- **Multifunctions monitoring relays (AC current monitoring in 1-phase network, with adjustable thresholds and adjustable hysteresis)**
- Monitoring windowfunction and histeresis • Timing adjustment of tripping delay • Supply voltage = monitored phase voltage
- Output: 1 CO (1 changeover contact)
- Cover - modular, width 17,5 mm
- Direct mounting on 35 mm rail mount acc. to EN 60715
- Recognitions, certifications, directives: RoHS, $\text{C} \in$

Output circuit - contact data

Number and type of contacts		1 CO
Rated voltage		250 V AC
Max. breaking capacity	AC1	1 250 VA (5 A / 250 V AC)
Max. operating frequency • at resistive load 100 VA • at resistive load 1 000 VA		3 600 cycles/hour 360 cycles/hour

Input circuit

Supply voltage	AC	230 V terminals (N)-Li
Rated voltage	AC	230 V
Must release voltage		AC: $\geq 0,2\ U_n$
Operating range of supply voltage		$0,85...1,15\ U_n$
Rated power consumption	AC	5,0 VA / 0,8 W
Range of supply frequency	AC	48...63 Hz
Duty cycle		100%
Measuring circuit • measuring variable • measuring inputs • overload capacity • starting current • input resistance • swiching threshold • hysteresis H		AC sinus, 48...63 Hz AC: 10 A / 230 V AC terminals (N)-Li-Lk 13 A 1 s: 100 A 3 s: 50 A 3 mΩ MIN: $0,05...0,95\ I_n$ MAX: $0,1...1,0\ I_n$ adjustable setting

Insulation according to EN 60664-1

Rated surge voltage		4 000 V 1,2 / 50 µs
Overvoltage category		III
Insulation pollution degree		2 if built-in: 3

General data

Electrical life • resistive AC1		$> 2 \times 10^5$ 1 000 VA
Mechanical life (cycles)		$> 2 \times 10^7$
Dimensions (L x W x H)		87 x 17,5 x 65 mm
Weight		72 g
Ambient temperature • storage (non-condensation and/or icing) • operating		-25...+70 ºC -25...+55 ºC
Cover protection category		IP 20 EN 60529
Relative humidity		15...85%
Shock resistance		15 g 11 ms
Vibration resistance		0,35 mm DA 10...55 Hz

Meassuring circuit data

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Functions	OVER, OVER+LATCH, UNDER, UNDER+LATCH, WIN, WIN+LATCH monitoring windowfunction and histeresis
Range of delay timing adjustment	tripping delay: 0,1...10 s
Base accuracy	± 5% (calculated from the final range values)
Setting accuracy	± 5% (calculated from the final range values)
Repeatability	± 2%
Temperature influence	± 1% / °C
Recovery time	500 ms
LED indicator	green LED U ON - indication of supply voltage U red LEDs MIN and MAX ON/OFF - indication of failure ❶ red LEDs MIN and MAX flashing - indication of tripping delay ❶ yellow LED R ON/OFF - output relay status

❶ Indication of relay status - according to the set threshold.

Functions

OVER, OVER+LATCH - Overcurrent monitoring, overcurrent monitoring with fault latch.
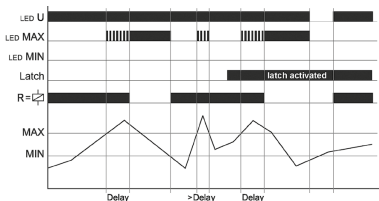
When the supply voltage U is applied, the output relay R switches into on-position, if the measured current is below the MAX-value. When the measured current exceeds the MAX-value, the output relay R switches into off-position after the interval of the tripping delay (Delay) has expired. **OVER**: the output relay R switches into on-position again, if the current falls below the MIN-value.
OVER+LATCH: the output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is below the MAX-value.

UNDER, UNDER+LATCH - Undercurrent monitoring, undercurrent monitoring with fault latch.
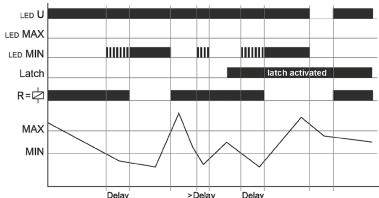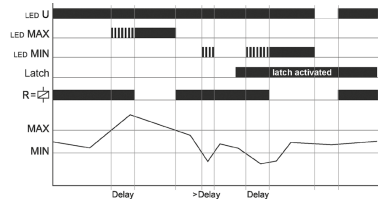

When the supply voltage U is applied, the output relay R switches into on-position, if the measured current is beyond the MIN-value. When the measured current falls below the MIN-value, the output relay R switches into off-position after the interval of the tripping delay (Delay) has expired. **UNDER**: the output relay R switches into on-position again, if the current exceeds the MIN-value.
UNDER+LATCH: the output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is beyond the MIN-value.

U - supply voltage; **R** - output state of the relay; **MIN, MAX** - relay status; **SEQ** - phase sequence

WIN, WIN+LATCH - Current monitoring in windowfunction between MIN and MAX values, current monitoring in windowfunction between MIN and MAX values with fault latch.
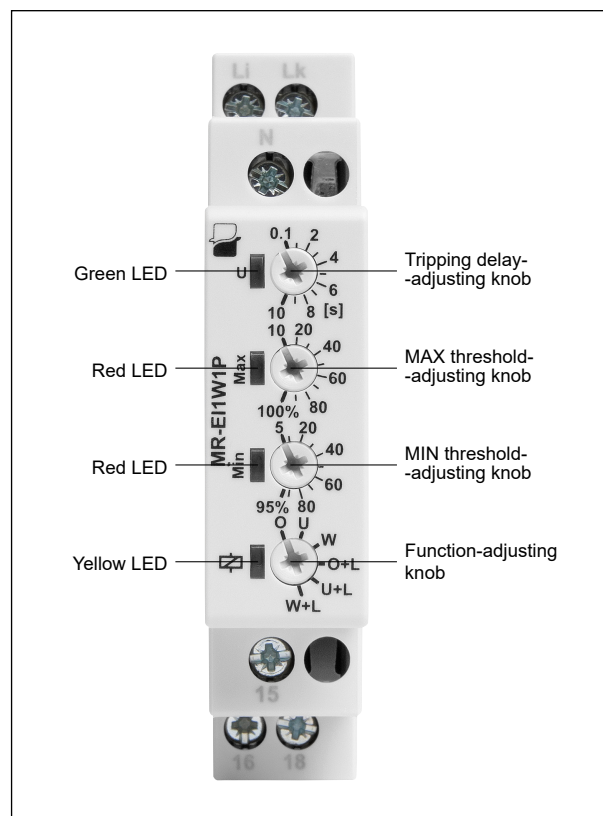

When the supply voltage U is applied, the output relay R switches into on-position, if the measured current is within the adjusted window. When the measured current leaves the window between MIN and MAX, the output relay R switches into off-position after the interval of the tripping delay (Delay) has expired.
WIN: the output relay R switches into on-position again, if the current re-enter the adjusted window.
WIN+LATCH: the output relay R switches only into on-position again by interrupting and re-applying of the supply voltage, provided that the measured current is within the threshold values.
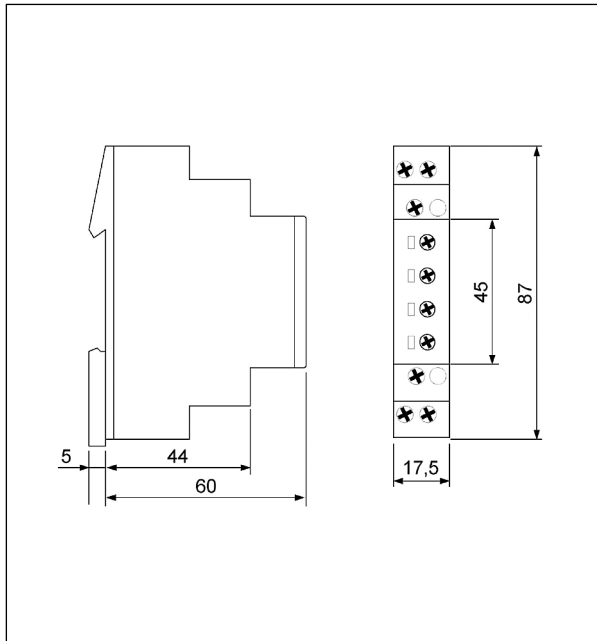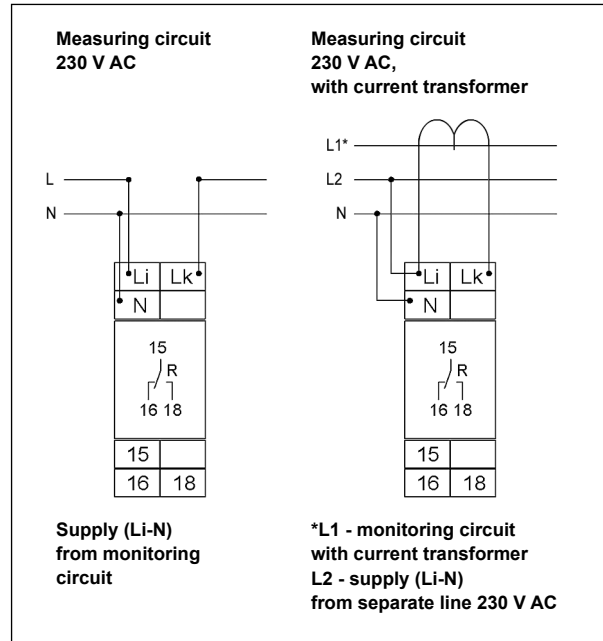
Front panel description

Dimensions

Connection diagrams

Measuring circuit 230 V AC

Measuring circuit 230 V AC, with current transformer

Supply (Li-N) from monitoring circuit

*L1 - monitoring circuit with current transformer
L2 - supply (Li-N) from separate line 230 V AC

Mounting

Relays **MR-EI1W1P** are designed for direct mounting on 35 mm rail mount acc. to EN 60715. Operational position - any. **Terminals - cross section of the connection cables:** 1 x 0,5 ... 2,5 mm^2 with/without multicore cable end, 1 x 4 mm^2 without multicore cable end, 2 x 0,5 ... 1,5 mm^2 with/without multicore cable end, 2 x 2,5 mm^2 flexible without multicore cable end.

Ordering codes

Type

M R – E I 1 W 1 P

Monitoring
I1 - AC current in 1-phase network

Number and type of contacts
1P - 1 CO
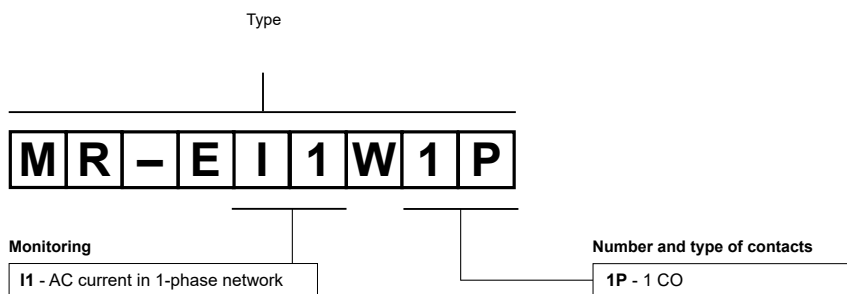
Example of ordering code:

MR-EI1W1P   monitoring relay **MR-EI1W1P**, multifunction (relay perform 6 functions), cover - modular, width 17,5 mm, one changeover contact, rated input voltage (supply): AC - 230 V; monitoring current: max. 10 A / 230 V AC

22.02.2018

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