

- Industrial design
- Width 55mm
- True power monitoring
- Fault latch
- Position of output relay presettable
- 1 change over contact



Technical data

1. Functions

True power monitoring (overload or underload) of 1- and 3-phase motors with adjustable threshold, timing for start-up suppression and tripping delay separately adjustable

The following functions can be selected by means of DIP-switches

DIP-switch 1,2,3	selection of current range
DIP-switch 4	underload monitoring (ON) or overload monitoring (OFF)
DIP-switch 5	relay in on-position if fault occurs - n.o. (OFF) or relay in off-position if fault occurs - n.c. (ON) alarm for disconnected consumer (I = 0)
DIP-switch 6	fault latch
DIP-switch 7	fault simulation
DIP-switch 8	time range of start-up suppression time
DIP-switch 9	time range of tripping delay
DIP-switch 10,11	

2. Time ranges

Start-up suppression time:	Adjustment range	
	1s	20s
Tripping delay:	5s	100s
	0.1s	5s
	1s	5s

3. Indicators

Green LED ON:	indication of supply voltage
Green LED flashes:	indication of start-up suppression time
Red LED flashes:	indication of tripping delay
Red LED ON:	indication of fault
All LEDs flashing:	indication of disconnected consumer (if I = 0)

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 2.5mm² 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: 12 to 440V AC terminals A1-A2 (galvanically separated) selectable via transformer modules TR3

Tolerance: -15% to +10%
 Rated frequency: 48 to 63Hz
 Rated consumption: 4VA (3W)
 Duration of operation: 100%
 Reset time: <1s
 Residual ripple for DC: -
 Drop-out voltage: >30% of the supply voltage

6. Output circuit

1 potential free change over contact
 Switching capacity: 1200VA (5A / 250V AC)
 Fusing: 5A fast acting
 Mechanical life: 20 x 10⁵ operations
 Electrical life: 2 x 10⁵ operations at 1000VA resistive load
 max. 60/min at 100VA resistive load
 max. 6/min at 1000VA resistive load (according to IEC 947-5-1)
 250V AC (according to IEC 664-1)
 Surge voltage: 4kV, overvoltage category III (according to IEC 664-1)

7. Measuring circuit

Input	1-phase mains	voltage:	terminals L1i-B1
	3-phase mains	current:	terminals L1i-L1k
Voltage range	1-phase mains:	voltage:	terminals L1i-L2-L3
	3-phase mains:	current:	terminals L1i-L1k
Overload capacity	1-phase mains:	0 to 230V AC	
	3-phase mains:	0 to 3-400/230V	
Current range:	1-phase mains:	256V AC	
	3-phase mains:	3- 450/259V	
Overload capacity:		1 to 10A	
Input resistance:		12A	
Switching threshold P _S :		<20mΩ	
		0% to 100%	

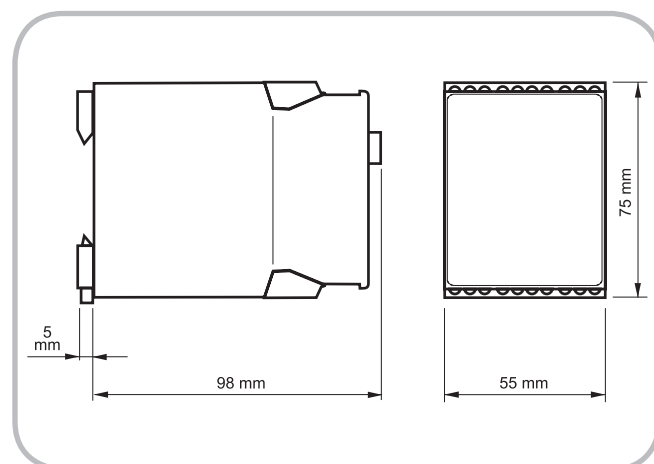
8. Accuracy

Base accuracy:	±5% (of maximum scale value)
Adjustment accuracy:	±5% (of maximum scale value)
Repetition accuracy:	±2%
Voltage influence:	-
Temperature influence:	≤0.03% / °C

9. 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)

10. Dimensions



Functions

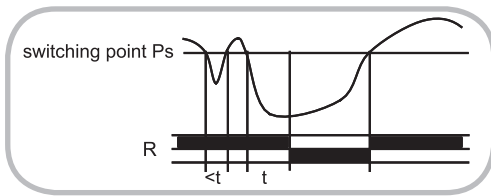
True power monitoring (overload or underload) of 1- and 3-phase motors with adjustable threshold, timing for start-up suppression and tripping delay separately adjustable

When the supply voltage U is applied, the set interval of the start-up suppression (t_2) begins (green LED flashes). Changes of the true power during this period do not affect the state of the output relay R . After the interval has expired the green LED is illuminated steadily.

The following functions can be selected by means of DIP-switches:

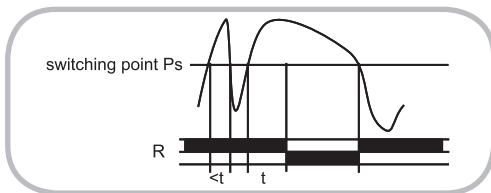
Underload monitoring (DIP-switch MIN in position ON)

When the measured value for the true power falls below the value adjusted at the P_5 -regulator, the set interval of the tripping delay (t_1) begins (red LED flashes). After the interval has expired and if the DIP-switch RELAY (5) is in the position ON (n.c.), the output relay R switches into off-position (red LED illuminated). When the measured value for the true power again exceeds the set value, the output relay switches into on-position (red LED not illuminated). When the DIP-switch RELAY is in the position OFF (n.o.), the mode of operation of the device remains unchanged, but the operation of the output relay is inverted.



Overload monitoring (DIP-switch MIN in position OFF)

When the measured value for the true power exceeds the value adjusted at the P_5 -regulator, the set interval of the tripping delay (t_1) begins (red LED flashes). After the interval has expired and if the DIP-switch RELAY is in the position ON (n.c.), the output relay R switches into off-position (red LED illuminated). When the measured value for the true power again falls below the set value, the output relay switches into on-position (red LED not illuminated). When the DIP-switch RELAY is in the position OFF (n.o.), the mode of operation of the device remains unchanged, but the operation of the output relay is inverted.



Disconnected consumer (DIP-switch I=0 in position ON)

When the current in the phase L1 is less than 5% of the nominal value of the selected current range and the DIP-switch RELAY is in the position ON (n.c.), the output relay R switches into off-position (irrespective of the actual position) and both LEDs flash. When the current flow is restored, the measuring cycle is restarted with the set interval of the start-up suppression (t_2) (green LED flashes). When the DIP-switch RELAY is in the position OFF (n.o.), the mode of operation of the device remains unchanged, but the operation of the output relay is inverted.

Fault latch (DIP-switch MEM in position ON)

For both functions (overload as well as underload monitoring) it is possible to activate a fault latch. When the DIP-switch MEM is in the position ON, a short term error will be stored after the expiration of the tripping delay (t_1). The measuring cycle is restarted with the set interval of the start-up suppression (t_2) (green LED flashes) after activating the internal reset key or after disconnecting and re-applying the supply voltage.

Test function (DIP-switch TEST in position ON)

Pressing the internal test key forces the output relay R to switch into off-position, if the measured value of the true power is within the admissible range and if the DIP-switch RELAY is in the position ON (n.c.). When the DIP-switch RELAY is in the position OFF (n.o.), the mode of operation of the device remains unchanged, but the operation of the output relay is inverted.

Connections

