EchoBeam[®] LR81

80 GHz Radar Liquid and Solids Level Transmitter



Performance

Offered in four models, EchoBeam[®] is the most reliable and easyto-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)	Liquid: 98.4' (30m)	Liquid: 98.4' (30m)	Liquid: 393.7' (120m)
	Solids: 16.4' (5m)	Solids: 49.2' (15m)	Solids: 49.2' (15m)	Solids: 196.8' (60m)
Accuracy:	±5mm	±2mm	±2mm	±2mm
Output:	4-20 mA	4-20 mA w/HART,	4-20 mA w/HART	4-20 mA w/HART
		Modbus or SDI-12	or Modbus	or Modbus
Class.:	GP	GP or IS	GP or IS	GP or IS
Max Temp.:	60° C.	80° C.	100° C.	120° C.
Termination:	Cable	Cable	Conduit	Conduit
Application:	Basic	Challenging	Challenging	Extreme



LevelTap^{**}

235gal/min

INFORMATION

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DISPLAY VALUE

CONFIGURATION

STEP-BY-STEP

QUICK ADJUST

ADVANCED

CONFIGURATION FILE

INSTALLATION PHOTOS

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Available with vertical and horizontal cable orientation.

LM50-3S31 SS bracket

Offered with 32.8' (10m) PVC cable and a variety of fitting accessories.

IP68 PVDF enclosure for corrosive liquid and

solid applications.

Application

The LR81 general purpose or intrinsically safe 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, Modbus or SDI-12 signal output. The sensor is wirelessly configured over Bluetooth via our LevelTapTM 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 \geq 1.6, such as water, chemical or petroleumbased liquids, and pellet, grain, powder or aggregate solids. Select this sensor for tank, sump, lift station, weir, canal, reservoir, silo, bin, conveyor, transfer station 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 enclosure for corrosive liquid or solids
- IP68 rated sensor for harsh outdoor or below grade installations
- Sealed 10m PVC jacketed cable for corrosive level environments
- 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, HART communicator 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.

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Specifications

Maximum range:	Liquid: 98.4' (30m) with media dielectric ≥ 10 and no agitation Solids: 49.2' (15m) with media dielectric ≥ 6 and no dust	Process mount: Mount gasket:	0 _: 1 1/2" NPT 1 _: 1 1/2" G 0 _: N/a 0 _ 1 _: Viton GLT (fluoroelastomer)
Frequency: Accuracy:	80 GHz., W-band, FMCW 0.4m to 30m: ± 2mm	Classification:	0 _ 1 & 2: General purpose, cCSAus 0: Intrinsically safe, cCSAus, ATEX, IECEx
Dead band:	0.00m to 0.39m: ± 10mm 0" (0mm)	Approvals:	0 : C22.2 No. 61010-1-12 1 _ 0: Ex ia IIC T6T4 Ga
Beam angle: Min_dielectric:	8°		Ex ia IIIC T85T135 Da
Bluetooth version:	≥ 1.0 Bluetooth 5.0		Zone 20 AFx ia IIIC T85 _ T135 Da
Bluetooth range:	26.2' (8m)		Class I, Division 1, Groups A,B,C,D T6T4
Configuration:	LevelTap [™] App (IOS & Android)		Class II, Division1, Groups E,F,G T6T4
Memory:	Non-volatile	Entity parameters:	0: N/a
Signal output:	0: 4-20 mA, two-wire, HART 7	Compliance	1 0: Install per control drawing #610130
	0 _ 1: MODDUS, RS485, 9600 Daud	Compliance:	FUC: Part 15.256, 15.209, 150 ISED IC: PSS 102 PSS 211 PSS 247
Max. signal dist.:	0.1000' (304m)		ISED IC. RSS-102, RSS-211, RSS-247
	0 1: 3,937' (1200m)		CE/RED 2014/53/EU: EN 302 372, EN 302 729,
	0 0 _ 2: 2,000' (609m) divided by number		EN 301 489-1, -33, EN 300 328
	of sensors on the network		SRRC: (No. [2002] 353)
Signal fail-safe:	Selectable high, low or hold last value		RoHS, REACH, CRN, conflict minerals
Supply voltage:	0: 12-30 VDC		
		Dimension	S
Max. consumption:	0: 22.5 mA		
• • • •	0 1 & 2: 1.5 watt	VERTICAL C	ABLE HORIZONTAL CABLE
Process temp.:	F: -40° to 176°		
_	C: -40° to 80°		\downarrow
Temp. comp.:	Automatic	1 1" NPT	
Storage temp.:	$F: -40^{\circ}$ to $1/6^{\circ}$	(1" G)	(22.97mm) (72.94mm) 0.70"
Pressure:	-14 5 to 43 5 psi (-1 to 3 bar)		(20mm)
Enclosure rating:	Type 6P (IP68)		
Encl. material:	PVDF (pigmented polyvinylidene fluoride)	4.75"	
Antenna material:	PVDF (natural polyvinylidene fluoride)	4.75"	
Cable jacket mat.:	PVC (polyvinyl chloride)		3.63"
Cable seal mat.:	Viton GLI (fluoroelastomer)		(92.20mm)
Shielded cable	0: 2-conductor		1" NPT
	0 1: 4-conductor	1½" NPT	Г 0.87" 0.99" 1½" NPT ^(1" G)
	0 0 _ 2: 3-conductor	(1½" G)	(22.22mm) (25.22mm) (1½" G)
Cable length:	32.8' (10m)		
Conduit connect.:	0 _: 1" NPT		
	1 _: 1" G		' (48.0 mm) '
Ordering	LR81 -	NOTES	
		1) The int	trinsically safe model is available with a 4-20 mA with
CLASSIFICATION	(1)	HART	signal output only. Order the LB12-1001 intrinsic safety
0 General Purp	bose III	horrior	to complete your bazardous solution
1 Intrinsically	Safe	Darrier	
- Antimotodity (2) If PVD	F is not compatible with your application media or you

CABLE ORIENTATION -

- 0 Vertical
- 1 Horizontal

PROCESS MOUNT (2) -

- 0 1 1/2" NPT
- 1 1/2" G with Viton Gasket
- SIGNAL OUTPUT (3) -
 - 0 4-20 mA with HART
 - 1 Modbus
 - 2 SDI-12 (See note 3)

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DS310270 REV B

DataLoop™

LI23-24

Indicators

need a different process mount, go to www.flowline.com/

3) The SDI-12 signal output is available with a vertical cable

orientation only and either process mount.

DataView™

Controller

LI55

level-fittings-enclosures and view our installation accessories.