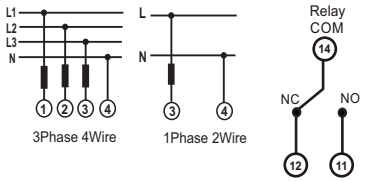
Under Voltage Protection Relay Operating Manual and Installation guide

The under voltage protection relay protects system from the faults occurring on voltage line. Relay protects against under voltage faults. Front adjustment knob is provided for easy selection of time delay for power ON or restart time. Selection offers flexibility to user. Under voltage fault is auto resetting. The RLY LED indicate 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.

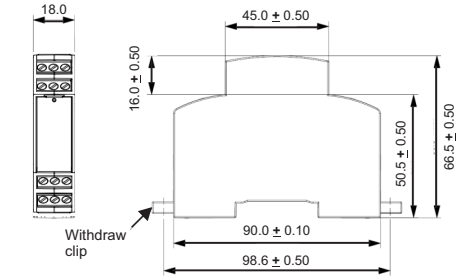
Connection diagram:



Installation:

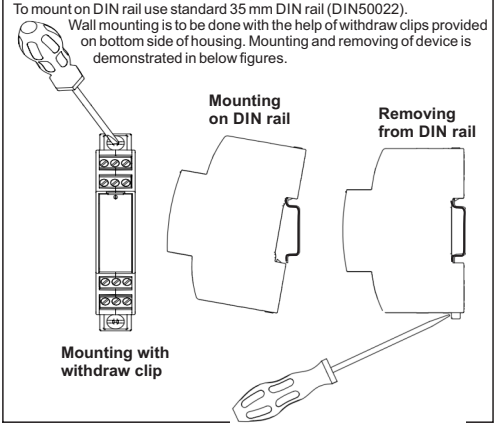
Installation to be carried out by qualified person along with life protecting equipment to prevent hazardous shock. Isolate incoming supply before connection.
Do not expose device to rain, dust environment.
Keep at least 10-15 mm distance on both sides of device.
Do not install near vibrating environment.
Do not install near heat source.
Install fuses of 2 Amp in series with supply.
Use sealing provision to protect from unintentional adjustment.

Dimensions:



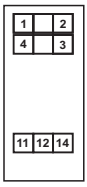
Mounting:

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.



Terminals and Connector details:

Input connectors are marked by numbers 1, 2, 3, 4 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 diagram for input connection.



Parameter Settings:

Nominal Voltage Vn*	3 Phase 4 Wire: 415 / 400 / 380 VLL (Factory set)
(Fixed - AC rms)	1 Phase 2 Wire: 240 / 230 / 220 VLN (Factory set)
Under Voltage Trip point	75% of Nominal Value(Fixed)
Hysteresis value	2% (Fixed) of Nominal Value
Trip delay	Instant Tripping (less than 200 ms)
Reset / Power-ON Delay	5-15 Minutes (Variable)

Technical Specifications:

Input Voltage

Nominal Input Voltage	As given above in **Parameter Settings**
Max Continuous Input Voltage	127% of nominal value
Nominal Frequency	50 / 60 Hz
Input Voltage Burden B phase	< 17.5 VA approx.
Operating Voltage Range	70...125% of nominal value

Operating reference condition

Reference Condition	23°C +/- 2°C
Input waveform	Sinusoidal (distortion factor 0.005)
Input Frequency	48-63 Hz ± 2%

Accuracy

Tripping Accuracy	± 3% of Nominal Value
Hysteresis accuracy	± 1% of Nominal Value
Restart/Power-On Delay Accuracy	± 10 sec
Response Time	< 200 msec

Applicable Standards

Safety	IEC 61010-1-2010
IP for water & dust	IEC60529 (IP 20)
Pollution degree	2
Installation category	CAT III
High Voltage Test	2.2 kV AC 50Hz for 1 min. between all Electrical circuits.

Environmental

Operating temperature	-10 to +55°C
Storage temperature	-25 to +70°C
Relative humidity	0...90% non condensing
Shock (IEC 60068-2)	30 gn (300 m/s^2) duration 18 ms
Vibration	10...55 Hz, 0.15mm amplitude
Enclosure	Flame retardant, IP20 (front face only)

Relay Contacts

Types of output	1CO
Relay configuration	Energised (relay is ON in healthy condition and relay is OFF in fault condition)
Contact Ratings	5A/250VAC/30VDC (resistive load)
Mechanical Endurance	1x10^7 OPS
Electrical Endurance	1x10^5 OPS

Mechanical Attributes

Weight	80g Approx.
Dimensions	18 x 90 x 66 mm

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Adjustments:

Adjustment knob for Time Delay. It sets time in minutes for power ON delay or restart delay both 5 Minutes - 15 Minutes. Default Setting is 5 Min (Factory set)

Indication Table:

Each LED has three states to indicate type of fault as explained in table below.
Pd = Power-ON delay
Rd = Restart delay

LED Indication	Continuous ON	Blinking	OFF
P-ON	Power ON	Pd/Rd	OFF
RLY	Healthy Voltage	—	Under Voltage Fault

Note: LED behavior may become inconsistent at voltages below 70V.

Tripping Diagram:

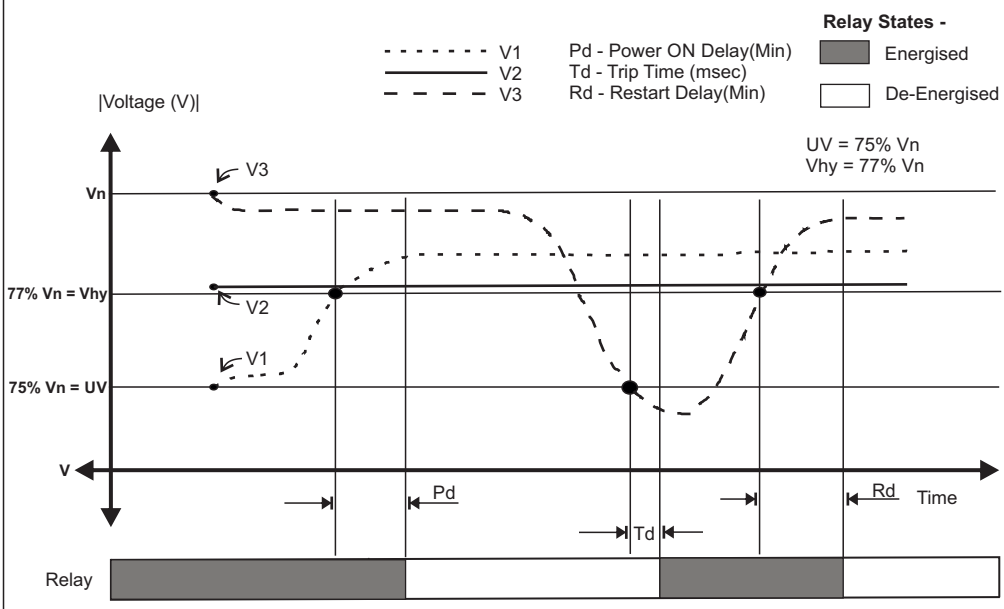

Figure 1 : Vn, Vhy & UV Tripping functionality for 3 Phase 4 Wire System with default Energised Relay

Note: This tripping diagram is also applicable for 1 Phase 2 Wire System, according to single phase connections.

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