SIEMENS

SITRANS IQ

Communication SITRANS CC240 and SITRANS MX300

Operating Instructions

7MP2200-1CC15-2AA0 (SITRANS CC240)
7MP2200-1AD10-2AA0 (SITRANS MX300)

09/2020
A5E47280695-AA

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠ DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠ WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠ CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Siemens Limited
Digital Industries
Process Instrumentation
Process Automation
R&D Technology Centre, Thane Belapur Road
Airoli Node, Navi Mumbai - 400 708

For new enquiries, life cycle support for products, systems and solutions, call us at 1800 208 3000 or email us at pisupport.in@siemens.com

Document order number: A5E47280695
Ⓟ 09/2020 Subject to change

Table of contents

Getting started

1

1.1 Commission SITRANS CC240 with SITRANS MX300

Before commissioning the devices

Observe the following safety instructions:

- General safety notes (Page 21)
- Basic safety notes: Installing/mounting
  Permissible mounting positions and mounting types SITRANS CC240 (Page 31)
  Mounting instructions (Page 32)
- Basic safety notes: Connecting (Page 39)

Read the entire device manual in order to achieve the optimum performance of the device.

Procedure

⚠ CAUTION

Incorrect loop current

Device damage or fire hazard of the 250 Ω input resistances in the SITRANS MX300 due to incorrect loop current.

- Maintain the maximum loop current per channel of 35 mA.

1. Install the SITRANS MX300 on a standard mounting rail in accordance with EN 60715 with 35 mm.
   Installing SITRANS MX300 on DIN rail (Page 36)
2. Connect SITRANS MX300 to your HART devices.
   Connecting HART devices to SITRANS MX300 (Page 8)
3. Mounting SITRANS CC240.
   Installing SITRANS CC240 on DIN rail (Page 33)
   Mounting SITRANS CC240 on a wall (Page 33)
4. Connect SITRANS MX300 to SITRANS CC240.
   Connect SITRANS MX300 to SITRANS CC240. (Page 45)
5. Secure the cables.
   Securing the cables (Page 47)
6. Connect the supply voltage.
   Connecting the supply voltage for SITRANS CC240 and MX300 (Page 46)
7. Switch on the supply voltage.
8. If you want to connect to the SITRANS CC240 web server or an OPC UA client, connect the SITRANS CC240 "X1P1LAN" port to your PC.

9. If you want a connection to the Internet, e.g. MindSphere, connect SITRANS CC240 "X2P1LAN" to your router.
   Connecting Ethernet to SITRANS CC240 (Page 47)
10. Configuring and addressing SITRANS CC240.
    Calling the SITRANS CC240 web server (Page 50)

1.2 Connecting HART devices to SITRANS MX300

Introduction

SITRANS MX300 always acts as a secondary master in accordance with the HART standard.

Connection und parameter assignment of the SITRANS MX300 channels depends on whether the HART device is already connected to a HART Master.

Note

Internal or external resistor

You can use an external resistor or the internal resistor of the SITRANS MX300. If you use an external resistor at a channel, disable the respective DIP switch at the SITRANS MX300 (Page 36).

Before connecting the devices

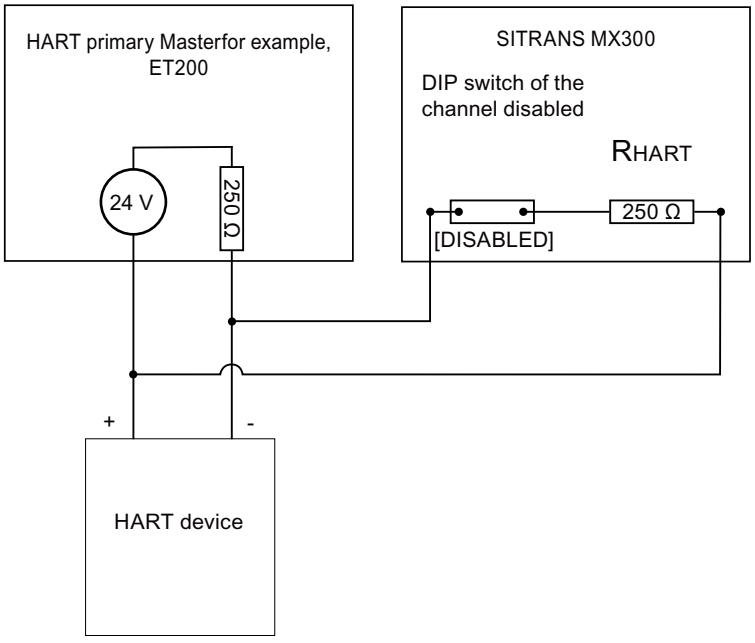
Observe the following safety instructions:

- General safety notes (Page 21)
- Basic safety notes: Connecting (Page 39)

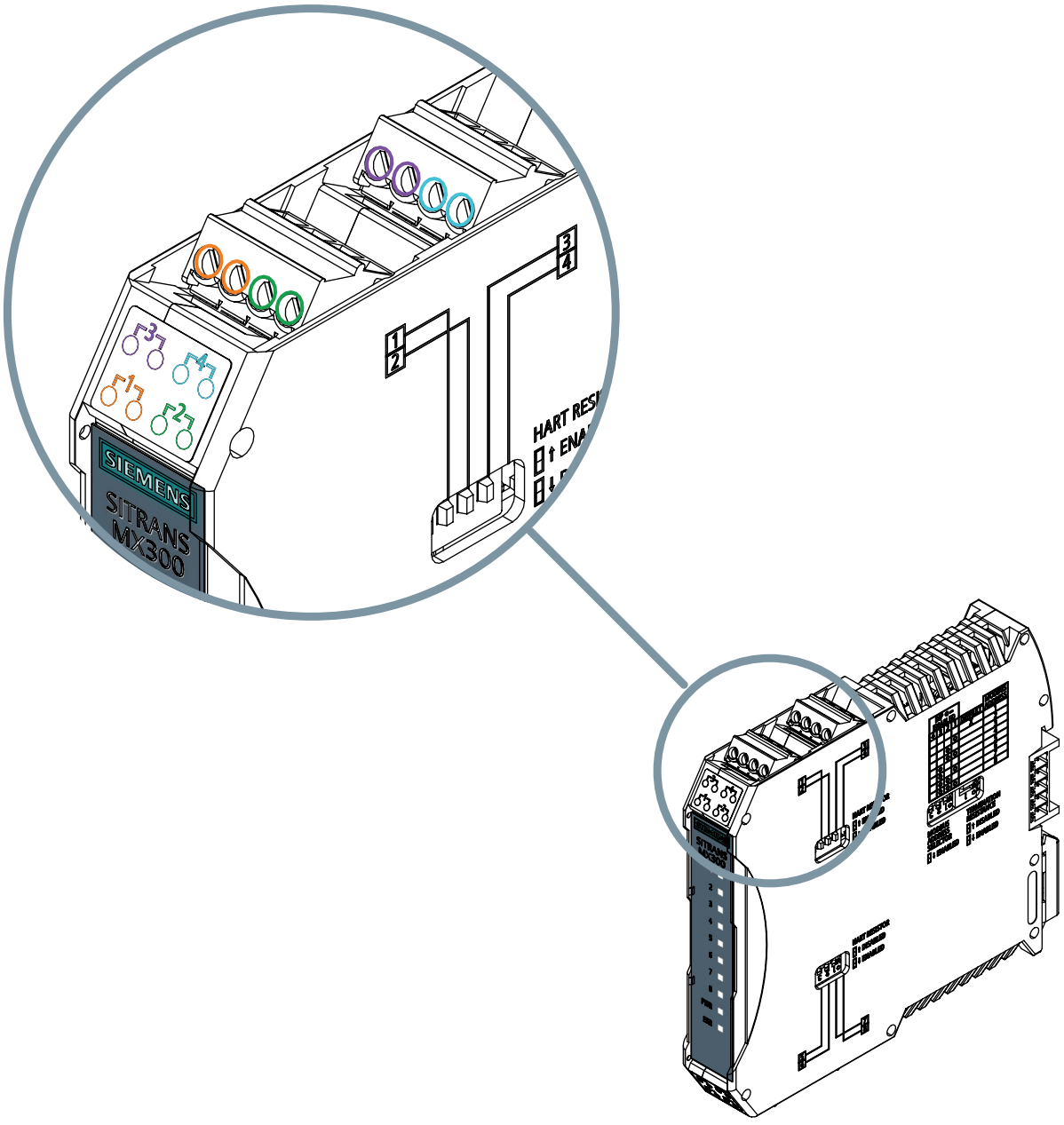
Read the entire device manual in order to achieve the optimum performance of the device.

Connecting SITRANS MX300 with HART Master

1. If a HART Master exists for a channel, connect the SITRANS MX300 parallel to the HART device for this channel.
2. Disable [DISABLED] the corresponding HART resistor at the SITRANS MX300 [HART RESISTOR].

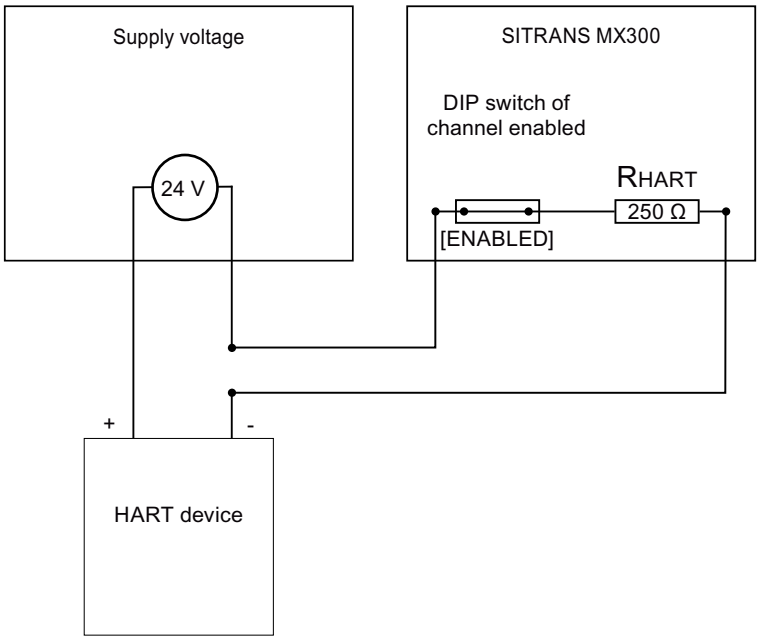


3. Connect one HART device per SITRANS MX300 channel using a two-pole cable.
   – The channels do not have any polarity.

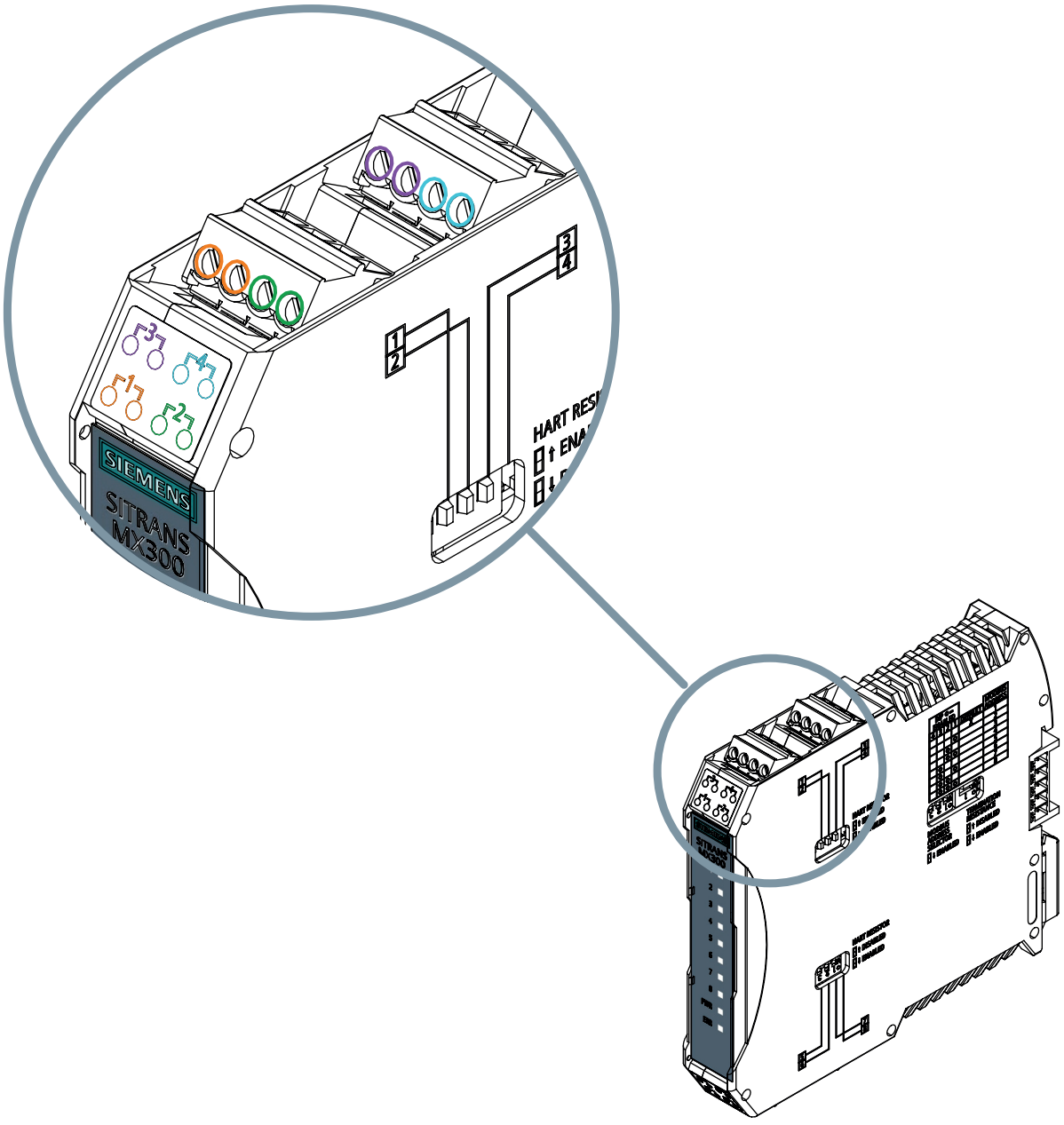

SIEMENS
SITRANS
MX300
1
2
3
4

Connecting SITRANS MX300 without HART Master

1. If **no** HART Master exists for a channel, connect the SITRANS MX300 for this channel in series to the HART device.
2. Enable [ENABLED] the corresponding HART resistor. (Default: disabled [DISABLED])



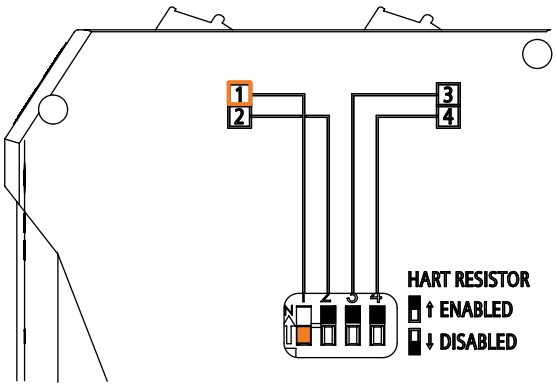
3. Connect one HART device per SITRANS MX300 channel using a two-pole cable.
   – The channels do not have any polarity.



Example

A HART Master is available for Channel 1.

- Disable [DISABLED] the DIP switch 1 at the SITRANS MX300 [HART RESISTOR].
- Connect the SITRANS MX300 in parallel to the HART device.



1.3 Establishing a connection to Siemens MindSphere

Introduction

You can connect SITRANS CC240 to Siemens MindSphere. The MindConnect Library is available for this purpose in MindSphere.

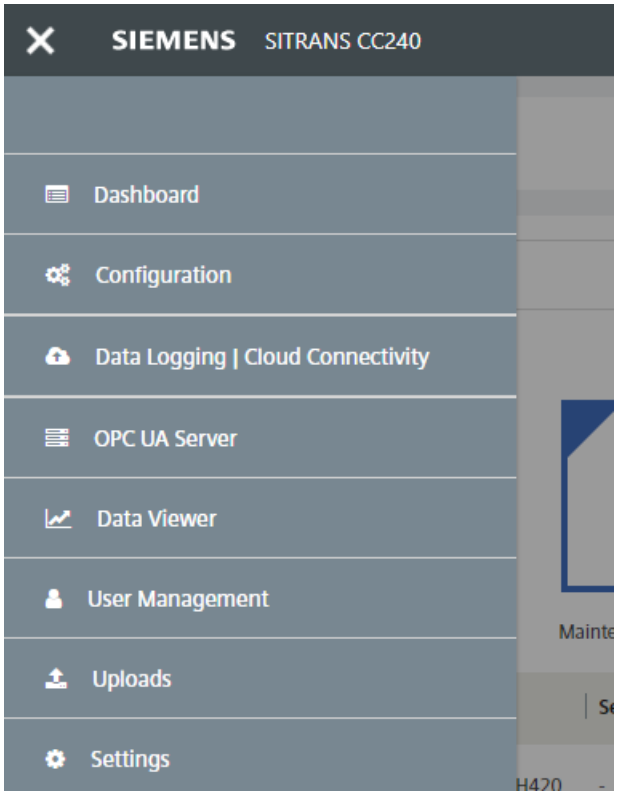
Before establishing a connection to Siemens MindSphere

You have a tenant, for example, a MindAccess IoT Value Plan.

Procedure

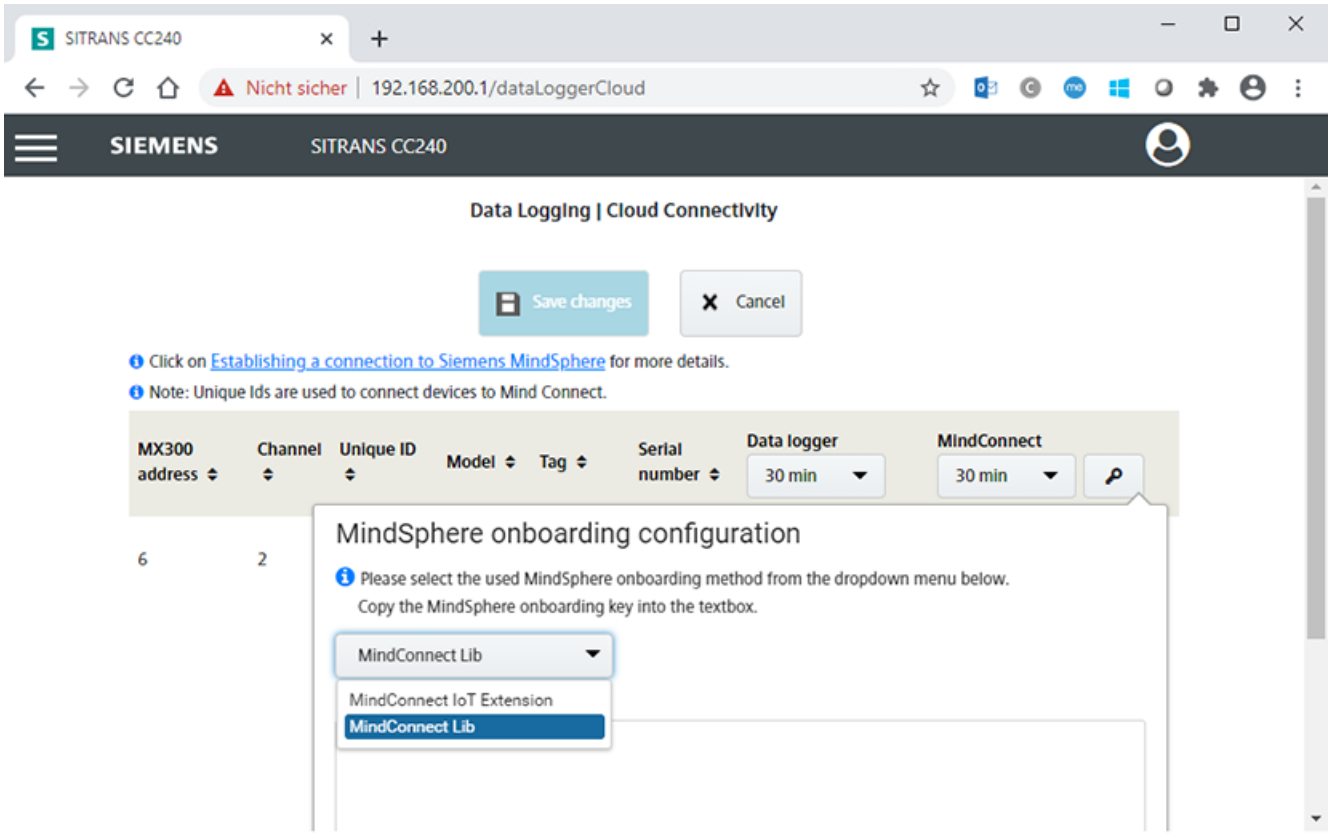
1. Call up the SITRANS CC240 web server.
   Calling the SITRANS CC240 web server (Page 50)
2. Open MindSphere.
3. Create an asset.
   - Type: **MindConnectLib** core.mclib
   - Security profile: SHARED_SECRET
   - Configure a data source for each connected HART device with the unique ID.
     You can find the unique ID on the SITRANS CC240 web server "Dashboard > Data Logging | Cloud Connectivity".
   - Add a data point link.
   - Generate a connection key.
   - Copy the connection key.

4. Select the "Data Logging | Cloud Connectivity" main menu on the SITRANS CC240 web server.



5. Click the wrench symbol in the table.

6. Select "MindConnect Lib" in the list.



7. Paste the connection key copied from MindSphere into the "MindSphere onboarding configuration" field.
8. Click the "Save" button.
9. Click the "Save Changes" button.
10. Create all data structures according to the MindSphere documentation, "Getting Started". Getting Connected to MindSphere (https://documentation.mindsphere.io/resources/pdf/getting-connected-en.pdf)
11. In MindSphere, check if the data is available in the "Fleet Manager".

See also

MindSphere documentation area (http://documentation.mindsphere.io)

1.4 Establishing a connection to the OPC UA client

Before establishing a connection to the OPC UA client

- You have installed an OPC UA client, for example: UAExpert installed
  The OPC UA connection must have the following properties:
  - Certificate management
  - Security policy Basic256Sha256
  - Message security settings: Sign & Encrypt
  - Authentication: User name and password
- You have created a user for the OPC UA client on the SITRANS CC240 web server.
  When calling the web server (Page 50) for the first time, you are prompted to create a user for the OPC UA client.
- You know the IP address and port of the SITRANS CC240.
  SITRANS CC240 web server: "OPC UA Server > OPC UA Overview > Endpoint URL"
  The OPC port number is 4840. This means: opc.tcp://192.168.200.1:4840

Procedure

1. Open the OPC UA client.
2. Enter the IP address and the port of the SITRANS CC240.
   Default IP address: 192.168.200.1
   Port: 4840
3. Select the Basic256Sha256 security policy.
4. Select the message security settings: Sign & Encrypt
5. Log on with the user information that you have assigned in the SITRANS CC240 web server.
   Calling the SITRANS CC240 web server (Page 50)
6. Select a permitted timeout of 60 s.
7. Connect the OPC UA client to the SITRANS CC240 web server.
8. Check and confirm the certificate used in the OPC UA client.
9. Call up the SITRANS CC240 web server.
   Calling the SITRANS CC240 web server (Page 50)
10. Select "OPC UA Server > Certificate Management" from the menu.
11. Refresh the page.
12. Verify and confirm the OPC UA client certificate on the SITRANS CC240 web server.

Introduction 2

2.1 Purpose of this documentation

These instructions contain all information required to commission and use the device. Read the instructions carefully prior to installation and commissioning. In order to use the device correctly, first review its principle of operation.

The instructions are aimed at persons mechanically installing the device, connecting it electronically, configuring the parameters and commissioning it, as well as service and maintenance engineers.

2.2 Document history

The following table contains the major changes in the documentation compared to the previous edition.

Edition	Comment
09/2020	Initial release

2.3 Checking the scope of delivery

1. Check the packaging and the delivered articles for visible damage.
2. Report any claims for damages immediately to the shipping company.
3. Retain the damaged parts until clarification.
4. Check the scope of delivery by comparing your order with the shipping documents for correctness and completeness.

2.4 Scope of delivery

- SITRANS CC240
  - RS485 data cable for connecting the SITRANS CC240 and SITRANS MX300
- SITRANS MX300
  - Four 4-pin connectors
  - One T-connector for the bus connection

2.5 Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines, and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions form one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. These systems, machines and components should only be connected to the enterprise network or the Internet if and only to the extent necessary and with appropriate security measures (firewalls and/or network segmentation) in place.

You can find more information on protective measures in the area of industrial security by visiting:
https://www.siemens.com/industrialsecurity.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends performing product updates as soon as they are available and using only the latest product versions. Use of product versions that are no longer supported, and failure to apply latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under
https://www.siemens.com/industrialsecurity.

Disclaimer for third-party software updates

This product includes third-party software. Siemens AG only provides a warranty for updates/patches of the third-party software, if these have been distributed as part of a Siemens software update service contract or officially released by Siemens AG. Otherwise, updates/patches are undertaken at your own risk. You can find more information about our Software Update Service offer on the Internet at Software Update Service (http://www.automation.siemens.com/mcms/automation-software/en/software-update-service).

Notes on protecting administrator accounts

A user with administrator privileges has extensive access and manipulation options in the system.

Therefore, ensure there are adequate safeguards for protecting the administrator accounts to prevent unauthorized changes. To do this, use secure passwords and a standard user account for normal operation. Other measures, such as the use of security policies, should be applied as needed.

2.6 Transportation and storage

To guarantee sufficient protection during transport and storage, observe the following:

- Keep the original packaging for subsequent transportation.
- Devices/replacement parts should be returned in their original packaging.
- If the original packaging is no longer available, ensure that all shipments are properly packaged to provide sufficient protection during transport. Siemens cannot assume liability for any costs associated with transportation damages.

NOTICE
Insufficient protection during storage The packaging only provides limited protection against moisture and infiltration. • Provide additional packaging as necessary.

Special conditions for storage and transportation of the device are listed in Technical data (Page 67).

2.7 Notes on warranty

The contents of this manual shall not become part of or modify any prior or existing agreement, commitment or legal relationship. The sales contract contains all obligations on the part of Siemens as well as the complete and solely applicable warranty conditions. Any statements regarding device versions described in the manual do not create new warranties or modify the existing warranty.

The content reflects the technical status at the time of publishing. Siemens reserves the right to make technical changes in the course of further development.

Safety notes

3

3.1 Basic safety notes

⚠ WARNING

Life-threatening voltages are present with an open control cabinet

When you install the device in a control cabinet, some areas or components in the open control cabinet may be carrying life-threatening voltages.

If you touch these areas or components, you may be killed by electric shock.

Switch off the power supply to the cabinet before opening it.

System expansions

NOTICE

Damage through system expansions

Device and system expansions may be faulty and can affect the entire machine or plant.

The installation of expansions can damage the device, machine or plant. Device and system expansions may violate safety rules and regulations regarding radio interference suppression. If you install or exchange system expansions and damage your device, the warranty becomes void.

Observe the following for system expansions:

- Only install system expansion devices designed for this device. Contact your technical support team or where you purchased your PC to find out which system expansion devices may safely be installed.
- Observe the information on electromagnetic compatibility (Page 67).

⚠ WARNING

Risk of fire through expansion cards

Expansion cards generate additional heat. The device may overheat and cause a fire.

Therefore, observe the following:

- Observe the safety and installation instructions for the expansion cards.
- If in doubt, install the device in an enclosure that is compliant with sections 4.6 and 4.7.3 of the IEC/UL/EN/DIN-EN 60950-1 standard.

NOTICE

Use in the scope of application for the UL61010-2-201

When the device is used in the area of Industrial Control Equipment in accordance with UL61010-2-201, observe that the device is classified as "Open Type". A UL61010-2-201 conform enclosure is therefore a mandatory requirement for approval or operation according to UL61010-2-201.

If the device is used in a manner not specified by the manufacturer, the approval is lost and the protection associated with it may be impaired.

Note

Limitation of liability

All technical specifications and approvals of the device only apply if you use expansion components that have a valid CE approval (CE marking). The installation conditions for expansion components in the associated documentation must be observed.

UL approval of the device only applies when the UL-approved components are used according to their "Conditions of Acceptability".

We are not liable for functional limitations caused by the use of third-party devices or components.

NOTICE

The approvals are voided if certain modifications are made

The device approvals are voided if the following modifications are made:

- The enclosure was physically modified, for example, openings were created to make LEDs on a plug-in card in the device visible.
- Cables are routed from the inside out of the device or from the outside into the device, for example, to connect sensors or displays.

Battery and rechargeable battery

⚠ WARNING

Risk of explosion and release of harmful substances

Improper handling of lithium batteries can result in an explosion of the batteries.

Explosion of the batteries and the released pollutants can cause severe physical injury. Worn batteries jeopardize the function of the device.

Observe the following when handling lithium batteries:

- Replace used batteries in good time; see the section "Replacing the backup battery" in the operating instructions.
- Replace the lithium battery only with an identical battery or types recommended by the manufacturer (order no.: A5E34734290).
- Do not throw lithium batteries into fire, do not solder on the cell body, do not recharge, do not open, do not short-circuit, do not reverse polarity, do not heat above 100 °C and protect from direct sunlight, moisture and condensation.

Strong high-frequency radiation

NOTICE

Observe immunity to RF radiation

The device has an increased immunity to RF radiation according to the specifications on electromagnetic compatibility in the technical specifications.

Radiation exposure in excess of the specified immunity limits can impair device functions, result in malfunctions and therefore injuries or damages.

Observe the information on immunity to RF radiation in the technical specifications.

ESD Guideline

Electrostatic sensitive devices can be labeled with an appropriate symbol.

NOTICE

Electrostatic sensitive devices (ESD)

When you touch electrostatic sensitive components, you can destroy them through voltages that are far below the human perception threshold.

If you work with components that can be destroyed by electrostatic discharge, observe the ESD Guideline (Page 77).

Diagnostic data

Note

SITRANS CC240 supplies diagnostic data to the web server, OPC UA Server, etc. Adaptations to the plant or devices must be checked and implemented using the existing engineering system.

3.2 Notes on use

NOTICE
Possible functional restrictions in case of non-validated plant operation The device is tested and certified on the basis of the technical standards. In rare cases, functional restrictions can occur during plant operation. Validate the correct functioning of the plant to avoid functional restrictions.

Note

Use in an industrial environment without additional protective measures

This device was designed for use in a normal industrial environment according to IEC 60721-3-3.

3.3 Prerequisites for safe use

This device left the factory in good working condition. In order to maintain this status and to ensure safe operation of the device, observe these instructions and all the specifications relevant to safety.

Observe the information and symbols on the device. Do not remove any information or symbols from the device. Always keep the information and symbols in a completely legible state.

3.3.1 Laws and directives

Observe the safety rules, provisions and laws applicable in your country during connection, assembly and operation. These include, for example:

- National Electrical Code (NEC - NFPA 70) (USA)
- Canadian Electrical Code (CEC) (Canada)

Further provisions for hazardous area applications are for example:

- IEC 60079-14 (international)
- EN 60079-14 (EU)

⚠ WARNING

Improper device modifications

Risk to personnel, system and environment can result from modifications to the device, particularly in hazardous areas.

- Only carry out modifications that are described in the instructions for the device. Failure to observe this requirement cancels the manufacturer's warranty and the product approvals.

3.4 Requirements for special applications

Due to the large number of possible applications, each detail of the described device versions for each possible scenario during commissioning, operation, maintenance or operation in systems cannot be considered in the instructions. If you need additional information not covered by these instructions, contact your local Siemens office or company representative.

Note

Operation under special ambient conditions

We highly recommend that you contact your Siemens representative or our application department before you operate the device under special ambient conditions as can be encountered in nuclear power plants or when the device is used for research and development purposes.

⚠ WARNING

Commissioning and operation with pending error

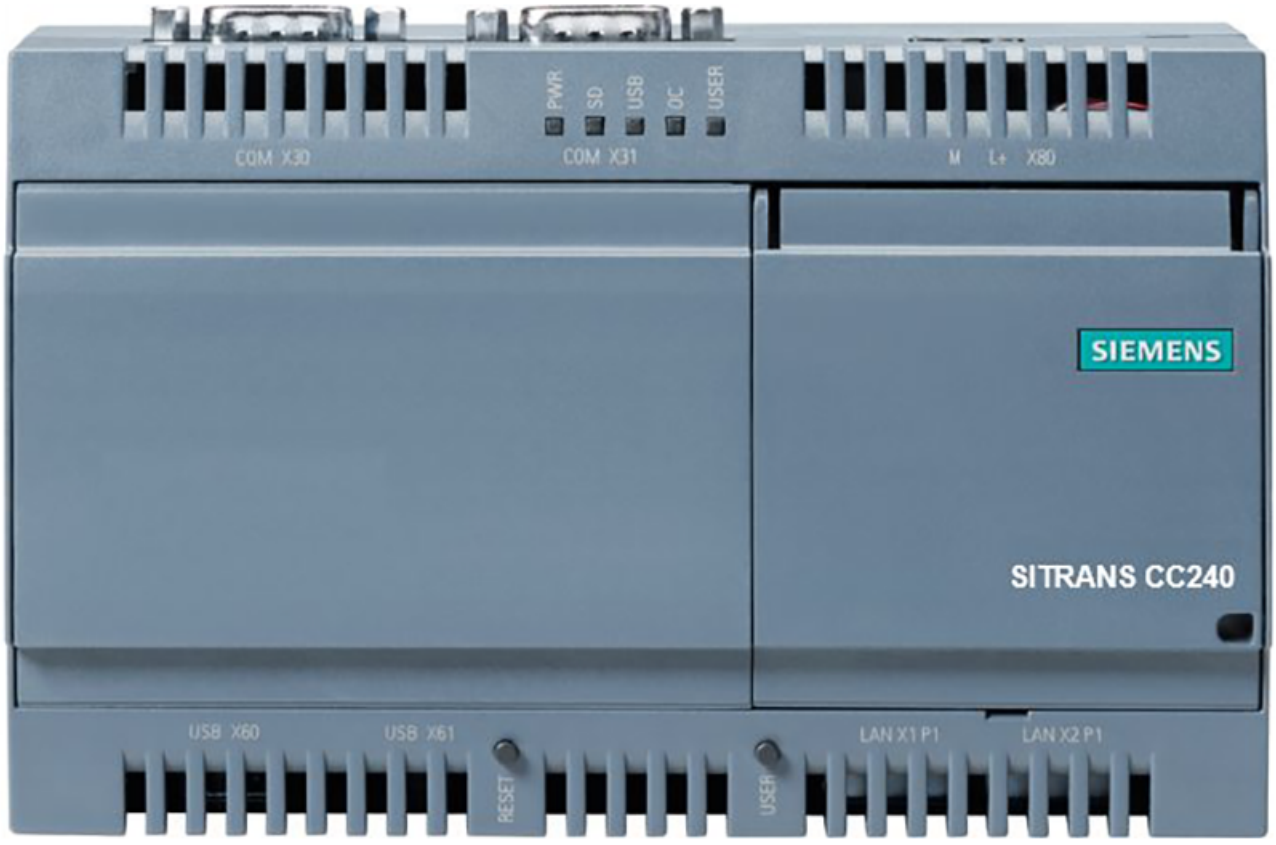
If an error message appears, correct operation in the process is no longer guaranteed.

- Check the gravity of the error.
- Correct the error.
- If the error still exists:
  - Take the device out of operation.
  - Prevent renewed commissioning.

Description

4

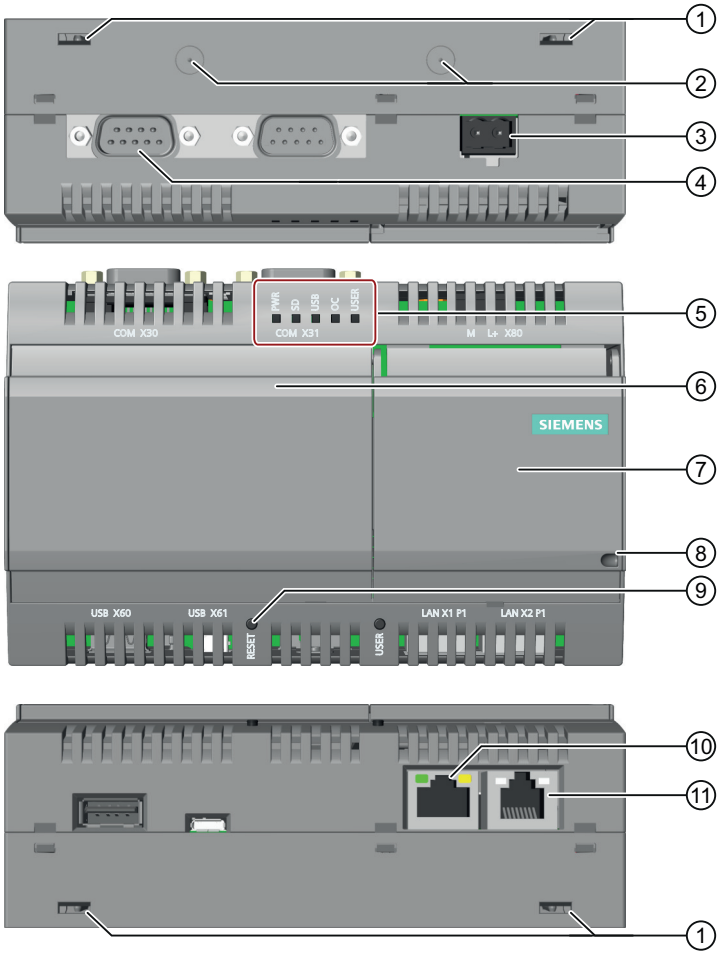
4.1 Area of application SITRANS CC240



Features

- High degree of ruggedness
- Compact design
- External RS485, Ethernet and USB interfaces
- Maintenance-free operation possible
- Intel Quark X1020 processor
- 1 GB RAM
- Battery-buffered real-time clock

4.2 SITRANS CC240 design

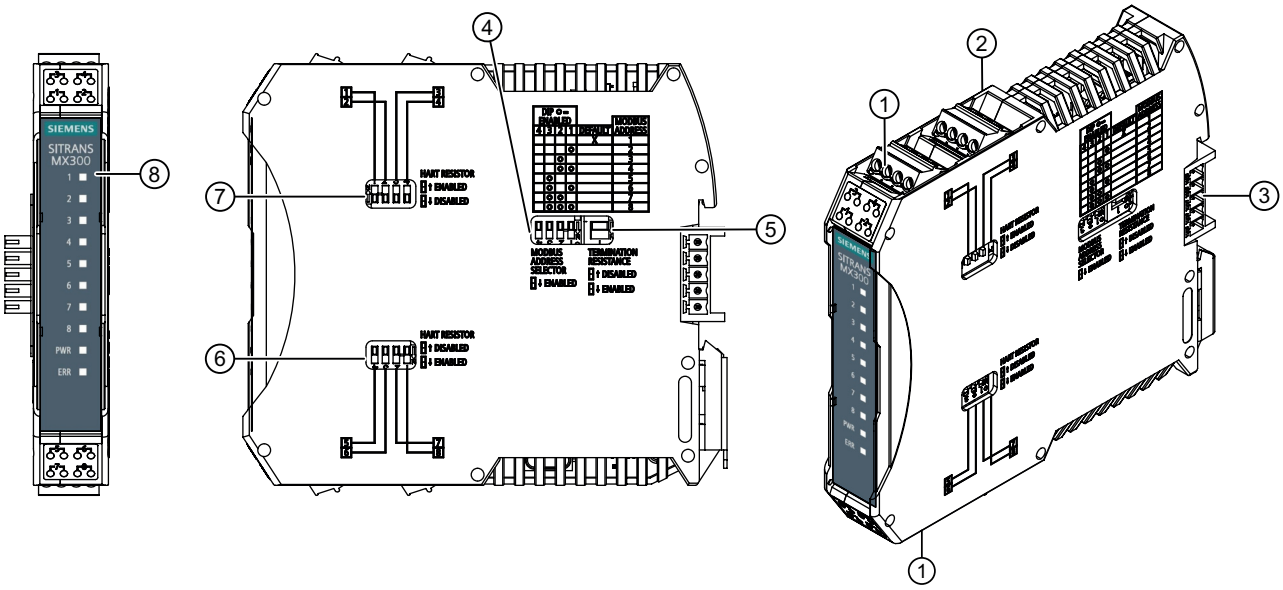


① Openings for push-in lugs for wall mounting
② Markings for the installation of antennae
③ Connecting the power supply
④ RS-485 interface for the connection of the SITRANS MX300
⑤ LED display
⑥ Cover on left
⑦ Cover on right
⑧ Securing device
⑨ RESET button for the CPU
⑩ LAN interface X1P1LAN: Intranet, e.g. SITRANS CC240 web server or OPC UA client
⑪ LAN interface X2P1LAN: Internet e. g. MindSphere

See also

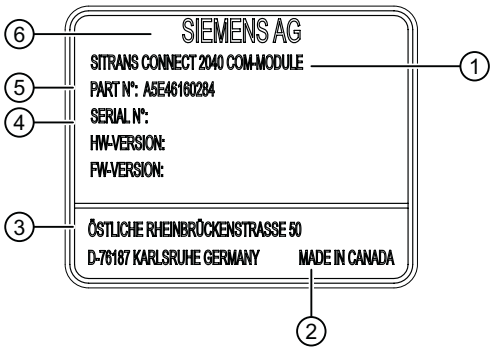
Meaning of the LED states on SITRANS MX300 (Page 65)

4.3 SITRANS MX300 design



①	1 to 8		Channels for the connection of devices with HART
②	Left-hand side: Nameplate (Page 30)		
③	T-plug for mounting on DIN rail		
④	DIP switch Modbus address		
⑤	DIP switch terminating resistor		
⑥	DIP switches Channels 5 to 8		
⑦	DIP switches Channel 1 to 4		
⑧	LEDs	1 to 8	LEDs of the HART devices During operation: Signals communication to a HART device on the corresponding channel. During startup: Signals the set Modbus address of the SITRANS MX300.
		ERR	Error
		PWR	Supply voltage
	Meaning of the LED states on SITRANS MX300 (Page 65)		

4.4 SITRANS MX300 nameplate layout



① Product name
② Place of manufacture
③ Manufacturer's address
④ Serial number
⑤ Article number
⑥ Manufacturer

Figure 4-1 Example of the layout of the SITRANS MX300 nameplate

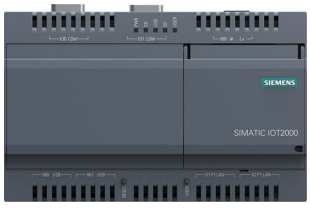
Installing/mounting

5

5.1 Permissible mounting positions and mounting types SITRANS CC240

The device can be attached horizontally or vertically on a DIN rail or to a wall.

Horizontal mounting position, preferred



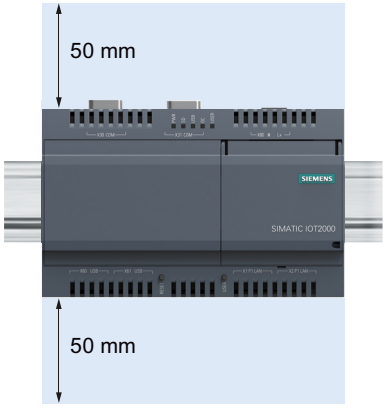
Vertical mounting position

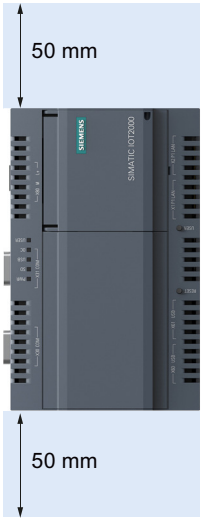
Take into account the permitted temperature range for operation that depends on the mounting position in accordance with the "Technical specifications (Page 67)" section.

Clearances

Ensure that the following clearances measurements to another component or to a wall of a housing are complied with:

- Below the device: ≥ 50 mm
- Above the device: ≥ 50 mm





5.2 Mounting instructions

Note the following:

- The device is approved for operation in closed rooms only.
- For installation in a cabinet, observe the SIMATIC setup guidelines (http://support.automation.siemens.com/WW/view/de/1064706) as well as the relevant DIN/VDE requirements or the applicable country-specific regulations.
- When the device is used in the area of Industrial Control Equipment in accordance with UL61010-2-201, note that the device is classified as "Open Type". A UL61010-2-201 conform enclosure is therefore a mandatory requirement for approval or operation according to UL61010-2-201.
- To protect the enclosure of the **device against unauthorized opening**, you can screw the **housing rear panel** to the enclosure front with two screws after installing the extensions. The screws are not included in the scope of delivery. Use only screws of the type WN1452-K30x20-ST-A2F and tighten the screws using a torque of 0.5 Nm.

Fasten securely

NOTICE
Insufficient load carrying capacity If the mounting surface for wall mounting does not have a sufficient load-bearing capacity, the device may fall and be damaged. Ensure that the mounting surface on the wall can bear four times the total weight of the device, including fixing elements.

NOTICE
Incorrect fixing elements If you use anchors and screws other than those specified below for wall mounting, safe mounting is not guaranteed. The device can fall and may be damaged. Use only the anchors and screws specified in the following table.

Material	Bore diameter	Fixing element
Concrete	Select according to the specification of the mounting elements used	• Anchor, ∅ 6 mm, 40 mm long • Screw, ∅ 4-5 mm, 40 mm long
Plasterboard, (at least 13 mm thick)		Toggle plug, ∅ 12 mm, 50 mm long
Metal, (at least 2 mm thick)		• Screw M4 × 15 • M4 nut

5.3 Installing SITRANS CC240 on DIN rail

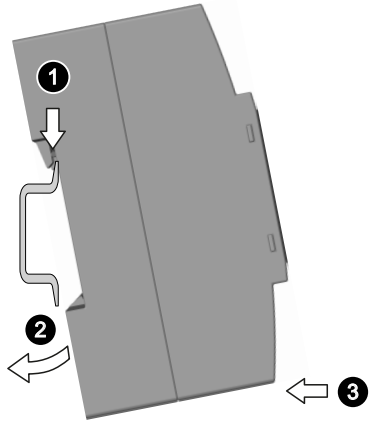
Before you mount the SITRANS CC240

- A DIN rail, 35 mm standard profile
  The DIN rail is installed at the installation site.

Procedure

Mounting

1. Place the device and rail clip on the upper edge of the standard profile rail at the position shown and push the device down.
2. Swing the rail clips of the device from below via the standard profile rail.
3. Push the device in the direction of the standard profile rail. You will hear the device click into place.



Removing

1. Push down the device until it is released by the rail clips.
2. Swing the device out of the standard profile rail.
3. Lift the device up and off.

5.4 Mounting SITRANS CC240 on a wall

The device is suitable for horizontal or vertical wall mounting.

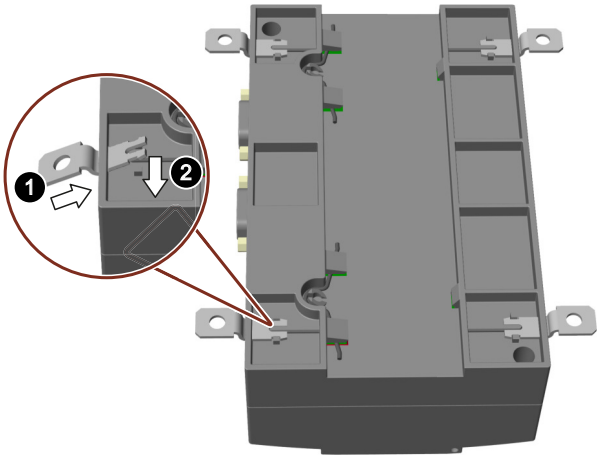
Before you mount the SITRANS CC240

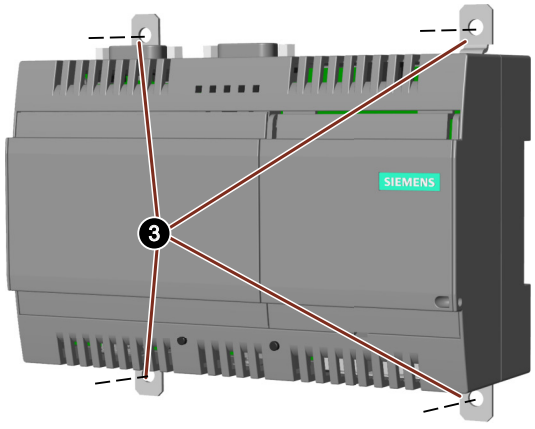
You need the following:

- Four push-in lugs
  The push-in lugs must be ordered separately, see section "Accessories (Page 73)"
- Four anchors and four screws

Procedure for mounting

1. Guide a push-in lug through the corresponding opening at the top of the device, as shown
2. Press the push-in lug down.
3. Mark the bore holes, drill the required holes in the wall and fasten the device to the wall using four screws and corresponding anchors.

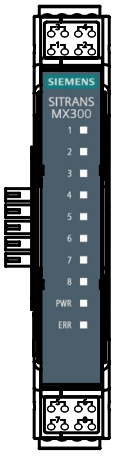




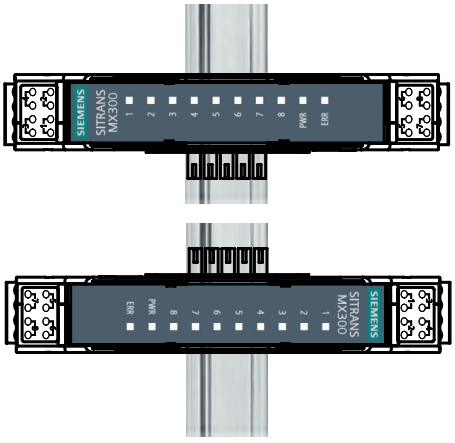
5.5 Permissible mounting positions and mounting types SITRANS MX300

The device can be attached horizontally or vertically on a DIN rail or to a wall.

Horizontal mounting position, preferred



Vertical mounting position

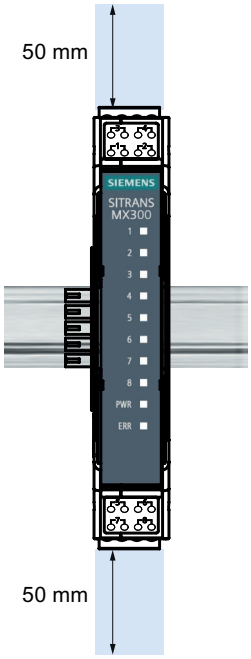


Take into account the permitted temperature range for operation that depends on the mounting position in accordance with the "Technical specifications (Page 67)" section.

Clearances

Ensure that the following clearances measurements to another component or to a wall of a housing are complied with:

- Below the device: ≥ 50 mm
- Above the device: ≥ 50 mm



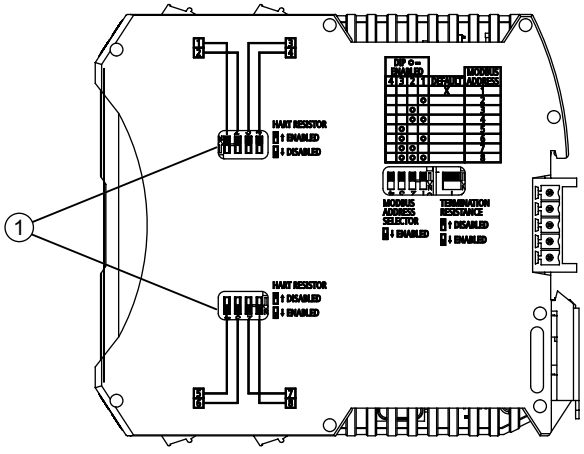
5.6 Installing SITRANS MX300 on DIN rail

Before you mount the SITRANS MX300

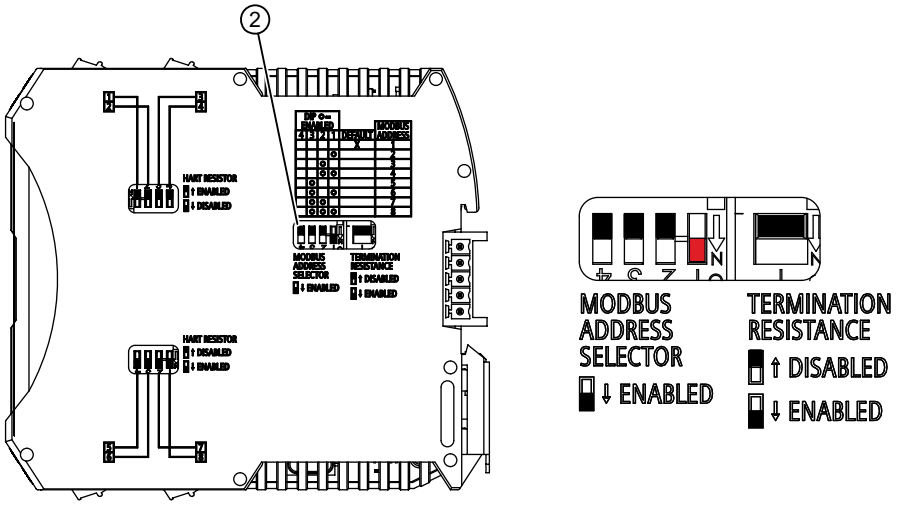
- You need a 35 mm DIN rail according to DIN EN 60715.

Procedure

1. SITRANS MX300 with existing HART Master:
   Disable [DISABLED] the corresponding HART resistor at the SITRANS MX300 [HART RESISTOR].
   - Or -
2. SITRANS MX300 without HART Master:
   Enable the corresponding HART resistor [ENABLED].



3. Set a Modbus address ② [MODBUS ADDRESS SELECTOR] for each SITRANS MX300.
   Assign each Modbus address only once.
   Gaps may exist. Example: 2, 5 and 7.
   In the figure, Modbus address 2 is set.

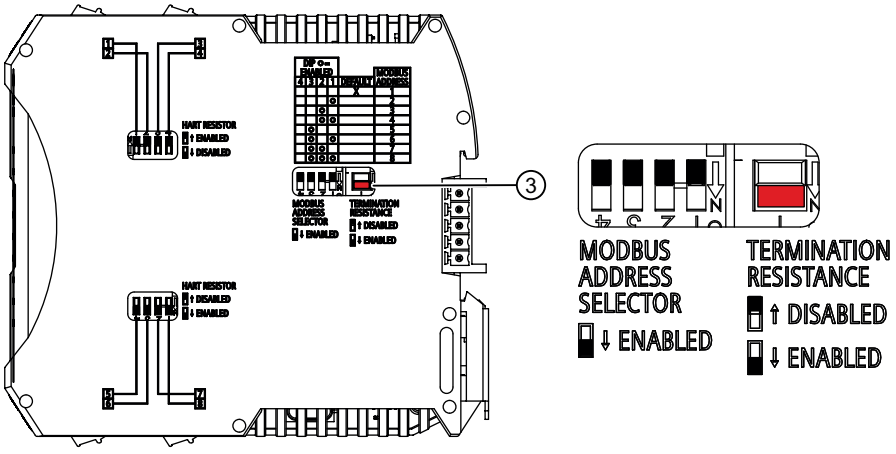


4	3	2	1	Modbus address
Disabled	Disabled	Disabled	Disabled	1
Disabled	Disabled	Disabled	Enabled [ENABLED]	2
Disabled	Disabled	Enabled [ENABLED]	Disabled	3
Disabled	Disabled	Enabled [ENABLED]	Enabled [ENABLED]	4
Disabled	Enabled [ENABLED]	Disabled	Disabled	5
Disabled	Enabled [ENABLED]	Disabled	Enabled [ENABLED]	6
Disabled	Enabled [ENABLED]	Enabled [ENABLED]	Disabled	7
Disabled	Enabled [ENABLED]	Enabled [ENABLED]	Enabled [ENABLED]	8

Figure 5-1 In the figure, the Modbus address 2 is set

4. Connect all T-plugs together.
5. Plug the T-plug row onto the DIN rail.

6. Enable [ENABLED] the termination resistance ③ [TERMINATION RESISTANCE] of the last bus node of the SITRANS MX300 series.



7. Plug the devices onto the T-plugs.
8. Ground the standard mounting rail.

See also

Connecting HART devices to SITRANS MX300 (Page 40)

Connecting

6

6.1 Basic safety notes

⚠ CAUTION

Incorrect loop current

Device damage or fire hazard of the 250 Ω input resistance in the SITRANS MX300 due to incorrect loop current.

- Maintain the maximum loop current per channel of 35 mA.

NOTICE

Condensation in the device

Damage to device through formation of condensation if the temperature difference between transportation or storage and the mounting location exceeds 20 °C (36 °F).

- Before taking the device into operation, let the device adapt for several hours in the new environment.

Note

Improvement of interference immunity

- Lay signal cables separate from cables with voltages > 60 V.
- Use cables with twisted wires.
- Keep device and cables at a distance from strong electromagnetic fields.
- Take account of the conditions for communication specified in the Technical data (Page 67).
- Use shielded cables to guarantee the full specification according to HART/PA/FF/Modbus/EIA-485/Profibus DP.

⚠ WARNING

Risk of lightning strikes

A lightning flash may enter the mains cables and data transmission cables and jump to a person.

Death, serious injury and burns can be caused by lightning.

Take the following precautions:

- Disconnect the device from the power supply in good time when a thunderstorm is approaching.
- Do not touch mains cables and data transmission cables during a thunderstorm.
- Keep a sufficient distance from electric cables, distributors, systems, etc.

NOTICE

Fault caused by I/O devices

The connection of I/O devices can cause faults in the device.

The result may be personal injury and damage to the machine or plant.

Note the following when connecting I/O devices:

- Read the documentation of the I/O devices. Follow all instructions in the documentation.
- Only connect I/O devices which are approved for industrial applications in accordance with EN 61000-6-2 and IEC 61000-6-2.
- Peripheral devices that are incapable of hot-plugging may only be connected after the device has been disconnected from the power supply.

NOTICE

Damage through regenerative feedback

Regenerative feedback of voltage to ground by a connected or installed component can damage the device.

Connected or built-in I/Os, for example, a USB drive, are not permitted to supply any voltage to the device. Regenerative feedback is generally not permitted.

6.2 Connecting HART devices to SITRANS MX300

Introduction

SITRANS MX300 always acts as a secondary master in accordance with the HART standard.

Connection und parameter assignment of the SITRANS MX300 channels depends on whether the HART device is already connected to a HART Master.

Note

Internal or external resistor

You can use an external resistor or the internal resistor of the SITRANS MX300. If you use an external resistor at a channel, disable the respective DIP switch at the SITRANS MX300 (Page 36).

Before connecting the devices

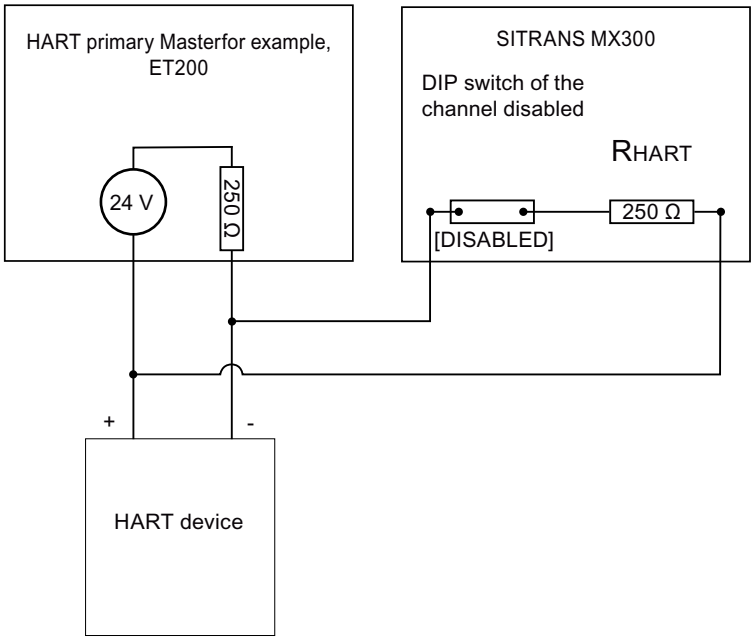
Observe the following safety instructions:

- General safety notes (Page 21)
- Basic safety notes: Connecting (Page 39)

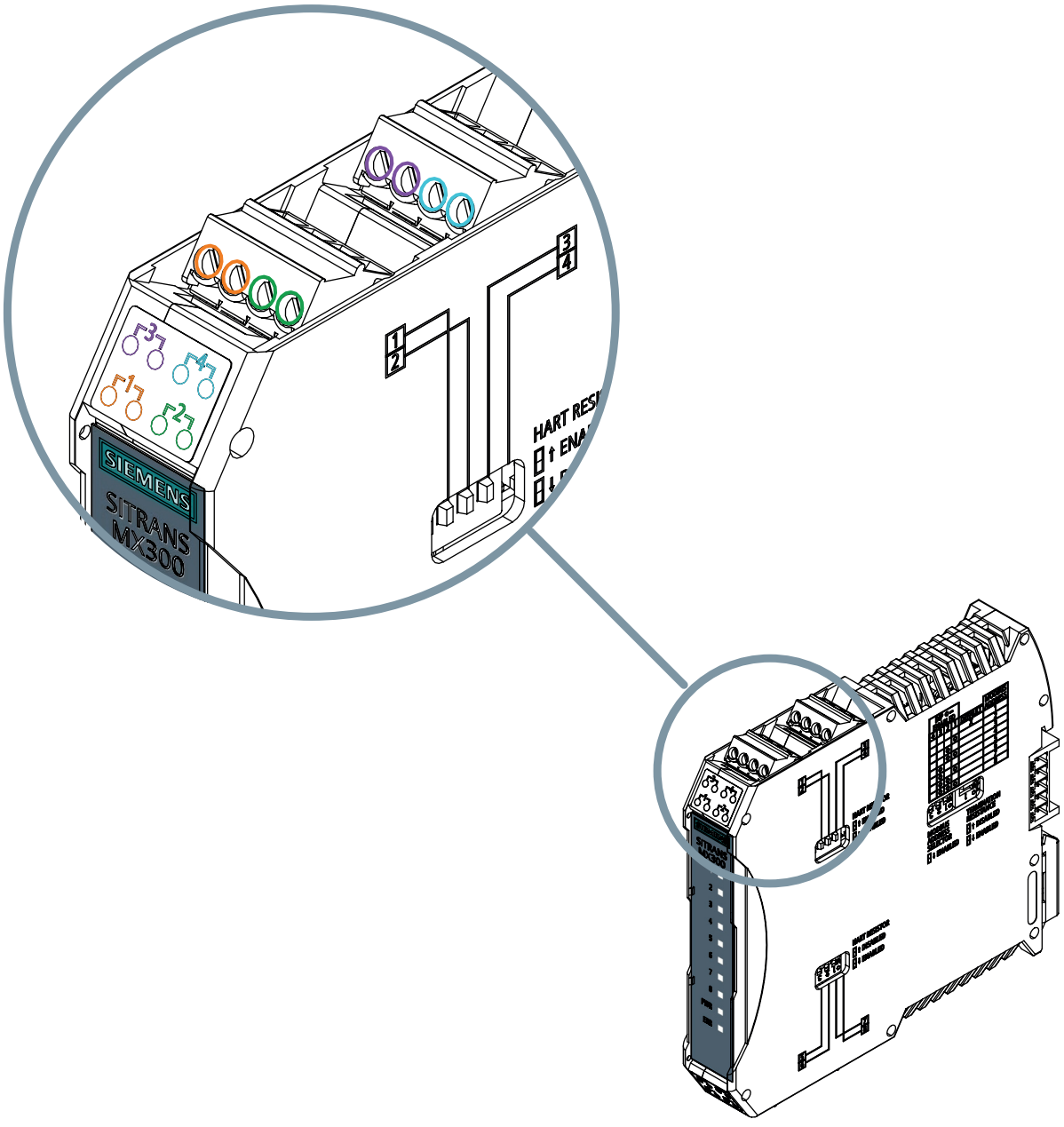
Read the entire device manual in order to achieve the optimum performance of the device.

Connecting SITRANS MX300 with HART Master

1. If a HART Master exists for a channel, connect the SITRANS MX300 parallel to the HART device for this channel.
2. Disable [DISABLED] the corresponding HART resistor at the SITRANS MX300 [HART RESISTOR].

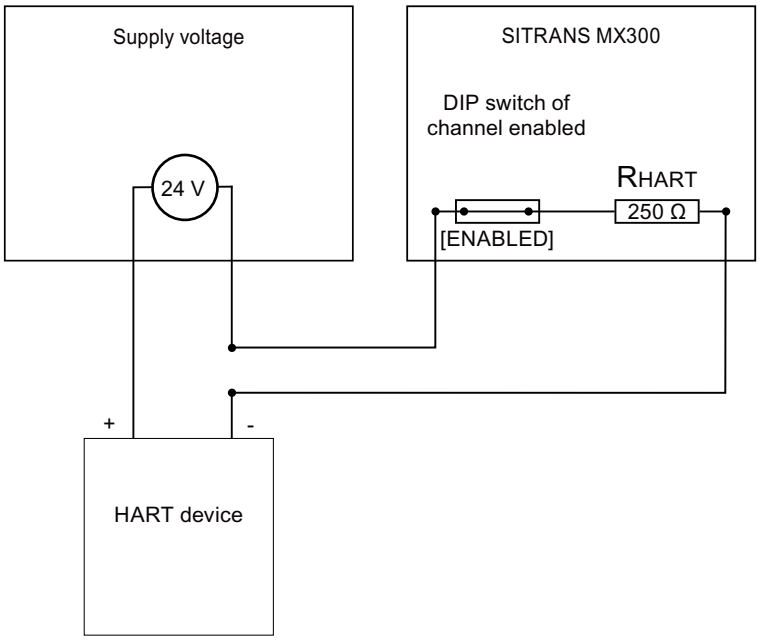


3. Connect one HART device per SITRANS MX300 channel using a two-pole cable.
   – The channels do not have any polarity.

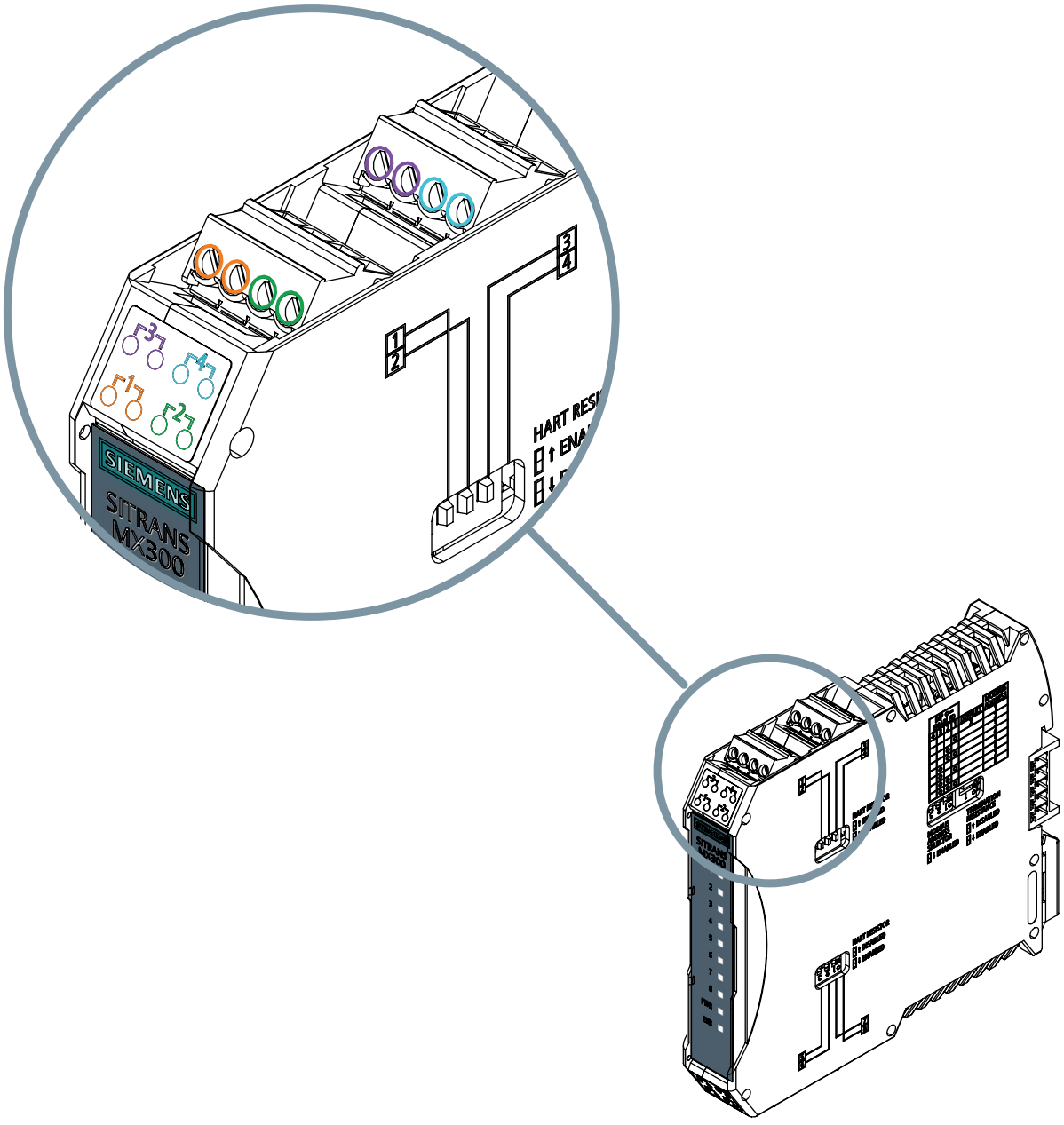

SIEMENS
SITRANS
MX300
HART RES
ENA

Connecting SITRANS MX300 without HART Master

1. If **no** HART Master exists for a channel, connect the SITRANS MX300 for this channel in series to the HART device.
2. Enable [ENABLED] the corresponding HART resistor. (Default: disabled [DISABLED])



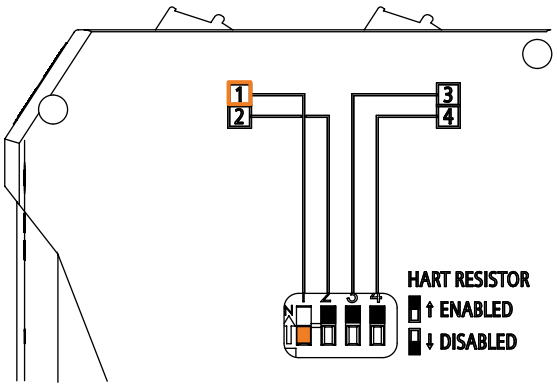
3. Connect one HART device per SITRANS MX300 channel using a two-pole cable.
   – The channels do not have any polarity.



Example

A HART Master is available for Channel 1.

- Disable [DISABLED] the DIP switch 1 at the SITRANS MX300 [HART RESISTOR].
- Connect the SITRANS MX300 in parallel to the HART device.



6.3 Connect SITRANS MX300 to SITRANS CC240.

Before connecting the devices

You have grounded the standard mounting rails.

Procedure

1. Connect the SITRANS MX300 using the supplied RS485 data cable to SITRANS CC240 port "X30COM".
2. Lock the RS-485 connector with the two screws.
3. Ground the standard mounting rail.

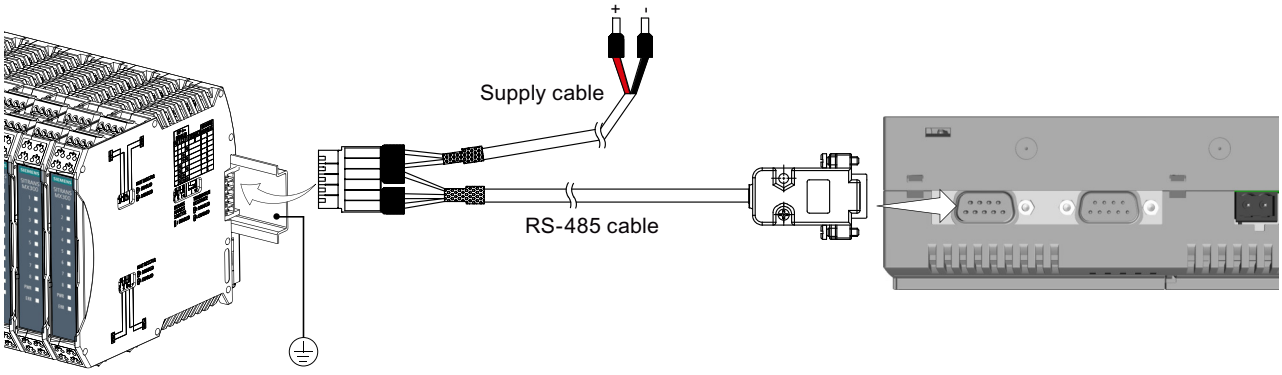


Figure 6-1 RS485 connection MX300 and CC240

4. Connect the supply voltage for SITRANS MX300 and SITRANS CC240.
Connecting the supply voltage for SITRANS CC240 and MX300 (Page 46)

6.4 Connecting the supply voltage for SITRANS CC240 and MX300

Note

The device should only be connected to a 9 to 35 V DC supply voltage which satisfies the requirements of safe extra low voltage (SELV) according to IEC/EN/DIN EN/UL 60950-1.

The supply voltage must meet the NEC Class 2 or LPS requirement according to IEC/EN/DIN EN/UL 60950-1.

Note

The supply voltage must be adapted to the input data of the device, see section "Technical data (Page 67)".

If there are voltage peaks on the supply lines, use a protective device in the form of a varistor (MOV) UMOV = Urated x 1.2 (BLITZDUCTOR BVT AVD 24 (918 422) or compatible).

Introduction

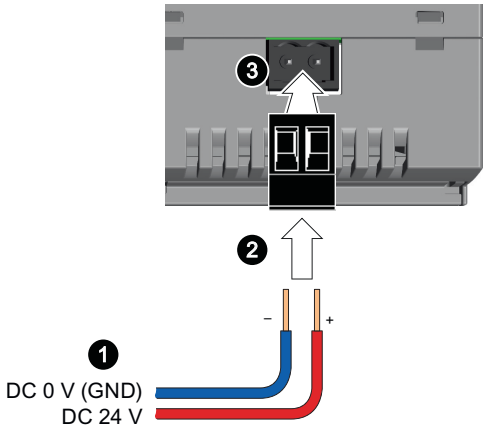
The SITRANS CC240 and SITRANS MX300 devices can be powered by a single power supply. It is also permitted to use a single protective device for SITRANS CC240 and SITRANS MX300.

Before switching on the supply voltage

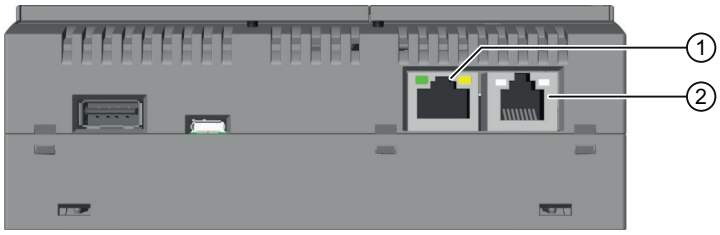
- The flammability class of the wires conforms to safe operation according to VW-1.
- You are using the supplied terminal.
- A two-core cable with a cable cross-section of 0.75 mm^2 to 2.5 mm^2.
- A slotted screwdriver with a 3 mm blade.

Procedure

1. Switch off the supply voltage.
2. Connect the lines to the connecting terminal as shown.
   Take the polarity into account.
3. Connect the terminal to supply voltage connection.



6.5 Connecting Ethernet to SITRANS CC240



① LAN interface X1P1LAN: Intranet, e.g. SITRANS CC240 web server or OPC UA client
② LAN interface X2P1LAN: Internet, e. g. MindSphere

6.6 Securing the cables

Use cable ties or cable clamps to secure the connected cables to suitable fastening elements to ensure strain relief.

Do not squeeze cables through cable ties or cable clamps.

Parameter assignment/addressing

7

7.1 PC setup

Before setting up your PC

The devices are connected and supplied. Refer to section: Connecting (Page 39).

Procedure

1. Navigate to the settings of the used LAN network adapter.
   In Windows 10: Windows "Settings > Network and Internet > Change adapter settings"
2. Right-click the used LAN network adapter and select "Properties" in the shortcut menu.
3. Select "Internet protocol Version 4 (TCP/IPv4)".
4. Click the "Properties" button.

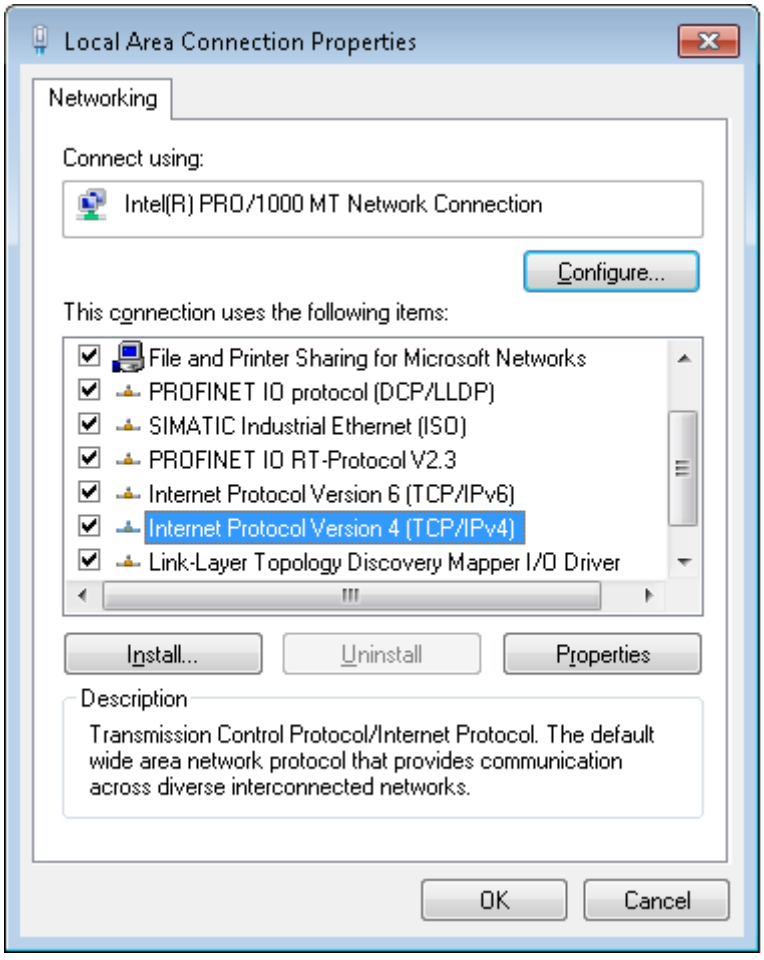


Figure 7-1 Windows: "Local Area Connection" window

5. Change the IP address.
   The address must not match the address of the SITRANS CC240.
   The default IP address of the SITRANS CC240 is 192.168.200.1 Your computer must be in the same network to communicate with SITRANS CC240. Your computer can have the IP address 192.168.200.2, for example.
   The subnet mask is entered automatically. (255.255.255.0)
6. Click "OK".

7.2 Calling the SITRANS CC240 web server

Procedure

1. Make the network settings for your PC.
   PC setup (Page 49)
2. Enter the following address in the Google Chrome browser: https:\\192.168.200.1
3. Wait for a few minutes until the system has started up.
   The "Connection refused" message means that the system still needs some time to start up.
4. Log on as administrator.
   User name: CC240_ADMIN
   Password: Siemens1234$
5. Change the password.
6. Define a user with password for the OPC UA client.

7. Set the date and time.
8. Wait for 10 seconds.
   ⇒ After this startup time, the web server is ready for operation.
   ⇒ The connected SITRANS MX300 and HART devices are displayed with diagnostics.

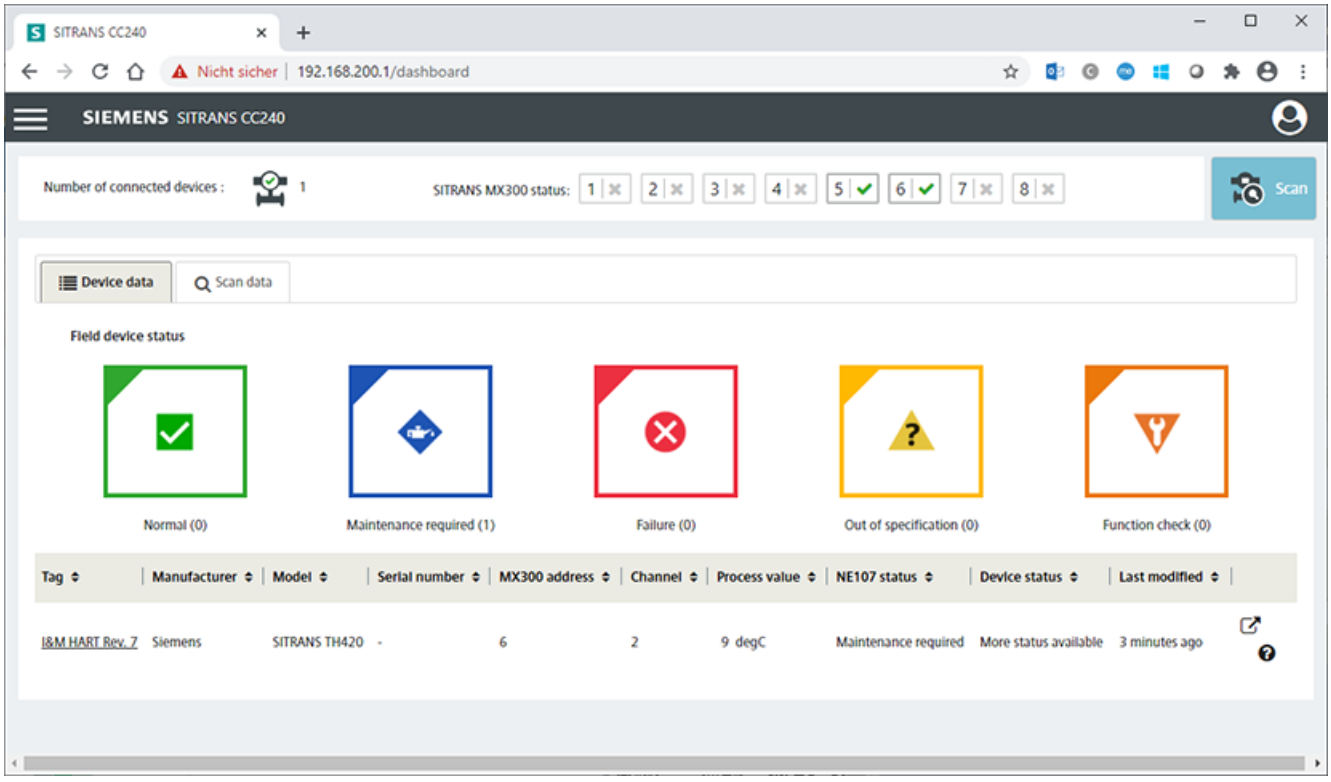


Figure 7-2 Web server after logon

7.3 Establishing a connection to Siemens MindSphere

Introduction

You can connect SITRANS CC240 to Siemens MindSphere. The MindConnect Library is available for this purpose in MindSphere.

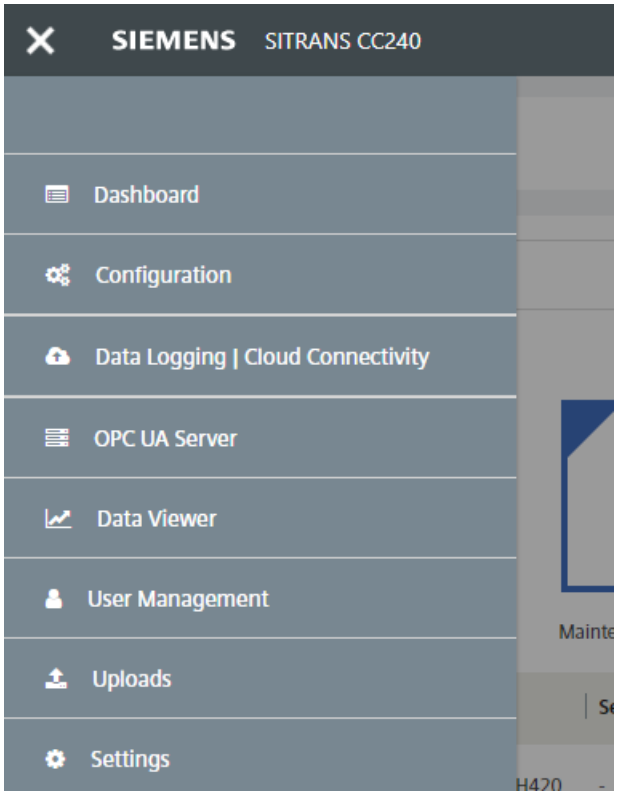
Before establishing a connection to Siemens MindSphere

You have a tenant, for example, a MindAccess IoT Value Plan.

Procedure

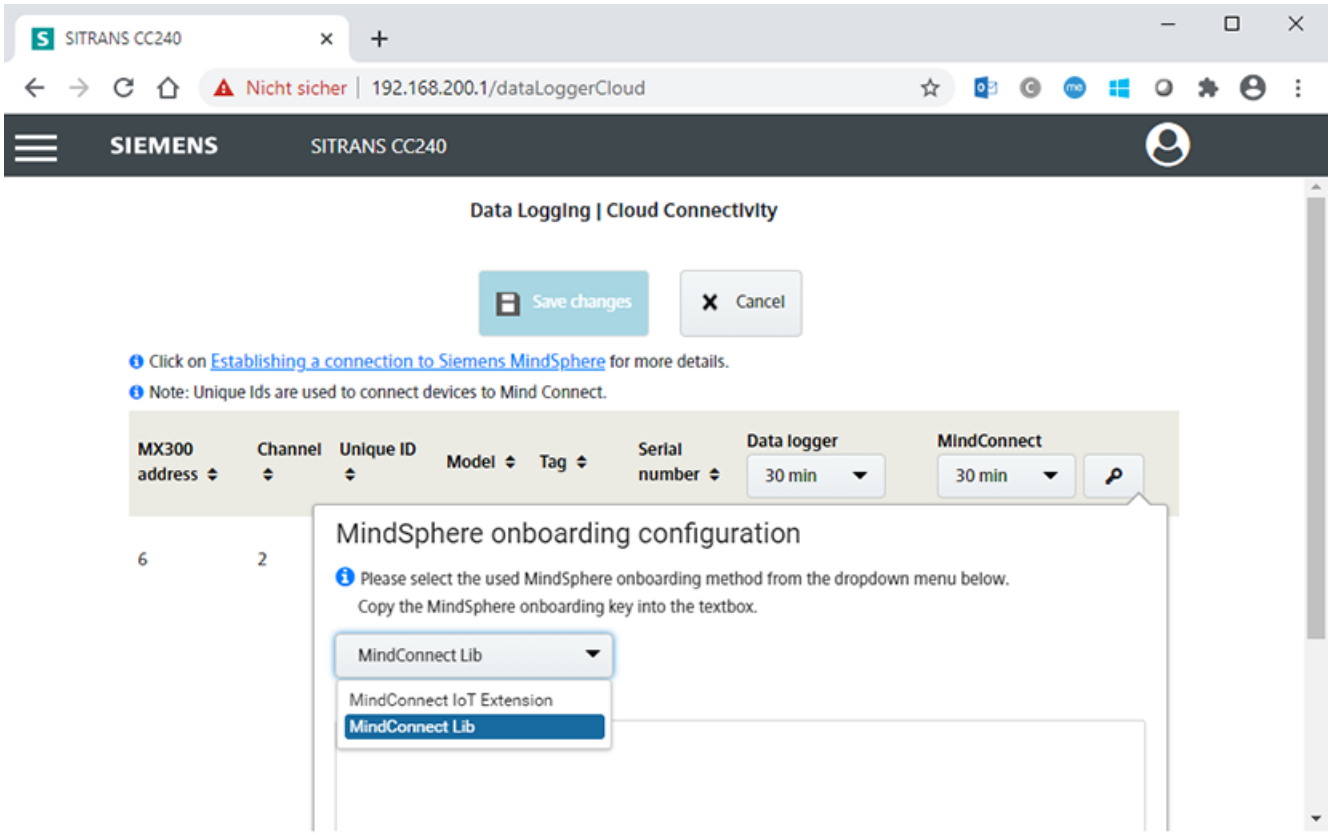
1. Call up the SITRANS CC240 web server.
   Calling the SITRANS CC240 web server (Page 50)
2. Open MindSphere.

3. Create an asset.
   - Type: **MindConnectLib** core.mclib
   - Security profile: SHARED_SECRET
   - Configure a data source for each connected HART device with the unique ID.
     You can find the unique ID on the SITRANS CC240 web server "Dashboard > Data Logging | Cloud Connectivity".
   - Add a data point link.
   - Generate a connection key.
   - Copy the connection key.
4. Select the "Data Logging | Cloud Connectivity" main menu on the SITRANS CC240 web server.



5. Click the wrench symbol in the table.

6. Select "MindConnect Lib" in the list.



7. Paste the connection key copied from MindSphere into the "MindSphere onboarding configuration" field.
8. Click the "Save" button.
9. Click the "Save Changes" button.
10. Create all data structures according to the MindSphere documentation, "Getting Started". Getting Connected to MindSphere (https://documentation.mindsphere.io/resources/pdf/getting-connected-en.pdf)
11. In MindSphere, check if the data is available in the "Fleet Manager".

See also

MindSphere documentation area (http://documentation.mindsphere.io)

7.4 Establishing a connection to the OPC UA client

Before establishing a connection to the OPC UA client

- You have installed an OPC UA client, for example: UAExpert installed
  The OPC UA connection must have the following properties:
  - Certificate management
  - Security policy Basic256Sha256
  - Message security settings: Sign & Encrypt
  - Authentication: User name and password
- You have created a user for the OPC UA client on the SITRANS CC240 web server.
  When calling the web server (Page 50) for the first time, you are prompted to create a user for the OPC UA client.
- You know the IP address and port of the SITRANS CC240.
  SITRANS CC240 web server: "OPC UA Server > OPC UA Overview > Endpoint URL"
  The OPC port number is 4840. This means: opc.tcp://192.168.200.1:4840

Procedure

1. Open the OPC UA client.
2. Enter the IP address and the port of the SITRANS CC240.
   Default IP address: 192.168.200.1
   Port: 4840
3. Select the Basic256Sha256 security policy.
4. Select the message security settings: Sign & Encrypt
5. Log on with the user information that you have assigned in the SITRANS CC240 web server.
   Calling the SITRANS CC240 web server (Page 50)
6. Select a permitted timeout of 60 s.
7. Connect the OPC UA client to the SITRANS CC240 web server.
8. Check and confirm the certificate used in the OPC UA client.
9. Call up the SITRANS CC240 web server.
   Calling the SITRANS CC240 web server (Page 50)
10. Select "OPC UA Server > Certificate Management" from the menu.
11. Refresh the page.
12. Verify and confirm the OPC UA client certificate on the SITRANS CC240 web server.

7.5 Displaying process values

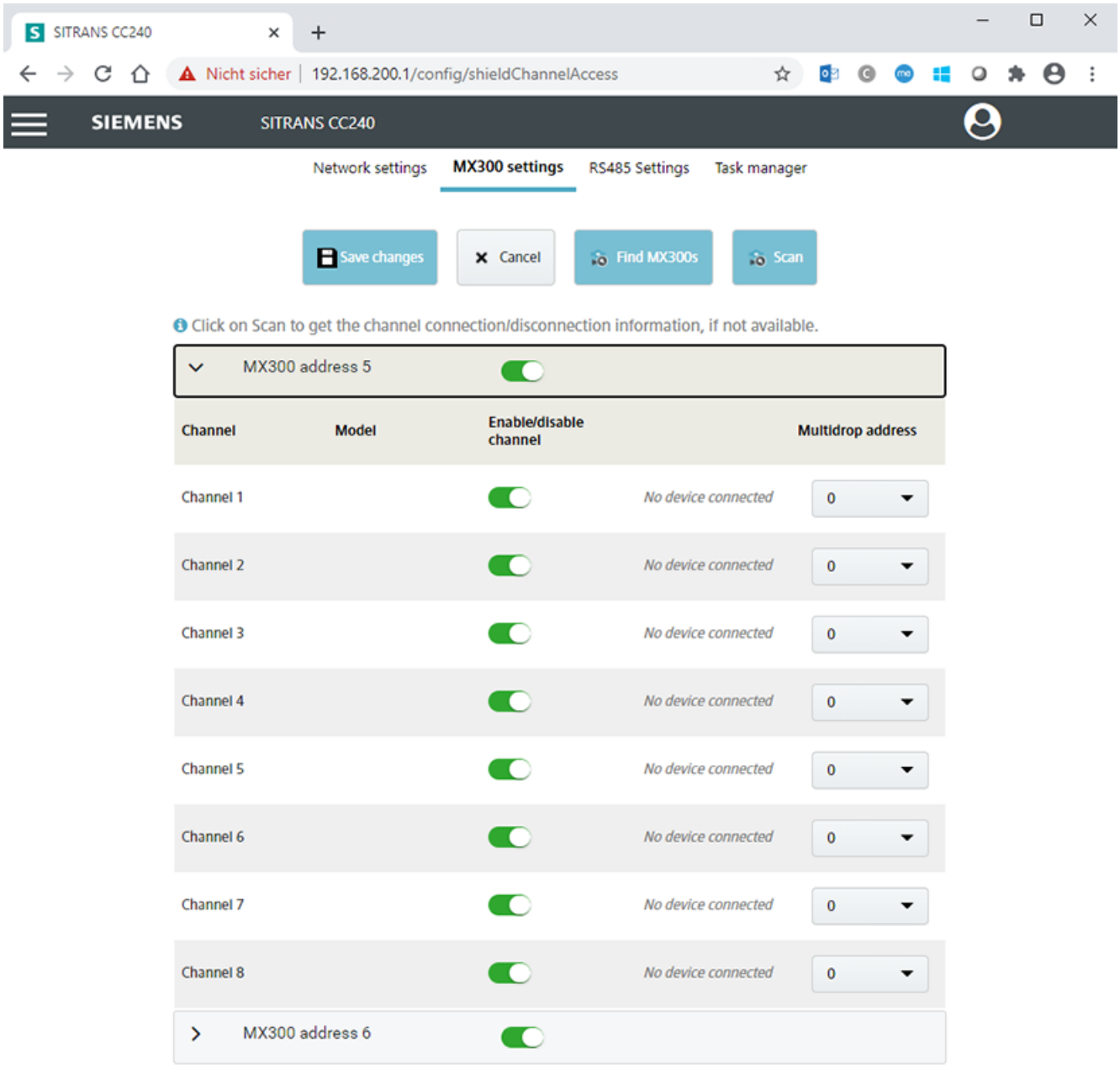
Introduction

For a quick display of your relevant process values, disable all devices whose process values you are not interested in.

Procedure

1. Select the "Configuration" main menu on the SITRANS CC240 web server.
2. Select the "MX300 settings" tab.

3. Click "Find MX300s".
   You can see the connected SITRANS MX300 (e.g. Shield 2) and HART devices (e.g. Channel 3).



4. Use the slider to disable SITRANS MX300 (e.g. MX300 address 5) or HART devices (e.g. Channel 3).
5. Select the "Dashboard".
6. To view the process values, click a link in the table.
7. Select "Process values".

7.6 User management

Table 7-1 User role: Administrator

Network settings	Read/write
Access to devices / channels	Read/write
Data Logging | Cloud Connectivity	Read/write
System information	Read/write
Task Manager visible	Yes
Add access role	Yes
Edit access role	Yes
Delete access role	Yes
Export data	Yes
Update firmware	Yes
Upload UDM file	Yes
OPC UA user management	Read/write
OPC UA certificate management	Read/write
OPC UA client certificate management	Read/write
Data viewer	Read/write

Table 7-2 User role: Operator

Network settings	Read
Access to devices / channels	Read/write
Data Logging | Cloud Connectivity	Read/write
System information	Read/write
Task Manager visible	No
Add access role	No
Edit access role	No
Delete access role	No
Export data	Yes
Update firmware	Yes
Upload UDM file	Yes
OPC UA user management	Read/write
OPC UA certificate management	Read

OPC UA client certificate management	Read/write
Data viewer	Read/write

Table 7-3 User role: Analyst

Network settings	Read
Access to devices / channels	Read
Data Logging | Cloud Connectivity	Read
System information	Read
Task Manager visible	No
Add access role	No
Edit access role	No
Delete access role	No
Export data	Yes
Update firmware	No
Upload UDM file	No
OPC UA user management	Read
OPC UA certificate management	Read
OPC UA client certificate management	Read
Data viewer	Read

Service and maintenance

8

8.1 Basic safety notes

Note

The device is maintenance-free.

8.1.1 Maintenance

To retain a high level of system availability, or devices with a back-up battery, we recommend the preventative replacement of the back-up battery at replacement intervals of 5 years.

8.1.2 Repair information

Carrying out repairs

Only qualified personnel are permitted to repair the device. Contact your local representative, see section "Technical support (Page 76)".

⚠ WARNING

Unauthorized opening and improper repairs on the device may result in substantial damage to equipment or endanger the user.

- Always disconnect the power plug before you open the device.
- Only install system expansion devices designed for this device. If you install other expansion devices, you may damage the device or violate the safety requirements and regulations on RF suppression. Contact your technical support team or where you purchased your PC to find out which system expansion devices may safely be installed.

If you install or exchange system expansions and damage your device, the warranty becomes void.

⚠ CAUTION
Electrostatic sensitive devices (ESD) The device contains electronic components which are destroyed by electrostatic charges. This can result in malfunctions and damage to the machine or plant. Make sure you take precautionary measures even when you open the device, for example, when opening device doors, device covers or the housing cover. For more information, refer to the chapter "ESD Guideline (Page 77)"

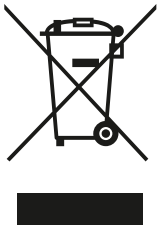
Limitation of liability

All technical specifications and approvals of the device only apply if you use expansion components that have a valid CE approval (CE mark). The installation instructions for expansion components in the associated documentation must be observed.

UL approval of the device only applies when the UL-approved components are used according to their "Conditions of Acceptability".

We are not liable for functional limitations caused by the use of third-party devices or components.

8.2 Disposal



Devices described in this manual should be recycled. They may not be disposed of in the municipal waste disposal services according to the Directive 2012/19/EC on waste electronic and electrical equipment (WEEE).

Devices can be returned to the supplier within the EC, or to a locally approved disposal service for eco-friendly recycling. Observe the specific regulations valid in your country.

Further information about devices containing batteries can be found at: Information on battery/product return (WEEE) (https://support.industry.siemens.com/cs/document/109479891/)

Note

Special disposal required

The device includes components that require special disposal.

- Dispose of the device properly and environmentally through a local waste disposal contractor.

8.3 Maintenance and repair work

⚠ WARNING

Impermissible repair of the device

- Repair must be carried out by Siemens authorized personnel only.

⚠ WARNING

Impermissible repair and maintenance of the device

- Repair and maintenance must be carried out by Siemens authorized personnel only.

⚠ CAUTION

Hazardous voltage at open device

Risk of electric shock when the enclosure is opened or enclosure parts are removed.

- Before you open the enclosure or remove enclosure parts, de-energize the device.
- If maintenance measures in an energized state are necessary, observe the particular precautionary measures. Have maintenance work carried out by qualified personnel.

⚠ WARNING

Humid environment

Risk of electric shock.

- Avoid working on the device when it is energized.
- If working on an energized device is necessary, ensure that the environment is dry.
- Make sure when carrying out cleaning and maintenance work that no moisture penetrates the inside of the device.

⚠ WARNING

Risk of explosion and release of harmful substances

Improper handling of lithium batteries can result in an explosion of the batteries.

Explosion of the batteries and the released pollutants can cause severe physical injury. Worn batteries jeopardize the function of the device.

Note the following when handling lithium batteries:

- Replace the battery every 5 years.
- Replace the lithium battery only with the type recommended by the manufacturer. The article number is A5E34734290.
- Do not throw lithium batteries into fire, do not solder on the cell body, do not recharge, do not open, do not short-circuit, do not reverse polarity, do not heat above 100°C and protect from direct sunlight, moisture and condensation.

NOTICE

Disposal of batteries and rechargeable batteries

Batteries and rechargeable batteries do not belong in domestic garbage. The user is legally obliged to return used batteries and rechargeable batteries.

Used batteries and rechargeable batteries pollute the environment as special waste. You as a user are liable to prosecution if you do not properly dispose of batteries and rechargeable batteries.

Please observe the following when disposing of batteries and rechargeable batteries:

- Dispose of used batteries and rechargeable batteries separately as hazardous waste in accordance with local regulations.
- You can return used batteries and rechargeable batteries to public collection points and wherever batteries or rechargeable batteries of the type in question are sold.
- Label the battery container "Used batteries and rechargeable batteries".

Requirement

- The device is disconnected from the power supply.
- A replacement battery with the article number A5E34345932 is available.

Procedure

NOTICE

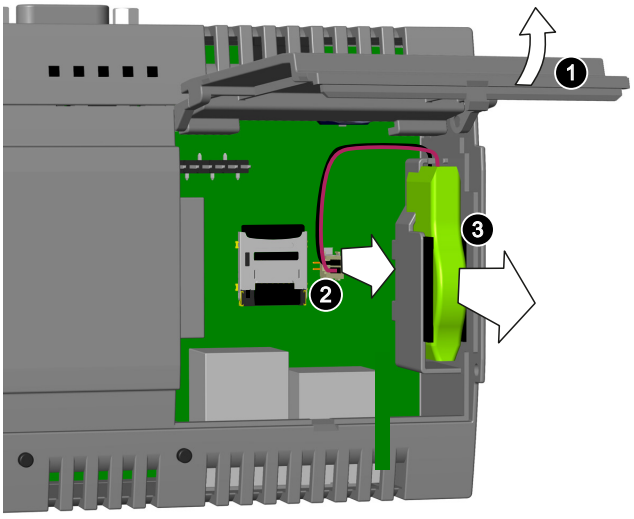
The time is lost after 30 seconds

The time will be deleted if it takes you longer than 30 seconds to replace the battery. The device is no longer synchronous. Time-controlled programs will no longer run or will run at the wrong time. This may damage the plant.

Reset the time for the device.

1. Open the cover on the right.
2. Pull the plug of the battery cable from the motherboard.
3. Remove the battery from the battery box.

Insert the replacement battery, plug in the battery cable on the motherboard and close the cover on the right.



8.4 Return procedure

Enclose the delivery note, returned goods delivery note in a clear plastic pouch and attach it firmly to the outside of the packaging.

Required forms

- Delivery note
- Return document (http://www.siemens.com/processinstrumentation/returngoodsnote) with the following information:
  - Product (item description)
  - Number of returned devices/replacement parts
  - Reason for returning the item(s)

8.4.1 Return of products with lithium batteries

Note

Return of products with lithium batteries

Lithium batteries are dangerous goods according to the Regulation of Dangerous Goods, UN 3090 and UN 3091.

- Remove lithium batteries prior to shipment.
- If the battery cannot be removed, return the product according to the Regulation of Dangerous Goods with special transport documentation.

Diagnostics and troubleshooting

9

9.1 Meaning of the LED states on SITRANS MX300

LED state	Error	Causes and remedies
LEDs 1 to 8 flashing green 2x per second. ERR LED lit red.	Modbus address of the SITRANS MX300 is invalid.	Two devices have the same Modbus address. • Select an individual Modbus address for each connected SITRANS MX300. See section Installing SITRANS MX300 on DIN rail (Page 36).
LEDs 1 to 8 do not light up.	Channel is not active.	Channel not enabled on the SITRANS CC240 web server. • Call up the SITRANS CC240 web server (Page 50). • Click on the menu in top-left and select Configuration. • Select Device / channel access and enable the channel.
LED 1 to 8 are lit green.	Channel active Device detected.	-
LED 1 to 8 flash green.	Channel active No device detected.	• Enable or disable the HART resistor at the SITRANS MX300. Refer to section: Installing SITRANS MX300 on DIN rail (Page 36).
LEDs 1 to 8 light up during booting.	Signals the set Modbus address of the SITRANS MX300.	-
ERR LED lit red.	Modbus communication errors.	For example, 2 devices have the same Modbus address. • Switch the system off and on again.
ERR LED flashes red 2x per second.	Channel fault.	For example, channel is active but no device is connected.
ERR LED flashes red 4x per second.	Internal error.	• Return the SITRANS MX300 to Siemens.
PWR LED lit green.	Status supply voltage 24 V DC present / ready for operation	
PWR LED flashes green 2x per second.	Supply voltage is on. Initialize the device	
PWR LED flashes green 4x per second.	FW update is executed.	

Technical data

10

10.1 General technical specifications

General technical specifications

	SITRANS CC240	SITRANS MX300
Article number	See order documents	
Weight without mounting brackets	Approx. 230 g	Approx. 150 g
Power supply [1]	9 to 35 V DC, no electrical isolation	9 to 35 V DC, with electrical isolation (supply to HART channels and to RS-485)
Brief voltage interruption in accordance with Namur	Up to 5 ms buffer time at 24 V DC and full load [2] maximum 10 events per hour; recovery time at least 10 s	-
Current consumption	Max. 1.4 A	20 mA max. at 9 V, 10 mA at 24 V
Noise emission	< 40 dB(A) according to DIN 45635-1	-
Degree of protection	IP20 according to IEC 60529	
Quality assurance	In accordance with ISO 9001	

[1] The device should only be connected to a power supply which satisfies the requirements of safe extra low voltage (SELV) according to IEC/EN/DIN EN/UL 60950-1. The power supply must meet the NEC Class 2 or LPS requirement according to the IEC/EN/DINEN/UL 60950-1.

[2] In the event of low supply voltage, the buffer time is reduced

Electromagnetic compatibility

	SITRANS CC240 and MX300
Immunity with regard to conducted interference on the supply lines	± 2 kV in accordance with IEC 61000-4-4; burst ± 1 kV in accordance with IEC 61000-4-5; asymmetrical surge
Noise immunity on signal cables	± 1 kV in accordance with IEC 61000-4-4; burst; length < 30 m ± 2 kV in accordance with IEC 61000-4-4; burst; length > 30 m ± 2 kV in accordance with IEC 61000-4-5; surge; length > 30 m
Immunity to discharges of static electricity	± 4 kV contact discharge in accordance with IEC 61000-4-2 ± 8 kV air discharge in accordance with IEC 61000-4-2
Immunity to RF radiation	10 V/m, 80 MHz to 1 GHz, 80% AM in accordance with IEC 61000-4-3 3 V/m, 1.4 to 2 GHz, 80% AM in accordance with IEC 61000-4-3 1 V/m, 2 to 2.7 GHz, 80% AM in accordance with IEC 61000-4-3 10 V, 150 KHz to 80 MHz, 80% AM in accordance with IEC 61000-4-6

If there are voltage peaks on the power supply lines, use a protective device in the form of a varistor (MOV) UMOV = Urated x 1.2 (BLITZDUCTOR BVT AVD 24 (918 422) or compatible).

Interfaces

	SITRANS CC240	SITRANS MX300
LAN interface RJ45 10/100 Mbps	• LAN X1 P1: Intranet e. g. Webserver or OPC UA Client • LAN X2 P1: Internet e. g. MindSphere	-
D-sub connector	• X30 COM: RS-485, max. 115 Kbps, D-sub connector, 9-pin	• RS-485, max. 115 Kbps Included RS485 cable: 1.5 m

10.2 Ambient conditions

Climatic ambient conditions

Permitted mounting positions, see section "Permissible mounting positions and mounting types SITRANS CC240 (Page 31)".

	SITRANS CC240	SITRANS MX300
Ambient temperature		
• Operation	0 to 50 °C*	Horizontal mounting position: -40 ... + 60 °C Vertical mounting position: -40 ... + 50 °C
• Storage/transport	-20 to 70 °C	-40 to +55 °C
Gradient		
• Operation	Max. 10 °C/h	-
• Storage	20 °C/h, no condensation	-
Relative humidity		
• Operation	5 to 85% at 30 °C, no condensation	5 to 80% at 30 °C, no condensation
• Storage/transport	5 to 95% at 25/55 °C, no condensation	5 to 80% at 25/55 °C, no condensation
Atmospheric pressure		
• Operation	1080 ... 795 hPa, corresponds to an elevation of -1000 m to 2000 m	1080 to 795 hPa
• Storage/transport	1080 to 660 hPa, corresponds to an elevation of -1000 to 3500 m	1080 to 660 hPa

* Also note the following section "Power consumption of the components".

Mechanical ambient conditions

	SITRANS CC240 and MX300
Vibration resistance	
• Operation	Vibration exposition 1 g, 10 cycles per axis: • 5 to 8.4 Hz, deflection 3.5 mm • 8.4 to 200 Hz, vibration acceleration 9.8 m/s^2
• Storage/transport	• 5 to 8.4 Hz: Deflection: 3.5 mm • 8.4 to 500 Hz: Acceleration 9.8 m/s^2
Shock resistance	
• Operation	150 m/s^2, 11 ms
• Storage/transport	250 m/s^2, 6 ms

10.3 Direct current supply (DC)

	SITRANS CC240	SITRANS MX300
Input voltage	9 to 35 V DC	
Power consumption	Maximum 10 W	Maximum 0.5 W
Power consumption at 24 V rated voltage	3.5 W	0.25 W

Dimension drawings

11

11.1 SITRANS CC240 dimension drawings

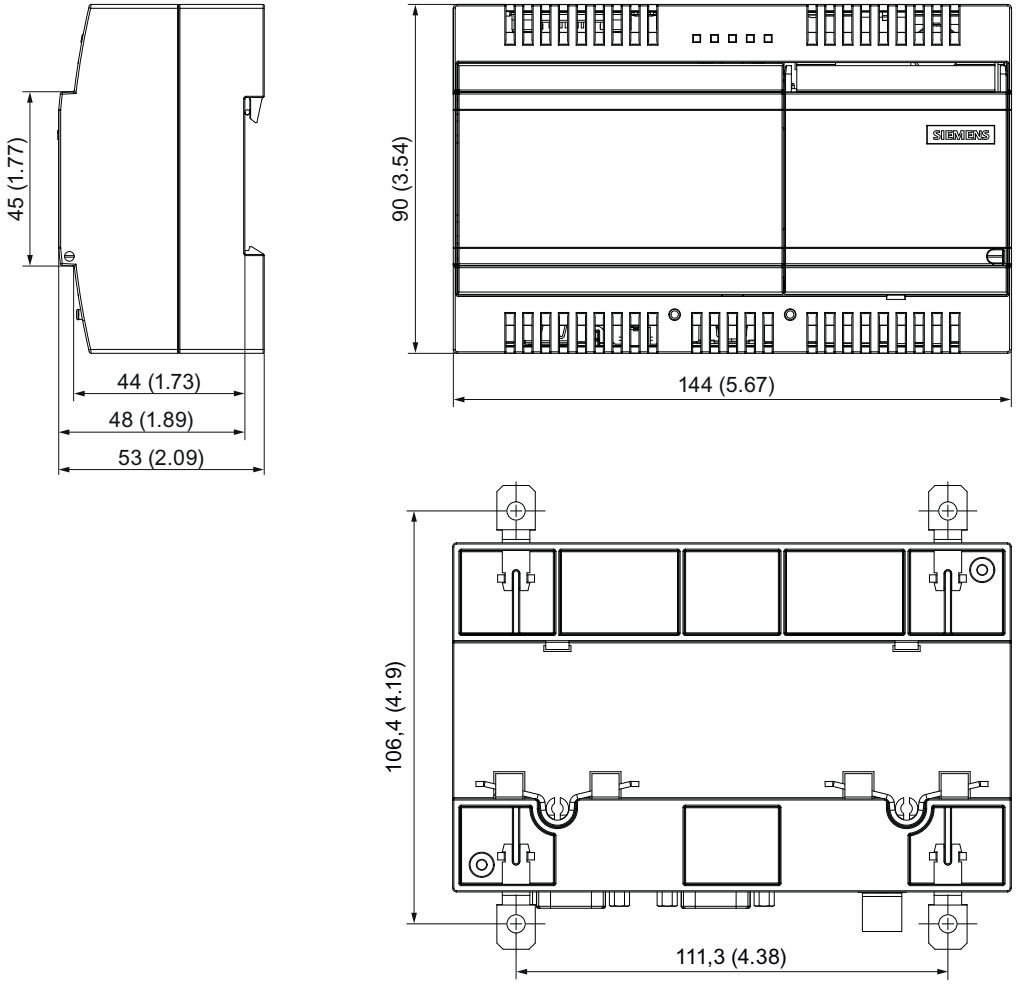


Figure 11-1 Dimension drawings SITRANS CC240, dimensions in mm (inch)

11.2 SITRANS MX300 dimension drawings

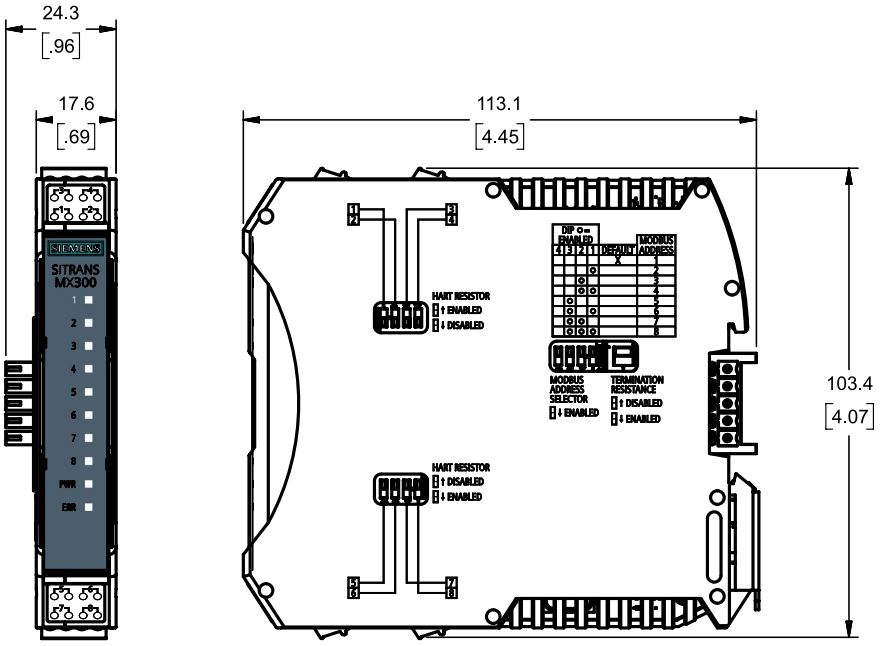


Figure 11-2 Dimension drawings SITRANS MX300, dimensions in mm (inch)

Ordering data

12

12.1 Accessories

You can order accessories online: Industry Mall (https://mall.industry.siemens.com)

The following accessories are not included in the scope of delivery:

- Push-in lugs
- Storage media

Product documentation and support

A

A.1 Product documentation

Process instrumentation product documentation is available in the following formats:

- Certificates (http://www.siemens.com/processinstrumentation/certificates)
- Downloads (firmware, EDDs, software) (http://www.siemens.com/processinstrumentation/downloads)
- Catalog and catalog sheets (http://www.siemens.com/processinstrumentation/catalogs)
- Manuals (http://www.siemens.com/processinstrumentation/documentation)
  You have the option to show, open, save, or configure the manual.
  - "Display": Open the manual in HTML5 format
  - "Configure": Register and configure the documentation specific to your plant
  - "Download": Open or save the manual in PDF format
  - "Download as html5, only PC": Open or save the manual in the HTML5 view on your PC

You can also find manuals with the Mobile app at Industry Online Support (https://support.industry.siemens.com/cs/ww/de/sc/2067). Download the app to your mobile device and scan the device QR code.

Product documentation by serial number

Using the PIA Life Cycle Portal, you can access the serial number-specific product information including technical specifications, spare parts, calibration data, or factory certificates.

Entering a serial number

1. Open the PIA Life Cycle Portal (ttps://www.pia-portal.automation.siemens.com).
2. Select the desired language.
3. Enter the serial number of your device. The product documentation relevant for your device is displayed and can be downloaded.

To display factory certificates, if available, log in to the PIA Life Cycle Portal using your login or register.

Scanning a QR code

1. Scan the QR code on your device with a mobile device.
2. Click "PIA Portal".

To display factory certificates, if available, log in to the PIA Life Cycle Portal using your login or register.

A.2 Technical support

Technical support

If this documentation does not completely answer your technical questions, you can enter a Support Request (http://www.siemens.com/automation/support-request).

Additional information on our technical support can be found at Technical Support (http://www.siemens.com/automation/csi/service).

Service & support on the Internet

In addition to our technical support, Siemens offers comprehensive online services at Service & Support (http://www.siemens.com/automation/serviceandsupport).

Contact

If you have further questions about the device, contact your local Siemens representative at Personal Contact (http://www.automation.siemens.com/partner).

To find the contact for your product, go to "all products and branches" and select "Products & Services > Industrial automation > Process instrumentation".

Contact address for business unit:
Siemens Limited
Digital Industries
Process Instrumentation
Process Automation
R&D Technology Centre
Thane Belapur Road, Airoli Node
Navi Mumbai - 400 708

For new enquiries, life cycle support for products,
systems and solutions, call us at 1800 208 3000
or email us at pisupport.in@siemens.com

ESD Directive

B

B.1 ESD guideline

What does ESD mean?

An electronic module is equipped with highly integrated components. Due to their design, electronic components are highly sensitive to overvoltage and thus to the discharge of static electricity. Such electronic components or modules are labeled as electrostatic sensitive devices.

The following abbreviations are commonly used for electrostatic sensitive devices:

- ESD – Electrostatic sensitive device
- ESD – Electrostatic Sensitive Device as a common international designation

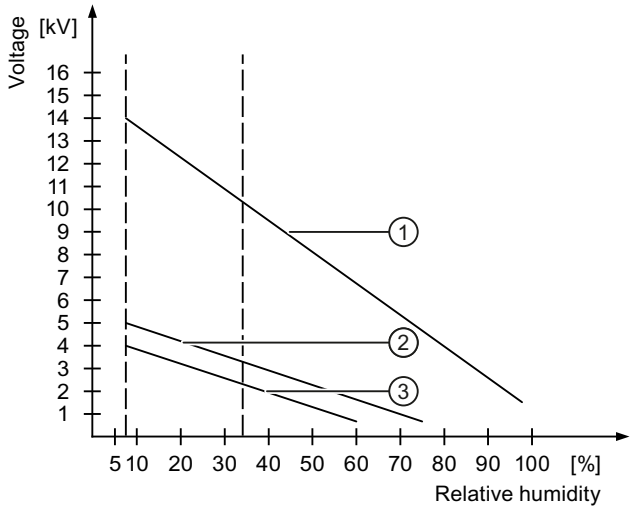
Electrostatic sensitive devices can be labeled with an appropriate symbol.

NOTICE
Damage to ESD from touch Electrostatic sensitive devices, ESD, can be destroyed by voltages which are far below the human perception limit. If you touch a component or electrical connections of a module without discharging any electrostatic energy, these voltages may arise. The damage to a module by an overvoltage can often not be immediately detected and only becomes evident after an extended period of operation. The consequences are incalculable and range from unforeseeable malfunctions to a total failure of the machine or system. Avoid touching components directly. Make sure that persons, the workstation and the packaging are properly grounded.

Charge

Every person without a conductive connection to the electrical potential of his/her surroundings can be electrostatically charged.

The material with which this person comes into contact is of particular significance. The figure shows the maximum electrostatic voltages with which a person is charged, depending on humidity and material. These values conform to the specifications of IEC 61000-4-2.



① Synthetic materials
② Wool
③ Antistatic materials such as wood or concrete

NOTICE
Grounding measures There is no equipotential bonding without grounding. An electrostatic charge is not discharged and may damage the ESD. Protect yourself against discharge of static electricity. When working with electrostatic sensitive devices, make sure that the person and the workplace are properly grounded.

Protective measures against discharge of static electricity

- Disconnect the power supply plug before you install or remove modules with ESD.
- Pay attention to good grounding:
  - When handling electrostatical sensitive devices, make sure that persons, the workstation and devices, tools and packaging used are properly grounded. This way you avoid static discharge.
- Avoid direct contact:
  - As a general rule, do not touch electrostatic sensitive devices, except in the case of unavoidable maintenance work.
  - Hold the modules at their edge so that you do not touch the connector pins or conductor paths. This way, the discharge energy does not reach and damage the sensitive components.
  - Discharge your body electrostatically before you take a measurement at a module. Do so by touching grounded metallic parts. Always use grounded measuring instruments.

Abbreviations

C

ACPI	Advanced Configuration and Power Interface	
BIOS	Basic Input Output System	
CE	Communauté Européenne	
CPU	Central Processing Unit	CPU
CSA	Canadian Standards Association	Canadian organization for tests and certifications according to national or binational standards
CTS	Clear To Send	Clear to send
DC	Direct Current	DC current
DCD	Data Carrier Detect	Data carrier signal detection
DQS	Deutsche Gesellschaft zur Zertifizierung von Qualitätsmanagement mBH	
DSR	Data Set Ready	Ready for operation
DTR	Data Terminal Ready	Data terminal is ready
ESD	Components sensitive to electrostatic charge	
EN	European standard	
ESD	Electrostatic Sensitive Device	Electrostatic Sensitive Devices
	Electrostatic discharge	Electrostatic discharge
GND	Ground	Chassis ground
IDE	Integrated Device Electronics	
IEC	International Electronical Commission	
LAN	Local Area Network	Computer network that is limited to a local area.
LED	Light Emitting Diode	Light emitting diode
LPS	Limited Power Source	
MAC	Media access control	Media access control
MLFB	Machine-readable product designation	
PC	Personal computer	
PCIe	Peripheral Component Interconnect express	High-speed serial, differential full-duplex PtP interface with high data rate.
PG	Programming device	
RI	Ring Input	Incoming call
RTS	Request to send	Request to send
RxD	Receive Data	Data transfer signal
SELV	Safety Extra Low Voltage	Safety extra low voltage

UEFI	Unified Extensible Firmware Interface	
UL	Underwriters Laboratories Inc.	US organization for testing and certification according to national or binational standards.
USB	Universal Serial Bus	

Index

R

S

T

W