

SITRANS SCM IQ

Digitalization SITRANS CC220 and SITRANS MS200

Compact Operating Instructions

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7MP2200-1CB05-2AA1 (SITRANS CC220)
7MP2200-2CB05-2AA1 (SITRANS CC220 - IOT2050)
7MP2210-2AB21-2AB1 (SITRANS MS200)

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.

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Introduction

1.1 Purpose of this documentation

These instructions are a brief summary of important features, functions and safety information, and contain all information required for safe use of 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 who install and commission the device.

To realize optimum performance from the device, read the complete operating instructions.

1.2 Document history

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

Edition	Remark
10/2023	First edition

1.3 FW revision history

SITRANS CC220

Firmware revision	Date	Changes
1.01.00	12/2022	New hardware, firmware update with USB stick
1.00.01	11/2021	Stability improvement
1.00.00	08/2021	Initial release

SITRANS MS200

Firmware revision	Date	Changes
1.0.0	08/2021	Initial release

1.4 Designated use

Use the device in accordance with the information on the nameplate and in the Technical specifications (Page 63).

1.5 Checking the consignment

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

! WARNING Using a damaged or incomplete device Risk of explosion in hazardous areas. • Do not use damaged or incomplete devices.

1.6 EXAMPLE - Nameplate layout

Layout of the nameplate

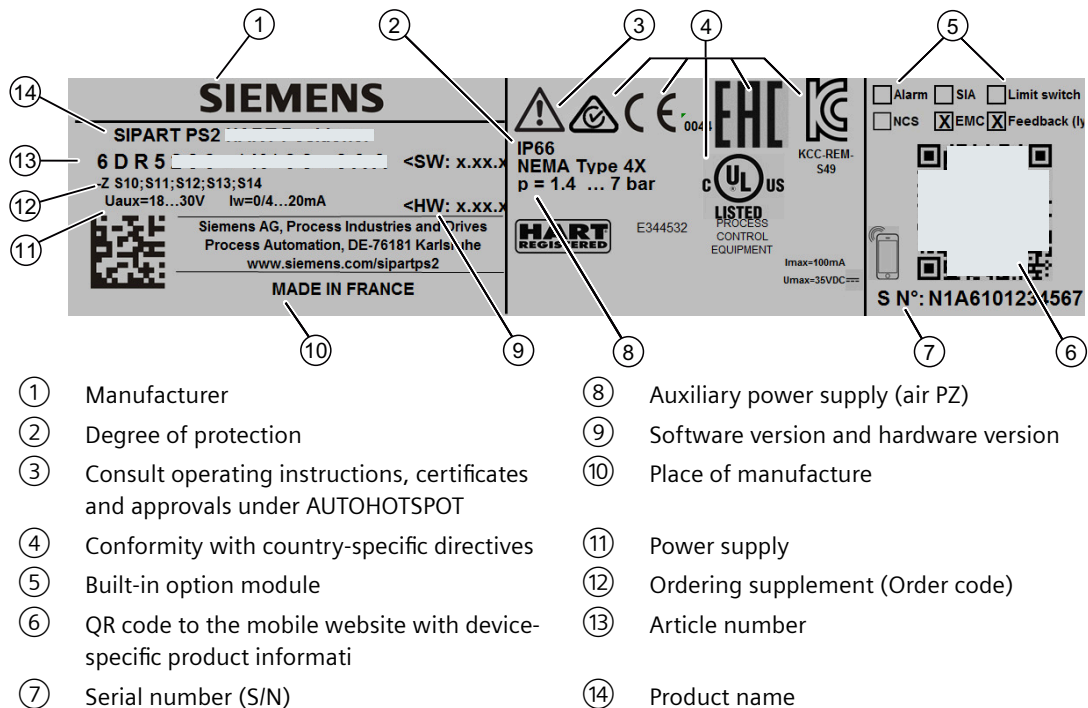


Figure 1-1 Nameplate layout, example

Layout of additional nameplate

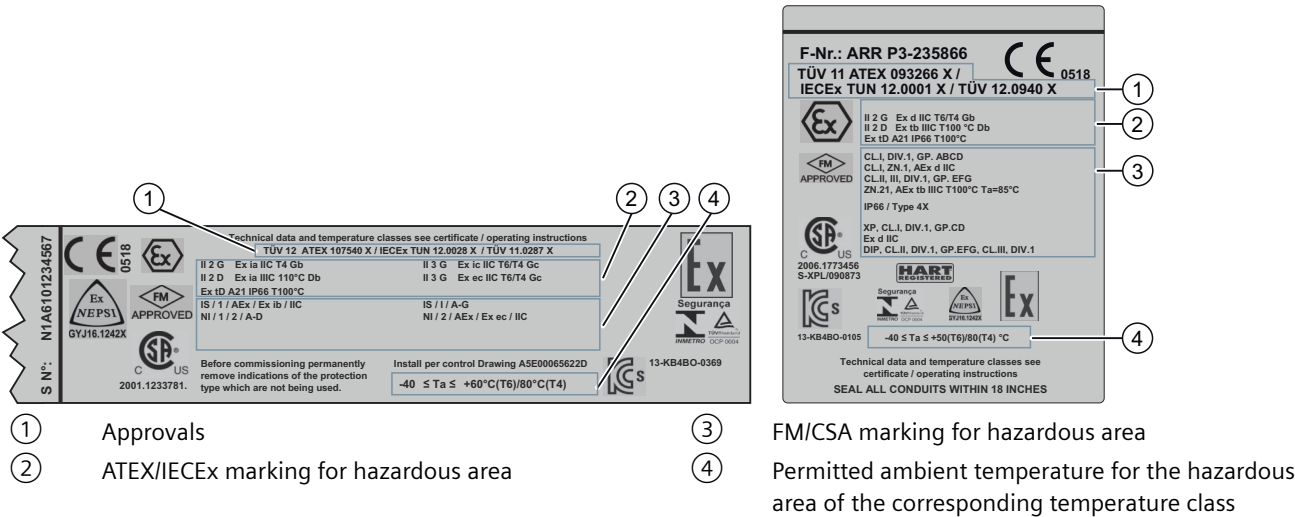


Figure 1-2 Ex nameplate layout, example

1.7 Industrial use note

NOTICE
Use in a domestic environment
This Class A Group 1 equipment is intended for use in industrial areas.
In a domestic environment this device may cause radio interference.

1.8 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 constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit <https://www.siemens.com/industrialsecurity>.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the 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/cert>.

NOTICE**Unauthorized product information or software**

Use only authorized Siemens websites when accessing any product information or software, including firmware updates, device integration files (EDD, for example), as well as other product documentation. Using unauthorized product information or software could result in a security incident, such as breach of confidentiality, or loss of integrity and availability of the system.

For more information, see Product documentation and support (Page 67).

1.9 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 specifications (Page 63).

1.10 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

2.1 Preconditions for 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.

Symbol	Explanation
	Consult operating instructions
	Electrostatic sensitive device
	Dispose of in an environmentally safe manner, and according to local regulations.

2.1.1 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 Part I) (Canada)

Further provisions for hazardous area applications are for example:

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

2.1.2 Conformity with European directives

The product described in this document is in conformity with the relevant harmonization legislation, and its amendments, of the European Union.

Electromagnetic compatibility directive EMC 2014/30/EU	Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to electromagnetic compatibility
Low voltage directive LVD 2014/35/EU	Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits
Explosive atmospheres directive ATEX 2014/34/EU	Directive of the European Parliament and the Council on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres
Radio equipment directive RED 2014/53/EU	Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC
Restriction of hazardous substances directive RoHS 2011/65/EU	Directive of the European Parliament and the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment

The applicable directives can be found in the EU Declaration of Conformity of the specific device.

Conformity with UK regulations

The product described in this document is in conformity with the relevant harmonization legislation, and its amendments, of the United Kingdom. The applicable regulations can be found in the UKCA declaration of conformity of the specific device.

See also

Certificates (<http://www.siemens.com/processinstrumentation/certificates>)

2.1.3 Improper device modifications

⚠ 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. Do not operate the device after unauthorized modifications.

2.2 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.

2.3 Requirements according to 15.19. (FCC) / RSS-GEN

NOTICE:

This device complies with Part 15 of the FCC Rules and contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS standard(s).

Operation is subject to the following two conditions:

- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage, et
2. l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

NOTICE:

Changes or modifications made to this equipment not expressly approved by (manufacturer name) may void the FCC authorization to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



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.

The same risk continues to apply when error messages are switched off or disabled.

2.4 Use in hazardous areas

Qualified personnel for hazardous area applications

Persons who install, connect, commission, operate, and service the device in a hazardous area must have the following specific qualifications:

- They are authorized, trained or instructed in operating and maintaining devices and systems according to the safety regulations for electrical circuits, high pressures, aggressive, and hazardous media.
- They are authorized, trained, or instructed in carrying out work on electrical circuits for hazardous systems.
- They are trained or instructed in maintenance and use of appropriate safety equipment according to the pertinent safety regulations.

WARNING

Use in hazardous area

Risk of explosion.

- Only use equipment that is approved for use in the intended hazardous area and labeled accordingly.
- Do not use devices that have been operated outside the conditions specified for hazardous areas. If you have used the device outside the conditions for hazardous areas, make all Ex markings unrecognizable on the nameplate.

See also

Technical specifications (Page 63)

WARNING

Loss of safety of device with type of protection "Intrinsic safety Ex i"

If the device or its components have already been operated in non-intrinsically safe circuits or the electrical specifications have not been observed, the safety of the device is no longer ensured for use in hazardous areas. There is a risk of explosion.

- Connect the device with type of protection "Intrinsic safety" solely to an intrinsically safe circuit.
- Observe the specifications for the electrical data on the certificate and/or in Technical specifications (Page 63).

2.5 Basic safety notes SITRANS CC220

2.5.1 Basic safety notes

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.

Note 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 (article number: 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.

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

ESD Guideline

Electrostatic sensitive devices are 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.

2.5.2 Data protection

Siemens observes the data protection guidelines, especially the requirements regarding data minimization (privacy by design). This means the following for this product: The product does not process / save any personal information, but only technical functional data (e.g. time stamps). If the user links this data to other data (e.g. shift plans) or if the user saves personal information on the same medium (e.g. hard disk) and therefore creates a personal reference in the process, the user has to ensure meeting the guidelines regarding data protection.

2.5.3 Notes on use

NOTICE**Possible functional restrictions in case of non-validated plant operation**

The device is tested and certified based on the technical standards. In rare cases, functional restrictions can occur during plant operation.

To avoid functional restrictions validate the correct functioning of the plant.

Note**Use in an industrial environment without additional protective measures**

This device is designed for use in a normal industrial environment.

Security notification

- Follow the general security rules for networks.
- Install hardware firewall before connecting to the internet. Install software firewall on the device and open necessary ports only.
- To protect sensitive data deploy DLP (data leakage protection) over your system.
- Install the device in cabinets, separate rooms or controlled areas. Only authorized personnel might access the device using locks or similar measures.
- Always integrate security updates from latest example image or official upstream.

- The device can be identified by collecting MAC/UID information from the system.
- Note that the debug interface X14 on the motherboard is used for development purposes.
- The micro USB port is only allowed to be used by Siemens personal.

2.6 Basic safety notes SITRANS MS200

2.6.1 Lithium batteries

Lithium batteries are primary power sources with high energy content designed to provide the highest possible degree of safety.



WARNING

Potential hazard

Lithium batteries may present a potential hazard if they are abused electrically or mechanically. Observe the following precautions when handling and using lithium batteries:

- Do not short-circuit, recharge or connect with false polarity.
- Do not expose to temperatures beyond the specified temperature range.
- Do not incinerate.
- Do not crush, puncture or open cells or disassemble.
- Do not weld or solder to the battery's body.
- Do not expose contents to water.

2.6.2 Halogen and silicone

Note

SITRANS MS200 may contain traces of halogen and silicone.

2.6.3 ESD Guideline

Electrostatic sensitive devices are labeled with an appropriate symbol.



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.

2.6.4 Battery pack specification**NOTICE****Unsuitable battery pack**

SITRANS MS200 is delivered with an LTC (Lithium Thionyl Chloride) battery pack offered by Siemens.

- Use SITRANS MS200 with the delivered battery pack only.

See also

Ordering of spare parts (Page 58)

Installing/mounting

3.1 Installation instructions SITRANS CC220

3.1.1 Mounting SITRANS CC220

Introduction

- Observe the safety notes in chapter Notes on use (Page 19).
- The device is approved for indoor operation only.
- Install the device in cabinets, separate rooms or controlled areas. Only authorized personnel may access the device using locks or similar measures.
- Observe the relevant DIN/VDE requirements or the applicable country-specific regulations.
- Install the bluetooth antenna outside the cabinet.
- To install the mounting clamps and brackets, Siemens recommends you use 0.6 Nm tightening torque.

Before mounting the device

You have all needed anchors and screws available.

Material	Bore diameter	Fixing element
Concrete	Select according to the specification of the mounting elements used	• Anchor, Ø 6 mm, 40 mm long • Screw, Ø 4.5 mm, 40 mm long
Plasterboard, (at least 13 mm thick)		Toggle plug, Ø 12 mm, 50 mm long
Metal, (at least 2 mm thick)		• Screw M4 × 15 • M4 nut

Procedure

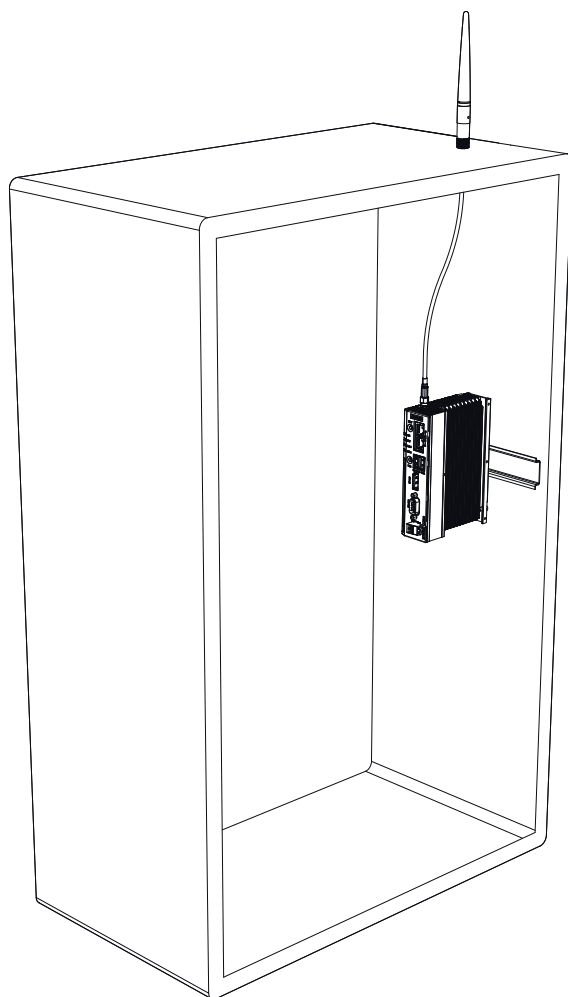
1. Mount the device on DIN rails or wall.
Mounting positions and mounting types (Page 25)
Mounting on DIN rails (Page 28)
Vertical wall mounting (Page 29)
2. Only mount **by Siemens delivered bluetooth antenna**.
3. Mount the bluetooth antenna outside the cabinet.

3.1 Installation instructions SITRANS CC220

4. Mount the bluetooth antenna extension.
See technical details of the bluetooth antenna extension in chapter Technical specifications SITRANS CC220 (Page 63).
5. Bring the bluetooth antenna in a vertical position.

Mounting example in a cabinet

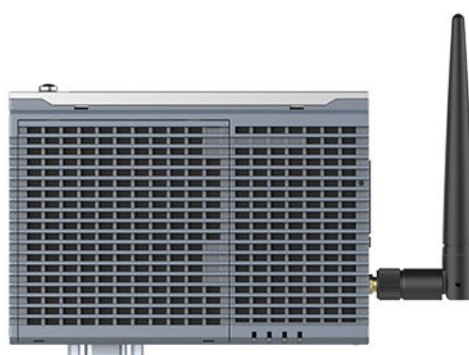
See technical details of the bluetooth antenna extension in chapter Technical specifications SITRANS CC220 (Page 63).



3.1.2 Mounting positions and mounting types

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

Vertical mounting position, recommended **Horizontal mounting position**

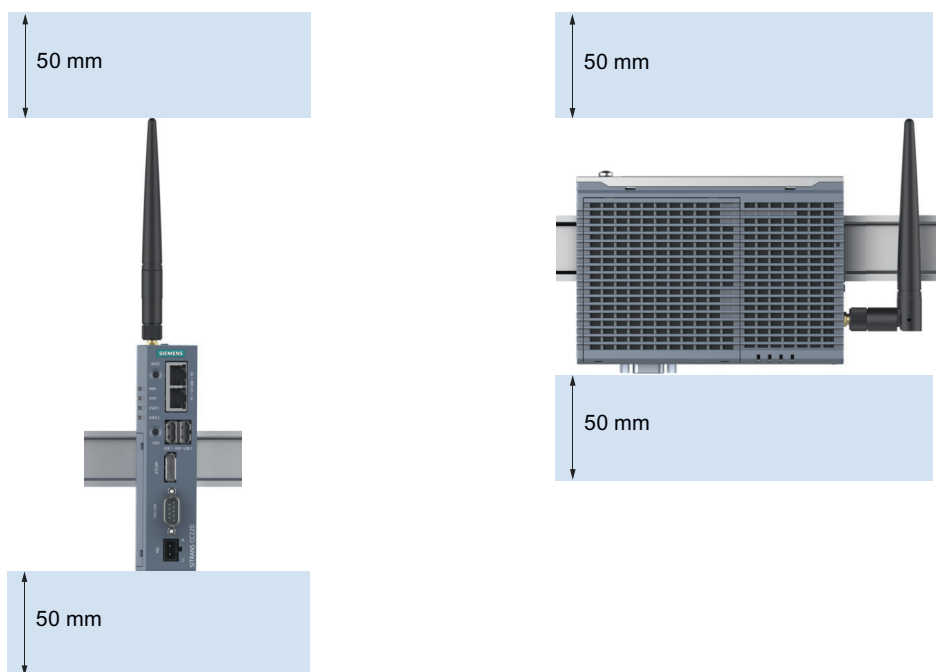


Consider the permitted temperature range for operation that depends on the mounting position in accordance with the Technical specifications SITRANS CC220 (Page 63) chapter.

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



3.1.3 Mounting on DIN rails

3.1.3.1 Secure the mounting clips

Requirement

- The DIN rail is installed at the installation site (35 mm standard profile).
- Mounting bracket and mounting clamps
- Two screws
- T8 screwdriver

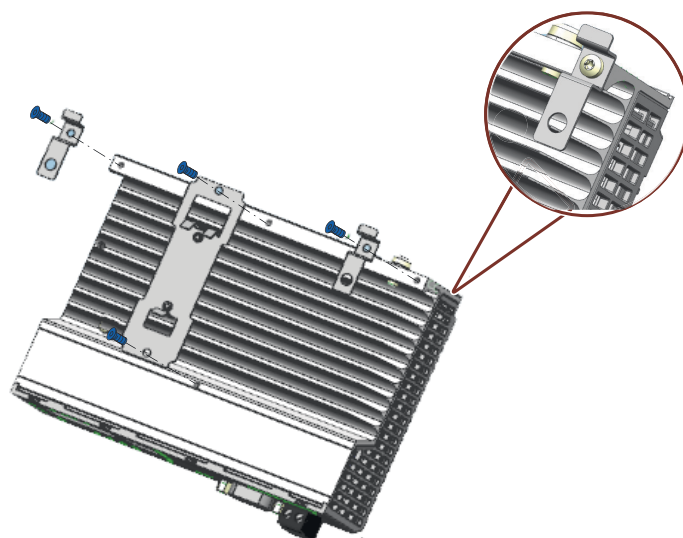
Secure the mounting clips for vertical mounting

1. Lay the rail clamp on the rear of the device.
2. Fasten the rail clamp with the supplied screws.



Secure the mounting clips for horizontal mounting

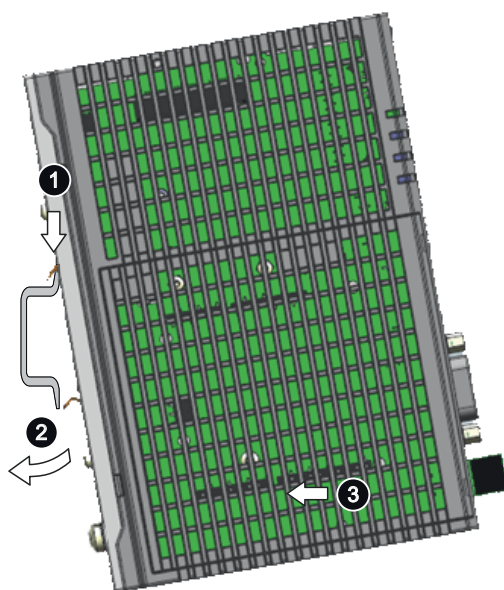
1. Lay the rail clamp on the rear of the device.
2. Fasten the rail clamp with the two supplied screws.
3. Lay the brackets on the rear of the device. Align the bracket edge with the device edge.
4. Fasten the brackets with the supplied screws.



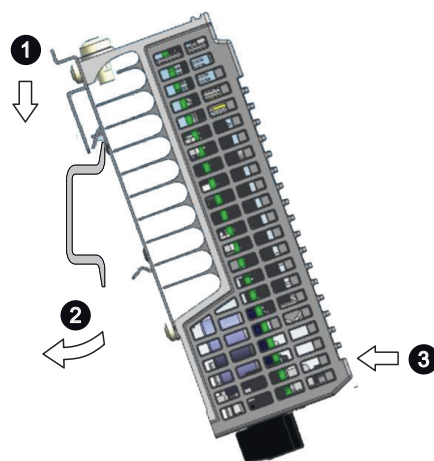
3.1.3.2 Mounting on DIN rails

Mounting

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



Vertical



Horizontal

Removing

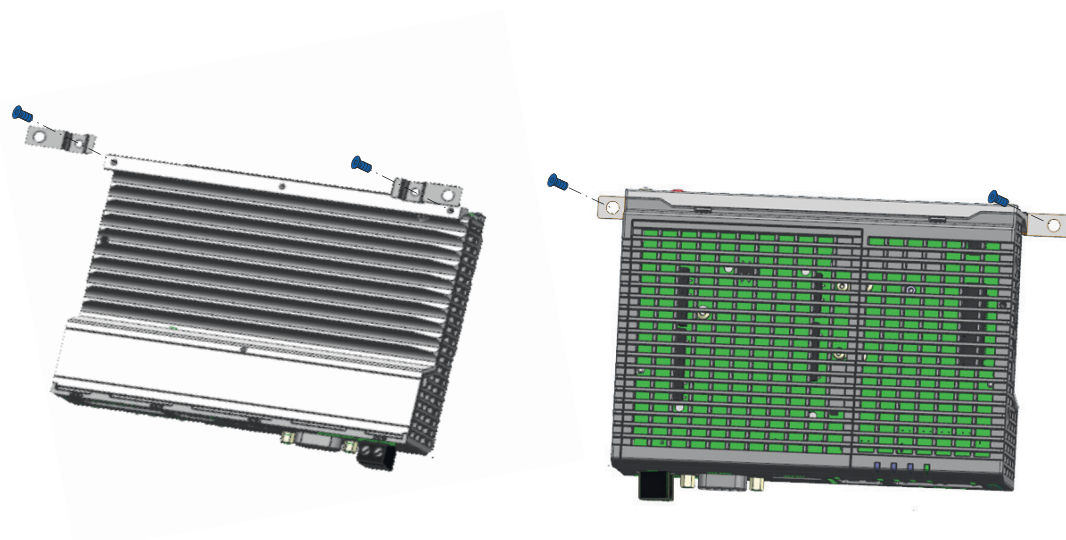
1. Push down the device until it is released by the rail clamp.
2. Swing the device out of the standard profile rail.
3. Lift the device up and off.

3.1.4.2 Horizontal wall mounting

Requirement

- 2 mounting brackets
- 2 screws
- T8 screwdriver

Procedure for mounting



1. Lay the mounting brackets on the rear of the device.
2. Fasten the brackets with supplied screws.
3. Mark the bore holes, drill the required holes in the wall and fasten the device to the wall using two screws.

3.1.5 Replacing the backup battery

Prior to replacement

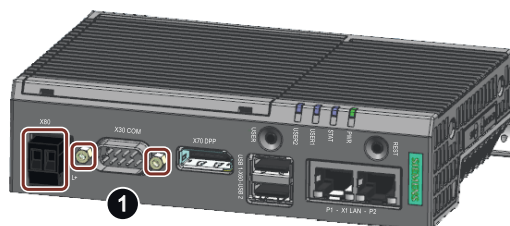
 WARNING
Risk of explosion and release of harmful substances Improper handling of lithium batteries can result in an explosion of the batteries. Explosion of the batteries and the released pollutants can cause severe physical injury. Worn batteries jeopardize the function of the device. Note the following when handling lithium batteries: • Replace the battery every 5 years. • Replace the lithium battery only with the type recommended by the manufacturer. • 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".

Before replacing the backup battery

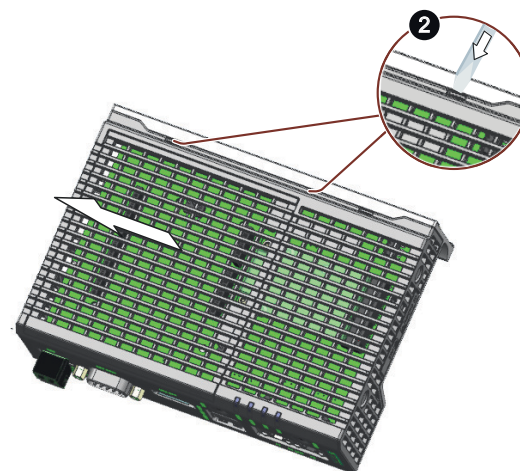
- The device is disconnected from the power supply.
- You have removed the bluetooth antenna.
- You have the replacement battery (Page 34) available.

Procedure

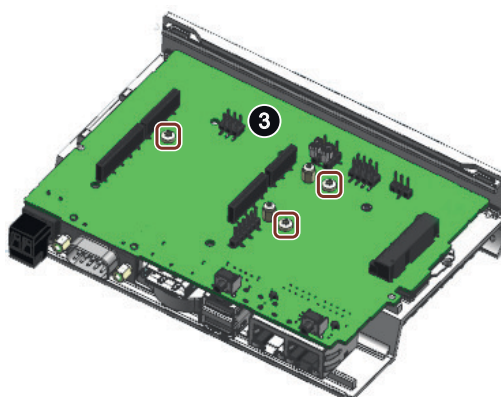
- 1 Remove the power plug and marked screws.



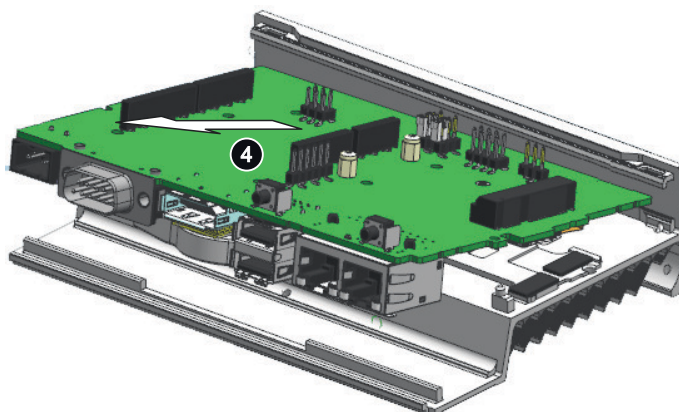
- 2 Loosen the top housing. Carefully press with the blade of a flat-blade screwdriver in the marked recesses and carefully pull on the appropriate place on the top housing of the enclosure.
Remove the top housing of the enclosure.



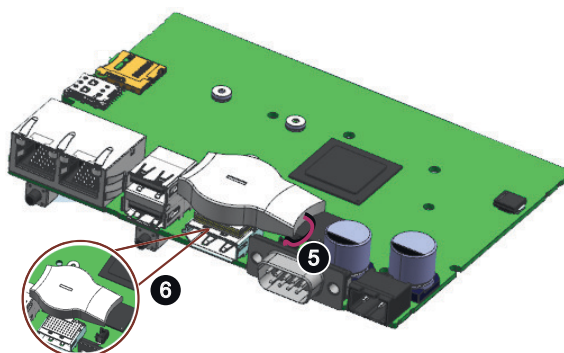
- 3 Remove the marked screws on the motherboard.



- 4 Remove the motherboard.



- 5** Pull the plug of the battery cable from the motherboard.
- 6** Remove the battery.
Paste the double side tap on the battery and then paste it on the display port socket.
Plug in the battery cable on the motherboard.

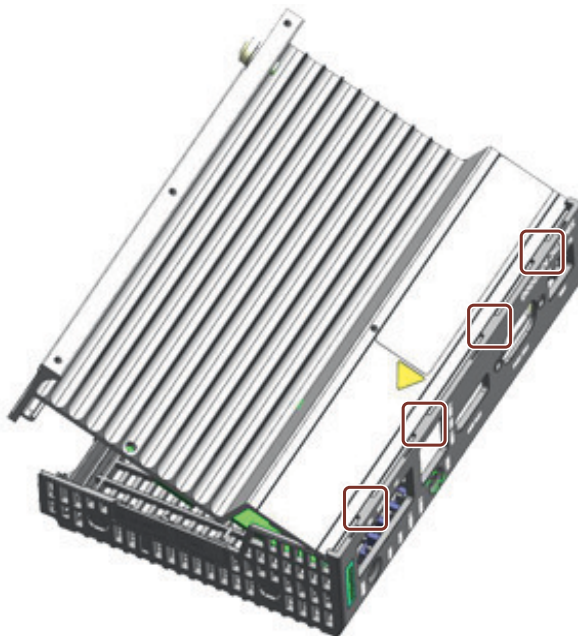


Then install the motherboard again and install the top housing (Page 34).

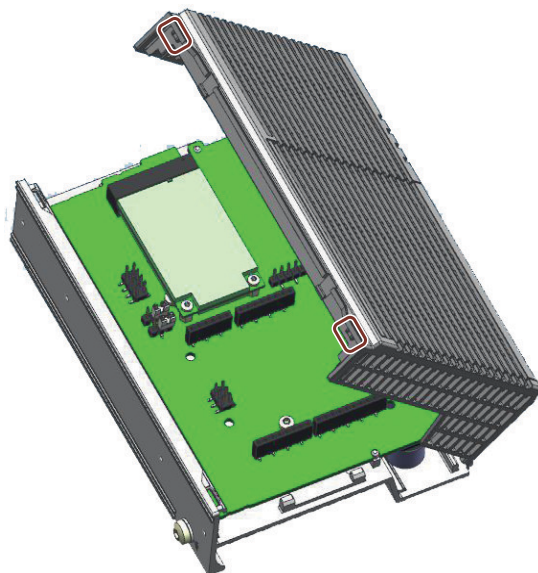
3.1.6 Installing the top housing

Installing the top housing

1. Align the bottom of the top housing to the heatsink edge. Make sure the marked hooks hooked the heatsink. Carefully insert the COM interface into the top housing.



2. Insert the two plastic clips of top housing into the clip holes on heatsink.



3. Press the top housing to fix the clips.
Then install power plug and screws for COM interface.

3.2 Installation instructions SITRANS MS200

3.2.1 Basic safety notes SITRANS MS200

WARNING

Unsuitable connecting parts

Risk of injury or poisoning.

In case of improper mounting, hot, toxic, and corrosive process media could be released at the connections.

- Ensure that connecting parts are suitable for connection and process media.

Note

Material compatibility

Siemens can provide you with support concerning selection of parts wetted by process media. However, you are responsible for the selection of parts. Siemens accepts no liability for faults or failures resulting from incompatible materials.

CAUTION

Hot surfaces resulting from hot process media

Risk of burns resulting from surface temperatures above 65 °C (149 °F).

- Take appropriate protective measures, for example contact protection.
- Make sure that protective measures do not cause the maximum permissible ambient temperature to be exceeded. Refer to the information in Maintenance and repair work for SITRANS MS200 (Page 51).

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.

3.2.1.1 Installation location requirements

NOTICE
Aggressive atmospheres Damage to device through penetration of aggressive vapors. • Ensure that the device is suitable for the application.

NOTICE
Direct sunlight Damage to device. The device can overheat or materials become brittle due to UV exposure. • Protect the device from direct sunlight. • Make sure that the maximum permissible ambient temperature is not exceeded. Refer to the information in Technical specifications SITRANS MS200 (Page 65).

3.2.2 General description

NOTICE
Wrong assembly Wrong assembly can damage the asset or the SITRANS MS200. • Carefully read the safety instructions before mounting.

SITRANS MS200 has an M8 female thread for the installation, see Dimension drawings SITRANS MS200.

For thread M8:

- minimum screw-in depth 5,5 mm
- maximum screw-in depth 13 mm
- screw-in torque min. 18 Nm and max. 20 Nm
- screw-in material stainless steel

Use an anaerobic adhesive thread locker.

SITRANS MS200 can be mounted in various ways utilizing its threaded M8 hole. As examples for mounting you can:

- directly mount SITRANS MS200 to an existing stud bolt
- use a short threaded bolt to mount SITRANS MS200 to a threaded hole
- use a clamp shell to mount SITRANS MS200 to a pipe

In all cases a strong and form-fitting mount for good vibrations transmission is required.

Note

For temporary mountings (e.g. testing purposes) you can also use a strong magnet or an industry graded glue to mount SITRANS MS200.

Note

Mount SITRANS MS200 so that the lid can be easily removed in the mounted state for a later battery pack replacement (Page 52).

For more information, watch this video: SITRANS SCM IQ: How to mount the Multisensor (<https://www.youtube.com/watch?v=kHCWsAglqE>)

Note**Influences on data transmission**

The positioning of the sensors and the gateway as well as the environmental conditions influence the data transmission between SITRANS MS200 and SITRANS CC220. In case of an unfavorable constellation, transmission losses may occur.

3.2.3

Installing SITRANS MS200 on a pump or compressor

Mount SITRANS MS200 near the liquid inlet directly on the pump.

Note

SITRANS MS200 must not get in direct contact with chemicals.

NOTICE
Maximum specified ambient temperature
The maximum specified ambient temperature must not be exceeded by the pump or compressor. See Technical specifications SITRANS MS200 (Page 65).

3.2.4 Installing SITRANS MS200 on a gear

Mount SITRANS MS200 directly on the gear. The most suitable place is at the middle of the gear in the horizontal position.

NOTICE
Maximum specified ambient temperature
The maximum specified ambient temperature must not be exceeded by the gear. See Technical specifications SITRANS MS200 (Page 65).

Note
SITRANS MS200 must not get in contact with gear oil or gear oil vapors.

3.2.5 Installing SITRANS MS200 on rotating or vibrating equipment

Any rotating or vibrating equipment can be supervised with SITRANS MS200. Mount SITRANS MS200 as close as possible to vibrating components.

NOTICE
Maximum specified ambient temperature
The maximum specified ambient temperature must not be exceeded by the rotating or vibrating equipment. See Technical specifications SITRANS MS200 (Page 65).

3.3 Disassembly SITRANS MS200

WARNING
Incorrect disassembly
In order to disassemble correctly, observe the following:
• Before starting work, make sure that you have switched off all physical variables such as pressure, temperature, electricity etc. or that they have a harmless value. • Make sure that no environmentally hazardous media are released. • Secure the remaining connections so that no damage can result if the process is started unintentionally.

Connecting

4.1 Basic safety notes



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 an enough distance from electric cables, distributors, systems, etc.



CAUTION

Use copper cables at connectors with terminal connections

Use copper (Cu) cables for all supply lines that are connected to the device with terminals, e.g. 24 V DC power supply cables to the 24 V DC power supply connectors.

Utiliser des câbles en cuivre sur les connexions à bornes

Utilisez des câbles en cuivre (Cu) pour tous les câbles d'alimentation qui sont raccordés à l'appareil par des bornes, par exemple les câbles d'alimentation 24 V CC sur le connecteur d'alimentation 24 V CC.

Note

The device should only be connected to a 24 V DC power supply which meets the requirements of safe extra low voltage (SELV) according to IEC/EN/DIN EN/UL 61010-1.

Note

The power supply must be adapted to the input data of the device. See chapter "Technical specifications SITRANS CC220 (Page 63)".

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

Note

Connect the device according to the requirements of IEC 60332-1-2 and IEC 60332-1-3. Alternative according to the requirements of IEC/TS 60695-11-21.

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 specifications SITRANS CC220 (Page 63).
 - Use ethernet cables cat 5e/cat 6 to guarantee the full specification according to IEC11801 rated for 70 °C.
-

4.2 Connecting SITRANS CC220

4.2.1 Connecting the functional grounding

A connected functional grounding discharges electrical charges from the metal enclosure.

The functional grounding also improves the discharge of interference generated by external power cables, signal cables or cables for I/O modules to ground.

The connection for the functional grounding is labeled with the following symbol:



**WARNING****Electric shock and risk of fire**

High voltage may be present in a defective device, which can cause fire or an electric shock if touched. This can result in death and serious injury.

- Connect the device to the functional grounding before you put it into operation.
- The functional grounding terminal on the device must be connected to the functional grounding of the control cabinet or system in which the device is installed.
- Never operate the device without functional grounding.
- If a device is defective, remove it from operation without delay and label it accordingly.

Before connecting the functional grounding

- T20 screwdriver
- Cable lug for M4
- Functional grounding with minimum cross-section of 2.5 mm² copper cable

Procedure

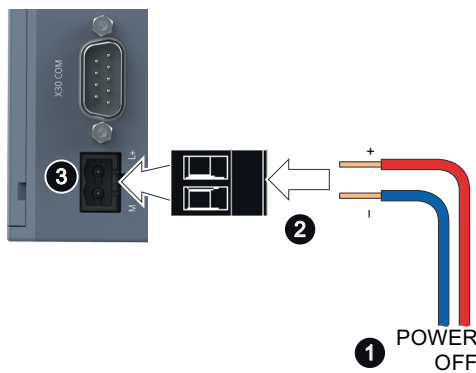
1. Clamp the cable lug on the functional grounding.
2. Firmly attach the cable lug to the functional grounding connection on the device using the M4 thread with the torque of 1 Nm (see part labeled).
3. Connect the functional grounding to the protective conductor connection of the cabinet or the plant in which the device is installed.

4.2.2 Connecting SITRANS CC220

Before connecting SITRANS CC220

- You have connected functional grounding (Page 40).
- You are using the supplied terminal.
- A two-core cable meet the following requirements:
 - a copper (Cu) cable with cross-section of 0.75 to 2.5 mm²
 - rated temperature 70 °C
- A slotted screwdriver with a 3 mm blade.

Procedure



1. Switch off the power supply.
2. Connect the lines to the connecting terminal with a torque of 0.56 Nm (5lb-in).
3. Connect the connecting terminal to the connection for the power supply.
 - ⇒ STAT LED is blinking green.
 - ⇒ PWR LED is lighting green.
4. Integrate SITRANS CC220 into your network using Ethernet port X1 LAN - P1.

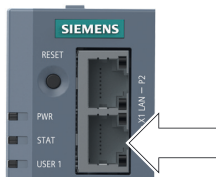


Figure 4-1 Ethernet connection X1 LAN - P1

5. Make sure SITRANS CC220 has an internet connection.
 - ⇒ After onboarding:
 - If there is an active internet connection USER 2 LED is lighting green.
 - If there is no internet connection USER 2 LED is blinking fast orange.

Commissioning

5.1 Basic safety notes



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.

The same risk continues to apply when error messages are switched off or disabled.



WARNING

Hot surfaces

Risk of burns resulting from hot surfaces.

- Take corresponding protective measures, for example by wearing protective gloves.



WARNING

Improper commissioning in hazardous areas

Device failure or risk of explosion in hazardous areas.

- Do not commission the device until it has been mounted completely and connected in accordance with the information in Technical specifications (Page 63).
- Before commissioning take the effect on other devices in the system into account.

Service and maintenance

6.1 Basic safety notes

Note

The device is maintenance-free.

6.1.1 Maintenance

The device is maintenance-free. However, a periodic inspection according to pertinent directives and regulations must be carried out.

An inspection can include:

- Ambient conditions
- Seal integrity of the process connections, cable entries, and cover
- Reliability of power supply, lightning protection, and grounds

WARNING
--

Dust layers above 5 mm

Risk of explosion in hazardous areas.

Device may overheat due to dust build up.

- | |
|---|
| <ul style="list-style-type: none">• Remove dust layers in excess of 5 mm. |
|---|

WARNING
--

Use of a computer in a hazardous area
--

If the interface to the computer is used in the hazardous area, there is a risk of explosion.

- | |
|---|
| <ul style="list-style-type: none">• Ensure that the atmosphere is explosion-free (hot work permit). |
|---|

NOTICE

Penetration of moisture into the device
--

Damage to device.

- | |
|---|
| <ul style="list-style-type: none">• Make sure when carrying out cleaning and maintenance work that no moisture penetrates the inside of the device. |
|---|

6.2 Maintenance and repair work for SITRANS CC220

6.2.1 Basic safety notes

Note

The device is maintenance-free. However to retain a high level of system availability, we recommend the preventative replacement of the back-up battery at replacement intervals of 5 years.



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.

6.2.1.1 Repair information

Carrying out repairs

Only qualified personnel are permitted to repair the device. Contact your local representative. See section "Technical support (Page 68)".



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 ESD Guideline.

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 using third-party devices or components.

6.2.2 Sending the log files to technical support

Introduction

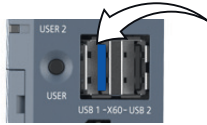
For diagnostics you can export the SITRANS CC220 log files to a USB stick.

Procedure

1. Plug in an empty and fat32 formatted USB stick with 16 GB free disk space into your PC. For USB stick specifications see chapter Technical specifications SITRANS CC220 (Page 63).
2. Create a file named "ConBox_Commands.json" directly on the USB stick.
3. Open the "ConBox_Commands.json" file in a text editor.
4. Enter the following USB command:


```
{
  "Commands": [
    {
      "Cmd": "CopyArchivedLogsToUsbStick",
      "DeleteAfterCopy": "false"
    }
  ]
}
```
5. Save the changes to the "ConBox_Commands.json".

6. Plug your USB stick into the USB port of SITRANS CC220.



⇒ If the log file is big, the USER 2 LED flashes slowly green while the log files are being copied to the USB stick.

If the log file is very small, the copy process is short and the LED flashing will not be seen. The log file is small, if you have recorded half a day.

7. If no LED is blinking anymore, remove the USB stick from SITRANS CC220.
8. Send the log files to the Technical support (Page 68).
9. Before you establish a connection of SITRANS CC220 to SITRANS SCM IQ again (Onboarding), remove the "ConBox_Commands.json" file from the USB stick.

6.2.3 Replacing the backup battery

Prior to replacement

 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. • 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:

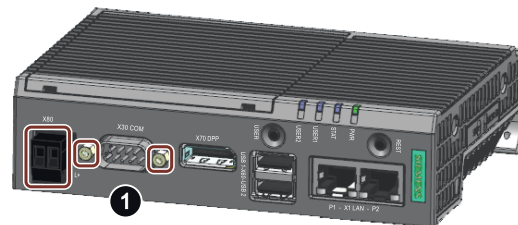
- Dispose of used batteries and rechargeable batteries separately as hazardous waste in accordance with local regulations.
- You can return used batteries and rechargeable batteries to public collection points and wherever batteries or rechargeable batteries of the type in question are sold.
- Label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

Before replacing the backup battery

- The device is disconnected from the power supply.
- You have removed the bluetooth antenna.
- You have the replacement battery available.

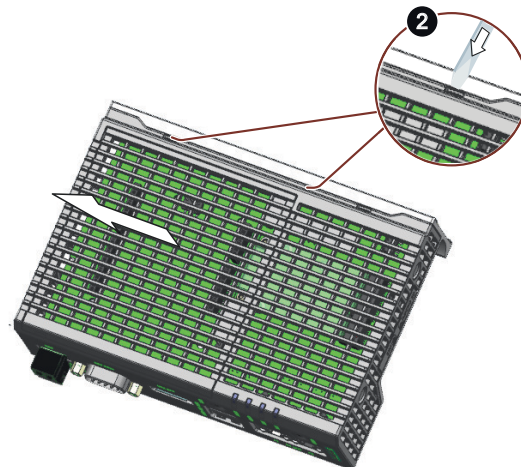
Procedure

- 1** Remove the power plug and marked screws.

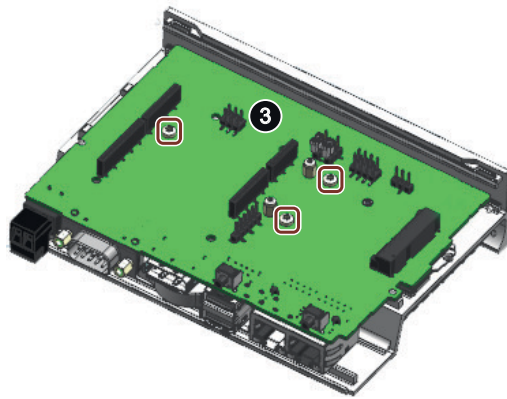


- 2** Loosen the top housing. Carefully press with the blade of a flat-blade screwdriver in the marked recesses and carefully pull on the appropriate place on the top housing of the enclosure.

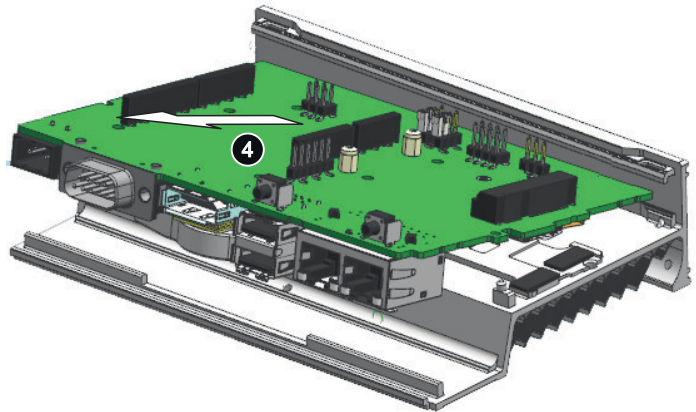
Remove the top housing of the enclosure.



- 3** Remove the marked screws on the motherboard.

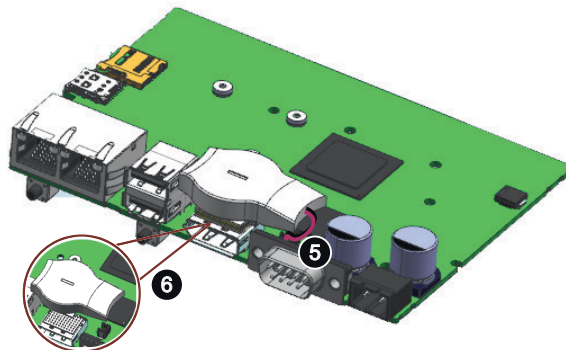


- 4** Remove the motherboard.



- 5** Pull the plug of the battery cable from the motherboard.

- 6** Remove the battery.
Paste the double side tap on the battery and then paste it on the display port socket.
Plug in the battery cable on the motherboard.



Then install the motherboard again and install the top housing.

6.2.4 Replacing SITRANS CC220

Replacing a defective SITRANS CC220

1. Stop anomaly detection models of the SITRANS MS200 assigned to the defective SITRANS CC220.
2. Replace defective SITRANS CC220 with new SITRANS CC220.
3. Disconnect defective SITRANS CC220 in SITRANS SCM IQ.

4. Connect new SITRANS CC220.
5. Reconnect old SITRANS MS200 with SITRANS SCM IQ to the same MindSphere asset.
6. Reset SITRANS MS200.
AUTOHOTSPOT

6.2.5 Updating firmware of SITRANS CC220

Introduction

If a firmware update is required, you receive a notification in SITRANS SCM IQ.

Procedure

1. Download the firmware update file for SITRANS CC220.
Download firmware update file for SITRANS CC220 (<https://support.industry.siemens.com/cs/ww/en/ps/28832/dl>)
2. Plug in an empty and fat32 formatted USB stick with 16 GB free disk space into your PC.
3. Store the *.SWU file on the USB stick.
4. Insert the USB stick into SITRANS CC220 USB 1-X60 port.
 - ⇒ USER LED 2 is blinking green (takes 5 to 10 minutes).
 - ⇒ Both USER LEDs are blinking orange while the firmware update is ongoing (takes 5 to 10 minutes). We recommend you to remove the USB stick from SITRANS CC220.
 - ⇒ If the firmware update passed the USER LEDs light green for 10 seconds.
 - ⇒ SITRANS CC220 reboots.

If firmware update fails

⇒ USER 1 LED is blinking orange.

⇒ USER 2 LED is blinking red.

To go back to old working state, press RESET button, and SITRANS CC220 will reboot.

6.3 Maintenance and repair work for SITRANS MS200

6.3.1 Basic safety notes

The device is maintenance-free. However, a periodic inspection according to pertinent directives and regulations must be carried out.

An inspection can include, for example, check of:

- Ambient conditions
- Seal integrity of the cover

NOTICE

Penetration of moisture into the device

Damage to device.

- Make sure when carrying out cleaning and maintenance work that no moisture penetrates the inside of the device.

6.3.2 Replacing SITRANS MS200 battery pack



WARNING

Corrosive substances

Risk of injury. If the battery pack is damaged or leaking toxic gases and liquids can be released.

The battery pack contains corrosive substances that result in burns on unprotected skin.

- Wear gloves.
- If contact with the corrosive substances occurs, rinse the affected skin immediately with large amount of water to dilute substance.



CAUTION

Contamination of PCB

Wear gloves to prevent contamination of PCB. Do not touch the PCB.

Note

If SITRANS MS200 must be disassembled for battery replacement, observe the following:

After a battery change SITRANS MS200 must be mounted again with the same angle of rotation. On the metal are two flattenings (wrench size = 44mm), which ensure the correct direction. The label gives the correct position for SITRANS MS200, 0° or 180°. If you mount SITRANS MS200 again ensure that the orientation is identical as before exchange (max. 5° angle difference).

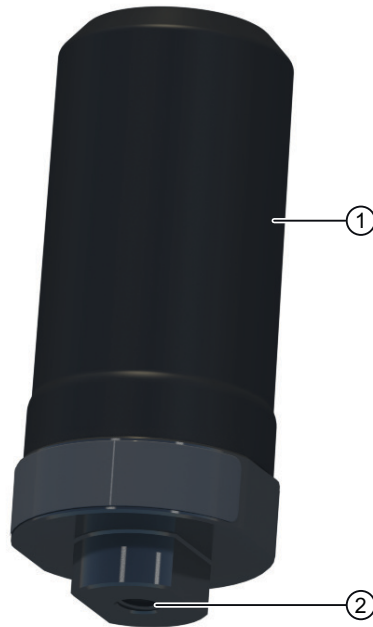
Note

Battery temperature for replacement

The temperature difference between the new battery and the battery to be replaced should not exceed +/-5 °C.

Procedure

1. Unscrew the sensor lid: Hold with an open-ended wrench at ② and turn the lid ① counterclockwise.



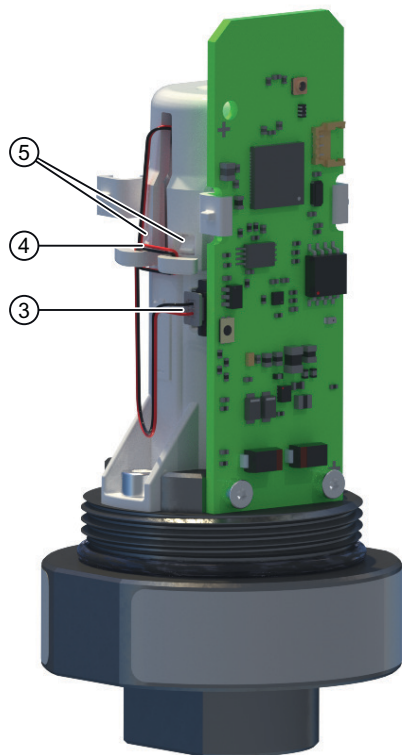
2. Lift up the lid ①.

! 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 ESD Guideline.

3. Disconnect the battery connector ③.

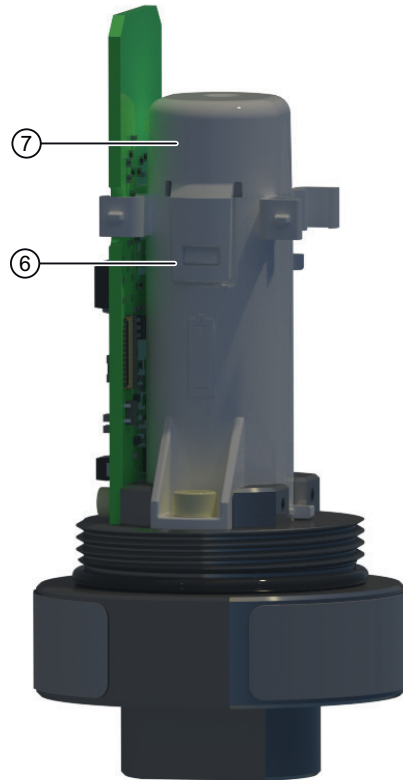


4. Unwrap the wires ④.
5. Disengage the snaps ⑤.

6. Turn SITRANS MS200 180° and use a suitable tool (e.g. a flat-head screw driver) to lift up the snap ⑥ on the front.

Note

Tool must not touch the PCB.



7. Take off the battery holder cap ⑦.
8. Lift and exchange the battery pack with a Siemens specified battery pack (see Ordering of spare parts (Page 58)). Ensure that the positive terminal of the battery pack points upwards.



9. Wrap the cable in its original position using the dedicated snaps of the battery holder.

6.3 Maintenance and repair work for SITRANS MS200

10. Put the battery holder cap ⑦ back on. Ensure that the battery holder cap is correctly snapped in.
 11. Connect the battery connector ③.
⇒ The LED placed on the PCBA lights up for one second.
 12. Place the lid ① on SITRANS MS200 and screw it on to 6-7 Nm per hand.
- SITRANS MS200 is now active again.

6.3.3 Replacing SITRANS MS200

WARNING

Humid environment

- 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.

CAUTION

Hot surfaces

Risk of burns during maintenance work on parts having surface temperatures exceeding 65 °C (149 °F).

- Take corresponding protective measures, for example by wearing protective gloves.
- After carrying out maintenance, remount touch protection measures.

Replacing a defective SITRANS MS200

1. Stop anomaly detection models of the respective SITRANS MS200.
2. Replace defective SITRANS MS200 with new SITRANS MS200.
3. Make sure new SITRANS MS200 is powered up.
4. Disconnect defective SITRANS MS200 in SITRANS SCM IQ.
5. Connect new SITRANS MS200 with SITRANS SCM IQ and assign sensor to existing MindSphere asset.
For detailed description see AUTOHOTSPOT.
6. Train new anomaly detection model based on new SITRANS MS200 data.

Repositioning SITRANS MS200 on the same machine

Note

In this scenario SITRANS CC220 and MindSphere asset remain the same.

1. Stop anomaly detection models of the respective SITRANS MS200.
2. Reposition SITRANS MS200.
3. Make sure SITRANS MS200 is powered up.
4. Delete machine learning models based on old data from asset (if existing) by clicking on "Sensor data modelling" > click on your sensor > "See details".
5. Train new anomaly detection model only based on new data.

Moving SITRANS MS200 to another machine or repositioning on the same machine (different MindSphere asset)

Note

In this scenario SITRANS CC220 remains the same and MindSphere changes.

1. Stop anomaly detection models of the respective SITRANS MS200.
2. Reposition SITRANS MS200.
3. Make sure SITRANS MS200 is powered up.
4. Change assignment to MindSphere asset of SITRANS MS200 in SITRANS SCM IQ by clicking on "Device configuration >  > Configure sensor".
5. Delete anomaly detection models based on old data from asset (if existing) by clicking on "Sensor data modelling" > click on your sensor > "See details".
6. Train new anomaly detection model only based on new data.

Connecting SITRANS MS200 to another SITRANS CC220 (no repositioning)

Note

In this scenario the physical asset and the MindSphere asset remain the same.

1. Make sure that selected SITRANS CC220 is connected in SITRANS SCM IQ.
2. Change assignment of SITRANS MS200 in SITRANS SCM IQ to another SITRANS CC220 by clicking on "Device configuration >  > Configure sensor".
3. Reset SITRANS MS200.
AUTOHOTSPOT

Connecting SITRANS MS200 to another MindSphere asset (no repositioning)

Note

In this scenario the physical asset and the SITRANS CC220 remain the same.

6.4 Ordering of spare parts

1. Stop anomaly detection models of the respective SITRANS MS200.
2. Change assignment to MindSphere asset of SITRANS MS200 in SITRANS SCM IQ by clicking on "Device configuration >  > Configure sensor".
3. Delete machine learning models based on old data from asset (if existing) by clicking on "Sensor data modelling" > click on your sensor > "See details".
4. Train new anomaly detection model only based on new data.

Moving SITRANS MS200 to another machine (different MindSphere asset, different SITRANS CC220)

Note

In this scenario the already used SITRANS MS200 is utilized to monitor a different physical asset.

1. Stop anomaly detection models of the respective SITRANS MS200.
2. Reposition SITRANS MS200.
3. Make sure SITRANS MS200 is powered up.
4. Reset SITRANS MS200.
AUTOHOTSPOT
5. Change assignment to gateway and MindSphere asset of SITRANS MS200 in SITRANS SCM IQ by clicking on "Device configuration >  > Configure sensor".
6. Delete anomaly detection models based on old data from asset (if existing) by clicking on "Sensor data modelling" > click on your sensor > "See details".
7. Train new anomaly detection model only based on new data.

6.4 Ordering of spare parts

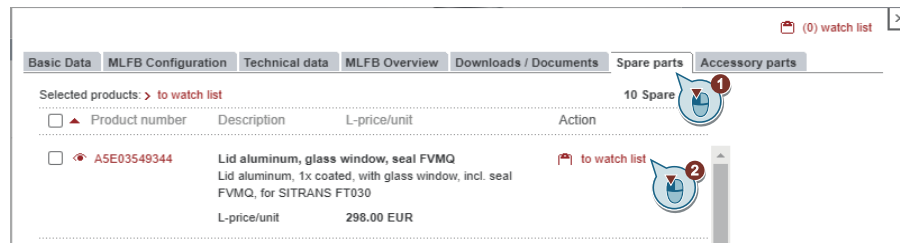
Condition

- You have a Siemens Industry Mall account.

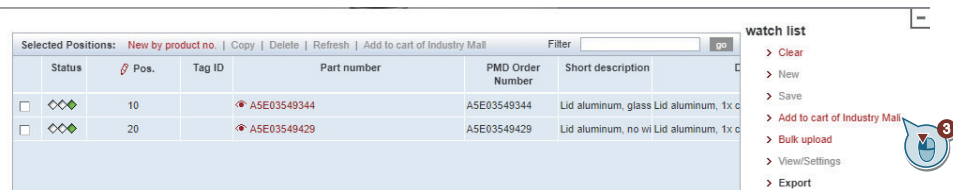
Procedure

1. Open the PIA Life Cycle Portal (<https://www.pia-portal.automation.siemens.com>).
2. Select the desired language.

3. To find spare parts for your device, do one of the following:
 - Enter the complete order number of your device (e.g. 7ME4633-4KA51-8DC3-Z A05+B11+E06+F11) into the "Product number" field and click "Go".
 - Enter the serial number of your device (e.g. N1KXXXXXXX) in the "Serial number" field and click "Go".
 - If you do not know the product or serial number, search for your device under "Product family".
4. Navigate to the "Spare parts" tab.
You see the list of spare parts available for your device.



5. Select a spare part and add it to your watch list.
The watch list opens.
6. Click "Add to cart of Industry Mall".



The Siemens Industry Mall opens and you can order your spare part.

6.5 Cleaning

Cleaning the enclosure

- Clean the outside of the enclosure with the inscriptions using a cloth moistened with water or a mild detergent.
- Do not use any aggressive cleansing agents or solvents, e.g. acetone. Plastic parts could be damaged. The inscriptions could become unreadable.

NOTICE**Transport with fitted battery**

If the battery is still present in the device when transporting, it could become loose as a result of vibrations and cause damage within the device.

- Remove the batteries before returning the device.
- Dispose of the batteries according to regulations or include them separately in the return consignment.

6.6 Return procedure

To return a product to Siemens, see Returns to Siemens (<https://support.industry.siemens.com/cs/ww/en/sc/3098>).

Contact your Siemens representative to clarify if a product is repairable, and how to return it. They can also help with quick repair processing, a repair cost estimate, or a repair report/ cause of failure report.

NOTICE**Decontamination**

The product may have to be decontaminated before it is returned. Your Siemens contact person will let you know for which products this is required.

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.

6.7 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 and UK, 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 about 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.
-

Technical specifications

7.1 Technical specifications SITRANS CC220

Basic specifications	
Distance between 2 SITRANS CC220	Minimum 30 cm
Weight without mounting brackets	400 g
Power supply ¹	DC 12 to 24 V
Brief voltage interruption in accordance with Namur	Up to 5 ms buffer time at 24 V DC and full load ² Max. 10 events per hour; recovery time at least 10 s
Current consumption	Max. 1.7 A
Noise emission	< 40 dB(A) according to DIN 45635-1
Degree of protection	IP20 according to IEC 60529
Degree of pollution	Device is designed for environments with pollution degree 2
Quality assurance	In accordance with ISO 9001
Processor	TI SOC AM6548 HS Quad Core with High Security possibility
RAM	2 GB RAM (DDR4)
eMMC	16 G
Battery-buffered real-time clock	Yes

¹ The device should only be connected to a power supply which meets the requirements of safe extra low voltage (SELV) according to IEC/EN/DIN EN/UL 61010-1.

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

Antenna extension cord (optional)	
Type	WLAN extension cord, SMA male, SMA female
Length	Max. 2 m
Impedance	Coaxial 50 Ohm

Interfaces	
LAN interface	1 GB LAN port
P1 - X1 LAN - P1, RJ45	

USB stick specifications	
Type	USB 3.0 Type A
Supported formatting	FAT32

Climatic ambient conditions

Permitted mounting positions. See section "Mounting positions and mounting types (Page 25)".

Ambient temperature

- Operation
 - DIN rail-mount
 - Vertical: 0 ... 50 °C
 - Horizontal: 0 ... 40 °C
 - Wall mounting
 - Vertical: 0 ... 45 °C
 - Horizontal: 0 ... 40 °C
- Storage/transport -20 ... 70 °C

Gradient

- Operation Max. 10 °C/h
- Storage 20 °C/h, no condensation

Relative humidity, tested in accordance with IEC 60068-2-78, IEC 60068-2-30

- Operation 5 ... 85% at 30 °C, no condensation
- Storage/transport 5 ... 95% at 25/55 °C, no condensation

Atmospheric pressure, Altitude

- Operation 1080 ... 795 hPa, corresponds to an elevation of -1000 ... 2000 m
- Storage/transport 1080 ... 660 hPa, corresponds to an elevation of -1000 ... 3500 m

Mechanical ambient conditions

Vibration resistance, tested in accordance with IEC 60068-2-6

- Operation
 - Vibration load 1g, 10 cycles per axle:
 - 5 ... 8.4 Hz, deflection 3.5 mm
 - 8.4 ... 200 Hz, acceleration 9.8 m/s²
- Storage/transport
 - 5 ... 8.4 Hz: Deflection 3.5 mm
 - 8.4 ... 500 Hz: Acceleration 9.8 m/s²

Impact resistance, tested in accordance with IEC 60068-2-27

- Operation 150 m/s², 11 ms
- Storage/transport 250 m/s², 6 ms

Direct current supply (DC)

- Power Supply DC 12 to 24 V
- Power consumption max. 15 W

Wireless communication Bluetooth® (standard)

- Wireless protocol Bluetooth® low energy (BLE) 5.1
- Frequency range 2 400 ... 2 480 MHz
- Max. transmit power +5.5 dBm

Wireless communication Bluetooth® (standard)	
Max. receive sensitivity	-103 dBm (BLE LR-125k)
Antenna	rod antenna
Distance to SI-TRANS MS200	up to 30 m
Connected sensors	up to 8
Data Transmission Cycle	1 per 100 seconds
Certificates and approvals	
CE	
UKCA	
EAC	
Radio Nigeria	

7.2 Technical specifications SITRANS MS200

General technical specifications	
Dimension (Diameter x Height)	Ø 54 mm x 106 mm
Weight	334 g with battery pack
Power supply	LTC (Lithium Thionyl Chloride) Battery pack
Voltage	3.6 V
Capacity	2.6 Ah
Lithium content	0.7 g
Weight of battery	18 g
Replaceable	Yes, with same type
Communication	
Data Transmission Cycle	1 per 100 seconds
Battery life at @ 25 °C	up to 3.5 years, depending on signal strength
Environment	
Storage temperature	-40 ... 85 °C
Ambient temperature (operation)	-30 ... 80 °C
Altitude	Operation: -1000 ... 2000 m (pressure 795 ... 1080 hPa)
Rating	IP68 (2 m, 24 h)
Temperature measurement	
Temperature range	-30 ... +80 °C
Resolution	0.01 °C
Repeatability	±0.15 °C

7.3 Certificates and approvals SITRANS MS200

Temperature measurement	
Accuracy	±4 °C
Data format	16 bits
Vibration measurement	
Vibration sensor	3-axis accelerometer
Frequency range	13 ... 3 300 Hz
Measurement range	±16 g
Resolution	0.488 mg
Repeatability	±10 mg
Accuracy	±10% of measurement range
Sampling rate	6 600 Hz
Data format	16 bits
Wireless communication Bluetooth® (standard)	
Wireless protocol	Bluetooth® low energy (BLE) 5.1
Frequency range	2 400 ... 2 480 MHz
Max. transmit power	+4 dBm max.
Receive sensitivity	-88 dBm
Antenna	integrated
Distance to SITRANS CC220	up to 30 m
Certificates and approvals	
CE	
UKCA	
EAC	
Radio Nigeria	

7.3 Certificates and approvals SITRANS MS200

SITRANS MS200	
"Intrinsic safety" type of protection	
ATEX/IECEx	
FM/CSA	II 2G Ex ia IIC T4 Ga 60°C+ FM Div 1 T4

Product documentation and support

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/en/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 (<https://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>).

For help creating a support request, view this video here.

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 AG
Digital Industries
Process Automation
Östliche Rheinbrückenstr. 50
76187 Karlsruhe, Germany

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