User Manual

RISH SPPR

Single phase preventer relay

RoHS

CE

Measure Control Record Analyze Optimize

Operating Instruction

Contents

1. Read First and Then

The proper and safe operation of the device assumes that the Operating Instructions are read and the safety warnings given in the various sections Mounting, Electrical Connections, Commissioning are observed.

All operations concerning installation, electrical connections and commissioning must be carried out by qualified, skilled personnel, and national regulations for the prevention of accidents must be observed

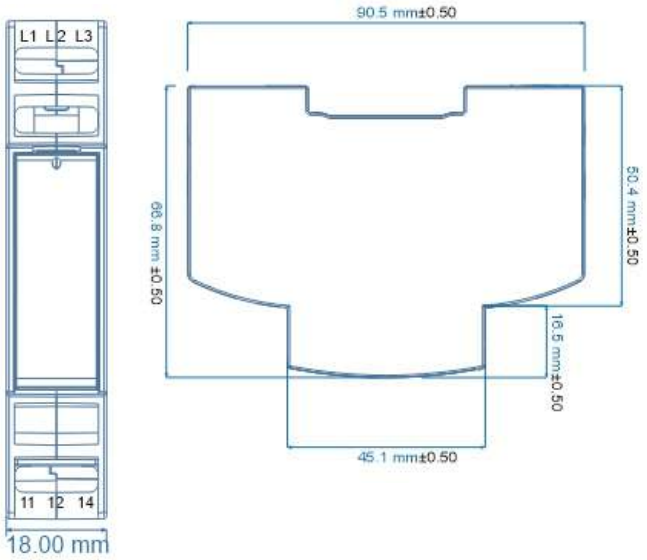
2. Brief Description

The Single phase preventer relay protects system from the faults occurring on voltage line. Relay protects against unbalance,phase failure, incorrect phase sequence faults. All faults are self resetting.Multiple LEDs indicate type of fault that helps for diagnosis purpose. Potential free relay contacts can be used for connection / disconnection of load or trigger alarm for annunciation purpose. Relay has Fail safe operation.Application in Motor protection, conveyor system and for process industry etc.

3. Installation

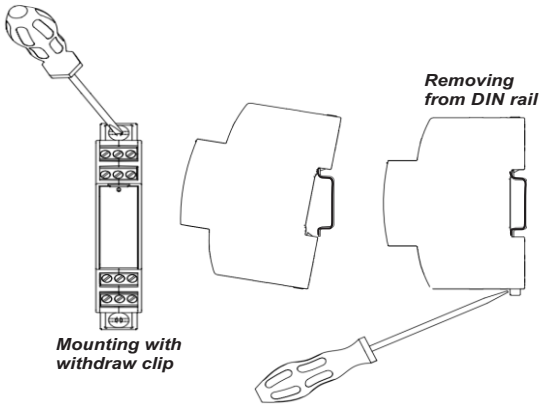
Installation to be carried out by qualified person along with life protecting equipment to prevent hazardous shock. Isolate incoming supply before connection.Do not expose device to Rain, Dust environment. Keep at least 10-15 mm distance on both sides of device. Do not install near Vibrating environment. Do not install near Heat source. Install Fuses of 2 Amp in series with supply.

4. Dimensions



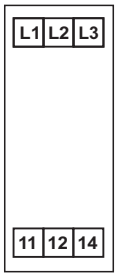
5. Mounting

Device has 17.5 mm standard housing suitable for Din-rail or wall mount.
To mount on DIN rail use standard 35 mm DIN rail (DIN50022).
Wall mounting is to be done with the help of withdraw clips provided on bottom side of housing. Mounting and removing of device is demonstrated in below figures

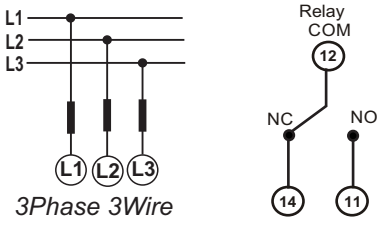


6. Terminal and connector details

Input connectors are marked by numbers L1, L2, L3 and potential free relay contacts are marked as 11, 12, 14 for relay.
Rated switchgear and fusing is required to prevent inrush. Wire of 2 sq. mm is recommended for Input connection. Use suitable screw driver for tightening so that sufficient force can be applied, take care while tightening because excess force may result in damage to inside circuitry. Control voltage is to be applied with fusing to the connector numbered as 14.
Refer diagrams for input connection.



7. Connection diagram



3Phase 3Wire

8. Scope of Supply

(1)	SPPR.....	1 pc
(2)	User Manual.....	1 pc

9. Technical Data

Nominal Input Voltage	415VAC (L-L)
Operating Voltage Range	150 - 550VAC(L-L)
Nominal Input Frequency	50/60Hz
Operating Frequency	45-65Hz
Tripping Accuracy	+/-10V
Max continous I/P voltage	550VAC (L-L)
Short term overload withstand (1Sec)	2 x Nominal I/P voltage

1) Parameter Settings

Phase Unbalnce Trip	>40V (difference between two L-L voltages)
Phase Fail Trip	>100V (difference between two L-L voltages)
Hysteresis Voltage	5V-12V
Power ON Delay	<300 msec
Trip Delay	<300 msec
Reset Delay	<300 msec

2) Operating Reference Condition

Reference Temperature	23°C ± 2°C
Input Voltage	Un ± 1%
Input Waveform	Sinusoidal (Distortion Factor <2%)
Input Frequency	50 Hz ± 1%

3) Applicable Standards

Product Standard	IEC 60255-1
Conducted RF	IEC 61000-4-6
Radiated Emision	CISPR 11
Electrical Fast Transient	IEC 61000-4-4
Electrostatic Discharge	IEC 61000-4-2
Surge Immunity	IEC 61000-4-5
Voltage DIP/Short Interruption	IEC 61000-4-11
Rated Power Frequency	IEC 61000-4-8
Installation Category	CAT III
High Voltage Test	2.2 kV AC 50Hz for 1 min.

4) Environmental

Operating Temperature	-20 to +70°C
Storage Temperature	-40 to +85°C
Relative Humidity	0....95% non considering
Shock	15g in 3 planes
Vibration	10....55Hz, 0.15mm amplitude
Enclosure	Flame retardant, Ip20 (front ace only)

5) Relay Contacts

Type of Output	1CO
Relay Configuration	Energized (Relay is ON in healthy condition and relay is OFF in fault condition)
Contact Ratings	NO : 6A@250VAC/30VDC NC : 6A@250VAC/30VDC
Mechanical Endurance	1x10^7 OPS
Electrical Endurance	1x10^5 OPS

6) Mechanical Attributes

Weight	60 gm Approx
Dimensions	18 x 98.6 x 66.5 mm

Test Certificate:

Model : Single Phase Preventer Relay
Accuracy Test :
Relay Test :
Tripping Test :

`10. LED Indication

Each LED has three states to indicate type of fault as explained in table below

Note: LED behavior may become inconsistent at voltages below 100VLL.

Conditions	RELAY	L1	L2	L3
Healthy	ON	OFF	OFF	OFF
R Phase Loss	OFF	ON	OFF	OFF
Y Phase Loss	OFF	OFF	ON	OFF
B Phase Loss	OFF	OFF	OFF	ON
R Phase Unbalance	OFF	BLINK	OFF	OFF
Y Phase Unbalance	OFF	OFF	BLINK	OFF
B Phase Unbalance	OFF	OFF	OFF	BLINK
Incorrect Sequence	OFF	BLINK	BLINK	BLINK

11. Tripping Diagrams

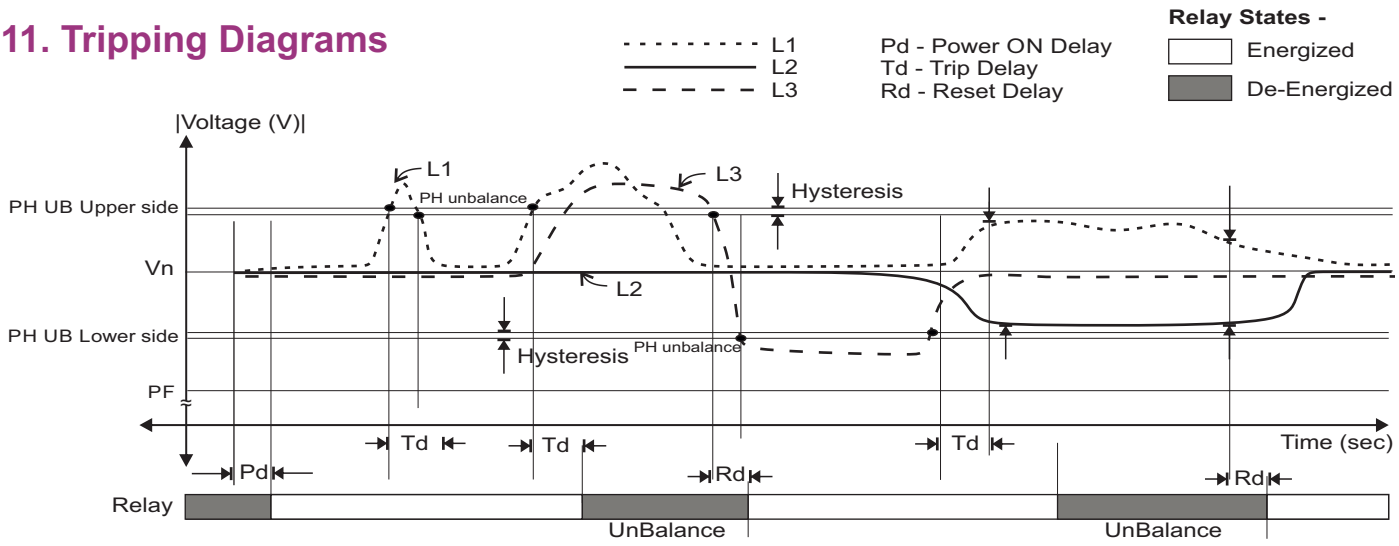


Figure 1 : UB Tripping functionality for 3 Phase System with default Energized Relay

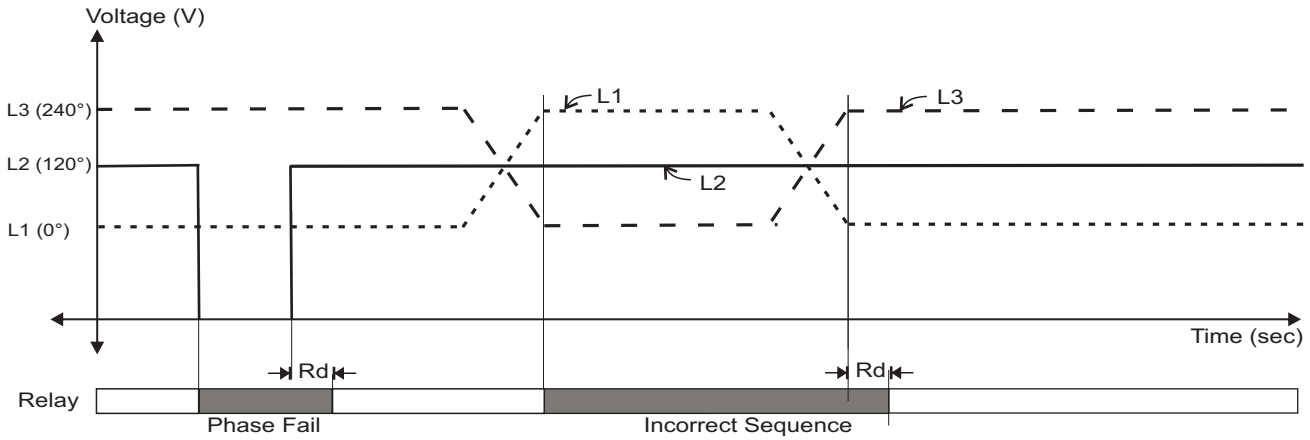


Figure 2 : PF, Incorrect Sequence Tripping functionality for 3 Phase System with default Energized Relay

RISHABH

Measure Control Record Analyze Optimize

RISHABH INSTRUMENTS LIMITED
Domestic (India): +91 253 2202099 | marketing@rishabh.co.in
International: +91 253 2202004/06/08/99 | global@rishabh.co.in
www.rishabh.co.in