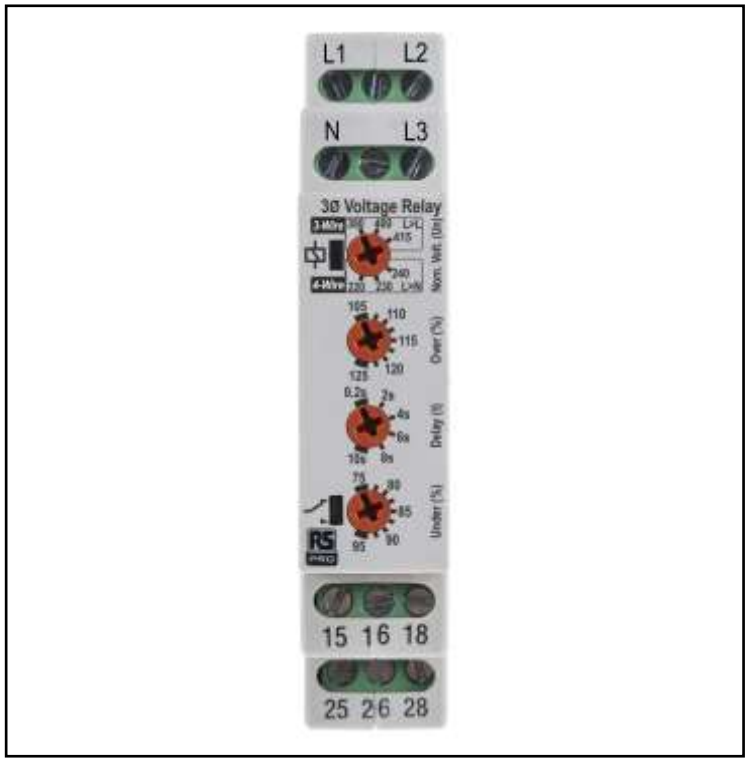
FEATURES

- 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 if one or more phases exceed the set Under or Over voltage trip levels
- Detects incorrect phase sequence, phase loss and neutral loss[1]
- Adjustments for Under and Over voltage trip levels and Time delay
- DPDT relay output 5A
- Green LED indication for supply status and Red LED for relay status

[1] When 4-wire monitoring selected

RS PRO 3-Phase Under/Overvoltage Relay with Phase Sequence

RS Stock No.: 2257387



RS Professionally Approved Products bring to you professional quality parts across all product categories. Our product range has been tested by engineers and provides a comparable quality to the leading brands without paying a premium price.

3-Phase Voltage Monitoring Relays

Product Description

A 3-Phase voltage monitoring relay for connecting to a 3-wire or 4-wire supply. The product is designed to monitor its own supply and in conjunction with an external contactor, disconnect the supply to the load/equipment in the event of a fault occurring.
For the output relay to energise, all phases (and neutral – if applicable) must be present, phase sequence correct and measured phase voltages within the set trip levels. If any of these conditions are not met, the relay (+ contactor) will de-energise, disconnect the supply and thus protect the equipment.

General Specifications

Monitoring mode:	Under and Overvoltage			
Phase sequence detection:	Yes			
Trip levels:				
Under [2]:	Fixed ± 2% see below			
Under:	75 – 95% of Un			
Over:	105 – 125% of Un			
Measuring ranges:	Nominal (Un)	Under [2]	Under	Over
3-wire (L>L):	380V	243V	300 – 380V	420 – 500V
	400V	256V	311 – 394V	436 – 519V
	415V	265V	165 – 209V	231 – 275V
4-wire (L>N):	220V	140V	173 – 219V	242 – 288V
	230V	147V	180 – 228V	252 – 300V
	240V	153V	285 – 361V	399 – 475V
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 (tr):	≈ 50ms			
Time delay (t):	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			

Mechanical Specifications

Housing:	Grey flame retardant UL94
Dimensions:	To DIN 43880. Width 17.5mm
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.

Electrical Specifications

Input:	**L1, L2, L3, N**
Supply/monitoring voltage Un:	*There are 6 nominal voltages to choose from on this product*
3-wire monitoring:	380, 400, 415V AC
4-wire monitoring:	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)
Power consumption (max.):	2.5VA
Output:	**15, 16, 18 / 25, 26, 28**
Relay configuration:	DPDT
Output rating:	AC1 – 250V 5A, AC15 – 250V 2A, DC1 – 25V 5A
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

Protection Category

IP Rating	IP20 (Terminal Protection)

Additional Information

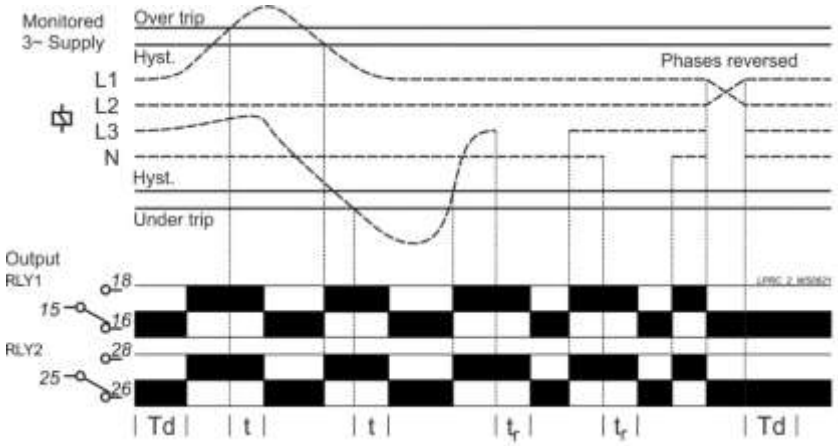
Custom Tariff Number	85394900

3-Phase Voltage Monitoring Relays

Approvals

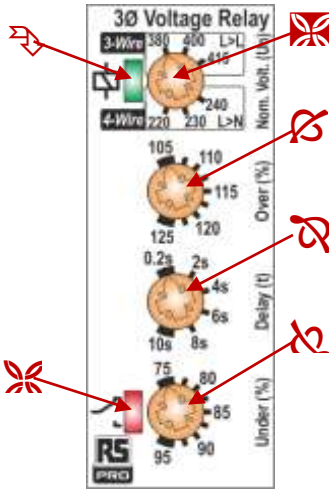
Declarations	CE, RoHS and C-tick compliant
Standards Met	EMC: Immunity EN 61000-6-2, Emissions: EN 61000-6-4

Function Diagram



Setting Details

1. Power supply status (Green) LED
2. Relay output / Timing status (Red) LED
3. “Nominal (Un)” voltage selector
4. “Over %” trip adjustment
5. “Delay (t)” adjustment
6. “Under %” trip adjustment



Setting Up

Applying power.

- Set the “Nominal (Un)” voltage selector to match that of the voltage being monitored. Set the Over %” adjustment to maximum and 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 fault diagnosis 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 undervoltage condition the supply drops below the 2nd under voltage trip level, any set time delay is automatically cancelled and relay de-energises immediately).

Fault Diagnostics

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

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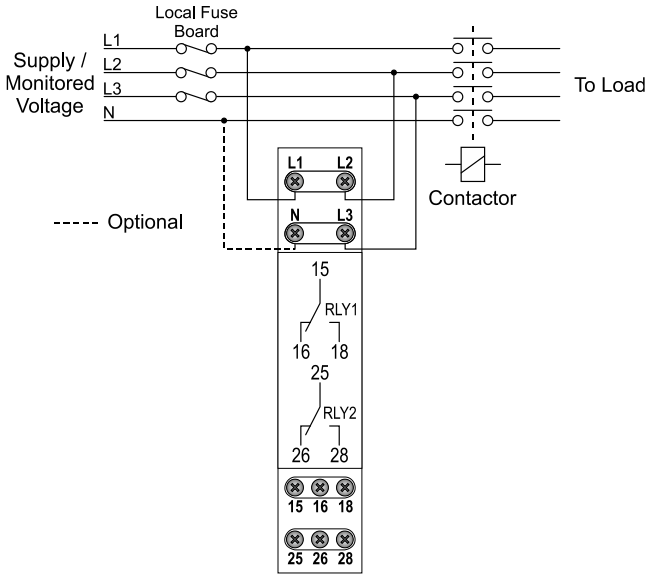
Connection Diagram



Dimensions