17.05.2022

ComatReleco Messaging System

CMS-10R

User Manual

Important information

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This user manual contains important information for the commissioning, operation, maintenance and disposal of the device. You will also receive information and important tips for your safety and help with any issues. The user manual must be made physically or electronically available with the equipment and must be included in the supply when the equipment is transferred. It is also available on the ComatReleco web portal.

Copyright

Disclaimer

The owner of this device is responsible for ensuring that the instructions and notes in this manual are read, understood and followed by the personnel concerned before putting the device into operation. Failure to observe the instructions may result in serious bodily injury and/or damage to property. ComatReleco assumes no liability for personal injury, damage to property or financial losses.

Unauthorized modifications and changes to the device can affect safety and are not permitted. This may lead to a limitation of the warranty and may result in loss of product conformity.

Tabel of contents

1 Introduction

1.1 Validity

This user manual is valid for the following devices and software versions:

Hardware

Type designation	Characteristics
CMS-10R-D/AC110-240V	• 4G, 3G, 2G IoT ComatReleco Messaging System • 6 x digital inputs 110 - 240 V ~
CMS-10R-DA/DC12-48V	• 4G, 3G, 2G IoT ComatReleco Messaging System • 6 x switchable inputs digital 10-48 V DC / analogue 0 - 10 V ⎓
CMS-10R-DAC/DC12-48V	• 4G, 3G, 2G IoT ComatReleco Messaging System • 4 x switchable inputs digital 10-48 V DC / analogue 0 - 10 V ⎓ • 2 x analogue inputs 4 - 20 mA ⎓

The validity also applies to all country versions that are listed in the zone description in chapter 3.5.3.

Software

Firmware	as of version 1.1.1
IoT Portal	as of version 1.2.0

The current CMS-10R user manual covers all functionalities for the mentioned software versions. New functionalities and adaptations are documented in release notes as supplements to the current user manual.

1.2 Glossary

Term	Explanation
2G	Second generation (2G) digital cellular networks used by mobile terminals.
3G	Third generation (3G) digital cellular networks used by mobile terminals.
4G	Fourth generation (4G) digital cellular networks used by mobile terminals.
Call-in	Control of a digital output by a telephone call.
CMS-10R	**C**omatReleco **M**essaging **S**ystem.
dBm	Is a level unit used to indicate that a power ratio is expressed in decibels **(dB)** with respect to one milliwatt **(mW)**.
Delay time	Is a value that is entered in the delay window and delays the sending of a message for a certain time.
E-mail messages	Messages sent from the CMS-10R device via the Internet.
Escalation chain	Successive call from several subscribers (depending on the service profile) with a message by e-mail-, push- or SMS message. The escalation chain is stopped as soon as a participant acknowledges the message by e-mail-, push- or SMS message.
eSIM card	Memory chip on which all data of the telephone provider necessary for the mobile phone connection and identification are stored. The eSIM card is permanently installed on the device.
Event	An event is a forwarding of information by e-mail-, push- or SMS message. Depending on the service profile, a certain number of events per month are available.
Fallback mode	If the IoT Portal fails, pending alarms are sent via SMS to defined recipients.
Firmware	The firmware is the operating software with which the user software is loaded and operated.
IoT	**I**nternet **o**f **T**hings.
IoT Portal	The IoT Portal is a virtual data storage (cloud).
LED	**L**ight **E**mitting **D**iode, indicating lamps.
Limit value (upper, lower)	As soon as the value at an input exceeds or falls below this limit (threshold), an action is triggered.
Neutral conductor	Returning conductor or cable transmitting electrical energy.

Outer conductor	Voltage-carrying conductor or cable (commonly referred to as a "pole conductor" or "phase") that transmits electrical energy.
Provider	Mobile network operator.
Push message	Push notifications are messages that appear on your phone without opening the app in question.
Spam (folder)	Or also called the "junk mail folder". Unsolicited mass messages sent by e-mail.
SMS message	**S**hort **M**essage **S**ervice. Short message service (for mobile phones), which can be used to send texts to the recipient's display.
Threshold	Is equivalent to limit value.
Delay window (delay value)	This is a trigger that initializes an action when a previously defined value is exceeded or undershot.
TLS	**T**ransport **L**ayer **S**ecurity is an encryption protocol for secure data transmission over the Internet.
UTC time zone	Universal Time, Coordinated. The time zone in which the device is located must be entered in the ***Manage*** menu. The time zone can be found out on the mobile phone with most clock apps, or on the Internet, for example by clicking on the following ➔Link. Examples: London = UTC, Berne = UTC + 1, New York = UTC - 5. Summer time/winter time is not changed automatically and must be taken into account during entry! See also chapter 5.8.2.
VPN	**V**irtual **P**rivate **N**etwork realizes an encrypted remote access.

1.3 Product conformity

The EC Declaration of Conformity can be found in the CMS-10R: Safety instructions on the ComatReleco web portal ➔Link

1.4 Further documents

Further documents such as short instructions, drawings, technical data, general terms and conditions, etc. can be found on the ComatReleco webportal, ➔Link.

1.5 Contact details

Manufacturer's address		
ComatReleco AG Bernstrasse 4 3076 Worb Switzerland Phone +41 31 838 55 77 E-mail support@comatreleco.com Web www.comatreleco.com	Comat Releco GmbH Dieselstraße 1a 21465 Reinbek Germany Phone +49 40 - 67045391 E-mail kontakt@comatreleco.de Web www.comatreleco.de	Comat Releco do Brasil Rua Machado de Assis 120 09580-310 Sao Caetano do Sul Brasil Phone +55 11 2639 6053 E-Mail contato@comatreleco.com.br Web www.comatreleco.com.br

2 Safety Instructions

2.1 Meaning of symbols

DANGER

Indicates a hazard with high risk potential. Failure to observe the safety measures could result in serious injury or death.

WARNING

Indicates a hazard with medium risk potential. Failure to observe the safety measures could result in serious injury or damage to property.

INFORMATION

Here you will find further information and helpful hints.

DISPOSAL

Observe the special disposal regulations for electronic devices.

PROTECTIVE INSULATION

The ***Class 2 protective insulation*** symbol is printed on the device. The device is protected against accidental contact with live electrical parts by class 2 protective insulation. With this electrical protection class, no protective conductor (earthing) must be connected.

2.2 General Safety Instructions

DANGER

- Only mount and dismantle the device when it is disconnected from the power supply. This applies to the power supply as well as to all inputs and outputs.
- During operation, the electrical connection points of the device carry hazardous voltages! These connection points must not be touched.
- The installation of the device must only be carried out by qualified electricians.
- The device must be installed and operated according to national regulations and specifications.
- This device is not suitable for use in wet areas, explosive atmospheres (e.g. in areas where the air contains high concentrations of flammable chemicals, vapours or particles such as grain, dust or metal powder), or in the vicinity of medical devices.

WARNING

- Do not apply a voltage greater than 240 V ~ (for CMS-10R-D), or 48 V ⎓ (for CMS-10R-DA and CMS-10R-DAC) to the device.
- It must be possible to disconnect the device from the power supply by means of an adequate disconnecting device (fuse, circuit breaker, etc.) provided on the installation side. The disconnecting device must be located as close as possible to the device.
- When connecting to the 240 V ~ mains, it is essential that the power supply and the supply of the inputs are connected to the same outer conductor.
- Check that all cables are correctly connected before commissioning.
- The device is intended for installation in a housing (a control cabinet, distribution box or terminal box). The housing must meet the requirements of a fire protection housing of the safety standard IEC/EN 62368-1 and have a protection class of at least IP20 (according to IEC/EN 60529). It must also provide protection against electric shocks (touch protection). The device must not be operated until it has been installed.

SAFETY INSTRUCTIONS

- Read the user manual carefully before use!
  Make sure that the versions of the product documentation valid for your device are available throughout the entire life cycle of the device (see chapter 1.1).
- This device is not suitable for monitoring sensitive systems or time-critical processes. Mobile phone network failures, poor reception or interruptions in the power supply can impair the functions.
- The device may only be operated with the defined antenna types (see chapter 4.4).
- This equipment is not suitable for use in locations where children are likely to be present.
- The antenna and antenna extension must not be screwed more strongly than the tightening torque of 1 Nm (see chapter 3.8).

2.3 User groups / personal qualification

Device installation

All installation, assembly and wiring work must only be carried out by qualified electricians who are familiar with the applicable standards, regulations and safety provisions for installation and automation technology.

Using the device

The users of the IoT Portal and the app must have PC user skills, must be able to operate a web browser and must know the associated terms. Users can be electricians as well as end users who are authorized as the owner or as the owner's authorized representatives to manage, configure or make changes to the devices.
The owner of the equipment is responsible for ensuring that all users have understood the user manual and the functions of the equipment and are aware of the effects of the functions performed with the equipment (remote operation).

2.4 Intended use

Devices of the CMS-10R series are remote monitoring and remote control devices for industrial and building technology. They transmit changes in the value of the digital and/or analogue inputs via the mobile phone network by e-mail-, push- or SMS message to the notification service (IoT Portal, app). The potential-free changeover contacts of the relay outputs can be switched in the IoT Portal, using the app, by SMS or telephone control.

The devices are available in different country versions. If you have any questions about the availability of the equipment in your region, please refer to the chapter 3.5 or contact ComatReleco technical support (support@comatreleco.com).

2.5 Unintended use

- Applications with high requirements regarding availability or redundancy.
- Use of the devices if the availability of the Internet connection or the IoT Portal is not fully guaranteed.

2.6 Foreseeable misuse

- If an incorrect device configuration is loaded in the device or if settings not corresponding to the application have been made, this can lead to undesired behaviour of the inputs and outputs.
- After an update or import of the device configuration, it must be checked in the device to prevent undesired behaviour of the inputs and outputs.

3 Product description

3.1 Overview

Devices of the CMS-10R series are remote monitoring and remote control devices for industrial and building technology. They transmit changes in the value of the digital and/or analogue inputs via the mobile phone network by e-mail, by SMS or by push message to the notification service (IoT Portal, app). The potential-free changeover contacts of the relay outputs can be switched in the IoT Portal, using the app, by SMS or telephone control.
Thanks to the integrated eSIM card, the device connects automatically worldwide (see chapter 3.5) to the strongest local mobile network of all possible generations (4G, 3G, 2G).
All operations are temporarily stored on a server with hosting in Switzerland and forwarded to the corresponding end device. The devices have a fallback mode, which enables temporary communication via SMS if the connection to the server is not possible.
The configuration is done via a browser on a computer or tablet with an Internet connection. For configuration and/or administration, you will need a user account on the ComatReleco IoT Portal.

Examples of possible applications

- Monitoring of systems
- Monitoring of machines and buildings
- Monitoring of pumps and filling levels
- Heating, ventilation and air-conditioning technology
- Remote switching, etc.

3.2 Product variants

Characteristic	CMS-10R-D/AC110-240V-Z2 CMS-10R-D/AC110-240V-Z1	CMS-10R-DA/DC12-48V-Z2 CMS-10R-DA/DC12-48V-Z1	CMS-10R-DAC/DC12-48V-Z2 CMS-10R-DAC/DC12-48V-Z1
Nominal voltage and frequency	95 - 240 V ~, 45 - 65 Hz	10 - 48 V ⎓	10 - 48 V ⎓
Inputs	6 digital	6 digital / analogue 0 - 10 V ⎓	4 digital / analogue 0 - 10 V ⎓ 2 analogue 4 - 20 mA ⎓ (I5, I6)
Outputs	4 x relay with changeover contacts, 10 A / 250 V ~		
Countries	Z2: Device type for Europe, Middle East, Africa and Asia Z1: Device type worldwide		
Mobile networks	4G, 3G, 2G (supported frequency bands, see chapter 3.5.4)		
Accessories included	Stubby-Antenna CMS-ANT-STUB/INT-50MM	Stubby-Antenna CMS-ANT-STUB/INT-50MM	Stubby-Antenna CMS-ANT-STUB/INT-50MM

3.3 Transport and storage

The device is delivered in its original cardboard packaging and is therefore protected as well as possible during transport.

If you do not use the device for a longer period of time, store it at room temperature in a dry place.

When returning the device, please pack it in the same way as you received it with the original packaging so that it can be transported safely.

3.4 Included in the delivery

On receipt of the device, check the delivery against the delivery note.

If you discover a defect or missing parts on receipt, contact your seller immediately.
Please refer to the ComatReleco web portal for the delivery conditions and information regarding the return of goods.
Next steps see chapter 7.3 Device exchange ➔ Link.

3.5 Mobile Communications

3.5.1 Network coverage

The devices are equipped with an integrated eSIM card. Communication via the mobile network is available via 750 providers worldwide. The network coverage on site depends on the network expansion of the local provider. The device automatically selects the network generation with the highest field strength at the location.

The roaming time to switch from one mobile network to another or to connect to the IoT Portal from abroad can take up to 5 minutes!

3.5.2 Country versions

The devices are intended for use in various countries. Since the frequency bands available for mobile communications vary greatly from country to country, the device is offered with two different modem types.
For identification purposes, the ordering designations of the devices are provided with a corresponding suffix ***Z1*** or ***Z2*** (e.g. CMS-10R-DA/DC12-48V-***Z2***), which describes the zone.

Before purchasing and using the device, make sure that it works in the country of destination. Contact ComatReleco technical support if you have any questions. The following country versions are available.

3.5.3 Zone description

Zone 1:

Worldwide	Zone 2 + Argentina, Armenia, Australia, Azerbaijan, Belarus, Bolivia, Brazil(*), Cambodia, Canada, Chile, China(*), Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, French Antilles, French Guyana, Georgia, Ghana, Guatemala, Guyana, Haiti, Honduras, Hong Kong, India, Indonesia, Israel, Jamaica, Japan, Kazakhstan, Kyrgyzstan, Kuwait, Macau, Malaysia, Mauritius, Mexico, Moldova, New Zealand, Nicaragua, Panama, Paraguay, Peru, Philippines, Puerto Rico, Reunion, Russia, Singapore, Sri Lanka, Suriname, Swaziland, Tajikistan, Taiwan, Trinidad and Tobago, Turkey(*), United States, Uruguay, Uzbekistan, Venezuela

Zone 2:

Europe	Albania, Andorra, Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Czech Republic, Croatia, Cyprus Denmark, Estonia, Faroe Islands, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Isle of Man, Ireland, Italy, Jersey, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, Northern Macedonia, Norway, Poland, Portland, Romania, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, Vatican City
Middle East	Bahrain, Qatar, Saudi Arabia, United Arab Emirates(*)
Africa	Cameroon, Congo, Egypt, Gabon, Ivory Coast, Kenya, Morocco, Nigeria, Senegal, South Africa
Asia	South Korea, Thailand

(*) On request.

3.5.4 Supported frequency bands

Standard	Zone	Frequency bands	
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)
		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)
3G UMTS	Z1	UMTS:	B1 (2100 MHz), B2 (1900 MHz), B4 (1700 MHz), B5 (850 MHz), B6 (800 MHz), B8 (900 MHz), B19 (800 MHz)
	Z2	UMTS:	B1 (2100 MHz), B8 (900 MHz)
2G GSM	Z1	GSM:	B2 (1900 MHz), B3 (1800 MHz), B5 (850 MHz), B8 (900 MHz)
	Z2	GSM:	B3 (1800 MHz), B8 (900 MHz)

3.6 Communication

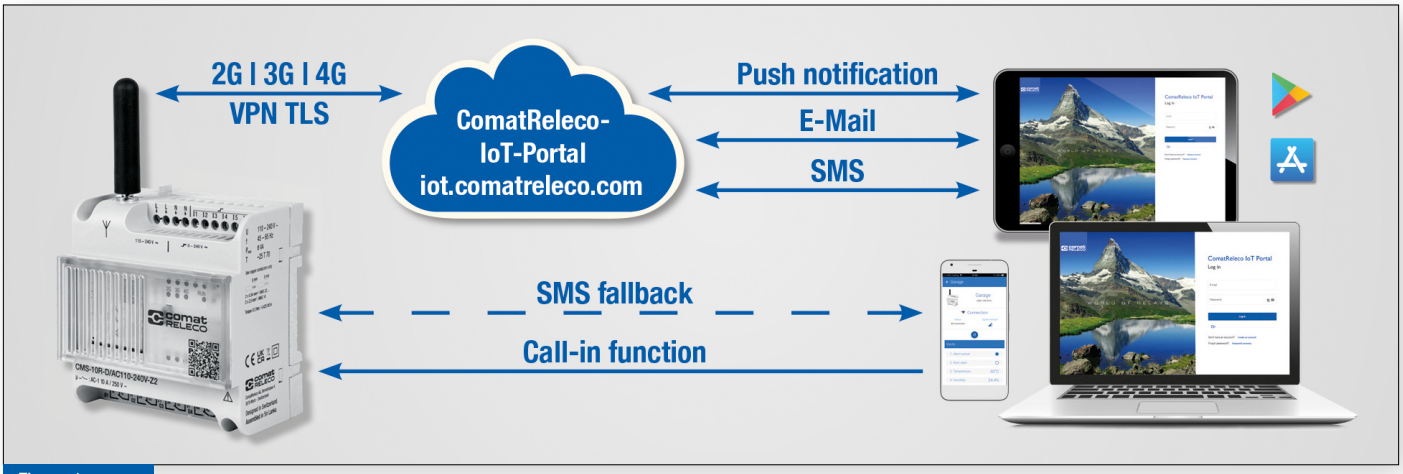


Figure 1

- Thanks to the built-in eSIM card, no additional telecom subscription is required.
- The events configured in the IoT Portal send a defined message via app, e-mail or SMS to the selected recipients after each status change. The recipients are processed cyclically according to the selected sequence.
- The outputs can be switched on and off in the IoT Portal, via the app, via an SMS message or via the call-in function.
- For an overview of the system status, the status of the inputs and outputs can also be requested via app or SMS. The status of the inputs and outputs can be sent with each message.
- By means of a switch-off delay, the individual relay outputs can be set so that the switching contact is switched on by a command and automatically switches back to the initial position after an adjustable time.
- If desired, the device will automatically respond at regular intervals with an appropriate message (status message).
- An interruption of the power supply is detected by the device and it sends a message as the last event, if this is activated under ***Manage/ Events/Shutdown***. When the power supply is restored, the device responds with another message.
- Should the IoT Portal not be accessible, the ***Fallback mode*** becomes active and the device sends pending alarms directly and only via SMS to the preset recipients. The status message now only works via SMS.

3.6.1 Message types

Push messages

The device sends push messages to one or more recipients via the server according to the configuration. These can be sent simultaneously or in the form of an escalation chain.

E-mail messages

The device sends e-mail messages to one or more recipients via the server according to the configuration. These can be sent simultaneously or in the form of an escalation chain.

SMS messages

The device sends SMS messages to one or more recipients via the server according to the configuration. These can be sent simultaneously or in the form of an escalation chain. The device can also send SMS messages directly if connection to the server is not possible.

3.7 Behavior of the device under specific conditions

In case of power failure

If a power failure is detected at the power supply, the remaining energy in the device is used to initiate the distribution of the message through the IoT Portal and then the device shuts down automatically. The message is distributed either by simultaneous alarm activation or by an escalation chain. The settings are permanently stored in the internal memory. The outputs are switched off. The connection from the device to the IoT Portal is stopped.
As soon as the power failure at the power supply has been rectified, the device restores the most recent settings of the electrical outputs and applies the most recent configuration of the inputs, regardless of how long the power failure lasted. At the same time, the mobile connection is re-established and the device connects to the IoT Portal. Pending configurations from the IoT Portal are then transferred to the device.
If acknowledgement is activated, the waiting time continues and the events are sent to the message recipients according to the setting of the maximum acknowledgement runs.

As soon as the power supply is restored after a power failure, it is essential to check that all outputs are in the correct and desired state.

Message when the supply voltage is switched on

If this message is activated, the device informs the recipient when the operating voltage is available again and the device switches to normal operation.

In the event of connection interruptions to the mobile radio network

During an interruption of the connection to the mobile radio network, events that occur are stored in the device temporarily.

Once the connection to the mobile network is restored, the cached events are sent to the IoT Portal. Pending configurations from the IoT Portal are then transferred to the device. If acknowledgement is activated, the waiting time continues and the events are sent to the message recipients according to the setting of the maximum acknowledgement runs.

Failure of the IoT Portal (fallback)

Should the IoT Portal not be accessible, the ***Fallback mode*** becomes active and the device sends pending alarms directly and only via SMS to the preset recipients.
The control of the outputs by ***Call-in*** and ***SMS control messages*** works as in normal operation. The notification of the message receivers is only made by SMS.
Once the connection to the IoT Portal has been re-established, the events are sent to the message recipients according to the settings under ***Notifications*** (push, e-mail and SMS).

Please note that the SMS account must not be empty! For the automatic renewal of SMS packages, see chapter 5.7.3.2.
The status of all inputs and outputs can be queried via SMS in fallback mode. To do this, send the command ***status*** to the device via SMS.
The acknowledgement code in fallback mode is given as follows: ***code***
The acknowledgement message is sent to all message recipients with: ***OK: Mobile phone number***
If the connection to the cloud is lost, up to 10 minutes may elapse before the system switches to fallback mode. Thus, there may be delays in sending the status message. However, the events are registered by the unit at all times and sent directly to the message recipients. This ensures flawless operation at all times.

Behavior of the Reset Button

short press (< 4 s) = restart ➔ takes around 30 sec to a minute
long press (> 4 s) = forced hardware-reset

In both cases the outputs are switched off and the connection from the device to the IoT Portal is stopped. After a successful restart, the device restores the last state of each output and adopts the last received configuration. At the same time, the mobile connection is reestablished, and the device connects to the IoT Portal. Once connected, pending configurations from the IoT Portal are transferred to the device.

It is strongly recommended to just use the forced hardware-reset when the system is hanging. The forced hardware-reset may result in data loss.

For firmware update

Make sure that the device is not used during the firmware update!

When the firmware update is started, the device starts downloading the latest firmware. After the firmware has been successfully downloaded, the device is restarted. The relay outputs are switched off. After the firmware update, the outputs are not set back. The device also establishes the last statuses of the outputs and adopts the last received configuration of the inputs. At the same time, the mobile connection is re-established and the device connects to the IoT Portal. Pending configurations from the IoT Portal are then transferred to the device.

If the firmware update was unsuccessful, the device starts with the old firmware and the existing configuration.
The installed firmware version is displayed in the ***Overview*** menu (Figure 37 (**8**)) and in the ***Manage*** (Figure 38) menu. In addition, the fact that a firmware update is available remains displayed in the ***Manage*** on the ***Cogwheel icon*** (Figure 38 (**6**)).

In case of internal firmware error

If an internal firmware error occurs, the device is automatically restarted after 2 minutes at the latest. The behaviour is the same as for a manual reset (see also the ***On Manual Reset*** section above).

3.8 Hardware description

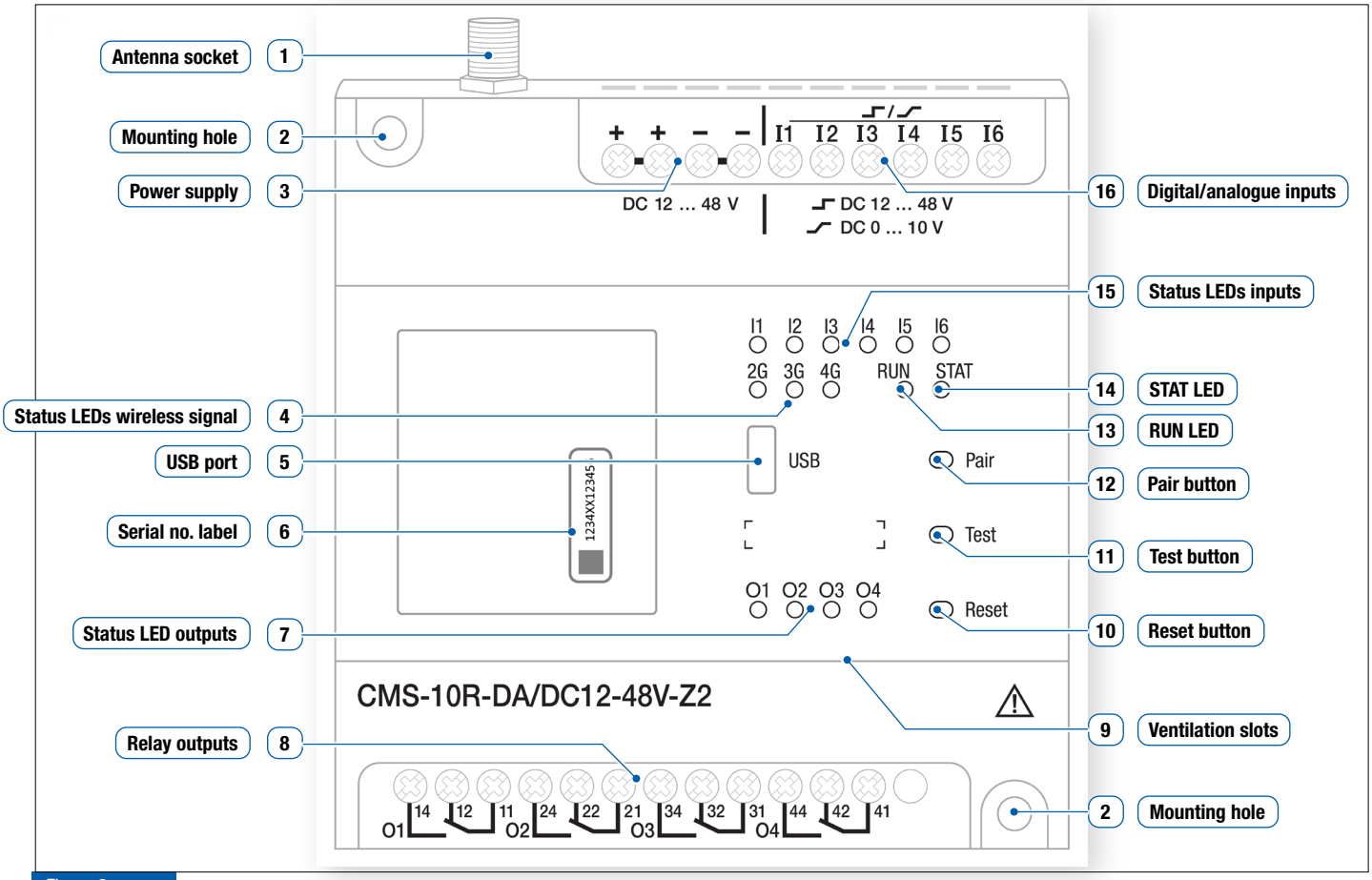


Figure 2

Figure 3

1	Antenna socket	The antenna is connected to an antenna socket. Different antennas and antenna extensions can be connected, depending on the area of application (see also chapter 4.4). The tightening torque of 1 Nm must not be exceeded!
2	Mounting holes	Screws with a maximum thread diameter of 3.9 mm can be used for mounting. The tightening torque of 1 Nm must not be exceeded!

3 Power supply

Strands or wires with a maximum cross-section of 2.5 mm^2 can be connected to the screw terminals. The identically named terminals are electrically connected in the device and can be used as feed-through to avoid multiple assignment of the terminals.
Terminal designation for version ~: L (outer conductor), N (neutral conductor)
Terminal designation for version ⎓: + (plus), - (minus)
The terminals with the designation N / "-" form the common reference potential for the inputs.
For details about the power supply of the different types of devices, see chapter 9.2.

4 Status LEDs Radio signal

These LEDs indicate the currently used radio standard (2G, 3G or 4G). The colour indicates the signal strength:

	Operating mode	Radio network	IoT Portal
LED not lighting up	Fallback: Event storage on the device	None	Not connected
LED flashing orange	Fallback: SMS directly to recipient	Poor reception	Not connected
LED lighting up orange	Normal operation	Poor reception	Connected
LED flashes green	Fallback: SMS directly to recipient	Good reception	Not connected
LED lights up green	Normal operation	Good reception	Connected

5 USB port:

This connection is intended for internal purposes!

6 Serial no. label

The device serial number must be entered when pairing the device.

7 Status LEDs Outputs

	Status	Flashing frequency
LED not lighting up	Relay switched off. Relay contact is open	--
LED lights up	Relay switched on. Relay contact is closed	--

8 Relay outputs

4 changeover contacts are available, regardless of the device type.

9 Ventilation slots

Ensure that the ventilation slots are not taped or covered by components to ensure adequate cooling of the device.

10 **Reset** button

Triggers a reset function (see chapter 3.7).
Press the **reset** button for at least 4 seconds to reset the device.

11 **Test** button

A functional test of the connection to the IoT Portal is performed. If the button test is pressed, a message is sent by e-mail, SMS or push message (depending on the setting) and the status is displayed in the IoT Portal in the menu Overview/Test (see Figure 37 (**17**)).

12 Pair button

Used to pair the device with the IoT Portal.

13 **RUN** LED

	Status	Flashing frequency
LED not lighting up	The device is switched off or is not working, see chapter 7.2.	--
LED flashing	The device and the firmware are ready for use and are in operation	Slow

14 **STAT** LED

The LED indicates the operating status.

	Status	Flashing frequency
LED not lighting up	Normal operation	--
LED flashing	Firmware update	Fast, flashing
LED flashing	Firmware update/restart	Slow
LED lights up	Device shuts down/exits all running tasks	--
LED flashing	Device shuts down/terminates connection to IoT platform and mobile network	Fast, even

15 Status LEDs Inputs

Digital inputs

		Status	Flashing frequency
○	LED not lighting up	Input value = logic level 0 (low)	--
●	LED lights up	Input value = logic level 1 (high)	--

analogue inputs

○	LED not lighting up	Input level ≤ lower threshold value	--
●	LED flashing	Lower threshold value < input level < upper threshold value	Slow
●	LED lights up	Input level ≥ upper threshold value	--

16 Inputs Digital / Analogue

Digital

The inputs are interpreted as logic level "1" (high) as soon as the applied input voltage is higher than the switch-on threshold. The voltage levels must always have the same reference potential as the device power supply!

		Switch-on threshold
Logic 1:	CMS-10R-D/AC110-240V-Zx	> 24 V ~
	CMS-10R-DA/DC12-48V-Zx	> 6.0 V ⎓
	CMS-10R-DAC/DC12-48V-Zx	> 6.0 V ⎓

Analogue (voltage)

If the input is configured as "analogue", voltage levels from 0 – 10 V ⎓ are converted to a user-scalable value (temperature, flow rate, etc.). If the voltage is higher than 10 V ⎓ (but less than or equal to the operating voltage), the configured maximum value is set. The voltage input is compliant to IEC 60381-2

Analogue (current)

This input type with a range of 4 – 20 mA ⎓ is designed for use as a current loop interface. The burdon of the current input is 150 Ω. The whole range from 4 - 20 mA ⎓ is converted into a scalable value. The current input is compliant to IEC 60381-1 can be enabled.

17 DIN rail mounting bracket

DIN rail mounting bracket for mounting the device on a 35 mm DIN rail.

4 Installing the device

DANGER

Risk of death due to electric shock!
Only mount or dismantle the device when it is disconnected from the power supply.

WARNING

The work described in this chapter must only be carried out by qualified electricians (see also chapter 2.3)!

4.1 Installation instructions

- Follow the installation instructions described. Observe the regulations and safety regulations applicable to installation and operation, including the national safety regulations, as well as the generally recognised rules of technology. The safety-relevant data can be found in the package insert and the certificate of conformity.
- The device may not be opened or modified and no repairs may be made to the device. Repairs may only be carried out by the manufacturer. In the event of damage, replace the device with an equivalent device.
- The device may only be installed permanently (not as a mobile unit).
- With protection class IP20 (IEC 60529/EN 60529), the device may only be used in clean and dry environments. Do not expose the device to any mechanical and/or thermal stress beyond the limits according to the technical data.

Before installation, make sure that the country zone of the device (Z1 or Z2) corresponds to the country version valid at the installation site (see chapter 3.5.2).

4.2 Mounting

4.2.1 Mounting the device

The device can be mounted on a 35 mm DIN rail compliant to IEC 60715 or on a vertical surface using the mounting holes.

Carrier rail mounting

- Place the device on the carrier rail from above
- Snap the device onto the rail from the front with even pressure until it audibly clicks into place

Mounting on a vertical surface

- Make sure that the surface is level
- The device must be mounted on a vertical surface so that the air can circulate through the ventilation slots
- Screw the device onto the surface. Select screws with a maximum head diameter of 6 mm and a maximum thread and shaft diameter of 3.9 mm. The tightening torque must not exceed 1.0 Nm.

4.2.2 Dismantling the device

Carrier rail mounting

- Remove all electrical connection wires
- Insert a screwdriver into the tab at the bottom of the device and unlock it with a downward movement
- Lift the device out of the carrier rail

Mounting on a vertical surface

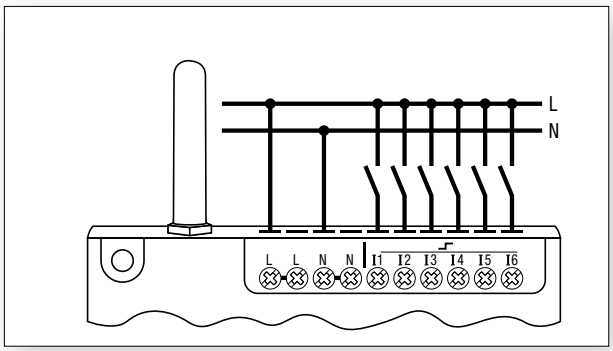
- Remove all electrical connection wires
- Loosen the screws
- Remove the device

4.3 Wiring

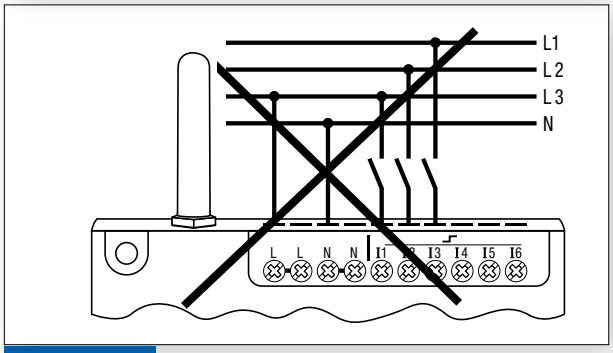
4.3.1 Power supply

When connecting to the 230 V ~ mains, it is essential that the power supply and the supply of the inputs are connected to the same outer conductor. No voltage exceeding 240 V ~ may occur on the device. The device is insulated and therefore does not require a protective conductor connection (earthing). Connect the device according to one of the following connection variants.

4.3.2 Wiring of the CMS-10R/D inputs



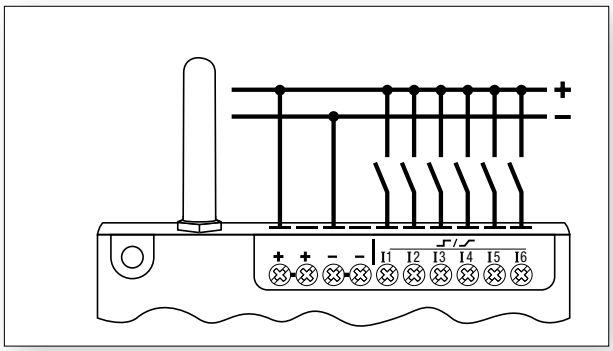
Connect the digital inputs to an outer conductor (L).



The digital inputs must not be connected to different outer conductors (L1, L2, L3)!

Figure 4

4.3.3 Wiring the CMS-10R/DA inputs



Connect the contacts of the digital inputs to a potential (+).

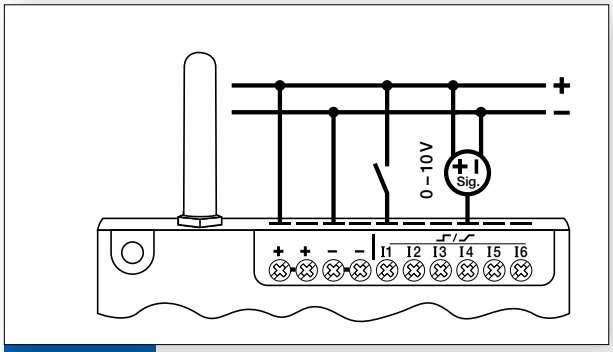


Figure 5

Connect the analogue sources between (+) and (-).

I 1 - 6: Digital inputs or analogue inputs (0 - 10 V ⎓)

4.3.4 Wiring the CMS-10R/DAC inputs

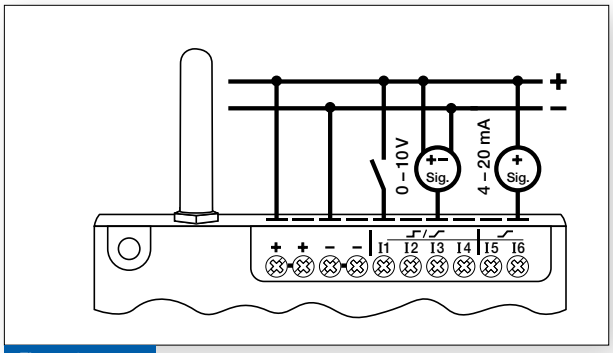


Figure 6

Connect the contacts of the digital inputs to (+).
Connect the analogue sources between (+) and (-).
Connect the power sources to (+).

I 1 - 4: Digital inputs or analogue inputs (0 - 10 V ⎓)
I 5 - 6: Current inputs 4 - 20 mA ⎓

4.3.5 Wiring the CMS-10R/D/DA/DAC relay outputs

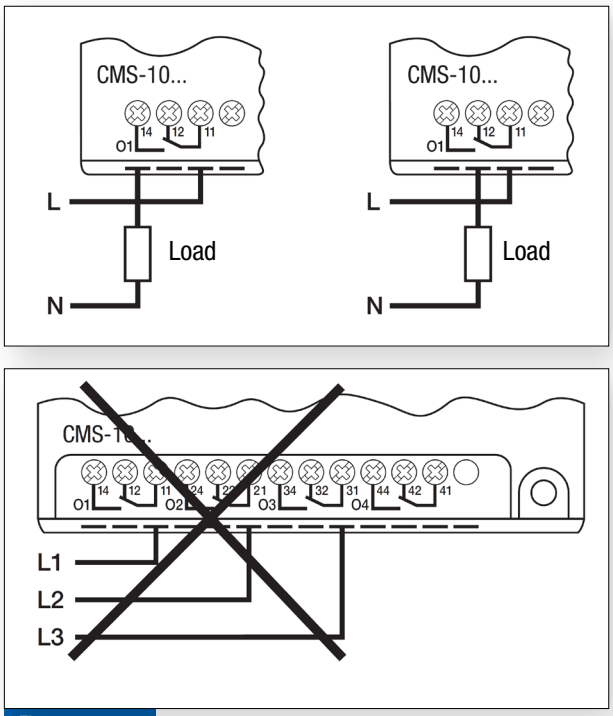


Figure 7

The input signal of the relay contact must be connected to terminal 11 and the load to terminal 12 or 14.
A minimum contact load of 10 mA (12 V ⎓) must be connected as a load.

No three-phase voltage (400 V / 3-phase) must be applied to the outputs!

4.4 Antennas

The CMS-ANT-STUB/INT-50MM Stubby Antenna is supplied with the CMS-10R device. However, certain installation situations require the use of a remote antenna. The following antenna types are available:

4.4.1 Interior Antennas

Stubby-Antenna (CMS-ANT-STUB/INT-50MM) and Blade-Antenna (CMS-ANT BLADE/INT-150MM):
Suitable for use in an environment with good signal strength and for use in a control cabinet/distribution box with insignificant shielding effect against electromagnetic waves (plastic housing / timber construction houses).

Magnetic-Mount-Antenna CMS-ANT-MAG1/INT-2.5M): Recommended wherever a control cabinet/distribution box significantly reduces the signal strength owing to its shielding effect and the antenna has to be placed outside.

4.4.2 Exterior Antennas

Magnetic-Pod-Antenna (CMS-ANT-MAG2/EXT-2.0M), Bracket-Antenna (CMS-ANT-BRACK/EXT-5M) and Puck-Antennas (CMS-ANT-PUCK/EXT-3M, CMS-ANT-PUCK-GPS/EXT-3M):
Recommended for locations with low signal strength. To achieve better signal strength, these antennas can be mounted outside the building with a suitable feed-through. The antennas are suitable for outdoor installation thanks to its weatherproof construction and the mounting kit supplied.

4.4.3 Antenna Cables (extensions)

All listed antenna types can be operated with an extension cable. We recommend the use of an extension cable for magnetic base and exterior antennas.

Order codes

Product	Order designation
Device Antenna Stubby 50 mm	CMS-ANT-STUB/INT-50MM
Device Antenna Blade 150 mm	CMS-ANT-BLADE/INT-150MM
Magnetic Mount Antenna with 2.5 m cable	CMS-ANT-MAG1/INT-2.5M
Magnetic Mount Antenna IP66 with 2.0 m cable	CMS-ANT-MAG2/EXT-2.0M
Bracket Mount Antenna IP66 with 5 m cable	CMS-ANT-BRACK/EXT-5M
Puck Antenna Panel Mount IP66 with 3 m cable	CMS-ANT-PUCK/EXT-3M
Puck Antenna GPS Panel Mount IP66 with 3 m cable	CMS-ANT-PUCK-GPS/EXT-3M

Antenna extension cable 2.5 m	CMS-ANT-KAB/2.5M
Antenna extension cable 5 m	CMS-ANT-KAB/5M
Antenna extension cable 10 m	CMS-ANT-KAB/10M
Antenna extension cable 20 m	CMS-ANT-KAB/20M

- The CMS-10R may only be operated with antennas from the ComatReleco range of accessories.
- The CMS-ANT-STUB/INT-50MM stubby antenna supplied is not suitable for installation in a control cabinet (owing to the shielding effect).
- When using extension cables, make sure that the total length of 25 m is not exceeded. If possible, only one extension cable should be used and not several short ones. Chose the cable as short as possible.
- When the device is in operation, persons must always keep a distance of 20 cm from the antenna!
- Be careful when installing external antennas: twisting the antenna cable can cause damage and thus compromise correct functioning.
- Keep in mind the max bending radius of the coaxial cable.
- For ready-made extension cables and directional antennas, contact support@comatreleco.com.

5 IoT Portal

5.1 Introduction

IoT stands for ***Internet Of Things***.
No programming skills are required to use and operate this portal.
Basic knowledge of how to use a PC, web browser operation and an understanding of the relevant terms are required.

Open IoT Portal ➔Link

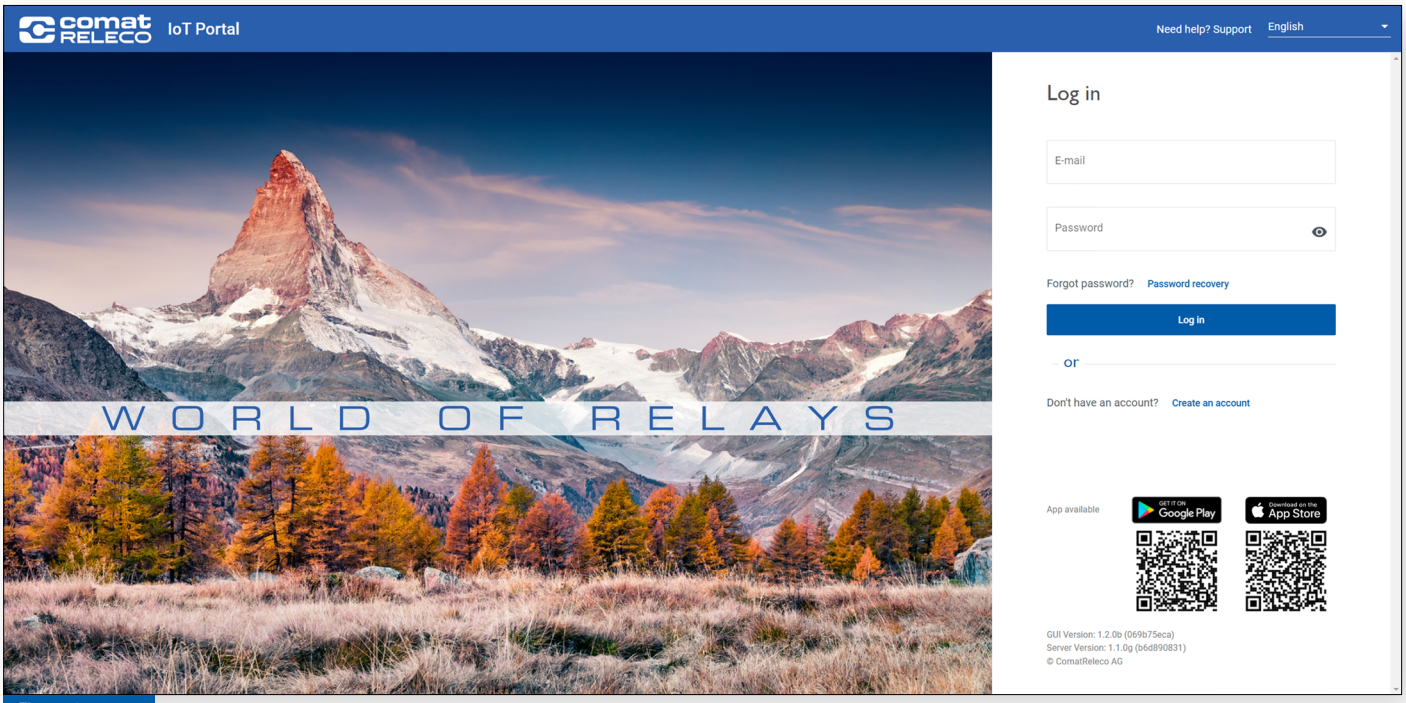


Figure 8

5.1.1 System requirements

Web browser ***Google Chrome***, ***Mozilla Firefox*** and ***Microsoft Edge*** in the current version.

5.1.2 Meaning of symbols


OFF / deactivated function.


ON / activated function.


Open the Account settings / account settings menu


Open the Account settings / SMS package menu


Activate push notifications. Currently deactivated


Deactivate push notifications. Currently activated

The notifications seem to be blocked by a browser extension or by your network. Please disable your AdBlocker or white list this page to enable push notifications.

Open pop-up menu with various functions

Update. All device statuses are queried again

Open the help page

Manage device pop-up menu (Settings)

Unpairing a device

Import configuration

Export configuration

Delete device

5.1.3 Role as user, owner or installer

Each ***User*** must create an account in the IoT Portal and can take on the role of ***Owner*** or ***Installer*** for the use of a device.

The ***Owner*** has all rights and is the only one who can hold service profiles. Payment claims are only made to ***Owners***.

The ***Installer*** is entitled to install and commission a device of a third party, defined as the ***Owner***. This allows the installer to set up a device fully in advance without incurring communication costs. Once it has been set up, it can be handed over to the owner, i.e. the installer can be removed (see chapter 5.8.2).
However, the ***Owner*** must choose the subscription and pay the follow-up costs.

Role	Service profile set up	SMS packages purchase	**Rights**		
			Show status	**Control device** (control inputs/outputs)	**Manage device** (Adding, pairing, unpairing devices, updating firmware, adjusting configurations)
Owner	✓	✓	✓	✓	✓
Installer			✓	✓	✓
User			✓	✓(*)	✓(*)

(*) Rights can be assigned individually. See chapter 5.8.3.

5.2 Initial commissioning

You need a user account in the IoT Portal for commissioning. If you do not have a user account, you must create a new account.

Commissioning steps (variants)

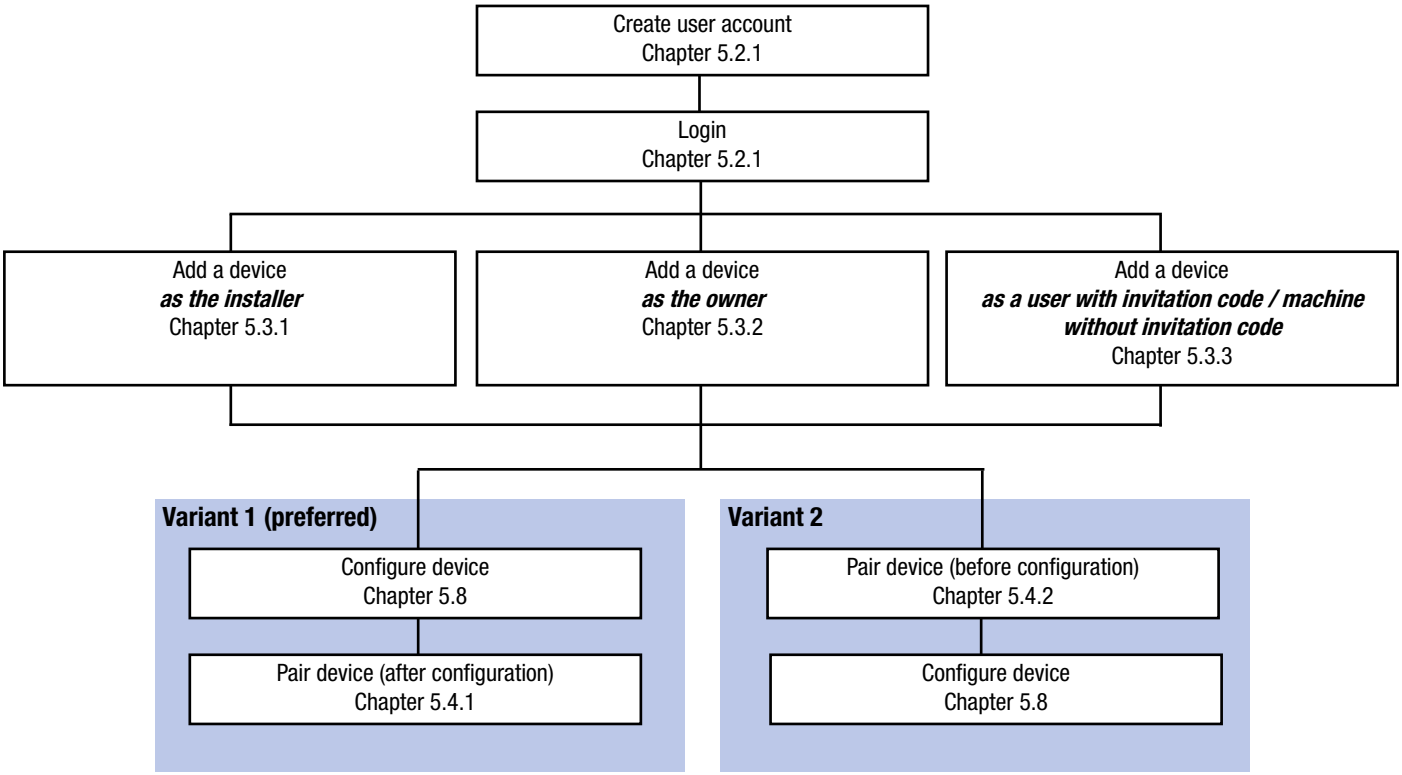


Figure 9

With the ***Pair*** function, the one-year, fee-based service profile is started!
Variant 1 (favoured) offers the possibility to create/modify the device configuration in advance without activating the fee-based service profile.

5.2.1 Login / Create user account / Forgotten password

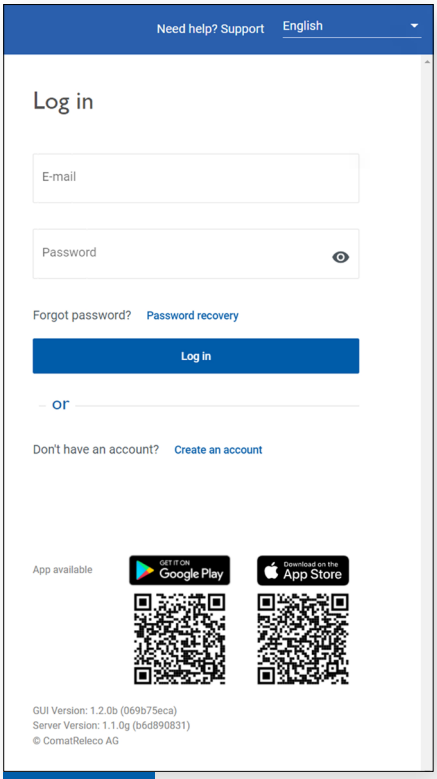


Figure 10

Login (if you already have an account)
Enter your e-mail address and password and press ***Login***.

Login (if you do not yet have an account)
Select ***Create account.***
Fields marked with an asterisk (*) must be filled in.
Please read and accept the privacy statement.
You will receive an e-mail in which you must confirm your e-mail address. If you have not received a confirmation e-mail, check your spam folder or have your IT Manager adjust the firewall settings.

Forgotten password
On the home page, select ***Reset password***.
Enter the e-mail address of your account and select ***Send recovery e-mail***.
You will receive an e-mail with a link to the IoT Portal to enter a new password. When done you can login using this new password.

Language
You can choose the login language.

5.3 Add a device

5.3.1 Add a device as installer

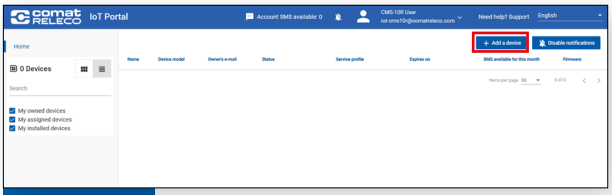


Figure 11

Once you have created a user account and logged in, the device overview appears.
You must answer any system question about whether notifications are allowed with ***Allow***.

Select ***+ Add a device*** to configure a new device.

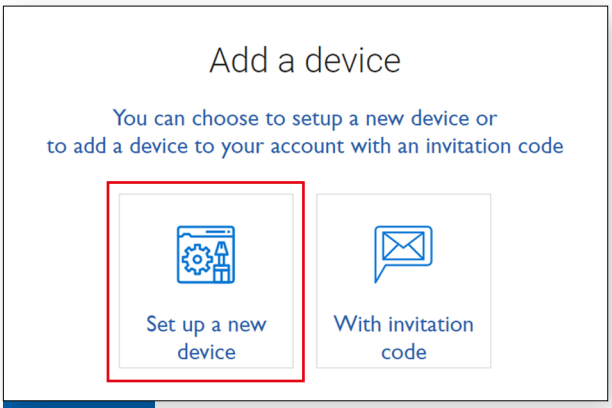


Figure 12

Select ***Set up a new device***.

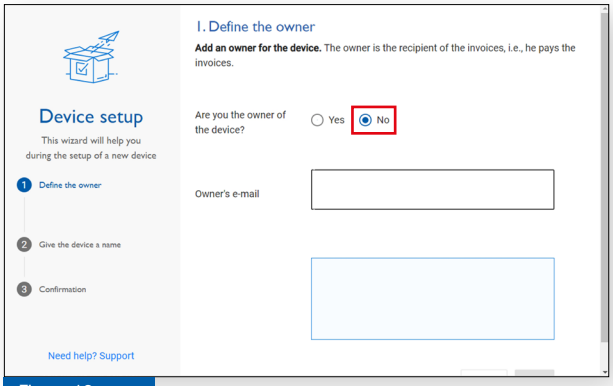


Figure 13

Select ***No*** because you are the device installer.

Enter the owner's e-mail address.

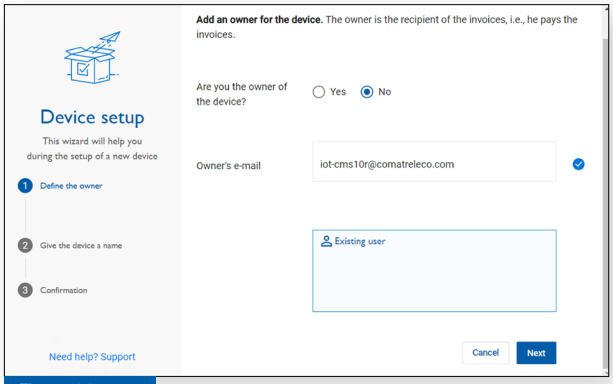


Figure 14

Case A) If the user already has an account in the IoT Portal he will receive an e-mail with a link that can be used to log in the IoT Portal and accept or decline the invitation.
If the user accepts the invitation, the user is the owner. If the user rejects the invitation, the installer remains the owner.

The invitation to the owner is only valid for 30 days. After that under Manage, Change owner the invitation can be resent (see chapter 5.8.2, Figure 38 (2)).

Then continue with Figure 19 in chapter 5.3.2.

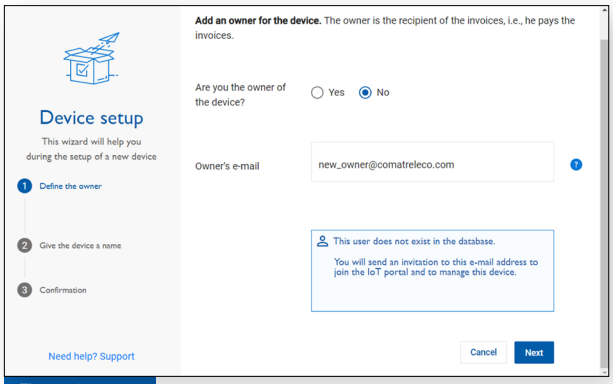


Figure 15

Case B) The user does not yet have an account in the IoT Portal database.

The user receives an e-mail with a link to create an account and log in to the IoT Portal.
He must create an account before being able to accept/reject the invitation.

The invitation to the owner is only valid for 30 days. After that under Manage, Change owner the invitation can be resent (see chapter 5.8.2, Figure 38 (2)).
Then continue with Figure 19 in chapter 5.3.2.

5.3.2 Add a device as owner

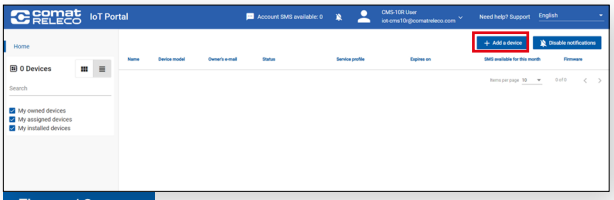


Figure 16

Once you have created a user account and logged in, the device overview appears.
You must answer any system question about whether notifications are allowed with ***Allow***.

Select ***+ Add a device*** to configure a new device.

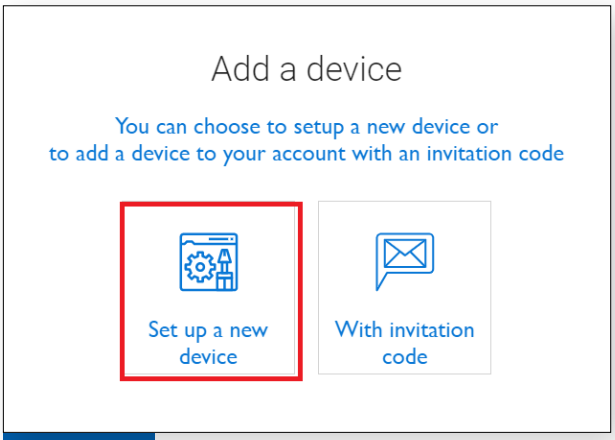


Figure 17

Select ***Set up a new device***.

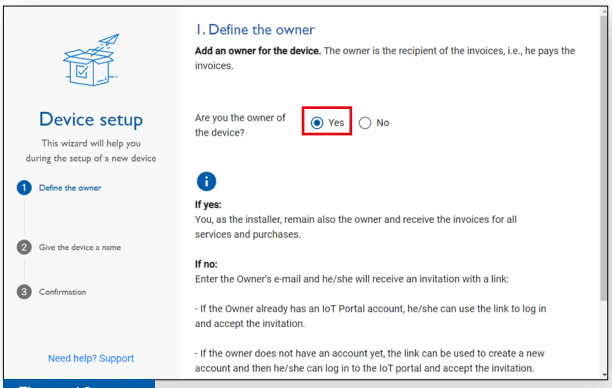


Figure 18

Select ***Yes***, because you are the device owner.

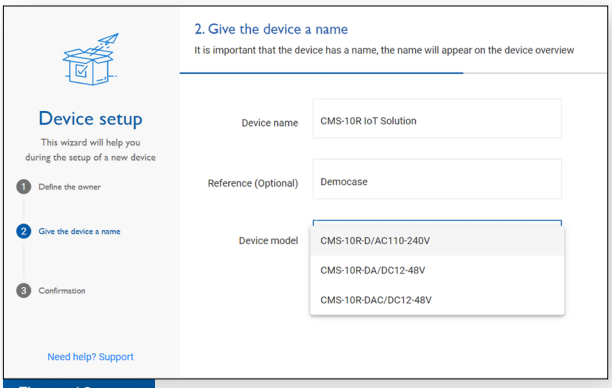


Figure 19

Give the device a name (max. 30 characters) and select the device model.

Optional, enter a reference to your device. You can assign the name of a building, a plant or a machine where the device is belonging to This reference is also shown in the overview of your devices and will be printed on the order confirmation and on the invoice of the service profile purchase.

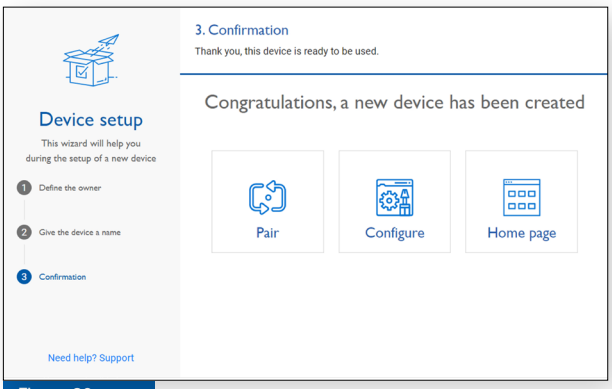


Figure 20

Select one of the next steps:

- Pair (see chapter 5.4)
- Configure (see chapter 5.8)
- Home page (switch to the devices overview) (see chapter 5.6)

5.3.3 Add a device with invitation code

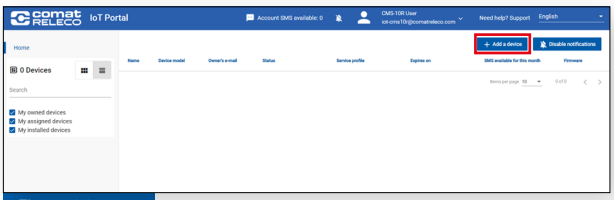


Figure 21

Once you have created a user account and logged in, the device overview appears.
You must answer any system question about whether notifications are allowed with ***Allow***.

Select ***+ Add a device*** to configure a new device.

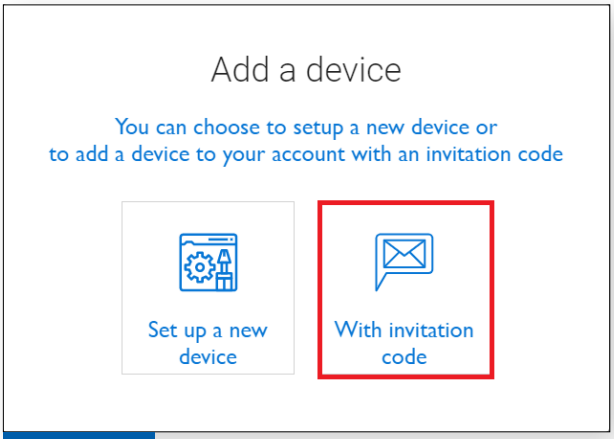


Figure 22

Select ***With invitation code*** if you have received an invitation code by e-mail or SMS from another user.

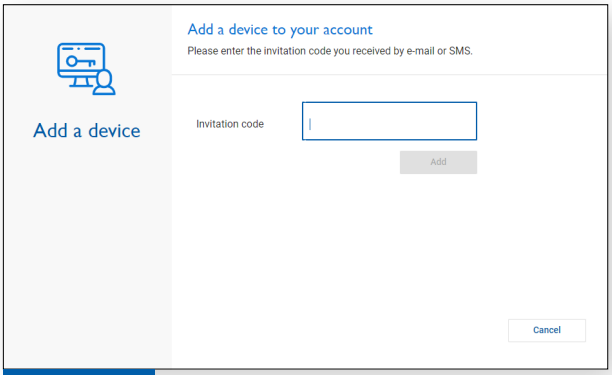


Figure 23

Enter the invitation code that you received by e-mail or SMS.

You will then be able to use the device.

5.4 Pair device

5.4.1 Pairing the device after device configuration (variant 1, preferred)

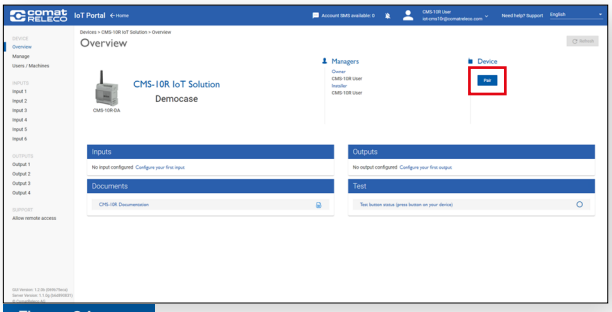


Figure 24

Select the desired device in the device view (Figure 33).
Choose ***Pair.***

Then continue with Figure 26.

5.4.2 Pairing the device after adding (variant 2)

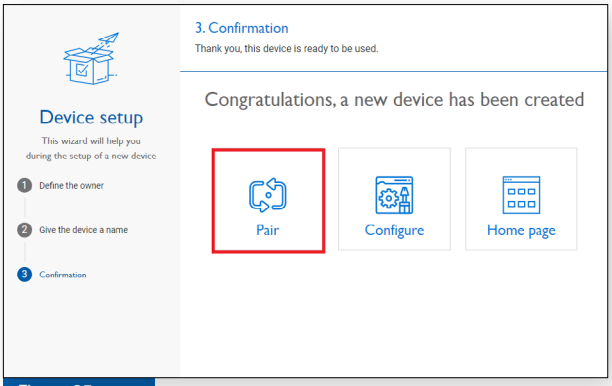


Figure 25

This is the last step of the ***Device setup*** procedure (see chapter 5.3)

Choose ***Pair.***

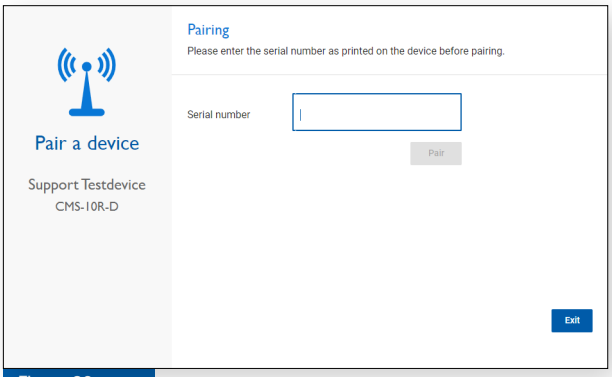


Figure 26

Enter the device serial number.

The serial number can be found on the label on the front of the device (see Figure 2 (6)).

Example: 1939VS000096

The device must now be connected to the power supply and in operation.

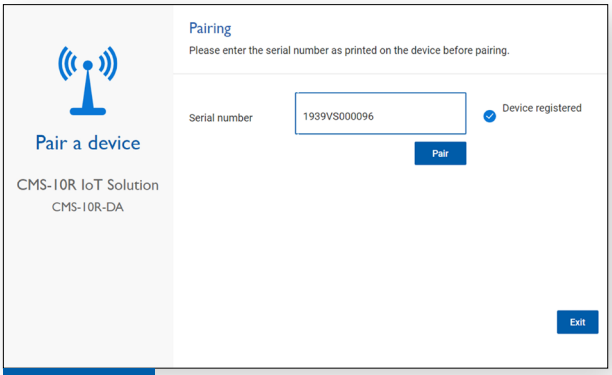


Figure 27

If you have entered a valid serial number, the ***Device registered*** information appears to the right.

Choose ***Pair.***

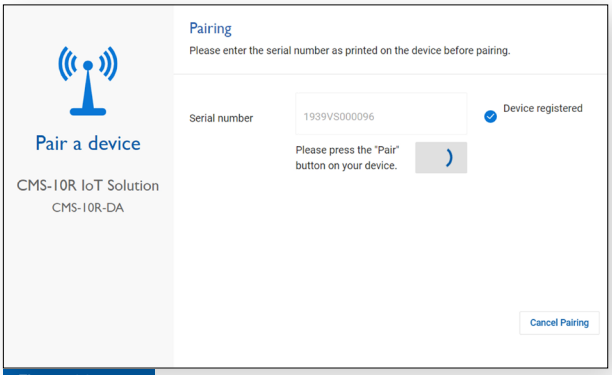


Figure 28

Press the ***Pair*** button on the device (Figure 2 (**12**)) to acknowledge pairing.

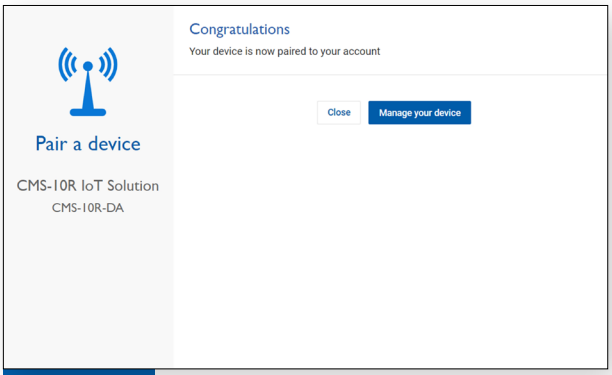


Figure 29

After successful pairing, select one of the next steps:

- Close ➔ back to the devices overview (chapter 5.6)
- Manage your device ➔ Configure device (chapter 5.8)

It can take up to 10 minutes before the status is displayed in the IoT Portal.

5.5 Set up service profile

A service profile must be selected after the device has been paired.
The service profile can only be selected and managed by the owner of the device.
For further information on the service profile, see chapter 5.8.6.

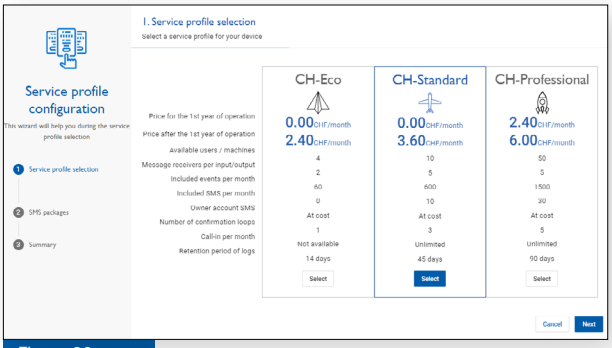


Figure 30

Select a service profile according to the functions you require.
During the one-year term of the service profile, you can switch to the next higher service profile at any time. It is only possible to switch to a lower service profile after the term has expired.

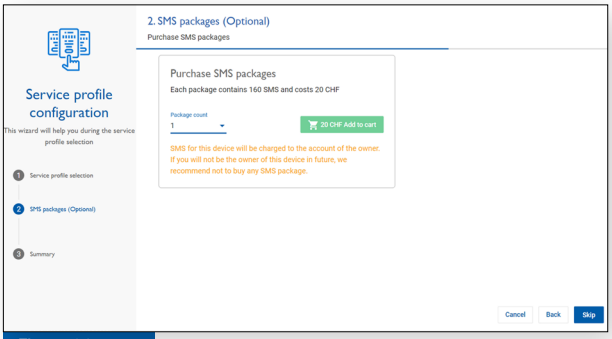


Figure 31

Select the desired number of SMS packages and add them to your shopping cart.
This step can be skipped.
SMS packages can be purchased later at any time. See chapter 5.8.6.4.

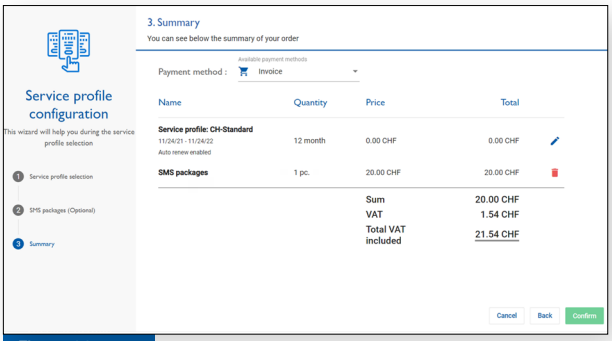


Figure 32

In this view (shopping cart) the costs are listed.
Select the payment method.
Then confirm the purchase with the ***Confirm*** button.

All invoices can be viewed and printed in PDF format at any time in the ***Service profile history*** (see chapter 5.8.6.6).

5.6 Devices overview

The devices overview is displayed in a device view or in a list (1) view. Different information is sometimes visible.

Device view

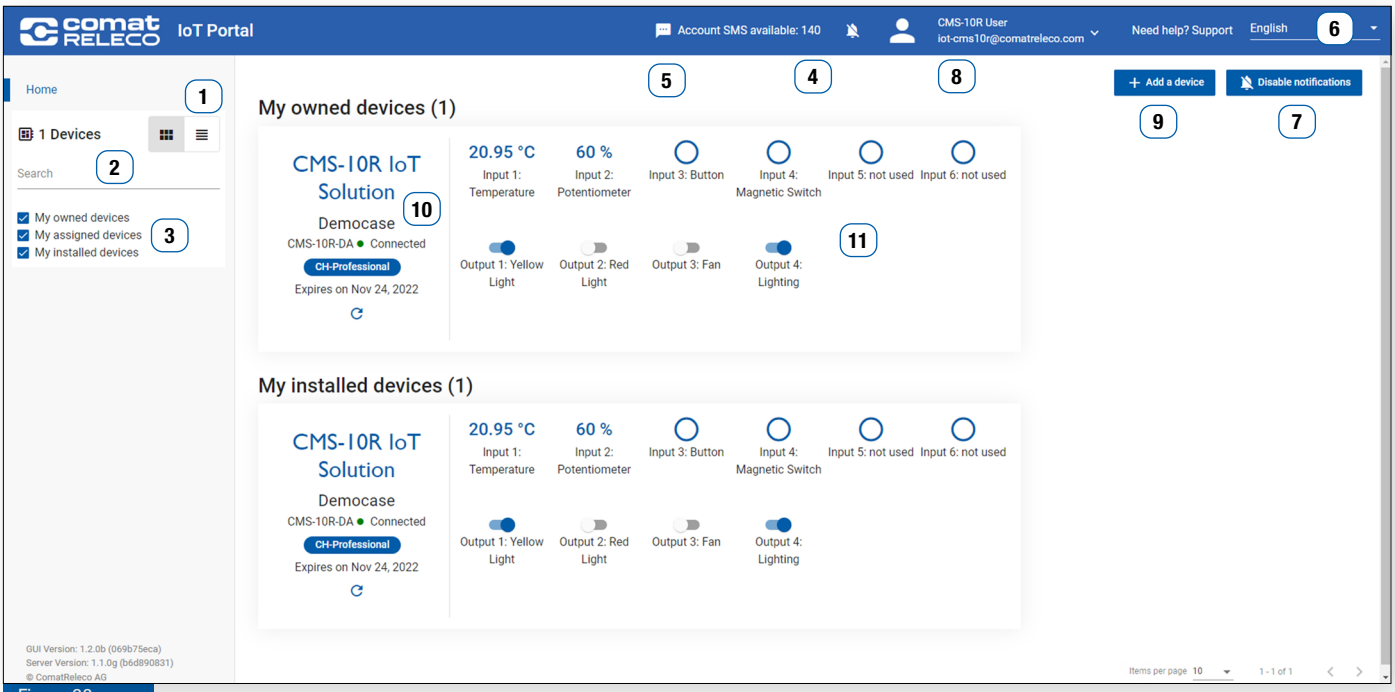


Figure 33

List view

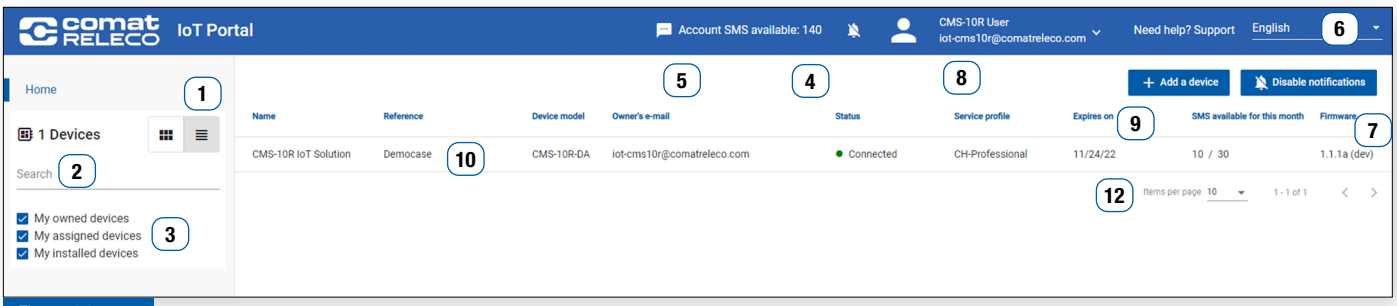


Figure 34

After successful configuration of a new device, the IoT Portal provides an overview of all devices. With ***Search*** (**2**) and a keyword, the corresponding device can be found. By ticking (3) ***My owned devices*** as the owner, ***My assigned devices*** as the user and ***My installed devices*** as the installer, the devices can be filtered.

1. Switching between device view and list view
2. Search field for device search
3. Filter criteria for displaying the devices
4. The number of remaining available SMS in the purchased SMS package is displayed.
   These SMS can be used by all devices that belong to the same owner.
5. Open the ***SMS Package*** menu (see chapter 5.7.3)
6. Select language for the IoT Portal
7. Activate/deactivate push messages
8. Account settings for the user account (see chapter 5.7)
9. Add a new device
10. Device overview with connection status, service profile.
    Open the ***Overview*** menu with a mouse click (see chapter 5.8.1)
11. Status overview of the inputs and outputs and direct on/off switching of the outputs
12. Device overview with connection status, service profile, available SMS, firmware version
    Open the ***Overview*** menu with a mouse click (see chapter 5.8.1)

5.7 Account settings

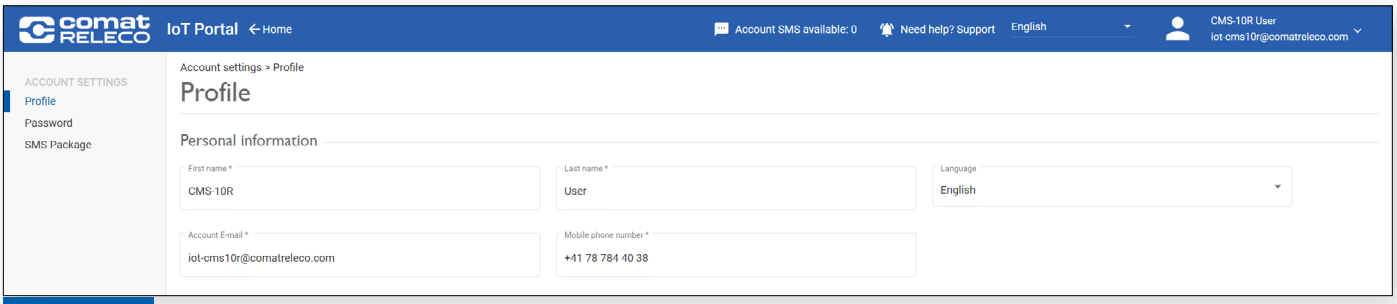


Figure 35

5.7.1 Menu: Profile

The account holder's details are entered/changed in this menu (see Figure 33 (**8**)).
Fields marked with an asterisk (*) must be filled in.
The entries for ***e-mail*** and ***mobile phone number*** are particularly important, are used for communication with the account holder.

Enter a dedicated billing E-Mail address if needed. All invoices related to purchased services will be sent to this billing E-mail address if indicated. If billing e-mail address is equal to account E-mail address, choose «Same as account E-mail address»-option.
Remark:
- The dedicated e-mail billing address can either be set on account creation or in the settings of an existing account
- The option «Same as account E-mail address» is activated by default

5.7.2 Menu: Password

The password for IoT access can be changed.

5.7.3 Menu: SMS package

Basically, a distinction is made between two SMS credit balances:

5.7.3.1 Service profile

The number of SMS available per month depends on the selected ***Service profile***:

Eco:	0 SMS per month
Standard:	10 SMS per month
Professional:	30 SMS per month

The service profile SMS can only be used for the associated device. No SMS packages can be purchased in addition.
For further information, see chapter 5.8.6.

5.7.3.2 SMS packages in the Account settings/SMS package menu item

The SMS packages purchased here belong to the ***Owner*** and can be used for all devices owned by this owner.
When the SMS of the service profile are used up, they are debited from the owner's SMS account.

If the credit for SMS (from the service profile and the account SMS) is 0, no more SMS can be transmitted!
In order to ensure that a transmission is always guaranteed, we recommend to activate the **Automatic purchase** of the SMS packages (see Figure 35).

The SMS packages are not transferable.
In order to ensure that a transmission is always guaranteed, we recommend to activate the Automatic purchase of the SMS packets. (see Figure 356).

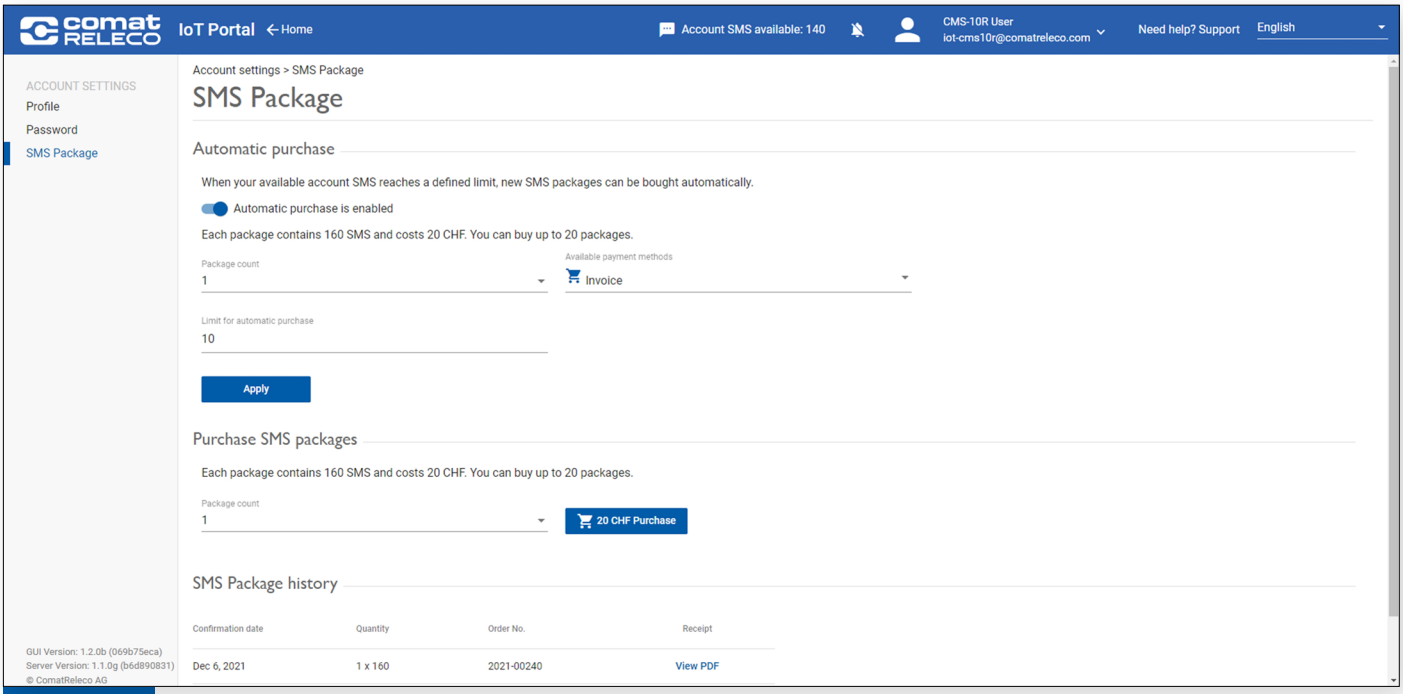


Figure 36

Automatic purchase
An automatic purchase of the chargeable SMS packages can be activated/deactivated.
The following entries are necessary:

- Desired number of SMS packages
- The payment methods
- The limit (minimum number of SMS) when the automatic renewal should be triggered.

If information is to be sent via SMS and to ensure that SMS packets can be sent at all times, this activation is recommended.

SMS packages purchase

One or more SMS packages can be purchased.
Select ***Purchase*** to add the amount to the shopping cart. Choose the payment method in the shopping cart. The payment can be initiated using the ***Purchase*** button.

SMS packet history

The SMS package purchases made are listed and in the ***Receipt*** column the invoices can be downloaded as PDF.

5.8 Configure device

5.8.1 Menu: Overview

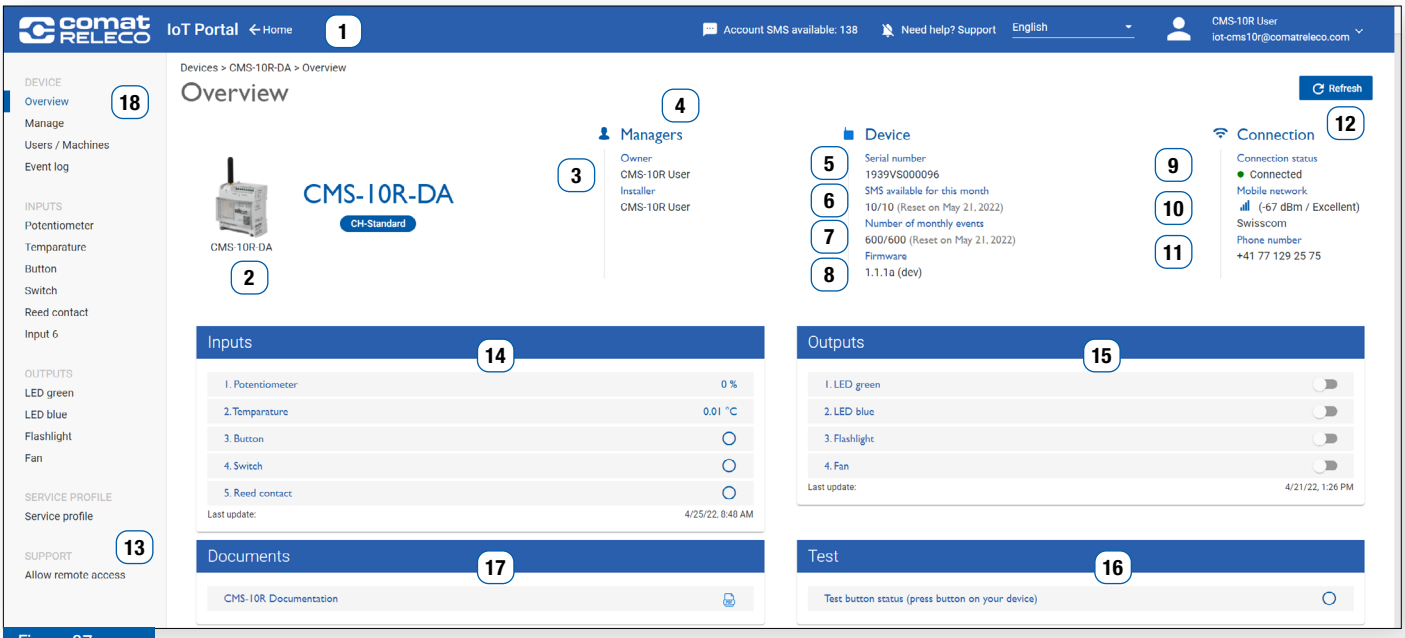


Figure 37

1. ***<-- Home*** button: back to the higher-level ***Devices overview*** menu (see chapter 5.6)
2. Device type
3. Device name and service profile (including device reference if entered)
4. Names of the device owner and the device installer
5. Device serial number
6. Number of SMS available in the current month (according to the selected service profile)
7. Number of events available in the current month (according to the selected service profile)
8. Firmware version and firmware status (current / update available)
9. Connection status of the device
10. Mobile network provider and signal strength display (1 - 3 bars)

Signal strength	2G [dBm]	3G [dBm]	4G [dBm]
Not connected	< -102	< -103.7	< -93.3
Poor	≤ -89	≤ -90	≤ -80
Good	> -89	> -90	> -80
Excellent	> -74	> -75	> -70

11. Device telephone number
12. Press the ***Refresh*** button to retrieve all the statuses of the device again.
13. Use the ***"Start support session"*** button to give the ComatReleco AG support team of permission to access your device for one hour in case of a problem.
14. Status of inputs
15. Status of the outputs (can be switched on/off directly if the corresponding authorizations are available)
16. Status of the ***Test*** button (on the device)
17. Various documents can be accessed online
18. Menu list

5.8.2 Menu: Manage

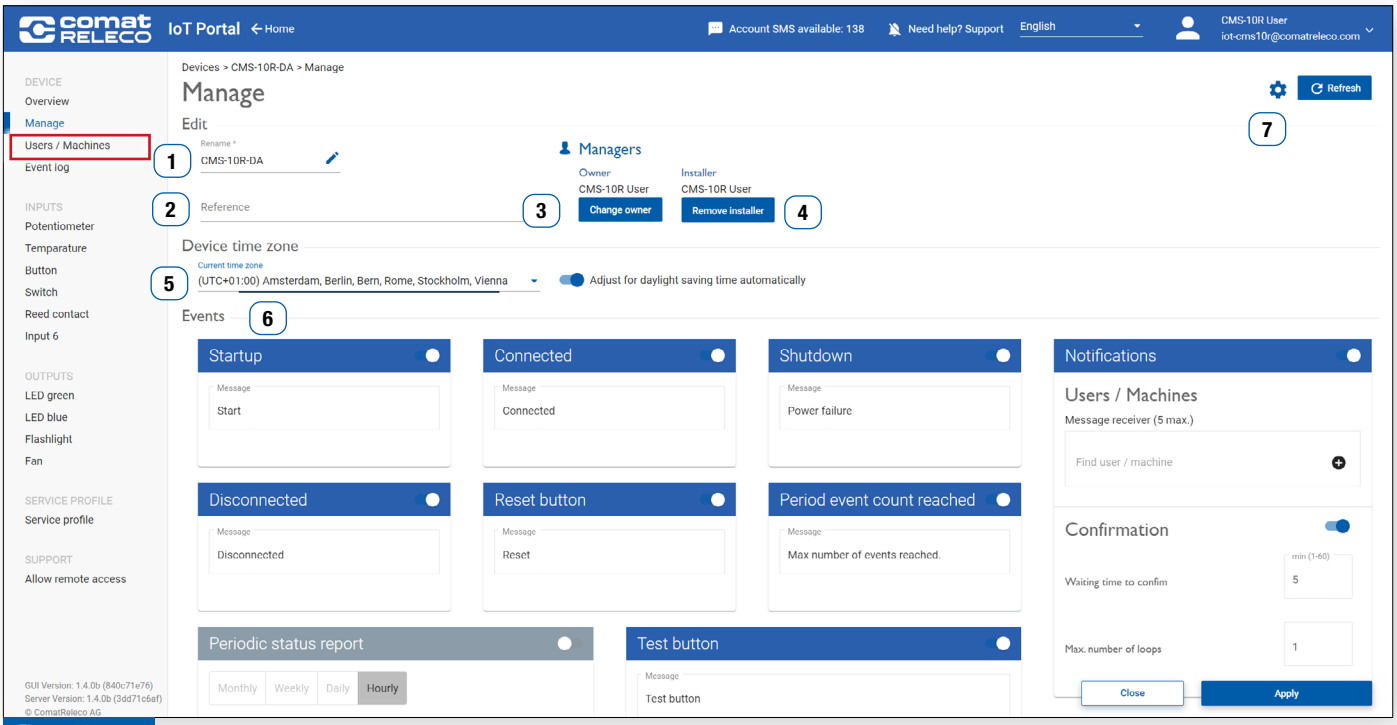


Figure 38

1. Change the device name
2. Change device reference
3. Change owner (only the owner can perform this) (see chapter 5.8.2.1)
4. Remove installer (can be done by the owner and the installer). If the installer has been removed, the ***Add installer*** button appears (see Chapter 5.8.2.1).
5. Current time zone and DST: Set the current time zone where the device is located and choose the option to automatically change the DST.
   Remark:
   • When a new device is created, the time zone is set to Universal Coordinated Time (UTC) by default and must be adapted accordingly. By changing the time zone to another than UTC, DST is automatically activated, but can be disabled afterwards.

   This entry is important so that the time entered in the ***Manage*** menu and the ***Inputs*** menu in the ***Periodic status report*** function corresponds to the time at the device location.
6. Configure events (see chapter 5.8.2.2)
7. Manage device (see chapter 5.8.2.3)

5.8.2.1 Change owner / Remove installer

A new owner can be defined with the ***Change owner*** button (Figure 38 (**3**)).
Case A) If the new owner already has an account on the IoT portal, he will receive an invitation to the owner by e-mail. This contains a link to accept or reject the invitation.
Case B) The new owner does not yet have an account in the database of the IoT portal. He will receive an owner invitation by e-mail in which he is asked to create an account before he can accept or reject the invitation by clicking on the link.
The invitation is valid for 30 days. After that it is set to ***Ignored*** and is no longer valid. As long as the new owner has not accepted the invitation, the current owner remains active.
The installer can be removed with the ***Remove Installer*** button (Figure 38 (**4**).
This function can be used when the installer has completed his installation and configuration tasks and no longer needs access to the device.

5.8.2.2 Configure events

With ***Configure events*** (Figure 38 (**6**)), notifications can be sent using the following three notification options:

- E-mail
- SMS
- Push message

Not all special characters can be used in SMS messages. These special characters are recognized and displayed via an error message. They must be removed.

The events can be activated or deactivated as desired with the slide button on the right of the respective bar.

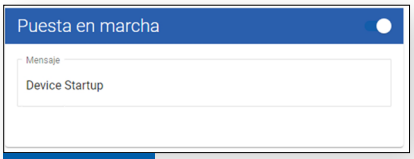


Figure 39

Startup
The entered message is sent after the device is started up.

Startup is executed when:
- you restart the device yourself (***Reset*** button on the device)
- the device is restarted (due to a firmware update or possible problems)

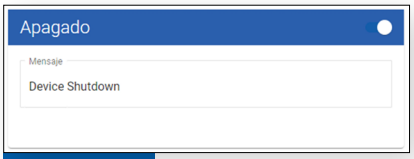


Figure 40

Shutdown
The entered message is sent after a power failure or a restart (power failure, watchdog, manual reset and firmware download).
This message is sent before the device switches off.

Short power failures (t < 1s) are not detected by the power supply and do not lead to any changes in the status of the device.
Longer power failures (longer than 1s) are detected and, depending on the setting, lead to the sending of an e-mail-, push- or SMS message. The device then switches itself off.
In the event of a power failure, after the device is automatically restarted and logged into the mobile network, the initial states are restored to the status before the failure.

Since these are monostable output relays, the relays are closed during the duration of the power failure: e.g. contact 11-14 = open, contact 11-12 = closed.

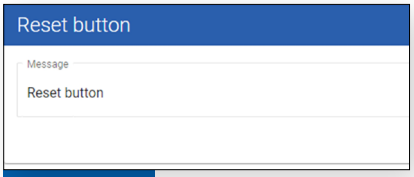


Figure 41

Reset button
The entered message is sent after pressing the Reset button on the device.

Case A) short press (< 4 s) = restart
To perform a manual restart, the Reset button must be pressed for less than 4 seconds.
The device will do a safe shut down and will reboot afterwards. It can take up to a minute.
Events: Reset button, Shutdown, Disconnected, Connected and Startup.
The Events must be enabled under Manage.

Case B) long press (> 4 s) = forced hardware-reset
If the Reset button is pressed for more than 4 seconds the hardware reset is forced and the device will restart immediately.
Events: Reset button, Shutdown, Disconnected, Connected and Startup.
The Events must be enabled under Manage.

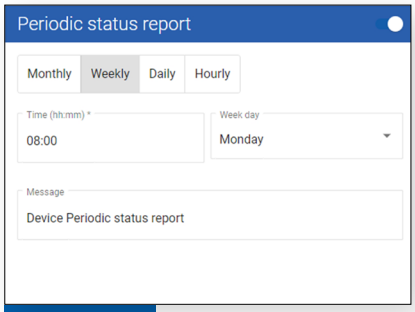


Figure 42

Periodic status report
This function is used to monitor the operation of the device.
In addition to a message, when the device should report can be set.

Every hour:
The reference time is 00.00h. Example: a message every 5 hours is sent at 00.00h, 05.00h, 10.00h, 15.00h, 20.00h and then again at 00.00h.

Daily, weekly, monthly:
The entered time is the time at the device location. By entering the UTC time (***Manage*** menu), the time is automatically converted correctly, depending on the device location and the summer time/winter time.

➢ Note that the number of events available each month is not exceeded (see Figure 37 (**7**)), as a large number of events are triggered, especially for short intervals.

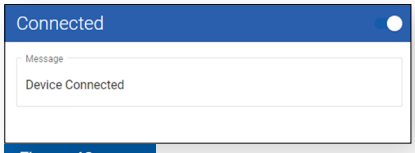


Figure 43

Connected to the IoT Portal
The entered message is sent when the device is connecting to the IoT Portal.

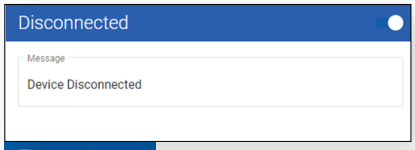


Figure 44

Disconnected from the IoT Portal
The device runs in fallback mode (see chapter 3.7.)
The entered message is sent when the device disconnects from the IoT Portal.

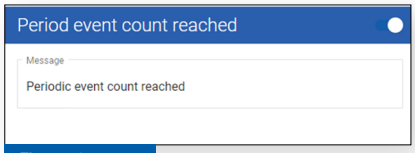


Figure 45

Period event count reached
If the maximum number of events (depending on the selected service profile, see chapter 5.8.6) is reached, this is the only message that is sent even without event quota. This message is only sent once unless the device is restarted.

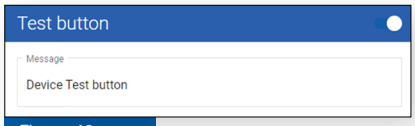


Figure 46

Test button
The entered message is sent as soon as the ***Test*** key (Figure 2 (**11**)) on the device is pressed.

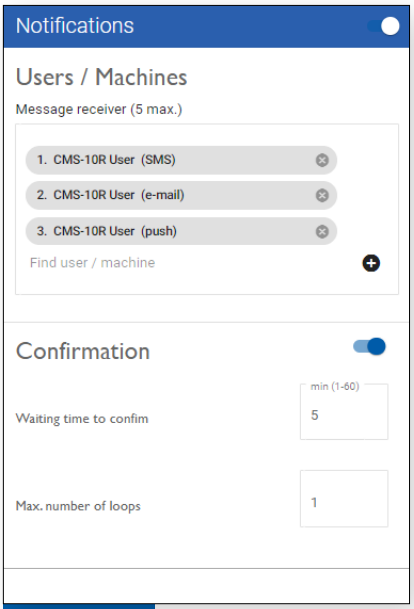


Figure 47

Notifications
Here you can use (**+**) to select who is to receive the activated messages and via which channel. If there are several receivers, this is referred to as an ***Escalation chain***, provided that the ***Acknowledgement*** is switched on.
e-mail-, push- or SMS messages can be combined.
The order of the users/machines can then be changed with the mouse using drag & drop.

- The ***Eco*** service profile contains a maximum of two message recipients.
- The ***Standard*** and ***Professional*** service profiles contain a maximum of five message recipients.

Acknowledgement
If acknowledgement is ***Activated*** and the recipient does not acknowledge receipt via e-mail-, push- or SMS message within the set waiting time, the event message is sent to the next recipient. The IoT Portal processes the assigned recipient numbers cyclically and then starts again with the first number. Once the device receives an acknowledgement, the process is stopped.
Depending on the service profile, the recipient numbers are called up several times until confirmation is received.

Eco service profile:	max. 1 pass
Standard service profile:	max. 3 passes
Professional service profile:	max. 5 passes

If the acknowledgement is ***Not activated***, all listed recipients receive a message at the same time without repetition.
The waiting time for acknowledgement can be set between 1 and 60 minutes.
This function window is also available for the inputs and outputs.

If the IoT Portal is already open when you acknowledge, a new browser window opens.
In fallback mode, the acknowledgement code is as follows: code
The following message of acknowledgement is sent to all message recipients: OK: Mobile phone number

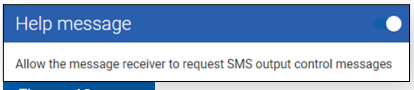


Figure 48

SMS output control / help message
The message receiver can be allowed to request an output control message via SMS.
To do this, the receiver sends the ***Help*** message via SMS to the phone number of the device (see Figure 37 (**11**). Afterwards, the current SMS control messages of all outputs (see Figure 63 (**5**)) whose message is activated are sent back to the message recipient.
Any user can request an output control message, even if they are not entered in the ***Message receiver*** window.

After the settings have been made, they must be applied with the ***Apply*** button.
If you press the ***Close*** button, the settings are not applied.

5.8.2.3 Manage device

The cogwheel icon (Figure 38 (**6**)) offers you the following settings options:

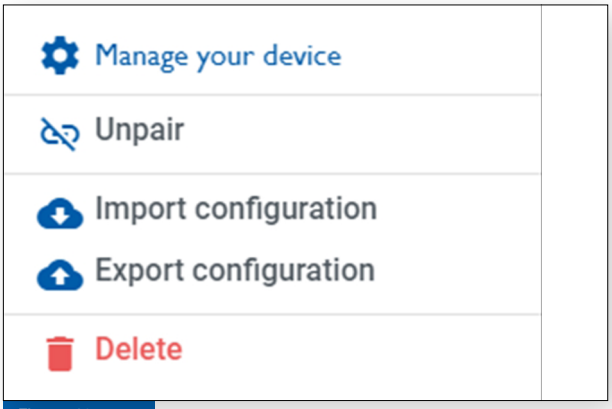


Figure 49

- Unpair the device from the owner account. The device can then no longer be used. It can take up to 10 minutes before the status is displayed in the IoT Portal.
- Import configuration
  (e.g. from an old CMS-10 or another new CMS-10R device)
  When importing a configuration, all values must be checked again afterwards!
- Export the current configuration (as a backup of the configuration, or to transfer it to another device)
- Delete the device
  (devices must be unpaired first)
- Perform a firmware update for the device (see chapter 5.9)

Import configuration

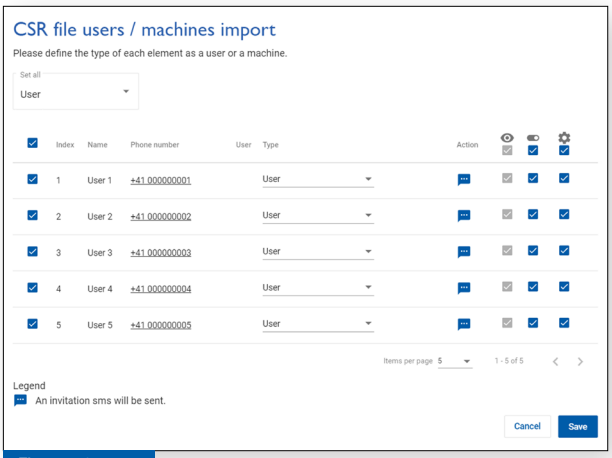


Figure 50

When importing from an old CMS-10 device, the type (user or machine) and rights (view status, control device, manage device) can be set individually or for all of them.

Under Action a note appears when an invitation SMS is sent to the corresponding number.

5.8.3 Menu: Users / machines

The device can be configured with the role of either ***Installer*** or ***Owner***.
See chapter 5.1.3.

In this menu all registered users and machines are listed.

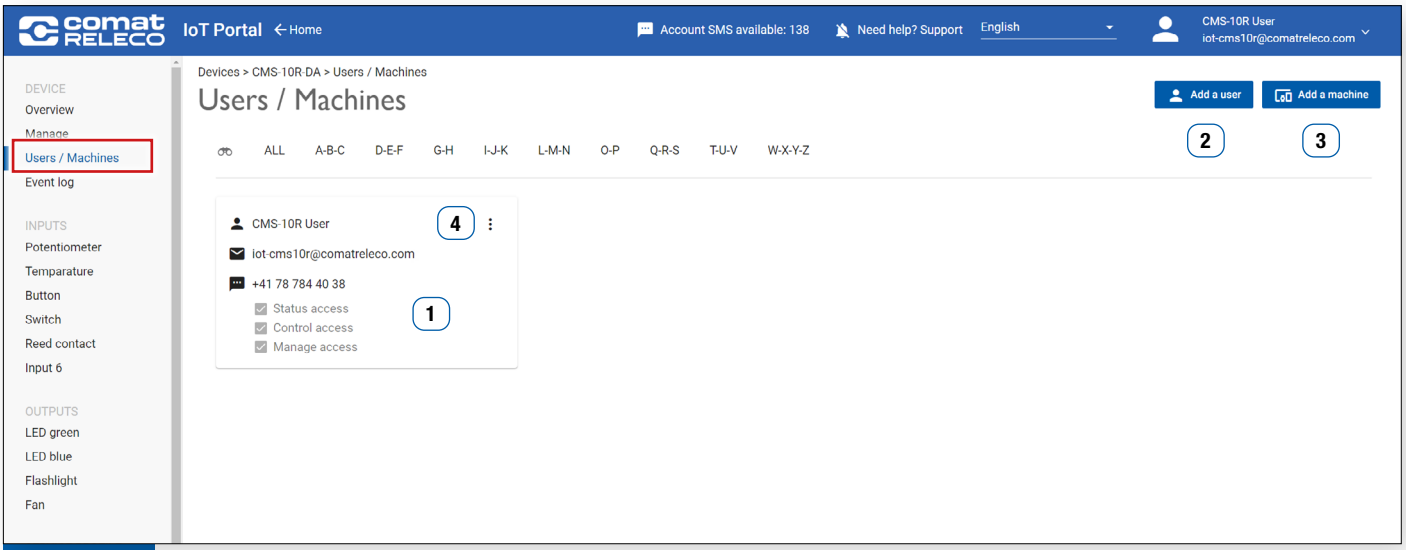


Figure 51

1 Business card per user
2 Add a user
3 Add a machine
4 Menu item Edit user / Delete user

5.8.3.1 Add/edit users

The maximum number of users depends on the selected service profile.

The following rights can be selected per user/installer:

Rights	Possible functions
Status access	• sees all states of the inputs and outputs (***Overview*** menu) • can receive and acknowledge messages
Control access	• sees all states of the inputs and outputs (***Overview*** menu) • can receive and acknowledge messages • can control the relay outputs
Manage access	• sees all states of the inputs and outputs (***Overview*** menu) • can receive and acknowledge messages • has full access to all management options

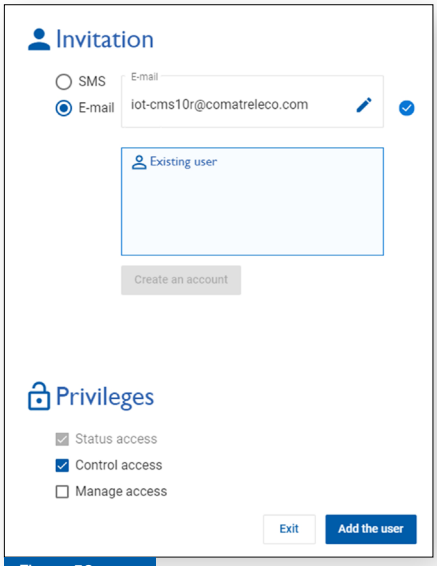


Figure 52

Press the ***Add a user*** button (Figure 51 (**2**)) to open this window.

Select the desired communication method (SMS or e-mail) and enter the mobile phone number or e-mail address.

Select the desired rights for the user.
The functions of the different rights can be found in chapter 5.8.3.1.

Case A) If the user already has an account in the IoT Portal, he is added immediately by clicking on the ***Add user*** button.

Language selection for invitations
When inviting a new user, you can select the invitation language. However, only if the invited user does not yet have an account. This option is also available when you send an invitation to change the device owner.

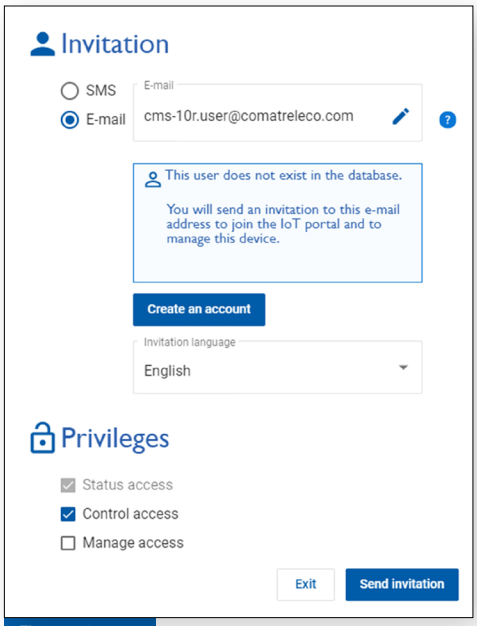


Figure 53

Case B) The user does not yet have an account in the IoT Portal database.

Select the desired rights for the user.
The functions of the different rights can be found in chapter 5.8.3.1.

Case B1: Select ***Send invitation***. The user receives an SMS or e-mail with an invitation code to log in to the IoT Portal and add a device with the code.
The invitation to the user is only valid for 30 days. The invitation must then be sent again under ***User*** (see chapter 5.8.3.1, Figure 54).

Case B2: Select ***Create account***. Then you have to fill in the necessary information and create the account for the new user directly. The user receives an e-mail with its login credentials and a link to confirm his account.

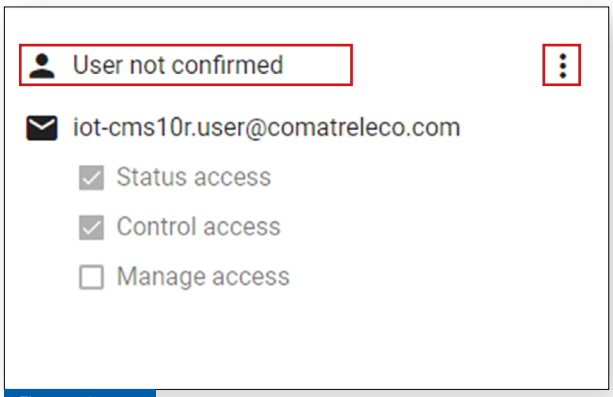


Figure 54

Unconfirmed user
As long as the invited user has not confirmed his account, his business card will say ***User not confirmed***.

The e-mail or SMS with the invitation code can be resent via the ***Edit*** menu item.

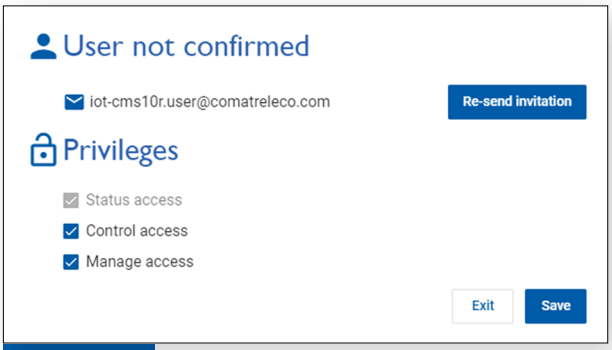


Figure 55

Change user rights

This window is called up on the business card via the ***Edit*** menu items (Figure 51 (**4**)).

The rights can be selected.
The functions of the different rights can be found in chapter 5.8.3.1.

E-mail address and telephone number must be changed in the respective user account (see chapter 5.7.1).

5.8.3.2 Delete user

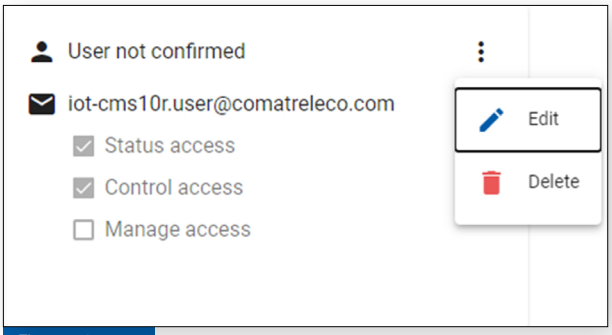


Figure 56

Delete user

With the ***Delete*** menu item, the business card of a user and thus access to the device can be deleted after a security prompt.

5.8.3.3 Add/Edit/Delete Machine

For example, a machine can be a telephone server, alarm server or pager system.
Messages from the device can be sent to such a machine, which in turn can automatically forward the messages to various recipients (on-call service, etc.)

Only the message text is sent to a machine via SMS, without the names of the device and inputs/outputs and without values and units of the analogue inputs.
When sending e-mails, however, the same information is sent as to a user.

The SMS are sent from the telephone number +41 79 807 20 06 in Switzerland and +1 91 7746 07 51 abroad.

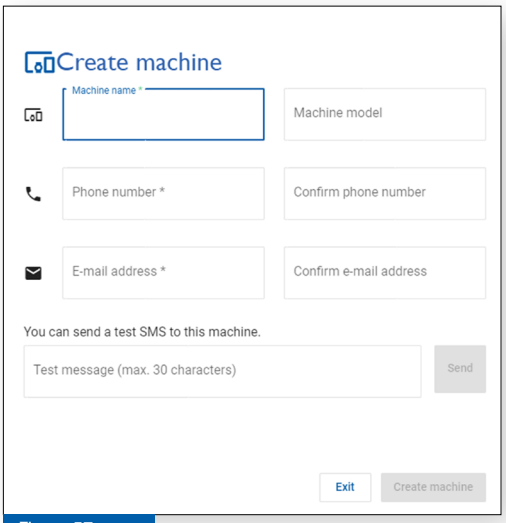


Figure 57

Add machine

Use the ***Add a machine*** button (Figure 51 (**3**)) to open this window.

For a machine, the telephone number or e-mail address must be entered. In the second field it must be confirmed, because the machine cannot answer a confirmation e-mail like the user.

In the lower area a message (test SMS) can be sent to the machine for checking purposes.

By default, the message to a machine is sent using the UCS2 character set. If only characters from the GSM7 character set are sent, only the GSM7 character set is used.

The phone number configured for a machine can be any phone number including landline/fixed phone numbers.
Note: Be aware in any case the SMS will be sent but may not be received by the recipient!

5.8.4 Inputs

The device type that is defined when a new device is created determines the configuration options of the inputs.

Type	Scope of functions
CMS-10R/D	6 Digital voltage inputs Input voltage range: 0 - 240 V ~
CMS-10R/DA	6 digital or analogue voltage inputs (switchable) Input voltage range (digital): 0 - 48 V ⎓ Input voltage range (analogue): 0 - 10 V ⎓
CMS-10R/DAC	4 digital or analogue voltage inputs (switchable) Input voltage range (digital): 0 - 48 V ⎓ Input voltage range (analogue): 0 - 10 V ⎓ 2 current inputs (I5 and I6) 4 - 20 mA ⎓

The inputs are sampled at 10 Hz per channel, i.e. if a signal is present at the input for less than 100 milliseconds, it is not detected.

5.8.4.1 Configure digital inputs

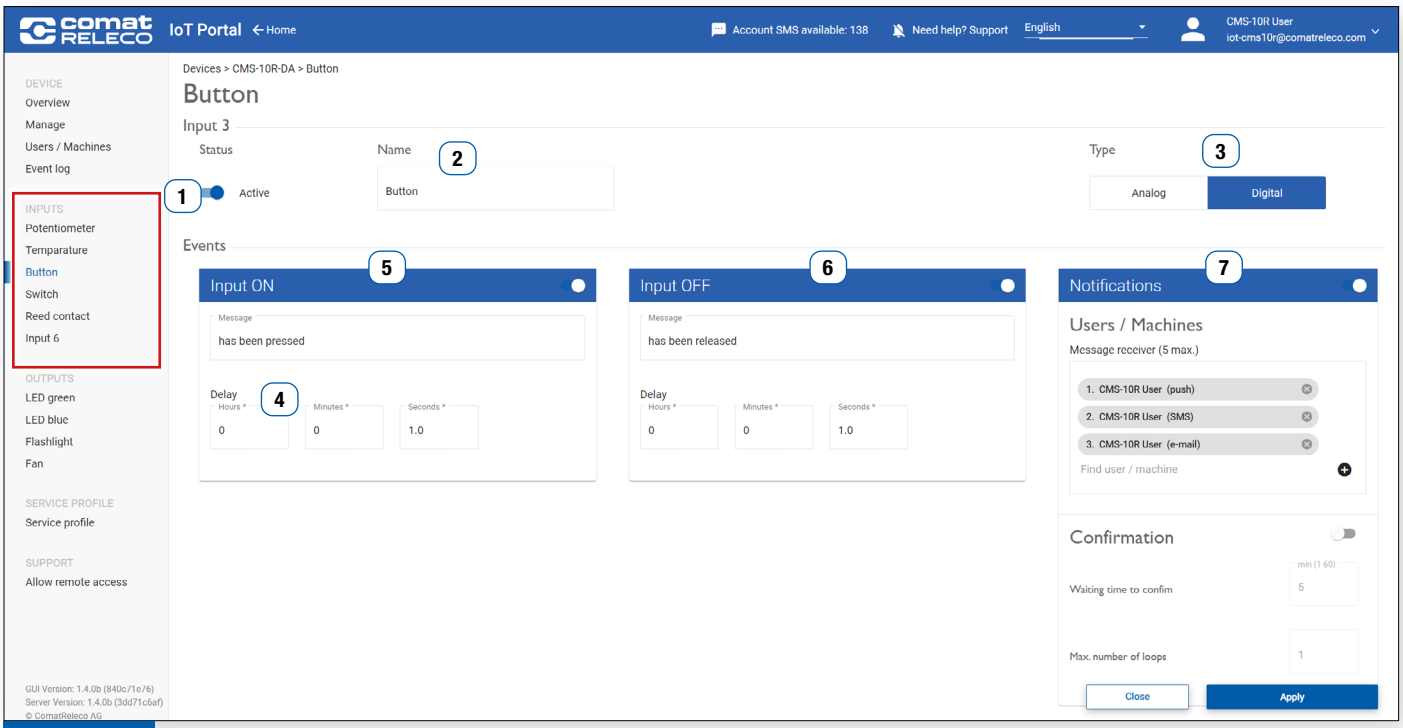


Figure 58

1. Activate or deactivate input
2. Enter input name
3. Select type of input depending on the device type (digital or analogue / digital is preselected)
4. Event message delay for digital and analogue inputs
   A message delay time can be set for each event of the digital inputs and for every threshold of the analogue inputs. Thus, the message is only sent to the user after this delay time has elapsed. The delay time can be entered in hours, minutes, and seconds.
   Remark:
   - The message delay values limits are as follows: 0-99 hours, 0-59 minutes, 0-59.9 seconds (99:59:59.9 at max.)
   - The minimum value is 0.5 seconds. The default value is 1.0 second.
5. Message if input is controlled (input high)
6. Message if input is not controlled (input low)

7 Message receiver: use (**+**) to select who is to receive the messages and via which channel, and set the acknowledgement (see also chapters 5.8.2.2, Figure 47)

After the settings have been made, they must be applied with the ***Apply*** button.
If you press the ***Close*** button, the settings are not applied.

It may happen that several inputs change state at the same time. Individual messages are sent for each input for each activated event.

Each change of state at an input that leads to a message is processed in sequence according to its occurrence. Several messages can thus be triggered simultaneously. For example, the two states “Pump failure” and “Excess temperature” (2 separate inputs) are reported simultaneously. However, the messages are processed i.e. sent one after the other.

5.8.4.2 Configure analogue inputs

The desired inputs must be defined as "Analogue" here.
The analogue inputs are designed for a standardized voltage signal 0 - 10 V ⎓ or current signal 4 - 20 mA ⎓ compliant to IEC 60381-1/-2.
The resolution here is 12.5 mV ⎓ (or 20 µA ⎓) for the entire range.
To display the voltage input in another unit, such as temperature, enter the minimum and maximum values of the desired unit in the ***Value*** field.
The IoT Portal thus automatically converts the unit of voltage into the desired unit.

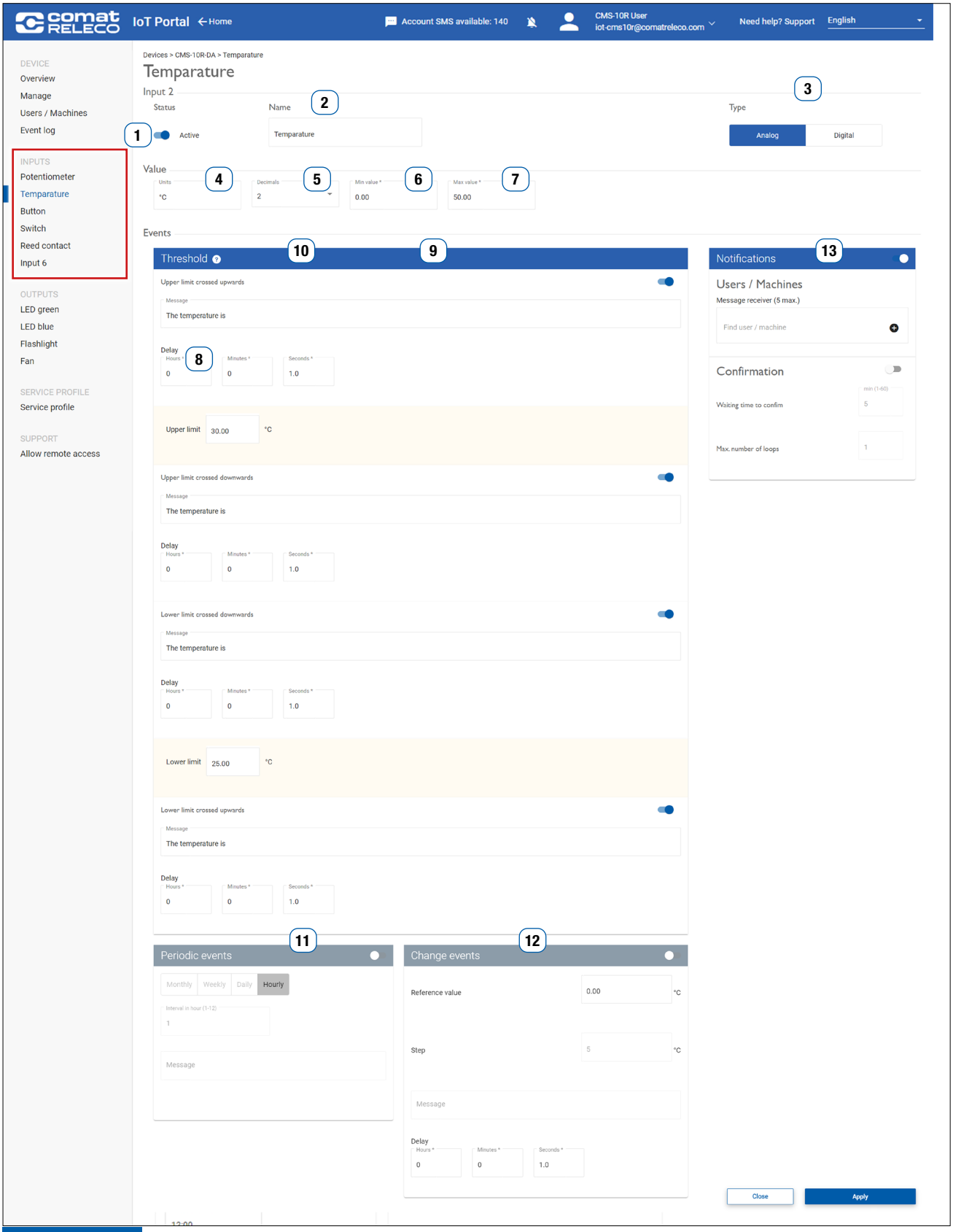


Figure 59

1. Activate or deactivate input
2. Enter input name
3. Select input type (digital or analogue) (depending on the device type)
4. Enter unit designation (m, V, °C, etc.)
5. Select number of decimal places displayed (0 - 3)
6. Enter the minimum value of the display value (corresponds to 0 V ⎓, resp. 4 mA ⎓)
7. Enter the maximum value of the display value (corresponds to 10 V ⎓, resp. 20 mA ⎓)
8. Delay window: The device only sends the predefined message after the set time if the signal is still present. This prevents unstable or repeatedly occurring input pulses (e.g. bouncing of a switch) from sending several identical notifications.
   Remark:
   - The message delay values limits are as follows: 0-99 hours, 0-59 minutes, 0-59.9 seconds (99:59:59.9 at max.)
   - The minimum value is 0.5 seconds. The default value is 1.0 second.
9. Enter the upper and lower limit value and the desired messages. Each of the four limit values can be activated/deactivated.
   The value and the unit of the analogue inputs is sent with the message.
10. A graphical view of the limit definition can be viewed via the question mark. To close the window, click on the graphic again (see Figure 62).
11. The activated messages can be sent periodically.
    In addition to a message, you can set how often the device should send the information (hourly to monthly).
    The input value and the unit are also transmitted. See also Figure 42.
12. Change events: another limit value can be defined at which a message is sent. This limit value can be within or outside the upper and lower limit value.
    The additional limit value is entered in the ***Reference value*** field.
    The value at which a message is to be sent is entered in the ***Step*** field.
    Example: Limit value = 7 V, step = 2 V → the message is sent when the voltage falls below 5 V or exceeds 9 V.
    The desired message is entered in the ***Message*** field.
13. Message receiver: use (**+**) to select who is to receive the messages and via which channel, and set the acknowledgment (see also chapter 5.8.2.2, Figure 47).

Analogue value processing: *Measured value is greater than limit value*:

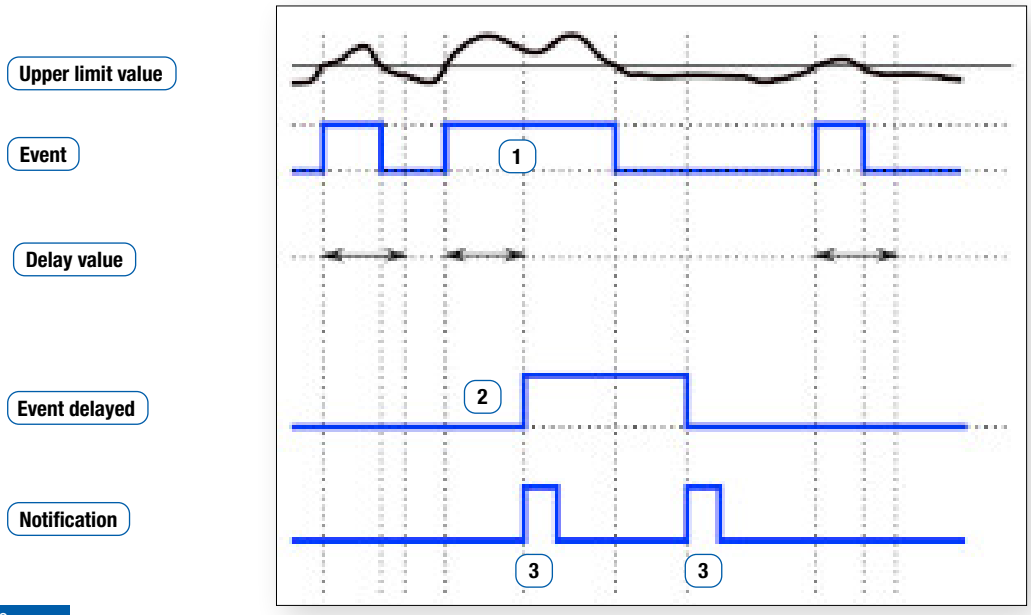


Figure 60

- The current measured value is above the upper limit value (1)

The event is only detected if the measured value has exceeded the upper limit value for longer than the delay value. The event is delayed by the delay value time (2). The display of the LED at the input is also delayed. Notification is given when the upper limit value has been exceeded and fallen below again (3).

Analogue value processing: ***Measured value is smaller than limit value:***

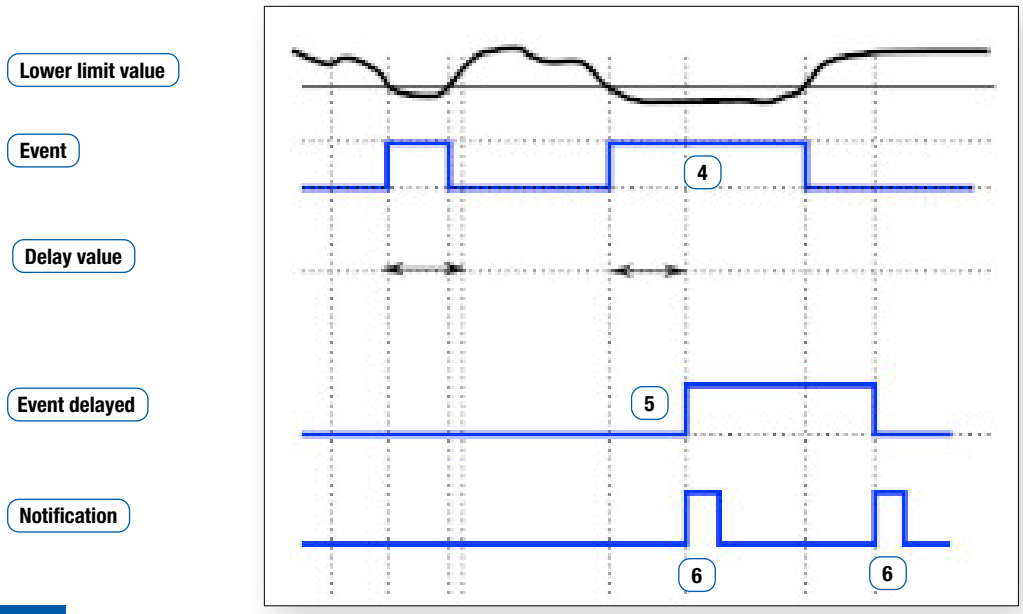


Figure 61

- The current measured value is below the upper limit value (4)
  The event is only detected if the measured value has fallen below the lower limit value for longer than the delay value. The event is delayed by the delay value time (5). The display of the LED at the input is also delayed. Notification is given when the upper limit value has been undercut and exceeded again. (6)

Graphical view of the interpretation of the limit values

This graphic is opened via the question mark (Figure 59 (**10**)) and is closed by clicking on the graphic.

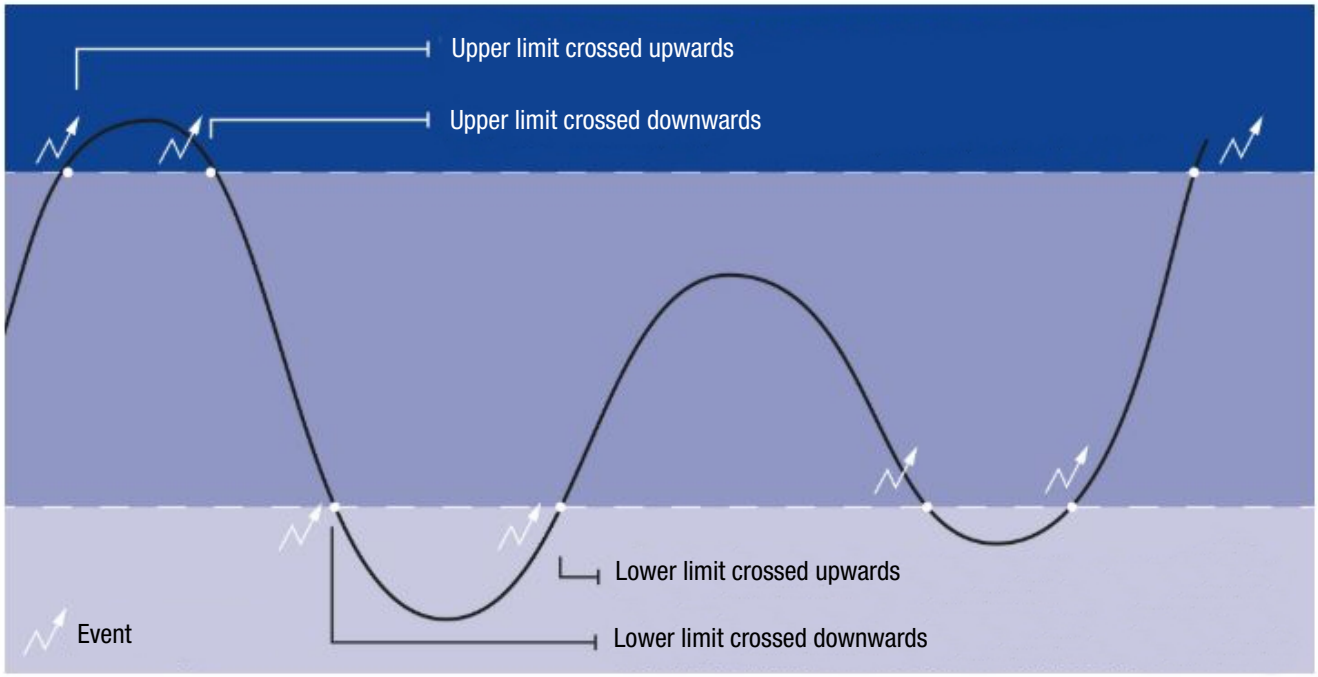


Figure 62

5.8.5 Menu: Outputs

WARNING

This device is not suitable for monitoring sensitive systems or time-critical processes. Mobile network failures or interruptions in the power supply can impair safe operation.

The four relay outputs can be switched on or off in the IoT Portal, via the app, via an SMS or via a call-in telephone call.

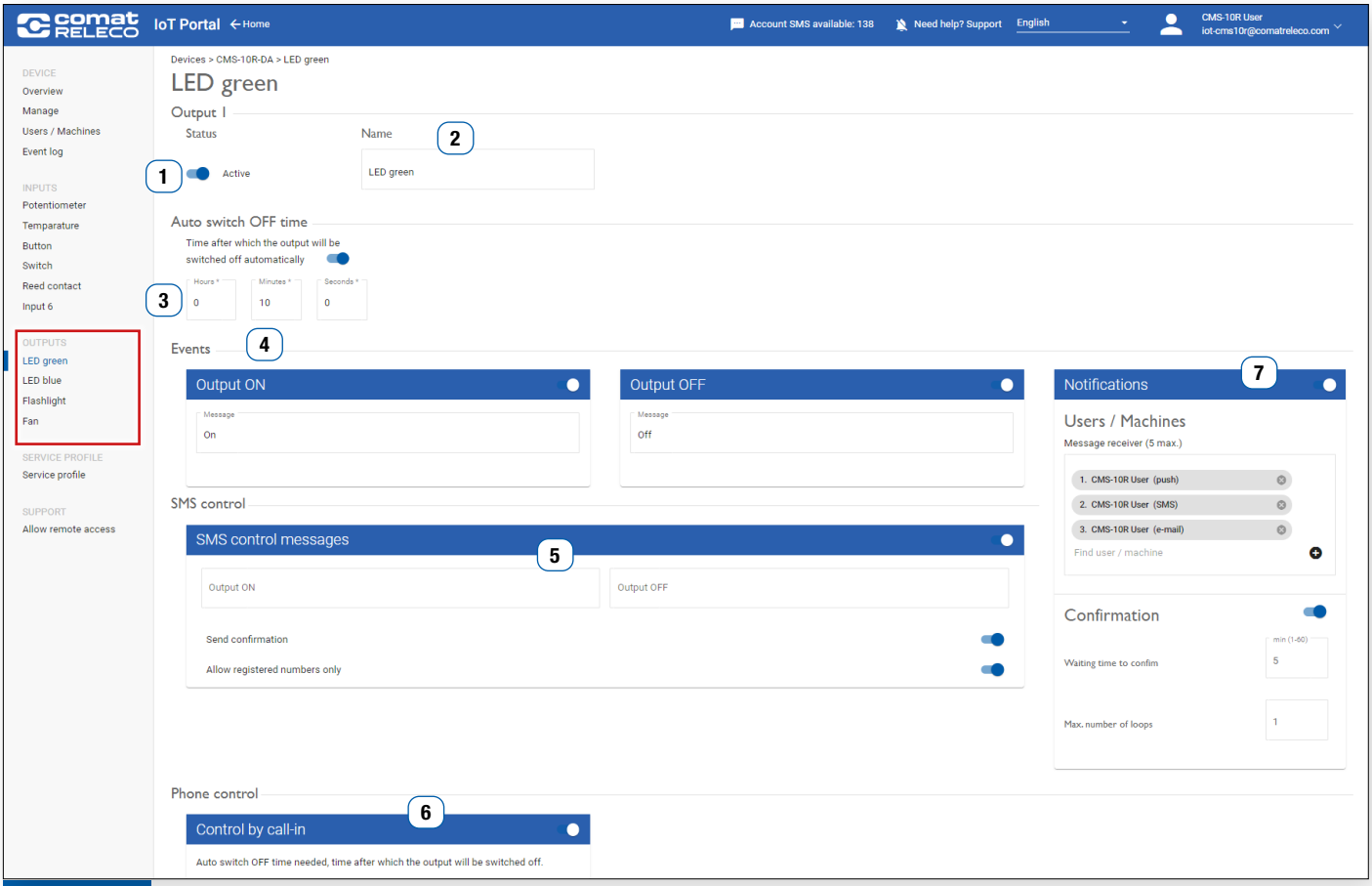


Figure 63

1. Activate or deactivate input
2. Enter input name
3. Auto turn off:
   An output is automatically switched off after an adjustable time without the need to send a switch-off command in the IoT Portal, in the app via SMS or call-in. The delay time can be entered in hours, minutes, and seconds. The delay value limits are the same as for the inputs. The minimum value is 1.0 second (default). If the output switches off after the set time has elapsed, a message is sent confirming this action. If a switch-off command is sent before the set time has elapsed, it will be taken into account. The ***time*** function (is deactivated by default), ***events*** and ***notifications*** shall be enabled.
4. Events:
   Each output can be activated or deactivated individually. The entered message is sent when the output is switched.

5 SMS control messages:
The output can be switched on and off via SMS text. However, the device only reacts to the exact wording, i.e. the message (switching command) in the SMS must correspond exactly to the wording in the ***Output on*** or ***Output off*** field. Upper and lower case are ignored. Spaces between words and other characters must be entered correctly.

Switch multiple outputs with the same SMS control message
This functionality refers to the configuration of the digital outputs and the settings SMS Control > SMS Control Messages.
You can use the same SMS control message to switch several outputs simultaneously. To do this, simply place the same message in the message field
(output on or output off) of each output and click on «Apply».
If this functionality is used, you will receive a warning that the same control message is being used on more than one output (see Fig. 63).
If a time is entered for ***Auto turn off*** (**3**), the output switches off automatically after this time.

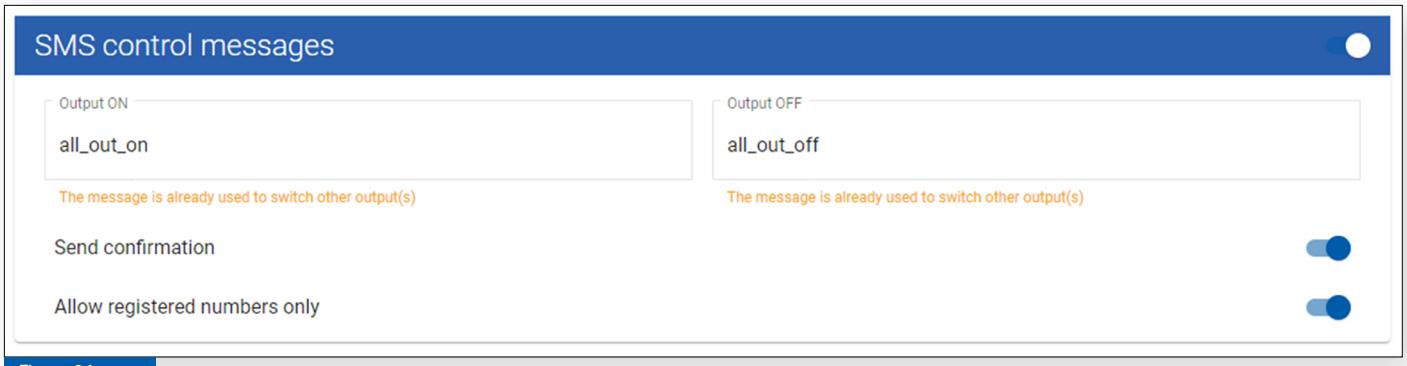


Figure 64

Not all special characters can be used in SMS messages. These special characters are recognised by the programming software and indicated by an error message and must be removed.

Note: You can use any control message:
- The character set is Latin 1 (max. 30 characters). For more information please see here.
- The semicolon (;) is not allowed.

With ***Send confirmation***, the device sends a message via SMS to the person who sent the switching command in the SMS, with ***Output ON*** or ***Output OFF*** .

With ***Allow only registered numbers***, only switching commands from phone numbers which are registered in the menu ***Users/Machines*** are considered.
When this function is switched off, the outputs can be controlled from any telephone number, provided the telephone number of the device is known. For security reasons, only registered telephone numbers should be considered if possible (function switched on)!

Examples:
Switch on all outputs simultaneously:
- Message in each input field (output on) ➔ «all_out_on».

Switch off all outputs simultaneously:
- Message in each input field (Output off) ➔ «all_out_off».

6 With the ***Call-in function***, each activated output is switched on by caller identification for the time entered in (**3**). The device detects the incoming call and switches on the outputs without answering the call. The outputs are automatically switched off again after the preset time (Automatic switch-off).
In this way, an action can be carried out without incurring any costs. The telephone number of the device can be found in the ***Overview*** menu (Figure 37 (**11**)).
The call-in function can only be triggered by mobile phone numbers that are registered in the menu ***User/Machines***.

To activate the ***Control by call-in*** field, the ***Auto turn off*** (**3**) of the output must be activated. If it is not activated, a message appears when the ***Apply*** button is pressed.

A call is answered by the device as a call rejection. Depending on the telephone provider, a busy signal is heard. However, the call-in function is still executed correctly.

7 Message receiver: use (**+**) to select who is to receive the messages and via which channel, and set the acknowledgment (see also chapter 5.8.2.2, Figure 47).

After the settings have been made, they must be applied with the ***Apply*** button.
If you press the ***Close*** button, the settings are not applied.

5.8.6 Menu: Service profile

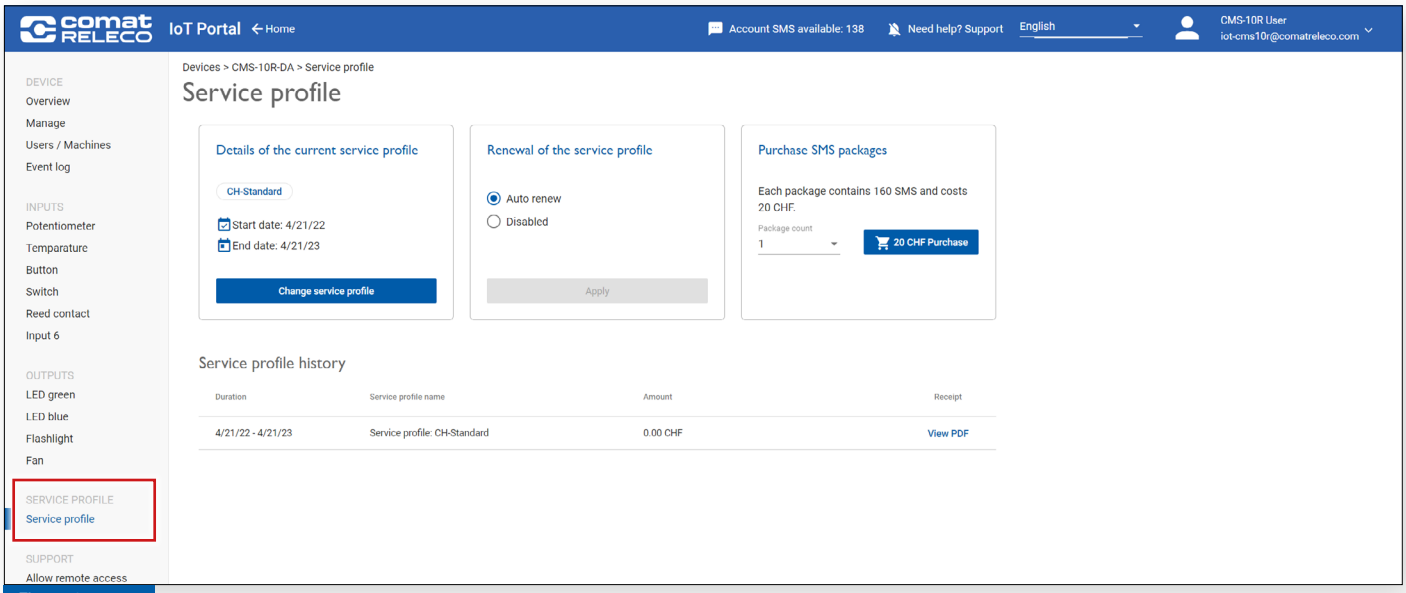


Figure 65

The ***Service profile*** menu item is only visible if you are logged in to the IoT Portal as the owner and have selected a service profile (see also chapter 5.5)!

5.8.6.1 Details of the current service profile

Select a service profile from different variants. This service profile and the contingents (e.g. SMS) contained therein are bound to the respective device.

The service profile starts to run from the first pairing with the device, even if the device was unpaired/paired at a later time. Stopping or interrupting during the term is not possible.

Once a service profile has been selected, a higher service profile can be selected at any time.
A downgrading to a lower service profile is only possible after the one-year contract period has expired.
In order to be able to perform a downgrade, the automatic renewal must be deactivated. If not, the same service profile is automatically renewed.

However, the service profile will run until the contract expires and cannot be cancelled.
Before the contract expires, you will be asked to renew the service profile. If the contract is not renewed, the device becomes inactive and can be reactivated by selecting a service profile.

5.8.6.2 Service profile extension

Select whether or not the service profile should be automatically renewed.
This function is activated by default. In order to ensure uninterrupted operation, we recommend that you leave the ***Auto renew*** function activated.

The service profile cannot be downgraded during the one-year term and can only be changed within 30 days after the service profile expires.
30 days after expiration, the device becomes inactive.
If the device is inactive, select a service profile so that the device can be activated again.

The following reminder e-mails are sent to the owner:

• 30 days before the renewal/expiry of the service profile	Reminder that the service profile will be renewed or expired. It can be renewed or modified within 30 days after the expiry of the one-year period.
• After renewal/expiry of the service profile	Reminder that the service profile was renewed or has expired. If it has expired the service profile can be renewed or modified within 30 days.
• 7 days before device being set to inactive	Reminder that after 7 days the device will become inactive if the service profile is not renewed or modified.
• 1 day before device being set to inactive	Reminder that after 1 day the device will become inactive if the service profile is not renewed or modified.

5.8.6.3 Cancellation of the service profile

The service profile can only be cancelled by the owner after expiry of the one-year term. Cancellation during the term is not possible. ComatReleco reserves the right to block the device in the event of provable misuse or non-payment of the amount owed for the purchased service profile. The device will only be unblocked again after payment of the outstanding amount owed.

5.8.6.4 SMS packages purchase

The SMS purchased here belong to the owner and can be used for all devices.
The number of available SMS per owner is shown in the devices overview (Figure 33 (**4**).
The invoices for the SMS packages you have purchased appear under ***Account settings/SMS package/SMS package history*** (see chapter 5.7.3).

5.8.6.5 SMS packages purchase

The SMS purchased here belong to the owner and can be used for all devices.
The number of available SMS per owner is shown in the devices overview (Figure 33 (**4**).
The invoices for the SMS packages you have purchased appear under **Account settings/SMS package/SMS package history** (see chapter 5.7.3).

5.8.6.6 Service profile history

In the ***Service profile history***, all invoices of the service profile are displayed and can be downloaded in PDF format in the ***Receipt*** column.

5.9 Firmware update

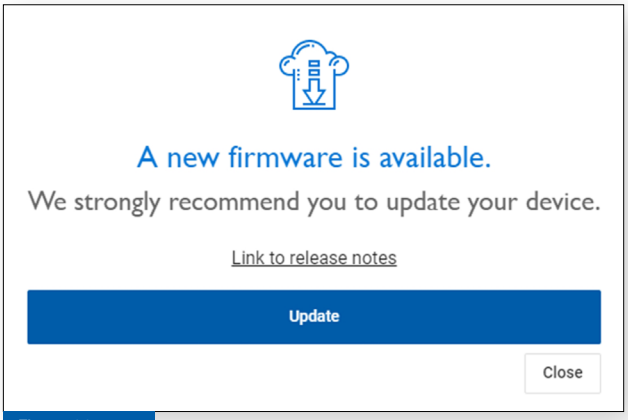


Figure 66

As soon as a firmware update is available, this pop-up window appears automatically. Press the ***Update*** button to start the update process.

The time for the update can be chosen freely, but should be carried out as soon as possible.

You will then be guided through the updating process. The update may take a few minutes.

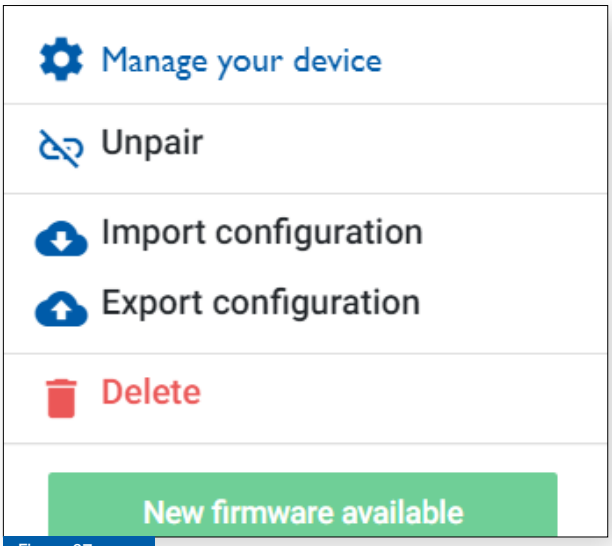


Figure 67

If the update was not started automatically, the settings window can be opened at the cogwheel symbol in the menu item ***Manage*** (Figure 38 (7)).
An available firmware update is displayed.

Click on the button ***New firmware available*** to execute the update. You will then be guided through the update process. The update may take a few minutes.

WARNING

During the installation of a firmware update the device is out of operation!
Make sure that the device is not used during installation.

6 Operation via smartphone or tablet

Tablet	Installing the app	For scope of functions and operation see chapter
	or	
	Open the IoT Portal in the browser	For scope of functions and operation see chapter 5
	(To use the IoT Portal in the browser, the app must be uninstalled!)	
Smartphone	Installing the app	For scope of functions and operation see chapter

We recommend always using the latest version of Android and Apple iOS.

Description of the app

Via the app, the states of the inputs can be viewed and the outputs can be switched on and off directly. In addition the following information can be modified: Update your profile (e.g. personal information and location), change the password, buy SMS packages and configure automatic SMS purchase.
If a new firmware version is available, selecting your device will prompt you to update it with the latest version. This option is only available for users with the <Manage> access right.
Device owners only: If no service profile has been selected for your device or the service profile has expired, you will be prompted to select a service profile. However, the upgrade must still be performed on a computer.
Device owners only: If you receive an invitation to be the owner of a device, you can now accept this invitation on your smartphone or tablet.

It is not possible to configure the device.

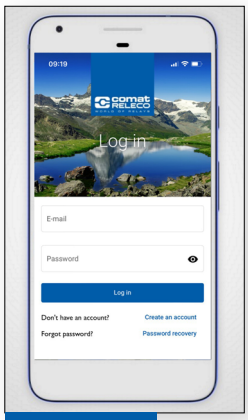


Figure 68

Install app
For tablets and smartphones with the operating systems iOS or Android the ***ComatReleco IoT Portal*** app is available for free download:
Apple Store: ➔ Link
Google Play Store ➔ Link

When setting up the app, you can log in with an existing account or create a new account.
The password can also be reset or a new password can be requested.

6.9.1 Overview

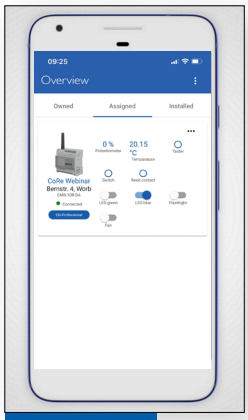


Figure 69

In the tabs below the menu bar the different types of devices (My owned/My assigned/My installed) can be displayed.

The device name, type and connection status are displayed on the left below the device display.

In the right half the values and status of the inputs are displayed and below the outputs can be switched on or off directly.

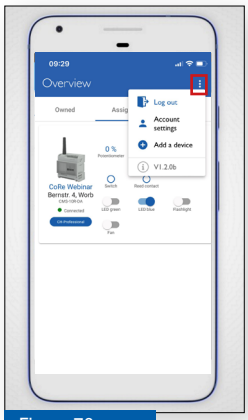


Figure 70

A pop-up window is opened via the three points in the menu bar.

Log out

Log out of the user account in the app.

Account settings

Profile: General account information and billing address (see chapter 5.7.1)
Password: Change existing password (see chapter 5.7.2)
SMS package: purchase a new SMS-package and configuration of automatic SMS-purchase (see chapter 5.7.3)

Add a device

You can add a device using the invitation code you received by e-mail or SMS. This is then also visible in the IoT Portal.

The version of the app is displayed at the bottom.

Status SMS message for inputs and outputs during operation

The status of all inputs and outputs can now be queried by a SMS message during operation. Send an SMS message «Status» to the phone number of the device.
The command «Status» is not case sensitive (e.g., Status, STATUS, status is accepted by the device). Only registered users/machines of a device can send the message, otherwise the device will not send the status information.

Following information will be sent back from the device:
SMS format for users
- Device name
- Input n: configured name: 0 or 1 for digital inputs, the actual value for analogue inputs followed by the configured unit
- Output n: configured name: 0 or 1

Disabled, not used inputs/outputs are not shown in the SMS.
SMS format for machines
<serial-number>;<timestamp>;<i1>;<i2>;<i3>;<i4>;<i5>;<i6>;<o1>;<o2>;<o3>;<o4>

Example:
1939VS000096;2021-08-12T13:15:21.000Z;0;1;x;54.1 %;28.97 °C;x;0;x;x;1
- Serial number (12-digit unique device serial number)
- Timestamp (in ISO 8601 format ➔ YYYY-MM-DDTHH:mm:SS.sssZ), time is displayed in UTC
- 0 or 1 for digital inputs and outputs
- actual value for analogue inputs followed by the configured unit x if the input/output is disabled, not used

Remark:
The SMS messages sent from the device will be deducted from the available SMS per month of the device (or when zero, from the owner's account). Depending on the device configuration, i.e. input/output names and parameters, the SMS can exceed the maximum of 160 characters and then, more than one SMS message will be sent.

6.9.2 Detailed views

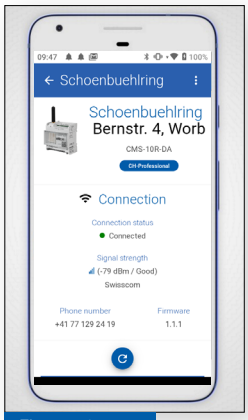


Figure 71

In the overview (Figure 67) on the left, tap on the device display to show the detailed view.

The connection status, signal quality and phone number of the device are displayed.
The display (or the input/output statuses) can be updated below.
The status of the inputs is displayed below.

Using your finger, swipe from bottom to top to view the additional information (Figure 70).

The time and date of the last change of an input or output is shown in status display.

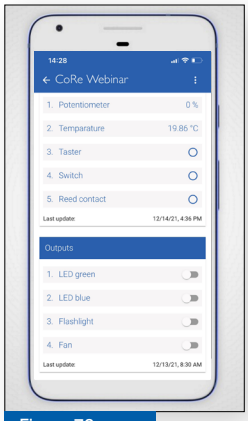


Figure 72

The outputs can be switched on and off directly via the sliders.

Under ***Documents***, the download area on the ComatReleco web portal can be opened, where all documents relating to the device are available.

7 Maintenance and troubleshooting

7.1 Maintenance

The device is maintenance-free.

7.2 Troubleshooting

Problem	Possible cause	Remedy
RUN LED does not flash	No power supply	➢ Check power supply ➢ Restart the device ➢ Press the ***Reset*** button on the device for at least 4 seconds
The device is not connected to the IoT Portal	Network error	➢ Check whether a 2G, 3G or 4G LED is lit on the device ➢ Check if the RUN LED on the device is flashing ➢ Check the connection status in the IoT Portal (green LED). Update IoT Portal (***Overview*** menu, or press ***F5***) ➢ Restart the device
Mobile radio connection is poor	Connection signal strength is poor	➢ Check the signal strength in the IoT Portal (see chapter 5.8.1 (**10**)) ➢ Check the colour of the status ***radio signal LEDs*** on the device (see chapter 3.8) ➢ Use a remote antenna if necessary (see chapter 4.4)
The link in the e-mails does not work	Outdated web browser. A safety monitoring functionality is suppressing the correct link function.	➢ Use the ***Google Chrome***, ***Mozilla Firefox*** or ***Microsoft Edge*** web browser and update the browser to the latest version ➢ Copy the link from the e-mail and paste it into the address line of the web browser ➢ Reset the password (see chapter 5.2.1)
The states of the inputs and outputs are not correct in the IoT Portal	The IoT Portal has not been updated	➢ Update IoT Portal (***Overview*** menu, or press ***F5***)
I'm not receiving e-mails	Configuration incorrect Firewall settings	➢ Check device configuration ➢ Check firewall settings ➢ Check your spam folder
I'm not receiving any text messages	SMS account is empty	➢ Upgrade your service profile (see chapter 5.8.6.1) or ➢ Buy SMS packages and set up automatic purchase (see chapter 5.7.3.2)
I'm not receiving push messages on my smartphone	The operating system on the smartphone or the app is not up-to-date The battery management on the smartphone is preventing push messages	➢ Update operating system (iOS min. version 6 / Android min. version 9) ➢ Update app (Apple Store / Google Play Store) ➢ In the smartphone under Settings/apps, allow the notifications of the ***ComatReleco IoT Portal*** app ➢ In the smartphone under Settings/Battery management set the battery management to manual (only with Android) ➢ Use the IoT Portal in the Internet browser (Google Chrome) instead of the app and create a shortcut

Call-in does not work	Telephone control is not activated	➢ The telephone number is not recorded under ***Users/Machines*** ➢ Activate the telephone control ***Call-in*** at the desired output (see chapter 5.8.5 (**6**)) ➢ Check signal strength at the device (see Figure 2 (**4**)) or in the IoT Portal
I do not receive any push messages on my PC	AdBlocker extension in the browser is possibly installed or enabled	➢ Unistall or disable the AdBlocker extension in your browser

Further information and assistance can be found in the IoT Portal under the menu item ***Overview/Documents*** (see Figure 37 (**18**)), or in the ComatReleco Internet portal under the FAQ (Frequently Asked Questions) ➔ Link.

7.3 Device exchange

Repairs to the machine may only be carried out by ComatReleco. Send defective devices to ComatReleco or to your dealer. When returning goods to ComatReleco, please request a return material authorization number (RMA) in advance.

For a return shipment, please pack the device in a similar way as you received it with the original packaging so that it can be transported safely.

Please refer to the ComatReleco web portal for the delivery conditions and information about returning goods ➔ Link.

DANGER

Risk of death due to electric shock!
Only mount or dismantle the device when it is disconnected from the power supply.

WARNING

The work described in this chapter must only be carried out by qualified electricians (see also chapter 2.3)!

7.4 Replace «old» CMS-10x with new CMS-10R

Replace the device if necessary.

- Switch off the voltage
- Remove all cables and connections
- Disassemble the device (see chapter 4.2.2)
- Replace the device with an identical device (same order number)

The CMS-10R devices have the same electrical pin assignment as the CMS-10 predecessor units.

Current device version	Previous version
CMS-10R-D/AC110-240V	CMS-10F/AC110-240V
CMS-10R-DA/DC12-48V	CMS-10F/DC12-48V or CMS-10ADF/DC12-48V
CMS-10R-DAC/DC12-48V	CMS-10ACDF/DC12-48V

The configuration of the previous CMS-10 device can be imported into the new device. See chapter 5.8.2.3.

8 Disposal

Disposal information for users of electrical and electronic equipment waste according to the WEEE directive (Waste of Electrical and Electronic Equipment):

For private households

The above pictogram means that electrical and electronic equipment must not be mixed with general household appliances. For proper treatment, recovery and recycling, take this product to designated collection points where it will be accepted free of charge.
Correct disposal of this product will help to conserve valuable resources and prevent potential negative impacts on human health and the environment which could otherwise be caused by inappropriate waste handling.
Contact your local authority for details of the nearest designated collection point.
Penalties may be imposed for the improper disposal of this waste, depending on national legislation.

For professional users in the European Union

If you wish to dispose of electrical and electronic equipment, please contact your dealer or supplier for further information. Please also observe the country-specific regulations.

For disposal in countries outside the European Union

The above symbol is only valid in the European Union (EU). If you wish to dispose of this product, contact your local authorities or your dealer and ask for the correct method of disposal.

Packaging material

Dispose of packaging material in accordance with the applicable national regulations.

9 Technical data

9.1 Dimensions

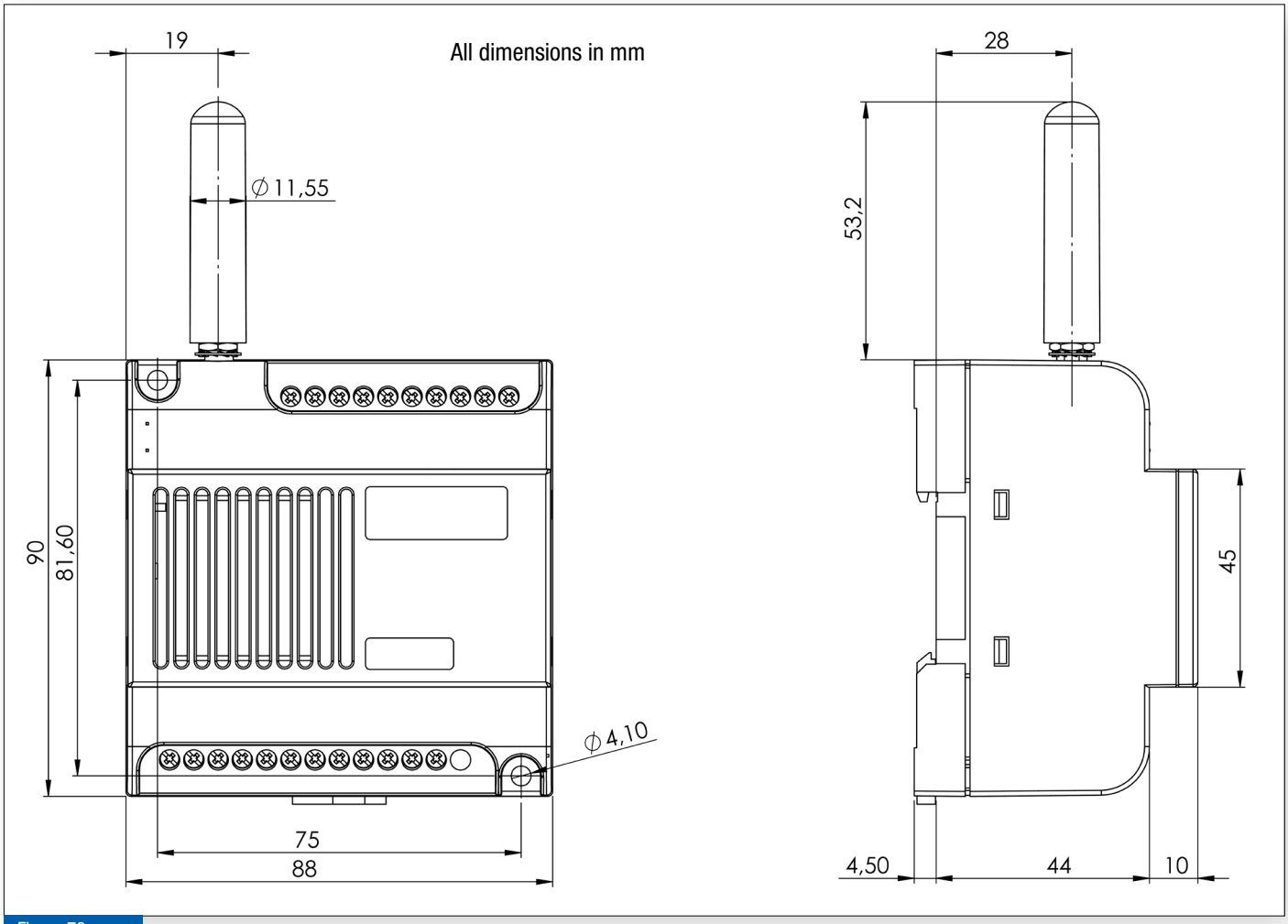


Figure 73

9.2 Technical data

The technical data for all types of equipment can be found on the ComatReleco web portal in the ***CMS-10R data sheets*** section.
➔ Link

10 Order details and accessories

The devices may only be operated with accessories from the ComatReleco range.
You can find information on this in the table below or on the ComatReleco/Products/Remote Monitoring & Control web portal ➔ Link.
Operation with other accessories may result in damage and/or non-conformities.

Order number	Description
Individual devices Z1	
CMS-10R-D/AC110-240V-Z1	CMS-10 digital with stubby antenna 50 mm
CMS-10R-DA/DC12-48V-Z1	CMS-10 digital with stubby antenna 50 mm / analogue 0 - 10 V ⎓
CMS-10R-DAC/DC12-48V-Z1	CMS-10 digital, analogue 4 - 20 mA ⎓ with stubby antenna 50 mm / analogue 0 - 10 V ⎓
Individual devices Z2	
CMS-10R-D/AC110-240V-Z2	CMS-10 digital with stubby antenna 50 mm
CMS-10R-DA/DC12-48V-Z2	CMS-10 digital with stubby antenna 50 mm / analogue 0 - 10 V ⎓
CMS-10R-DAC/DC12-48V-Z2	CMS-10 digital, analogue 4 - 20 mA ⎓ with stubby antenna 50 mm / analogue 0 - 10 V ⎓
Device kits Z1	
CMS-10R-DA/DC12-48V-Z1-KIT1	CMS-10 digital with stubby antenna 50 mm, magnetic base antenna with 2.5 m cable and power supply 15 W, 24 V ⎓ / analogue 0-10 V ⎓
CMS-10R-DA/DC12-48V-Z1-KIT2	CMS-10 digital with stubby antenna 50 mm, magnetic base antenna with 2.5 m cable and power supply 30 W, 24 V ⎓ / analogue 0-10 V ⎓
CMS-10R-DAC/DC12-48V-Z1-KIT1	CMS-10 digital, analogue 4 - 20 mA ⎓ with stubby antenna 50 mm, magnetic base antenna with 2.5 m cable and power supply unit 15 W, 24 V ⎓ / analogue 0 - 10 V ⎓
CMS-10R-DAC/DC12-48V-Z1-KIT2	CMS-10 digital, analogue 4 - 20 mA ⎓ with stubby antenna 50 mm, magnetic base antenna with 2.5 m cable and power supply unit 30 W, 24 V ⎓ / analogue 0 - 10 V ⎓
Device kits Z2	
CMS-10R-DA/DC12-48V-Z2-KIT1	CMS-10 digital with stubby antenna 50 mm, magnetic base antenna with 2.5 m cable and power supply 15 W, 24 V ⎓ / analogue 0-10 V ⎓
CMS-10R-DA/DC12-48V-Z2-KIT2	CMS-10 digital with stubby antenna 50 mm, magnetic base antenna with 2.5 m cable and power supply 30 W, 24 V ⎓ / analogue 0-10 V ⎓
CMS-10R-DAC/DC12-48V-Z2-KIT1	CMS-10 digital, analogue 4 - 20 mA ⎓ with stubby antenna 50 mm, magnetic base antenna with 2.5 m cable and power supply unit 15 W, 24 V ⎓ / analogue 0 - 10 V ⎓
CMS-10R-DAC/DC12-48V-Z2-KIT2	CMS-10 digital, analogue 4 - 20 mA ⎓ with stubby antenna 50 mm, magnetic base antenna with 2.5 m cable and power supply unit 30 W, 24 V ⎓ / analogue 0 - 10 V ⎓
Power supplies	
HDR-15-24	Power supply unit for distributor mounting 15 W, 24 V ⎓
HDR-30-24	Power supply unit for distributor mounting 30 W, 24 V ⎓
Antennas (*)	
CMS-ANT-STUB/INT-50MM	Device antenna stubby 50 mm for indoor use
CMS-ANT-BLADE/INT-150MM	Device antenna blade 150 mm for indoor use
CMS-ANT-MAG1/INT-2.5M	Magnetic mount antenna with 2.5 m cable for indoor use
CMS-ANT-MAG2/EXT-2.0M	Magnetic mount antenna IP66 with 2.0 m cable
CMS-ANT-BRACK/EXT-5M	Bracket mount antenna IP66 with 5 m cable
CMS-ANT-PUCK/EXT-3M	Puck antenna panel mount IP66 with 3 m cable
CMS-ANT-PUCK-GPS/EXT-3M	Puck antenna GPS panel mount IP66 with 3 m cable
Antenna extensions cables (*)	
CMS-ANT-KAB/2.5M	Antenna extension cable 2.5 m
CMS-ANT-KAB/5M	Antenna extension cable 5 m
CMS-ANT-KAB/10M	Antenna extension cable 10 m
CMS-ANT-KAB/20M	Antenna extension cable 20 m

Sensors	
MV LKM 274	PT100 / PT1000 converter with output 0 - 10 V ⎓, for distributor mounting
RF05	Indoor temperature sensor with output 0 - 10 V ⎓, 0 - 50 °C
RF01-U2-D	Indoor temperature sensor with output 0 - 10 V ⎓, 0 - 50 °C, with display
RTBSB-001-010	Bimetallic thermostat with 1 changeover contact, 5 - 30 °C
WF50-EXT-U4	Outdoor temperature sensor with output 0 - 10 V ⎓, -50 - 50 °C
KS-110	Temperature and humidity sensor with outputs 0 - 10 V ⎓, -40 - 80 °C, 0 - 100 % rH, cable length 2 m
PS1	Level probe with output 0 - 10 V ⎓, 0 - 0.5 bar

(*) The devices are tested and approved with the antennas and extensions. ComatReleco declines all responsibility for the use of other products. It may also lead to loss of product conformity.

For ready-made extension cables and directional antennas, contact support@comatreleco.com.

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