

## INSTALLATION INSTRUCTION MANUAL UNDER / OVER VOLTAGE MONITORING RELAY

### D1 VCT1 (3Ø - 3 W)



D1 VCT1 is used in 3Ø-3 W system supply where under / over voltage protection is required.

D1 VCT1 is a 3Ø - 3W (Selectable) Under/ Over voltage Relay. It offers protection against :

- Under Voltage Condition
- Over Voltage Condition

D1 VCT1 is an auxiliary relay & is to be used along with the motor starter only. The effective working of D1 VCT1 will depend on efficient working of the electromagnetic motor starter. Before installing D1 VCT1 check whether the motor starter is operating perfectly by starting the motor with the "START" push button and switching it off by "STOP" push button. If the motor does not "START" or "STOP" on respective operations the starter needs to be serviced. **Do not install D1 VCT1 with faulty motor starter.**

#### TRIP SETTING, TRIP DELAY AND RESETTING

D1 VCT1 is factory set to trip the starter as per Table 1.

#### MOUNTING

D1 VCT1 can be RAIL mounted or PANEL mounted. ( see Fig. 2B for DIN RAIL & Panel Mounting)

#### CAUTION

1. **Ensure that D1 VCT1 is -**
  - \* Not installed near any heat sources like burner, Sunlight, Electric arc etc.
  - \* Not subjected to abnormal vibrations.
  - \* Not subjected to direct heat, sunlight, rain, stormy wind and dust.
  - \* Installed as near to the starter as possible.

#### ELECTRICAL CONNECTIONS

See Fig. 3 for terminal details of D1 VCT1. See Fig. 1 for installation in power and Control wiring of D1 VCT1.

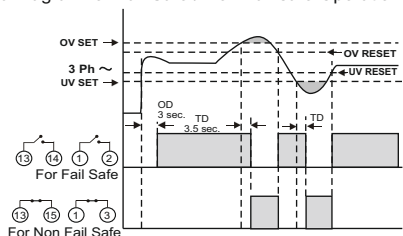
**Do all connections in Power Off condition.**

Connect L1, L2, L3 phases at terminal no. 7, 8, and 9. The output relay contacts 13, 14 or 1, 2 are to be connected in series with no-volt coil of the starter. In case of Auto switching type circuits or for mains monitoring functions, L1, L2, L3, sensing should be taken from incoming side of starter / main contactor.

#### Note :

Three phase under / over voltage sensing is from L1, L2, L3 sensing points. The under voltage, over voltage settings are variable in D1 VCT1 which you may set according to your requirement.

**Diagram - 1 :**  
Relay Logic Diagram for Fail Safe / Non Fail safe Operation



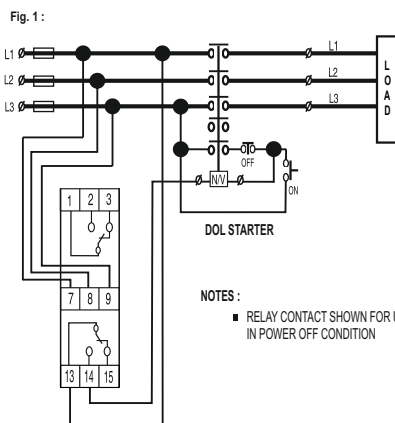
**Table 1 : TRIP SETTINGS**

Parameters	Under Voltage	Over Voltage
<b>Cut off at (For 3Ø - 3 W)</b>	285 - 425 VAC FOR 380 - 440 VAC 165 - 225 VAC FOR 220 - 240 VAC 75 - 115 VAC FOR 100 - 120 VAC [ Variable ]	400 - 520 VAC FOR 380 - 440 VAC 230 - 290 VAC FOR 220 - 240 VAC 105 - 145 VAC FOR 100 - 120 VAC [ Variable ]
<b>Trip time delay</b>	3.5 Sec. (± 1.5 Sec)	3.5 Sec. (± 1.5 Sec)
<b>Auto reset gap</b>	3 % ±1 % of set value	3 % ± 1 % of set value

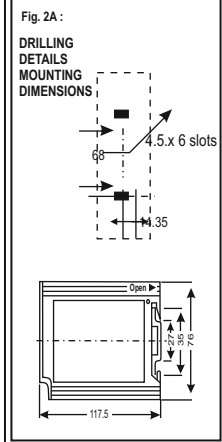
#### TECHNICAL SPECIFICATIONS

1. <b>System Supply :</b>	100 - 120 / 220 - 240 / 380 - 440 VAC ± 20 %
2. <b>Aux. Supply :</b>	In - Built
3. <b>Frequency :</b>	48Hz - 63 Hz.
4. <b>Output Relay Contacts :</b>	2CO
5. <b>Output contact rating :</b>	5 Amp, 240VAC[Resistive]
6. <b>Output Relay Logic :</b>	Fail safe or Non Fail safe (Factory set- See dia.- 1 For relay logic)
7. <b>Power consumption :</b>	26 VA (max.)
8. <b>Under / Over Voltage Trip Setting :</b>	Refer Table1
9. <b>Power ON delay :</b>	3 sec (± 0.3 sec)
10. <b>Trip Time Delay : UV/OV :</b>	3.5 Sec. (± 1.5 Sec)
11. <b>Set Accuracy : UV &amp; OV :</b>	± 2 % of set value(± 3 % of set value for 110VAC system)
<b>Trip delay :</b>	± 5 % of full scale
12. <b>Resetting :</b>	Auto Reset
13. <b>Reset Gap :</b>	3 % ±1 % of set value
14. <b>Indications :</b> ON: UV: OV:	Steady On : Power ON Steady On: Under voltage Steady On: Over Voltage
15. <b>Enclosure :</b>	ABS
16. <b>Dimensions ( mm ) :</b> Overall : Mounting :	76 X 30.5 X 117.5 68 center to center
17. <b>Mounting :</b>	35mm Rail Mounting & Panel Mounting
18. <b>Weight ( Approx. ) :</b>	150 gms.
19. <b>Operating Conditions :</b> Temperature : Humidity :	- 5°C To + 60°C Up To 95 % Rh
20. <b>Life Expectancy :</b>	0.5 x10 <sup>6</sup> operations at 100% Rating

#### ELECTRICAL CONNECTION IN POWER AND CONTROL WIRING

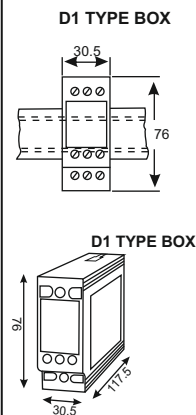


#### MOUNTING DIMENSIONS



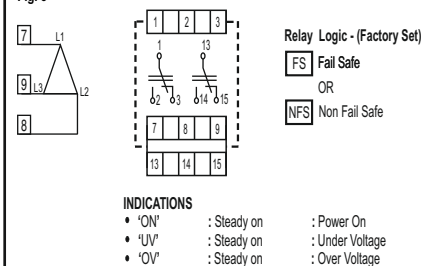
#### MOUNTING DIMENSIONS

Fig. 2B : DIN RAIL MOUNTING



#### TERMINAL DETAILS OF D1 VCT1

Fig. 3



- INDICATIONS**
- 'ON' : Steady on : Power On
  - 'UV' : Steady on : Under Voltage
  - 'OV' : Steady on : Over Voltage

#### TERMINAL DETAILS

TERMINAL NO.	D1 VCT1
7 - 8 - 9	L1-L2-L3 PHASE VOLTAGE INPUT.
13 - 14 - 15	C1 - NO1 - NC1
1 - 2 - 3	C2 - NO2 - NC2

■ NOTE : RELAY CONTACTS SHOWN FOR UNIT IN POWER OFF CONDITION.

#### COMPLIANCE TO STANDARDS

TEST	IEC STD.	TEST	IEC STD.
1. EFT Test of System Supply	61000-4-4	4. Insulation Resistance Test	60255-5
2. Surge Test of System Supply	61000-4-5	6. Dry Heat Test	60068-2-2
3. ESD Test (Contact Discharge)	61000-4-2	7. Damp Heat test (Steady State)	60068-2-30
ESD Teast (Air Discharge)	61000-4-2	8. Damp Heat test (cyclic test)	60068-2-78
4. H.V. Test (Dielectric Test)	60255-5		

**WARRANTY - AGAINST ALL MANUFACTURING DEFECTS FOR 18 MONTHS FROM DATE OF SUPPLY OR 12 MONTHS FROM INSTALLATION WHICHEVER IS EARLIER**