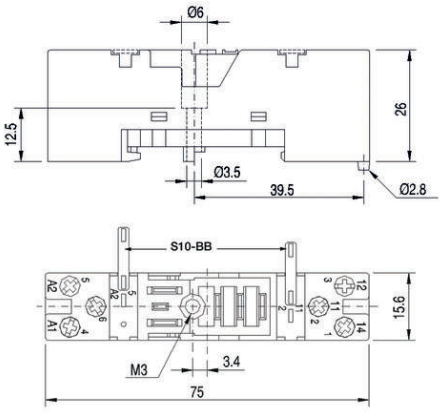



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

| | |
|---|---|
| Standards | EN 60664-1 |
| Railway | EN 45545-2; EN 50155 |
| Approvals | CE UK CA |

# S10-P

## 5-pin C10 Relay socket | PCB

**General data**

| | |
|---|---|
| Rated load | 10 A / 250 V |
| Dielectric strength | 5 kV rms / 1 min |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 7 g |
| Housing material | PBT |

**Accessories**

| | |
|---|---|
| Retaining clip \| plastic | CP-24B |

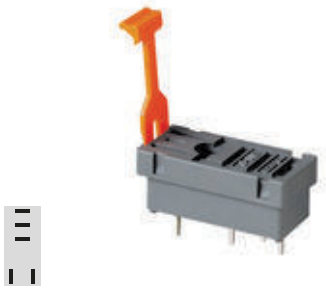




**fig. 1. Wiring diagram**

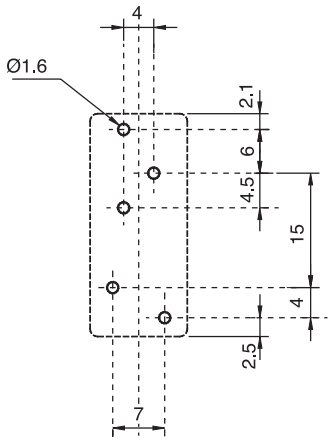
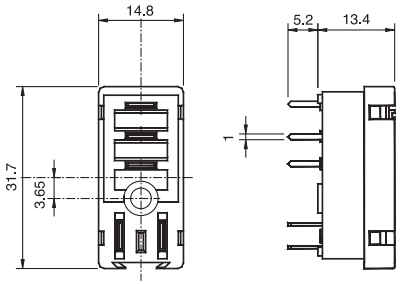



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S12-PI

## 8-pin C12 Relay socket | Push-In

**General data**

| | |
|---|---|
| Rated load | 5 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 39 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip | plastic | S10-CPI |

**Optional Accessories**

| | |
|---|---|
| Retaining clip | plastic | S10-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

**Applicable tools**

| | |
|---|---|
| Operation tool | ISO 2380-1 Shape A, width: 2.5 mm |

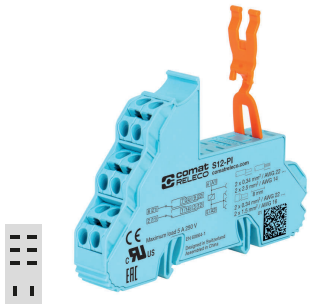


**fig. 1. Wiring diagram**

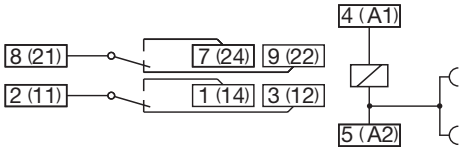
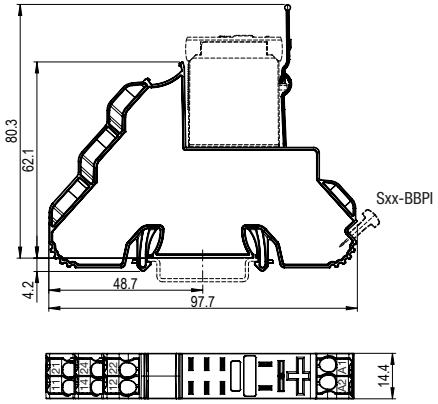



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S12-PIR

## 8-pin socket for R12 relay | Push-In

**General data**

| | |
|---|---|
| Rated load | 5 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 2.5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 2.5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 2.5 mm² / AWG 14 |
| - Multi wire (crimped) | 2 x 0.34 mm² / AWG 22 … 2 x 1.5 mm² / AWG 16 |
| Mounting | TH35 (EN 60715) |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 39 g |
| Housing material | PA |

**Included Accessories**

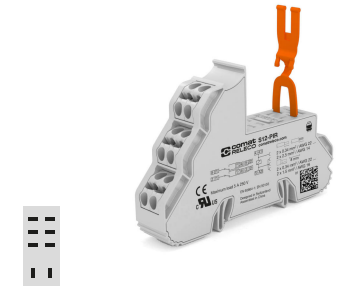
| | |
|---|---|
| Retaining clip | plastic | S10-CPI |

**Optional Accessories**

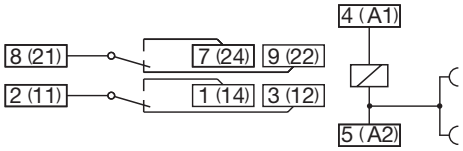
| | |
|---|---|
| Retaining clip | plastic | S10-CPI (BAG 10 PCS) |
| Bridge A2 for Sx-PI / Sx-PIR | Sxx-BBPI (BAG 20 PCS) |
| 2-pole potential bridge bar | Sxx-BBPI2 (BAG 20 PCS) |
| Multi-operation tool kit | OT-PI kit |
| Marking strip for Push-in | BS11-PI (50m tape) |

**Applicable tools**

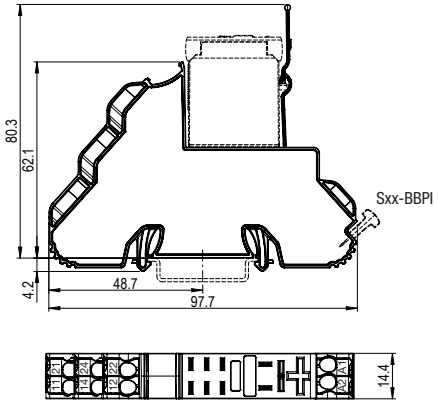
| | |
|---|---|
| Operation tool | ISO 2380-1 Shape A, width: 2.5 mm |



### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

# S12

## 8-pin C12 Relay socket | screw terminal

**General data**

| | |
|---|---|
| Rated load | 5 A / 250 V |
| Dielectric strength | |
| - All terminals / DIN rail | 5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 31 g |
| Housing material | PA / PC |

**Included Accessories**

| | |
|---|---|
| Retaining clip I plastic | S10-C |

**Optional Accessories**

| | |
|---|---|
| A2-Connector | B20-A (BAG 5 PCS), B20-G (BAG 5 PCS), B20-R (BAG 5 PCS) |
| Bridge bar twofold | V10-A (BAG 5 PCS), V10-G (BAG 5 PCS), V10-R (BAG 5 PCS) |
| 4-pole potential bridge bar for S10 / S12 | V40-A (BAG 5 PCS), V40-G (BAG 5 PCS), V40-R (BAG 5 PCS) |

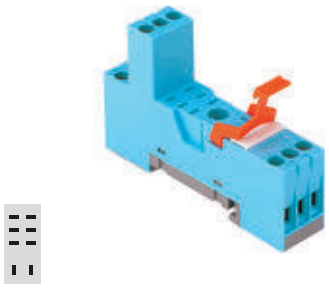


**fig. 1. Image**

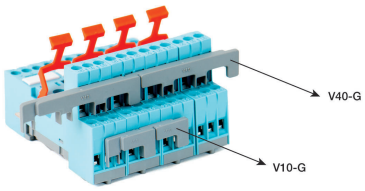



**fig. 2. Image**

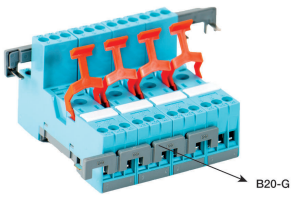



**fig. 3. Wiring diagram**

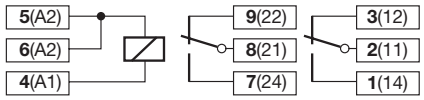
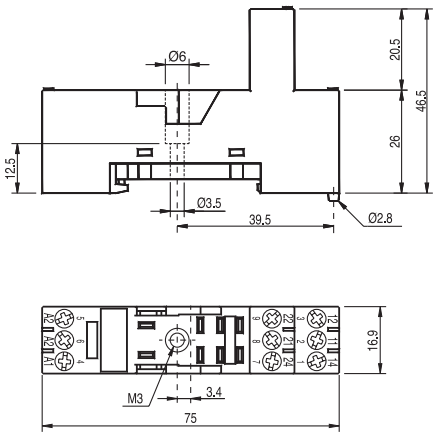



**fig. 4. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S12-GR

## 8-pin socket for R12 relay | screw terminal

**General data**

| | |
|---|---|
| Rated load | 5 A / 250 V |
| - All terminals / DIN rail | 5 kV rms / 1 min |
| - Terminal / terminal | 2.5 kV rms / 1 min |
| - Contact / coil terminal | 5 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 4 mm² / AWG 12, 2 x 2.5 mm² / AWG 14 |
| - Multi wire (un-crimped) | 0.34 mm² / AWG 22 … 2.5 mm² / AWG 14 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 70 °C |
| Weight | 31 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip I plastic | S10-C |

**Optional Accessories**

| | |
|---|---|
| A2-Connector | B20-A (BAG 5 PCS), B20-G (BAG 5 PCS), B20-R (BAG 5 PCS) |
| Bridge bar twofold | V10-A (BAG 5 PCS), V10-G (BAG 5 PCS), V10-R (BAG 5 PCS) |
| 4-pole potential bridge bar for S10 / S12 | V40-A (BAG 5 PCS), V40-G (BAG 5 PCS), V40-R (BAG 5 PCS) |

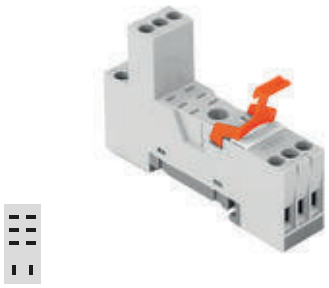


fig. 1. Image

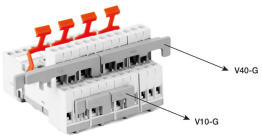



fig. 2. Image

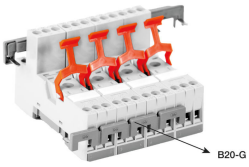



fig. 3. Wiring diagram

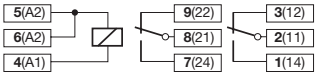
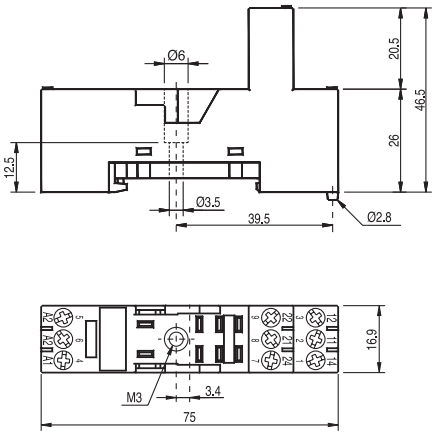



fig. 4. Dimensions (mm)




## Technical approvals, conformities

Standards EN 60664-1

Railway EN 45545-2; EN 50155

Approvals

# S12-P

## 8-pin C12 Relay socket | PCB

**General data**

| | |
|---|---|
| Rated load | 5 A / 250 V |
| Dielectric strength | |
| - Pin / pin | 3 kV rms / 1 min |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 7 g |
| Housing material | PBT |

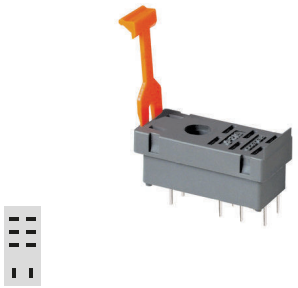




**fig. 1. Printed circuit lay-out (mm)**

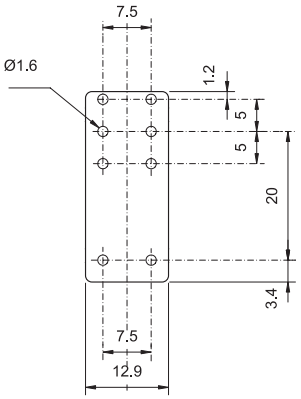
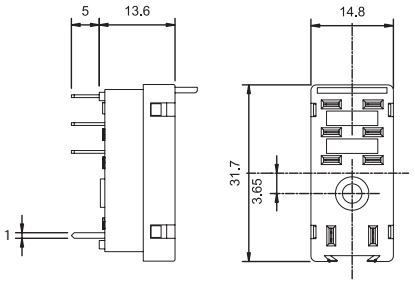



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S16-M

## 8-pin C16/C18 Relay socket | grid 5 mm | screw terminal

**General data**

| | |
|---|---|
| Rated load | 10 A / 300 V |
| Dielectric strength | |
| - All terminals / DIN rail | 3 kV rms / 1 min |
| - Terminal / terminal | 3 kV rms / 1 min |
| - Contact / coil terminal | 3 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1 x 2.5 mm² / AWG 20 |
| - Multi wire (un-crimped) | 1 x 2.5 mm² / AWG 14 or 2 x 1.0 mm² / AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 42 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip | plastic | CP-16 |

**Optional Accessories**

| | |
|---|---|
| Module for socket: free wheeling diode | RD16/DC12-240V |
| Green LED & freewheeling diode module | RDL16/DC6-24V, RDL16/DC24-48V, RDL16/DC110-240V |
| RC-Suppressor module | RC16/UC6-24V, RC16/UC24-60V, RC16/UC110-240V<br>RL16/UC6-24V, RL16/UC24-48V, RL16/UC110-240V |



**fig. 1. Wiring diagram**

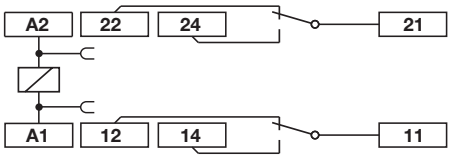
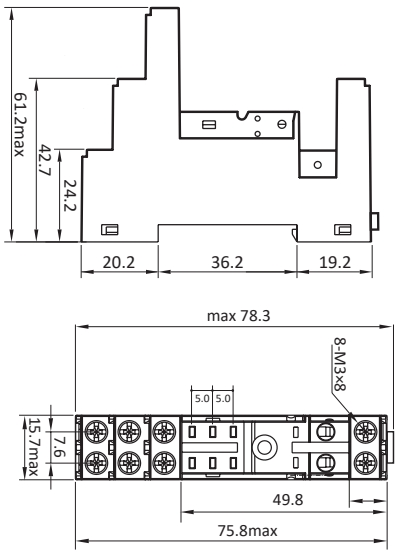



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

# S18-M

## 8-pin C16/C18 Relay socket | grid 3.5 mm | screw terminal

**General data**

| | |
|---|---|
| Rated load | 10 A / 300 V |
| Dielectric strength | |
| - All terminals / DIN rail | 3 kV rms / 1 min |
| - Terminal / terminal | 3 kV rms / 1 min |
| - Contact / coil terminal | 3 kV rms / 1 min |
| Conductor cross section | |
| - Single wire | 1 x 0.5 mm² / AWG 20 |
| - Multi wire (un-crimped) | 1 x 2.5 mm² / AWG 14 or 2 x 1.0 mm² / AWG 18 |
| Nominal screw torque | 0.7 Nm |
| Screw Dimension | M3 Pozi slot |
| Mounting | TH35 (EN 60715) or back panel mounting |
| Storage temperature (no ice) | -40 … 80 °C |
| Operation temperature | -40 … 60 °C |
| Weight | 42 g |
| Housing material | PA |

**Included Accessories**

| | |
|---|---|
| Retaining clip \| plastic | CP-16 |

**Optional Accessories**

| | |
|---|---|
| Module for socket: free wheeling diode | RD16/DC12-240V |
| Green LED & freewheeling diode module | RDL16/DC6-24V, RDL16/DC24-48V, RDL16/DC110-240V |
| RC-Suppressor module | RC16/UC6-24V, RC16/UC24-60V, RC16/UC110-240V<br>RL16/UC6-24V, RL16/UC24-48V, RL16/UC110-240V |



**fig. 1. Wiring diagram**

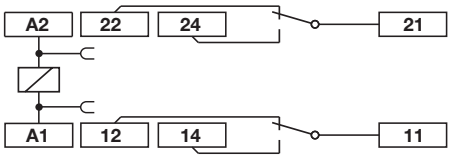
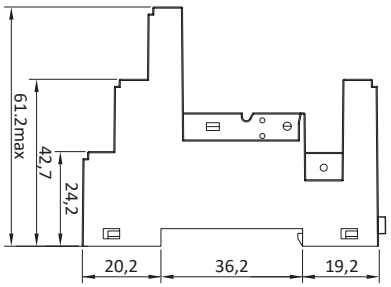
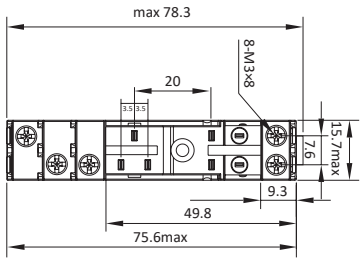



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 60664-1

Approvals

## Notes

# 4.6 Socket Accessories


| | Type | Pin | Page |
|---|---|---|---|
| **Socket Accessories** | | | |
| A1-, B1-connector for S3-Mx, S5-M | SC-3 | | 380 |
| A2-Connector for S12 | B20 | | 380 |
| A2-Connector for S3-M, S5-M, S5-MR | C-A2 | | 380 |
| A2-Bridge for S10 | S10-BB | | 380 |
| A2-Bridge for S7-IO and S7-GR | S7-BB | | 380 |
| 2-pole potential bridge bar for S9-M | S9M-BX | | 380 |
| Bridge A2 for Sx-PI/Sx-PIR | Sxx-BBPI | | 381 |
| 2-pole potential bridge bar for S7-PI(R), S9-PI(R) and S12-PI(R) | Sxx-BBPI2 | | 381 |
| 4-pole potential bridge bar for S9-PI(R) and S9-PI(R) | Sxx-BBPI4 | | 381 |
| 2-pole potential bridge bar for S9-M | S9M-V1 | | 381 |
| 4-pole potential bridge bar for S9-M | S9M-V4 | | 381 |
| 2-pole potential bridge bar for S10-M / S12 | V10 | | 381 |
| 4-pole potential bridge bar for S10 / S12 | V40 | | 381 |
| Coding ring for S3-B, S3-S | S3-BC | | 382 |
| Freewheeling diode module for S3-M, S3-M0, S5-M | RD1 | | 382 |
| Module for socket: free wheeling diode | RD16 | | 382 |
| Freewheeling diode module for S3-M, S3-M0, S5-M | RD2 | | 382 |
| Freewheeling diode module for S3-M, S3-M0, S5-M | RD3 | | 382 |

| | Type | Pin | Page |
|---|---|---|---|
| Green LED & freewheeling diode module | RDL16 | | 383 |
| Freewheeling diode module for S3-M, S3-M0, S5-M | RDL2 | | 383 |
| Panel adapter for S7-C, S7-IO, S9-M | S9-G | | 383 |
| RC-Suppressor module | RC0047-100 | | 383 |
| RC-Suppressor module | RC1 | | 383 |
| Marking strip for Sx-PI & Sx-PIR sockets | BS11-PI (50m) | | 384 |
| Retaining clip \| plastic | CP-07B | | 384 |
| Retaining clip \| plastic | CP-16 | | 384 |
| Retaining clip \| plastic | Retaining clip | | 384 |
| Retaining spring for SSU,TSR \| Steel | HF-24 | | 384 |
| Retaining spring for C2, C2, C3, C3x relays \| Steel | HF-32 | | 385 |
| Retaining spring for C2, C3 + Time Cubes \| Steel | HF-33 | | 385 |
| Retaining spring for CSx, C5x, C6x \| Steel | HF-50 | | 385 |
| Multi-operation tool kit for Sx-PI & Sx-PIR sockets | OT-PI kit | | 385 |
| RC-Suppressor module | RC16 | | 386 |
| RC-Suppressor module | RC2 | | 386 |
| Module for socket: green LED | RL16 | | 386 |
| Retaining clip \| plastic | S10-C/CP-17B | | 386 |
| Retaining clip \| plastic | S10-CPI | | 387 |
| Marking label \| white | S10-RH | | 387 |
| Transparent cover | S10-RT | | 387 |
| Retaining clip \| plastic | S30-CM/10 | | 387 |
| Retaining clip \| plastic | S3-CM | | 387 |

| | Type | Pin | Page |
|---|---|---|---|
| Retaining spring \| Steel | S4-C | | 387 |
| Retaining spring for S4-P, S4-L, S5-P, S5-L \| Steel | S4-CL | | 388 |
| Retaining spring for C5 / C5x Relays \| steel | S5-C | | 388 |
| Retaining clip \| plastic | S5M-CP | | 388 |
| Wall mounting adapter for C4, C5 | S5-R | | 388 |
| Retaining clip \| plastic | S7-CPG | | 388 |
| Retaining clip \| plastic | S7-CPI | | 389 |
| Retaining clip \| plastic | S9-C | | 389 |

## SC-3

### A1-, B1-connector for S3-Mx, S5-M

**Product references**

| Description | Type |
|---|---|
| A1-, B1-connector for S3-Mx, S5-M | SC-3 (BAG 10 PCS) |

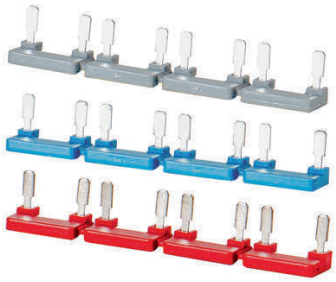


## B20

### A2-Connector for S12

**Product references**

| Description | Type |
|---|---|
| A2-Connector for S12 | blue | B20-A (BAG 5 PCS) |
| A2-Connector for S12 | grey | B20-G (BAG 5 PCS) |
| A2-Connector for S12 | red | B20-R (BAG 5 PCS) |

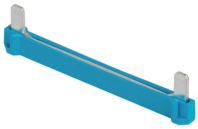


## C-A2

### A2-Connector for S3-M, S5-M, S5-MR

**Product references**

| Description | Type |
|---|---|
| A2-Connector for S3-M, S5-M, S5-MR | C-A2 (BAG 50PCS) |
| A2-Connector for S3-M, S5-M, S5-MR | C-A2 (BAG 5PCS) |



## S10-BB

### A2-Bridge for S10

**Product references**

| Description | Type |
|---|---|
| A2-Connector for S10 | S10-BB (BAG 20 PCS) |



## S7-BB

### A2-Bridge for S7-IO and S7-GR

**Product references**

| Description | Type |
|---|---|
| A2-Connector for S7-C, S7-IO | S7-BB (BAG 20 PCS) |



## S9M-BX

### 2-pole potential bridge bar for S9-M

**Product references**

| Description | Type |
|---|---|
| Bridge bar twofold | S9M-BX (BAG 5 PCS) R |



## Sxx-BBPI

### Bridge A2 for Sx-PI/Sx-PIR



**Product references**

| Description | Type |
|---|---|
| A2-Connector for Push-In sockets | Sxx-BBPI (BAG 20 PCS) |

## Sxx-BBPI2

### 2-pole potential bridge bar for S7-PI(R), S9-PI(R) and S12-PI(R)



**General data**

Rated load 6 A

**Product references**

| Description | Type |
|---|---|
| Bridge bar twofold for Push-in sockets | Sxx-BBPI2 (BAG 20 PCS) |

## Sxx-BBPI4

### 4-pole potential bridge bar for S9-PI(R) and S9-PI(R)



**General data**

Rated load 6 A

**Product references**

| Description | Type |
|---|---|
| Bridge bar fourfold for Push-in sockets | Sxx-BBPI4 (BAG 20 PCS) |

## S9M-V1

### 2-pole potential bridge bar for S9-M



**Product references**

| Description | Type |
|---|---|
| Bridge bar twofold | S9M-V1 (BAG 5 PCS) R |

## S9M-V4

### 4-pole potential bridge bar for S9-M



**Product references**

| Description | Type |
|---|---|
| Bridge bar fourfold | S9M-V4 (BAG 5 PCS) R |

## V10

### 2-pole potential bridge bar for S10-M / S12



**Product references**

| Description | Type |
|---|---|
| Bridge bar twofold blue | V10-A (BAG 5 PCS) |
| Bridge bar twofold grey | V10-G (BAG 5 PCS) |
| Bridge bar twofold red | V10-R (BAG 5 PCS) |

## V40

### 4-pole potential bridge bar for S10 / S12

**Product references**

| Description | Type |
|---|---|
| Bridge bar fourfold blue | V40-A (BAG 5 PCS) |
| Bridge bar fourfold grey | V40-G (BAG 5 PCS) |
| Bridge bar fourfold red | V40-R (BAG 5 PCS) |

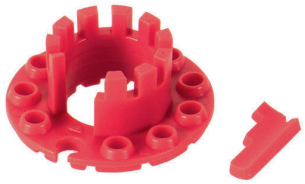


## S3-BC

### Coding ring for S3-B, S3-S

**Product references**

| Description | Type |
|---|---|
| Coding ring | 5 PCS | S3-BC (BAG 5 PCS) |



## RD1

### Freewheeling diode module for S3-M, S3-M0, S5-M

**Product references**

| Description | Type |
|---|---|
| Freewheeling diode module | RD1/DC12-220V |



## RD16

### Module for socket: free wheeling diode

**Product references**

| Description | Type |
|---|---|
| Module for socket: free wheeling diode | RD16/DC12-240V |



## RD2

### Freewheeling diode module for S3-M, S3-M0, S5-M

**Product references**

| Description | Type |
|---|---|
| Freewheeling diode module | RD2/DC...V |



## RD3

### Freewheeling diode module for S3-M, S3-M0, S5-M

**Product references**

| Description | Type |
|---|---|
| Freewheeling diode module | RD3/DC...V |



## RDL16

### Green LED & freewheeling diode module

**Product references**

| Description | Type |
|---|---|
| Freewheeling diode module with LED | RDL16/DC...V |



## RDL2

### Freewheeling diode module for S3-M, S3-M0, S5-M

**Product references**

| Description | Type |
|---|---|
| Freewheeling diode module with LED | RDL2/DC...V |



## S9-G

### Panel adapter for S7-C, S7-IO, S9-M

**Product references**

| Description | Type |
|---|---|
| Panel adapter | S9-G (BAG 10 PCS) |



## RC0047-100

### RC-Suppressor module

**Product references**

| Description | Type |
|---|---|
| RC-Suppressor module 250 V AC for S7-C | RC0047-100/AC250V (BAG 5PCS) |



## RC1

### RC-Suppressor module

**Product references**

| Description | Type |
|---|---|
| RC-Suppressor module 110 - 240 V UC for S3-M, S3-M0, S5-M | RC1/UC...V |



## BS11-PI (50m)

### Marking strip for Sx-PI & Sx-PIR sockets

**Product references**

| Description | Type |
|---|---|
| Marking strip | Roll of 50 m | BS11-PI (50m tape) |



## CP-07B

### Retaining clip | plastic

**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic for S7-C | CP-07B (BAG 50PCS) R |
| Retaining clip | plastic for S7-C | CP-07B for C7 / C7x Relays |



## CP-16

### Retaining clip | plastic

**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic for S16-M, S18-M | CP-16 (BAG 10 PCS) |



## Retaining clip

### Retaining clip | plastic

**Product references**

| Description | Type |
|---|---|
| Retaining clip | CP-24B |



## HF-24

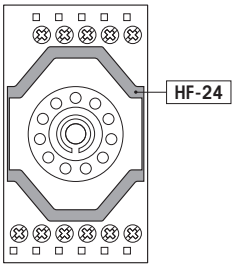
### Retaining spring for SSU,TSR | Steel

**General data**

Mounting fig. 1 Mounting

**Product references**

| Description | Type |
|---|---|
| Retaining spring | steel | HF-24 |






## HF-32

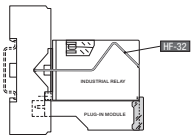
### Retaining spring for C2, C2, C3, C3x relays | Steel

**General data**

Mounting fig. 1 Mounting

**Product references**

| Description | Type |
|---|---|
| Retaining spring | steel | HF-32 (BAG 10 PCS) |






## HF-33

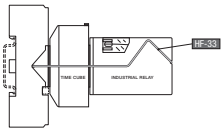
### Retaining spring for C2, C3 + Time Cubes | Steel

**General data**

Mounting fig. 1 Mounting

**Product references**

| Description | Type |
|---|---|
| Retaining spring | steel | HF-33 (BAG 10 PCS) |






## HF-50

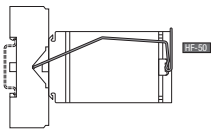
### Retaining spring for CSx, C5x, C6x | Steel

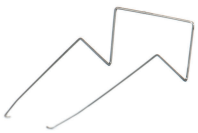
**General data**

Mounting fig. 1 Mounting

**Product references**

| Description | Type |
|---|---|
| Retaining spring | steel | HF-50 (BAG 10 PCS) |



## OT-PI kit

### Multi-operation tool kit for Sx-PI & Sx-PIR sockets



**General data**

| | |
|---|---|
| Weight | 30 g |

**Product references**

| Description | Type |
|---|---|
| Operating tool | OT-PI kit |

## RC16

### RC-Suppressor module

**Product references**

| Description | Type |
|---|---|
| RC-Suppressor module | RC16/UC...V |

## RC2

### RC-Suppressor module

**Product references**

| Description | Type |
|---|---|
| RC-Suppressor module | RC2/UC...V |

## RL16

### Module for socket: green LED

**Product references**

| Description | Type |
|---|---|
| Module for socket: green LED | RL16/UC110-240V |
| Module for socket: green LED | RL16/UC24-48V |
| Module for socket: green LED | RL16/UC6-24V |

## S10-C/CP-17B

### Retaining clip | plastic

**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic for S10 | 10 PCS | S10-C/CP-17B (BAG 10PCS) R |
| Retaining clip | plastic for S10 | 10 PCS | S10-C |



## S10-CPI

### Retaining clip | plastic

**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic for S10-PI(R), S12-PI(R) | S10-CPI (BAG 10 PCS) |
| Retaining clip | plastic for S10-PI(R), S12-PI(R) | S10-CPI |



## S10-RH

### Marking label | white

**Product references**

| Description | Type |
|---|---|
| Marking label | S10-RH (BAG 10 PCS) |



## S10-RT

### Transparent cover

**Product references**

| Description | Type |
|---|---|
| Transparent cover | S10-RT (BAG 20 PCS) |



## S30-CM/10

### Retaining clip | plastic

**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic for S2-B, S3-B, S3-S | S30-CM/10 (10-PIECES) |



## S3-CM

### Retaining clip | plastic

**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic | S3-CM |

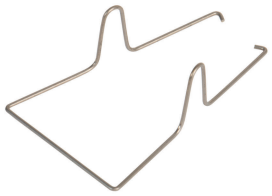


## S4-C

### Retaining spring | Steel

**Product references**

| Description | Type |
|---|---|
| Retaining spring | steel | S4-C (BAG 10 PCS) |

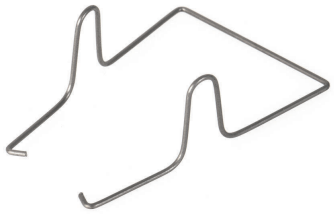


## S4-CL

### Retaining spring for S4-P, S4-L, S5-P, S5-L | Steel

**Product references**

| Description | Type |
|---|---|
| Retaining spring | steel | S4-CL (BAG 10 PCS) |

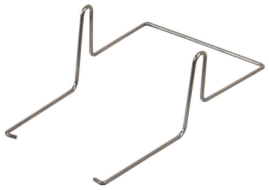


## S5-C

### Retaining spring for C5 / C5x Relays | steel

**Product references**

| Description | Type |
|---|---|
| Retaining spring | steel | S5-C (BAG 10 PCS) R |
| Retaining spring | steel | S5-C |



## S5M-CP

### Retaining clip | plastic

**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic for S5-M | S5M-CP |



## S5-R

### Wall mounting adapter for C4, C5

**Product references**

| Description | Type |
|---|---|
| Wall mounting adapter for C4, C5 | S5-R (BAG 5 PCS) |



## S7-CPG

### Retaining clip | plastic



**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic | S7-CPG |

## S7-CPI

### Retaining clip | plastic



**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic for S7-PI(R), S9-PI(R) | S7-CPI (BAG 10 PCS) |
| Retaining clip | plastic for S7-PI(R), S9-PI(R) | S7-CPI |

## S9-C

### Retaining clip | plastic



**Product references**

| Description | Type |
|---|---|
| Retaining clip | plastic for S9-M | 10 PCS | S9-C/CP-01B (BAG 10 PCS) |
| Retaining clip | plastic | S9-C |

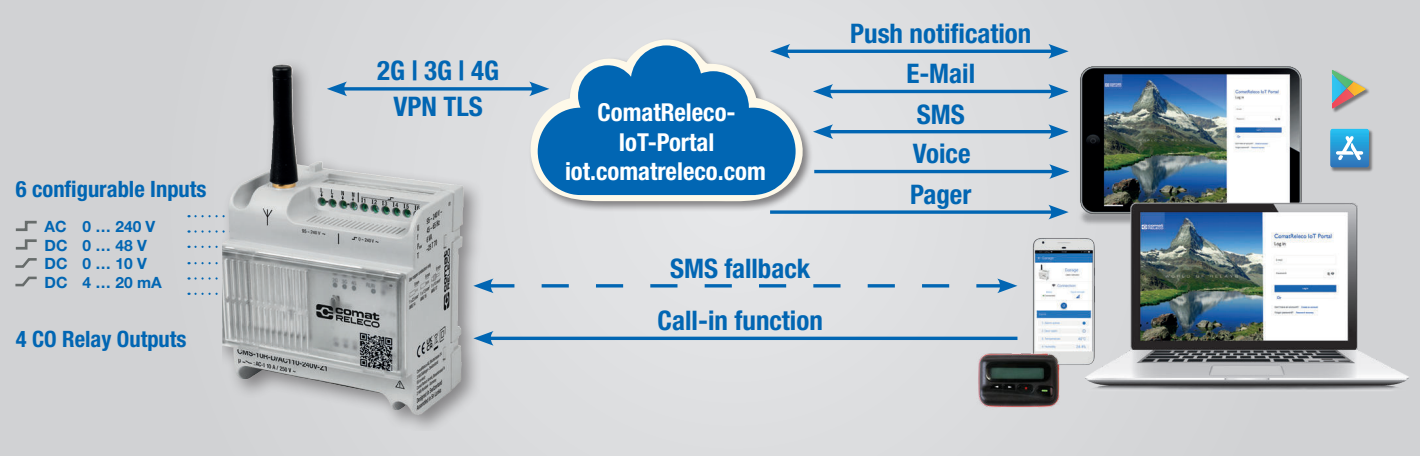
## Notes

# 5 Remote Monitoring & Control


| Chapter | Page |
|---|---|
| 5.1 ComatReleco Messaging System | 395 |
| 5.2 ComatReleco Messaging System Accessories | 403 |

# CMS-10R

## ComatReleco Messaging System




**2G, 3G, 4G communication with embedded SIM**
The CMS-10R is a remote monitoring and control unit for industrial and building technologies. It reports status changes of the digital or analog inputs trough the mobile network via push notification, e-mail or SMS. The outputs are controlled via push notification from a web browser or Smart App. If required, the configured outputs can also be switched to the device via a telephone call (call-in function). The CMS-10R automatically selects the network generation with the highest field strength on site.

**Thanks to the cloud solution with the IoT portal, there are no additional telephone subscription fees, these are included in the service profile.**
You manage your user profile according to your needs. Various profiles are available for optimal use of the device. The annual license fee - free of charge in the first year of operation - as well as the costs incurred for any SMS traffic are billed via the embedded Invoice platform. The payments can be easily completed trough invoicing or digital channels.

**Easy to configure**
Wherever you are: You can switch and operate as you like.
4 steps and you are there:

- Log in to the ComatReleco IoT Portal - iot.comatreleco.com
- Selection of the desired hardware
- Define the bill-to party
- Configure and connect the device

**Your added values**

- ComatReleco Messaging System incl. M2M embedded SIM card + iOS or Android App
- No additional SIM required, plug'n play system
- Push notification via web browser / iOS / Android App, E-mail or SMS
- Remote device configuration via web browser
- Unique devices - ID for secure integration into the Swiss based cloud solution
- High operational reliability through VPN and TLS technologies
- Minimal operating costs thanks to web communication

### Basic identification principle (type ComatReleco Messaging System)

| 1 | | 2 | | 3 | | 4 | | 5 | 6 | 7 | | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CMS-10R** | **-** | **DAC** | **/** | **DC12-48V** | **-** | **Z2** | **-** | | | | **-** | **KIT** |

**1. Product family**

**2. Inputs**
**D** = 6 x digital
**DA** = 6 x digital or analog 0 ... 10 V
**DAC** = 4 x digital or analog 0 ... 10 V / 2 x 4 ... 20 mA

**3. Nominal voltage:**
**AC110-240V** = 110 V ... 240 V ~
**DC12-48V** = 10 V ... 48 V ⎓

**4. Zone:**
**Z1** = Version for zone 1 (weltweit)
**Z2** = Version for zone 2 (Europe, Middle East, Africa, Korea, Thailand)

**5. Connection type:**
= Screw terminal
= Cage Clamp

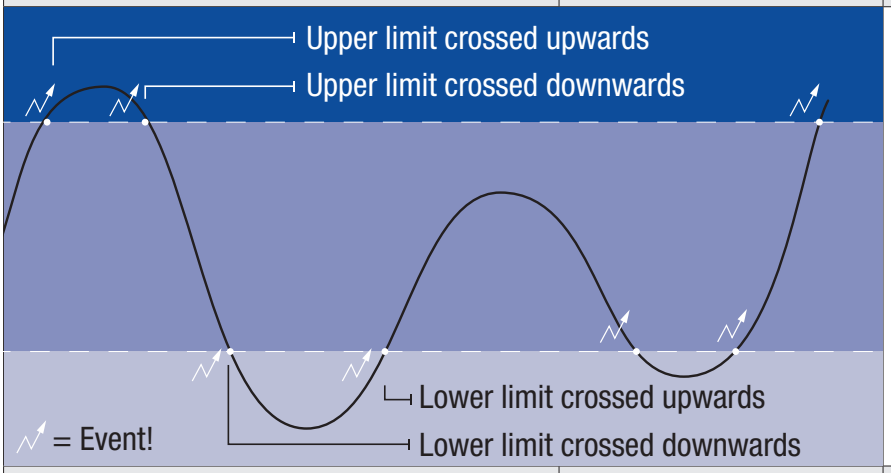
**6. Options:**
= Standard version
**G** = GPS

**7. Special:**
= Standard version
**R** = Railway version

**8. Packaging:**
= CMS-10R including device antenna stubby 50 mm
**KIT1** = CMS-10R-... including CMS-ANT-MAG2/2.5M & HDR-15-24
**KIT2** = CMS-10R-... including CMS-ANT-MAG2/2.5M & HDR-30-24
**BOX1** = CMS-10R-... in the box with terminals
**BOX2** = CMS-10R-... in the box without terminals

# CMS-10R

## ComatReleco Messaging System features

| | Description | Detail | CMS-10R-D | CMS-10R-DA | CMS-10R-DAC |
|---|---|---|---|---|---|
| General | Notification at startup | | ● | ● | ● |
| | Notification at connected | | ● | ● | ● |
| | Notification at shutdown | | ● | ● | ● |
| | Notification at disconnected | | ● | ● | ● |
| | Notification at period event count reached | | ● | ● | ● |
| | Periodic notification | hourly, daily, weekly, monthly | ● | ● | ● |
| | Up to five receivers per notification selectable * | | ● | ● | ● |
| | Notification escalation * | | ● | ● | ● |
| Inputs | Digital inputs | | ● | ● | ● |
| | Analogue 0 … 10 V / digital inputs | | | ● | ● |
| | Analogue inputs 4 … 20 mA | | | | ● |
| | Notification digital input "on" | | ● | ● | ● |
| | Notification digital input "off" | | ● | ● | ● |
| | Analogue value: configurable scaling | | ● | ● | ● |
| |  | | | ● | ● |
| | Notification of analogue value in event of value change | Change > x | | ● | ● |
| | Periodic notification of analogue values | hourly, daily, weekly, monthly | | ● | ● |
| Outputs | Relay outputs | | ● | ● | ● |
| | SMS control messages | | ● | ● | ● |
| | Call-in function | | ● | ● | ● |
| | Auto switch OFF time | 0.1 s … 23 h 59 m 59 s | ● | ● | ● |

** Depending upon chosen subscription plan*

### Fequency bands

| Standard | Zone | Frequency bands |
|---|---|---|
| 2G E-GSM | Z1 | E-GSM: B2 (1900 MHz), B3 (1800 MHz), B5 (850 MHz), B8 (900 MHz) |
| | Z2 | E-GSM: B3 (1800 MHz), B8 (900 MHz) |
| 3G E-UTRA | Z1 | E-UTRA: B1 (2100 MHz), B2 (1900 MHz), B4 (1700 MHz), B5 (850 MHz), B6 (800 MHz), B8 (900 MHz), B19 (800 MHz) |
| | Z2 | E-UTRA: B1 (2100 MHz), B8 (900 MHz) |
| 4G LTE | Z1 | LTE-FDD: B1 (2100 MHz), B2 (1900 MHz), B3 (1800 MHz), B4 (1700 MHz), B5 (850 MHz), B7 (2600 MHz), B8 (900 MHz), B12 (700MHz), B13 (700 MHz), B18 (850 MHz), B19 (850 MHz), B20 (800 MHz), B25 (1900 MHz), B26 (850 MHz), B28 (700 MHz)<br>LTE-TDD: B38 (2600 MHz), B39 (1900 MHz), B40 (2300 MHz), B41 (2500 MHz) |
| | Z2 | LTE-FDD: B1 (2100 MHz), B3 (1800 MHz), B7 (2600 MHz), B8 (900 MHz), B20 (800 MHz), B28A (700 MHz) |

## Notes

# 5.1 ComatReleco Messaging System

| | Type | Pin | Page |
|---|---|---|---|
| **CMS Series** | | | |
| 6 Digital Inputs \| 4 Relay Outputs CO \| 95 … 240 V AC | CMS-10R-D | | 396 |
| 6 D/A Inputs 0 ... 10 V \| 4 Relay Outputs CO \| 10 … 48 V DC | CMS-10R-DA | | 398 |
| 4 D/A 0 ... 10 V \| 2 Analog Inputs 4 … 20 mA \| 4 Relay Outputs \| 10 … 48 V DC | CMS-10R-DAC | | 400 |

# CMS-10R-D

**6 Digital Inputs | 4 Relay Outputs CO | 95 … 240 V AC**

### Power supply

| | |
|---|---|
| Nominal operating voltage | 95 ... 240 V AC |
| Maximum power consumption | 6 VA |
| Typical power consumption (without any output set) | < 1 VA |
| Additional power consumption per output | 0.45 VA |
| Frequency range | 45 ... 65 Hz |

### Inputs

| | |
|---|---|
| Number of digital inputs | 6 |
| Maximal voltage digital inputs | 240 V AC |
| Logic high level digital inputs | > 24 V AC |
| Logic low level digital inputs | < 12 V AC |
| Sampling rate per channel | 10 Hz |

### Outputs

| | |
|---|---|
| Number of relay outputs | 4 |
| Type of terminal | CO |
| Contact material | AgNi |
| Rated voltage | 250 V AC |
| Maximum switching voltage | 400 V AC |
| Recommended minimum load | 10 mA, 12 V |
| Rated current AC-1 | 10 A (Identical current value for all outputs) |
| Rated load AC-1 | 3 kVA |
| Rated load DC | see. fig. 2 |
| Inrush current | 80 A, 20 ms |
| Electrical endurance at rated load AC-1 (cycles) | > 30 000 |

### Communication

| | |
|---|---|
| eSIM | Embedded |
| Communication Standards | E-GSM (2G), E-UTRA (3G), LTE (4G) |
| Frequency bands Z1 | E-GSM: B2, B3, B5, B8 I E-UTRA: B1, B2, B4, B5, B6, B8, B19 I LTE-FDD: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 I LTE-TDD: B38, B39, B40, B41 |
| Coverage Z1 | Worldwide |
| Frequency bands Z2 | E-GSM: B3, B8 I E-UTRA: B1, B8 I LTE-FDD: B1, B3, B7, B8, B20, B28A |
| Coverage Z2 | Europe, Middle East, Africa, South Korea, Thailand |
| Antenna connector type | SMA female |
| Antenna impedance | 50 Ω |
| Antenna return loss | > 10 dB |

### Insulation

| | |
|---|---|
| Insulation type | Reinforced |
| Insulation rating between all ports | 2 kV / 1 min |
| Pollution degree | 2 |
| Overvoltage category | II |

### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C / -40 ... 185 °F |
| Operation temperature | -25 … 70 °C / -13 ... 158 °F |
| Ingress Protection | IP 40 |
| Weight | 280 g |
| Operation Position | any |
| Housing material | PA |
| Dimensions | see fig. 3 |

### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm², AWG14 (Stranded) / 4 mm², AWG12 (Wire) Use copper conductors only |

### Product references

| Description | Type | 110-240 |
|---|---|---|
| Messaging System | CMS-10R-D/AC110-240V-Z1 | ✓ |
| Messaging System | CMS-10R-D/AC110-240V-Z1-C | ✓ |
| Messaging System | CMS-10R-D/AC110-240V-Z2 | ✓ |
| Messaging System | CMS-10R-D/AC110-240V-Z2-C | ✓ |

"..." List control circuit voltage to complete product references. I For customized kits please contact support.

### Included Accessories

| | |
|---|---|
| Antennas for indoor use | CMS-ANT-STUB/INT-50MM |



fig. 1. Wiring diagram

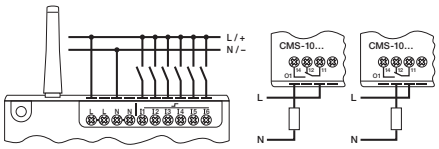



fig. 2. Max. breaking capacity RZ

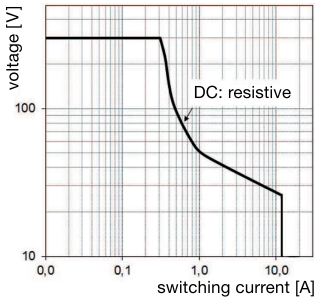
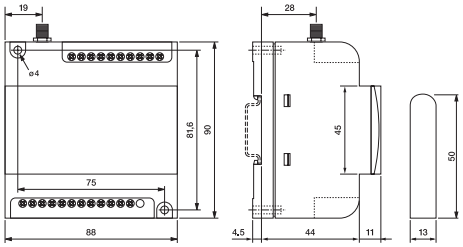



fig. 3. Dimensions (mm)




### Technical approvals, conformities

Standards: CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/AS/NZS 61558-1/-2; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3; IEC 62368-1

Approvals: CE UK CA

# CMS-10R-D

**6 Digital Inputs | 4 Relay Outputs CO | 95 ... 240 V AC**

**Optional Accessories**

| | |
|---|---|
| Antennas for indoor use | CMS-ANT-BLADE/INT-150MM, CMS-ANT-MAG1/INT-2.5M |
| Antennas for outdoor use | CMS-ANT-MAG2/EXT-2.0M, CMS-ANT-BRACK/EXT-5M, CMS-ANT-PUCK/EXT-3M |
| Antenna connector | CMS-ANT-SMA |
| Antenna cables | CMS-ANT-KAB/2.5M, CMS-ANT-KAB/5M, CMS-ANT-KAB/10M, CMS-ANT-KAB/20M |
| Power supply | HDR-15-24, HDR-30-24 |
| Indoor temperature sensor | RF01-U2-D |
| Temperature / humidity sensor | KS-110 |
| Exterior temperature sensor | WF50 EXT-U4 |
| PT100 / PT1000 digital transmitter | MV LKM 274 |
| Level probe (liquid) | PS1 |



**fig. 1. Wiring diagram**

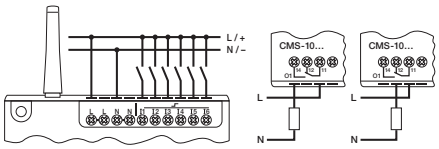



**fig. 2. Max. breaking capacity RZ**

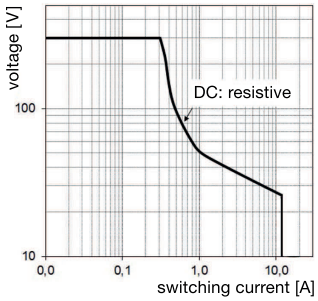
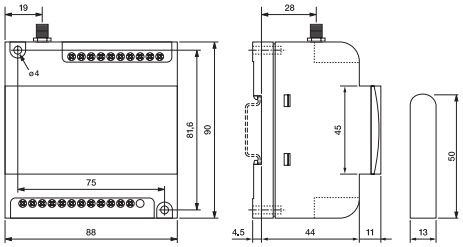



**fig. 3. Dimensions (mm)**




## Technical approvals, conformities

Standards: CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/AS/NZS 61558-1/-2; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3; IEC 62368-1

Approvals: CE UK CA

# CMS-10R-DA

**6 D/A Inputs 0 ... 10 V | 4 Relay Outputs CO | 10 … 48 V DC**



fig. 1. Wiring diagram

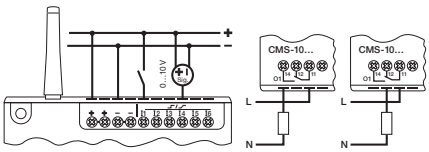



fig. 2. Max. breaking capacity RZ

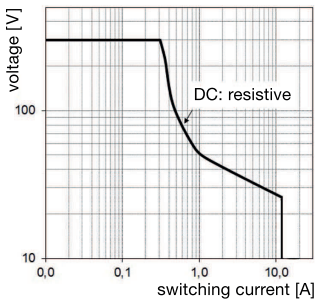
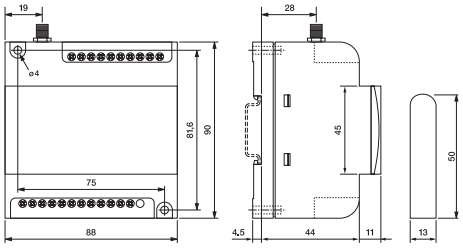



fig. 3. Dimensions (mm)




## Power supply

| | |
|---|---|
| Nominal operating voltage | 10 ... 48 V DC |
| Maximum power consumption | 6 W |
| Typical power consumption (without any output set) | < 1 W |
| Additional power consumption per output | 0.45 W |

## Inputs

| | |
|---|---|
| Number of analogue voltage / digital inputs | 6 |
| Maximal voltage digital inputs | 48 V DC |
| Logic high level digital inputs | > 6.0 V DC |
| Logic low level digital inputs | < 4.0 V DC |
| Nominal range analogue voltage inputs | 0 ... 10 V, Compliant with IEC 60381-2 |
| Voltage input impedance | 196 kΩ |
| Resolution of analogue inputs | 12 Bit |
| Measurement category | 2 |
| Sampling rate per channel | 10 Hz |

## Outputs

| | |
|---|---|
| Number of relay outputs | 4 |
| Type of terminal | CO |
| Contact material | AgNi |
| Rated voltage | 250 V AC |
| Maximum switching voltage | 400 V AC |
| Recommended minimum load | 10 mA, 12 V |
| Rated current AC-1 | 10 A |
| Rated load AC-1 | 3 kVA |
| Rated load DC | see fig. 2 |
| Inrush current | 80 A, 20 ms |
| Electrical endurance at rated load AC-1 (cycles) | > 30 000 |

## Communication

| | |
|---|---|
| eSIM | Embedded |
| Communication Standards | E-GSM (2G), E-UTRA (3G), LTE (4G) |
| Frequency bands Z1 | E-GSM: B2, B3, B5, B8 I E-UTRA: B1, B2, B4, B5, B6, B8, B19 I LTE-FDD: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 I LTE-TDD: B38, B39, B40, B41 |
| Coverage Z1 | Worldwide |
| Frequency bands Z2 | E-GSM: B3, B8 I E-UTRA: B1, B8 I LTE-FDD: B1, B3, B7, B8, B20, B28A |
| Coverage Z2 | Europe, Middle East, Africa, South Korea, Thailand |
| Antenna connector type | SMA female |
| Antenna impedance | 50 Ω |
| Antenna return loss | > 10 dB |

## Insulation

| | |
|---|---|
| Insulation type | Reinforced |
| Insulation rating between all ports | 2 kV / 1 min |
| Pollution degree | 2 |
| Overvoltage category | II |

## Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C / -40 ... 185 °F |
| Operation temperature | -25 … 70 °C / -13 ... 158 °F |
| Ingress Protection | IP 40 |
| Weight | 260 g |
| Operation Position | any |
| Housing material | PA |
| Dimensions | see fig. 3 |

## Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm², AWG14 (Stranded) / 4 mm², AWG12 (Wire) Use copper conductors only |

## Technical approvals, conformities

Standards: CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3; IEC 62368-1

Approvals: CE UK CA

# CMS-10R-DA

**6 D/A Inputs 0 ... 10 V | 4 Relay Outputs CO | 10 ... 48 V DC**

**Product references**

| Description | Type | 12-48 |
|---|---|---|
| Messaging System | CMS-10R-DA/DC12-48V-Z1 | ✓ |
| Messaging System | CMS-10R-DA/DC12-48V-Z1-C | ✓ |
| Messaging System KIT | CMS-10R-DA/DC12-48V-Z1-KIT1 | ✓ |
| Messaging System KIT | CMS-10R-DA/DC12-48V-Z1-KIT2 | ✓ |
| Messaging System | CMS-10R-DA/DC12-48V-Z2 | ✓ |
| Messaging System | CMS-10R-DA/DC12-48V-Z2-C | ✓ |
| Messaging System KIT | CMS-10R-DA/DC12-48V-Z2-KIT1 | ✓ |
| Messaging System KIT | CMS-10R-DA/DC12-48V-Z2-KIT2 | ✓ |

"..." List control circuit voltage to complete product references. | For customized kits please contact support.

**Included Accessories**

| | |
|---|---|
| Antennas for indoor use | CMS-ANT-STUB/INT-50MM |

**Optional Accessories**

| | |
|---|---|
| Antennas for indoor use | CMS-ANT-BLADE/INT-150MM, CMS-ANT-MAG1/INT-2.5M |
| Antennas for outdoor use | CMS-ANT-MAG2/EXT-2.0M, CMS-ANT-BRACK/EXT-5M, CMS-ANT-PUCK/EXT-3M |
| Antenna connector | CMS-ANT-SMA |
| Antenna cables | CMS-ANT-KAB/2.5M, CMS-ANT-KAB/5M, CMS-ANT-KAB/10M, CMS-ANT-KAB/20M |
| Power supply | HDR-15-24, HDR-30-24 |
| Indoor temperature sensor | RF01-U2-D |
| Temperature / humidity sensor | KS-110 |
| Exterior temperature sensor | WF50 EXT-U4 |
| PT100 / PT1000 digital transmitter | MV LKM 274 |
| Level probe (liquid) | PS1 |



**fig. 1. Wiring diagram**

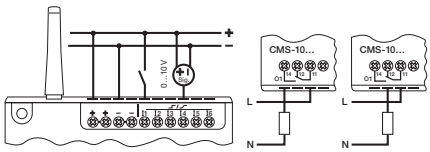



**fig. 2. Max. breaking capacity RZ**

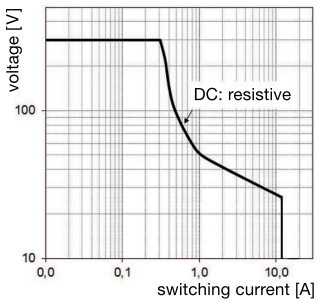
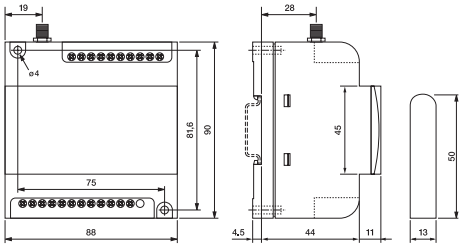



**fig. 3. Dimensions (mm)**




## Technical approvals, conformities

Standards: CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3; IEC 62368-1

Approvals: CE UK CA

# CMS-10R-DAC

**4 D/A 0 ... 10 V | 2 Analog Inputs 4 ... 20 mA | 4 Relay Outputs | 10 ... 48 V DC**



### Power supply

| | |
|---|---|
| Nominal operating voltage | 10 ... 48 V DC |
| Maximum power consumption | 6 W |
| Typical power consumption (without any output set) | < 1 W |
| Additional power consumption per output | 0.45 W |

### Inputs

| | |
|---|---|
| Number of analogue voltage / digital inputs | 4 |
| Number of analogue current inputs | 2 |
| Maximal voltage digital inputs | 48 V DC |
| Logic high level digital inputs | > 6.0 V DC |
| Logic low level digital inputs | < 4.0 V DC |
| Nominal range analogue voltage inputs | 0 ... 10 V, Compliant with IEC 60381-2 |
| Voltage input impedance | 196 kΩ |
| Nominal range analogue voltage inputs | 4 ... 20 mA, Compliant with IEC 60381-1 |
| Current input impedance | 150 Ω |
| Resolution of analogue inputs | 12 Bit |
| Measurement category | 2 |
| Sampling rate per channel | 10 Hz |

### Outputs

| | |
|---|---|
| Number of relay outputs | 4 |
| Type of terminal | CO |
| Contact material | AgNi |
| Rated voltage | 250 V AC |
| Maximum switching voltage | 400 V AC |
| Recommended minimum load | 10 mA / 12 V |
| Rated current AC-1 | 10 A |
| Rated load AC-1 | 3 kVA |
| Rated load DC | see. fig. 2 |
| Inrush current | 80 A, 20 ms |
| Electrical endurance at rated load AC-1 (cycles) | > 30 000 |

### Communication

| | |
|---|---|
| eSIM | Embedded |
| Communication Standards | E-GSM (2G), E-UTRA (3G), LTE (4G) |
| Frequency bands Z1 | E-GSM: B2, B3, B5, B8 I E-UTRA: B1, B2, B4, B5, B6, B8, B19 I LTE-FDD: B1, B2, B3, B4, B5, B7, B8, B12, B13, B18, B19, B20, B25, B26, B28 I LTE-TDD: B38, B39, B40, B41 |
| Coverage Z1 | Worldwide |
| Frequency bands Z2 | E-GSM: B3, B8 I E-UTRA: B1, B8 I LTE-FDD: B1, B3, B7, B8, B20, B28A |
| Coverage Z2 | Europe, Middle East, Africa, South Korea, Thailand |
| Antenna connector type | SMA female |
| Antenna impedance | 50 Ω |
| Antenna return loss | > 10 dB |

### Insulation

| | |
|---|---|
| Insulation type | Reinforced |
| Insulation rating between all ports | 2 kV / 1 min |
| Pollution degree | 2 |
| Overvoltage category | II |

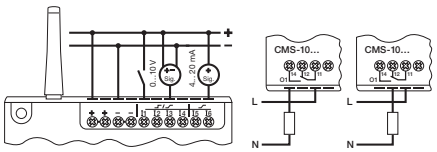
### Housing and environmental conditions

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C / -40 ... 185 °F |
| Operation temperature | -25 … 70 °C / -13 ... 158 °F |
| Ingress Protection | IP 40 |
| Weight | 260 g |
| Operation Position | any |
| Housing material | PA |
| Dimensions | see fig. 3 |

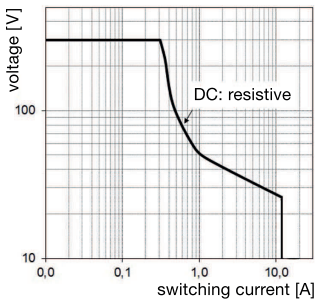
### Wiring

| | |
|---|---|
| Conductor cross section control / main circuit | 2.5 mm², AWG14 (Stranded) / 4 mm², AWG12 (Wire) Use copper conductors only |

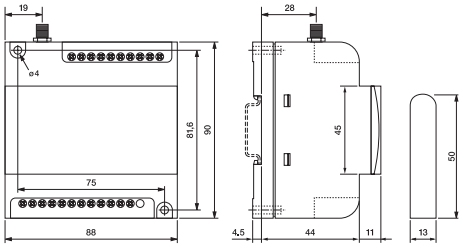
## fig. 1. Wiring diagram




## fig. 2. Max. breaking capacity RZ




## fig. 3. Dimensions (mm)




## Technical approvals, conformities

Standards CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3

Approvals CE UK CA

# CMS-10R-DAC

**4 D/A 0 ... 10 V | 2 Analog Inputs 4 ... 20 mA | 4 Relay Outputs | 10 ... 48 V DC**

**Product references**

| Description | Type | 12-48 |
|---|---|---|
| Messaging System | CMS-10R-DAC/DC12-48V-Z1 | ✓ |
| Messaging System | CMS-10R-DAC/DC12-48V-Z1-C | ✓ |
| Messaging System KIT | CMS-10R-DAC/DC12-48V-Z1-KIT1 | ✓ |
| Messaging System KIT | CMS-10R-DAC/DC12-48V-Z1-KIT2 | ✓ |
| Messaging System | CMS-10R-DAC/DC12-48V-Z2 | ✓ |
| Messaging System | CMS-10R-DAC/DC12-48V-Z2-C | ✓ |
| Messaging System KIT | CMS-10R-DAC/DC12-48V-Z2-KIT1 | ✓ |
| Messaging System KIT | CMS-10R-DAC/DC12-48V-Z2-KIT2 | ✓ |

"..." List control circuit voltage to complete product references. | For customized kits please contact support.

**Included Accessories**

| | |
|---|---|
| Antennas for indoor use | CMS-ANT-STUB/INT-50MM |

**Optional Accessories**

| | |
|---|---|
| Antennas for indoor use | CMS-ANT-BLADE/INT-150MM, CMS-ANT-MAG1/INT-2.5M |
| Antennas for outdoor use | CMS-ANT-MAG2/EXT-2.0M, CMS-ANT-BRACK/EXT-5M, CMS-ANT-PUCK/EXT-3M |
| Antenna connector | CMS-ANT-SMA |
| Antenna cables | CMS-ANT-KAB/2.5M, CMS-ANT-KAB/5M, CMS-ANT-KAB/10M, CMS-ANT-KAB/20M |
| Power supply | HDR-15-24, HDR-30-24 |
| Indoor temperature sensor | RF01-U2-D |
| Temperature / humidity sensor | KS-110 |
| Exterior temperature sensor | WF50 EXT-U4 |
| PT100 / PT1000 digital transmitter | MV LKM 274 |
| Level probe (liquid) | PS1 |



**fig. 1. Wiring diagram**

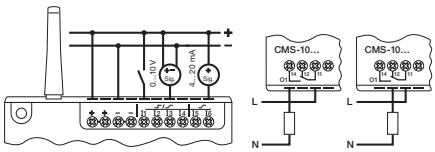



**fig. 2. Max. breaking capacity RZ**

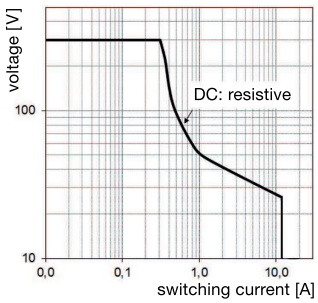
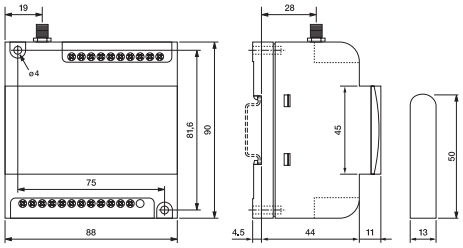



**fig. 3. Dimensions (mm)**




## Technical approvals, conformities

Standards: CISPR 32 / EN 55032; ETSI EN 301511; ETSI EN 301908-1/-2/-13; IEC/EN/BSI/AS/NZS/SANS 62368; IEC/EN/BSI/UL/CSA 60730; IEC 60381-1/-2; IEC 61000-6-2/-3

Approvals: CE UKCA

## Notes

# 5.2 ComatReleco Messaging System Accessories


| | Type | Pin | Page |
|---|---|---|---|
| **ComatReleco Messaging System Accessories** | | | |
| Power supply \| 24 V DC \| 15 W \| 30W | HDR-15-24, HDR-30-24 | | 405 |
| **Antennas** | | | |
| GSM device antenna 50 mm for indoor use \| without cable | CMS-ANT-STUB/INT-50MM | | 406 |
| GSM device antenna 150 mm for indoor use \| without cable | CMS-ANT-BLADE/INT-150MM | | 406 |
| GSM magnetic mount antenna for indoor use \| 2.5 m cable | CMS-ANT-MAG1/INT-2.5M | | 406 |
| GSM magnetic mount antenna for outdoor use \| 2 m cable | CMS-ANT-MAG2/EXT-2.0M | | 406 |
| GSM antenna with mounting bracket for outdoor use \| 5 m cable | CMS-ANT-BRACK/EXT-5M | | 406 |
| GSM puck antenna for outdoor use \| 3 m cable | CMS-ANT-PUCK/EXT-3M | | 407 |
| GSM/GPS puck antenna for outdoor use \| 3 m cable | CMS-ANT-PUCK-GPS/EXT-3M | | 407 |
| GSM antenna connector angled 90° plug (male) / jack (female) | CMS-ANT-SMA | | 407 |
| GSM adapter SMA plug (male) to FME plug (male) | CMS-ANT-ADAPT | | 407 |
| GSM Antenna cable \| SMA plug (male) / jack (female) \| 2.5 m \| 5 m \| 10 m \| 20 m | CMS-ANT-KAB | | 408 |
| **Sensory** | | | |
| Analogue transmitter for PT100 / PT1000 \| 0 … 10 V output | MV-LKM-254 | | 409 |
| Digital transmitter for PT100 / PT1000 \| 0 … 10 V output | MV-LKM-274 | | 409 |
| Indoor temperature sensor \| 0 … 50 °C \| 0 … 10 V output | RF01-U2-D | | 409 |
| Thermostat \| 5 … 30 °C \| Cooling or heating \| 1 CO | RTBSB-001-010 | | 409 |
| Exterior temperature sensor \| -50 … 50 °C \| 0 … 10 V output | WF50 EXT-04 | | 409 |

| | Type | Pin | Page |
|---|---|---|---|
| Level probe (liquid) \| 0 … 25 bar \| 0 … 10 V output | PS1 | | 410 |

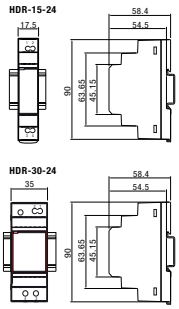
## HDR-15-24, HDR-30-24

### Power supply | 24 V DC | 15 W | 30W

**Product references**

| Description | Type |
|---|---|
| Power supply 15 W, 24 V DC | HDR-15-24 |
| Power supply 30 W, 24 V DC | HDR-30-24 |

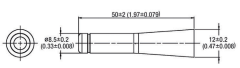
Other power and voltages on request. Please contact support@comatreleco.com.






## CMS-ANT-STUB/INT-50MM

### GSM device antenna 50 mm for indoor use | without cable





**Housing and environmental conditions**

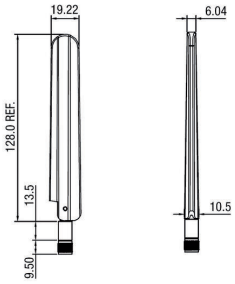
| | |
|---|---|
| Operation temperature | -30 ... 85 °C / -22 ... 185 °C |
| Ingress Protection | IP 65 |
| Weight | 10 g |
| Housing material | PE |
| Dimensions | see fig. 1 |

**Product references**

| Description | Type |
|---|---|
| Interior antenna | CMS-ANT-STUB/INT-50MM |

## CMS-ANT-BLADE/INT-150MM

### GSM device antenna 150 mm for indoor use | without cable






**Housing and environmental conditions**

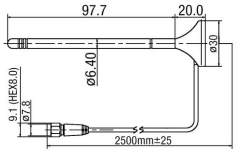
| | |
|---|---|
| Operation temperature | -40 ... 80 °C / -40 ... 176 °F |
| Ingress Protection | IP 42 |
| Weight | 120 g |
| Housing material | PC+PBT / ABS, UV-Resistand: not required |
| Dimensions | see fig. 1 |

**Product references**

| Description | Type |
|---|---|
| Interior antenna | CMS-ANT-BLADE/INT-150MM |

## CMS-ANT-MAG1/INT-2.5M

### GSM magnetic mount antenna for indoor use | 2.5 m cable






**Housing and environmental conditions**

| | |
|---|---|
| Operation temperature | -40 ... 80 °C / -40 ... 176 °F |
| Ingress Protection | IP 42 |
| Weight | 200 g |
| Housing material | PE / PVC |
| Dimensions | see fig. 1 |

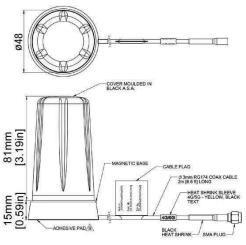
**Product references**

| Description | Type |
|---|---|
| Interior antenna | CMS-ANT-MAG1/INT-2.5M |

Other cable length on request. Please contact support@comatreleco.com.

## CMS-ANT-MAG2/EXT-2.0M

### GSM magnetic mount antenna for outdoor use | 2 m cable






**Housing and environmental conditions**

| | |
|---|---|
| Operation temperature | -40 ... 80 °C / -40 ... 176 °F |
| Ingress Protection | IP 66 |
| Weight | 300 g |
| Housing material | UV stable ASA and Aluminium |
| Dimensions | see fig. 1 |

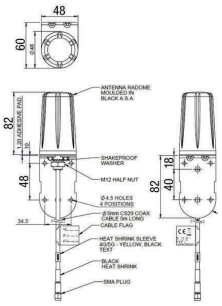
**Product references**

| Description | Type |
|---|---|
| Exterior antenna | CMS-ANT-MAG2/EXT-2.0M |

Other cable length on request. Please contact support@comatreleco.com.

## CMS-ANT-BRACK/EXT-5M

### GSM antenna with mounting bracket for outdoor use | 5 m cable






**Housing and environmental conditions**

| | |
|---|---|
| Operation temperature | -40 ... 85 °C / -40 ... 185 °F |
| Ingress Protection | IP 66 |
| Weight | 390 g |
| Housing material | UV stable ASA, Aluminium, Zinc plated steel (Material approvals: Radome ASA - UL 746C F2, UL94-HB) |
| Dimensions | see fig. 1 |

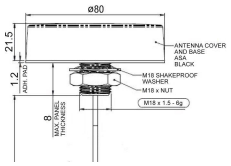
**Product references**

| Description | Type |
|---|---|
| Exterior antenna | CMS-ANT-BRACK/EXT-5M |

Other cable length on request. Please contact support@comatreleco.com.

## CMS-ANT-PUCK/EXT-3M

### GSM puck antenna for outdoor use | 3 m cable






**Housing and environmental conditions**

| | |
|---|---|
| Operation temperature | -40 ... 85 °C / -40 ... 185 °F |
| Ingress Protection | IP 66 / IK 07 |
| Weight | 200 g |
| Housing material | ASA |
| Dimensions | see fig. 1 |

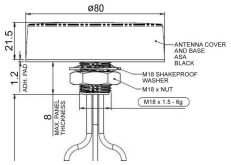
**Product references**

| Description | Type |
|---|---|
| Exterior antenna | CMS-ANT-PUCK/EXT-3M |

Other cable length on request. Please contact support@comatreleco.com.

## CMS-ANT-PUCK-GPS/EXT-3M

### GSM/GPS puck antenna for outdoor use | 3 m cable






**Housing and environmental conditions**

| | |
|---|---|
| Operation temperature | -40 ... +85 °C / -40 ... 185 °F |
| Ingress Protection | IP 66 / IK 07 |
| Weight | 200 g |
| Housing material | ASA |
| Dimensions | see fig. 1 |

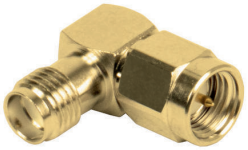
**Product references**

| Description | Type |
|---|---|
| Exterior antenna | CMS-ANT-PUCK-GPS/EXT-3M |

Other cable length on request. Please contact support@comatreleco.com.

## CMS-ANT-SMA

### GSM antenna connector angled 90° plug (male) / jack (female)



**Housing and environmental conditions**

| | |
|---|---|
| Weight | 7 g |

**Product references**

| Description | Type |
|---|---|
| Antenna connector | CMS-SMA |

## CMS-ANT-ADAPT

### GSM adapter SMA plug (male) to FME plug (male)



**Housing and environmental conditions**

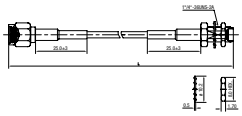
| | |
|---|---|
| Weight | 9 g |

**Product references**

| Description | Type |
|---|---|
| Antenna connector | CMS-ANT-ADAPT |

## CMS-ANT-KAB

### GSM Antenna cable | SMA plug (male) / jack (female) | 2.5 m | 5 m | 10 m | 20 m





**Housing and environmental conditions**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -20 ... 80 °C |
| Ingress Protection | IP 67 only when mated |
| Weight | 90 g (2.5 m) \| 180 g (5 m) \| 340 g (10 m) \| 630 g (20 m) |
| Housing material | PE |
| Dimensions | see fig. 2 |

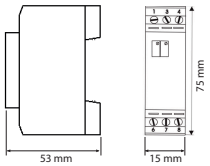
**Product references**

| Description | Type |
|---|---|
| Antenna cable | CMS-ANT-KAB/...M |

"..." List cable length to complete product references.
Other cable length on request. Please contact support@comatreleco.com.

## MV-LKM-254

### Analogue transmitter for PT100 / PT1000 | 0 ... 10 V output







**Housing and environmental conditions**

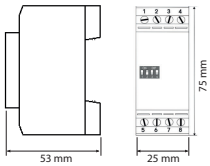
| | |
|---|---|
| Storage temperature (no ice) | -25 ... 85 °C |
| Operation temperature | -25 ... 85 °C |
| Ingress Protection | IP 20 |
| Weight | 35 g |
| Housing material | PC-F |
| Dimensions | see fig. 2 |

**Product references**

| Description | Type |
|---|---|
| Transmitter PT100/PT1000 | MV LKM 254 |

## MV-LKM-274

### Digital transmitter for PT100 / PT1000 | 0 ... 10 V output







**Housing and environmental conditions**

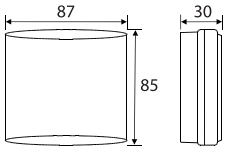
| | |
|---|---|
| Storage temperature (no ice) | -25 ... 70 °C |
| Operation temperature | -25 ... 70 °C |
| Weight | 60 g |
| Dimensions | see fig. 2 |

**Product references**

| Description | Type |
|---|---|
| Transmitter PT100/PT1000 | MV LKM 274 |

## RF01-U2-D

### Indoor temperature sensor | 0 ... 50 °C | 0 ... 10 V output







**Housing and environmental conditions**

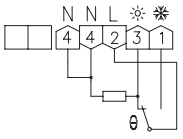
| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 °C |
| Operation temperature | 0 ... 50 °C |
| Ingress Protection | IP 20 |
| Weight | 67 g |
| Housing material | ABS |
| Dimensions | see fig. 2 |

**Product references**

| Description | Type |
|---|---|
| Room temperature sensor with display | RF01-U2-D |

## RTBSB-001-010

### Thermostat | 5 ... 30 °C | Cooling or heating | 1 CO






**Housing and environmental conditions**

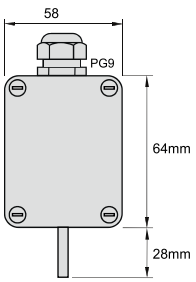
| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 °C |
| Operation temperature | 5 ... 30 °C |
| Ingress Protection | IP 30 |
| Weight | 90 g |
| Housing material | ABS |

**Product references**

| Description | Type |
|---|---|
| Room thermostat 5 ... 30 °C | RTBSB-001-010 |

## WF50 EXT-04

### Exterior temperature sensor | -50 … 50 °C | 0 … 10 V output






**Housing and environmental conditions**

| | |
|---|---|
| Operation temperature | -30 ... 70 °C |
| Ingress Protection | IP 65 |
| Weight | 99 g |
| Housing material | PA with stainless steel |
| Dimensions | see fig. 1 |

**Product references**

| Description | Type |
|---|---|
| Exterior temperature sensor | WF50 EXT-U4 |

## PS1

### Level probe (liquid) | 0 … 25 bar | 0 … 10 V output



**Housing and environmental conditions**

| | |
|---|---|
| Storage temperature (no ice) | 5 ... 70 °C |
| Operation temperature | 5 ... 70 °C |
| Ingress Protection | IP 68 |
| Weight | 550 g |

**Product references**

| Description | Type |
|---|---|
| Level probe | PS1 |

# 6 Softstarter


| Chapter | Page |
|---|---|
| 6.1 Softstarter | 413 |
| 6.2 DC Motor Controller | 425 |

## Notes

# 6.1 Softstarter


| | Type | Pin | Page |
|---|---|---|---|
| **CTC Series** | | | |
| 3 phase \| 400 V \| 15 A \| Starting Torque Limiter | CTC3415 | | 414 |
| 3 phase \| 400 V \| 25 A \| Starting Torque Limiter | CTC3425 | | 415 |
| **CCL Series** | | | |
| 3 phase \| 400 V \| 15 A \| Compressor Starting Torque Limiter | CCL33H415US | | 416 |
| **CCM Series** | | | |
| 3 phase \| 400 V \| 3 A \| Starting Torque Limiter | CCM3H403USi | | 417 |
| 3 phase \| 400 V \| 15 A \| Starting Torque Limiter | CCM3H415 | | 418 |
| 3 phase \| 400 V \| 15 A \| Starting Torque Limiter with direct switch | CCM3H415DS | | 419 |
| 3 phase \| 400 V \| 25 A \| Starting Torque Limiter | CCM3H425 | | 420 |
| 3 phase \| 480 V \| 30 A \| Starting Torque Limiter | CCM33H530USi | | 421 |
| 3 phase \| 480 V \| 50 A \| Starting Torque Limiter | CCM33H550USi | | 422 |
| 3 phase \| 400 V \| 25 A \| Starting Torque Limiter with dynamic brake | CCMB3H425 | | 423 |

# CTC3415

## 3 phase | 400 V | 15 A | Starting Torque Limiter



**Main circuit**

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 1 |
| Output type | SCR |
| Rated voltage | 400 V |
| Output voltage range | 208 … 400 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-53a | 15 A |
| Minimum load | 50 mA |
| Leakage current | 5 mA |
| Rated limit load | 1,800 $A^2s$ |
| Switching frequency (cycles / h) | 3,000 |

**Control circuit**

| | |
|---|---|
| Release time | 1 Periode |
| Ramp-up time | 0.5 … 5 s |
| Torque adjustment | 0 … 85 % |
| Frequency range | 50 / 60 Hz |

**Insulation**

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 4 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPO |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type |
|---|---|
| Starting Torque Limiter, 3 phase | CTC3415 |

Other devices on request. Please contact support@comatreleco.com.

**Accessories**

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

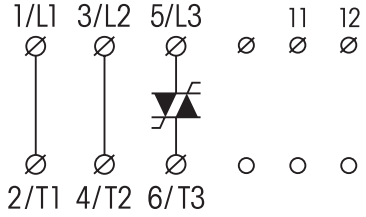
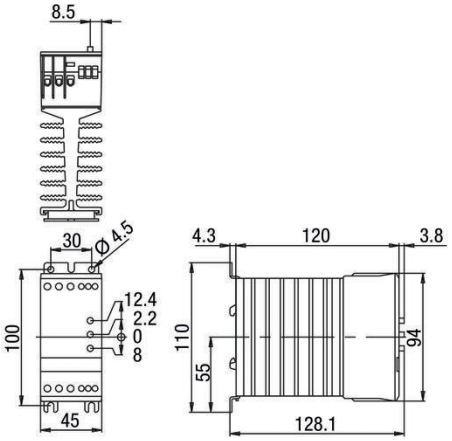



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947-2

Approvals

# CTC3425

## 3 phase | 400 V | 25 A | Starting Torque Limiter



**Main circuit**

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 1 |
| Output type | SCR |
| Rated voltage | 400 V |
| Output voltage range | 208 … 400 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-53a | 25 A |
| Minimum load | 50 mA |
| Leakage current | 5 mA |
| Rated limit load | 6,300 $A^2s$ |
| Switching frequency (cycles / h) | 3,000 |

**Control circuit**

| | |
|---|---|
| Release time | 1 Periode |
| Ramp-up time | 0.5 … 5 s |
| Torque adjustment | 0 … 85 % |
| Frequency range | 50 / 60 Hz |

**Insulation**

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C, 0.7 $I_N$ |
| Conductor cross section control / main circuit | 1.5 $mm^2$ / 4 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPO |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type |
|---|---|
| Starting Torque Limiter, 3 phase | CTC3425 |

Other devices on request. Please contact support@comatreleco.com.

**Accessories**

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

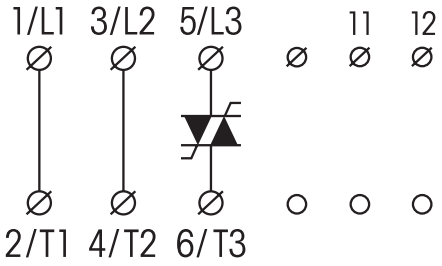
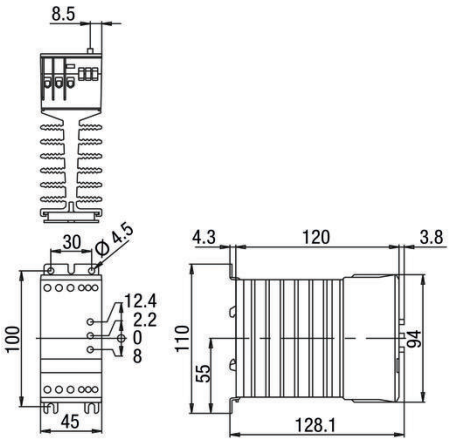



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947-2

Approvals

# CCL33H415US

## 3 phase | 400 V | 15 A | Compressor Starting Torque Limiter



### Main circuit

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 3 |
| Output type | SCR |
| Bypass | Integrated |
| Rated voltage | 400 V |
| Output voltage range | 230 … 400 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-58 | 15 A |
| Minimum load | 1.5 A |
| Leakage current | 5 mA |
| Inrush current | 90 A |
| Rated limit load | 610 $A^2s$ |
| Switching frequency (cycles / h) | 12 |

### Control circuit

| | |
|---|---|
| Nominal voltage | 230 V AC |
| Operating voltage range | 0.85 ... 1.15 $U_N$ |
| Release voltage | 110 V AC |
| Pick-up time | 500 ms |
| Release time | 500 ms |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

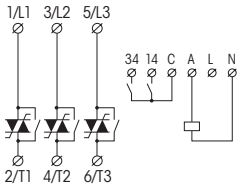
| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -20 ... 65 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$ / 6 $mm^2$ |
| Dimensions | fig. 2 |
| Weight | 470 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

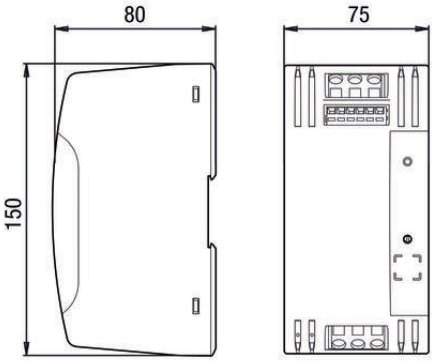
| Description | Type |
|---|---|
| Compressor Starting Torque Limiter, 3 phase | CCL33H415US |

Other devices on request. Please contact support@comatreleco.com.

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals CE UKCA

# CCM3H403USi

## 3 phase | 400 V | 3 A | Starting Torque Limiter



### Main circuit

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 2 |
| Output type | SCR |
| Bypass | Integrated |
| Rated voltage | 400 V |
| Output voltage range | 400 … 480 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-53b | 3 A |
| Minimum load | 250 mA |
| Leakage current | 5 mA |
| Inrush current | 18 A |
| Rated limit load | 72 $A^2s$ |
| Switching frequency (cycles / h) | 120 |

### Control circuit

| | |
|---|---|
| Operating voltage range | 24 ... 230 V AC/DC |
| Release voltage | 5V AC/DC |
| Ramp-up time | 0.5 … 10 s |
| Ramp-down time | 0.5 … 10 s |
| Torque adjustment | 0 … 85 % |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$ / 4 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 270 g |
| Ingress Protection | IP 20 |
| Housing material | PPO |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

| Description | Type |
|---|---|
| Starting Torque Limiter, 3 phase | CCM3H403USi |
| Other devices on request. Please contact support@comatreleco.com. | |

### Accessories

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

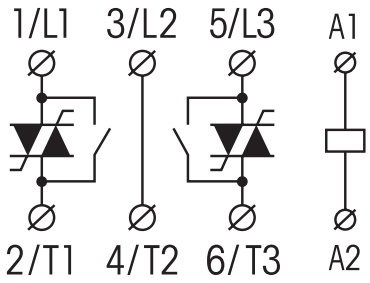
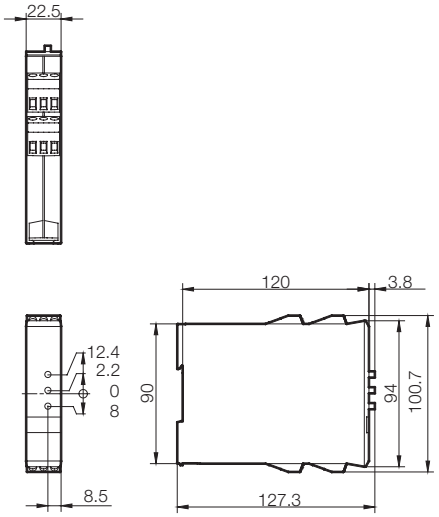



**fig. 2. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals

# CCM3H415

## 3 phase | 400 V | 15 A | Starting Torque Limiter



### Main circuit

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 2 |
| Output type | SCR |
| Rated voltage | 400 V |
| Output voltage range | 400 … 480 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-53b | 15 A |
| Minimum load | 250 mA |
| Leakage current | 5 mA |
| Inrush current | 90 A |
| Rated limit load | 1,800 $A^2s$ |
| Switching frequency (cycles / h) | 3,000 |

### Control circuit

| | |
|---|---|
| Operating voltage range | 24 ... 230 V AC/DC |
| Release voltage | 5 V AC/DC |
| Ramp-up time | 0.5 … 10 s |
| Ramp-down time | 0.5 … 10 s |
| Torque adjustment | 0 … 85 % |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$ / 4 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPO |
| Mounting | TH35 (EN 60715) or back panel mounting |

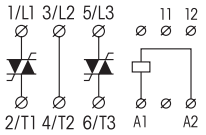
### Product references

| Description | Type |
|---|---|
| Starting Torque Limiter, 3 phase | CCM3H415 |
| Other devices on request. Please contact support@comatreleco.com. | |

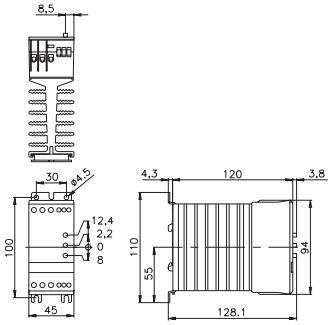
### Accessories

| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals

# CCM3H415DS

## 3 phase | 400 V | 15 A | Starting Torque Limiter with direct switch



**Main circuit**

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 2 |
| Output type | SCR |
| Rated voltage | 400 V |
| Output voltage range | 400 … 480 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-53b | 15 A |
| Minimum load | 250 mA |
| Leakage current | 5 mA |
| Inrush current | 90 A |
| Rated limit load | 1,800 $A^2s$ |
| Switching frequency (cycles / h) | 3,000 |

**Control circuit**

| | |
|---|---|
| Operating voltage range | 24 ... 230 V AC/DC |
| Release voltage | 5 V AC/DC |
| Ramp-up time | N. A. (direct switch) |
| Ramp-down time | N. A. (direct switch) |
| Torque adjustment | N. A. (direct switch) |
| Frequency range | 50 / 60 Hz |

**Insulation**

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$ / 4 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 650 g |
| Ingress Protection | IP 20 |
| Housing material | PPO |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type |
|---|---|
| Starting Torque Limiter, 3 phase | CCM3H415DS |

Other devices on request. Please contact support@comatreleco.com.

**Accessories**

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

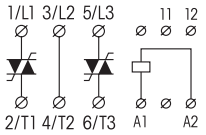
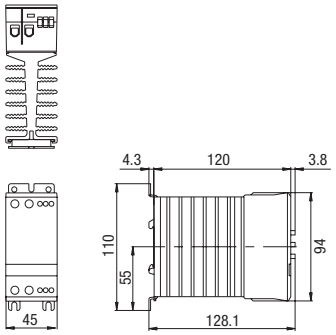



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947-4-2

Approvals

# CCM3H425

## 3 phase | 400 V | 25 A | Starting Torque Limiter



### Main circuit

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 2 |
| Output type | SCR |
| Rated voltage | 400 V |
| Output voltage range | 400 … 480 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-53b | 25 A |
| Minimum load | 250 mA |
| Leakage current | 5 mA |
| Inrush current | 150 A |
| Rated limit load | 6,300 $A^2s$ |
| Switching frequency (cycles / h) | 3,000 |

### Control circuit

| | |
|---|---|
| Operating voltage range | 24 ... 230 V AC/DC |
| Release voltage | 5 V AC/DC |
| Ramp-up time | 0.5 … 10 s |
| Ramp-down time | 0.5 … 10 s |
| Torque adjustment | 0 … 85 % |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$ / 6 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 1 050 g |
| Ingress Protection | IP 20 |
| Housing material | PPO |
| Mounting | TH35 (EN 60715) or back panel mounting |

### Product references

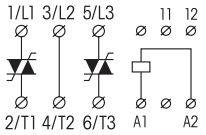
| Description | Type |
|---|---|
| Starting Torque Limiter, 3 phase | CCM3H425 |

Other devices on request. Please contact support@comatreleco.com.

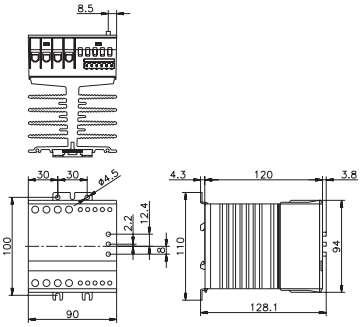
### Accessories

| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals

# CCM33H530USi

## 3 phase | 480 V | 30 A | Starting Torque Limiter



**Main circuit**

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 3 |
| Output type | SCR |
| Bypass | Externally |
| Rated voltage | 400 V |
| Output voltage range | 200 … 480 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-53b | 30 A |
| Minimum load | 3 A |
| Leakage current | 5 mA |
| Inrush current | 180 A, 450 ms A |
| Rated limit load | 6,300 $A^2s$ |
| Switching frequency (cycles / h) | 120 |

**Control circuit**

| | |
|---|---|
| Operating voltage range | 24 ... 230 V AC/DC |
| Release voltage | 5 V AC/DC |
| Ramp-up time | 0.5 … 30 s |
| Ramp-down time | 0.5 … 60 s |
| Torque adjustment | 0 … 85 % |
| Frequency range | 50 / 60 Hz |

**Insulation**

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$ / 6 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 1 050 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type |
|---|---|
| Starting Torque Limiter, 3 phase | CCM33H530USi |
| Other devices on request. Please contact support@comatreleco.com. | |

**Accessories**

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

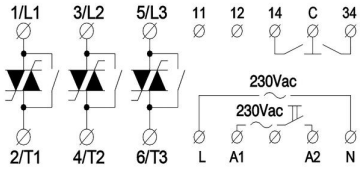
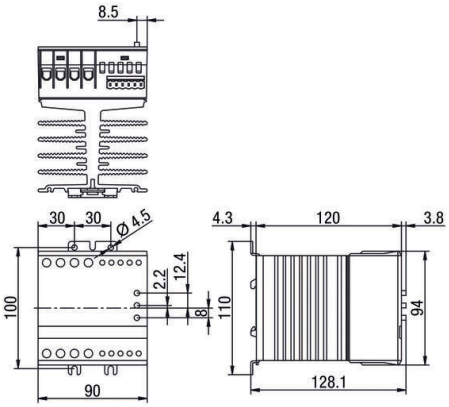



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947-4-2

Approvals

# CCM33H550USi

## 3 phase | 480 V | 50 A | Starting Torque Limiter



### Main circuit

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 3 |
| Output type | SCR |
| Bypass | Externally |
| Rated voltage | 400 V |
| Output voltage range | 200 … 480 V AC |
| Reverse voltage | 1,200 Vrrm |
| Peak reverse voltage | 1,300 Vrrm |
| Rated current AC-53b | 50 A |
| Minimum load | 3 A |
| Leakage current | 5 mA |
| Inrush current | 300 A, 450 ms A |
| Rated limit load | 25,300 $A^2s$ |
| Switching frequency (cycles / h) | 120 |

### Control circuit

| | |
|---|---|
| Operating voltage range | 24 ... 230 V AC/DC |
| Release voltage | 5 V AC/DC |
| Ramp-up time | 0.5 … 30 s |
| Ramp-down time | 0.5 … 60 s |
| Torque adjustment | 0 … 85 % |
| Frequency range | 50 / 60 Hz |

### Insulation

| | |
|---|---|
| Rated insulation voltage | 660 V |
| Rated impulse withstand voltage open contact | 4 kV / 1 min |
| Pollution degree | 3 |
| Overvoltage category | III |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 $mm^2$ / 6 $mm^2$ |
| Nominal screw torque control / main circuit | 0.5 Nm / 1.2 Nm |
| Dimensions | fig. 2 |
| Weight | 2 500 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

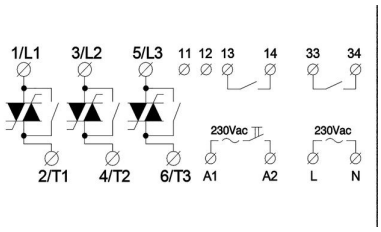
### Product references

| Description | Type |
|---|---|
| Starting Torque Limiter, 3 phase | CCM33H550USi |
| Other devices on request. Please contact support@comatreleco.com. | |

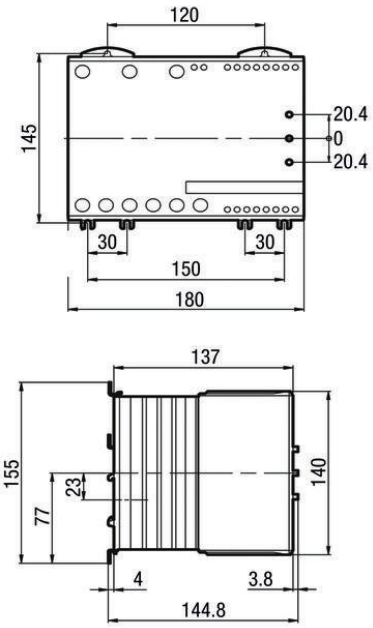
### Accessories

| | |
|---|---|
| Thermal overload protection | P82-100C |

### fig. 1. Wiring diagram




### fig. 2. Dimensions (mm)




### Technical approvals, conformities

Standards IEC/EN 60947-4-2

Approvals CE UKCA

# CCMB3H425

## 3 phase | 400 V | 25 A | Starting Torque Limiter with dynamic brake



**Main circuit**

| | |
|---|---|
| Number of outputs | 3 |
| Controlled phases | 2 |
| Output type | SCR |
| Bypass | Externally |
| Rated voltage | 400 V |
| Output voltage range | 400 … 480 V AC |
| Reverse voltage | 1,600 Vrrm |
| Peak reverse voltage | 1,650 Vrrm |
| Rated current AC-53a | 25 A |
| Minimum load | 1 A |
| Leakage current | 5 mA |
| Inrush current | 200 A |
| Rated limit load | 6,300 A²s |

**Control circuit**

| | |
|---|---|
| Operating voltage range | 24 ... 230 V AC/DC |
| Release voltage | 5 V AC/DC |
| Pick-up time | 100 ms |
| Release time | 100 ms |
| Ramp-up time | 0.5 … 10 s |
| Brake current | 0 … 85 % |
| Torque adjustment | 0 … 85 % |
| Frequency range | 50 / 60 Hz |
| Pollution degree | 3 |
| Overvoltage category | III |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 80 °C |
| Operation temperature | -5 ... 40 °C |
| Ambient temperature operation derated power | -5 ... 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² / 6 mm² |
| Dimensions | fig. 2 |
| Weight | 1 050 g |
| Ingress Protection | IP 20 |
| Housing material | PPE |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type |
|---|---|
| Starting torque limiter with dynamic brake, 3 phase | CCMB3H425 |

**Accessories**

| | |
|---|---|
| Thermal overload protection | P82-100C |

**fig. 1. Wiring diagram**

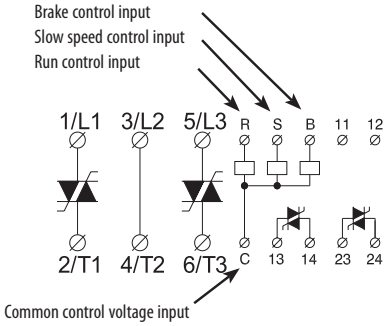
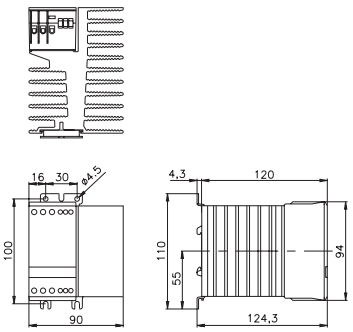



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 60947-4-2

Approvals

## Notes

# 6.2 DC Motor Controller

| | Type | Pin | Page |
|---|---|---|---|
| **CMC Series** | | | |
| DC motor controller, variable speed | CMC1 | | 426 |
| DC motor controller, variable speed | CMC14 | | 427 |
| DC motor controller \| analogue inputs 0 … 10 V \| variable speed | CMC15 | | 428 |
| DC motor controller \| analogue inputs 4 … 20 mA \| variable speed | CMC16 | | 429 |
| **KDM Series** | | | |
| DC Motor relay \| 1 Output for motor \| 1 Output für Brake resistor \| Faston | KDM3-24 | | 430 |

# CMC1

## DC motor controller, variable speed

**Power supply**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 8 … 28 V DC |
| Maximum current consumption without load | 10 mA |
| Power consumption 12 V DC | 120 mW |
| Power consumption 24 V DC | 240 mW |

**Main circuit**

| | |
|---|---|
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Output voltage range | 8 … 28 V DC |
| Rated current | 16 A |
| Maximum inrush current | 20 A, 3 s |
| Rated limit load DC-5 | 384 W |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 8 … 28 V DC |
| Ramp up | 0 … 4 s |
| Ramp down | 0 … 4 s |
| Current consumption 12 V DC | 3 mA |
| Current consumption 24 V DC | 6 mA |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 Nm |
| Dimensions | fig. 3. |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | Aluminium |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type | 12-24 |
|---|---|---|
| DC | CMC1/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

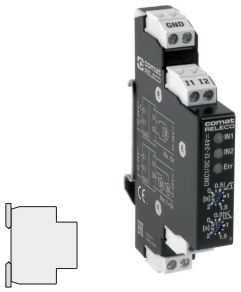


fig. 1. Wiring diagram

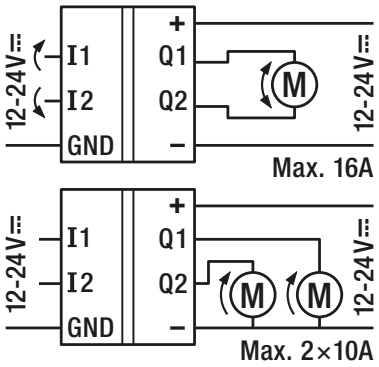



fig. 2. Function diagram

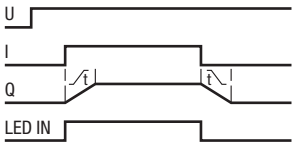
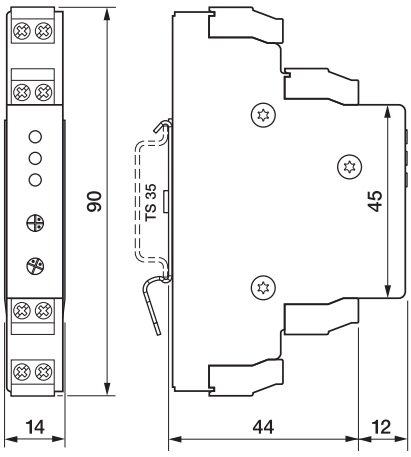



fig. 3. Dimensions (mm)




## Technical approvals, conformities

Standards EN 55022; EN 60730-1; EN 61000-4; EN 61000-6

Approvals

# CMC14

## DC motor controller, variable speed

**Power supply**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 8 … 28 V DC |
| Maximum current consumption without load | 10 mA |
| Power consumption 12 V DC | 120 mW |
| Power consumption 24 V DC | 240 mW |

**Main circuit**

| | |
|---|---|
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Output voltage range | 8 ... 28 V DC |
| Rated current | 10 A |
| Maximum inrush current | 20 A, 3 s |
| Rated limit load DC-5 | 240 W |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 8 … 28 V DC |
| Ramp up | 0 … 4 s |
| Ramp down | 0 … 4 s |
| Current consumption 12 V DC | 3 mA |
| Current consumption 24 V DC | 6 mA |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 70 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 Nm |
| Dimensions | fig. 3. |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | Aluminium |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type | 12-24 |
|---|---|---|
| DC | CMC14/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references



**fig. 1. Function diagram**

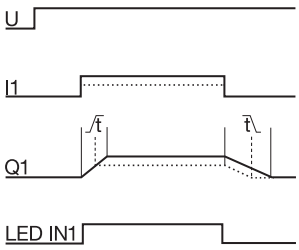
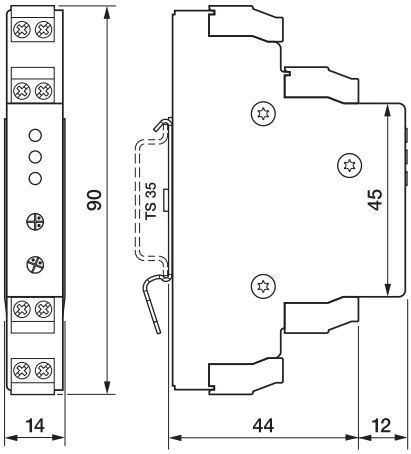



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 55022; EN 60730-1; EN 61000-4; EN 61000-6

Approvals

# CMC15

## DC motor controller | analogue inputs 0 ... 10 V | variable speed

**Power supply**

| | |
|---|---|
| Nominal voltage | 0 … 10 V DC |
| Operating voltage range | 8 ... 28 V DC |
| Maximum current consumption without load | 10 mA |
| Power consumption 12 V DC | 120 mW |
| Power consumption 24 V DC | 240 mW |

**Main circuit**

| | |
|---|---|
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Output voltage range | 8 ... 28 V DC |
| Rated current | 10 A |
| Maximum inrush current | 20 A, 3 s |
| Rated limit load DC-5 | 240 W |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 8 … 28 V DC |
| Ramp up | 0 … 2 s |
| Ramp down | 0 … 2 s |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 70 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 Nm |
| Dimensions | fig. 3. |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | Aluminium |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type | 12-24 |
|---|---|---|
| DC | CMC15/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

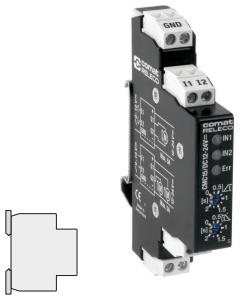


fig. 1. Wiring diagram

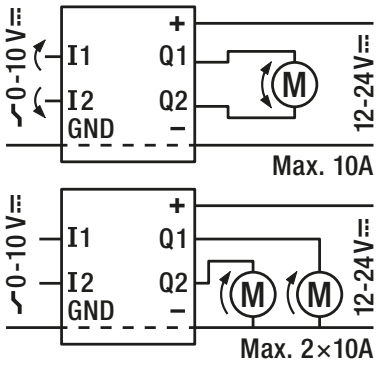



fig. 2. Function diagram

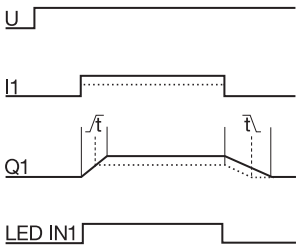
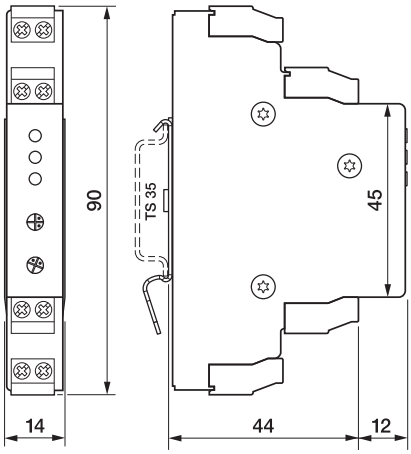



fig. 3. Dimensions (mm)




## Technical approvals, conformities

Standards EN 55022; EN 60730-1; EN 61000-4; EN 61000-6

Approvals CE EAC UK CA

# CMC16

## DC motor controller | analogue inputs 4 … 20 mA | variable speed

**Power supply**

| | |
|---|---|
| Nominal voltage | 4 … 20 A |
| Operating voltage range | 8 ... 28 V DC |
| Maximum current consumption without load | 10 mA |
| Power consumption 12 V DC | 120 mW |
| Power consumption 24 V DC | 240 mW |

**Main circuit**

| | |
|---|---|
| Output type | MOSFET |
| Rated voltage | 24 V DC |
| Output voltage range | 8 ... 28 V DC |
| Rated current | 10 A |
| Maximum inrush current | 20 A, 3 s |
| Rated limit load DC-5 | 240 W |

**Control circuit**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 8 … 28 V DC |
| Ramp up | 0 … 2 s |
| Ramp down | 0 … 2 s |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 70 °C |
| Conductor cross section control / main circuit | 2.5 mm² |
| Nominal screw torque control / main circuit | 0.6 Nm |
| Dimensions | fig. 3. |
| Weight | 80 g |
| Ingress Protection | IP 20 |
| Housing material | Aluminium |
| Mounting | TH35 (EN 60715) or back panel mounting |

**Product references**

| Description | Type | 12-24 |
|---|---|---|
| DC | CMC16/DC...V | ✓ |

Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references



**fig. 1. Wiring diagram**

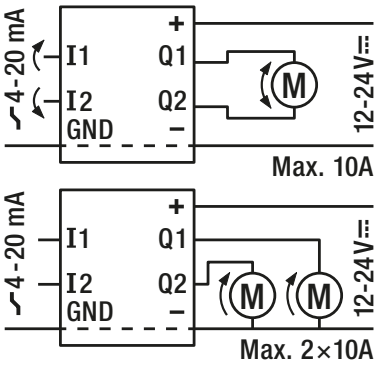



**fig. 2. Function diagram**

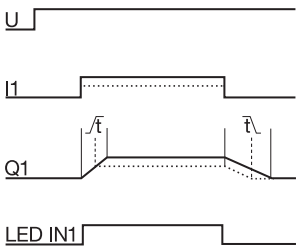
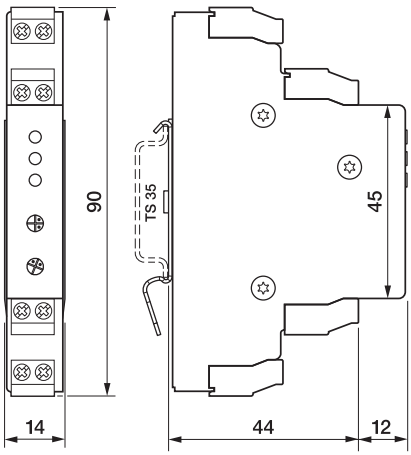



**fig. 3. Dimensions (mm)**




**Technical approvals, conformities**

Standards EN 55022; EN 60730-1; EN 61000-4; EN 61000-6

Approvals

# KDM3-24

## DC Motor relay | 1 Output for motor | 1 Output für Brake resistor | Faston



**Power supply**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 9 … 28 V DC |
| Power consumption 12 V DC | 36 mW |
| Power consumption 24 V DC | 24 mW |

**Main circuit**

| | |
|---|---|
| Output type | PNP Transistor |
| Output voltage range | 10 … 32 V DC |
| Rated current | 3 A |
| Maximum inrush current | 20 A, 1 s |

**Control circuit**

| | |
|---|---|
| Nominal operating current range | 3 mA @ 12 V DC / 10 mA @ 24 V DC |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Dimensions | fig. 4. |
| Weight | 27 g |
| Ingress Protection | IP 40 |
| Housing material | Noryl |
| Mounting | Faston |

**Housing and environmental conditions**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 85 °C |
| Operation temperature | -25 … 60 °C |
| Ingress Protection | IP 40 |
| Weight | 27 g |
| Operation Position | any |
| Housing material | Noryl |

**Product references**

| Description | Type | 12-24 |
|---|---|---|
| DC | KDM3-24/DC...V | ✓ |

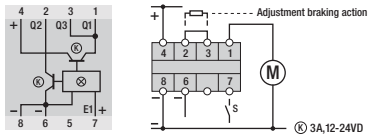
Other voltages on request. Please contact support@comatreleco.com.
«…» List coil voltage to complete product references

Hint: No extra breaking resistor is needed, if the voltage/current is less than 60V/10A.

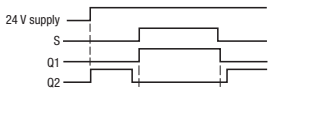
### fig. 1. Wiring diagram



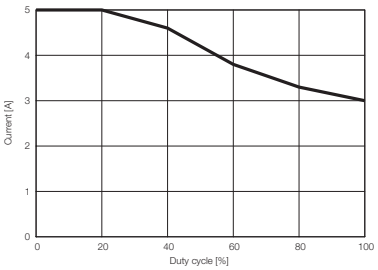
### fig. 2. Function diagram

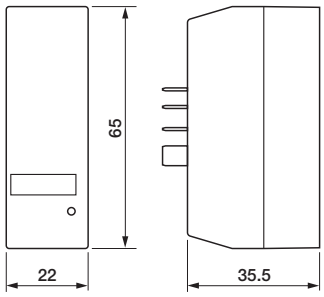



### fig. 3. Output current vs. duty cycle




### fig. 4. Dimensions (mm)




### Technical approvals, conformities

Standards EN 50081-1; EN 50082-2; IEC/EN 61000-4-5

Approvals

# 7 PLC & HMI


| Chapter | Page |
|---|---|
| 7.1 ComatReleco BoxX 2 | 433 |
| 7.2 ComatReleco BoxX 2 Accessories | 439 |
| 7.3 M91 Series | 441 |
| 7.4 Jazz Series | 445 |
| 7.5 Samba™ Series | 447 |
| 7.6 Vision™ Series | 451 |
| 7.7 UniStream® Series | 465 |
| 7.8 Accessories & Modules | 475 |

## Notes

# 7.1 ComatReleco BoxX 2

| | Type | Pin | Page |
|---|---|---|---|
| **AF-10** | | | |
| 6 digital inputs AC \| 4 relay outputs / NO | AF-10MR-A2-CAP | | 434 |
| 6 digital / analog inputs DC \| 4 relay outputs / NO | AF-10MR-D2-CAP | | 435 |
| **AF-20** | | | |
| 12 digital inputs AC \| 8 relay outputs / NO | AF-20MR-A2-CAP | | 436 |
| 12 digital / analog inputs DC \| 8 relay outputs / NO | AF-20MR-D2-CAP | | 437 |

# AF-10MR-A2-CAP

## 6 digital inputs AC | 4 relay outputs / NO

**Power supply**

| | |
|---|---|
| Nominal voltage | 100 … 240 V AC |
| Operating voltage range | 85 … 260 V AC |
| Power consumption AC | 6 VA |

**Inputs**

| | |
|---|---|
| Number of digital or analog inputs | 6 |
| Nominal voltage digital inputs | 80 … 240 V AC |
| Delay time | 50 ms |

**Outputs**

| | |
|---|---|
| Digital output | 25 000 switch cycles |
| Output type | Relay |
| Number of relay outputs | 4 |
| Type of terminal | NO |
| Rated voltage | 250 V AC |
| Rated current | 10 A |

**Memory**

| | |
|---|---|
| Storage capacity | Program 64 k / 127 function block |
| Programming language | Function block diagram (FBD) |
| Resistor load / Lamp load | 10 Hz |
| Induced load | 2 Hz |

**Communication**

| | |
|---|---|
| Interface | support 2 channel with RS485 and 1 channel with program interfaces |
| Baud rate | 9 600 bps / 19 200 bps |
| Protocol | Self-defined protocol / MODBUS RTU protocol (only read) |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 70 °C |
| Operation temperature | -20 … 70 °C |
| Dimensions | see fig. 2 |
| Weight | 205 g |
| Mounting | DIN rail or Wall (M3) |
| Ingress Protection | IP 20 |
| Housing material | ABS |
| Relative huminity, no condensation | 5 ... 95 % |

**Wiring**

| | |
|---|---|
| Conductor cross section control / main circuit | 1 x 2.5 mm$^2$<br>2 x 1.5 mm$^2$ |

**Product references**

| Description | Type | 110-240 |
|---|---|---|
| 6 digital inputs AC I 4 relay outputs | AF-10MR-A2-CAP/AC110-240V | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The Quick II software is available free of charge on www.comatreleco.com at downloads.

**Accessories**

| | |
|---|---|
| Display - pluggable | AF-HMI |
| Front cover | AF-CAP |
| Programming cable | AF-DUSB2 |

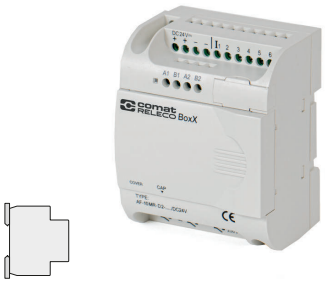


**fig. 1. Wiring diagram**

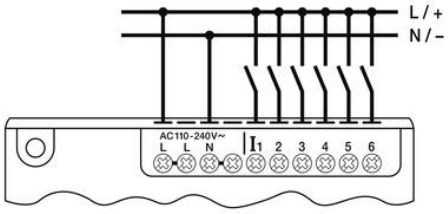
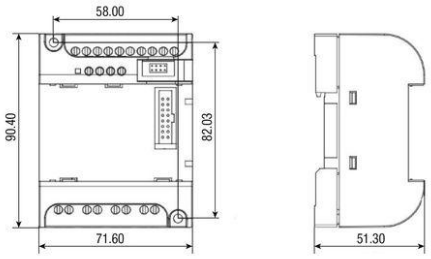



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 55032; IEC/EN 55035; IEC/EN 61000-3-2; IEC/EN 61000-3-3

Approvals CE UK CA

# AF-10MR-D2-CAP

## 6 digital / analog inputs DC | 4 relay outputs / NO

**Power supply**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10 … 28 V DC |
| Power consumption DC | < 4 W |

**Inputs**

| | |
|---|---|
| Number of digital or analog inputs | 6 |
| Nominal voltage digital inputs | 10 … 24 V DC |
| Delay time | 50 ms |

**Outputs**

| | |
|---|---|
| Digital output | 25 000 switch cycles |
| Output type | Relay |
| Number of relay outputs | 4 |
| Type of terminal | NO |
| Rated voltage | 250 V AC |
| Rated current | 10 A |

**Memory**

| | |
|---|---|
| Storage capacity | Program 64 k / 127 function block |
| Programming language | Function block diagram (FBD) |
| Resistor load / Lamp load | 10 Hz |
| Induced load | 2 Hz |

**Communication**

| | |
|---|---|
| Interface | support 2 channel with RS485 and 1 channel with program interfaces |
| Baud rate | 9 600 bps / 19 200 bps |
| Protocol | Self-defined protocol / MODBUS RTU protocol (only read) |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 70 °C |
| Operation temperature | -20 … 70 °C |
| Dimensions | see fig. 2 |
| Weight | 209 g |
| Mounting | DIN rail or Wall (M3) |
| Ingress Protection | IP 20 |
| Housing material | ABS |
| Relative huminity, no condensation | 5 ... 95 % |

**Wiring**

| | |
|---|---|
| Conductor cross section control / main circuit | 1 x 2.5 mm$^2$<br>2 x 1.5 mm$^2$ |

**Product references**

| Description | Type | 24 |
|---|---|---|
| 6 digital inputs AC I 4 relay outputs | AF-10MR-D2-CAP/DC24V | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The Quick II software is available free of charge on www.comatreleco.com at downloads.

**Accessories**

| | |
|---|---|
| Display - pluggable | AF-HMI |
| Front cover | AF-CAP |
| Programming cable | AF-DUSB2 |

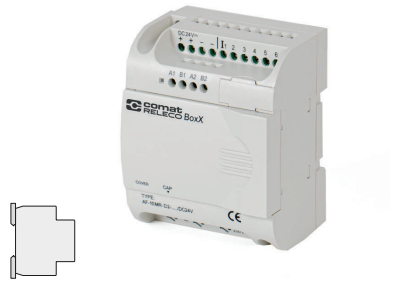




**fig. 1. Wiring diagram**

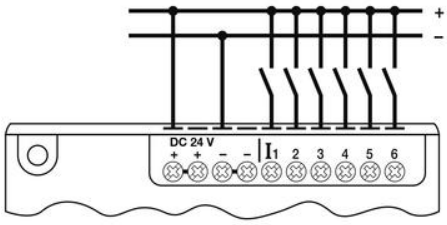
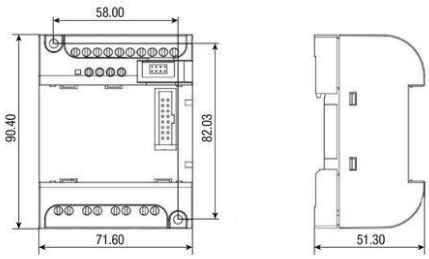



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 55032; IEC/EN 55035; IEC/EN 61000-3-2; IEC/EN 61000-3-3

Approvals CE UKCA

# AF-20MR-A2-CAP

## 12 digital inputs AC | 8 relay outputs / NO

**Power supply**

| | |
|---|---|
| Nominal voltage | 100 … 240 V AC |
| Operating voltage range | 85 … 260 V AC |
| Power consumption AC | 10 VA |

**Inputs**

| | |
|---|---|
| Number of digital or analog inputs | 12 |
| Nominal voltage digital inputs | 80 … 240 V AC |
| Delay time | 50 ms |

**Outputs**

| | |
|---|---|
| Digital output | 25 000 switch cycles |
| Output type | Relay |
| Number of relay outputs | 8 |
| Type of terminal | NO |
| Rated voltage | 250 V AC |
| Rated current | 10 A |

**Memory**

| | |
|---|---|
| Storage capacity | Program 64 k / 127 function block |
| Programming language | Function block diagram (FBD) |
| Resistor load / Lamp load | 10 Hz |
| Induced load | 2 Hz |

**Communication**

| | |
|---|---|
| Interface | support 2 channel with RS485 and 1 channel with program interfaces |
| Baud rate | 9 600 bps / 19 200 bps |
| Protocol | Self-defined protocol / MODBUS RTU protocol (only read) |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 70 °C |
| Operation temperature | -20 … 70 °C |
| Dimensions | see fig. 2 |
| Weight | 348 g |
| Mounting | DIN rail or Wall (M3) |
| Ingress Protection | IP 20 |
| Housing material | ABS |
| Relative huminity, no condensation | 5 ... 95 % |

**Wiring**

| | |
|---|---|
| Conductor cross section control / main circuit | 1 x 2.5 mm$^2$<br>2 x 1.5 mm$^2$ |

**Product references**

| Description | Type | 110-240 |
|---|---|---|
| 12 digital inputs I 8 relay outputs | AF-20MR-A2-CAP/AC110-240V | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The Quick II software is available free of charge on www.comatreleco.com at downloads.

**Accessories**

| | |
|---|---|
| Display - pluggable | AF-HMI |
| Front cover | AF-CAP |
| Programming cable | AF-DUSB2 |





**fig. 1. Wiring diagram**

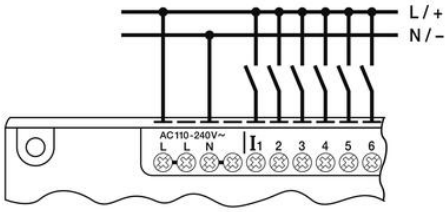
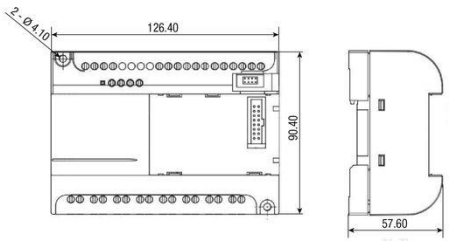



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 55032; IEC/EN 55035; IEC/EN 61000-3-2; IEC/EN 61000-3-3

Approvals CE UK CA

# AF-20MR-D2-CAP

## 12 digital / analog inputs DC | 8 relay outputs / NO





**Power supply**

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10 … 28 V DC |
| Power consumption DC | < 5 W |

**Inputs**

| | |
|---|---|
| Number of digital or analog inputs | 12 |
| Nominal voltage digital inputs | 10 … 24 V DC |
| Delay time | 50 ms |

**Outputs**

| | |
|---|---|
| Digital output | 25 000 switch cycles |
| Output type | Relay |
| Number of relay outputs | 8 |
| Type of terminal | NO |
| Rated voltage | 250 V AC |
| Rated current | 10 A |

**Memory**

| | |
|---|---|
| Storage capacity | Program 64 k / 127 function block |
| Programming language | Function block diagram (FBD) |
| Resistor load / Lamp load | 10 Hz |
| Induced load | 2 Hz |

**Communication**

| | |
|---|---|
| Interface | support 2 channel with RS485 and 1 channel with program interfaces |
| Baud rate | 9 600 bps / 19 200 bps |
| Protocol | Self-defined protocol / MODBUS RTU protocol (only read) |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 70 °C |
| Operation temperature | -20 … 70 °C |
| Dimensions | see fig. 2 |
| Weight | 340 g |
| Mounting | DIN rail or Wall (M3) |
| Ingress Protection | IP 20 |
| Housing material | ABS |
| Relative huminity, no condensation | 5 ... 95 % |

**Wiring**

| | |
|---|---|
| Conductor cross section control / main circuit | 1 x 2.5 mm²<br>2 x 1.5 mm² |

**Product references**

| Description | Type | 24 |
|---|---|---|
| 12 digital inputs I 8 relay outputs | AF-20MR-D2-CAP/DC24V | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The Quick II software is available free of charge on www.comatreleco.com at downloads.

**Accessories**

| | |
|---|---|
| Display - pluggable | AF-HMI |
| Front cover | AF-CAP |
| Programming cable | AF-DUSB2 |

**fig. 1. Wiring diagram**

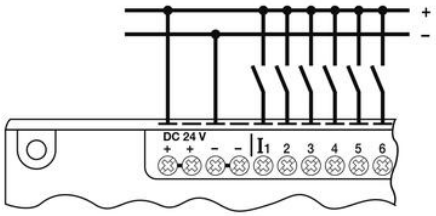
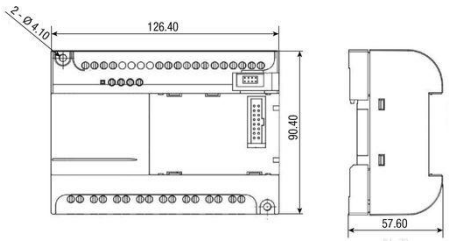



**fig. 2. Dimensions (mm)**




**Technical approvals, conformities**

Standards IEC/EN 55032; IEC/EN 55035; IEC/EN 61000-3-2; IEC/EN 61000-3-3

Approvals CE UK CA

## Notes

# 7.2 ComatReleco BoxX 2 Accessories

| | Type | Pin | Page |
|---|---|---|---|
| **AF-Series** | | | |
| Front cover | AF-CAP | | 440 |
| Programming cable | AF-DUSB2 | | 440 |
| Display - pluggable | AF-HMI | | 440 |

## AF-CAP

### Front cover




**General data**

| | |
|---|---|
| Dimensions | 45 x 71 x 12 mm |
| Weight | 11 g |
| Mounting | Pluggable on AF-10 and AF-20 |
| Housing material | ABS |

**Product references**

| Description | Type |
|---|---|
| Front cover | AF-CAP |

## AF-DUSB2

### Programming cable




**General data**

| | |
|---|---|
| Dimensions | 1 430 x 40 x 17 mm |
| Weight | 95 g |
| Housing material | ABS |

**Product references**

| Description | Type |
|---|---|
| Programming cable | AF-DUSB2 |

## AF-HMI

### Display - pluggable




**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 … 70 °C |
| Operation temperature | -20 … 70 °C |
| Dimensions | 45 x 71 x 16 mm |
| Weight | 38 g |
| Mounting | Pluggable on AF-10 and AF-20 |
| Ingress Protection | IP 20 |
| Housing material | ABS |
| Relative huminity, no condensation | 5 ... 95 % |

**Product references**

| Description | Type |
|---|---|
| Display - pluggable | AF-HMI |

# 7.3 M91 Series

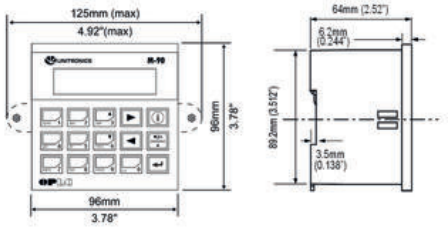
| | Type | Pin | Page |
|---|---|---|---|
| **M91 Series** | | | |
| M91-2-xxx | M91 | | 442 |

# M91

## M91-2-xxx



**fig. 1. Dimensions (mm)**




### HMI

| | |
|---|---|
| Display | STN LCD, 2 lines x 16 characters |
| Number of keys | 15 |
| Number of definable displays | 80 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |
| Power consumption AC / DC | - / 6.24 W |
| Frequency range | Rated frequency |

### Inputs

| | | |
|---|---|---|
| Number of digital inputs | 10 | |
| Number of encoder inputs* | 3, 16 Bit, 10 kHz | |
| Number of analog inputs* | 1, 10 Bit, 0-10 V, 0-20 mA, 4-20 mA | |
| Nominal voltage digital inputs | 12 V DC | 24 V DC |
| High level treshold digital inputs | 8 V DC | 17 V DC |
| Number of temperature inputs | Number of temperature inputs | Number of temperature inputs |

*Occupies up to two terminals of the digital inputs.

### Outputs

| | |
|---|---|
| Number of relay outputs | 6 |
| Number of transistor outputs | 6 |
| Number of analog outputs | 2 |
| Rated voltage AC | 230 V |
| Rated current | 5 A |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 36 KB |
| Number of memory bits (coils) | 256 |
| Number of memory integers (registers) | 256 |
| Number of timers | 64 |
| Database size | 1024 integers (indirect access) |
| Execution time | 12 µs / Bit |
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>Ethernet optional |
| Protocol | Modbus, OPC |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | CR2450N, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

### Technical approvals, conformities

Approvals

### Product references

| Description | Type | 12-24 | 24 |
|---|---|---|---|
| 10 digital, 3 HSC/shaft encoder, 1 analog inputs I 6 digital relay outputs | M91-2-R1 | ✓ | |
| 10 digital, 3 HSC/shaft encoder, 2 analog inputs I 6 digital relay outputs | M91-2-R2C | ✓ | |
| 22 digital, 3 HSC/shaft encoder, 2 analog inputs I 12 digital relay outputs | M91-2-R34 | | ✓ |
| 6 digital, 1 HSC/shaft encoder, 6 analog inputs I 6 digital relay outputs | M91-2-R6C | | ✓ |
| 12 digital, 2 HSC/shaft encoder inputs I 12 digital transistor outputs | M91-2-T1 | ✓ | |
| 12 digital, 3 HSC/shaft encoder, 2 analog inputs I 12 digital transistor outputs | M91-2-T2C | ✓ | |
| 22 digital, 3 HSC/shaft encoder inputs I 16 digital transistor outputs | M91-2-T38 | | ✓ |
| 12 digital, 1 HSC/shaft encoder, 2 analog, 2 TC inputs I 10 digital transistor, 1 analog outputs | M91-2-UA2 | | ✓ |
| 12 digital, 2 HSC/shaft encoder, 2 analog, 2 PT100/TC inputs I 12 digital transistor outputs | M91-2-UN2 | ✓ | |

Other devices on request. Please contact support@comatreleco.com.
The U90 Ladder software is available free of charge on www.unitronicsplc.com at downloads.

# M91

## M91-2-xxx

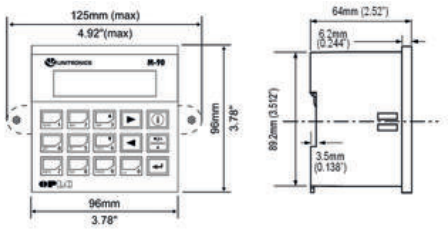
**Accessories**

| | |
|---|---|
| I/O Expansion Modules | IO-AI4-AO2, IO-AI8, IO-AO6X, IO-ATC8, IO-D16A3-RO16, IO-DI16, IO-DI8ACH, IO-DI8-RO4, IO-PT400, IO-PT4K, IO-LC1, IO-LC3, IO-RO8, IO-RO16 |





**fig. 1. Dimensions (mm)**




## Technical approvals, conformities

Approvals

## Notes

# 7.4 Jazz Series


| | Type | Pin | Page |
|---|---|---|---|
| **Jazz 20** | | | |
| JZ20-xxx | Jazz | | 446 |

# Jazz

## JZ20-xxx

**HMI**

| | |
|---|---|
| Display | STN LCD, 2 lines x 16 characters |
| Number of keys | 16 |

**Power supply**

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 20.4 … 28.8 V DC |
| Power consumption AC / DC | - / 2.4 W |

**Inputs**

| | |
|---|---|
| Number of digital inputs | 6 |
| Nominal voltage digital inputs | 24 V DC |
| High level treshold digital inputs | 17 V DC |

**Outputs**

| | |
|---|---|
| Number of relay outputs | 4 |
| Rated voltage AC | 250 V |
| Rated current | 5 A |

**Memory**

| | |
|---|---|
| Number of ladder code memory (virtual) | 48 KB |
| Number of memory bits (coils) | 256 |
| Number of memory integers (registers) | 64<br>256 |
| Number of timers | 64 |
| Execution time | 1.5 µs / Bit |

**Communication**

| | |
|---|---|
| Connections | USB<br>Mini-B<br>RS232 optional<br>RS485 optional<br>Ethernet optional |
| Resolution | 2 lines, 16 characters |
| Protocol | Modbus, OPC |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data. |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

**Product references**

| Description | Type | 24 |
|---|---|---|
| 6 digital inputs I 4 relay outputs | JZ20-J-R10 | ✓ |
| 6 digital, 2 d/a, 2 analog inputs I 6 relay outputs | JZ20-J-R16 | ✓ |
| 6 digital, 3 HSC/shaft encoder, 2 d/a, 2 analog inputs I 6 relay outputs | JZ20-J-R16HS | ✓ |
| 6 digital inputs I 4 transistor outputs | JZ20-J-T10 | ✓ |
| 6 digital, 2 d/a, 2 analog inputs I 8 transistor outputs | JZ20-J-T18 | ✓ |
| 16 digital, 2 d/a, 2 analog inputs I 20 transistor outputs | JZ20-J-T40 | ✓ |
| 9 digital, 1 HSC, 2 d/a, 2 analog inputs, 2 PT100/TC I 5 relay, 2 transistor, 2 analog outputs | JZ20-J-UA24 | ✓ |
| 9 digital, 2 d/a, 1 analog, 1 PT100/TC inputs I 5 relay, 2 transistor outputs | JZ20-J-UN20 | ✓ |
| 6 digital inputs AC I 4 relay outputs | JZ20-R10 | ✓ |
| 6 digital, 2 d/a, 2 analog inputs I 6 relay outputs | JZ20-R16 | ✓ |
| 6 digital inputs I 4 transistor outputs | JZ20-T10 | ✓ |
| 6 digital, 2 d/a, 2 analog inputs I 8 transistor outputs | JZ20-T18 | ✓ |
| 16 digital, 2 d/a, 2 analog inputs I 20 transistor outputs | JZ20-T40 | ✓ |
| 9 digital, 2 d/a, 1 analog, 1 PT100/TC inputs I 5 relay, 2 transistor outputs | JZ20-UN20 | ✓ |

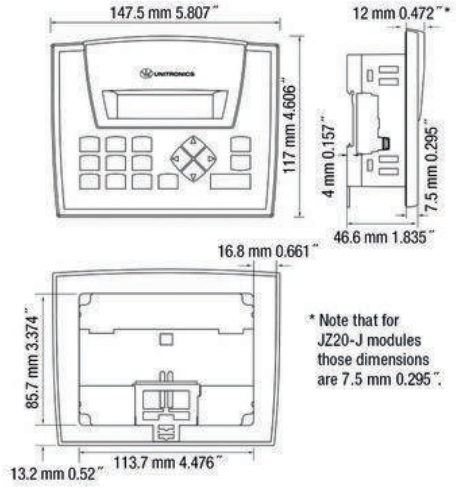
Other devices on request. Please contact support@comatreleco.com.
The U90 Ladder software is available free of charge on www.unitronicsplc.com at downloads.

**Accessories**

| | |
|---|---|
| Jazz Add-on ports and Accessories | JZ-PRG, JZ-RS4, MJ20-ET1, MJ20-JZ-SL1, MJ20-MEM1, USB2-CAB200 |



**fig. 1. Dimensions (mm)**




**Technical approvals, conformities**

Approvals

# 7.5 Samba™ Series

| | Type | Pin | Page |
|---|---|---|---|
| **SM35-J** | | | |
| SM35-J-xxx | SM35 | | 448 |
| **SM43-J** | | | |
| SM43-J-xxx | SM43 | | 449 |
| **SM70-J** | | | |
| SM70-J-xxx | SM70 | | 450 |

# SM35

## SM35-J-xxx



**HMI**

| | |
|---|---|
| Display | 3.5” touchscreen, TFT, LCD, resistive, analog, 65 536 colors (16 bit) |
| Resolution | 320 x 240 pixels (QVGA) |
| Number of definable displays | 24 |

**Power supply**

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 20.4 ... 28.8 V DC |

**Memory**

| | |
|---|---|
| Number of ladder code memory (virtual) | 112 KB |
| Number of memory bits (coils) | 512 |
| Number of memory integers (registers) | 256 |
| Number of timers | 32 |
| Execution time | 15 µs / kb |

**Communication**

| | |
|---|---|
| Connections | RS232<br>CAN optional<br>RS485 |
| Protocol | MODBUS TCP, SNMP v1, CANopen, UniCAN, CANlayer2, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol |

**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 ºC / -4 ... 140 °F |
| Operation temperature | 0 ... 50 ºC / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

**Product references**

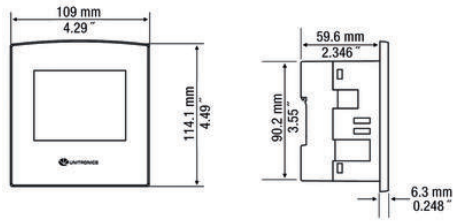
| Description | Type | 24 |
|---|---|---|
| 10 digital, 2 d/a inputs I 8 relay outputs | SM35-J-R20 | ✓ |
| 12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC I 8 relay, 2 analog outputs | SM35-J-RA22 | ✓ |
| 10 digital, 2 d/a inputs I 8 transistor outputs | SM35-J-T20 | ✓ |
| 12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC I 8 transistor, 2 analog outputs | SM35-J-TA22 | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

**Accessories**

| | |
|---|---|
| Additional Comm Ports | V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN |
| I/O Expansion Modules | EX-A2X, EX-RC1, IO-AI4-AO2, IO-AI8, IO-AO6X, IO-ATC8, IO-D16A3-RO16, IO-DI16, IO-DI16-L, IO-DI8ACH, IO-DI8-RO4, IO-DI8-RO4-L, IO-DI8-RO8, IO-DI8-TO8, IO-LC1, IO-LC3, IO-PT400, IO-PT4K, IO-RO16, IO-RO8, IO-RO8-L, IO-TO16 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

**fig. 1. Dimensions (mm)**




## Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

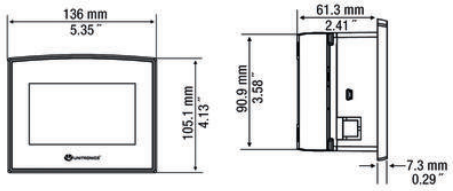
# SM43

## SM43-J-xxx





fig. 1. Dimensions (mm)




### HMI

| | |
|---|---|
| Display | 4.3” Touchscreen, TFT, LCD, resistive, analog, 65 536 colors (16 bit) |
| Resolution | 480 x 272 pixels |
| Number of definable displays | 24 |

### Power supply

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 20.4 ... 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 192 KB |
| Number of memory bits (coils) | 512 |
| Number of memory integers (registers) | 256 |
| Number of timers | 32 |
| Execution time | 15 µs / kb |

### Communication

| | |
|---|---|
| Connections | USB<br>CAN<br>RS232<br>RS485 |
| Protocol | MODBUS TCP, SNMP v1, CANopen, UniCAN,CANlayer2, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data. |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

### Product references

| Description | Type | 24 |
|---|---|---|
| 10 digital, 2 d/a inputs I 8 relay outputs | SM43-J-R20 | ✓ |
| 12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC I 8 relay, 2 analog outputs | SM43-J-RA22 | ✓ |
| 10 digital, 2 d/a inputs I 8 transistor outputs | SM43-J-T20 | ✓ |
| 12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC I 8 transistor, 2 analog outputs | SM43-J-TA22 | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN |
| I/O Expansion Modules | EX-A2X, IO-DI8-T08, IO-DI8-R04, EX90-DI18-R08, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

# SM70

## SM70-J-xxx



### HMI

| | |
|---|---|
| Display | 7.0” touchscreen, TFT, LCD, resistive, analog, 65 536 colors (16 bit) |
| Resolution | 800 x 480 pixels (WVGA) |
| Number of definable displays | 24 |

### Power supply

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 20.4 ... 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 192 KB |
| Number of memory bits (coils) | 512 |
| Number of memory integers (registers) | 256 |
| Number of timers | 32 |
| Execution time | 15 µs / kb |

### Communication

| | |
|---|---|
| Connections | USB<br>RS232<br>RS485<br>CAN |
| Protocol | MODBUS TCP, SNMP V1, CANopen, UniCAN, CANlayer2, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data. |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

### Product references

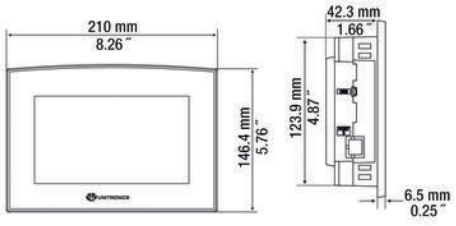
| Description | Type | 24 |
|---|---|---|
| 10 digital, 2 d/a inputs I 8 relay outputs | SM70-J-R20 | ✓ |
| 12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC I 8 relay, 2 analog outputs | SM70-J-RA22 | ✓ |
| 10 digital, 2 d/a inputs I 8 transistor outputs | SM70-J-T20 | ✓ |
| 12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC I 8 transistor, 2 analog outputs | SM70-J-TA22 | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

**fig. 1. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

# 7.6 Vision™ Series


| | Type | Pin | Page |
|---|---|---|---|
| **Vision 120** | | | |
| V120-22-xxx | V120 | | 453 |
| **Vision 130** | | | |
| V130-33-xxx | V130 | | 454 |
| **Vision 230** | | | |
| V230-13-xxx | V230 | | 455 |
| **Vision 280** | | | |
| V280-18-xxx | V280 | | 456 |
| **Vision 430** | | | |
| V430-J-xxx | V430 | | 457 |
| **Vision 350** | | | |
| V350-35-xxx | V350 | | 458 |
| **Vision 560** | | | |
| V560-xxx | V560 | | 459 |
| **Vision 570** | | | |
| V570-57-xxx | V570 | | 460 |
| **Vision 700** | | | |
| V700-xxx | V700 | | 461 |
| **Vision 1040** | | | |

| | Type | Pin | Page |
|---|---|---|---|
| V1040-xxx | V1040 | | 462 |

## Vision 1210

| | | | |
|---|---|---|---|
| V1210-xxx | V1210 | | 463 |

# V120

## V120-22-xxx

### HMI

| | |
|---|---|
| Display | 2.4” display, STN, LCD |
| Resolution | 128 x 64 pixels |
| Number of keys | 16 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 448 KB |
| Number of memory bits (coils) | 4,096 |
| Number of memory integers (registers) | 2,048 |
| Number of timers | 192 |
| Execution time | 48 µs / kb |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485 |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | CR2450, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

### Product references

| Description | Type | 12-24 |
|---|---|---|
| 10 digital, 3 HSC/shaft encoder, 2 analog inputs I 6 digital relay outputs | V120-22-R2C | ✓ |
| 22 digital, 3 HSC/shaft encoder, 2 analog inputs I 12 digital relay outputs | V120-22-R34 | ✓ |
| 6 digital, 1 HSC/shaft encoder, 6 analog inputs I 6 digital relay outputs | V120-22-R6C | ✓ |
| 12 digital, 1 HSC/shaft encoder, 2 analog inputs, 2 PT100/TC I 8 relay, 2 analog outputs | V120-22-RA22 | ✓ |
| 12 digital, 2 HSC/shaft encoder inputs I 12 digital transistor outputs | V120-22-T1 | ✓ |
| 12 digital, 3 HSC/shaft encoder, 2 analog inputs I 12 digital transistor outputs | V120-22-T2C | ✓ |

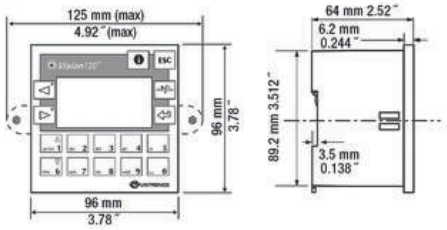
Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V100-17-ET2 |




**fig. 1. Dimensions (mm)**




### Technical approvals, conformities

Approvals

# V130

## V130-33-xxx

### HMI

| | |
|---|---|
| Display | 2.4” display, STN, LCD |
| Resolution | 128 x 64 pixels |
| Number of keys | 20 |
| Number of definable displays | 1,024 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 512 KB |
| Number of memory bits (coils) | 4,096 |
| Number of memory integers (registers) | 2,048 |
| Number of timers | 192 |
| Execution time | 20 µs / kb |
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>CAN optional |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

### Product references

| Description | Type | 24 |
|---|---|---|
| 20 digital, 2 d/a inputs I 12 relay outputs | V130-33-R34 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 8 relay, 2 analog outputs | V130-33-RA22 | ✓ |
| 10 digital, 2 d/a inputs I 12 transistor outputs | V130-33-T2 | ✓ |
| 20 digital, 2 d/a inputs I 16 transistor outputs | V130-33-T38 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 10 transistor, 2 analog outputs | V130-33-TA24 | ✓ |
| 10 digital, 2 d/a inputs I 6 relay, 2 high-speed transistor outputs | V130-33-TR20 | ✓ |
| 20 digital, 2 d/a inputs I 8 relay, 4 high-speed transistor outputs | V130-33-TR34 | ✓ |
| 6 digital, 2 d/a, 4 analog inputs I 6 relay, 2 high-speed transistor outputs | V130-33-TR6 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 4 relay, 2 analog, 4 high-speed transistor outputs | V130-33-TRA22 | ✓ |

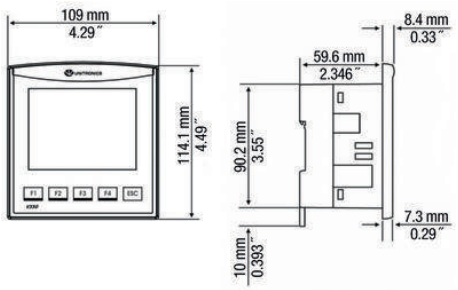
Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V100-17-CAN, V100-17-ET2, V100-17-PB1, V100-17-RS4, V100-17-RS4X |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-A02, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |



fig. 1. Dimensions (mm)




### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

# V230

## V230-13-xxx



### HMI

| | |
|---|---|
| Display | 3.2” display, STN, LCD |
| Resolution | 128 x 64 pixels |
| Number of keys | 24 |
| Number of definable displays | 255 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |
| Power consumption AC / DC | - / 2.5 W |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 1,000 KB |
| Number of memory bits (coils) | 4,096 |
| Number of memory integers (registers) | 2,048 |
| Number of timers | 192 |
| Execution time | 30 µs / kb |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>CAN<br>Ethernet optional |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Weight | 429 g |
| Mounting | DIN rail, Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

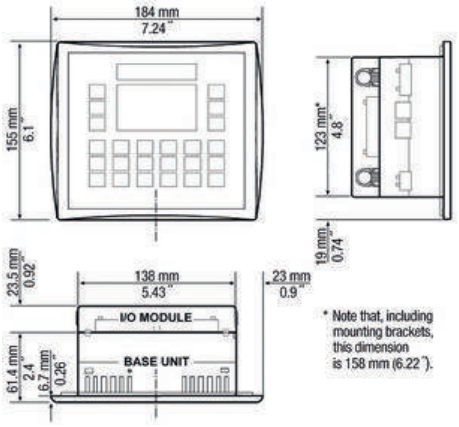
| Description | Type | 12-24 |
|---|---|---|
| PLC & HMI | V230-13-B20B | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Snap-in I/O modules | V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B |
| Additional Comm Ports | V200-19-ET2, V200-19-RS4-X |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

**fig. 1. Dimensions (mm)**




### Technical approvals, conformities

Approvals

# V280

## V280-18-xxx

### HMI

| | |
|---|---|
| Display | 4.7” touchscreen, FSTN CCFL, resistive, analog, 65 536 (16 bit) colors |
| Resolution | 320 x 240 pixels (QVGA) |
| Number of keys | 27 |
| Number of definable displays | 255 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |
| Power consumption AC / DC | 5.4 W |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 1,000 KB |
| Number of memory bits (coils) | 4,096 |
| Number of memory integers (registers) | 2,048 |
| Number of timers | 192 |
| Execution time | 30 µs / kb |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>CAN<br>Ethernet optional |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Weight | 860 g |
| Mounting | DIN rail, Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

| Description | Type | 12-24 |
|---|---|---|
| PLC & HMI | V280-18-B20B | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

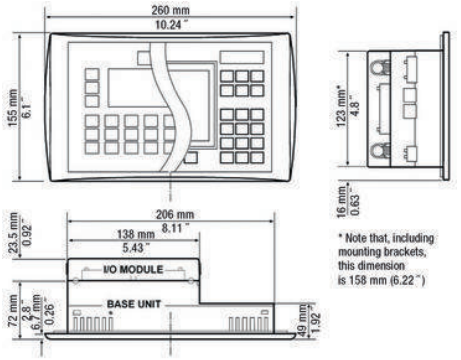
### Accessories

| | |
|---|---|
| Snap-in I/O modules | V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B |
| Additional Comm Ports | V200-19-ET2, V200-19-RS4-X |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-RO16, EX-D16A3-RO8, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |





**fig. 1. Dimensions (mm)**




### Technical approvals, conformities

Approvals

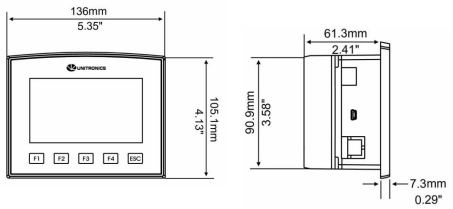
# V430

## V430-J-xxx





**fig. 1. Dimensions (mm)**




### HMI

| | |
|---|---|
| Display | 4.3” touchscreen, TFT, LCD, resistive, analog, 65 536 colors (16 bit) |
| Resolution | 480 x 272 pixels |
| Number of keys | 5 |
| Number of definable displays | 1,024 |

### Power supply

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 1,000 KB |
| Number of memory bits (coils) | 8,192 |
| Number of memory integers (registers) | 4,096 |
| Number of timers | 384 |
| Execution time | 15 µs / kb |
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>USB<br>CAN optional |
| Protocol | MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | CR2450, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

### Product references

| Description | Type | 24 |
|---|---|---|
| 20 digital, 2 d/a inputs I 12 relay outputs | V430-J-R34 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 8 relay, 2 analog outputs | V430-J-RA22 | ✓ |
| 6 digital, 2 d/a, 14 analog inputs I 6 relay outputs | V430-J-RH6 | ✓ |
| 10 digital, 2 d/a inputs I 12 transistor outputs | V430-J-T2 | ✓ |
| 20 digital, 2 d/a inputs I 16 transistor outputs | V430-J-T38 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 10 transistor, 2 analog outputs | V430-J-TA24 | ✓ |
| 20 digital, 2 d/a inputs I 8 relay, 4 high-speed transistor outputs | V430-J-TR34 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 4 relay, 2 analog, 4 high-speed transistor outputs | V430-J-TRA22 | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN, V100-17-PB1 |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

# V350

## V350-35-xxx

### HMI

| | |
|---|---|
| Display | 3.5” touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors |
| Resolution | 320 x 240 pixels |
| Number of keys | 5 |
| Number of definable displays | 1,024 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 1,000 KB |
| Number of memory bits (coils) | 8,192 |
| Number of memory integers (registers) | 4,096 |
| Number of timers | 384 |
| Execution time | 15 µs / kb |
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>USB<br>CAN optional |
| Protocol | MODBUS TCP, SNMP V1, CANopen, UniCAN, CANlayer2, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | CR2450, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Mounting | DIN rail, Panel |
| Ingress Protection | IP 20 / NEMA1 (DIN-rail mounted), IP 65 / NEMA4X (Panel mounted) |
| Relative huminity, no condensation | 10 ... 95 % |

### Product references

| Description | Type | 24 |
|---|---|---|
| 20 digital, 2 d/a inputs I 12 relay outputs | V350-35-R34 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 8 relay, 2 analog outputs | V350-35-RA22 | ✓ |
| 10 digital, 2 d/a inputs I 12 transistor outputs | V350-35-T2 | ✓ |
| 20 digital, 2 d/a inputs I 16 transistor outputs | V350-35-T38 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 10 transistor, 2 analog outputs | V350-35-TA24 | ✓ |
| 10 digital, 2 d/a inputs I 6 relay, 2 high-speed transistor outputs | V350-35-TR20 | ✓ |
| 20 digital, 2 d/a inputs I 8 relay, 4 high-speed transistor outputs | V350-35-TR34 | ✓ |
| 6 digital, 2 d/a, 4 analog inputs I 6 relay, 2 high-speed transistor outputs | V350-35-TR6 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 4 relay, 2 analog, 4 high-speed transistor outputs | V350-35-TRA22 | ✓ |
| 20 digital, 2 d/a inputs I 12 relay outputs | V350-J-R34 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 8 relay, 2 analog outputs | V350-J-RA22 | ✓ |
| 10 digital, 2 d/a inputs I 12 transistor outputs | V350-J-T2 | ✓ |
| 20 digital, 2 d/a inputs I 16 transistor outputs | V350-J-T38 | ✓ |
| 10 digital, 2 d/a inputs I 6 relay, 2 high-speed transistor outputs | V350-J-TR20 | ✓ |
| 8 digital, 2 d/a, 2 TC/PT100/digital inputs I 10 transistor, 2 analog outputs | V350-S-TA24 | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

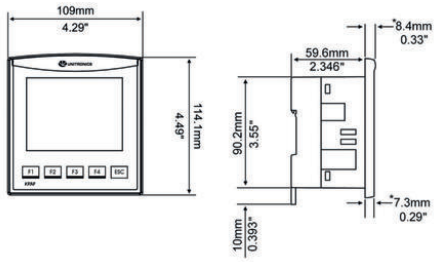
### Accessories

| | |
|---|---|
| Additional Comm Ports | V100-17-ET2, V100-17-RS4, V100-17-RS4X, V100-17-CAN, V100-17-PB1 |
| I/O Expansion Modules | IO-DI8-TO8, IO-DI8-RO4, IO-DI8-RO8, EX90-DI18-RO8, IO-DI16, IO-TO16, IO-RO8, IO-RO16, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-RO16, EX-D16A3-RO8, EX-D16A3-TO16, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |





**fig. 1. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

# V560

## V560-xxx



### HMI

| | |
|---|---|
| Display | 5.7” touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors |
| Resolution | 320 x 240 pixels (QVGA) |
| Number of keys | 24 |
| Number of definable displays | 1,024 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 2,000 KB |
| Number of memory bits (coils) | 8,192 |
| Number of memory integers (registers) | 4,096 |
| Number of timers | 384 |
| Execution time | 9 µs / kb |
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>USB<br>CAN<br>Ethernet optional |
| Protocol | MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol for any 3rd party protocol |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Weight | 750 g |
| Mounting | Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (case), IP 65 / NEMA4X (front panel) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

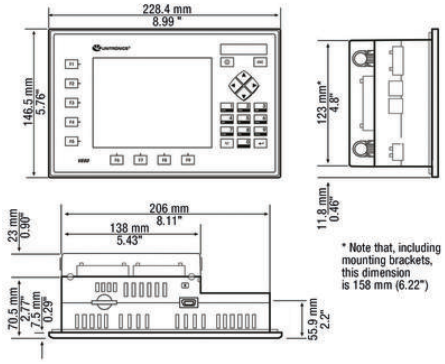
| Description | Type | 12-24 |
|---|---|---|
| PLC & HMI | V560-T25B | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V200-19-ET2, V200-19-RS4-X |
| Snap-in I/O modules | V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E46B |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

### fig. 1. Dimensions (mm)




### Technical approvals, conformities

Approvals

7.6 Vision™ Series

# V570

## V570-57-xxx



### HMI

| | |
|---|---|
| Display | 5.7” touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors |
| Resolution | 320 x 240 pixels (QVGA) |
| Number of definable displays | 1,024 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 2,000 KB |
| Number of memory bits (coils) | 8,192 |
| Number of memory integers (registers) | 4,096 |
| Number of timers | 384 |
| Execution time | 9 µs / kb |
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>USB<br>CAN<br>Ethernet optional |
| Protocol | MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol for any 3rd party protocol |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Weight | 750 g |
| Mounting | Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (case), IP 65 / NEMA4X (front Panel) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

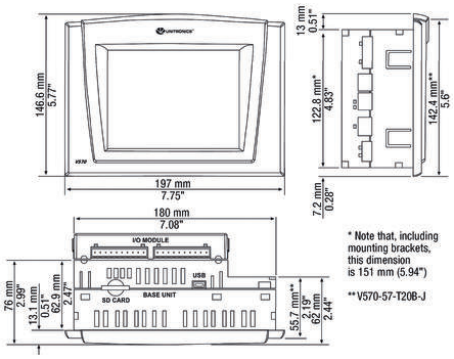
| Description | Type | 12-24 |
|---|---|---|
| PLC & HMI | V570-57-T20B-J | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V200-19-ET2, V200-19-RS4-X |
| Snap-in I/O modules | V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

### fig. 1. Dimensions (mm)




### Technical approvals, conformities

Approvals

# V700

## V700-xxx



### HMI

| | |
|---|---|
| Display | 7” Touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors |
| Resolution | 800 x 480 pixels (QVGA) |
| Number of definable displays | 1,024 |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 2,000 KB |
| Number of memory bits (coils) | 8,192 |
| Number of memory integers (registers) | 4,096 |
| Number of timers | 384 |
| Execution time | 9 µs / kb |
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>USB<br>Ethernet<br>CAN optional |
| Protocol | MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol for any 3rd party protocol |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 … 60 °C / -4 ... 140 °F |
| Operation temperature | 0 … 50 °C / 32 ... 122 °F |
| Back-up battery | CR2450, 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Weight | 640 g |
| Mounting | Panel |
| Ingress Protection | IP 20 / NEMA1 (case), IP 65 / NEMA4X (front panel) |
| Relative huminity, no condensation | 10 ... 95 % |

### Product references

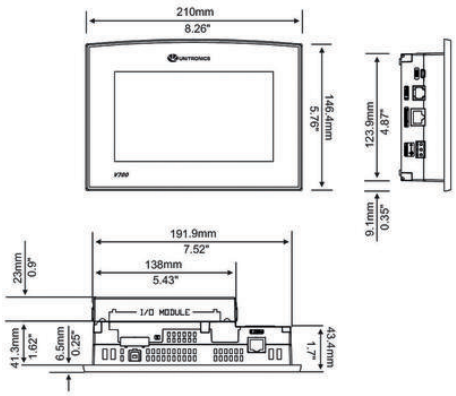
| Description | Type | 12-24 |
|---|---|---|
| PLC & HMI | V700-T20BJ | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V100-17-RS4, V100-17-RS4X, V100-17-CAN, V100-17-PB1 |
| Snap-in I/O modules | V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

### fig. 1. Dimensions (mm)




### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

# V1040

## V1040-xxx

### HMI

| | |
|---|---|
| Display | 10.4” touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors |
| Resolution | 800 x 600 pixels (SVGA) |
| Number of keys | 9 |
| Number of definable displays | 1,024 |

### Power supply

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 20.4 ... 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 2,000 KB |
| Number of memory bits (coils) | 8,192 |
| Number of memory integers (registers) | 4,096 |
| Number of timers | 384 |
| Execution time | 9 µs / kb |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>USB<br>CAN |
| Protocol | MODBUS TCP, SNMP V1, CANopen, CANlayer2, UniCAN, BACnet, KNX and M-Bus via gateway, FB Protocol: for any 3rd party protocol |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 °C / -4 ... 140 °F |
| Operation temperature | 0 ... 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Weight | 1.5 kg |
| Mounting | Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (case), IP 65 / NEMA4X (front Panel) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

| Description | Type | 12-24 |
|---|---|---|
| PLC & HMI | V1040-T20B | ✓ |

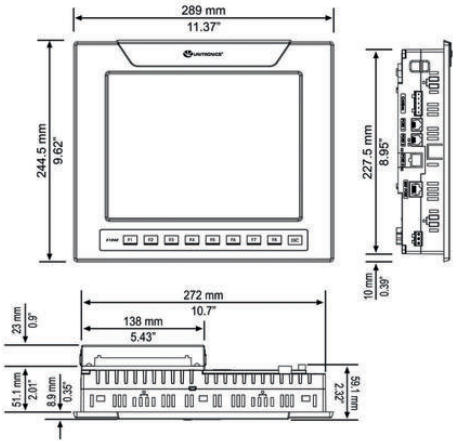
Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V200-19-ET2, V200-19-RS4-X |
| Snap-in I/O modules | V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B |
| I/O Expansion Modules | IO-DI8-TO8, IO-DI8-RO4, IO-DI8-RO8, EX90-DI18-RO8, IO-DI16, IO-TO16, IO-RO8, IO-RO16, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-RO16, EX-D16A3-RO8, EX-D16A3-TO16, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |



**fig. 1. Dimensions (mm)**




### Technical approvals, conformities

Approvals

# V1210

## V1210-xxx



### HMI

| | |
|---|---|
| Display | 12.1" touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors |
| Resolution | 800 x 600 pixels (SVGA) |
| Number of definable displays | 1,024 |

### Power supply

| | |
|---|---|
| Nominal voltage | 24 V DC |
| Operating voltage range | 20.4 ... 28.8 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 2,000 KB |
| Number of memory bits (coils) | 8,192 |
| Number of memory integers (registers) | 4,096 |
| Number of timers | 384 |
| Execution time | 9 µs / kb |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>USB<br>CAN<br>Ethernet optional |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 °C / -4 ... 140 °F |
| Operation temperature | 0 ... 50 °C / 32 ... 122 °F |
| Back-up battery | 7 years typical at 25 °C, battery back-up for RTC and system data, including variable data |
| Dimensions | see fig. 1 |
| Weight | 1.7 kg |
| Mounting | Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (case), IP 65 / NEMA4X (front Panel) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

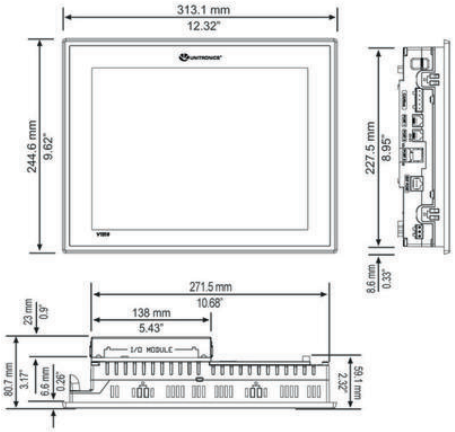
| Description | Type | 12-24 |
|---|---|---|
| PLC & HMI | V1210-T20BJ | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Additional Comm Ports | V200-19-ET2, V200-19-RS4-X |
| Snap-in I/O modules | V200-18-E1B, V200-18-E2B, V200-18-E3XB, V200-18-E46B, V200-18-E4XB, V200-18-E5B, V200-18-E62B, V200-18-E6B |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

### fig. 1. Dimensions (mm)




### Technical approvals, conformities

Approvals

## Notes

# 7.7 UniStream® Series


| | Type | Pin | Page |
|---|---|---|---|
| **UniStream 5" Built-in** | | | |
| US5-Bxx-xxx | UniStream 5" Built-in | | 466 |
| **UniStream 7" Built-in** | | | |
| US7-Bxx-xxx | UniStream 7" Built-in | | 468 |
| **UniStream 10.1" Built-in** | | | |
| US10-Bxx-xxx | UniStream 10.1" Built-in | | 470 |
| **UniStream PLC** | | | |
| USC-B3-xxx, USC-B5-xxx, USC-B10-xxx | USC | | 472 |
| USL-xxx-xxx | USL | | 473 |
| **UniStream Modular** | | | |
| USP-xxx | UniStream Modular | | 474 |

# UniStream 5" Built-in

## US5-Bxx-xxx



### HMI

| | |
|---|---|
| Display | 5" (16:9) touchscreen, TFT, LCD, 65 536 (16 bit) colors |
| Resolution | 800 x 480 pixels (WVGA) |

### Power supply

| | |
|---|---|
| Nominal voltage | 24 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 1,000 KB |
| Execution time | 0.13 µs |
| Memory card | Micro SD-Card |
| Internal memory | RAM: 512 MB (-B5) / 1 GB (-B10)<br>ROM: 3 GB system memory (-B5) / 6 GB (-B10)<br>ROM: 1 GB user memory (-B5) / 2 GB (-B10) |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>CAN |
| Modules | Add up to 3 COM modules |
| Protocol | MQTT Client, EtherNet/IP, MODBUS TCP, CANopen, CANlayer2, UniCAN, SNMP, BACnet, KNX and M-Bus via gateway, Message Composer for 3rd party protocols |

### General data

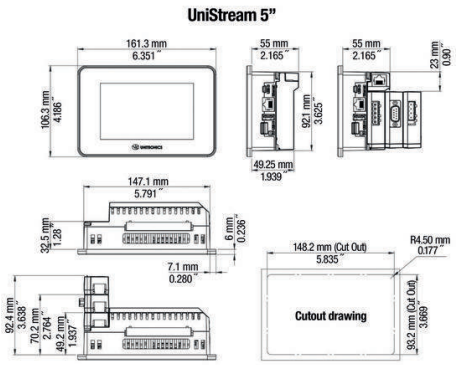
| | |
|---|---|
| Storage temperature (no ice) | -30 ... 70 °C / -22 ... 158 °F |
| Operation temperature | -20 ... 55 °C / -4 ... 131 °F |
| Back-up battery | Model: 3V CR2032, Battery lifetime: 4 years typical at 25 °C, Battery Low detection and indication (via the HMI and via System Tag) |
| Dimensions | see fig. 1 |
| Mounting | Panel with brackets |
| Ingress Protection | IP 66 / NEMA4X (Front face), IP 20 / NEMA1 (Rear side) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

| Description | Type | 12-24 | 24 |
|---|---|---|---|
| No built-in I/Os | US5-B10-B1 | ✓ | |
| 24 digital, including 4 HSC, 2 analog inputs I 12 relay outputs | US5-B10-R38 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 8 relay, 2 analog outputs | US5-B10-RA28 | | ✓ |
| 10 digital, 2 analog inputs I 12 transistor, PNP, including 2 PWM outputs | US5-B10-T24 | | ✓ |
| 24 digital, including 4 HSC, 2 analog inputs I 16 transistor, PNP, including 2 PWM outputs | US5-B10-T42 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 10 transistor, PNP, including 2 PWM, 2 analog outputs | US5-B10-TA30 | | ✓ |
| 10 digital, 2 analog inputs I 12 transistor, PNP, including 2 PWM outputs | US5-B10-TR22 | | ✓ |
| No built-in I/Os | US5-B5-B1 | | ✓ |
| 24 digital, including 4 HSC, 2 analog inputs I 12 relay outputs | US5-B5-R38 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 8 relay, 2 analog outputs | US5-B5-RA28 | | ✓ |
| 10 digital, 2 analog inputs I 12 transistor, PNP, including 2 PWM outputs | US5-B5-T24 | | ✓ |
| 24 digital, including 4 HSC, 2 analog inputs I 16 transistor, PNP, including 2 PWM outputs | US5-B5-T42 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 10 transistor, PNP, including 2 PWM, 2 analog outputs | US5-B5-TA30 | | ✓ |
| 10 digital, 2 analog inputs I 2 transistor, NPN, including 2 PWM, 8 relay outputs | US5-B5-TR22 | | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.

### fig. 1. Dimensions (mm)




### Technical approvals, conformities

Approvals

# UniStream 5" Built-in

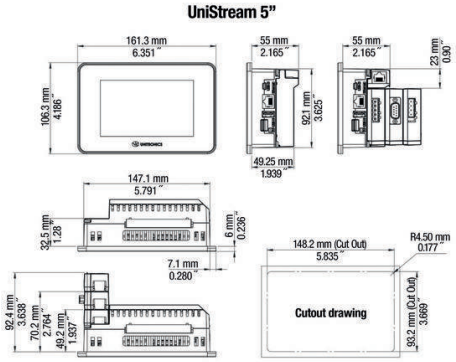
## US5-Bxx-xxx

**Accessories**

| | |
|---|---|
| Expansion Adapters | UAG-CX-XKP125, UAG-CX-XKP300, UAG-CX-XKPL600, UAG-CX-XKPL1200, UAG-CX-XKPL1500, UAG-CX-XKPL2000, UAG-CX-XKPL3000 |
| Uni-COM | UAC-CX-01RS2, UAC-CX-01RS4, UAC-CX-01CAN |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |



**fig. 1. Dimensions (mm)**




**Technical approvals, conformities**

Approvals

# UniStream 7" Built-in

## US7-Bxx-xxx



**HMI**

| | |
|---|---|
| Display | 7" (16:9) touchscreen, TFT, LCD, 65 536 (16 bit) colors |
| Resolution | 800 x 480 pixels (WVGA) |

**Power supply**

| | |
|---|---|
| Nominal voltage | 24 V DC |

**Memory**

| | |
|---|---|
| Number of ladder code memory (virtual) | 1,000 KB |
| Execution time | 0.13 µs |
| Memory card | Micro SD-Card |
| Internal memory | RAM: 512 MB (-B5) / 1 GB (-B10)<br>ROM: 3 GB system memory (-B5) / 6 GB (-B10)<br>ROM: 1 GB user memory (-B5) / 2 GB (-B10) |

**Communication**

| | |
|---|---|
| Connections | RS232<br>RS485<br>CAN |
| Modules | Add up to 3 COM modules |
| Protocol | MQTT Client, EtherNet/IP, MODBUS TCP, CANopen, CANlayer2, UniCAN, SNMP, BACnet, KNX and M-Bus via gateway, Message Composer for 3rd party protocols |

**General data**

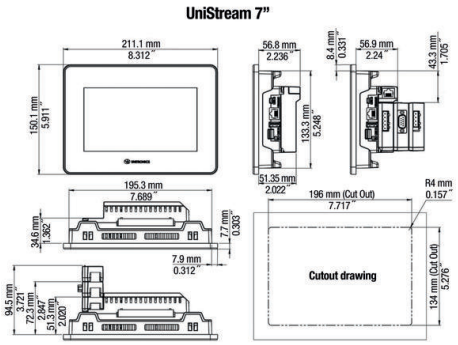
| | |
|---|---|
| Storage temperature (no ice) | -30 ... 70 °C / -22 ... 158 °F |
| Operation temperature | -20 ... 55 °C / -4 ... 131 °F |
| Back-up battery | Model: 3V CR2032, Battery lifetime: 4 years typical at 25 °C, battery back-up for all memory and RTC |
| Dimensions | see fig. 1 |
| Mounting | Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (case), IP 66 / NEMA4X (front Panel) |
| Relative huminity, no condensation | 5 ... 95 % |

**Product references**

| Description | Type | 12-24 | 24 |
|---|---|---|---|
| No built-in I/Os | US7-B10-B1 | ✓ | |
| 24 digital, including 4 HSC, 2 analog inputs I 12 relay outputs | US7-B10-R38 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 8 relay, 2 analog outputs | US7-B10-RA28 | | ✓ |
| 10 digital, 2 analog inputs I 12 transistor, PNP, including 2 PWM outputs | US7-B10-T24 | | ✓ |
| 24 digital, including 4 HSC, 2 analog inputs I 16 transistor, PNP, including 2 PWM outputs | US7-B10-T42 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 10 transistor, PNP, including 2 PWM, 2 analog outputs | US7-B10-TA30 | | ✓ |
| 10 digital, 2 analog inputs I 2 transistor, NPN, including 2 PWM, 8 relay outputs | US7-B10-TR22 | | ✓ |
| No built-in I/Os | US7-B5-B1 | ✓ | |
| 24 digital, including 4 HSC, 2 analog inputs I 12 relay outputs | US7-B5-R38 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 8 relay, 2 analog outputs | US7-B5-RA28 | | ✓ |
| 10 digital, 2 analog inputs I 12 transistor, PNP, including 2 PWM outputs | US7-B5-T24 | | ✓ |
| 24 digital, including 4 HSC, 2 analog inputs I 16 transistor, PNP, including 2 PWM outputs | US7-B5-T42 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 10 transistor, PNP, including 2 PWM, 2 analog outputs | US7-B5-TA30 | | ✓ |
| 10 digital, 2 analog inputs I 2 transistor, NPN, including 2 PWM, 8 relay outputs | US7-B5-TR22 | | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.

**fig. 1. Dimensions (mm)**




## Technical approvals, conformities

Approvals

# UniStream 7" Built-in

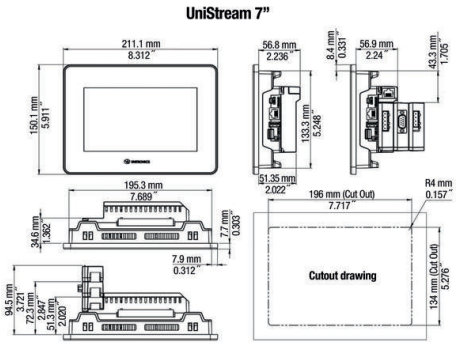
## US7-Bxx-xxx

**Accessories**

| | |
|---|---|
| Expansion Adapters | UAG-CX-XKP125, UAG-CX-XKP300, UAG-CX-XKPL600, UAG-CX-XKPL1200, UAG-CX-XKPL1500, UAG-CX-XKPL2000, UAG-CX-XKPL3000 |
| Uni-COM | UAC-CX-01RS2, UAC-CX-01RS4, UAC-CX-01CAN |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |



**fig. 1. Dimensions (mm)**




## Technical approvals, conformities

Approvals

# UniStream 10.1" Built-in

## US10-Bxx-xxx




### HMI

| | |
|---|---|
| Display | 10.1" (16:9) touchscreen, TFT, LCD, 65 536 (16 bit) colors |
| Resolution | 1 024 x 600 pixels (WSVGA) |

### Power supply

| | |
|---|---|
| Nominal voltage | 24 V DC |

### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 1,000 KB |
| Execution time | 0.13 µs |
| Memory card | Micro SD-Card |
| Internal memory | RAM: 512 MB (-B5) / 1 GB (-B10)<br>ROM: 3 GB system memory (-B5) / 6 GB (-B10)<br>ROM: 1 GB user memory (-B5) / 2 GB (-B10) |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485<br>CAN |
| Modules | Add up to 3 COM modules |
| Protocol | MQTT Client, EtherNet/IP, MODBUS TCP, CANopen, CANlayer2, UniCAN, SNMP, BACnet, KNX and M-Bus via gateway, Message Composer for 3rd party protocols |

### General data

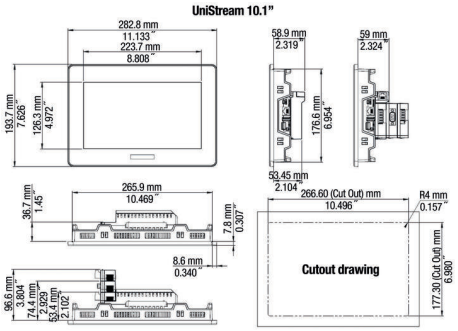
| | |
|---|---|
| Storage temperature (no ice) | -30 ... 70 °C / -22 ... 158 °F |
| Operation temperature | -20 ... 55 °C / -4 ... 131 °F |
| Back-up battery | Model : 3V CR2032, Battery lifetime: 4 years typical at 25 °C, battery back-up for all memory and RTC |
| Dimensions | see fig. 1 |
| Mounting | Panel with brackets |
| Ingress Protection | IP 66 / NEMA4X (front face) ,IP 20 / NEMA1 (reare side) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

| Description | Type | 12-24 | 24 |
|---|---|---|---|
| No built-in I/Os | US10-B10-B1 | ✓ | |
| 24 digital, including 4 HSC, 2 analog inputs I 12 relay outputs | US10-B10-R38 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 8 relay, 2 analog outputs | US10-B10-RA28 | | ✓ |
| 10 digital, 2 analog inputs I 12 transistor, PNP, including 2 PWM outputs | US10-B10-T24 | | ✓ |
| 24 digital, including 4 HSC, 2 analog inputs I 16 transistor, PNP, including 2 PWM outputs | US10-B10-T42 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 10 transistor, PNP, including 2 PWM, 2 analog outputs | US10-B10-TA30 | | ✓ |
| 10 digital, 2 analog inputs I 2 transistor, NPN, including 2 PWM, 8 relay outputs | US10-B10-TR22 | | ✓ |
| 24 digital, including 4 HSC, 2 analog inputs I 12 relay outputs | US10-B5 | | ✓ |
| No built-in I/Os | US10-B5-B1 | ✓ | |
| 24 digital, including 4 HSC, 2 analog inputs I 16 transistor, PNP, including 2 PWM outputs | US10-B5-R42 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 8 relay, 2 analog outputs | US10-B5-RA28 | | ✓ |
| 10 digital, 2 analog inputs I 12 transistor, PNP, including 2 PWM outputs | US10-B5-T24 | | ✓ |
| 14 digital, including 2 HSC, 2 analog, 2 temperature inputs I 10 transistor, PNP, including 2 PWM, 2 analog outputs | US10-B5-TA30 | | ✓ |
| 10 digital, 2 analog inputs I 2 transistor, NPN, including 2 PWM, 8 relay outputs | US10-B5-TR22 | | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.

### fig. 1. Dimensions (mm)




### Technical approvals, conformities

Approvals

# UniStream 10.1" Built-in

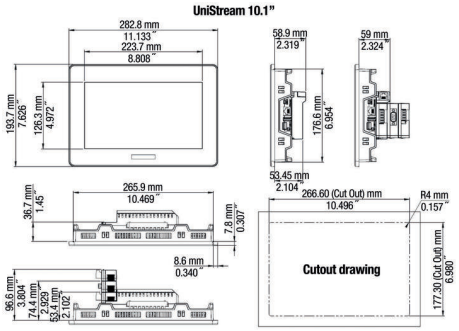
## US10-Bxx-xxx

**Accessories**

| | |
|---|---|
| Expansion Adapters | UAG-CX-XKP125, UAG-CX-XKP300, UAG-CX-XKPL600, UAG-CX-XKPL1200, UAG-CX-XKPL1500, UAG-CX-XKPL2000, UAG-CX-XKPL3000 |
| Uni-COM | UAC-CX-01RS2, UAC-CX-01RS4, UAC-CX-01CAN |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |




**fig. 1. Dimensions (mm)**




## Technical approvals, conformities

Approvals

# USC

## USC-B3-xxx, USC-B5-xxx, USC-B10-xxx



### Memory

| | |
|---|---|
| Number of ladder code memory (virtual) | 1,000 KB |
| Execution time | 0.13 µs |
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | RS232<br>RS485 |
| Modules | Add up to 3 COM modules |
| Protocol | MQTT Client, EtherNET/IP, MODUS: Serial & TCP/IP, CANopen, CANlayer2, UniCAN, SNMP, BACnet, KNX and M-Bus via gateway, Message Composer for 3rd party protocols |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 70 °C / -22 ... 158 °F |
| Operation temperature | -20 ... 55 °C / -4 ... 131 °F |
| Back-up battery | Model: 3V CR2032 Lithium battery, Battery lifetime: 4 years typical, at 25 °C, Battery Low detection and indication (via BATT. LOW indicator and via System Tag). |
| Dimensions | see fig. 1 |
| Mounting | DIN rail |
| Ingress Protection | IP 20 / NEMA1 |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

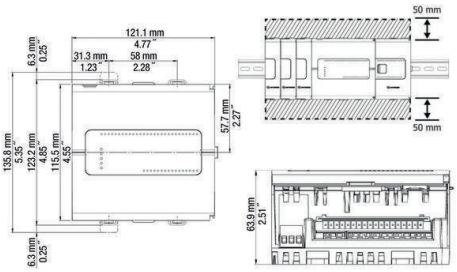
| Description | Type | 12-24 |
|---|---|---|
| PLC | USC-B10-B1 | ✓ |
| PLC | USC-B10-R38 | ✓ |
| PLC | USC-B10-RA28 | ✓ |
| PLC | USC-B10-T24 | ✓ |
| PLC | USC-B10-T42 | ✓ |
| PLC | USC-B10-TA30 | ✓ |
| PLC | USC-B10-TR22 | ✓ |
| PLC | USC-B3-R20 | ✓ |
| PLC | USC-B3-T20 | ✓ |
| PLC | USC-B5-B1 | ✓ |
| PLC | USC-B5-R38 | ✓ |
| PLC | USC-B5-RA28 | ✓ |
| PLC | USC-B5-T24 | ✓ |
| PLC | USC-B5-T42 | ✓ |
| PLC | USC-B5-TA30 | ✓ |
| PLC | USC-B5-TR22 | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Expansion Adapters | UAG-XK125, UAG-XKP125, UAG-XKP300 |
| Uni-COM | UAC-01RS2, UAC-02RS2 |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, EX90-DI18-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

**fig. 1. Dimensions (mm)**




### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

# USL

## USL-xxx-xxx



### HMI

| | |
|---|---|
| Display | Touchscreen, TFT, resistive, analog, 65 536 (16 bit) colors, 16M (24 bit) colors (15.6") |
| Resolution | 800 x 480 (WVGA) 5", 800 x 480 (WVGA) 7", 1 024 x 600 (WSVGA) 10.1" and 1 366 x 768 15.6" |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 ... 24 V DC |
| Operating voltage range | 10.2 ... 28.8 V DC |

### Communication

| | |
|---|---|
| Connections | Ethernet<br>USB |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 70 °C / -22 ... 158 °F |
| Operation temperature | -20 ... 55 °C / -4 ... 131 °F |
| Dimensions | 106.3 x 161.3 x 32.7 (5"), 150.5 x 211.5 x 34.9 (7"), 193.7 x 282.8 x 44.5 (10.1"), 265.1 x 55.6 x 411.1 (15.6") |
| Weight | 280 g (5"), 600 g (7"), 1 000 g (10.1"), 2 900 g (15.6") |
| Mounting | Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (Rear side), IP 65/66 / NEMA4X (Front face) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

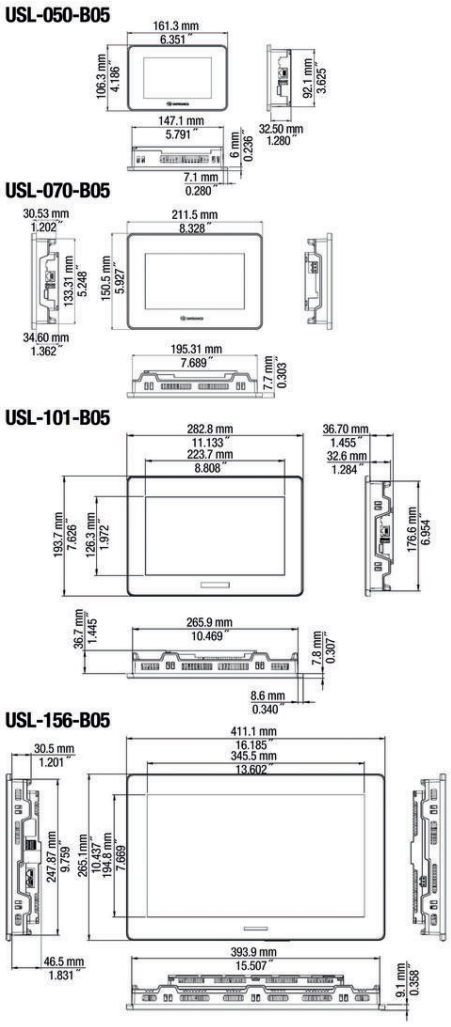
| Description | Type | 12-24 |
|---|---|---|
| HMI Panel | USL-050-B05 | ✓ |
| HMI Panel | USL-070-B05 | ✓ |
| HMI Panel | USL-101-B05 | ✓ |
| HMI Panel | USL-156-B05 | ✓ |

Other devices on request. Please contact support@comatreleco.com.
The UniLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-RO4, IO-DI8-RO8, IO-DI16, IO-TO16, IO-RO8, IO-RO16, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-AO6X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-RO16, EX-D16A3-RO8, EX-D16A3-TO16, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

### fig. 1. Dimensions (mm)




### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals CE UKCA

# UniStream Modular

## USP-xxx

### HMI

| | |
|---|---|
| Display | Touchscreen, TFT, LCD, resistive, analog, 65 536 (16 bit) colors |
| Resolution | 800 x 480 (QVGA) 7" (16:9), 800 x 600 (SVGA) 10.4" (4:3), 1366 x 768 15.6" (16:9) |

### Power supply

| | |
|---|---|
| Nominal voltage | 12 … 24 V DC |
| Operating voltage range | 10.2 … 28.8 V DC |

### Memory

| | |
|---|---|
| Memory card | Micro SD-Card |

### Communication

| | |
|---|---|
| Connections | Ethernet<br>USB |

### General data

| | |
|---|---|
| Storage temperature (no ice) | -30 … 70 °C / -22 ... 158 °F |
| Operation temperature | -20 … 55 °C / -4 ... 131 °F |
| Dimensions | 150.1 x 211.1 x 49.1 (7"), 295.9 x 228.8 x 46.8 (10.4"), 411.1 x 265.1 x 55.6 (15.6") |
| Weight | 700 g (7"), 1 450 g (10.4"), 1 600 g (15.6") |
| Mounting | Panel with brackets |
| Ingress Protection | IP 20 / NEMA1 (case), IP 65/IP66 / NEMA4X (front panel) |
| Relative huminity, no condensation | 5 ... 95 % |

### Product references

| Description | Type | 12-24 |
|---|---|---|
| PLC | USC-P-B10 | ✓ |
| HMI Panel | USP-070-B08 | ✓ |
| HMI Panel | USP-070-B10 | ✓ |
| HMI Panel | USP-104-B10 | ✓ |
| HMI Panel | USP-104-M10 | ✓ |
| HMI Panel | USP-156-B10 | ✓ |

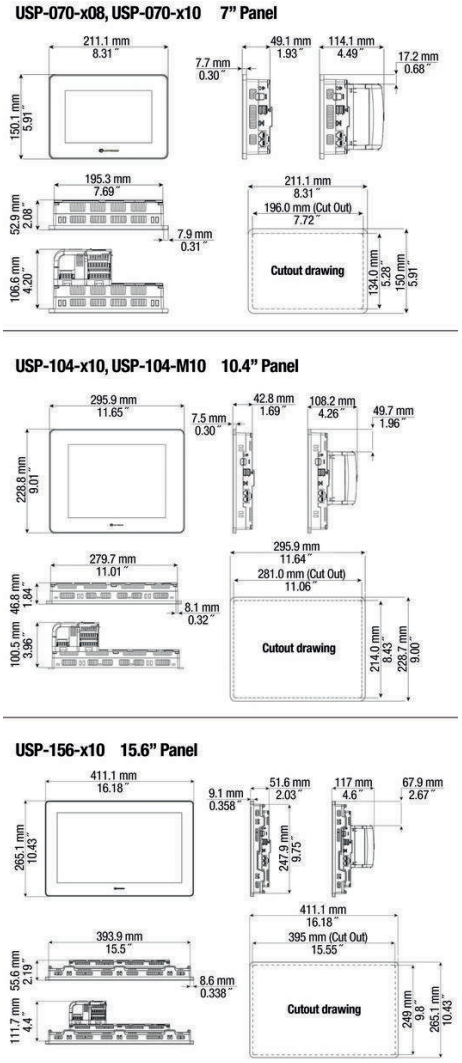
Other devices on request. Please contact support@comatreleco.com.
The VisiLogic software is available free of charge on www.unitronicsplc.com at downloads.

### Accessories

| | |
|---|---|
| Expansion Adapters | UAG-XK125, UAG-XKP125, UAG-XK300, UAG-XKP300, UAG-XKPL600, UAG-XKPL1200, UAG-XKPL1500, UAG-XKPL2000, UAG-XKPL3000 |
| Uni-COM | UAC-01RS2, UAC-02RS2 |
| I/O Expansion Modules | IO-DI8-T08, IO-DI8-R04, IO-DI8-R08, IO-DI16, IO-T016, IO-R08, IO-R016, IO-DI8ACH, IO-AI4-AO2, IO-PT400, IO-PT4K, IO-A06X, IO-LC1, IO-LC3, IO-ATC8, IO-AI8, IO-D16A3-R016, EX-D16A3-R08, EX-D16A3-T016, EX-A2X, EX-RC1 |
| Routers | UCR-ST-B5-EU, UCR-ST-B8-EU |
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |



### fig. 1. Dimensions (mm)




### Technical approvals, conformities

Standards IEC 60068-2-27; IEC 60068-2-6

Approvals

# 7.8 Accessories & Modules


| | Type | Pin | Page |
|---|---|---|---|
| **Accessories & Modules** | | | |
| GW-xxx | Comm Gateways | | 477 |
| **I/O Expansion Modules for Vision series** | | | |
| EXL-xxx | Expansion adapter cables | | 478 |
| IO-xxx / EX-xxx / EXF-xxx / EXL-xxx | I/O Expansion Modules for Vision series | | 478 |
| **Vision & Samba COM Modules** | | | |
| M90-19-xxx / MJ10-22-xxx / V100-17-xxx / V200-19-xxx | Vison & Samba COM Modules | | 479 |
| **Snap-In-I/O-Module** | | | |
| V200-18-xxx | Snap-in I/O Module | | 480 |
| **Routers** | | | |
| UCR-ST-xxx | Routers | | 481 |
| UCR-OP-xxx | DIN rail kit for Routers | | 481 |
| **Uni-I/O modules** | | | |
| UAG-XKxxx / UAG-CXxxx | Uni-I/O Modules | | 482 |
| UID-xxx / UIA-xxx / UIS-xxx | Local I/O Modules | | 482 |
| **Uni-COM** | | | |
| UAC-xxx / UAC-CB-xxx / UAC-CX-xxx | Uni-COM | | 483 |
| **Remote I/O** | | | |
| URA-xxx / URB-xxx / URD-xxx / URS-xxx / URP-xxx | Remote I/O Modules via Ethernet | | 484 |

| | Type | Pin | Page |
|---|---|---|---|
| **Jazz Add-on ports and Accessories** | | | |
| JZ-xxx, MJ20-xxx, USB2-xxx | Jazz Add-on ports and Accesso-ries | | 485 |

# Comm Gateways

## GW-xxx

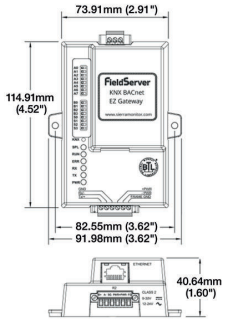
**General data**

| | |
|---|---|
| Operation temperature | -40 ... 75 °C / -40 ... 167 °F |
| Dimensions | see fig. 1 |
| Mounting | Wall mounting and DIN rail mounting bracket with FS-8915-35-QS |
| Relative huminity, no condensation | 5 ... 90 % |

**Product references**

| Description | Type |
|---|---|
| Communication Gateways | GW-KNX1 |

Other devices on request. Please contact support@comatreleco.com.
The FieldServer software is available free of charge on https://us.msasafety.com to download






## Expansion adapter cables

### EXL-xxx

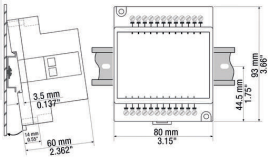



**Product references**

| Description | Type |
|---|---|
| Expansion adapter cables | EXL-CAB050 |
| Expansion adapter cables | EXL-CAB100 |
| Expansion adapter cables | EXL-CAB1000 |
| Expansion adapter cables | EXL-CAB200 |
| Expansion adapter cables | EXL-CAB2000 |
| Expansion adapter cables | EXL-CAB295 |
| Expansion adapter cables | EXL-CAB400 |
| Expansion adapter cables | EXL-CAB500 |
| Expansion adapter cables | EXL-CAB600 |

## I/O Expansion Modules for Vision series

### IO-xxx / EX-xxx / EXF-xxx / EXL-xxx







**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 °C / -4 ... 140 °F |
| Operation temperature | 0 ... 50 °C / 32 ... 122 °F |
| Dimensions | see fig. 1 |
| Mounting | DIN rail |
| Ingress Protection | IP 20 / NEMA1 |
| Relative huminity, no condensation | 5 ... 95 % |

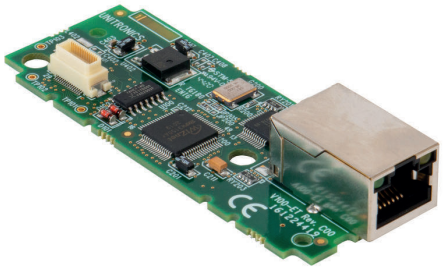
**Product references**

| Description | Type |
|---|---|
| 8 digital Inputs | IO-DI8ACH |
| 4 analog inputs I 2 analog outputs | IO-AI4-AO2 |
| 8 analog inputs | IO-AI8 |
| 6 analog outputs | IO-AO6X |
| 8 Thermocouple | IO-ATC8 |
| 16 digital, 2 HSC, 3 analog inputs I 16 relay outputs | IO-D16A3-RO16 |
| 16 digital, 1 HSC inputs | IO-DI16 |
| 8 relay outputs | IO-DI8-RO4 |
| 8 digital, 1 HSC inputs I 8 relay outputs | IO-DI8-RO8 |
| 8 digital, 1 HSC inputs I 8 transistors outputs | IO-DI8-TO8 |
| 1 digital, 1 loadcell/strain gauge inputs I 2 transistor outputs | IO-LC1 |
| 1 digital, 3 loadcell/strain gauge inputs I 2 transistor outputs | IO-LC3 |
| 4 PT100/NI100/NI120 | IO-PT400 |
| 4 PT1000/NI1000 | IO-PT4K |
| 16 relay outputs | IO-RO16 |
| 8 relay outputs | IO-RO8 |
| 16 transistor outputs | IO-TO16 |
| Local I/O module adapter | EX-A2X |
| Remote I/O module adapter | EX-RC1 |
| 16 digital, 2 HSC, 3 analog inputs I 8 relay outputs | EX-D16A3-RO8 |
| 16 digital, 1 HSC, 3 analog inputs I 15 transistor, 1 PWM/HSO outputs | EX-D16A3-TO16 |
| 8 digital, 1 HSC inputs I 8 relay outputs | EX90-DI8-RO8 |

Other devices on request. Please contact support@comatreleco.com.

## Vison & Samba COM Modules

### M90-19-xxx / MJ10-22-xxx / V100-17-xxx / V200-19-xxx



**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 °C / -4 ... 140 °F |
| Operation temperature | 0 ... 50 °C / 32 ... 122 °F |
| Relative huminity, no condensation | 10 ... 95 % |

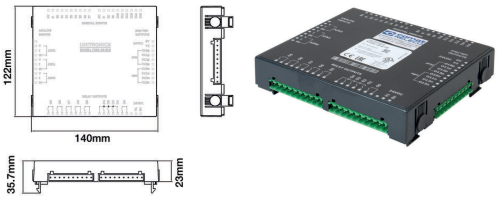
**Product references**

| Description | Type |
|---|---|
| COM Modules | V200-19-ET2 |
| COM Modules | V200-19-RS4 |
| COM Modules | V100-17-CAN |
| COM Modules | V100-17-ET2 |
| COM Modules | V100-17-PB1 |
| COM Modules | V100-17-RS4 |
| COM Modules | V100-17-RS4X |
| COM Modules | M90-19-R4 |

Other devices on request. Please contact support@comatreleco.com.

# Snap-in I/O Module

## V200-18-xxx




**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 °C / -4 ... 140 °F |
| Operation temperature | 0 ... 50 °C / 32 ... 122 °F |
| Dimensions | see fig. 1 |
| Ingress Protection | IP 20 / NEMA1 |
| Relative huminity, no condensation | 5 ... 95 % |

**Product references**

| Description | Type |
|---|---|
| 16 digital, 2 HSC/shaft encoder, 3 analog inputs I 4 transistor, 2 PWM/HSO, 10 relay outputs | V200-18-E1B |
| 16 digital, 2 HSC/shaft encoder, 2 analog inputs I 4 transistor, 2 PWM/HSO, 10 relay, 2 analog outputs | V200-18-E2B |
| 18 digital, 2 HSC/shaft encoder, 4 analog PT100 inputs I 2 transistor, 2 PWM/HSO, 15 relay, 4 analog outputs | V200-18-E3XB |
| 18 digital, 2 HSC/shaft encoder, 9 analog inputs I 2 transistor, 2 PWM/HSO, 15 relay, 2 analog outputs | V200-18-E46B |
| 18 digital, 2 HSC/shaft encoder, 4 analog PT100 inputs I 15 transistor, 2 PWM/HSO, 4 analog outputs | V200-18-E4XB |
| 18 digital, 2 HSC/shaft encoder, 3 analog inputs I 15 transistor, 2 PWM/HSO outputs | V200-18-E5B |
| 30 digital, 2 HSC/shaft encoder, 2 analog inputs I 30 transistor, 2 PWM/HSO outputs | V200-18-E62B |

Other devices on request. Please contact support@comatreleco.com.

## Routers

### UCR-ST-xxx

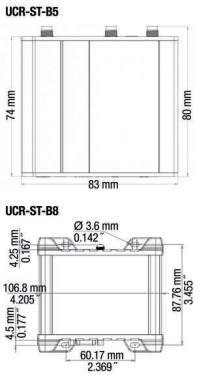
**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 75 °C / -40 ... 167 °F |
| Operation temperature | -40 ... 75 °C / -40 ... 167 °F |
| Mounting | DIN rail with DIN rail kit / M3 screws |

**Product references**

| Description | Type |
|---|---|
| 4G, 3G, 2G Cellular Router B5 for Europe | UCR-ST-B5-EU |
| 4G, 3G, 2G Cellular Router B8 for Europe | UCR-ST-B8-EU |

Other devices on request. Please contact support@comatreleco.com.







## DIN rail kit for Routers

### UCR-OP-xxx

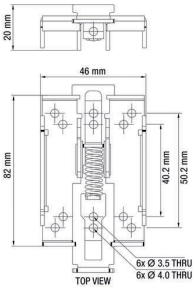
**General data**

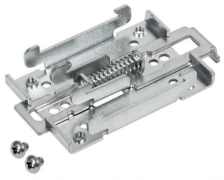
| | |
|---|---|
| Dimensions | see fig. 1 |
| Mounting | DIN rail |

**Product references**

| Description | Type |
|---|---|
| DIN rail kit for UCR B5/B8 | UCR-OP-B5-DIN |

Other devices on request. Please contact support@comatreleco.com.



## Uni-I/O Modules

### UAG-XKxxx / UAG-CXxxx



**General data**

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 70 °C / -22 ... 140 °F |
| Operation temperature | -20 °C ... 55 °C / -4 ... 131 °F |
| Mounting | DIN rail |
| Ingress Protection | IP 20 / NEMA1 |
| Relative huminity, no condensation | 5 ... 95% |

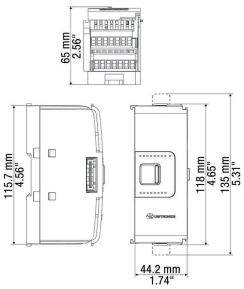
**Product references**

| Description | Type |
|---|---|
| Short range adapter kit | UAG-CX-XK125 |
| Short range adapter kit | UAG-CX-XKP300 |
| Long range adapter kit | UAG-CX-XKPL1200 |
| Long range adapter kit | UAG-CX-XKPL1500 |
| Long range adapter kit | UAG-CX-XKPL2000 |
| Long range adapter kit | UAG-CX-XKPL3000 |
| Long range adapter kit | UAG-CX-XKPL600 |
| Short range adapter kit | UAG-XK125 |
| Short range adapter kit | UAG-XK300 |
| Short range adapter kit | UAG-XKP125 |
| Short range adapter kit | UAG-XKP300 |
| Long range adapter kit | UAG-XKPL1200 |
| Long range adapter kit | UAG-XKPL1500 |
| Long range adapter kit | UAG-XKPL2000 |
| Long range adapter kit | UAG-XKPL3000 |
| Long range adapter kit | UAG-XKPL600 |

Other devices on request. Please contact support@comatreleco.com.

## Local I/O Modules

### UID-xxx / UIA-xxx / UIS-xxx






**General data**

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 70 °C / -22 ... 158 °F |
| Operation temperature | -20 ... 55 °C / -4 ... 131 °F |
| Dimensions | see fig. 1 |
| Mounting | DIN rail |
| Ingress Protection | IP 20 / NEMA1 |
| Relative huminity, no condensation | 5 ... 95 % |

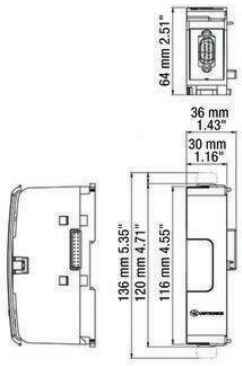
**Product references**

| Description | Type |
|---|---|
| 6 analog outputs | UIA-006 |
| 4 analog inputs I 2 analog outputs | UIA-0402N |
| 8 analog inputs | UIA-0800N |
| 16 relay outputs | UID-0016R |
| 16 transistor outputs | UID-0016T |
| 8 digital inputs I 8 relay outputs | UID-0808R |
| 8 digital inputs I 8 transistor outputs | UID-0808T |
| 8 digital, 2 HSC/shaft encoder inputs I 8 transistor, 2 PWM/HSO outputs | UID-0808THS |
| 16 digital inputs | UID-1600 |
| 16 digital inputs I 16 relay outputs | UID-W1616R |
| 16 Digital I 16 Transistor | UID-W1616T |
| 4 PT100/NI100/NI120 | UIS-04PTN |
| 8 Thermocouple | UIS-08TC |
| 10 digital, 2 HSC/shaft encoder, 2 analog, 2 PT100/ NI100/NI120 inputs I 2 Transistor, 2 PWM/HSO, 8 relay, 2 analog outputs | UIS-WCB1 |

Other devices on request. Please contact support@comatreleco.com.

# Uni-COM

## UAC-xxx / UAC-CB-xxx / UAC-CX-xxx






**General data**

| | |
|---|---|
| Storage temperature (no ice) | -30 ... 70 °C / -22 ... 158 °F |
| Operation temperature | -20 ... 55 °C / -4 ... 131 °F |
| Dimensions | see fig. 1 |
| Mounting | DIN rail |
| Ingress Protection | IP 20 / NEMA1 |
| Relative huminity, no condensation | 5 ... 95 % |

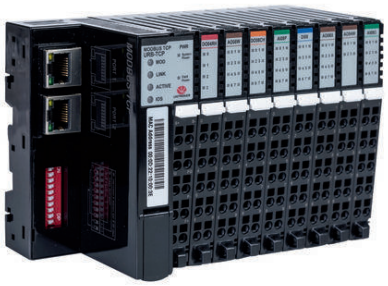
**Product references**

| Description | Type |
|---|---|
| Modules | UAC-01RS2 |
| Modules | UAC-02RS2 |
| CB Modules | UAC-CB-01CAN |
| CB Modules | UAC-CB-01RS2 |
| CB Modules | UAC-CB-01RS4 |
| CX Modules | UAC-CX-01CAN |
| CX Modules | UAC-CX-01RS2 |
| CX Modules | UAC-CX-01RS4 |

Other devices on request. Please contact support@comatreleco.com.

# Remote I/O Modules via Ethernet

## URA-xxx / URB-xxx / URD-xxx / URS-xxx / URP-xxx



**General data**

| | |
|---|---|
| Storage temperature (no ice) | -40 ... 70 °C / -40 ... 158 °F |
| Operation temperature | -40 ... 70 °C / -40 ... 158 °F |
| Dimensions | Slim modules – 12 mm only |
| Mounting | DIN rail |
| Ingress Protection | IP 20 / NEMA1 |
| Relative huminity, no condensation | 5 ... 90 % |

**Product references**

| Description | Type |
|---|---|
| 4 analog current outputs 12-bit, 10 pin | URA-0004W |
| 4 analog current outputs 12-bit, 10 pin | URA-0004X |
| 4 analog current inputs 16-bit, 10 pin | URA-0004Y |
| 4 analog voltage outputs 16-bit, 10 pin | URA-0004Z |
| 8 analog current outputs 12-bit, 10 pin | URA-0008W |
| 8 analog current outputs 12-bit, 10 pin | URA-0008X |
| 8 analog current outputs 16-bit, 10 pin | URA-0008Y |
| 8 analog voltage outputs 16-bit, 10 pin | URA-0008Z |
| 16 analog voltage outputs 12-bit, 18 pin | URA-0016X-8 |
| 16 analog voltage outputs 16-bit, 18 pin | URA-0016Z-8 |
| 4 analog current inputs 12-bit, 10 pin | URA-0400O |
| 4 analog voltage inputs 12-bit, 10 pin | URA-0400P |
| 4 analog current inputs 16-bit, 10 pin | URA-0400T |
| 4 analog voltage inputs 16-bit, 10 pin | URA-0400U |
| 8 analog current inputs 12-bit, 10 pin | URA-0800O |
| 8 analog current inputs 12-bit, 10 pin | URA-0800P |
| 8 analog current inputs 16-bit, 10 pin | URA-0800T |
| 8 analog voltage inputs 16-bit, 10 pin | URA-0800U |
| 16 analog current inputs 12-bit, 18 pin | URA-1600O-8 |
| 16 analog voltage inputs 12-bit, 18 pin | URA-1600P-8 |
| 16 analog current inputs 16-bit, 18 pin | URA-1600T-8 |
| 16 analog voltage inputs 16-bit, 18 pin | URA-1600U-8 |
| 4 relay outputs, 10 pin | URD-0004RH |
| 4 relay outputs, 10 pin | URD-0004SK |
| 4 solid state relay outputs, 110 V, 10 pin | URD-0004SM |
| 4 solid state relay outputs, 24 V, 10 pin | URD-0004SN |
| 8 digital outputs (sink), 10 pin | URD-0008CH |
| 8 digital outputs (sink), 10 pin | URD-0008CI |
| 8 digital outputs (sink), 10 pin | URD-0008NH |
| 8 digital outputs (sink), 10 pin | URD-0008NI |
| 16 digital outputs (sink), 18 pin | URD-0016CG-8 |
| 16 digital outputs (sink), 18 pin | URD-0016NG-8 |
| 32 digital inputs universal, 40 pin | URD-0032CG-4 |
| 32 digital outputs (sink), 40 pin | URD-0032NG-4 |
| 2 HSC/encoder inputs, 10 pin, 5 V DC | URD-0200D |
| 2 HSC/encoder inputs, 10 pin, 24 V DC | URD-0200E |
| 2 pulse outputs, 10 pin | URD-02PU |
| 2 PWM outputs, 10 pin | URD-02PW |
| 4 digital inputs, 120 V AC, 10 pin | URD-0400B |
| 4 digital inputs, 240 V AC, 10 pin | URD-0400C |
| 4 PWM outputs, 10 pin | URD-04PW |
| 8 digital inputs universal, 10 pin | URD-0800 |
| 16 digital inputs universal, 18 pin | URD-1600-8 |
| 32 digital inputs universal, 40 pin | URD-3200-4 |
| Input 24 V DC, Output system Power 5 V DC/1 A | URP-PS24V |
| 2 loadcell/strain gauge, 18 pin | URS-02LC-8 |
| 4 RTD/resistance input, 10 pin | URS-04RT |
| 4 thermocouple / mV input, 10 pin | URS-04TC |
| 8 RTD/resistance input, 20 pin | URS-08RT-2 |
| 8 thermocouple / mV input, 20 pin | URS-08TC-2 |
| UniStream EtherCAT Remote IO Adapter, 16 Modules | URB-EC1 |
| UniStream Remote IO Adapter, 63 Modules | URB-TCP |
| UniStream Remote IO Adapter, 6 Modules | URB-TCP2 |

Other devices on request. Please contact support@comatreleco.com.

# Jazz Add-on ports and Accessories

## JZ-xxx, MJ20-xxx, USB2-xxx



**General data**

| | |
|---|---|
| Storage temperature (no ice) | -20 ... 60 °C / -4 ... 140 °F |
| Operation temperature | 0 ... 50 °C / 32 ... 122 °F |
| Ingress Protection | IP 20 / NEMA 1 |
| Relative huminity, no condensation | 10 ... 95 % |

**Product references**

| Description | Type |
|---|---|
| Jazz Add-on ports and Accessories | JZ-PRG |
| Jazz Add-on ports and Accessories | JZ-RS4 |
| Jazz Add-on ports and Accessories | MJ20-ET1 |
| Jazz Add-on ports and Accessories | MJ20-JZ-SL1 |
| Jazz Add-on ports and Accessories | MJ20-MEM1 |
| Jazz Add-on ports and Accessories | USB2-CAB200 |

Other devices on request. Please contact support@comatreleco.com.

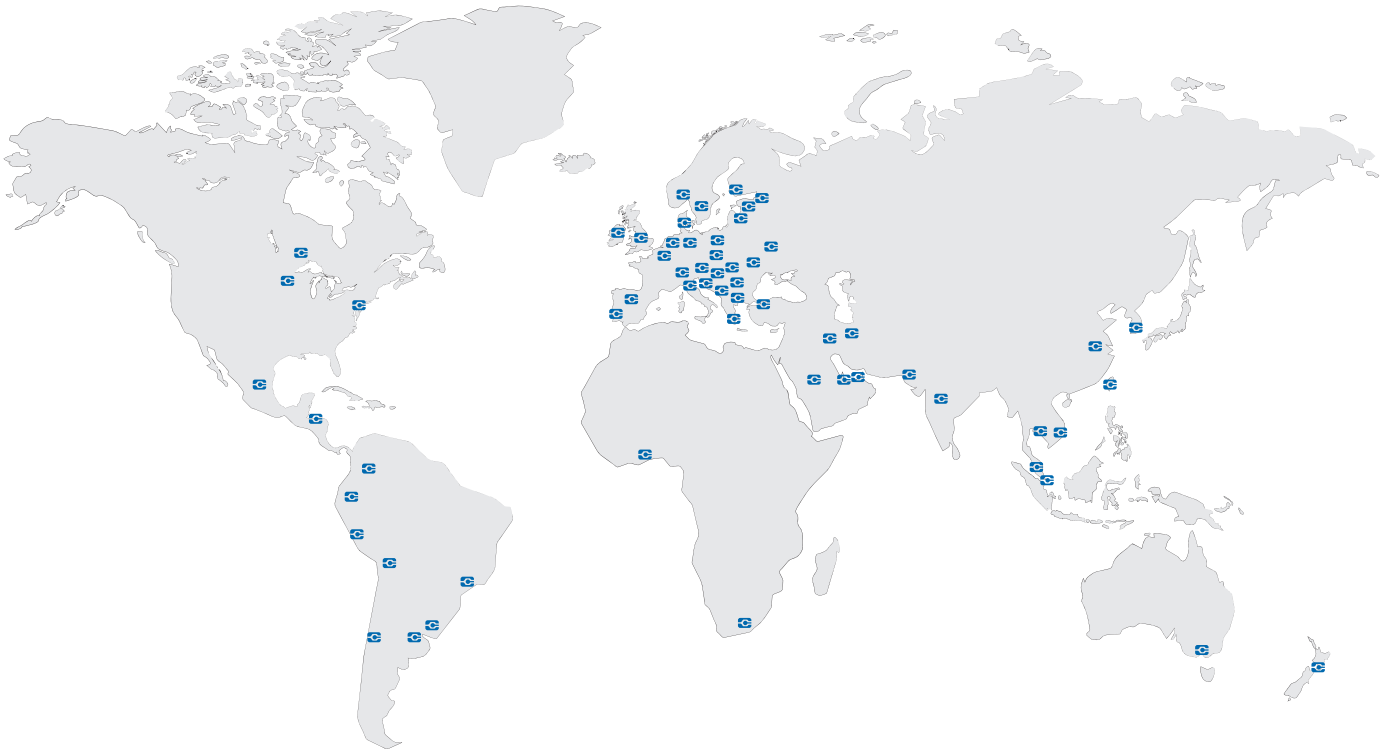
## Notes

# 8 Worldwide Sales Network

# Worldwide Sales Network

comat RELECO

WORLD OF RELAYS



## ASIA

**CHINA**
EAST KING (JIANGSU) ONLINE CO., LTD.
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CONCORD AUTOMATION & CONTROLS
www.cacindia.net

**INDONESIA**
PT. YABESTINDO MITRA UTAMA
www.yabestindo.com

**MALAYSIA**
ELECTRICAL MARKETING SDN. BHD
www.elemar.com.my

**PAKISTAN**
GINZA INTERNATIONAL CORPORATION
www.ginzaint.com

**SINGAPORE**
FUTRON ELECTRONICS PTE. LTD.
www.futron.com.sg

**SOUTH KOREA**
MAHANI ELECTRIC CO., LTD.
www.mec.co.kr

**TAIWAN**
Z-NANOCON & AUTOMATION INT'L CORP
www.e-sensors.com.tw

**THAILAND**
SRINUTCH COMPONENTS CO., LTD.
www.srinutch.com

**VIETNAM**
PLC PRODUCTION AND TRADE COMPANY LIMITED
www.plc.vn

## OCEANIA

**AUSTRALIA**
ARLIN PTY LTD.
www.arlin.com.au

**NEW ZEALAND**
CUTHBERT STEWART LTD.
www.csl-online.nz

# EUROPE

**AUSTRIA**
TURCK GmbH
www.turck.at

**BELGIUM**
TURCK MULTIPROX N.V.
www.multiprox.be

**BOSNIA AND HERZEGOVINA**
TIPTEH D.O.O.
www.tipteh.ba

**BULGARIA**
SENSOMAT LTD.
www.sensomat.info

**CROATIA**
TIPTEH ZAGREB D.O.O.
www.tipteh.hr

VARGA ELEKTRONIK D.O.O.
www.varga-elektronik.hr

**CZECH REPUBLIC**
OEM AUTOMATIC, SPOL. S.R.O.
www.oem-automatic.cz

TURCK S.R.O.
www.turck.cz

**DENMARK**
OEM AUTOMATIC KLITSO A/S
www.oemklitso.dk

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