

# Conductivity Type Level Switch "CNS"

It is a simple and economical level controller designed for detection of conductive and non-fuming liquids.

## Salient Features :

- Easy to install
- Multipoint switching upto 4 preset levels
- Minimal maintenance, no moving parts
- Auto sensitivity to liquid conductivities  $\geq 25 \mu S$
- Low ac voltage across probes for safety and prevention of electrode deterioration
- Option of two part switch or integral switch
- Field settable fail-safe feature through DIP switch

## Construction & Operation :

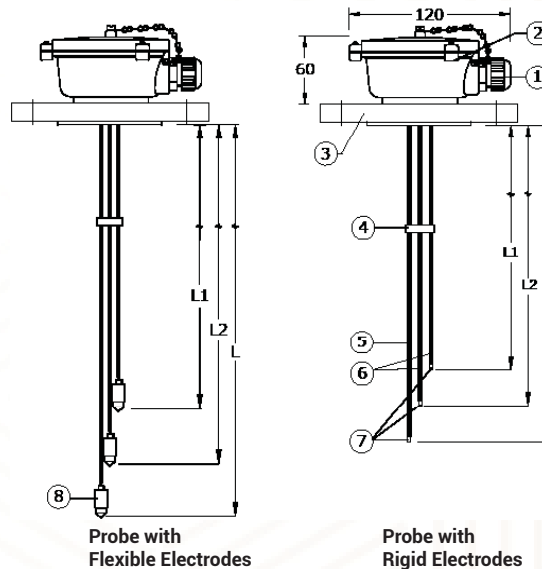
Conductivity switch consists of a probe and controller. The probe consists of a 'mass electrode' and single or multiple 'control electrodes'. The control electrodes and their lengths correspond to number of preset levels and location of sensing points respectively. All the sensing electrodes are insulated to prevent electrical bridging and their tips are open for sensing liquid.

The controller housing the electronics, generates low ac voltage signal, across the mass & control electrodes. The rising liquid level comes in contact with the tip of sensing electrode and the circuit gets completed. This signal is sensed and amplified by the electronics, which actuates the relay for control action. On liquid level falling, the circuit breaks & de-actuates the relay. Techtol switch as standard comes in two parts, consisting of a probe and a remote controller. However, in integral switch, the controller is integral with the probe.



### Construction

Fig a



- |                                |                              |                   |
|--------------------------------|------------------------------|-------------------|
| 1. Cable Entry                 | 2. Enclosure                 | 3. Process Flange |
| 4. Spacer                      | 5. Insulated Mass Electrodes | 7. Electrode Tips |
| 6. Insulated Control Electrode |                              | 8. Counter Weight |

## Specifications :

### Probe:

Min Liq. Conductivity	: $\geq 25 \mu\text{S}$
Probe Enclosure	: Cast Al IP66 or Ex d Gr IIB
Cable Entry	: PG11 Cable Gland (Polyamide), 1/2"NPT (F) or 1/2"NPT Double Comp'n Cable Gland (Brass)
Process Connection	: Flanged or Screwed
Process Conn. MOC	: CS or SS304 or SS316
Electrode Types	: Rigid, 100 to 2000 mm Flexible, 500 to 10000 mm
Electrode MOC	: 1. PVC/ PTFE insulated SS304 or SS316 2. PVC/ PTFE insulated SS316 with Hastalloy Tip 3. PVC /PTFE insulated SS316 with Titanium Tip

Mass Electrode	: One
Control Electrode	: One to Four
Resistance	: 40 k $\Omega$ (max) between mass & control electrode
Max Temperature	: 70 °C (PVC insulation), 100 °C (PTFE insulation)
Max Test Pressure	: 5 kg/cm <sup>2</sup>

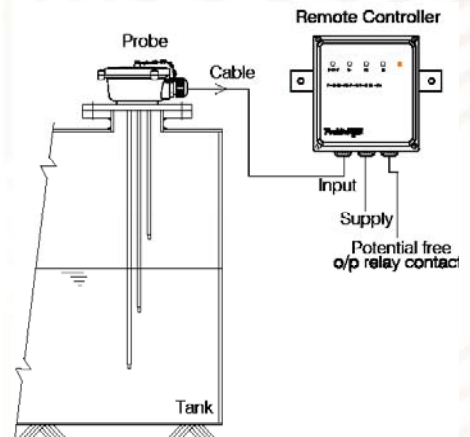
### Controller:

Supply	: 90-270 VAC or 24 VDC $\pm 10\%$
Signal Voltage	: 6 VAC, 20 mA
Input	: from conductivity probe
Relay Output	: SPDT, 5A @250VAC (DPDT x 2 set points Optional)
Relay Latching	: Between L1 & L2, L3 & L4 through field adjustable DIP Switch
No of Set Points	: 2 or 4
Power	: <10 VA
Fail-safe Operation	: FSH or FSL through DIP switch setting
LED Indication	: Green - Supply ON , Red - Alarm ( Relay ON Status)
Two Part Enclosure	: 1) ABS Plastic, IP41, Panel mounted Size: 72 x 72 x 130 mm 2) Cast Al IP65 Wall Mtd (Size: 147 x 132 x 80D) 3) Cast Al Ex d IIB, Wall Mtd (Size: 150 x 150 x 122D)
Integral Enclosure	: Cast Al IP65 (Size: 147 x 132 x 80D)
Cable Entry	: PG11 Cable Gland (Polyamide) or 1/2"NPT (F) or (For wall mtd. encl) 1/2" NPT Double Comp'n Cable Gland (Brass)
Ambient Temp	: 0 to 55 °C
Special Feature	: Auto/Manual mode through toggle switch (Optional)

## Installation :

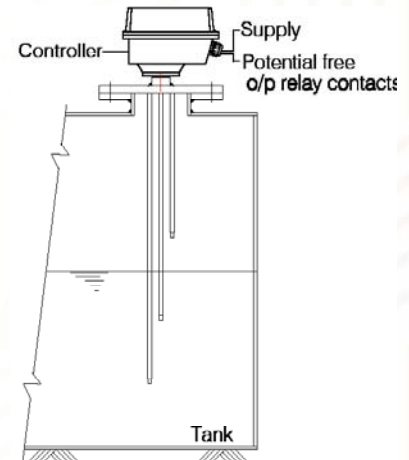
### Two Part Switch

Fig b



### Integral Switch

Fig c



Stillwell is recommended for turbulent liquid

### Services

Raw/Effluent/Waste/Filtered/Treated/Pure Water, Dilute Acids/Alkalis in Dosing Tanks

### Industries

Waste Water/Effluent/Sewage Treatment Plants, Dairy, Sugar, Food & Beverage, Fertilizer, Chemical, Pharmaceutical, Paint, Paper, Textile, Oil & Gas Industries, Steel and Power Plants

## Model Identification :

CNS -							
<b>1. Switch Type</b>							
Two Part (Probe + Remote Controller)	T						
Integral (Probe with Integral Controller)	I						
<b>2. Probe Enclosure x Cable Entry</b>							
Cast Al IP66 x PG11 Cable Gland	J						
Cast Al IP66 x ½" NPT Double Compression Cable Gland	K						
Cast Al IP66 x ½" NPT (F)	L						
Cast Al Ex d IIB x ½" NPT Double Compression Cable Gland	E						
Cast Al Ex d IIB x ½" NPT (F)	M						
Cast Al IP66 x Plug & Socket	T						
Cast Al IP66 x PG11 Cable Gland (Integral Controller)	I						
Others	O						
<b>3. Process Connection MOC</b>							
CS		M					
SS304		N					
SS316		S					
Others		O					
<b>4. Process Connection Size &amp; Type</b>							
1-1/2"NB ASME 150# Flange (1&2 levels)					1		
2"NB ASME 150# Flange (3 levels)					2		
3"NB ASME 150# Flange (4 levels)					3		
1-1/2"NB BSP (M) Screwed (1&2 levels)					4		
2"BSP (M) Screwed (3 levels)					5		
Others					0		
<b>5. Electrode Type</b>							
Rigid						S	
Flexible						U	
<b>6. Electrode MOC x Insulation</b>							
SS304 x PVC							NP
SS316 x PVC							SP
SS304 x PTFE							NT
SS316 x PTFE							ST
SS316 with Hastalloy C Tip x PTFE (Rigid)							CT
SS316 with Titanium Tip x PTFE (Rigid)							TT
Others							OO
<b>7. No. of Electrodes</b>							
One (1 level)							1
Two (1 level)							2
Three (2 levels)							3
Four (3 levels)							4
Five (4 levels)							5
Others							0

**Note : Stillwell if required is provided with 3"NB Process Connection Flange (1 to 4 levels)**

## Ordering Information :

Model No, Liquid and its Minimum Conductivity, Operating Temperature & Pressure and Preset Levels

***Level Control and Automation System using Wireless Technology is available for IIoT (Industry 4.0) Applications***



IIoT Gateway

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