Voltage monitoring in 3- and 1-phase mains

E1YM400VS10

Monitoring relays - ENYA series

Multifunction

Monitoring of phase failure

Monitoring of phase sequence selectable

Connection of neutral wire optional

1 change over contact

Width 17.5 mm

Installation design



Technical data

1. Functions
Voltage monitoring in 3-phase and 1-phase mains with adjustable thresholdes, adjustable tripping delay, monitoring of phase sequence and phase failure and the following functions which are selected by means of rotary switch:

UNDER	Undervoltage monitoring
UNDER+SEQ	Undervoltage monitoring and monitoring of phase sequence
WIN	Monitoring the window between Min and Max
WIN+SEQ	Monitoring the window between Min and Max and monitoring of phase sequence

2. Time ranges

	Adjustment range
Start-up suppression time:	-
Tripping delay:	0.1s 10s

3. Indicators

Red LED ON/OFF:	indication of failure of the corresponding threshold
Red LED flashes:	indication of tripping delay of the orresponding threshold
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminals capacity:
- 1 x 0.5 to 2.5mm² with/without multicore cable end
- 1 x 4mm² without multicore cable end
- 2 x 0.5 bis 1.5mm² with/without multicore cable end
- 2 x 2.5mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	(= measured voltage)
Terminals:	(N)-L1-L2-L3
Rated voltage U_N:	see table ordering information or printing on the unit
Tolerance:	-30% to +30% of U_N
Rated consumption:	8VA (1W)
Rated frequency:	a.c. 48 bis 63Hz
Duty cycle:	100%
Reset time:	500ms
Hold-up time:	-
Drop out voltage:	>20% of supply voltage
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

6. Output circuit
1 potential free change over contact

Rated voltage:	250V a.c.
Switching capacity:	1250VA (5A / 250V)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching capacity:	max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Measuring variable:	3(N)~, sinus, 48 to 63Hz
Measuring input:	(= supply voltage)
Terminals:	(N)-L1-L2-L3
Overload capacity:	determined by tolerance specified for supply voltage
Input resistance:	-
Swiching treshold U_S:	
Max:	80%...130% of U_N
Min:	70%...120% of U_N
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

Base accuracy:	≤5% of nominal value
Adjustment accuracy:	≤5% of maximum scale value
Repetition accuracy:	≤2%
Voltage influence:	-
Temperature influence:	≤0,05% / °C

9. Ambient conditions

Ambient temperature:	-25 to +55°C
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	2 (in accordance with IEC 60664-1)

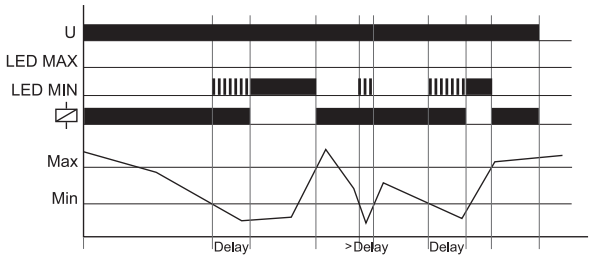
10. Weight

Single packing:	72g
Packing of 10pcs:	670g per Package

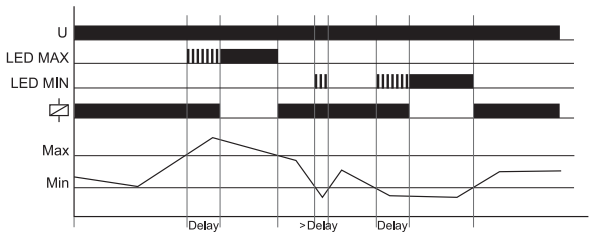
Functions

For all functions the LED's Min and Max are flashing alternating (the relay is fallen off), when the minimum value for the measured voltage was chosen to be greater than the maximum value.
If a failure already exists when the device is activated, the output relay remains in off-position and the LED for the corresponding threshold is illuminated.
The device includes seperately every phase voltage (L-N) and monitors it according to the selected function (UNDER or WINDOW).

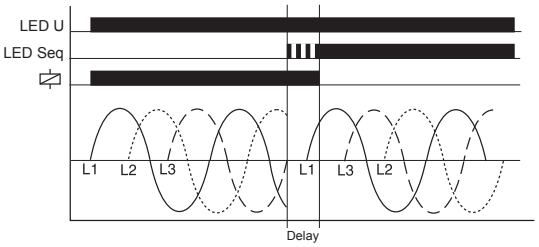
Undervoltage monitoring (UNDER, UNDER+SEQ)
When the measured voltage (one of the phase voltages) falls below the value adjusted at the Min-regulator, the set interval of the tripping delay (Delay) begins (red LED Min flashes). After the interval has expired (red LED Min illuminated), the output relay R switches into off-position (yellow LED not illuminated). The output relay R switches into on-position again (yellow LED illuminated), when the measured voltage (all phase voltages) exceeds the value adjusted at the Max-regulator.



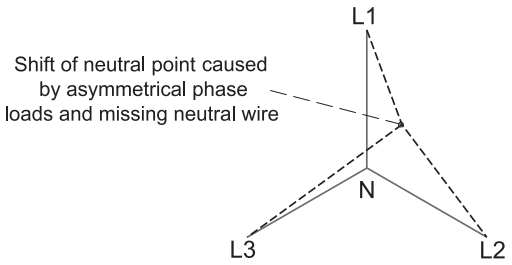
Windowfunction (WIN, WIN+SEQ)
The output relay R switches into on-position (yellow LED illuminated), when the measured voltage (all phase voltages) exceeds the value adjusted at the Min-regulator. When the measured voltage (one of the phase voltages) exceeds the value adjusted at the Max-regulator, the set interval of tripping delay (Delay) begins (red LED Max flashes). After the interval has expired (red LED Max illuminated) the output relay R switches into off-position (yellow LED not illuminated). The output relay switches into on-position again (yellow LED illuminated) when the measured voltage falls below the value adjusted at the Max-regulator (red LED Max not illuminated). When the measured voltage (one of the phase voltage) falls below the value adjusted at the Min-regulator, the set interval of tripping delay (Delay) begins again (red LED Min flashes). After the interval has expired (red LED Min illuminated), the output relay R switches into off-positon (yellow LED not illuminated).



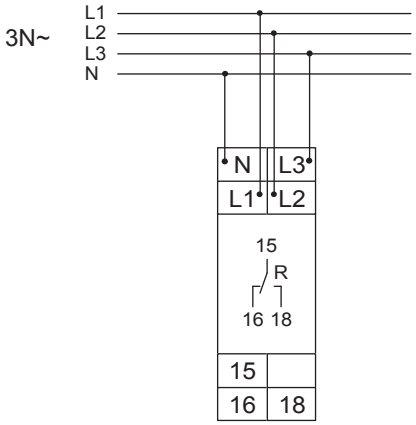
Phase sequence monitoring (SEQ)
Phase sequence monitoring is selectable for all functions.
In single phase circuit, the phase sequence monitoring must be disconnected.
If a change in phase sequence is detected (red LED SEQ illuminated), the output relay R switches into off-position after the set interval of tripping delay (Delay) has expired (yellow LED not illuminated).

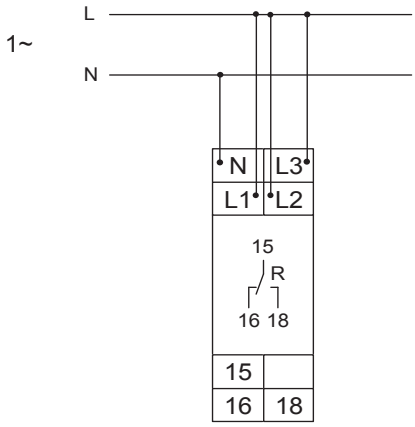


Neutral wire break
The device monitors every phase (L1, L2 and L3) against the neutral wire N.
A shift of neutral point occurs by an asymmetrical phase load if the neutral wire breaks in the power line. If one of the phase voltages exceeds the value adjusted at the trip point, the set interval of tripping delay (Delay) begins (red LED Min or Max flashes). After the interval has expired (red LED Min or Max illuminated), the output relay switches into off-position (yellow LED not illuminated).

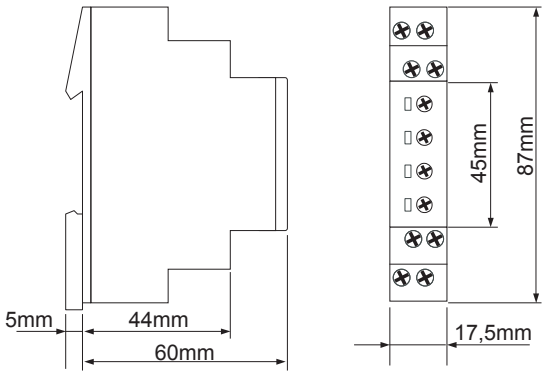


Connections





Dimensions



Ordering information

Type	Rated voltage U_N	Swiching treshold U_S:	Part. No.
E1YM400VS10	3(N)~400/230V	Max: 80%...130% of U_N Min: 70%...120% of U_N	1340405