

# Phase Protection Relay

## RISH Relay - PHR

### Applications:

- Motor protection
- Conveyor system
- Control close loop operations
- Incorrect phase sequence protection
- Phase failure protection

### Product Features:

#### True RMS measurement:

The instrument measures distorted waveform up to 15th harmonics

#### Protection feature:

- Phase Unbalance Protection
- Phase Failure Protection
- Phase Incorrect Sequence Protection

#### Self Powered:

Needs no external power supply

#### Auto reset:

Instrument automatically clears itself if fault condition is recovered

#### LED Indication:

LED indication for Unbalance, Phase Fail condition and Incorrect Phase Sequence condition

#### Relay operation:

Relay energize and de-energize on fault option available



#### System type:

3 Phase 3 Wire device uses VLL values for tripping and 3 Phase 4 Wire device uses VLN for tripping

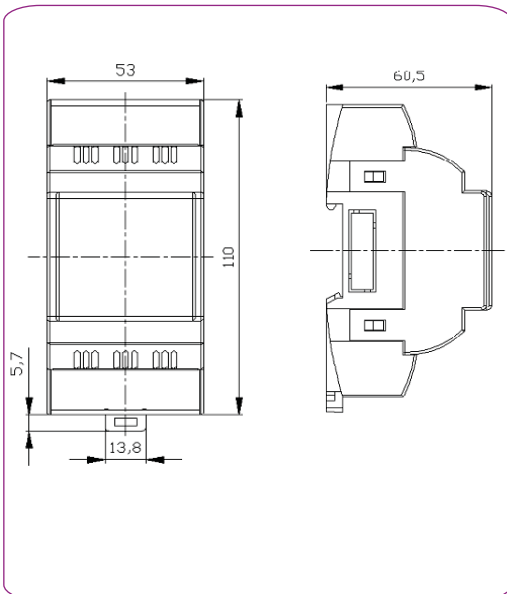
#### Compliance to International Safety standards:

Compliance to International Safety standard IEC 61010-1-2010

LED indication table

| LED indication | Continuous ON     | Blinking LED   |
|----------------|-------------------|----------------|
| P-ON           | Power ON          | Phase Reversal |
| UB             | Unbalance Voltage | ---            |
| PF             | Phase Fail        | ---            |

### Dimensions Details:



### Technical Specifications:

#### Input Voltage

Nominal Input Voltage (AC RMS) 110 VLL / 240 VLL / 415VLL / 440VLL (to be specified while ordering)

Nominal Frequency 50 Hz / 60 Hz (to be specified while ordering)

#### Auxiliary Supply

Self Auxiliary VA burden < 11 VA

#### Operating Ranges

Voltage Range 110VLL(85 to 137VLL)  
240VLL(204 to 300VLL)  
415VLL(330 to 518VLL)  
440VLL(350 to 550VLL)

#### Operating Reference condition

Reference Condition 23°C +/- 2°C

Input waveform Sinusoidal (distortion factor 0.005)

Input Frequency Nominal Frequency ± 2%



Measure



Control



Record

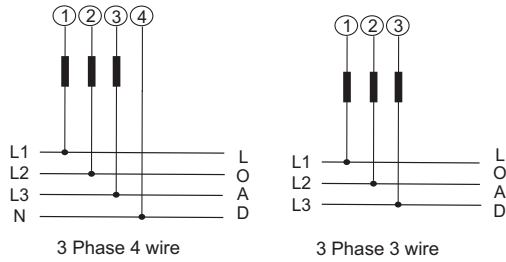


Analyze

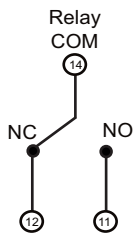
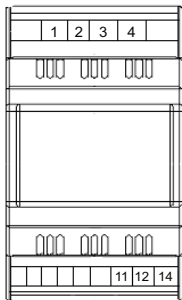
# Phase Protection Relay

## RISH Relay - PHR

### Electrical Connection:



### Terminal Details:



Note- Relay Contacts are shown in power off condition

### Technical Specifications:

|                              |   |
|------------------------------|---|
| <b>Accuracy</b>              | ± 3% of Nominal Voltage                                       |
| <b>Applicable Standards</b>  |   |
| Safety                       | IEC 61010-1-2010  |
| IP for water & dust          | IEC 60529   |
| Pollution degree:            | 2   |
| Installation category:       | CAT III   |
| High Voltage Test            | 2.2 kV AC, 50Hz for 1 minute between all Electrical circuits. |
| <b>Environmental</b>         |   |
| Operating temperature        | -10 to +55°C  |
| Storage temperature          | -25 to +70°C  |
| Relative humidity            | 0...90% non condensing  |
| Shock                        | 15g in 3 planes   |
| Vibration                    | 10...55 Hz, 0.15mm amplitude                                  |
| Enclosure                    | IP20 (front face only)  |
| <b>Relay Contacts</b>        |   |
| Types of output              | 1CO   |
| Contact Ratings              | 5A/250VAC/30VDC (resistive load)                              |
| Mechanical Endurance         | 1x10 <sup>7</sup> OPS   |
| Electrical Endurance         | 1x10 <sup>5</sup> OPS   |
| <b>Mechanical Attributes</b> |   |
| Weight                       | 120 gm Approx.  |

### Default Settings:

|  |                         |
|--|-------------------------|
| 1. Phase Failure Tripping value        | 70% of Nominal Voltage  |
| 2. Phase failure Trip delay            | Instantaneous Tripping  |
| 3. Incorrect Phase Sequence Trip delay | Instantaneous Tripping  |
| 4. Voltage Unbalance Tripping value    | 20 % of Nominal voltage |
| 5. Trip delay for voltage unbalance    | 3.5 Seconds             |
| 6. Reset , Power on delay              | 1 Second Approx.        |
| 7. Hysteresis                          | 3 % of Trip Value       |

### Ordering Information :

**PHR - X - X - X - X**

- Relay Configuration (1:- Normally Energized , 2:- Normally De-Energized )
- System Frequency ( 1:- 50 Hz , 2:- 60 Hz)
- System voltage VLL (1:- 110, 2:- 240 3:- 415 , 4:- 440 )
- System Type ( 2:-3PH3W, 3:-3PH4W )

### Order Code Example:

PHR - 3 - 415 - 1 - 1 - Phase protection relay PHR 3 phase 4 wire ,input voltage 415 VLL, system frequency 50 Hz relay contacts in energized configuration

### Note:-

1. Energized configuration : Relay is normally energized ( ON ) condition and become de-energized ( OFF ) upon fault.
2. De-Energized configuration:- Relay is normally de-energized ( OFF ) condition and become energized ( ON ) upon fault.

Rishabh Instruments always tries for Improvement and therefore product specifications are subject to change without notice



Measure



Control



Record



Analyze