

Voltage monitoring relay MRG3P



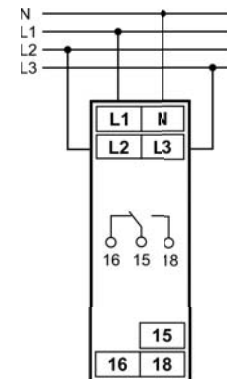
Device description

MRG3P is designed to control voltage asymmetry, phase failure and phase sequence of all three phases L1, L2, L3. Relay is also controlling minimum and maximum voltage level.

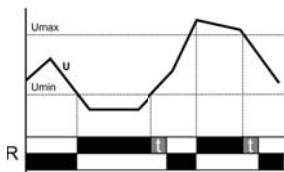
Phase asymmetry, minimum and maximum voltage level are adjustable in real values and they are also possible to be disabled.

Relay has one output double-throw contact 8 A.

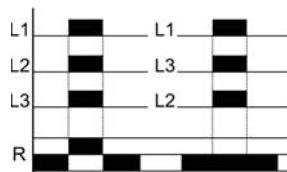
Device connection



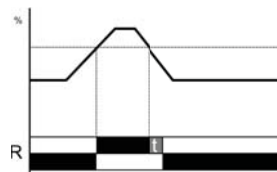
Functions



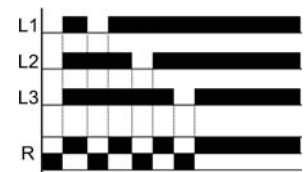
max / min voltage level



phase sequence



asymmetry



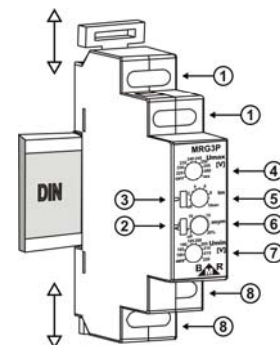
phase failure

Operating status signalization

Green LED - ON	Presence of power supply
Green LED - OFF	Power supply is not present
Red LED - ON	Irregular phase rotation - contact 15-16 closed
Red LED - blinking	Wrong phase asymmetry - contact 15-16 closed
Red LED - blinking 1x	Phase L1 failure - contact 15-16 closed
Red LED - blinking 2x	Phase L2 failure - contact 15-16 closed
Red LED - blinking 3x	Phase L3 failure - contact 15-16 closed
Red LED - OFF	No failure detected - contact 15-18 closed

Terminal description

- 1 Supply and control voltage
- 2 Output indication
- 3 Supply voltage indication
- 4 Umax setting
- 5 Time delay setting
- 6 Asymmetry setting
- 7 Umin setting
- 8 Outputs



Technical features

Supply and control terminals	L1, L2, L3, N
Supply and controlled voltage	3 x 400 VAC / 230 VAC
Power consumption	max. 1,5 VA
Minimum controlled voltage (to N)	180 ... 220 VAC, Off
Maximum controlled voltage (to N)	225 ... 265 VAC, Off
Supply voltage indication	green LED
Failure indication	red LED
Asymmetry	5 ... 20%, Off
Adjustable delay time	0,1 ... 10 second, Off
Nominal current	8 A
Switching power	max. AC 2000 VA
Trigger current	15 A
Nominal / maximum switching voltage	250 VAC / 440 VAC

Hysteresis	fix 5%
Mechanical lifetime	3 x 10 ⁶
Electrical lifetime	1 x 10 ⁴ (250 VAC, 8 A)
Working temperature	-20°C ... +55°C
Storage temperature	-40°C ... +70°C
Mounting position	any
Mounting	IEC 60715 (DIN 35 mm)
Protection degree	IP20
Electrical strength	4 kV
Maximum input wire diameter	2 x 1,5 mm ² or 1 x 2,5 mm ²
Weight	75 g
Dimensions	90 x 18 x 65 mm
Standards	IEC60255, 56, IEC61010

Voltage monitoring relay MRA3P

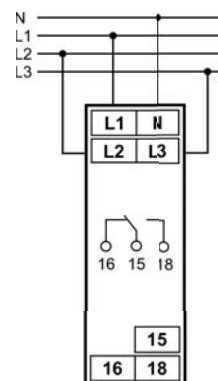


Device description

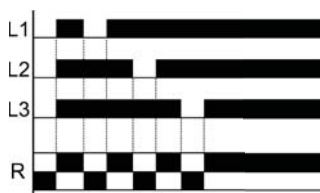
MRA3P is three-phase monitoring relay designed to monitor succession of phases (L1, L2 and L3), phase failure of any of phases and to control phase asymmetry. The relay is equipped with visual fault diagnosis.

MRA3P is mainly designed for protection of three-phase motors. The relay has one output double-throw contact 8 A.

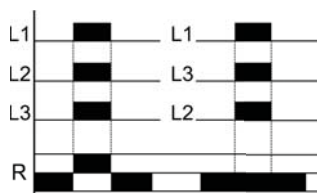
Device connection



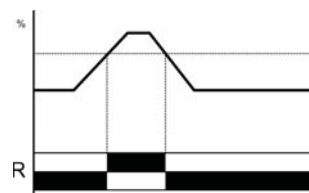
Functions



phase sequence



asymmetry



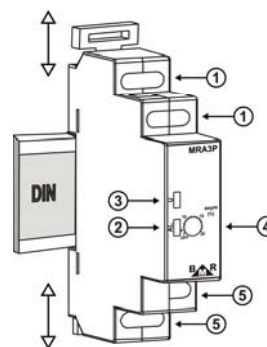
phase failure

Operating status signalization

Green LED - ON	Presence of power supply
Green LED - OFF	Power supply is not present
Red LED - ON	Irregular phase rotation - contact 15-16 closed
Red LED - blinking	Phase asymmetry - contact 15-16 closed
Red LED - blinking 1x	Phase 1 failure - contact 15-16 closed
Red LED - blinking 2x	Phase 2 failure - contact 15-16 closed
Red LED - blinking 3x	Phase 3 failure - contact 15-16 closed
Red LED - OFF	No failure detected

Terminal description

- 1 Supply and control voltage
- 2 Fault indication
- 3 Supply voltage indication
- 4 Phase asymmetry setting
- 5 Outputs



Technical features

Supply and control terminals	L1, L2, L3, N
Supply and controlled voltage	3 x 400 VAC / 230 VAC
Power consumption	max. 1,5 VA
Maximum controlled voltage (to N)	269 V AC
Toggle level (fix)	165 V AC
Supply voltage indication	green LED
Failure indication	red LED
Asymmetry	5 ... 20%, Off
Adjustable delay time	0,1 ... 10 second, Off
Nominal current	8 A
Switching power	max. AC 2000 VA
Trigger current	15 A
Nominal / maximum switching voltage	250 VAC / 440 VAC

Hysteresis	fix 5%
Mechanical lifetime	3 x 10 ⁶
Electrical lifetime	1 x 10 ⁴ (250 VAC, 8 A)
Working temperature	-20°C ... +55°C
Storage temperature	-40°C ... +70°C
Mounting position	any
Mounting	IEC 60715 (DIN 35 mm)
Protection degree	IP20
Electrical strength	4 kV
Maximum input wire diameter	2 x 1,5 mm ² or 1 x 2,5 mm ²
Weight	75 g
Dimensions	90 x 18 x 65 mm
Standards	IEC60255, 56, IEC61010

Current monitoring relays MRI01T/05T/25T



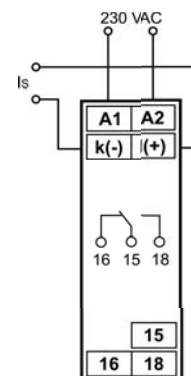
Device description

MRI01T and MRI05T relays control DC or AC current connected to the terminals. MRI01T can be set for current range from 0,1 A to 1 A and MRI05T for current range from 0,5 A to 5 A.

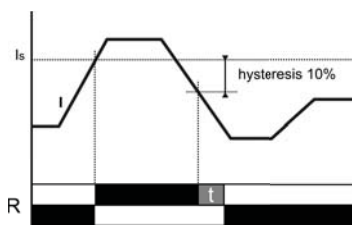
MRI25T relay controls only AC current connected to the terminals. Device can be set for current range from 2,5 A to 25 A.

Measuring part is metalically separated from the current connection terminal. The relay has one output double-throw contact 16 A.

Device connection



Functions



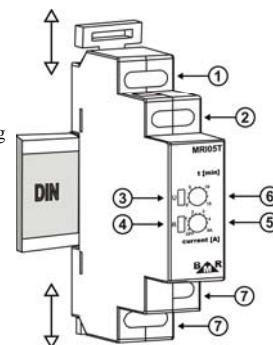
If the set current level is exceeded, output relay will make connection. If the measured current level goes under the set level minus fix hysteresis 10%, output relay will disconnect. Hysteresis reduces relay bouncing at threshold limit of current values. Position OFF disables current measurement, output is closed and yellow LED is off. Contact no. 16 – 15 is closed.

Operating status signalization

Green LED - ON	Presence of power supply
Green LED - OFF	Power supply is not present or incorrect voltage polarity
Yellow LED - ON	Set level of current was exceeded. Output contact 15-18 is closed.
Yellow LED - OFF	Set level of current is not exceeded. Output contact 15-16 is closed.

Terminal description

- 1 Supply and control voltage
- 2 Output indication
- 3 Supply voltage indication
- 4 Change-over level U_s setting
- 5 Outputs



Technical features

Supply voltage	230 VAC	Trigger current	30 A
Supply voltage terminals	L (A1), N (A2)	Nominal / maximum switching voltage	250 VAC / 440 VAC
Power consumption	max. 1,5 VA	Mechanical lifetime	3×10^6
Measuring current terminals	k (-), l (+)	Electrical lifetime	1×10^4 (250 VAC, 16 A)
Measuring current range MRI01T	0,1 ... 1 AAC/DC	Working temperature	-20°C ... +55°C
Load capability of current terminals	max. 2 A	Storage temperature	-40°C ... +70°C
Measuring current range MRI05T	0,5 ... 5 AAC/DC	Mounting position	any
Load capability of current terminals	7 A	Mounting	IEC 60715 (DIN 35 mm)
Measuring current range MRI25T	2,5 ... 25 AAC	Protection degree	IP20
Load capability of current terminals	max 32 A	Electrical strength	4 kV
Hysteresis	fix 10%	Maximum input wire diameter	$2 \times 1,5 \text{ mm}^2$ or $1 \times 2,5 \text{ mm}^2$
Number and type of output contact	1 x changeover	Weight	75 g
Nominal current	16 A	Dimensions	90 x 18 x 65 mm
Switching power	max. AC 4000 VA	Standards	IEC60255, 56, IEC61010

Frequency monitoring relay MRF1P



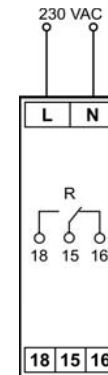
Device description

MRF1P is monitoring relay designed for network frequency control with adjustable maximum and minimum zone level.

Device has internal timers for delay at action and reconnection.

Relay MRF1P is equipped with one output double-throw contact 5 A.

Device connection



Functions



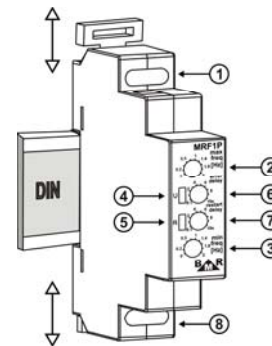
After supply voltage applying the green LED turns on. If measured frequency is in the set limits, re-connection timer (t₂) is started. It is indicated by yellow LED short blinking. After passing the time t₂ for re-connection, output relay will close and yellow LED turns on. If the frequency goes out of set limits, the time delay for fault condition (t₁) will be timed. It is indicated by yellow LED short dimmed blinking. After passing the time t₁ the output relay will open and yellow LED, in case that frequency is over the upper limit, is symmetrically blinking with period of 0,5 second. In case that frequency is under the lower limit yellow LED is off. Immediately after frequency returns back to the requested limit, re-connection timer will start and after passing the time t₂ output relay close and yellow LED turns on.

Operating status signalization

Green LED - ON	Presence of power supply
Green LED - OFF	Power supply is not present
Yellow LED - ON	Frequency is correct in the set limits. Output contact 15-18 is closed.
Yellow LED - OFF	Frequency is under set bottom level. Output contact 15-16 is closed.
Yellow LED - blinking 0,5s	Frequency is over the set upper level. Output contact 15-16 is closed.
Yellow LED - blinking with short pause	Failure timer t ₁ is active
Yellow LED - blinking with short ON	Repeating start timer t ₂ is active

Terminal description

- 1 Supply and control voltage
- 2 Maximum frequency
- 3 Minimum frequency
- 4 Supply voltage indication
- 5 Output indication
- 6 Time t₁ setting
- 7 Time t₂ setting
- 8 Outputs



Technical features

Supply voltage	230 VAC
Supply voltage terminals	L, N
Power consumption	max. 1,5 VA
Measuring frequency range	40 ... 70 Hz
Hysteresis	fix 0,2 Hz
Measuring cycle	200 ms
Frequency control limits (adjustable)	±2 Hz (0 disables function)
Fault condition time (adjustable)	0,1 ... 10 s
Re-connection delay time (adjustable)	0,1 ... 10 s
Supply voltage indication	green LED
Output indication	yellow LED
Number and type of output contact	1 x changeover
Nominal current	5 A
Switching power	max. AC 1000 VA

Trigger current	10 A
Nominal / maximum switching voltage	250 VAC / 440 VAC
Mechanical lifetime	3 x 10 ⁶
Electrical lifetime	1 x 10 ⁴ (250 VAC, 5 A)
Working temperature	-20°C ... +55°C
Storage temperature	-40°C ... +70°C
Mounting position	any
Mounting	IEC 60715 (DIN 35 mm)
Protection degree	IP20
Electrical strength	4 kV
Maximum input wire diameter	2 x 1,5 mm ² or 1 x 2,5 mm ²
Weight	75 g
Dimensions	90 x 18 x 65 mm
Standards	IEC60255, 56, IEC61010