

EchoBeam® LR83

80 GHz Radar Liquid and Solids Level Transmitter



Performance

Offered in four models, EchoBeam® is the most reliable and easy-to-use non-contact level sensor. Flowline's 80 GHz radar technology is unaffected by most media, process or environmental factors, and our intuitive LevelTap™ App makes configuration simple.

	LR80	LR81	LR83	LR85
Range:	Liquid: 32.8' (10m) Solids: 16.4' (5m)	Liquid: 98.4' (30m) Solids: 49.2' (15m)	Liquid: 98.4' (30m) Solids: 49.2' (15m)	Liquid: 393.7' (120m) Solids: 196.8' (60m)
Accuracy:	±5mm	±2mm	±2mm	±2mm
Output:	4-20 mA	4-20 mA w/HART, Modbus or SDI-12	4-20 mA w/HART or Modbus	4-20 mA w/HART or Modbus
Class.:	GP	GP	GP	GP
Max Temp.:	60° C.	80° C.	100° C.	120° C.
Termination:	Cable	Cable	Conduit	Conduit
Application:	Basic	Challenging	Challenging	Extreme

Application

The LR83 general purpose 80 GHz radar sensor provides continuous level measurement up to 98.4' (30m) for liquids or 49.2' (15m) for solids, with a 4-20 mA with HART or Modbus signal output. The sensor is wirelessly configured over Bluetooth via our LevelTap™ App which enables you to see the level, verify the status, and manage the settings of connected sensors from the safety of the ground or nearby catwalk. The sensor measures liquid and solids media with a dielectric constant value ≥ 1.6 , such as water, chemical or petroleum-based liquids, and pellet, grain, powder or aggregate solids. Select this sensor for tank, sump, weir, canal, reservoir, silo, bin, conveyor or stockpile applications.

Features

- 80 GHz technology provides reliable, maintenance-free operation
- Measures level height, air gap, tank volume or open channel flow
- Rugged PVDF antenna and PBT-FR enclosure for corrosive media
- IP66/67 enclosure for outdoor installations exposed in all weather
- LCD push button display for level or flow indication and adjustment
- Zero dead band maximizes the potential fill capacity of small tanks
- Optionally measures through top wall of plastic or fiberglass tanks
- Configuration via LevelTap™ App, LCD display, HART or Modbus
- Low 9V or 12V operation is ideal for battery powered systems

Configuration

Download the free LevelTap™ App at the Apple Store, Google Play or Baidu Store, register and go to Demo Sensors. There you can view level status and step-by-step or advanced configuration examples prior to sensor purchase.



Natural contaminant free PVDF antenna.



Push button display provides local indication and optional configuration, and works in parallel with LevelTap.



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Specifications

Maximum range:	Liquid: 98.4' (30m) with media dielectric \geq 10 and no agitation Solids: 49.2' (15m) with media dielectric \geq 6 and no dust	Classification: General purpose, cCSAus
Frequency:	80 GHz., W-band, FMCW	Approvals: C22.2 No. 61010-1-12
Accuracy:	0.4m to 30m: \pm 2mm 0.00m to 0.39m: \pm 10mm	Compliance: FCC: Part 15.256, 15.209, 15C ISED IC: RSS-102, RSS-211, RSS-247 UKCA RER 2017: 6(1)(a), 6(1)(b), 6(2) CE/RED 2014/53/EU: EN 302 372, EN 302 729, EN 301 489-1, -33, EN 300 328 SRRC: (No. [2002] 353) RoHS, REACH, CRN, conflict minerals
Dead band:	0" (0mm)	
Beam angle:	6°	
Min. dielectric:	\geq 1.6	
Bluetooth version:	Bluetooth 5.0	
Bluetooth range:	26.2' (8m)	
Configuration:	LevelTap™ App (iOS & Android) or push button	
Memory:	Non-volatile	
Display type:	LCD, dot matrix	
Signal output:	0 _ 0: 4-20 mA, two-wire, HART 7 0 _ 1: Modbus, RS485, 9600 baud 0 _ 0: 1,000' (304m) 0 _ 1: 3,937' (1200m)	
Max. signal dist.:		
Signal fail-safe:	Selectable high, low or hold last value	
Wire interface:	0 _ 0: 2-pole terminal block 0 _ 1: 4-pole terminal block	
Supply voltage:	0 _ 0: 12-30 VDC 0 _ 1: 9-27 VDC	
Max. consumption:	0 _ 0: 22.5 mA 0 _ 1: 1.5 watt	
Process temp.:	F: -40° to 212° C: -40° to 100°	
Temp. comp.:	Automatic	
Storage temp.:	F: -40° to 176° C: -40° to 80°	
Pressure:	-14.5 to 43.5 psi (-1 to 3 bar)	
Enclosure rating:	NEMA 4X (IP66/67)	
Conduit connect.:	0 _ 0 _ : 1/2" NPT 0 _ 1 _ : M20	
Encl. material:	PBT-FR (polybutylene terephthalate)	
Encl. cap. material:	PC (clear polycarbonate)	
Antenna material:	PVDF (natural polyvinylidene fluoride)	
Process mount:	0 _ 0 _ : 1 1/2" NPT 0 _ 1 _ : 1 1/2" G	
Mount gasket:	0 _ 0 _ : N/a 0 _ 1 _ : Viton GLT (fluoroelastomer)	

Ordering

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PROCESS MOUNT (1) (2)

- 0 1 1/2" NPT
- 1 1 1/2" G with Viton Gasket

SIGNAL OUTPUT

- 0 4-20 mA with HART
- 1 Modbus



LM53-1S80
SS tri-clamp
adapter



LM53-2440 PTFE
capped adapter
(bottom & top)

NOTES

- 1) To mount the sensor to the tank side wall or above an open sump or canal, order the appropriate 316 stainless bracket:
Short bracket with 1 1/2" NPT lock nut = LM50-3S31
Short bracket with 1 1/2" G lock nut = LM50-4S31
Long bracket with 1 1/2" NPT lock nut = LM50-3S32
Long bracket with 1 1/2" G lock nut = LM50-4S32
- 2) If PVDF is not compatible with your application media or you need a different process mount, go to www.flowline.com/level-fittings-enclosures and view our installation accessories.

