

Level instruments

Continuous level measurement - Ultrasonic transmitters

SITRANS Probe LU

Overview



SITRANS Probe LU is a 2-wire loop powered ultrasonic transmitter for level, volume and flow monitoring of liquids in open channels, storage vessels and simple process vessels.

Benefits

- Continuous level measurement up to 12 m (40 ft) range
- Easy installation and simple start-up
- Programming using infrared Intrinsically Safe handheld programmer, SIMATIC PDM or HART® Communicator
- Communication using HART or PROFIBUS PA
- ETFE or PVDF transducers for chemical compatibility
- Patented Sonic Intelligence signal processing
- Extremely high signal-to-noise ratio
- Auto False-Echo Suppression for fixed obstruction avoidance
- Level to volume or level to flow conversion

Application

The SITRANS Probe LU is ideal for level monitoring in the water and wastewater industry and chemical storage vessels.

The range of SITRANS Probe LU is 6 or 12 m (20 or 40 ft). Using Auto False-Echo Suppression for fixed obstruction avoidance, as well as an improved signal-to-noise ratio and improved accuracy of 0.15% of range or 6 mm (0.25"), the Probe LU provides unmatched reliability.

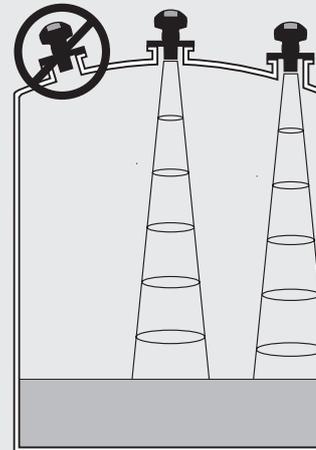
SITRANS Probe LU includes Sonic Intelligence® signal processing from the field-proven Probe and incorporates new echo processing features and the latest micro-processor and communications technology. The Probe LU offers two communications options: HART or PROFIBUS PA (Profile version 3.0, Class B).

The transducer on the Probe LU is available as ETFE or PVDF to suit the chemical conditions of your application. As well, for applications with varying material and process temperatures, the Probe LU incorporates an internal temperature sensor to compensate for temperature changes.

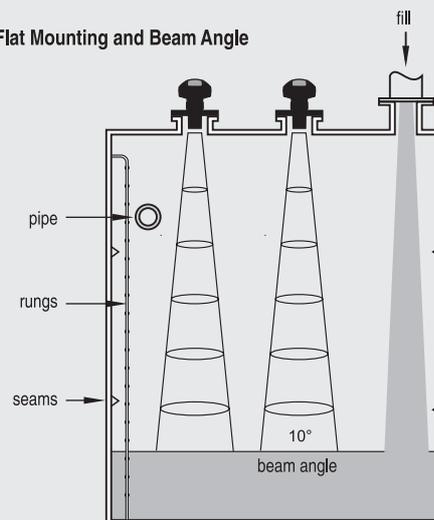
- Key Applications: chemical storage vessels, filter beds, liquid storage vessels

Configuration

Parabolic Mounting



Flat Mounting and Beam Angle



SITRANS Probe LU mounting

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Technical specifications

Mode of operation		Process connection	
Measuring principle	Ultrasonic level measurement	• Threaded connection	2" NPT [(Taper), ANSI/ASME B1.20.1] R 2" [(BSPT), EN 10226] or G 2" [(BSPP), EN ISO 228-1]
Typical application	Level measurement in storage vessels and simple process vessels	• Flange connection	3" (80 mm) universal flange
Inputs		• Other connection	FMS 200 mounting bracket (see page 5/185) or customer supplied mount
Measuring range		Display and Controls	
• 6 m (20 ft) model	0.25 to 6 m (10" to 20 ft)	Interface	Local: LCD display with bar graph Remote: Available via HART or PROFIBUS PA
• 12 m (40 ft) model	0.25 to 12 m (10" to 40 ft)	Configuration	Using Siemens SIMATIC PDM (PC) or HART handheld communicator or Siemens infrared handheld programmer
Frequency	54 kHz	Memory	Non-volatile EEPROM
Outputs		Power supply	
mA/HART®		4 to 20 mA/HART	Nominal 24 V DC with 550 Ω maximum; maximum 30 V DC 4 to 20 mA
• Range	4 to 20 mA	PROFIBUS PA	12, 13, 15, or 20 mA depending on programming (General Purpose or Intrinsically Safe version) per IEC 61158-2
• Accuracy	± 0.02 mA	Certificates and Approvals	
PROFIBUS PA	Profile 3, Class B	General	
Performance		CSA _{US/C} , FM, CE, C-TICK	
Resolution	≤ 3 mm (0.12")	Marine (only applies to HART communication option)	
Accuracy	± the greater of 0.15 % of range or 6 mm (0.24")	• Lloyd's Register of Shipping	
Repeatability	≤ 3 mm (0.12")	• ABS Type Approval	
Blanking distance	0.25 m (10")	Hazardous	
Update time	≤ 5 seconds	• Intrinsically Safe (Europe)	
• 4/20 mA/HART version	≤ 5 seconds at 4 mA	ATEX II 1G EEx ia IIC T4	
• PROFIBUS version	≤ 4 seconds at 15 mA current loop	• Intrinsically Safe (USA/Canada)	
Temperature compensation	Built-in to compensate over temperature range	CSA/FM (barrier required) T4, Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III	
Beam angle	10°	• Intrinsically Safe (Australia/New Zealand)	
Rated operating conditions		ANZEx Ex ia IIC T4, Tamb = -40 to +80 °C (-40 to +176 °F) IP67, IP68	
• Ambient conditions		• Intrinsically Safe (International)	
- Location	Indoor/outdoor	IECEx TSA 04.0020X Ex ia IIC T4	
- Ambient temperature	-40 to +80 °C (-40 to +176 °F)	• Non-incendive (USA)	
- Relative humidity/ingress protection	Suitable for outdoor	FM (no barrier required) T5: Class I, Div. 2, Groups A,B,C, D	
- Installation category	I	Handheld Programmer	
- Pollution degree	4	• Intrinsically Safe Siemens handheld programmer	
• Medium conditions		- Approvals for handheld programmer	
- Temperature at flange or threads	-40 to +85 °C (-40 to +185 °F)	IS model with ATEX EEx ia IIC T4 CSA/FM Class I, Div. 1, Groups A, B, C, D	
- Pressure (vessel)	0.5 bar g (7.25 psi g)	• Ambient temperature	
Design		-20 to +40 °C (-5 to +104 °F)	
Material (enclosure)	PBT (Polybutylene Terephthalate)	• Interface	
Degree of protection	Type 4X/NEMA 4X, Type 6/NEMA 6/IP67/IP68 enclosure	Proprietary infrared pulse signal	
Weight	2.1 kg (4.6 lbs)	• Power	
Cable inlet	2 x M20x1.5 cable gland or 2 x ½" NPT thread	3 V lithium battery (non-replaceable)	
Material (transducer)	ETFE (Ethylene Tetrafluoroethylene) or PVDF (Polyvinylidene Fluoride)		