

Quick Start Manual • April 2007



English
Česky
Dansk
Deutsch
Ελληνικά
Español
Français
Italiano
Nederlands
Português
Suomi
Svenska

million
in one

sitrans


LR250 (HART)

SIEMENS

SIEMENS





SITRANS LR250
 7ML1234-56789-0ABC-D
 Serial No: GYZ / S1034567
 End.: NEMA / TYPE 4X, 6, IP67, IP68
 Amb.Temp.: - 40 °C to 80 °C
 Power Rating: 24V === Nom., 30 V === Max., 4 - 20mA

Siemens Milltronics Process Instruments Inc., Peterborough
 Made in Canada



$I_i = 30\text{ V}$
 $I_i = 120\text{ mA}$
 $P_i = 0.8\text{ W}$
 $C_i = 15\text{ nF}$
 $L_i = 0.1\text{ mH}$
 HART


Ex II 1 G EEx ia IIC T4
 II 1 D EEx tD A20 IP67 T90°C
 SIRA 06ATEX2358X
 IECEx SIR 05.0031X
 Ex ia IIC T4
 Ex tD A20 IP67 T90°C



 0518



SIEMENS




SITRANS LR250
 7ML1234-56789-0ABC-D
 Serial No: GYZ / S1034567
 End.: NEMA / TYPE 4X, 6, IP67, IP68
 Amb.Temp.: - 40 °C to 80 °C
 Power Rating: 24V === Nom., 30V === Max., 4 - 20mA

Siemens Milltronics Process Instruments Inc., Peterborough
 Made in Canada



$I_{max} = 120\text{ mA}$
 $P_{max} = 0.8\text{ W}$
 $V_{max} = 30\text{ V}$
 $C_i = 15\text{ nF}$
 $L_i = 0.1\text{ mH}$
 IC: 267P-LR250
 FCC ID: NJA-LR250
 HART
 WARNING: Possible Static Hazard, Do Not Rub Or Clean On Site


Class I, Div 1, Gr. A, B, C, D;
 Class II, Div 1, Gr. G;
 Class III
 Temp. Code : T4



 159134


SIEMENS




SITRANS LR250
 7ML1234-56789-0ABC-D
 Serial No: GYZ / S1034567
 End.: NEMA / TYPE 4X, 6, IP67, IP68
 Amb.Temp.: - 40 °C to 80 °C
 Power Rating: 24V === Nom., 30V === Max., 4 - 20mA

Siemens Milltronics Process Instruments Inc., Peterborough
 Made in Canada



IC: 267P-LR250
 FCC ID: NJA-LR250
 HART

Class I, Div. 2,
 Gr. A, B, C, D;
 Temp. Code: T5



 159134


This device complies with Part 15 of the FCC Rules.
 Operation is subject to the following two conditions
 1) This device may not cause harmful interference and
 2) This device must accept any interference received,
 including interference that may cause undesired operation

SITRANS LR250 (HART) Quick Start Manual

This manual outlines the essential features and functions of the SITRANS LR250 (HART). We strongly advise you to acquire the detailed version of the manual so you can use your device to its fullest potential. The complete manual can be downloaded from the SITRANS LR250 product page of our web site at: www.siemens.com/LR250. The printed manual is available from your local Siemens Milltronics representative.

Questions about the contents of this manual can be directed to:

Siemens Milltronics Process Instruments Inc.
1954 Technology Drive, P.O. Box 4225
Peterborough, Ontario, Canada, K9J 7B1
Email: techpubs.smpi@siemens.com

**Copyright Siemens Milltronics
Process Instruments Inc. 2007.
All Rights Reserved**

Disclaimer of Liability

We encourage users to purchase authorized bound manuals, or to view electronic versions as designed and authored by Siemens Milltronics Process Instruments Inc. Siemens Milltronics Process Instruments Inc. will not be responsible for the contents of partial or whole reproductions of either bound or electronic versions.

While we have verified the contents of this manual for agreement with the instrumentation described, variations remain possible. Thus we cannot guarantee full agreement. The contents of this manual are regularly reviewed and corrections are included in subsequent editions. We welcome all suggestions for improvement.

Technical data subject to change.

MILLTRONICS is a registered trademark of Siemens Milltronics Process Instruments Inc.

Technical Support

Support is available 24 hours a day.

To find your local Siemens Automation Office address, phone number, and fax number, go to:

www.siemens.com/automation/partner:

- Click on the tab **Contacts by Product** then find your product group (**+Process Automation > +Process Instrumentation > +Level Measuring Instruments**).
- Select the team **Technical Support**. Click on **Next**.
- Click on a continent, then a country, followed by a city. Click on **Next**.

For on-line technical support go to: www.siemens.com/automation/support-request

- Enter the device name (SITRANS LR250) or order number, then click on **Search**, and select the appropriate product type. Click on **Next**.
- Enter a keyword describing your issue. Then either browse the relevant documentation, or click on **Next** to email a description of your issue to Siemens Technical Support staff.

Siemens A&D Technical Support Center:

phone +49 180 50 50 222
fax +49 180 50 50 223+

Safety Guidelines

Warning notices must be observed to ensure personal safety as well as that of others, and to protect the product and the connected equipment. These warning notices are accompanied by a clarification of the level of caution to be observed.



WARNING: relates to a caution symbol on the product, and means that failure to observe the necessary precautions can result in death, serious injury, and/or considerable material damage.



WARNING¹: means that failure to observe the necessary precautions can result in death, serious injury, and/or considerable material damage.

Note: means important information about the product or that part of the operating manual.

FCC Conformity

US Installations only: Federal Communications Commission (FCC) rules



WARNING: Changes or modifications not expressly approved by Siemens Milltronics could void the user's authority to operate the equipment.

Notes:

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
- This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference to radio communications, in which case the user will be required to correct the interference at his own expense.

SITRANS LR250



WARNING: SITRANS LR250 is to be used only in the manner outlined in this manual, otherwise protection provided by the equipment may be impaired.

SITRANS LR250 is a 2-wire 25 GHz pulse radar level transmitter for continuous monitoring of liquids and slurries in storage vessels including high pressure and high temperature, to a range of 20 m (66ft). It is ideal for small vessels and low dielectric media.

The device consists of an electronic component coupled to a horn antenna and either a threaded or flange type process connection.

SITRANS LR250 supports HART communication protocol, and SIMATIC PDM software. Signals are processed using Process Intelligence.

¹ This symbol is used when there is no corresponding caution symbol on the product.

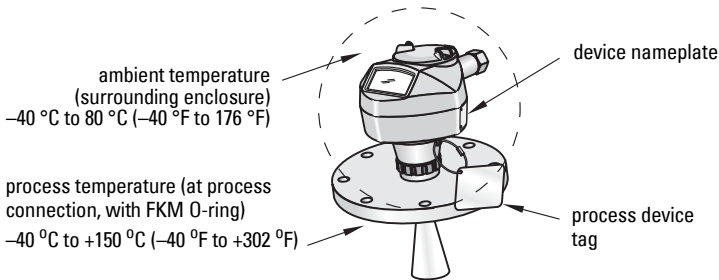
Specifications

For a complete listing, see the SITRANS LR250 (HART) Instruction Manual. For Approvals information, please refer to the device nameplate and the process device tag.

Ambient/Operating Temperature

Notes:

- Process temperature and pressure capabilities are dependent upon information on the process device tag. The reference drawing listed on the tag can be downloaded from the Siemens website at: www.siemens.com/LR250.
- See *Maximum Process Temperature Chart* on page 20, for more details.



Power



Nominal 24 V DC with max. 550 Ohm loop resistance. (Check the device nameplate for the characteristics of the device, and confirm the loop load.)

- Maximum 30 V DC
- 4 to 20 mA

Approvals

- | | |
|-------------|---|
| • General | CSA _{US/C} , FM, CE |
| • Radio | Europe ETSI EN302-372, FCC, Industry Canada |
| • Hazardous | Intrinsically Safe: |
| | (Europe) ATEX II 1G, EEx ia IIC T4
ATEX II 1D, EEx tD A20 IP67 T90 °C |
| | (International) IECEx SIR 05.0031X, Ex ia IIC T4,
EX tD A20 IP67 T90 °C |
| | (US/Canada) FM/CSA: (barrier required) ¹
Class I, Div. 1, Groups A, B, C, D
Class II, Div. 1, Groups E, F, G
Class III T4 |
- (see next page for Non-Incendive Class I, Div. 2 approval)

Note: Use appropriate conduit seals to maintain IP or NEMA rating.

¹ See Appendix A for *FM/CSA Intrinsically Safe connection drawing (23650653) (North America only)* on page A-1.

Approvals (continued)

- Hazardous Non-incendive:
(US/Canada) FM/CSA¹ Class I, Div. 2,
Groups A, B, C, D T5

Note: Use appropriate conduit seals to maintain IP or NEMA rating.

Pressure Application

- ! WARNINGS:**
- **This product is designated as a Pressure Accessory per Directive 97 / 23 / EC, and is not intended for use as a safety device.**
 - **Do not attempt to loosen, remove, or disassemble process connection or instrument housing while vessel contents are under pressure.**
 - **Improper installation may result in loss of process pressure.**

Installation

- ! WARNINGS:**
- **Installation shall only be performed by qualified personnel and in accordance with local governing regulations.**
 - **Materials of construction are chosen based on their chemical compatibility (or inertness) for general purposes. For exposure to specific environments, check with chemical compatibility charts before installing.**

Notes:

- For European Union and member countries, installation must be according to ETSI EN 302372.
- The Process Device Tag shall remain with the process pressure boundary assembly². In the event the device package is replaced, the Process Device Tag shall be transferred to the replacement unit.
- SITRANS LR250 units are hydrostatically tested, meeting or exceeding the requirements of the ASME Boiler and Pressure Vessel Code and the European Pressure Equipment Directive.

¹ See Appendix A for *FM/CSA (Non-incendive) Class 1, Div 2 connection drawing (23650673)(North America only)* on page A-2.

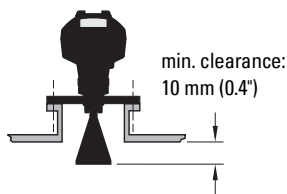
² The process pressure boundary assembly comprises the components that act as a barrier against pressure loss from the process vessel: that is, the combination of process connection body and emitter, but normally excluding the electrical enclosure.

Installation guidelines

- Provide easy access for viewing the display and programming via the hand programmer.
- Provide an environment suitable to the housing rating and materials of construction.
- Provide a sunshield if the device will be mounted in direct sunlight.

Nozzle design

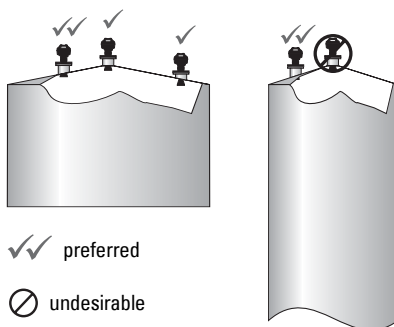
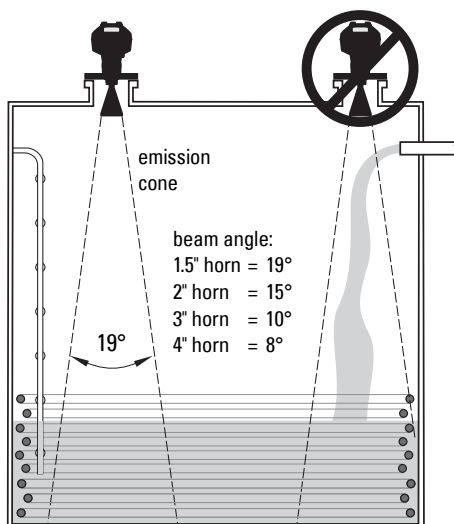
- The end of the horn must protrude a minimum of 10 mm (0.4") to avoid false echoes being reflected from the nozzle.
- An antenna extension: (100 mm / 3.93") is available.



Nozzle location

Note: Beam angle depends on horn size.

- Keep emission cone free of interference from ladders, pipes, I-beams or filling streams.
- Make allowance for the emission code spreading, to avoid interference with vessel walls or obstructions. (Beam angle depends on horn size.)
- Avoid central locations on tall, narrow vessels, which can generate false echoes



Mounting instructions

- ! WARNING:** For pressure applications, it will be necessary to use PTFE tape or other appropriate thread sealing compound, and to tighten the process connection beyond hand-tight.

Threaded Version

1. Before inserting the device into its mounting connection, check to ensure the threads are matching to avoid damaging them.
2. Simply screw the device into the process connection, and hand tighten, or use a wrench. A torque of 40 N m (30 ft.lbs) is recommended.

Flanged Version

- ! WARNING:** The user is responsible for the selection of bolting and gasket materials which will fall within the limits of the flange and its intended use, and which are suitable for the service conditions.

Wiring

Power

WARNINGS:



The DC input terminals shall be supplied from a source providing electrical isolation between the input and output, in order to meet the applicable safety requirements of IEC 61010-1.



All field wiring must have insulation suitable for rated voltages.

Connecting SITRANS LR250

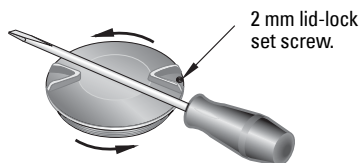


WARNINGS:

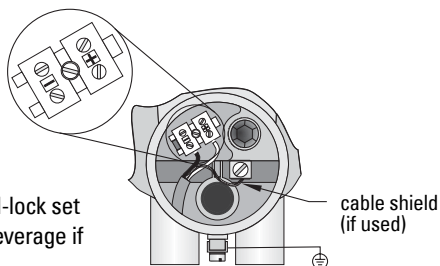
- Check the device nameplate and process device tag, to verify the approval rating.
- Use appropriate conduit seals to maintain IP or NEMA rating.
- Read *Instructions specific to hazardous area installations* on page 10.

Notes:

- For detailed wiring instructions, please refer to the full Instruction Manual.
- Use twisted pair cable: AWG 22 to 14 (0.34 mm² to 2.5 mm²).
- Separate cables and conduits may be required to conform to standard instrumentation wiring practices, or electrical codes.



2 mm lid-lock set screw.



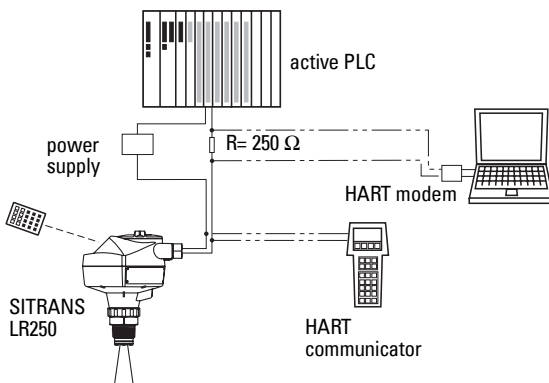
1. Use a 2 mm Allen key to loosen the lid-lock set screw. Then using a screwdriver for leverage if necessary, unscrew the cover.
2. Strip the cable jacket for approximately 70 mm (2.75") from the end of the cable, and thread the wires through the gland.
3. Connect the wires to the terminal as shown: the polarity is identified on the terminal block.
4. Ground the device according to local regulations.
5. Tighten the gland to form a good seal.

Connecting HART

Typical PLC/mA configuration with HART

Notes:

- Depending on the system design, the power supply may be separate from the PLC, or integral to it.
- Loop resistance (total of cable resistance plus 250 Ohm [resistor]) must be less than 550 Ohm for the device to function properly.



Wiring setups for hazardous area installations

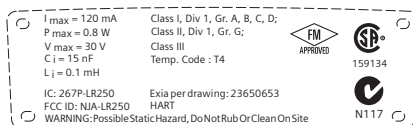
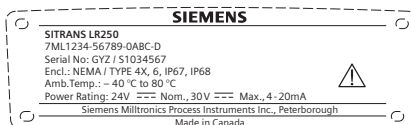
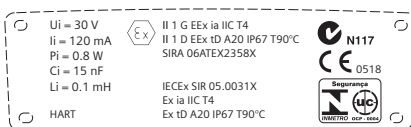
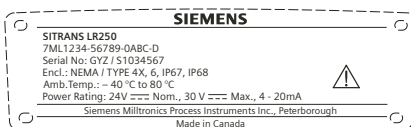
There are two wiring options for hazardous area installations. In all cases, check the device nameplate and process device tag to verify the approval rating.

Reference drawings are available from the product page of our website at:

www.siemens.com/LR250, or in Appendix A, on the pages noted below.

Reference Drawing		Page No.
FM/CSA Intrinsically Safe connection drawing	(23650653)	A- 1
FM/CSA (Non-incendive) Class 1, Div 2 connection drawing	(23650673)	A- 2

1. Intrinsically Safe wiring method (barrier required)



Approval Rating	Valid for:
ATEX II 1 G, EEx ia IIC T4 ATEX II 1 D, EEx tD A20 IP67 T90 °C	Europe
IECEx SIR 05.0031X, Ex ia IIC T4, Ex tD A20 IP67 T90 °C	International
FM/CSA: Class I, Div. 1, Groups A, B, C, D Class II, Div. 1, Groups E, F, G Class III	US/Canada

- For power demands see *Loop Voltage versus Loop Resistance* on page 21.
- For wiring requirements:
 - Europe/International: Follow local regulations.
 - US/Canada: Download *FM/CSA Intrinsically Safe connection drawing (23650653)* from the product page of our website at: www.siemens.com/LR250 or see Appendix A: page A-1.
- Use appropriate conduit seals to maintain IP or NEMA rating.
- Recommended Intrinsically Safe barriers are listed under *Passive Shunt Diode Barriers* on page 8 and *Active barriers (repeating barriers)* on page 9.
- Refer to *Instructions specific to hazardous area installations* on page 10.

Note: Selecting a suitable PLC input module, power supply, or barrier requires knowledge about Intrinsic Safety and the application. It is the responsibility of the installer to ensure that the intrinsically safe installation complies with both the apparatus approval requirements and the relevant national code of practice.

Passive Shunt Diode Barriers

Note: A well regulated supply voltage is required.

Manufacturer	Part Number
MTL	787SP+ (Dual Channel)
MTL	7787P+ (Dual Channel)

Manufacturer	Part Number (continued)
Stahl	9001/01-280-100-10 (Single Channel)
Stahl	9002/01-280-110-10 (Dual Channel)

How to select a passive barrier for SITRANS LR250

To make sure that the barrier safety description is suitable for the LR250 Intrinsically Safe (IS) input parameters, carry out the following calculations:

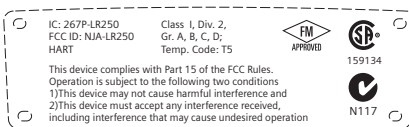
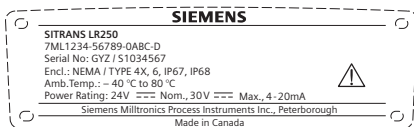
- Re-e = max. end-to-end resistance of the barrier
- Rloop = loop resistance (total of cable resistance plus e.g. sense resistance, displays, and/or PLC inputs)
- Vbarrier = value of any non-linear voltage drops due to the barrier

1. Determine the value for Re-e from the data sheet.
2. Calculate the total value for Rloop: by adding, for example, sense resistance, displays, and/or PLC inputs.
3. Calculate Rworking = Re-e + Rloop.
4. Determine the value of Vbarrier from the barrier data sheet (for example, voltage drops due to diodes).
5. Calculate Vworking = Vsupply – Vbarrier.
6. Use the values for Vworking and Rworking to confirm that operation is within the shaded area of the graph *Loop Voltage versus Loop Resistance* on page 21.

Active barriers (repeating barriers)

Manufacturer	Part Number
MTL	706
MTL	7206
Stahl	9001/51-280-110-14
Pepperl+Fuchs	KSD2-CI-S-Ex
Pepperl+Fuchs	KFD2-STC3-Ex1
MTL	E02009 - verify
MTL	E02010

2. Non-incendive wiring method



Approval Rating (see nameplate, inside front cover)

Valid for:

FM:

Class I, Div. 2, Groups A, B, C, D T5

N. America

- For power demands see *Loop Voltage versus Loop Resistance* on page 21.
- For wiring requirements (North America only) download *FM/CSA (Non-incendive) Class 1, Div 2 connection drawing (23650673)* from the product page of our website at: www.siemens.com/LR250 or see Appendix A: page A-2

Instructions specific to hazardous area installations (Reference European ATEX Directive 94/9/EC, Annex II, 1/0/6)

The following instructions apply to equipment covered by certificate number SIRA 06ATEX2358X

1. For use and assembly, refer to the main instructions.
2. The equipment is certified for use as Category 1GD equipment.
3. The equipment may be used with flammable gases and vapors with apparatus group IIC, IIB and IIA and temperature classes T1, T2, T3 and T4.
4. The equipment has a degree of ingress protection of IP67 and a temperature class of T90°C and may be used with flammable dusts.
5. The equipment is certified for use in an ambient temperature range of -40 °C to 80 °C.
6. The equipment has not been assessed as a safety related device (as referred to by Directive 94/9/EC Annex II, clause 1.5).
7. Installation and inspection of this equipment shall be carried out by suitably trained personnel in accordance with the applicable code of practice (EN 60079-14 and EN 60079-17 in Europe).
8. The equipment is non-repairable.
9. The certificate numbers have an 'X' suffix, which indicates that special conditions for safe use apply. Those installing or inspecting this equipment must have access to the certificates.

10. If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.
- Aggressive substances: for example, acidic liquids or gases that may attack metals, or solvents that may affect polymeric materials.
 - Suitable precautions: for example, establishing from the material's data sheet that it is resistant to specific chemicals.

Programming SITRANS LR250

A Quick Start Wizard provides an easy 5-step guide to help you configure the device for a simple application.

- See *Quick Start Wizard via the handheld programmer* on page 16.
- See *Quick Start Wizard via SIMATIC PDM* on page 19.

Settings can be modified locally via the Local User Interface (see *Accessing parameters via the handheld programmer* on page 14) or remotely via SIMATIC PDM. The Local User Interface(LUI) consists of an LCD display and a handheld programmer.

Activating SITRANS LR250

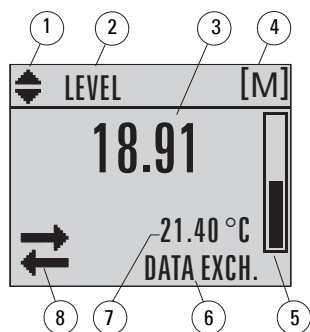
Note: Keep infrared devices such as laptops, cell phones, and PDAs, away from SITRANS LR250 to prevent inadvertent operation.

Power up the device. SITRANS LR250 automatically starts up in Measurement (RUN) mode.

Press **Mode**  to toggle between Measurement and Program Mode.

The LCD Display

Measurement mode (normal operation)



- 1 – toggle indicator for linear units or %
- 2 – selected operation: level, space, or distance
- 3 – measured value (level or volume, space, or distance)
- 4 – units
- 5 – bar graph indicates level
- 6 – secondary region indicates on request¹ electronics temperature, echo confidence, loop current, or distance
- 7 – text area displays status messages
- 8 – device status indicator

Fault present



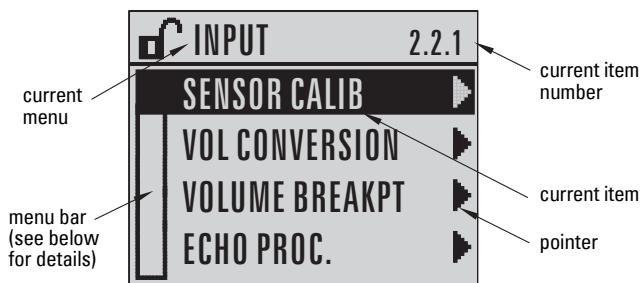
S: 0 LOE

- 7 – text area displays a fault code and an error message
- 8 – service required icon appears

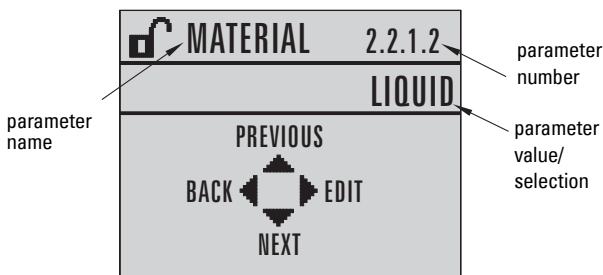
¹ In response to a key press request. For details, see *Key functions in Measurement mode* on page 13.

PROGRAM mode display

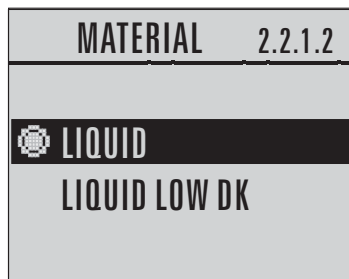
Navigation view



Parameter view

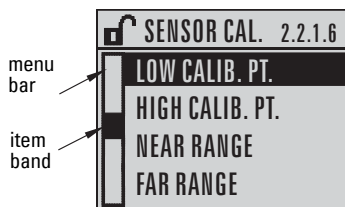


Edit view



Menu bar in navigation view

- A visible menu bar indicates the menu list is too long to display all items.
- The depth and relative position of the item band on the menu bar indicates the length of the menu list, and approximate position of the current item in the list.
- A deeper band indicates fewer items.
- A band halfway down the menu bar indicates the current item is halfway down the list.



Handheld Programmer (Part No. 7ML1930-1BK)

The programmer is ordered separately.



Key functions in Measurement mode

Key	Function	Result
	Updates the loop current.	New value is displayed in LCD secondary region.
	Updates internal enclosure temperature reading.	New value is displayed in LCD secondary region.
	Updates echo confidence value.	New value is displayed in LCD secondary region.
	Updates distance measurement.	New value is displayed in LCD secondary region.
	Mode opens PROGRAM mode.	Opens the menu level last displayed in this power cycle, unless power has been cycled since exiting PROGRAM mode or more than 10 minutes have elapsed since PROGRAM mode was used. Then top level menu will be displayed.
	Right ARROW opens PROGRAM mode.	Opens the top level menu.
	Up or Down ARROW toggles between linear units and %	LCD displays measured value in either linear units or percent.

Accessing parameters via the handheld programmer

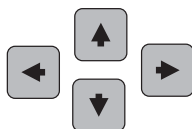
Note: SITRANS LR250 automatically returns to Measurement mode after a period of inactivity in PROGRAM mode (between 15 seconds and 10 minutes, depending on the menu level).

Parameter menus

Parameters are identified by name and organized into function groups, then arranged in a 5-level menu structure. For the complete list of parameters with instructions, see the full manual.

Note:

In Navigation mode **ARROW** keys move to the next menu item in the direction of the arrow.



1. QUICK START



2. SETUP

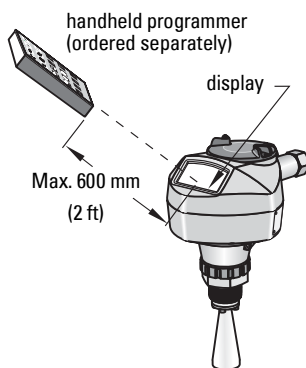
2.2. INPUT

2.2.5. TVT SETUP







2.2.5.6. AUTO ECHO SUPP

1. Enter PROGRAM mode

- Point the programmer at the display (from a maximum distance of 600 mm [2 ft.]).
- Right ARROW**  activates PROGRAM mode and opens menu level 1.
- Mode**  opens the menu level last displayed in PROGRAM mode within the last 10 minutes, or menu level 1 if power has been cycled since then.






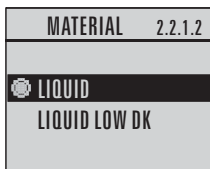
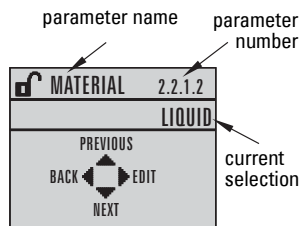
2. Navigating: key functions in Navigation mode

Key	Name	Menu level	Function
 	Up or Down ARROW	menu or parameter	Scroll to previous or next menu or parameter.
	Right ARROW	menu parameter	Go to first parameter in the selected menu, or open next menu. Open Edit mode.
	Left ARROW	menu or parameter	Open parent menu.
	Mode	menu or parameter	Change to MEASUREMENT mode.
	Home	menu or parameter	Open top level menu: menu 1.




3. Editing in PROGRAM mode

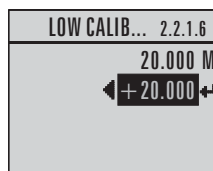
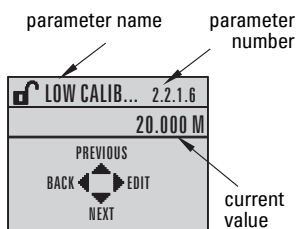
Selecting a listed option

- Navigate to the desired parameter.
- Press **Right ARROW**  to open parameter view.
- Press **Right ARROW**  again to open **Edit** mode. The current selection is highlighted.
- Scroll to a new selection.
- Press **Right ARROW**  to accept it
- The LCD returns to parameter view and displays the new selection.











Changing a numeric value

- Navigate to the desired parameter.
- Press **Right ARROW**  to open parameter view. The current value is displayed.
- Press **Right ARROW**  again to open **Edit** mode. The current value is highlighted.
- Key in a new value.
- Press **Right ARROW**  to accept it. The LCD returns to parameter view and displays the new selection.



Key functions in Edit mode

Key	Name	Function
 	Up or Down ARROW	Selecting options <ul style="list-style-type: none"> • Scrolls to item.
		Numeric editing <ul style="list-style-type: none"> • Increments or decrements digits • Toggles plus and minus sign
	Right ARROW	Selecting options <ul style="list-style-type: none"> • Accepts the data (writes the parameter) • Changes from Edit to Navigation mode
		Numeric editing <ul style="list-style-type: none"> • Moves cursor one space to the right • or with cursor on Enter sign, accepts the data and switches from Edit to Navigation mode
	Left ARROW:	Selecting options <ul style="list-style-type: none"> • Cancels Edit mode without changing the parameter
		Numeric editing <ul style="list-style-type: none"> • Moves cursor to plus/minus sign if this is the first key pressed • or moves cursor one space to the left.







Key	Name	Function (continued)	
	Clear	Numeric editing	<ul style="list-style-type: none"> Erases the display.
	Decimal point	Numeric editing	<ul style="list-style-type: none"> Enters a decimal point.
	Plus or minus sign	Numeric editing	<ul style="list-style-type: none"> Changes the sign of the entered value.
	Numeral	Numeric editing	<ul style="list-style-type: none"> Enters the corresponding character.

Quick Start Wizard via the handheld programmer

Notes:

- The Quick Start Wizard is a complete package and the settings are inter-related.
- Each time the Quick Start Wizard is initiated, the start-up settings are factory defaults. The Wizard will not recall previous user-defined settings.

1. Quick Start

- Point the programmer at the display (from a maximum distance of 600 mm [2 ft.]), then press **Right ARROW**  to activate PROGRAM mode and open menu level 1.
- Press **Right ARROW**  twice to navigate to menu item 1.1 and open parameter view.
- Press **Right ARROW**  to open **Edit mode** or **Down ARROW**  to accept default values and move directly to the next item.
- To change a setting, scroll to the desired item or key in a new value.
- After modifying a value, press **Right ARROW**  to accept it and press **Down ARROW**  to move to the next item.
- Quick Start settings take effect only after you select **Yes to Apply changes** in step 1.7.

2.1. Material

Options	LIQUID
	LIQUID LOW DK (low dielectric liquid)

2.2. Response Rate

Sets the reaction speed of the device to measurement changes in the target range.

Options	SLOW	0.1 m/minute
	MED	1.0 m/minute
	FAST	10.0 m/minute

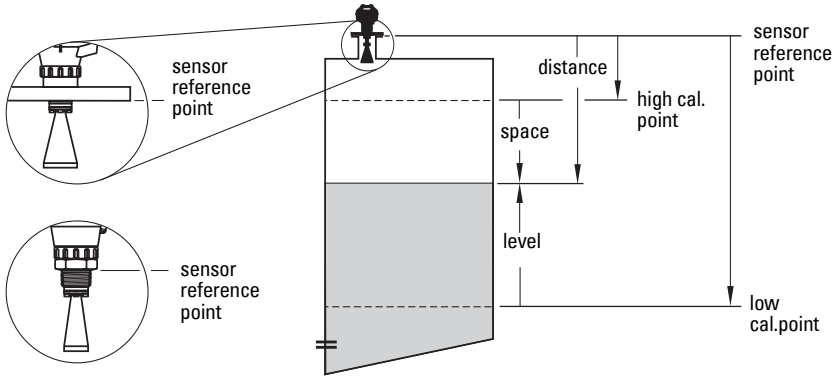
Use a setting just faster than the maximum filling or emptying rate (whichever is greater). Slower settings provide higher accuracy; faster settings allow for more level fluctuation

2.3. Sensor Units

Selects the units for the Quick Start variables (high and low calibration point, and level, distance, or space).

Options	M, CM, MM, FT, IN
----------------	-------------------

2.4. Operation



Operation types	NO SERVICE	The SITRANS LR250 stops updating measurements and associated loop current. Last valid measurement is displayed.
	LEVEL	Distance to material surface referenced from Low Calibration Point (process empty level).
	SPACE	Distance to material surface referenced from High Calibration Point (process full level).
	DISTANCE	Distance to material surface referenced from Sensor Reference Point.

2.5. Low Calibration Point

Distance from Sensor Reference to Low Calibration Point: usually process empty level. See **Operation (2.4.)** for an illustration.

Values	Range: 0.0000 to 20.000 m
---------------	---------------------------

2.6. High Calibration Point

Distance from Sensor Reference to High Calibration Point: usually process full level. See **Operation (2.4.)** for an illustration.

Values	Range: 0.0000 to 20.000 m
---------------	---------------------------

2.7. Apply? (Apply changes)

In order to save the Quick Start settings it is necessary to select **Yes** to apply changes.

Options	YES, NO
----------------	---------

Display shows **DONE** when Quick Start is successfully completed.

Press **Mode**  to return to Measurement mode. SITRANS LR250 is now ready to operate..

SITRANS LR250 Communications: HART

- You will need the full manual to acquire the list of applicable parameters.
- We recommend that you use SIMATIC Process Device Manager (PDM) to program your device.

SIMATIC PDM

SIMATIC PDM is a software package used to commission and maintain SITRANS LR250 and other process devices. Please consult the operating instructions or online help for details on using SIMATIC PDM. (You can find more information at www.fielddevices.com: go to **Products and Solutions > Products and Systems > Communications and Software > Process Device Manager**.)

Device Description (DD)

Note: SITRANS LR250 requires the DD for SIMATIC PDM version 6.0 with SP2 and HF1, or higher.

- You can locate the DD in Device Catalog, under **Sensors/Level/Echo/Siemens Milltronics/SITRANS LR250**.
- Check the product page of our website at: www.siemens.com/LR250, under **Downloads**, to make sure you have the latest version of SIMATIC PDM, the most recent Service Pack (SP) and the most recent hot fix (HF). If you need to install a new DD see *Configuring a new device* below.

Configuring a new device

Note: Clicking on **Cancel** during an upload from device to SIMATIC PDM will result in some parameters being updated.

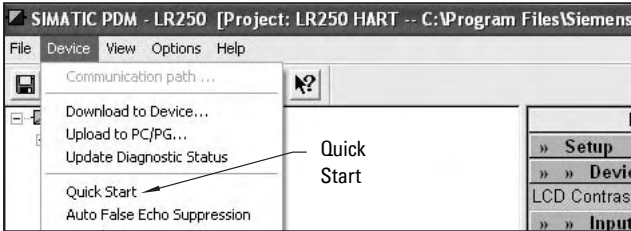
1. Check that you have the most recent DD, and if necessary download it from the product page listed above. Save the files to your computer, and extract the zipped file to an easily accessed location. Launch **SIMATIC PDM – Manager Device Catalog**, browse to the unzipped DD file and select it.
2. Launch SIMATIC PDM and create a new project for LR250. Application Guides for setting up HART devices with SIMATIC PDM can be downloaded from the product page of our website at: www.siemens.com/LR250.
3. Upload parameters to the PC/PG.
4. Configure the device via the Quick Start wizard (see page 19).

Quick Start Wizard via SIMATIC PDM

Notes:

- The Quick Start wizard settings are inter-related and changes apply only after you click on **Transfer** at the end of step 5.
- Each time the Quick Start Wizard is initiated, the start-up settings are factory defaults. The Wizard will not recall previous user-defined settings.
- Click on **BACK** to return and revise a setting or **Cancel** to exit the Quick Start.

Launch SIMATIC PDM, open the menu **Device – Quick Start**, and follow steps 1 to 5.



Maintenance

SITRANS LR250 requires no maintenance or cleaning under normal operating conditions. If cleaning becomes necessary under severe operating conditions:

1. Note the antenna material and the process medium, and select a cleaning solution that will not react adversely with either.
2. Remove the device from service and wipe the antenna clean using a cloth and suitable cleaning solution.

Unit Repair and Excluded Liability

For detailed information, please see the inside back cover.

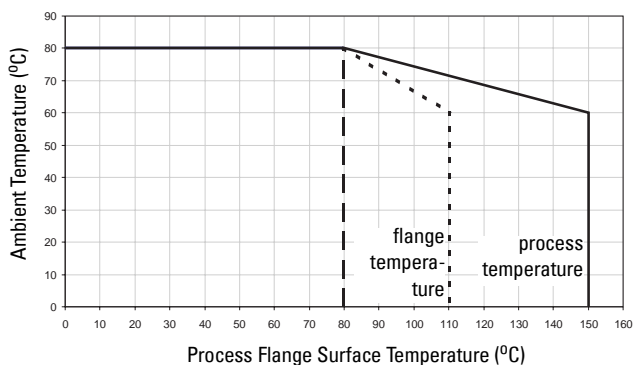
Maximum Process Temperature Chart

! WARNING: Internal temperature must not exceed 80 °C (176 °F).

Notes:

- The chart below is for guidance only:
- The chart does not represent every possible process connection arrangement. For example, it will NOT apply if you are mounting SITRANS LR250 directly on a metallic vessel surface.
- The chart does not take into consideration heating from direct sunshine exposure

Maximum Flange and Process Temperatures versus allowable ambient for flange adapter versions of SITRANS LR250

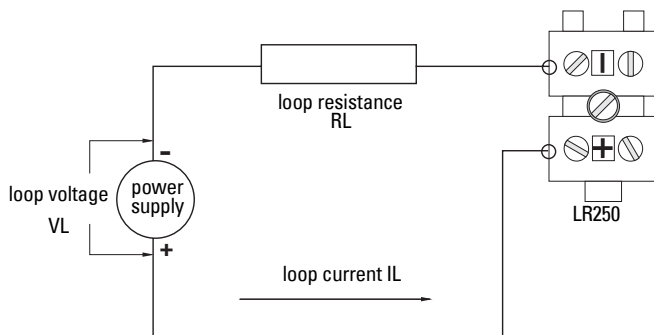


Parameter 3.14.1 is required to monitor the Internal Temperature. It gives you an excellent indication of how reliably the product will perform thermally when installed on your process vessel.

Loop power

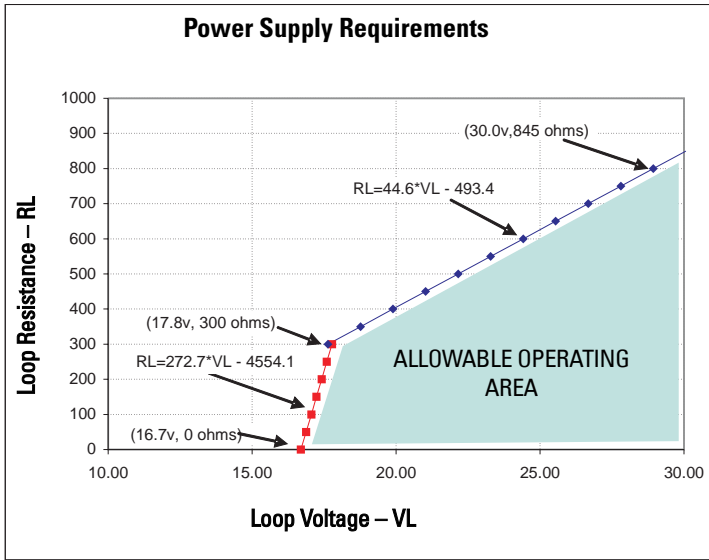
Typical Connection Drawing

Note: Loop voltage is the voltage at the terminals of the power supply (not the voltage at the terminals of the device).



Allowable operating area of SITRANS LR250

Loop Voltage versus Loop Resistance



Notes
