

Techtrol Displacer Torque Tube Level Transmitter - DTT

'DTT' is an accurate and smart transmitter, for level and interface level measurement of liquids.

Construction & Operation : (Fig. 1)

It consists of a displacer suspended from one end of an operating lever, the other end of which is connected to a torque tube, which in turn is connected to a lever assembly fitted with magnetic system. The enclosure houses a sensor and signal processing electronics. This assembly can be mounted internally without cage or externally with cage.

The change in liquid level causes the operating lever to rotate torque tube proportionately to the change in bouyant force acting on displacer. This rotation is transferred to lever assembly causing angular displacement to change the magnetic field, which is sensed by sensor and converted into 4-20 mA output through signal processing electronics.

Salient Features :

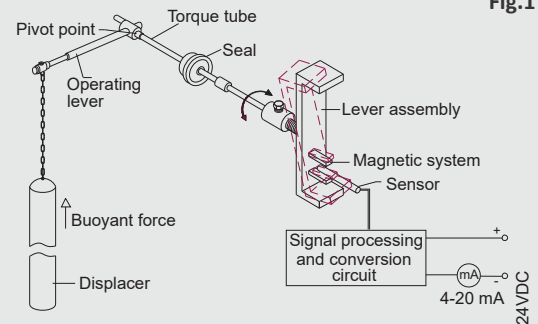
- ☑ Level and interface level measurement
- ☑ Proven torque tube technology
- ☑ Enclosure - Cast Al. IP 65 or ATEX Exd Gr. IIC/ Exia
- ☑ High temperature upto 400 deg C

Specifications :

Displacer	: SS316
Torque Tube	: Inconel 600
Torq. Tube Housing	: CS A106, SS304, SS316
External Chamber MOC	: CS A106, SS304, SS316 (Chamber rating same as pr. conn. rating)
Process Conn. MOC	: CS A106, SS304, SS316
Pr. Conn Size & Type	:
	Internal Mtg : 3" NB ASME Flange 150 #/ 300#
	External Mtg: 1", 2" NB ASME Flg. 150 #/ 300# or 1" SW
Display	: LCD with backlit
Enclosure	: 1) Cast Al. IP65 (150 °C) 2) Cast Al. ATEX Exd Gr IIC T6/ Exia (Intrinsically Safe) (400 °C)
Conduit Connection	: M20 x 1.5 Cable Gland, DC, Brass
Measuring Range	: 350 to 3000 mm
Liquid SG	: 0.3 to 1.6 (level measurement)
Min Diff. in SG bet ⁿ Liq.	: 0.1 (for interface level measurement)
Accuracy	: ± 0.5% FSD
Output	: 1) 4-20 mA (2 wire) (Encl. IP65) 2) 4-20 mA +HART (2 wire) (Encl. ATEX Exd)
Power Supply	: 24 VDC (± 10 %)
Max Load	: 600 Ohms at 24 VDC
Max Temperature	: 150 °C (Encl. IP65)
Max Pressure	: 400 °C with Radiating Fins (Encl. ATEX Exd) : upto 60 kg/cm ²
Special Features	: Steam Jacketing for External Chamber

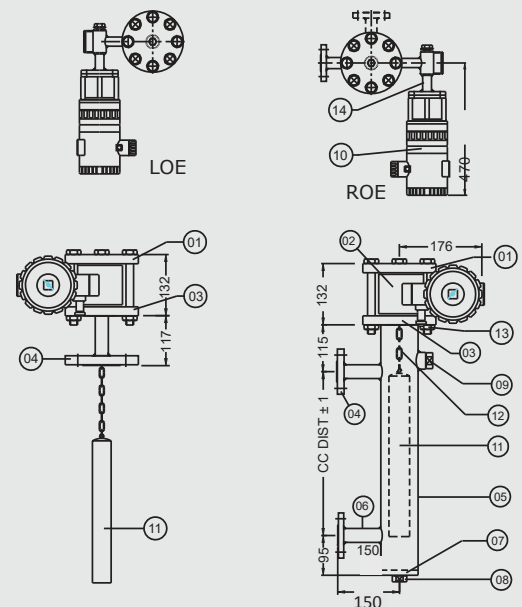


Fig.1



Dimensional Drawings :

Fig.2



Internal Top Mtd

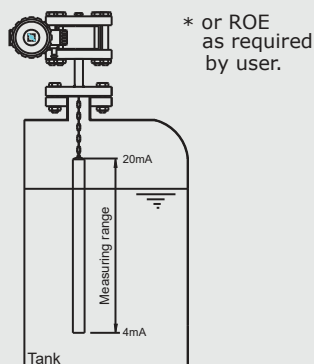
- 01) Top holding flange
- 02) Wafer body
- 03) Bottom holding flg (Internal)
- 03) Cage flange (External)
- 04) Process conn.
- 05) External cage
- 06) Extension
- 07) End cap

External Side-Side Mtd

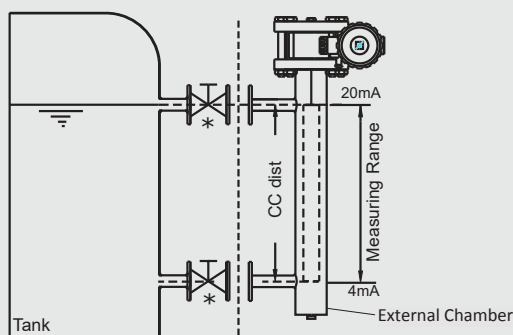
- 08) Drain plug
- 09) Vent plug
- 10) X'mitter encl.
- 11) Displacer
- 12) Chain
- 13) Bolts & Nuts
- 14) Torque tube housing

☑ Displacer transmitter enclosure is either left oriented (LOE) or right oriented (ROE) of tank.

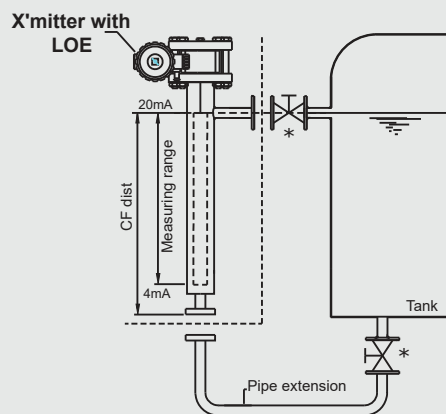
Internal Top Mounting with LOE Xmitter * Fig.3



External Side -Side Mounting with ROE X'mitter Fig.4



External Side-Bottom Mounting with LOE X'mitter Fig.5



For right side tank mounting, the x'mitter enclosure should be ROE & left side tank mounting, it should be LOE.

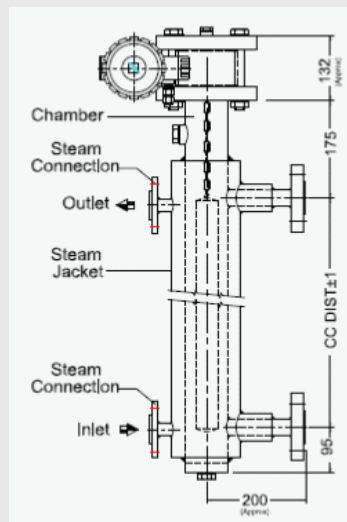
* Isolation valves should be provided for safety and easy removal of transmitter for repairs/ maintenance.

Applications :

Feed Water Heaters, Condensate Drip Pits, Receivers, Flash Tanks and Knock out Drums

Ordering Information :

Model No. x Measuring Range, Liquid & its SG, Optg. temperature, & Pressure (CC/CF distance should be provided for external cage)



With Steam Jacketed External Chamber

Model Identification

DTT -																					
1. Enclosure																					
Cast Al. IP 65		J																			
Cast Al. ATEX Ex d Gr IIC/ Exia (<i>Intrinsically safe</i>)		E																			
2. Enclosure Orientation																					
Left Oriented Enclosure (LOE)		L																			
Right Oriented Enclosure (ROE)		R																			
3. Max Operating Temperature																					
150 °C (<i>Encl. J, O/P- 4-20mA</i>)			1																		
400 °C with Radiating Fins (<i>Encl. E, O/P- 4-20mA + HART</i>)			2																		
4. Output																					
4-20 mA (<i>Encl. J, 150°C</i>)				1																	
4-20mA + HART (<i>Encl. E, 400°C</i>)				2																	
5. Torque Tube Housing MOC																					
CS A106					A																
SS304					N																
SS316					S																
Others					O																
6. Installation																					
Internal (<i>Top Mtg</i>)				1																	
External (<i>Side-Side Mtg</i>)				2																	
External (<i>Side-Bottom Mtg</i>)				3																	
Others				O																	
7. Process Connection/External Chamber MOC																					
CS A105					A																
SS304					N																
SS316					S																
Others					O																
8. Process Connection Type																					
3" NB ASME 150# Flange (<i>Internal Installation</i>)					A																
3" NB ASME 300# Flange (<i>Internal Installation</i>)					B																
2" NB ASME 150# Flange (<i>External Installation</i>)					C																
2" NB ASME 300# Flange (<i>External Installation</i>)					D																
1" NB ASME 150# Flange (<i>External Installation</i>)					E																
1" NB ASME 300# Flange (<i>External Installation</i>)					F																
1" Socket Weld 3000# (<i>External Installation</i>)					G																
Others					O																
9. External Chamber																					
Without (<i>Internal Installation</i>)																				W	
Provided																				P	
10. External Chamber Vent x Drain																					
Without																					W
½" NPT Plug x ½" NPT Plug																					1
½" NPT Plug x ½" NPT Globe Valve																					2
Others																					O
11. Special Features																					
Without																					W
Jacketing for External Chamber																					J
Others																					O

x Measuring Range

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Custom built specs./options available on demand. We reserve the right to modify design and specifications without prior notice.			
		CAT/0085/REV 04/12-2021	