- Industrial design
- Width 45 mm
- Voltage monitoring in 3-phase mains
- 1 change over contact

Technical data

1. Functions

Voltage monitoring in 3-phase mains inside the window between U_{min} and U_{max} with adjustable thresholds and adjustable tripping delay, monitoring of phase sequence and asymmetry with fixed asymmetry

2. Time ranges

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

3. Indicators

Yellow LED ON/OFF:	indication of relay output
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 2.5mm² 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 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

Switching capacity:	1250VA (5A / 250V AC)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	1 x 10^5 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)
Insulation voltage:	250V AC (according to IEC 664-1)
Surge voltage:	4kV, overvoltage category III (according to IEC 664-1)

7. Measuring circuit

Input:	3~ 115/66V	terminals (N)-L1-L2-L3	(TPW115VSN4X)
	3~ 230/133V	terminals (N)-L1-L2-L3	(TPW230VSN4X)
	3~ 400/230V	terminals (N)-L1-L2-L3	(TPW400VSN4X)
Overload capacity:			
	115/66V	3(N)~ 160/92V	(TPW115VSN4X)
	230/133V	3(N)~ 320/184V	(TPW230VSN4X)
	400/230V	3(N)~ 600/345V	(TPW400VSN4X)
Input resistance:			
	115/66V	130kΩ	(TPW115VSN4X)
	230/133V	270kΩ	(TPW230VSN4X)
	400/230V	470kΩ	(TPW400VSN4X)
Switching threshold:			
	U_{max}:	-20% to +30%	
	U_{min}:	-30% to +20%	
Asymmetry:		fixed, appr. 10%	

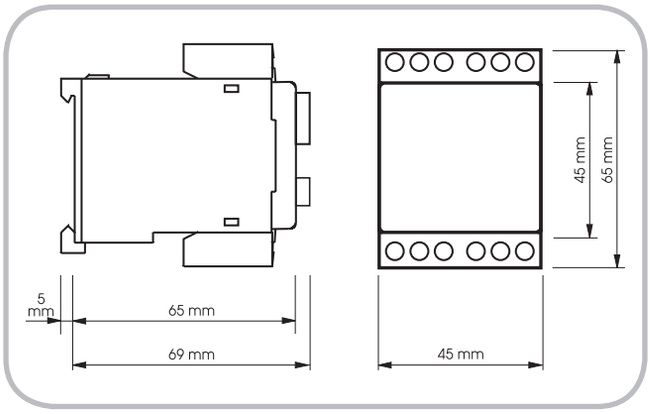
8. Accuracy

Base accuracy:	±5% (of maximum scale value)
Adjustment accuracy:	≤5% (of maximum scale value)
Repetition accuracy:	<1%
Voltage influence:	≤0.02% / 1% supply voltage change
Temperature influence:	≤0.02% / °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)

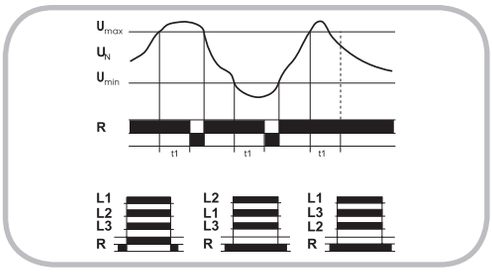
10. Dimensions



Functions

Voltage monitoring in 3-phase mains inside the window between U_{min} and U_{max} with adjustable thresholds and adjustable tripping delay, monitoring of phase sequence and asymmetry with fixed asymmetry

Window function
The output relay R switches into on-position (yellow LED illuminated) when the measured voltage exceeds the value adjusted at the U_{min}-regulator (red LED MIN not illuminated). When the measured voltage exceeds the value adjusted at the U_{max}-regulator (red LED MAX illuminated), the set interval of the tripping delay (t_1) begins. After the interval has expired, 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 voltage falls below the value adjusted at the U_{max}-regulator (red LED MAX not illuminated). When the measured voltage falls below the value adjusted at the U_{min}-regulator (red LED MIN illuminated), the set interval of the tripping delay (t_1) begins again. After the interval has expired, the output relay switches into off-position (yellow LED not illuminated).
The output relay also switches into off-position (yellow LED not illuminated), when at least one of the phase voltages exceeds the value adjusted at the U_{max}-regulator (red LED MAX illuminated) and at the same time at least one of the phase voltages falls below the value adjusted at the U_{min}-regulator (red LED MIN illuminated)



Phase sequence monitoring
When all the phases are connected in the correct sequence and the measured voltages of three phases are within the permissible limits, 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).

Connections