

LTR52

Self Adjusting "Smart"
Radar Level Sensors for Solids

Product Features

- *Self adjusting tracking radar for solid materials*
- *Programmable (recommended) and Simple push-button calibration*
- *Output 4-20 mA / 20-4 mA (Isolated on 4-wire model's only)*
- *Optional RS232 or RS485 for communications with calibration, diagnostics & data logging software*
- *Optional HART on 2-wire models*
- *PLC compatible (Modbus RTU)*
- *2-wire DC loop powered, 3-wire DC, or 4-wire isolated AC operation*

Description

The LTR52 Series radar level sensors are designed for applications requiring non-contact level measurement, in which ultrasonic level measurement is not acceptable.

The LTR52 Series radar technology can be adjusted for variables such as materials to be measured, vessel configuration, and system interface. These sensors are ideal when vapor or dust prevents ultrasonic-wave measurements.

The LTR52 Series radar sensors can detect the level under a layer of light dust, but if the dust particle size increases, or if the dust gets thick, they will no longer detect the solid level. Instead, the level of the dust will be measured. Internal piping, deposits on the antenna, multiple reflections, or reflections from the wall can interfere with the proper operation of the radar sensor. Other sources of interference are rat-holing and bridging of solids, as well as angled process material surfaces that can reflect the radar beam away from the receiver.

LTR52 radar sensors use improved microwave-pulse technology to track any target material from the tip of the antenna to the bottom of the tank. Their power, pulse widths, and sensitivity depend on the distance of the target from the antenna and the dielectric constant of the reflecting material.

LTR52 radar sensors feature "echo marker" signal processing, making them among the most technologically advanced pulse radar systems on the market.

Applications

- *Bulk solids*
- *Solids with dust*
- *Powders*



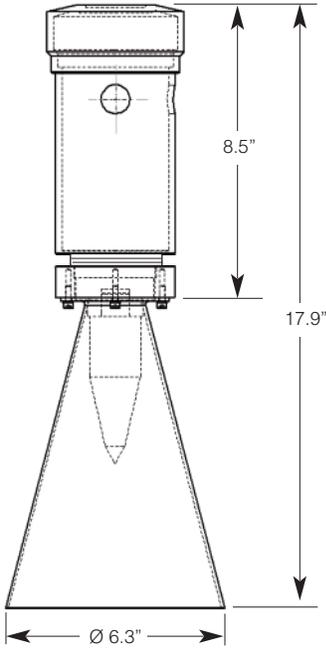
Range Code	Range in Solids	Resolution	Mounting
15	* - 50 ft. * - 15 m	0.22" 5.7 mm	2" NPT
30	* - 100 ft. * - 30 m	0.44" 11 mm	2" NPT
43	* - 140 ft. * - 43 m	0.64" 16 mm	2" NPT
73	* - 240 ft. * - 73 m	1.06" 26 mm	2" NPT

Note - *Minimum distance 36" from the bottom of the thread base.

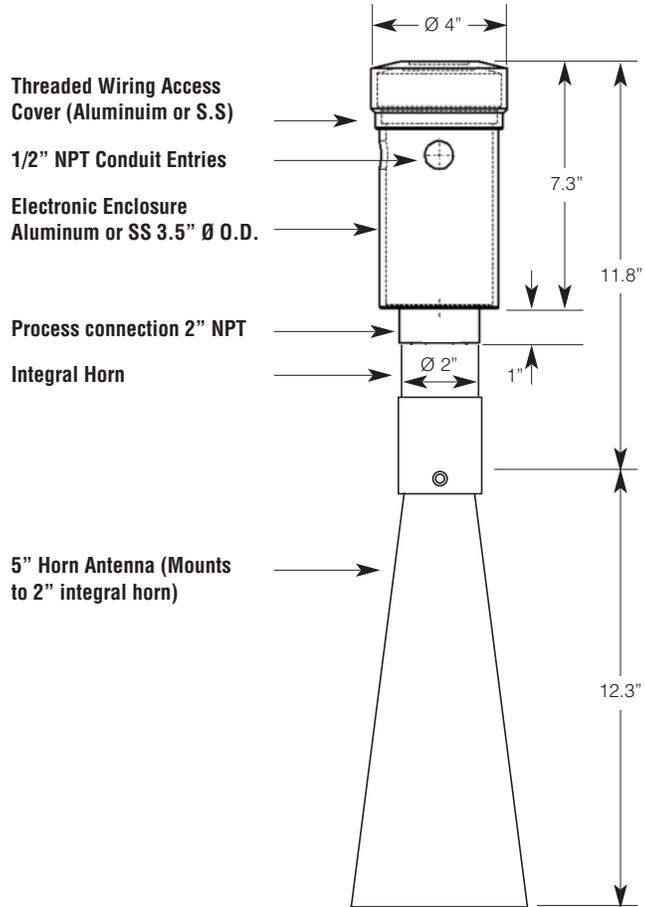
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Dimensions & Mounting Options



Std. 6" SS316L
horn Antenna



3 and 4 wire Radar Level Sensor

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Specifications

MECHANICAL

Conduit Entry :	1/2" NPT x 2
Enclosure :	Aluminum or S.S. - 94V0
Ingress Protection :	NEMA 6 (IP67)

ENVIRONMENTAL

Temperature :	-40 to 140 °F (- 40 to 60 °C)
Approvals :	FCC Part 15 - Low Power Communication Device
Installation Category :	Class II

PROCESS

Temperature std. :	-40 to 140 °F (-40 to 60 °C)
c/w Teflon De-coupler :	-40 to 350 °F (-40 to 177 °C)
Material Dielectric :	Er >2
Max. Pressure :	5 bar

For very dusty applications divide max. range by two.

OPERATIONAL

Operation :	Pulse Radar
Accuracy :	± 0.1% of max. range in lab using 4-20 mA current output ± 0.25% of max. range (typically in field)
Frequency :	26 GHz
Loss of Echo :	Hold 1 to 3 min., 22 mA or 2 mA. output
Transmit Power :	50 uW average
Calibration :	Manual or via communications port (optional)
Diagnostics :	(Echo Profile) via communications port

Antenna :

Point Antenna PTFE with horn for solid materials. A horn extension is required for very low dielectric and dusty powder materials.
-5" SS316L horn
- Std. 6" SS316L horn
- High Temp. Std. 6" SS316L horn

ELECTRICAL

Power Supply :

12 to 30 VDC , 0.07 A max @ 24 Vdc
R load = (Vs - 6)/24 mA
115 VAC or 230 VAC (± 20%), 1.7 VA
R load = 750 ohms max.

Output :

4-20 mA output 6.1 uA resolution,
2-wire with 16-30VDC loop powered
3-wire with 12-30VDC power
4-wire isolated with AC power
RS232, RS485, or HART

Communication port: Loop powered Display:

Display: -4 1/2 digit LCD 1/2" high
Temperature: -40 to 140 °F (- 40 to 60 °C)
Voltage Drop: 0.95V @ 20mA
Accuracy: Reading +/- 0.5%
Humidity: 0-95% Non-condensing
Range: 3.5 mA to 22mA

OPTIONS

Antenna Extension :

- 6" or 8" Lengths.
Use only with Teflon Rod Antenna.

Custom Builder

MODEL 1 2 3 4 5 6 7 8

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BOX1 CODE	Supply Voltage
A1	115 VAC (±20%), 1.7 VA
A2	230 VAC (±20%), 1.7 VA
D1	12 to 30 VDC 0.07 A max. @ 24VDC
D2	16 to 30 VDC (Loop powered) 0.07 A max. @ 24VDC

BOX2 CODE	Output
A	4-20mA/20-4 mA

BOX3 CODE	Measurement Range
15	50 ft. (15 m)
30	100 ft. (30 m)
43	140 ft. (43 m)
73	240 ft. (73 m)

BOX4 CODE	Enclosure Type
AR2	Aluminum, 1/2" NPT x 2 conduit
SR2	Stainless, 1/2" NPT x 2 conduit

BOX5 CODE	Process Connection
P20	2" NPT male
P30	3" NPT male*

* Required if 6" horn antenna is supplied.

BOX6 CODE	Communication
0	None
A	RS232
B	RS485
H	HART (2-wire only)

BOX7 CODE	Antenna
A5A	5" SS316L horn
A6A	Std. 6" SS316L horn
A6B	High Temp., Std. 6" SS316L horn*

* C/w 2" to 3" NPT Teflon De-coupler.

BOX8 CODE	Options
0	None
D1	Head Mounted LCD Display

* Use with Teflon antennas only