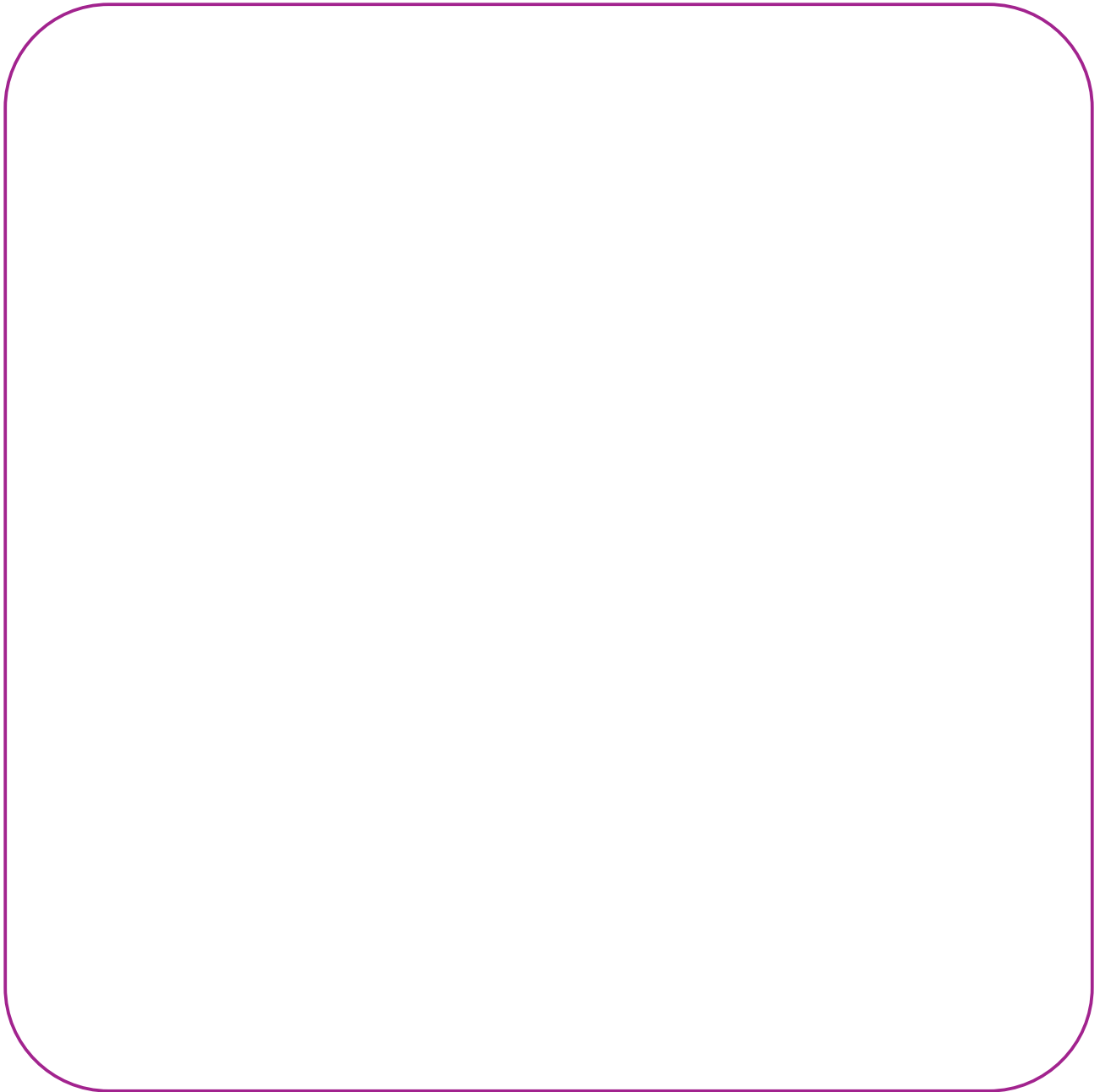


RISHabh *Log*

The Protector Trip Relay Series

Data Sheet

Motor Protection Relay



Measure



Control



Record





Analyze



Optimize

Models available

	
Function / System	Product Type
Motor Protection Relay (Phase Loss, Reversal, Unbalanced)	253 - MPR

Applications

- Portable pumps
- Portable compressors
- Motor driven mixing equipment
- Motors
- Gensets - correct engine rotation
- All portable motorised equipment
- All rotating machines

Features

- Phase Sequence
- Phase Loss
- Adjustable unbalance Voltage
- Testing simulation
- Automatic, manual & remote reset available
- LED trip indication and Power ON
- 2 pole relay contacts
- Polycarbonate casing (UL 94 V-0)
- Protective clear terminal cover (UL 94 V-0)

Introduction

The Rishabh Protector is designed to monitor the correct phase rotation or sequence of 3 phase system R, Y, B. Rotating machines are particularly vulnerable to incorrect phase sequence. Three Phase motors rotate in the wrong direction, potentially leading to physical damage or the risk of injury to personnel, yet voltage & current reading may appear normal. If one phase is lost because of a blown fuse, electric motors can continue to operate (single phase) which can result in severe electrical or mechanical damage.

For permanent installation, this relay should be used to monitor the incoming supply, protecting all equipment against incorrect connection at initial installation or after maintenance work. Rotating machines that cannot tolerate reverse rotation or pose significant risk to personnel under this condition should be individually protected with this relay. The possibility of incorrect supply connection is much more likely in portable equipment or marine applications.

Applicable Standards

Applicable Standard	: BS 60255, IS 3231-1997
Safety Requirements	: BS 5458, IEC 414
Temperature Range	: 0° C to 60° C
Storage Temperature	: 20° C to 70° C
Temp. Co-efficient	: 0.05% per °C
Enclosure Code	: IP50 to BS5490, IEC 259

Specifications

Nominal frequency	: 50 Hz ± 3%
System Voltage	: 110, 220, 230, 240, 380, 415 VAC ± 20%
Aux Supply	: 110, 220, 230, 240, 380, 415VAC ± 20%
Burden	: 3VA
Voltage withstand	: 1.2 x rating continuously 1.5 x rating for 10 sec. To BS - 6253
Unbalance Trip Setting	: 30 to 70 V ± 9 V
Set Accuracy	: ± 10% of Set value
Time Delay	: 3.5 Sec. ± 1.5 Sec.
Reset	: Automatic, Manual, Remote
Test	: Can be simulated for working without connecting the inputs
Test Time Delay	: 3.5 Sec. ± 1.5 Sec.
Output Relay Type	: D.P. Changeover
Contact Rating A.C.	: 240V, 5A
D.C.	: 24V 5A resistive
Operations	: 0.5 million at 100 % loads
Indication	: L1 - Power ON L2 - Trip
Enclosure	: Polycarbonate (UL 94 V-0)
Dimensions (mm)	:
Overall	: 75 x 70 x 112
Mounting	: 35 x 55
Weight	: 400 gms. approx.

Product function

MPR is a phase failure relay operating on negative sequence voltage sensing principle. It offers protection against.

- Phase sequence reversal condition.
- Phase failure condition.
- Unbalanced voltage condition

MPR is an auxiliary relay and it should be used along with the motor starter only. The effective working of MPR will depend on efficient working of electromagnetic motor starter. Before installing MPR check whether the motor starter is operating perfectly by starting the motor with "START" push button and switching it off by "OFF" push button. If motor does not "START" or "STOP" on respective operations, the starter needs to be serviced. Do not install MPR with faulty motor starter.

Trip Setting:

Relay can be set to trip the starter for any unbalance voltage between 30 V to 70 V + 9V between any two phases.

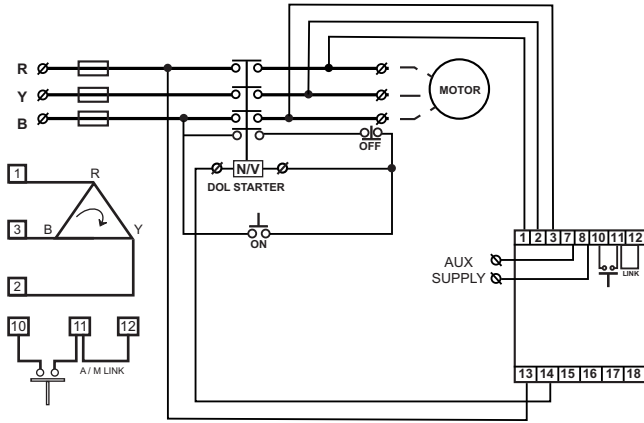
Time Delay:

MPR offers sufficient Trip time delay of 3 - 4 Sec. for all, Phase Sequence, Phase Loss and Phase unbalance conditions, to prevent nuisance tripping and hence protects motor.

Reset:

The relay can be set in Auto reset or manual & remote reset mode by removing or putting a short link between terminal 11 & 12. Relay can be remotely reset by extending the remote reset push button provided on terminal 10 & 11 (Use continuous cable at max. distance of 100 meters) Relay will reset if unbalance voltage is reduced to less than 20 V between all three phases.

Electrical Connection

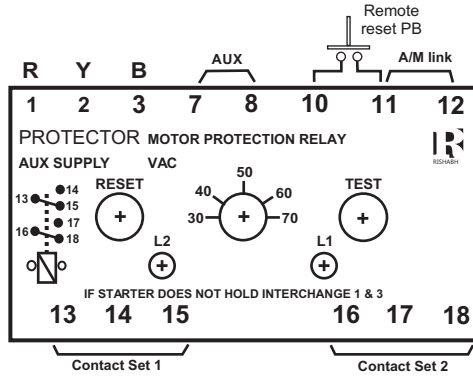


NOTE : RELAY CONTACT SHOWN FOR UNIT IN HEALTHY CONDITION

Test & Reset

If the relay is to be tested without connecting it in the control circuit of motor, then connect the required aux input (indication LED L1 should be ON), check the o/p relay contacts at 13 and 14. Press TEST button. Then RESET the relay either by pressing RESET button or shorting pin no 10 & 11, the relay will be energized. If these operations are satisfactory then relay is working properly and can be used with load.

Connection diagram

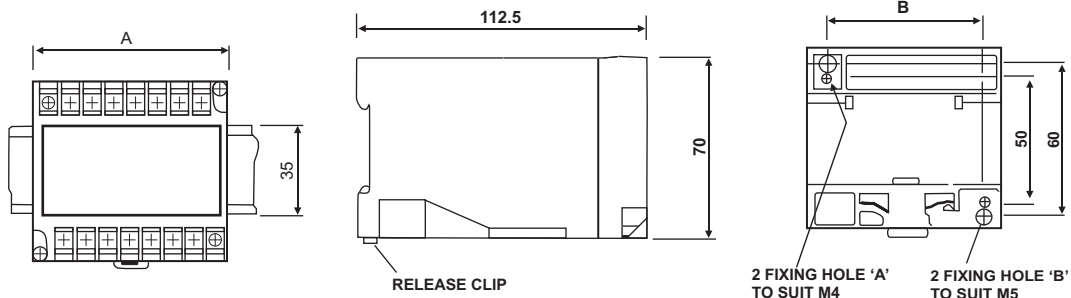


Terminal Details:

- 1-2-3 : R-Y-B Phase voltage Input
- 7-8 : Auxiliary supply voltage (as marked on label)
- 10-11 : External Remote Reset push Button.
- 11-12 : External Link for Automatic / manual, Remote Reset
- 13-14-15 : Two change over outputs
- 16-17-18 : Relay contacts (C-NO-NC)

Dimensions

Model 253



Model	A	B
253	75	60

Ordering Information

Please quote :

1. Product Type.
2. Function i.e. Under or Over.
3. Relays normally de - energise on under trip and energise on over trip.
4. Please specify standard or non standard trip. An energised relay is indicated by a "Lit" red LED. Setpoint can be factory adjusted to your requirements.
5. System Voltage and/or Current where applicable.
6. System Frequency.
7. Auxiliary Voltage where required.
8. Preset Differential where required.
9. Time delay where applicable.



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