

INSTALLATION INSTRUCTIONS FOR VSP D2

INTRODUCTION

Thank you for selecting & purchasing MINILEC make phase failure relay **VSP D2**. The following installation instructions would guide you in installing your **VSP D2** and making best use of it.

VSP D2 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 **VSP D2** is an auxiliary relay and it should be used along with the motor starter only. The effective working of **VSP D2** will depend on efficient working of the electromagnetic motor starter. Before installing your **VSP D2** 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 **VSP D2** with faulty motor starter.

TRIP SETTING, TRIP DELAY AND RESETTING

You can set your VSP D2 relay to trip the starter for any unbalance voltage between 30V to 70V \square 6V between any two phases.

The trip time delay is between 2 to 5 secs. The **VSP D2** relay can be set in Auto reset mode or manual reset and remote reset mode by removing or putting a short link between terminals 11&12. **VSP D2** will reset when the unbalance voltage is reduced to less than 20V between all three phases.

MOUNTING

Your **VSP D2** 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 **VSP D2** 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 \emptyset sensing (L1,L2,L3) is normally taken from outgoing terminals of motor starter. But in following conditions, sensing should be taken from incoming of motor starter, when **VSP D2** is used in Automatic reset mode.
 - * Fully automatic starter.
 - * Multi speed motor starter.
 - * Reversible starters.
 - * When any other auto resetting type control switch is used in series with no volt coil of the starter.

ELECTRICAL CONNECTIONS OF VSP D2:

See Fig.1 for Electrical connection

details of **VSP D2**.

See Fig.3 for installation of **VSP D2** in the power and control wiring.

Auxiliary supply voltage should be as marked on the front cover plate of **VSP D2**. Connect the auxiliary supply wires at 7 & 8. Connect R,Y,B phases at 1,2 and 3 respectively. The R,Y, B sensing should be taken from outgoing points of motor starter in case of Direct Online Starter. In case of star delta starters, it should be taken from outgoing terminals of main contactor. The output relay contacts 13 and 14 is to be connected in series with no-volt coil of the contactor. The potential free output relay contact 16 & 18 can be connected to annunciator or used for trip indication.

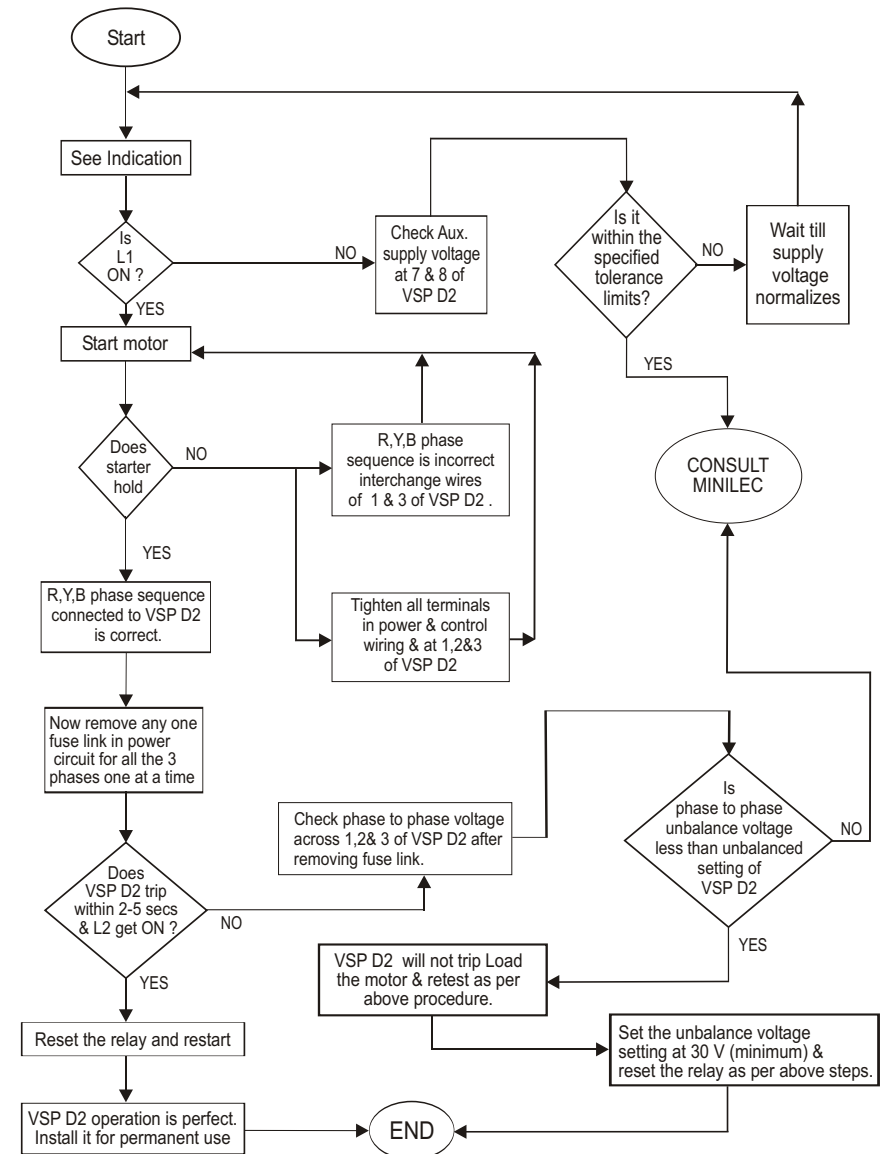
TECHNICAL SPECIFICATIONS OF VSP D2

1. **SYSTEM SUPPLY VOLTAGE :**
220 / 230 / 240 / 380 / 415 VAC \square 20 %
2. **AUX. SUPPLY :**
110 / 220 / 230 / 240 / 380 / 415 VAC \square 20%
3. **FREQUENCY :** 50 / (60) Hz, \square 3%
4. **POWER CONSUMPTION :** 3 VA (max.)
5. **OUTPUT RELAY CONTACT :** 2 Changeover
6. **OUTPUT CONTACT RATING [RESISTIVE] :**
5Amp., 240 VAC
7. **LIFE EXPECTANCY :**
0.5 x 10⁶ operations at 100% rating
8. **UNBALANCE TRIP SETTING :**
30 to 70V \square 6V
9. **SET ACCURACY :** \square 10% of set value
10. **TRIP TIME DELAY :**
3.5 Sec. \square 1.5 Sec.
11. **TEST PUSH BUTTON DELAY :**
3.5 Sec. \square 1.5 Sec
12. **RESETTING :** Auto, Manual, Remote Reset
13. **RESET GAP :** 10 - 18V
14. **INDICATION :**
L1 : Green - Power ON
L2 : Red - Trip
15. **ENCLOSURE :** ABS.
16. **DIMENSIONS [mm] :**
Overall : 76 x 56.5 x 117.5 [LXWXD]
Mounting : 67 x 46 [LXW]
17. **MOUNTING :**
35 mm Rail Mounting & Panel Mounting
18. **WEIGHT [gms] :** 400 (approx.)
19. **OPERATING CONDITIONS :**
TEMPERATURE : -5^oC to + 60^oC
HUMIDITY : Upto 95% R.H.

TESTING PROCEDURE

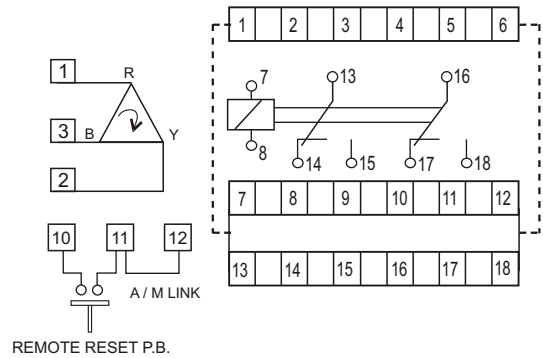
TESTING :

If you need to test the functioning of VSP D2 without connecting it in the control circuit of the motor starter, follow the following procedure. Connect required auxiliary supply to VSP D2. Check the output relay contacts at (13) & (14). Indication L1 should be ON. Press TEST push button on the front of the VSP D2. Reset your VSP D2 by either pressing RESET push button on the front plate of VSP D2 or by shorting terminals (10) & (11) of VSP D2. If these operations are perfect, connect your VSP D2 in the motor circuit. Consult Minilec if you find any irregularities in the above mentioned operation.



CONNECTION DIAGRAM

Fig. 1

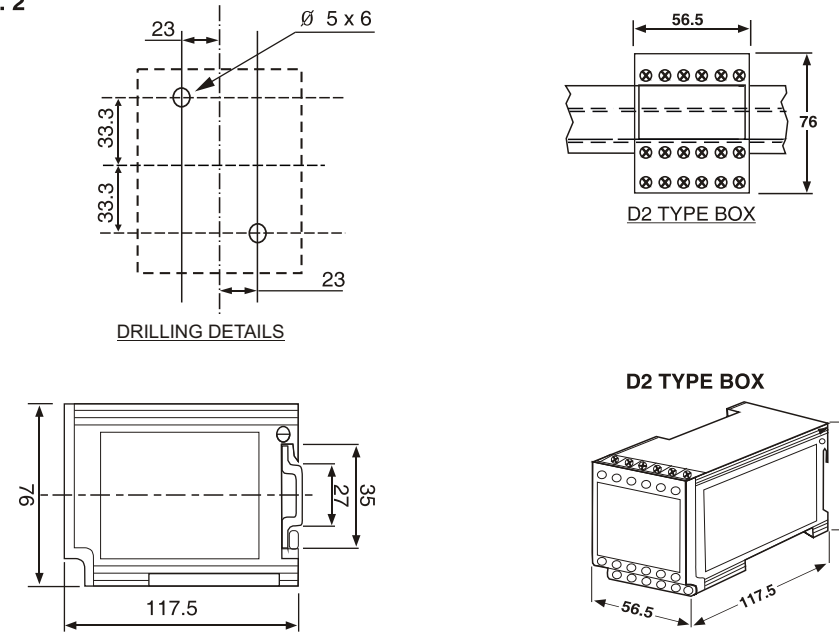


- INDICATIONS :
 L1 : POWER ON
 L2 : TRIP
- TERMINAL DETAILS :
- 1-2-3 : R-Y- B PHASE VOLTAGE SENSING POINTS
 - 7-8 : AUXILIARY SUPPLY VOLTAGE AS MARKED ON THE UNIT
 - 4-5-6-9 : DUMMY CONTACTS
 - 10-11 : EXT. REMOTE RESET PUSH BUTTON
 - 11-12 : EXT. LINK FOR MANUAL / REMOTE RESET
 - 14-13-15 : 2 CHANGEOVER OUTPUT
 - 17-16-18 : RELAY CONTACTS (NO - C - NC)

NOTES : RELAY CONTACT SHOWN IN HEALTHY CONDITION.

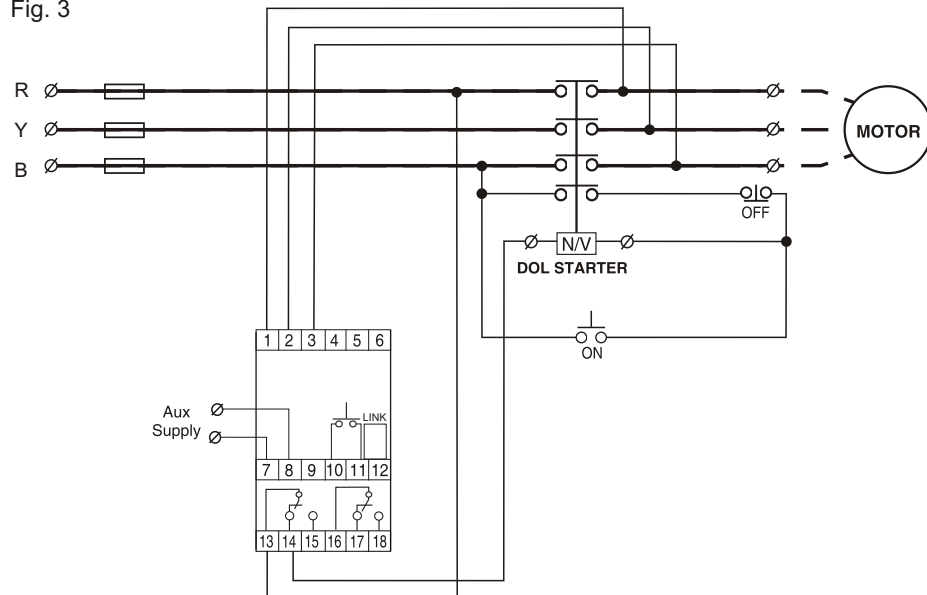
MOUNTING DIMENSIONS

Fig. 2



ELECTRICAL CONNECTION IN POWER AND CONTROL WIRING

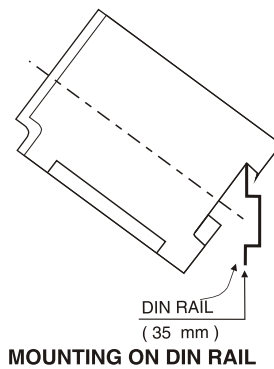
Fig. 3



NOTE : RELAY CONTACT SHOWN FOR UNIT IN HEALTHY CONDITION

MOUNTING ON DIN RAIL

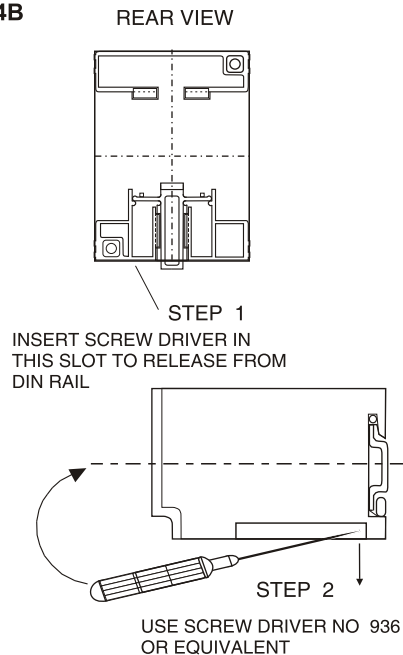
Fig. 4A



MOUNTING ON DIN RAIL

RELEASING FROM DIN RAIL

Fig. 4B



INSTALLATION INSTRUCTION MANUAL FOR PHASE FAILURE RELAY VSP D2



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

Manufactured by :

minilec®

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

VERSION 04
 (22/06/04)