

Level Measurement

Continuous level measurement
Ultrasonic transmitters

SITRANS LU180

Overview



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

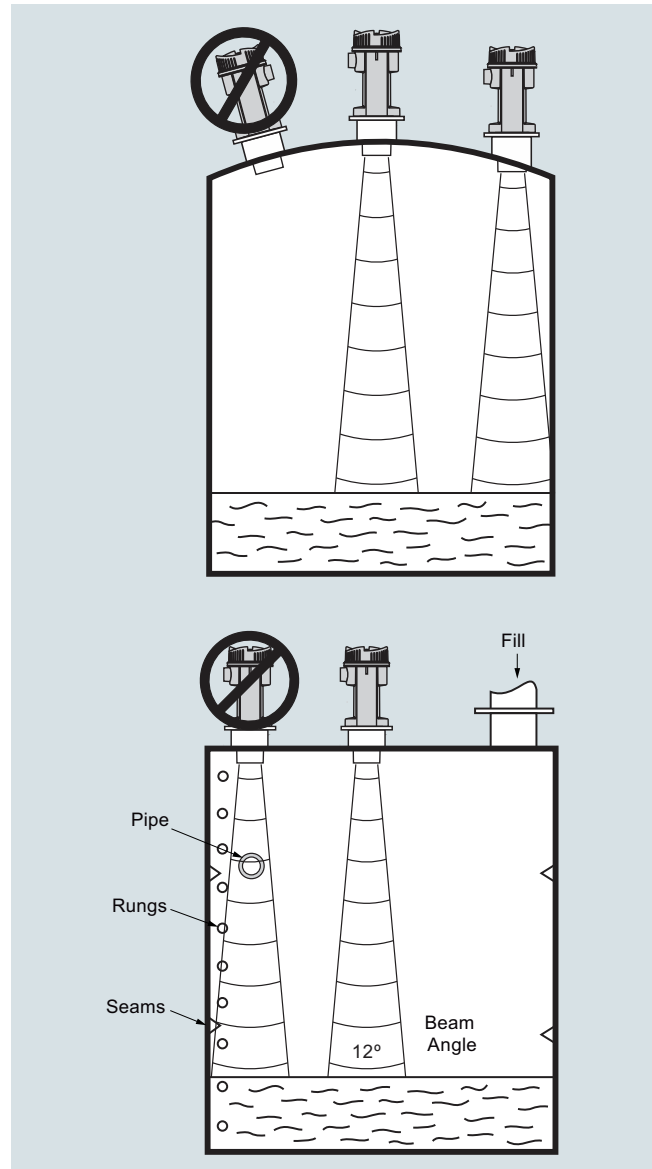
- Easy to install, program, and maintain
- Accurate and reliable
- Sanitary models available
- Patented Sonic Intelligence echo processing
- Integral temperature compensation

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

Configuration



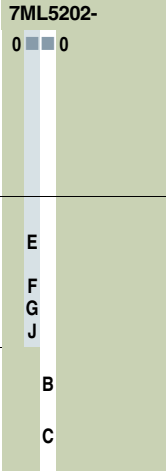
SITRANS LU180 mounting

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| Technical specifications | | Selection and Ordering data | |
|--|--|--|--|
| Mode of operation | | Article No. | |
| Measuring principle | Ultrasonic level measurement | SITRANS LU180  | |
| Input | | Short-range integrated ultrasonic level transmitter, 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). | |
| Measuring range | 0.25 ... 5 m (0.8 ... 16.4 ft) | Click on the Article No. for the online configuration in the PIA Life Cycle Portal. | |
| Frequency | 54 kHz | Transducer/Process connection | |
| Output | | 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 | |
| mA | 4 ... 20 mA | E | |
| • Span | Proportional/ inversely proportional | F | |
| • Max. load | 600 Ω in the loop at 24 V DC | G | |
| Power supply | | J | |
| Supply voltage | 12 ... 30 V DC, 0.1 A surge | B | |
| Max. power consumption | 0.75 W (25 mA at 24 V DC) | C | |
| Certificates and approvals | | Cable inlet | |
| CSA: | | M20 x 1.5 [General Purpose cable gland -20 ... +60 °C (-4 ... +140 °F) included] | |
| IS/ Class I, II, III, Div. 1, Groups: A, B, C, D, E, F, G T4 | | 1/2" NPT stainless steel entry (no cable gland included) | |
| 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 | | Selection and Ordering data | |
| Error in measurement | 0.25 % of measuring range (in air) | Order code | |
| Resolution | 3 mm (0.125 inch) | Further designs | |
| Temperature compensation | Built in | Please add "-Z" to Article No. and specify Order code(s). | |
| Echo processing | Sonic Intelligence | Stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: Measuring-point number/ identification (max. 20 characters) specify in plain text | |
| Rated operation conditions | | Test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and to ISO 9000 | |
| Beam angle | 12° | Operating Instructions | |
| Ambient temperature | | Article No. | |
| • Standard | -40 ... +60 °C (-40 ... +140 °F) | A5E37100674 | |
| • Metallic mounting | -20 ... +60 °C (-4 ... +140 °F) | A5E37100685 | |
| Max. static operating pressure | Normal atmospheric pressure | Note: Operating instructions should be ordered as a separate line on the order | |
| Design | | All literature is available to download for free, in a range of languages, at www.siemens.com/processinstrumentation/documentation | |
| Weight | 1.3 kg (2.9 lb) | Accessories | |
| Material | | Tag, stainless steel, 12 x 45 mm (0.47 x 1.77 inch), one text line | |
| • Electronics enclosure | PBT | 7ML1930-1AC | |
| • Transducer | PVDF copolymer | Universal box bracket mounting kit | |
| Degree of protection | IP68 / NEMA 6 / TYPE 6 | 7ML1830-1BK | |
| Process connection | <ul style="list-style-type: none"> 2" NPT [(Taper), ANSI/ASME B1.20.1] R 2" [(BSPT), EN 10226] G 2" [(BSPP), EN ISO 228-1] 4" sanitary | Sanitary 4" mounting clamp | |
| Flange adapter | 3" Universal (fits DN 65, PN 10 and 3" ASME) | 3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT | |
| Cable inlet | 1 inlet for M20, optional 1/2" NPT | 3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT | |
| | | 2" NPT locknut, plastic | |
| | | 2" BSPT locknut, plastic | |
| | | Cable Gland, General Purpose -20 ... +60 °C (-4 ... +140 °F) | |
| | | 7ML1830-1BT | |
| | | 7ML1830-1BU | |
| | | 7ML1830-1DT | |
| | | 7ML1830-1DQ | |
| | | A5E34457564 | |

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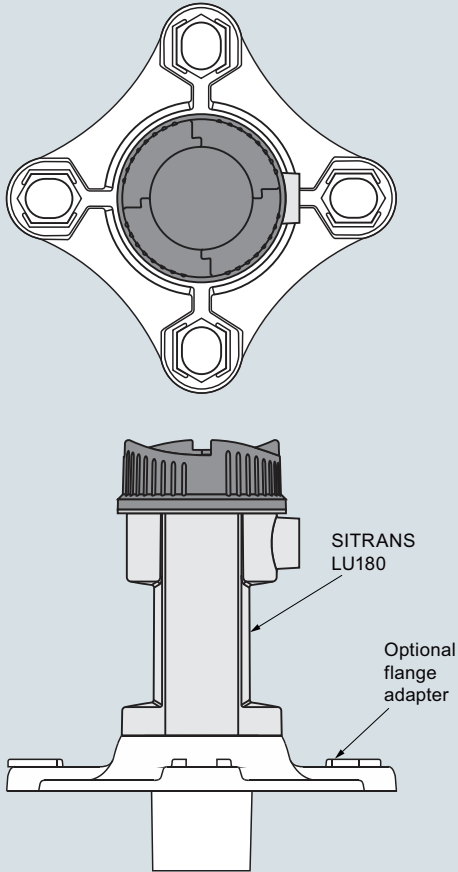
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Options

SITRANS LU180, Flange Adapter

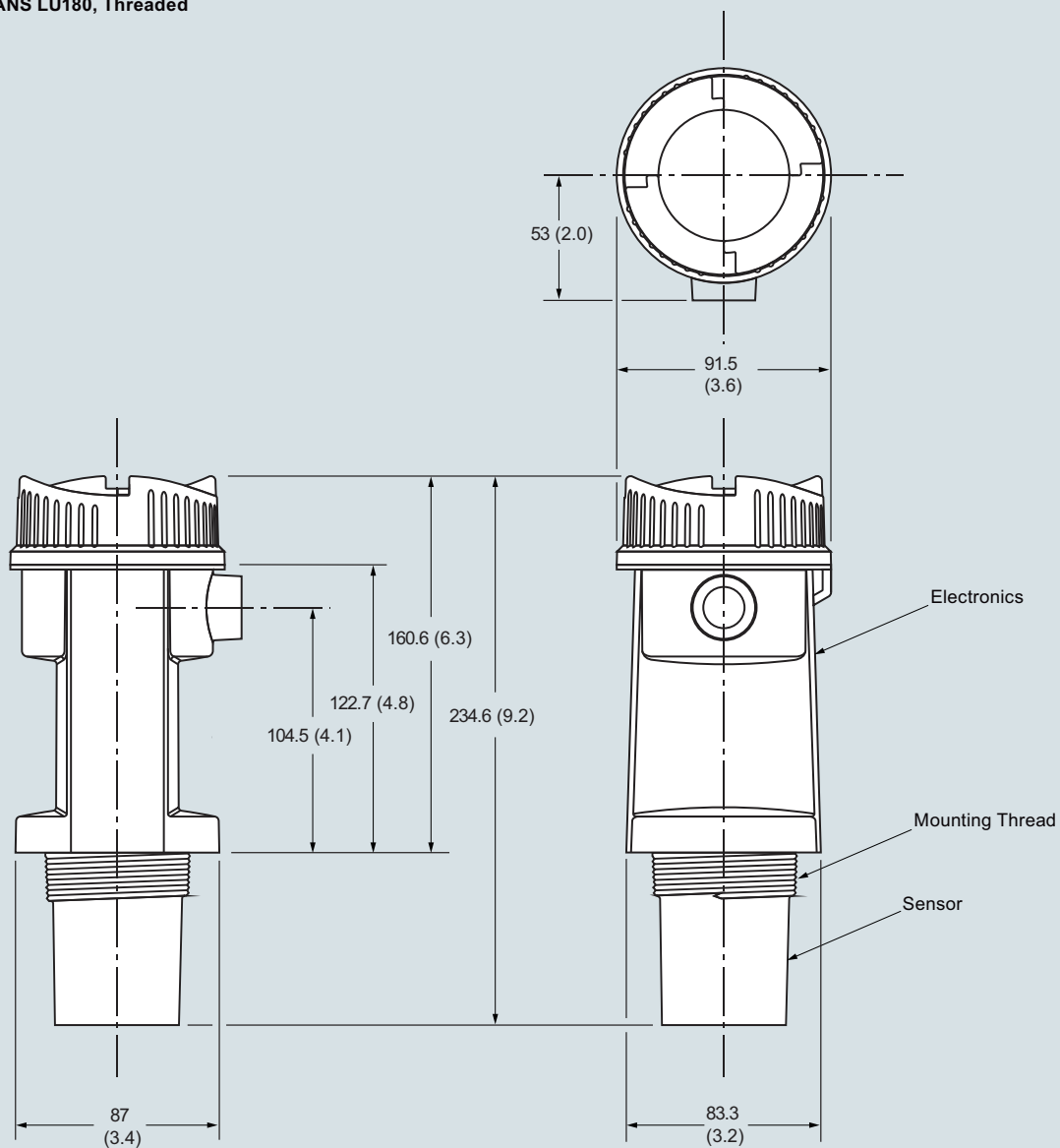
The SITRANS LU180 can be fitted with the optional 75 (3) flange adapter for mating to 3" ANSI, DIN 65 PN10 and JIS 10K3B flanges.



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

Dimensional drawings

SITRANS LU180, Threaded



SITRANS LU180, dimensions in mm (inch)

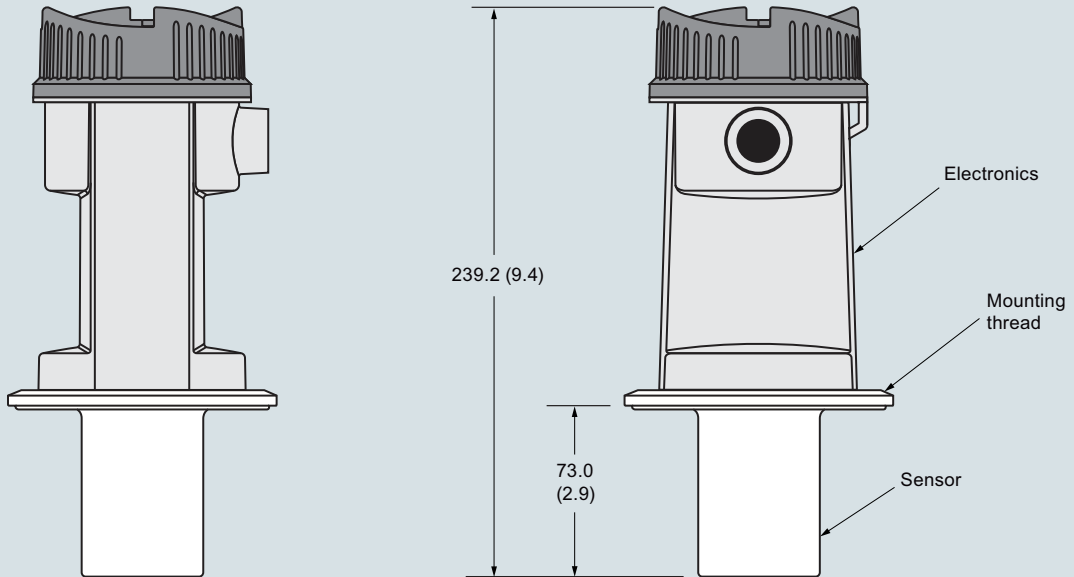
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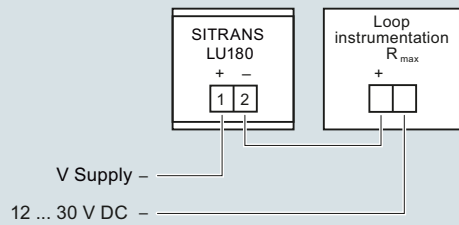
SITRANS LU180, Sanitary



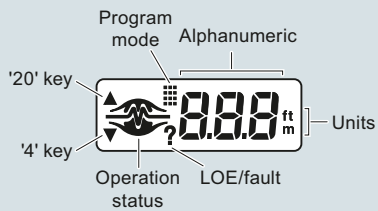
SITRANS LU180, dimensions in mm (inch)

Circuit diagrams

SITRANS LU180, Threaded and sanitary models



Display



SITRANS LU180 connections