Continuous level measurement Ultrasonic transmitters

SITRANS LU150

Overview



SITRANS LU150 is a short-range integrated ultrasonic level transmitter. This general purpose, 2-wire, 4 to 20 mA loop powered transmitter is ideal for liquids, slurries, and bulk materials in open or closed vessels to 5 m (16.4 ft).

Benefits

- · Easy to install, program, and maintain
- · Accurate and reliable
- Sanitary models available
- Patented Sonic Intelligence echo processing
- Integral temperature compensation

Application

The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications.

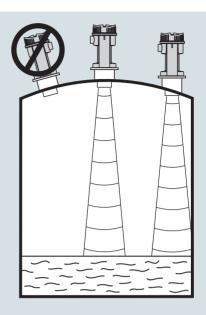
SITRANS LU150 is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

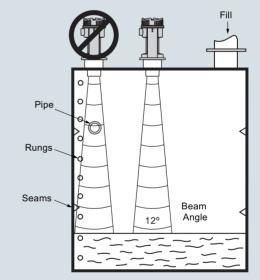
The reliability of the level data is based on the Sonic Intelligence echo processing algorithms. A filter discriminates between the true echo and false echoes from acoustic or electrical noises and agitator blades in motion. The ultrasonic pulse propagation time to the material and back is temperature-compensated and converted into distance for display, analog output.

 Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications

Configuration

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SITRANS LU150 mounting

Level measurement

Article No.

Article No. 7ML1930-1AC

7ML1830-1BK

7ML1830-1BR

7ML1830-1BT

7ML1830-1BU

7ML1830-1DQ

7ML1830-1DT

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Continuous level measurement Ultrasonic transmitters

SITRANS LU150

Technical specifications		Selection and ordering data	Article No
Mode of Operation		SITRANS LU150 Ultrasonic level transmitter	7ML5201-
Measuring principle	Ultrasonic level measurement	Continuous, non-contact, 5 m (16.4 ft) range.	0 🔳 🗖 0
Input		 Monitors level in liquids and slurries. Basic level performance. 	
Measuring range	0.25 5 m (0.8 16.4 ft)	\nearrow Click on the Article No. for the online	
Frequency	54 kHz	configuration in the PIA Life Cycle Portal.	
Output		Transducer/Process connection (PVDF)	_
mA	4 20 mA	PVDF copolymer, 2" NPT [(Taper), ANSI/ASME B1.20.1]	E
• Span	Proportional/ inversely proportional	PVDF copolymer, R 2" [(BSPT), EN 10226]	F
• Max. load	600 Ω in the loop at 24 V DC	PVDF copolymer, G 2" [(BSPP), EN ISO 228-1] PVDF copolymer, 4" Sanitary mounting	GJ
Power supply		Cable inlet	
Supply voltage	12 30 V DC, 0.1 A surge	M20 x 1.5 [General Purpose cable gland	в
Max. power consumption	0.75 W (25 mA at 24 V DC)	-20 +60 °C (-4 +140 °F) included]	
Certificates and approvals	CE, CSA _{US/C}	1/2" NPT stainless steel entry (no cable gland included)	с
Accuracy		· · · · · · · · · · · · · · · · · · ·	
Error in measurement	0.25 % of measuring range (in air)	Further designs	Order cod
Resolution	3 mm (0.125 inch)	Please add "-Z" to Article No. and specify Order code(s).	
Temperature compensation	Built in	Stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]:	Y15
Echo processing	Sonic Intelligence	Measuring-point number/identification	
Rated operation conditions		(max. 20 characters) specify in plain text	
Beam angle	12°	Test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and to ISO 9000	C11
Ambient temperature Standard 	-30 +60 °C (-22 +140 °F)	Operating Instructions	
Metallic mounting	-30 +60 °C (-22 +140 °F) -20 +60 °C (-4 +140 °F)	All literature is available to download for free, in a	
Storage temperature		range of languages, at	
Standard	-30 +60 °C (-22 +140 °F)	http://www.siemens.com/processinstrumentation/doc	umentation
 Metallic mounting 	-20 +60 °C (-4 +140 °F)	Accessories	Article No.
Max. static operating pressure	Normal atmospheric pressure	Tag, stainless steel, 12 x 45 mm (0.47 x 1.77 inch), one text line	7ML1930-
Design		Universal Box Bracket Mounting kit	7ML1830-
Weight	1.3 kg (2.9 lb)	Sanitary 4" mounting clamp	7ML1830-
 Material Electronics enclosure 	PBT	3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange	7ML1830-
Transducer	PVDF copolymer	adapter for 2" NPT	7 WL 1030-
Degree of protection	IP68 / NEMA 6 / TYPE 6	3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange	7ML1830-
Process connection	• 2" NPT [(Taper), ANSI/ASME	adapter for 2" BSPT	
	B1.20.1] • R 2" [(BSPT), EN 10226] • G 2" [(BSPP), EN ISO 228-1]	2" BSP nylon plastic locknut	7ML1830-
		2" NPT nylon plastic locknut	7ML1830-
Flange adapter	 4" sanitary 3" Universal, (fits DN 65, PN 10 and 3" ASME) 	Cable Gland - General Purpose -20 +60 °C (-4 +140 °F)	A5E34457

1 inlet for M20, optional 1/2" NPT

Cable inlet

Order code

4

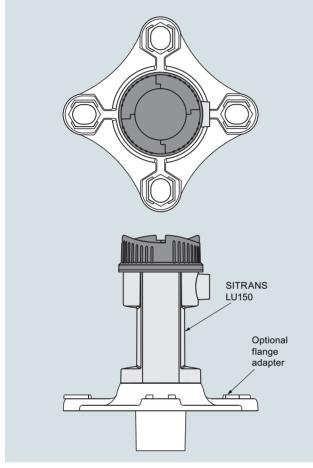
Continuous level measurement Ultrasonic transmitters

SITRANS LU150

Options

SITRANS LU150, Flange Adapter

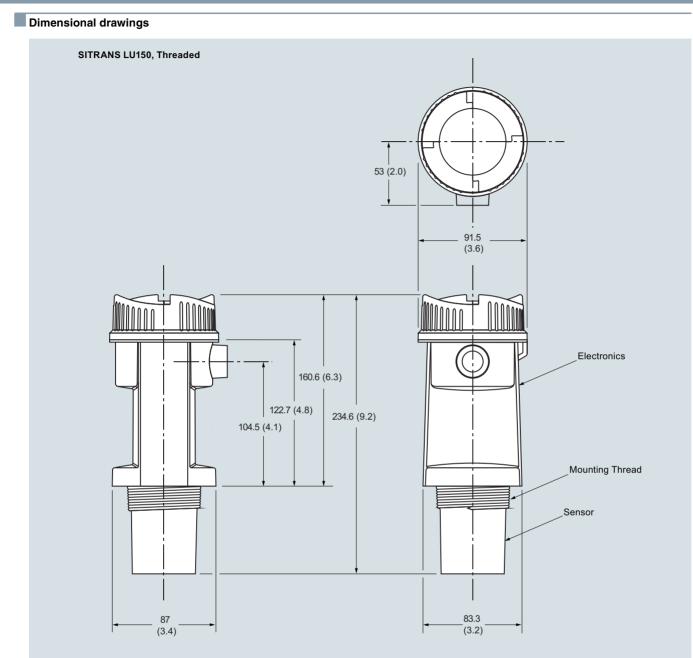
The SITRANS LU150 can be fitted with the optional 75 (3) flange adapter for mating to 3" ANSI, DIN 65 PN10 and JIS 10K3B flanges.



SITRANS LU150 optional flange adapter, dimensions in mm (inch)

Continuous level measurement Ultrasonic transmitters

SITRANS LU150

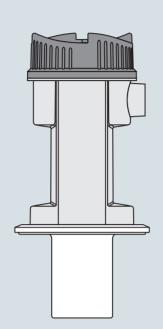


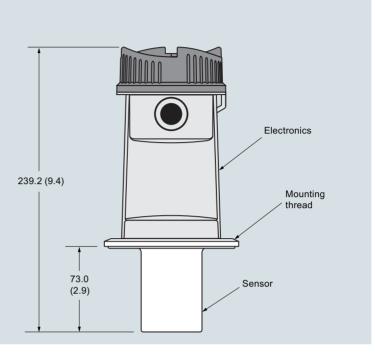
SITRANS LU150, dimensions in mm (inch)

Continuous level measurement Ultrasonic transmitters

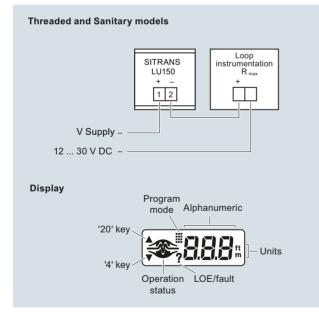
SITRANS LU150

Dimensional drawings (continued)





Circuit diagrams



SITRANS LU150 connections

SITRANS LU150, dimensions in mm (inch)

Continuous level measurement Ultrasonic transmitters

SITRANS LU180

Overview

Configuration



SITRANS LU180 is a short-range integrated ultrasonic level transmitter. It is intrinsically safe (ATEX, CSA, FM, IECEx, NEPSI), 2 wire, 4 to 20 mA loop powered, ideal for liquids, slurries, and bulk materials in open or closed vessels to 5 meters (16.4 feet).

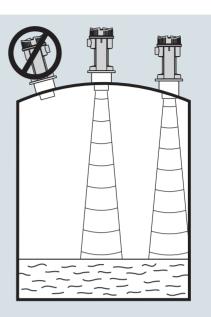
Benefits

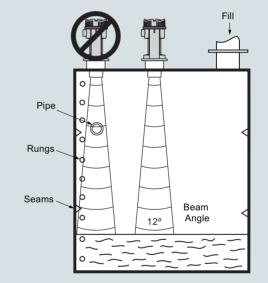
- · Easy to install, program, and maintain
- · Accurate and reliable
- Sanitary models available
- · Patented Sonic Intelligence echo processing
- Integral temperature compensation

Application

The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications. SITRANS LU180 is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries. The reliability of the level data is based on the Sonic Intelligence echo processing algorithms. A filter discriminates between the true echo and false echoes from acoustic or electrical noises and agitator blades in motion. The ultrasonic pulse propagation time to the material and back is temperature compensated and converted into distance for display, analog output.

• Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications





SITRANS LU180 mounting

Continuous level measurement Ultrasonic transmitters

SITRANS LU180

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Mode of operation	
Measuring principle	Ultrasonic level measurement
Input	
Measuring range	0.25 5 m (0.8 16.4 ft)
Frequency	54 kHz
Output	
mA	4 20 mA
• Span	Proportional/ inversely proportional
Max. load	600 Ω in the loop at 24 V DC
Power supply	
Supply voltage	12 30 V DC, 0.1 A surge
Max. power consumption	0.75 W (25 mA at 24 V DC)
Certificates and approvals	CSA: IS/ Class I, II, III, Div. 1, Groups: A, B, C, D, E, F, G T4 FM:
	IS/ Class I, II, III, Div. 1, Groups: A, B, C, D, E, F, G T4 ATEX:
	II 1G Ex ia IIC T4 Ga IECEx Ex ia IIC T4 Ga NEPSI Ex ia IIC T4 Ga
Accuracy	
Error in measurement	0.25 % of measuring range (in air)
Resolution	3 mm (0.125 inch)
Temperature compensation	Built in
Echo processing	Sonic Intelligence
Rated operation conditions	
Beam angle	12°
Ambient temperature Standard Metallic mounting 	-40 +60 °C (-40 +140 °F) -20 +60 °C (-4 +140 °F)
Storage temperature • Standard • Metallic mounting	-40 +60 °C (-40 +140 °F) -20 +60 °C (-4 +140 °F)
Max. static operating pressure	Normal atmospheric pressure
Design	
Weight	1.3 kg (2.9 lb)
Material • Electronics enclosure • Transducer	PBT PVDF copolymer
Degree of protection	IP68 / NEMA 6 / TYPE 6
Process connection	 2" NPT [(Taper), ANSI/ASME B1.20.1] R 2" [(BSPT), EN 10226] G 2" [(BSPP), EN ISO 228-1] 4" sanitary
Flange adapter	3" Universal (fits DN 65, PN 10 and 3" ASME)
Cable inlet	1 inlet for M20, optional 1/2" NPT

Cable	inlet
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election and ordering data	Article No.	
ITRANS LU180 Ultrasonic level transmitter	7ML5202-	
ontinuous, non-contact, 5 m (16.4 ft) range. onitors level in liquids and slurries. Basic level erformance for intrinsically safe applications.	0 = 0	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
ransducer/Process connection /DF copolymer, 2" NPT Taper), ANSI/ASME B1.20.1] /DF copolymer, R 2" [(BSPT), EN 10226] /DF copolymer, G 2" [(BSPP), EN ISO 228-1]	E F G	
VDF copolymer, 4" Sanitary mounting	J	
able inlet 20 x 1.5 [General Purpose cable gland 10 +60 °C (-4 +140 °F) included] 2' NPT stainless steel entry 10 cable gland included)	B	
urther designs	Order code	
ease add "-Z" to Article No. nd specify Order code(s).		
ainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: easuring-point number/identification nax. 20 characters) specify in plain text	Y15	
est certificate: Manufacturer's test certificate to DIN 55350, Part 18 and to ISO 9000	C11	
perating Instructions		
Il literature is available to download for free, in a inge of languages, at		
tp://www.siemens.com/processinstrumentation/docu	mentation.	
ccessories	Article No.	
ag, stainless steel, 12 x 45 mm (0.47 x 1.77 inch), ne text line	7ML1930-1AC	
niversal box bracket mounting kit	7ML1830-1BK	
anitary 4" mounting clamp	7ML1830-1BR	
ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange dapter for 2" NPT	7ML1830-1BT	
ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange dapter for 2" BSPT	7ML1830-1BU	
BSP nylon plastic locknut	7ML1830-1DQ	

2" BSP nylon plastic locknut 2" NPT nylon plastic locknut 7ML1830-1DT Cable Gland, General Purpose -20 ... +60 °C (-4 ... +140 °F) A5E34457564

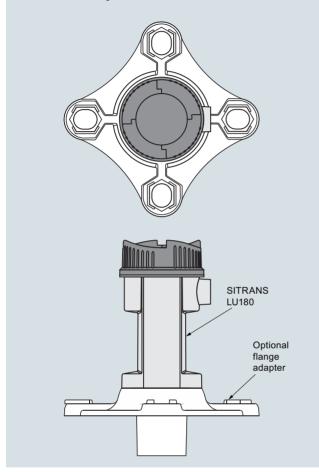
Continuous level measurement Ultrasonic transmitters

SITRANS LU180

Options

SITRANS LU180, Flange Adapter

The SITRANS LU180 can be fitted with the optional 75 (3) flange adapter for mating to 3" ANSI, DIN 65 PN10 and JIS 10K3B flanges.



SITRANS LU180 optional flange adapter, dimensions in mm (inch)

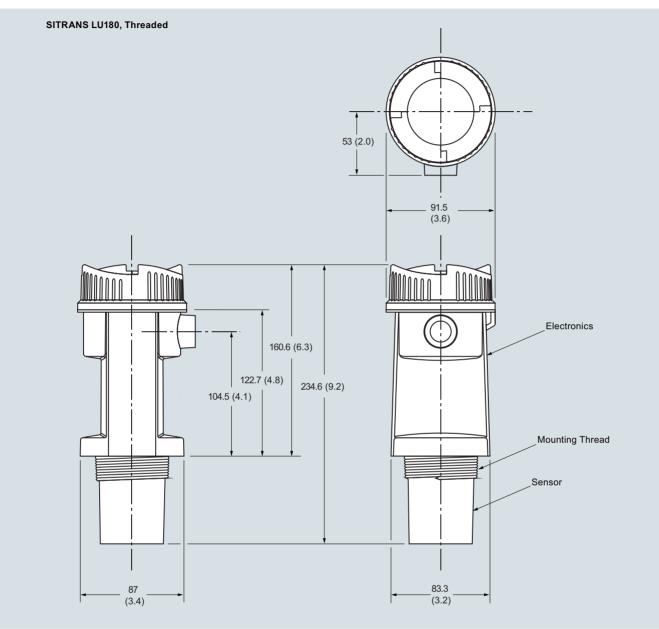
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Continuous level measurement Ultrasonic transmitters

SITRANS LU180

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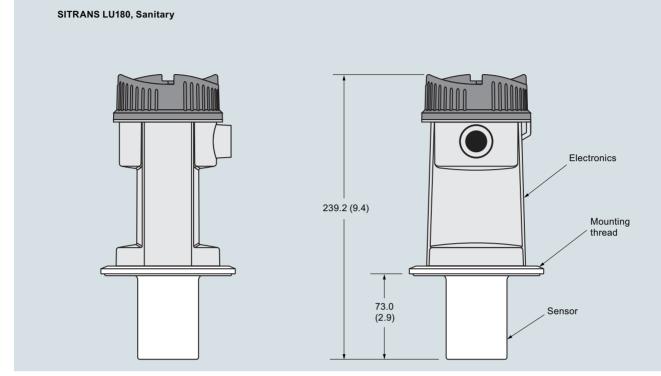
Dimensional drawings



SITRANS LU180, dimensions in mm (inch)

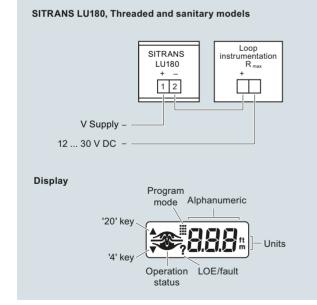
Continuous level measurement Ultrasonic transmitters

SITRANS LU180



SITRANS LU180, dimensions in mm (inch)

Circuit diagrams



SITRANS LU180 connections