# *Monitoring relay – VOX series*

- Industrial design
- Width 22.5mm
- Voltage monitoring in 3-phase mains
- 2 change over contacts

## Technical data

### 1. Functions
Monitoring of phase sequence, phase failure and asymmetry with fixed tripping delay and fixed asymmetry

### 2. Time ranges

| | Adjustment range |
|---|---|
| Start-up suppression time: | - |
| Tripping delay: | fixed, approx. 500ms |

### 3. Indicators
Yellow LED ON/OFF: indication of relay output

### 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: | | |
| 3~ 110V | terminals L1-L2-L3 (= measuring voltage) | (PF110VS4X) |
| 3~ 220V | terminals L1-L2-L3 (= measuring voltage) | (PF220VS4X) |
| 3~ 400V | terminals L1-L2-L3 (= measuring voltage) | (PF400VS4X) |
| 3~ 440V | terminals L1-L2-L3 (= measuring voltage) | (PF440VS4X) |
| Tolerance: | | |
| 3~110V | -15% to +10% | (PF110VS4X) |
| 3~ 220V | -15% to +10% | (PF220VS4X) |
| 3~ 400V | -15% to +10% | (PF400VS4X) |
| 3~ 440V | -15% to +10% | (PF440VS4X) |
| Rated frequency: | 48 to 63Hz | |
| Rated consumption: | | |
| 3~ 110V | 4VA (3W) | (PF110VS4X) |
| 3~ 220V | 4VA (3W) | (PF220VS4X) |
| 3~ 400V | 4VA (3W) | (PF400VS4X) |
| 3~ 440V | 4VA (3W) | (PF440VS4X) |
| Duration of operation: | 100% | |
| Reset time: | 500ms | |
| Residual ripple for DC: | - | |
| Drop-out voltage: | >30% of the supply voltage | |

### 6. Output circuit
2 potential free change over contacts

| | |
|---|---|
| Switching capacity: | 1250VA (5A / 250V) |
| 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<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: | 3~110V | terminals L1-L2-L3 (= supply voltage) | (PF110V4X) |
| | 3~ 220V | terminals L1-L2-L3 (= supply voltage) | (PF220V4X) |
| | 3~400V | terminals L1-L2-L3 (= supply voltage) | (PF400V4X) |
| | 3~440V | terminals L1-L2-L3 (= supply voltage) | (PF440V4X) |
| Overload capacity: | | | |
| | 3~110V | 3~ 121V | (PF110V4X) |
| | 3~220V | 3~ 242V | (PF220V4X) |
| | 3~400V | 3~ 440V | (PF400V4X) |
| | 3~440V | 3~ 484V | (PF440V4X) |
| Input resistance: | | – | |
| Asymmetry: | | fixed, approx.. 30% | |

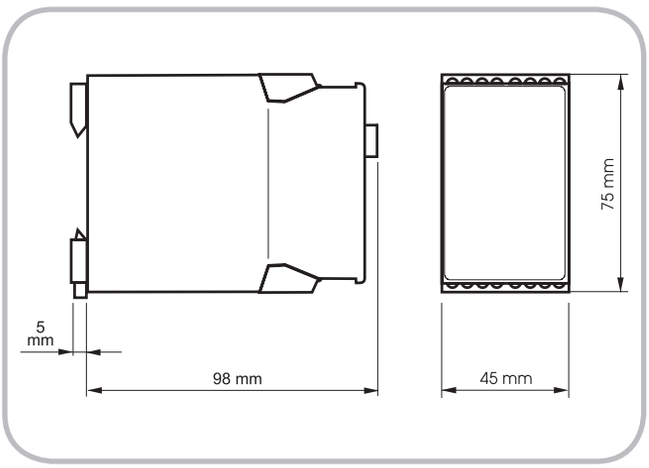
### 8. Accuracy

| | |
|---|---|
| Base accuracy: | - |
| Adjustment accuracy: | - |
| Repetition accuracy: | - |
| Voltage influence: | - |
| Temperature influence: | - |

### 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) |

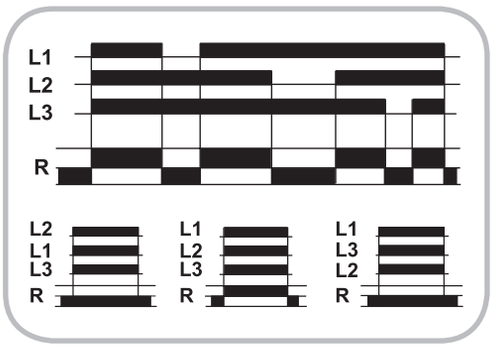
### 10. Dimensions



# Functions

Monitoring of phase sequence, phase failure and asymmetry with fixed tripping delay and fixed asymmetry

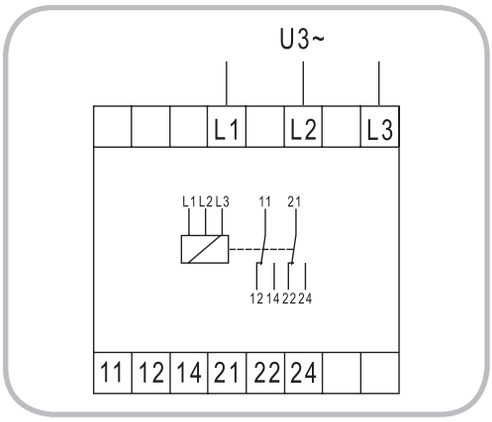
**Phase sequence monitoring**
When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay switches into off-position (yellow LED not illuminated) after the fixed interval of the tripping delay has expired.




**Phase failure monitoring**
When one of the three phases fails, the output relay R switches into off-position (yellow LED not illuminated), after the fixed interval of the tripping delay has expired. Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection.

**Asymmetry monitoring**
When one of the phase voltages deviates from the mean value of all the three phase voltages by more than the fixed value of the asymmetry, the output relay R switches into off-position (yellow LED not illuminated) after the fixed interval of the tripping delay has expired.

# Connections



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