INSTRUCTION & MAINTENANCE MANUAL

Capacitance Type Level Transmitter - "CPT"

Techtrol
Innovating Level Controls since 1984

Pre Installation Check :

- Ensure that the probe insulation is not damaged in transit.
- Ensure that there is not any damage to electronics.
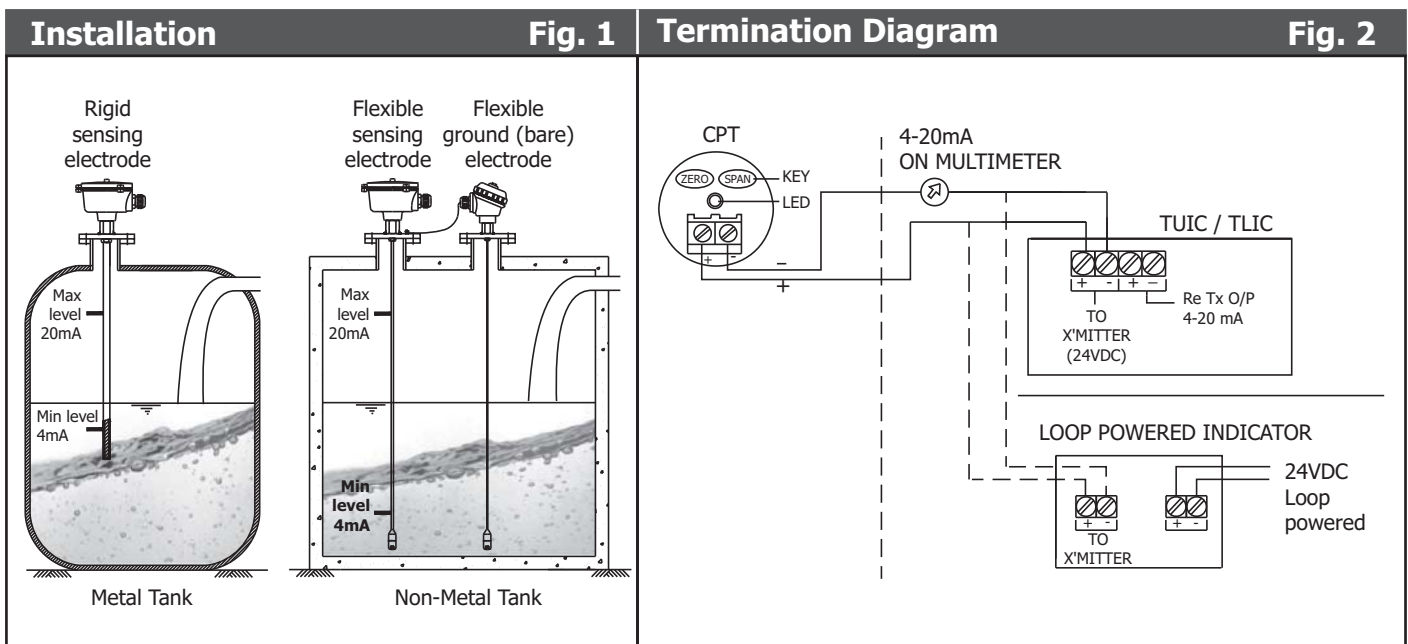- Ensure probe received is as per specifications.

Installation (Fig 1) :

Transmitter is installed vertically from top.

1. Select suitable location for probe on tank where turbulence are minimum.
2. Probe should be located such that direct flow of material on the probe is avoided.
3. Ensure that process connection of level X'mitter match with those on tank.
4. Sensing electrode should be parallel to ref. electrode / tank wall.
5. Electronics should be protected from direct sunlight in case of outdoor installation.
6. During installation of flexible probe, insert it carefully inside the tank as rough handling may lead to damage of probe and its insulation.
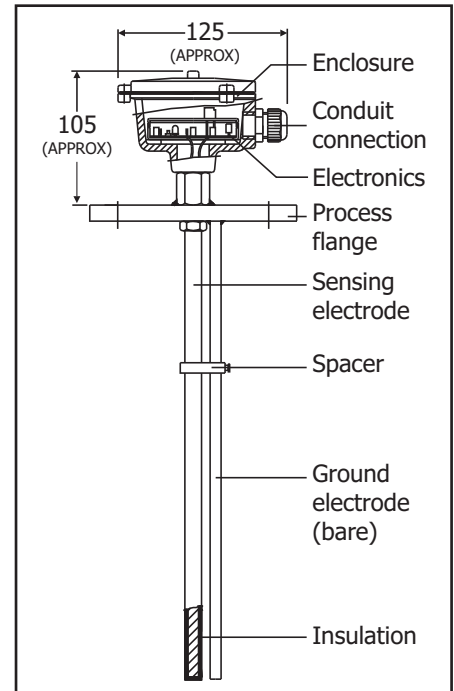
Termination & Wiring (Fig. 2) :

1. Connect proper supply of 24VDC to transmitter and ensure correct polarity.
2. Ensure probe is duly earthed.

125 (APPROX)
105 (APPROX)

- Enclosure
- Conduit connection
- Electronics
- Process flange
- Sensing electrode
- Spacer
- Ground electrode (bare)
- Insulation

Installation — Fig. 1

Rigid sensing electrode — Metal Tank
Flexible sensing electrode / Flexible ground (bare) electrode — Non-Metal Tank

Max level 20mA
Min level 4mA

Termination Diagram — Fig. 2

CPT
ZERO SPAN — KEY
— LED
+ −
+

4-20mA ON MULTIMETER

TUIC / TLIC
Re Tx O/P 4-20 mA
TO X'MITTER (24VDC)

LOOP POWERED INDICATOR
TO X'MITTER
24VDC Loop powered

Precautions :

1. Excess of supply voltage and current can damage electronics permanently.
2. Supply wiring should run away from power cable, motor.
3. Enclosure of transmitter is closed with its cover and gasket & there is no gap between 'cable OD' and 'cable gland ID'.
4. Before turning on the power supply, ensure all the wiring is correct and completed.
5. In case of direct output to PLC/DCS, Ensure it is thru. suitable current isolator.

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Calibration :

Capacitance transmitter should be calibrated at site with process medium to take into consideration actual value of its dielectric constant under operating conditions. Follow the procedure given to calibrate capacitance type transmitter at site.

1. Wire the transmitter as given in fig. 2
2. Switch on power supply (24VDC) and observe LED glows ON and then OFF.
3. Fill tank to minimum level corresponding to o/p of 4 mA. Press both ZERO and SPAN key until LED is ON. Release keys, LED turns OFF. After some duration, again LED turns ON and then OFF. Now transmitter is in calibration mode.
4. Press ' ZERO' key until LED switch ON and then OFF. Now transmitter is set for 4mA which can be confirmed through multimeter.
5. Now fill tank upto maximum level corresponding to o/p of 20mA. Press both ZERO and SPAN key until LED is ON. Release keys, LED turns OFF.   After some duration, again LED turns ON and then OFF. Now transmitter is in calibration mode.
6. Press SPAN key until LED switch ON and then OFF. Now transmitter is set for 20mA which can be confirmed through multimeter. Now transmitter is calibrated to use under site condition.

Periodic Maintenance :

1. During maintenance, switch off the supply.
2. Tighten terminal screw, if loose.
3. Tighten nuts & bolts of process contions.
4. After maintenance, ensure that enclosure of X'mitter is closed with its cover and gasket for weather proofness protection. (IP 65)

Trouble Shooting

Fault / Defect	Cause	Solution
Improper output	a. Improper calibration or O/P current. b. Probe insulation damaged. c. Probes are not parallel to each other. d. Variation in process temp, resulting damage in dielectric. e. Loose process connection. f. Ref. probe connection is loose. g. Wrong calibration. h. Probe is not suitable for liquid.	a. Recalibrate X'mitter. b. Contact factory if damage. c. Remove twist and adjust spacer. d. Check operating conditions If required consult factory. e. Tighten process conn.to tank & recalibrate x'mitter. f. Confirm probe connections. g. Tighten process conn. to tank & recalibrate x'mitter. h. Contact factory in case of dought.
Fluctuation in output current	a. Turbulence in liquid. b. Check wiring.	a. Use still well. b. Ensure wiring is isolated from power cables, contactor etc.