

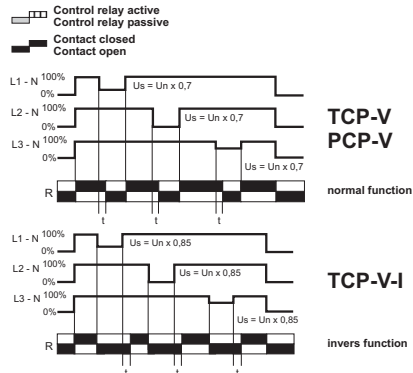
# TCP-V/PCP-V

## overview

- ◆ detects phase failure or reduction of phase voltage
- ◆ DPCO output max. 6A
- ◆ normal or inverted function available
- ◆ constant measuring
  - TCP-V  $U_s = U_n \times 0.7$
  - PCP-V  $U_s = U_n \times 0.7$
  - TCP-V-I  $U_s = U_n \times 0.85$
- ◆ will not trip with regenerated voltage present
- ◆ requires neutral connection (3-phase 4-wire)
- ◆ adjustable reaction timer 0.1 - 10s
- ◆ LED indicators for power supply, relay and reaction timer
- ◆ 45mm DIN rail mount housing or 11pin plug in housing

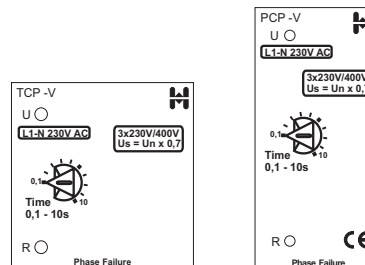


### Function



### Phase failure relay 3-phase and neutral

The TCP-V is a phase failure relay for monitoring 4-wire, 3-phase systems for phase failure or phase voltage reduction down to  $U_n \times 0.7$  or less. When the control relay detects all 3 phases within the correct range, the output relay R energises. At a loss of one phase (> 30% under nominal voltage) the reaction time  $t$  starts. At the end of time  $t$  the output relay R de-energises. Time  $t$  is adjustable between 0.1s and 10s, and is used to time out short transients which would otherwise cause nuisance tripping. The relay energises again, when phase L1, L2 and L3 return to the correct range. The TCP-V may be used for monitoring a 1-phase system, in which case L1, L2 & L3 must be connected together (see below).



1-phase connection 3-phase connection

## specification

|                            |                              |                                |
|----------------------------|------------------------------|--------------------------------|
| supply voltage variation   | nominal voltage +10% / -20%  |                                |
| frequency range            | 48 - 63 Hz                   |                                |
| duty cycle                 | 100%                         |                                |
| reaction timer             | 0,1 - 10s                    |                                |
| reset time                 | < 100ms                      |                                |
| output relay specification | max. 6A 230V~                |                                |
| Ue/Ie AC-15                | 120V/4A                      | 240V/3A                        |
| Ue/Ie DC-13                | 24V/2A                       |                                |
| expected life time         | DPCO                         | SPCO                           |
| mechanical                 | 2 x 10 <sup>6</sup>          | 1 x 10 <sup>7</sup> operations |
| electrical                 | 1 x 10 <sup>5</sup>          | 1 x 10 <sup>5</sup> operations |
| screws                     | pozidrive 1                  |                                |
| screw tightening torque    | 0,6...0,8Nm                  |                                |
| operating conditions       | -20 to +60 °C non condensing |                                |

\* EN 60947-5-1 VDE 0435

## ordering information

| part no          | supply             | output | sup. galv. iso* | certification | housing types |
|------------------|--------------------|--------|-----------------|---------------|---------------|
| TCP-V 3x440Vac   | 3x 250/440V~ 2,5VA | DPCO   | yes             | no            | C             |
| TCP-V 3x400Vac   | 3x 230/400V~ 2,5VA | DPCO   | yes             | yes           | C             |
| PCP-V 3x400Vac   | 3x 230/400V~ 2,5VA | DPCO   | yes             | no            | G             |
| TCP-V 3x230Vac   | 3x 115/230V~ 2,5VA | DPCO   | yes             | yes           | C             |
| TCP-V-I 3x440Vac | 3x 250/440V~ 2,5VA | DPCO   | yes             | no            | C             |
| TCP-V-I 3x400Vac | 3x 230/400V~ 2,5VA | DPCO   | yes             | no            | C             |
| TCP-V-I 3x230Vac | 3x 115/230V~ 2,5VA | DPCO   | yes             | no            | C             |

\* The measurement input is galvanically isolated from the power supply

3 phase monitoring relay (phase to neutral measurement)

