Voltage monitoring in 3-phase mains

E1YF, E1YU

Monitoring relays - ENYA series

Undervoltage monitoring

Supply voltage = measured voltage

1 change over contact

Width 17.5 mm

Installation design



Technical data

1. Functions
Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with fixed or variable threshold voltage U_S and fixed hysteresis.

2. Time range

	Adjustment range
Tripping delay:	fixed, approx. 200ms

3. Indicators
Type E1YF400V01 0.70 / 0.85:
Yellow LED ON/OFF: indication of relay output

Type E1YU400V01, E1YF400VT01 0.85:
Green LED L1 ON/OFF: indication of supply voltage L1-N
Green LED L2 ON/OFF: indication of supply voltage L2-N
Green LED L3 ON/OFF: indication of supply voltage L3-N
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
Terminal capacity:
1 x 0.5 to 2.5mm² with/without multicore cable end
1 x 4mm² without multicore cable end
2 x 0.5 to 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 +10% of U_N
Rated consumption:	
E1YF:	5VA (0,6W)
E1YU:	8VA (0,8W)
Rated frequency:	a.c. 48 to 63Hz
Duty cycle:	100%
Reset time:	500ms
Hold-up time:	-
Drop out voltage:	determined by undervoltage detection (see measured circuit)
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 frequency:	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:	a.c. sinus, 48 to 63Hz
Measuring input:	(= supply voltage)
Terminals:	N-L1-L2-L3
Overload capacity:	determined by tolerance specified for supply voltage
Input resistance:	-
Switching threshold U_S:	see table ordering information or printing on the unit
Hysteresis H:	approx. 5%
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

Base accuracy:	≤5% (E1YU) of nominal value
Adjustment accuracy:	-
Repetition accuracy:	≤2%
Voltage influence:	-
Temperature influence:	≤0.05% /°C

9. Ambient conditions

Ambient conditions:	-25 to +55°C
Storage temperatur:	-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

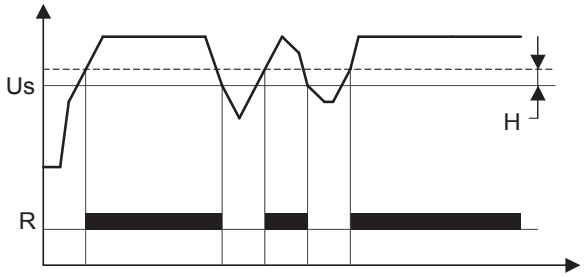
Single packing:	72g
Packing of 10pcs:	670g per Package

Functions

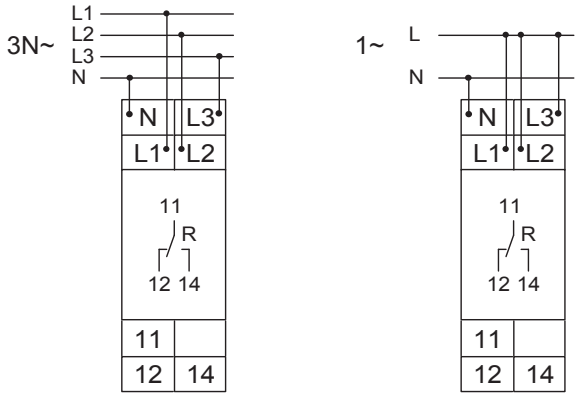
Undervoltage monitoring for 3-phase AC mains with fixed (E1YF) or variable (E1YU) threshold voltage U_S and fixed hysteresis.
All measuring inputs (L1, L2 and L3) must be connected to phase voltage.
If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3.
A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_S.

Test function (optional)
The test function enables a manually disconnection of the output relay.

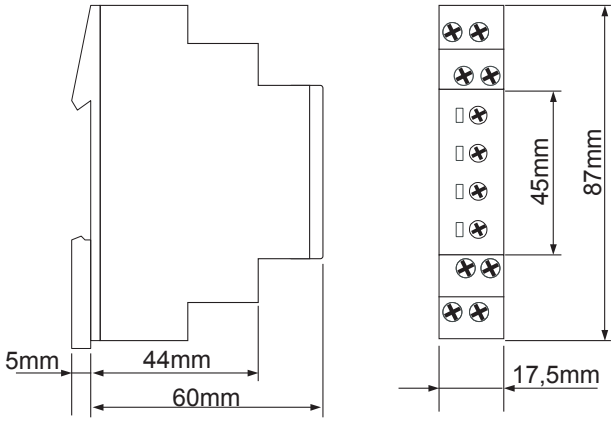
Undervoltage monitoring
The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exeeds the fixed threshold U_S by more than the fixed hysteresis H. When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).



Connections



Dimensions



Ordering information

Types	Rated voltage U_N	Switching threshold U_s	Options	LEDs	Part. No. (PQ 1)	Part. No. (PQ 10)
E1YF400V01 0.85	3N~400/230V in accord. with VDE 0108	fixed 195,5V (L-N)	-	Rel.	1340402	1340402A
E1YF400V01 0.70	3(N)~400/230V	fixed 161V (L-N)	-	Rel.	1340410	
E1YU400V01 0.85	3(N)~400/230V	160V-240V (L-N)	-	L1, L2, L3, Rel.	1340403	
E1YF400VT01 0.85	3N~400/230V in accord. with VDE 0108	fixed 195,5V (L-N)	Test function	L1, L2, L3, Rel.	1340406	

RELEASE 2015/06

Subject to alterations and errors