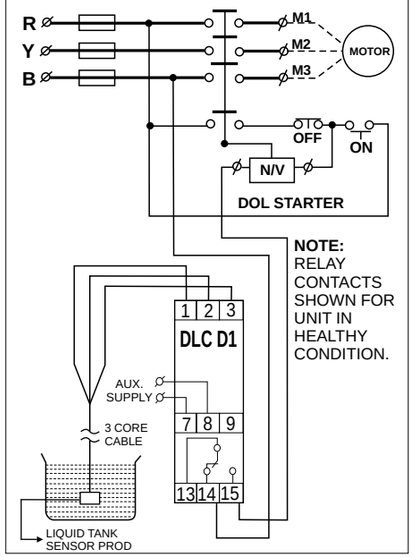
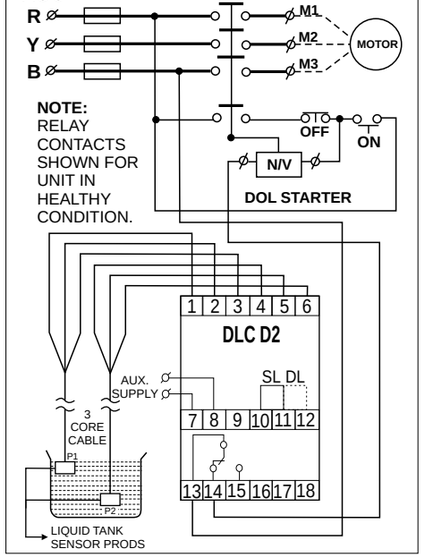
ELECTRICAL CONNECTIONS IN POWER AND CONTROL WIRING FOR DLC D1

FIG. 1



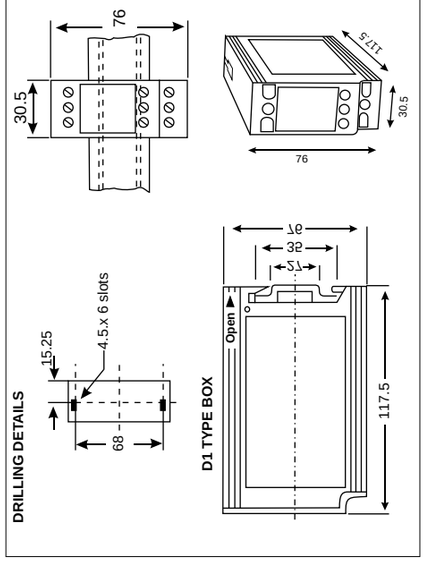
ELECTRICAL CONNECTION IN POWER AND CONTROL WIRING FOR DLC D2

FIG 3



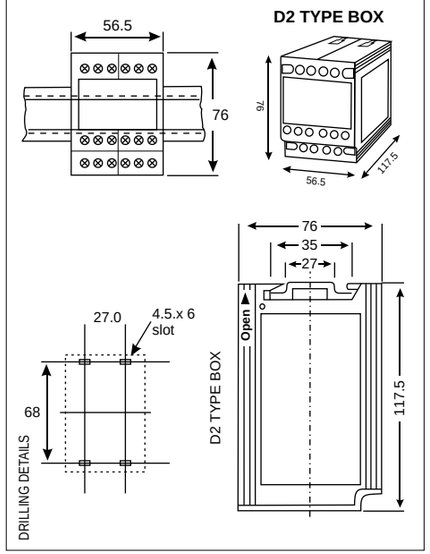
MOUNTING DIMENSIONS D1 TYPE BOX

FIG 5



MOUNTING DIMENSIONS D2 TYPE BOX

Fig 7

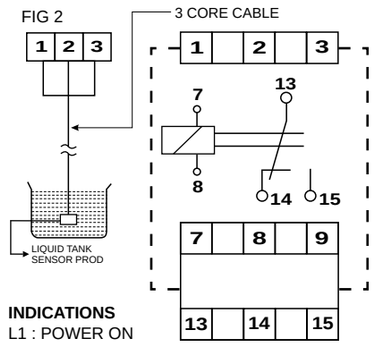


INSTALLATION INSTRUCTION MANUAL FOR LIQUID LEVEL CONTROL RELAYS

DLC D1 / DLC D2

CONNECTIONS DIAGRAM FOR DLC D1

FIG 2



INDICATIONS
L1 : POWER ON

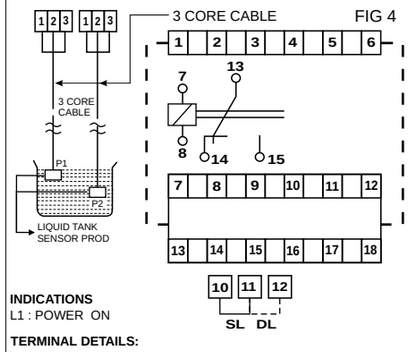
TERMINAL DETAILS:

1 - 2 - 3	: SENSOR PROD OUTPUT WIRES GREEN, RED, BLACK RESPECTIVELY
7 - 8	: AUXILIARY SUPPLY AS MARKED ON THE UNIT
9	: DUMMY TERMINALS
14 - 13 - 15	: 1 CHANGEOVER OUTPUT RELAY CONTACTS (NO - C - NC)

NOTE:
RELAY CONTACTS SHOWN FOR UNIT IN HEALTHY CONDITION.

CONNECTIONS DIAGRAM FOR DLC D2

FIG 4



INDICATIONS
L1 : POWER ON

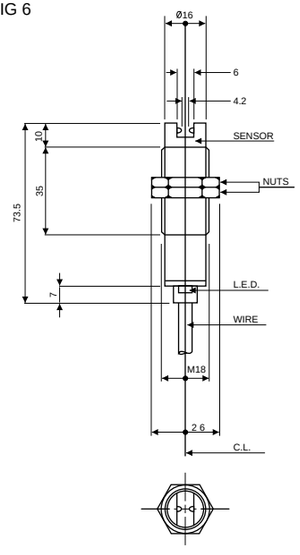
TERMINAL DETAILS:

1-2 -3	: OUTPUT WIRES GREEN, RED, BLACK RESPECTIVELY FOR UPPER LEVEL SENSOR PROD (P1)
4-5-6	: OUTPUT WIRES GREEN, RED, BLACK RESPECTIVELY FOR LOWER LEVEL SENSOR PROD (P2)
7-8	: AUXILIARY SUPPLY AS MARKED ON THE UNIT
10-11	: PUT SHORT LINK FOR SUCTION LOGIC OPERATION
11-12	: PUT SHORT LINK FOR DELIVERY LOGIC OPERATION
14-13-15	: 1 CHANGEOVER RELAY CONTACTS (NO - C -NC)
9,16,17,18	: DUMMY TERMINALS

NOTE:
RELAY CONTACTS SHOWN FOR UNIT IN HEALTHY CONDITION.

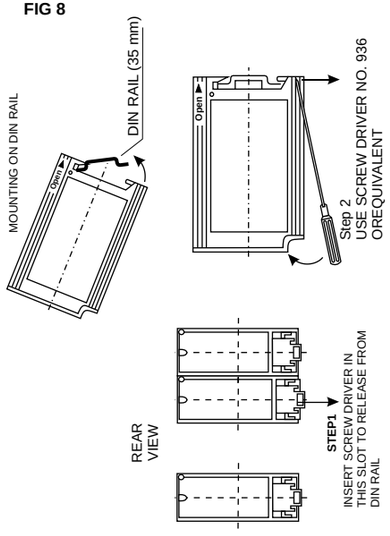
FORK TYPE SENSOR PROD

FIG 6



MOUNTING ON DIN RAIL RELEASING FROM DIN RAIL

FIG 8



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, Pirangoot,
Tal. Mulshi, Dist. Pune - 412 111 (India)

VERSION 04
(12/09/99)

INSTALLATION INSTRUCTIONS FOR LIQUID LEVEL CONTROLLER RELAY DLC D1, DLC D2

INTRODUCTION

It's the company's pleasure to enlist you as one of our esteemed user customers. Thank you for selecting and purchasing MINILEC make Liquid Level Controller Relay.

The following installation instructions would guide you in installing your Liquid Level Controller Relay (i.e. DLC D1 / DLC D2) and making the best use of it.

The above models are Liquid Level Controllers (either single or two desired levels) operating on optical conductivity sensing principle for non conductive & non corrosive liquids in either overhead or underground tanks. This is an auxiliary relay and should be used in the control circuit. The output of this switching relay is 1 changeover contact of 5A, 240 VAC rating.

MODE OF OPERATION

Liquid Level Controller Relay can be set to operate in auto mode only.

INPUT SENSOR

Above models are to be used with MINILEC sensor prods only i.e. Fork type sensor prod (see fig. 6) The Infra - Red Transmitter and Receiver are located 3.2 mm apart in this prod. This prod can be fixed on tank wall by threading arrangement.

MOUNTING

Any Liquid Level Controller Relay can be RAIL mounted or PANEL mounted. (see Fig. 8 for mounting it on DIN RAIL & releasing it from DIN RAIL respectively. Also see Fig. 5 & 7 for PANEL Mounting and Drilling Dimensions.

CAUTION

1. **Ensure that any model of Liquid Level Controller Relay 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 and dust.
   - Installed as near to the starter as possible.
2. **Ensure that sensor prod is not installed in transparent colou less liquids, corrosive liquids or in highly viscous liquids. Consult MINLEC before using it for such applications.**

ELECTRICAL CONNECTIONS OF LIQUID LEVEL CONTROLLER RELAY

See Fig. (2/4) for electrical connection diagram details of corresponding model of Liquid Level Controller Relay.

See Fig. (1/3) for installation in power and control wiring of corresponding model of Liquid Level Controller Relay.

Connect Auxiliary supply at terminals 7 & 8 as mentioned on the unit. Connect output wires Green, Red, Black of sensor prods at terminals 1,23 (1, 2, 3 & 4, 5, 6 for DLC D2 only) respectively. The output relay contacts at 13 & 14 are to be connected in series with no - volt coil of contactor (Starter)

FUNCTIONING

DLC D1

It is a level control switch for single level. (either upper or lower) The sensor prodcan be positioned at the desired level in the liquid tank. The output relay chages its state whenever the sensor prod is either dipped in the liquid or is taken out from the liquid level.

DLC D2

It is a two liquid Level Controller Relay for controlling the pump operation. It can be set to operate in either SUCTION logic or DELIVERY logic by putting external short link at either terminals 10 & 11 & 12 respectively.

FUNCTION DURING SUCTION LOGIC
By putting short link at terminals 10 & 11, SUCTION logic is selected. The level sensing prod P1, P2 are to be put into a underground storage tank to enable the pump motor to start automatically when the underground tank is full (i.e when upper level prod P1 is also dipped in liquid) and will stio automatically when the tank is empty (i.e when the lower level prod P2 is also out of liquid)

FUNCTION DURING DELIVERY LOGIC
By putting short link at terminals 11 & 12, DELIVERY logic is selected. The level sensing prod P1. P2 are to be put into the overhead liquid tank to enable the pump motor to start automatically when the overhead tank is empty (i.e. when the lower level prod P2 is also out of liquid) and will stop automatically when the tank is full (i.e when upper level prod P1 is also dipped in liquid)

TECHNICAL SPECIFICATIONS OF VST D1

1. **Auxiliary Supply Volatge**
   110/220/230/240/380/415/440 VAC ± 20%
   (24VDC) ± 10%
2. **Frequency :** 50/60 Hz ± 3%
3. **Input Sensor :** 1 NO. or 2 NC. Fork type photo sensors with stainless steel casting (For DLC D1 or DLC D2 respectively)
4. **Output Relay Contacts :**
   1 Changeover Contact
5. **Contact Rating (Resistive) :**
   5 A, 240 VAC
6. **Life Expectancy :**
   0.5×10^6 operations at 100% rating
7. **Operating Conditions:**
   Temperature : -5^0C to 60^0C
   Humidity : Upto 95% R.H.
8. **Trip Setting :** According to the placement of sensor prods in the tank
9. **Trip Time Delay (Sec):**
   Less than 1 sec. - (For DLC D2)
   2-5 sec. - (For DLC D1)
10. **Resetting :** Auto
11. **Indications :**
    L1 Green Power On
12. **Enclosure :** ABS
13. **Mounting :**
    35 Rail mounting and panel mounting
14. **Unit Weight (gms.) approx. :**
    300 for DLC D1
    400 for DLC D2
15. **Single Sensor Weight (gms.) approx. :**
    Fork type - 100

TESTING PROCEDURE

Testing : After making electrical connections as per connection diagram automatic functioning of the unit can be checked as per following flow chart