

- ❑ three-phase voltage monitoring
- ❑ maximum and minimum monitoring
- ❑ asymmetry monitoring
- ❑ phase failure monitoring
- ❑ variable release delay from 0.5 - 5 sec

## Technical Data:

### Supply voltages:

(can be selected with plug-in power supply)  
Only transformer modules are acceptable!  
12, 24, 42, 48, 110, 127, 230, 400, 440 V AC

### Nominal consumption:

24...440V AC approx 4VA  
Permissible voltage range 0.85 to 1.1  $U_N$   
Frequency range 48-63 Hz  
Duty cycle 100% IEC class 1c

### Environmental conditions:

Permissible ambient temperature -25°C to +55°C  
Class of application HVF to DIN 40040

### Accuracy:

Repetition accuracy under constant condition (as % of full range)  $\leq 1\%$   
Effect of voltage in the range of 0.85 to 1.1  $U_N \leq 0.5\%$   
Effect of temperature  $\leq 0.1\% / ^\circ\text{C}$   
Frequency range 48-63 Hz

### Mechanical data/specifications:

Enclosure in self-extinguishing plastic  
Type of protection IP 40

### Connection

Version X: terminals up to 4 mm<sup>2</sup> with protection against accidental contact

Version V: 11-pin plug-in base

### Dimensions and standards:

3V: 75 x 35 x 117 mm (h x b x d)  
4X: 75 x 45 x 117 mm (h x b x d)

X: Mounting on DIN rails to DIN 46277/3 (European standard EN 50 0222) Connection via terminals up to 4 mm<sup>2</sup> with protection against accidental contact. Type of protection IP20

Contact protection to VDE 0106 and VBG 4

Terminal arrangement and connection markings to DIN 46 199

V: Mounting and connection via 11-pin screw or soldered fitting.  
Fixing via retaining clip BU 351. Pin arrangement and connection markings to IEC 67-1-18a

### Specifications:

VDE 0435: Test voltage 2000 VAC  
VDE 0110: Group C 250 VAC

### Output stage:

2 changeover

Max. switching voltage: 380 V AC, 250 V DC

Continuous current: max. 8A

Switching capacity: 1500 VA

Contact life: 220 V AC, 5 A resistive approx 3.10<sup>6</sup> switching operations

Mechanical life: >30.10<sup>6</sup> switching operations

Contact material: AgNi - thinfilm gold plating

## Plug-in power supply modules for models 3V/X and 4X:

### 9 transformers TR3...V AC for alternating voltage

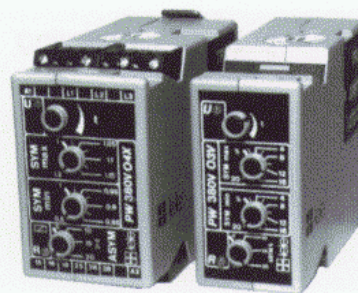
12V, 24 V, 42 V, 48 V, 110 V, 127 V, 230 V, 400V, 440V

## Types:

PW110V4X	PW400V4X	PW110V3V	PW400V3V
PW220V4X	PW415V4X	PW220V3V	
PW380V4X	PW440V4X	PW380V3V	

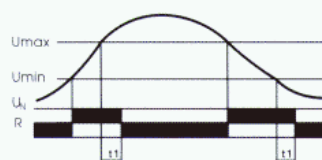
## Accessories:

Plug-in baseTVE 11  
Plug-in baseTVE 12  
Retaining clip BU 351  
Fascia surround FR 35



## Window-function

### Function diagram:



### Description of function:

Infinitely variable adjustment of the limits  $U_{max}$  and  $U_{min}$  can be obtained using two potentiometers. If the mean value of the 3 phases to be monitored falls within the range  $U_{max}$  and  $U_{min}$ , the output relay R is energised. If it exceeds  $U_{max}$  or drops below  $U_{min}$ , the output relay returns to the deenergised state after the set delay time „t“.

Infinitely variable adjustment of the permitted asymmetry can be effected by means of a single potentiometer. The deviation of one phase from another in terms of amount and angle is monitored. If the set value is exceeded, the output relay releases after the set delay time „t“. When there is phase failure, the output relay returns to the deenergised position after the set delay time „t“. The relay also reacts to any negative feed from motors in the event of phase disruption.

### Monitoring range:

Input	$U_N$ voltage effective	Input resistance	Overload permanent kurzzeitig
L1-L2-L3	3~110V	3x470k $\Omega$	600 V <sub>eff</sub>
L1-L2-L3	3~220V		
L1-L2-L3	3~380V		
L1-L2-L3	3~400V		
L1-L2-L3	3~415V		
L1-L2-L3	3~440V		

### Range of adjustment:

Maximum threshold:  $U_{max} = 1.0$  to  $1.2 U_N$

Minimum threshold:  $U_{min} = 0.8$  to  $1.0 U_N$

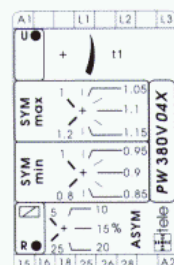
### Time delays:

start-surge delay: none

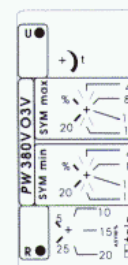
release delay: 0.5 to 5 sec

### Front view:

PW ... 4X

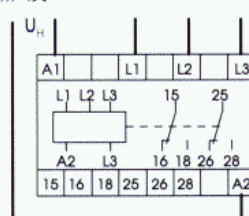


PW ... 3V



### Connection:

PW ... 4X



PW ... 3V

