# **SIEMENS Getting started** Introduction Safety notes SITRANS SCM IQ Description Digitalization **SITRANS SCM IQ: Smart Condition** Installing/mounting **Monitoring with IIoT Sensors Connecting SITRANS CC220 Operating Instructions** Commissioning Operating Service and maintenance Diagnostics and troubleshooting **Technical specifications Dimension drawings**

**Product documentation** 

and support

7MP2200-2CB05-2AA1 (SITRANS CC220) 7MP2210-2AB21-2AB1 (SITRANS MS200) Insights Hub application SITRANS SCM IQ

### 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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Getting started

### Before commissioning the devices

Observe the following safety instructions:

- General safety notes (Page 13)
- Basic safety notes: Installing/mounting (Page 37)
- Basic safety notes: Connecting (Page 41)

Read the entire operating instructions to achieve the optimum performance of the system.

### **Procedure**

- Start SITRANS SCM IQ in Insights Hub as an admin the very first time after provisioning. Starting SITRANS SCM IQ in Insights Hub (Page 45)
   You need to perform this task only the very first time after launching SITRANS SCM IQ to Insights Hub. You do not need to repeat this task at a later stage.
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- 8. Commission SITRANS MS200 with SITRANS SCM IQ.
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- 9. Configure the user notifications in SITRANS SCM IQ. Configuring notifications (Page 55)
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   Training anomaly detection models (Page 57)
   Managing anomalies in SITRANS Anomaly IQ (Page 60)

Introduction

# 2.1 Purpose of this documentation

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

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

# 2.2 Document history

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

Edition	Remark	
07/2023	SITRANS CC220 hardware change	
	Firmware update of SITRANS CC220	
	LED blinking behavior	
03/2022	New chapter: Enabling existing Insights Hub Assets for SITRANS SCM IQ (Page 51)	
	Revised chapter: Training anomaly detection models (Page 57)	

# 2.3 FW revision history

#### SITRANS CC220

Firmware revision	Date	Changes
1.01.00	07/2023	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

# 2.4 Designated use

Use the device in accordance with the information on the nameplate and in the Technical specifications (Page 85).

### 2.7 Security information

# 2.5 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.

### 2.6 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.

# 2.7 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 93).

### 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 (<a href="https://support.industry.siemens.com/cs/ww/en/view/109759444">https://support.industry.siemens.com/cs/ww/en/view/109759444</a>).

### 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.

# 2.8 Transportation and storage

To quarantee 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.

# 2.9 Notes on warranty

Special conditions for storage and transportation of the device are listed in Technical specifications (Page 85).

# 2.9 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 Preconditions for use

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

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

### 3.1.1 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)

### 3.1.2 Conformity with European directives

The CE marking on the device symbolizes the conformity with the following European directives:

2014/30/EU Electromagnetic compatibili- ty EMC	Directive of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to elec- tromagnetic compatibility
2014/53/EU RED	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
2011/65/EU RoHS	Directive of the European Parliament and the Council on the re- striction 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.

3.3 Requirements for special applications

# 3.1.3 Improper device modifications



### CAUTION

### Improper device modifications

Risk to personnel, system and environment can result from modifications to the device.

• Do not carry out modifications to the device. Failure to observe this requirement cancels the manufacturer's warranty and the product approvals.

# 3.2 Warning symbols on the device

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

# 3.3 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.

# 3.4 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.

#### 3.5 Basic safety notes SITRANS CC220



### WARNING

### Commissioning and operation with error message

If an error message displays, correct operation is no longer guaranteed.

- Check the severity of the error.
- Correct the error.
- If the error still exists:
  - Take the device out of operation.
  - Do not restart the device.

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

# 3.5 Basic safety notes SITRANS CC220

# 3.5.1 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.

# 3.5.2 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 or save any personal information, but only technical functional data (For example time stamps). If the user links this data to other data (for example shift plans) or if the user saves personal information on the same medium (for example hard disk) and therefore creates a personal reference in the process, the user has to ensure meeting the guidelines regarding data protection.

3.5 Basic safety notes SITRANS CC220

### 3.5.3 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.

# 3.6 Basic safety notes SITRANS MS200

### 3.6.1 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.

# 3.6.2 Halogen and silicone

#### Note

SITRANS MS200 may contain traces of halogen and silicone.

### 3.6.3 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.

3.6 Basic safety notes SITRANS MS200

# 3.6.4 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 78)

Description

# 4.1 System description

### SITRANS SCM IQ - Smart Condition Monitoring with IIoT Sensors

With SITRANS SCM IQ you can monitor the condition of the plant components of your process plant.

The hardware basis of the SITRANS SCM IQ solution is the wireless SITRANS MS200 multisensor. SITRANS MS200 has two sensors on board for measuring vibration and temperature. SITRANS MS200 can be mounted on plant components such as pumps, gearboxes or compressors and collect information on vibrations and temperature. Using Bluetooth® low energy (BLE), the measurement data collected in SITRANS MS200 is sent to the SITRANS CC220 IloT gateway. Max. 8 SITRANS MS200 can be connected to one SITRANS CC220. SITRANS CC220 transmits the information encrypted to Insights Hub. In the SITRANS SCM IQ application, the status data of the monitored plant components or systems can be displayed graphically.

For more information, watch this video (https://www.youtube.com/watch?v=-z4laupJLjo).

### 4.2 Data buffering between sensor and MindShpere

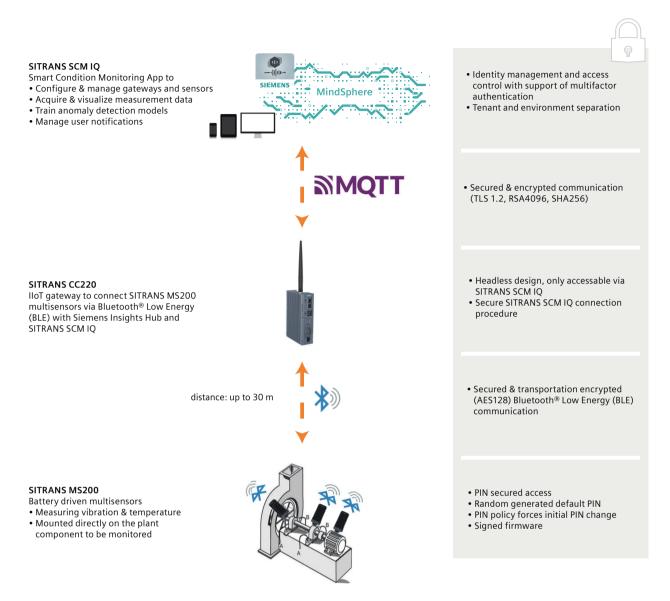


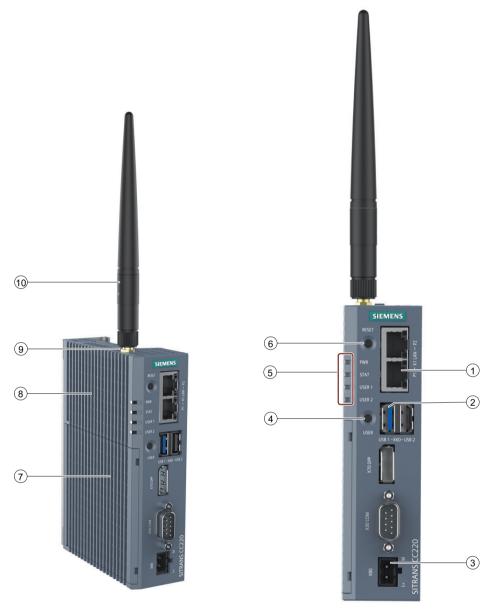
Figure 4-1 System overview

# 4.2 Data buffering between sensor and MindShpere

- If the connection between SITRANS CC220 gateway and Insights Hub is interrupted, the data is temporarily stored for up to 7 days in the ring buffer method.

  Ring buffer means: as soon as the 8th day begins, the data of the 1st day are overwritten.
- If the connection between the sensor and the SITRANS CC220 gateway is lost, the data **is not** cached on the sensor.

# 4.3 SITRANS CC220 design



- 1 LAN interface X1 LAN P1: Ethernet e. g. Insights Hub
- 6 RESET button for the CPU.
  See chapter Resetting or disconnecting SI-TRANS CC220 from SITRANS SCM IQ (Offboarding) (Page 62)

- 2 USB 1-X60 port
- 3 Power supply connector
- 7 Shield cover
- 8 Top housing

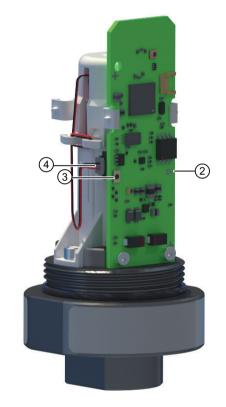
# 4.4 SITRANS MS200 design

- **USER** button
- (5) LED display. See chapter Meaning of the LED states on SITRANS CC220 (Page 83)
- Bluetooth antenna socket
- (10) Bluetooth antenna

#### SITRANS MS200 design 4.4



- Lid
- LED



- Reset button
- Battery connector

Installing/mounting

# 5.1 Installation instructions SITRANS CC220

# 5.1.1 Mounting SITRANS CC220

#### Introduction

- Observe the safety notes in chapter Notes on use (Page 18).
- 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,	ments used	Toggle plug, Ø 12 mm, 50 mm long
(at least 13 mm thick)		
Metal,		• Screw M4 × 15
(at least 2 mm thick)		M4 nut

#### **Procedure**

- Mount the device on DIN rails or wall.
   Mounting positions and mounting types (Page 27)
   Mounting on DIN rails (Page 30)
   Vertical wall mounting (Page 31)
- 2. Only mount by Siemens delivered bluetooth antenna.
- 3. Mount the bluetooth antenna outside the cabinet.

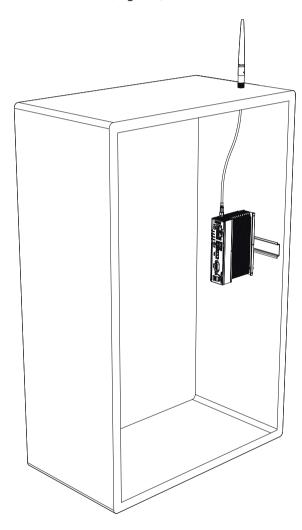
### 5.1 Installation instructions SITRANS CC220

- 4. Mount the bluetooth antenna extension.

  See technical details of the bluetooth antenna extension in chapter Technical specifications SITRANS CC220 (Page 85).
- 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 85).



# 5.1.2 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 85) chapter.

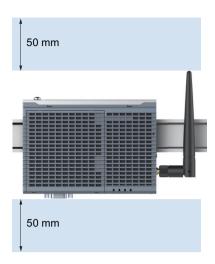
#### Clearances

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

### 5.1 Installation instructions SITRANS CC220





# 5.1.3 Mounting on DIN rails

# 5.1.3.1 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

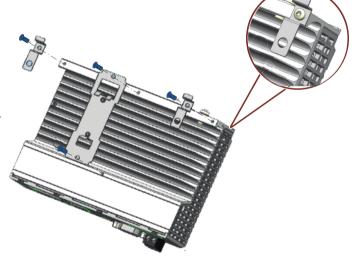
# Secure the mounting clips for vertical mounting

- 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

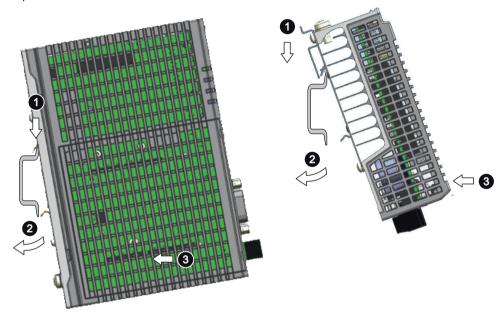
- 1. Lay the rail clamp on the rear of the device.
- 2. Fasten the rail clamp with the two supplied screws.
- 3. Lay the brackets on the rear of the device. Align the bracket edge with the device edge.
- 4. Fasten the brackets with the supplied screws.



# 5.1.3.2 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.

# 5.1.4 Wall mounting

# 5.1.4.1 Vertical wall mounting

### Note

The device must be installed on the plate of an enclosure.

# 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.

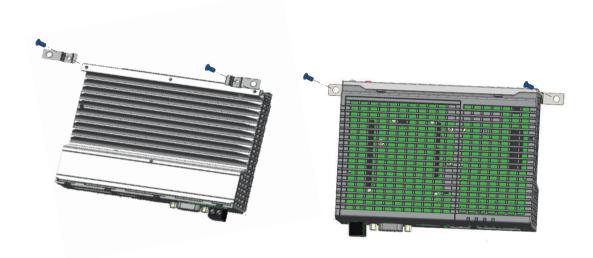
### 5.1 Installation instructions SITRANS CC220

# 5.1.4.2 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.

### 5.1.5 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 guestion 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 36) available.

### 5.1 Installation instructions SITRANS CC220

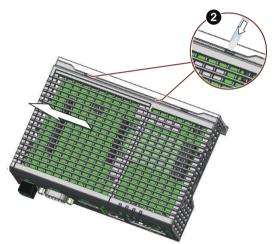
### **Procedure**

1 Remove the power plug and marked screws.

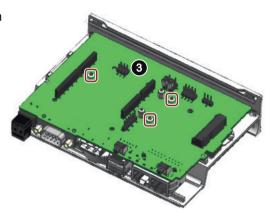


2 Loosen the top housing. Carefully press with the blade of a flat-blade screwdriver in the marked recesses and carefully pull on the appropriate place on the top housing of the enclosure.

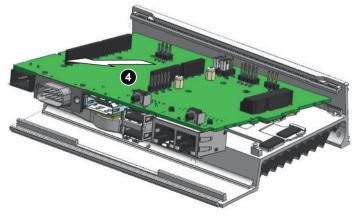
Remove the top housing of the enclosure.



3 Remove the marked screws on the motherboard.



Remove the motherboard.



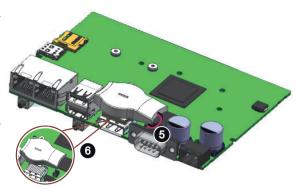
# 5.1 Installation instructions SITRANS CC220

- 5 Pull the plug of the battery cable from the motherboard.
- 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 36).

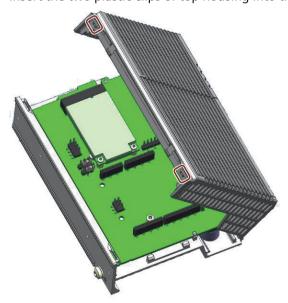
# 5.1.6 Installing the top housing

# 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.

# 5.2 Installation instructions SITRANS MS200

# 5.2.1 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 Technical specifications (Page 85).

# **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.

# 5.2.1.1 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 (Page 85).

# 5.2.2 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 (for example 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 72).

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

#### See also

Dimension drawings SITRANS MS200 (Page 92)

#### 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.

# 5.2.3 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 87).

#### 5.3 Disassembly SITRANS MS200

# 5.2.4 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 87).

#### Note

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

# 5.2.5 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 87).

# 5.3 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.

# 6.1 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 85)".

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

#### Note

The connection line shall meet the requirements of IEC 60332-1-2 and IEC 60332-1-3 or alternative the requirements of IEC/TS 60695-11-21.

# 6.2 Connecting SITRANS CC220

# 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 85).
- Use ethernet cables cat 5e/cat 6 to guarantee the full specification according to IEC11801 rated for 70 °C.

# 6.2 Connecting SITRANS CC220

# 6.2.1 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:



# **M** 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 mm<sup>2</sup> copper cable

#### **Procedure**



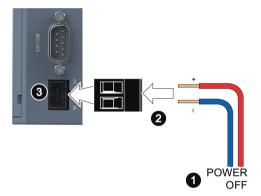
- 1. Clamp the cable lug on the functional grounding.
- 2. Firmly attach the cable lug to the functional grounding connection on the device using the M4 thread with the torque of 1 Nm (see part labeled).
- 3. Connect the functional grounding to the protective conductor connection of the cabinet or the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

# 6.2.2 Connecting SITRANS CC220

# **Before connecting SITRANS CC220**

- You have connected functional grounding (Page 42).
- 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 mm<sup>2</sup>
  - 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 6-1 Ethernet connection X1 LAN - P1

- 5. Make sure SITRANS CC220 has an internet connection.
  - ⇒ After onboarding (Page 52):
  - 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

#### **Basic safety notes** 7.1



# **WARNING**

# Commissioning and operation with error message

If an error message displays, correct operation is no longer quaranteed.

- Check the severity of the error.
- Correct the error.
- If the error still exists:
  - Take the device out of operation.
  - Do not restart the device.

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.



# **M** 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 85).
- Before commissioning take the effect on other devices in the system into account.

#### 7.2 Starting SITRANS SCM IQ in Insights Hub

# Required user roles

• Insights Hub user role: TenantAdmin or assetmanager.admin

# 7.4 Administrating the network for SITRANS CC220

#### **Procedure**

- 1. Launch Insights Hub.
- 2. Assign the SITRANS SCM IQ user roles to your Insights Hub user.
  - Editing user role assignment in Insights Hub (Page 46)
    - or -
  - Contact your Insights Hub TenantAdmin.
- 3. Start SITRANS SCM IQ in Insights Hub as an admin the very first time after provisioning. ⇒ SITRANS SCM IQ opens with the initial dialog.
- 4. Confirm the dialog.

The following objects will be created automatically:

- Insights Hub Agent: SitransMS Connector
- Insights Hub Asset Type: SitransMS
- generic scmiq anomalydetection
- multisensordata
- multisensorinformation

You need to perform this task only the very first time after launching SITRANS SCM IQ to Insights Hub. You do not need to repeat this task at a later stage.

# 7.3 Editing user role assignment in Insights Hub

#### **Procedure**

- 1. Click "Settings".
- 2. Click on button "View users".
- 3. Search and select the Insights Hub user.
- 4. Click "Edit direct assignments".
- 5. Search for "scm" or "anomaly".
- 6. To assign a role to the selected Insights Hub user, select the appropriate check box.
- 7. Click "Next".
- 8. Click "Save".
  - ⇒ SITRANS SCM IQ or SITRANS Anomaly IQ is visible on Insights Hub Launchpad.

# 7.4 Administrating the network for SITRANS CC220

# Required user role

Network administrator of your site.

#### **Procedure**

- 1. SITRANS CC220 is delivered without IP parameter assignment. Choose your network settings in SITRANS SCM IQ (Page 52) according to your network policies ("DHCP" or "Static IP").
- 2. SITRANS CC220 is using various services. Enable the required ports:

Port	Protocol	Service
8883	TCP, IP, TLS (1.2)	MQTTS (3.1.1)
123	UDP, IP	NTP
53	UDP, IP	DNS
68	UDP, IP	DHCP

# 7.5 Powering up SITRANS MS200



# WARNING

# Removing the lid in a dirty environment

Do not remove the lid in a dirty environment, as contamination of internal components could reduce battery life.

Remove the lid only in an environment of approximately 25 °C (77 °F) and 30-60% RH.



# **WARNING**

#### Electrostatic discharge

- Prevent grease or other contaminants from touching PCB, as this could reduce battery life.
- Avoid direct skin contact with PCB.

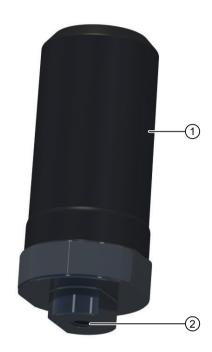
# Introduction

For more information, watch this video (<a href="https://www.youtube.com/watch?v=kHCWsAgltqE">https://www.youtube.com/watch?v=kHCWsAgltqE</a>).

# 7.5 Powering up SITRANS MS200

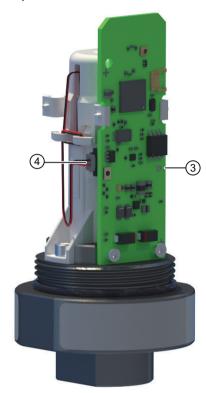
# **Procedure**

- 1. Put on a clean pair of gloves.
- 2. Unscrew the sensor lid: Hold with an open-ended wrench at 2 and turn the lid 1 counterclockwise.



3. Connect the battery connector ④ to the PCB.

⇒ The LED ③ placed on the PCB lights up for one second after the boot process is completed (up to 10 seconds).



### 7.6 Integrating SITRANS MS200 as Insights Hub Asset

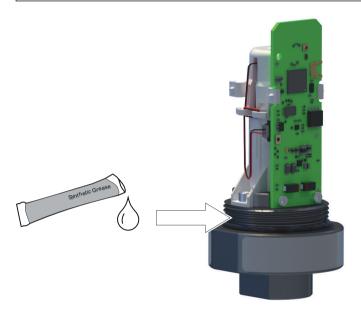
4. Open the grease blister and grease the base plate.



# **CAUTION**

# Grease on electrical parts

Avoid getting grease on electrical components and PCB.



- 5. Screw on the lid to 6-7 Nm per hand.
- 6. Mount the SITRANS MS200 onto the asset, using a wrench (min. 18 Nm/max. 20 Nm). Installation instructions SITRANS MS200 (Page 37)
- ⇒ The SITRANS MS200 is active and can be connected wirelessly to SITRANS CC220 via Bluetooth® low energy (BLE). If SITRANS SCM IQ and SITRANS CC220 are configured and SITRANS MS200 is in range, SITRANS MS200 will connect automatically.

# 7.6 Integrating SITRANS MS200 as Insights Hub Asset

To enable your SITRANS MS200 devices for SITRANS SCM IQ you create Assets for each SITRANS MS200 in Insights Hub.

#### Condition

You have mapped each SITRANS MS200 to a Insights Hub Asset as a digital representation. For more details on how to create an Asset in Insights Hub refer to Insights Hub documentation area (<a href="https://documentation.mindsphere.io/MindSphere/apps/asset-manager/create-an-asset.html#create-an-asset">https://documentation.mindsphere.io/MindSphere/apps/asset-manager/create-an-asset</a>.

For more information, watch this video: SITRANS SCM IQ: How to onboard the Gateway and Multisensor (<a href="https://www.youtube.com/watch?v=AJLLbYmtN2A&t=36s">https://www.youtube.com/watch?v=AJLLbYmtN2A&t=36s</a>).

# Required user roles

• Insights Hub operator role: Assetmanager.admin or TenantAdmin

#### **Procedure**

- 1. Start Asset Manager in Insights Hub.
- 2. Navigate to menu "Assets".
- 3. Click "Create asset".
- 4. Enter "SitransMS" (1) in the filter search.



- 5. Select the entry "SitransMS". 2
- 6. Click "Create".
- 7. Enter a name for the new asset.
- 8. Save the new asset.

Repeat this procedure for each SITRANS MS200.

# 7.7 Enabling existing Insights Hub Assets for SITRANS SCM IQ

To enable your existing Insights Hub Assets for SITRANS SCM IQ you add the Aspect generic scmiq anomalydetection to your Insights Hub Assets.

For more information, watch this video: SITRANS SCM IQ: How to add Machine Data to SITRANS SCM IQ (<a href="https://www.youtube.com/watch?v=AG31J1v3gB8&t">https://www.youtube.com/watch?v=AG31J1v3gB8&t</a>).

#### Note

Do not add the generic\_Scmiq\_anomalydetection aspect to the SitransMS Asset Type as this is not provided functionality for now.

### Condition

You have mapped all devices to a Insights Hub Asset as a digital representation. For more details on how to create an Asset in Insights Hub refer to Insights Hub documentation area (<a href="https://documentation.mindsphere.io/MindSphere/apps/asset-manager/create-an-asset.html#create-an-asset">https://documentation.mindsphere.io/MindSphere/apps/asset-manager/create-an-asset.html#create-an-asset</a>).

#### 7.8 Commissioning SITRANS CC220 with SITRANS SCM IQ

# Required user roles

• Insights Hub user role: Assetmanager.admin or TenantAdmin

#### **Procedure**

- 1. Start Asset Manager in Insights Hub.
- 2. Navigate to menu Library and choose Asset Types.
- 3. Select your Machine Data Asset. For example scm generic machine.
- 4. Click "Edit type".
- 5. Under "Aspects" click "Browse Aspects" and search for generic scmiq anomalydetection.
- 6. Click "Add".
- 7. Click "Save".

Repeat this procedure for each Asset Type.

# 7.8 Commissioning SITRANS CC220 with SITRANS SCM IQ

The following procedure describes how to connect SITRANS CC220 Bluetooth© gateways with SITRANS SCM IQ. The SITRANS CC220 needs to be operational in your infrastructure and requires a working internet connection.

For more information, watch this video (<a href="https://www.youtube.com/watch?v=AJLLbYmtN2A&t=97s">https://www.youtube.com/watch?v=AJLLbYmtN2A&t=97s</a>).

# Before connecting SITRANS CC220 Bluetooth® gateway

- You have connected SITRANS CC220 to the power supply. (Page 44)
- Required user roles without Insights Hub Subtenants:
  - Insights Hub user role: TenantAdmin or StandardUser
  - SITRANS SCM IQ user role: sitransscmiq:admin
- Required user roles with Insights Hub Subtenants:
  - Insights Hub user role: SubtenantUser
     Note: Do not use TenantAdmin when using Subtenants. Subtenant can not see devices and assets of other subtenants.
  - SITRANS SCM IQ user role: sitransscmiq:admin

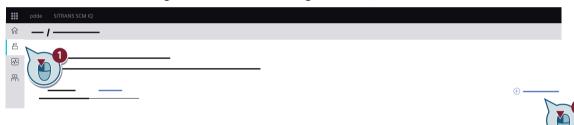
#### **Procedure**

- 1. While SITRANS CC220 is booting for the first time, wait 4 to 5 minutes till USER 1 LED flashes red.
- 2. Plug in an empty and fat32 formatted USB stick with 16 GB free disk into SITRANS CC220 USB 1-X60 port.

For USB stick specifications see Table 11-1 USB stick specifications (Page 85).



- $\Rightarrow$  SITRANS CC220 generates and saves the public key to the USB stick. The public key is used to encrypt the integration information for SITRANS CC220.
- 3. Wait until the USER 1 LED is glowing orange (may take several minutes) and USER 2 LED is off.
- 4. Remove the USB stick.
- 5. Note the MAC address from the SITRANS CC220 nameplate.
- 6. Start SITRANS SCM IQ in Insights Hub.
- 7. Navigate to the "Device configuration" 1 tab.



- 8. Click "Connect device" 2.
- 9. Select "Connect gateway" and click "Next".
- 10. Plug in the USB stick into your PC.
- 11. Select the public key from the USB stick.
  - ⇒ The public key loads from the USB stick.
- 12. Select one connection setting: "DHCP" or "Static IP".

  See also chapter Administrating the network for SITRANS CC220 (Page 46).
- 13. Select and enter your local network connection settings.
- 14. If needed, set your proxy settings.
- 15. Click "Save".
  - $\Rightarrow$  The onboarding key is generated and available in the download folder set in your browser settings.
  - ⇒ LAN interface X1P1LAN of SITRANS CC220 will be configured according to the connection settings.

# 7.9 Commissioning SITRANS MS200 with SITRANS SCM IQ

16. Move the generated onboarding key to the USB stick.

Info: Store the onboarding key on the same level right next to the public key of SITRANS CC220.

Do not delete files from the USB stick.

- 17. Eject the USB stick in Windows.
- 18. Plug the USB stick with the onboarding key again into the USB 1-X60 port of SITRANS CC220.
- 19. Wait until both USER LEDs are indicating green (may take several minutes).
  - ⇒ The onboarding key has been decrypted successfully.
- 20. Remove the USB stick.
- 21. Check the operating state of SITRANS CC220 in SITRANS SCM IQ in the "Device configuration" tab:
  - green: connected
  - yellow: connection in progress
  - red: disconnected

It may take several minutes for the operating state to show in SITRANS SCM IQ.

Repeat this procedure for each SITRANS CC220.

# 7.9 Commissioning SITRANS MS200 with SITRANS SCM IQ

The following procedure describes how to connect SITRANS MS200 sensors with SITRANS SCM IQ. Each SITRANS MS200 needs to be assigned to a SITRANS CC220 gateway and mapped to a specific Asset in the Asset structure in Insights Hub (see Integrating SITRANS MS200 as Insights Hub Asset (Page 50)).

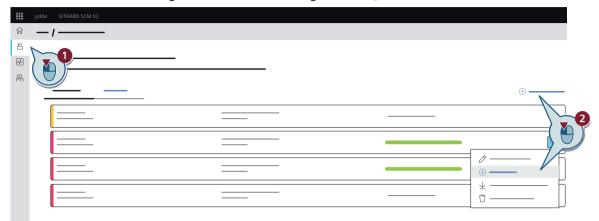
For more information, watch this video (<a href="https://www.youtube.com/watch?v=AJLLbYmtN2A&t=258s">https://www.youtube.com/watch?v=AJLLbYmtN2A&t=258s</a>).

## Required user roles

- Required user roles without Insights Hub Subtenants:
  - Insights Hub user role: TenantAdmin or StandardUser
  - SITRANS SCM IQ user role: sitransscmiq:admin
- Required user roles with Insights Hub Subtenants:
  - Insights Hub user role: SubtenantUser
     Note: Do not use TenantAdmin when using Subtenants. Subtenant can not see devices and assets of other subtenants.
  - SITRANS SCM IQ user role: sitransscmiq:admin

# **Procedure**

- 1. Start SITRANS SCM IQ in Insights Hub.
- 2. Navigate to the "Device configuration" 1 tab.



- 3. Click "Connect device" or "Add sensors" ② on an existing gateway.
- 4. Select "Connect sensor" and choose an existing gateway from the drop-down menu.
- 5. Click "Next".
- 6. Enter a name and the MAC address for the sensor. You find the MAC address on the SITRANS MS200 nameplate.
- 7. To map the SITRANS MS200 to an asset in the Insights Hub Asset Structure, click on "Browse" at "Asset and position".
- 8. Choose an asset and enter additional information on the sensor position.
- 9. Click "Save".

#### Result

SITRANS MS200 will now be automatically assigned to the SITRANS CC220 and transfer data to the chosen Asset of Asset type SITRANS MS200.

# 7.10 Configuring notifications

Configured users will receive notifications when an anomaly is detected by the application. To configure the anomaly detection model please refer to Training anomaly detection models (Page 57).

For more information, watch this video (<a href="https://www.youtube.com/watch?v=AJLLbYmtN2A&t=352s">https://www.youtube.com/watch?v=AJLLbYmtN2A&t=352s</a>).

# 7.10 Configuring notifications

# Required user roles

- Required user roles without Insights Hub Subtenats:
  - Insights Hub user role: TenantAdmin or StandardUser
  - SITRANS SCM IQ user role: sitransscmiq:admin
- Required user roles with Insights Hub Subtenats:
  - Insights Hub user role: SubtenatUser
     Note: Do not use TenantAdmin when using Subtenants. Subtenant can not see devices and assets of other subtenants.
  - SITRANS SCM IQ user role: sitransscmiq:admin

#### **Procedure**

- 1. Navigate to the "Notification configuration" tab.
- 2. Click "Add user".
- 3. Enter the required details and click "Save".
- 4. In the "Notification configuration", click "User groups".
- 5. Click "Add user group".
- 6. Enter the details for the user group and select the users that shall be assigned to this group.
- 7. Select the type of notification (SMS and/or e-mail).
- 8. For e-mail notifications additional options can be configured.
- 9. Click "Save".

Operating

# 8.1 Training anomaly detection models

Once a Insights Hub Asset has provided a sufficient amount of data (typically two weeks), you can continue with the training of an anomaly detection model. After the trained model is available, you can start the model for continuous anomaly detection.

For more information, watch this video: SITRANS SCM IQ: How to add Machine Data to SITRANS SCM IQ (https://youtu.be/AG31J1v3qB8).

# Required user roles

- Required user roles without Insights Hub Subtenants:
  - Insights Hub user role: TenantAdmin or StandardUser
  - SITRANS SCM IQ user role: sitransscmiq:admin
- Required user roles with Insights Hub Subtenants:
  - Insights Hub user role: SubtenantUser
     Note: Do not use TenantAdmin when using Subtenants. Subtenant can not see devices and assets of other subtenants.
  - SITRANS SCM IQ user role: sitransscmiq:admin

# **Procedure**

- Choose the card or menu "Data modelling".
   In the list you can choose between two different asset types:
  - SitransMS
  - Machine Data Assets
- 2. To get further information select an available asset.
- 3. To view the data, click "See details".

  You can change the visible time range and select one or more variables for a more detailed view.

Variables	Description	
Acceleration	Vibration in x y and z axis seen in space.	
Health status	Signal strength for SITRANS MS200 in a scale of -100 to 0.	
	• -100 means that the bluetooth standard is bad.	
	0 means that the bluetooth standard is best.	
Temperature	Temperature from the place where the sensor is mounted. The temperature sensor is inside the housing of SITRANS MS200.	
Deviation index	Deviation of the machine condition from the normal state. If the deviation is too large, your anomaly will be generated.	

# 8.1 Training anomaly detection models

4. Click "Train new model" 1.



- 5. Enter a name for the anomaly detection model and an optional description.
- 6. For an asset type "Machine Data Assets" select the Aspect Variables which will be considered for the anomaly detection model.
- 7. Select the data which will be considered for the anomaly detection model. Multiple time ranges can be selected.

- 8. Save draft and train later.
  - or -

Save and start training 2.

The trained anomaly detection model will be available for selection here after a few minutes:



- 9. To start the continuous detection of anomalies, click "Run model" ③. The status indicates the current step of processing the data. Available statuses:
  - Draft
  - Prepared
  - Preparing For Training
  - Preparing Failed
  - Training
  - Training Failed
  - Ready
  - Deployment Failed
  - Running
  - Deprecated

# Note

# Editing an anomaly detection model

After an anomaly detection model has been edited, the model must be trained again.

#### Result

After deploying an anomaly detection model, anomalies are automatically detected when they occur.

You can manage the anomalies in the SITRANS Anomaly IQ application provided in your Insights Hub Tenant.

# 8.2 Managing anomalies in SITRANS Anomaly IQ

If you deployed an anomaly detection model in SITRANS SCM IQ, you find all detected anomalies in the SITRANS Anomaly IQ application. No further configuration is necessary to use SITRANS Anomaly IQ. You can enter information relevant to solve anomalies. This information is available as a documentation for later use or to share the information with other users that have access to your application.

For more information, watch this video (https://www.youtube.com/watch?v=uF5K5ergtQk).

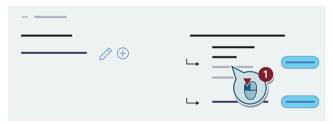
# User roles in SITRANS Anomaly IQ

- maintenance worker: editing anomalies and setting anomalies to "Done"
- · team lead: reviewing labels and setting anomalies to "Resolved"

#### **Procedure**

- 1. Assign the SITRANS Anomaly IQ user role to your Insights Hub user.
  - Editing user role assignment in Insights Hub (Page 46)
    - or
  - Contact your Insights Hub TenantAdmin.
- 2. Launch SITRANS Anomaly IQ. You can see all open anomalies in the "Open" tab.
- 3. To enter details, click on an anomaly. You can attach additional files (for example photos, videos, manuals). Be aware that this consumes Insights Hub Ressource IoT file storage. You can upgrade this storage if required.
- 4. To improve the anomaly detection model over time, label each anomaly.

  If you create a new label, approve it in the "Review" tab. If you entered labels for previous anomalies, you can select anomaly recommendations (1) of similar anomalies:



- 5. If an anomaly was detected and you cannot observe any problem, you can use the "No anomaly" button to set a flag. The "No anomaly" button does not affect the anomaly detection model.
- 6. In the "Dashboard" tab you can get an overview of anomalies by filtering for assets or labels.

# 8.3 Disconnecting SITRANS CC220 and SITRANS MS200

# Required user roles

- Insights Hub user role: TenantAdmin or StandardUser
- SITRANS SCM IQ user role: sitransscmiq:admin

## **Procedure**



#### **WARNING**

# Disconnecting SITRANS MS200 with anomaly detection models

Do not disconnect a SITRANS MS200 which has a running anomaly detection model in SITRANS SCM IQ. Before you disconnect any SITRANS MS200, make sure to stop running anomaly detection models of this SITRANS MS200.

- 1. Navigate to the "Device configuration" tab.
- 2. Click "Disconnect gateway/sensor" in the context menu of the respective SITRANS CC220 or SITRANS MS200.
- 3. To complete the offboading of SITRANS CC220, press the USER button on the SITRANS CC220 for more than 5 seconds.

#### Note

#### Consequences

If you disconnect a SITRANS CC220, observe the following consequences:

- connection to SITRANS CC220 gets lost
- SITRANS CC220 is removed from device list in SITRANS SCM IQ
- SITRANS MS200 paired with this SITRANS CC220 are removed from sensor list
- timeseries data on assets will be kept in Insights Hub but not updated anymore

If you disconnect a SITRANS MS200, observe the following consequences:

- SITRANS MS200 is removed from device list in SITRANS SCM IQ
- connection between SITRANS MS200 and SITRANS CC220 gets lost (SITRANS CC220 remains in the device list in SITRANS SCM IQ)
- timeseries data on assets will be kept in Insights Hub but not updated anymore

## See also

Resetting or disconnecting SITRANS CC220 from SITRANS SCM IQ (Offboarding) (Page 62)

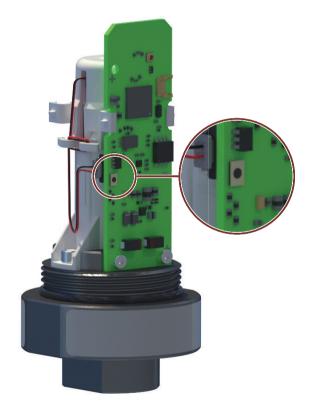
# 8.4 Resetting or disconnecting SITRANS CC220 from SITRANS SCM IQ (Offboarding)

- Press the USER button on the SITRANS CC220 for at least 5 seconds.
  - ⇒ USER LEDs blinking red.
  - ⇒ USER 1 LED is blinking red and USER 2 LED is off.
  - ⇒ SITRANS CC220 has no established connection to SITRANS SCM IQ.
  - ⇒ SITRANS CC220 is reset to factory settings.

# 8.5 Resetting SITRANS MS200

If you disconnected SITRANS MS200 in SITRANS SCM IQ and want to connect it again under another SITRANS CC220 gateway, push the reset button on the SITRANS MS200 for more than 2 seconds but not longer than 5 seconds.

⇒ A green light will indicate a successful reset after 20 to 30 seconds.



# 8.6 Accessing the OSS Readme and source code

The OSS Readme and source code is available:

- in SIOS:
  - SITRANS CC220 (https://support.industry.siemens.com/cs/de/en/ps/28809/man)
  - SITRANS MS200 (https://support.industry.siemens.com/cs/de/en/ps/28810/man)
- in SITRANS SCM IQ in the "OS Bar"
- on the root of the SD card delivered with the SITRANS CC220 gateway

8.6 Accessing the OSS Readme and source code

Service and maintenance

#### Maintenance and repair work for SITRANS CC220 9.1

#### 9.1.1 **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



# **▲** 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.

9.1 Maintenance and repair work for SITRANS CC220

## 9.1.1.1 Repair information

# Carrying out repairs

Only qualified personnel are permitted to repair the device. Contact your local representative. See section "Technical support (Page 94)".



# 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.

# 9.1.2 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 Table 11-1 USB stick specifications (Page 85).
- 2. Create a file named "ConBox Commands.json" directly on the USB stick.
- 3. Open the "ConBox\_Commands.json" file in a text editor.
- 5. Save the changes to the "ConBox Commands.json".
- 6. Plug your USB stick into the USB port of SITRANS CC220.



 $\Rightarrow$  If the log file is big, the USER 2 LED flashes slowly green while the log files are been 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 94).
- 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.

# 9.1.3 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.

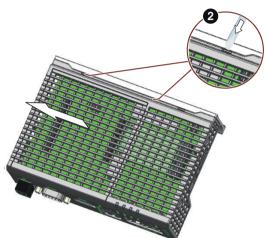
# **Procedure**

1 Remove the power plug and marked screws.

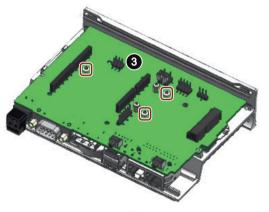


2 Loosen the top housing. Carefully press with the blade of a flat-blade screwdriver in the marked recesses and carefully pull on the appropriate place on the top housing of the enclosure.

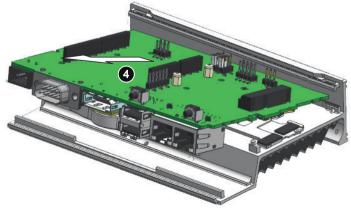
Remove the top housing of the enclosure.



3 Remove the marked screws on the motherboard.



4 Remove the motherboard.



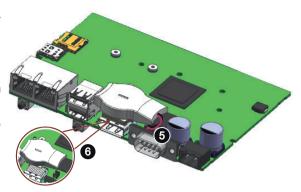
#### 9.1 Maintenance and repair work for SITRANS CC220

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

# 9.1.4 Replacing SITRANS CC220

# Replacing a defective SITRANS CC220

- 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 Insights Hub asset.
- 6. Reset SITRANS MS200. Resetting SITRANS MS200 (Page 62)

# 9.1.5 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. Dowload firmware update file for SITRANS CC220 (<a href="https://xitrans.com/cs/ww/en/ps/28832/dl">https://xitrans.com/cs/ww/en/ps/28832/dl</a>)
- 2. Plug in an empty and fat32 formatted USB stick with 16 GB free disk space into your PC. For USB stick specifications see Table 11-1 USB stick specifications (Page 85).

- 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.

#### See also

Technical specifications SITRANS CC220 (Page 85)

# 9.2 Maintenance and repair work for SITRANS MS200

# 9.2.1 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.

# 9.2.2 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  $180^{\circ}$ . If you mount SITRANS MS200 again ensure that the orientation is identical as before exchange (max.  $5^{\circ}$  angle difference).

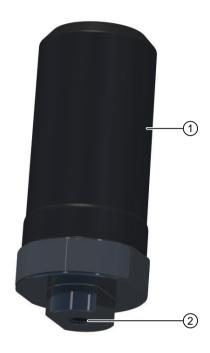
#### Note

# Battery temperature for replacement

The temperature difference between the new battery and the battery to be replaced should not exceed  $\pm 1/5$  °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.



## **A** CAUTION

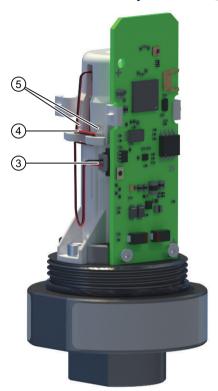
### Electrostatic sensitive devices (ESD)

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.

# 9.2 Maintenance and repair work for SITRANS MS200

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 (for example 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 Battery pack specification (Page 20)). 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.

#### 9.2 Maintenance and repair work for SITRANS MS200

- 10. Put the battery holder cap 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.

## 9.2.3 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  $^{\circ}$ C (149  $^{\circ}$ 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 Insights Hub asset.
  - For detailed description see Commissioning SITRANS MS200 with SITRANS SCM IQ (Page 54).
- 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 Insights Hub 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 Insights Hub asset)

#### Note

In this scenario SITRANS CC220 remains the same and Insights Hub 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 Insights Hub 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 model only based on new data.

## Connecting SITRANS MS200 to another SITRANS CC220 (no repositioning)

#### Note

In this scenario the physical asset and the Insights Hub 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. Resetting SITRANS MS200 (Page 62)

#### Connecting SITRANS MS200 to another Insights Hub asset (no repositioning)

#### Note

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

#### 9.3 Ordering of spare parts

- 1. Stop anomaly detection models of the respective SITRANS MS200.
- 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 model only based on new data.

# Moving SITRANS MS200 to another machine (different Insights Hub 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. Resetting SITRANS MS200 (Page 62)
- 5. Change assignment to gateway and Insights Hub 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.

# 9.3 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.

# 9.4 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, for example acetone. Plastic parts could be damaged. The inscriptions could become unreadable.

# 9.5 Transport with fitted battery

#### 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.

## 9.6 Return procedure

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

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.

# 9.7 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 *I* product return (WEEE) (<a href="https://support.industry.siemens.com/cs/document/109479891/">https://support.industry.siemens.com/cs/document/109479891/</a>)

#### 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.

9.7 Disposal

Diagnostics and troubleshooting

10

# 10.1 Meaning of the LED states on SITRANS CC220

Description / inscription	States	Meaning, comment
PWR	Green	Power on
STAT	Is blinking green	OS is running
	Is blinking red	OS is not running
USER 1	Green, orange or red	Indicating if connecting, commission-
USER 2	Green, orange or red	ing, resetting, firmware update, collect- ing log files has been successful. See ta- ble bellow.

Table 10-1 LED states for troubleshooting

Symptom	Cause of error	Remedy
USER 1 LED is blinking red, orange or green USER 2 LED is blinking fast red	USB Stick detected but not accepted.	Take another USB stick. Follow the Table 11-1 USB stick specifications (Page 85).
USER 1 LED is lightning orange USER 2 LED is lightning red	Onboarding credentials not applied successfully or -	<ul><li>Make sure the MAC address is correct.</li><li>Download the onboarding key again.</li></ul>
	Onboarding not successfull.	
USER 1 LED is blinking slow orange USER 2 LED is blinking slow red	FW update failed.	Press reset button.

### See also

Technical specifications SITRANS CC220 (Page 85)

# 10.2 Troubleshooting

Symptom	Cause of error	Remedy
SITRANS SCM IQ is not working anymore.	SitransMS Connector has been deleted from Insights Hub Agent.	<ol> <li>Open SITRANS SCM IQ.</li> <li>⇒ An installation request for the missing Insights Hub Agent SitransMS Connector opens.</li> </ol>
		2. Install SitransMS Connector again.
		3. After the installation is done, navigate to the devices in SITRANS SCM IQ.
		4. Edit and save all existing devices to re-establish the data point mapping which was lost after deleting SitransMS Connector.
You can not establish a connection between SITRANS CC220 and SITRANS SCM IQ (Onboarding).	SITRANS CC220 might still be in a connection process to another system.	Cancel the connection of SI- TRANS CC220 to the other system (Off- boaring) (Page 62)
	The "ConBox_Commands.json (Page 66)" might still be stored on the USB stick.	Remove the "ConBox_Commands.json" file from the USB stick.
You did not receive data from SITRANS MS200 within 15 minutes after onboarding.	PIN was changed before onboarding.	Perform factory reset on SITRANS MS200.
You can not see SITRANS SCM IQ or SITRANS Anomaly IQ on your Insights Hub Launchpad.	SITRANS SCM IQ or SITRANS Anomaly IQ user roles is not assigned to your Insights Hub user yet.	Editing user role assignment in Insights Hub (Page 46)

Technical specifications

# 11.1 Technical specifications SITRANS CC220

Basic specifications	
Distance between 2 SITRANS CC220	Minimum 30 cm
Weight without mounting brackets	400 g
Power supply <sup>1</sup>	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 <sup>2</sup> 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)
еММС	16 G
Battery-buffered real-time clock	Yes

<sup>&</sup>lt;sup>1</sup> 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.

<sup>&</sup>lt;sup>2</sup> In the event of low supply voltage, the buffer time is reduced

Туре	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		

Table 11-1 USB stick specifications

USB stick specifications		
Туре	USB 2.0 Type A	
Supported formatting	FAT32	

# 11.1 Technical specifications SITRANS CC220

Climatic ambient cond	itions
Permitted mounting pos	sitions. See section "Mounting positions and mounting types (Page 27)".
Ambient temperature	
<ul> <li>Operation</li> </ul>	DIN rail-mount
	• Vertical: 0 50 °C
	<ul> <li>Horizontal: 0 40 °C</li> </ul>
	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, test	ed in accordance with IEC 60068-2-78, IEC 60068-2-30
• Operation	$5 \dots 85\%$ at $30^{\circ}$ 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 co	onditions
Mechanical ambient co	ested in accordance with IEC 60068-2-6
Mechanical ambient co	onditions ested in accordance with IEC 60068-2-6 Vibration load 1g, 10 cycles per axle:
Mechanical ambient co	onditions ested in accordance with IEC 60068-2-6 Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm
Mechanical ambient co Vibration resistance, to Operation	onditions ested in accordance with IEC 60068-2-6 Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²
Mechanical ambient co	onditions ested in accordance with IEC 60068-2-6 Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm
Mechanical ambient co Vibration resistance, to Operation Storage/transport	onditions ested in accordance with IEC 60068-2-6 Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²
Mechanical ambient co Vibration resistance, to Operation Storage/transport Impact resistance, test	ested in accordance with IEC 60068-2-6  Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27
Mechanical ambient co Vibration resistance, to Operation Storage/transport Impact resistance, test Operation	onditions ested in accordance with IEC 60068-2-6  Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27  150 m/s², 11 ms
Mechanical ambient co Vibration resistance, to Operation Storage/transport Impact resistance, test	ested in accordance with IEC 60068-2-6  Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27
Mechanical ambient co Vibration resistance, to Operation Storage/transport Impact resistance, test Operation	onditions ested in accordance with IEC 60068-2-6  Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27  150 m/s², 11 ms
Mechanical ambient co Vibration resistance, to Operation Storage/transport Impact resistance, test Operation Storage/transport Direct current supply (	Ponditions  Dested in accordance with IEC 60068-2-6  Vibration load 1g, 10 cycles per axle:  5 8.4 Hz, deflection 3.5 mm  8.4 200 Hz, acceleration 9.8 m/s²  5 8.4 Hz: Deflection 3.5 mm  8.4 500 Hz: Acceleration 9.8 m/s²  ded in accordance with IEC 60068-2-27  150 m/s², 11 ms  250 m/s², 6 ms
Mechanical ambient co Vibration resistance, to  Operation  Storage/transport  Impact resistance, test  Operation  Storage/transport	ested in accordance with IEC 60068-2-6 Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27  150 m/s², 11 ms  250 m/s², 6 ms
Mechanical ambient co Vibration resistance, to Operation Storage/transport Impact resistance, test Operation Storage/transport Direct current supply (	Ponditions  Dested in accordance with IEC 60068-2-6  Vibration load 1g, 10 cycles per axle:  5 8.4 Hz, deflection 3.5 mm  8.4 200 Hz, acceleration 9.8 m/s²  5 8.4 Hz: Deflection 3.5 mm  8.4 500 Hz: Acceleration 9.8 m/s²  ded in accordance with IEC 60068-2-27  150 m/s², 11 ms  250 m/s², 6 ms
Mechanical ambient co Vibration resistance, to Operation Storage/transport Impact resistance, test Operation Storage/transport Direct current supply ( Power Supply	ested in accordance with IEC 60068-2-6 Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27  150 m/s², 11 ms  250 m/s², 6 ms
Mechanical ambient co Vibration resistance, to  Operation  Storage/transport  Impact resistance, test  Operation  Storage/transport  Direct current supply ( Power Supply Power consumption	ested in accordance with IEC 60068-2-6 Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27  150 m/s², 11 ms  250 m/s², 6 ms
Mechanical ambient co Vibration resistance, to  Operation  Storage/transport  Impact resistance, test  Operation  Storage/transport  Direct current supply ( Power Supply Power consumption	ested in accordance with IEC 60068-2-6  Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27  150 m/s², 11 ms  250 m/s², 6 ms  DC)  DC 12 to 24 V  max. 15 W
Mechanical ambient co Vibration resistance, to  Operation  Storage/transport  Impact resistance, test  Operation  Storage/transport  Direct current supply ( Power Supply Power consumption  Wireless communication	onditions ested in accordance with IEC 60068-2-6  Vibration load 1g, 10 cycles per axle:  • 5 8.4 Hz, deflection 3.5 mm  • 8.4 200 Hz, acceleration 9.8 m/s²  • 5 8.4 Hz: Deflection 3.5 mm  • 8.4 500 Hz: Acceleration 9.8 m/s²  ed in accordance with IEC 60068-2-27  150 m/s², 11 ms  250 m/s², 6 ms  DC)  DC 12 to 24 V  max. 15 W  on Bluetooth® (standard)

Wireless communicatio	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		

# 11.2 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

## 11.3 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® (s	ctandard)
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	

# 11.3 Certificates and approvals SITRANS MS200

Radio Nigeria

SITRANS MS200	
"Intrinsic safety" type of protection	
ATEX/IECEx	

## 11.3 Certificates and approvals SITRANS MS200

### SITRANS MS200

FM/CSA

II 2G Ex ia IIC T4 Ga 60°C+ FM Div 1 T4

ICASA TA-2023/0102 APPROVED



11.3 Certificates and approvals SITRANS MS200

Dimension drawings 12

# 12.1 Dimension drawings SITRANS CC220

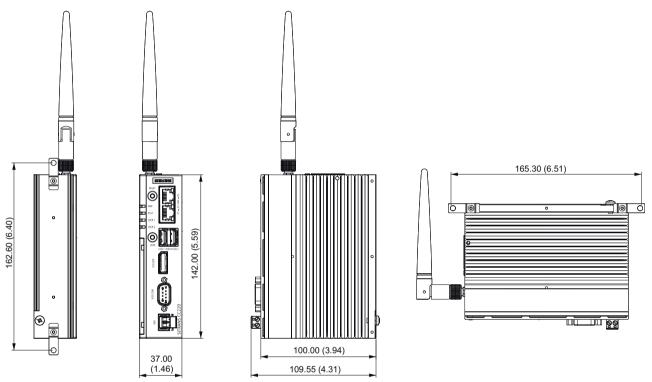


Figure 12-1 Dimension drawings SITRANS CC220, dimensions in mm (inch)

# 12.2 Dimension drawings SITRANS MS200

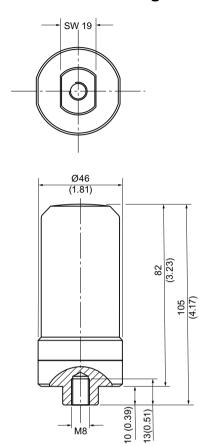


Figure 12-2 mm (inch)

# **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) (<a href="http://www.siemens.com/processinstrumentation/">http://www.siemens.com/processinstrumentation/</a> downloads)
- Catalog and catalog sheets (<a href="http://www.siemens.com/processinstrumentation/catalogs">http://www.siemens.com/processinstrumentation/catalogs</a>)
- Manuals (<a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>)
  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 (<a href="https://support.industry.siemens.com/cs/ww/en/sc/2067">https://support.industry.siemens.com/cs/ww/en/sc/2067</a>). 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 (www.siemens.com/opensr).

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

### 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

#### See also

Sending the log files to technical support (Page 66)

Este produto não é apropriado para uso em ambientes domésticos, pois poderá causar interferências eletromagnéticas que obrigam o usuário a tomar medidas necessárias para minimizar estas interferências.

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para mais informações, consulte o site da AUTOHOTSPOT.

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