INDUMART Canada
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Self Adjusting "Smart" Radar Level Transmitter

Non-Contact Level Measurement of Liquids and Solids

SERIES: LTR700

Applications:

Water / Wastewater
Chemicals with or without vapour
Food / Beverages / Pharmaceuticals
Solids with dielectric constant above 2

- SUITABLE FOR LIQUIDS AND MOST SOLIDS
- 4-20 mA OUTPUT - USER SELECTS THE DIRECTION
- THREE OR FOUR WIRE OPERATION
- ELECTRICAL ISOLATION ON 4-WIRE MODELS
- RS232 OR RS485 COMMUNICATIONS (OPTION)
- DIAGNOSTICS & DATA LOGGING SOFTWARE (OPTION)
- PROGRAMMABLE OR PUSH-BUTTON CONFIGURATION
- PLC COMPATIBLE (MODBUS RTU)

DESCRIPTION

Radar level measurement is based on the principle of measuring the time required for the microwave pulse and its reflected echo to make a complete return trip between the non-contacting transducer and the sensed material level. Then, the transceiver converts this signal electrically into distance/level and present it as an analogue and/or digital signal. The 4-20 mA output can be selected by the user to be directly or inversely proportional to the span.

Indumart *LTR700 Series* Radar Level Transmitter is capable of monitoring virtually any short to medium range non-contact measurements of liquids and most free flowing solids (granules and powders). In applications characterized by dust, the instrument demonstrates notable stability by adjusting itself to the severity of the process. Measurement is virtually unaffected by changes in process temperature, pressure, density or gas/vapour composition within the vessel.

A dielectric rod or horn antenna is connected to the tail of the instrument to ensures outstanding focusing and to direct the maximum amount of microwave energy toward the level being measured and to capture energy from the return echos. The tapered section of the rod focuses the microwaves toward the material being measured. Polypropylene, PTFE, High temperature with de-coupler and 2" sanitary antennas are available.

Explosion Proof Version Available

Optional RS232/RS485 communication provides both remote programming of and acquiring information from the field devices. The *LTR700* with digital communication and the configuration software, which runs under Windows®, enables remote programming of the field devices and viewing of the primary measurement values on a computer via EXCEL® application. Programmable system is usually recommended, which gives the opportunity to declare both the dielectric constant of the material and the severity of the process to optimize level measurements.

The optional remote display (DIS300) may also be added to this radar level measurement system to indicate the process value on its 4-digit display and to initiate alarm contact at 2 points.

Other features of the *LTR700 Series* include: (1) fully self diagnostic system with individual error message; (2) service and test parameters read out, which reports on the operating conditions echo profile, noise level and more to facilitate the installation and troubleshooting of the system.

Applying *LTR700 Series* for level measurements has proven reliable with little maintenance, where other high maintenance level detectors such as cable probes, paddle wheels and plumb bombs are not preferred because of their negative field experience.

SPECIFICATIONS

Model	Range in Liquid	Range in Solid	Resolution	Mounting
30	30 m * (100 ft)	15 m * (50 ft)	11 mm (0.44")	2" / 1½" NPT
15	15 m * (50 ft)	7.5 m * (25 ft)	5.7 mm (0.22")	2" / 1½" NPT

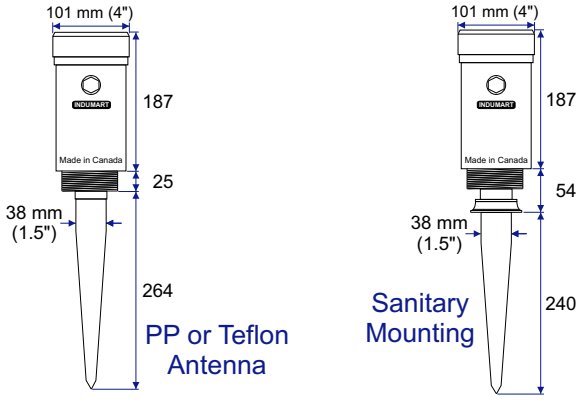
* Note: Minimum distance starts at the lower tip of antenna.

Operation	Pulse radar
Frequency	5.8 GHz; 6.3 GHz
Accuracy	0.1% of maximum range (in lab) 0.25% of max. range (in field)
Housing Material	Aluminum (std.); St. steel (option)
Conduit Entry	½" NPT
Analogue Output	4-20 mA; Direct or reverse; 750Ω; Isolated on 4-wire system
Output Resolution	6.1 µA
Loss of Echo Hold	30 sec., 22 mA output
Digital Output	RS232 or RS485 (option) with configuration software
Material Dielectric	>2
Antenna	Polypropylene (PP) rod as standard; Teflon for corrosive materials; 2" Tri clamp sanitary mounting; High temp. Teflon with de-coupler; (1½" mounting adaptor with 2" mounting) 316 SS horn for very low dielectric constant material and short blanking
Antenna Extension	6" or 8" (option)
Power	95...135 VAC, 60 Hz 185...275 VAC, 50 Hz 12...30 VDC, $R_{(load)} = (V_s-6) / 24$ mA
Power Consumption	1.7 VA for AC; 70 mA for DC
Transmitter Power	50 µW
Process Temperature	-40°C...+90°C (-40°F...+190°F) -40°C...+180°C (-40°F...+350°F) (when PTFE rod with de-coupler used) -40°C...+204°C (-40°F...+400°F) (for sanitary with Teflon antenna)
Pressure	1...10 bar (absolute), 15...150 psia
Ambient Temperature	-40°C...+60°C (-40°F...+140°F)
Ingress Protection	NEMA 4 (IP65)
Explosion Proof	Class 1 Div. 1; with DC power only
Installation Category	Class II; FCC part 15
Self Diagnostic	Fully self diagnostic system with individual error message (software)
Data Collection	To be exported to EXCEL (software)

Display (Option)

Display	4-digit LCD, 14mm high
Display Range	-1999 to 9999; Adjustable decimal point
Loop Supply Voltage	3...36 VDC
Environ. Protection	IP65
Operating Condition	-10...+65°C; 0 to 95% RH
Case Material	ABS
Mounting	Wall, Probe; DIN rail (option)
Dimensions	80 x 80 x 60 mm (WxHxD)
Output Type	Transistor gate (open collector NPN)
Switching Current	100 mA maximum
Switching Voltage	40 VDC maximum
Adjustable Parameters	Setpoint, hysteresis direction and delay time

DIMENSIONS (mm)



ORDER CODE

RADAR LEVEL TRANSMITTER

Model: **LTR7** □ - □ □ □ □ □ - □ □

MODEL
30 — 30
15 — 15

POWER SUPPLY
115 VAC (4-wire) — 1
230 VAC (4-wire) — 2
12...30 VDC (3-wire) — 3

OUTPUT
4...20 mA + RS232 — 1
4...20 mA + RS485 — 2

FREQUENCY
5.8 GHz — 0
6.3 GHz — 1

BODY MATERIAL
Aluminum (standard) — 0
St. Steel — 1

ANTENNA
Polypropylene (std.) — P
Teflon — T
High Temp. Teflon with De-Coupler — H
Sanitary with 2" Tri Clamp — S
Horn 6" dia. (316 SS) — R

ANTENNA EXTENSION (OPTION)
Not Required — 0
6" — 6
8" — 8

DISPLAY (option)
Not Required — 0
4-digit Display with 2 Contacts (Remote Mount) — 1
Alarm Trip Amplifier (2 Relays) — 2
Alarm Trip Amplifier (1 Relay) — 3

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