3.3 Current Monitoring

Application	Types	Monitoring	Monitoring ratings	Output contacts	Design
Current monitoring, AC 15 … 60 Hz / DC single phase	MRI11		0.1 … 5 A	1 CO	35 mm
Current monitoring, AC 15 … 60 Hz / DC three phase	MRI32		0.1 … 5 A	2 CO	35 mm
Over-current monitoring, 48 … 62 Hz	EOCR		0.5 … 6 A / 3 … 30 A / 5 … 60 A	1 CO	54 mm
Under-current monitoring, 48 … 62 Hz	EUCR		0.5 … 6 A / 3 … 30 A / 5 … 60 A	1 CO	54 mm

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MRI11

Current monitoring relay AC/DC, single phase
DIN Rail mounting according to DIN 43 880

comat RELECO
WORLD OF RELAYS

Type: MRI11/…V

Current monitoring relay with over- and under voltage thresholds up to 5 A.
Alarm delay setting. Alarm LED. Display for voltmeter function, alarm signal
and interactive parameter setting.

1 change-over alarm contact 5 A 250 V. Comfortable parameter setting.
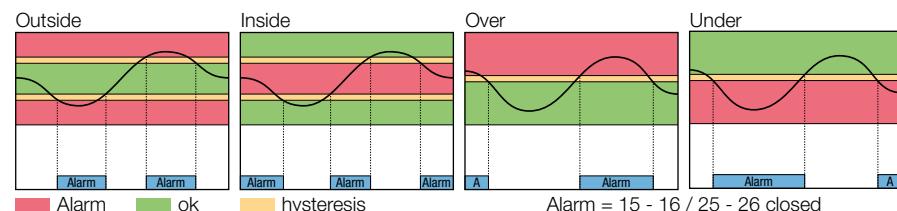
Monitoring function

| Outside | Inside | Over | Under |

Alarm | ok | hysteresis   Alarm = 15 - 16 / 25 - 26 closed

Measuring circuit data

Current setting ranges AC / DC	0.1 … 5 A
Frequency	AC 15 … 150 Hz
Input resistance U / I	5 MΩ
Measured variables	I, f

Time data

Voltage failure buffering	ca. 30 ms

Alarm contacts

Type / Material	1 CO / AgNi 0.15
Rated operational current	6 A
Max. inrush current	15 A
Max. switching voltage	250 V
Max. AC load AC-1 (Fig.1)	1250 VA
Max. DC load DC-1, 24 V / 220 V (Fig.2)	120 W / 25 W
Recommended min. contact load	10 mA / 10 V
Alarm delay setting time	0.1 … 999.9 s (factory adjustment = 0.0 s)
Reset time setting range	0.1 … 999.9 s (factory adjustment = 0.0 s)

Power supply

	UC12-48V	UC110-240V
Nominal voltage AC/DC	12 … 48 V	110 … 240 V
Operating voltage range	10 … 60 V	85 … 250 V
AC frequency	16 … 63 Hz	16 … 63 Hz
Power consumption	1.6 W / 3.2 VA	1.5 W / 2.6 VA

Insulation

Measuring input – Measuring input	1.5 kV 1 minute
Measuring input – Supply	2.0 kV 1 minute
Measuring input – Contact	2.0 kV 1 minute
Supply – Contact	2.0 kV 1 minute
Contact set – Contact set	1.5 kV 1 minute

General specifications

Ambient temperature storage /operation	-40 … +85 °C / -40 …+60 °C
	LCD: -20 ... +60 °C
Mechanical life of contacts	30 x 10^6 operations
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP20, (electronics: IP40)
Max. screw torque	0.4 Nm
Housing material	Lexan EXL 9330
Weight	107 g

Standard types

|	
AC/DC 12-48 V, 15…60 Hz	**MRI11/UC12-48V**
AC/DC 110-240 V, 15…60 Hz	**MRI11/UC110-240V**

### Connection diagram
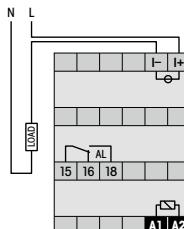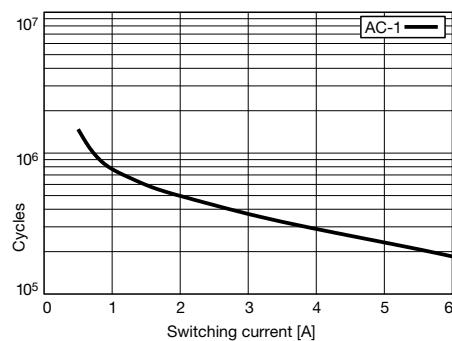
Fig.1 AC voltage endurance

Fig. 2 DC load limit curve

Dimensions [mm]

Technical approvals, conformities

CE RoHS

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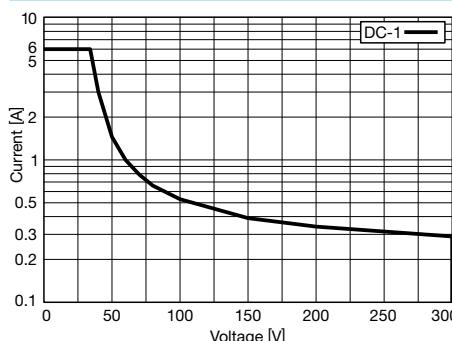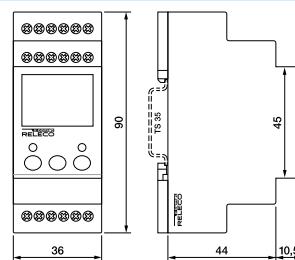
MRI32

Current monitoring relay AC/DC, three phase
DIN Rail mounting according to DIN 43 880

comat RELECO
WORLD OF RELAYS

Type: MRI32/…V

Current monitoring relay with over- and under current thresholds up to 5 A.
Alarm delay setting. Alarm LED. Display for voltmeter function, alarm signal and interactive parameter setting.

2 change-over alarm contacts 5 A 250 V. Comfortable parameter setting.
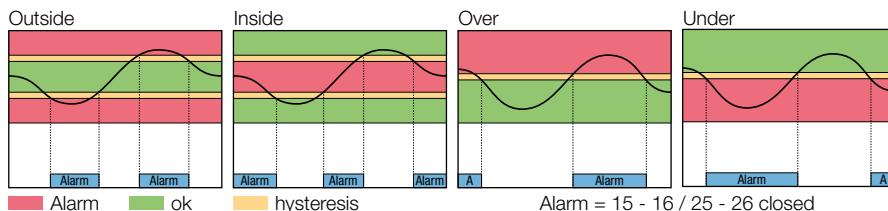
Monitoring function

| Outside | Inside | Over | Under |

Alarm   ok   hysteresis   Alarm = 15 - 16 / 25 - 26 closed

Measuring circuit data

Current setting ranges AC / DC	0.1 … 5 A
Frequency	AC 15 … 150 Hz
Input resistance U / I	5 MΩ
Measured variables	I, f

Time data

Voltage failure buffering	ca. 30 ms

Contacts

Type / Material	2 CO / AgNi 0.15
Rated operational current	6 A
Max. inrush current	15 A
Max. switching voltage	250 V
Max. AC load AC-1 (Fig.1)	1250 VA
Max. DC load DC-1, 24 V / 220 V (Fig.2)	120 W / 25 W
Recommended min. contact load	10 mA / 10 V
Alarm delay setting time	0.1 … 999.9 s (factory adjustment = 0.0 s)
Reset time setting range	0.1 … 999.9 s (factory adjustment = 0.0 s)

Power supply

	UC12-48V	UC110-240V
Nominal voltage AC/DC	12 … 48 V	110 … 240 V
Operating voltage range	10 … 60 V	85 … 250 V
AC frequency	16 … 63 Hz	16 … 63 Hz
Power consumption	1.6 W / 3.2 VA	1.5 W / 2.6 VA

Insulation

Measuring input – Measuring input	1.5 kV 1 minute
Measuring input – Supply	2.0 kV 1 minute
Measuring input – Contact	2.0 kV 1 minute
Supply – Contact	2.0 kV 1 minute
Contact set – Contact set	1.5 kV 1 minute

General specifications

Ambient temperature storage /operation	-40 … +85 °C / -40 …+60 °C
	LCD: -20 ... +60 °C
Mechanical life of contacts	30×10^6 operations
Conductor cross section	Stranded wire 2.5 mm^2, 2 x 1.5 mm^2
Ingress protection degree	IP20, (electronics: IP40)
Max. screw torque	0.4 Nm
Housing material	Lexan EXL 9330
Weight	125 g

Standard types

|	
AC/DC 12-48 V, 15…60 Hz	**MRI32/UC12-48V**
AC/DC 110-240 V, 15…60 Hz	**MRI32/UC110-240V**

### Connection diagram
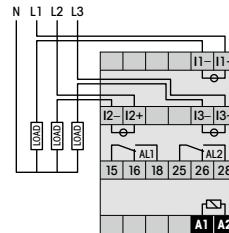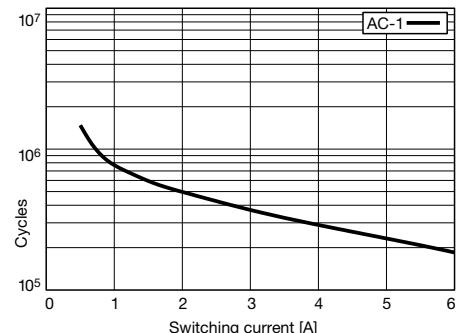
### Fig.1 AC voltage endurance

Fig. 2 DC load limit curve
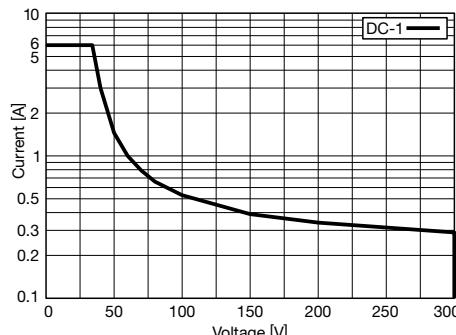
Dimensions [mm]
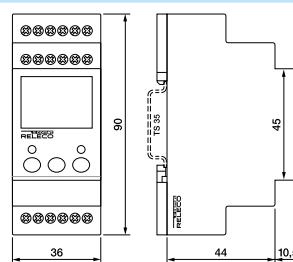
Technical approvals, conformities

CE RoHS

EOCR, EUCR

Current monitoring relay with 2 current inputs
DIN Rail mounting according to DIN 43 880

comat RELECO — WORLD OF RELAYS

Type: EOCR-AR-… / … V (Over current), EUCR-BR-… / … V (Under current)

AC current monitoring relay for 1 or 3 phase lines, 1 change over alarm contact 3 A / 250 V
Integrated current transformer coupling system, 6 A, 30 A, 60 A types

Monitoring function

EOCR-AR
EUCR-BR

- to - to - tR - 1/2
supply
—18 — ok
15 —16 — al
■ ok ■ fail ■ alarm

I₁ fail or I₂ fail = FAIL ① ②
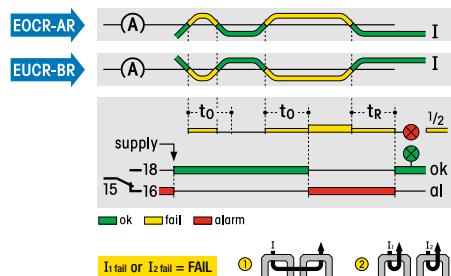
The EOCR-AR and the EUCR-BR monitor over-current and undercurrent on AC power circuits. One or two current paths can be monitored directly up to 60 (75) A, by means of the integrated current loop transformers.
The adjustable alarm delay (t0) and the automatic alarm resetting (tR) permit universal usage in motor and transformer protection systems, monitoring of electrical heating elements and in the control of pumps, ventilation systems, suction and feed devices.

Measuring circuit data

Setting ranges	0.5 … 6 A / 3 … 30 A / 5 … 60 A
Frequency range	48 … 62 Hz
Accuracy	2.5 %
Hysteresis	3 % from set value
Max. continuous current 6 / 30 / 60 A type	60 A / 90 A / 120 A
Peak current (1 sec) 6 / 30 / 60 A type	3 kA / 5 kA / 5 kA

1) Expansion of the current ranges:
Lower currents (see table at right): Two or more loops through the current transformer.
Higher currents: External current transformer. See accessories.

Time data

Alarm delay time adjustment range	0.3 … 30 s
Reset time adjustment range	0.5 … 150 s
Response time, power on, on A1	80 … 150 ms

Contacts

Type / Material	1 CO, micro disconnection / AgNi
Rated operational current	3 A
Max. switching voltage, AC-1	250 V
Max. AC load	750 VA
Max. DC load	90 W

Power supply

Nominal voltage (UC = AC/DC)	UC 24 V	AC 115 V	AC 230 V
Operation voltage range [V]	19 … 30	88 … 130	184 … 264
Power consumption [W]	1.5	1.5	1.5
Frequency [Hz]	50 / 60	50 / 60	50 / 60

Insulation

Test voltage between contacts and supply inp.	2 kVrms 1 minute
Test voltage between curr. transf. and other circuits	4 kVrms 1 minute

General specifications

Ambient temperature storage /operation	-25 … 85 °C / -20 … 60 °C
Ingress protection degree	Housing: IP 40, terminals: IP 20
Max. screw torque	0.8 Nm
Weight	120 g

### Standard types
Current [x] 05/30/60

Over current	Under current
EOCR-AR- x /UC24V	EUCR-BR-x /UC24V
EOCR-AR- x /AC115V	EUCR-BR-x /AC115V
EOCR-AR- x/AC230V	EUCR-BR-x /AC230V

Accessories

Current transformer for expanded current values, 50, 100, 250, 500 A   **SRCT-35-…/5A**

Connection diagram

μ
+ al ok
A2 A1 15 16 18
+ L
— N
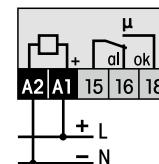
Expansion of current ranges

[A]		1x	2x	3x	4x	5x
	-05	0,5-6	0,25-3	0,17-2	0,13-1,5	0,1-1,2
	-30	2,5-30	1,25-15	0,83-10	0,62-7,5	0,5-6
	-60	5-60	2,5-30	1,7-20	1,25-15	1-12

Dimensions [mm]

Technical approvals, conformities

CE   RoHS   cULus

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