

- ▶ Industrial design
- ▶ Width 45mm
- ▶ Temperature monitoring of the motor winding (max. 6 PTC)
- ▶ 2 measuring circuits
- ▶ Fault latch for measuring circuit 2
- ▶ 1 change over contact per measuring circuit



## Technical data

### 1. Functions

Temperature monitoring of the motor winding (max. 6 PTC) with fault latch (only measuring circuit 2), for temperature probes in accordance with DIN 44081  
 Test function with integrated reset key (connection of an external reset key possible)  
 Short circuit monitoring of PTC - circuit

### 2. Time ranges

|                            |                  |
|----------------------------|------------------|
|                            | Adjustment range |
| Start-up suppression time: | -                |
| Tripping delay:            | -                |

### 3. Indicators

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

### 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  
 Initial 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 circuit

|                         |                            |                                                                                 |
|-------------------------|----------------------------|---------------------------------------------------------------------------------|
| Supply voltage:         | 12 to 440V AC              | terminals A1-A2 (galvanically separated) selectable via transformer modules TR2 |
| Tolerance:              | -15% to +10%               |                                                                                 |
| Rated frequency:        | 48 to 63Hz                 |                                                                                 |
| Rated consumption:      | 2VA (1.5W)                 |                                                                                 |
| Duration of operation:  | 100%                       |                                                                                 |
| Reset time:             | 500ms                      |                                                                                 |
| Residual ripple for DC: | -                          |                                                                                 |
| Drop-out voltage:       | >30% of the supply voltage |                                                                                 |

### 6. Output circuit

|                                                            |                                                                                                       |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| 1 potential free change over contact per measuring circuit |                                                                                                       |
| Switching capacity:                                        | 1000VA (5A / 250V AC)                                                                                 |
| Fusing:                                                    | 5A fast acting                                                                                        |
| Mechanical life:                                           | 20 x 10 <sup>6</sup> operations                                                                       |
| Electrical life:                                           | 1 x 10 <sup>5</sup> operations at 1000VA resistive load                                               |
| Switching frequency:                                       | max. 60/min at 100VA resistive load<br>max. 6/min at 1000VA resistive load (according to IEC 947-5-1) |
| Insulation voltage:                                        | 250V AC (according to IEC 664-1)                                                                      |
| Surge voltage:                                             | 4kV, overvoltage category III (according to IEC 664-1)                                                |

### 7. Measuring circuit

|                                           |             |                                                              |
|-------------------------------------------|-------------|--------------------------------------------------------------|
| Input:                                    | thermistor  | terminals 1T1-T2 (circuit 1)<br>terminals 2T1-T2 (circuit 2) |
| Initial resistance:                       | <1.5kΩ      |                                                              |
| Response value (relay in off-position):   | ≥3.3kΩ      |                                                              |
| Release value (relay in on-position):     | ≤1.8kΩ      |                                                              |
| Disconnection (short circuit thermistor): | <15Ω        |                                                              |
| Terminal voltage T1-T2:                   | max. 12V DC |                                                              |

### 8. Control contact R

|                       |                                                                 |
|-----------------------|-----------------------------------------------------------------|
| Function:             | external reset key                                              |
| Connections:          | potential free, terminals 2R1-T2/2R2 (measuring circuit 2 only) |
| Loadable:             | no                                                              |
| Line length:          | max. 5m (twisted pair)                                          |
| Control pulse length: | -                                                               |

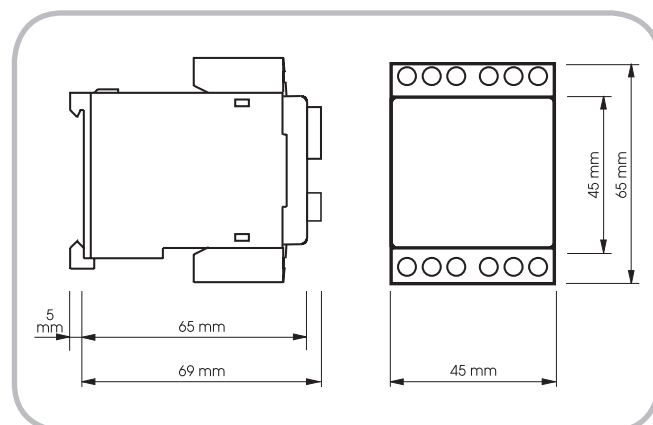
### 9. Accuracy

|                        |          |
|------------------------|----------|
| Base accuracy:         | ±10%     |
| Adjustment accuracy:   | -        |
| Repetition accuracy:   | <1%      |
| Voltage influence:     | ≤1% / V  |
| Temperature influence: | ≤1% / °C |

### 10. Ambient conditions

|                        |                                                 |
|------------------------|-------------------------------------------------|
| Ambient temperature:   | -25 to +55°C (according to IEC 68-1)            |
| Storage temperature:   | -25 to +70°C                                    |
| Transport temperature: | -25 to +70°C                                    |
| Relative humidity:     | 15% to 85% (according to IEC 721-3-3 class 3K3) |
| Pollution degree:      | 3 (according to IEC 664-1)                      |

### 11. Dimensions



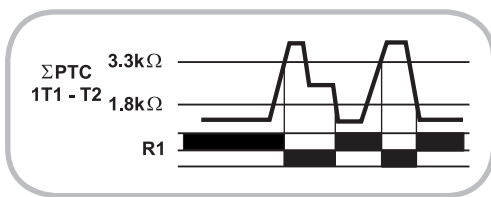
## Functions

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The output relay switches into off-position (red LED illuminated) in case of a line break or a short circuit of the probe line (cumulative resistance less than  $15\Omega$ ). Under these conditions however the output relay does not change its state, neither by pressing a reset key nor by disconnecting the supply voltage.

### Measuring circuit 1

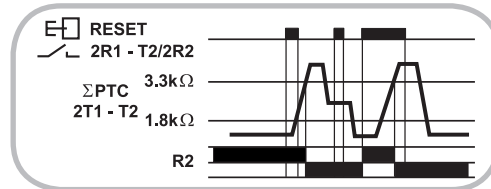
If the supply voltage is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than  $1.8k\Omega$  (standard temperature of the motor), the output relay R1 switches into on-position. When the cumulative resistance of the PTC-circuit exceeds  $3.3k\Omega$  (at least one of the PTCs has reached the cut-off temperature), the output relay switches into off-position (red LED illuminated). The output relay again switches into on-position (red LED not illuminated), if the cumulative resistance drops below  $1.8k\Omega$  by cooling down of the PTC.



### Measuring circuit 2

If the supply voltage is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than  $1.8k\Omega$  (standard temperature of the motor), the output relay R2 switches into on-position. When the cumulative resistance of the PTC-circuit exceeds  $3.3k\Omega$  (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 again switches into on-position (red LED not illuminated), if the cumulative resistance drops below  $1.8k\Omega$  by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected.



## Connections

