

INSTALLATION INSTRUCTIONS FOR USP D1

INTRODUCTION :

Thank you for selecting & purchasing MINILEC make phase failure relay **USP D1**. The following installation instructions would guide you in installing your **USP D1** and making best use of it.

USP D1 is a phase failure relay operating on negative sequence voltage sensing principle. It offers protection against

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

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

TRIP SETTING, TRIP DELAY AND RESETTING :

The **USP D1** is factory set to trip the starter for unbalance voltage between any two phases of $60V \pm 6V$ (fixed).

The trip time delay is between 2 to 5 secs. The **USP D1** relay resets automatically when the unbalance voltage is reduced to less than 20V between all phases.

MOUNTING :

Your **USP D1** can be Rail Mounted or Panel Mounted. (See fig. 4A & 4B for mounting it on RAIL and releasing it from RAIL respectively). It is suitable for 35mm RAIL (for panel mounting and drilling details see fig.2).

CAUTION :

- 1) Ensure that your **USP D1** is -
 - * Not installed near any heat sources like burner, sunlight, electric arc etc.
 - * Not subjected to abnormal vibrations.
 - * Installed as near to the starter as possible.
- 2) 3 ϕ sensing (L1,L2,L3) is normally taken from incoming side of motor starter.

ELECTRICAL CONNECTIONS OF USP D1:

See Fig.1 for connection details of **USP D1**.

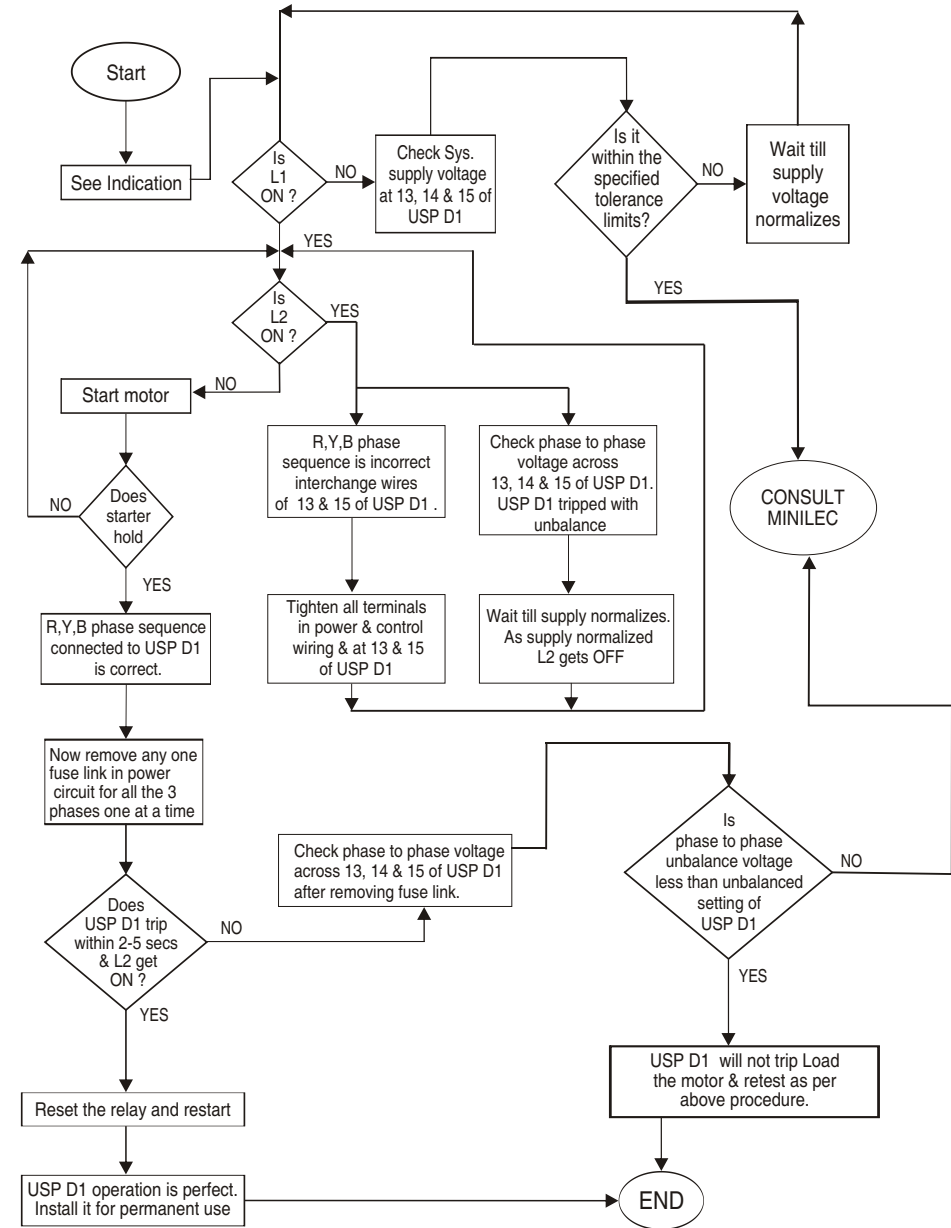
See Fig.3 for installation of **USP D1** in the power and control wiring diagram.

Connect R,Y,B phases at 13,14 and 15 respectively. The R,Y,B sensing should be taken from incoming side of motor starter in case of Direct Online Starter. In case of star delta starters, it should be taken from incoming side of motor starter of main contactor. The output relay contacts 1 and 2 are to be connected in series with no-volt coil of the contactor.

TECHNICAL SPECIFICATIONS OF USP D1

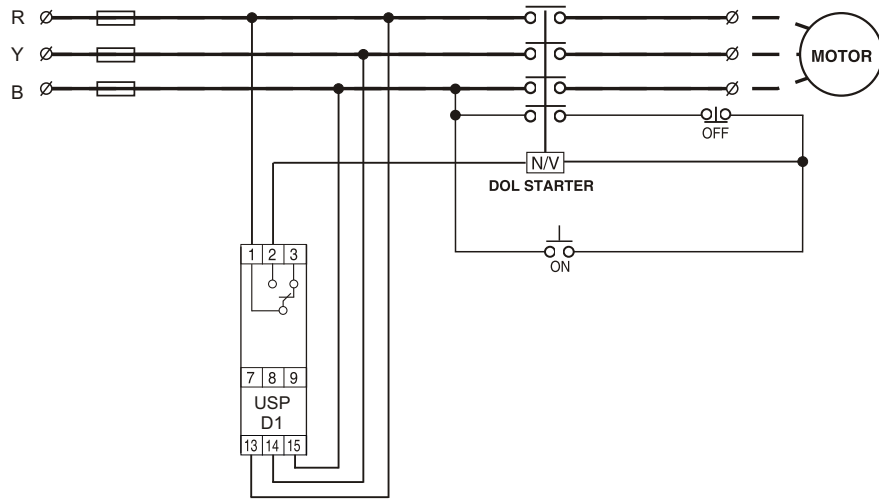
1. **SYSTEM SUPPLY VOLTAGE :**
415 VAC $\pm 20\%$
2. **AUX. SUPPLY VOLTAGE :**
IN BUILT
3. **FREQUENCY :**
50 Hz, $\pm 3\%$
4. **POWER CONSUMPTION :**
3 VA (max.)
5. **OUTPUT RELAY CONTACT :**
1 Changeover
6. **OUTPUT CONTACT RATING (RESISTIVE) :**
5Amp., 240 VAC
7. **LIFE EXPECTANCY :**
 0.5×10^6 operations at 100% rating
8. **UNBALANCE TRIP SETTING :**
 $60V \pm 6V$
9. **TRIP TIME DELAY :**
 $3.5 \text{ Sec.} \pm 1.5 \text{ Sec.}$
10. **RESETTING :**
Auto Reset
11. **RESET GAP :**
10 - 18V
12. **INDICATIONS :**
L1 : Green - Power ON
L2 : Red - Trip
13. **ENCLOSURE :**
ABS.
14. **DIMENSIONS (mm) :**
Overall : 76 X 30.5 X 117.5
Mounting : 68 center to center
15. **MOUNTING :**
35 mm Rail Mounting & Panel Mounting
16. **WEIGHT (gms) :**
320 (approx.)
17. **OPERATING CONDITIONS :**
TEMPERATURE : -5°C to $+60^{\circ}\text{C}$
HUMIDITY : Upto 95% Rh

TESTING PROCEDURE



ELECTRICAL CONNECTION IN POWER AND CONTROL WIRING

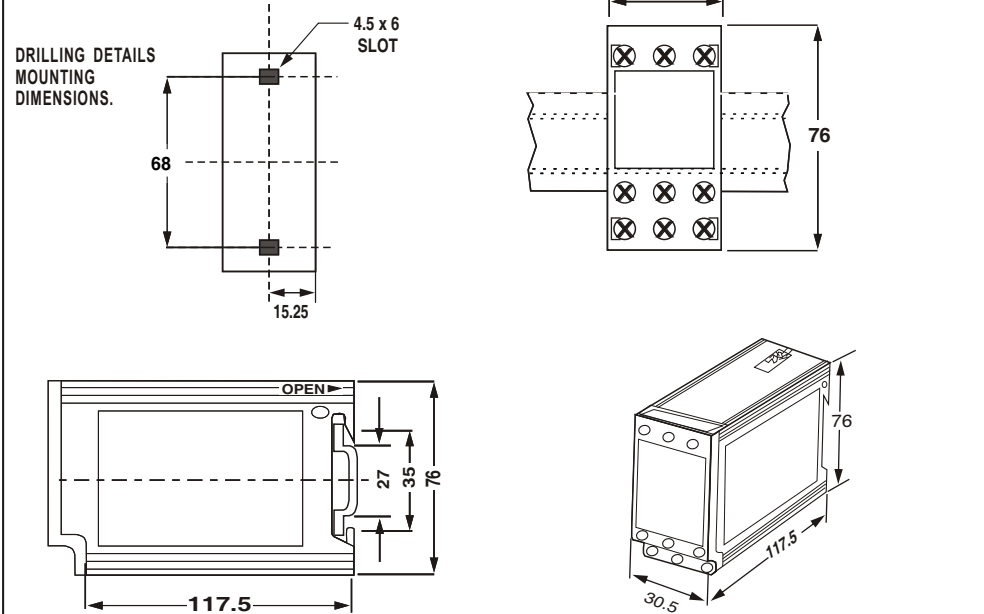
Fig. 3



NOTE : RELAY CONTACT SHOWN FOR UNIT IN POWER OFF CONDITION

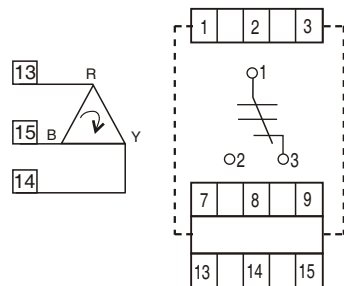
MOUNTING DIMENSIONS

Fig. 2



CONNECTION DIAGRAM

Fig. 1



INDICATIONS :

- L1 : POWER ON
- L2 : TRIP

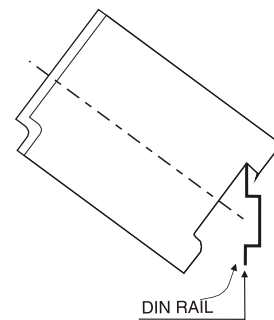
TERMINAL DETAILS :

- 13-14-15 : R-Y- B PHASE VOLTAGE SENSING POINTS
- 7-8-9 : DUMMY CONTACTS
- 1-2-3 : 1 CHANGEOVER OUTPUT RELAY CONTACTS (C - NO - NC)

NOTES : RELAY CONTACT SHOWN IN POWER OFF CONDITION.

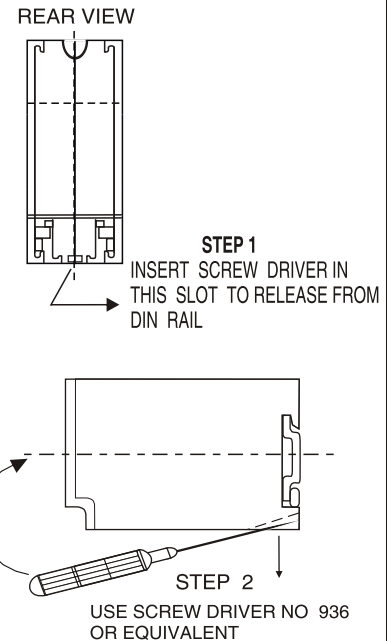
MOUNTING ON DIN RAIL

Fig. 4A



RELEASING FROM DIN RAIL

Fig. 4B



INSTALLATION INSTRUCTION MANUAL FOR PHASE FAILURE RELAY USP D1



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

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