

## 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

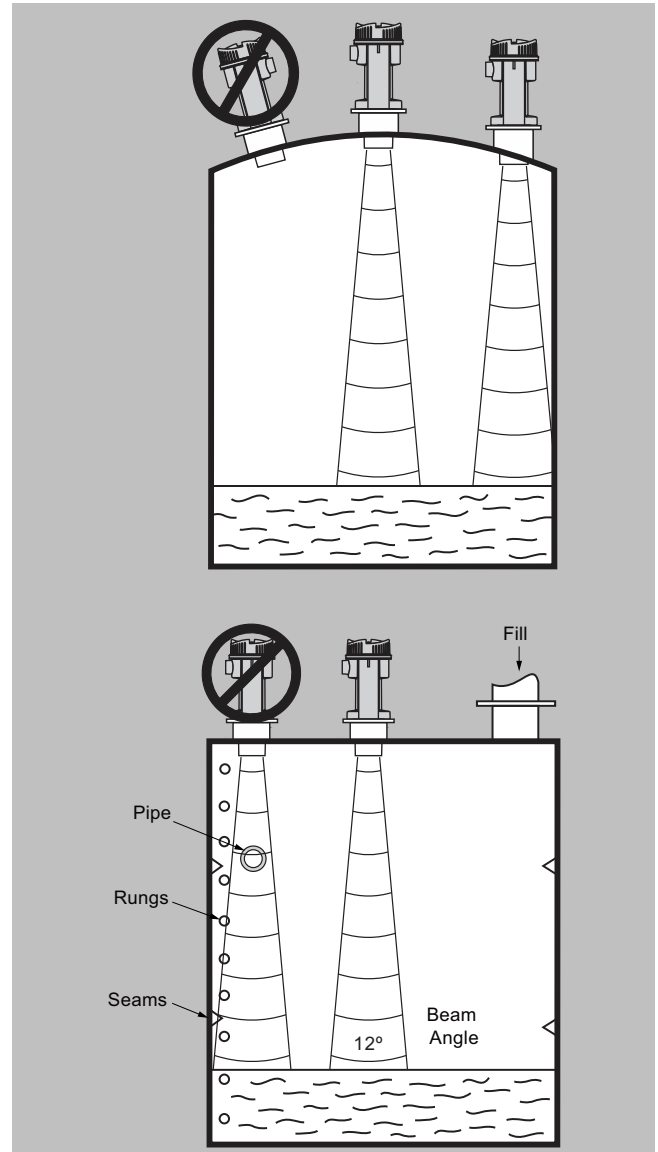
- Easy to install, program, and maintain
- Accurate and reliable
- Sanitary models available
- Patented Sonic Intelligence echo processing
- Integral temperature compensation

##### 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.			
<b>SITRANS LU180 Ultrasonic level transmitter</b> 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.				
<b>Transducer/Process connection</b>				
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	
<b>Cable inlet</b>				
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
<b>Further designs</b>	
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.
<b>Operating Instructions</b>	
All literature is available to download for free, in a range of languages, at <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a> .	
<b>Accessories</b>	
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

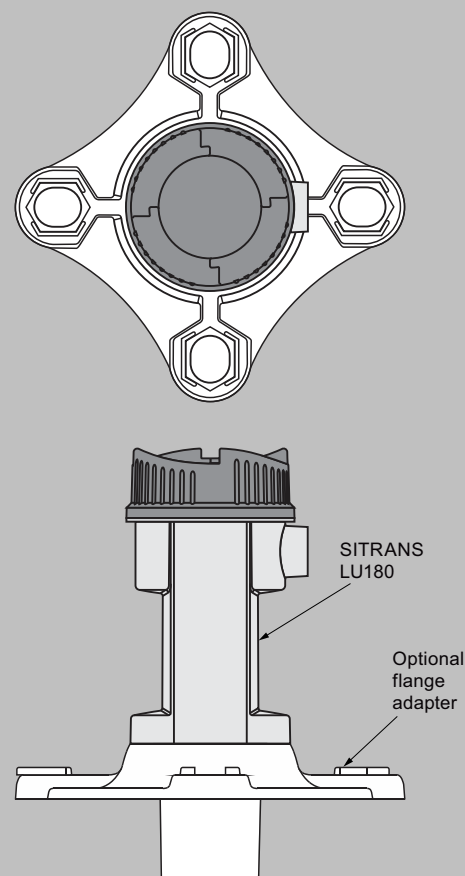
#### Technical specifications

SITRANS LU180	
<b>Mode of operation</b>	
Measuring principle	Ultrasonic level measurement
<b>Input</b>	
Measuring range	0.25 ... 5 m (0.8 ... 16.4 ft)
Frequency	54 kHz
<b>Output</b>	
mA	4 ... 20 mA
• Span	Proportional/ inversely proportional
• Max. load	600 Ω in the loop at 24 V DC
<b>Power supply</b>	
Supply voltage	12 ... 30 V DC, 0.1 A surge
Max. power consumption	0.75 W (25 mA at 24 V DC)
<b>Certificates and approvals</b>	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
<b>Accuracy</b>	
Error in measurement	0.25 % of measuring range (in air)
Resolution	3 mm (0.125 inch)
Temperature compensation	Built in
Echo processing	Sonic Intelligence
<b>Rated operation conditions</b>	
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
<b>Design</b>	
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"> <li>• 2" NPT [(Taper), ASME B1.20.1]</li> <li>• R 2" [(BSPT), EN 10226]</li> <li>• G 2" [(BSPP), EN ISO 228-1]</li> <li>• 4" sanitary</li> </ul>
Flange adapter	3" Universal (fits DN 65, PN 10 and 3" ASME)
Cable inlet	1 inlet for M20, optional 1/2" NPT

#### Options

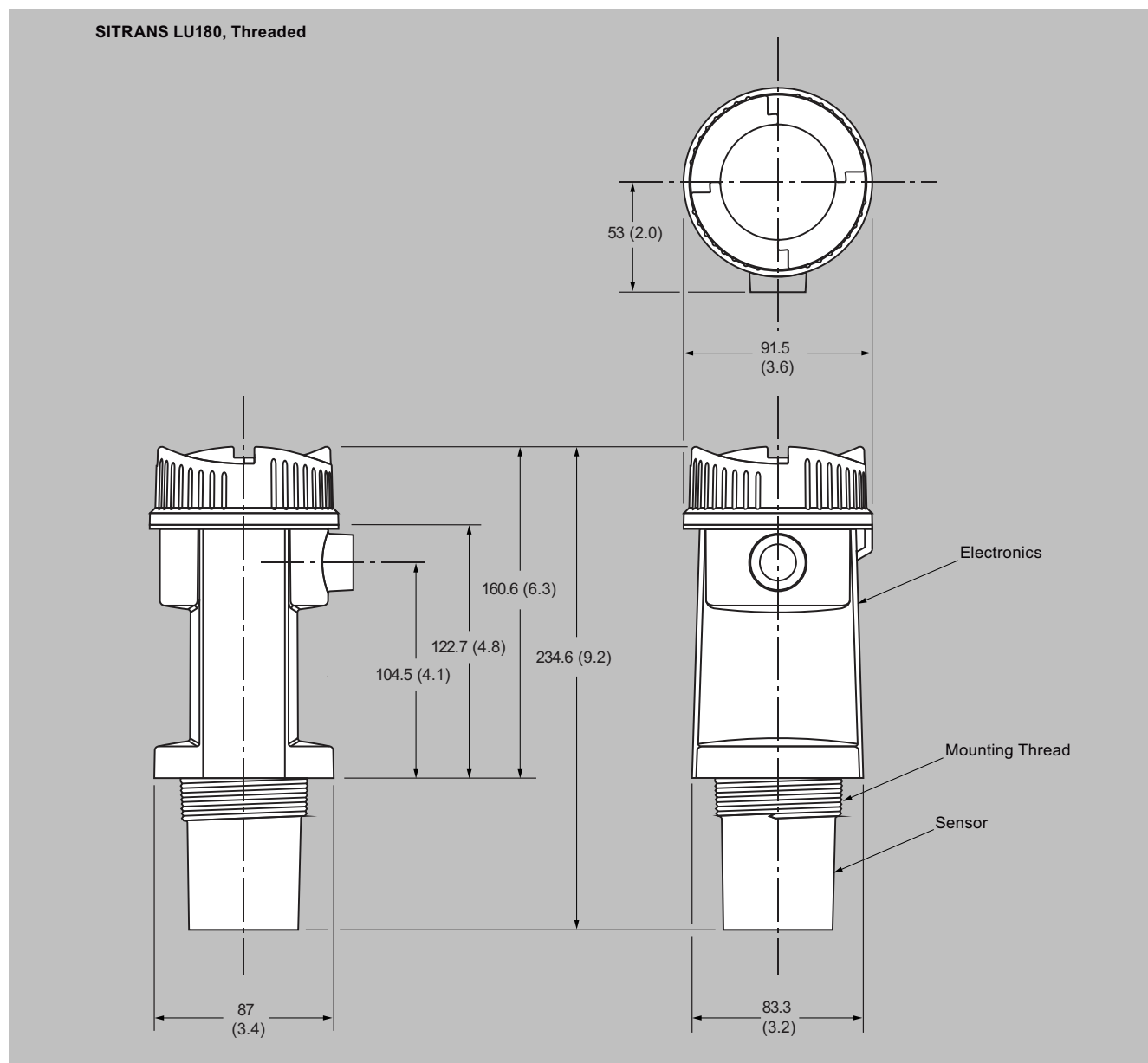
##### SITRANS LU180, Flange Adapter

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



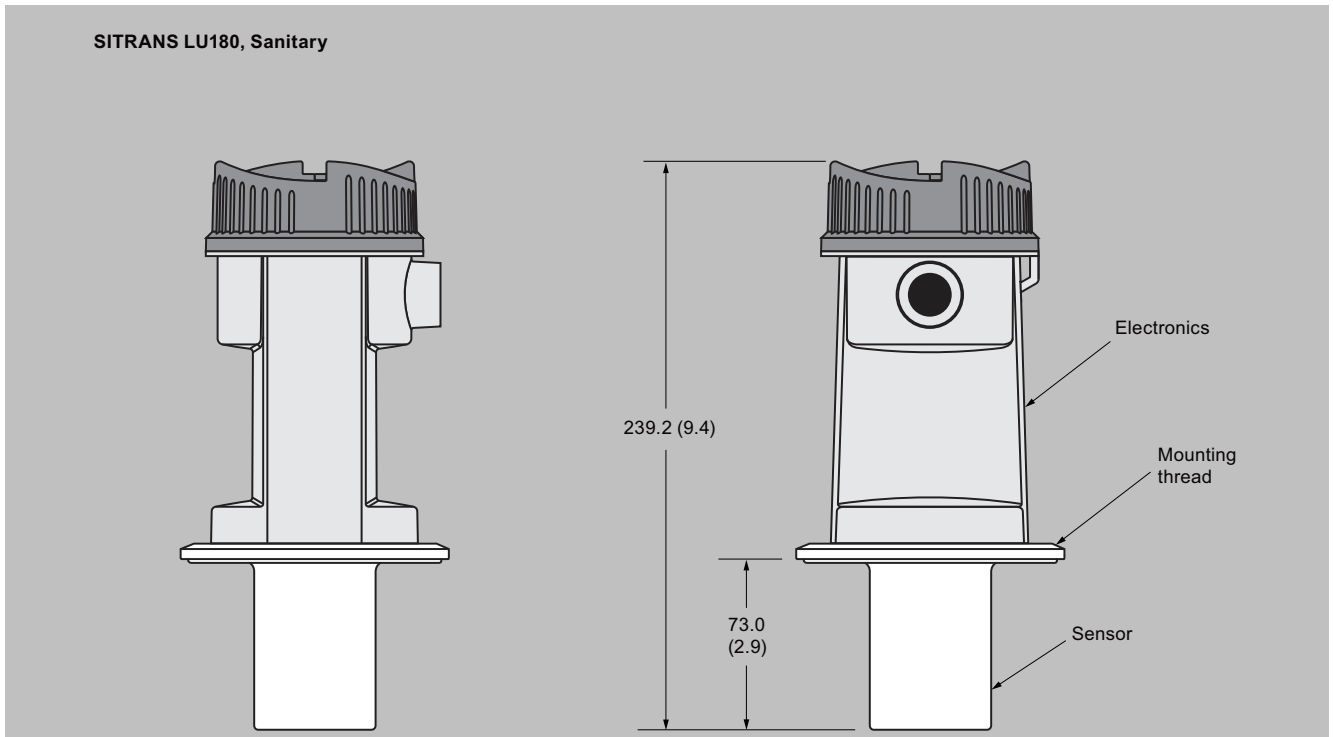
SITRANS LU180, dimensions in mm (inch)

# Level Measurement

## Continuous level measurement

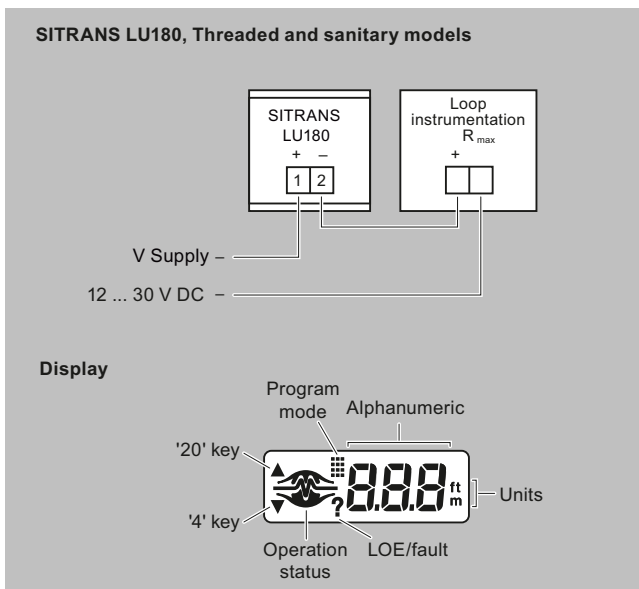
### Ultrasonic / Ultrasonic transmitters / SITRANS LU180

#### Dimensional drawings (continued)



SITRANS LU180, dimensions in mm (inch)

#### Circuit diagrams



SITRANS LU180 connections