Level Measurement
Continuous level measurement
Controllers

SITRANS LT500

Overview

SITRANS LT500 is a versatile, single and multi-vessel level monitor/controller for virtually any application in a wide range of industries.

Benefits

- Easy to use HMI display with local four-button programming, menu-driven parameters, and Wizard support for key applications.
- English, German, French, Spanish, Chinese, Italian, Portuguese, Japanese, Danish, Dutch, Swedish, Finnish, Polish, and Russian texts on the HMI.
- Removable terminal blocks for ease of wiring.
- Digital input for back-up level override from point level device.
- Communication options for HART, Modbus RTU, PROFIBUS PA, PROFIBUS DP and ProfiNet.
- Single or dual point level monitoring.
- Auto False-Echo Suppression for fixed obstruction avoidance.
- Up to 6 independent programmable relays for pump control, alarms, or remote totalization.
- Level, volume, and flow measurements in open channels, differential control, extended pump control, and alarm functions.
- Wall and panel mounting options.
- Remote configuration via EDD with SIMATIC PDM or SITRANS DTM

Application

SITRANS LT500 can be used with SITRANS LR110, LR120, Probe LU240 or any level device generating a mA signal. SITRANS LT500 offers true dual point monitoring and digital communications. SITRANS LT500 is low maintenance and economical. With its advanced control functions, it can operate pumps during lower cost time periods and manage pump rosters for efficiency.

SITRANS LT500 will monitor open channel flow and features advanced relay alarming and pump control functions as well as volume conversion.

- Key Applications: wet wells, flumes/weirs, bar screen control, hoppers, chemical storage, liquid storage, crusher bins, dry solids storage

Design

SITRANS LT500 is available in wall or panel mounting options.

▮ Technical specifications

Sensor input	
Number of inputs	1 or 2
Terminal voltage	Max. 26 V, Min. 18 V (0 ... 22.6 mA)
Wiring	2 conductor, twisted, shielded, 0.5 ... 0.75 mm² (22 ... 18 AWG)
Max. cable length	500 m (1 640.42 ft)
Sensor input communication	• 4 ... 20 mA • HART protocol, for supported sensors: SITRANS LR110, LR120, SITRANS Probe LU240
4 ... 20 mA sensor input	
• Resolution	0.025 % of full scale
• Accuracy	0.1 % of full scale
HART sensor input	Resolution and accuracy are dependent on connected sensor

Digital input	
Quantity	2
Switching threshold, low	0 ... 0.5 V DC
Switching threshold, high	10 ... 50 V DC
Input current	Max. 3 mA
Bias voltage	24 V

Analog output	
Quantity	2
Range	0 ... 20 mA or 4 ... 20 mA
• Max. load	750 Ω
• Resolution	0.1 % of range
Accuracy	±20 µA
Wiring	2 conductor, twisted, shielded, 0.5 ... 0.75 mm² (22 ... 18 AWG)

Relay output	
Quantity	Up to 6, 4 form A and 2 form C
Rating	5 A at 250 V AC, non-inductive

Rated operating conditions	
Installation conditions	
• Location	Indoor/outdoor
• Installation category	II
• Pollution degree	4
Ambient conditions	
• Ambient temperature	-20 ... +50 °C (-4 ... +122 °F)
• Storage temperature	-20 ... +50 °C (-4 ... +122 °F)

Design	
Weight	
• Wall mount	1.22 kg (2.68 lb)
• Panel mount	1.35 kg (2.97 lb)
Enclosure	
• Material	Polycarbonate
• Degree of protection	
- Wall mount	IP65/Type 4X
- Panel mount	IP54/Type 3

Display and control	
LCD display	60 x 40 mm (2.36 x 1.57 inch) LCD, 240 x 160 pixels resolution
Menu navigation	4 push button keys

Memory card	8 GB Industrial micro SD

Power supply	
AC version	100 ... 230 V AC, ±15 %, 50/60 Hz, 36 VA (17 W)
DC version	12 ... 30 V DC (20 W)

Certificates and approvals	• CE, UKCA, RCM, EAC • FM, cCSA_US, cUL_US

Communication	
Service interface	USB 2.0 mini A cable
Optional Fieldbus	• HART, with Active/Passive 4 ... 20 mA • Modbus RTU • PROFIBUS PA • PROFIBUS DP • ProfiNet

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■ **Selection and ordering data**	**Article No.**		*Further designs*	**Order code**
SITRANS LT500	**7ML60**		Please add "**-Z**" to Article No. and specify Order code(s).	
Continuous, non-contact, for liquids, slurries, and solids. Monitors level, volume, and volume flow, for virtually any application in a wide range of process industries.	■ ■ - ■ ■ ■ ■ ■ ■ - ■ **A A** ■			
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			Stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: Tag (device parameter, max. 32 characters) plate stainless steel 304/1.4301	**Y15**
Product type			*Certificates*	
HydroRanger	**0**		Factory test certificate - M to DIN 55350, Part 18	**C19**
MultiRanger	**1**		Factory certificate 2.2 (EN 10204)	**C14**
Feature set			*Communication*	
Level, volume, and flow	**3**		4 ... 20 mA, active output, with HART	**F01**
Sensor input type			Modbus RTU	**F04**
4 ... 20 mA input(s)	**0**		PROFIBUS PA	**F05**
Number of measurement points			PROFIBUS DP	**F06**
Single point version	**A**		ProfiNet	**F07**
Dual point version	**B**		*Specials*	
Relay output			Special design	**Y99**
1 relay (1 Form A), 250 V AC	**A**		For customs, contact a local sales person. For more information please visit http://www.automation.siemens.com/aspa_app	
3 relays (2 Form A, 1 Form C), 250 V AC	**B**		*Operating Instructions*	
6 relays (4 Form A, 2 Form C), 250 V AC	**C**		All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Mounting, enclosure design			*Optional equipment*	Article No.
Wall mount, standard enclosure	**0**		Tag, stainless steel, 12 x 45 mm, one text line, (max. 16 characters)	**7ML1930-1AC**
Wall mount, 4 entries, M20 cable glands included	**1**		Barriers in a NEMA 4X/IP65 enclosure	**A5E50255823**
Panel mount	**2**		Barrier suitable for LR1xx & LU240 (STAHL: 9001/01-280-110-101)	**A5E50113513**
Type of protection			Sunshield, 304 Stainless steel	**7ML1930-1GA**
Ordinary Locations/General Purpose (Non-Ex), $_C$CSA$_{US}$, FM, CE, UKCA, RCM, EAC	**0**		SITRANS RD100, loop powered display - see Chapter 7	**7ML5741-.....-.**
Removable data storage			SITRANS RD150, remote digital display for 4 ... 20 mA and HART devices - see Chapter 7	**7ML5742-.....-....**
Included, (8 GB micro SD)	**1**		SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	**7ML5740-.....-..**
Input voltage			SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	**7ML5744-.....-..**
10 ... 30 V DC	**2**		*Spare parts*	
100 ... 230 V AC	**3**		Replacement motherboard, single point, includes DC power module	**A5E50113558**
			Replacement motherboard, dual point, includes DC power module	**A5E50113557**
			Replacement motherboard, single point, includes AC power module	**A5E50113542**
			Replacement motherboard, dual point, includes AC power module	**A5E50113543**
			Replacement lid with 4 button HMI	**A5E50113559**
			Replacement lid with 4 button HMI panel mount version	**A5E50113560**
			Retrofit kit for wall mount to panel mount version	**A5E50114010**
			Replacement SD card	**A5E50113554**
			HART communications module	**A5E50113564**
			PROFIBUS PA communications module	**A5E50113568**
			Modbus RTU communications module	**A5E50113565**
			PROFIBUS DP communications module	**A5E50113567**
			ProfiNet communications module	**A5E50113569**

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■ **Dimensional drawings**

Panel mount dimensions

Wall mount dimensions

Cable entry location

Enclosure lid

Cable entry

Enclosure base

Ø4.3 (0.17)
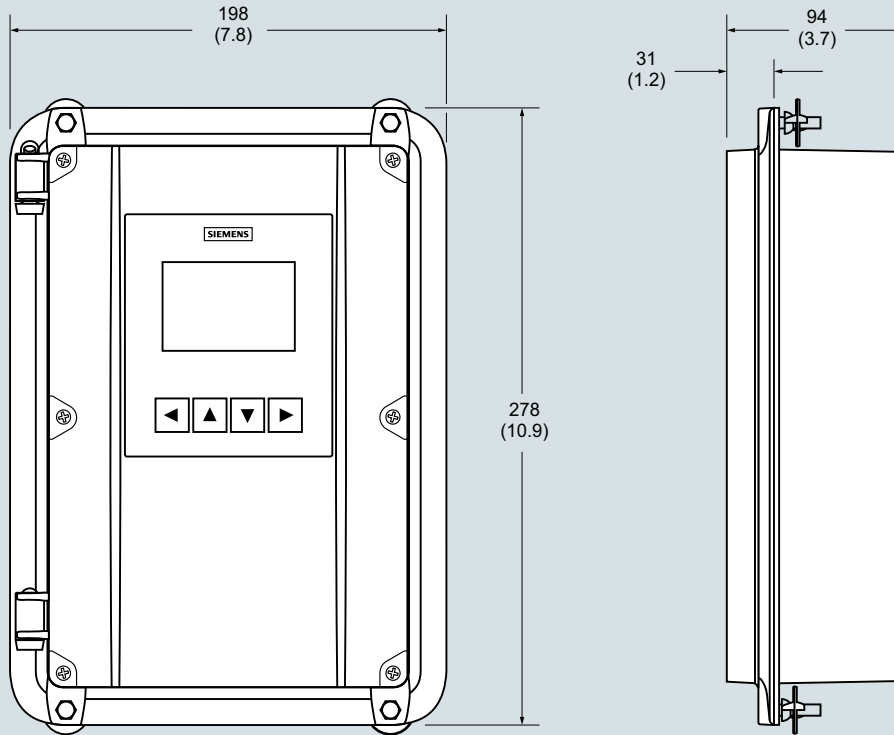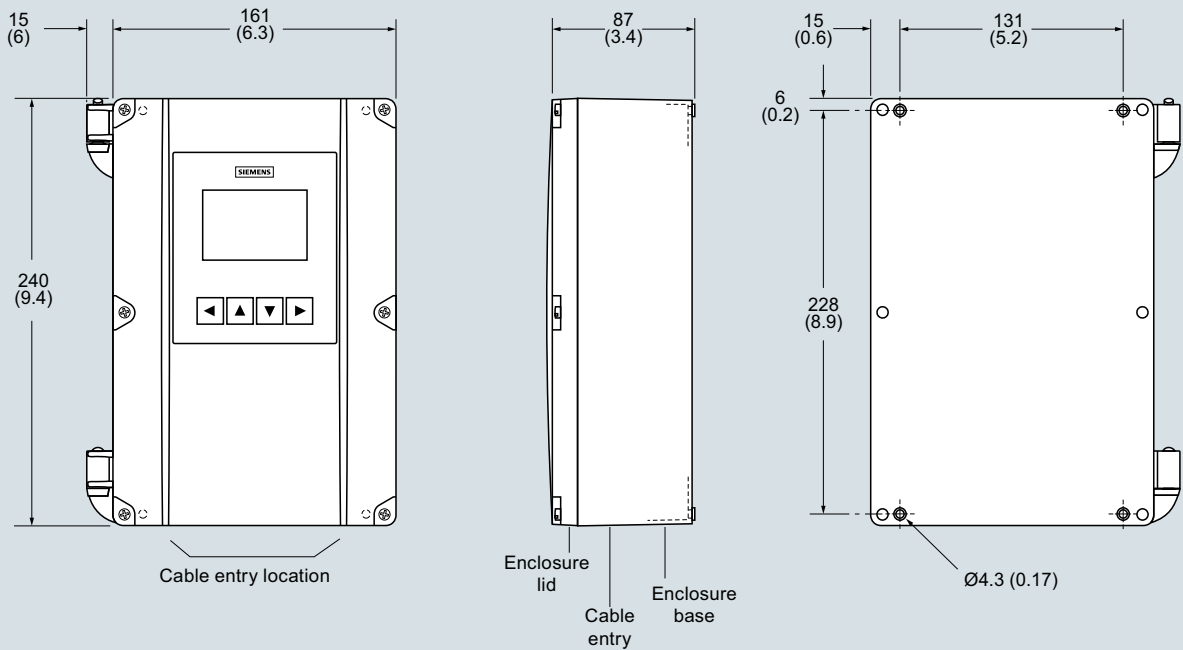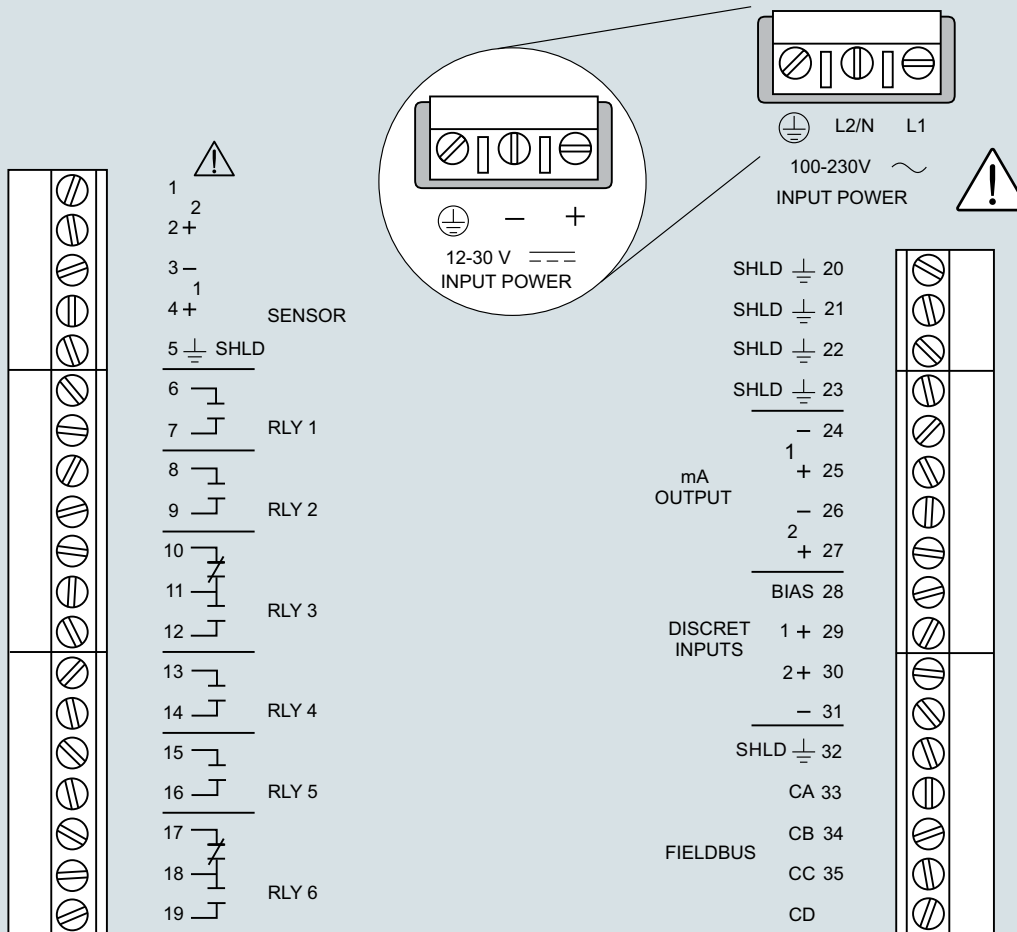
SITRANS LT500, dimensions in mm (inch)

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Circuit diagrams

SITRANS LT500 connections

Note:

1. Use 2-core copper wire, twisted, with shield, for expansion up to 365 m (1 200 ft). Route cable in grounded metal conduit, separate from other cables.

2. Verify that all system components are installed in accordance with instructions.

3. Connect all cable shields to the SITRANS LT500 shield connections. Avoid differential ground potentials by not connecting cable shields to ground (earth) anywhere else.

4. Keep exposed conductors on shielded cables as short as possible to reduce noise on the line caused by stray transmissions and noise pickup.