

# TECHTROL FLOAT & DIAL GAUGE 'FDG'

*It is a reliable & maintenance free gauge, suitable for liquids in underground and partially underground tanks.*

## SALIENT FEATURES

- Easy to install
- Suitable for locations having limited headroom
- Choice of analog (IP66) & digital (Ex d Gr IIC) indicator
- Choice of max. two alarm switches & transmitter (analog)

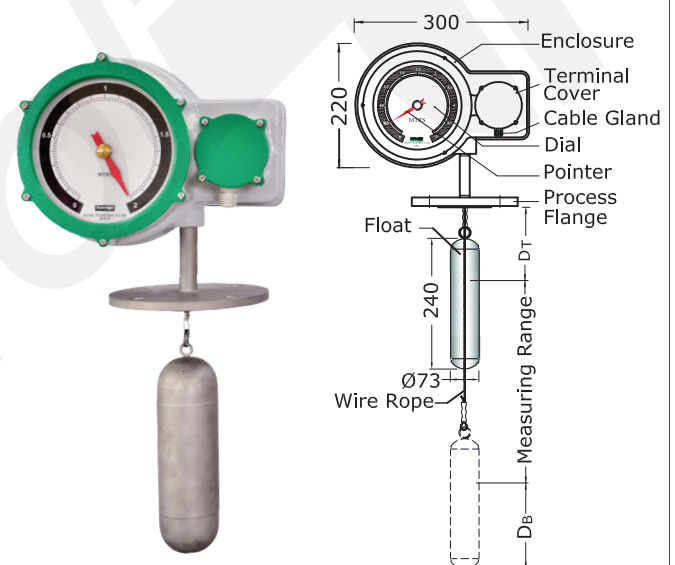
## CONSTRUCTION & OPERATION

**Analog Indicator** - It consists of a float clamped to a SS wire rope, the other end of which is wound on a drum, carrying constant torque spring housed in IP66 enclosure to maintain the rope under tension. Due to change in liquid level, the float rises or falls and rotates the drum. This motion is transmitted through a gear mechanism to a pointer moving over a calibrated dial to display level in meters. Two adjustable switches with or without 4-20 mA transmitter can be provided optionally.

**Digital Indicator** - The construction is similar to analog except, constant torque spring is housed in Ex-proof enclosure and the gear motion induces a change in variable voltage signal to give 4-20 mA output & digital level indication in %, mm, cm or meters. The current output can be further connected to PLC/DCS through current isolator. It is provided with a magnetic key that allows easy programming from outside, without opening the cover.

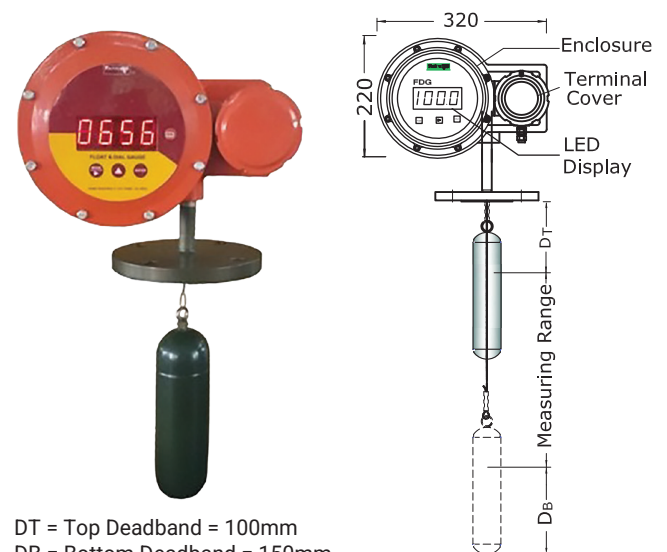
Analog Indicator with IP66 Enclosure

Fig 1



Digital Indicator with Ex-d IIC Enclosure

Fig 2



DT = Top Deadband = 100mm  
DB = Bottom Deadband = 150mm  
based on water (sp. gr. = 1)

## SPECIFICATIONS

### General

|                         |                                                   |
|-------------------------|---------------------------------------------------|
| Installation            | : Top                                             |
| Process Connection Size | : 3"NB ANSI 150# or 4"NB (with stillwell)         |
| Process Connection MOC  | : CS, SS304/316, PP, ECTFE (Hallar) ctd SS316     |
| Wire Rope               | : Ø 1.6 mm x SS304/316/316L, PTFE insulated SS316 |
| Float MOC               | : SS304/ 316/316L, ECTFE (Hallar) SS316           |
| Float Size              | : Ø73 x 240 mm H, cylindrical                     |
| Liquid SG               | : $\geq 0.8$                                      |
| Temp Range              | : - 10 to 100°C                                   |
| Pressure                | : Atmospheric                                     |
| Indication              | : Analog or Digital                               |

### Analog Indicator

|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| Ranges             | : 0 -1, 0 -2, 0 -3, .....or 0 -10 mtrs                            |
| Dial Enclosure     | : Cast Al, Powder Ctd., IP66                                      |
| Terminal Enclosure | : Cast Al, Powder Ctd., IP66                                      |
| Cable Gland        | : PG9, Nylon                                                      |
| Calibrated Dial    | : Aluminium, White Powder ctd. with Black Graduations & Numerical |
| Pointer            | : Aluminium, Red Powder Coated                                    |
| Accuracy           | : +/- 50 mm                                                       |

### Adjustable Alarm Switches (Optional)

|               |                       |
|---------------|-----------------------|
| Switch Type   | : Micro switch - SPDT |
| Rating        | : 5A, 250 VAC         |
| Switch Action | : Mono-stable         |

### Transmitter (Optional)

|          |                                      |
|----------|--------------------------------------|
| Supply   | : 24 VDC $\pm$ 10 %                  |
| Output   | : 4 - 20 mA (2 wire) x 400 Ohms Load |
| Accuracy | : $\pm$ 2% FS                        |

## Digital Indicator

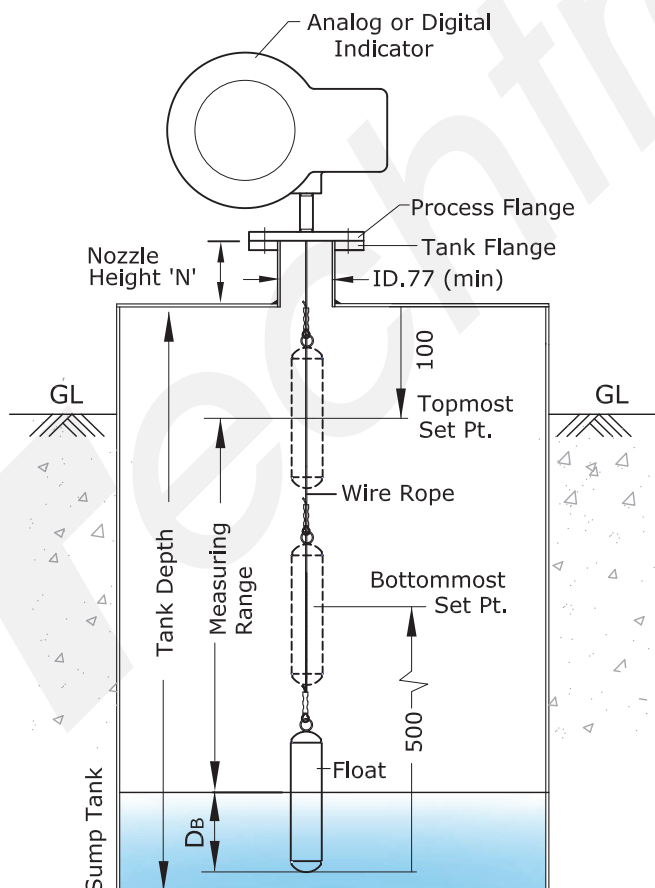
|                |                                         |
|----------------|-----------------------------------------|
| Range          | : 0 to 10 mtrs (decimal pt. selectable) |
| Dial Enclosure | : Cast Al. Ex d Gr IIC                  |
| Cable Gland    | : ½" NPT, DC, Brass                     |
| Display        | : 4 digits, 7 segment LED (1")          |
| Programming    | : Through keypad                        |
| Accuracy       | : ± 2% FS                               |
| Supply         | : 24 VDC +/- 10%                        |
| Output         | : 4 -20 mA (4 wire ) x 300 Ohm Load     |

## Accessories

|            |                                                                 |
|------------|-----------------------------------------------------------------|
| Still well | : 3"NB pipe, with 4"NB ANSI 150 # flange in CS, SS304/316 or PP |
|------------|-----------------------------------------------------------------|

## INSTALLATION

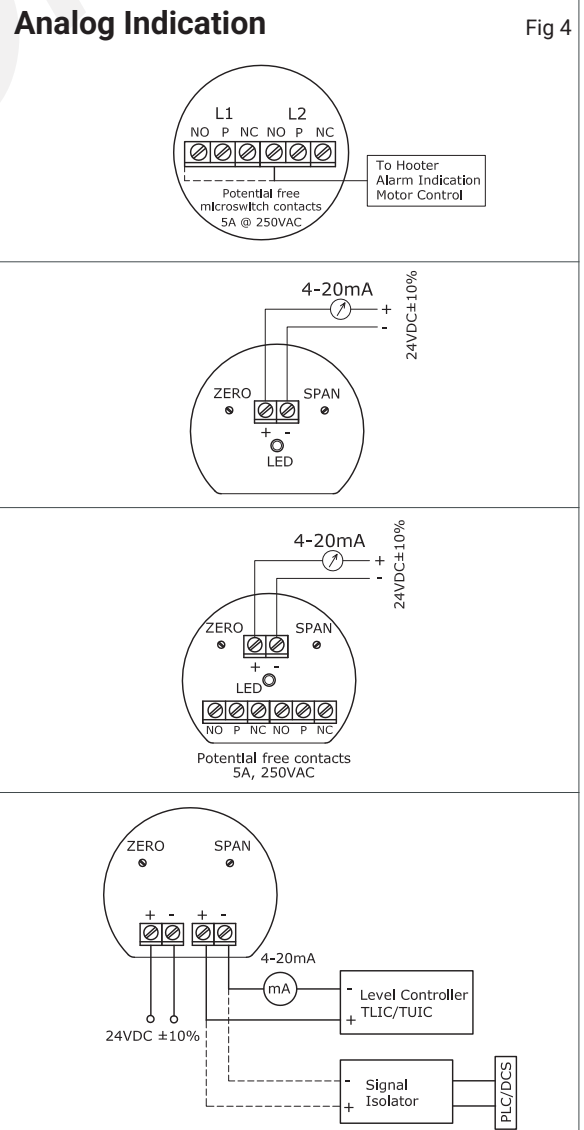
Fig 3



Still well is recommended for  
turbulent liquids & ranges beyond 5m

## TERMINATION & WIRING

Fig 4



## APPLICATIONS

Raw / Treated Water, Sewage, Effluent, Oil, HDO, LDO & various Solvents

## MODEL IDENTIFICATION

| FDG-                                               | 1 | T | S | 1 | M | 3  | W | W |
|----------------------------------------------------|---|---|---|---|---|----|---|---|
| <b>1. Enclosure Protection x Output</b>            |   |   |   |   |   |    |   |   |
| WP IP66 x Analog Indication                        | 1 |   |   |   |   |    |   |   |
| WP IP66 x Analog Indication x 2 Switches           | 2 |   |   |   |   |    |   |   |
| WP IP66 x Analog Indication x 4-20 mA              | 3 |   |   |   |   |    |   |   |
| WP IP66 x Analog Indication x 2 Switches x 4-20 mA | 4 |   |   |   |   |    |   |   |
| WP IP66 x Digital Indication x 4-20 mA             | 5 |   |   |   |   |    |   |   |
| Ex d IIC x Digital Indication x 4-20 mA            | 6 |   |   |   |   |    |   |   |
| <b>2. Installation</b>                             |   |   |   |   |   |    |   |   |
| Top                                                |   | T |   |   |   |    |   |   |
| Others                                             |   | O |   |   |   |    |   |   |
| <b>3. Wetted Parts (Float , Wire Rope)</b>         |   |   |   |   |   |    |   |   |
| SS304                                              |   |   | N |   |   |    |   |   |
| SS316                                              |   |   | S |   |   |    |   |   |
| SS316L                                             |   |   | L |   |   |    |   |   |
| ECTFE coated SS316 (3 mtrs max)                    |   |   | V |   |   |    |   |   |
| Others                                             |   |   | O |   |   |    |   |   |
| <b>4. Process Flange Size</b>                      |   |   |   |   |   |    |   |   |
| 3" NB ANSI 150# Flange                             |   |   |   | 1 |   |    |   |   |
| 4" NB ANSI 150# Flange                             |   |   |   | 2 |   |    |   |   |
| Others                                             |   |   |   | O |   |    |   |   |
| <b>5. Process Flange MOC</b>                       |   |   |   |   |   |    |   |   |
| CS                                                 |   |   |   |   | M |    |   |   |
| SS 304                                             |   |   |   |   | N |    |   |   |
| SS 316                                             |   |   |   |   | S |    |   |   |
| ECTFE ctd SS316                                    |   |   |   |   | V |    |   |   |
| Others                                             |   |   |   |   | O |    |   |   |
| <b>6. Range</b>                                    |   |   |   |   |   |    |   |   |
| 0 - 1 mtrs                                         |   |   |   |   |   | 1  |   |   |
| 0 - 2 mtrs                                         |   |   |   |   |   | 2  |   |   |
| 0 - 3 mtrs                                         |   |   |   |   |   | 3  |   |   |
| 0 - 4 mtrs                                         |   |   |   |   |   | 4  |   |   |
| 0 - 5 mtrs                                         |   |   |   |   |   | 5  |   |   |
| 0 - 6 mtrs                                         |   |   |   |   |   | 6  |   |   |
| 0 - 7 mtrs                                         |   |   |   |   |   | 7  |   |   |
| 0 - 8 mtrs                                         |   |   |   |   |   | 8  |   |   |
| 0 - 9 mtrs                                         |   |   |   |   |   | 9  |   |   |
| 0 - 10 mtrs                                        |   |   |   |   |   | 10 |   |   |

| 7. Stillwell                                   |   |
|------------------------------------------------|---|
| Without                                        | W |
| CS Stillwell (with process flange 4"NB)        | 1 |
| SS 304 Stillwell (with process flange 4"NB)    | 2 |
| SS 316 Stillwell (with process flange 4"NB)    | 3 |
| PP Stillwell (with process flange 4"NB)        | 4 |
| Others                                         | 0 |
| 8. Level Indicator Controller                  |   |
| Not Provided                                   | W |
| Techtrol Loop Powered Indicator (LP-Cator)     | L |
| Techtrol Indicator Controller (TLIC)           | C |
| Techtrol Universal Indicator Controller (TUIC) | U |

## ORDERING INFORMATION

Model No, Liquid and its Density, Operating Temperature & Pressure, Tank Depth, Nozzle Height, Min/Max Set Points for Alarm Switches (optional)

\*All dimensions in mm except specified

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