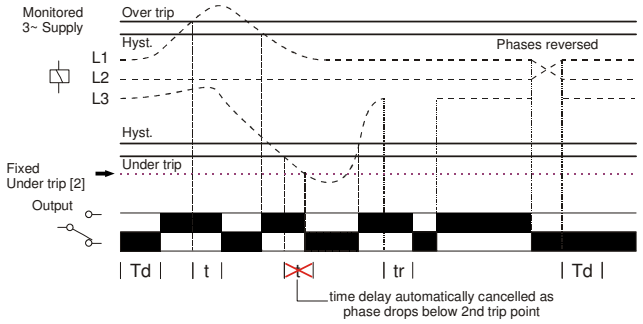
# Type: LXPRC/S

## Phase Failure, Phase Sequence, Under and Over Voltage plus Time Delay


- ❑ ***NEW*** **17.5mm DIN rail housing**
- ❑ **Microprocessor based**
- ❑ **True R.M.S. monitoring**
- ❑ **Monitors own supply and detects if one or more phases exceed the set Under or Over voltage trip levels**
- ❑ **Measures phase to phase voltages**
- ❑ **Detects incorrect phase sequence and phase loss**
- ❑ **Adjustments for Under and Over voltage trip levels**
- ❑ **Adjustment for Time delay (from an Under or Over voltage condition)**
- ❑ **1 x SPDT relay output 8A**
- ❑ **Green LED indication for supply status**
- ❑ **Red LED indication for relay status**

## FUNCTION DIAGRAM

*Under and Over Voltage Monitoring*




## 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.

*Applying power.*

- Set the "Over %" ❸ adjustment to maximum and the "Under %" ❺ adjustment to minimum. Set the "Delay (t)" ❹ to minimum.
- Apply power and the green "Power supply" ❶ and red "Relay" ❷ LED's will illuminate, the relay will energise and contacts 15 and 18 will close. Refer to the troubleshooting table if the unit fails to operate correctly.

*Setting the unit (with power applied).*

- Set the "Over %" and the "Under %" adjustments to give the required monitoring range.
- If large supply variations are anticipated, the adjustments should be set further from the nominal voltage.
- Set the "Delay (t)" adjustment as required. (Note that the delay is only effective should the supply increase above or drop below the set trip levels. 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 relay de-energises).
  Note: If the supply voltage increases above the maximum "Over %" trip setting by approx. 5% or more, the relay will de-energise immediately.

*Troubleshooting.*

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

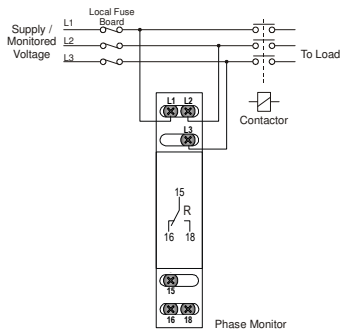
| Supply fault | Green LED | Red LED | Relay |
|---|---|---|---|
| Phase missing | On | Off | De-energised |
| Phases reversed (no delay) | Flashing | Off | De-energised |
| Under or Over Voltage condition (during timing) | On | Flashing | Energised for set delay (t) |
| Under or Over Voltage condition (after timing) | On | Off | De-energised |
| Phase below 70% of Un (fixed under trip level [2]) | On | Off | De-energised |

## TECHNICAL SPECIFICATION

| | | | |
|---|---|---|---|
| Supply/monitoring voltage | | | |
| Un* **(L1, L2, L3):** | 110, 208, 220, 380[1], 400[1], 415V[1] AC | | |
| Frequency range: | 48 – 63Hz | | |
| Supply variation: | 70 – 130% Un | | |
| Overvoltage category: | III (IEC 60664) | | |
| Rated impulse withstand voltage: | [1]4kV (1.2/50µS) IEC 60664 | | |
| Power consumption (max.): | 8VA | | |
| Monitoring mode: | Under and Over voltage | | |
| Trip levels: | | | |
| Under [2]: | 70% of Un (fixed) ± 2% | | |
| Under: | 75 – 95% of Un | | |
| Over: | 105 – 125% of Un | | |
| Measuring ranges: | Under [2] | Under | Over |
| 110V: | 77V | 83 – 105V | 116 – 138V |
| 208V: | 146V | 156 – 197V | 218 – 260V |
| 220V: | 154V | 165 – 209V | 231 – 275V |
| 380V: | 266V | 285 – 361V | 399 – 475V |
| 400V: | 280V | 300 – 380V | 420 – 500V |
| 415V: | 290V | 311 – 394V | 436 – 519V |
| 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: | ≈ 50mS | | |
| Time delay (t): | 0.2 – 10 sec. (± 5%) | | |
| | *Note: actual delay (t) = adjustable delay + response time* | | |
| Delay from Phase loss (tr): | ≈ 150mS (worst case = tr x 2) | | |
| Power on delay (Td): | ≈ 1 sec. (worst case = Td x 2) | | |
| Power on indication: | Green LED | | |
| Relay status indication: | Red LED | | |
| Ambient temp: | -20 to +60°C | | |
| Relative humidity: | +95% | | |
| Output **(15, 16, 18)**: | SPDT relay | | |
| Output rating: | AC1 | 250V 8A (2000VA) | |
| | AC15 | 250V 5A (no), 3A (nc) | |
| | DC1 | 25V 8A (200W) | |
| 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: | 75g | | |
| Mounting option: | On to 35mm symmetric DIN rail to BS EN 60715<br>or direct surface mounting via 2 x M3.5 or 4BA screws<br>using the black clips provided on the rear of the unit. | | |
| Terminal conductor size | ≤ 2 x 2.5mm² solid or stranded | | |
| Approvals: | Conforms to IEC. CE, ✔ and RoHS Compliant.<br>EMC: Immunity: EN 61000-6-2 (EN 61000-4-3 15V/m 80MHz - 2.7GHz)<br>Emissions: EN 61000-6-4 | | |

* Please state Supply/monitoring voltage when ordering

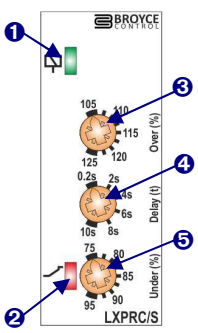
## CONNECTION DIAGRAM



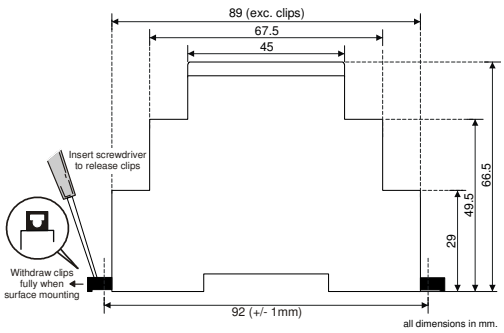

## SETTING DETAILS

1. Power supply status (Green) LED
2. Relay output / Timing status (Red) LED
3. "Over %" trip level adjustment^
4. "Delay" adjustment
5. Under %" trip level adjustment^

^scaled as % of the nominal voltage "Un"




## DIMENSIONS





Broyce Control Ltd., Pool Street, Wolverhampton, West Midlands WV2 4HN. England
Tel: +44 (0) 1902 773746 Fax: +44 (0) 1902 420639 Email: sales@broycecontrol.com Web: www.broycecontrol.com

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