

- ▶ AC/DC current monitoring in 1-phase mains
- ▶ Multifunction
- ▶ 16.6 to 400Hz
- ▶ Fault latch
- ▶ Supply voltage selectable via power modules
- ▶ 1 change-over contact
- ▶ Width 22.5mm
- ▶ Industrial design



## Technical data

### 1. Functions

AC/DC current monitoring in 1-phase mains with adjustable thresholds, timing for start-up suppression and tripping delay separately adjustable, fault latch and the following functions (selectable by means of rotary switch)

OVER Overcurrent monitoring  
 UNDER Undercurrent monitoring  
 WIN Monitoring the window between Min and Max

### 2. Time ranges

	Adjustment range	
Start-up suppression time:	0s	10s
Tripping delay:	0.1s	10s

### 3. Indicators

Green LED ON: indication of supply voltage  
 Green LED flashing: indication of start-up suppression time  
 Yellow LED ON/OFF: indication of relay output  
 Red LED ON/OFF: indication of failure of the corresponding threshold  
 Red LED flashing: indication of tripping delay of the corresponding threshold

### 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 circuit

Supply voltage: 12 to 400V AC terminals A1-A2 (galvanically separated) selectable via power modules TR2  
 Tolerance: according to specification of power module  
 Rated frequency: according to specification of power module  
 Rated consumption: 2VA (1.5W)  
 Duration of operation: 100%  
 Reset time: 500ms  
 Residual ripple for DC: -  
 Drop-out voltage: >30% of the supply voltage  
 Overvoltage category: III (according to IEC 60664-1)  
 Rated surge voltage: 4kV

### 6. Output circuit

1 potential free change-over contact  
 Rated voltage: 250V AC  
 Switching capacity (distance <5mm): 750VA (3A / 250V AC)  
 Switching capacity (distance >5mm): 1250VA (5A / 250V AC)

Fusing: 5A fast acting  
 Mechanical life: 20 x 10<sup>6</sup> operations  
 Electrical life: 2 x 10<sup>5</sup> operations at 1000VA resistive load  
 Switching frequency: max. 60/min at 100VA resistive load  
 max. 6/min at 1000VA resistive load (according to IEC 947-5-1)  
 Overvoltage category: III (according to IEC 60664-1)  
 Rated surge voltage: 4kV

### 7. Measuring circuit

Measured variable: DC or AC sinus (16.6 to 400Hz)  
 Input:  
 100mA AC/DC terminals K-1(+)  
 1A AC/DC terminals K-12(+)  
 10A AC/DC terminals K-13(+ (distance >5mm))  
 Overload capacity:  
 100mA AC/DC 800mA  
 1A AC/DC 3A  
 10A AC/DC 12A  
 Input resistance:  
 100mA AC/DC 470mΩ  
 1A AC/DC 47mΩ  
 10A AC/DC 5mΩ  
 Switching threshold  
 Max: 10% to 100% of I<sub>N</sub>  
 Min: 5% to 95% of I<sub>N</sub>  
 Overvoltage category: III (according to IEC 60664-1)  
 Rated surge voltage: 4kV

### 8. Control contact Y (equipotential with measuring circuit)

Function: fault latch (bridge Y1-Y2)  
 Loadable: no  
 Line length Y1-Y2: max. 10m  
 Control pulse length: -  
 Reset: normally closed contact in the input circuit

### 9. Accuracy

Base accuracy: ±5% (of maximum scale value)  
 Frequency response: -10% to +5% (16.6 to 400Hz)  
 Adjustment accuracy: ≤5% (of maximum scale value)  
 Repetition accuracy: ≤2%  
 Voltage influence: -  
 Temperature influence: ≤0.1% / °C

### 10. Ambient conditions

Ambient temperature: -25 to +55°C (according to IEC 68-1)  
 -25 to +40°C (according to UL 508)  
 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 60664-1)

## Functions

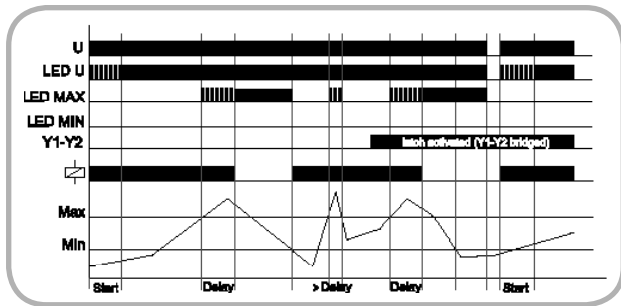
When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval of the start-up suppression (START) begins (green LED U flashes). Changes of the measured current during this period do not affect the state of the output relay. After the interval has expired the green LED is illuminated steadily.

For all the functions the LEDs MIN and MAX are flashing alternating, when the minimum value for the measured current was chosen to be greater than the maximum value.

### Overcurrent monitoring (OVER)

When the measured current exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relay switches into off-position (yellow LED not illuminated). The output relay again switches into on-position (yellow LED illuminated), when the measured current falls below the value adjusted at the MIN-regulator (red LED MAX not illuminated).

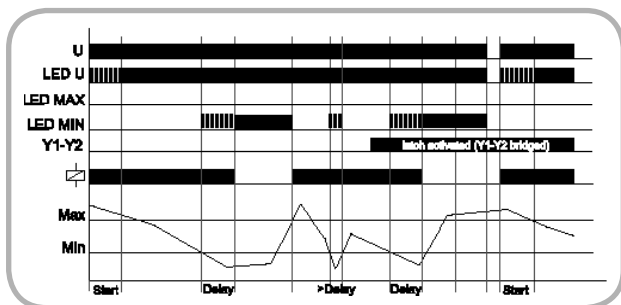
If the LATCH-function is selected (bridge Y1-Y2) and the measured current remains above the MAX-value longer than the set interval of the tripping delay, the output relay remains in the off-position even if the measured current falls below the value adjusted at the MIN-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relay switches into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).



### Undercurrent monitoring (UNDER)

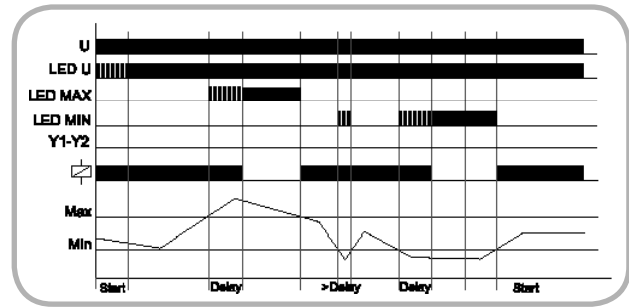
When the measured current falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relay switches into off-position (yellow LED not illuminated). The output relay again switches into on-position (yellow LED illuminated), when the measured current exceeds the value adjusted at the MAX-regulator.

If the LATCH-function is selected (bridge Y1-Y2) and the measured current remains below the MIN-value longer than the set interval of the tripping delay, the output relay remains in the off-position even if the measured current exceeds the value adjusted at the MAX-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relay switches into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

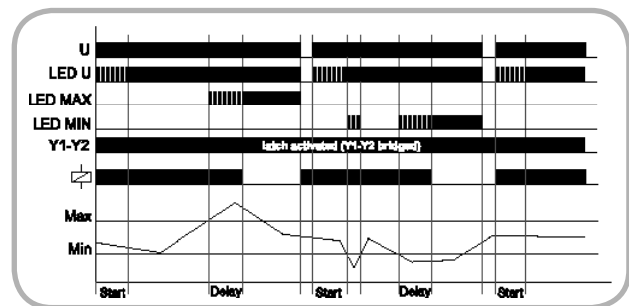


### Window function (WIN)

The output relay switches into on-position (yellow LED illuminated) when the measured current exceeds the value adjusted at the MIN-regulator. When the measured current exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relay switches into off-position (yellow LED not illuminated). The output relay again switches into on-position (yellow LED illuminated) when the measured current falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured current falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relay switches into off-position (yellow LED not illuminated).

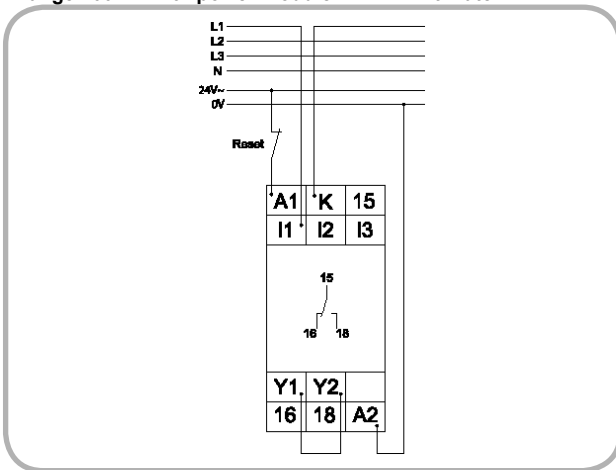


If the LATCH-function is selected (bridge Y1-Y2) and the measured current remains below the MIN-value longer than the set interval of the tripping delay, the output relay remains in the off-position even if the measured current exceeds the value adjusted at the MIN-regulator. If the measured current remains above the MAX-value longer than the set interval of the tripping delay, the output relay remains in the off-position even if the measured current falls below the value adjusted at the MAX-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relay switches into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

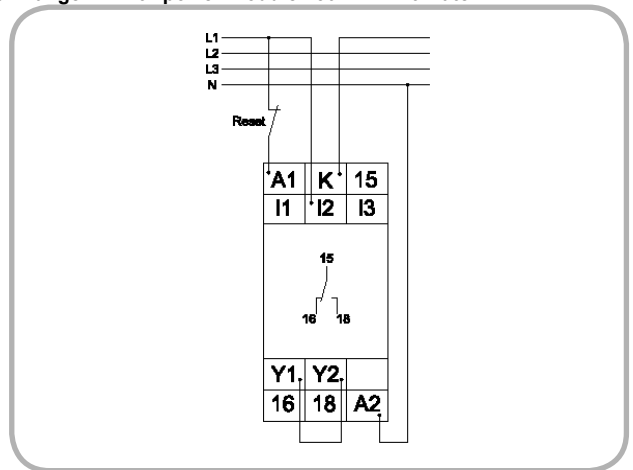


## Connections

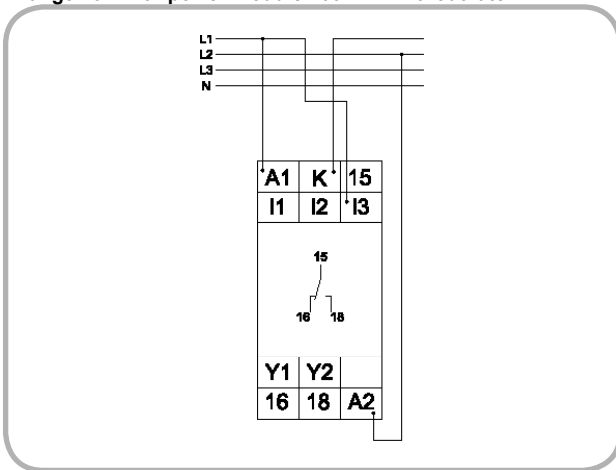
► Range 100mA with power module 24V AC with latch



► Range 1A with power module 230V AC with latch



► Range 10A with power module 400V AC without latch



Subject to alterations and errors

## Dimensions

