SHRIDHAN®

Automate Your Field

LEVEL CONTROL INSTRUMENTS

Index

1.LEVEL CONTROL INSTRUMENTS

1.1 Process Controller - DLC1001

This micro controller - based instrument is basically a process controller, which accepts a universal 4 - 20mA input and displays the corresponding process value as per configured. It has four individual set points, all configurable as control outputs or Alarm function. It has a facility for changing the resolution of the input process value, control logis, alarm logic and offset calibration in the configuration mode. In the normal user setting mode, the set point, corresponding hysterisis and output delay time settings can be accessed.

Process controllers are used with level transmitters for display of variable outputs in terms of Linearity/ volume/percentage of tank liquids/gases.
Options of providing multiple indicators for various tank monitioring applications within a pannel enclouser/ explosion proof enclouser are possible.

SPECIFICATIONS

Power Input	Input Volatge 100 - 200V AC 50 Hz, 50mA, expected during power - on in rush. 24V DC, 75m A max (on request) Input protection: 0.5A glass fude for overcurrent protection. Power consumption: 4 watts max.
Sensor Input	Sensor excitation output voltage: 24V,+4 % to -20 % Sensor excitation output current capacity: 40mA max Current range: 0 mA to 20 mA Current resolution: upto 500 steps
Output (Current)	Current tracking 1 % of input current current settling time for 4 - 20mA step input: 12 seconds
Output (MODBUS)	MODBUS PDU over RS485 Default baudrate 19200 baud, 1 stop bit, 0 parity bits Resisters supported: 9 (default register map is indicated in table below) Supported functions; Read input register, read multiple holding registers.
Mounting	Panel Mounting

Relays
Three potential free NO/NC contact suger - cube relays
Contact rating :5A resistive load at 230V AC 50 Hz(no snubber provided)
Relay-1 function: Pump / Drain (SPDT contacts)
Relay-2 function: Low alarm (SPST contacts)
Relay-# function:High alarm (SPST contacts)

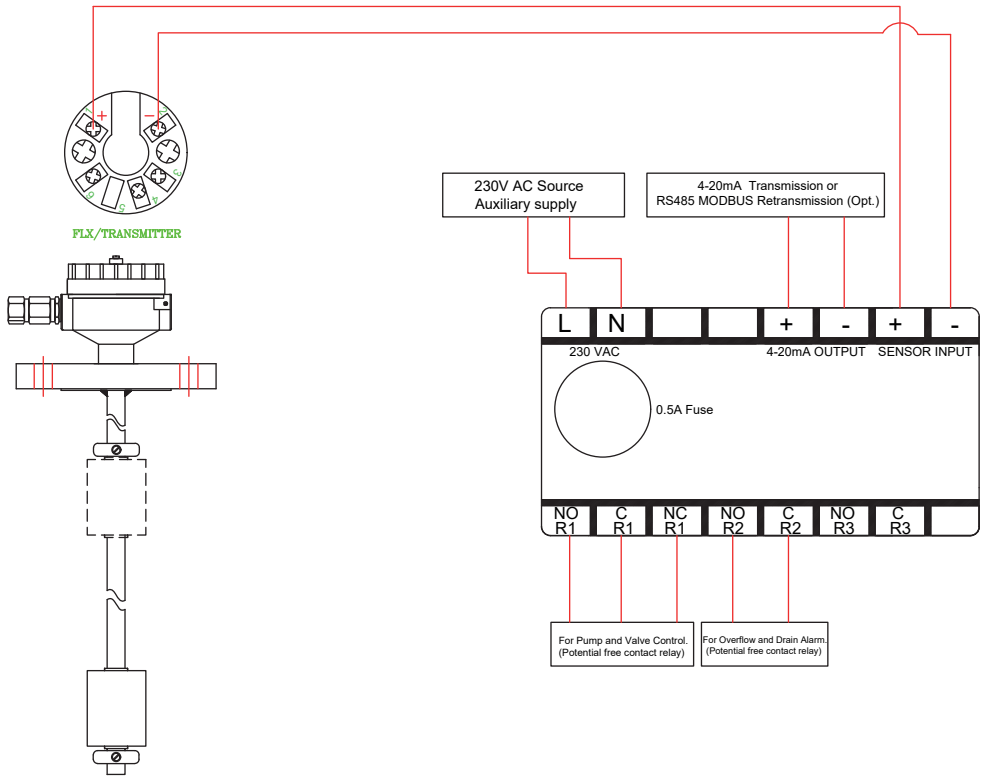
Display
Type 16 charcter X 2 line char LCD
Display updated rate: once every 2 seconds
Default Display Line-1 Volume
Default Display Line2: Float height, fill percentage

Operating temperature: +15 0 C to + 45 0 C
Humidity: upto 85% RH non- considensing
External dimensions:96mm x 96mm x 135mm

Reg #	Parameter	Description
0	Input Current	In micro amps. valid values span 0 - 20000
1	Fill Percentage	In decimal valid values span from 0 - 100
2	Float Height cms	In centimeters valid values can span 0 - 6554
3	Float Height mms	In milimeters valid values can span 0 - 65535
4	Float Voulme Upper Word	In liters contains volume in multiples of 65536 liters
5	Fill Volume Lower Word	In liters contains volume in excess of above Reg - 4
6	Relay - 1 Status	0 = Relay is off 1= Relay is on
7	Relay - 2 Status	0 = Relay is off 1= Relay is on
8	Relay - 3 Status	0 = Relay is off 1= Relay is on

WIRING DETAIL WITH LEVEL TRANSMITTER

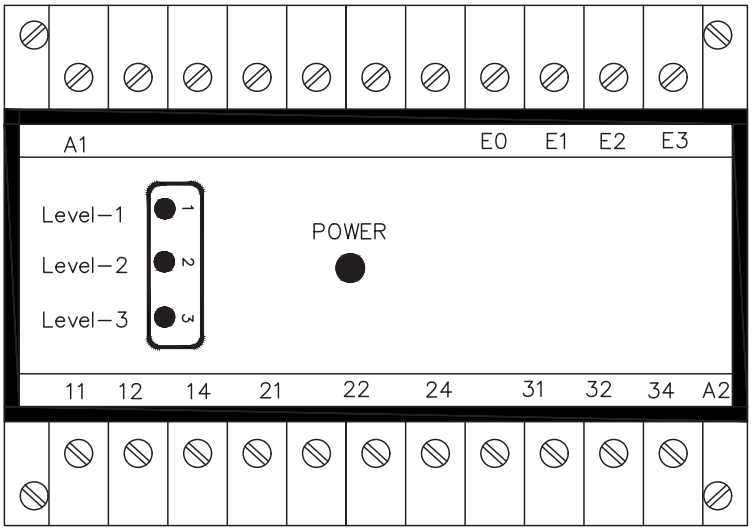
DIGITAL PROCESS INDICATOR DLC1001 WIRING DETAILS.



1.2 LIQUID LEVEL MONITORING RELAY FOR THREE LEVELS

3LLMR Controllers are used for connecting conductivity level switch probes and providing respective relay outputs from the circuitry for operating a pump, provide an alaram, operate a valve etc.,
as a standard we can provide multiple logic controls for various applications, which takes up most level control options for process plant.
3 outputs are standard - more options are possible on application basis.

1.2.A 3 - LLMR - 90- 300V AC



SPECIFICATIONS

Supply Voltage	90- 300V AC+/-20% 50HZ
Power Consumption	3VA
Sensor Type	Conductive Probes
Sensitivity	30 - 50K Ohms
Inputs	E0 - Common probe E1, E2, E3 - 3 level sensing probes
Output	3 relay contacts 1C/O type rated 7A at 250V AC
Connection Details	A1, A2 - supply voltage
Dimension Details	Length - L: 100 mm, Breadth - B:70mm, Height - H: 112mm
Options	With Ex- Proof enclouser Gr. IIA/IIB/IIC, Zone 1 and Zone 2
Mounting Type	DIN Rail mount

OUTPUT:

11- COM
12 - NC
14 - NO
Level Relay Contact Corresponding to E1

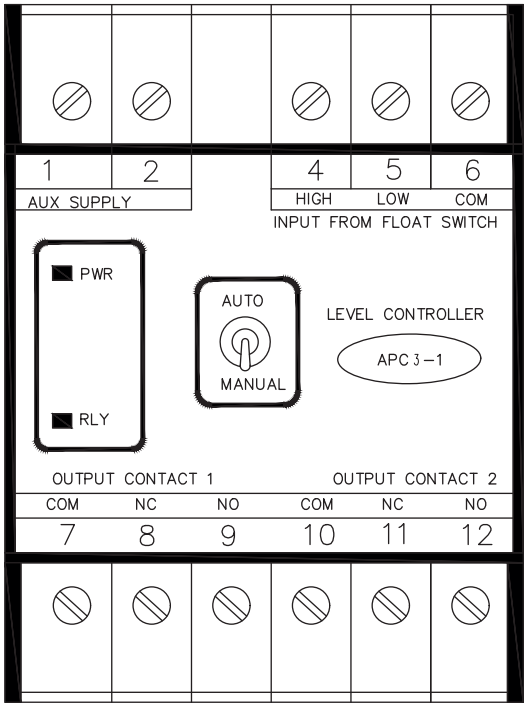
21 - COM
22 - NC
24 - NO
Level Relay Contact Corresponding to E2

31 - COM
32 - NC
34 - NO
Level Relay Contact Corresponding to E3

1.3 LEVEL CONTROLLER - APC3 - 1

APC3 Level controllers are used for overhead tank and sump monitoring level control, auto/manual changeover toggle switches help in providing flexibility for operation.

APC3 controllers are simplest level control instruments, which are economical, rugged and serve most purposes of level controllers in almost every application.



SPECIFICATIONS

Supply Voltage	85-265 VAC, 50Hz
Supply Voltage to Float Switch	12VDC
Output	2 C/O contact rated 5A at 250VAC (Resistive)

FUNCTIONS

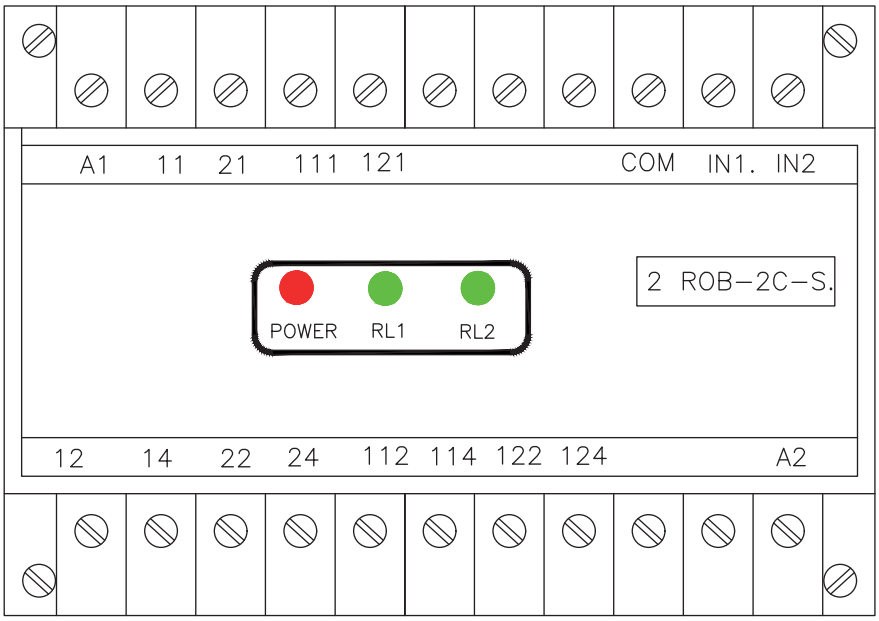
PUMP UP OPERATION : Relay comes “ON” when liquid level reaches “LOW” level (D2), and remains “ON” untill the liquid reaches the “HIGH” level (D1).

PUMP DOWN OPERATION : Relay comes “ON” when liquid level reaches “HIGH” level (D1), and remains “ON” untill the liquid reaches the “LOW” level (D2).

1.4 CONTRACT DUPLICATOR - CD - 2 ROB - 2C - S

CD2ROB Level controllers are used for changeover contracts applicable for dual operations (alarm/valve/ pump control). In special applications, each potential free contract from the level switch can be converted tpo dual changeover contracts (DPDT). All relay outputs provided can be helpful in most pump control applications.

1.4.A CD - 2 ROB - 2C - S



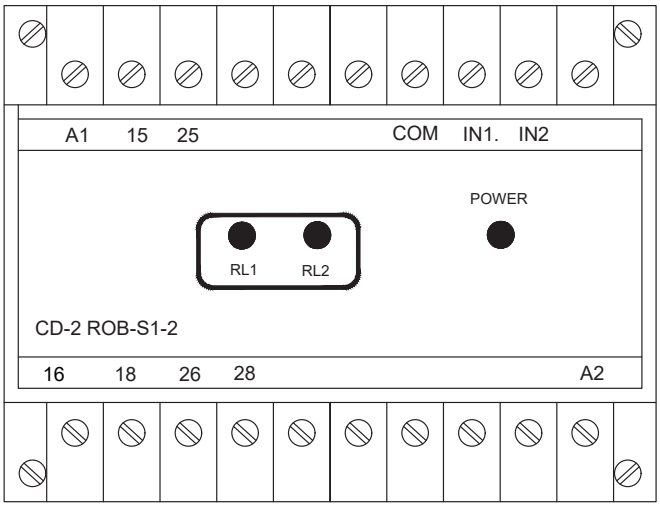
SPECIFICATIONS

Supply Voltage	230V AC+/-20% 50HZ
Output Relay Contacts	All 2 C/O rated 5A at 250V AC (resistive)
Supply Voltage Sensor	12V DC
Senson Type	Magnetic float switches
Options	With Ex- Proof enclouser Gr. IIA/IIB/IIC, Zone 1 and Zone 2

CONNECTION DETAILS

Input Terminals	Relay Indicators	Output Relay Contacts		
		COM	NC	NO
IN1	RL1	11 21	12 22	14 24
IN2	RL2	111 121	112 122	114 124

1.4.B CD - 2ROB - S1 - 2



SPECIFICATIONS

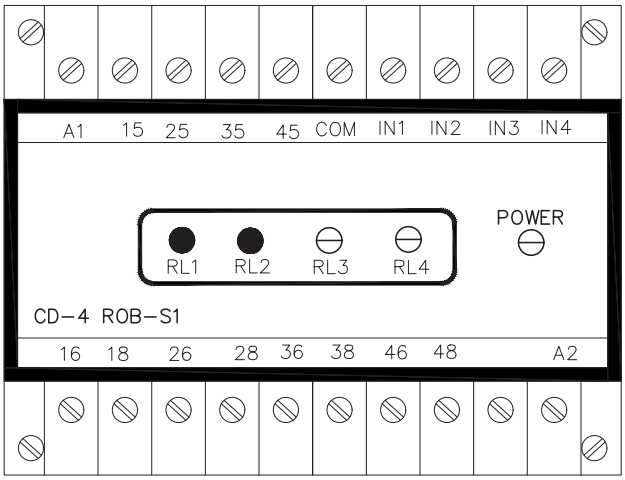
Supply Voltage	A1, A2 : 110V AC +/-20% 50HZ
Output Relay Contacts	All 2 C/0 rated 5A at 250V AC (resistive)
Supply Voltage To Sensor	12V DC
Sensor Type	Magnetic Float Switches
Options	With Ex- Proof enclouser Gr. IIA/IIB/IIC, Zone 1 and Zone 2

CONNECTION DETAILS

Input Terminals	Relay Indicators	Output Relay Contacts		
		COM	NC	NO
IN1	RL1	15	16	18
IN2	RL2	25	26	28

1.4.C - CD - 4ROB - S1

CD2ROBS Level controllers are used for changeover contracts applicable for dual operations (alarm/valve/ pump control). In special applications, each potential free contract from the level switch can be converted tpo dual changeover contracts (DPDT). All relay outputs provided can be helpful in most pump control applications. In these controllers - upto 4 changeover contacts can be provided.



SPECIFICATIONS

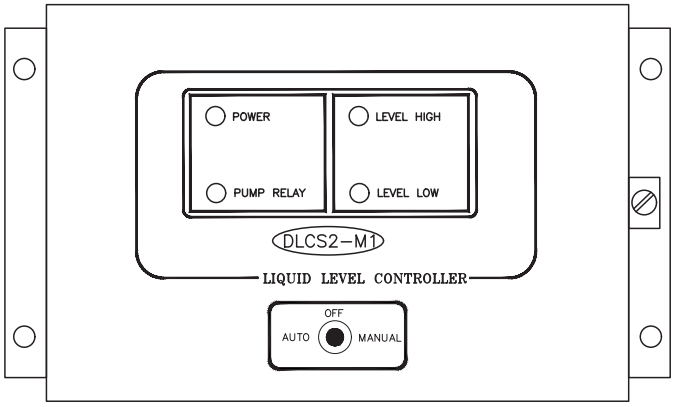
Supply Voltage	A1, A2 : 90-280V AC, 50HZ
Output Relay Contacts	All rated 10 A at 250V AC (resistive)
Supply Voltage To Sensor	24V DC
Sensor Type	Magnetic Float Switches
Options	With Ex- Proof enclouser Gr. IIA/IIB/IIC, Zone 1 and Zone 2

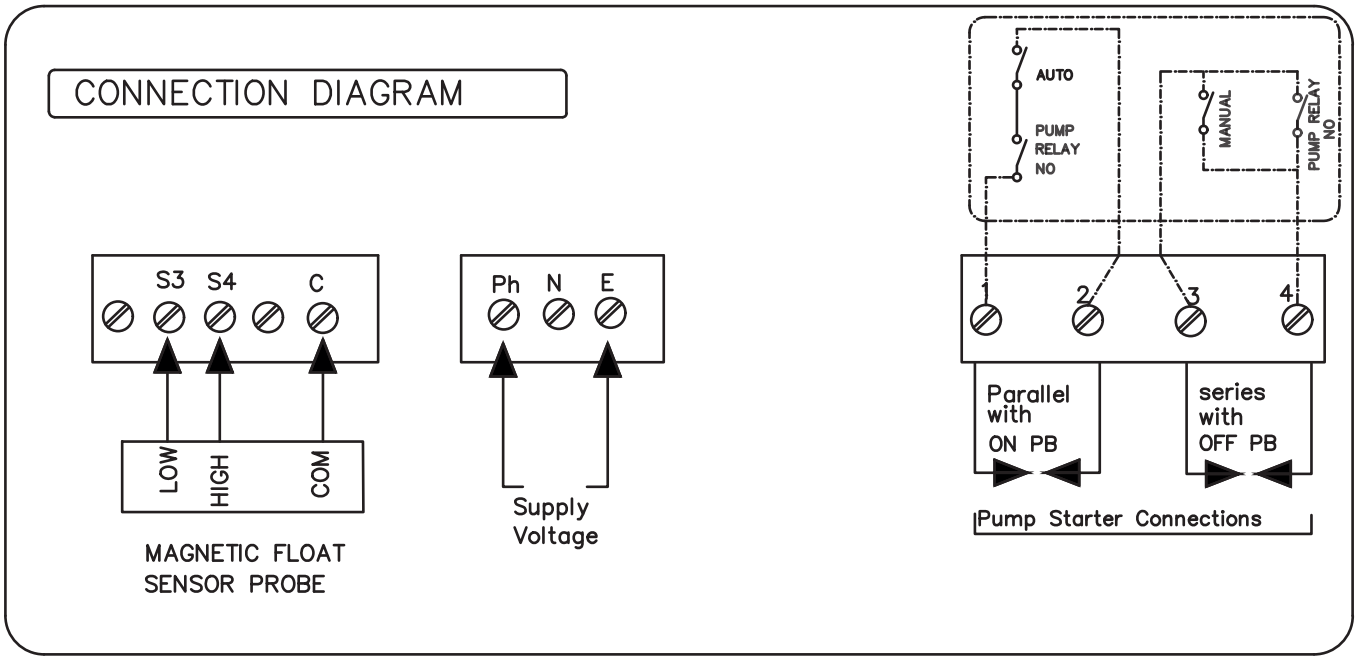
CONNECTION DETAILS

Input Terminals	Relay Indicators	Output Relay Contacts		
		COM	NC	NO
IN1	RL1	15	16	18
IN2	RL2	25	26	28
IN3	RL2	35	36	38
IN4	RL2	45	46	48

1.5 LIQUID LEVEL CONTROLLER -

DLCS2 Level controllers are used for overhead tank and sump monitioring level control. Auto/manual changeover toggle switches help in providibg flexibility for operation.
DLCS2 controllers are the simplest level control instruments, which are used for outdoor applications, rugged and serve most purposes of level controllers in almost every industry.



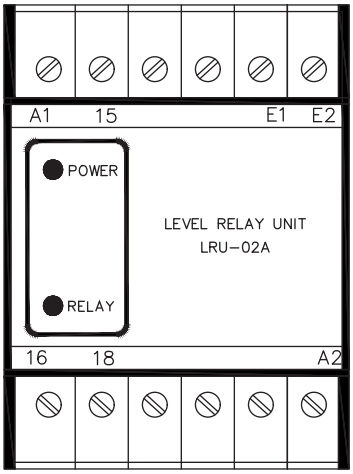


Dimension Details :
Length- L:245mm
Breadth- B:90mm
Height- H:180mm

Options: With Ex- Proof enclouser Gr.IIA/IIB/IIC, Zone 1 and Zone 2

1.6 LEVEL RELAY UNIT - LRU - 02A

LRU02A Level controllers are used for connecting conductivity level switches probes and providing respective relay outputs from the circuitry for operating a pump, provide an alarm, operate a valve etc.,
As a standard, we can provide multiple logic control for various applications, which takes up most level control options for a process plant.
2 outputs are standard - more output options are possible on applucations basis.



SPECIFICATIONS

Supply Voltage	110V AC+/-20%, 50HZ
Power Consumption	3VA
Output	C/O relay contact rated 10A at 250V AC resistive load.
Dimension Details	Length - L:70 mm, Breadth - B:51mm, Height - H: 112mm
Sensitivity	<33K Ohms
Function	Relay switched “ON” when the level of water is scenced
Options	With Ex- Proof enclouser Gr. IIA/IIB/IIC, Zone 1 and Zone 2
Mounting Type	DIN Rail mounting

CONNECTION DETAILS

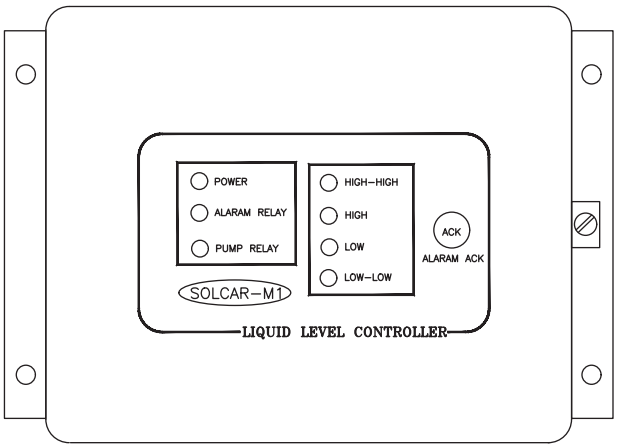
A1, A2: Supply Volatge
E1, E2: Sensor Electrodes

15 - Common
16 - Normally closed
18 - Normally open

Output relay
Contacts
(Potential free)

1.7 Liquid Level Controler - SOLCAR - M1

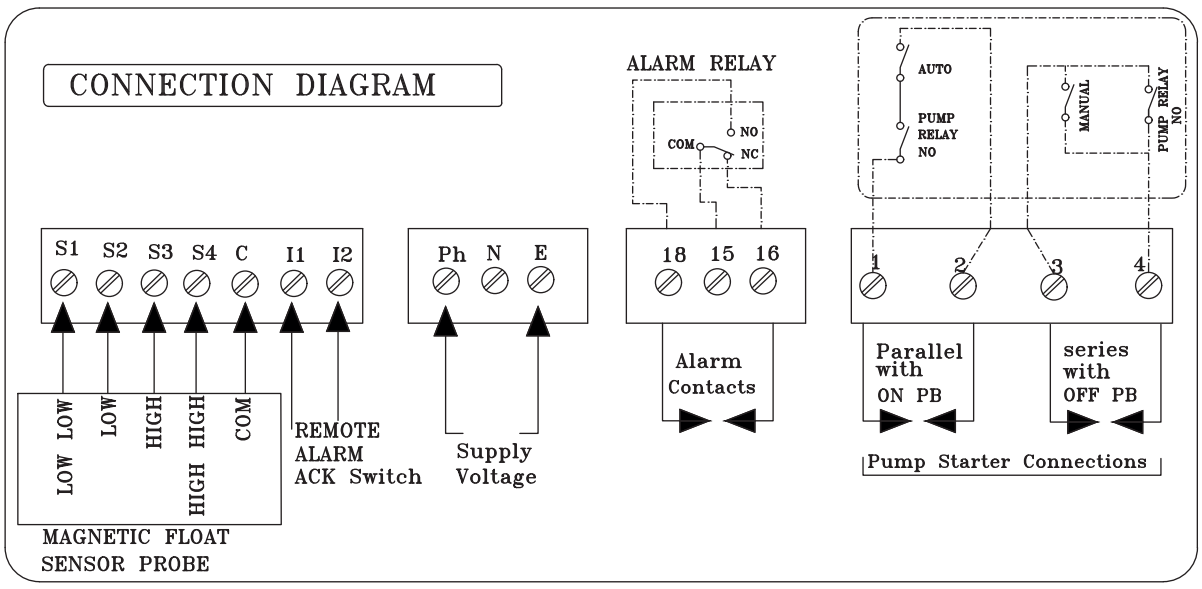
SOLCAR M1 level controllers are used for overhead tank and sump monitoring level control. Auto /Manual changeover toggle switches help in providing flexibility for operation.
SOLCAR is the highest feature based level controller which has all options - Alarm acknowledgement, toggle switches, Highest relay ratings.
SOLCAR M1 controllers are the simplest level control instruments, which are used for outdoor applications, rugged and serve most purposed of level controllers in almost every industry.



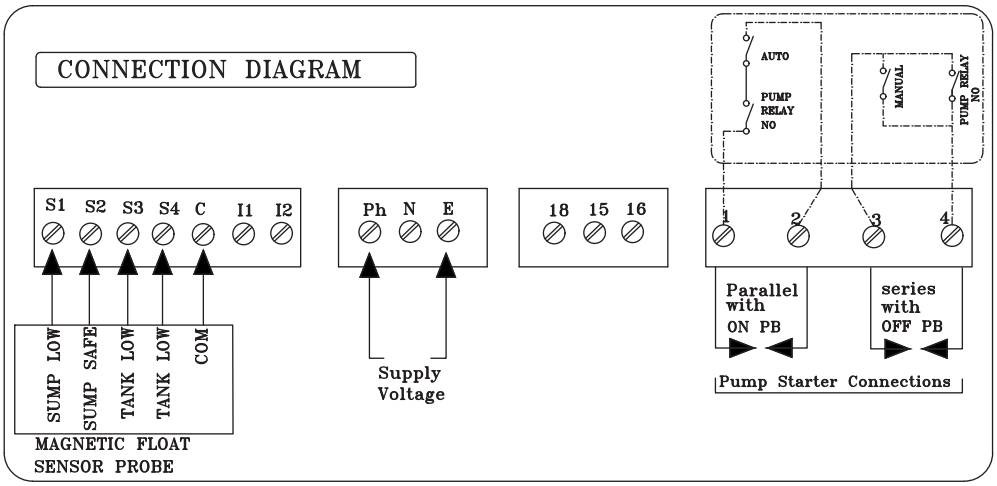
DIMENSION DETAILS :

LENGTH - L: 245mm
BREADTH - B: 90mm
HEIGHT - H: 180mm

Options: with Ex-Proof enclosure Gr. IIA/IIB/IIC, zone 1 and Zone 2



1.8 Liquid Level Controler - SOLC



SPECIFICATIONS

Supply Voltage	90- 300V AC+/-20% 50HZ
Power Consumption	3VA
Sensor Type	Conductive Probes
Inputs	High level and low level input from magnetic float sensor probe
Output	Pump relay - 2 No. rated 5A at 250V AC resistive load
Supply Voltage	To float sensor probe 12DC
Mounting Type	DIN Rail mount

Function

TRSL(Tank LOW) - Closes when the water go below “LOW” level and opens when water level goes above “LOW” level
TRSH(Tank HIGH)- Closes when the water go above “HIGH” level and opens when water level goes below “HIGH” level
SRSL(Sump- LOW)- Closes when the water go below “LOW” level and opens when water level goes above “LOW” level
SRSS(Sump- SAFE)- Closes when the water go above “SAFE” level and opens when water level goes below “SAFE” level

Pump Operation: Pump is “ON” when the water level drops below set low level in the tank and “OFF” when the water level reaches set high level in the tank.

When level of water in sump drops below set low level, the pump stops. The pump starts when the level of water in sump reaches High level and if the level of water drops below set low level in tank.

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