

Level Measurement

Continuous level measurement
Radar level transmitters

SITRANS LR100

Overview



SITRANS LR100 is a 2 wire loop powered radar transmitter for continuous level measurement of liquids and slurries to a range of 8 m (26 ft).

Benefits

- Bluetooth connectivity for easy setup with SITRANS mobile IQ
- Chemically resistant PVDF enclosure
- W band FMCW radar yields narrow beam with small antenna for superior performance in short range applications
- Approved for open air applications outside of a tank
- Compact design fits in limited space installations

Application

SITRANS LR100 is a W band FMCW radar level transmitter, packaged in a hermetically sealed PVDF enclosure for years of trouble-free reliable measurement service.

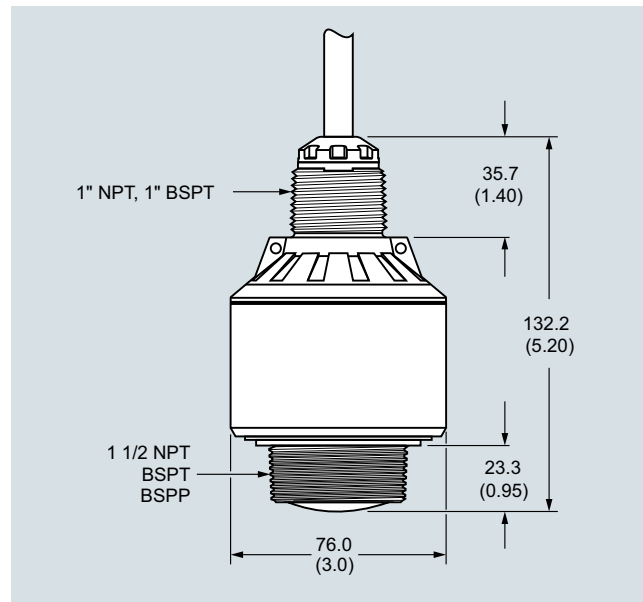
4 to 20 mA loop powered, it provides accurate level measurement to ranges of 8 m (26 ft). Measurement is possible non-intrusively through plastic vessel tops for easy installation. Programming is convenient using the Bluetooth connection and SITRANS mobile IQ application on your smart device.

Technical specifications

Mode of operation	
Measuring principle	W band FMCW radar
Measuring range	0 ... 8 m (0 ... 26 ft)
Frequency	80 GHz nominal
Beam angle	8°
Power Supply	
Voltage	12 ... 35 V DC
Current	4 ... 20 mA
Accuracy	
	± 5 mm
Rated operating conditions	
Vessel pressure	-1 ... +3 bar (14.50 ... 43.51 psi g)
Ambient temperature	-40 ... +60 °C (-40 ... +140 °F)
Process temperature	-40 ... +60 °C (-40 ... +140 °F)
Storage temperature	-40 ... +80 °C (-40 ... +176 °F)
Design	
Weight	0.5 kg (1.1 lb), plus 0.1 kg/m (0.2 lb/ft) cable length
Material (enclosure)	PVDF
Process connection	1-1/2" NPT, 1-1/2" BSPT, or 1-1/2" BSPP
Degree of protection	IP66/IP68
Cable connection	<ul style="list-style-type: none"> • 8 m (26 ft) long, 2 conductor, twisted with shield 18 AWG, PVC jacket • 1" NPT or 1" BSPT threaded connection
Certificates and approvals	
General	Ordinary locations, CE, cFM _{US} , cCSA _{US} , RCM, EAC
Radio	CE, FCC, IC, Anatel, ICASA, NCC, KC, CITC, RCM, WPC, Telec, NBTC, MCMC
Canadian Registration Number (CRN)	
• British Columbia	0F22218.51
• Alberta	0F20596.2
• Saskatchewan	0F2002.3
• Manitoba	0F7032.4
• Ontario	0F22218.5
• Québec	0F05183.6
• New Brunswick	0F1490.07
• Nova Scotia	0F1490.08
• Prince Edward Island	0F1490.09
• Newfoundland and Labrador	0F1490.0
• Yukon	0F1490.0Y
• Northwest Territories	0F1490.0T
• Nunavut	0F1490.0N
Programming	
SITRANS mobile IQ App	SITRANS mobile IQ is a Bluetooth app that provides an intuitive interface to quickly configure, set up and monitor SITRANS LR100 series. For more information: http://www.siemens.com/mobileIQ

Selection and ordering data	Article No.	Order code
SITRANS LR100 Radar level transmitter Continuous, non-contact, 8 m (26 ft) range, for liquids and slurries, 8 m integrated cable connection ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	7ML530 7 - 1 A 0 6 - 0 A A 0	SITRANS RD200, universal input display with Modbus conversion - see Chapter 7 7ML5740-..... SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7 7ML5744-.....
Process connection 1-½" NPT [(Taper), ASME B1.20.1]/electrical connection 1" NPT R 1-½" [(BSPT), EN 10226]/electrical connection 1" BSPT G 1-½" [(BSPP), EN ISO 228-1]/electrical connection 1" BSPT	A B C	For applicable back up point level switch - see point level measurement section
Further designs Please add "-Z" to Article No. and specify Order code(s).	Order code	
Tag (device parameter, max. 32 characters) plate stainless steel 304/1.4301	Y15	
Operating Instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation		
Accessories	Article No.	
Easy Aimer 2, aluminum, NPT with ¾" x 1" PVC coupling	7ML1830-1AQ	
Easy Aimer 2, aluminum with M20 adapter and 1" and 1½" BSPT aluminum couplings	7ML1830-1AX	
Easy Aimer 304, NPT with 1" stainless steel coupling	7ML1830-1AU	
Easy Aimer 304, with M20 adapter and 1" and 1½" BSPT 304 stainless steel couplings	7ML1830-1GN	
Bracket, Stainless steel, 1 inch mount, 80 mm (3.1 inch) offset	A5E50507509	
Bracket, Stainless steel, 1 inch mount, 200 mm (7.9 inch) offset	A5E50507511	
Bracket, Stainless steel, 1.5 inch mount, 80 mm (3.1 inch) offset	A5E50507514	
Bracket, Stainless steel, 1.5 inch mount, 200 mm (7.9 inch) offset	A5E50507516	
FMS-200 universal box bracket, mounting kit	7ML1830-1BK	
FMS-210 channel bracket, wall mount	7ML1830-1BL	
FMS-220 extended channel bracket, wall mount	7ML1830-1BM	
FMS-310 channel bracket, floor mount	7ML1830-1BN	
FMS-320 extended channel bracket, floor mount	7ML1830-1BP	
FMS-350 bridge channel bracket, floor mount (see Mounting Brackets on page 4/186 for more information)	7ML1830-1BQ	
1" NPT locknut, plastic	7ML1830-1DS	
1" BSP locknut, plastic	7ML1830-1DR	
Plastic adapter 1" BSP - 20 mm	7ML1830-1EA	
Plastic adapter 1" NPT	7ML1930-1FX	
Plastic adapter 1" NPT/M20	7ML1830-1EF	
SIMATIC RTU3010C compact, remote data manager with alarming	6NH3112-0BA00-0XX0	
SIMATIC RTU3030C compact, remote data manager with alarming	6NH3112-3BA00-0XX0	
SITRANS RD100, loop powered display - see Chapter 7	7ML5741-.....	
SITRANS RD150, remote digital display for 4 to 20 mA and HART devices - see Chapter 7	7ML5742-.....	

Dimensional drawings

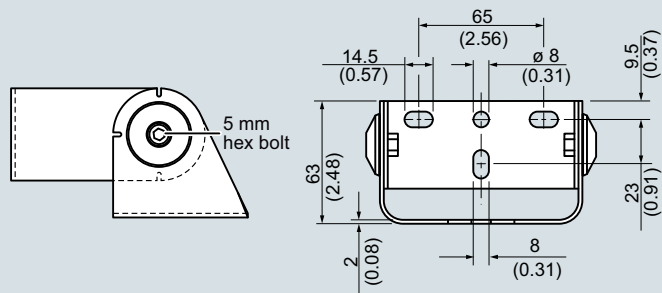
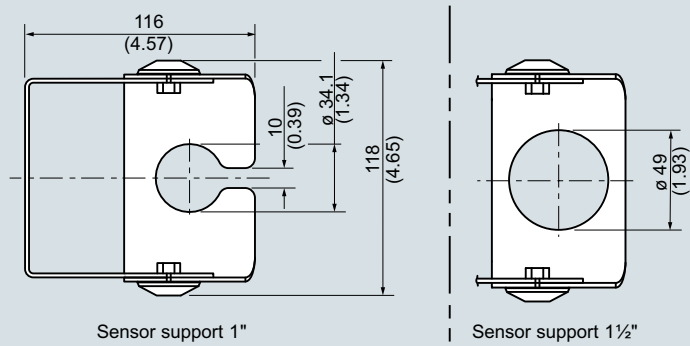
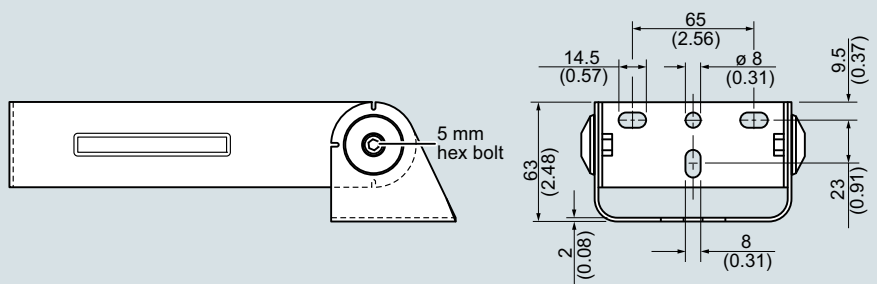
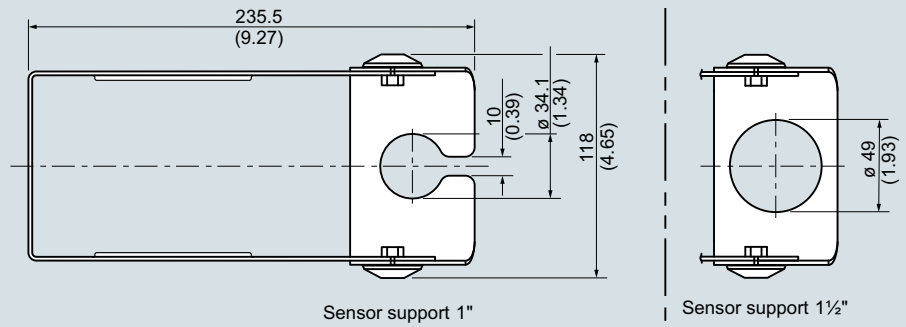


SITRANS LR100, dimensions in mm (inch)

Level Measurement

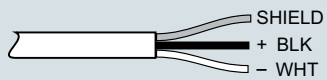
Continuous level measurement

Radar level transmitters

SITRANS LR100**Mounting bracket, 80 mm****Mounting bracket, 200 mm**

SITRANS LR100, mounting brackets, dimensions in mm (inch)

Circuit diagrams



12 ... 35 V DC
4 ... 20 mA
Loop powered

SITRANS LR100 connections