

EchoBeam® LR85

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 GP 120° C. Conduit Extreme
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 LR85 general purpose 80 GHz radar sensor provides continuous level measurement up to 196.8' (60m) for solids or 393.7' (120m) for liquids, 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 solids and liquid media with a dielectric constant value ≥ 1.6 , such as pellet, grain, powder or aggregate solids, and water, chemical or petroleum-based liquids. Select this sensor for tall dusty silos and bunkers or difficult liquid process applications.

Features

- 80 GHz technology provides reliable, maintenance-free operation
- Measures with significant dust, agitation, foam or low dielectrics
- 4° beam is ideal for applications with limited measurement space
- Rugged PFA antenna provides the highest corrosion resistance
- Offered in thread or gimbal flange mount with optional air purge
- IP66/67 enclosure for outdoor installations exposed in all weather
- LCD push button display for tank level indication and adjustment
- Measures level height or air gap distance and tank or silo volume
- Configuration via LevelTap™ App, LCD display, HART or Modbus

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.

LR85-0300 with thread mount

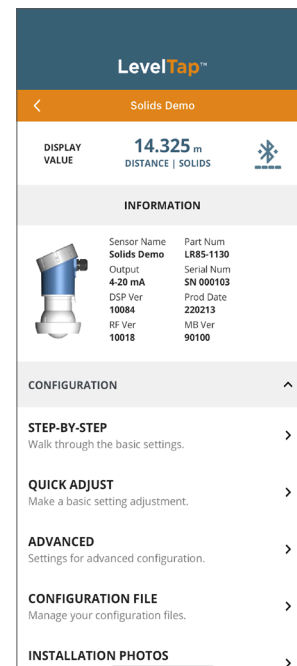


PFA antenna with 316 rotational flange and dust purge for solids.



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

LR85-0330 with flange mount



EchoBeam® LR85

80 GHz Radar Liquid and Solids Level Transmitter

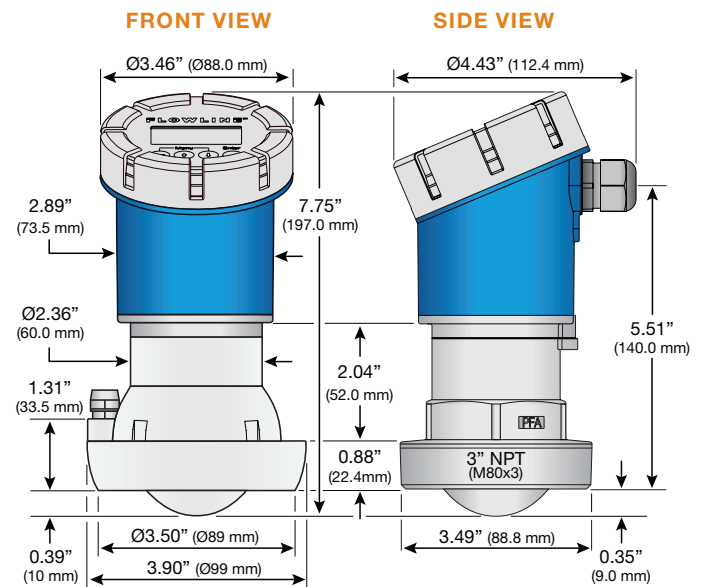


Specifications

Maximum range:	Solids: 196.8' (60m) with media dielectric ≥ 6 and minimal dust Liquid: 393.7' (120m) with media dielectric ≥ 10 and minimal agitation
Frequency:	80 GHz., W-band, FMCW
Accuracy:	0.4m to 30m: ± 2 mm 0.00m to 0.39m: ± 10 mm
Dead band:	0" (0mm)
Beam angle:	4°
Min. dielectric:	≥ 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:	03 _ 0: 4-20 mA, two-wire, HART 7 03 _ 1: Modbus, RS485, 9600 baud
Max. signal dist:	03 _ 0: 1,000' (304m) 03 _ 1: 3,937' (1200m)
Signal fail-safe:	Selectable high, low or hold last value
Wire interface:	03 _ 0: 2-pole terminal block 03 _ 1: 4-pole terminal block
Supply voltage:	03 _ 0: 12-30 VDC 03 _ 1: 9-27 VDC
Max. consumption:	03 _ 0: 22.5 mA 03 _ 1: 1.5 watt
Process temp.:	F: -40° to 248° C: -40° to 120°
Temp. comp.:	Automatic
Storage temp.:	F: -40° to 176° C: -40° to 80°
Pressure:	030 _ & _ 31 _ : -14.5 to 43.5 psi (-1 to 3 bar) 033 _ & _ 35 _ : Atmospheric NEMA 4X (IP66/67)
Enclosure rating:	
Conduit connect.:	030 _ & _ 33 _ : 1/2" NPT 031 _ & _ 35 _ : M20
Encl. material:	PBT-FR (polybutylene terephthalate)
Encl. cap. material:	PC (clear polycarbonate)
Antenna material:	PFA (natural perfluoroalkoxy)
Flange material:	316L (stainless steel)
Process mount:	030 _ : 3" NPT 031 _ : M80x3 with Viton GLT gasket 033 _ : 3" ANSI gimbal flange 035 _ : DIN80 PN6 gimbal flange
Mount gasket:	031 _ : Viton GLT (fluoroelastomer)

Air purge conn.:	033 _ & 035 _ : 1/4" tube compression fitting
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



Ordering

LR85 - 03

PROCESS MOUNT (1)

- 0 3" NPT
- 1 M80x3 with Viton Gasket
- 3 3" ANSI Gimbal Flange
- 5 DIN80 Gimbal Flange

SIGNAL OUTPUT

- 0 4-20 mA with HART
- 1 Modbus

NOTES

- 1) The threaded mount is typically applied in liquid applications. The gimbal flange is intended for solids applications. It allows the antenna to be aimed against the angle of material repose and includes a 1/4" air purge connector through which dust build-up can be optionally blown off the antenna.