

EchoPulse™ Radar Transmitter



Where is Radar used?

Flowline's next generation non-contact level measurement, EchoPulse™, focuses on microwave RF 26 GHz & 6.3 GHz pulse radar sensors. The technology enables highly accurate & repeatable level measurement in challenging, corrosive liquid-media environments. EchoPulse™ is ideal for inventory management and control targeting bulk and day tank storage, waste-water lift-station and process manufacturing vessel and reaction chamber applications.

How does Radar work?

The microwave RF pulse, transmitted by EchoPulse™, travels at the speed of light towards the liquid media surface and a portion of its energy is reflected back to the sensor's horn. The time gap from the transmission and the signal return is labeled as "time of flight". It is proportional to the distance between the liquid media surface and the "zero point", normally located along the bottom of the horn. Due to the fact that the electromagnetic wave is transmitted at the speed of light, EchoPulse™ utilizes demodulation technology that enables the sensor to detect the time lapse between the pulsed signal transmission and its signal return to the horn. The resultant performance ensures accurate and very repeatable level measurement.

Why is Radar used?

Challenging liquid media environments are apparent in all water, wastewater or chemical applications. Since the accuracy of radar is not affected by changes in temperature, pressure, vapor, vacuum, foam or agitation, the level measurement technology incorporates the following features:

- Continuous, non-contact level measurement for liquids, pulps and slurries
- Process temperature range: -40°F (-40°C) to 302°F (150°C)
- Process pressure range: -14.5 psi (-1bar) to 580 psi (40bar)
- 'Plug & play' configuration via dot-matrix LCD display
- Detection, storage and deletion for false-echo returns
- Reduced dead-band (blanking distance) enabling liquid media detection within 12 inches (30.4mm) of sensor's antenna
- Modular design for distribution field service support

Corrosive Chemical



LR10



LR20



LR25

Application:	Day tank for moderately corrosive chemicals	Bulk tank for highly concentrated or vaporous corrosive chemicals	Process vessel for highly corrosive chemicals RE: increased temp, pressure, condensation or foam
Range:	32.8 feet (10m)	65.61 feet (20m)	114.83 feet (35m)
Frequency:	26 GHz K-band	26 GHz K-band	6.3 GHz C-band
Accuracy:	± 0.1968 inches (5mm)	± 0.1181 inches (3mm)	± 0.3937 inches (10mm)
Temperature:	-40°F to 266° F	-40°F to 302° F	-40°F to 266° F
Pressure:	-14.5 to 43.5 psi	-14.5 to 72.5 psi	-14.5 to 580 psi
Signal Output:	2-wire, 4-20mA	2-wire, 4-20mA	2-wire, 4-20mA
Supply Voltage:	24 VDC (16 to 26 VDC)	24 VDC (16 to 26 VDC)	24 VDC (16 to 26 VDC)
Horn Material:	PTFE Horn	PTFE Covered Horn	PTFE Covered Horn
Mount:	1 ½" NPT	3" or 4" ANSI Flange	4" or 6" ANSI Flange
Certifications:	cTUVus, CE, RoHS FCC part 15.209, CRN	cTUVus, CE, RoHS FCC part 15.256, CRN	cTUVus, CE, RoHS FCC part 15.209, CRN

Water and Wastewater



LR15



LR30

Applications:	Bulk storage and sumps for water or wastewater	Lift station & environmental (dams, rivers & retention ponds)
Range:	98.42 feet (30meters)	98.42 feet (30meters)
Frequency:	26 GHz K-band	26 GHz K-band
Accuracy:	± 0.1181 inches (3mm)	± 0.1968 inches (5mm)
Temperature:	-40°F to 302° F	-40°F to 158° F
Pressure:	-14.5 to 580 psi	Ambient
Signal Output:	2-wire, 4-20mA	2-wire, 4-20mA
Supply Voltage:	24 VDC (16 to 26 VDC)	24 VDC (16 to 26 VDC)
Horn Material:	316L Stainless Steel Horn	PA66 Covered Horn
Mount:	1 ½" NPT, 3" or 4" ANSI Flange	Bracket Mount
Certifications:	cTUVus, CE, RoHS FCC part 15.256, CRN	cTUVus, CE, RoHS FCC part 15.256, CRN

EchoPulse™ 26 GHz & 6.3 GHz radar transmitters deliver high-value (i.e., strong performance & market competitiveness) as a complimentary level brand choice transitioning from non-contact Ultrasonic transmitters like the EchoSonic, EchoSpan, EchoTouch, EchoSafe, EchoPod or EchoSwitch. While Ultrasonic sensors are ideal for ambient temperature and pressure application within small to medium sized tanks; radar sensors extend the temperature, pressure and range limitations expanding your level opportunities.



EchoPulse™ Radar



Technology

Ultrasonic

Radar

	Speed of Air	Speed of Light
Travel Speed of Pulses:		
Measurement range		
Less than 6 feet:	<input checked="" type="checkbox"/>	
Between 6 and 30 feet:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Greater than 30 feet:		<input checked="" type="checkbox"/>
Process temperature		
High temperatures (140°F to 300°F):		<input checked="" type="checkbox"/>
Medium temperatures (0°F to 140°F):	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Low temperatures (-40°F to 0°F):		<input checked="" type="checkbox"/>
Process pressure		
High pressure (150 to 580 psi):		<input checked="" type="checkbox"/>
Medium pressure (30 to 150 psi):		<input checked="" type="checkbox"/>
Low pressure (0 to 30 psi):	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Vacuum (-14.5 to 0 psi):		<input checked="" type="checkbox"/>
Environmental:		
Vapor-	Stand pipe only	<input checked="" type="checkbox"/>
Condensation-		<input checked="" type="checkbox"/>
Foam-	Stand pipe only	<input checked="" type="checkbox"/>
Agitation-	Stand pipe only	<input checked="" type="checkbox"/>



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