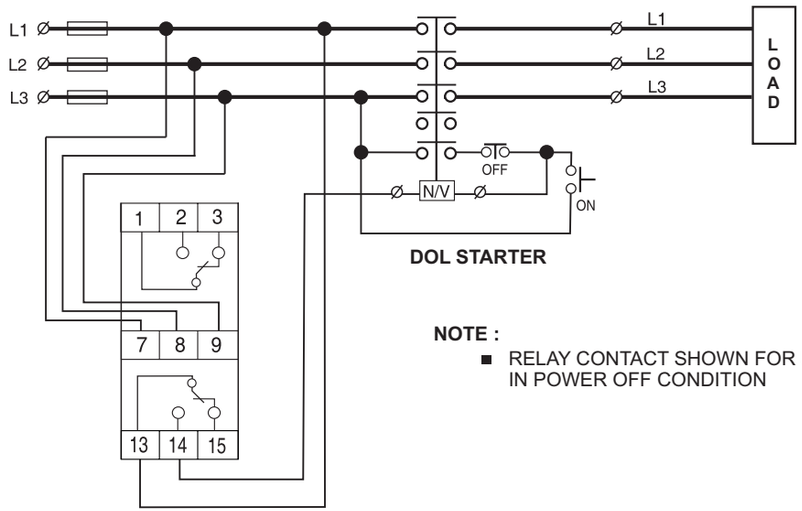
ELECTRICAL CONNECTION IN POWER AND CONTROL WIRING

Fig. 1



DOL STARTER

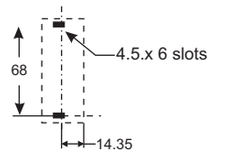
NOTE :

- RELAY CONTACT SHOWN FOR UNIT IN POWER OFF CONDITION

MOUNTING DIMENSIONS

Fig. 2A

DRILLING DETAILS MOUNTING DIMENSIONS



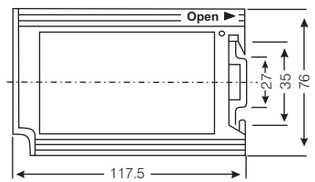
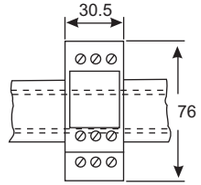
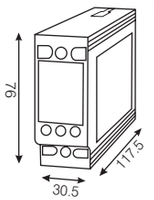


Fig. 2B : DIN RAIL MOUNTING

D1 TYPE BOX



D1 TYPE BOX

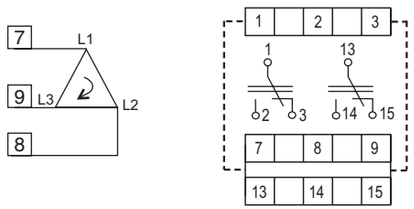


INSTALLATION INSTRUCTION MANUAL FOR UNDER / OVER VOLTAGE, PHASE FAILURE & VOLTAGE MONITORING RELAY

D1 VMR1 (3Ø - 3 W)

TERMINAL DETAILS OF D1 VMR1

Fig. 3



INDICATIONS

• 'ON'	: Steady on	: Power On
• 'UB / RP'	: Steady on	: Unbalance, Phase Failure
	Flashing	: Phase Reversal
• 'UV / OV'	: Steady on	: Under Voltage
	Flashing	: Over Voltage

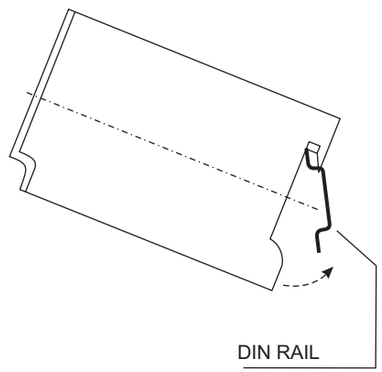
TERMINAL DETAILS

TERMINAL NO.	D1 VMR1
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.

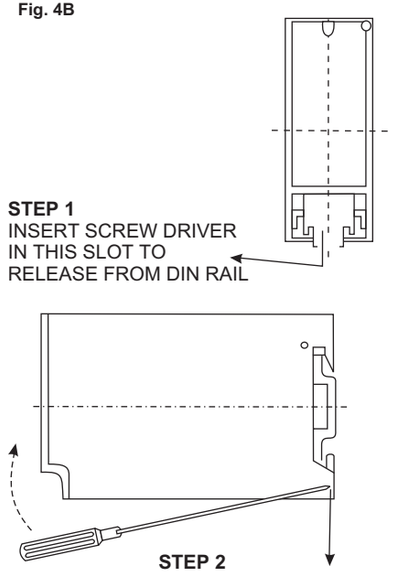
MOUNTING ON DIN RAIL

Fig. 4A



RELEASING FROM DIN RAIL

Fig. 4B



STEP 1
INSERT SCREW DRIVER IN THIS SLOT TO RELEASE FROM DIN RAIL

STEP 2
USE SCREW DRIVER NO. 936 OR EQUIVALENT.

IF THE PRODUCT IS NOT INSTALLED AS PER GIVEN GUIDELINES, **MINILEC** WILL NOT BE RESPONSIBLE FOR ANY WRONG CONNECTION, DAMAGE, INJURY, ACCIDENT ETC.

WARRANTY

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

Manufactured by :

minilec®

www.minilecgroup.com

S. NO. 1073/1-2-3,
AT POST : PIRANGOOT,
TAL : MULSHI, DIST. : PUNE (INDIA)
PIN : 412 111

VERSION 01 (05/03/09)

INSTALLATION INSTRUCTIONS FOR D1 VMR1

INTRODUCTION

Thank you for selecting and purchasing **MINILEC** make under/over voltage cutout, Phase failure relay & voltage monitoring relay D1 VMR1(3Ø - 3W).
The following installation instructions would guide you in installing D1 VMR1 and making the best use of it.
The unit is operating on IEEE / NEMA standard method for unbalance detection.
It offers protection against :

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

D1 VMR1 is an auxillary relay and it should be used along with the starter only. The effective working of the unit will depend on efficient working of the starter. Before installing unit check whether the starter is operating perfectly by starting with the "ON" push button and switching off by "OFF" push button. If the operation of "START" and "STOP" are imperfect the starter needs to be serviced.

Do not install unit with faulty starter.

TRIP SETTING, TRIP DELAY AND RESETTING

D1 VMR1 is factory set to trip the starter as per Table 1.

MOUNTING

D1 VMR1 can be Rail mounted or Panel mounted. (see Fig. 2B for DIN RAIL & Panel Mounting. Also see Fig. 4A & 4B for mounting on and releasing from DIN RAIL).

CAUTION

1. Ensure that D1 VMR1 is -

- Not installed near any heat sources like burner, sunlight, electric arc etc.
- Not subjected to abnormal vibrations.
- Installed as near to starter as possible.
- Not subjected to direct heat, sunlight, rain, stormy wind and dust.

2. Working of the products is affected by frequency variations and Harmonic distortion in applications. like Genset Supply or UPS Supply. Ensure that percentage (%) unbalance Supply is not beyond the set percentage (%) unbalance of unit.

ELECTRICAL CONNECTIONS

See Fig.3 for terminal connection details.
See Fig. 1 for installation of the unit in the power and control wiring.
Do all connections in Power Off condition.
Connect L1, L2 , L3 phase 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 VMR1 which you may set according to your requirement.

Table 1 : TRIP SETTINGS

Parameters	Unbalance between any two phases	Under voltage	Over voltage
Cut off at	10 % (± 10 %)	FOR D1 VMR1 - [Variable] 285 - 425 VAC FOR 380 - 440 VAC 165 - 225 VAC FOR 220 - 240 VAC 75 - 115 VAC FOR 100 - 120 VAC	FOR D1 VMR1 - [Variable] 400 - 520 VAC FOR 380 - 440 VAC 230 - 290 VAC FOR 220 - 240 VAC 105 - 145 VAC FOR 100 - 120 VAC
Trip time delay	3.5 Sec (±1.5 Sec)	3.5 Sec (±1.5 Sec)	3.5 Sec (±1.5 Sec)
Auto reset gap	20 % ± 5 %	3 % ± 1 % Of Set Value	3 % ± 1 % Of Set Value

TECHNICAL SPECIFICATIONS

1. **System Supply :** 100 - 120 / 220 - 240 / 380 - 440 VAC ± 20 %
2. **Aux. Supply :** In - Built
3. **Frequency :** 48 Hz - 63 Hz.
4. **Output Relay Contacts :** 2 CO
5. **Output contact rating :** 5 Amp, 240VAC [Resistive]
6. **Power consumption :** 26 VA (max.)
7. **Unbalance Trip Setting :** 10 % [Fixed]
8. **Under / Over Voltage Trip Setting :** Refer Table 1
9. **Trip time delay :**
   UB/SP/UV/OV : 3.5 Sec (± 1.5 Sec)
   Phase Reversal : Instant
10. **Set Accuracy :**
    UV & OV : ± 2 % of set value (± 3% of set Value for 110VAC system)
    UB & Trip delay : ± 5 %
11. **Resetting :** Auto Reset
12. **Reset Gap :**
    Unbalance: 20 % (± 5 %)
    UV & OV : 3 % (± 1 %) of set value
13. **Indications**
    - **ON** : Steady On : Power ON
    - **UB/RP** : Steady On : Phase Failure / Unbalance
      Flashing : Phase Reversal
    - **UV/OV** : Steady On : Under voltage
      Flashing : Over Voltage
14. **Enclosure :** ABS
15. **Dimensions (mm) :**
    Overall : 76 X 30.5 X 117.5
    Mounting : 68 center to center
16. **Mounting :** 35mm Rail Mounting & Panel Mounting
17. **Unit Weight (Approx.) :** 150 gms.
18. **Operating Conditions :**
    Temperature : - 5 °C To + 60 °C
    Humidity : Up To 95 % Rh
19. **Life Expectancy :** 0.5 x 10^6 operations at 100% rating

TESTING PROCEDURE