

\$ SHRIDHAN[®]
Automate your Field



**CONDUCTIVITY TYPE
LEVEL SWITCHES**



1. CLS SERIES - CONDUCTIVITY TYPE LEVEL SWITCH

1.1 Construction & Operation	...01
1.2 General specifications	...01
1.3 Ordering information	...02
1.4 Drawings with Specification	...03



ISO - 9001 QMS



Conformité Européenne
2460



ABS - Type Approved Product



Low Voltage Directive
2006/95/EC

1. CONDUCTIVITY TYPE LEVEL SWITCH - CLS

It is a simple, low cost, point level controller designed for detection of conductive liquids, having low densities, high viscosities, containing solid particles and interface between nonconductive and conductive liquids.

1.1 CONSTRUCTION & OPERATION :

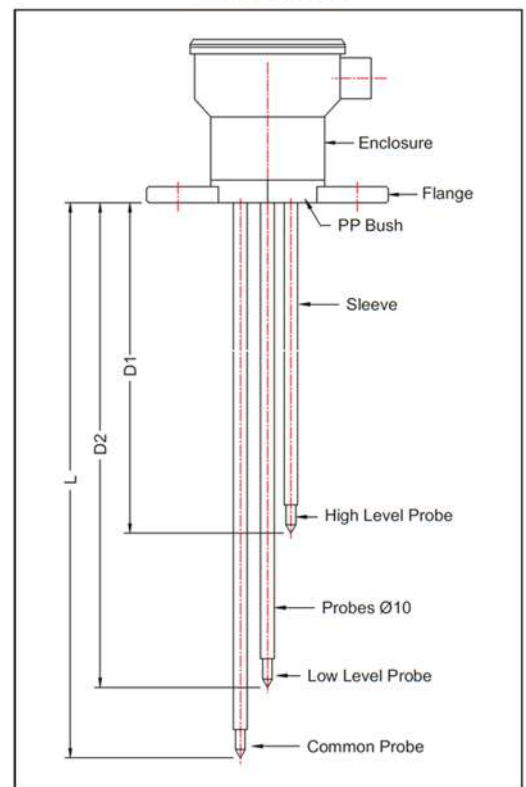
It comprises of a probe, wired to a level controller. The probe holds one common "Mass Electrode" and one or multiple "Control Electrodes" depending upon the number of levels to be controlled. All the electrodes are suitably insulated to avoid electrical bridging. The lengths of "Control Electrodes " correspond to the height of preset level points to be controlled and the length of the "Mass Electrode" is kept slightly longer than the longest "Control Electrode". If tank is conductive, it can be used as a "Mass Electrode". Then number of control electrodes equals number of preset levels. Level controller houses sensing electronics consisting of power supply and signal conditioning circuit which provide a "Low AC Voltage" across mass and control electrodes. On liquid reaching preset level point electrical circuit gets completed generating a signal which is amplified to actuate a relay, whose potential free contacts are available for subsequent operations. On "Level Falling" the circuit breaks, cutting out the relay.



TYPICAL CONSTRUCTION OF CONDUCTIVITY LEVEL SWITCH

1.2 SPECIFICATIONS :

Enclosure	: Cast Al, Weather Proof IP 65
Conduit connection	: Weather Proof-Brass 3/4" ET (S.C) 3/4" ET / 1/2" NPT (D.C)
Process connection	: ANSI, BS, DIN Standard Flanges
Flange size to suit No. of Electrodes Process conn. MOC	: MS or SS304 or SS316
Probe type	: Solid (upto 4mtrs) Suspended (up to 10 mtrs)
Electrode MOC	: SS304 or SS316
Electrode Insulation	: PVC (70°C), PTFE (200°C)
Mass Electrode	: One
Control Electrodes	: One to Four
Signal Voltage	: 6 VAC, 20mA
Resistance	: 40K (max) between Mass & Control Electrode
Min. Conductivity	: 25µS
Max. Temperature	: 70°C (with PVC insulation), 200°C with PTFE insulation
Max. Test Pressure	: 5Kg/cm ² at ambient Temperature



1.3 ORDERING INFORMATION FOR CONDUCTIVITY TYPE LEVEL SWITCH

SPECIFY PART NO. → CLS 1 2 3 4
CLS

Example : CLS 1 1 1 2

1 ENCLOSURE

1. Cast Al, Weather Proof IP 65 x 3/4"ET
2. Cast Al, Ex-proof, GR.IIA&IIB
3. PP Enclosure
4. Teflon
5. Others

2 PROCESS CONNECTION

1. 2" # 150 ANSI Flange
2. 2½" # 150 ANSI Flange
3. 3" # 150 ANSI Flange
4. Others

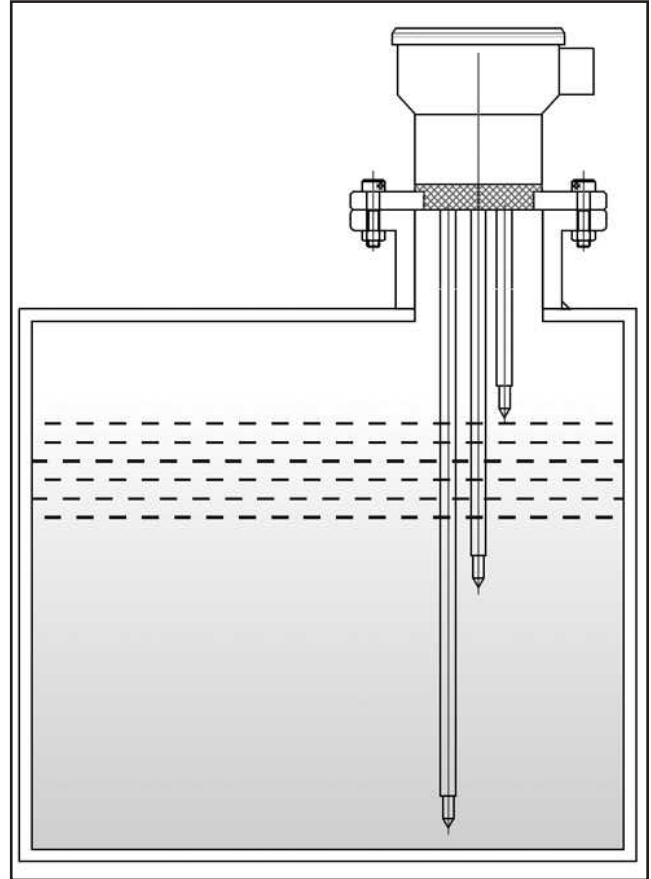
3 ELECTRODE MOC X INSULATION

1. SS304 x PVC
2. SS316x PVC
3. SS316L x PTFE
4. Others

4 NO. OF ELECTRODES

1. One (1 Level)
2. Two (1 Level)
3. Three (2 Levels)
4. Four (3 Levels)
5. Others

INSTALLATION OPTIONS :



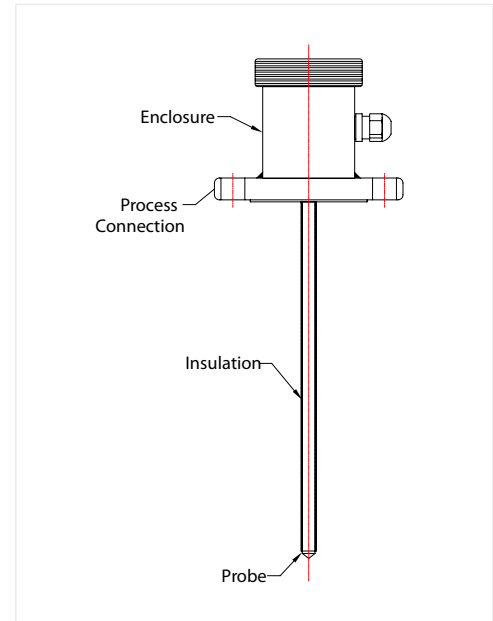
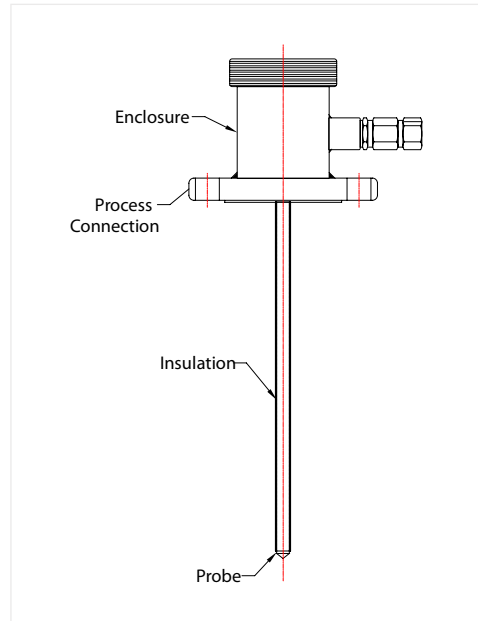
OPTION :

Auto/Manual mode through toggle switch can be provided in controller, if required.

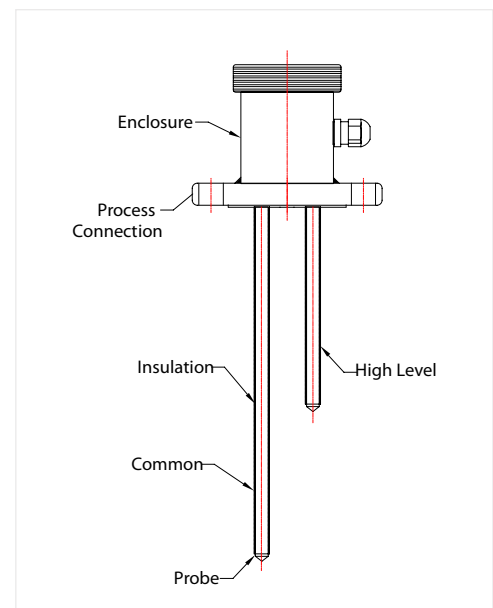
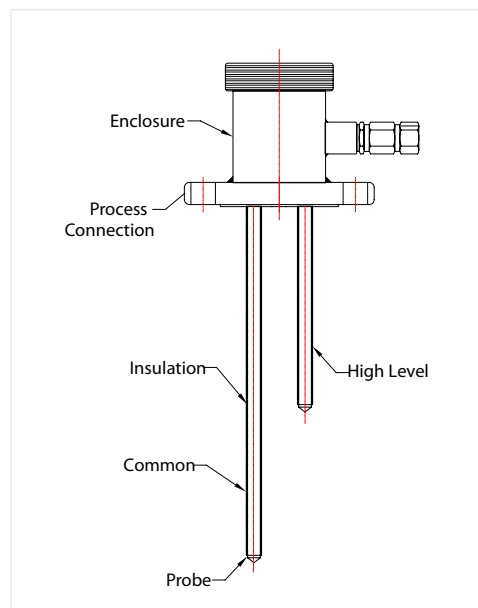
SALIENT FEATURE :

Auto Sensitive - Self adjusts to liquid Conductivities (> 25µS).

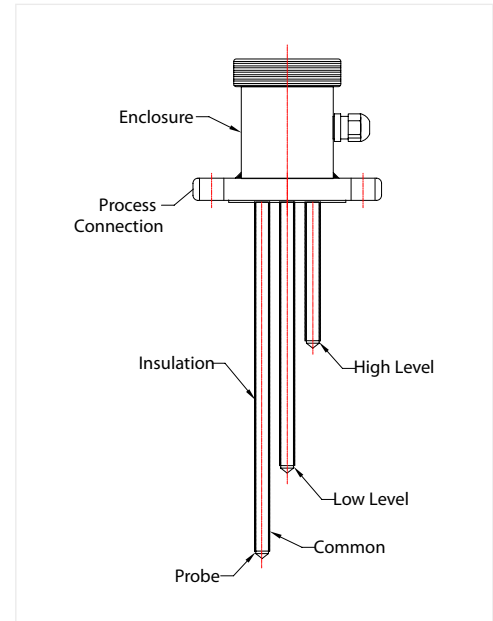
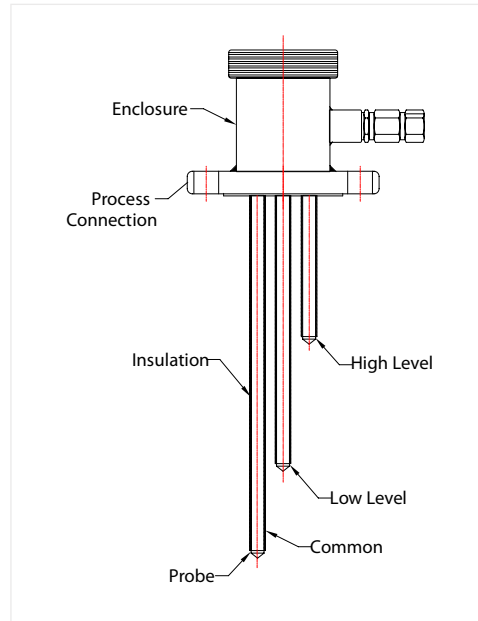
Type	CLS-2-1-1-1	CLS-1-1-1-1
Material Type	304 / 316 / 316L	304 / 316 / 316L
Electrical Connection	Cast Al, Ex-Proof	Cast Al, Weather Proof
Process Connection	2" 150 # ANSI Flange	2" 150 # ANSI Flange
Electrode	∅ 10 mm	∅ 10 mm
ElectrodeMOC	304/316/316L	304/316/316L
Electrode Type	Solid (upto 4mtrs.) / Suspended (upto 10mtrs.)	Solid (upto 4mtrs.) / Suspended (upto 10mtrs)
Electrode Insulation	PVC / PTFE	PVC / PTFE
No. of Levels	One	One
Design Pressure	5 Kg/cm ² at ambient temperature	5 Kg/cm ² at ambient temperature
Design Temperature	70°C (with PVC Insulation) 200° (with PTFE Insulation)	70°C (with PVC Insulation) 200° (with PTFE Insulation)
Resistance	40K (max) Between Mass & Control Electrode	40K (max) Between Mass & Control Electrode
Ingress protection Class	IP 65 (Flame Proof)	IP 65 (Weather Proof)
Signal Voltage	6V AC , 20mA	6V AC , 20mA
Mouting Position	Vertical	Vertical



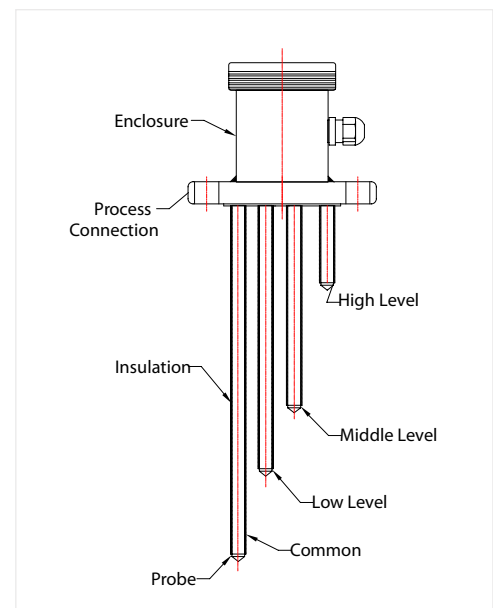
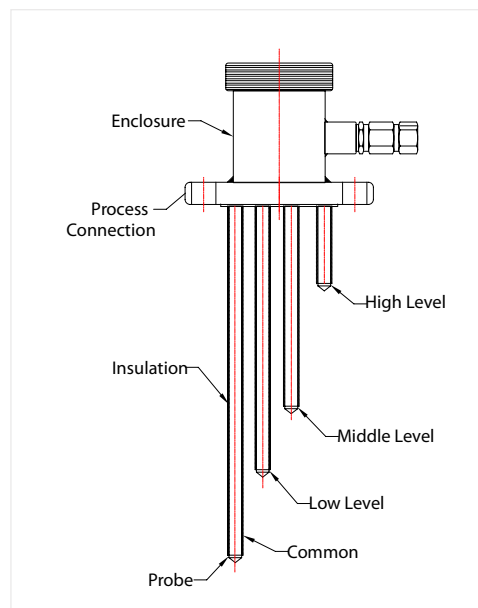
Type	CLS-2-2-1-2	CLS-1-2-1-2
Material Type	304 / 316 / 316L	304 / 316 / 316L
Electrical Connection	Cast Al, Ex-Proof	Cast Al, Weather Proof
Process Connection	2½" 150 # ANSI Flange	2½" 150 # ANSI Flange
Electrode	∅ 10 mm (See option)	∅ 10 mm
ElectrodeMOC	304/316/316L	304/316/316L
Electrode Type	Solid (upto 4mtrs.) / Suspended (upto 10mtrs.)	Solid (upto 4mtrs.) / Suspended (upto 10mtrs)
Electrode Insulation	PVC / PTFE	PVC / PTFE
No. of Levels	One	One
Design Pressure	5 Kg/cm ² at ambient temperature	5 Kg/cm ² at ambient temperature
Design Temperature	70°C (with PVC Insulation) 200° (with PTFE Insulation)	70°C (with PVC Insulation) 200° (with PTFE Insulation)
Resistance	40K (max) Between Mass & Control Electrode	40K (max) Between Mass & Control Electrode
Ingress protection Class	IP 65 (Flame Proof)	IP 65 (Weather Proof)
Signal Voltage	6V AC , 20mA	6V AC , 20mA
Mouting Position	Vertical	Vertical



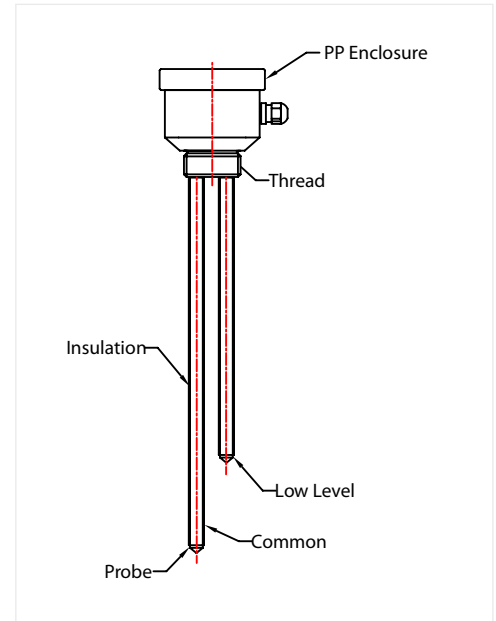
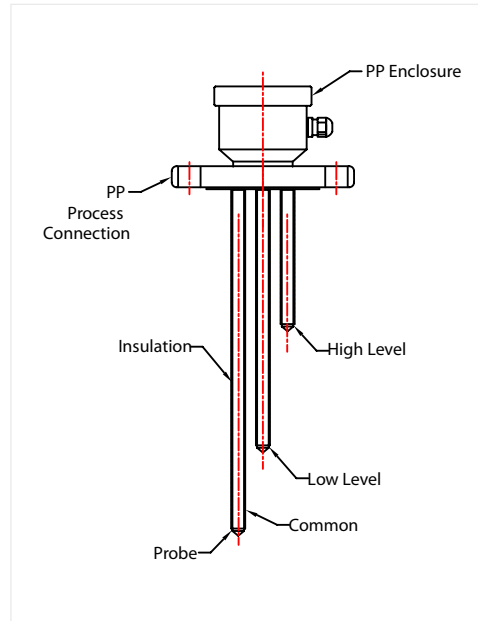
Type	CLS-2-3-1-3	CLS-1-3-1-3
Material Type	304 / 316 / 316L	304 / 316 / 316L
Electrical Connection	Cast Al, Ex-Proof	Cast Al, Weather Proof
Process Connection	3" 150 # ANSI Flange	3" 150 # ANSI Flange
Electrode	∅ 10 mm	∅ 10 mm
Electrode MOC	304/316/316L	304/316/316L
Electrode Type	Solid (upto 4mtrs.) / Suspended (upto 10mtrs.)	Solid (upto 4mtrs.) / Suspended (upto 10mtrs.)
Electrode Insulation	PVC / PTFE	PVC / PTFE
No. of Levels	Two	Two
Design Pressure	5 Kg/cm ² at ambient temperature	5 Kg/cm ² at ambient temperature
Design Temperature	70°C (with PVC Insulation) 200° (with PTFE Insulation)	70°C (with PVC Insulation) 200° (with PTFE Insulation)
Resistance	40K (max) Between Mass & Control Electrode	40K (max) Between Mass & Control Electrode
Ingress protection Class	IP 65 (Flame Proof)	IP 65 (Weather Proof)
Signal Voltage	6V AC , 20mA	6V AC , 20mA
Mouting Position	Vertical	Vertical



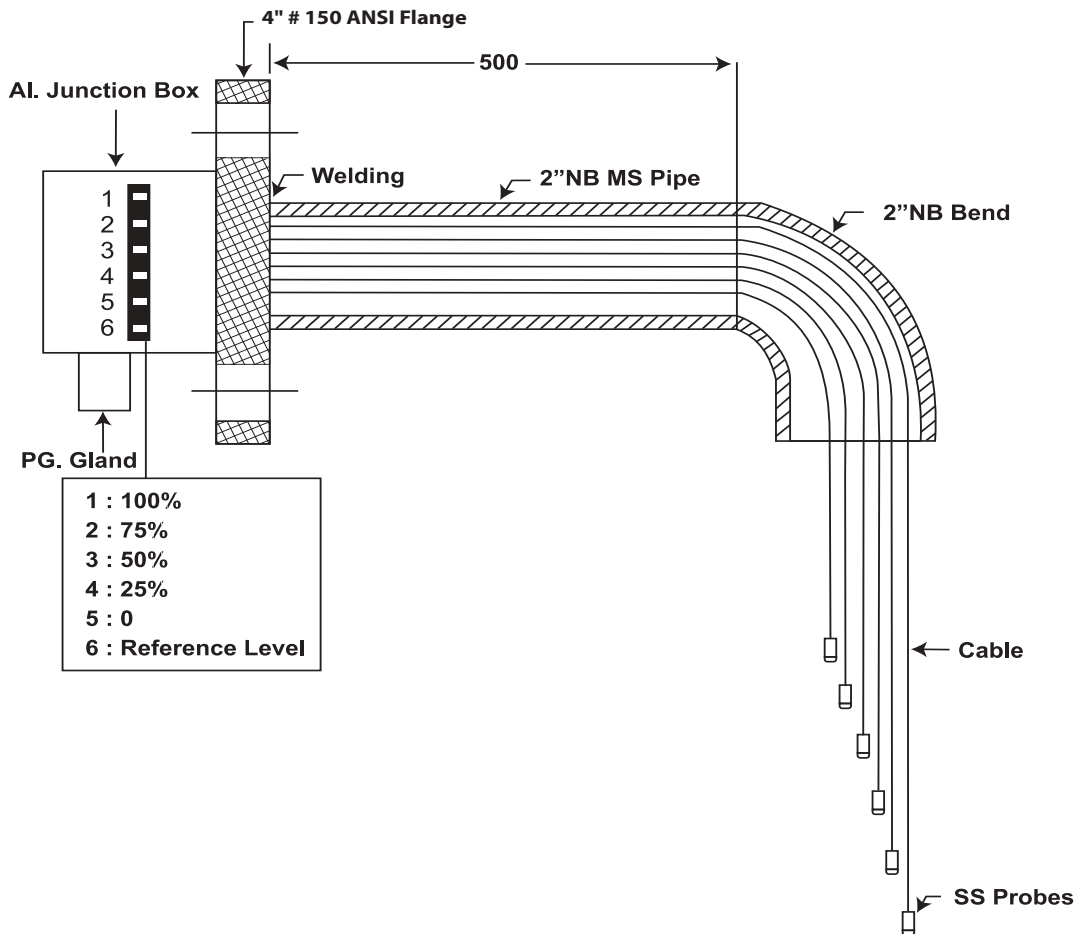
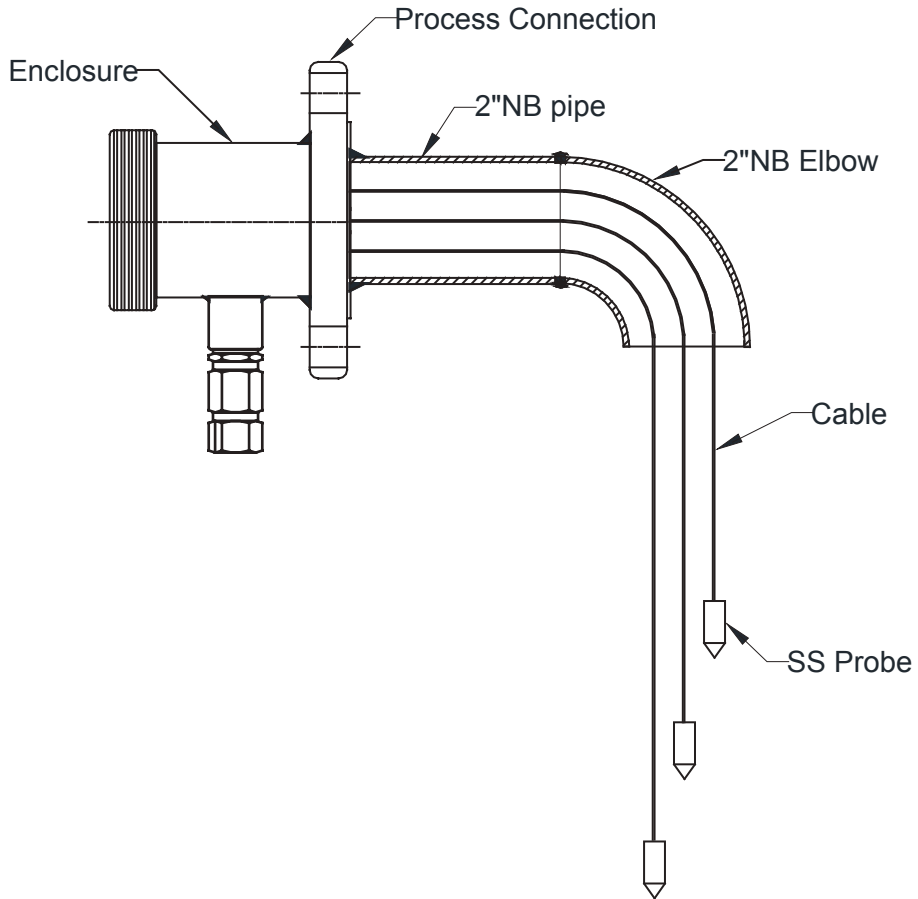
Type	CLS-2-0-1-4	CLS-1-0-1-4
Material Type	304 / 316 / 316L	304 / 316 / 316L
Electrical Connection	Cast Al, Ex-Proof	Cast Al, Weather Proof
Process Connection	3 1/2" 150 # ANSI Flange	3 1/2" 150 # ANSI Flange
Electrode	∅ 10 mm	∅ 10 mm
Electrode MOC	304/316/316L	304/316/316L
Electrode Type	Solid (upto 4mtrs.) / Suspended (upto 10mtrs.)	Solid (upto 4mtrs.) / Suspended (upto 10mtrs.)
Electrode Insulation	PVC / PTFE	PVC / PTFE
No. of Levels	Three Level	Three Level
Design Pressure	5 Kg/cm ² at ambient temperature	5 Kg/cm ² at ambient temperature
Design Temperature	70°C (with PVC Insulation) 200° (with PTFE Insulation)	70°C (with PVC Insulation) 200° (with PTFE Insulation)
Resistance	40K (max) Between Mass & Control Electrode	40K (max) Between Mass & Control Electrode
Ingress protection Class	IP 65 (Flame Proof)	IP 65 (Weather Proof)
Signal Voltage	6V AC , 20mA	6V AC , 20mA
Mouting Position	Vertical	Vertical



Type	CLS-3-1-1-3	CLS-3-0-1-3
Material Type	PP \ PVC	PP \ PVC
Electrical Connection	PP \ PVC	PP \ PVC
Process Connection	2" 150 # ANSI Flange	Thread
Electrode	∅ 10 mm	∅ 10 mm
Electrode MOC	304/316/316L	304/316/316L
Electrode Type	Solid (upto 4mtrs.) Suspended (upto 10mtrs.)	Solid (upto 4mtrs.) Suspended (upto 10mtrs.)
Electrode Insulation	PVC / PTFE	PVC / PTFE
No. of Levels	Two Levels	One Levels
Design Pressure	5 Kg/cm ² at ambient temperature	5 Kg/cm ² at ambient temperature
Design Temperature	70°C (with PVC Insulation) 200° (with PTFE Insulation)	70°C (with PVC Insulation) 200° (with PTFE Insulation)
Resistance	40K (max) Between Mass & Control Electrode	40K (max) Between Mass & Control Electrode
Ingress protection Class	IP 65 (Flame Proof)	IP 65 (Weather Proof)
Signal Voltage	6V AC , 20mA	6V AC , 20mA
Mouting Position	Vertical	Vertical



SPECIAL CONSTRUCTION



Conductive Type Level Switches Mounted in a Chamber

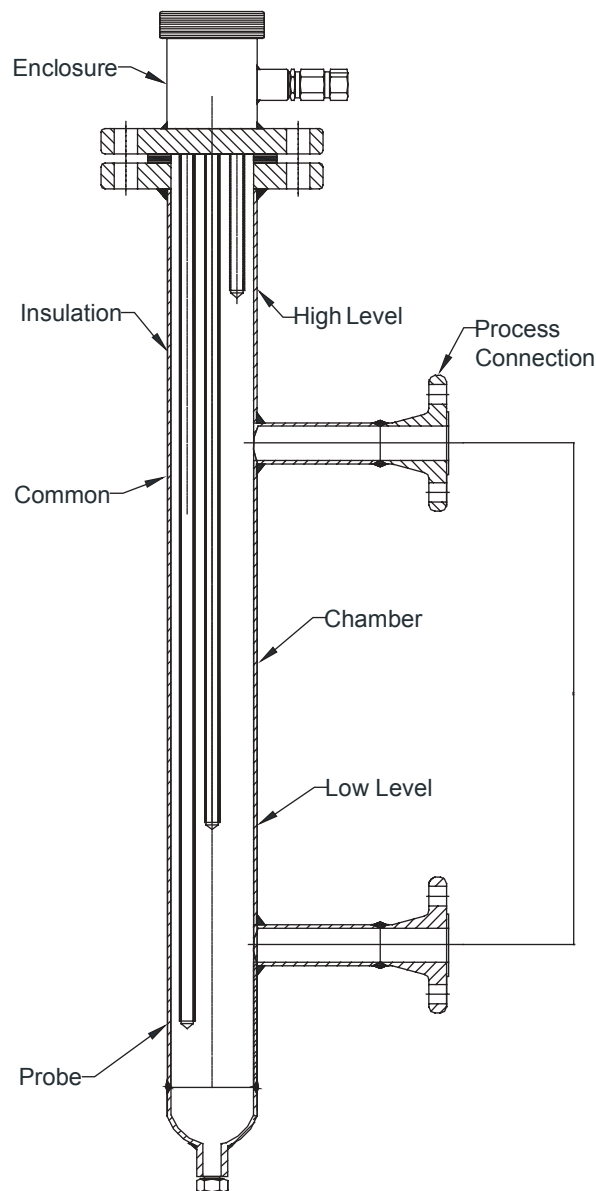
Wherever it is not possible or desirable to install Conductive Type Level Switches directly onto the vessel, switches can be installed in an External Chamber. This arrangement gives smooth level control irrespective of turbulence in the process vessel and prevents accidental damages to the switch during shutdown or maintenance of the vessel. Chambers are used in applications which require isolations of process, High Pressure / High Temperature applications, Corrosive applications, Onshore / Offshore installations.

Main function of these chambers are :

1. Level Measurement
2. Interface Measurement between two liquids.

FEATURES :

- Available for Low Pressure and High Pressure applications.
- Wide range of material of construction to suit different environmental conditions.
- Wide range of end connection types / sizes to choose from.
- A variety of chamber mounting arrangements provided to suit existing nozzles.





INDIA

HEAD OFFICE AND FACTORY

SHRIDHAN Automation Pvt. Ltd.

#B-54, KSSIDC Industrial Estate, Kumbalgodu , Mysore Road
Bangalore - 560074

INDIA

Phone: +91-80-28437847/+91-80-28437848

UNIT-2

SHRIDHAN Automation Pvt. Ltd.

D13, KIADB Industrial Area, Kumbalgodu, Mysore Road
Bangalore - 560074

INDIA

Email: info@shridhan.com

Website : www.shridhan.com

MIDDLE EAST

Orbit Automation FZE

#R4-40 A, PO Box - 122828

SAIF Zone, Sharjah

INDIA

(A 100% SUBSIDIARY OF SHRIDHAN Automation, INDIA)

Contact :+97155 - 9347963 / +97155 - 1883375

Email: me@shridhan.com

Indian Marketing Network

Mangalore | New Delhi | Ahmedabad | Pune | Mumbai | Chennai

International Marketing Network

Middle East | Singapore | Malaysia | Thailand | Netherlands | USA