

# 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  $\geq 25$  us
- 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

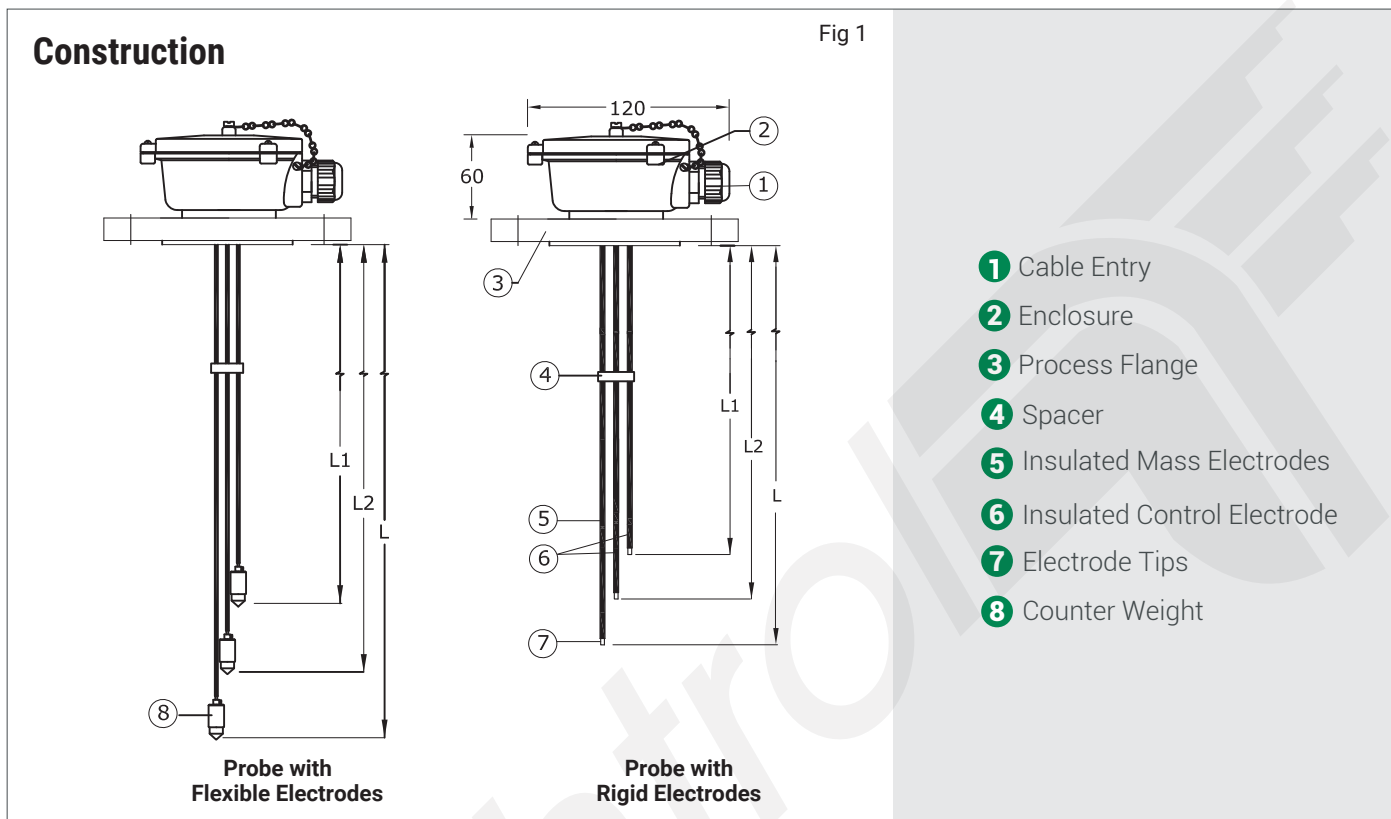
## CONSTRUCTION AND WORKING

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 (fig 1).

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.



Techtrol 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.

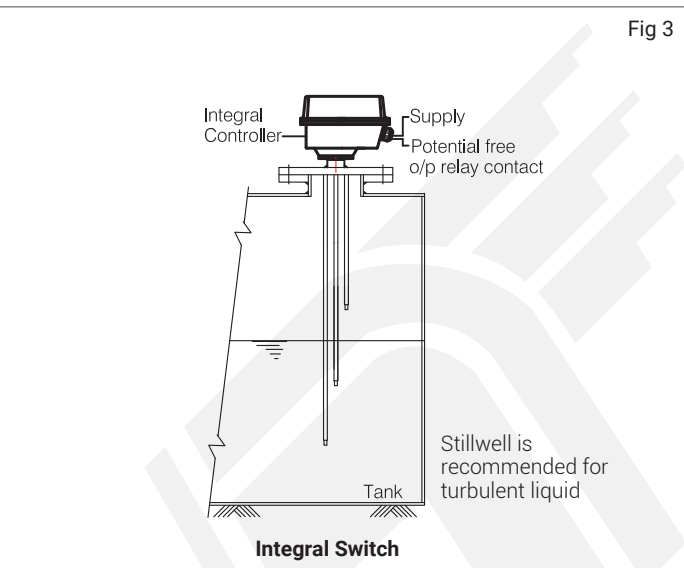
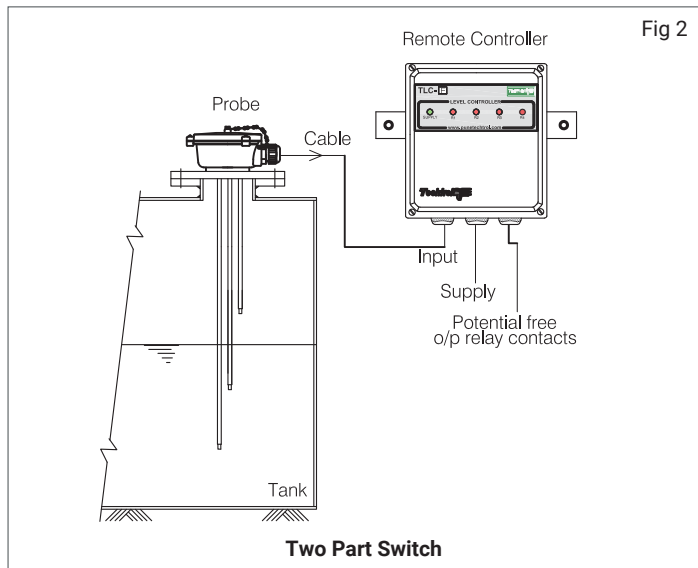


## SPECIFICATIONS

### Probe

Probe Enclosure	: Cast Al. IP66 x PG 11 Cable Gland (Nylon) or
x Conduit Conn.	Cast Al. Exd Gr. IIB T6 IP66 x 1/2" NPT DC 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
Max. Temperature	: 70°C (PVC insulation), 100°C (PTFE insulation)
Max. Test Pressure	: 5 kg/cm <sup>2</sup>
Level Controller	: Refer on page 5

## INSTALLATION



### 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. WP IP66 x PG 11 Cable Gland		J							
Cast. Al. WP IP66 x 1/2" NPT DC Cable Gland		K							
Cast. Al. Exd Gr. IIB T6, IP66 x 1/2" NPT DC Cable Gland		E							
Cast Al. WP IP 66 x Plug & Socket		T							
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" 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		
<b>8. Accessories</b>						
Without					W	
External Chamber ( Refer ECT Catalog)					C	
Counter Flange with Nuts, Bolts (CS zinc pltd.) & Gasket					F	
Perforated Stillwell PP					P	
Others					O	
<b>9. Level Controller</b>						
Remote Controller						R
Integral Controller (Switch Type Integral)						I

## ORDERING INFORMATION

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

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

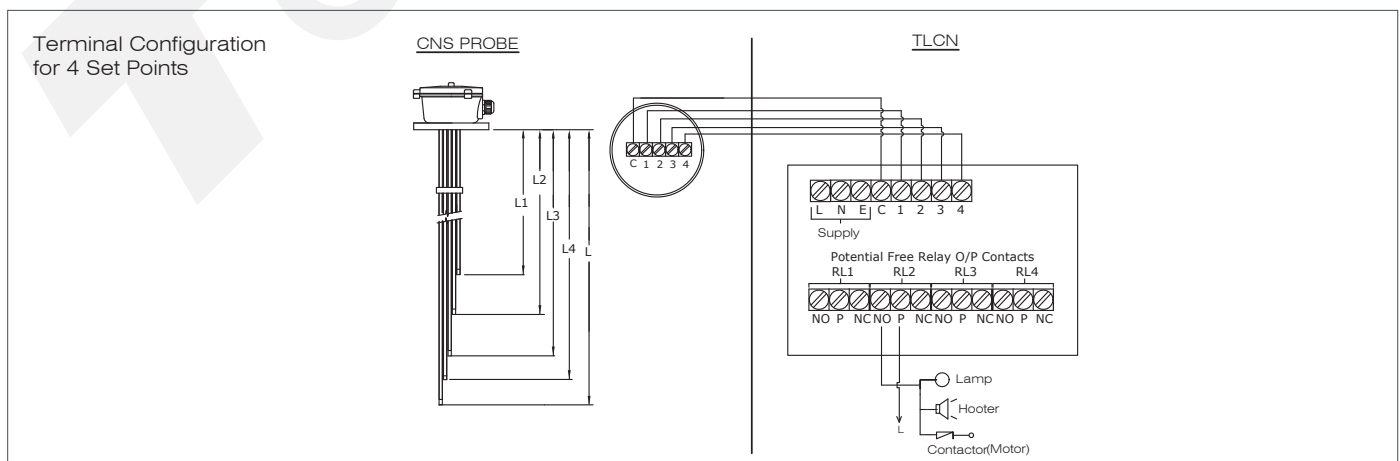
# Techtrol Level Controller for CNS

The controller is always used alongwith conductivity probe. It provides LED indication against each level set point. Its relay o/p are used for control action.

## SPECIFICATIONS

Model	TLC-N	
	Remote	Integral
Input (Product Series)	CNS probe	
Min. Conductivity	≥ 25 uS	
Resistance	40 KΩ between mass and control electrode	
Input Signal Voltage	6 VAC, 20 mA	
Power Supply	90 – 270 VAC, 24 VDC, ± 10 %	
No. of Set Points x Relay Outputs	2 nos. x SPDT; 4 nos. x SPDT; 2 nos. x DPDT (2 SPDT); 4 nos. x DPDT (2 SPDT) with two remote controllers Potential free contacts rated for 5 A, 250 VAC	
Relay Latching	Field settable through DIP switch between L1 & L2, L3 & L4	
Fail-Safe Operation	FSH or FSL through DIP switch setting	
LED Indications	Green- Supply, Red – Alarm (Relay On status)	
Delay Time	2 sec	
Power Consumption	< 10 VA	
Terminals	Suitable for 1.5 mm <sup>2</sup> conductor size	
Enclosure x Conduit Connection	<ol style="list-style-type: none"> <li>1. ABS Panel Mounted IP41 (Size: 72 x 72 x 130 D mm)</li> <li>2. Cast Al. WP IP66, Wall Mtd. x PG 11 Cable Gland, Nylon (Size: 147 L x 132 W x 80 H mm)</li> <li>3. Cast Al. Exd Gr. IIB, IP66, Wall Mtd. x 1/2" NPT DC Cable Gland, Brass (Size: 150 Sq. x 122 H mm)</li> </ol>	<ol style="list-style-type: none"> <li>1. Cast Al. WP IP66 x PG 11 Cable Gland, Nylon (Size: 147 L x 132 W x 80 H mm)</li> </ol>
Ambient Temperature	0 to 55 °C	
Humidity	90 % Rh (Non condensing)	

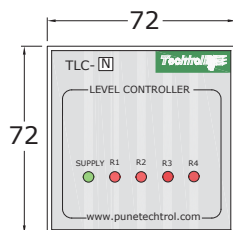
## TERMINATIONS & WIRING



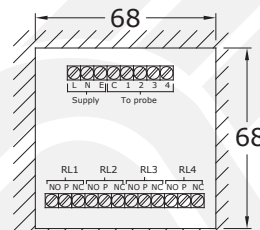
## DIMENSIONS AND MOUNTING DETAILS



Panel Mounted



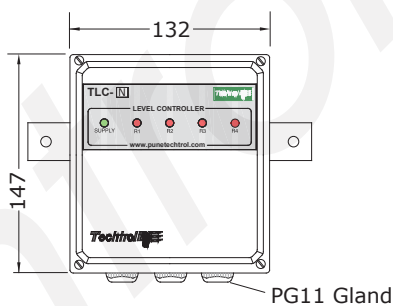
Front view



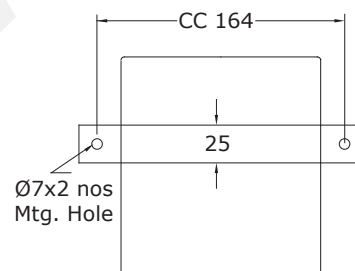
Rear view (Cutout)



Wall Mounted (W-proof)



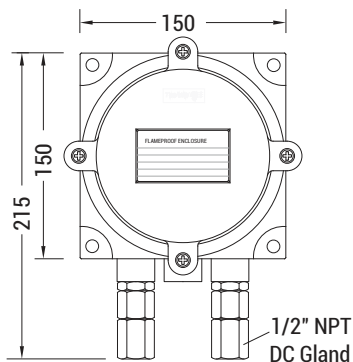
Front view



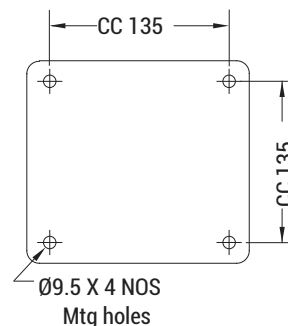
Rear view



Wall Mounted (Ex-proof)



Front view



Rear view

## MODEL IDENTIFICATION

TLC-				
For Conductivity Level Switch	N			
<b>1. Enclosure x Conduit Connection</b>				
ABS Panel Mounted IP41	P			
Cast Al. WP IP66, Wall Mounted x PG11 Cable Gland	J			
Cast Al. Exd Gr. IIB T6, IP66 Wall Mounted x ½" NPT DC Cable Gland	E			
Integral (specified in CNS probe model)	I			
Others	O			
<b>2. Power Supply</b>				
90 to 270 VAC			1	
24 VDC			2	
<b>3. No. of Set Point x Relay Output</b>				
Two x SPDT				2
Four x SPDT				4
Two x DPDT				6
Four x DPDT (with 2 control units; remote controller option only)				8
Others				0
<b>4. Relay Latching</b>				
No				N
Yes				Y

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

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