# Voltage monitoring in 3-phase mains

# E1PF400VSY01

Monitoring relays - ENYA series

Monitoring of phase sequence and phase failure

Monitoring of asymmetry

Connection of neutral wire optional

Supply voltage = measuring voltage

1 change over contact

Width 17.5mm

Installation design


## Technical data

**1. Functions**
Monitoring of phase sequence, phase failure and asymmetry with adjustable asymmetrie, connection of neutral wire optional.

**2. Time ranges**

| | Adjustment range |
|---|---|
| Tripping delay: | fixed, approx. 100ms |

**3. Indicators**
Green LED ON: indication of supply voltage
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 UN: | see table ordering information or printing on the unit |
| Tolerance: | -30% to +30% of UN |
| Rated consumption: | 8VA (0,8W) |
| Rated frequency: | AC 48 to 63Hz |
| Duty cycle: | 100% |
| Reset time: | 500ms |
| Hold-up time: | - |
| Drop out voltage: | >20% of the 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 AC |
| Switching capacity: | 1250VA (5A / 250V AC) |
| 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: | 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: | - |
| Asymmetry: | 5% ... 25% |
| Overvoltage category: | III (in accordance with IEC 60664-1) |
| Rated surge voltage: | 4kV |

**8. Accuracy**

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

**9. Ambient conditions**

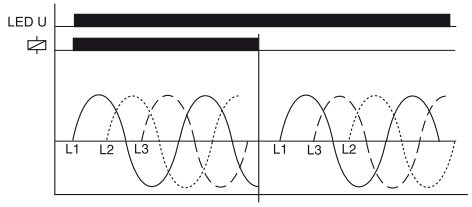
| | |
|---|---|
| Ambient temperature: | -25 to +55°C |
| Storage temperature: | -25 to +70°C |
| Transport temperature: | -25 to +70°C |
| Relative humidity: | 15% to 85% (in accordance with IEC 60721-3-3 class 3K3) |
| Pollution degree: | 2, if built in 3 (in accordance with IEC 60664-1) |

**10. Weight**

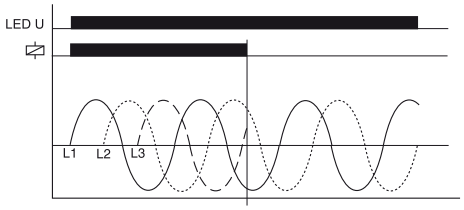
| | |
|---|---|
| Single packing: | 72g |
| Packing of 10pcs: | 670g per Package |

# Functions

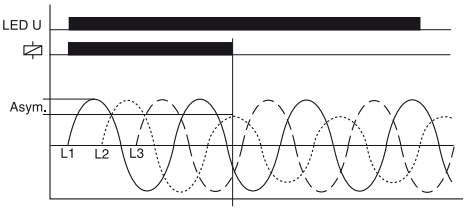
**Phase sequence monitoring**
When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay switches into off-position (yellow LED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



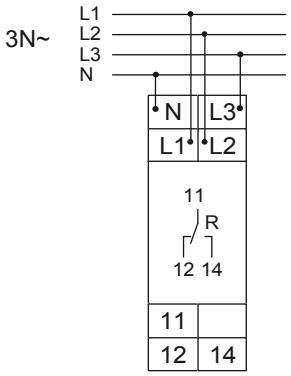

**Überwachung Phasenausfall**
Das Ausgangsrelais R fällt ab (gelbe LED leuchtet nicht), wenn eine der Phasen ausfällt.



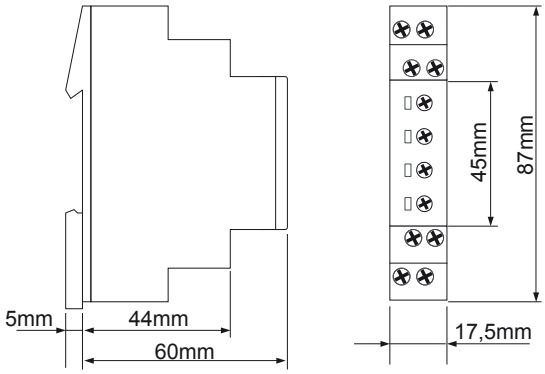

**Asymmetry monitoring**
The output relay R switches into off-position (yellow LED not illuminated) when the asymmetrie exceeds the value set at the ASYM-regulator. Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection.




# Connections




# Dimensions




# Ordering Informations

| Types | Rated voltage $U_N$ | Switching thresholds | Part. No. (PQ 1) | Part. No. (PQ 10) |
|---|---|---|---|---|
| E1PF400VSY01 | 3(N)-400/230V | Asymmetrie 5%...25% | 1340300 | 1340300A |

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