- **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 - installation module, width 17,5 mm
- Direct mounting on 35 mm rail mount acc. to PN-EN 60715
- Recognitions, certifications, directives: CE

## Output circuit - contact data

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

## Input circuit

| | | |
|---|---|---|
| Supply voltage | AC | 230 V terminals (N)-Li |
| Rated voltage | AC | 230 V |
| Must release voltage | | AC: ≥ 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 | | AC sinus, 48...63 Hz |
| • measuring inputs | | AC: 10 A / 230 V AC terminals (N)-Li-Lk |
| • overload capacity | | 13 A |
| • starting current | | 1 s: 100 A 3 s: 50 A |
| • input resistance | | 3 mΩ |
| • swiching threshold $U_s$ | | MIN: 0,05...0,95 $I_n$ MAX: 0,1...1,0 $I_n$ |
| • hysteresis H | | adjustable setting |

## Insulation according to PN-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 x $10^5$ 1 000 VA |
| Mechanical life (cycles) | | > 2 x $10^7$ |
| Dimensions (L x W x H) | | 87 x 17,5 x 65 mm |
| Weight | | 72 g |
| Ambient temperature | • storage | -25...+70 °C |
| | • operating | -25...+55 °C |
| Cover protection category | | IP 20 PN-EN 60529 |
| Relative humidity | | 15...85% |
| Shock resistance | | 15 g 11 ms |
| Vibration resistance | | 0,35 mm DA 10...55 Hz |

## Meassuring circuit data

| | |
|---|---|
| Functions | OVER, OVER+LATCH, UNDER, UNDER+LATCH, WIN, WIN+LATCH<br>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<br>red LEDs MIN and MAX ON/OFF - indication of failure ❶<br>red LEDs MIN and MAX flashing - indication of tripping delay ❶<br>yellow LED R ON/OFF - output relay status |

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

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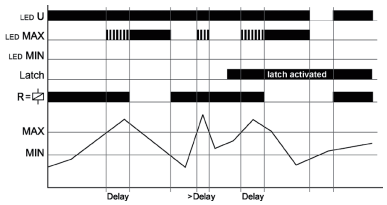
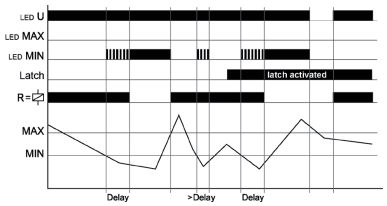
## Functions

**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.

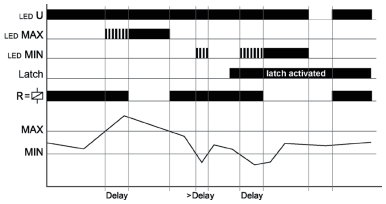
**UNDER, UNDER+LATCH** - Undercurrent monitoring, undercurrent monitoring with fault latch.




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.

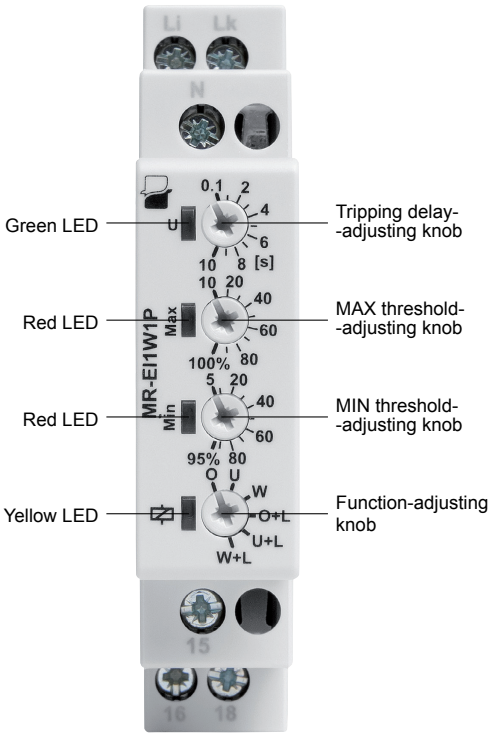
**U** - supply voltage; **R** - output state of the relay; **MIN, MAX** - relay status; **SEQ** - phase sequence

**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

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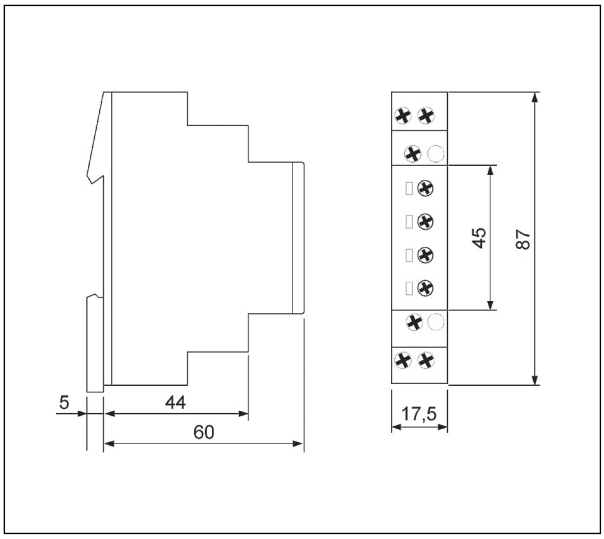
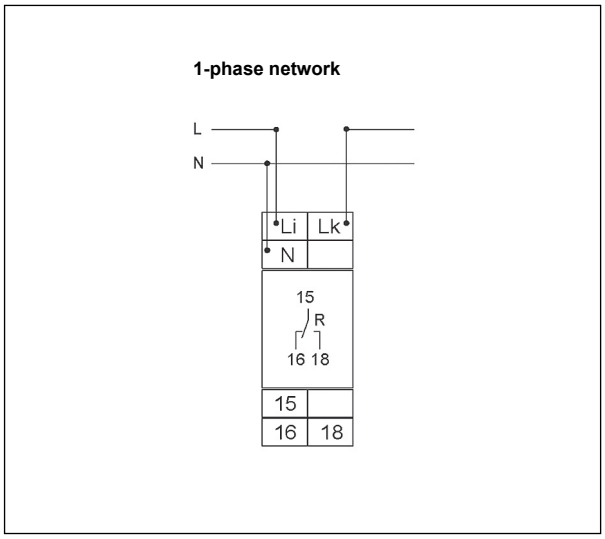
## Dimensions




## Connection diagram




## Mounting

Relays **MR-EI1W1P** are designed for direct mounting on 35 mm rail mount acc. to PN-EN 60715. Operational position - any. **Terminals - cross section of the connection cables:** 1 x 0,5 ... 2,5 mm² with/without multicore cable end, 1 x 4 mm² without multicore cable end, 2 x 0,5 ... 1,5 mm² with/without multicore cable end, 2 x 2,5 mm² 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 - installation module, width 17,5 mm, one changeover contact, rated input voltage (supply): AC - 230 V; monitoring current: 0,05 ... 10 A

**PRECAUTIONS:**

**1.** Ensure that the parameters of the product described in its specification provide a safety margin for the appropriate operation of the device or system and never use the product in circumstances which exceed the parameters of the product. **2.** Never touch any live parts of the device. **3.** Ensure that the product has been connected correctly. An incorrect connection may cause malfunction, excessive heating or risk of fire. **4.** In case of any risk of any serious material loss or death or injuries of humans or animals, the devices or systems shall be designed so to equip them with double safety system to guarantee their reliable operation.

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