

Level instruments

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 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).

SITRANS LU10 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 LU10 features patented Sonic Intelligence[®] echo processing software for superior reliability. Readings are displayed in user-selectable linear engineering units on the LCD.

SITRANS LU10 will connect to a DCS or PLC using Siemens 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	
• Ultrasonic transducer	Echomax [®] series, ST-H transducers
• Relays	<ul style="list-style-type: none"> • SITRANS LU SAM module (option): 20 alarm/control relays • SPDT Form C relays, rated 5 A at 250 V AC, resistive load
• 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) <ul style="list-style-type: none"> • Integral temperature sensor • External TS-3 temperature sensor (expandable to 10 inputs with optional TIB-9 card) • Programmable fixed temperature
Rated operating conditions	
<u>Ambient conditions</u>	
• Ambient temperature for enclosure	-20 to +50 °C (-4 to +122 °F)
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 ² (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
Power supply	100/115/200/230 V AC ± 15%, 50/60 Hz, 31 VA
Displays and controls	
• Memory	51 x 127 mm (2 x 5") graphics LCD with backlighting EEPROM (non-volatile), no backup battery required
• Programming	Using removable programmer (ordered separately) or Dolphin Plus (option)
Certificates and approvals	<ul style="list-style-type: none"> • CE, C-TICK, FM, CSA_{US/C}, ATEX II 3D • 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	<ul style="list-style-type: none"> • SmartLinx: protocol-specific modules as interface for popular industrial fieldbus systems • Dolphin Plus: Siemens Windows[®]-compatible interface and ComVerter link (infrared)
• I/O devices	<ul style="list-style-type: none"> • Max. 3 I/O devices per SITRANS LU10 • SITRANS LU AO analog output module (max. 1) • SITRANS LU SAM, satellite alarm module (max. 2)

[®]Windows is a registered trademark of Microsoft Corporation.

Selection and Ordering data	Order No.
SITRANS LU10	C) 7ML 5 007 -
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	1
Feature software Standard	A
Application software Standard	A
Data communications No module (SmartLinx ready) SmartLinx Allen-Bradley [®] Remote I/O module SmartLinx PROFIBUS DP module SmartLinx Modbus [®] RTU module	0 1 2 3
TIB-9 temperature card None With TIB-9 card	0 1
Enclosure Wall mount Wall mount, drilled, 12 x M20 x 1.5	1 2
Approvals CE, CSA _{US/CA} , FM ¹⁾ ATEX II 3D ¹⁾ CE, C-TICK ²⁾	A B D
Further designs	Order code
Please add " -Z " to Order No. and specify Order code(s).	
Stainless steel tag [69 x 50 mm (2.71 x 1.97")]: Measuring-point number/identification (max. 16 characters) specify in plain text	Y15
Operating Instructions	Order No.
English	C) 7ML1998-5AN02
French	C) 7ML1998-5AN12
German	C) 7ML1998-5AN32
Note: The Operating Instructions should be ordered as a separate line item on the order.	
This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	
Other Operating Instructions	
SmartLinx Allen-Bradley Remote I/O, English	C) 7ML1998-1AP03
SmartLinx PROFIBUS DP, English	C) 7ML1998-1AQ03
SmartLinx PROFIBUS DP, German	C) 7ML1998-1AQ33
SmartLinx PROFIBUS DP, French	C) 7ML1998-1AQ12
SmartLinx Modbus, English	C) 7ML1998-1BF01
SmartLinx Modbus, German	C) 7ML1998-1BF31
Note: The appropriate SmartLinx Operating Instructions should be ordered as a separate line on the order.	
Accessories	
Handheld programmer	7ML1830-2AN
Tag, stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line, suitable for enclosures	7ML1930-1AC
Temperature Card (TIB-9)	C) 7ML1830-1CN
M20 cable gland kit (6 M20 cable glands, 6 M20 nuts, 3 stop plugs)	7ML1830-1GM
TS-3 Temperature Sensor - see TS-3 on page 5/186	
Spare parts	
Card, mother main, comm ready	C) 7ML1830-1ML
Card, daughter, comm ready	C) 7ML1830-1LY
Card, display	7ML1830-1LQ
See SmartLinx product page 5/301 for more information.	

- 1) Available with Enclosure option 1 only
2) Available with Enclosure option 2 only

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

[®]Modbus is a registered trademark of Schneider Electric.

[®]Allen-Bradley is a registered trademark of Rockwell Automation.

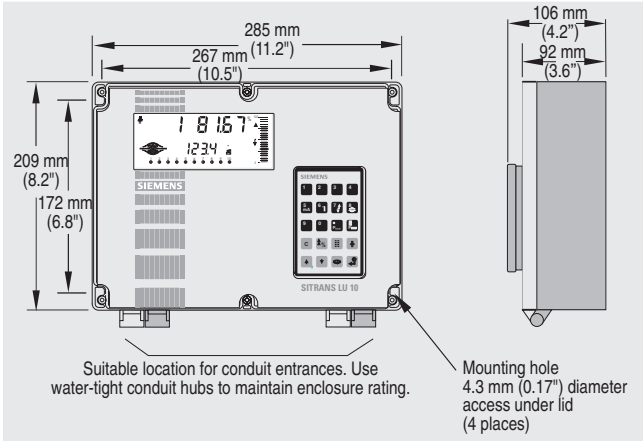
[™]DeviceNet is a trademark of Open DeviceNet Vendor Association (ODVA).

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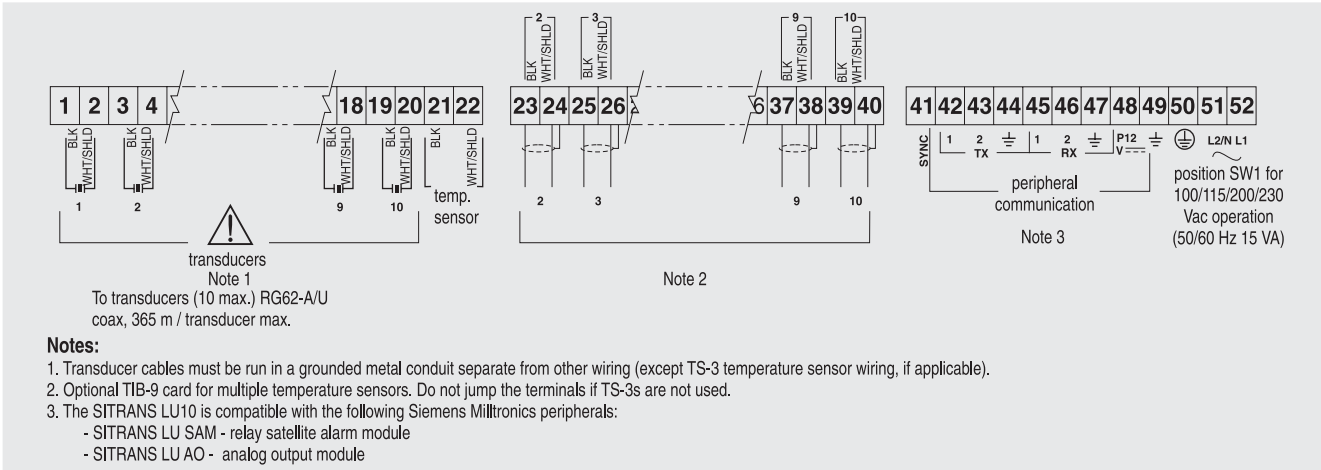
Dimensional drawings



SITRANS LU10 dimensions

Schematics

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SITRANS LU10 connections