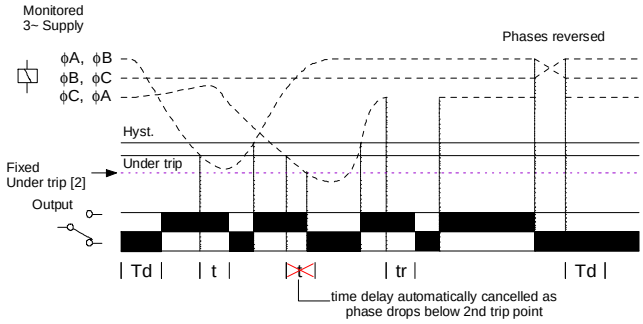
Type: B8PMU Phase Monitor/Relay

Phase Failure, Phase Sequence, Under Voltage plus Time Delay

- **8-Pin Plug-In housing**
- **Microprocessor controlled with internal monitoring (self-checking)**
- **Monitors own supply and detects an Under voltage condition on one or more phases**
- **Measures phase to phase voltage**
- **Detects incorrect phase sequence and phase loss**
- **Adjustment for under voltage trip level**
- **Adjustment for time delay (from an under voltage condition)**
- **1 x SPDT relay output 10A***
- **Intelligent LED indication for supply and relay status**

Dims (mm):
H.80, W.40, L.92 mm
(excl pins)

FUNCTION DIAGRAM



INSTALLATION AND SETTING

Installation work must be carried out by qualified personnel.

- BEFORE INSTALLATION, ISOLATE THE SUPPLY.
- Connect the unit as required. The diagram below shows a typical installation, whereby the supply to the load is being monitored by the relay. If a fault should occur (i.e. fuse blowing), the relay will de-energise. The relay will only re-energise after the fault has cleared.

Applying power.

- Set the "trip level" and the "time delay" to minimum.
- Apply power and the green "supply on" and red "relay" LED's will illuminate, the relay will energise and contacts 1 and 8 will close. Refer to troubleshooting table if the unit fails to operate correctly.

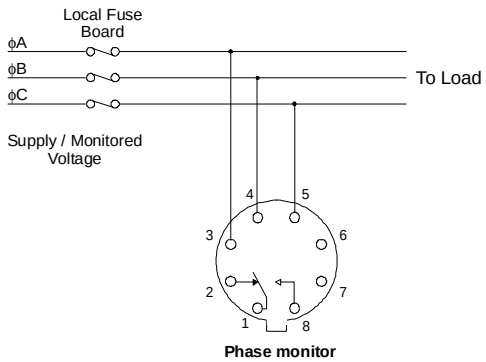
Setting the unit.

- Accurate setting can be achieved by adjusting the "trip level" until the unit trips (relay de-energises) then by decreasing the "trip level" setting until the relay re-energises. By close setting of the "trip level", the unit will also detect a phase loss even with a large percentage of re-generative voltage.
- In order to set the unit as previously described but without causing disruption to the equipment being controlled/monitored, set the "time delay" to maximum. It will now be possible to establish the trip point when the red "relay" 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 "time delay" 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 relay de-energises).

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

Supply fault	Green LED	Red LED	Relay
Phase missing	Off	Off	De-energised
Phases reversed (no delay)	Flashing	Off	De-energised
Under Voltage condition (during timing)	On	Flashing	Energised for set delay (t)
Under Voltage condition (after timing)	On	Off	De-energised
Phase below 70% of Un (fixed under trip level [2])	On	Off	De-energised
Phase below 50% of Un	Off	Off	De-energised

CONNECTION DIAGRAM



Phase monitor

TECHNICAL SPECIFICATION

Supply / monitoring voltage U (3, 4, 5): (phase to phase)	84 - 156V AC (suited to 120V nominals) 154 - 286V AC (suited to 208, 220 and 240V nominals) 242 - 450V AC (suited to 346 and 380V nominals) 308 - 572V AC (suited to 380, 415, 440, 460 and 480V nominals)
Frequency range:	48 - 63Hz
Isolation:	Over voltage cat. III
Rated impulse withstand voltage:	6kV (1.2 / 50µS) IEC 60664
Power consumption (max.):	3.2W
Supply current (max.)	Pin 3 (ϕA): 125mA, Pin 4(ϕB): 1mA, Pin 5 (ϕC): 125mA

Please state Supply / monitoring voltage when ordering.

Trip levels:

Voltage range:	Under [2] fixed:	Under (adjustable):
84 - 156V AC	84V	90 - 150V
154 - 286V AC	154V	165 - 275V
242 - 450V AC	242V	260 - 433V
308 - 572V AC	308V	330 - 550V

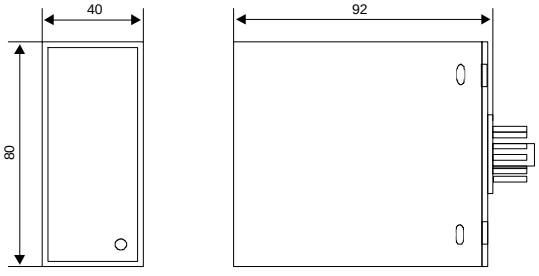
Repeat accuracy:	± 0.5% @ constant conditions
Hysteresis:	≈ 2% of trip level (factory set)
Response time:	≈ 50 mS
Time delay (t):	0.2 - 10 sec (± 5%) Note: actual delay (t) = adjustable delay + response time
Delay from phase loss (tr):	≈ 100 mS (worst case = tr x 2)
Power on delay (Td):	≈ 1sec. (worst case = Td x 2)
Ambient temp:	-20 to +60°C
Relative humidity:	+95%
Output (1, 2, 8):	SPDT relay
Output rating:	AC1 250V 10A* (2500VA) AC15 250V 6A DC1 25V 10A* (250W) ** 12A permissible when ambient temperature derated to +40°C*
Electrical life:	≥ 150,000 ops at rated load
Dielectric voltage:	2kV AC (rms) IEC 60947-1
Rated impluse withstand voltage:	4kV (1.2 / 50µS) IEC 60664
Housing:	Orange flame retardant UL94 VO
Weight:	≈ 130g
Approvals:	and pending. CE and Compliant.

Accessories:

1. DIN Rail mount, 8-pin base type PF8-S (suitable for up to 600V)

( ) Numbers above in brackets relate to pin numbers on plug base.

MOUNTING DETAILS



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