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.

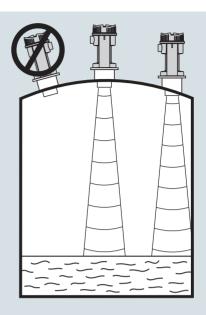
SITRANS LU150 is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

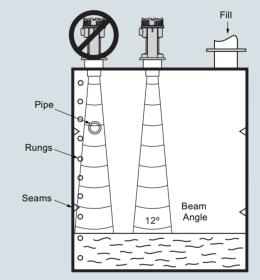
The reliability of the level data is based on the Sonic Intelligence echo processing algorithms. A filter discriminates between the true echo and false echoes from acoustic or electrical noises and agitator blades in motion. The ultrasonic pulse propagation time to the material and back is temperature-compensated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

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

Configuration

© Siemens 2020





SITRANS LU150 mounting

Article No.

7ML5201-

Continuous level measurement Ultrasonic transmitters

SITRANS LU150

Technical specifications		Selection and ordering data	
Mode of Operation		SITRANS LU150 Ultrasonic level transmitter	
Measuring principle	Ultrasonic level measurement	Continuous, non-contact, 5 m (16.4 ft) range.	
Input		Monitors level in liquids and slurries. Basic level performance.	
Measuring range	0.25 5 m (0.8 16.4 ft)	↗ Click on the Article No. for the online	
Frequency	54 kHz	configuration in the PIA Life Cycle Portal	
Output		Transducer/Process connection (PVDF) PVDF copolymer, 2" NPT	
mA	4 20 mA	[(Taper), ANSI/ASME B1.20.1]	
• Span	Proportional/inversely proportional	PVDF copolymer, R 2" [(BSPT), EN 10226]	
Max. load	600 Ω in the loop at 24 V DC	PVDF copolymer, G 2" [(BSPP), EN ISO 228-1]	
Power supply		PVDF copolymer, 4" Sanitary mounting	
Supply voltage	12 30 V DC, 0.1 A surge	Cable inlet M20 x 1.5 [General Purpose cable gland	
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	
Accuracy		(no cable gland included)	
Error in measurement	0.25 % of measuring range (in air)	Further designs	
Resolution	3 mm (0.125 inch)	Please add "-Z" to Article No.	
Temperature compensation	Built in	and specify Order code(s).	
Echo processing	Sonic Intelligence	Stainless steel tag [13 x 45 mm (0.5 x 1.75 incl 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	
Ambient temperatureStandard	-30 +60 °C (-22 +140 °F)	Operating Instructions	
Metallic mounting	-20 +60 °C (-4 +140 °F)	All literature is available to download for free, in range of languages, at	
Storage temperature Standard 	-30 +60 °C (-22 +140 °F)	http://www.siemens.com/processinstrumentation	
Metallic mounting	-20 +60 °C (-4 +140 °F)	Accessories	
Max. static operating pressure	Normal atmospheric pressure	Tag, stainless steel, 12 x 45 mm (0.47 x 1.77 ir one text line	
Weight	1.3 kg (2.9 lb)	Universal Box Bracket Mounting kit	
0	1.5 kg (2.9 lb)	Sanitary 4" mounting clamp	
Material Electronics enclosure Transducer 	PBT PVDF copolymer	3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flan adapter for 2" NPT	
Degree of protection	IP68 / NEMA 6 / TYPE 6	3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flan adapter for 2" BSPT	
Process connection	 2" NPT [(Taper), ANSI/ASME B1.20.1] 	2" BSP nylon plastic locknut	
	• R 2" [(BSPT), EN 10226]	2" NPT nylon plastic locknut	
	 G 2" [(BSPP), EN ISO 228-1] 4" sanitary 	Cable Gland - General Purpose -20 +60 °C	
Flange adapter	3" Universal, (fits DN 65, PN 10 and 3" ASME)	(-4 +140 °F)	

Cable inlet

- 1 inlet for M20, optional 1/2" NPT
- s, non-contact, 5 m (16.4 ft) range. 0 0 0 vel in liquids and slurries. performance. n the Article No. for the online ration in the PIA Life Cycle Portal. er/Process connection (PVDF) olymer, 2" NPT NSI/ASME B1.20.1] Е olymer, R 2" [(BSPT), EN 10226] F olymer, G 2" [(BSPP), EN ISO 228-1] G olymer, 4" Sanitary mounting J [General Purpose cable gland °C (-4 ... +140 °F) included] в ainless steel entry С land included) esigns Order code "-Z" to Article No. y Order code(s). teel tag [13 x 45 mm (0.5 x 1.75 inch)]: -point number/identification Y15 haracters) specify in plain text cate: Manufacturer's test certificate 5350, Part 18 and to ISO 9000 C11 Instructions e is available to download for free, in a nguages, at siemens.com/processinstrumentation/documentation Article No. ies 7ML1930-1AC ess steel, 12 x 45 mm (0.47 x 1.77 inch), e 7ML1830-1BK Box Bracket Mounting kit mounting clamp 7ML1830-1BR ON 65 PN 10, JIS 10K 3B ETFE Flange 7ML1830-1BT 2" NPT ON 65 PN 10, JIS 10K 3B ETFE Flange 7ML1830-1BU 2" BSPT 7ML1830-1DQ on plastic locknut 7ML1830-1DT
 - on plastic locknut id - General Purpose -20 ... +60 °C A5E34457564 °F)

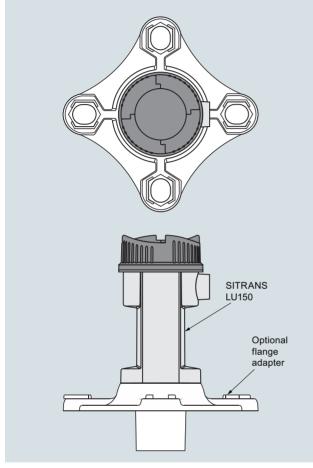
Continuous level measurement Ultrasonic transmitters

SITRANS LU150

Options

SITRANS LU150, Flange Adapter

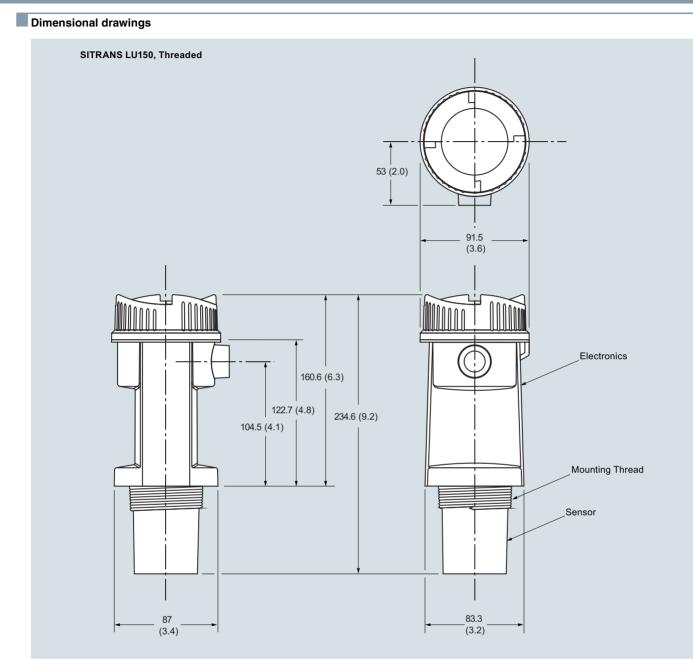
The SITRANS LU150 can be fitted with the optional 75 (3) flange adapter for mating to 3" ANSI, DIN 65 PN10 and JIS 10K3B flanges.



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

Continuous level measurement Ultrasonic transmitters

SITRANS LU150



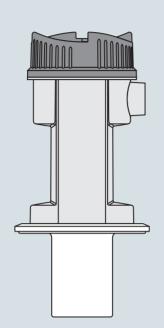
SITRANS LU150, dimensions in mm (inch)

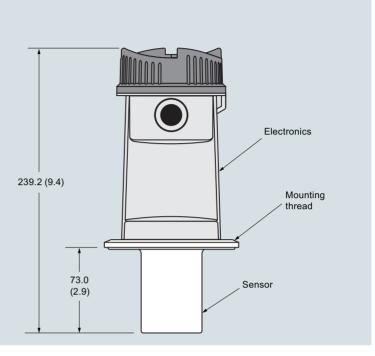
Continuous level measurement Ultrasonic transmitters

SITRANS LU150

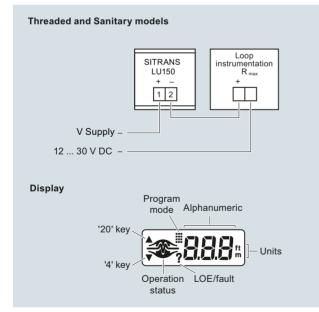
Dimensional drawings (continued)

SITRANS LU150, Sanitary





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).

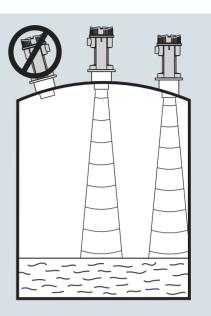
Benefits

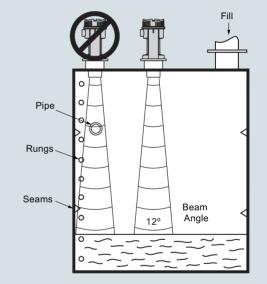
- · Easy to install, program, and maintain
- · Accurate and reliable
- Sanitary models available
- · Patented Sonic Intelligence echo processing
- Integral temperature compensation

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 © Siemens 2020

SITRANS LU180

Technical specifications		Selection and ordering da
Mode of operation		SITRANS LU180 Ultrasonic lev
Measuring principle	Ultrasonic level measurement	Continuous, non-contact, 5 m (10
Input		Monitors level in liquids and sluri performance for intrinsically safe
Measuring range	0.25 5 m (0.8 16.4 ft)	↗ Click on the Article No. for t
Frequency	54 kHz	configuration in the PIA Life
Output		Transducer/Process connectio
mA	4 20 mA	PVDF copolymer, 2" NPT [(Taper), ANSI/ASME B1.20.1]
SpanMax. load	Proportional/ inversely proportional 600 Ω in the loop at 24 V DC	PVDF copolymer, R 2" [(BSPT), E
Power supply		PVDF copolymer, G 2" [(BSPP), E PVDF copolymer, 4" Sanitary mo
Supply voltage	12 30 V DC, 0.1 A surge	Cable inlet
Max. power consumption	0.75 W (25 mA at 24 V DC)	M20 x 1.5 [General Purpose cab
Certificates and approvals	CSA:	-20 +60 °C (-4 +140 °F) incl 1/2" NPT stainless steel entry
	IS/ Class I, II, III, Div. 1, Groups: A, B, C, D, E, F, G T4	(no cable gland included)
	FM:	Further designs
	IS/ Class I, II, III, Div. 1, Groups: A, B, C, D, E, F, G T4	Please add "-Z" to Article No. and specify Order code(s).
	ATEX:	Stainless steel tag [13 x 45 mm (
	II 1G Ex ia IIC T4 Ga IECEx Ex ia IIC T4 Ga	Measuring-point number/identific (max. 20 characters) specify in p
	NEPSI Ex ia IIC T4 Ga	Test certificate: Manufacturer's te M to DIN 55350, Part 18 and to I
Accuracy Error in measurement	0.25 % of measuring range (in air)	Operating Instructions
Resolution	3 mm (0.125 inch)	All literature is available to down
Temperature compensation	Built in	range of languages, at
Echo processing	Sonic Intelligence	http://www.siemens.com/process
Rated operation conditions		Accessories
Beam angle	12°	Tag, stainless steel, 12 x 45 mm one text line
Ambient temperature		Universal box bracket mounting
 Standard Metallic mounting 	-40 +60 °C (-40 +140 °F) -20 +60 °C (-4 +140 °F)	Sanitary 4" mounting clamp
Storage temperature	, , , ,	3" ASME, DN 65 PN 10, JIS 10K adapter for 2" NPT
StandardMetallic mounting	-40 +60 °C (-40 +140 °F) -20 +60 °C (-4 +140 °F)	3" ASME, DN 65 PN 10, JIS 10K adapter for 2" BSPT
Max. static operating pressure	Normal atmospheric pressure	2" BSP nylon plastic locknut
Design		2" NPT nylon plastic locknut
Weight	1.3 kg (2.9 lb)	Cable Gland, General Purpose
Material	227	-20 +60 °C (-4 +140 °F)
 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] 	
Flange adapter	 4" sanitary 3" Universal (fits DN 65, PN 10 and 3" ASME) 	
Cable inlet	1 inlet for M20, optional 1/2" NPT	

Selection and ordering data	Article No.	
SITRANS LU180 Ultrasonic level transmitter	7ML5202-	
Continuous, non-contact, 5 m (16.4 ft) range. Monitors level in liquids and slurries. Basic level performance for intrinsically safe applications.	0 = 0	
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Transducer/Process connection PVDF copolymer, 2" NPT [(Taper), ANSI/ASME B1.20.1] PVDF copolymer, R 2" [(BSPT), EN 10226] PVDF copolymer, G 2" [(BSPP), EN ISO 228-1] PVDF copolymer, 4" Sanitary mounting	E F G J	
Cable inlet M20 x 1.5 [General Purpose cable gland -20 +60 °C (-4 +140 °F) included] 1/2" NPT stainless steel entry (no cable gland included)	B	
Further designs	Order code	
Please add "-2" to Article No. and specify Order code(s).		
Stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: Measuring-point number/identification (max. 20 characters) specify in plain text	Y15	
Test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and to ISO 9000	C11	
Operating Instructions		
All literature is available to download for free, in a range of languages, at		
http://www.siemens.com/processinstrumentation/documentation/	mentation.	
Accessories	Article No.	
Tag, stainless steel, 12 x 45 mm (0.47 x 1.77 inch), one text line	7ML1930-1AC	
Universal box bracket mounting kit	7ML1830-1BK	
Sanitary 4" mounting clamp	7ML1830-1BR	
ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange 7ML1830-1BT dapter for 2" NPT		
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange 7ML1830-1B adapter for 2" BSPT 7		
2" BSP nylon plastic locknut	7ML1830-1DQ	

7ML1830-1DT

A5E34457564

4

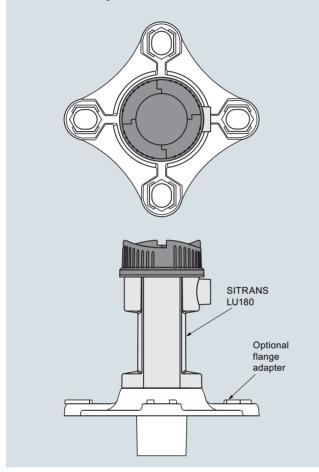
Continuous level measurement Ultrasonic transmitters

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)

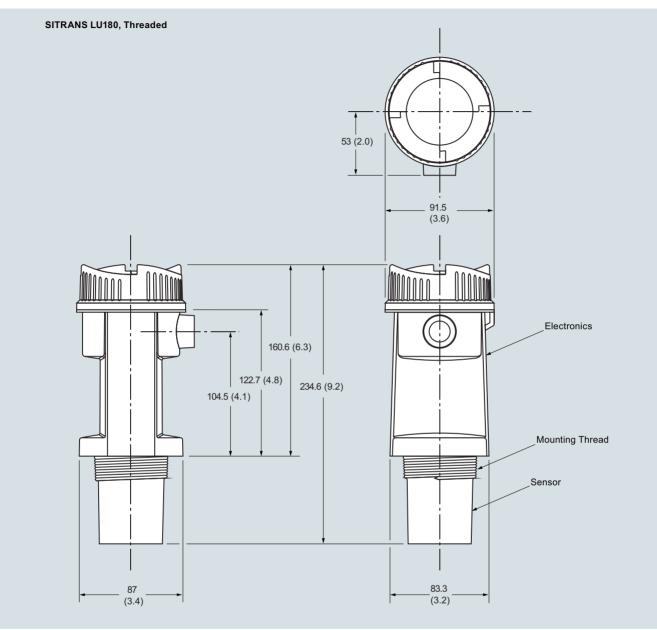
4

Continuous level measurement Ultrasonic transmitters

SITRANS LU180

4

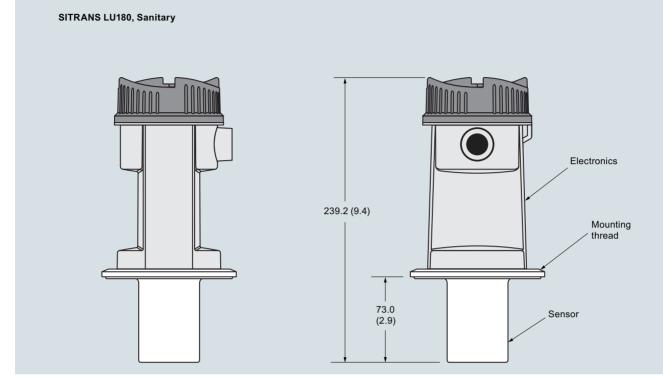
Dimensional drawings



SITRANS LU180, dimensions in mm (inch)

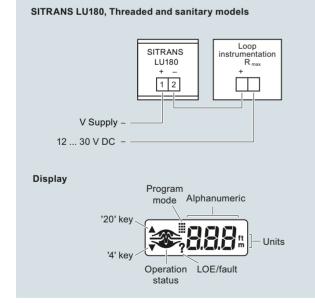
Continuous level measurement Ultrasonic transmitters

SITRANS LU180



SITRANS LU180, dimensions in mm (inch)

Circuit diagrams



SITRANS LU180 connections