

Capacitance Type Level Transmitter

Features:

- No moving parts, it is rugged and robust instrument.
- No dead band or dead zone like float based/ultrasonic instruments.
- Trim-Pots for span and zero adjustment.
- Plug and play with reference probe and rod.
Remote electronics as option with 2 Metre long coaxial cable.
- Standard enclosure weather proof-cast Aluminium or Nylon 66.
Flame proof as optional.
- Our new introduction is Micro processor based Blind Transmitter (available only in weather proof version) with Push Button Teach-in facility and damping arrangement.
- Suitable for operation from 12 to 32 VDC, with reverse polarity protection.
Standard output 4-20mA.Voltage output of 0-10 optional. (For 12 V input supply output 0-5V and with 24 V supply output 0-10V).



Application:

A capacitance is formed between the probe and the vessel wall.As the level of the measuring medium rises or falls capacitance between the probe and vessel wall changes proportionately. A high frequency sine wave is applied between the probe and tank wall. A change of medium level will induce a change in the current of the applied sine wave. From when the capacitance in the vessel increase, impedance will decrease and current will increase and vice-versa.

Head mounted electronics converts the capacitance variation to 4-20mA signal for long distance transmission. It is provided with trimpots for SPAN and ZERO adjustments. With no moving parts it is free from wear and tear, rugged and robust in construction. No dead zone like float based instruments.

It must be ensured that the probe is parallel to the tank wall throughout it's length.

General:

Frequency of operation	:	5 to 15kHz.
Probe Material	:	Stainless Steel / Teflon insulated 10/12/16 mm rod upto Max 3 Metre length
Process connection	:	3/4",1",1.1/2" BSP(M) or 1"ASA 150 lbs flanged but thickness 12mm (or as per customer specification)
Power supply	:	24VDC
Output	:	4 to 20 mA.(non-isolated)
Span & Zero adjustment	:	Trim pots
Max.Working Pressure	:	10kg/sq.cm
Max.Working Temp.	:	150deg.C
Accuracy	:	±0.5%, ±1% or ±2%
Enclosure	:	Cast aluminium weather proof with PG9 cable gland or Flame proof (IS2148-2004,Gr II A and B gases); Optionally available for Gr. IIC gases also.
Cable Size	:	3 core, 0.75 sq.mm screened PVC cable.

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Function :

In capacitive level measurement, capacitive sensor and vessel form the two electrodes of a capacitor. Any change in capacitance due to a level change is converted into a level signal.

Series :

Measuring probe - with rod up to 3 m - with cable up to 32 m Full or partial insulation determines whether the sensor is used in conductive or non-conductive media

Mounting :

The capacitive probe can be mounted universally. In horizontal round tanks, spherical tanks or other asymmetrical tank shapes, a version with concentric tube is recommended.

Protection :

The enclosure has IP66 protection with IP68 sensor Protection.

Connection :

The instrument is connected with standard two-wire cable.

Accuracy :

Standard accuracy is of 0.5% and optional accuracy of 0.25% is available on demand.

Advantages :

Capacitive liquid levels sensors do not use a float and have no moving parts whatsoever. Instead they have a hollow probe which is immersed into the liquid and the actual level measurement takes place inside the probe. Using holes in the end cap of the sensor, liquid flows in and out from the bottom of the sensor where turbulence is at a minimum. This provides a very significant suppression of surface level fluctuations as the submerged holes slow rapid changes in liquid level on the outside, which the sensor does not pick up.

This all helps in providing an accurate, reliable and consistent level output from the sensor.

Solid-state capacitive technology also offers excellent long term reliability as there's no mechanical linkages to break or wear out, outlasting other sensor types which would perish in the applications.

Better still, capacitive level sensors also provide a continuous, 'stepless' output, as opposed to many float sensors which have a series of reed switches that require a significant level change to affect the output. This is because the fluid level has to change enough for the float to 'de-activate' one reed switch and 'activate' the next one along, thereby providing a 'stepped' or coarse resolution.

The capacitive sensor generates a continuous output relating directly to the level of liquid inside the sensor with a very fine resolution, as it is not jumping from one switch to the next. Additionally, there is always the possibility that one reed switch could fail, resulting in a large measurement 'dead spot' on the sensor

The advantages of capacitive sensing technology can also be utilised across a range of harsh environment applications to provide long-term cost effective reliability.



