



Level Measurement & Control

Automatic Tank Level Gauge 133 ATLG

The Automatic tank level gauge (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. These perforations engage in to a sprocket which drives a counter mechanism, displaying the level in millimeters. The sprocket via main shaft further drives optional accessories like Two Wire Transmitter (TWT) &/or Limit Switch Assembly (LA) or Smart Tank Data Transmitter (STDT). Materials of construction are chosen for their resistance to corrosion and wear. ATLG is available for tank heights up to 22000 mm. Optional crank-up mechanism is provided to hoist the float, when it is used for high viscosity liquids or for 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 the standard accessories supplied as per requirement. In case of blanketed tanks or where escape of product vapours is to be prevented, liquid seal assemblies for pressure up to 600 mmWC are provided. It also prevents ingress of product vapours in to the gauge head.

MATERIAL OF CONSTRUCTION

Body	: Cast Aluminium polyurethane painted
Shafts	: SS304
Bearings	: PTFE/ Carbon filled PTFE
Counter	: Thermoplastic
Components	
Float	: SS304/SS316
Tape	: SS316
Float Cable	: SS316 Multi-strand
Guide wires	: SS316 Single Strand
Guide wire	: CS Cd. plated spring with GI Cover
Tensioning	(Standard)
Assembly	SS302 spring with SS3 0 4 / S S 3 1 6 Cover (Optional)
Bottom Anchor	: CS (Standard) SS304/SS316 (Optional)
90° Elbow	: Housings - Cast Aluminium
Assembly	Pulley - SS316/Aluminium, Shaft - SS, Pulley bushing - PTFE



FEATURES

- High accuracy float operated gauge
- Variety of applications in Petroleum, Refineries, Chemicals, Petrochemicals
- Scope of supply includes all accessories for mounting
- Accessories for remote control / indication
- Forms the basis of level measurement in the float gauge based Tank Inventory Management System

SPECIFICATIONS

Ranges	: 0-8M, 0-12M, 0-16M, 0-22M (For higher range consult factory)
Indication	: In millimeters (5-digit mechanical counter)
Temperature	: 0°C to 120°C
Resolution	: 1 mm
Accuracy	: ±2mm with 400 mm diameter float for liquid of specific gravity = 1

** High Temperature Version, 0°C to 250°C available on request.

OPTIONAL ACCESSORIES

These can be retrofitted on gauge in-service.

❑ Two Wire Transmitter &/or Limit Switch Assembly (133TS)

The 4-20 mA DC output of two wire transmitter can be used to provide remote indication of level. The limit switch contacts are used for alarm annunciation or remote control applications.

For details refer LF-133-0802.

❑ Smart Tank Data Transmitter (133-35)

It is a microprocessor based transmitter for accurate digital conversion and transmission of product level and temperature data of tanks on a multidrop RS 485 bus.

For details, refer LF-133-0806.

❑ Limit Switch Assembly (133-LA)

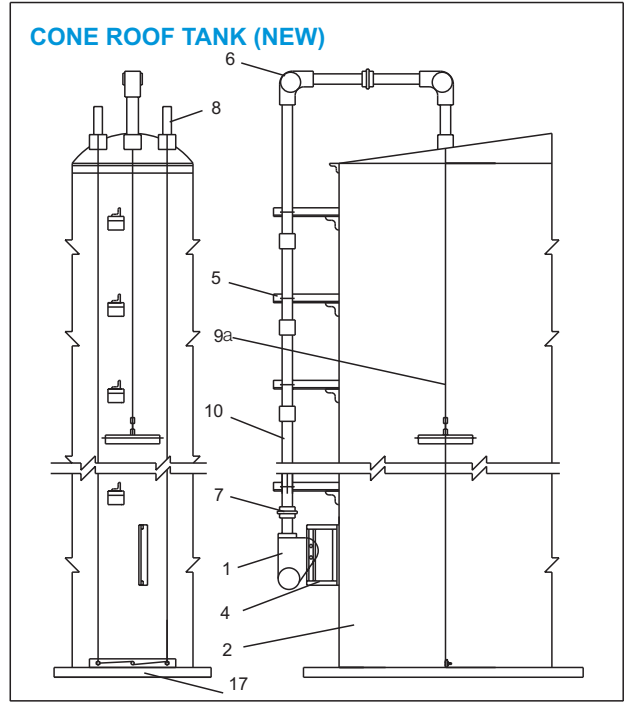
In this case a separate limit switch assembly is mounted on the top of the counter housing, either for ATLG or ATLG with STDT.

For details, refer LF-133-0811.

❑ Liquid Seal Assembly (133 LS)

Liquid Seal Assembly with Sight Glass (133 SG)

It prevents product vapours from entering the gauge or leaking to atmosphere, thus minimising maintenance and vapour loss. For details refer LF-133-0805 / LF-133-0812.



TYPICAL INSTALLATIONS

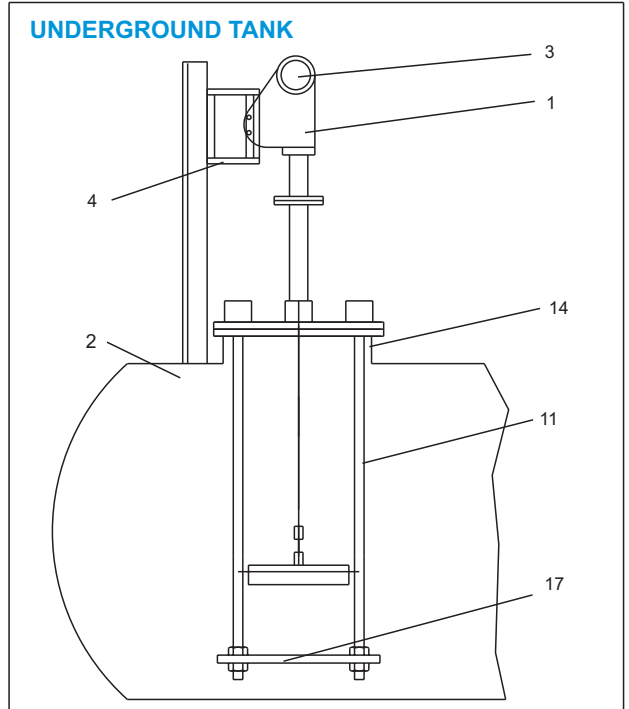
ITEM DESCRIPTION

- 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"
- 8) GUIDE WIRE TENSIONING ASSEMBLY
- 9a) TAPE
- 9b) FLOAT CABLE
- 10) PIPING
- 11) GUIDE RODS
- * 12) FLOAT WELL COVER
- 13) WEIGHTED BOTTOM ANCHOR
- * 14) MANHOLE
- 15) GAUGE HEAD MOUNTING ANGLE
- * 16) FLOAT WELL
- 17) BOTTOM ANCHOR

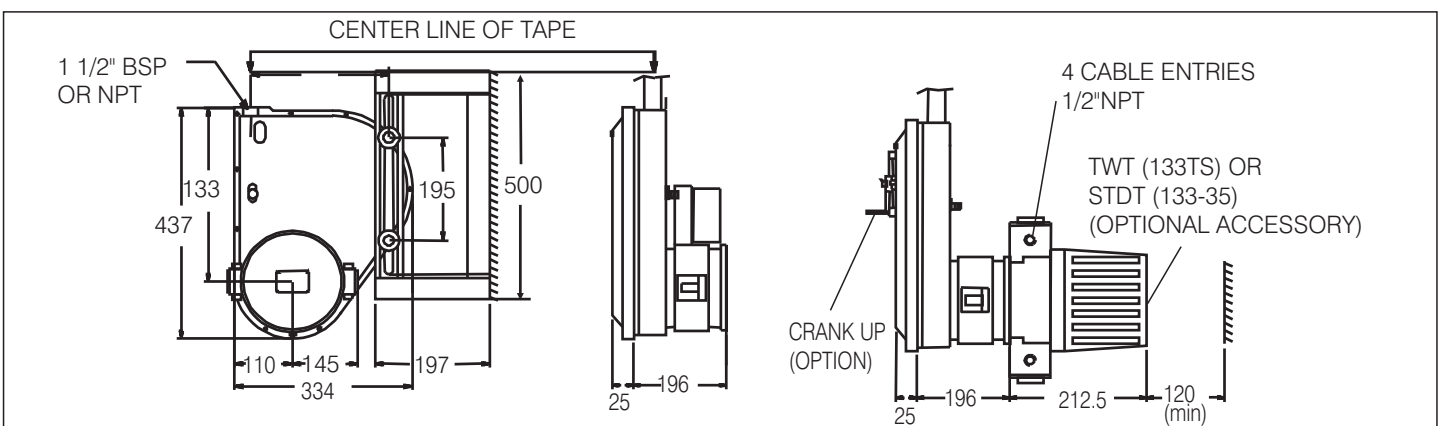
* Purchaser's scope of supply.

** In case of floating roof tank, without float well, the cable can be attached to the pontoon. However the accuracy depends on the pontoon movement.

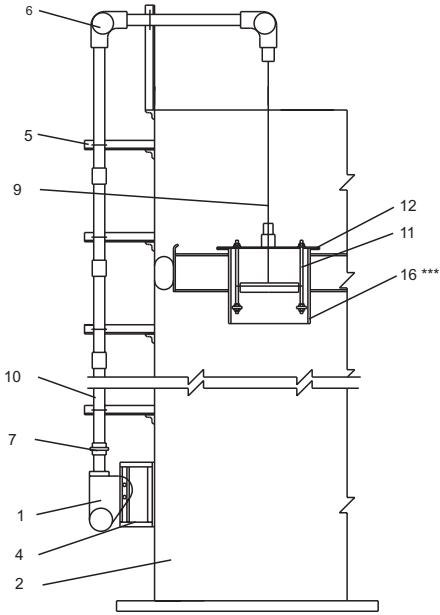
*** Depth of floatwell to be greater than 1050mm but adjusted so that when floating roof is on low legs, the float well bottom is clear of tank bottom by @ 100mm.



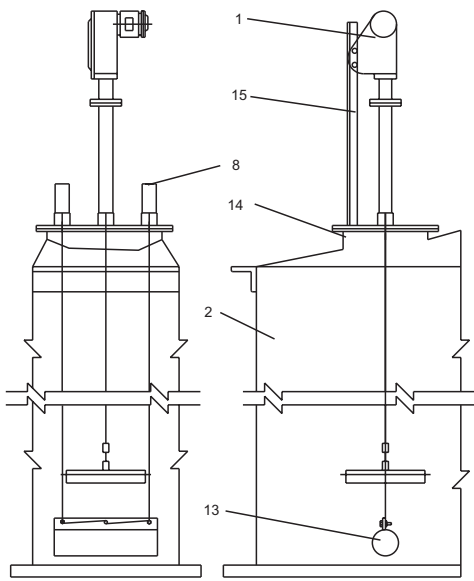
DIMENSIONS



FLOATING ROOF TANK (NEW) **

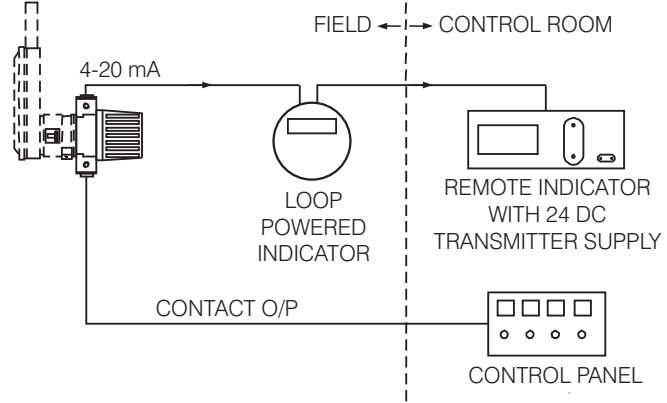


CONE ROOF TANK (IN SERVICE)

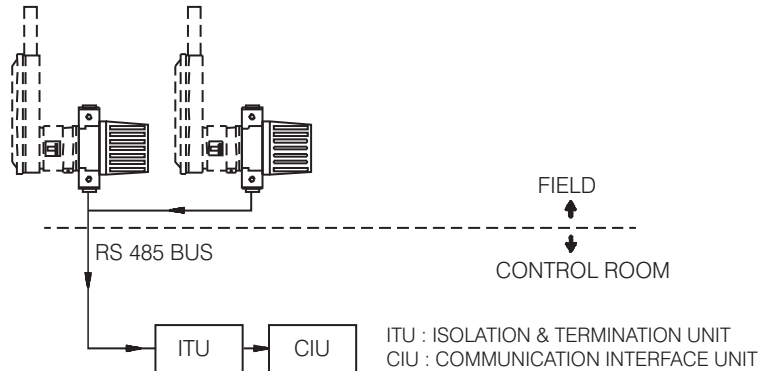


APPLICATIONS

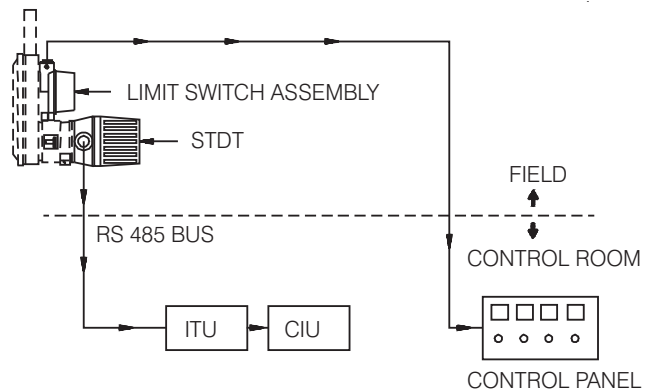
ATLG WITH TWO WIRE TRANSMITTER AND LIMIT SWITCH ASSEMBLY (133TS)



ATLG WITH STDT (133-35) FOR TANK INVENTORY MANAGEMENT SYSTEM

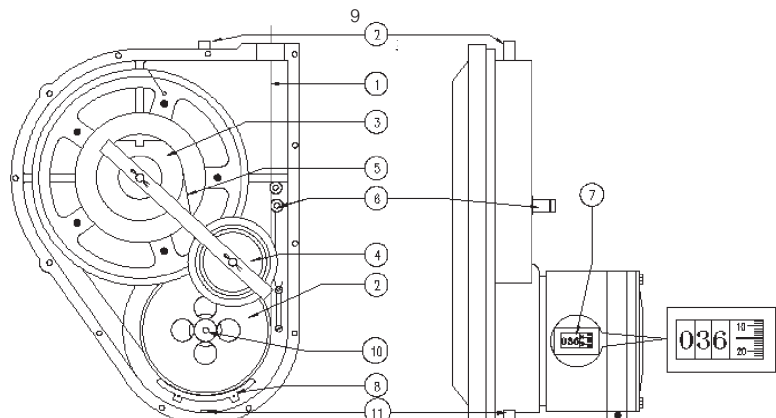


ATLG WITH STDT (133-35) AND LIMIT SWITCH ASSEMBLY (133-LA)



INTERNALS

1. TAPE
2. SPROCKET
3. OUTPUT DRUM
4. STORAGE DRUM
5. CONSTANT FORCE SPRING
6. OPERATION CHECKER / STRIKER
7. LEVEL COUNTER (5DIGIT)
8. TAPE CIRCULAR GUIDE
9. DRAIN PLUG FOR TOP MOUNTING 1/4" BSP
10. MAIN SHAFT
11. DRAIN PLUG FOR SIDE MOUNTING 1/4" BSP



ORDERING CODE

1	3	3
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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 - 8M
- 2 0 - 12M
- 3 0 - 16M
- 4 0 - 22M
- 5 >22M (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.)

Tank Height in mm

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 SS302 (spring) + SS316 (cover)

GUIDE ROD AND COVER ASSEMBLY (Note 1,2,4)

(GUIDE RODS IN SS304 / SS 316 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 ϕ 400 mm, SS304
- 2 ϕ 400 mm, SS316
- 3 ϕ 300 mm, SS304 (Note 6)
- 4 ϕ 300 mm, SS316 (Note 6)
- 6 Interface float, ϕ 400 mm, SS316 (Note 5)
- 7 ϕ 100mm,SS304(Note 6)
- 8 ϕ 100mm,SS316 (Note 6)
- 9 Others(consult Factory)

NOTES :

- 1 For retrofitting on existing tanks, guide rod assembly (up to 3M) 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 float is to be installed in Stilling Well / Guide Pipe.
- 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. For floating roof tank without floatwell, the cable is attached to the pontoon and no float is required.
- 5 Interface float is applicable only for liquids with difference in densities 0.2 gm/cc.
- 6 Accuracy of the ATLG with ϕ 300 mm float is \pm 3 mm and with ϕ 100mm diameter float is \pm 20mm.
- 7 For floating roof tank installation, pulley inside the 90° elbow assembly is of Aluminium.

*** Continuous development may necessitate changes without notice.

LF-133-0801 R13

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