

# RIC20-110-SR/DC110V

2 pole | 20 A | 7 kW | DC-5 | 4 A 110 V DC | TVS suppressor



## Main circuit

Available contact materials	AgNi
Rated voltage	230 V AC
Rated current AC-1	20 A
Recommended minimum contact load	50 mA, 17 V
Inrush current	50 A, 100 ms / 180 A, 300 μs
Rated load AC-1	7 kW
Rated load AC-3	1.3 (NO) / 0.75 (NC) kW
Rated load DC-1	see fig. 2
Mechanical endurance (cycles)	≥ 10 000 000
Electrical endurance at rated load AC-1 (cycles)	≥ 150 000
Electrical endurance at rated load AC-3 (cycles)	≥ 200 000
Electrical endurance at rated load DC-1 (cycles)	≥ 200 000
Electrical endurance at rated load DC-5 (cycles)	≥ 300 000
Switching frequency at rated load AC-1 (cycles / h)	≤ 600
Switching frequency at rated load AC-3 (cycles / h)	≤ 600
Switching frequency at rated load DC-1 (cycles / h)	≤ 300
Switching frequency at rated load DC-5 (cycles / h)	≤ 300

## Control circuit

Nominal voltage	see table product references
Operating voltage range	0.70 ... 1.25 U <sub>N</sub>
Pick-up voltage	≤ 0.70 U <sub>N</sub>
Release voltage	≥ 0.1 U <sub>N</sub>
Pick-up time	15 ... 45 ms
Release time	20 ... 50 ms
Power consumption DC	2.6 W
TVS Diode type	Bidirectional surge TVS
TVS Diode failure mode	defined short cut

## Insulation

Rated insulation voltage	440 V
Rated impulse withstand voltage open contact	4 kV / 1 min
Pollution degree	3
Overvoltage category	III
Clearance of open contact	3.6 mm

## Wiring

Contact type control / main circuit	Screw connection, M3 / M3.5
Conductor cross section control / main circuit	2.5 mm <sup>2</sup> / 6 mm <sup>2</sup> , use copper conductors only
Stripping Length control / main circuit	7 mm / 9 mm
Nominal screw torque control / main circuit	0.6 Nm / 1.2 Nm
Screwdrive control / main circuit	PZ1 / PZ1
Max. wire count control / main circuit	1
Dual sleeve control / main circuit	1

## Housing and environmental conditions

Storage temperature (no ice)	-40 ... 80 °C
Operation temperature	-15 ... 55 °C
Relative humidity, no condensation	95 %
Ingress Protection	IP 20
Weight	135 g
Housing material	PA 6
Operation Altitude	Max. 2 000 m
Mounting	DIN rail
Dimensions	see fig. 3
Vibration test	switched off: 2 g (Z and X axis) / switched on: 3 g (Z axis) and 1 g (X axis)
Shock test	switched off: 10 g (Z and X axis) / switched on: 15 g (Z axis) and 2 g (X axis)

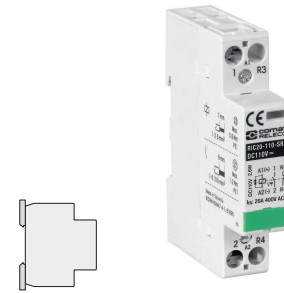


fig. 1. Wiring diagram

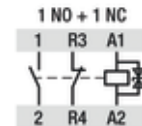


fig. 2. DC load limit curve

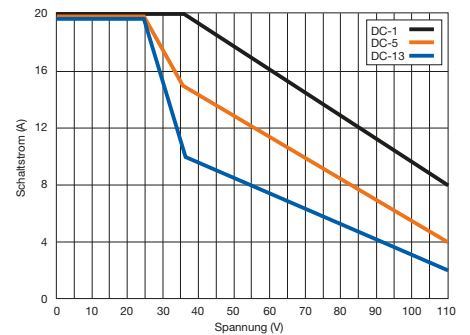
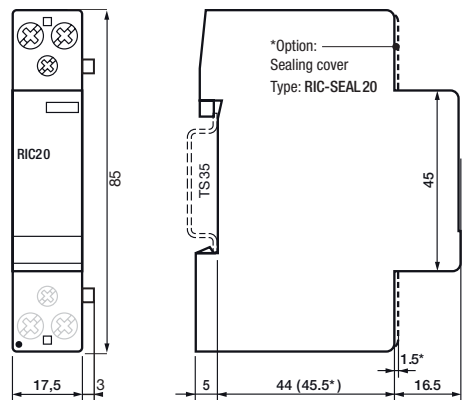


fig. 3. Dimensions (mm)



## Technical approvals, conformities

Standards IEC/EN 60947

Railway EN 50155; EN 45545-2

Approvals

# RIC20-110-SR/DC110V

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## Safety

MTTF - Mean time to failure, AC-1 (h)	5,000
MTTF = $1/\lambda = B10/(0.1 n_{op})$ , AC-3 (h)	7,500
MTTF <sub>d</sub> - Mean time to failure dangerous, AC-1 (h)	6,667
MTTF <sub>d</sub> = $1/\lambda = B10_d/(0.1 n_{op})$	10,000
B10 - Number of operating cycles until 10 % of devices fail, AC-1	150,000
B10 - Number of operating cycles until 10 % of devices fail, AC-3	225,000
B10 <sub>d</sub> - Number of operating cycles until 10 % of devices dangerous, AC-1	200,000
B10 <sub>d</sub> = B10/ratio of dangerous failures, AC-3	300,000
$\lambda$ - Failure rate, AC-1 (1/h)	0.0002
$\lambda = (0.1 n_{op})/B10$ , AC-3 (1/h)	0.000133
$\lambda_d$ - Failure rate dangerous, AC-1 (1/h)	0.00015
$\lambda_d = (0.1 n_{op})/B10_{op}$ , AC-3 (1/h)	0.0001
Ratio of dangerous failures (%)	75
$n_{op}$ - Operating cycles (operating cycles/h)	300

## Product references

Description	Type	110
1 NO + 1 NC	RIC20-110-SR/DC...V	✓

Other voltages on request. Please contact [support@comatreleco.com](mailto:support@comatreleco.com).  
«...» List control circuit voltage to complete product references.

## Accessories

Sealing cover	RIC-SEAL20
End covers	RIC-EK-11 (BAG 25 PCS), RIC-EK-23 (BAG 10 PCS)
Busbar	RIC-NS-1-1-R, RIC-PS-1-2-R

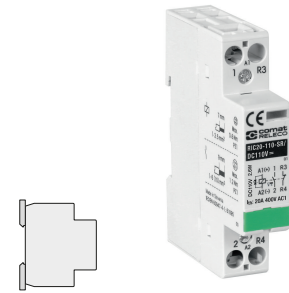


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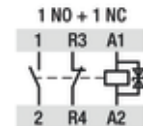
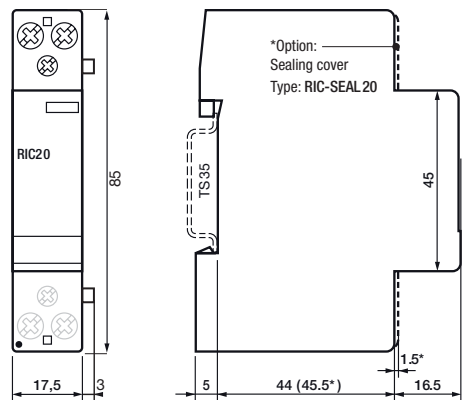


fig. 2. DC load limit curve



fig. 3. Dimensions (mm)



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 Approvals