

# Magnetic Float Operated, Guided Level Transmitter "FGT"

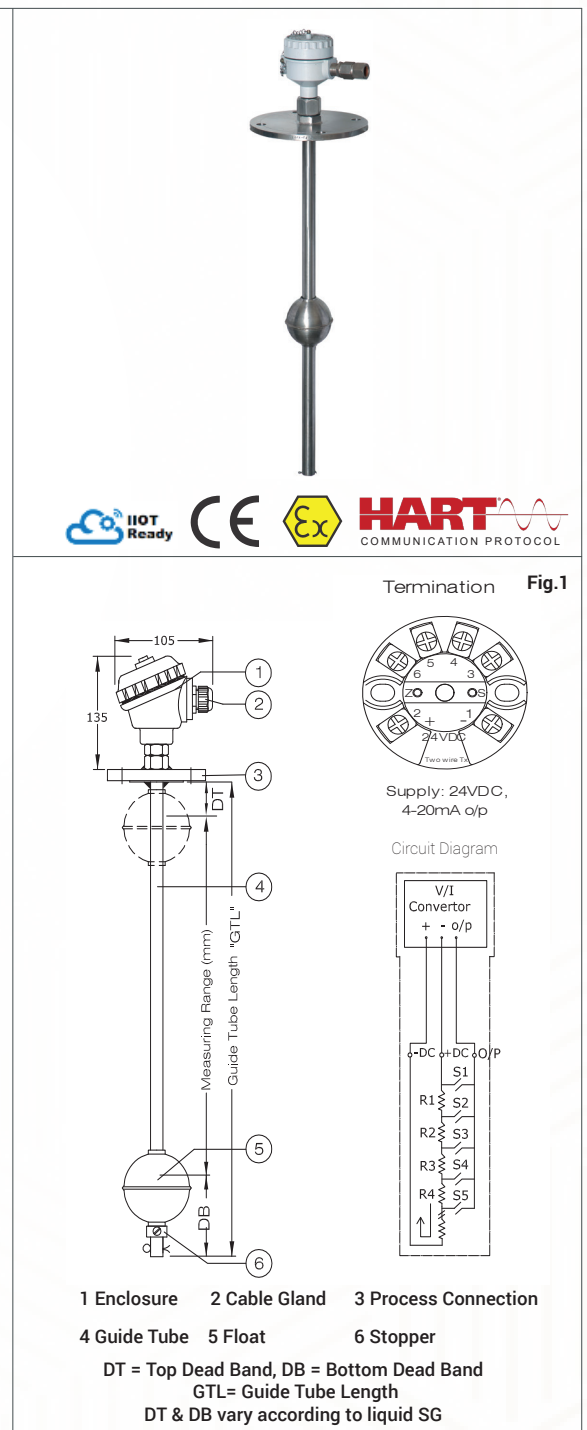
It is a reliable technique for continuous level indication and control of liquid, chemically compatible with the transmitter MOC. The float is designed for variety of liquids and its unique self-cleaning construction is well suited for even sticky or dirty liquids with no float hang-ups.

## Salient Features

- Factory calibrated
- Liquid level or liquid/ liquid interface detection
- Customized lengths upto 4 meters
- Option of Integral Display
- Option of HART or RS 485 output
- Option of Zener Barrier for Intrinsic safety for hazardous area

## Construction & Working

It consists of a float & guide tube assembly in non-magnetic material, to achieve undisturbed flux. A chain of closely spaced glass encapsulated reed switches and resistors are placed inside the guide tube fig.1. During rise and fall of liquid level, the magnetic float moves and actuates a reed switch and develops a proportional voltage. The sensed voltage is fed to the transmitter located in the enclosure for conversion to a signal of 4-20 mA, to use with PLC or DCS. Alternatively, the signal can be transmitted to a display unit for remote indication or to a display unit integral with transmitter for local indication.



# Specifications

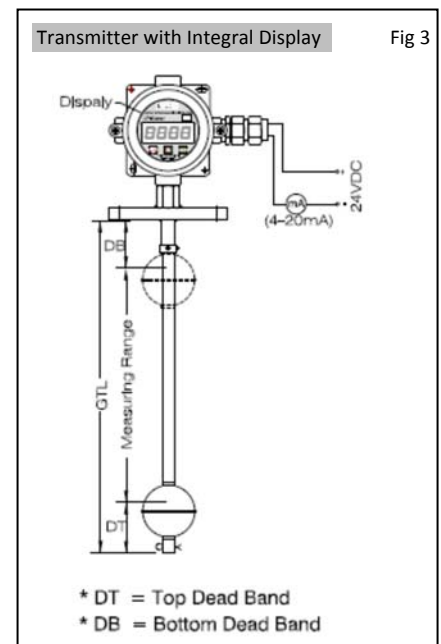
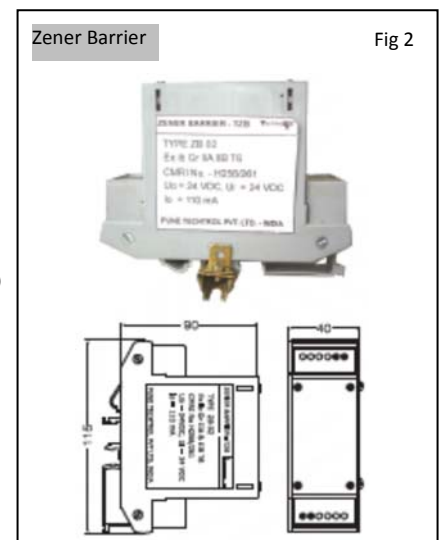
Guide Tube Length (GTL):	0.5 to 4 mtrs max.
Measuring Range	: GTL - (DT + DB)
Resolution	: ±12 mm (standard), ±6 mm (high)
Installation	: Top
Enclosure	: Cast Al. IP66 or Ex d Gr. IIB or IIC T6 IP66 or ATEX Ex d Gr. IIB T6 IP66
Conduit Connection	: PG11 cable gland, polyamide or ½” NPT double compression cable gland, brass
Wetted Parts	: SS304/316/316L, PP or PVDF
Float	: SS316 x Ø75, Ø90; SS316L x Ø41; PP x Ø75; PVDF x Ø63
Liquid SG	: 0.65 to 1.2 depending on float size. (Refer table 1)
Interface Detection	: Min 0.2 difference between SG of upper and lower liquid (with SS316 x Ø75, Ø90 Float)
Process Connection	: Screwed, flanged or triclover ferrule
Supply	: 24 VDC (± 10 %)
Output	: 4-20 mA or 4-20 mA + HART (2 wire) or 1 to 5 VDC or : RS-485 MODBUS RTU Serial Communication (Baud rate 9600, 19200, 38400; Slave ID: 1 to 7; Data: 0 to 4095)
Max. Load	: 400 Ohms
Max. Temperature	: 70 °C (PP), 100 °C (PVDF), 150°C (SS)
Max. Test Pressure	: 2 kg/cm <sup>2</sup> (PP/PVDF), 10 kg/cm <sup>2</sup> (SS), 25 kg/cm <sup>2</sup> (Optional)
Special Feature	: Zener barrier for intrinsic safety to Ex ib Gr. IIB T6

## Zener barrier

Input Supply	: 24 VDC
Output	: 24 VDC/ 110 mA
Enclosure	: ABS (size 40 x 115 x 90 D mm)
Mounting	: DIN rail

## Integral display

1) Enclosure	: Cast Al. IP65 or Ex d Gr. IIB T6 IP65
Indication Range	: 0 to 9999
Display	: 4 digit LCD
Programming	: Through keypad
Output	: 4-20 mA
Load	: 150 Ohm @ 24 VDC
2) Enclosure	: Aluminum IP66 or ATEX Ex d IIC IP66 T6 (CCOE)
Display	: 14 digit, 2 line LCD
Programming	: Local Operator Interface (LOI)
Output	: 4-20 mA with HART
Load	: 500 Ohms @ 24 VDC (including HART resistance)
Option	: ATEX (CCOE) intrinsically safety to Ex ia IIC T6



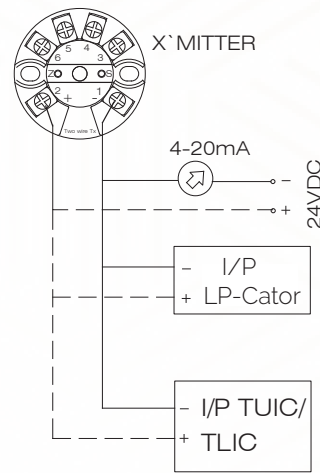
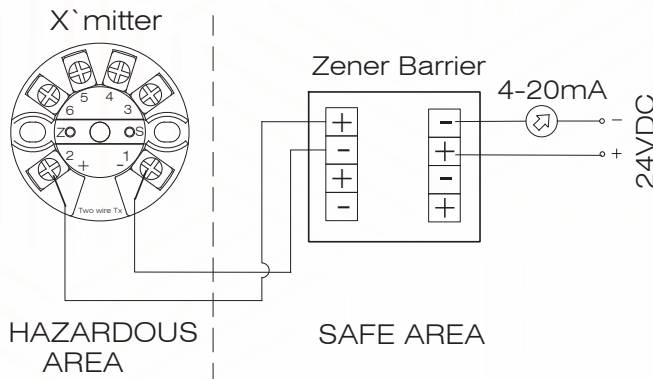
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**Termination & Wiring**

2) Transmitter with 4-20mA O/P

Fig.4

1) Transmitter with Zener Barrier



## Table 1- Float selection for various liquid specific gravity

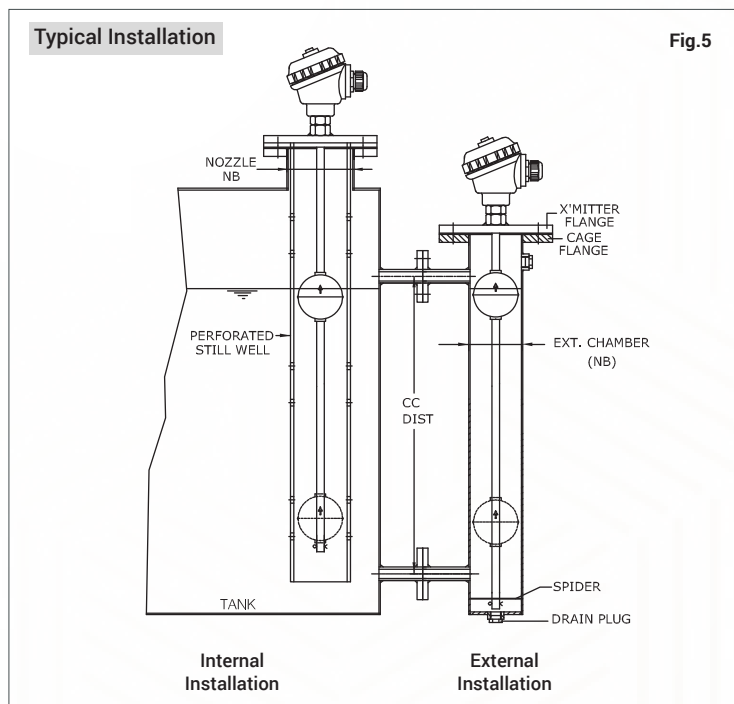
Float MOC	Float Size Ø x L	Min SG	Resolution (mm)	DT (mm) at SG1	DB (mm) at SG1	GTL Max (mtr)	Max Temp °C	Max Pressure kg/cm <sup>2</sup>	Process Connection Size
SS316L	Ø41 x 50	≥0.65	± 12	25	45	1.5	150	10	2" (50) NB Flanged, Screwed or <u>Triclover</u>
SS304/316	Ø75 x 85	≥0.8	± 12, 6	35	75	4	150	10	3" (80) NB Flanged
SS304/316	Ø90 x 90	≥0.6	± 12, 6	45	65	4	150	10	4" (100) NB Flanged
PP	Ø75 x 90	≥0.7	± 12, 6	70	75	4	70	2	3" (80) NB Flanged
PVDF	Ø63 x 120	≥1	± 12, 6	70	115	4	100	2	3" (80) NB Flanged
	Ø63 x 170	≥0.8	± 12, 6	110	125	4	100	2	3" (80) NB Flanged

## 1. Internal Installation

Transmitter is top mounted on the tank. A stillwell with perforation is recommended for liquids under turbulence. For fitment of stillwell, ensure that NB of tank nozzle is greater than the diameter of stillwell.

## 2. External Installation

Transmitter is top mounted on a chamber, external to the tank. This installation is adopted on the tank, containing mechanical devices like stirrers, ladders & other internals or to overcome space limitation in the tank.



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Standard ± 12 mm	S				
High ± 6 mm	H				
<b>6. Output</b>					
4-20 mA		1			
4-20 mA with HART		2			
1 to 5 VDC		3			
RS-485 MODBUS RTU Serial Communication		4			
<b>7. Special Feature</b>					
Without			W		
Zener Barrier for Intrinsic Safety (4-20mA, w/o integral display)			I		
Others			O		
<b>8. Display Type</b>					
Not Provided				W	
With Integral Display (refer table 2)				I	
Loop Powered Indicator (LP- Cator)				L	
Level Indicator Controller (TLIC)				C	
Universal Indicator Controller (TUIC)				U	
Others				O	
<b>9. Accessories</b>					
Not Provided					W
External Chamber					C
Counter Flange + Nuts & Bolts (CS Zink pltd.) + CAF Gasket					F
Stillwell					S
Others					O

Note: 1. Refer respective catalogs of ECT for external chamber, LP-Cator, TLIC and TUIC  
2. Refer table 2 for combinations of enclosures with output and integral display

**Table 2 - Combination of Enclosure x Output x Integral Display**

Enclosure Type	Output	Integral Display
J, K, L, E, F, G, M, N, Q	4-20 mA or 4-20mA + HART with or without Intrinsic Safety	Without
E, M (Ex d IIB, IP65)	4-20mA	Provided
K, L	4-20 mA + HART with or without Intrinsic Safety	Provided
I (IP65)	4-20 mA	Provided
S	4-20mA + HART with or without Intrinsic Safety	Without
S	4-20mA + HART with or without Intrinsic Safety	Provided

## Ordering Information

Model No. x Guide Tube Length x Measuring Range x Liquid & its SG and Operating Temp & Pressure

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