

# Level measurement

## Continuous level measurement – Ultrasonic controllers

### SITRANS LU10

#### Overview



SITRANS LU10 is an ultrasonic long-range level monitor for liquids and solids, offering 10-point monitoring in a single unit.

Handheld programmer shown is an accessory and must be ordered separately.

#### Benefits

- Ten point, long-range level monitoring
- Automatic level-to-volume conversion for standard or custom tank shapes
- Dolphin Plus compatible
- Backlit LCD display with reading in standard engineering units
- Easy to install, easy to program using removable infrared keypad (optional)

#### Application

It can be used in a wide range of applications to scan liquids, solids or a combination of both contained in vessels of differing size, shape, and configuration up to 60 m (200 ft).

SITRANS LU10 uses ultrasonic technology to measure level, space, distance, volume, or average/differential. Transducers can be mounted up to 365 m (1 200 ft) from the monitor. The SITRANS LU10 features patented Sonic Intelligence echo processing software for superior reliability. Readings are displayed in user-selectable linear engineering units on the LCD.

- Key Applications: chemical storage, liquid storage, bulk solids storage (sugar, flour bins, grains, cereals), plastic pellets, tank farms

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### Technical specifications

<b>Mode of operation</b>		<b>Power supply</b>	
Measuring principle	Ultrasonic level measurement	100/115/200/230 V AC ± 15 %, 50/60 Hz, 31 VA	
Measuring range	Max. 0.3 ... 60 m (1 ... 200 ft)	<b>Displays and controls</b>	
Measuring points	Max. 10	51 x 127 mm (2 x 5 inch) graphics LCD with backlighting	
<b>Output</b>		Memory	
Ultrasonic transducer	EchoMax series, ST-H transducers	EEPROM (non-volatile), no backup battery required	
Relays	SPDT Form C relays, rated 5 A at 250 V AC, resistive load	Programming	
mA output	SITRANS LU A0 module (option): 0/4 ... 20 mA, optically isolated	Using removable programmer (ordered separately) or Dolphin Plus (option)	
• Max. load	750 Ω, isolated	<b>Certificates and approvals</b>	
• Resolution	0.1 % of range	<ul style="list-style-type: none"> <li>• CE, C-TICK, FM, CSA<sub>US/C</sub>, ATEX II 3D</li> <li>• Lloyd's register of Shipping (Categories ENV1, ENV2, ENV3 and ENV5)</li> </ul>	
<b>Accuracy</b>		<b>Options</b>	
Error in measurement	0.25 % of range or 6 mm (0.24 inch), whichever is greater	Expansion card	
Resolution	0.1% of measuring range or 2 mm (0.08 inch), whichever is greater	TIB-9, increases the number of TS-3 inputs from 1 ... 10	
Temperature compensation	-50 ... +150 °C (-58 ... +302 °F) <ul style="list-style-type: none"> <li>• Integral temperature sensor</li> <li>• External TS-3 temperature sensor (expandable to 10 inputs with optional TIB-9 card)</li> <li>• Programmable fixed temperature</li> </ul>	<ul style="list-style-type: none"> <li>• External temperature sensor</li> <li>• Communications</li> <li>• I/O devices</li> </ul>	
<b>Rated operating conditions</b>		Dolphin Plus: Siemens Windows-compatible interface and Converter link (infrared) <ul style="list-style-type: none"> <li>• Max. 3 I/O devices per SITRANS LU10</li> <li>• SITRANS LU AO analog output module (max. 1)</li> </ul>	
Ambient conditions			
Ambient temperature for enclosure	-20 ... +50 °C (-4 ... +122 °F)		
<b>Design</b>			
Weight	2.7 kg (6 lb)		
Material (enclosure)	Polycarbonate		
Degree of protection (wall mount)	IP65/Type 4X/NEMA 4X		
<b>Electrical connection</b>			
Ultrasonic transducer	RG62-A/U coaxial cable with low capacitance		
Signal transmission	2-core copper conductor, twisted, shielded, 0.5 ... 0.75 mm <sup>2</sup> (22 ... 18 AWG), Belden 8760 or equivalent is acceptable		
Electrical connection and relay connection	Copper conductor according to local requirements, rated 250 V 5 A		
Synchronization	Up to 16 LU10 units can be synchronized together		

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#### Selection and Ordering data

**SITRANS LU10**  
Ten point ultrasonic long-range level monitoring system for liquids and solids applications, and ranges up to 60 m (200 ft).

#### Input voltage

100/115, 200/230 V AC, selectable

#### Feature software

Standard

#### Application software

Standard

#### Data communications

No module (SmartLinX ready)

#### TIB-9 temperature card

None

With TIB-9 card

#### Enclosure

Wall mount

Wall mount, drilled, 12 x M20 x1.5 for cable glands

Note: Cable glands are not included and should be ordered as a separate line on the order.

#### Approvals

CE, CSA<sub>US/C</sub>, FM<sup>1)</sup>

ATEX II 3D<sup>1)</sup>

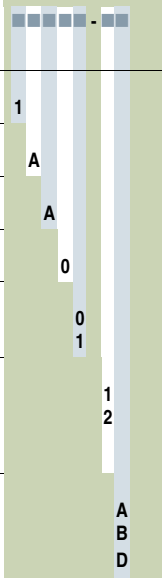
CE, C-TICK<sup>2)</sup>

<sup>1)</sup> Available with enclosure option 1 only

<sup>2)</sup> Available with enclosure option 2 only

#### Article No.

7ML5007-



#### Selection and Ordering data

##### Further designs

Please add "-Z" to Article No. and specify Order code(s).

Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]:  
Measuring-point number/identification  
(max. 27 characters) specify in plain text

##### Operating Instructions

English

French

German

##### Accessories

Handheld programmer

Tag, stainless steel, 12 x 45 mm (0.47 x 1.77 inch),  
one text line, suitable for enclosures

Temperature Card TIB 9-card

M20 cable gland kit (6 M20 cable glands,  
6 M20 nuts, 3 stop plugs)

M20 cable gland kit (4 M20 cable glands,  
4 M20 nuts, 4 washers)

TS-3 Temperature Sensor - see TS-3 on page 4/337

Sunshield kit, 304 stainless steel

##### Spare parts

Card, mother main, AC, comm ready

Card, daughter, comm ready

Card, display

See SmartLinX product page 4/337 for  
more information.

#### Order code

Y15

#### Article No.

7ML1998-5AN02

7ML1998-5AN12

7ML1998-5AN32

7ML1830-2AN

7ML1930-1AC

7ML1830-1CN

7ML1830-1GM

7ML1930-1FV

7ML1930-1GA

7ML1830-1ML

7ML1830-1LY

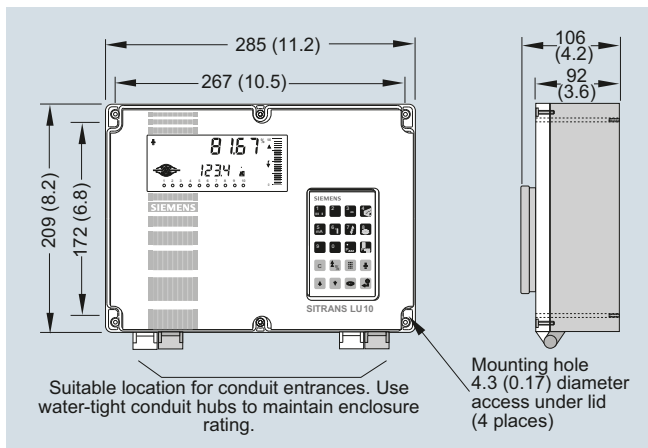
7ML1830-1LQ

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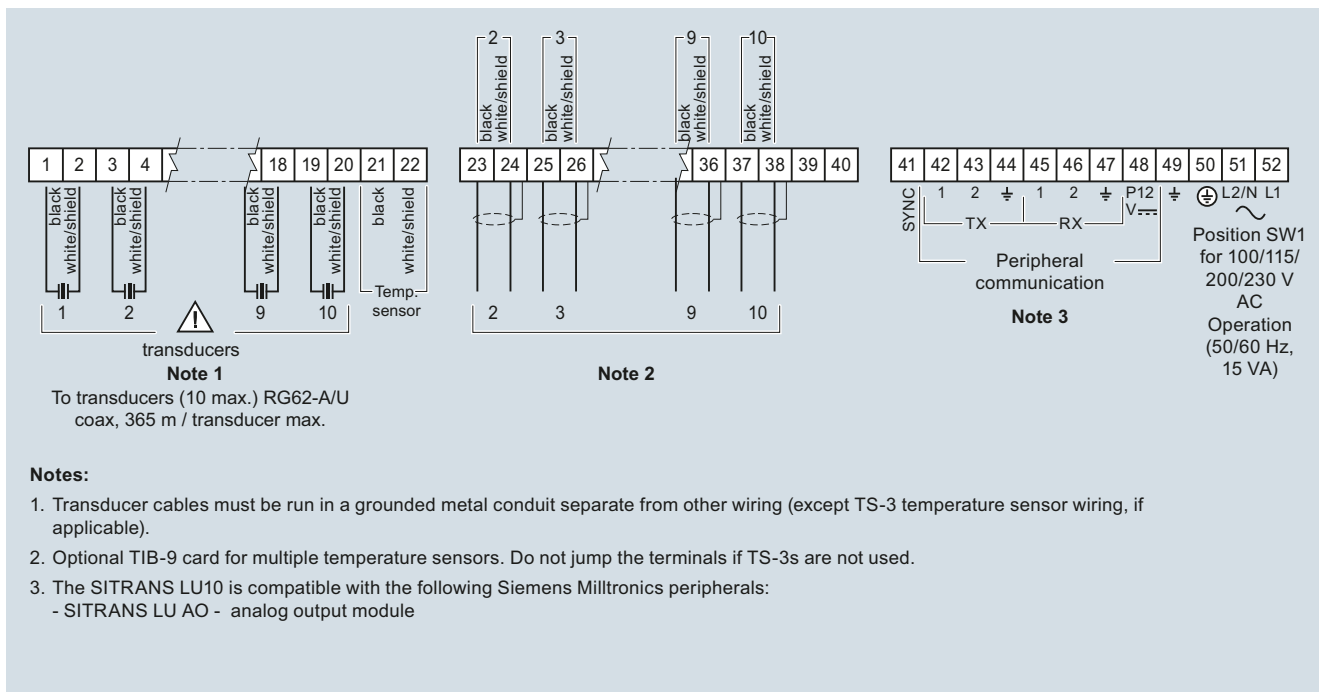
### Dimensional drawings



SITRANS LU10, dimensions in mm (inch)

4

### Schematics



SITRANS LU10 connections

**Notes:**

1. Transducer cables must be run in a grounded metal conduit separate from other wiring (except TS-3 temperature sensor wiring, if applicable).
2. Optional TIB-9 card for multiple temperature sensors. Do not jump the terminals if TS-3s are not used.
3. The SITRANS LU10 is compatible with the following Siemens Milltronics peripherals:
  - SITRANS LU AO - analog output module