

Terminal Protection to IP20



Dims: to DIN 43880 W. 17.5mm

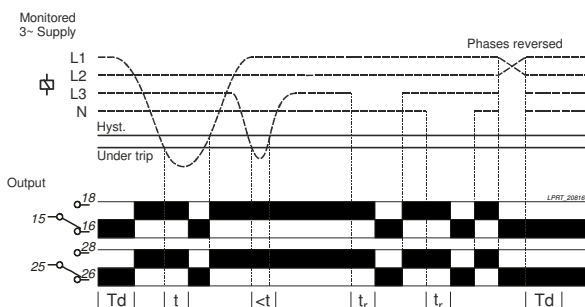
- Compact 17.5mm DIN rail housing
- Microprocessor based
- True R.M.S. monitoring measuring phase to phase (3-wire) or phase to neutral (4-wire) voltages
- Selectable nominal voltages to suit most popular 3-wire or 4-wire supply voltages
- Monitors own supply and detects an Under voltage condition on one or more phases
- Detects incorrect phase sequence, phase loss and neutral loss¹
- Adjustment for Under voltage trip level
- Adjustment for Time delay
- DPDT relay output 5A
- Green LED indication for supply status
- Red LED indication for relay status



ISO 9001:2015 Cert. No. 14125771

¹ Only when 4-wire monitoring selected

FUNCTION DIAGRAM



TECHNICAL SPECIFICATION

| Supply/monitoring voltage Un (L1, L2, L3, (N)): | 3-wire monitoring 3-Wire | 4-wire monitoring 4-Wire | |
|---|--|---------------------------------|------------|
| 380, 400, 415V AC | 220, 230, 240V AC | | |
| Frequency range: | 48 – 63Hz | | |
| Supply variation: | 243 – 540V AC (L>L) | | |
| Overvoltage category: | III (IEC 60664) | | |
| Rated impulse withstand voltage: | 4kV (1.2/50µs) IEC 60664 | | |
| Power consumption (max.): | 2.5VA | | |
| Monitoring mode: | Under voltage | | |
| Trip levels: | Fixed ± 2% see below | | |
| Under [2]: | 75 – 95% of Un | | |
| Measuring ranges: | Nominal (Un) | Under | |
| | 3-wire (L>L) | 243V | 285 – 361V |
| | 400V | 256V | 300 – 380V |
| 4-wire (L>N) | 415V | 265V | 311 – 394V |
| | 220V | 140V | 165 – 209V |
| | 230V | 147V | 173 – 219V |
| 240V | 153V | 180 – 228V | |
| Hysteresis: | ≈ 2% of trip level (factory set) | | |
| Setting accuracy: | ± 3% | | |
| Repeat accuracy: | ± 0.5% at constant conditions | | |
| Immunity from micro power cuts: | <50ms | | |
| Response time (t _r): | ≈ 50ms | | |
| Time delay (t _d): | 0.2 – 10s (± 5%) | | |
| Power on delay (Td): | ≈ 1s (worst case = Td x 2) | | |
| Reset time: | 50 – 100ms | | |
| Power on indication: | Green LED | | |
| Relay status indication: | Red LED | | |
| Ambient temperature: | -20 to +60°C | | |
| Relative humidity: | +95% max. | | |
| Output (15, 16, 18 / 25, 26, 28): | DPDT relay | | |
| Output rating: | AC1 | 250V 5A (1250VA) | |
| | AC15 | 250V 2A | |
| | DC1 | 25V 5A (125W) | |
| Electrical life: | ≥ 150,000 ops at rated load | | |
| Dielectric voltage: | 2kV AC (rms) IEC 60947-1 | | |
| Rated impulse withstand voltage: | 4kV (1.2/50µs) IEC 60664 | | |
| Housing: | Orange flame retardant UL94 | | |
| Weight: | 90g | | |
| Mounting option: | On to 35mm symmetric DIN rail to BS EN 60715 or direct surface mounting via 2 x M3.5 or 4BA screws using the black clips provided on the rear of the unit. | | |
| Terminal conductor size | ≤ 2.5mm ² solid or stranded | | |
| Terminal screw: | M2.5 | | |
| Tightening torque: | 0.4Nm (3.5Lb-In) Max. | | |
| Approvals: | Conforms to IEC. | | |

INSTALLATION AND SETTING

! Installation work must be carried out by qualified personnel.

- BEFORE INSTALLATION, ISOLATE THE SUPPLY.
- Connect the unit as required. The Connection Diagram below shows a typical installation, whereby the supply to a load is being monitored by the Phase monitoring relay. If a fault should occur (i.e. fuse blowing), the relay will de-energise and assuming control of the external Contactor, de-energise the Contactor as well.
- Only connect the Neutral if available and 4-wire monitoring is required.

Applying power.

- Set the "Nominal (Un)" voltage selector to match that of the voltage being monitored.
- Set the "Under %" adjustment to minimum. Set the "Delay (t)" to minimum.
- Apply power and the green "Power supply" LED will illuminate. The red LED will illuminate and relay energise after the short Power on delay (Td).
- Refer to the troubleshooting table if the unit fails to operate correctly.

Setting the unit (with power applied).

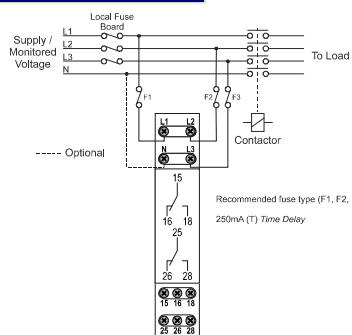
- Accurate setting can be achieved by adjusting the trip level "Under (%)" until the unit trips (relay de-energises) then by decreasing the trip level "Under (%)" until the relay re-energises. Close setting of the trip level ensures the unit will detect a phase loss even with a large percentage of re-generative voltage.
- In order to set the unit as accurately described but without causing disruption to the equipment being controlled/monitored, set the "Delay (t)" to maximum. It will now be possible to establish the trip point when the red LED starts to flash. Decrease the trip level setting to stop the LED flashing. (Note: If the time delay is allowed to expire, the output relay will de-energise)
- If large supply variations are anticipated, the trip level should be set further from the nominal voltage.
- Set the "Delay (t)" as required. (Note that the delay is only effective should the supply drop below the set trip level. However, if during an under voltage condition the supply drops below the 2nd under voltage trip level, any set time delay is automatically cancelled and the relays de-energise).

Troubleshooting.

The table below shows the status of the unit during a particular fault condition.

| Supply fault | Green LED 1 | Red LED 2 | Relay |
|---|-------------------------|-----------|-------------------------|
| Phase or neutral missing | LED's flash alternately | Off | De-energised |
| Phases reversed (no delay) | Flashing | Off | De-energised |
| Under voltage condition (during timing) | On | Flashing | Energised for delay (t) |
| Under voltage condition (after timing) | On | Off | De-energised |
| Phases < fixed under trip level [2] | On | Off | De-energised |

CONNECTION DIAGRAM



SETTING DETAILS

1. Power supply status (Green) LED
2. Relay output / Timing status (Red) LED
3. "Nominal (Un)" voltage selector
4. "Delay (t)" adjustment
5. "Under %" trip level adjustment[^]

[^]scaled as % of the selected nominal voltage "Un"

DIMENSIONS

