



PP (polypropylene)



Stainless Steel SS304



Aluminium with display

Compact radar level transmitters for non-contact level measurement in a wide range of application for liquids and solids.

The principle of operation of this instrument is based on a high frequency band, enabling a very accurate detection of the level of media with a small emitting angle.

Applications

- Water/wastewater field
- Hydraulics
- Chemical
- Food and beverage
- Vast range of liquids
- Vast range of solids

Features

- Accurate reading measurement.
- Small emitting angle.
- High frequency band technology.
- "Medium window" function (the sensor is sensitive only to the set medium and does not react to substances with lower and higher permittivity)
- Easy to mount with direct or remote installation.
- Bluetooth programming and settings using a dedicated App.

| Standard specifications | |
|-------------------------|--|
| Power supply | Two-wire DC (22V~30V) |
| Output type | 4...20 mA, Modbus RS485, Hart protocol, Bluetooth |
| Technology | 77...81 GHz |
| Protection class | IP 67 |
| Accuracy | ±2mm |
| Beam Angle | ±3°(Aluminum model with display) ±3.5°(PP and SS model) |
| Process temperature | -20°C ... +60°C (PP model) -20°C ... +60°C (SS model) -20°C ... +70°C (Aluminum model with display) |
| Process connection | Thread G 1 1/2" (PP model), thread G 1 1/2" / 2" (SS model), thread G 2" (Aluminum model with display) and customized flanges for all models |
| Measuring range | Up to 30m (Aluminum model with display), up to 50m (PP and SS model) |

XX/2025

Data sheet XXXXX

Ordering code

| | | TLR | X | - | X | - | XX | - | XXXX | - | X | - | XX | - | XXX |
|------------------------------|---|-----|-------------|---|---|---|----|---|------|---|---|---|----|----|-----|
| Version ¹ | PP (polypropylene) Stainless Steel SS304 Aluminium with display | | P S D | | | | | | | | | | | | |
| Media | Liquids | | | | | | L | | | | | | | | |
| | Solids | | | | | | S | | | | | | | | |
| Range | 10 m | | | | | | | | 01 | | | | | | |
| | 20 m | | | | | | | | 02 | | | | | | |
| | 30 m | | | | | | | | 03 | | | | | | |
| | 50 m | | | | | | | | 05 | | | | | | |
| Process Connections | Thread G 1 1/2" | | | | | | | | G1.5 | | | | | | |
| | Thread G 2 " | | | | | | | | G2.0 | | | | | | |
| | Customised Flange | | | | | | | | FX.X | | | | | | |
| Output | 4...20mA, Modbus, Bluetooth | | | | | | | | | | | | B | | |
| | 4...20mA, Modbus, Hart protocol | | | | | | | | | | | | H | | |
| Protection class | IP 67 | | | | | | | | | | | | | 67 | |
| Electrical connection | M20x1.5(F) | | | | | | | | | | | | | | E01 |
| | 1/2" NPT | | | | | | | | | | | | | | E02 |
| | Cable 1m | | | | | | | | | | | | | | C01 |
| | Cable 2m | | | | | | | | | | | | | | C02 |
| | Cable 5m | | | | | | | | | | | | | | C05 |
| | Cable 10m | | | | | | | | | | | | | | C10 |
| | Cable 30m | | | | | | | | | | | | | | C30 |
| | Cable 50m | | | | | | | | | | | | | | C50 |

¹ See table "Variants"

Order example

Ex: TLR-P-L-01-G1.5-B-67-C01

- PP (polypropylene)
- Liquids
- 10m
- Thread BSP 1.5"
- 4...20mA, Modbus, Bluetooth
- IP67
- Cable 1m

Variants

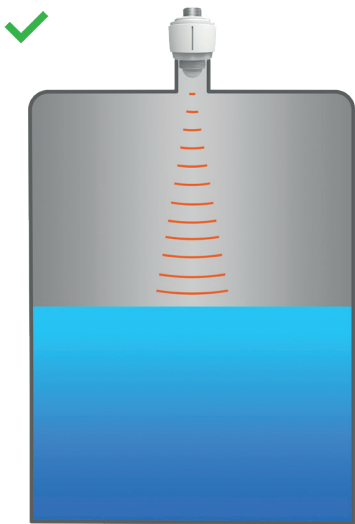
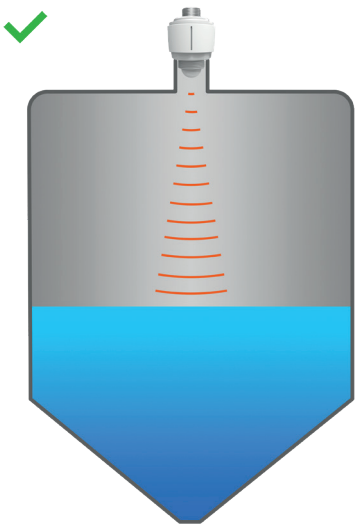
Tab.1

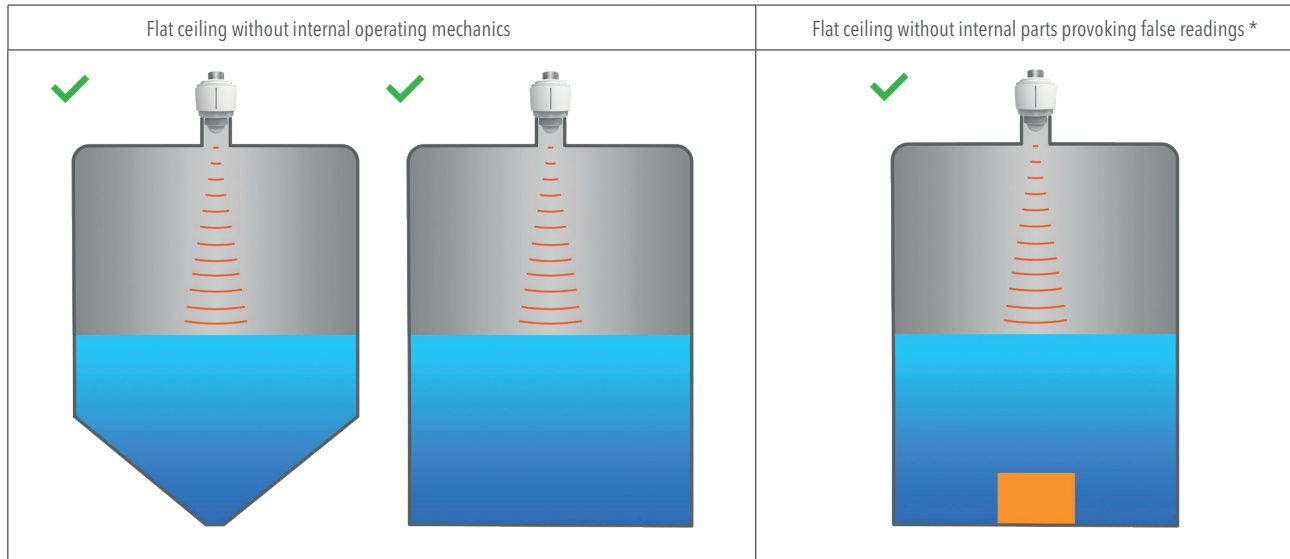
| Version | Picture | Media | Process connections | Range (m) | Output | Electrical connections |
|---------|--|-----------------|---------------------|-------------|--------|---------------------------------|
| P |  | Liquid | G1 1/2", FX.X | 10,20,30,50 | B | Cable (C01, C02, C05, C10, C50) |
| S |  | Liquid | G1 1/2", G2", FX.X | 10,20,30,50 | B | Cable (C01, C02, C05, C10, C50) |
| D |  | Liquid Solid | G2", FX.X | 10,20,30 | H | E01, E02 |

Installation instructions

TLR can be mounted in the centre or close to the edge (side) of the tank, but some guidelines must be considered to avoid the happening of wrong readings, false echoes and reflections:

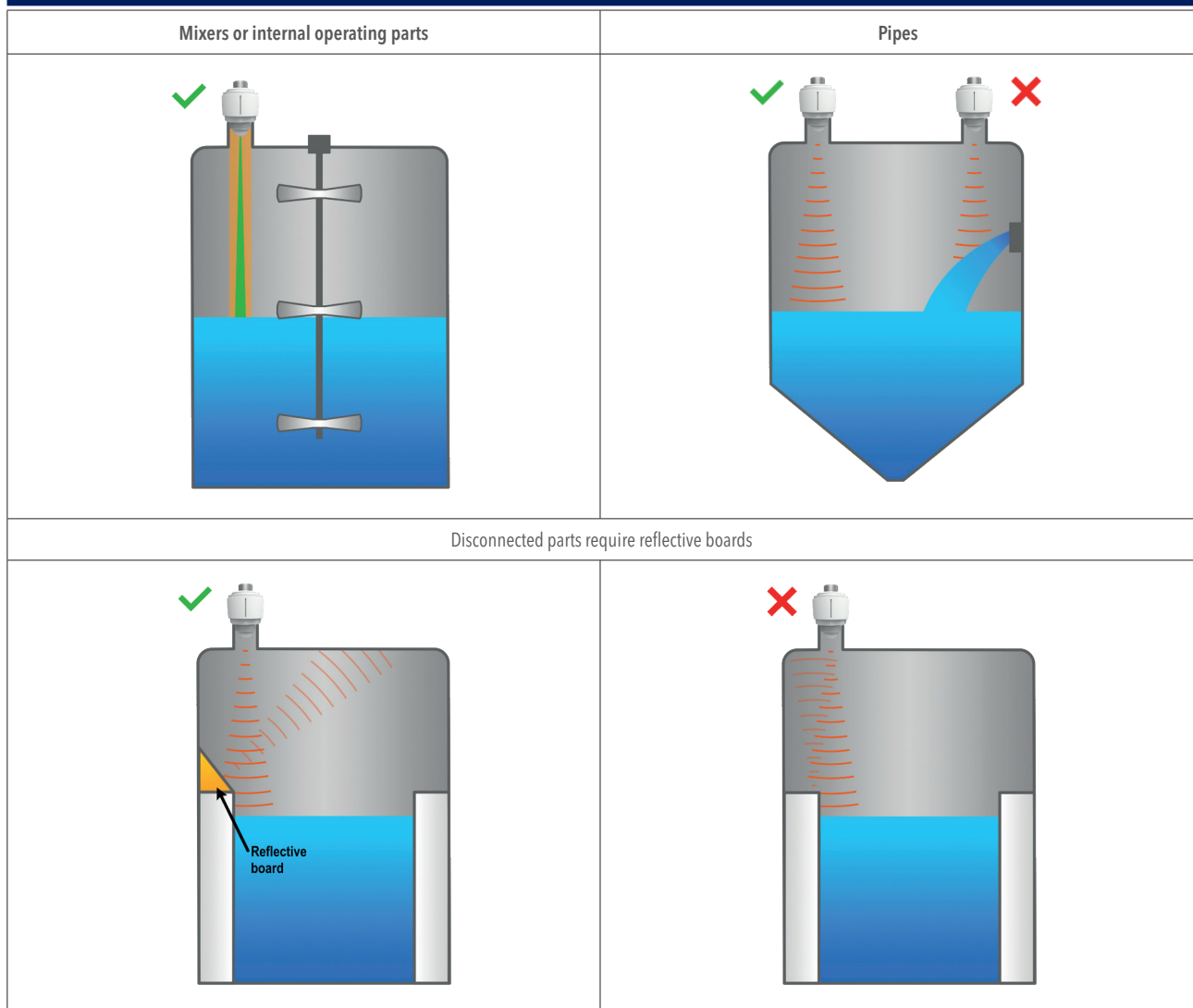
CENTER MOUNTING

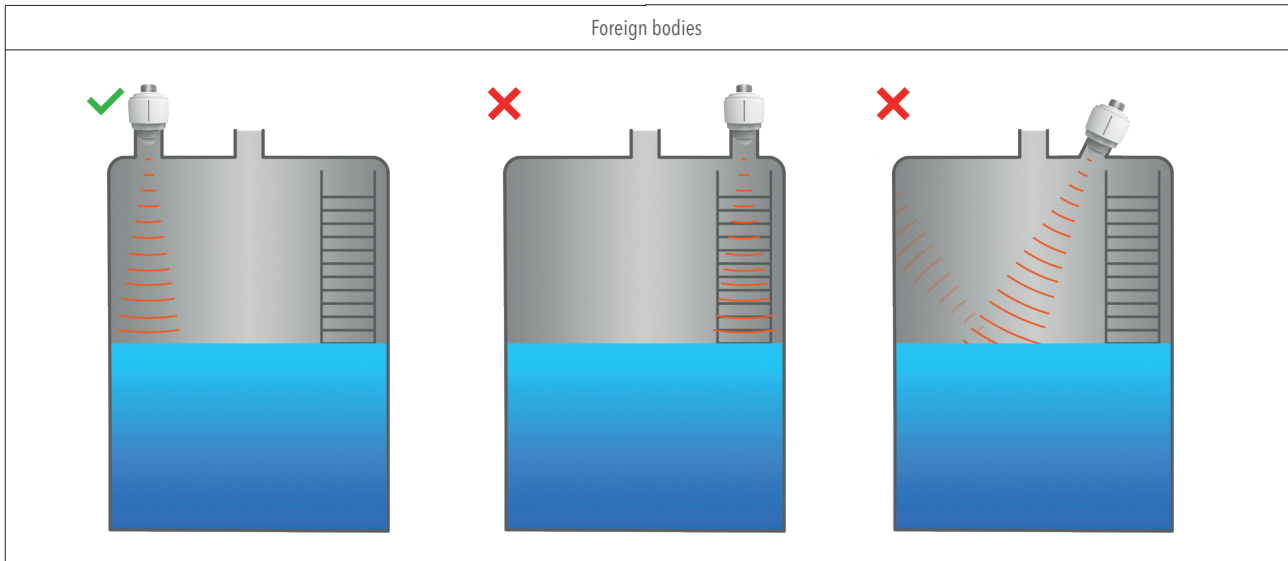
| Flat ceiling | Flat ceiling with conical tank bottom |
|---|--|
|  |  |



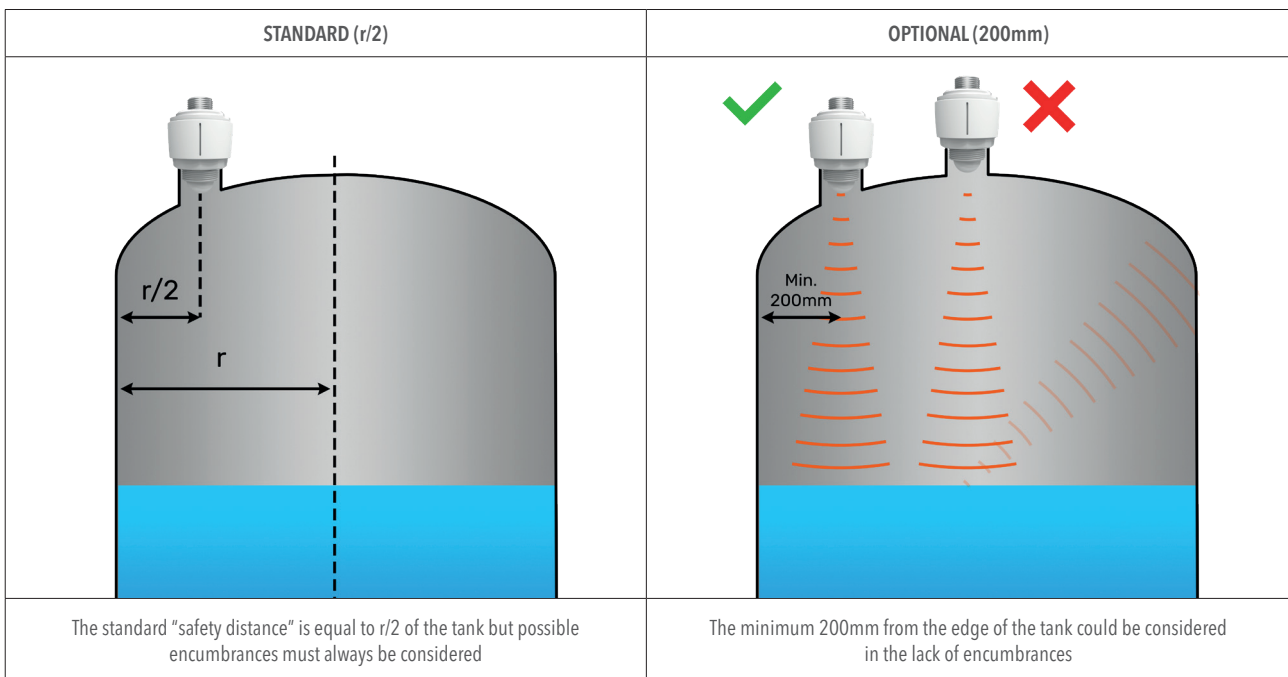
* There're structural or mechanic parts of any kind not provoking false reading signals:

SIDE MOUNTING (close to the edge) - Flat, cylindrical, conical tank ceiling, bottoms or others



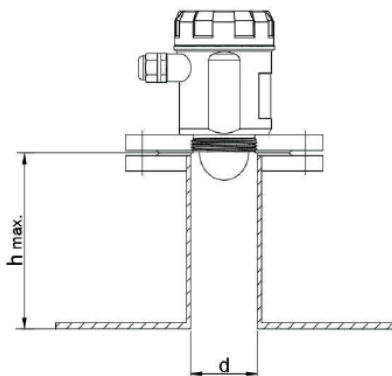


To calculate the minimum distance to the edge of the tank:



STUB MOUNTING

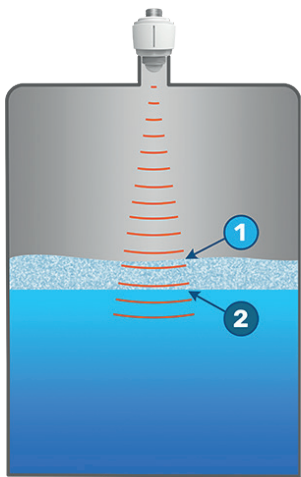
In the case of stub mounting, the stub should be as short as possible and the end should be rounded to minimize disturbing reflections but there're some guidelines to be considered:

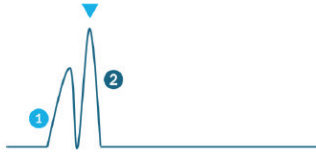
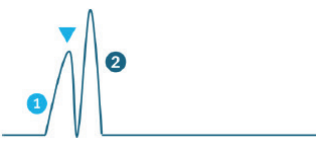


| d | h MAX |
|--------|--------|
| 40 mm | 60 mm |
| 50 mm | 80 mm |
| 80 mm | 130 mm |
| 100 mm | 230 mm |
| 150 mm | 380 mm |

Operating principles

When reading, TLR radar transmitters, in its basic configuration, tends to use the second echo (2) as the reference measurement since usually the first echo (1) is a false echo. Sometimes, however, the need is the first echo (1), so to make the sensor use the correct echo we must set the "Power One" parameter to the value 0.

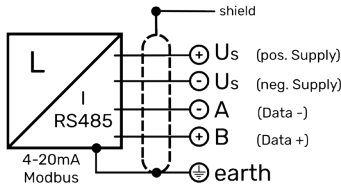
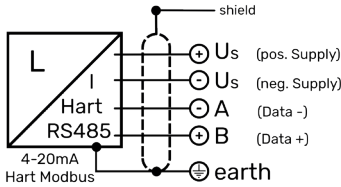


| | |
|--------------------------|--|
| 2nd Echo - Standard |  |
| 1st Echo - Power One (0) |  |

To have the correct measurement, there're two dead reading zones to be considered according to the measuring range:

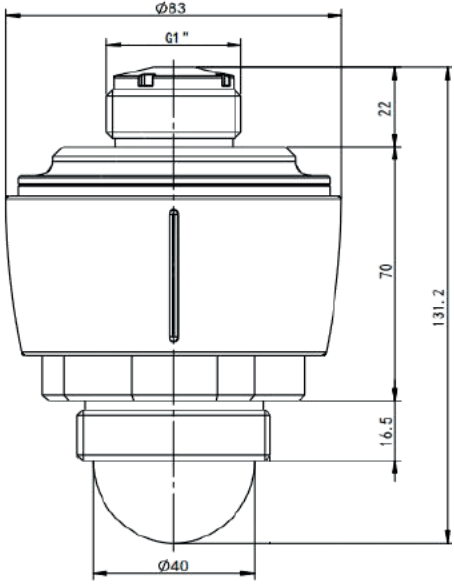
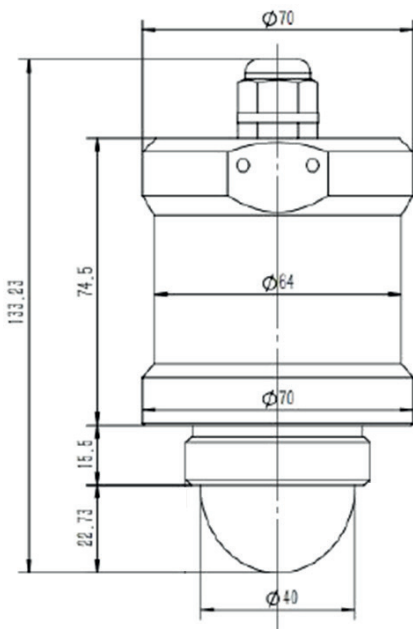
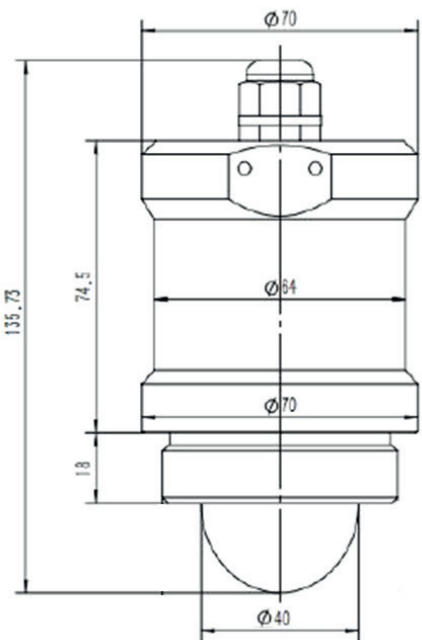
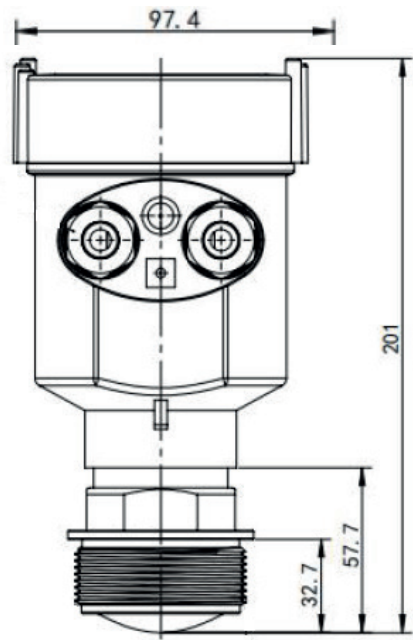
| | | |
|------------|----------------------------|--------------|
| Range | Standard dead reading zone | Configurable |
| 10 m | 200 mm | 100 mm |
| 20,30,50 m | 200 mm | |

Output

| Tab.2 - Electrical connection schema | | |
|---|---|----------|
| Schema | Wires | Variants |
|  | Red (+) / Positive power supply Blue (-) / Negative power supply, OUTPUT 4...20 mA Green(-) / RS-485 communication negative Yellow (+) / RS-485 communication positive | P,S |
|  | (+) / Positive power supply (-) / Negative power supply, OUTPUT 4...20 mA / HART (-) / RS-485 communication negative (+) / RS-485 communication positive | D |

Dimensions - All dimensions are in mm

Tab.3 - Dimensions

| TLR-P(...)-G1.5 | TLR-S(...)-G1.5 |
|---|--|
|  |  |
| TLR-S(...)-G2.0 | TLR-D(...)-G2.0 |
|  |  |