



## Automatic Tank Level Gauge, 133

The Automatic Tank Level Gauge, 133 (ATLG), is a float and tape operated high precision level indicator using a large diameter float to enhance the accuracy. The float is counter balanced by a constant force spring which keeps the tape under constant tension. The stainless steel tape is punched with precise, equispaced holes. This tape engages into a sprocket which drives a counter mechanism displaying the level in millimeters. The sprocket via main shaft drives optional accessories like Two Wire Transmitter (TWT) & Limit Switch Assembly or Smart Tank Data Transmitter (STDT). Materials of construction are chosen for their resistance to corrosion and wear. ATLG is available for ranges up to 25000 mm. This gauge with an optional crank up mechanism is used to hoist the float when it is used with high viscosity liquids or the liquids which may solidify at ambient temperature. With the help of crank up mechanism, the float is lowered at the time of measuring the level and is hoisted again. It can also be used to facilitate easy tank maintenance.

Gauge head mounting bracket, 90° elbows, bottom anchor, guide wire tensioning assemblies, guide wires etc. are supplied as standard accessories as per requirement. In case of blanketed tanks or where escape of product vapours is to be prevented, liquid seal assemblies for 200, 300 or 600 mm of water column can be supplied. It also prevents ingress of product vapours into the gauge.

### MATERIAL OF CONSTRUCTION

Body	: Cast Aluminium polyurethane painted.
Shafts	: SS304
Bearings	: PTFE / Carbon filled PTFE.
Counter Components	: Thermoplastic
Float	: SS304
Tape	: SS316
Guide wires	: Single Strand - SS316
Guide wire Tensioning Assembly	: CS Cd. plated (Standard) SS (Optional)
Bottom Anchor:	CS (Standard) SS304 / SS316 (Optional)
90° Elbow Assembly	: Housing - Cast Aluminium Pulley - SS316 / Aluminium Shaft - SS Pulley Bushing - PTFE.



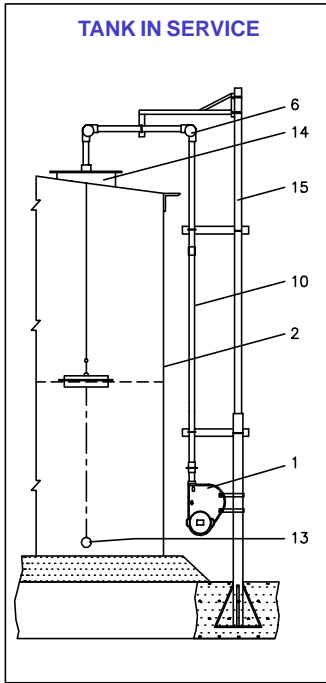
### SALIENT FEATURES

- ❑ High accuracy float operated gauge.
- ❑ Variety of applications in Petroleum, Refineries, Chemicals, Petrochemicals etc.
- ❑ Scope of supply includes all hardware & fittings for mounting
- ❑ Accessories for Remote Transmission, Limit Contacts etc.
- ❑ Forms the basis of Level measurement in Tank Farm Management System.

### SPECIFICATIONS

Ranges	: 0-8m, 0-12m, 0-16m, 0-24m (For higher range consult factory)
Indication	: In millimeters (5 digit mechanical counter)
Temperature	: 0 ° C to 120 ° C
Resolution	: 1 mm
Accuracy	: ± 2 mm with 400 mm diameter float for liquid of specific gravity = 1.
Protection	: Weatherproof to IP-65 as per IS:2147-1962

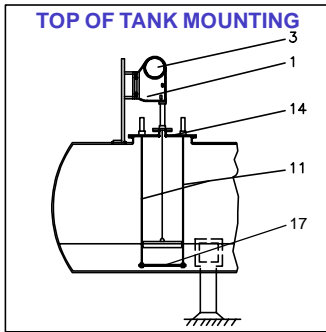
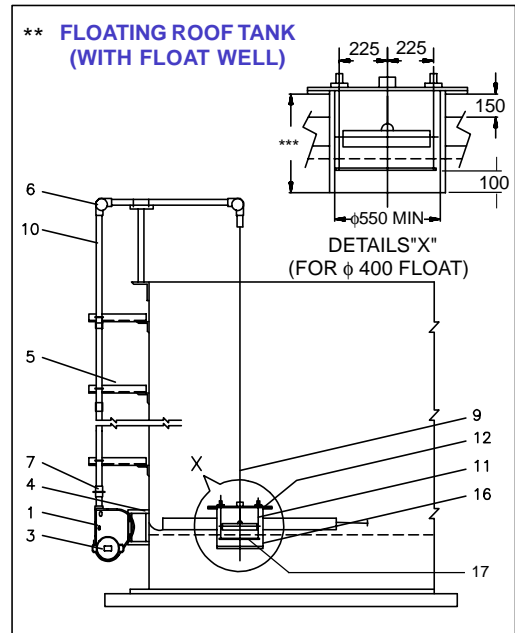
**Note :** Being a mechanical instrument, enclosure as per IS:2147 is not applicable for this item. However the design & certification is done to ensure satisfactory operation / performance.



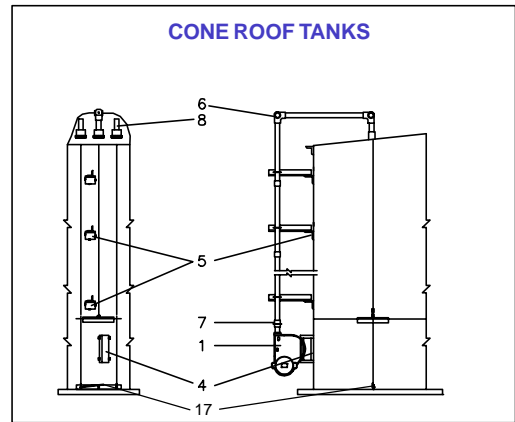
## TYPICAL INSTALLATIONS

### ITEM DESCRIPTION

- 1) AUTOMATIC TANK LEVEL GAUGE
- \* 2) TANK
- 3) TRANSMITTER (ACCESSORY)
- 4) GAUGE HEAD MOUNTING BRACKET
- 5) ADJUSTABLE PIPE SUPPORT ASSEMBLY
- 6) 90° ELBOW
- 7) UNION 1 1/2" BSP
- 8) GUIDE WIRE TENSIONING ASSEMBLY
- 9) CABLE
- 10) PIPING
- 11) GUIDE RODS
- \* 12) FLOAT WELL COVER
- 13) WEIGHTED BOTTOM ANCHOR
- \* 14) MANHOLE
- \* 15) GROUDED POLE
- \* 16) FLOAT WELL
- 17) BOTTOM ANCHOR



- \* PURCHASER'S SCOPE OF SUPPLY.
- \*\* IN CASE OF FLOATING ROOF TANK, WITHOUT FLOATWELL, THE CABLE CAN BE ATTACHED TO THE ROOF ITSELF. HOWEVER THE ACCURACY WILL DEPEND ON THE ROOF MOVEMENT.
- \*\*\* DEPTH OF FLOAT WELL TO BE GREATER THAN 1050mm BUT ADJUSTED SO THAT WHEN FLOATING ROOF IS ON LOW LEGS, THE FLOAT WELL BOTTOM IS CLEAR OF TANK BOTTOM BY APPROX. 100mm.



## OPTIONAL ACCESSORIES

- ❑ **Two Wire Transmitter / Limit Switch Assembly / Two Wire Transmitter + Limit Switch Assembly, 133TS.** (Can be retrofitted). The 4-20 mA output of two wire transmitter can be used to provide remote indication of level. The limit switch contacts are used for alarm annunciation and / or control applications. For details refer leaflet No. LF-133-0802.

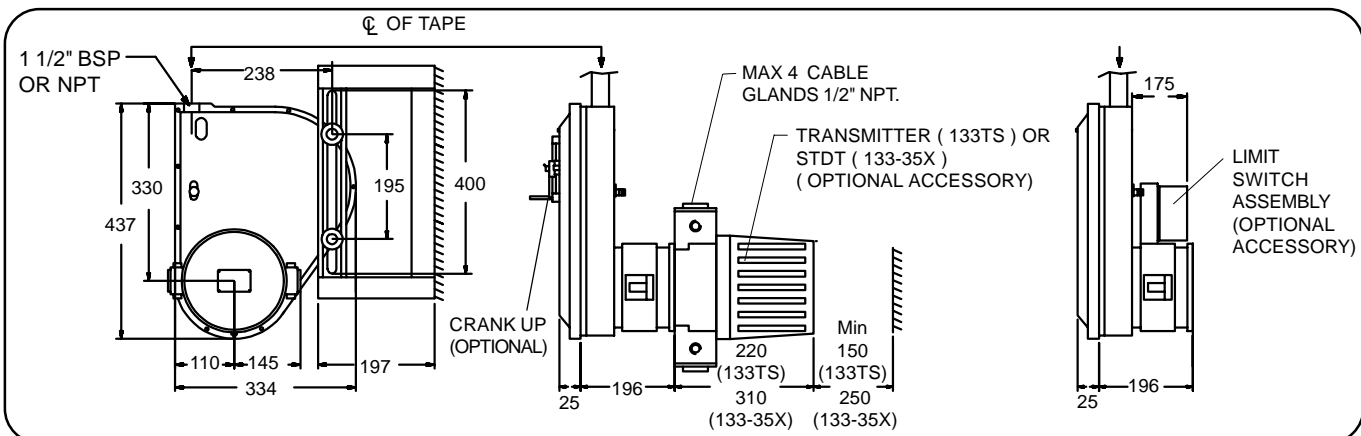
OR

**Smart Tank Data Transmitter, 133-35X** (Can be retrofitted). It is a microprocessor based transmitter. It is used for accurate conversion and transmission of product level and temperature data of tanks on a multidrop RS-485 bus. For details, refer leaflet No. LF-133-0806.

- ❑ **Smart Tank Data Transmitter, 133-35X and Limit Switch Assembly.** (For details, refer Leaflet LF-133-811) In this case a separate limit switch assembly is mounted on the top of the counter housing.
- ❑ **Liquid Seal Assembly, 133LS.**

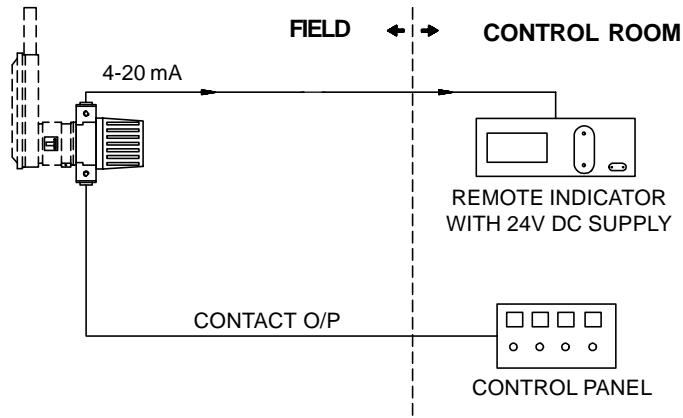
It prevents product vapours from entering the gauge or leaking to atmosphere, thus minimising maintenance and vapour loss. For details refer leaflet No. LF-133-0805, LF-133-0812.

## DIMENSIONS

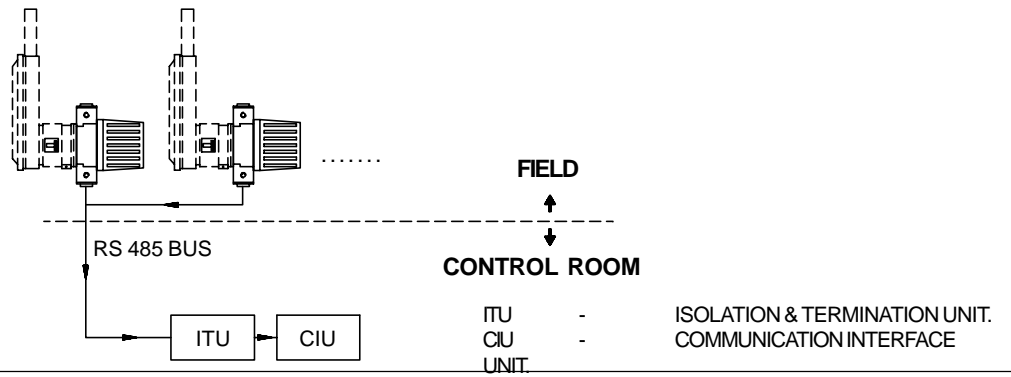


**APPLICATIONS**

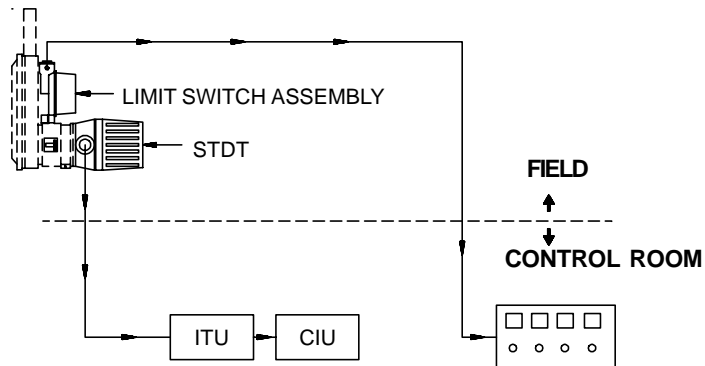
**ATLG WITH TWO WIRE TRANSMITTER AND LIMIT SWITCH ( 133TS )**



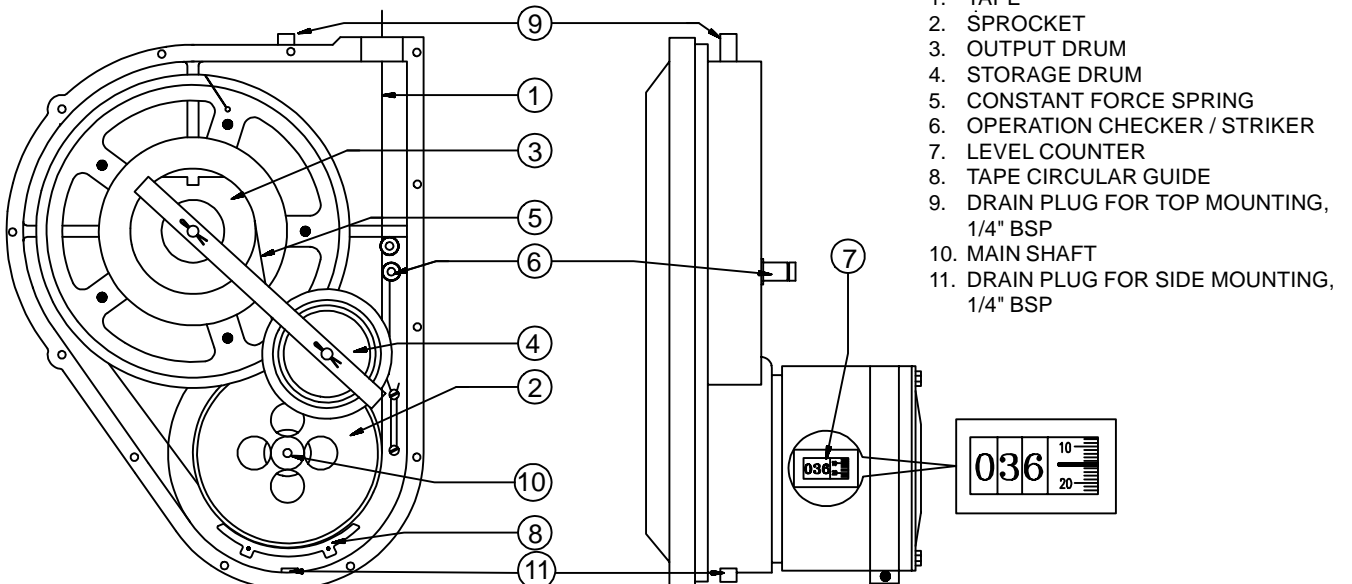
**ATLG WITH STDT ( 133-35 ) FOR TANK FARMS**



**ATLG WITH STDT ( 133-35 ) AND LIMIT SWITCH ASSEMBLY**



**GAUGE HEAD INTERNALS :**



## ORDERING CODE

1	3	3
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TANK HEIGHT IN mm.

### TYPE

- G Standard
- C With Crank Up

### MOUNTING

- 1 Top of Tank
- 2 Side of Tank
- 3 Side of FR Tank Note 4, 7
- 9 Others ( Please specify ).

### RANGE

- 1 0 - 08M.
- 2 0 - 12M.
- 3 0 - 16M.
- 4 0 - 24M.
- 9 > 24M (Consult factory ).

### TANK

- 1 In service.
- 2 New construction.

### PROCESS CONNECTION

- 1 1 1/2", BSP, CS socket
  - 2 1 1/2", NPT, CS socket
  - 3 1 1/2" ANSI Flanged, CS
  - 4 1 1/2" ANSI Flanged, SS 304
  - 5 1 1/2" ANSI Flanged, SS 316
  - 6 1 1/2" ANSI A105 ( forged flange)
  - 9 Others ( Please specify ).
- ( Connections on tank are in customer's scope, mating flanges by SBEM)

### PIPING

- 0 Not required
- 1 GI Class B
- 2 SS304
- 3 SS 316
- 9 Others ( Please specify ).

### BOTTOM ANCHOR

- 0 No bottom anchor Note 2, 3
- 1 Weldable CS
- 2 Weldable SS 304
- 3 Weldable SS 316
- 4 Weighted CS Note 1
- 5 Weighted SS 304 Note 1
- 6 Weighted SS 316 Note 1
- 9 Others ( Please specify ).

### GUIDE WIRE TENSIONING ASSEMBLY

- 0 Not required Note 3
- 1 CS Cd plated ( spring ) + GI ( cover )
- 2 SS 302 ( spring ) + SS 304 ( cover )
- 3 SS 302 ( spring ) + SS 316 ( cover )

### GUIDE ROD AND COVER ASSEMBLY Note 1, 2, 4

( GUIDE RODS IN SS304 ARE INCLUDED IN THIS ASSEMBLY )

- 0 Not required Note 3
- 6 SS 304 ANCHOR AND COVER
- 7 SS 316 ANCHOR AND COVER
- 8 CS ANCHOR AND GI COVER

### FLOAT DIAMETER AND MATERIAL

- 0 Not required Note 4
- 1  $\phi$  400 mm, SS 304
- 2  $\phi$  400 mm, SS 316
- 3  $\phi$  300 mm, SS 304 Note 6
- 4  $\phi$  300 mm, SS 316 Note 6
- 6 Interface float,  $\phi$  400 mm, SS 316 Note 5
- 7  $\phi$ 100mm, SS 304 Note 6
- 8  $\phi$ 100mm, SS316 Note 6
- 9 Others ( consult factory )

### NOTES :

1. For retrofitting on existing tanks, guide rod assembly ( up to 3 M ) or weighted bottom anchor ( above 3 M ) are recommended. This installation must be done on manhole cover.
2. In case guide rod option is chosen, no bottom anchor option is to be selected.
3. Guide wire tensioning assembly, guide rods and bottom anchor are not required when guide pipe for float is provided.
4. In case of floating roof tanks, length of guide rods is 50 mm less than depth of floatwell. If floatwell dimensions are not known, adjustable (weldable) guide rods are supplied at an extra cost. For floating roof tank without floatwell, the cable is attached to the roof itself, no float is required.
5. Interface float is applicable only for liquids with difference in densities  $\geq 0.2$  gm/cc.
6. Accuracy for the ATLG with  $\phi$  300 mm diameter float is  $\pm 3$  mm and with  $\phi$ 100mm diameter float is  $\pm 20$ mm.
7. For floating roof tank installation, pulley inside the 90° elbow assembly is of Aluminium.

\*\*\* Continuous developments may necessitate changes without notice.

LF-133-0801 R09 (W) 08/2000

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