



## Monitoring relays - ENYA series

of the motor winding with and without short circuit monitoring of the thermistor line (selectable by means of terminals)

Optional evaluation of one thermal contact

Test function with integrated reset key

Rated isolated voltage on the sensor circuit up to 690V

1 change over contact

Width 35mm

Installation design



## Technical data

### 1. Functions

Temperature monitoring of the motor winding (max. 6 PTC) with fault latch for temperature sensors in accordance with DIN 44081, short circuit monitoring of the thermistor line (selectable by means of terminals), integrated test/reset key.

### 2. Time ranges

|                                    | Adjustment range |
|------------------------------------|------------------|
| Start-up suppression time (Start): | -                |
| Tripping delay (Delay):            | -                |

### 3. Indicators

|                 |                              |
|-----------------|------------------------------|
| Green LED ON:   | indication of supply voltage |
| Red LED ON/OFF: | indication of failure        |

### 4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40  
 Mounted on DIN-Rail TS 35 according to EN 50022  
 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 2.5mm<sup>2</sup> with/without multicore cable end  
 1 x 4mm<sup>2</sup> without multicore cable end  
 2 x 0.5 to 1.5mm<sup>2</sup> with/without multicore cable end  
 2 x 2.5mm<sup>2</sup> flexible without multicore cable end

### 5. Input voltage

|                         |  |
|-------------------------|--|
| Supply voltage:         | 230V AC  |
| Terminals:              | A1-A2  |
| Rated voltage Un:       | see table ordering information or printing on the unit |
| Tolerance:              | -15% to +10% of Un                                     |
| Rated consumption:      | 1,3VA (1W)   |
| Rated frequency:        | AC 48 to 63Hz  |
| Duty cycle:             | 100%   |
| Reset time:             | 250ms  |
| Residual ripple for DC: | 50ms   |
| Drop-out voltage:       | >30% of the supply voltage                             |
| Overvoltage category:   | III (in accordance with IEC 60664-1)                   |
| Rated surge voltage:    | 6kV  |

### 6. Output circuit

|                                      |   |
|--------------------------------------|---|
| 1 potential free change over contact |   |
| Terminals:                           | 11-12-14  |
| Rated voltage:                       | 250V AC   |
| Switching capacity:                  | 1250VA AC1 B300/P300<br>(in accordance with IEC 60947-5-1);<br>therm. constant current 5A |
| Fusing:                              | 5A fast acting  |
| Mechanical life:                     | 20 x 10 <sup>6</sup> operations   |
| Electrical life:                     | 2 x 10 <sup>5</sup> operations<br>at 1000VA resistive load                                |
| Switching frequency:                 | max. 6/min at 1000VA resistive load<br>(in accordance with IEC 60947-5-1)                 |
| Overvoltage category                 | III. (in accordance with IEC 60664-1)   |
| Rated surge voltage:                 | 6kV   |

### 7. Measuring circuit

|   |  |
|---|--|
| Terminals:                                | T1-T2 or T1-T3                                       |
| Initial resistance:                       | <1.5kΩ   |
| Response value (relay in off-position):   | ≥3.6kΩ   |
| Release value (relay in on-position):     | ≤1.65kΩ  |
| Disconnection (short circuit thermistor): | yes at T1-T2<br>no at T1-T3                          |
| Measuring voltage T1-T2:                  | ≤7.5V at R ≤4.0kΩ<br>(in accordance with EN 60947-8) |
| Overvoltage category:                     | III (in accordance with IEC 60664-1)                 |
| Rated surge voltage:                      | 6kV  |

### 8. Control contact R

|                       |   |
|-----------------------|---|
| Function:             | connection of an external reset key                   |
| Loadable:             | no  |
| Line length R1-R2:    | max. 10m (twisted pair)                               |
| Control pulse length: | min. 50ms   |
| Reset:                | potential free normally open contact, terminals R1-R2 |

Note: The terminals R2-T2 are internal affiliated with each other!!

### 9. Accuracy

|                        |             |
|------------------------|-------------|
| Base accuracy:         | ±5%         |
| Adjustment accuracy    | -           |
| Repetition accuracy:   | ≤1%         |
| Voltage influence:     | -           |
| Temperature influence: | ≤0.15% / °C |

### 10. 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%<br>(in accordance with IEC 60721-3-3 class 3K3) |
| Pollution degree:      | 2, if built in 3<br>(in accordance with IEC 60664-1)       |

### 11. Weight

|                 |         |
|-----------------|---------|
| Single packing: | 137,20g |
|-----------------|---------|

## Functions

### Temperature monitoring of the motor winding with fault latch

If the supply voltage  $U$  is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than  $3.6k\Omega$  (standard temperature of the motor), the output relay switches into on-position.

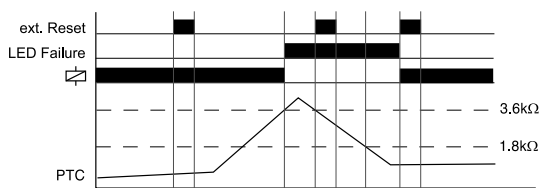
Pressing the test/reset key under this conditions forces the output relay to switch into off-position. It remains in state as long as the test/reset key is pressed and thus the switching function can be checked in case of fault.

The test function is not effective by using an external reset key.

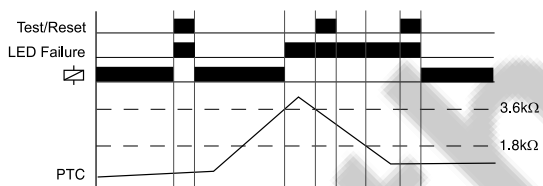
When the cumulative resistance of the PTC-circuit exceeds  $3.6k\Omega$  (at least one of the PTCs has reached the cut-off temperature), the output relay switches into off-position (red LED illuminated).

The output relay switches into on-position again (red LED not illuminated), if the cumulative resistance drops below  $1.65k\Omega$  by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected and re-applied.

### Application of an external Reset

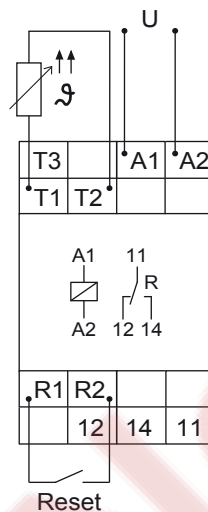


### Application of internal Test/Reset - key

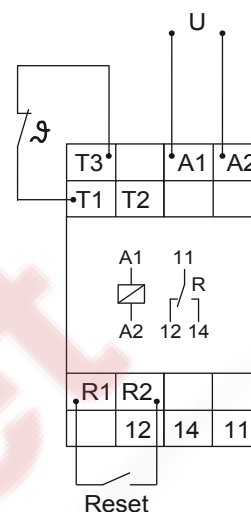


## Connections

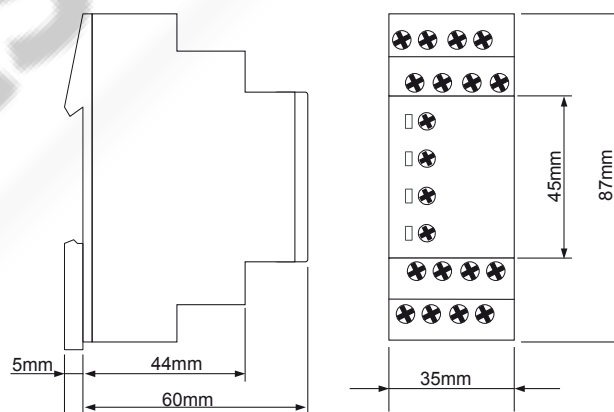
Monitoring temperature sensors



Monitoring thermal contact sensors



## Dimensions



## Ordering Informations

| Types  | Rated voltage $U_N$ | LEDs       | Part. No. |
|--------|---------------------|------------|-----------|
| E3TF01 | 230V                | U, failure | 1341600   |