

# SITRANS L Level instruments

## Continuous measurement - Ultrasonic controllers

SITRANS LU 10

### Overview



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

Hand 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 and SmartLinx® 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).

The SITRANS LU 10 uses ultrasonic technology to measure level, space, distance, volume or average/differential. Transducers can be mounted up to 365 m (1200 ft) from the monitor. The SITRANS LU 10 features patented Sonic Intelligence® echo processing software for superior reliability. Readings are displayed in user-selectable linear engineering units on the LCD.

SITRANS LU 10 will connect to a DCS or PLC using Siemens Milltronics SmartLinx® interface modules, giving you remote 2-way communication and full parameter access. Modules for popular industrial buses can be factory installed or added later to meet changing needs. No external gateway is required, reducing hardware and cabling costs.

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

### Technical specifications

#### Mode of operation

Measuring principle	Ultrasonic level measurement
Measuring range	Max. 0.3 to 60 m (1 to 200 ft)
Measuring points	Max. 10

#### Output signal

• Ultrasonic transducer	Echomax® series, ST-H transducers
• Relays	<ul style="list-style-type: none"> <li>• SITRANS LU SAM module (option): 20 alarm/control relays</li> <li>• SPDT Form C relays, rated 5 A at 250 V AC, resistive load</li> </ul>
• mA output	SITRANS LU A0 module (option): 0/4 to 20 mA, optically isolated
- Max. load	750 Ω, isolated
- Resolution	0.1% of range

#### Accuracy

• Error in measurement	0.25% of range or 6 mm (0.24"), whichever is greater
• Resolution	0.1% of measuring range or 2 mm (0.08"), whichever is greater
• Temperature compensation	-50 to +150 °C (-58 to +302 °F)

- Integral temperature sensor
- External TS-3 temperature sensor (expandable to 10 inputs with optional TIB-9 card)
- Programmable fixed temperature

#### Rated operating conditions

##### Ambient conditions

• Ambient temperature for enclosure	-20 to +50 °C (-5 to +122 °F)
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##### Design

• Weight	2.7 kg (6 lbs)
• Material (enclosure)	Polycarbonate
• Degree of protection (wall mount)	IP65/Type 4X/NEMA 4X

#### Electrical connection

• Ultrasonic transducer	RG62-A/U coaxial cable with low capacitance
• Signal transmission	2-core copper conductor, twisted, shielded, 0.5 to 0.75 mm <sup>2</sup> (22 to 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

<b>Power supply</b>	100/115/200/230 V AC ± 15%, 50/60 Hz, 15 VA
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<b>Displays and controls</b>	51 x 127 mm (2 x 5") graphics LCD with backlighting
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• Memory	EEPROM (non-volatile), no backup battery required
• Programming	Using removable programmer (ordered separately) or Dolphin Plus (option)

#### Certificates and approvals

- CE, FM, CSA<sub>NRTL/C</sub>
- Lloyd's Register of Shipping (Categories ENV1, ENV2, ENV3 and ENV5)

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#### Options

- Expansion card TIB-9, increases the number of TS-3 inputs from 1 to 10
- External temperature sensor TS-3
- Communications
  - SmartLinx: protocol-specific modules as interface for popular industrial fieldbus systems
  - Dolphin Plus: Siemens Milltronics Windows® compatible interface and ComVerter link (infrared)
- I/O devices
  - Max. 3 I/O devices per SITRANS LU 10
  - SITRANS LU AO analog output module (max. 1)
  - SITRANS LU SAM, satellite alarm module (max. 2)

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#### Selection and Ordering data

	Order No.
<b>SITRANS LU 10</b>	C) <b>7ML5007-</b>
Ten point ultrasonic long-range level monitoring system for liquids and solids applications, and ranges up to 60 m (200 ft).	
<b>Input voltage</b> 100/115, 200/230 V AC, selectable	1
<b>Feature software</b> Standard	A
<b>Application software</b> Standard	A
<b>Data communications</b> No module (SmartLinx ready) SmartLinx Allen-Bradley® Remote I/O module SmartLinx PROFIBUS DP module SmartLinx Modbus® RTU module SmartLinx DeviceNet™ module SmartLinx Modem (Europe) module SmartLinx Modem (Canada/USA) module	0 1 2 3 4 5 6
<b>TIB-9 temperature card</b> None With TIB-9 card	0 1
<b>Enclosure</b> Wall mount Wall mount, drilled (12 x M20x1.5 for cable glands)	1 2
<b>Approvals</b> CE, CSA <sub>NRTL/C</sub> , FM	A
<b>Further designs</b>	Order code
Please add "-Z" to Order No. and specify Order code(s).	
Stainless steel tag [69 mm x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text	<b>Y15</b>
<b>Instruction manual</b>	
English	C) <b>7ML1998-5AN02</b>
French	C) <b>7ML1998-5AN12</b>
German	C) <b>7ML1998-5AN32</b>
Note: The instruction manual should be ordered as a separate line item on the order.	
This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.	
<b>Other instruction manuals</b>	
SmartLinx Allen-Bradley Remote I/O, English	C) <b>7ML1998-1AP03</b>
SmartLinx PROFIBUS DP, English	C) <b>7ML1998-1AQ03</b>
SmartLinx PROFIBUS DP, German	C) <b>7ML1998-1AQ32</b>
SmartLinx PROFIBUS DP, French	C) <b>7ML1998-1AQ12</b>
SmartLinx DeviceNet, English	C) <b>7ML1998-1BH02</b>
SmartLinx Modbus, English	C) <b>7ML1998-1BF01</b>
SmartLinx Modbus, German	C) <b>7ML1998-1BF31</b>
SmartLinx Modem, English	C) <b>7ML1998-1BG01</b>
Note: The appropriate SmartLinx instruction manual should be ordered as a separate line on the order.	
<b>Accessories</b>	
Handheld programmer	<b>7ML1830-2AN</b>
Tag, stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line, suitable for enclosures	<b>7ML1930-1AC</b>
Temperature Card (TIB-9)	C) <b>7ML1830-1CN</b>
M20 cable gland kit (6 M20 cable glands, 6 M20 nuts, 3 stop plugs)	<b>7ML1830-1GM</b>
TS-3 Temperature Sensor - see TS-3 on page 5/119	
<b>Spare parts</b>	
Card, mother main, comm ready	C) <b>7ML1830-1ML</b>
Card, daughter, comm ready	C) <b>7ML1830-1LY</b>
Card, display	<b>7ML1830-1LQ</b>
See SmartLinx product page on page 5/179 for more information.	

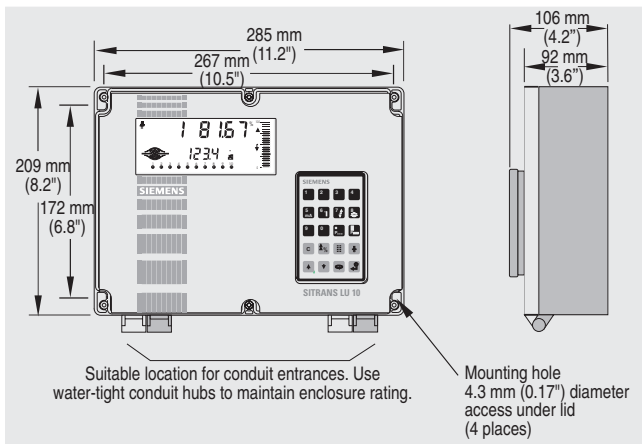
C) Subject to export regulations AL: N, ECCN: EAR99

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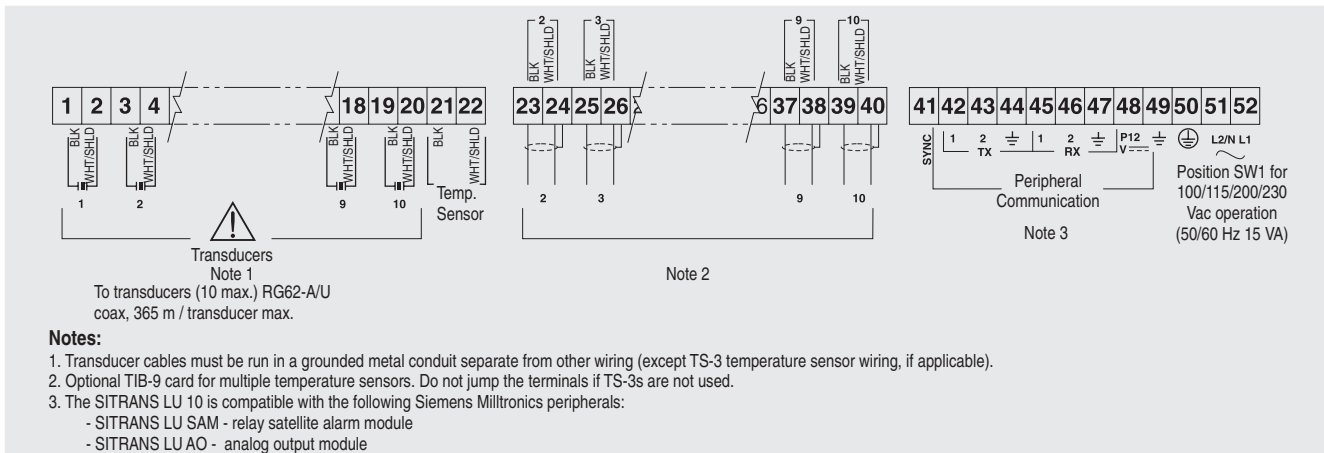
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#### Dimensional drawings



SITRANS LU 10 dimensions

#### Schematics



SITRANS LU 10 connections