

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 and 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

Mode of operation	Level, space, distance, volume, flow, head, difference, average, totalization	Rated operating conditions	
Sensor input		Installation conditions	
Number of inputs	1 or 2	• Location	Indoor/outdoor
Terminal voltage	Max. 26 V, Min. 18 V (0 ... 22.6 mA)	• Installation category	II
Wiring	2 conductor, twisted, shielded, 0.5 ... 0.75 mm ² (22 ... 18 AWG)	• Pollution degree	4
Max. cable length	500 m (1 640.42 ft)	Ambient conditions	
Sensor input communication	<ul style="list-style-type: none"> • 4 ... 20 mA • HART protocol, for supported sensors: SITRANS LR110, LR120, SITRANS Probe LU240 	• Ambient temperature	-20 ... +50 °C (-4 ... +122 °F)
4 ... 20 mA sensor input		• Storage temperature	-20 ... +50 °C (-4 ... +122 °F)
• Resolution	0.025 % of full scale	Design	
• Accuracy	0.1 % of full scale	Weight	
HART sensor input	Resolution, range, and accuracy are dependent on connected sensor	• Wall mount	1.22 kg (2.68 lb)
Digital input		• Panel mount	1.35 kg (2.97 lb)
Quantity	2	Enclosure	
Switching threshold, low	0 ... 0.5 V DC	• Material	Polycarbonate
Switching threshold, high	10 ... 50 V DC	• Degree of protection	
Input current	Max. 3 mA	- Wall mount	IP65/Type 4X
Bias voltage	24 V	- Panel mount	IP54/Type 3
Analog output		Display and control	
Quantity	1 or 2	LCD display	60 x 40 mm (2.36 x 1.57 inch) LCD, 240 x 160 pixels resolution
Range	0 ... 20 mA or 4 ... 20 mA isolated	Menu navigation	4 push button keys
• Max. load	750 Ω	Update time	1 second or less
• Resolution	0.1 % of range	Memory	Program and parameters stored in non-volatile Flash memory
Accuracy	±20 μA	Memory card	8 GB Industrial micro SD
Startup current	3.6 mA	Power supply	
Fail-safe	Programmable as high, low, last reliable, set value, or hold per NAMUR NE43	AC version	100 ... 230 V AC, ±15 %, 50/60 Hz, 36 VA (17 W)
Wiring	2 conductor, twisted, shielded, 0.5 ... 0.75 mm ² (22 ... 18 AWG)	DC version	12 ... 30 V DC (20 W)
Relay output		Certificates and approvals	CE, UKCA, RCM, EAC, FM, cCSA _{US} , cUL _{US}
Quantity	Up to 6, 4 form A and 2 form C	Communication	
Rating	5 A at 250 V AC, 5 A at 30 V DC, non-inductive	Service interface	USB 2.0 mini A cable
Durability	50 000 operations min. per relay (5 A at 30 V DC, resistive load)	Optional Fieldbus	<ul style="list-style-type: none"> • HART 7, with Active/Passive • 4 ... 20 mA • Modbus RTU • PROFIBUS PA • PROFIBUS DP • ProfiNet
Fail-safe	Programmable as energized, de-energized, or hold	Remote configuration	<ul style="list-style-type: none"> • EDD via SIMATIC PDM • SITRANS DTM via PACTware

Level Measurement

Continuous level measurement
Controllers

SITRANS LT500

Selection and ordering data

Article No.

Order code

SITRANS LT500

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.

➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Product type

HydroRanger

MultiRanger

Feature set

Level, volume, and flow

Sensor input type

4 ... 20 mA input(s)

Number of measurement points

Single point version

Dual point version

Relay output

1 relay (1 Form A), 250 V AC

3 relays (2 Form A, 1 Form C), 250 V AC

6 relays (4 Form A, 2 Form C), 250 V AC

Mounting, enclosure design

Wall mount, standard enclosure

Wall mount, 4 entries, M20 cable glands included

Panel mount

Type of protection

Ordinary Locations/General Purpose (Non-Ex), cCSA_{US}, FM, CE, UKCA, RCM, EAC

Removable data storage

Included, (8 GB micro SD)

Input voltage

10 ... 30 V DC

100 ... 230 V AC

7ML60
0
1
3
0
A
B
A
B
C
0
1
2
0
1
2
3

Further designs

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

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

Certificates

Factory test certificate - M to DIN 55350, Part 18

Factory certificate 2.2 (EN 10204)

Communication

4 ... 20 mA, active output, with HART

Modbus RTU

PROFIBUS PA

PROFIBUS DP

ProfiNet

Specials

Special design

For customs, contact a local sales person.

For more information please visit

http://www.automation.siemens.com/aspa_app

Operating Instructions

All literature is available to download for free, in a range of languages, at

<http://www.siemens.com/processinstrumentation/documentation>

Optional equipment

Tag, stainless steel, 12 x 45 mm, one text line, (max. 16 characters)

Barriers in a NEMA 4X/IP65 enclosure

Barrier suitable for LR1xx & LU240 (STAHL: 9001/01-280-110-101)

Sunshield, 304 Stainless steel

SITRANS RD100, loop powered display - see Chapter 7

SITRANS RD150, remote digital display for 4 ... 20 mA and HART devices - see Chapter 7

SITRANS RD200, universal input display with Modbus conversion - see Chapter 7

SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7

Y15

C19

C14

F01

F04

F05

F06

F07

Y99

Article No.

7ML1930-1AC

A5E50255823

A5E50113513

7ML1930-1GA

7ML5741-.....-

7ML5742-.....-

7ML5740-.....-

7ML5744-.....-

Spare parts

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

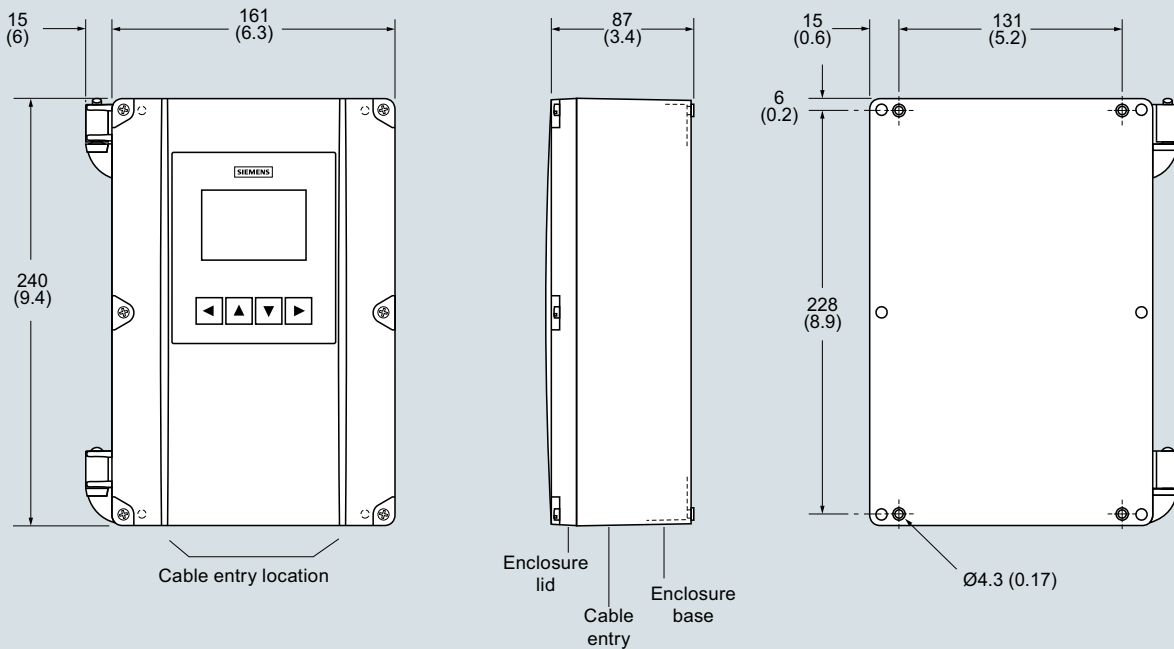
Level Measurement

Continuous level measurement
Controllers

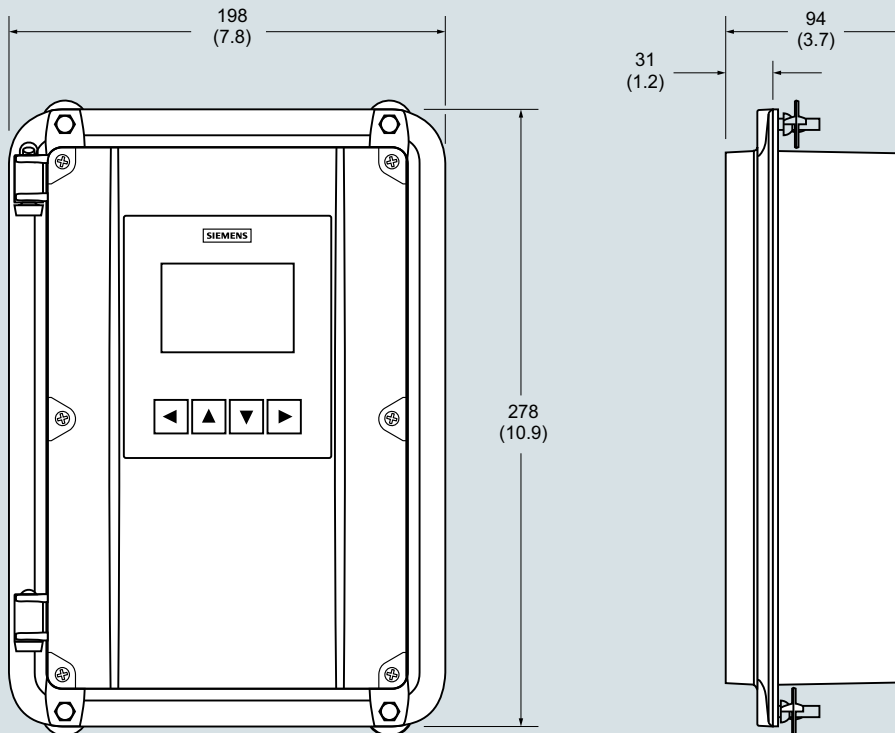
SITRANS LT500

Dimensional drawings

Wall mount dimensions



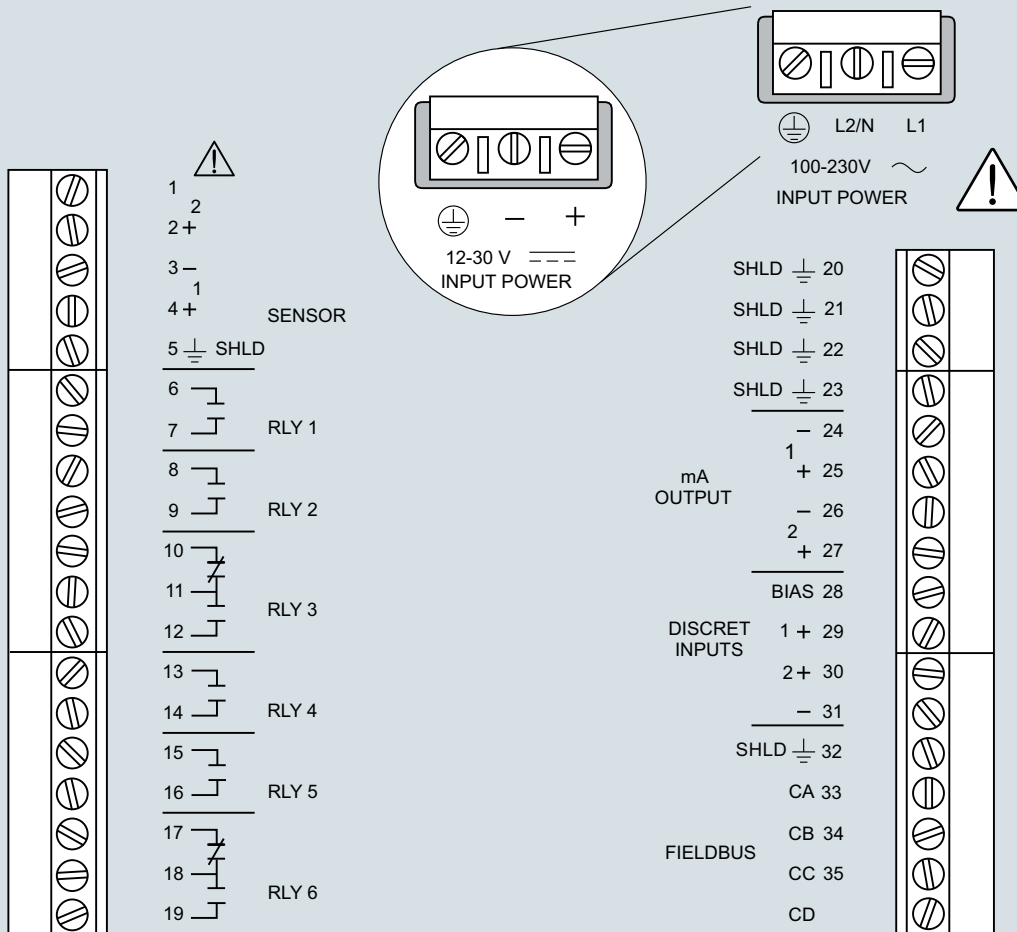
Panel mount dimensions



SITRANS LT500, dimensions in mm (inch)

4

Circuit diagrams



Relays shown in released state

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.

SITRANS LT500 connections