



Technology Solutions

TEK-WAVE 4300B

FMCW Bluetooth Radar Level Transmitter



LEVEL



Introduction

Tek-Wave 4300B FMCW Bluetooth Radar Level Transmitter continuously measures various types of liquid and solid levels in simple applications that demand lower pressure and temperature ranges. It also offers continuous non-contact level measurement and is a perfect application fit for water treatment, storage tanks, open basins, pump / lift stations or sewer management, rain over flow basins, and level monitoring. In bulk solids applications, the sensors are used in small bulk solids silos or open containers. This non-contact 80GHz radar transmitter includes Bluetooth technology for commissioning, operation and maintenance, which helps you to get data on your fingertips and it also helps in terms of saving money and time.

Every Bluetooth®-enabled smartphone or tablet can display output signal through an app (Android). Bluetooth Radar Level Transmitter is simple, safe, secure and can be accessed remotely via Bluetooth Its unique radar chip design makes it the most compact radar that perfectly fits in space-limited applications. Full PVDF body can withstand outdoor conditions, sealed wiring and fully encapsulated electronics can prevent water from entering and allows operation in harsh environmental conditions. Perfect application fit for water & wastewater and utilities in all industries.



Fig 1: Tek-Wave 4300B
FMCW Bluetooth Radar
Level Transmitter

Measuring Principle

The Tek-Wave 4300B FMCW Bluetooth Radar Level Transmitter uses 80GHz Frequency Modulated Continuous Wave. The FMCW radar emits a high-frequency signal that increases linearly during the measurement phase (called the frequency sweep). The signal is emitted, reflected from the measuring surface and received with a time delay (t).

$$\text{Delay Time (t)} = 2D/C$$

Where,

1. D is the distance to the product surface.
2. C is the speed of light in the gas above the product.
3. The difference if is calculated from the actual transmit frequency and the receive frequency for further signal processing. This difference is directly proportional to the distance.

Benefits

- Bluetooth® commissioning.
- Maintenance-free.
- Isolated emitting and receiving signals enable full range measurement without dead zone.
- Unaffected by the build-up of condensation near the sensor.
- Real-time self-monitoring
- Alert when an abnormality is present.
- Stores echo automatically.
- Easy to install and operate.
- Resist outdoor conditions.
- Eliminates water ingress.
- Suitable for harsh environments.

Applications

- Water treatment.
- Pumping stations.
- Rain overflow basins.
- Storage tanks.
- Wastewater treatment.
- Utility networks.

Specifications

Accuracy	±2mm
Measuring Range	45ft
Repeatability	±1mm
Frequency	76 to 81GHz
Resolution	1mm
Response Time	<2S
Process Temperature	-40°F to 176°F (-40°C to 80°C)
Process Pressure	-14.5 to 40psi (-1 to 3bar)
Beam Angle	8°
Process Connection	1-1/2" Male NPT
Electrical Connection	1" Male NPT with 15' lead wire
Digital Output	Bluetooth, HART, Modbus RS-485
Power	<0.5W (Power supply required 24VDC with minimum 25mA)
Analog Output	4-20mA (2- wire)
Enclosure & Ratings	IP68
Approvals	CE

Dimensional Drawings

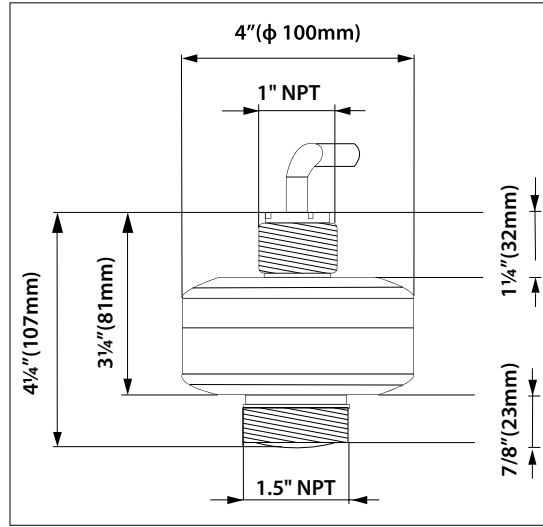


Fig 1: Dimensional Drawing

- **Mounting Brackets**

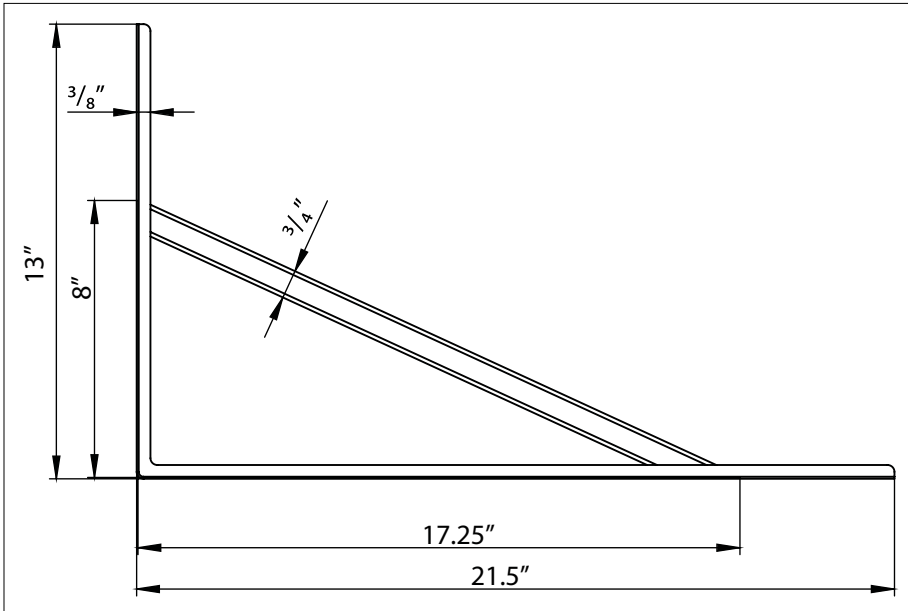


Fig 2: Mounting Bracket Side Angle

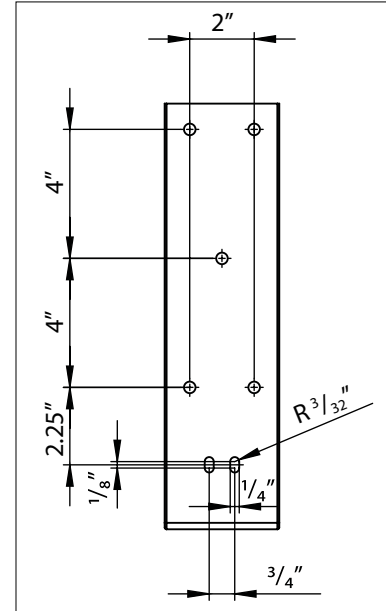


Fig 3: Mounting Bracket Back Angle

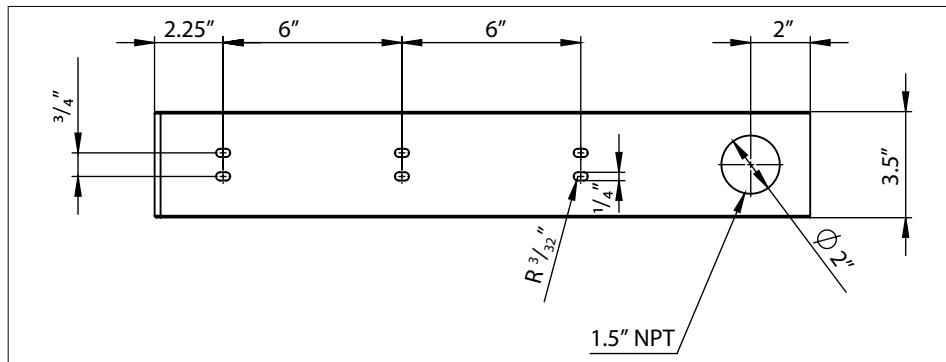


Fig 4: Mounting Bracket Top Angle

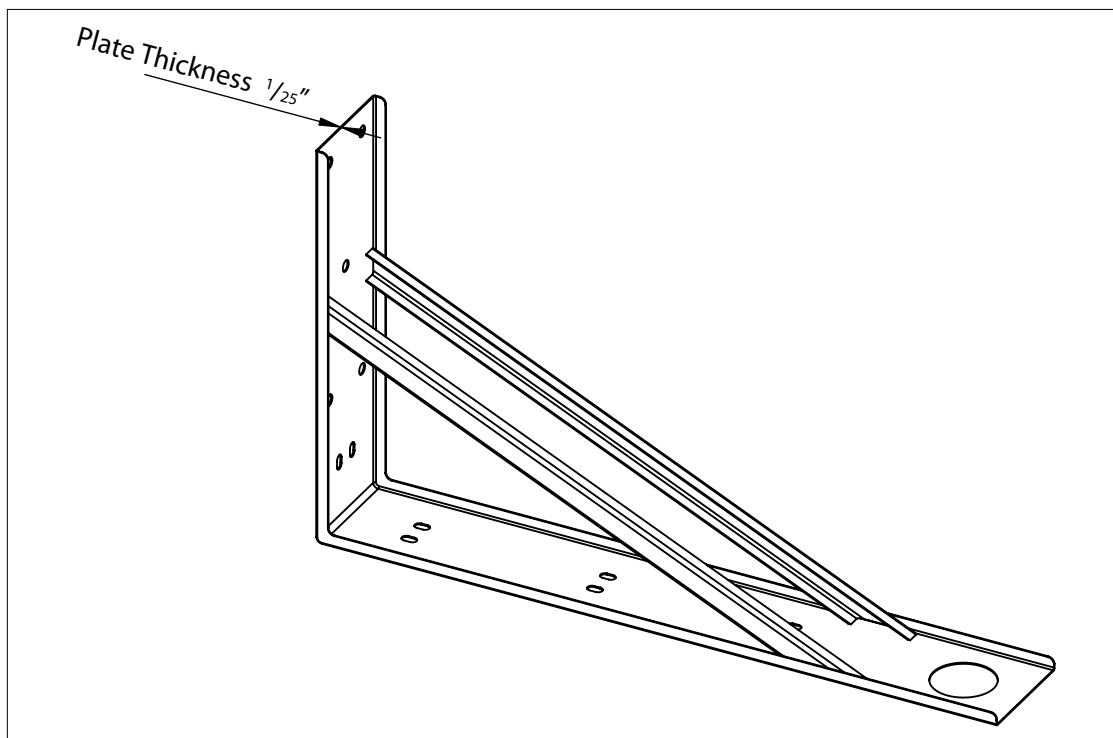


Fig 5: Mounting Bracket

Installations

- *Mounting Position*

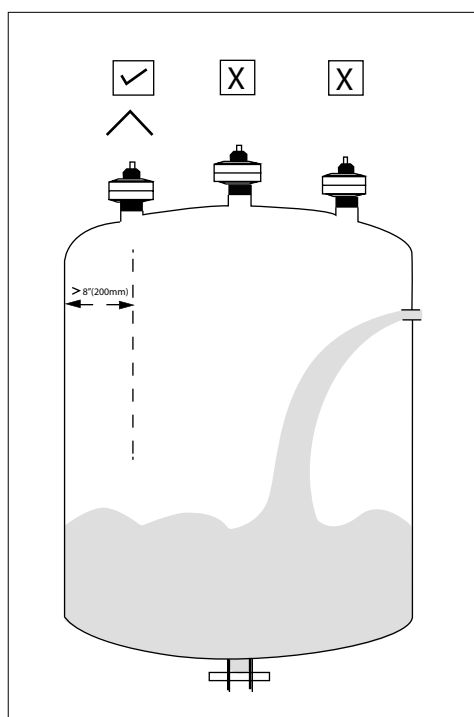


Fig 6: Mounting Position

- *Stirring Fan in Vessel*

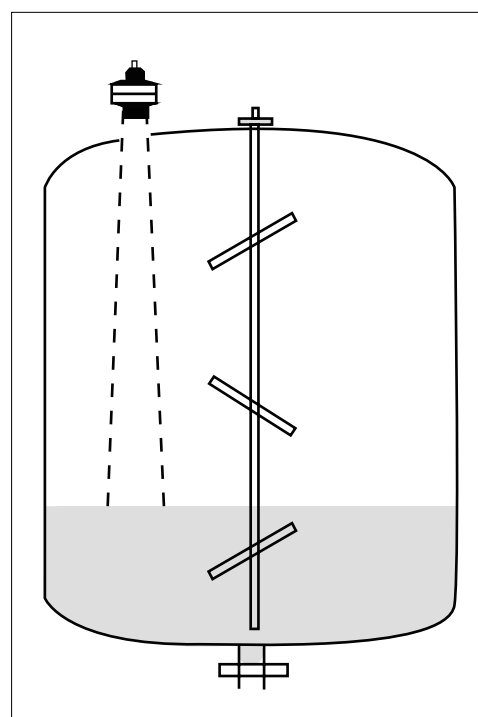


Fig 7: Stirring Fan in Vessel

- Reduction of Interference Echoes

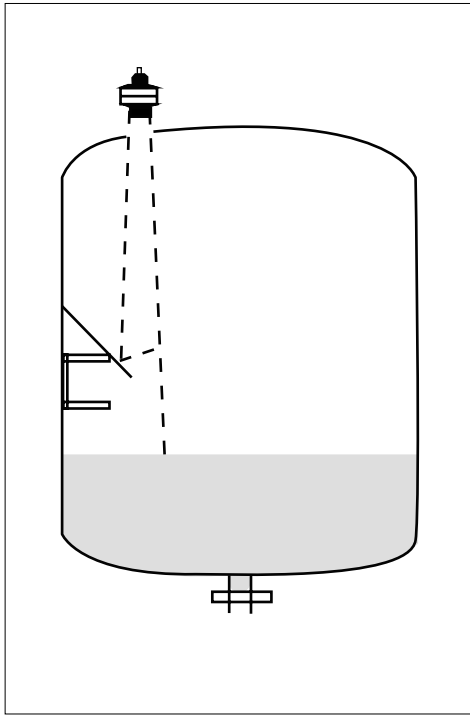


Fig 8: Reduction of Interference Echoes

- Mounting With Bracket

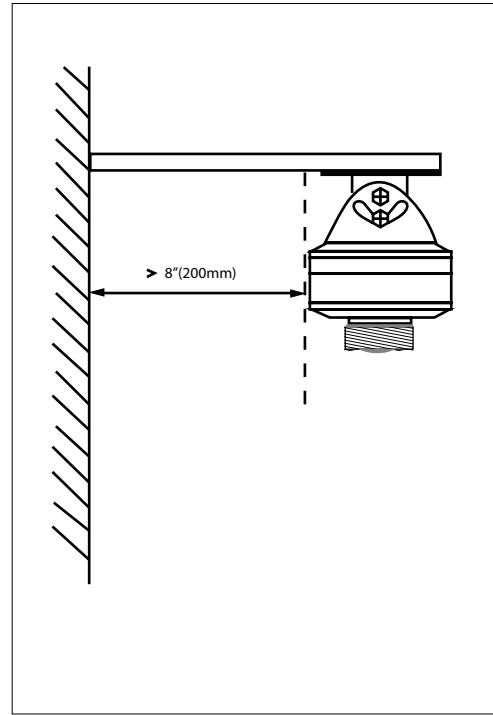


Fig 9: Mounting With Bracket

Model Chart

Example	Tek-Wave 4300B	01	A	01	B	015	A	01	A	#	Tek-Wave 4300B-01-A-01-B-015-A-01-A
Series	Tek-Wave 4300B										FMCW Bluetooth Radar Level Transmitter
Power Supply		01									18 to 36 VDC
Process Connection			A X								1-1/2" Male NPT Special
Electrical Connection				01							1" Male NPT
Range					B						45 Feet
Cable Length						015					15' Cable
Analog Output							A				4 to 20mA
Digital Output								01			Bluetooth, HART, Modbus RS-485
Enclosure & Ratings									A		IP68
Options										TAG	Tag
										FC	Factory Configuration
										BKT	Mounting Bracket

Popular Models

Model Number	Description
4300B-01-A-01-B-015-A-01-A	0.5 to 45 Feet FMCW Radar Level Transmitter with Bluetooth

Customer Service & Support




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