EchoBeam® LR81

80 GHz Radar Liquid and Solids Level Transmitter

FLOWLINE™ LEVEL BEST

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 LR81 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, Modbus or SDI-12 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, 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

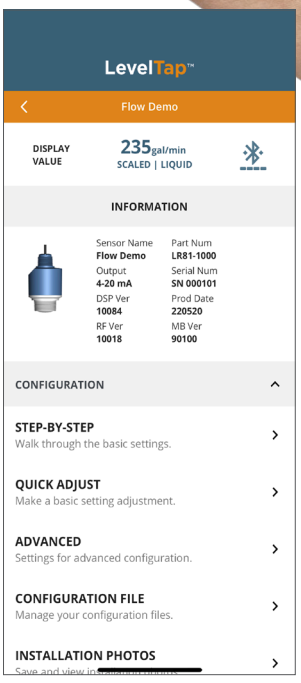
Download the free LevelTap™ App at the Apple Store, Google Play or Baidu Store, register and go to Demo Sensors. There you can view level status and step-by-step or advanced configuration examples prior to sensor purchase.

LM50-3S31
SS bracket

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

Available with vertical and horizontal cable orientations.

IP68 PVDF enclosure for corrosive liquid and solid applications.



 DS310270 REV A

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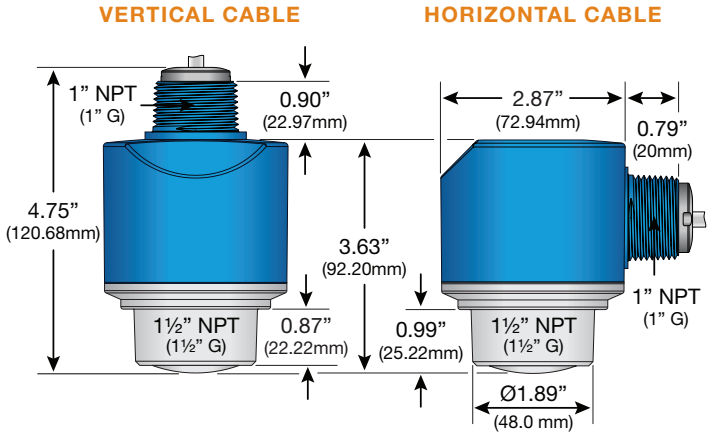
Specifications

Maximum range:	Liquid: 98.4’ (30m) with media dielectric ≥ 10 and no agitation Solids: 49.2’ (15m) with media dielectric ≥ 6 and no dust
Frequency:	80 GHz., W-band, FMCW
Accuracy:	0.4m to 30m: ± 2mm 0.00m to 0.39m: ± 10mm
Dead band:	0” (0mm)
Beam angle:	8°
Min. dielectric:	≥ 1.6
Bluetooth version:	Bluetooth 5.0
Bluetooth range:	26.2’ (8m)
Configuration:	LevelTap™ App (IOS & Android)
Memory:	Non-volatile
Signal output:	0 _ _ 0: 4-20 mA, two-wire, HART 7 0 _ _ 1: Modbus, RS485, 9600 baud 0 _ _ 2: SDI-12
Max. signal dist.:	0 _ _ 0: 1,000’ (304m) 0 _ _ 1: 3,937’ (1200m) 0 _ _ 2: 2,000’ (609m) divided by number of sensors on the network
Signal fail-safe:	Selectable high, low or hold last value
Supply voltage:	0 _ _ 0: 12-30 VDC 0 _ _ 1: 9-27 VDC 0 _ _ 2: 9-30 VDC
Max. consumption:	0 _ _ 0: 22.5 mA 0 _ _ 1 & 2: 1.5 watt
Process temp.:	F: -40° to 176° C: -40° to 80°
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:	Type 6P (IP68)
Encl. material:	PVDF (pigmented polyvinylidene fluoride)
Antenna material:	PVDF (natural polyvinylidene fluoride)
Cable jacket mat.:	PVC (polyvinyl chloride)
Cable seal mat.:	Viton GLT (fluoroelastomer)
Cable orientation:	Vertical or horizontal
Shielded cable:	0 _ _ 0: 2-conductor 0 _ _ 1: 4-conductor 0 _ _ 2: 3-conductor
Cable length:	32.8’ (10m)
Conduit connect.:	0 _ 0 _: 1” NPT 0 _ 1 _: 1” G
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)
Classification:	General purpose, cCSAus
Approvals:	C22.2 No. 61010-1-12
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

Dimensions



LM53-1S80 SS tri-clamp adapter

LM53-2440 PTFE capped adapter (bottom & top)

Ordering

LR81 - 0 ☐ ☐ ☐

CABLE ORIENTATION

0	Vertical
1	Horizontal

PROCESS MOUNT (1) (2)

0	1 1/2” NPT
1	1 1/2” G with Viton Gasket

SIGNAL OUTPUT (3)

0	4-20 mA with HART
1	Modbus
2	SDI-12 (See note 3)

LM50-3S21

LM50-3S31

LM50-3S22

LM50-3S32

NOTES

1) To mount the sensor to the tank side wall or above an open sump or bin, order the appropriate 316 stainless bracket:
   Short bracket with 1” NPT lock nut = LM50-3S21
   Short bracket with 1” G lock nut = LM50-4S21
   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” NPT lock nut = LM50-3S22
   Long bracket with 1” G lock nut = LM50-4S22
   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.
3) The sensor with SDI-12 output is available with a vertical cable orientation and either process mount thread.