Radar Transmitters
SITRANS LR560 (mA/HART)
Quick Start Manual · 12/2010
SITRANS LR560 (HART) Quick Start Manual

This manual outlines the essential features and functions of the SITRANS LR560 (HART ¹). 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 LR560 product page of our web site at: www.siemens.com/LR560. The printed manual is available from your local Siemens Milltronics representative.

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

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

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 Contact, select Service, then click Service again to find your product group (+Automation Technology > +Sensor Systems > +Process Instrumentation > +Level Measurement > +Continuous). Select Radar.
• Select the country followed by the City/Region.
• Select Technical Support under Service.

For on-line technical support go to: www.siemens.com/automation/support-request
• Enter the device name (SITRANS LR560) 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 IA/DT Technical Support Center: phone +49 (0)911 895 7222

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Disclaimer of Liability
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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.
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 symbol 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.

WARNING symbol, used when there is no corresponding caution symbol on the product, 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.

Industry Canada

a) Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

b) This device shall be installed and operated in a completely enclosed container to prevent RF emission which otherwise can interfere with aeronautical navigation. Installation shall be done by trained installers, in strict compliance with the manufacturer’s instructions.

c) The use of this device is on a “no-interference, no-protection” basis. That is, the user shall accept operations of high-powered radar in the same frequency band which may interfere with or damage this device. On the other hand, level probing devices found to interfere with primary licensing operations will be required to be removed at the user’s expense.
d) This level probing device is only permitted for installation inside enclosed containers. The installer/user of this device shall ensure that it is at least 10 km from the Penticton radio astronomy station (British Columbia latitude: 49° 19' 12" N, longitude: 119° 37' 12" W). For devices not meeting this 10 km separation (e.g. the Okanagan Valley, British Columbia) the installer/user must coordinate with and obtain the written concurrence of the Director of the Penticton radio astronomy station before the equipment can be installed or operated. The Penticton contact is Tel: 250-493-2277/ fax: 250-493-7767. (In case of difficulty, the Manager, Radio Equipment Standards, Industry Canada, may also be contacted.)

**SITRANS LR560**

*WARNING: SITRANS LR560 is to be used only in the manner outlined in this manual, otherwise protection provided by the equipment may be impaired.*

**Note:** This product is intended for use in industrial areas. Operation of this equipment in a residential area may cause interference to several frequency based communications.

SITRANS LR560 is a 2-wire 78 GHz FMCW radar level transmitter for continuous monitoring of solids in vessels to a range of 100 m (329 ft). The plug and play performance is ideal for all solids applications, including those with extreme dust and high temperatures to +200 °C (+392 °F). The device is an electronic circuit coupled to a lens antenna and flange for quick and easy positioning.

SITRANS LR560 supports HART communication protocol, and SIMATIC PDM software. Signals are processed using Process Intelligence.

**Specifications**

For a complete listing, see the SITRANS LR560 (HART) Instruction Manual. For Approvals information see Approvals on page 4.

**Ambient/Operating Temperature**

**Notes:**

- The reference drawing listed on the device label can be downloaded from the Siemens website at [www.siemens.com/LR560](http://www.siemens.com/LR560) under Support.
- Maximum and minimum temperatures are dependent on the process connection, antenna and O-ring materials. Use of the Easy Aimer limits maximum temperature.
- See *Temperature De-Rating Curve* on page 15, for more details.
Power

- Nominal 24 V DC with max. 550 Ohm loop resistance\(^1\).
- For other configurations, see the chart under Loop Power on page 16.
- Maximum 30 V DC
- 4 to 20 mA loop power

Approvals

Notes:
- The device label lists the approvals that apply to your device.
- Use appropriate conduit seals to maintain IP or NEMA rating.
- General CSAUS/CA, FM, CE, C-TICK
- Radio R&TTE (Europe), FCC, Industry Canada,
- Hazardous
  - Non-sparking/Energy Limited \(^2\) (Europe)
  - Dust Ignition Proof \(^3\) (Europe/International)
  - Dust Ignition Proof \(^4\) (US/Canada)
  - Non-incendive \(^2\) (US/Canada)

Pressure Application

**WARNINGS:**
- 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.

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1) Check the device label for the characteristics of the device, and confirm the loop load.
2) See also Non-Sparking/Energy Limited wiring (Europe) and Dust Ignition Proof wiring (Europe/International) on page 16.
3) See also Non-Sparking/Energy Limited wiring (Europe) and Dust Ignition Proof wiring (Europe/International) on page 16.
4) See also Non-incendive and Dust Ignition Proof wiring (US/Canada) on page 17.
Pressure Equipment Directive, PED, 97/23/EC

Note: Pertains to pressure-rated version only.

SITRANS LR560 Radar Level Measurement instrument falls below the limits of Article 3, sections 1&2 of the Pressure Equipment directive (PED, 97/23/EC), as a category I pressure accessory. However, in accordance with PED, 97/23/EC, Article 3, section 3, this equipment has been designated and manufactured in accordance with Sound Engineering Practice (SEP) (see EU Commission Guideline 1/5).

Installation

**WARNINGS:**

- Installation shall be performed only by qualified personnel and in accordance with local governing regulations.
- Never attempt to loosen, remove, or disassemble process connection or instrument housing while vessel contents are under pressure.
- 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.
- Improper installation may result in loss of process pressure.

Notes:

- For European Union and member countries, installation must be according to ETSI EN 302372.
- SITRANS LR560 units are pressure tested, meeting or exceeding the requirements of the ASME Boiler and Pressure Vessel Code and the European Pressure Equipment Directive.

**Nozzle location**

**Beam angle**

- Beam angle is the width of the cone where the energy density is half of the peak energy density.
- The peak energy density is directly in front of and in line with the antenna.
- There is a signal transmitted outside the beam angle, therefore false targets may be detected.

**Emission cone**

- Keep emission cone free of interference from ladders, pipes, I-beams or filling streams.
- Avoid central locations on tall, narrow vessels.

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Environment

- 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.

Sunshield

The LR560 display can be protected by an optional sunshield if the instrument will be mounted in direct sunlight.

Aimer Adjustment

Aiming is not required for signal optimization with 78 GHz frequency.

1) For 4” and 6” Aimer: Loosen the set screws in the locking ring.
   Holding the electronics enclosure firmly, loosen the Aimer locking ring using the supplied C spanner, until the LR560 drops down slightly. The enclosure can then be turned freely.

2) Direct SITRANS LR560 so the antenna is pointed at an angle perpendicular to the material surface, if possible.
3) When the desired position is reached, re-tighten the locking ring using the C spanner, and tighten set screws.
4) For the 3” Aimer flange, tapered split washers with pressure rated versions are provided to keep nuts and bolts perpendicular to the flange surface.

Air Purge System
The purge airflow is designed to create a strong vortex of air that rapidly cleans the face of the lens. See the full manual for details.

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 LR560

WARNINGS:

• Check the device label to verify the approval rating.
• Use appropriate conduit seals to maintain IP or NEMA rating.
• Read Instructions specific to hazardous area installations on page 17.

Notes:

• 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.

1) Loosen locking screw.
2) Remove LR560 lid.
3) Remove optional display by gently turning the display a quarter turn counter-clockwise until it is free.
4) Strip the cable jacket for approximately 70 mm (2.75”) from the end of the cable, and thread the wires through the gland 1).

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1) If cable is routed through conduit, use only approved suitable-size hubs for waterproof applications.
5) Connect the wires to the terminals as shown: the polarity is identified on the terminal block.
6) Ground the instrument according to local regulations.
7) Tighten the gland to form a good seal.
8) Replace optional display.
9) After programming and device configuration, replace device lid and secure the locking screw.

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

Wiring setups for hazardous area installations
See page 16

Programming SITRANS LR560
• See Quick Start Wizard via the LDI push buttons on page 10.
• See Quick Start Wizard via SIMATIC PDM on page 14 or Operating via AMS Device Manager on page 14.

Activating SITRANS LR560
Power up the device. A transition screen showing first the Siemens logo and then the current firmware revision is displayed while the first measurement is being processed. SITRANS LR560 automatically starts up in Measurement mode.
The first time the device is configured, you will be prompted to select a language (English, German, French, Spanish or Chinese).

Local Display Interface (LDI)
Modify parameters using the LDI pushbuttons.
(Siemens infrared handheld programmer can be ordered separately: [Part No. 7ML1930-1BK]).
The LCD Display

Measurement mode display (normal operation)

1 – toggle indicator for PV or SV (primary or secondary values)
2 – selected operation: level, space, or distance
3 – measured value (level, space, or distance)
4 – units
5 – bar graph indicates level
6 – text area displays status messages
7 – device status indicator

Fault present indicators

When a fault is present the fault code and an error message are displayed in the text area (7), and a service-required icon appears in the device status location (8).

Program mode display

Navigation view

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

Parameter view

Edit view

1) Press ▲ or ▼ to switch.
PROGRAM mode

Using the LDI push buttons, press ▶ to enter Program Mode and open menu level 1. Scroll through the menu using ▲, ▼, ◀, ◁.

To edit a number

1) Navigate to the desired parameter, for example, Low Calibration point (2.3.1), and press ▶ twice to open and edit it. The value will be highlighted.

2) Press ▲ or ▼ to delete the highlighted value.

3) With the Enter icon highlighted ▶, press ▲ to add a digit.

4) Use ▲ or ▼ to modify the highlighted digit. Scroll past 9 to reach the decimal point.

5) Press ◁ to select and highlight the plus or minus sign. Press ▲ or ▼ to change it.

6) Press ▶ until the Enter icon is highlighted ▶, then press ▲ to add a digit on the right.

7) When the value is complete, press ▶ until the Enter icon is highlighted ▶, then press ▶ to accept the value.

To modify a text string

1) Navigate to the parameter you wish to modify and press ▶ to edit it. The string will be highlighted.

2) Follow the same steps as above, to add, delete, or modify characters.

Quick Start Wizard via the LDI push buttons

1. Quick Start

Note: Default values are indicated by an asterisk (*) in the tables below, unless explicitly described.

1.1. Quick Start Wizard

1) Press ▶ twice to navigate to Quick Start (1.) and open Quick Start Wizard (1.1.)

2) At each step, press ▼ to accept default values and move directly to the next item, or ▶ to open Edit mode: the current selection is highlighted.

3) Scroll to desired item and press ▶ to store the change, then press ▼ to continue.

4) At any time, you can press ▲ to go back, or ◁ to cancel and return to Measurement mode.
Vessel
Select vessel construction material.

Options

| Options | * STEEL | CONCRETE |

Parameter View

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

<table>
<thead>
<tr>
<th>Response Rate</th>
<th>Vessel Fill Rate or Empty Rate per minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLOW</td>
<td>0.1 m/min (0.32 ft/min)</td>
</tr>
<tr>
<td>MED</td>
<td>* 1.0 m/min (3.28 ft/min)</td>
</tr>
<tr>
<td>FAST</td>
<td>10.0 m/min (32.8 ft/min)</td>
</tr>
</tbody>
</table>

Use a setting just faster than the maximum vessel filling or vessel emptying rate (whichever is greater).

Units
Sensor measurement units.

<table>
<thead>
<tr>
<th>Values</th>
<th>m, cm, mm, ft, in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default: m</td>
<td></td>
</tr>
</tbody>
</table>

Operation
(See illustration under Operation (continued) on page 12.)

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL (1)</td>
<td>* Distance from Low Calibration Point to material surface</td>
</tr>
<tr>
<td>SPACE (2)</td>
<td>Distance from High Calibration Point to material surface</td>
</tr>
<tr>
<td>DISTANCE(3)</td>
<td>Distance from Sensor Reference Point to material surface</td>
</tr>
</tbody>
</table>
Operation (continued)

Low Calibration Point
Distance from Sensor Reference Point to Low Calibration Point: usually process empty level.

<table>
<thead>
<tr>
<th>Values</th>
<th>Range: 0.0000 to 100.000 m</th>
</tr>
</thead>
</table>

High Calibration Point
Distance from Sensor Reference Point to High Calibration Point: usually process full level.

<table>
<thead>
<tr>
<th>Values</th>
<th>Range: 0.0000 to 100.000 m</th>
</tr>
</thead>
</table>

Wizard Complete
Options BACK, CANCEL, FINISH (Display returns to 1.1 Quick Start Wizard menu when Quick Start is successfully completed.)

To transfer Quick Start values to the device and return to Program menu, press ▼ (Finish). Then press ◀ to return to Measurement mode.

SITRANS LR560 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.
- Application Guides for setting up HART devices with SIMATIC PDM can be downloaded from the product page of our website at: www.siemens.com/LR560 under Support.
SIMATIC PDM

SIMATIC PDM is a software package used to commission and maintain SITRANS LR560 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.siemens.com/simatic-pdm.

Check the support page of our website to make sure you have the latest version of SIMATIC PDM, the most recent Service Pack (SP) and the most recent hot fix (HF). Go to:

https://support.automation.siemens.com/WW/
llisapi.dll?func=cslib.csinfo&lang=en&siteid=csius&akprim=0&extranet=standard&view
reg=WW&objid=10806857&treeLang=en

Update Electronic Device Description (EDD)

You can locate the EDD in Device Catalog, under Sensors/Level/Echo/Siemens AG/SITRANS LR560.

The EDD revision must match the Firmware revision in the device.

To check it in PDM, go to Level Meter > Identification > Device.

To install a new EDD

- Go to www.siemens.com/LR560 > Support > Software Downloads to download the most up-to-date EDD.
- Save the files to your computer and extract the zipped file to an easily accessed location.
- Launch SIMATIC PDM – Manage Device Catalog, browse to the unzipped EDD file and select it.

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 EDD, and if necessary update it (see To install a new EDD above).
2) Launch SIMATIC Manager and create a new project for LR560.
3) Open the menu Device – Master Reset and click Factory Defaults.
4) After the reset is complete click Close, and then upload parameters to the PC/PG.
5) Configure the device via the Quick Start wizard.
Quick Start Wizard via SIMATIC PDM

Notes:
- The Quick Start wizard settings are inter-related and changes apply only after you click on FINISH AND DOWNLOAD at the end of the last step, to save settings offline and transfer them to the device.
- Click BACK to return and revise a setting or Cancel to exit the Quick Start.

Launch SIMATIC PDM, open the menu Device – Wizard - Quick Start, and follow steps 1 to 4.

Operating via FDT (Field Device Tool)

FDT is a standard used in several software packages designed to commission and maintain field devices. Two commercially available FDTs are PACTware and Fieldcare.

To configure a field device via FDT you need the DTM (Device Type Manager) for the device. Siemens instruments use SITRANS DTM and an instrument EDD written for SITRANS DTM.


2) Install the SITRANS LR560 HART EDD for SITRANS DTM. You can download it from the product page of our website at: www.siemens.com/LR560. Go to Support > Software Downloads.

Configuring a new device via FDT

An Application Guide can be downloaded from the product page of our website under Support.

Operating via AMS Device Manager

AMS Device Manager is a software package designed to commission and maintain field devices. Please consult the operating instructions or online help for details on using AMS Device Manager. You can find more information at: http://www.emersonprocess.com/AMS/.

Electronic Device Description (EDD)

SITRANS LR560 requires the EDD for AMS Device Manager version 9.0.
Configuring a new device via AMS Device Manager

1) Check the product page of our website at: www.siemens.com/LR560 to make sure you have the most recent EDD. Go to Support > Software Downloads and if necessary download it. Save the files to your computer, and extract the zipped file to an easily accessed location.

2) Launch AMS Device Manager – Add Device Type, browse to the unzipped EDD file and select it.

Launch AMS Device Manager. An Application Guide for setting up HART devices with AMS Device Manager can be downloaded from the product page of our website under Support.

Maintenance

SITRANS LR560 requires no maintenance or cleaning under normal operating conditions. If cleaning becomes necessary:

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.

Temperature De-Rating Curve

WARNING: Never attempt to loosen, remove or disassemble process connection or instrument housing while vessel contents are under pressure.
Loop Power
Allowable operating area of SITRANS LR560

Startup Behavior
- The device draws less than 3.6 mA at startup.
- Time to first measurement is less than 50 seconds

Wiring setups for hazardous area installations
The following wiring options are available for hazardous area installations:
- *Non-Sparking/Energy Limited wiring (Europe) and Dust Ignition Proof wiring (Europe/International)* on page 16
- *Non-incendive and Dust Ignition Proof wiring (US/Canada)* on page 17

In all cases, check the device label on your instrument, and confirm the approval rating.

1) *Non-Sparking/Energy Limited wiring (Europe) and Dust Ignition Proof wiring (Europe/International)*

The ATEX certificate listed on the device label can be downloaded from the product page of our website at: [www.siemens.com/sitransLR560](http://www.siemens.com/sitransLR560). Go to Support > Approvals/Certificates.

The IECEx certificate listed on the device label can be viewed on the IECEx website. Go to: [http://iecex.iec.ch](http://iecex.iec.ch) and click on Ex Equipment Certificates of Conformity then enter the certificate number IECEx SIR 09.0149X.

- For power demands, see *Loop Power* on page 16.
- For wiring requirements follow local regulations.
- See also *Instructions specific to hazardous area installations* on page 17 and the ATEX certificate listed above.
2) Non-incendive and Dust Ignition Proof wiring (US/Canada)

For power demands, see Temperature De-Rating Curve on page 15.

Instructions specific to hazardous area installations
(Reference European ATEX Directive 94/9/EC, Annex II, 1.0.6)

Note: Installation shall be performed only by qualified personnel and in accordance with local governing regulations.

The following instructions apply to equipment covered by certificate numbers Sira 09ATEX9356X and Sira 09ATEX4357X:

1) For use and assembly and details of marking/coding, refer to the main instructions.
2) The equipment is certified for use as Category 1D, 1/2D and 2D equipment per certificate Sira 09ATEX9356X and may be used in hazardous zones 20, 21 and 22. The equipment is also certified for use as Category 3G equipment per certificate Sira 09ATEX4357X and may be used in hazardous zone 2.
3) This equipment has a maximum surface temperature of 139 °C (in an 80°C ambient). Refer to the applicable code of practice for selection of this equipment with respect to specific dust ignition temperatures.
4) The equipment is certified for use in an ambient temperature range of -40 °C to 80 °C.
5) The equipment has not been assessed as a safety related device (as referred to by Directive 94/9/EC Annex II, clause 1.5).
6) Installation and inspection of this equipment shall be carried out by suitably trained and authorized personnel in accordance with the applicable code of practice.
7) The equipment shall be installed such that the supply cable is protected from mechanical damage. The cable shall not be subjected to tension or torque. The equipment manufacturer is not responsible for providing the supply cable.
8) Repair of this equipment shall be carried out by suitably trained and authorized personnel in accordance with the applicable code of practice.

See SPECIAL CONDITIONS FOR SAFE USE on page 18.

FM/CSA Class 1, Div 2 connection drawing number A5E02795836 can be downloaded from the product page of our website at: www.siemens.com/sitransLR560. Go to Support > Installation Drawings > Level Measurement > Continuous - Radar.

- For power demands, see Temperature De-Rating Curve on page 15.
SPECIAL CONDITIONS FOR SAFE USE

The ‘X’ suffix to the certificate number relates to the following special condition(s) for safe use:

- Parts of the enclosure may be non-conducting and may generate an ignition-capable level of electrostatic charge under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam), which might cause a build-up of electrostatic charge on non-conducting surfaces.

- The end user must ensure that an ingress protection of at least IP65 is maintained at each entry to the enclosure by use of a blanking element or cable entry device that meets the requirements of the protection concepts type ‘n’ or increased safety ‘e’ or flameproof ‘d’.

- The supply to the equipment shall be rated for a prospective short-circuit current of not more than 10 kA and shall be protected by a suitably-rated fuse.
Unit Repair and Excluded Liability
All changes and repairs must be done by qualified personnel, and applicable safety regulations must be followed. Please note the following:
• The user is responsible for all changes and repairs made to the device.
• All new components must be provided by Siemens Milltronics Process Instruments Inc.
• Restrict repair to faulty components only.
• Do not re-use faulty components

Zásahy na zařízení a vyjmutí ze záruky
Jakékoli změny či opravy zařízení mohou být prováděny výhradně oprávněným kvalifikovaným personálem, v souladu s platnými bezpečnostními předpisy. V případě nedodržení následujících pokynů pozbyvá záruka platnosti:
• Uživatel je odpovědný za všechny změny a opravy na zařízení.
• Jakékoli náhradní díly musí být dodané firmou Siemens Milltronics Process Instruments Inc.
• Omezte opravy pouze na vadné součástky.
• Vadné součásti se nesnažte znovu použít.

Reparation af enheden og ansvarsbegrænsning
Alle ændringer og reparationer skal udføres af kvalificeret personale, og de gældende sikkerhedsbestemmelser skal overholdes. Bemærk venligst følgende:
• Bruger er ansvarlig for alle de på apparatet udførte ændringer og reparationer.
• Alle nye komponenter skal være leveret af Siemens Milltronics Process Instruments Inc.
• Reparér kun defekte komponenter.
• Defekte komponenter må ikke genbruges

Gerätereparatur und Haftungsausschluss
Alle Änderungen und Reparaturen müssen von qualifiziertem Personal unter Beachtung der jeweiligen Sicherheitsbestimmungen vorgenommen werden. Bitte beachten Sie:
• Der Benutzer ist für alle Änderungen und Reparaturen am Gerät verantwortlich.
• Alle neuen Bestandteile sind von Siemens Milltronics Process Instruments Inc. bereit zu stellen.
• Reparieren Sie lediglich defekte Bestandteile.
• Defekte Bestandteile dürfen nicht wiederverwendet werden.

Επισκευή μονόδος και αποκλειόμενη ευθύνη
Όλες οι αλλαγές και οι επισκευές πρέπει να πραγματοποιούνται από εξειδικευμένο προσωπικό, και πρέπει να προσεγγίζεται όλοι οι σχετικοί κανόνες ασφαλείας. Σημειώστε τα παρακάτω:
• Ο χρήστης είναι υπεύθυνος για όλες τις αλλαγές και επισκευές που γίνονται στη συσκευή.
• Όλα τα καινούργια εξαρτήματα πρέπει να παρέχονται από τη Siemens Milltronics Process Instruments Inc.
• Περιορίστε τις επισκευές μόνο στα ελατηματικά εξαρτήματα.
• Μην επαναχρησιμοποιείτε ελατηματικά εξαρτήματα.

Reparación del dispositivo y límite de responsabilidad
Las modificaciones y reparaciones deberán ser efectuadas por personal calificado de acuerdo con las normas de seguridad aplicables. Notas importantes:
• El usuario es el único responsable de las modificaciones y reparaciones del dispositivo.
• Recomendamos utilizar sólo recambios originales Siemens Milltronics Process Instruments Inc.
• Reparar sólo los componentes defectuosos.
• Los componentes defectuosos no se deben reutilizar.