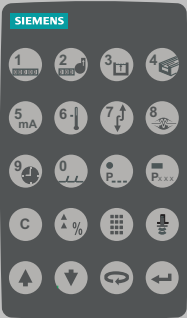


Technical specifications

Ultrasonic Transmitter Selection Guide

Criteria	SITRANS Probe LU240	SITRANS LU150/LU180
Range	0.2 ... 6 m (8 inch ... 20 ft) 0.2 ... 12 m (8 inch ... 40 ft)	0.25 ... 5 m (0.8 ... 16.4 ft)
Typical applications	Chemical storage vessels, filter beds, liquid storage vessels	Chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications
Output	4 ... 20 mA/HART	4 ... 20 mA loop powered
Communications	HART, SIMATIC PDM	N/A
Power specifications	HART: 4 ... 20 mA, 10.5 ... 30 V DC	12 ... 30 V DC, 0.1 A surge, max. 600 Ω in the loop at 24 V DC
Approvals	FM, CSA _{US/IC} , CE, RCM, ATEX, IECEx, FM, INMETRO, NEPSI, SABS	CE, CSA _{US/IC} , FM, ATEX, RCM, NEPSI, IECEx

A5E36563512



MultiRanger 100/200
HydroRanger 200
SITRANS Probe LU HART*
SITRANS LU

7ML5830-2AJ



SITRANS Probe LU PROFIBUS

* **Note:** To order the IS version of this hand programmer, order 7ML5830-2AH.

Handheld programmer selection guide

Level Measurement

Continuous level measurement

Ultrasonic / Ultrasonic transmitters

Overview

SITRANS LU150

- Application
 - General purpose, 2 wire, 4 to 20 mA loop powered transmitter is ideal for liquids, slurries, and bulk materials in open or closed vessels.
- Device description
 - Sanitary models available
 - Patented Sonic Intelligence echo processing
 - Integral temperature compensation

SITRANS LU180

- Application
 - Intrinsically safe (ATEX, CSA, FM, IECEx, NEPSI), 2 wire, 4 to 20 mA loop powered transmitter is ideal for liquids, slurries, and bulk materials in open or closed vessels to 5 meters (16.4 feet).
- Device description
 - Sanitary models available
 - Patented Sonic Intelligence echo processing
 - Integral temperature compensation

SITRANS Probe LU240

- Application
 - 2-wire loop powered ultrasonic transmitter for level, volume and flow monitoring of liquids in open channels, storage vessels, and simple process vessels.
- Device description
 - Continuous level measurement up to 12 m (40 ft) range
 - Next generation Process Intelligence signal processing
 - Fast and easy configuration with quick start wizards

The Probe

- Application
 - Compact level transmitter with integrated transducer for accurate level measurement for liquid applications.
- Device description
 - Simple, compact and competitively priced ultrasonic level transmitter in several versions for maximum versatility:
 - Three-wire system with 5 m model 24 V DC
 - Two-wire system with current loop

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

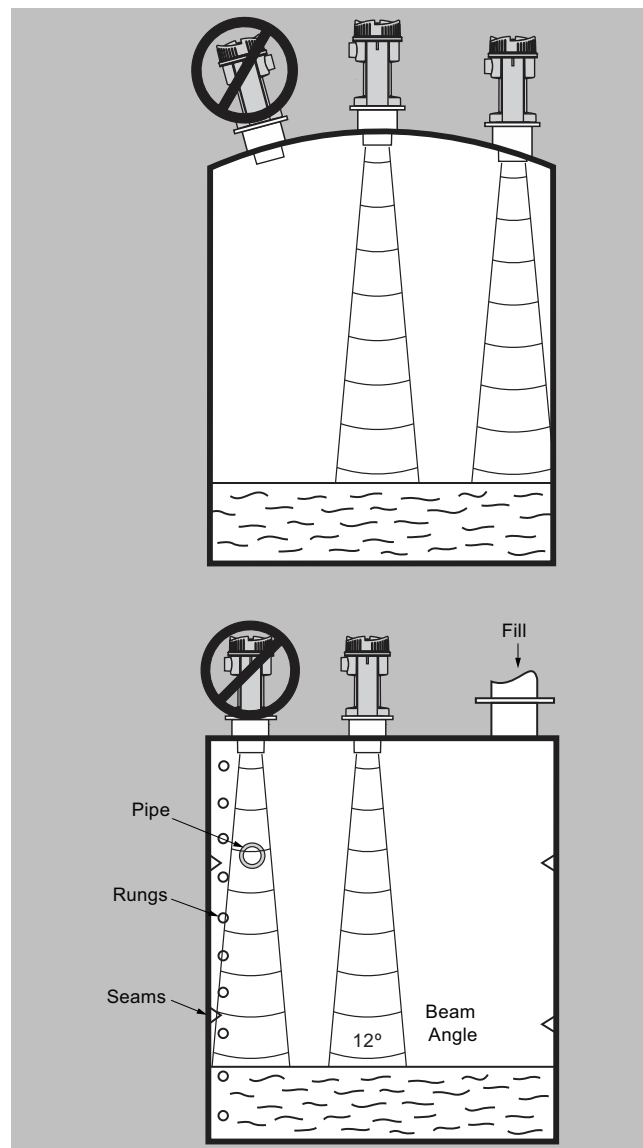
The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications.

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



SITRANS LU150 mounting

Level Measurement

Continuous level measurement

Ultrasonic / Ultrasonic transmitters / SITRANS LU150

Selection and ordering data

	Article No.			
SITRANS LU150 Ultrasonic level transmitter Continuous, non-contact, 5 m (16.4 ft) range. Monitors level in liquids and slurries. Basic level performance.	7ML5201- 0	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.				
Transducer/Process connection (PVDF)				
PVDF copolymer, 2" NPT [(Taper), ASME B1.20.1]		E		
PVDF copolymer, R 2" [(BSPT), EN 10226]		F		
PVDF copolymer, G 2" [(BSPP), EN ISO 228-1]		G		
PVDF copolymer, 4" Sanitary mounting		J		
Cable inlet				
M20 x 1.5 [General Purpose cable gland -20 ... +60 °C (-4 ... +140 °F) included]			B	
1/2" NPT stainless steel entry (no cable gland included)			C	

Selection and Ordering data	Order code
Further designs	
Please add "-Z" 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
Declaration of Compliance, EN 10204, 2.1, Delivery meets Order Requirements	C11

Accessories	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	
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
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT	7ML1830-1BT
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT	7ML1830-1BU
2" BSP nylon plastic locknut	7ML1830-1DQ
2" NPT nylon plastic locknut	7ML1830-1DT
Cable Gland - General Purpose -20 ... +60 °C (-4 ... +140 °F)	A5E34457564

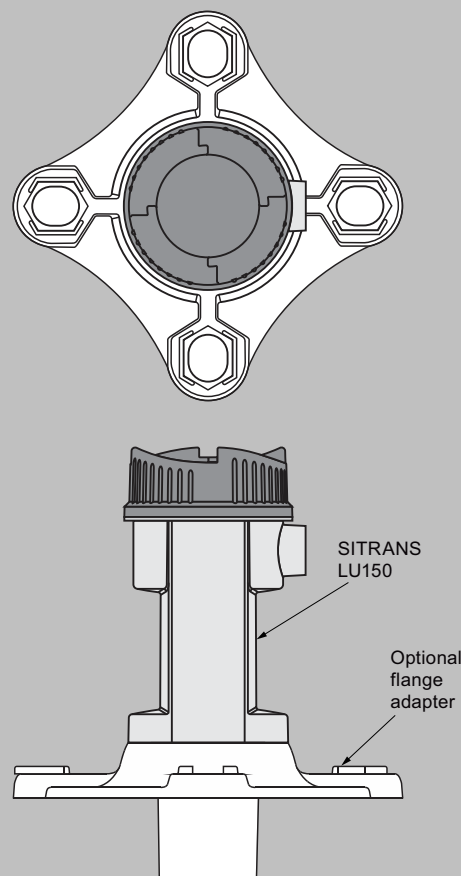
Technical specifications

SITRANS LU150	
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	
	cCSA _{US} , CE, UKCA
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	-30 ... +60 °C (-22 ... +140 °F)
• Metallic mounting	-20 ... +60 °C (-4 ... +140 °F)
Storage temperature	
• Standard	-30 ... +60 °C (-22 ... +140 °F)
• Metallic mounting	-20 ... +60 °C (-4 ... +140 °F)
Max. static operating pressure	Normal atmospheric pressure
Design	
Weight	1.3 kg (2.9 lb)
Material	
• Electronics enclosure	PBT
• Transducer	PVDF copolymer
Degree of protection	IP68 / NEMA 6 / TYPE 6
Process connection	
	<ul style="list-style-type: none"> • 2" NPT [(Taper), 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

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.



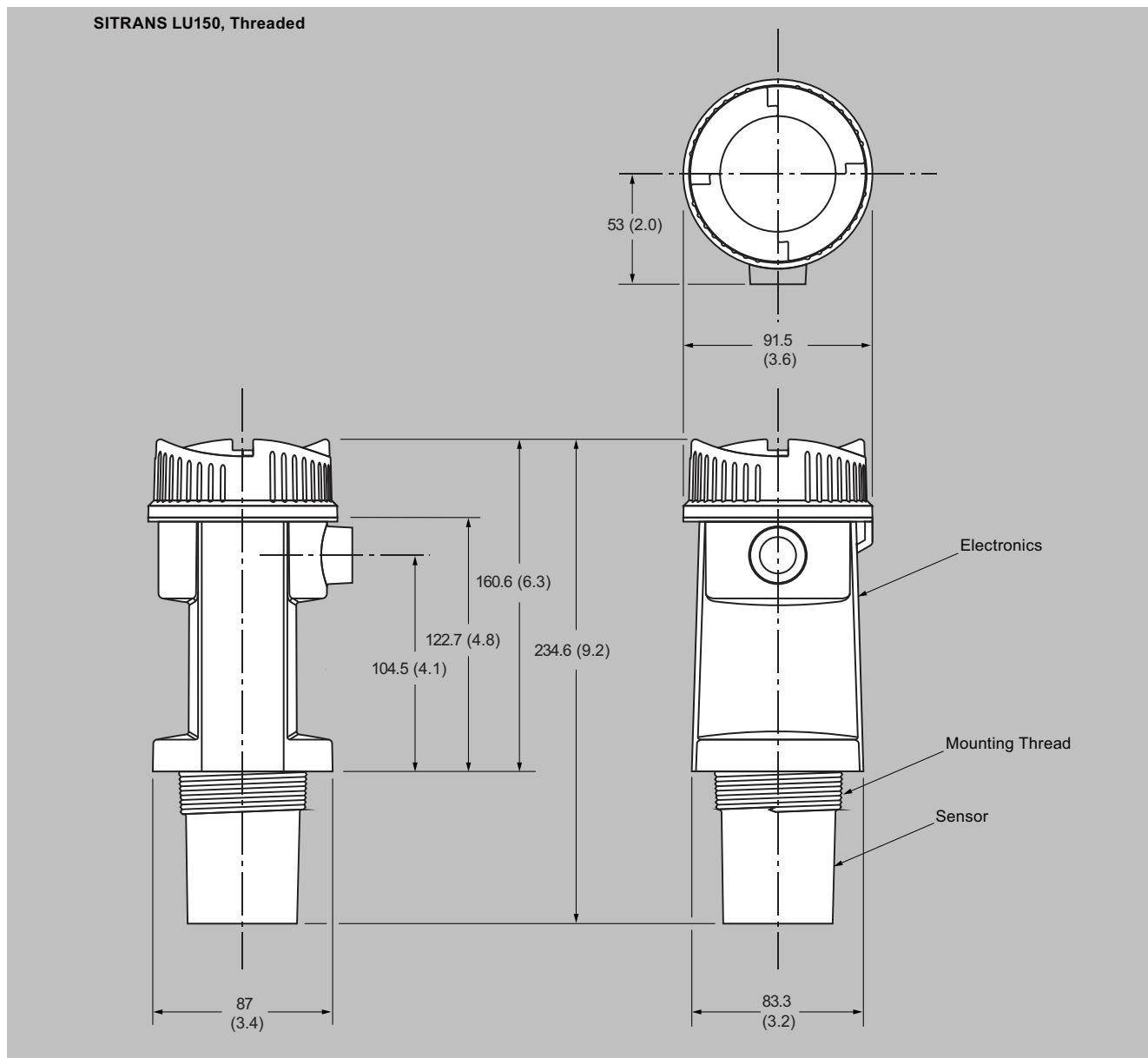
SITRANS LU150 optional flange adapter, dimensions in mm (inch)

Level Measurement

Continuous level measurement

Ultrasonic / Ultrasonic transmitters / SITRANS LU150

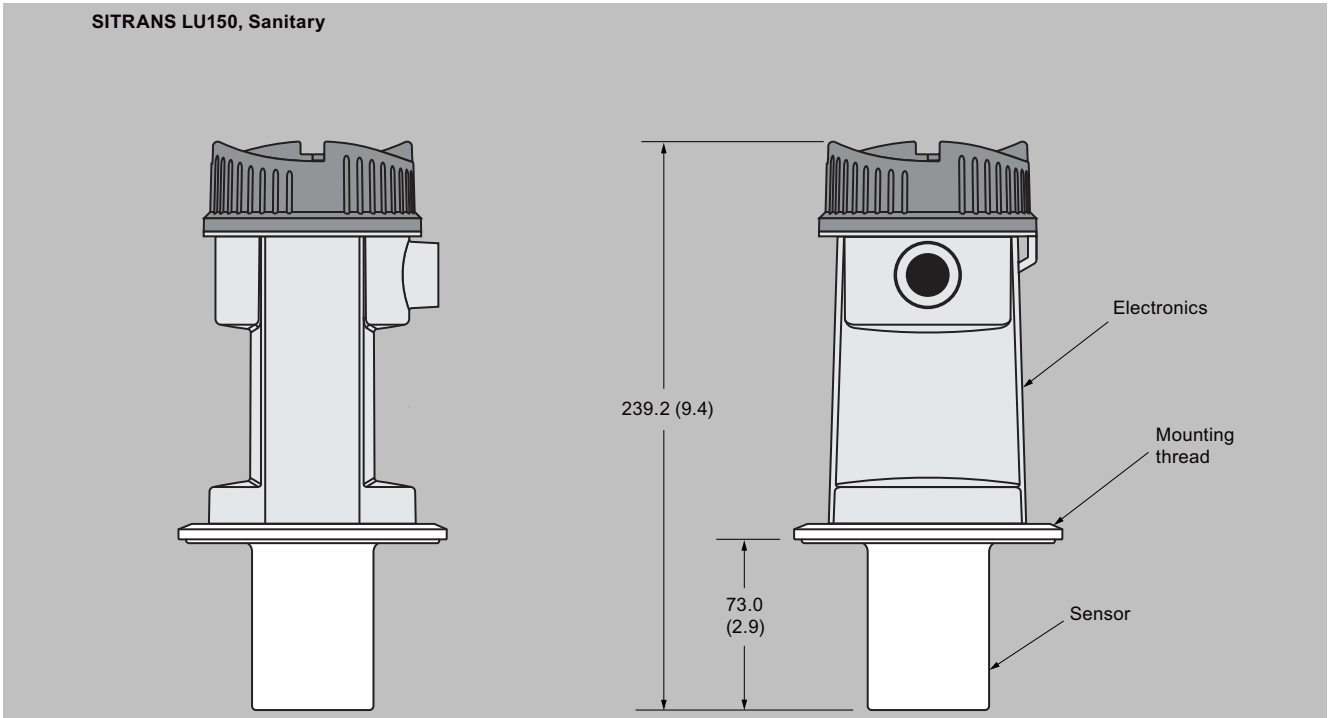
Dimensional drawings



SITRANS LU150, dimensions in mm (inch)

Dimensional drawings (continued)

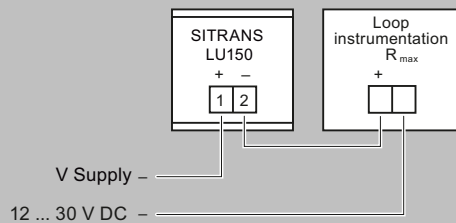
SITRANS LU150, Sanitary



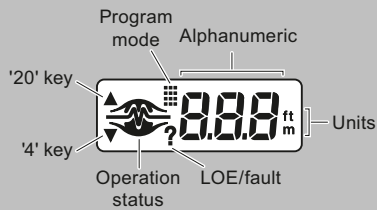
SITRANS LU150, dimensions in mm (inch)

Circuit diagrams

Threaded and Sanitary models



Display



SITRANS LU150 connections

Level Measurement

Continuous level measurement

Ultrasonic / Ultrasonic transmitters / SITRANS LU180

Overview



SITRANS LU180 is a short-range integrated ultrasonic level transmitter. It is intrinsically safe (ATEX, UKEX, 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

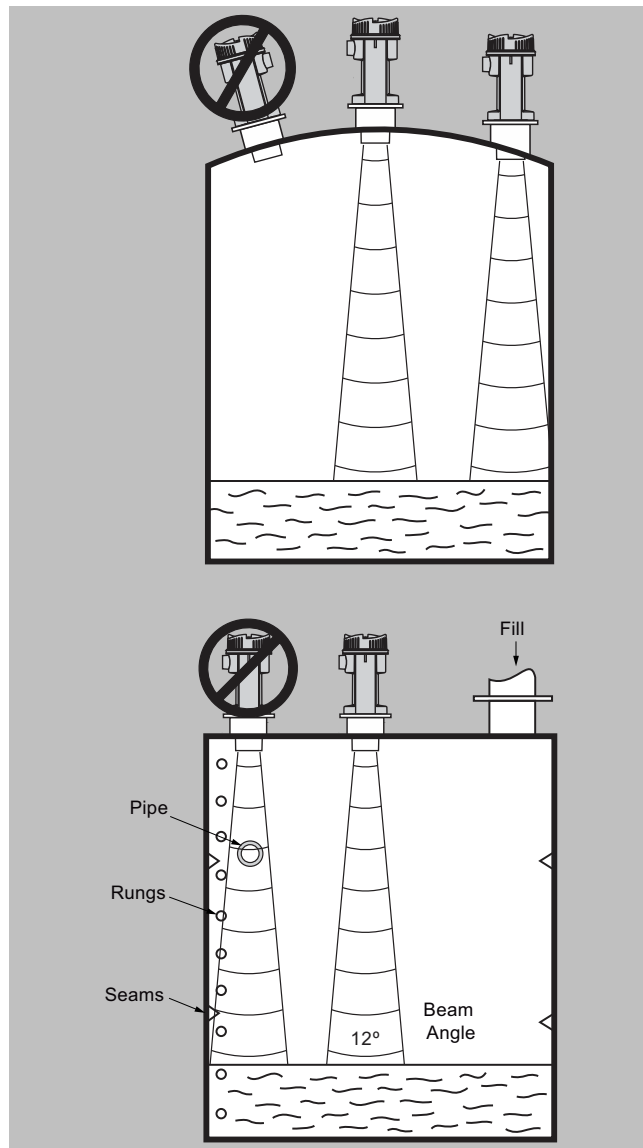
- Easy to install, program, and maintain
- Accurate and reliable
- Sanitary models available
- Patented Sonic Intelligence echo processing
- Integral temperature compensation

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

Configuration



SITRANS LU180 mounting

Selection and ordering data

	Article No.			
SITRANS LU180 Ultrasonic level transmitter Continuous, non-contact, 5 m (16.4 ft) range. Monitors level in liquids and slurries. Basic level performance for intrinsically safe applications.	7ML5202- 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]		E		
PVDF copolymer, R 2" [(BSPT), EN 10226]		F		
PVDF copolymer, G 2" [(BSPP), EN ISO 228-1]		G		
PVDF copolymer, 4" Sanitary mounting		J		
Cable inlet				
M20 x 1.5 [General Purpose cable gland -20 ... +60 °C (-4 ... +140 °F) included]			B	
1/2" NPT stainless steel entry (no cable gland included)			C	

Selection and Ordering data	Order code
Further designs	
Please add "-Z" 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
Declaration of Compliance, EN 10204, 2.1, Delivery meets Order Requirements	C11

Accessories	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation .	
Accessories	
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
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT	7ML1830-1BT
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT	7ML1830-1BU
2" BSP nylon plastic locknut	7ML1830-1DQ
2" NPT nylon plastic locknut	7ML1830-1DT
Cable Gland, General Purpose -20 ... +60 °C (-4 ... +140 °F)	A5E34457564

Level Measurement

Continuous level measurement

Ultrasonic / Ultrasonic transmitters / SITRANS LU180

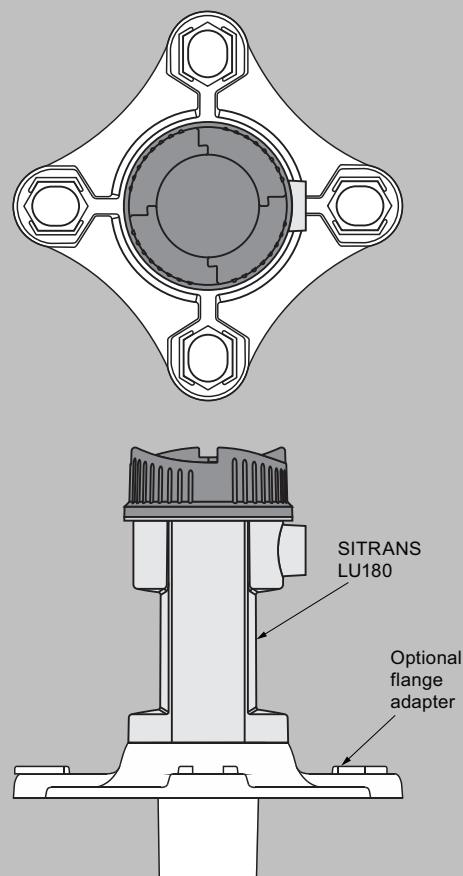
Technical specifications

SITRANS LU180	
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, Ta = -40 °C to +60 °C; UKEX II 1G Ex ia IIC T4 Ga, Ta = -40 °C to +60 °C; IECEx Ex ia IIC T4 Ga, Ta = -40 °C to +60 °C; 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	-40 ... +60 °C (-40 ... +140 °F)
• Metallic mounting	-20 ... +60 °C (-4 ... +140 °F)
Storage temperature	
• Standard	-40 ... +60 °C (-40 ... +140 °F)
• Metallic mounting	-20 ... +60 °C (-4 ... +140 °F)
Max. static operating pressure	Normal atmospheric pressure
Design	
Weight	1.3 kg (2.9 lb)
Material	
• Electronics enclosure	PBT
• Transducer	PVDF copolymer
Degree of protection	
IP68 / NEMA 6 / TYPE 6	
Process connection	
• 2" NPT [(Taper), 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

Options

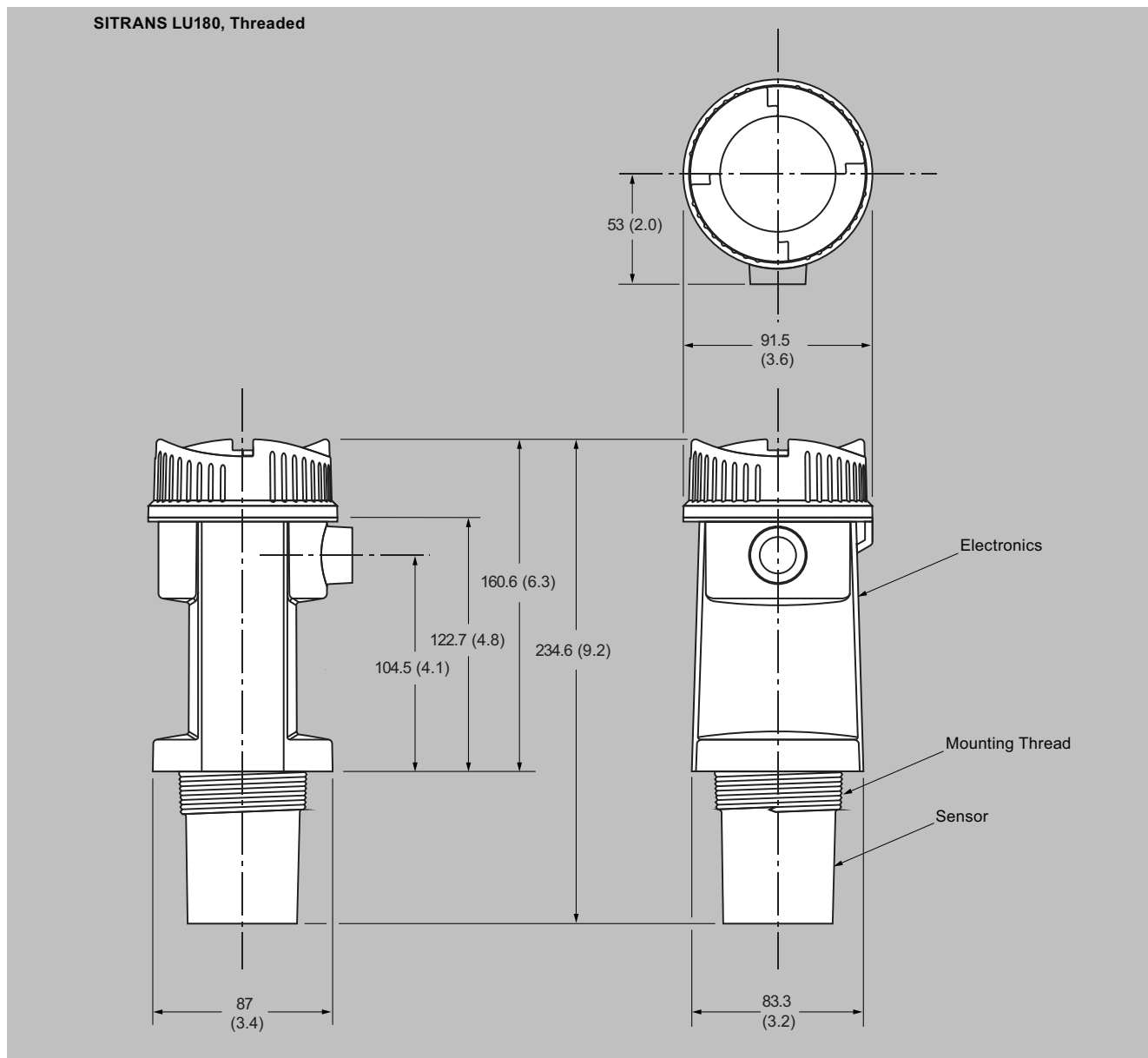
SITRANS LU180, Flange Adapter

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



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

Dimensional drawings



SITRANS LU180, dimensions in mm (inch)

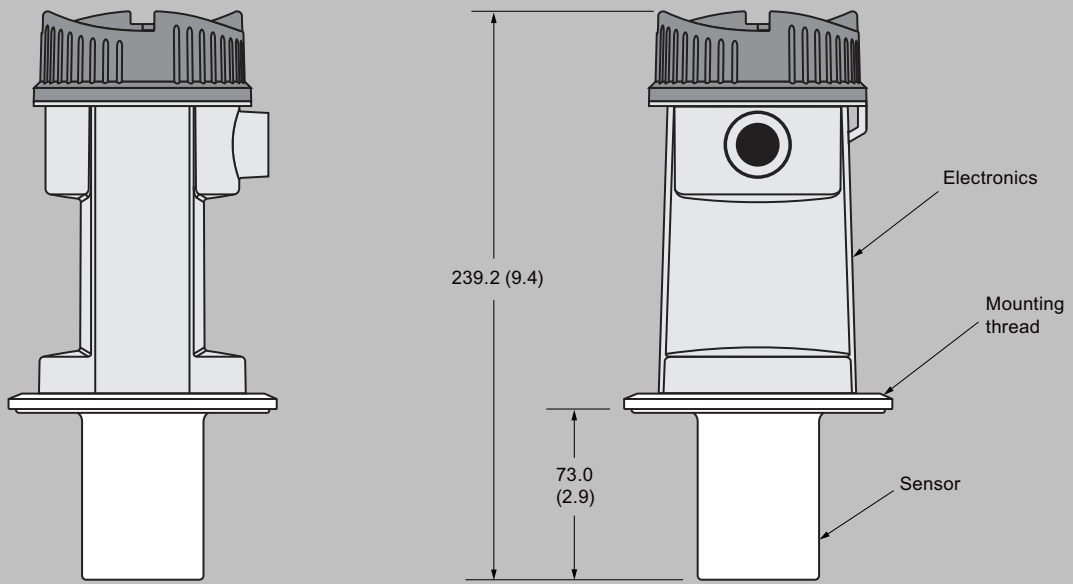
Level Measurement

Continuous level measurement

Ultrasonic / Ultrasonic transmitters / SITRANS LU180

Dimensional drawings (continued)

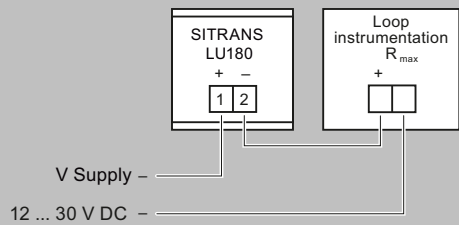
SITRANS LU180, Sanitary



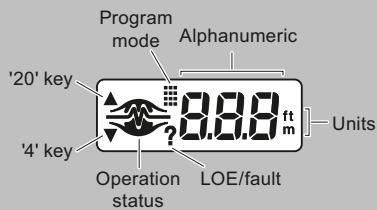
SITRANS LU180, dimensions in mm (inch)

Circuit diagrams

SITRANS LU180, Threaded and sanitary models



Display



SITRANS LU180 connections