



HUB-GM200

Operating Instructions

Valid with SIINEOS version 2.8.2
Document version 1.2 | Publication date:
17. February 2025

Table of Contents

| | |
|--|-----------|
| Legal information | 3 |
| 1. General information | 5 |
| 1.1. Scope of delivery | 5 |
| 1.2. Other applicable documents | 5 |
| 1.3. Intended use | 5 |
| 1.4. Disposal | 5 |
| 2. General product information | 6 |
| 2.1. Intended use | 6 |
| 2.2. SIINEOS system software | 6 |
| 2.3. Hardware – design and interfaces | 7 |
| 2.3.1. USBs | 8 |
| 2.3.2. Pin assignment of digital and analogue interfaces IO1 and IO2 | 9 |
| 2.3.3. Power supply | 9 |
| 2.3.4. LED display | 10 |
| 2.3.5. Pin assignment of the CAN interface | 11 |
| 2.3.6. Pin assignment for the RS485 interface | 12 |
| 3. Assembly | 13 |
| 3.1. Mounting the device on the DIN rail | 13 |
| 3.2. Installing additional modules on the master gateway | 13 |
| 3.3. Dismantling the device | 14 |
| 4. Installation | 15 |
| 4.1. Connecting a power-supply unit | 15 |
| 5. First steps with SIINEOS | 16 |
| 5.1. Connecting HUB-GM200 with the PC | 16 |
| 5.2. Logging on to SIINEOS | 17 |
| 5.2.1. When logging on to SIINEOS for the first time | 17 |
| 5.2.2. If you have already set up SIINEOS | 17 |
| 5.3. Checking the SIINEOS version | 18 |
| 5.4. Installing SIINEOS updates | 18 |
| 5.5. Managing licences | 19 |
| 5.5.1. Requesting a voucher and activating a software licence | 19 |
| 5.5.2. Adding a licence file to SIINEOS | 21 |
| 6. Setting up connected devices and communication protocols | 22 |
| 7. Technical data | 23 |
| 7.1. Specification of inputs and outputs | 25 |
| 7.2. USB interface specifications | 27 |
| 7.3. CAN interface specification | 28 |
| 7.4. RS485 interface specification | 28 |
| 7.5. Backplane bus specification | 28 |
| 7.6. Schematic diagram | 29 |

Legal information

Safety information

This documentation contains information that you must observe for your personal safety and to prevent material damage. Read the safety information carefully and always keep this documentation within easy reach.

The safety information is presented in descending order of hazard level as follows:

**DANGER**

Indicates an immediate danger to humans. Failure to comply will lead to irreversible injuries or death.

**WARNING**

Indicates an identifiable hazard to humans. Failure to comply may lead to irreversible injuries or death.

**CAUTION**

Indicates an identifiable hazard to humans or potential material damage. Failure to comply may lead to reversible injuries or material damage.

**ATTENTION**

Indicates potential material damage. Failure to comply may lead to material damage.

**NOTE**

Notes give you tips, recommendations and useful information on specific actions and issues.

**TIP**

A tip gives you tips, tricks and recommendations from in.hub that have proven to be helpful in handling the products.

Qualified personnel

The product associated with this documentation may only be handled by personnel qualified for the respective task. The device may only be installed, commissioned and operated in compliance with the associated documentation and the safety information contained therein.

Based on their training and experience, qualified personnel are able to recognize risks and avoid potential hazards when handling these products.

Knowledge of personal computers, operating systems and web applications is required. General knowledge in the field of automation technology is recommended.

Intended use

in.hub products may only be used for the applications specified in the corresponding technical documentation.

If third-party products and components are used, they must be recommended or approved by in.hub.

Proper storage, setup, assembly, installation, commissioning, operation and maintenance are essential for the correct and safe operation of the products.

The permissible ambient conditions must be complied with. Instructions in the associated documentation must be followed.

Brands

All designations marked with the “®” symbol are registered trademarks. The other designations in this document may be trademarks whose use by third parties for their own purposes may infringe the rights of the owner.

Disclaimer

in.hub accepts no liability for product malfunctions resulting from improper handling, mechanical damage, incorrect application and improper use.

The contents of this document have been checked for conformity with the product described. However, deviations cannot be ruled out, so that we cannot guarantee complete conformity. The information in this publication is regularly reviewed. Necessary corrections are included in subsequent editions.

1. General information

This document contains all the information you need to commission and use the device/software.

The document is intended for service technicians, system administrators and installers who connect the product with other units, configure it and commission it.

1.1. Scope of delivery

1× HUB-GM200

1× voucher for a 3-year licence SIINEOS

1× Operating Instructions as a PDF

1.2. Other applicable documents

In addition to this document, please observe the following documents. You can find these in the in.hub download portal at <https://download.inhub.de/>:

- User Manual for the IoT (Internet of Things) operating system SIINEOS

1.3. Intended use

The HUB-GM200 is intended exclusively for use in the industrial sector and is used for monitoring machines, systems and processes. Process data can be recorded, processed, controlled and analysed using the connection options provided.

1.4. Disposal

Please observe the national regulations.

Do not dispose of the device with normal household waste, but appropriately for its nature and country-specific regulations, e.g. as waste electrical and electronic equipment (WEEE) or by commissioning a certified disposal company.

2. General product information

The HUB-GM200 IoT gateway has a variety of interfaces to connect sensors and actuators directly to the gateway. With in.hub's own operating system SIINEOS, you can fulfil a wide range of operational requirements and integrate the gateway flexibly and with ease.

2.1. Intended use

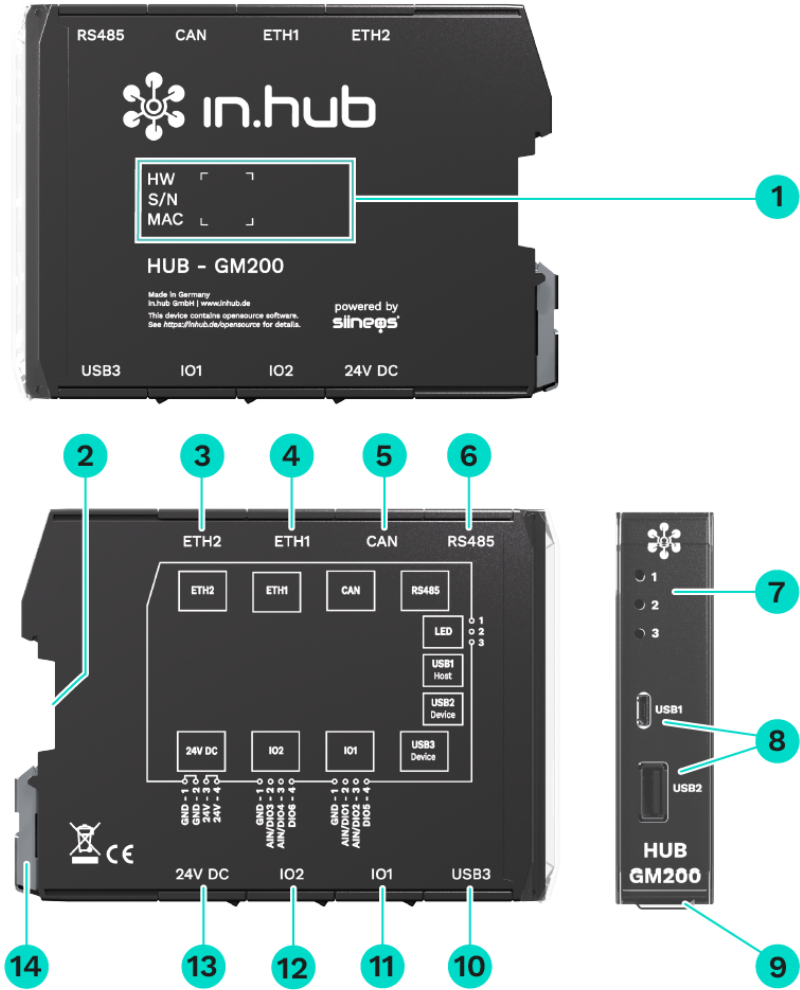
The HUB-GM200 is ideal for:

- In-process parameter monitoring for:
 - Preventive maintenance
 - Machine data acquisition
 - Status and yield monitoring on production lines
 - Monitoring of environmental influences on the process to ensure compliance with standard guidelines and occupational health and safety (e.g. temperature, humidity, particle concentration)
- Individual monitoring to monitor, control or regulate specific processes.
- Use as a process-control computer and traceability server
- Use as a remote access point on machines and systems for remote maintenance via VPN (virtual private network) or VNC (virtual network computer) (cloud service)
- Process monitoring using machine learning / AI algorithms

2.2. SIINEOS system software

The HUB-GM200 uses the Linux-based SIINEOS operating system to run InCore & Docker apps. SIINEOS is accessible via a management console (SMAC) and can be configured there. All network parameters are also set up here to enable communication with other network components.

2.3. Hardware – design and interfaces



Side views and front view of the HUB-GM200 including interfaces

- 1 Device-specific information is stored in a barcode:
HW: Hardware revision
S/N: in.hub internal serial number
MAC: Hardware address of the Ethernet interface
- 2 Backplane bus
- 3 Ethernet 2
- 4 Ethernet 1
- 5 CAN bus
- 6 RS485
- 7 LEDs displaying the operating status

| | |
|-----------|--|
| 8 | USB1 (host) and USB2 (device) |
| 9 | Protective flap Can be flipped upwards to open. |
| 10 | USB3 (Host) |
| 11 | IO1: Digital input/output and analogue input |
| 12 | IO2: Digital input/output and analogue input |
| 13 | 24 V DC power supply |
| 14 | Clamping device for mounting on the DIN rail |

2.3.1. USBs

The technical parameters of the USB interfaces can be found in the chapter [USB interface specifications \[27\]](#).

- Open the protective flap on the front upwards to access the two USB ports.
- The **USB1** port (host) is a type-B socket.
- The **USB2** and **USB3** ports (device) are type-A sockets.
- The Micro-USB connection **USB1** on the front of the device is only suitable for setting parameters and short-term power supply of the assembly – not as a permanent supply.



NOTE

Under certain circumstances, the power supply may not be sufficient, e.g. with additional, energy-hungry USB devices connected to a USB port (device), with high computing power and/or if the rating of the USB port of your connected device is too low.

No additional USB devices can be operated via the other USB connections when power is supplied via the **USB 1** connection. This is only possible with a 24 V supply.

2.3.2. Pin assignment of digital and analogue interfaces IO1 and IO2

The technical parameters of the interfaces can be found in the chapter [Specification of inputs and outputs \[25\]](#).

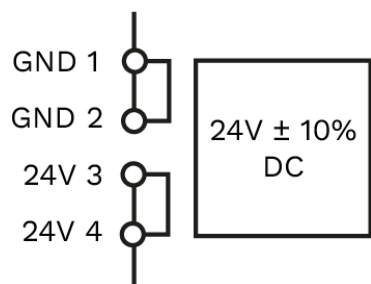


Schematic diagram of the IO1 and IO2 interfaces

| Pin | Signal IO1 | Signal IO2 | Description |
|-----|------------|------------|--|
| 1 | GND 1 | GND 2 | Ground / 0 V |
| 2 | AD/IO1 | AD/IO3 | Configurable in SIINEOS as an analogue <u>or</u> digital input – or – a digital output |
| 3 | AD/IO2 | AD/IO4 | |
| 4 | D/IO5 | D/IO6 | Digital input <u>or</u> output |

2.3.3. Power supply

The gateway is supplied by a 24 V power-supply unit. Please see the chapter [Connecting a power-supply unit \[15\]](#).



Pin assignment of the power-supply interface

2.3.4. LED display

The three bicolour (red/green) LEDs on the front of the device indicate the following status:



LEDs on the front of the HUB-GM200

| | |
|---|---|
| 1 | Device status |
| 2 | Function freely configurable in SIINEOS |
| 3 | Function freely configurable in SIINEOS LED for device identification |

| Behaviour of LED 1 | Colour | Meaning |
|----------------------------|--------|----------------------------|
| LED off | – | Device is out of order |
| Lights up briefly | Red | Memory access |
| Flashing in heartbeat mode | Green | Module ready for operation |
| Permanently lit | Green | Error in the boot process |

| Behaviour of LED 3 | Colour | Meaning |
|--------------------|--------|---|
| 20× 1 Hz flashes | Red | The Device identification action has been triggered in the SIINEOS of the HUB-GM200. |

2.3.5. Pin assignment of the CAN interface

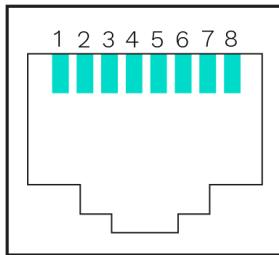


NOTE

By default, this interface is set to be the terminating resistance.

You should therefore install the module at the end of a bus structure and reconfigure the devices that were previously terminating.

Front



Pin assignment of the CAN socket

| Pin | Signal | Description |
|-----|---------|---|
| 1 | CAN_H | CAN_H bus line (dominant high) |
| 2 | CAN_L | CAN_L bus line (dominant low) |
| 3 | CAN_GND | Ground / 0 V |
| 4 | – | Not assigned |
| 5 | – | Not assigned |
| 6 | – | Not assigned |
| 7 | GND | Ground / 0 V |
| 8 | 24 V | Power supply NOTE: Pin 8 for the power supply must be activated in the software. NOTE: Voltage at pin 8 = voltage of the power supply unit minus 0.5 V. |

The technical parameters of the CAN interface can be found in the chapter [CAN interface specification \[28\]](#).

2.3.6. Pin assignment for the RS485 interface

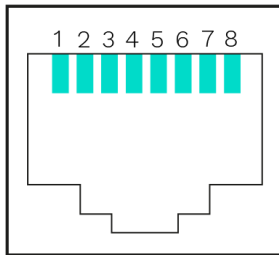


NOTE

By default, this interface is set to be the terminating resistance.

You should therefore install the module at the end of a bus structure and reconfigure the devices that were previously terminating.

Front



Pin assignment of the RS485 socket

| Pin | Signal | Description |
|-----|---------|---|
| 1 | – | Not assigned |
| 2 | – | Not assigned |
| 3 | – | Not assigned |
| 4 | D1/B/B' | Transceiver terminal 1, V1 voltage (V1 > V0 for binary 1 [OFF] status) |
| 5 | D0/A/A' | Transceiver terminal 0, V0 voltage (V0 > V1 for binary 0 [ON] status) |
| 6 | – | Not assigned |
| 7 | 24 V | Power supply NOTE: Pin 7 for the power supply must be activated in the software. NOTE: Voltage at pin 7 = voltage of the power supply unit minus 0.5 V. |
| 8 | GND | Ground / 0 V |

The technical parameters of the RS485 interface can be found in the chapter [RS485 interface specification \[28\]](#).

3. Assembly

The HUB-GM200 must be mounted on a DIN EN 60715 (35 mm) mounting rail. Observe the applicable safety and accident prevention regulations for specific areas of application, such as the Machinery Directive.

- Always work with the supply voltage switched off.



CAUTION

Electric shock due to conductive dirt can cause personal injury!

- Avoid conductive contamination.
- Only install devices in a control cabinet with the appropriate protection class.

- Maintain a minimum distance of 25 mm between the cable duct and the edge of the housing. This applies to both the top and bottom edges. This makes installation easier.

3.1. Mounting the device on the DIN rail

1. Make sure that the system's power supply is disconnected.
2. Turn the module so that the mounting foot (metal clamping device) is pointing downwards.
3. Hold the device at an angle to the DIN rail.
The recess on the back of the module is located above the mounting foot.
4. Click the module onto the DIN rail until you hear the mounting foot click into place.
5. After installation, check that the device sits firm and straight on the DIN rail.

3.2. Installing additional modules on the master gateway

The HUB-GM200 can be connected to various modules via a backplane bus, e.g. the HUB-VM102 or the HUB-EN200. All additional devices must be attached to the right of the HUB-GM200. The backplane bus supplies the modules with power and enables data communication between gateway and module. The modules are connected with a DIN-rail bus connector.

1. Make sure that the system's power supply is disconnected.
2. Make sure that a DIN-rail bus connector is attached to the HUB-GM200.
3. Put another DIN-rail bus connector onto the DIN rail and push it along the DIN rail until directly next to the master gateway
4. Click the extension module onto the DIN-rail bus connector you have just attached.



HUB-GM200 as master gateway with a HUB-EN200 as an extension

3.3. Dismantling the device

1. Make sure that the system's power supply is disconnected.
2. Use a screwdriver to pull the mounting foot (metal clamping device) downwards and remove the module from the DIN rail.



Removing the HUB-GM200 from the DIN rail

4. Installation

Read these instructions carefully and observe the safety instructions and warnings provided.



CAUTION

Electric shock!

- Ensure that all devices and circuits are disconnected from the power supply when working on a gateway or module.

4.1. Connecting a power-supply unit

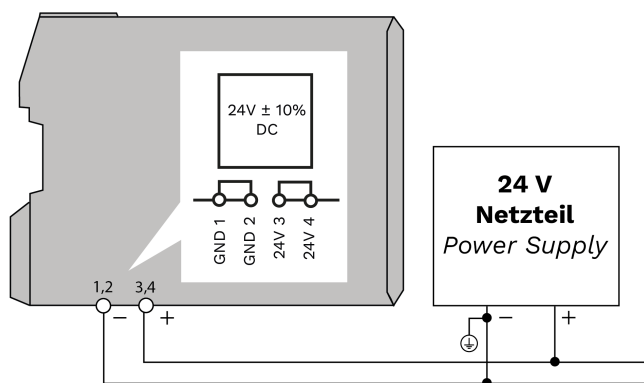


CAUTION

An incorrect power supply can cause irreparable material damage.

- Ensure that the power supply corresponds to the specification of $24\text{ V} \pm 10\%$.

1. To make installation easier, you can remove the plug with the terminal contacts from the **24 V DC** interface.
2. Clamp the power connection cable into the plug. Observe the following schematic diagram when doing this:



Schematic diagram of the power supply

When the operating voltage is correctly applied, the status LEDs on the front of the module light up – depending on the configuration – and signal the booting (start-up) of the SIINEOS system software.

5. First steps with SIINEOS

This chapter contains the first steps for your work with SIINEOS. Details on the configuration and settings of your device in SIINEOS are described in separate user documentation, which is published with each new software version of SIINEOS. This allows you to benefit from new features and improvements in the SIINEOS software.



NOTE

SIINEOS updates and the user documentation can be downloaded from the download portal at <https://download.inhub.de/siineos/>.

5.1. Connecting HUB-GM200 with the PC

1. Use a Micro-USB cable to connect your PC with the HUB-GM200.
In most cases, the USB connection provides enough power to operate the HUB-GM200 without having to connect an extra power supply.



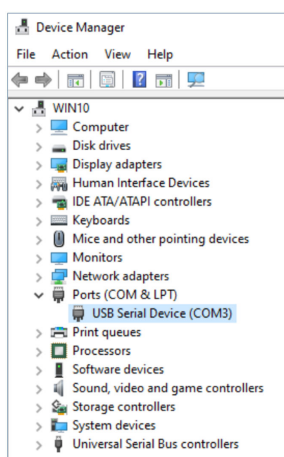
NOTE

Under certain circumstances, the power supply may not be sufficient, e.g. with additional, energy-hungry USB devices connected to a USB port (device), with high computing power and/or if the rating of the USB port of your connected device is too low.

No additional USB devices can be operated via the other USB connections when power is supplied via the **USB 1** connection. This is only possible with a 24 V supply.

LED 1 indicates the status of the device. If the connection is working correctly, **LED 1** lights up and flashes after a while. SIINEOS runs on the module.

2. When you connect the HUB-GM200 for the first time, additional drivers are installed. Check Windows Device Manager to see if a new device has been created:



Windows Device Manager (example)

**NOTE**

If the LED display does not light up and no drivers have been installed and no new device created, there is usually an insufficient power supply to the module. In this case, use an external power supply at the 24 V input.

5.2. Logging on to SIINEOS

We recommend that you use the latest versions of the **Firefox**, **Edge** or **Chrome** browsers for SIINEOS. Compatibility problems may occur with other or older browsers.

5.2.1. When logging on to SIINEOS for the first time

1. Connect the gateway or module to your PC using a micro USB cable (USB port on the front).
2. Enter the following address in your browser:
<http://192.168.123.1>
3. Log on with the initial user data (**hubadmin/hubadmin**).
The SIINEOS Management Console will open.



SIINEOS start page (example)

On the start page, you will now see information about your system, such as the current SIINEOS version, the device name, location, type, system resources, etc.

4. Select the **Users** page and change the password for the user **hubadmin**.

5.2.2. If you have already set up SIINEOS

1. In your browser, enter the individual IP network address that you have configured.
2. Log on with your user data and click on **Log in**.
The SIINEOS Management Console will open.

5.3. Checking the SIINEOS version

1. Go to the SIINEOS start page by selecting the **Overview** page on the left.



“Overview” start page (example)

2. Check the SIINEOS version field to see which version is installed on your gateway.
3. Go to the download portal at <https://download.inhub.de/siineos/> and check whether a new version of SIINEOS is available.

5.4. Installing SIINEOS updates

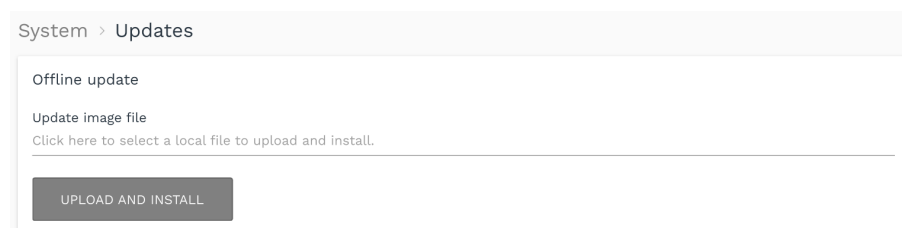


NOTE

You can only upload updates on the **System** page if you have a valid SIINEOS licence.

If the licence has expired, you will be informed that you cannot import any updates.

1. Go to the download portal at <https://download.inhub.de/siineos/> and select the required SIINEOS package.
Two variants are available:
 - The complete software package for the gateways and modules, such as the HUB-GM200 or the HUB-EN200
 - The light version without Docker containers with a smaller file size for the HUB-IO100
2. When the download is complete, go to the **System** page in SIINEOS and select **Updates**.



System > Updates

3. Click in the **Update image file** input field and select the software package provided by in.hub in *.raucb format from your local file-storage location.
4. Click on **Upload and install**.
The installation will proceed automatically and takes about 1 minute. After a successful installation, you will be asked whether you want to restart the gateway.
5. Click on **Yes**.
6. After restarting, check that the new version of SIINEOS is displayed on the **Overview** page.
7. If the version has not been updated, proceed as follows:
 - a. First delete your browser cache and refresh the page in your browser.
 - b. If that doesn't work, switch off the power to the gateway and switch it on again after a few seconds.
 - c. Start SIINEOS and check the version number.

5.5. Managing licences

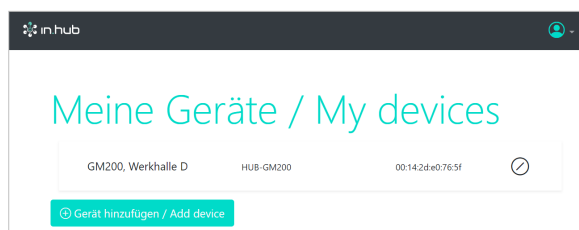
With every new SIINEOS-enabled device you purchase, you will automatically receive a SIINEOS licence for 3 years. You can update SIINEOS as often as you like during the licence period and install the latest version on the device.

Once the licence period has expired, you can either continue working with the currently installed version of SIINEOS or you can purchase another licence from in.hub to benefit from the further development and product improvement of SIINEOS.

If you need an app licence or want to extend one, please refer to the relevant User Manual.

5.5.1. Requesting a voucher and activating a software licence

1. Please contact service@inhub.de and let us know the term for which you would like to purchase the licence.
SIINEOS licences can be purchased for 1 year or 3 years.
You can activate the software licence with the voucher you receive from us.
2. Navigate to the website <https://apps.inhub.de/> and register or log on if you are already registered.



My devices (example)

3. If you want to extend a software licence, click on the device on which the software licence is to be renewed under **My devices**;
– or –

if you want to activate the software licence for a new device, click on **Add device**.

Add device

- Enter the **Name** of the device, select the **Device Type** and enter the MAC address of the device.

The MAC address can be found via **SIINEOS > Networks > Ethernet 1**.

NOTE: Only the MAC address of Ethernet 1 is recognized and accepted.

- Click on **Add**.

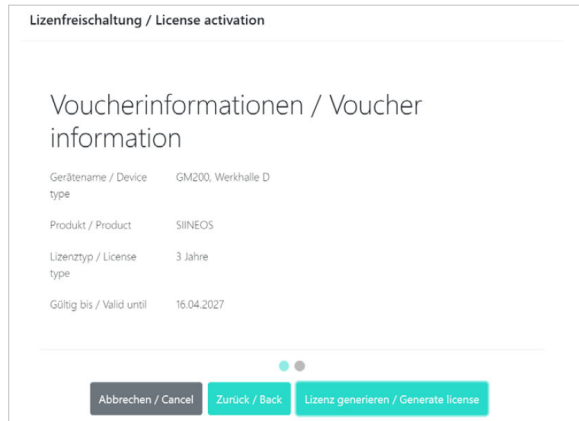
The **License activation** page opens:

License activation

- Copy the name of the voucher you received from in.hub into the **Voucher** field.

- Click on **Next**.

The information stored in the voucher, such as the term, product and validity, etc., will be displayed.

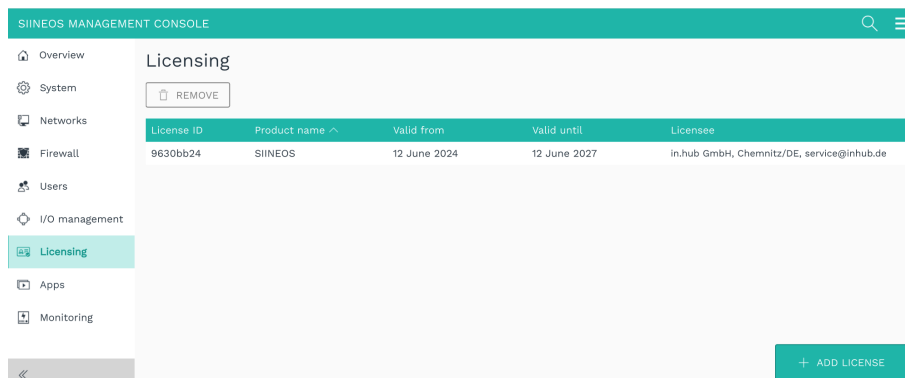


Voucher information (example: Activation of a SIINEOS licence valid for 3 years)

8. Check the details, especially whether the requested licence term matches the term specified here.
9. If the details are correct, click on Generate license.
The licence file is downloaded automatically.

5.5.2. Adding a licence file to SIINEOS

1. In SIINEOS, navigate to **Licensing**.
In the list, you will find all software licences that you have purchased and uploaded.



“Licensing” page (example)

2. Click on **Add license**.
3. Select the licence file from your file directory and click on **OK**.
The licence is added to the list. From that point on, you can make updates again or return to using a blocked app.
4. To remove a licence again – because it has become invalid, for example – select the licence ID and click on **Remove**.
This will not delete the licence file itself, but only remove it from the list.



NOTE

Make sure that the system time of your device and your current local time are synchronized. Otherwise, the licence-file upload may fail.

6. Setting up connected devices and communication protocols

1. Please refer to the SIINEOS User Manual.
You can find the current document at <https://download.inhub.de/siineos/>.
2. In the **I/O management** section under **I/O units**, find the device that you have connected and now want to set up or select one of the communication protocols (MQTT, Modbus, OPC UA).
3. Go through the instructions step by step as explained in the User Manual.
4. If something does not work straight away, the following two first-aid options are available to you:
 - a. Check the **Troubleshooting** section in the User Manual to see whether the problem you have encountered is described there. You can also use the full text search in the PDF. The cause may lie in a setting on the device, e.g. in the Firewall or in the network settings.
 - b. Check whether the problem has already been discussed in the community at <https://community.inhub.de/>. If not, please feel free to ask a question yourself.

7. Technical data

| Data | Values |
|------------------------------------|--|
| Power supply | 24 V DC \pm 10 % |
| Max. power consumption | 120 W |
| Processor | Colibri IMX7D 1 GB 32 bit, 2 \times ARM Cortex-A7 CPU ARM®, 1 \times Cortex-M4 CPU Core® |
| Memory | 1 GB DDR3L RAM, 4 GB eMMC |
| Data interfaces | USB1: Host (Micro USB) USB2: Device (USB-A) USB3: Device (USB-A) 2 \times Ethernet: 100 Mbit/s 1 \times CAN 1 \times RS485 3 \times status LEDs Backplane bus |
| Connections for peripheral devices | 6 \times digital input 6 \times digital output 4 \times analogue input |
| Protocols | OPC UA server + client MQTT broker server + client Modbus TCP/IP broker client + server |
| Operating system | SIINEOS IIoT operating system for configuration and data visualization (via Micro-USB or Ethernet) |
| Housing | Plastic (polyamide), black, flammability class UL 94 V0 |
| Protection class | IP20 |
| Dimensions | 139 mm \times 100 mm \times 25 mm |
| Weight | 181 g |

| Ambient conditions | Values |
|---------------------------|--|
| Temperature range | Storage: -40°C to 85°C Operation: 0°C to 50°C |
| Humidity | Storage: 10% to 95% RH, non-condensing |

| Ambient conditions | Values |
|--------------------|--|
| | Operation: 20% to 90% RH, non-condensing |
| Operating altitude | Max. 2,000 m above sea level |

| Storage | Values |
|--------------------|-------------------|
| Recording interval | Minimum 1 second |
| Storage | Up to 4 GB usable |
| Data export | VictoriaMetrics |

| SIINEOS | |
|---|--|
| Pre-installed software | <p>FlexPlorer: Live data visualization</p> <p>Azure IoT Hub Connector: Connector to the Microsoft® IoT platform</p> <p>Cloud of Things Connector: Connector to the Telekom® IoT platform</p> <p>InGraf: Grafana data visualization</p> <p>NumCorder: Recording of scanned or entered barcodes / serial numbers</p> <p>OPC UA server: Counterpart to the OPC UA client, setting up of a server-client structure with one device</p> <p>NodeRED: Graphical programming of interfaces, services or hardware</p> <p>PromEx: Database configuration of VictoriaMetrics and Prometheus</p> <p>TOSIBOX®: Secure connectivity between the IoT devices</p> |
| I/O interfaces to third-party systems/devices | <p>S7 PLC client: Connector for the Siemens® S7 controller</p> <p>Sensirion SPS30: Temperature and humidity sensor</p> <p>TBEN-S1-8DIP: TBEN module from TURCK®</p> <p>TBEN-S2-4AI: TBEN module from TURCK®</p> |

7.1. Specification of inputs and outputs

| Configuration of DIO as a digital input | Values |
|---|---|
| Conformity | EN61131-2 Type 1/3 |
| Switching threshold | Between 5 V and 11 V |
| Pull-down current | Typ. 2 mA |
| Bandwidth | From 6 Hz (with 12 channels, 2 edges) to 150 Hz (with 1 channel, 1 edge)* |
| Permissible input voltage range | -3 to 30 V |
| Circuit diagram** | |

| Configuration of DIO as a digital output | Values |
|--|---|
| Power supply | From 24 V |
| Conformity | EN61131-2 nominal current 0.1 A |
| Max. output current | Typ. 120 mA |
| Switching interval | ≥50 ms* |
| Voltage drop to 24 V | Max. 1 V |
| Protective functions | Overload protection Reverse-current protection |
| Circuit diagram** | |

| Analogue input AIN | Values |
|---------------------------------|--|
| Operating modes | Current Voltage |
| Measuring range | 0–11 V / 0–24 mA |
| Resolution | 12 bit |
| Input resistance | 101 kΩ (at 0–11 V) |
| Sampling interval | ≥50 ms* |
| Permissible input voltage range | –3 to 30 V |
| Protective functions | Overload protection: in 20 mA mode, the current is limited to 22–30 mA |
| Circuit diagram** | |

*Only if processor is not busy

**The hash (#) in the circuit diagram indicates the overload protection.

7.2. USB interface specifications

| USB connections | Values |
|--|---|
| Max. power consumption for USB1 (Micro-USB on the front) | 5 W (1 A) May vary depending on the device connected: <ul style="list-style-type: none"> • On a 24 V power supply, the power consumption is 0 • On a 5 V power supply, the digital outputs cannot be used. |
| Max. power output for USB2 and USB3 | 2.5 W (500 mA) with 24 V supply |
| Support for | Full, high and low speed (480, 12 and 1.5 Mbit/s) |
| Circuit diagram* | <p>The circuit diagram illustrates the power management for the USB interface. It features two main input sources: a 24V supply and a USB1 supply. The 24V supply is connected through a diode to a 24V rail. This rail provides power to several output modules: DIO, Backplane, RS485, and CAN. Each of these modules is powered through an iMX (intelligent motor) module that includes an overload protection feature, denoted by a hash symbol (#). A DCDC (DC-DC converter) is used to step down the 24V supply to a 5V rail. The USB1 supply is connected through a diode to a 5V rail. This 5V rail is regulated to a 3V3 output by an LDO (Low Dropout Regulator). The 5V rail also powers USB2 and USB3 modules, which are also powered through iMX modules with overload protection (#).</p> |

*The hash (#) in the circuit diagram indicates the overload protection.

7.3. CAN interface specification

| CAN (controller area network) | Values |
|-------------------------------|--|
| Voltage output | 24 V (0.75 A) |
| Max. baud rate | 1 Mbit/s |
| Bus termination | 120 Ω |
| Protective functions | Reverse-polarity protection Overload protection |

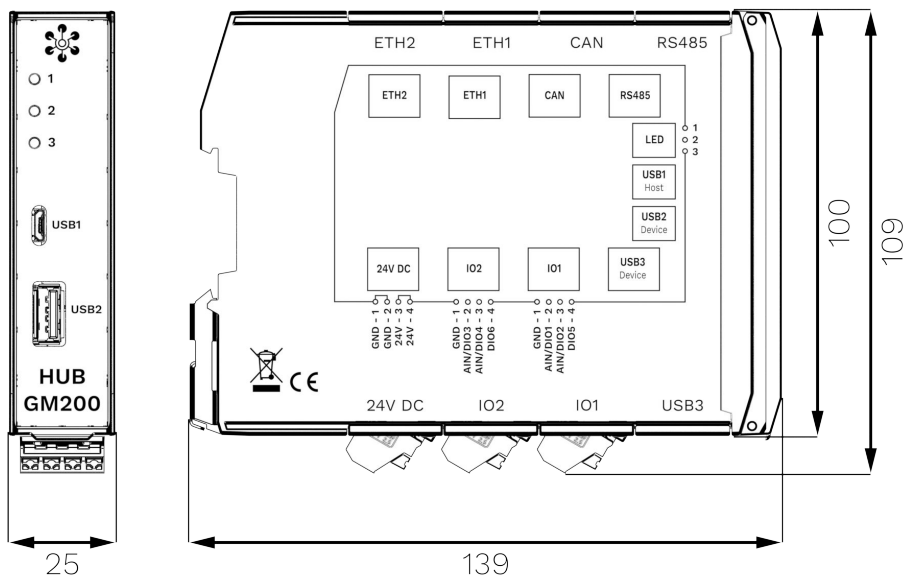
7.4. RS485 interface specification

| RS485 | Values |
|----------------------|--|
| Voltage output | 24 V (0.75 A) |
| Max. baud rate | 2.5 Mbit/s |
| Bus termination | 120 Ω |
| Protective functions | Reverse-polarity protection Overload protection |

7.5. Backplane bus specification

| Backplane bus | Values |
|---|--|
| Voltage on the backplane bus | Voltage of the power supply unit minus 0.5 V |
| Communication | Via Modbus RTU |
| Max. number of extension modules if device acts as master gateway | 3 |
| Protective functions | Overload protection |

7.6. Schematic diagram



Dimensions of the HUB-GM200 in mm

This document is provided in electronic form in the download portal of in.hub. Printed versions or copies not explicitly provided by in.hub are considered uncontrolled.

The original language of this document is German.

Made in Germany.

Service & Support: service@inhub.de | <https://community.inhub.de/>

in.hub Download portal: <https://download.inhub.de/>



in.hub GmbH
Technologie-Campus 1
DE-09126 Chemnitz

+49 371 335 655 00
info@inhub.de