- **Multifunctions monitoring relays (AC voltage monitoring in 3-phase network - 3(N)~ 400/230 V)**
- Monitoring of phase sequence and phase failure • Asymmetry monitoring (adjustable) • Connection of neutral wire (optional)
- Supply voltage = monitoring 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, CE

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		= monitoring voltage
Rated voltage	AC	3(N)~ 400/230 V
Must release voltage		AC: ≥ 0,2 U_n
Operating range of supply voltage		0,7...1,3 U_n
Rated power consumption	AC	8,0 VA / 0,8 W
Range of supply frequency	AC	48...63 Hz
Duty cycle		100%
Measuring circuit	• measured value	3(N)~, sinus, 48...63 Hz
	• measuring inputs	= supply voltage AC: 3(N)~ 400/230 V terminals (N)-L1-L2-L3
	• overload capacity	determined by tolerance specified for supply voltage
	• asymmetry	adjustable: 5...25%

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

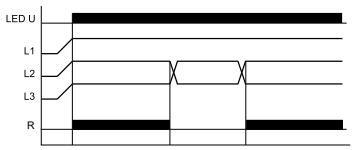
Electrical life	• resistive AC1	> 2 x 10^5 1 000 VA
Mechanical life (cycles)		> 2 x 10^7
Dimensions (L x W x H)		87 x 17,5 x 65 mm
Weight		63 g
Ambient temperature (non-condensation and/or icing)	• storage • operating	-25...+70 °C -25...+55 °C
Cover protection category		IP 20 EN 60529
Relative humidity		15...85%
Shock resistance		15 g 11 ms
Vibration resistance		0,35 mm DA 10...55 Hz

Meassuring circuit data

Functions	SEQ - monitoring of phase sequence and phase failure ASYM - monitoring of asymmetry (adjustable) connection of neutral wire (optional)
Base accuracy	± 5% (calculated from the final range values)
Setting accuracy	± 5% (calculated from the final range values)
Repeatability	± 2%
Temperature influence	± 0,05% / °C
Recovery time	500 ms
LED indicator	green LED U ON - indication of supply voltage U yellow LED R ON/OFF - output relay status

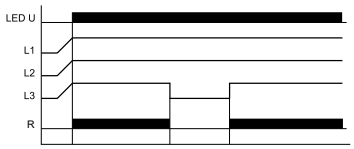
Functions

SEQ - Phase sequence monitoring.



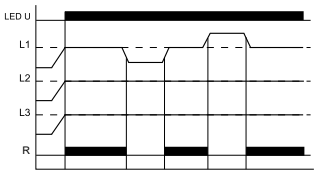
When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay R switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay R switches into off-position (yellow LED not illuminated).

SEQ - Phase failure monitoring.



The output relay R switches into off-position (yellow LED not illuminated), when one of the three phases fails.

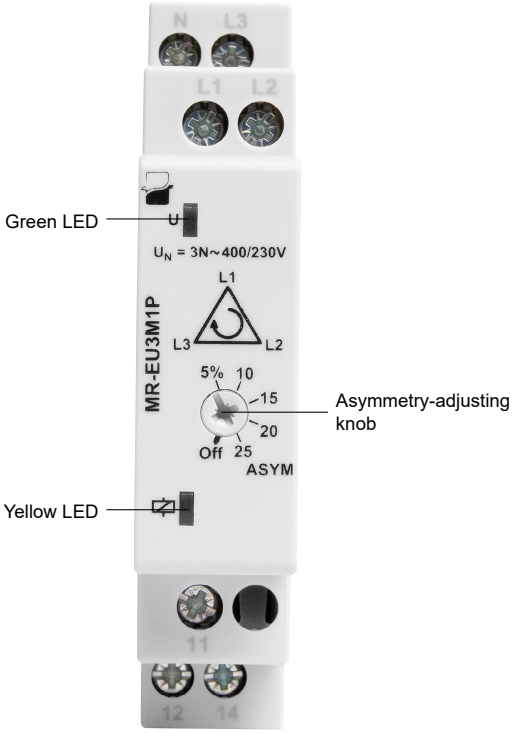
ASYM - Asymmetry monitoring.



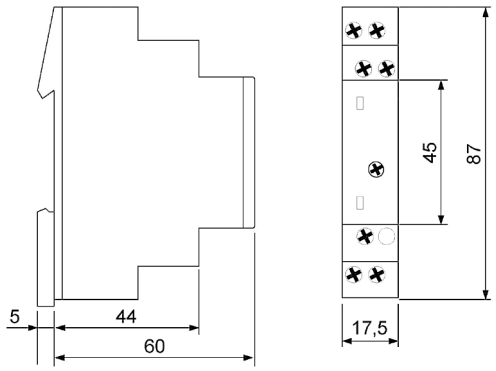
The output relay R switches into off-position (yellow LED not illuminated) when the asymmetrie exceeds the value set at the ASYM-regulator. An asymmetry caused by the reverse voltage of a consumer (e.g. a motor which continues to run on two phases only) does not effect the disconnection.

U - supply voltage; **R** - output state of the relay; **L1**, **L2**, **L3** - phases

Front panel description



Dimensions



28.12.2023

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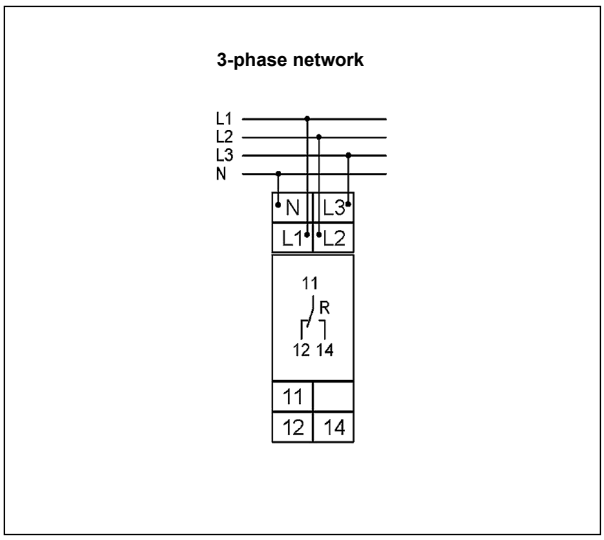
Connection diagram



Mounting

Relays **MR-EU3M1P** 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	U	3	M	1	P

Monitoring

U3 - 3(N)~ 400/230 V voltage in 3-phase network

Number and type of contacts

1P - 1 CO

Example of ordering code:

MR-EU3M1P monitoring relay **MR-EU3M1P**, multifunction (relay perform 2 functions), cover - modular, width 17,5 mm, one changeover contact, rated monitoring voltages: AC - 3(N)~ 400/230 V

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.