

INSTALLATION INSTRUCTION FOR PGS D2

INTRODUCTION

It's the company's pleasure to enlist you as one of our esteemed user customers. Thank you for selecting & purchasing MINILEC make single phase Overload and Dry Run Protection Relay PGS D2.

The following procedure would guide you in installing your PGS D2 and making the best use of it.

PGS D2 is an electronic overload relay which senses motor current to offer overload and dry run protection (for submersible pumps).

PGS D2 offers protection against:

- Overloading condition.
- Dry running condition.

Your PGS D2 is an auxiliary relay. It should be used along with the motor starter only. The effective working of PGS D2 will depend on efficient working of the electromagnetic motor starter. Before installing PGS D2 unit 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 PGS D2 with faulty motor starter.

MOUNTING

The PGS D2 is RAIL mounted or panel mounted. It is suitable for 35 mm RAIL (For Panel mounting & Drilling details see Fig. 3). (See Fig. 4A for mounting on and Fig. 4B for releasing from DIN RAIL.)

CAUTION

Ensure that PGS D2 unit is,

- Not installed near any heat sources like Burner, Sunlight, Electric Arc etc.
- Not subjected to Abnormal Vibrations.
- Not subjected to direct Rains, Stormy wind & Dust
- Installed as near to the starter as possible.

ELECTRICAL CONNECTIONS OF PGS D2:

See Fig. 1 for electrical connection details of PGS D2.

See Fig. 2A & 2B, for installation of PGS D2 in the Power and control wiring diagram. Auxiliary Supply Voltage should be as marked on front cover plate of PGS D2. Connect the current inputs at terminal 1 & 2 (for 10A) or at terminal 1 & 3 (for 5A) of PGS D2 respectively. The output relay contacts 13 & 14 are to be connected in series with the No-volt coil of the contactor.

TRIP SETTING, TRIP DELAY & RESETTING

The PGS D2 is factory set to trip the motor with inverse time current characteristics of 2 secs. Depending upon the percentage of excess load on the motor over and above 100% rated load, the PGS D2 decides the trip time delay as per inverse time current characteristics (ref. Fig. 5 for typical inverse time current characteristics chart)

The PGS D2 is factory set to trip the submersible pump motor at less than 75% of full load current in case of dry run.

The PGS D2 relay can be set in Auto reset mode or Manual reset mode by removing or connecting a short link at terminals 11 & 12 respectively. For Remote reset mode use terminals 10 & 11.

PGS D2 relay with AUTO RESET mode Should not be used with

* Fully automatic reset starter.

* When any other auto resetting type control switches are used in series with no-volt coil of the starter.

For using with fully automatic reset starter if PGS D2 is to be set in Auto Rest mode, a reset time delay should be induced externally preferably with Minilec make Time Delay Relay.

TECHNICAL SPECIFICATION OF PGS D2:

- Voltage System Supply** : 240V AC \pm 20 %.
- Aux. Supply (AC)** : 220-240 VAC \pm 20 %
- CURRENT INPUT** : 10A / 5A (SELECTABLE)
Terminal 1 & 2 : Current Input 10A
Terminal 1 & 3 : Current Input 5A
- Frequency** : 50 Hz / 60 Hz \pm 3%.
- Power Consumption** : 3 VA max
- Output Relay Contacts rating** : 1CO / 2CO
: 5A at 240V AC (resistive)
- Life Expectancy** : 0.5×10^6 operations at 100% rating.
- Operating Condition** :
Temperature : -5°C to $+60^{\circ}\text{C}$
Humidity : Up to 95% R. H.
- Trip Settings** :
*Under Current (Dry Run) : 75% of set current \pm 10% (fixed)
: :
*Overload : Above 120% of set Current (fixed)
- Trip Time Delay** :
*Under Current : Less than 2 secs.
*Overload : As per 2 sec. Inverse Time current characteristics
: Auto / Remote / Manual
- Resetting**
- Indications** :
ON (Green) : Power On
OL (Red) : Overload trip
DR (Red) : Dry Run trip.
- Current Sensor** : Inbuilt (10Amp & 5Amp)
Above 10A, EXT. CT of 5Amp or 10Amp Secondary is to be used
- Enclosure** : ABS
- DIMENSIONS(mm)** :
Overall : 76X 56.5 X 117.5
Mounting : 66.6 X 46
- Unit Weight** : 600 gms (approx)

NOTE :-

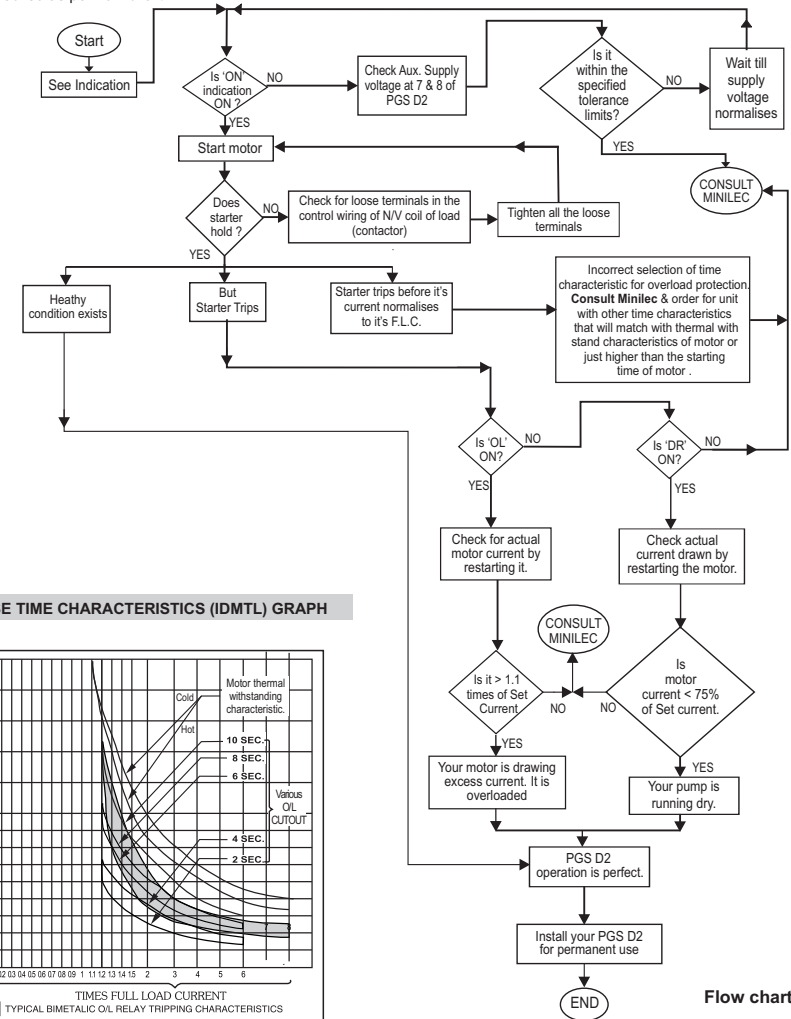
For motors upto 1.5 HP PGS D2 is used without external CT as shown in fig.2A.

For motor above 1.5 HP PGS D2 is used along with external 5A or 10 A secondary CT.
(Refer electrical connection fig.2B)

TESTING PROCEDURE

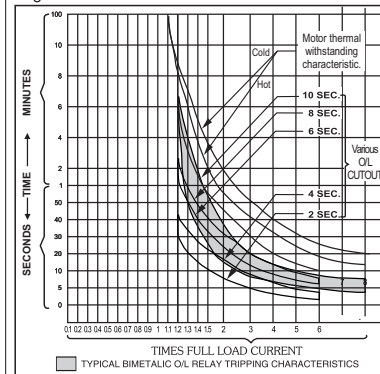
If you need to test the functioning of PGS D2 without connecting it in the control circuit of the motor starter, follow the following procedure. Connect required auxiliary supply to PGS D2. Check continuity at the output relay contacts at 13 & 14. Indication L1 should be ON.

Press TEST push button on the front plate of PGS D2. Check dis-continuity at terminals 13 & 14 of PGS D2. Reset the PGS D2 by either pressing 'RESET' push button on the front plate of PGS D2 or by shorting terminals 10 & 11 of PGS D2. If these operations are perfect, connect your PGS D2 to the motor circuit. After making the electrical connections as per connection diagram, functioning of the unit can be checked as per flow chart.



INVERSE TIME CHARACTERISTICS (IDMTL) GRAPH

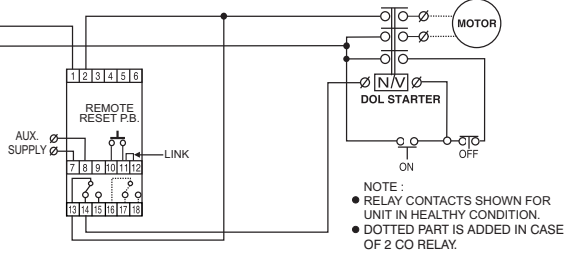
Fig. 5



Flow chart

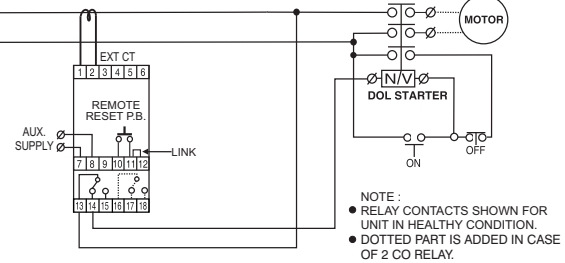
ELECTRICAL CONNECTION IN POWER AND CONTROL WIRING

Fig. 2A



● MONITORING OF 10A CURRENT INPUT IS SHOWN ABOVE. FOR MONITORING 5 A OF CURRENT INPUT, TERMINALS 1 & 3 TO BE USED.

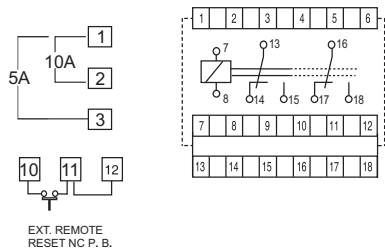
Fig. 2B



● MONITORING OF 10A CURRENT INPUT IS SHOWN ABOVE BY USING EXT. CT. OF 10A SECONDARY RATING. IF EXT. CT. OF 5A SECONDARY IS USED, TERMINALS 1 & 3 ARE TO BE USED.

CONNECTION DIAGRAM

Fig. 1



NOTES :
● RELAY CONTACTS SHOWN FOR UNIT IN HEALTHY CONDITION.
● DOTTED PART IS ADDED IN CASE OF 2 CO RELAY.

INDICATIONS

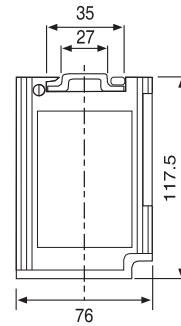
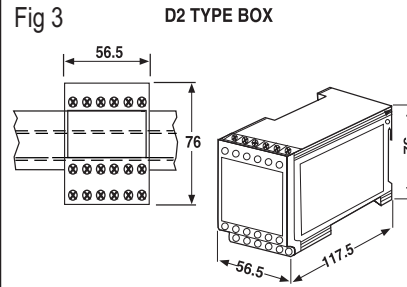
- 'ON' : POWER ON
- 'OL' : OVER LOAD TRIP
- 'DR' : DRY RUN TRIP

Terminal Details

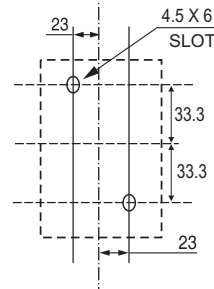
TERMINAL NO.	DESCRIPTION
1-2	CURRENT INPUT(10A)
1-3	CURRENT INPUT(5A)
7-8	AUX. SUPPLY AS MARKED ON THE UNIT
10-11	REMOTE RESET PUSH BUTTON
11-12	AUTO / MANUAL SELECTION. CONNECT LINK BETWEEN 11 & 12 FOR MANUAL MODE OPERATION.
14-13-15	1 CHANGEOVER OUTPUT RELAY CONTACT (NO-C-NC).
17-16-18	RELAY CONTACT IN CASE OF 2CO (NO-C-NC)
4,5,6,9	ALL DUMMY

MOUNTING DIMENSIONS

Fig 3



DRILLING DETAILS



MOUNTING AND RELEASING FROM DIN RAIL

Fig 4A. MOUNTING ON DIN RAIL

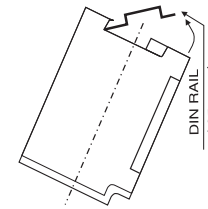
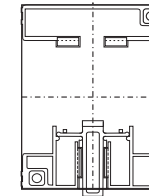


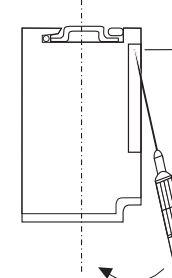
Fig 4B RELEASING FROM DIN RAIL

REAR VIEW



STEP 1

INSERT SCREW DRIVER IN THIS SLOT TO RELEASE FROM DIN RAIL



STEP 2

USE SCREW DRIVER NO 936 OR EQUIVALENT

INSTALLATION INSTRUCTION FOR OVERLOAD AND DRY RUN PROTECTION RELAY PGS D2



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 - 03
(12/06/12)