INDUSTRIAL IOT GATEWAY

Protonest Master

User Manual

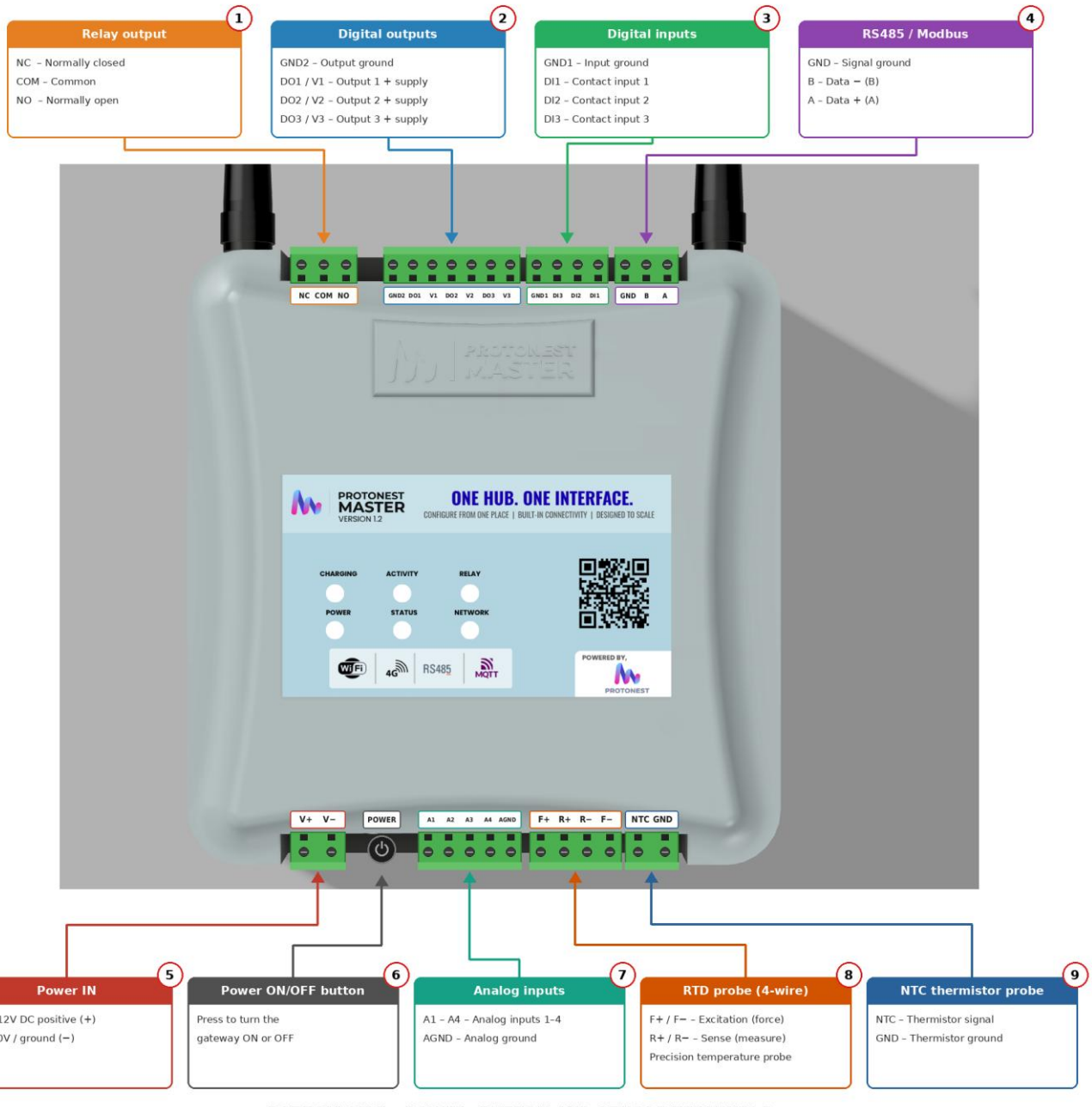
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Read this manual before installing and configuring the gateway. Keep it for future reference.

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TOP SIDE (ANTENNA SIDE) – TERMINAL CONNECTIONS



BOTTOM SIDE – POWER, BUTTON AND SENSOR TERMINALS

1. Product overview

The Protonest Master is an industrial IoT gateway that collects data from sensors and field devices, controls outputs, and publishes the readings to an MQTT broker over Wi-Fi or cellular. It is configured entirely through a built-in web console, so no software needs to be installed. You connect a laptop to the gateway's own setup hotspot and open the console in a browser.

How it works

1. **Collect** - The gateway reads its built-in environment sensor and any connected inputs: analog channels, temperature probes, contact inputs and Modbus devices.
2. **Connect** - It joins the internet through a 2.4 GHz Wi-Fi network or a cellular SIM.
3. **Publish** - Each reading is sent to your MQTT broker under its own topic, for example …/environment or …/analog-inputs, so your cloud platform or dashboard can receive it.
4. **Monitor** - The Overview page shows live readings, connection, power and hardware health at a glance.

Function	What the gateway provides
Environment sensor	Enclosure temperature (°C) and humidity (%RH)
Analog inputs	4 channels
Temperature probes	NTC thermistor and RTD precision probe
Digital I/O	Contact inputs, 3 digital outputs, 1 relay
Field bus	Modbus interface
Internet	Wi-Fi (2.4 GHz) or cellular (SIM)
Cloud	Publishes readings to an MQTT broker
Power	External power with battery backup

Each channel can be turned on or off individually. Channels that are turned off show **Disabled** on the Overview page.



Front view

Status LEDs (front panel)

1 CHARGING	2 ACTIVITY	3 RELAY
Battery connected	Blinks error code	Relay switched on
4 POWER	**5 STATUS**	**6 NETWORK**
External power on	On = working normally	4G modem connected

If there is a problem: the **STATUS** LED turns off and the **ACTIVITY** LED blinks 1–4 times, then repeats. Count the blinks and see **8.1 LED error codes**.

The status LED shows error codes by blinking. See LED error codes.

If the gateway has a problem, the blinks a number of times, pauses, then repeats. Count the blinks between pauses and use the table below.

Blinks	Meaning	What to do
1 blink	**Hardware absents:** a module was not detected	Check that all plugs are fitted. See **Diagnostics → Hardware**.
2 blinks	**Initialization failure:** the gateway could not start correctly	Restart the gateway. Check the power supply and polarity.
3 blinks	**Configuration failure,** including a wrong or missing Wi-Fi network name or password	Check the Wi-Fi name and password in **Network** (2.4 GHz only).
4 blinks	**Runtime or connectivity failure:** the gateway is running but cannot connect or keep working	Check the internet, signal and **MQTT broker** settings. See **Diagnostics → Logs**.

About this manual

This manual explains how to set up and use the Protonest Master gateway. Words in **bold** are buttons, fields and menu items exactly as they appear on screen. **Note** boxes give tips and **Warning** boxes mark actions to take care with. Screenshots were taken on a gateway named device-009C running firmware 1.0.8; your device ID, hotspot name and readings will differ.

What you need

- A device with Wi-Fi and a web browser.
- A 7–36 V DC power supply (12 V recommended).
- The hotspot password (printed on the gateway label).
- The two antennas supplied with the gateway, fitted to both antenna connectors and tightened by hand.
- For Wi-Fi: the name and password of a **2.4 GHz** Wi-Fi network.
- For cellular: a SIM card installed in the gateway and the **APN** from your SIM provider.
- Your MQTT broker details: address, port, client ID and username and password (or certificates).

2. Quick start

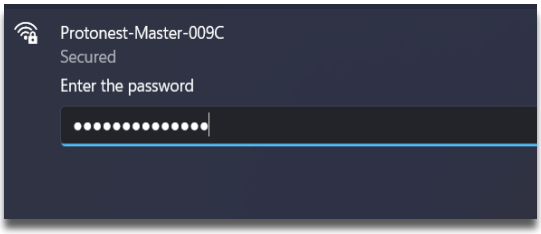
Follow these 4 steps to set up a new gateway. It takes about 5 minutes.

Step 1 - Connect to the gateway hotspot

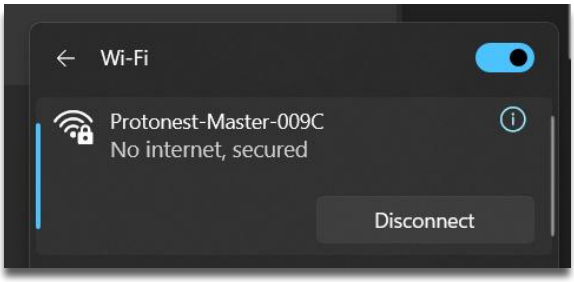
1. Power on the gateway and wait about a minute for it to start.
2. On your laptop, open the Wi-Fi list and select **Protonest-Master-XXXX** (XXXX = the last 4 characters of the MAC address).
3. Enter the hotspot password and click **Next**.



Select the gateway hotspot



Enter the hotspot password

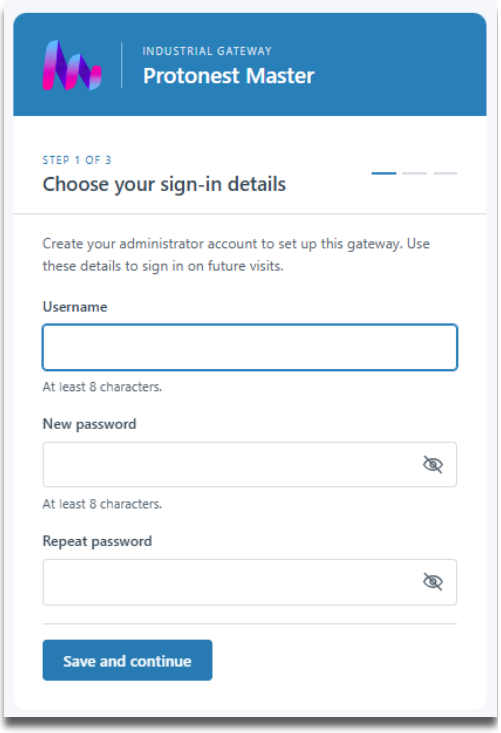


Connected - "No internet" is normal

Note The hotspot is for setup only, so your laptop shows **No internet, secured**. If several gateways are nearby, match the hotspot name to the label on your device.

Step 2 - Sign in

1. Open a web browser and go to **192.168.4.1**.
2. Sign in with username and your **own** password, then click **Sign in**.

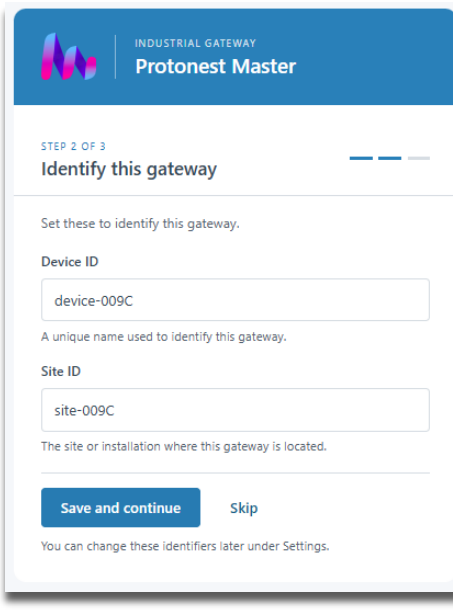


Sign-in page

Step 3 - Complete the setup wizard

After the first sign-in, a 3-step wizard opens. The bars at the top right show your progress.

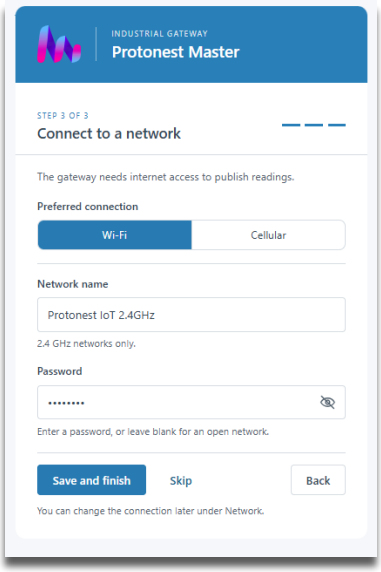
Enter a **Device ID** (unique name) and **Site ID** (location). Click **Save and continue**, or **Skip**.



Identify gateway

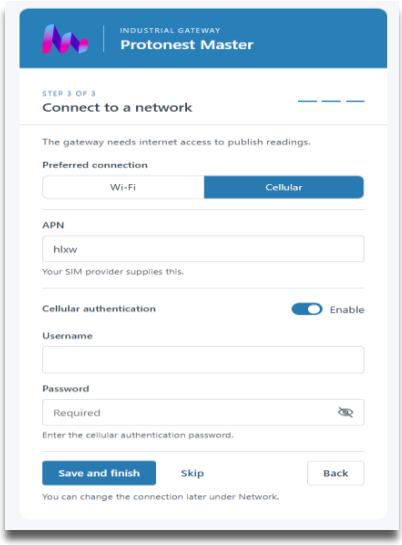
Step 4 - Connect to a network - Wi-Fi or Cellular

Choose **Wi-Fi**, enter the network name and password. Click **Save and Finish**.



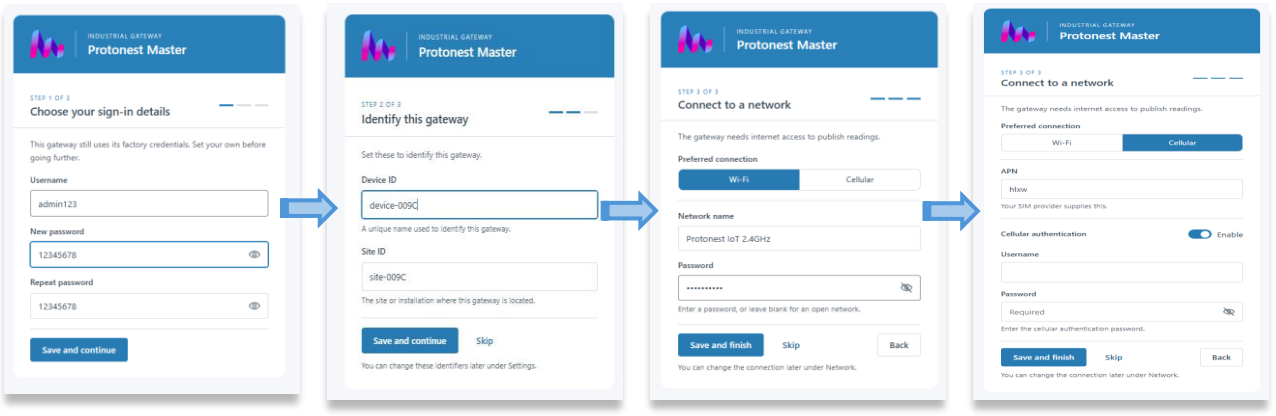
Wi-Fi

Else Choose **Cellular**, enter the **APN** from your SIM provider. Turn on **Cellular authentication** only if the provider gives a username and password.



Cellular

Wizard step	What to do
1. Choose your sign-in details	Choose a new username and password. Click **Save and continue**.
2. Identify this gateway	Enter a **Device ID** (unique name) and **Site ID** (location). Click **Save and continue**, or **Skip**.
3. Connect to a network - Wi-Fi	Choose **Wi-Fi**, enter the network name and password. Click **Save and finish**.
3. Connect to a network - Cellular	Choose **Cellular**, enter the **APN** from your SIM provider. Turn on **Cellular authentication** only if the provider gives a username and password.



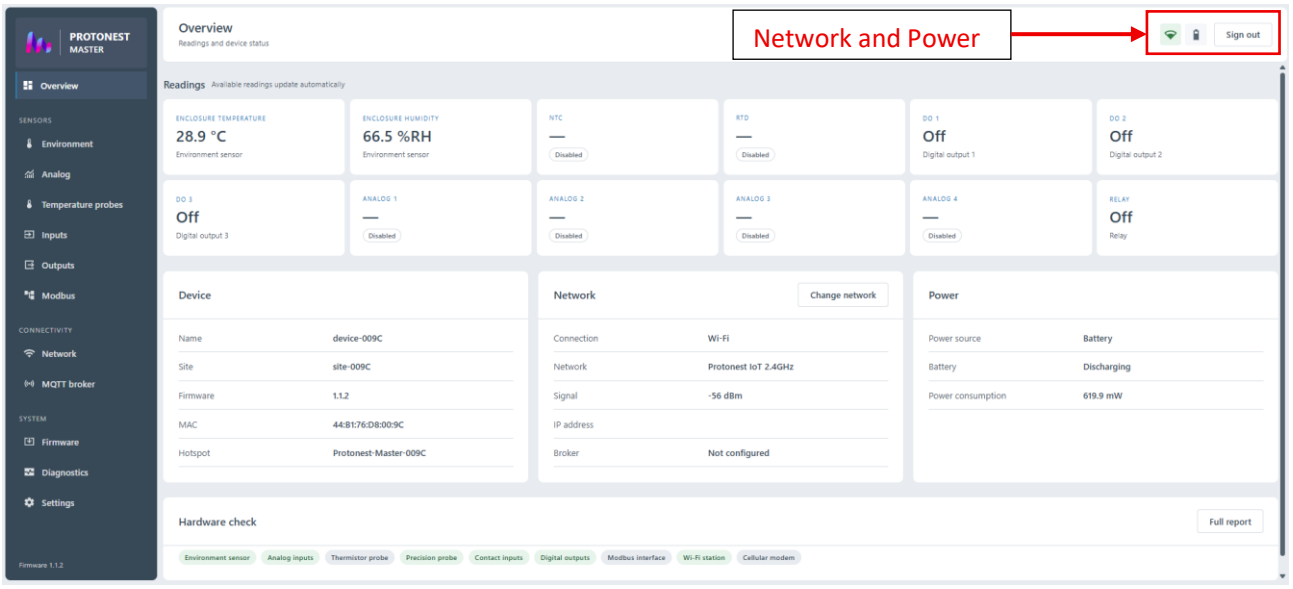
1. Sign-in details *2. Identify gateway* *3. Wi-Fi* *3. Cellular*

Warning Always replace the factory password. Anyone near the gateway who knows it can change the settings.

Note Use a 2.4 GHz Wi-Fi network; 5 GHz networks are not supported. **Back** returns to the previous step, and **Skip** leaves a step for later. The Device ID, Site ID and network can be changed later under **Settings** and **Network**.

Step 4 - Check the dashboard

After the wizard, the **Overview** page opens. Check that **Connection** in the Network panel shows the gateway is connected and that the readings update. If it shows **Not connected**, see Troubleshooting (section 8).



Overview dashboard

Panel	What it shows
Readings	Live value of each channel: enclosure temperature and humidity, NTC, RTD, Analog 1-4, DO 1-3, Relay. **Disabled** = channel not turned on yet.
Device	Device ID, Site ID, firmware version, MAC address, hotspot name
Network	Connection status, network name, signal, IP address, MQTT broker status. **Change network** opens the network settings.
Power	Power source, battery state, power consumption (mW)
Hardware check	Self-test result for each module. **Full report** shows details.
Top right	Connection and power icons, Sign out

3. The web console

3.1 Menu

The menu on the left opens each page.

Menu group	Pages	Section
(top)	Overview	3.3
Sensors	Environment, Analog, Temperature probes, Inputs, Outputs, Modbus	4
Connectivity	Network, MQTT broker	5
System	Firmware, Diagnostics, Settings	6

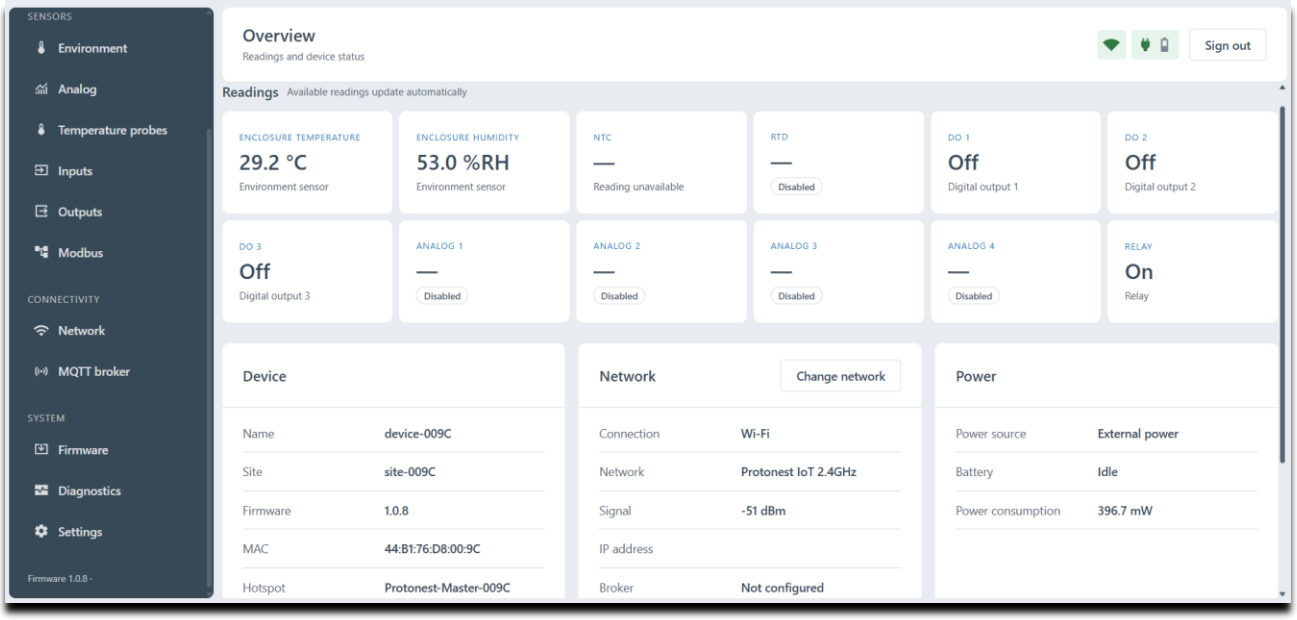
3.2 Status icons and sign out

The top-right corner of every page shows two status icons and the **Sign out** button.

Icon	Meaning
Wi-Fi / signal	Green when the gateway is connected to the internet. Crossed out when it is not connected.
Plug and battery	Power source and battery state. The plug shows external power is present.
Sign out	Ends your session. Always sign out when you finish configuring the gateway.

3.3 Overview dashboard

The Overview page shows all readings and the device status on one screen.



Overview dashboard

Panel	What it shows
Readings	Live value of each channel: enclosure temperature and humidity, NTC, RTD, Analog 1-4, DO 1-3 and Relay. Values update automatically. **Disabled** means the channel has not been turned on.
Device	Name (Device ID), Site (Site ID), firmware version, MAC address and hotspot name.
Network	Connection status, network name, signal strength, IP address and MQTT broker status. **Change network** opens the Network page.
Power	Power source, battery state (for example Charging or Idle) and power consumption in mW.
Hardware check	Self-test result for each module. **Full report** opens Diagnostics.

4. Sensors

This guide shows how to set up each type of sensor channel in the gateway's web console, step by step. Each section uses a real example. Names in **bold** are the buttons, fields and menu items exactly as they appear on screen. All the pages are under the **Sensors** group in the left menu.

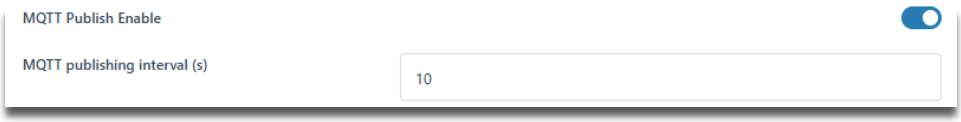
4.1 Environment

Built-in sensor for enclosure temperature (°C) and humidity (%RH).
Configuring the Environment Sensor

Step 1 - Open the Environment page and Clicked the Enable Sensor

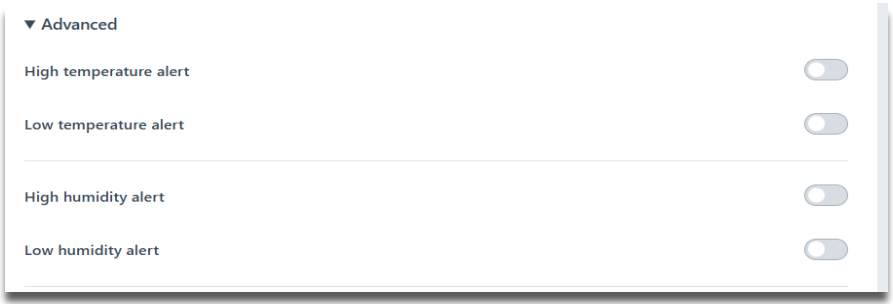


Step 2- Set the MQTT publishing interval

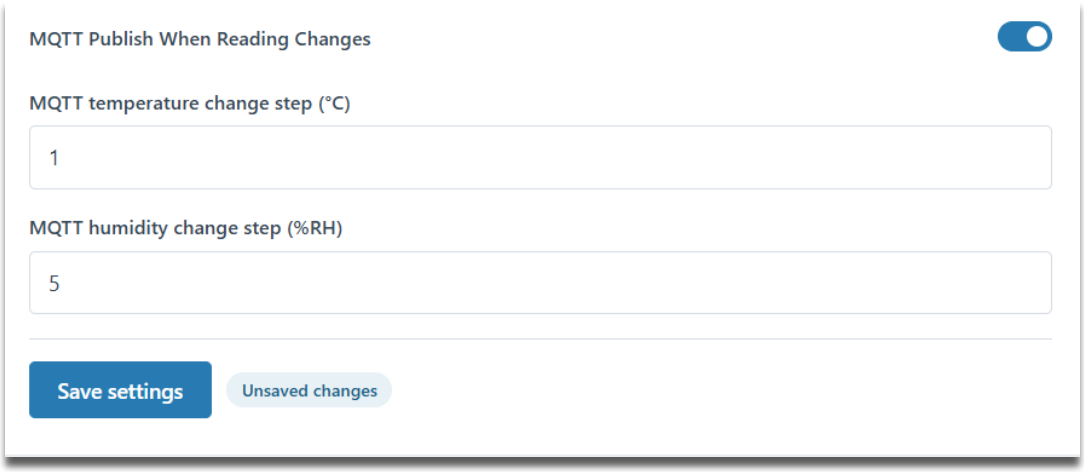


*Turn on **MQTT Publish Enable**. In **MQTT publishing interval (s)**, enter how often the readings are sent, in seconds (for example, 10)*

Step 3 - Configure Advanced options (optional)

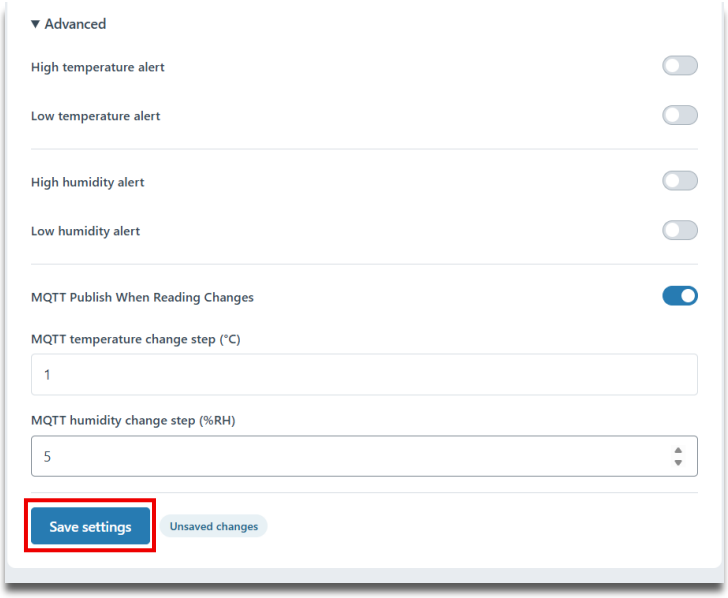


- **High temperature alert**: when you turn it on, a **High temperature limit (°C)** field appears (the default is **60**). Enter the highest temperature you want to allow. The gateway alerts you when the reading goes above it.
- **Low temperature alert**: when you turn it on, enter the lowest temperature you want to allow. The gateway alerts you when the reading drops below it.



MQTT Publish When Reading Changes: enter the temperature and humidity change steps.

Step 4 - Save the settings



4.2 Analog

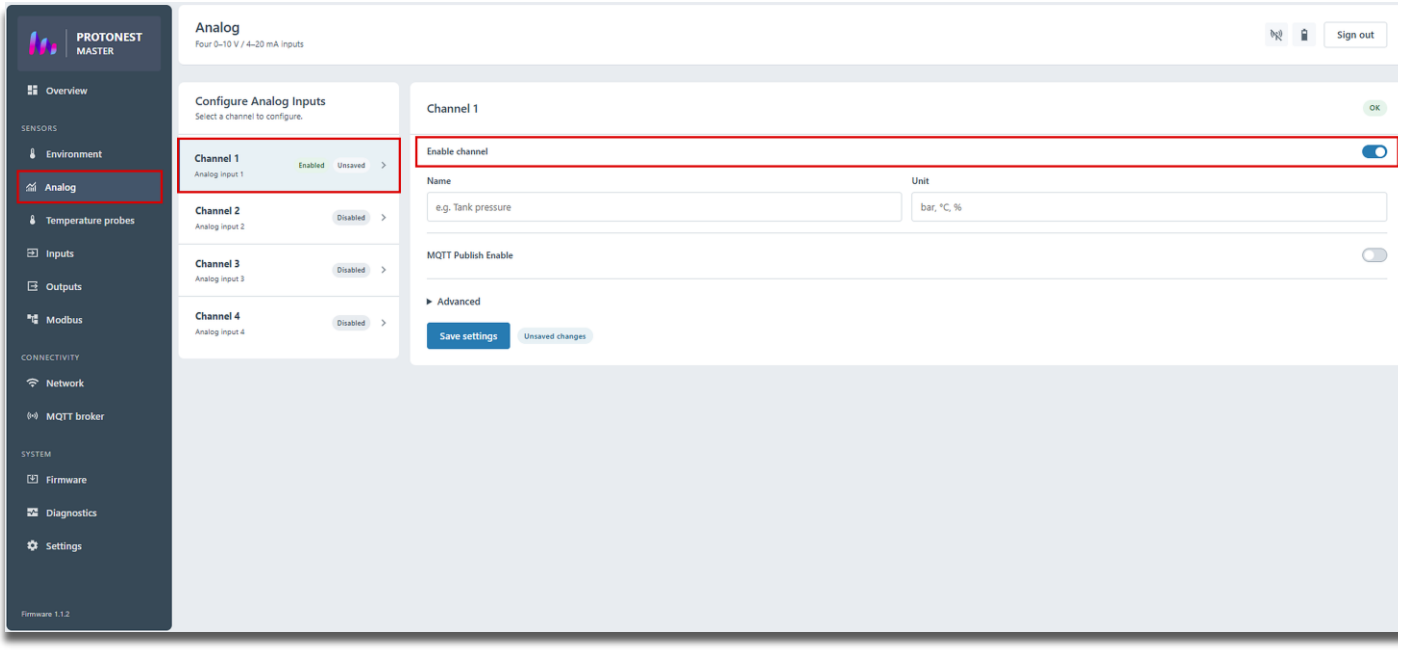
The gateway has 4 analog inputs.

Channel	Input type	Typical sensors
Analog 1, Analog 2	**Voltage**	Sensors with a voltage output, **0–10 V**
Analog 3, Analog 4	**Current**	Sensors with a current output, **4–20 mA**

Channel 1 is used as an example here. The other channels are set up the same way

A pressure transmitter on Channel 1, reading 0-10 bar.

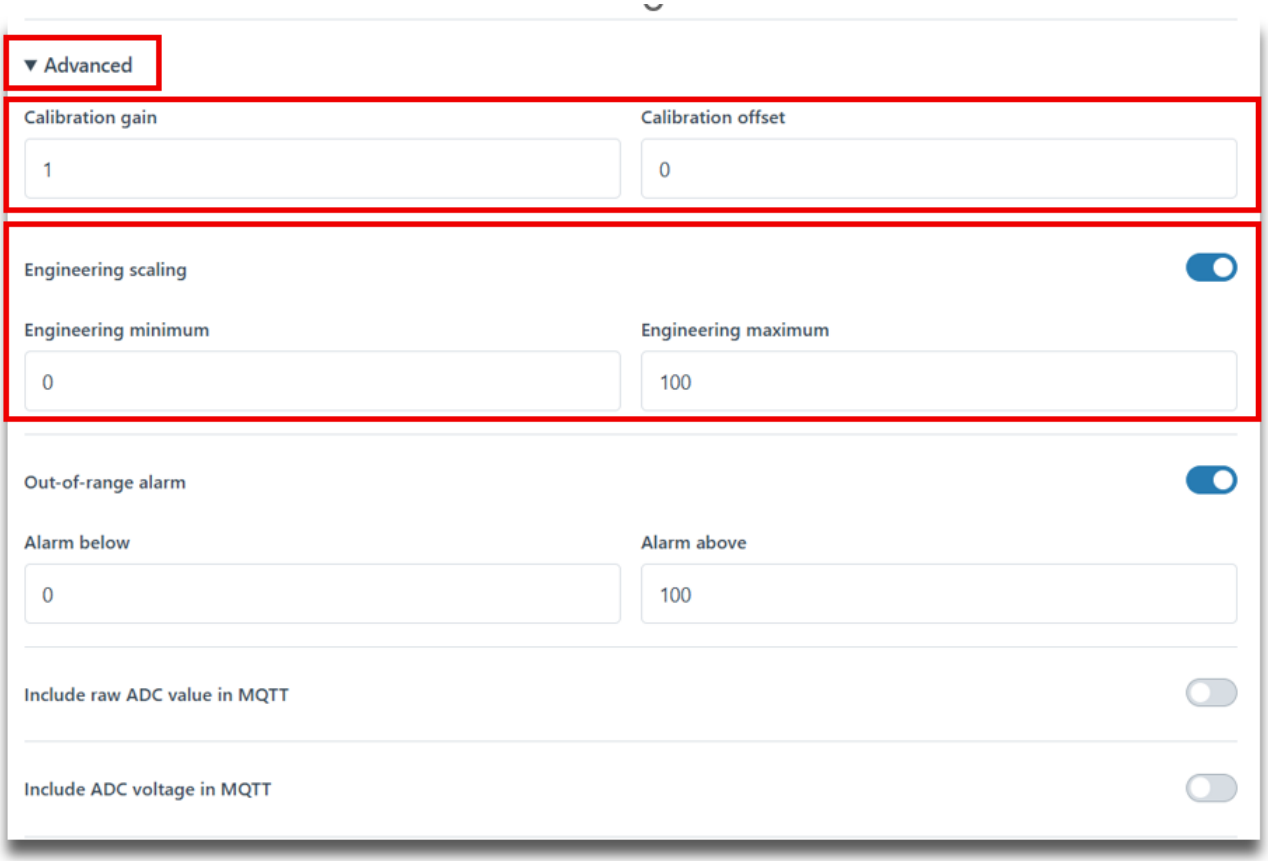
1. In the left menu, under **Sensors**, click **Analog**.
2. Click **Channel 1**. It shows **Disabled** until you turn it on.
3. Turn on **Enable channel**



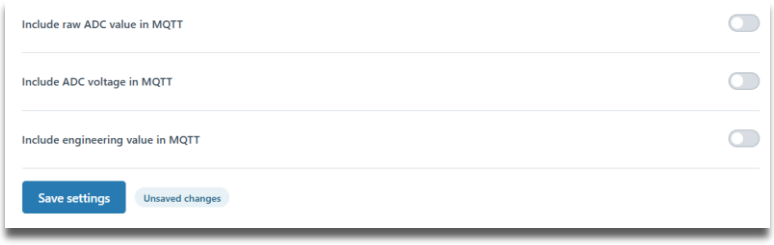
4. In **Name**, type a clear name, for example Tank pressure.
5. In **Unit**, type the unit, for example bar.



6. Turn on **MQTT Publish Enable** to send the reading to the broker and set the publishing interval.
7. Configure advanced options (Optional: click **Advanced** to set scaling (see below))

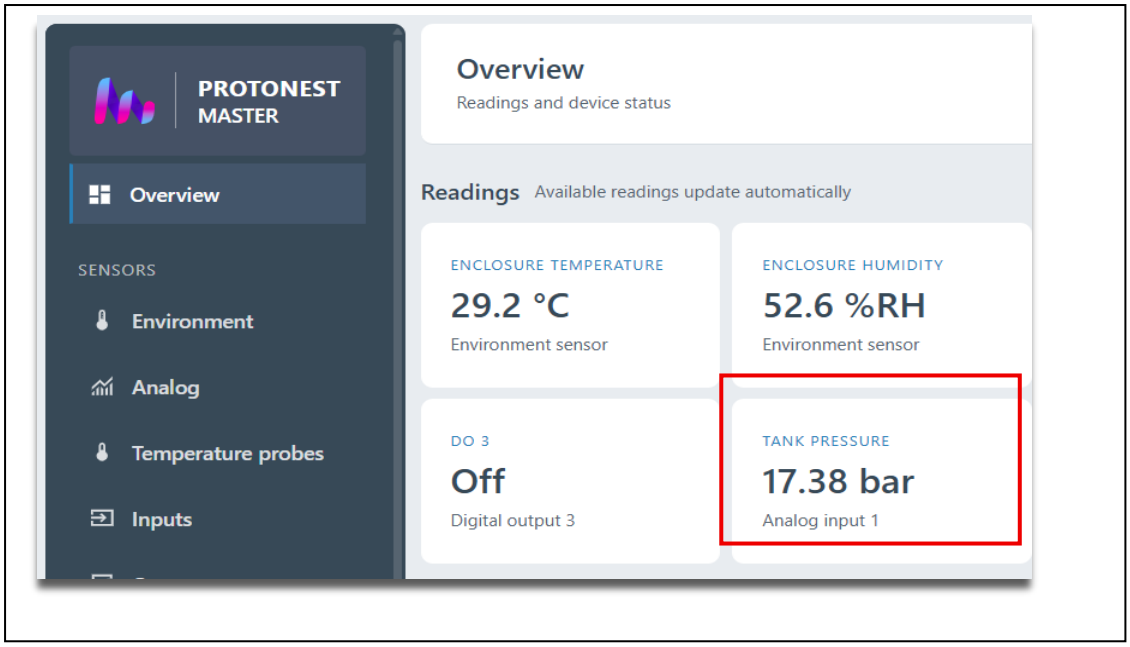


8. Click **Save settings**.



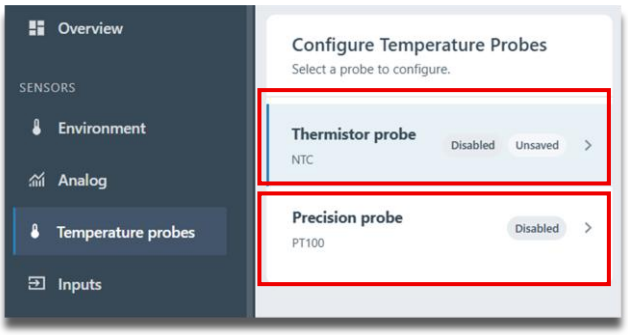
9. You can See in Dashboard, Analog 1 shown as Tank Pressure with its live value

4.3



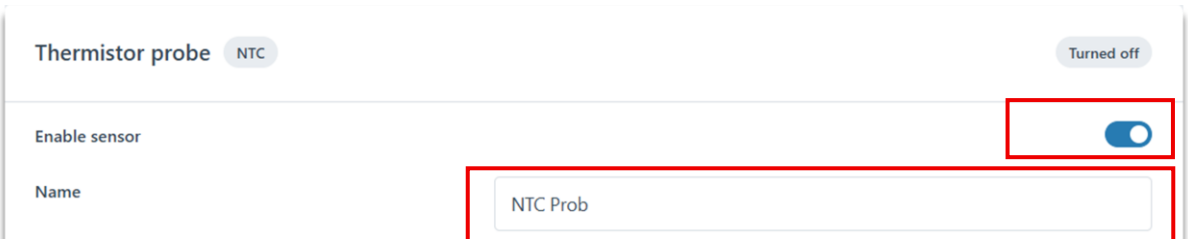
Temperature probes

Two probe inputs: **Thermistor probe** (NTC) and **Precision probe** (PT100).



Set up a probe

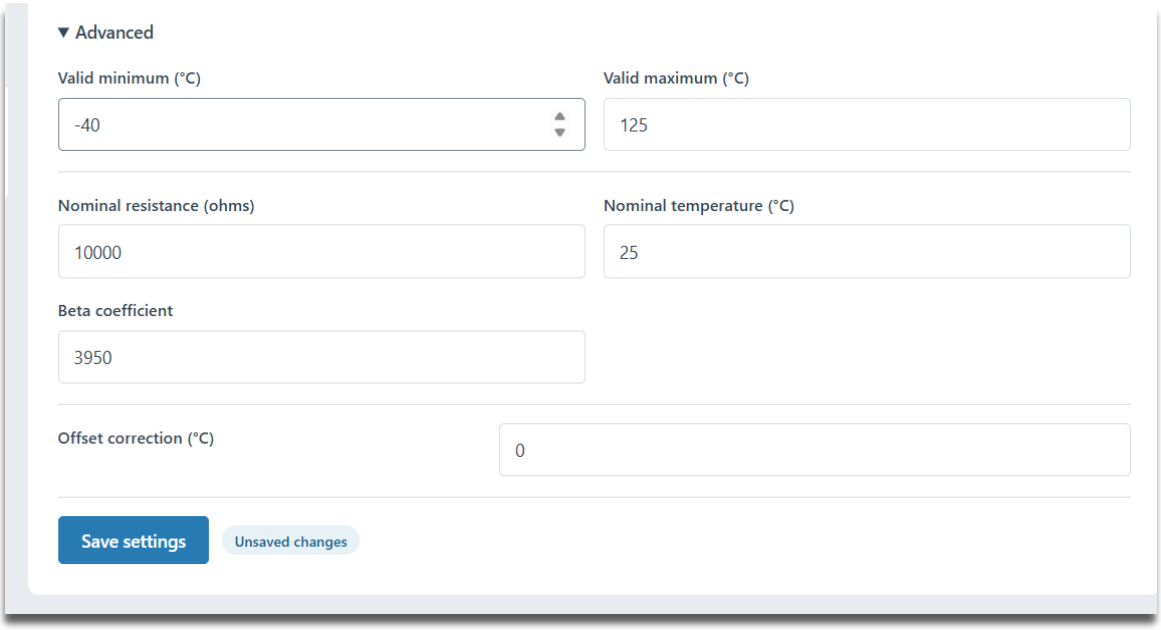
1. Click **Temperature probes**, then select the probe.
2. Turn on **Enable sensor** and enter a **Name**.
3. Turn on **MQTT Publish Enable** then set the **MQTT publishing interval (s)**
4. Click **Save settings**.



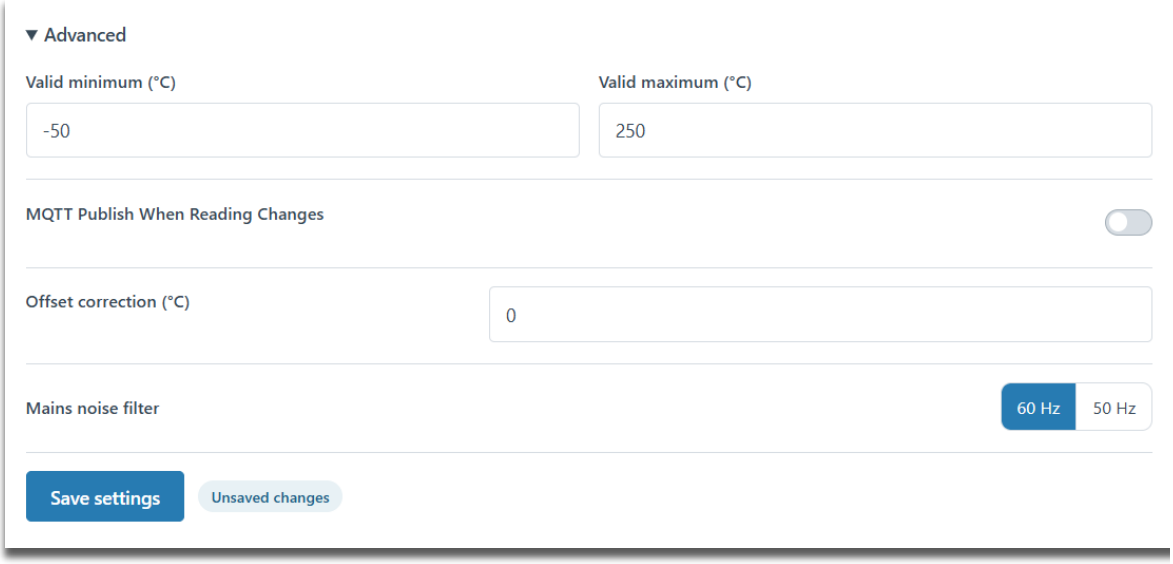
Advanced (optional)

- **Valid min / max (°C):** readings outside this range are ignored.
- **Offset correction (°C):** corrects the reading.
- **NTC only:** enter the **Nominal resistance**, **Nominal temperature** and **Beta coefficient** from the probe's datasheet. The defaults (10000, 25 and 3950) suit a standard 10 kΩ probe.
- **PT100 only:** set **Mains noise filter** to **50 Hz** (Sri Lanka) or **60 Hz** (USA).

Check: on **Overview**, the **NTC** or **RTD** card shows a live temperature. If it shows **Reading unavailable**, check the probe wiring.



Temperature probes - Thermistor probe (NTC) settings

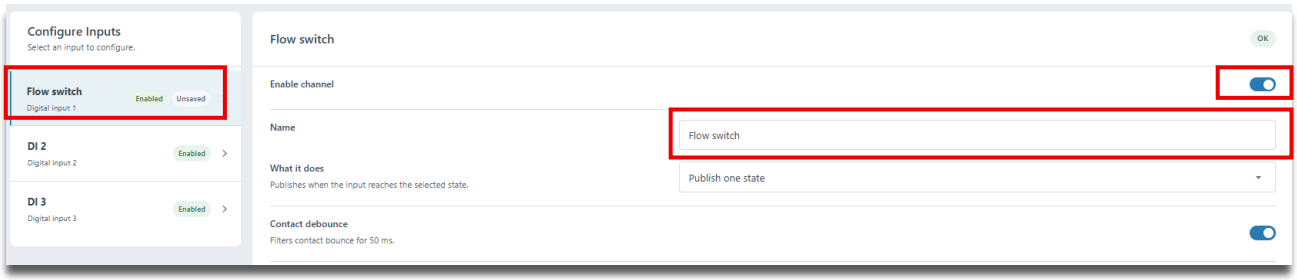


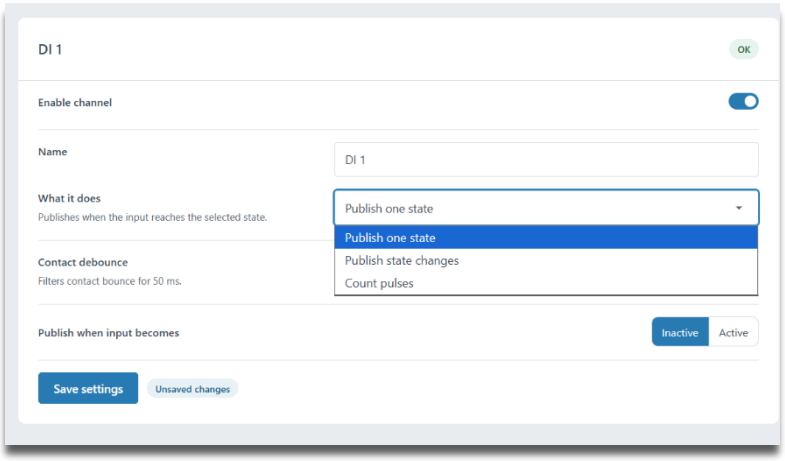
Temperature probes - Precision probe (PT100) settings

4.4 Inputs

The gateway has 3 digital inputs (DI 1-3).

1. Click Inputs, then select the input (for example DI 1).
2. Turn on Enable channel and enter a Name (for example *Flow switch*)





*Under **What it does**, choose a mode:*

- ***Publish one state**: publishes only when the input becomes **Active** or **Inactive***
- ***Publish state changes**: publishes every time the input changes*
- ***Count pulses**: counts pulses from a meter*

3. Turn on **Contact debounce** for mechanical switches.
4. Publish when input **becomes** (shown only when **What it does** is set to **Publish one state**)

- **Active:** publishes when the input turns on (usually when the contact closes).
- **Inactive:** publishes when the input turns off (usually when the contact opens).
- To be notified of both changes, choose **Publish state changes** instead

5. Click Save settings.

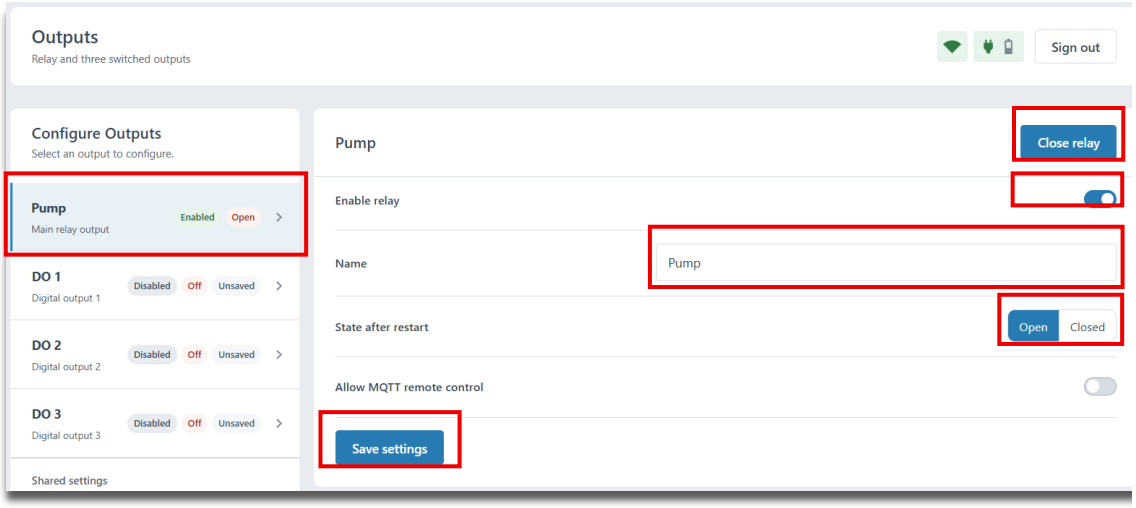


4.5 Outputs

The gateway has **1 relay** and **3 digital outputs** (DO 1-3). The **Outputs** list shows each one's current state: **Open/Closed** for the relay and **On/Off** for the digital outputs.

Relay

1. Click Outputs, then click Relay.
2. Turn on Enable relay and enter a Name (for example *Pump*).
3. Under State after restart, choose Open or Closed.
4. Turn on Allow MQTT remote control only if you want to switch the relay from your platform.
5. Click Save settings.
6. To test it, click Close relay, then Open relay.

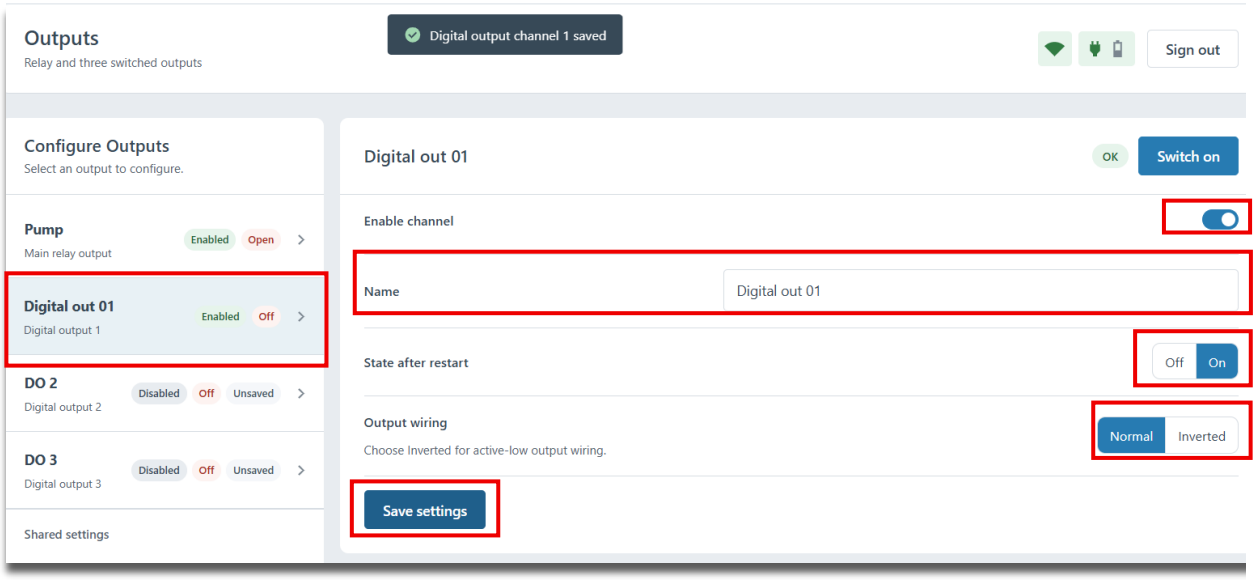




Check: on Overview, the relay card shows your name and its current state.

Digital outputs (DO 1-3)

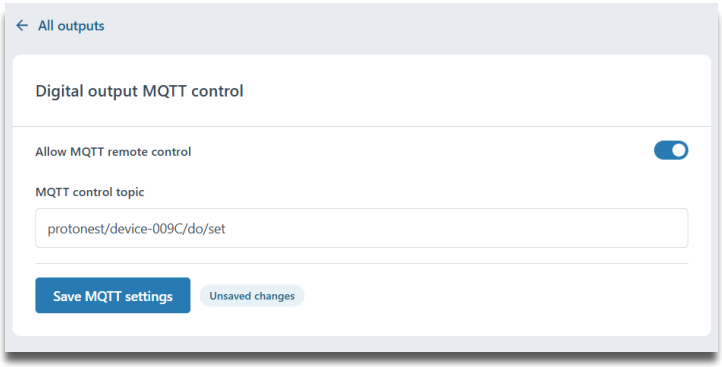
1. Click DO 1 (or DO 2 / DO 3).
2. Turn on Enable channel and enter a Name (for example *Valve*).
3. Under State after restart, choose Off or On.
4. Under Output wiring, choose Normal, or Inverted for active-low wiring.
5. Click Save settings.
6. To test it, click Switch on, then switch off.



Shared MQTT control (Digital output MQTT control)

This setting lets your MQTT platform switch DO 1-3 remotely. One setting applies to all three outputs.

1. In Outputs, click Shared MQTT control.
2. Turn on Allow MQTT remote control. The MQTT control topic field appears.
3. In MQTT control topic, enter the topic the gateway should listen to for commands, for example do/set.
4. Click Save MQTT settings. The Unsaved changes tag disappears once the setting is saved.



Digital output MQTT control with a unique control topic

4.6 Modbus

Example: XY-MD02 temperature & humidity sensor

The gateway reads values from Modbus RTU devices over its RS-485 port. This example uses the XY-MD02 temperature and humidity transmitter.

Before you start

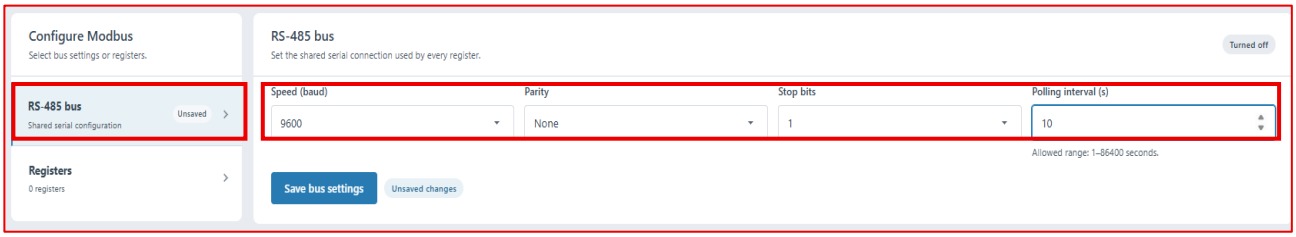
- From the device datasheet, note the **slave address**, **baud rate**, **parity**, **stop bits** and the **register map**.

With the power off, wire the device to the gateway: A → A, B → B. Power the XY-MD02 with 5-30 V DC.

XY-MD02 (from datasheet)	Value
Slave address	1
Communication	9600 baud, 8 data bits, no parity, 1 stop bit
Temperature	Input register 0x0001, function 04, value ÷ 10, can be negative
Humidity	Input register 0x0002, function 04, value ÷ 10

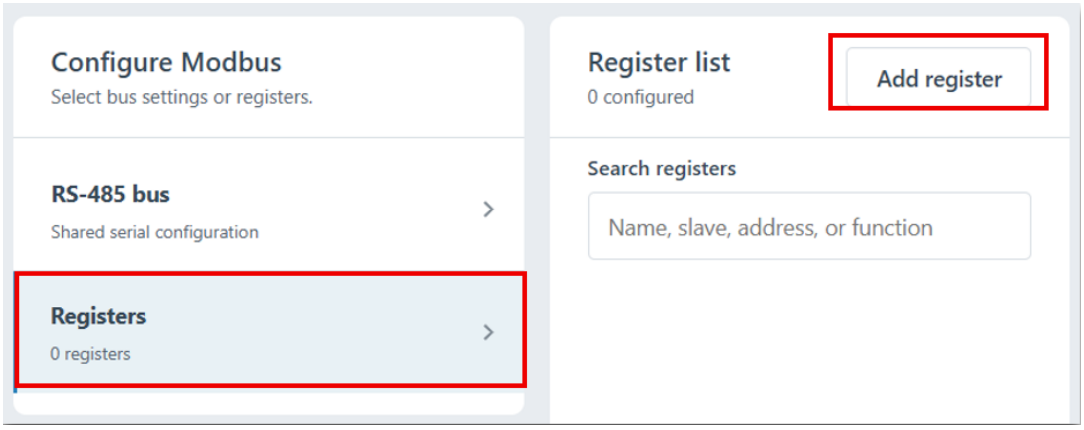
Step 1 - Set up the RS-485 bus

1. Click on the Modbus, then RS-485 bus.
2. Set Speed (baud) to 9600.
3. Set Parity to None and Stop bits to 1.
4. Set Polling interval (s), for example 10.
5. Click Save bus settings.

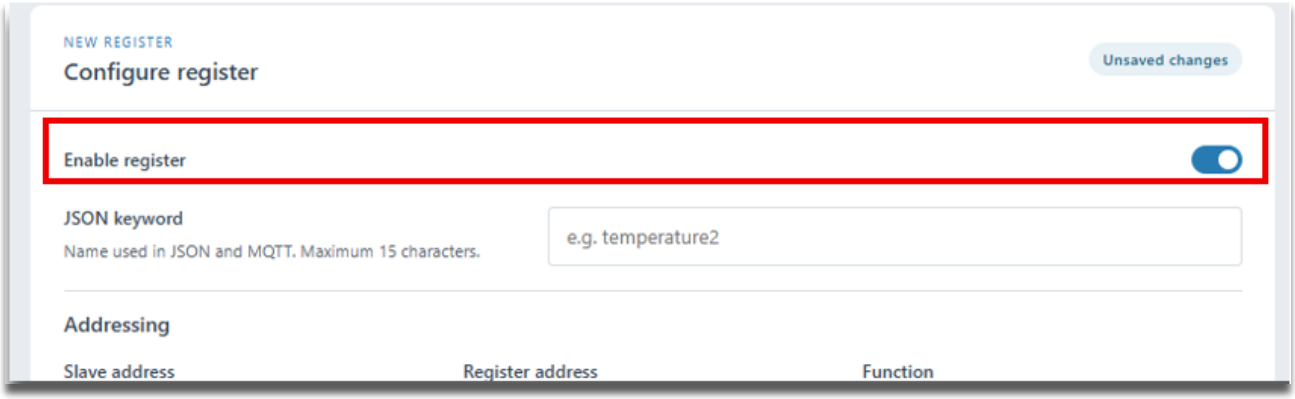


Step 2 - Add the temperature register

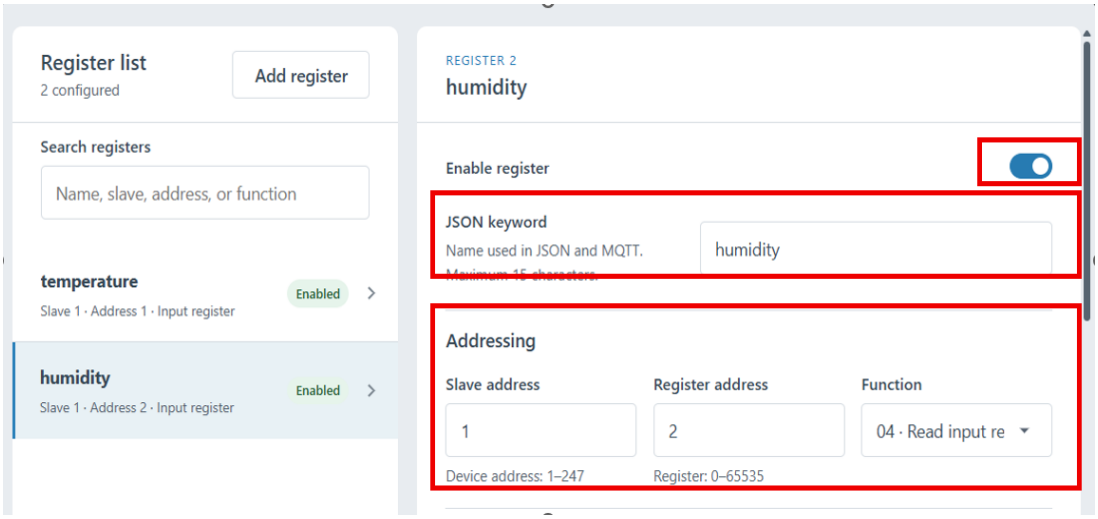
1. Click All Modbus sections, then Registers, then Add register.



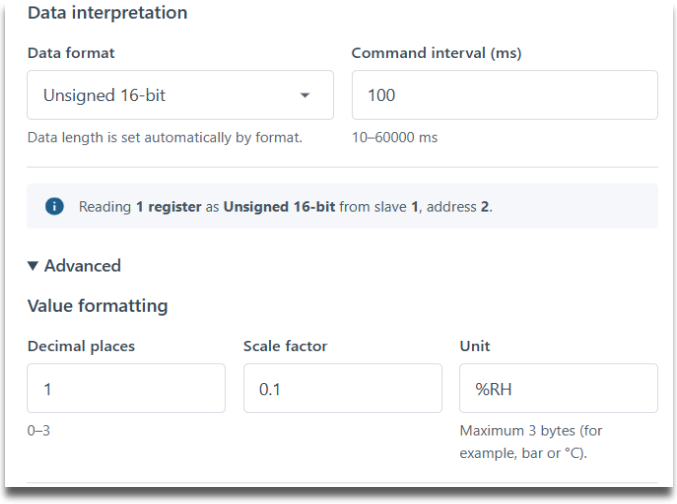
2. Turn on Enable register.



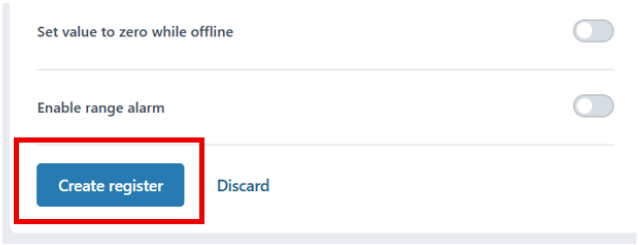
3. In JSON keyword, enter temperature (up to 15 characters).
4. Under Addressing, set **Slave address** to **1**, **Register address** to **1**, and **Function** to **04 · Read input registers**.
5. Under **Data format**, choose **Signed 16-bit**. Leave **Command interval (MS)** at **100**.



6. Click ▸ **Advanced** and set **Decimal places** to **1**, **Scale factor** to **0.1** and **Unit** to **°C**.
7. Check the summary line: “Reading 1 register as Signed 16-bit from slave 1, address 1.”



8. Click **Create register**



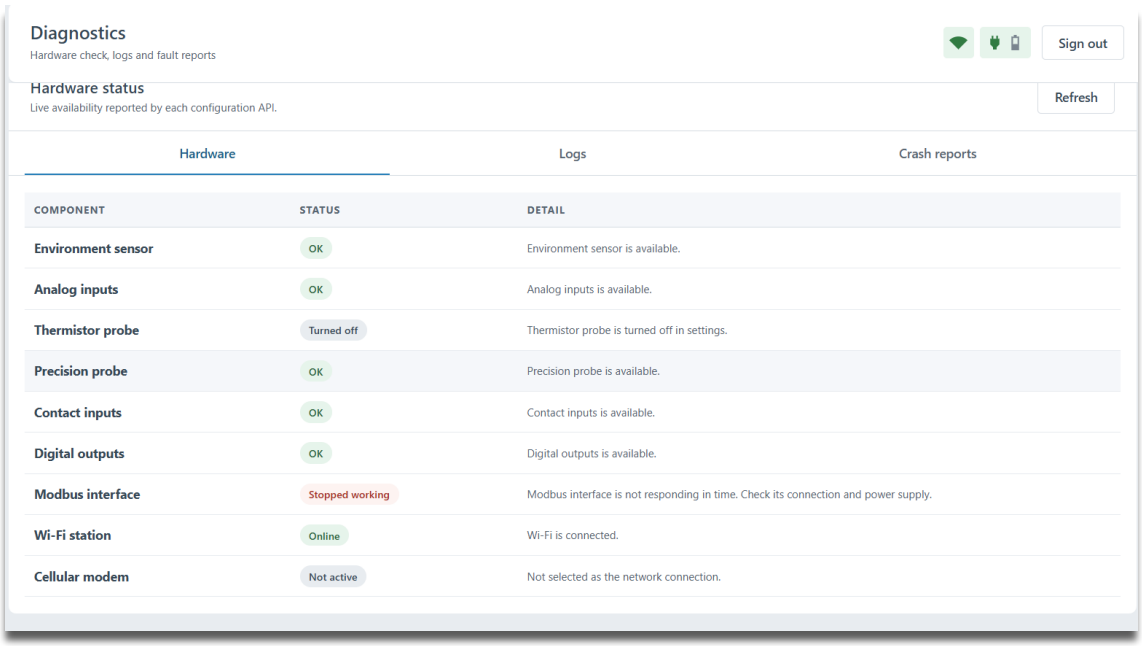
Step 3- Add the humidity register

Repeat Step 2 with these values:

Field	Value
JSON keyword	humidity
Slave address / Register address	1 / 2
Function	04 · Read input registers
Data format	Unsigned 16-bit
Decimal places / Scale factor / Unit	1 / 0.1 / %RH

Step 4 - Check the Reading

1. Open **Diagnostics**. **Modbus interface** should show **OK**.
2. Check that the temperature is close to the room temperature. The values are published to MQTT under **modbus-values**.



Notes

- **Scale factor 0.1** turns the sensor's raw value into real units. For example, 305 becomes 30.5 °C.
- **Unit** allows up to 3 characters (°C, %RH, bar). **Decimal places** allow 0-3.
- To change or remove a register, open it from the list and click **Save changes** or **delete**.
- If Diagnostics shows **Modbus interface: Stopped working**, check the wiring (A/B not swapped), the device's power, and that its slave address and baud rate match.

Note Still to confirm once the sensor responds: whether **Register address 1** is correct or this gateway needs **0**, and whether Modbus values also appear on **Overview**.

5. Connectivity

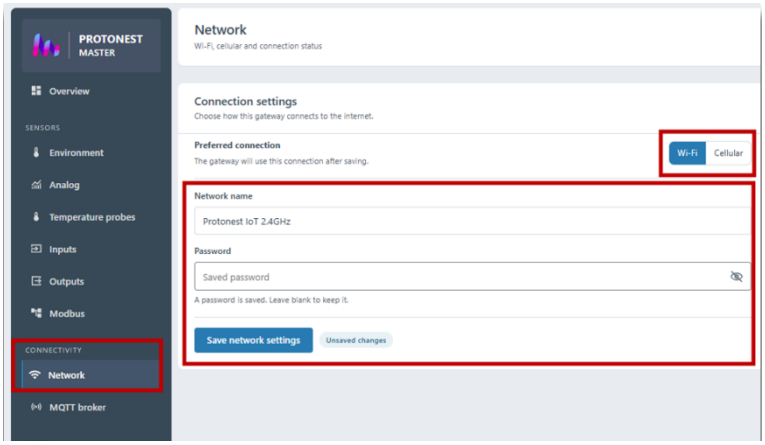
5.1 Network

Open **Network** from the menu. The page has two panels: **Connection settings** (left), where you choose Wi-Fi or cellular, and **Connection status** (right), which shows the live connection.

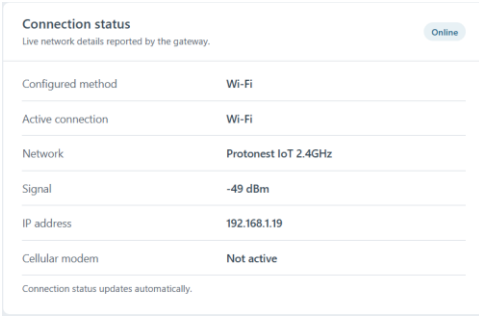
Connect with Wi-Fi

1. Under **Preferred connection**, select **Wi-Fi**.
2. Enter the **Network name** (SSID). It is case-sensitive.
3. Enter the Wi-Fi **Password**.
4. Click **Save network settings**.

Note After saving, the gateway stores the password, and the field shows **Saved password**. Leave it blank to keep the saved password, or type a new one to change it.



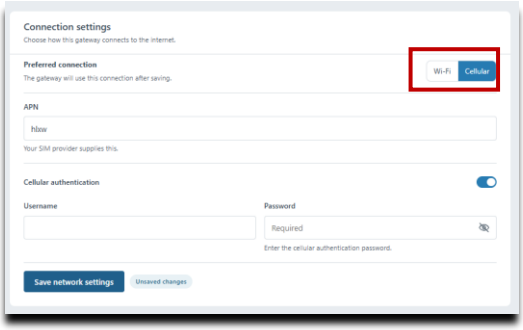
Network page - Wi-Fi settings



connection status

Connect with cellular

1. Under **Preferred connection**, select **Cellular** (a SIM card must be installed).
2. Enter the **APN** supplied by your SIM provider.
3. If your provider requires a login, turn on **Cellular authentication** and enter the **Username** and **Password**.
4. Click **Save network settings**.



Cellular settings with authentication turned on



connection status

Connection status
After saving, the right panel shows the live connection. It updates automatically, and the badge in the corner shows **Online** when the gateway is connected.

Field	Meaning
Configured method	The connection type you saved (Wi-Fi or Cellular)
Active connection	The connection the gateway is using now
Network	Name of the Wi-Fi network
Signal	Signal strength in DBm. Closer to 0 is stronger: -50 is excellent, below -75 may be unreliable.
IP address	Address the network gave the gateway
Cellular modem	Modem state, for example **Not active** when Wi-Fi is used

5.2 MQTT broker

Open **MQTT broker** from the menu to set where the gateway sends its readings. Setup has 2 parts, chosen from the **Configure MQTT** menu: **Broker connection** and **Publish topics**.



MQTT broker page - delivery activity and broker connection

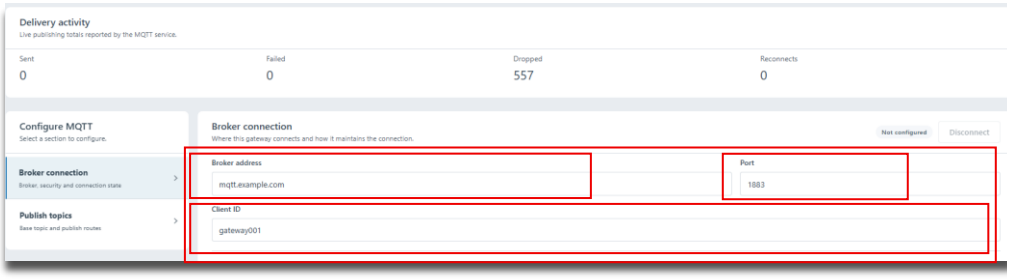
Delivery activity

The counters at the top show live publishing totals.

Counter	Meaning
Sent	Messages published to the broker
Failed	Messages the broker did not accept
Dropped	Readings discarded, for example while no broker is connected
Reconnects	Times the gateway reconnected to the broker

Part 1 - Broker connection

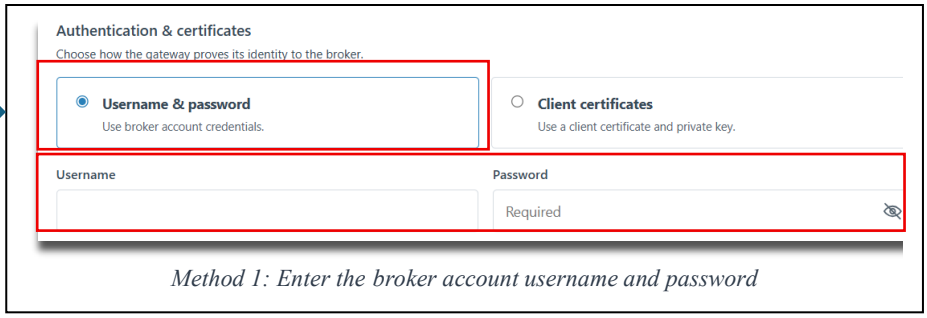
1. In **Configure MQTT**, select **Broker connection**.
2. Enter the **Broker address**, **Port** and **Client ID** (see table).



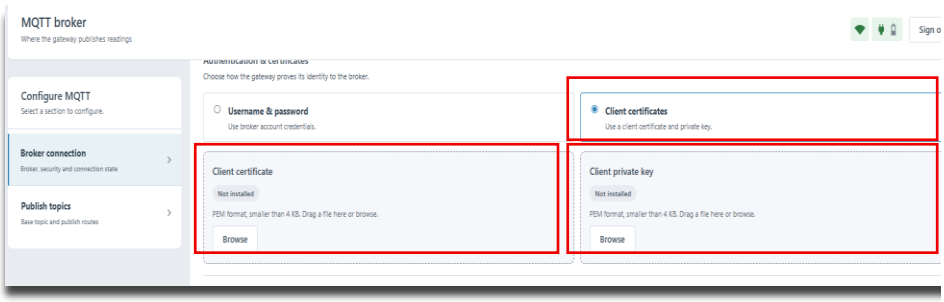
Field	What to enter	Example
Broker address	Host name or IP address of the MQTT broker	mqtt.example.com
Port	Broker port. Usually 1883, or 8883 with TLS	1883
Client ID	Unique name the gateway uses on the broker	gateway001

The example values are placeholders. Use the details from your broker provider.

3.Choose an authentication method and enter its details

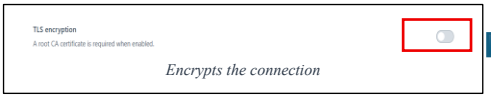


Method 1: Enter the broker account username and password

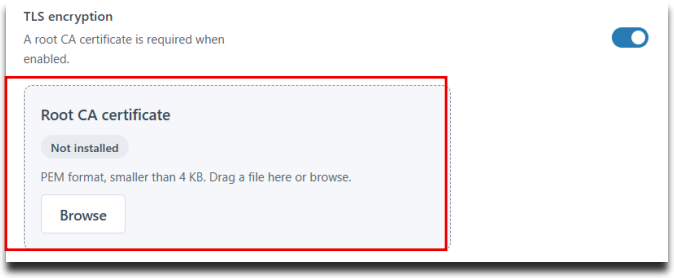


*Method 2: Upload a **Client certificate** and **Client private key***

4. Turn on **TLS encryption** if your broker requires it, and upload the root CA certificate.

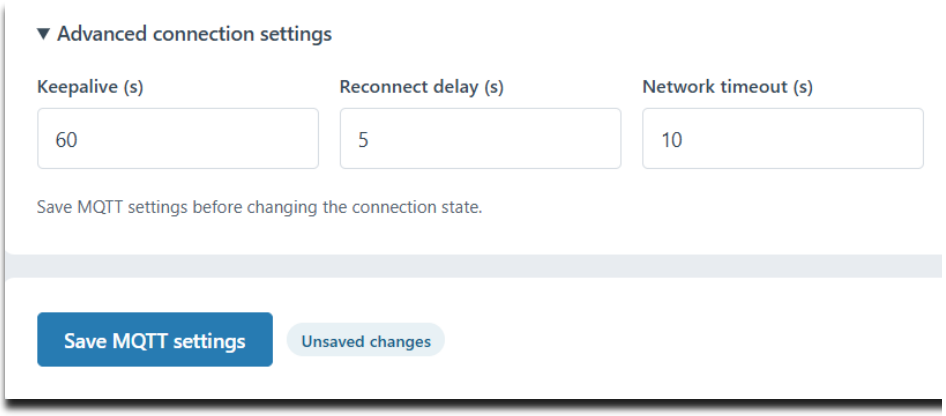


Encrypts the connection



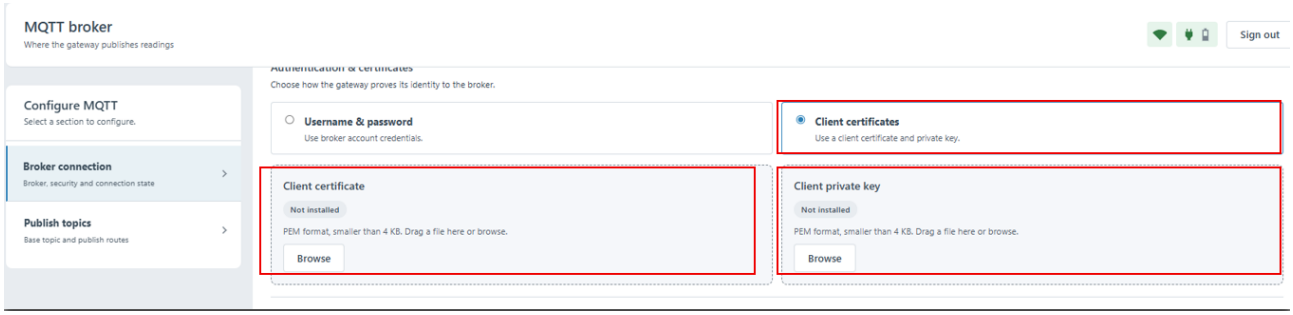
*Encrypts the connection. Needs a **Root CA certificate**.*

5. Click **Save MQTT settings**.



Authentication - choose one:

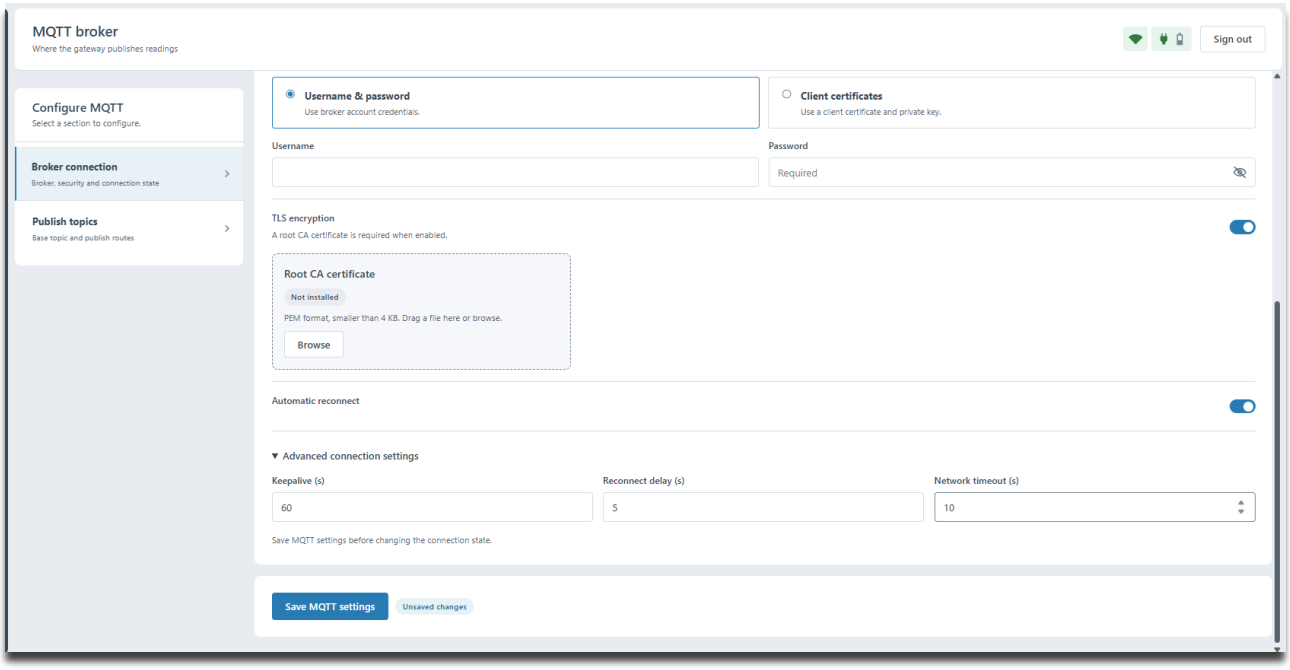
Method	What to provide
Username & password	Broker account **Username** and **Password**
Client certificates	Upload a **client certificate** and a **client private key**



Client certificates option

Security and connection options:

Setting	Description	Default
TLS encryption	Encrypts the connection. Needs a Root CA certificate.	On
Automatic reconnect	Reconnect automatically if the connection drops	On
Keepalive (s)	Interval for checking that the connection is alive	60
Reconnect delay (s)	Wait time before trying to reconnect	5
Network timeout (s)	Time to wait for the broker to respond	10



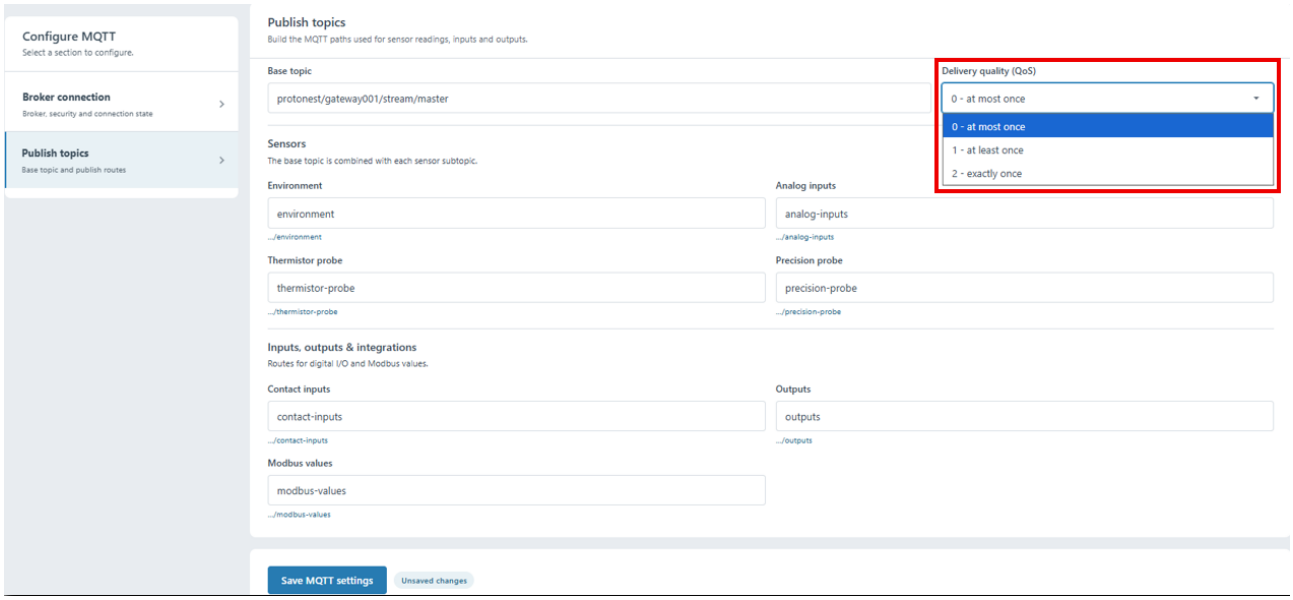
Advanced connection settings expanded

> **Note** Certificate files must be in PEM format and smaller than 4 KB. Drag a file onto the box or click **Browse**. Each box shows **Not installed** until a file is uploaded. The keepalive, reconnect and timeout values are under **Advanced connection settings**.

> **Note** Save the MQTT settings before you connect or disconnect. The status badge (for example **Not configured**) and the **Disconnect** button are at the top right of the Broker connection panel.

Part 2 - Publish topics

1. In **Configure MQTT**, select **Publish topics**.
2. Enter the **Base topic**, for example protonest/gateway001/stream/master.
3. Choose the **Delivery quality (QoS)**.
4. Check or change the subtopic for each data type.
5. Click **Save MQTT settings**.



Publish topics with the QoS options open

Each reading is published to **base topic / subtopic**. The small grey text under each field shows the ending of the full path. For example, environment readings go to protonest/gateway001/stream/master/environment.

Data	Default subtopic
Environment	environment
Analog inputs	analog-inputs
Thermistor probe	thermistor-probe
Precision probe	precision-probe
Contact inputs	contact-inputs
Outputs	outputs
Modbus values	Modbus-values

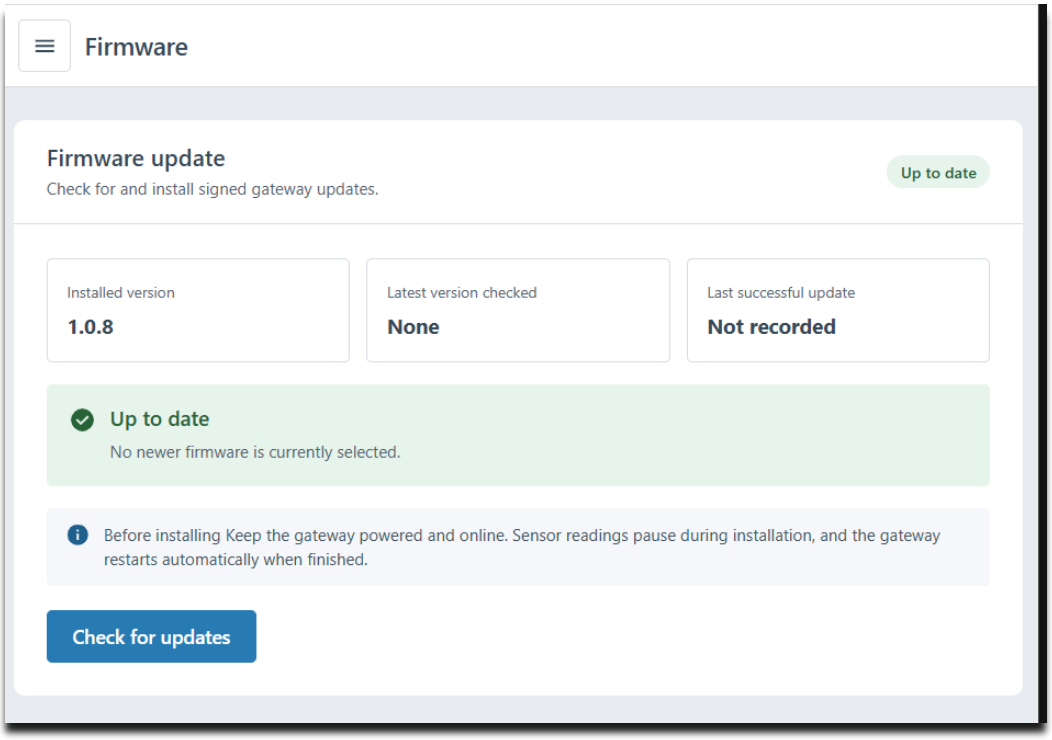
Delivery quality (QoS) - choose one:

QoS	Delivery	Best for
0 - at most once	Sent once, no confirmation. A message can be lost.	Frequent readings where a missed value is acceptable
1 - at least once	Repeated until confirmed. A message can arrive twice.	Most applications
2 - exactly once	Delivered once only. Slowest option.	Data where duplicates or losses are not acceptable

6. System

6.1 Firmware

Open **Firmware** from the menu to see the installed version and install signed firmware updates.



Firmware page

Item	Meaning
Status badge	Top right of the panel, for example **Up to date**
Installed version	Firmware currently running on the gateway
Latest version checked	Newest version found at the last check (**None** if not checked yet)
Last successful update	Date of the last completed update (**Not recorded** if none)

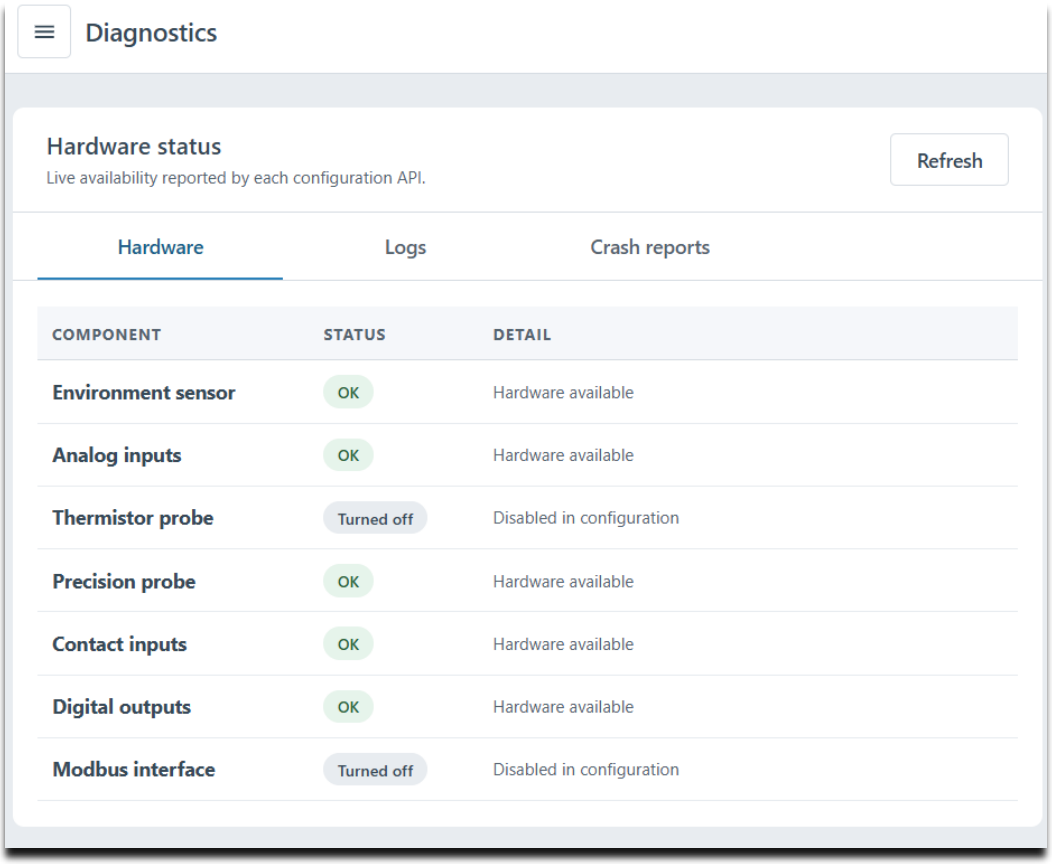
Update the firmware

1. Make sure the gateway is on external power and online.
2. Click **Check for updates**.
3. If the message shows **Up to date**, no action is needed.
4. If a newer version is found, start the installation.
5. Wait while the update installs. The gateway restarts automatically when finished.
6. Sign in again and confirm the new **Installed version**.

> **Warning Keep** the gateway powered and online during the update. Sensor readings pause during installation. Do not switch off the gateway until it has restarted.

6.2 Diagnostics

Open **Diagnostics** from the menu to check the hardware, read logs and create crash reports. The page has three tabs: **Hardware**, **Logs** and **Crash reports**.



Diagnostics - Hardware tab

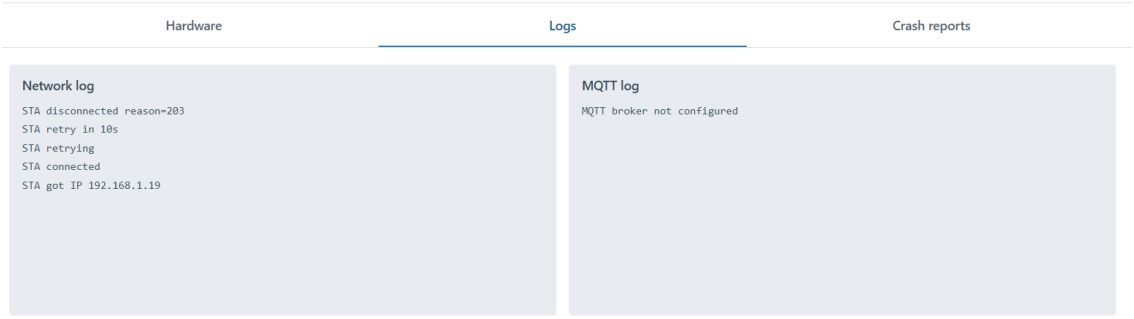
Hardware

Show each component with its **Status** and **Detail**. Click **Refresh** to check again.

Status	Detail	What to do
OK	Hardware available	Nothing - the module is working.
Turned off	Disabled in configuration	Not a fault. Turn the channel on in its Sensors page if you need it.
Not detected	Component not found	Check the wiring, power and connections, then click Refresh.
Could not start	Initialization failed	Restart the gateway, then click **Refresh**.
Configuration failed	Settings could not be applied	Check the component's settings, save them again, then click **Refresh**.
Stopped working	Failed while running	Check the wiring and the connected sensor, then click **Refresh**. This does not always mean the hardware is damaged.
Status unavailable	Status not loaded yet	Wait a few seconds and click **Refresh**.
Fault	General error	Click **Refresh**, check the wiring, then create a crash report and contact support.

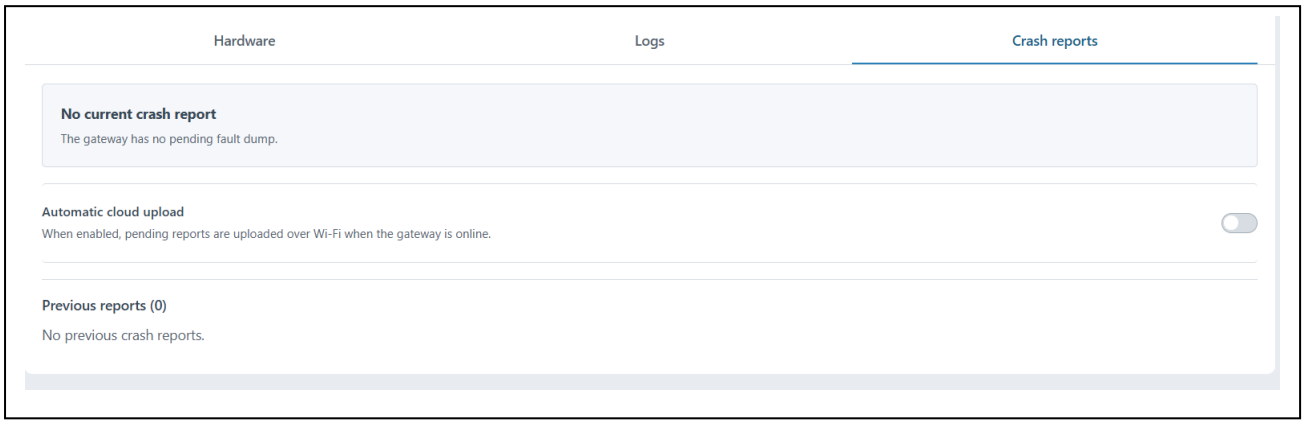
Logs

Shows the **network** and **MQTT** logs. Use them to see why the gateway cannot connect to Wi-Fi, cellular or the broker.



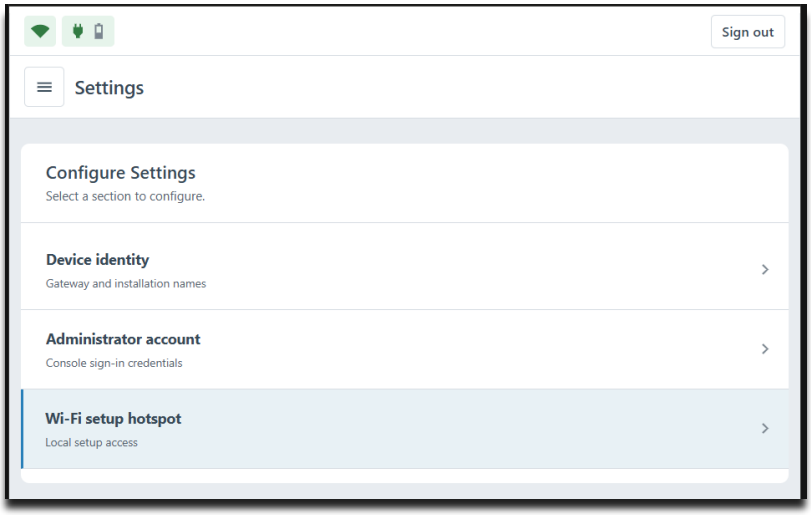
Crash reports

Generates a crash report that you can send to support when the gateway restarts unexpectedly or a module fails.



6.3 Settings

Open **Settings** from the menu and click a section to configure it. Click ← **All settings** to return to the list.



Settings page

Device identity

1. Click **Device identity**.
2. Edit the **Device name** (Device ID) and **Site name** (Site ID).
3. Click **Save identity**.

Administrator account

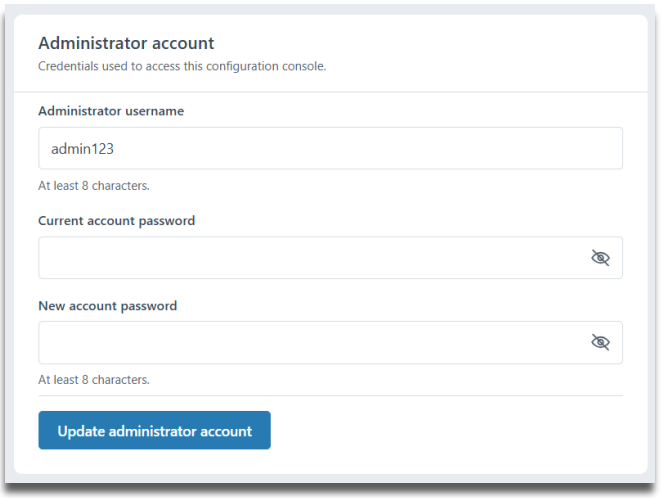
1. Click **Administrator account**.
2. Enter the **Administrator username** you want to use.
3. Enter your **Current account password** and the **new account password**. Click the eye icon to show or hide a password.
4. Click **Update administrator account**. Use the new details the next time you sign in.

Wi-Fi setup hotspot

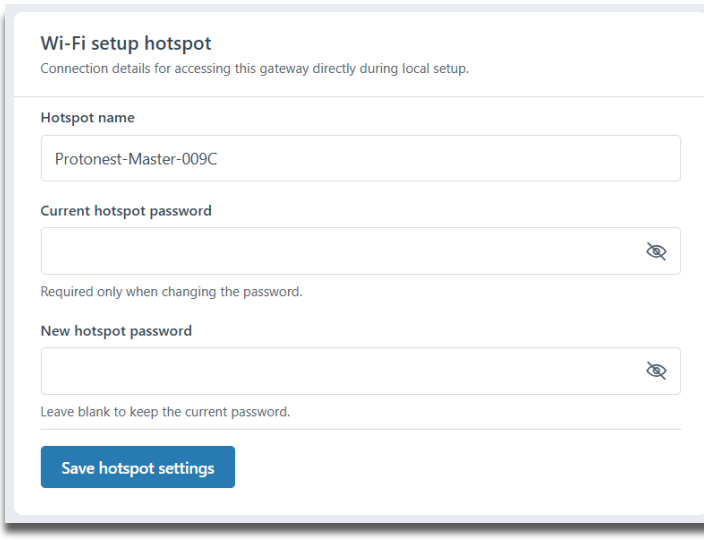
1. Click **Wi-Fi setup hotspot**.
2. Change the **Hotspot name** if needed.
3. To change the password, enter the **Current hotspot password** and the **new hotspot password**. Leave the new password blank to keep the current one.
4. Click **Save hotspot settings**.



Device identity



Administrator account



Wi-Fi setup hotspot

Note After you change the hotspot name or password, your laptop disconnects. Reconnect to the hotspot with the new details. Record new passwords in a safe place.

7. Default settings

Setting	Factory default
Hotspot name	Protonest-Master-XXXX (last 4 characters of the MAC address)
Web address	192.168.4.1
MQTT port	1883 (8883 with TLS)
TLS encryption	On
Automatic reconnect	On
Keepalive / reconnect delay / timeout	60 s / 5 s / 10 s
Delivery quality (QoS)	0 - at most once

Factory reset: Turn off the gateway, press and hold the **RESET** button, switch the power back on while still holding it, and release the button when the gateway restarts. All settings return to factory defaults.

8. Troubleshooting

Problem	Possible cause	Solution
Hotspot not in the Wi-Fi list	Gateway still starting, out of range, or hotspot renamed	Wait 1-2 minutes after power-on and move closer. If the name was changed in Settings, look for the new name.
Hotspot password rejected	Wrong password, or it was changed	Check the label on the gateway, or use the password set under Settings › Wi-Fi setup hotspot.
Laptop shows “No internet”	Normal on the setup hotspot	No action needed. The console still opens at 192.168.4.1.
192.168.4.1 does not open	Laptop not on the hotspot, or using another network	Reconnect to the hotspot. Type http://192.168.4.1. Turn off VPN and mobile data on phones.
Cannot sign in	Wrong username or password	Use the details set in the wizard or Settings. Passwords are case-sensitive. If forgotten, see Factory reset (section 7).
Overview shows Not connected (Wi-Fi)	5 GHz network, wrong SSID or password, weak signal	Use a 2.4 GHz network. Re-enter the network name and password on the Network page and save. Move the gateway closer to the router.
Cellular does not connect	No SIM, wrong APN, login needed	Check the SIM is inserted and active. Confirm the APN with the provider. Turn on Cellular authentication if the provider requires it.
Broker shows Not configured	MQTT settings not saved	Enter the broker details and click Save MQTT settings.
Dropped counter rising	No broker connection	Check the broker address, port and internet connection. Readings are dropped while the broker is not connected.
Failed counter rising	Broker rejects messages	Check the username, password or certificates and that the account may be published to the topics.
Cannot connect with TLS	Missing or wrong Root CA, wrong port	Upload the broker's Root CA in PEM format (under 4 KB). Use the TLS port, usually 8883.
Channel shows Disabled / Turned off	Channel not enabled	Turn the channel on in its Sensors page.
Firmware update interrupted	Power or network lost	Restore power and network, sign in and click Check for updates again.

Contact support

Before contacting support, note the device name, MAC address, and firmware version from the Overview page, and create a crash report under Diagnostics. You can reach our support team via email at **info@protonest.co**