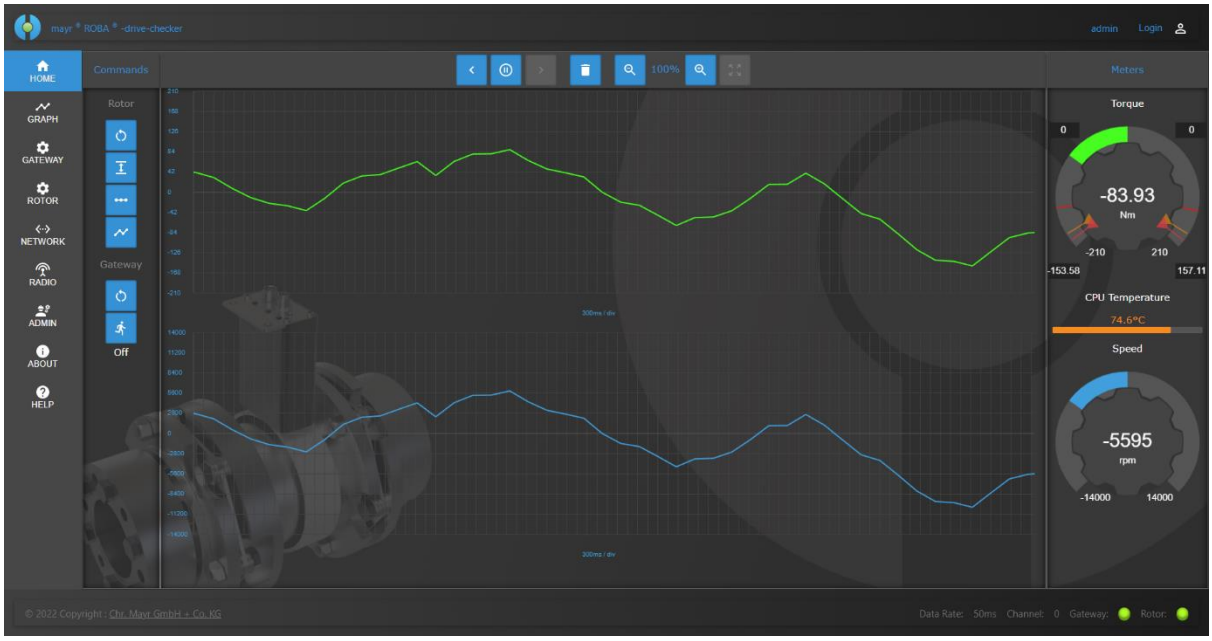
ROBA®-drive-checker

Web Interface



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Version History

➔ Changes are also highlighted on the right-hand side of the page with a bold red arrow and an index number (e.g. ➔ **01**)!

design	Date	Author	Comments
00	23/05/2023	Lange	Created on
01	19/03/2023	Timmler / Lange	Updated to the latest development version
02	16/09/2024	Lange / Filser / Timmler	Status of the first draft

Referenced documents

Installation and Operational Instructions for ROBA Drive Checker ➔ **B.0539006EN**

Installation and Operational Instructions for ROBA® -DS Clutch ➔ **B.9.7.EN**

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Preparation

Establishing the connection to the gateway

In principle, there are several ways to connect to the gateway in order to configure it. The easiest and quickest way to establish a connection is via the integrated Wi-Fi access point. A wired connection to the network can also be established using a separate network cable.

Both methods are briefly explained below.

Connecting to integrated Wi-Fi access point

Press and hold the reset button on the front plate of the gateway for 6 seconds until the status LED underneath lights up green continuously. Then release the button.

This starts up the initial operation mode and the Wi-Fi access point of the gateway.

Important:
The Wi-Fi access point switches off automatically 10 minutes *after the last active connection*. This also means there is a maximum of 10 minutes after pressing the button to connect to the Wi-Fi access point. Otherwise, the initial operation mode must be restarted.

The access point has the name **rdc-{serial number}** as default. As can be seen on the following figure, the serial number can be found on the type tag of the gateway.

Figure 1 Gateway serial number

A PC, tablet or mobile phone can be used now to connect to the Wi-Fi access point named **rdc-{serial number}**. It should look like this on a Windows 10 PC.

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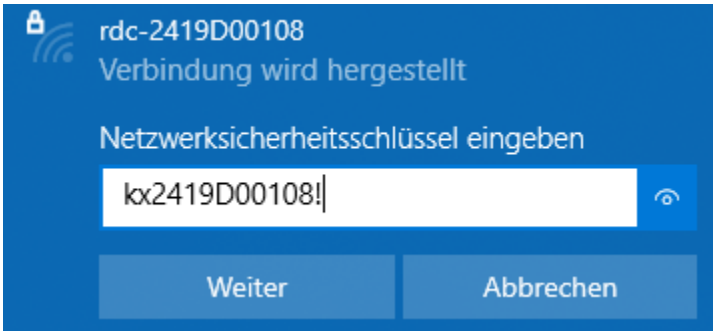

Figure 2 Connecting to access point

A network security key (kx{serial number**}!) must be entered**

To automatically open the network browser without entering an IP address, use the following QR code.

If this option is not available, open a browser, enter the IP address 192.168.4.1 into the address bar, and press the Enter key.

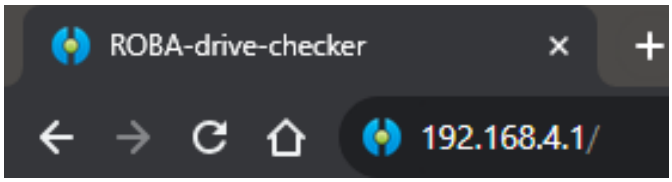

Figure 3 Entering the IP address in the network browser

This opens the ROBA Drive Checker configuration assistant.

The procedure is illustrated below based on the user interface of a mobile phone. It may appear slightly different depending on the device used. It basically looks very similar on all devices.

The ROBA® Drive Checker measuring sleeve is called Rotor in the configuration assistant and web interface.

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Step1: Configuring the network

In this first step, the network is configured for a wired connection. This is a second cable that can be connected on the front plate of the gateway. If a network is not required, this can be completely deactivated here.

Please Observe:
This has no effect on the Wi-Fi access point. This can always be activated by pressing a button on the front plate.

Please Observe:
The network cable is not included in the scope of delivery but can be acquired separately.

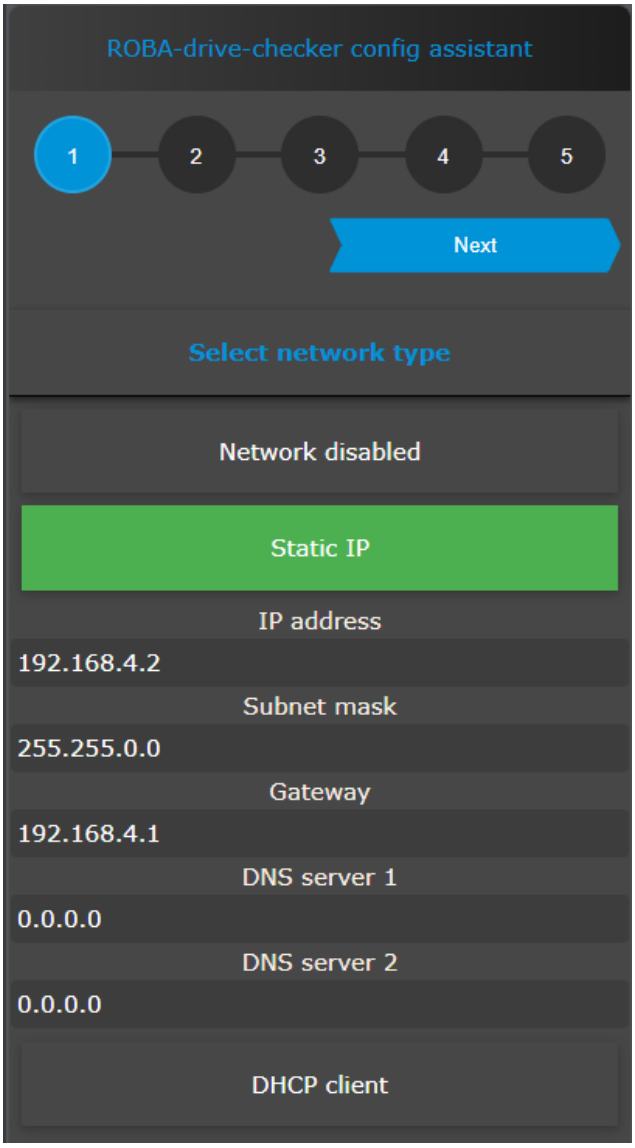

Figure 4 Configuring a static IP address

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The gateway can also be integrated into an existing network here. This can either be done via a fixed IP address and by specifying the gateway and DNS servers, as shown above, or as a DHCP client, as shown in the following figure. To find out which configuration is suitable, contact the IT system administrator.

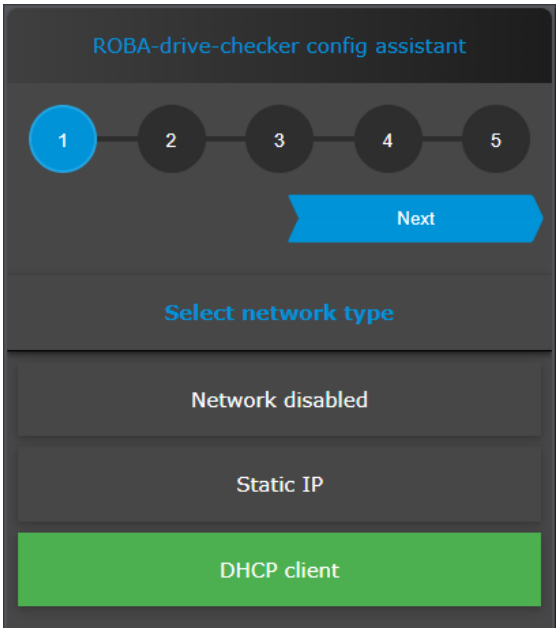

Figure 5 Configuring a DHCP client

Click on **Next** to go to the next page of the configuration assistant.

Step 2: Configuring the analog output

The analog output can be configured in the second step. There are variants available with a voltage output of 0 – 10 V or a current output of 0 – 20 milliamperes.

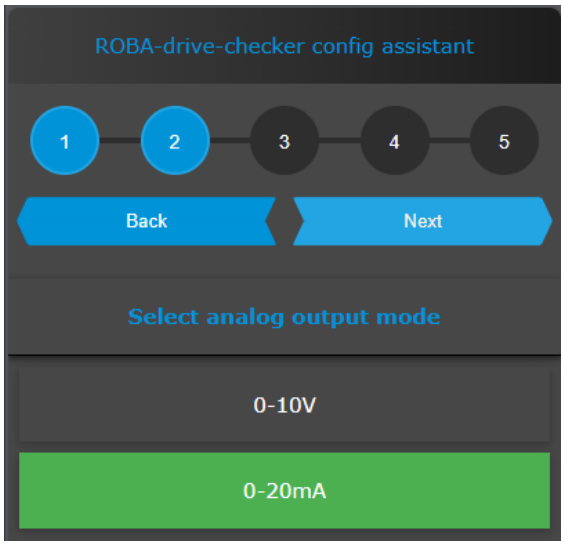

Figure 6 Configuring the analog output

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The following table briefly outlines the ratio of torque to voltage/current at the analog output.

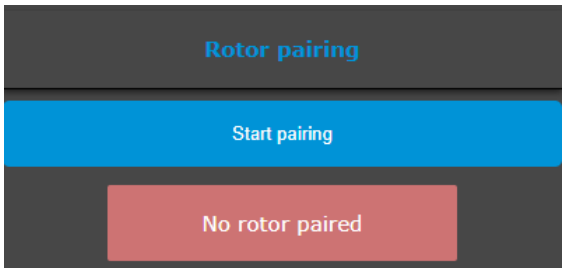
Voltage/current	Torque
0V/0mA	-Calibration torque
5V/10mA	0 Nm
10V/20mA	+Calibration torque or error

Table 1 Ratio of torque to voltage/current at the analog output

Click on **Back** to return to the previous page if it later becomes apparent that the configuration on the previous page does not quite meet requirements.

Step3: Pairing the measuring sleeve

In the as-delivered condition, the gateway and measuring sleeve (Rotor) are set to the factory setting. To use the system and perform the next steps, both devices must be paired with one another. To do this, click on **Start pairing** to start the pairing process.



The gateway then searches for the measuring sleeve and verifies it, so only the measuring sleeve found directly in front of the gateway can be connected.

After approx. 30 seconds, the connection between the measuring sleeve and gateway should be made. The gateway then queries all information from the measuring sleeve.

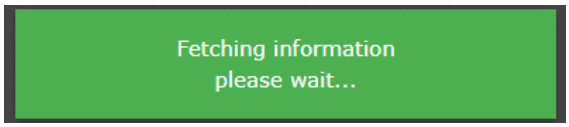


Figure 7 Pairing the measuring sleeve – Querying information

This displays the most important information, such as the size and serial number of the sleeve. For example, **Paired with DSXXX**, whereby XXX refers to the size. The case displayed below shows a size 16 measuring sleeve

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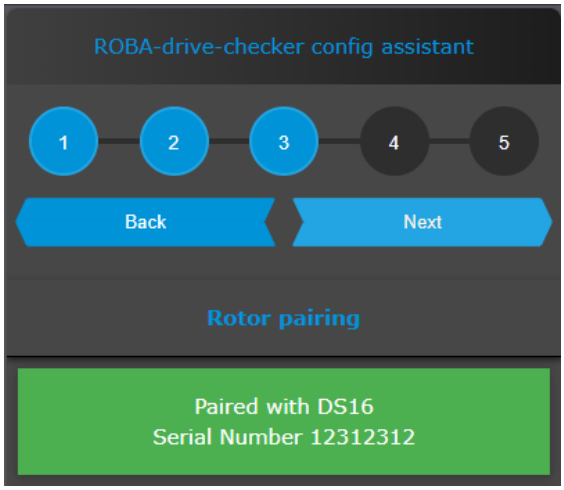

Figure 8 Coupling the measuring sleeve – Measuring sleeve information

Click on **Next** to proceed to the next step.

Step4: Adjusting the distance for the measuring sleeve

The distance from the sleeve to the gateway is adjusted in this step. If the distance between the sleeve and gateway is too great, connection problems can occur as the sleeve is not supplied with enough voltage. However, if the distance is too small, the sleeve will be supplied with too much voltage. This can damage the sleeve over time.

In the following figure, the distance between the sleeve and gateway is too great and should therefore be reduced mechanically (**reduce distance**).

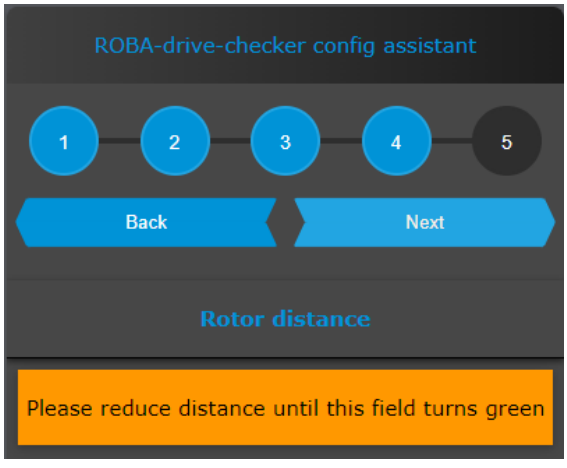

Figure 9 Adjusting the distance for the measuring sleeve

In this example the distance is too small (**enlarge distance**).

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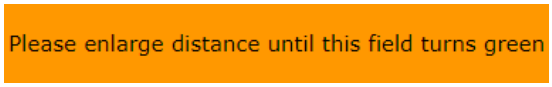
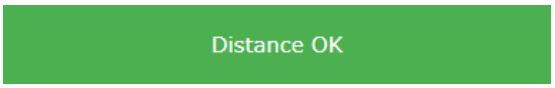


As soon as the distance is correct, the following message will be output.



Click on **Next** to proceed to the next step.

Step5: Adjusting the torque filter

The torque filter can be adjusted in the final step. This defines how the raw signal on the measuring sleeve is filtered before it is transmitted to the gateway.

A detailed description of the filter values can be found in the **Torque measuring filter** chapter.

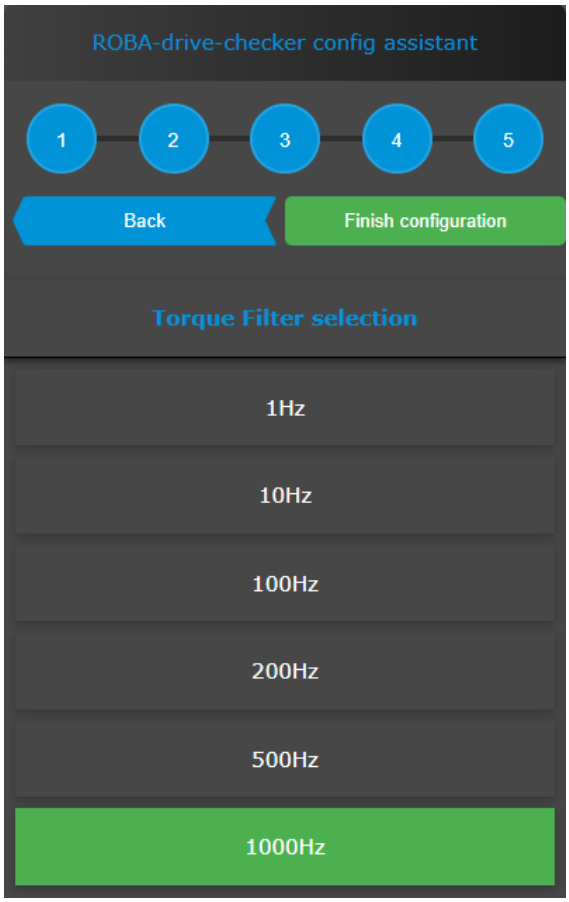


Figure 10 Adjusting the torque filter

Now click on **Finish configuration** to finish and accept the configuration.

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Connecting to the network via a static IP address

In the as-delivered condition, the gateway is provided with the fixed IP address 192.168.4.2 and a subnet mask 255.255.0.0. This makes it possible to contact the gateway from similar networks like 192.168.100.X. Only the first two parts of the IP range (192.168) must be identical, and the subnet mask of the PC that is being connected must be 255.255.0.0.

After connecting to the gateway with the network, connect the PC to the same network.

Of course you can also connect your PC directly to the network cable, which is not included in the scope of delivery. To do so, you also have to set a static IP address on the PC. It is recommendable to take 192.168.4.3 for this purpose.

Open the network browser, enter the IP address 192.168.4.2 in the address bar and press the Enter key.

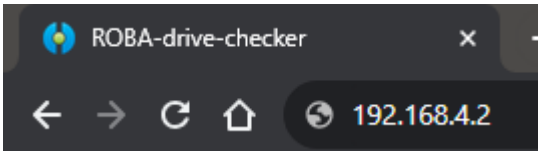

Figure 11 Entering the IP address in the network browser

Please Observe:
If the web interface is too complex, the configuration assistant can be restarted as described above to perform the configuration via the assistant (without Wi-Fi).

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Web interface overview

The web interface is divided into 4 main components. These consist of:

1. The main menu
2. The header
3. The status bar
4. The display area (content depends on the selected menu item)

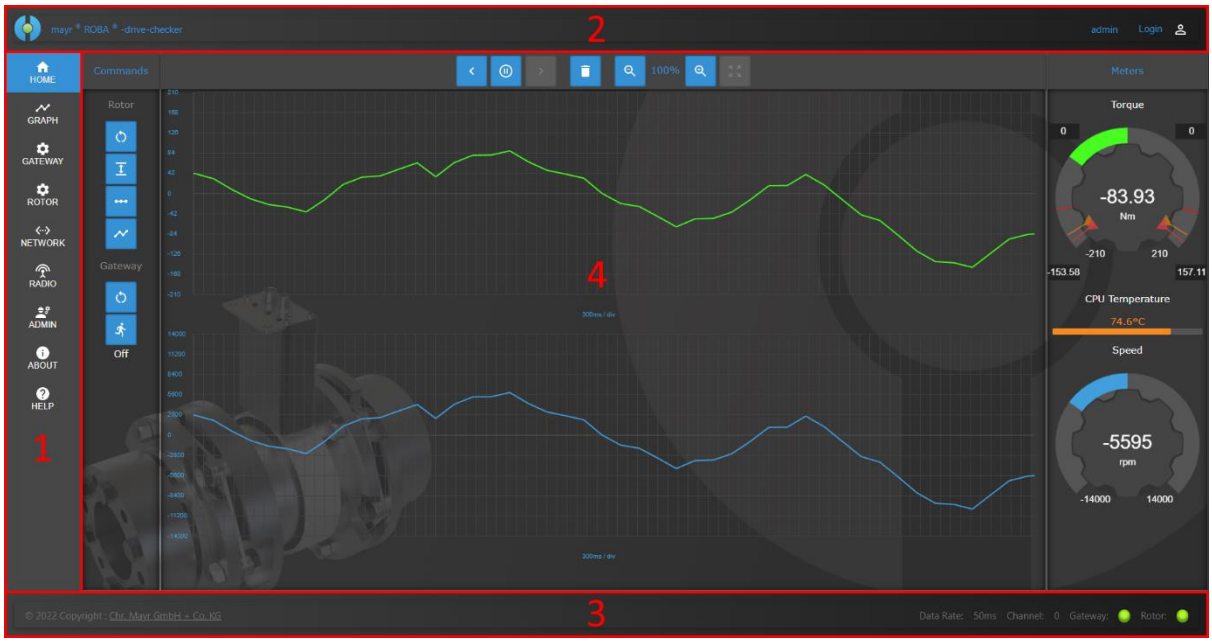

Figure 12: Web interface overview

To ensure that the main menu, header, and status bar are always visible, connect to the gateway using a PC with a horizontal screen resolution greater than 800 pixels.

At lower resolutions, or for example on smartphones in portrait format, the main menu is only displayed via what's known as a hamburger menu in the top left-hand corner and the status bar only contains the most important information.

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Main menu overview

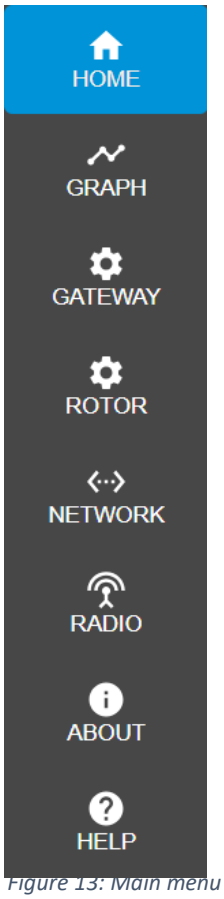


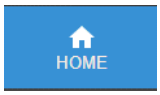
Figure 13: Main menu

The main menu is located on the left-hand side in desktop mode (on mobile phones as a hamburger menu at the top left). The individual menu items and functions of the ROBA Drive Checker can be navigated with it.

Please note that individual menu items or functions are only available or can only be activated after authentication by means of the user login. More detailed information on this can be found below in this document in the **Login** chapter.

The individual menu items are briefly described below. A detailed description can always be found in a separate chapter of this document.

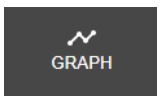
Home / Dashboard



This is the main page, often referred to as the dashboard. All the important information about the current status and the device's current measured values can be found here.

Detailed information about this can be found in the **Home / Dashboard** chapter

Graph adjustments



The display of the graphs can be customised in the dashboard on this page. These include, for example, the data rate, the maximum torque, the maximum speed, as well as warning and error limits for the display.

Detailed information about this can be found in the **Graph adjustments** chapter

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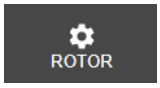
Gateway adjustments / Display

The configuration of the analog output can be displayed and adjusted in the gateway adjustments.

There is also the option of displaying system information here, such as warnings and errors. There is also a data logger, which can be used to record torque values.

Detailed information about this can be found in the **Gateway adjustments / Display** chapter

Measuring sleeve adjustments / Display



The current torque calibration values and calibration date can be displayed and edited in the measuring sleeve adjustments.

In addition, torque sensor adjustments such as filter, sensor size and maximum torque can be displayed and, in some cases, edited here.

Detailed information about this can be found in the **Measuring sleeve adjustments / Display** chapter

Network adjustments / Display

Various adjustments in relation to time servers, static or dynamic IP addresses can be made in the network adjustments.

The gateway is delivered with a static IP address as standard to enable a quick connection to the system.

Detailed information about this can be found in the **Network adjustments / Display** chapter

Radio display

A new measuring sleeve can be connected to the gateway here if required. Information about the group ID and the IDs of the paired devices is also displayed here.

Detailed information about this can be found in the **Radio display** chapter

About – adjustments / Display

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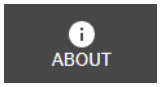
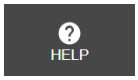


The About page displays the serial numbers, firmware and hardware status of the measuring sleeve and gateway.

The option to easily update the gateway's firmware to the latest version can also be found here.

Detailed information about this can be found in the **About – adjustments /** Display chapter

Help page



We have stored our contact details and links to our product page here to provide help quickly.

Detailed information about this can be found in the **Help page** chapter.

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The header

The login button is located at the top right of the web interface

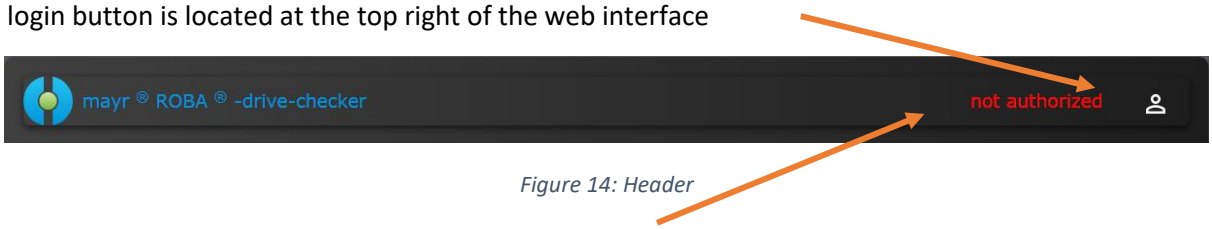

Figure 14: Header

The current service level is displayed on the left.

Please Observe:
When the page is called up for the first time, ***not authorised*** is displayed here. This means that nobody has logged in yet.

There are currently 3 authorisation levels (service levels).

- **READ ONLY**
  - Login is not required for this level. In principle, anyone who connects to the gateway can view all the information.
- **CUSTOMER**
  - The "Customer" level (*Customer* user name) has some extra authorisations, such as restarting the gateway and the measuring sleeve.
- **CUSTOMER SERVICE**
  - The "Customer service" level (*Service* user name) is intended for Mayr's service staff and its customers.

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Login

The login page is displayed by clicking on the login button.

The ***username*** and ***password*** fields must be filled in first. This data will be sent separately and is case sensitive.

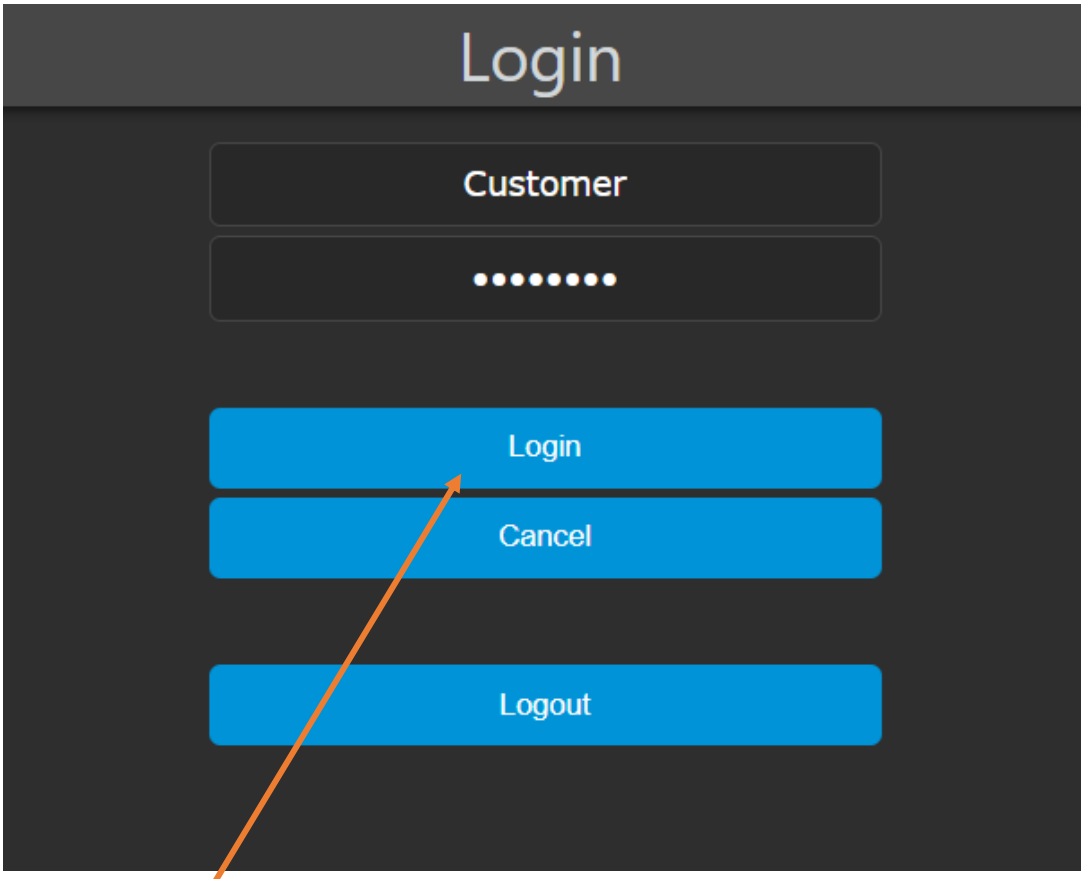
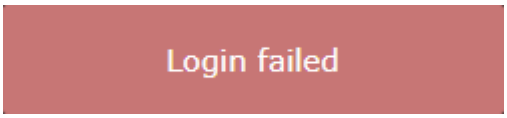


Figure 15 Login page

Click on ***Login*** to log in.

If the login is successful, the following message will appear in the Status bar and the login window will close automatically.

If an incorrect entry is made, the following message is displayed in the Status bar and the login window remains active.



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The login page can be closed manually by clicking on ***Cancel***.

ATTENTION:
For security reasons and to prevent unauthorised access, we always recommend logging out of the system or locking the PC when trained personnel are absent, as the login data is stored on the PC.

Logout

Click the ***Login button*** to return to the login page. The ***Logout*** button can also be found under the login page below the ***Login*** and ***Cancel*** buttons

Logout can be clicked to log out of the system and reset all authorisations. If the logout was successful, the login window closes automatically and the following message appears in the status bar.

Please observe:
Depending on the network capacity utilisation, in very rare cases the logout can fail. If this happens, please try again.

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Status bar

The connection status of the system can be monitored at all times via the status bar.

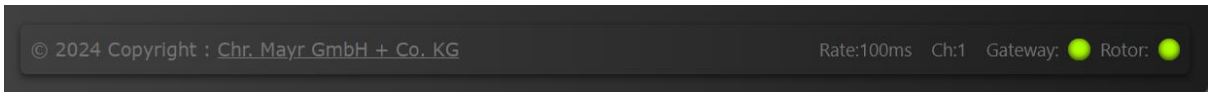

Figure 16 Status bar

This includes the data rate (***rate***), the current radio channel (***channel***), as well as the connection status from PC to gateway (***gateway LED***) and the connection status from gateway to measuring sleeve (***rotor LED***).

Information about system changes such as errors and success messages are also displayed above the status bar.

The following figure shows that the connection from the gateway to the measuring sleeve has been interrupted. This is indicated by the red LED on the right as well as by a pop-up to draw the user's attention to this area.

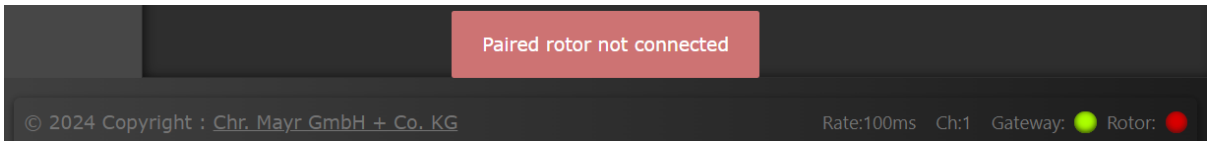

Figure 17 Connection between gateway and measuring sleeve interrupted

Connection between gateway and measuring sleeve interrupted (***Gateway connection lost***)

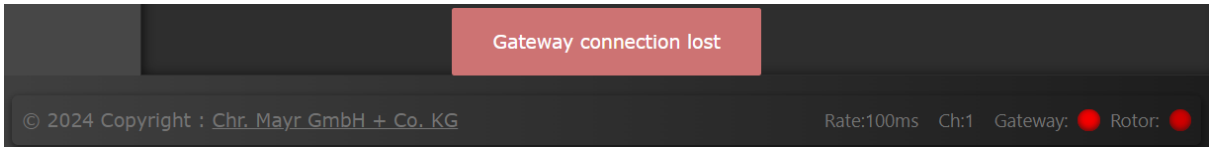

Figure 18 Connection between gateway and PC interrupted

Check the PC's network connection as well as the gateway's network connection and power supply here. If all 3 LEDs on the gateway do not light up, this is an indication that the power supply is faulty. If only the network LED is not lit up, the gateway is not connected to the network.

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Home / Dashboard

This is the main page, often referred to as the dashboard. All the important information about the current status and the device's current measured values can be found here.

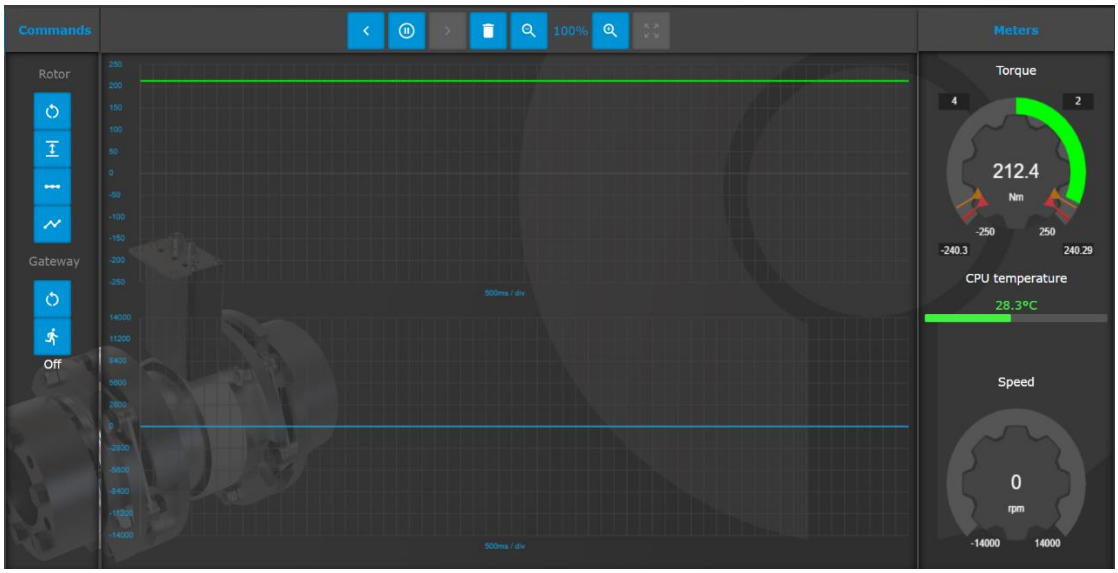

Figure 19 Home / Dashboard

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Dashboard overview

There are 5 areas on the dashboard:

1. Commands / Command Center
2. Toolbar
3. Torque graph and torque display
4. Speed graph and speed display
5. CPU temperature display for the measuring sleeve

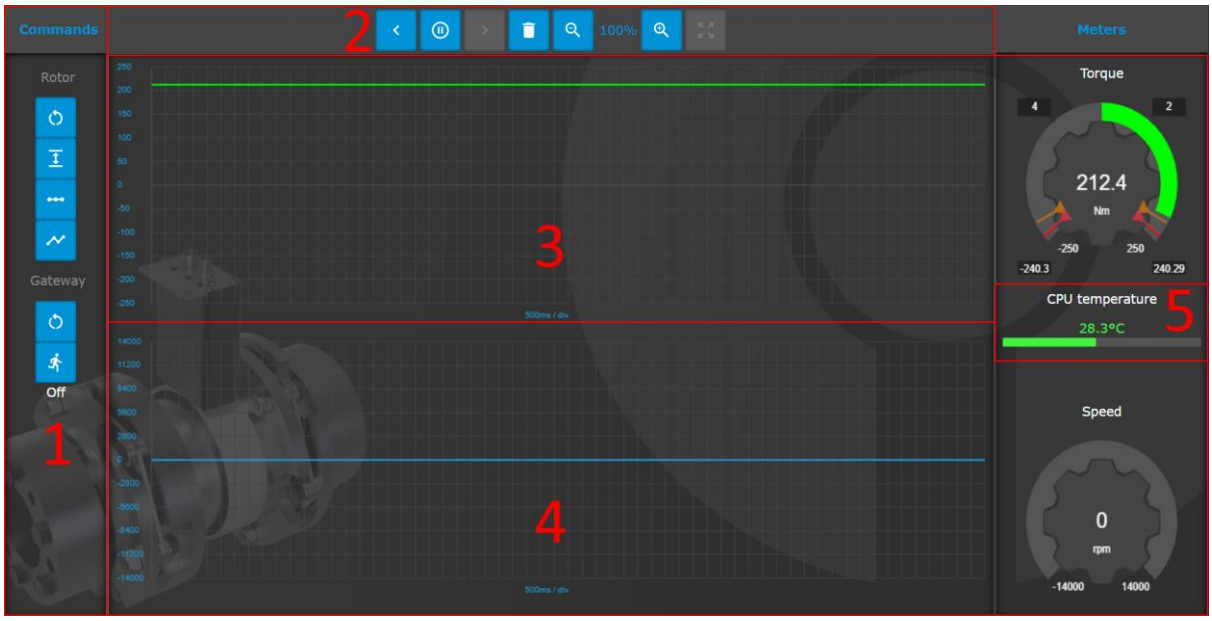

Figure 20 Dashboard overview

Overview of the button statuses

<u>Greyed out:</u>

Deactivated as limit (minimum/maximum) reached or due to incorrect authorisation.

<u>Coloured background:</u>

Activated. These commands can currently be performed.

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Command Center

The Command Centre is used for quick access to the most important measuring sleeve and gateway commands.

Measuring sleeve commands

Please Observe:
These commands **cannot** be performed in ***run mode*** (see **Gateway commands)**. If **run mode** is active, these buttons are greyed out.

Restart Rotor

When the measuring sleeve is restarted, the connection between the measuring sleeve and gateway is briefly interrupted and all previously performed measuring sleeve commands (all subsequent commands) are reset. Furthermore, all changed measuring sleeve adjustments (see **Measuring sleeve adjustments / Display**), such as changing the torque filter, are adopted.

Reset Min/Max

The measuring sleeve records all torque peaks at the **maximum sampling rate**. These are then saved in the min/max values and displayed on the interface (see **Torque display**). This button was added to reset these values for test purposes, e.g. to display the peaks for a specific action.

Setting the tare / offset

This button can be used if the offset of the torque output is not exactly 0 or if a certain basic load is required as a “new 0”. This is only temporary until the next time the measuring sleeve is restarted.

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Reset offset

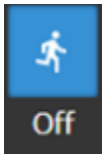
Once the offset has been set as described above, it can be reset by clicking on this button.

Gateway commands

Restart gateway

Performs a complete system restart. Both the gateway and the measuring sleeve are completely restarted.

Toggle run mode



The quick data and analog output is activated in ***run mode***, i.e. with the maximum sampling rate, depending on the adjusted torque filter (see **Measuring sleeve adjustments / Display**). The current status (***run mode*** on/off) is displayed below the button.

Please Observe:
Every time the ***run mode*** is changed, this is automatically saved by the gateway. After each restart, the last selected status (on or off) is always restored.

Important:
The data output at the analog output depends on the ***run mode***. If the ***run mode*** is deactivated, the same data rate is expected at the analog output as was adjusted in the **Graph adjustments** -> **Adjusting the transfer rate**. This is then only 50 to 1000 **milliseconds per value**. If ***run mode*** is active, the full data rate is always expected at the analog output. Depending on the torque filter adjustment, this is then 350 or 700 **microseconds per value.**

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Toolbar

With the toolbar, the horizontal graduation scale and the relative position of the timeline of the two graphs can be changed. It is also possible to pause recording so the graph can be analysed directly after a specific event.

Figure 21 Toolbar

Changing the position on the timeline

This tool can be used to navigate back and forth in the timeline. The left button can be clicked on to scroll 50% to the left and the right button to scroll back to the right.

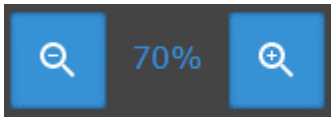
The middle button is used to pause and resume the recording. This means that the recording will continue in the background, but the timeline will not move any further. As soon as recording is resumed, all data recorded in the meantime will be added to the graph again.

Deleting graph data

Clicking on this button means that all recorded data in the graph is deleted. This applies to both torque and speed recordings.

Attention:
Once the data has been deleted, it cannot be restored.

Zooming in horizontally



The two graphs can be zoomed into or out of at the same time with this tool. The time graduation scale is always displayed in milliseconds per unit below each graph (see the next chapter **The graph**).

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Zooming out horizontally

Clicking on this button completely zooms out of the graph horizontally to the original display.

The graph

The graph is used to visualise the torque and speed curves over a certain period of time. This period depends on the current graduation scale (see **Zooming in horizontally** in the previous chapter).

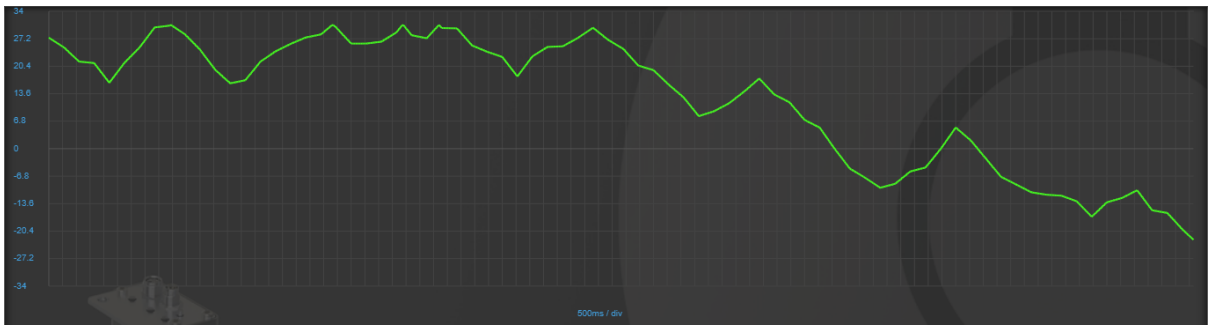

Figure 22 The graph

Please observe:
The graph is used purely to visualise the data. The **Gateway adjustments / Display** chapter describes how to record data.

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There are 3 parts to the graph.

The value axis

This axis (left in blue) can be scaled using the **Graph adjustments** (see **Adjusting the maximum torque**). It always goes from – (minimum torque) to + (maximum torque) and the zero line is always in the middle. The intervals for the value axis are fixed and cannot be changed now.

The timeline

The timeline (below) is currently kept in a simple format to keep the focus on the graphs. For this reason, only the time in milliseconds per interval (div) is displayed here.

The path

The path of the torque values is shown in green. The path of the speed values is shown in blue in a separate graph.

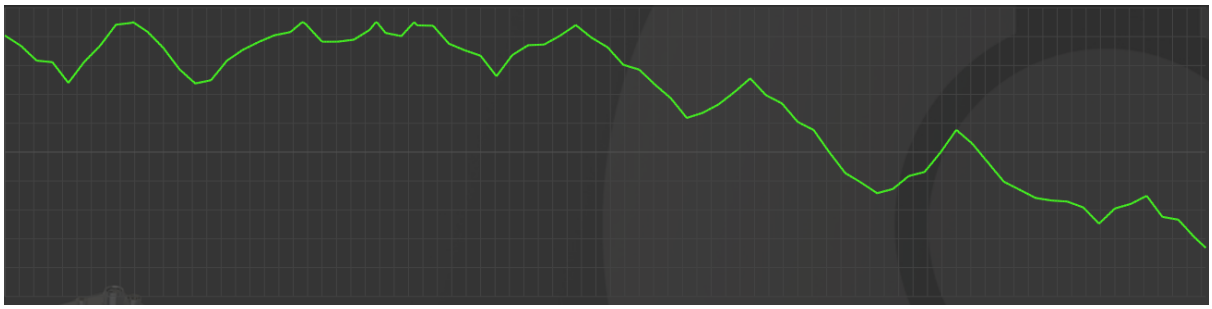

Figure 23 Torque path

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Torque display

The torque display is by far the most complex, as it provides the most information.

Both the current torque and the adjusted maximum torque are displayed here. The number of range exceedances for the ***error threshold*** adjusted in the **Graph adjustments** is displayed in the 2 top corners. The unfiltered torque peaks for the positive and negative torque range are displayed in the 2 bottom corners.

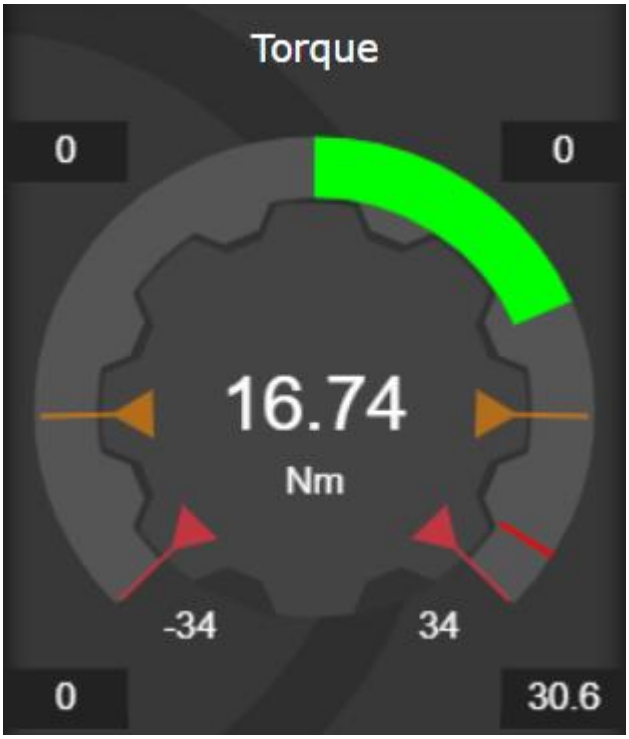

Figure 24 Torque display

In the example above, the maximum torque for the display is adjusted to +/- 34 Nm. The current (filtered) torque is 16.74 Nm and the positive torque peak is 30.6 Nm. The warning threshold (orange limiter) is adjusted to 24 Nm and the error threshold (red limiter) is adjusted to 34 Nm. If the error threshold were now adjusted to 30 Nm, the error counter would have at least a 1 in the top right-hand corner.

There is also a **small red line** on the right ***between the orange and red limiters***. This also represents the positive torque peak of 30.6 Nm. As only positive measured values were displayed here, there are no peak values for the negative torque display and therefore the value at the bottom left is still 0 Nm.

As soon as the warning or error threshold is exceeded, the colour of the display bar changes automatically. If the warning threshold is exceeded, the bar turns orange and as soon as the error threshold is exceeded, the bar turns red. This is demonstrated in the following two figures.

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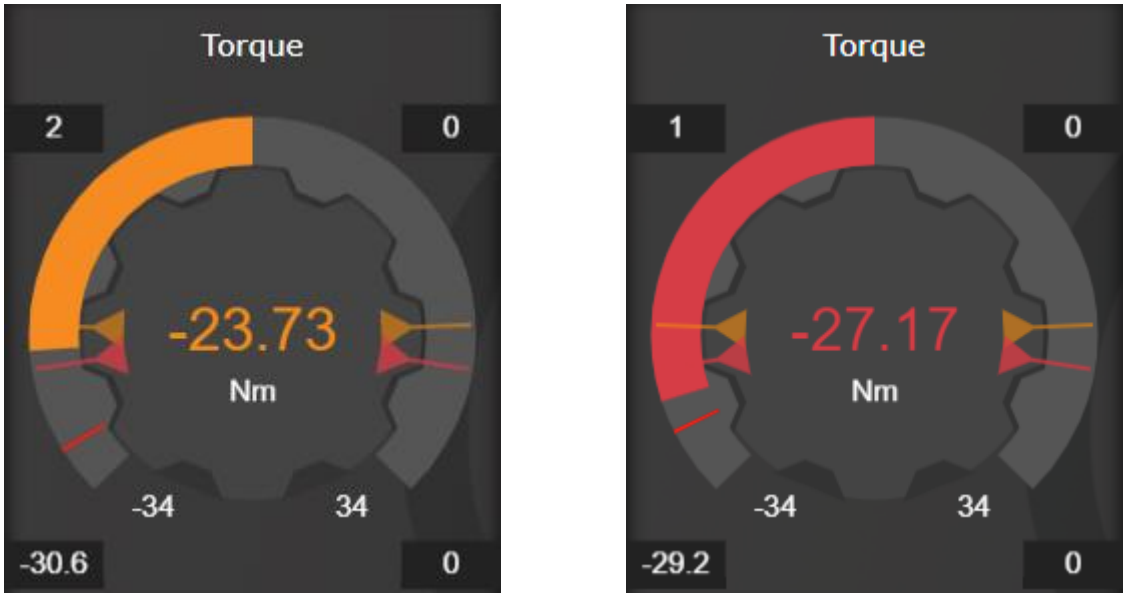

Figure 25 Torque warning and error thresholds

Speed display

As there are no warning and error thresholds for the speed display, only the speed and rotational direction are displayed here. The maximum *displayed* speed can also be changed in the **Graph adjustments** (see **Adjusting the maximum speed**).

Figure 26 Speed display

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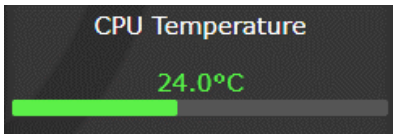
Temperature display



The temperature display shows the current temperature of the **measuring sleeve**. This also changes colour depending on the temperature limits.

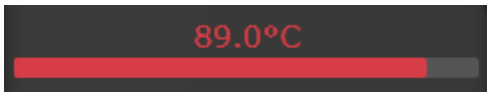
Figure 27 Temperature display

The display range is -40 °C to +105 °C.

The temperature limits are defined as follows:

The display turns orange (warning) under -15 °C and above +65 °C

The display turns red (error) under -20 °C and above +70 °C.



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Graph adjustments

The display of the graphs in the dashboard can be customised on this page.

All adjustments made here are saved directly on the connected PC using cookies as the write cycles of the memory on the gateway are limited.

In order to always get the same adjustments, it is recommended to always use the same PC/laptop or smartphone if possible. Of course, several PCs with different adjustments may also be used.

Important:
The graph is used purely to visualise the data. The **Gateway adjustments / Display – Messages and data logger** chapter describes how to record data.

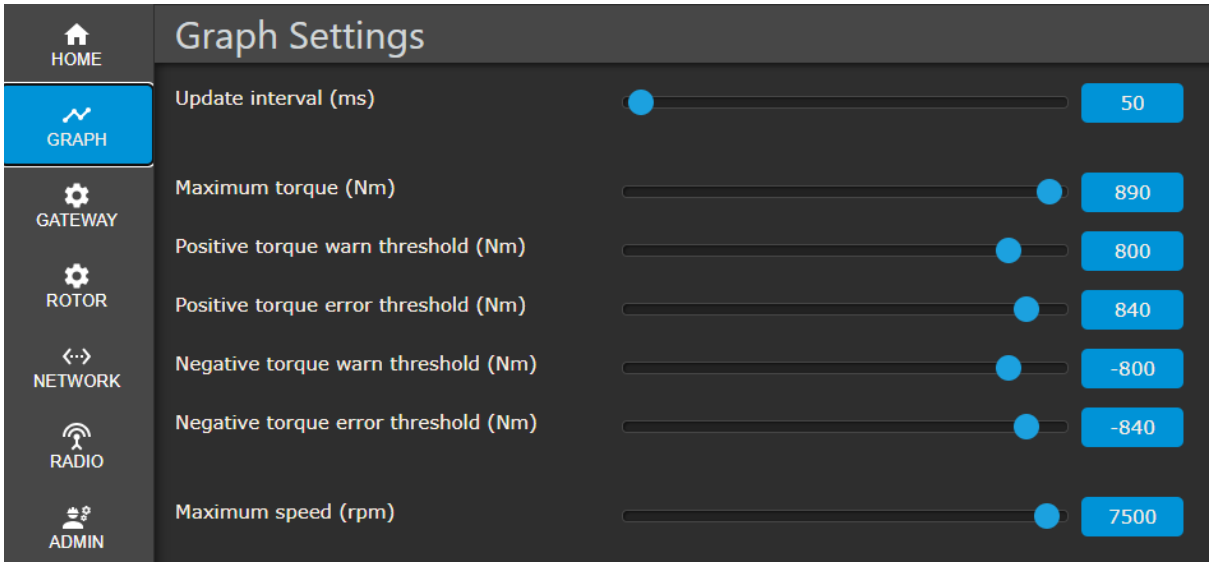

Figure 28 Graph adjustments

Adjusting the transfer rate

The top area contains the adjustment for the transfer rate (***update interval***) from the measuring sleeve to the gateway and to the web interface. The rate can be adjusted between 50 ms and 1000 ms in 50 ms increments as required.

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Adjusting the maximum torque

The ***maximum torque*** to be displayed on the graph and the other displays can be changed here. The minimum value is 1 Nm and the maximum value depends on the installed measuring sleeve.

For sleeve size 16 (table in the Appendix), with a calibration torque of 190 Nm, this would be 210 Nm, for example. This is calculated automatically. For example, as in Excel, ROUNDUP(190Nm * 1.1) = ROUNDUP(209) = 210Nm.

The adjustment can be made in steps of 1 Nm.

Adjusting torque thresholds

Please Observe:
These adjustments are for informational purposes only. Certain range exceedances can be checked here. For this reason, the values are only saved on the PC currently in use via cookies and not on the gateway or measuring sleeve. This also means that exceeding the error thresholds does not result in the device switching off; only the error counter of the torque display on the website is increased.

The warning thresholds for the torque display can be adjusted separately in the positive range ***(positive torque warn/error threshold)*** and in the negative range ***(negative torque warn/error threshold)***. There is a warning threshold and an error threshold in both cases.

The upper limit of the warning and error thresholds is automatically adjusted when the maximum torque for the graph is changed. The web interface automatically adjusts the graduation scale of the warning and error thresholds to the maximum torque as soon as this is changed.

Adjusting the maximum speed

The ***maximum speed*** to be used on the graph and the other displays can be changed here. The minimum value is 1 ***rpm*** and the maximum value depends on the installed measuring sleeve.

For measuring sleeve size 16 (table in the Appendix), with a maximum speed of 13,600 rpm, this would be 14,000 rpm. These maximum values are stored in a table on the gateway and are automatically adjusted depending on the connected measuring sleeve.

The adjustment can be made in steps of 1 rpm.

Gateway adjustments / Display

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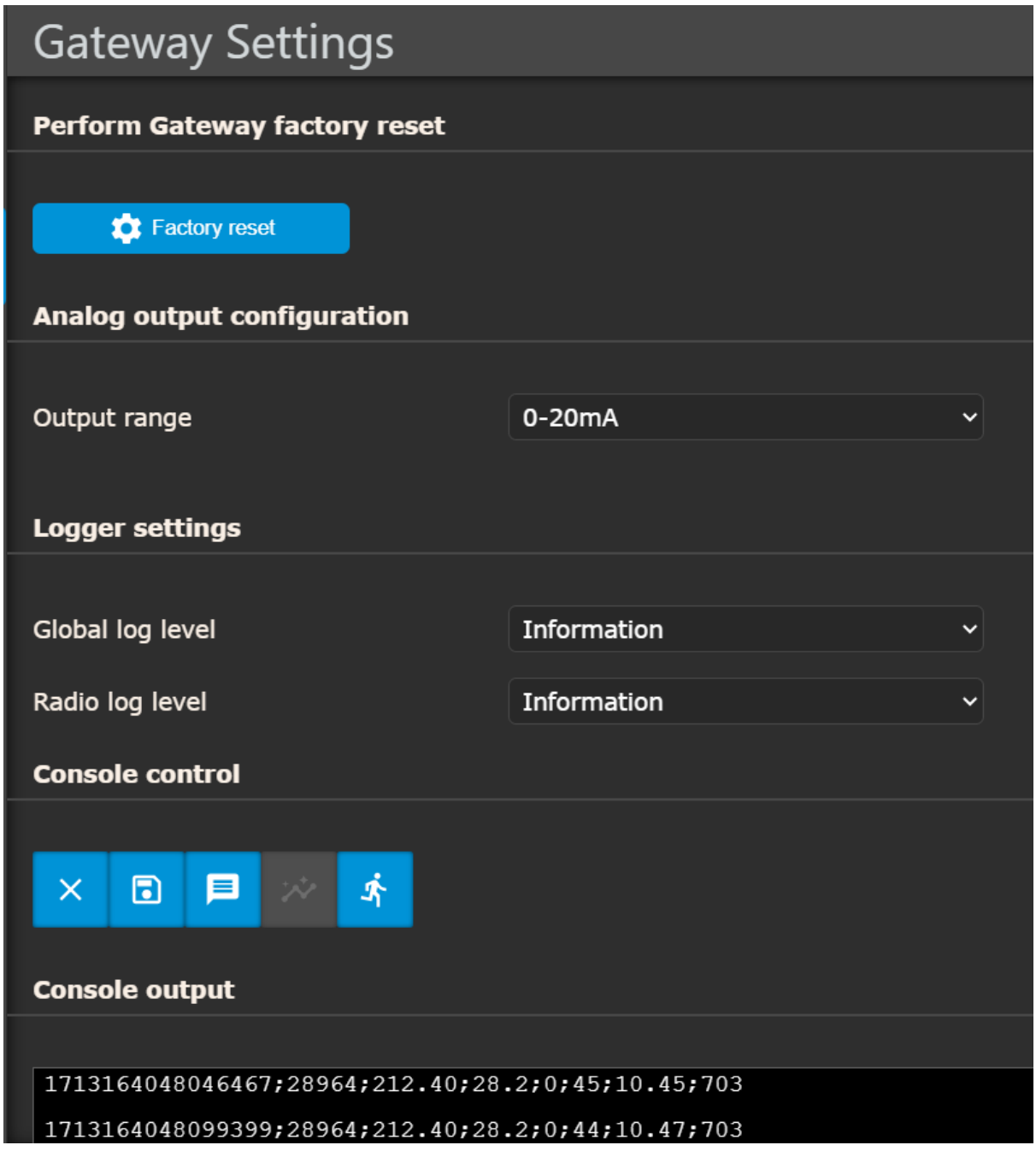
The configuration of the analog output can be displayed and adjusted in the gateway adjustments.

There is also the option of displaying system information here, such as warnings and errors. There is also a data logger, which can be used to record torque values.



Factory reset

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Attention:
Clicking on the ***Factory reset*** button resets **all** gateway adjustments to the as-delivered condition! For this reason, it is also limited to the “Customer service” service level.

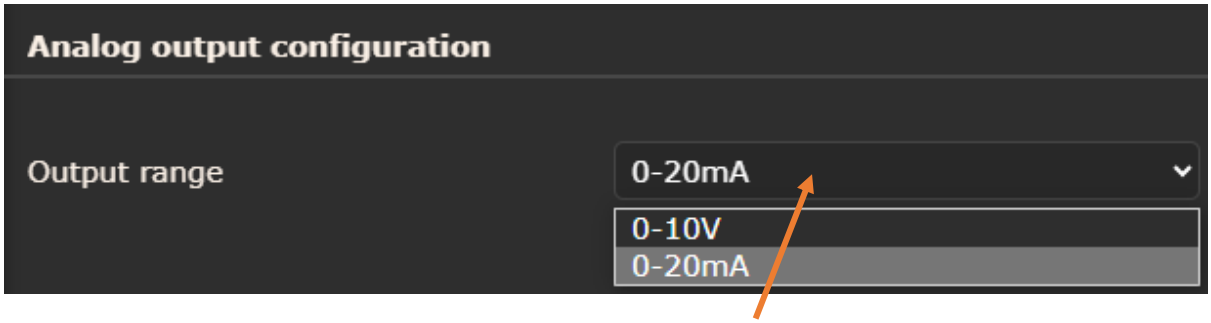
Configure analog output

The analog output can be set in two different configurations. ***Please be aware that the voltage and current outputs are the same cables.*** More detailed information on wiring can be found in the operational instructions.

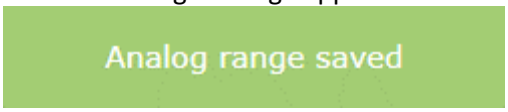
The data is buffered at the analog output. The buffer is always at least 5 data packages long and each data packet contains 15-25 values for the analog output, depending on the filter adjustment.

The following configurations are available.

- Voltage output 0-10V
- Current output 0-20mA



To change the analog output, click on the selection field and select the desired configuration. This is changed immediately with the selection and the following message appears in the status bar:



Saving separately is not necessary here.

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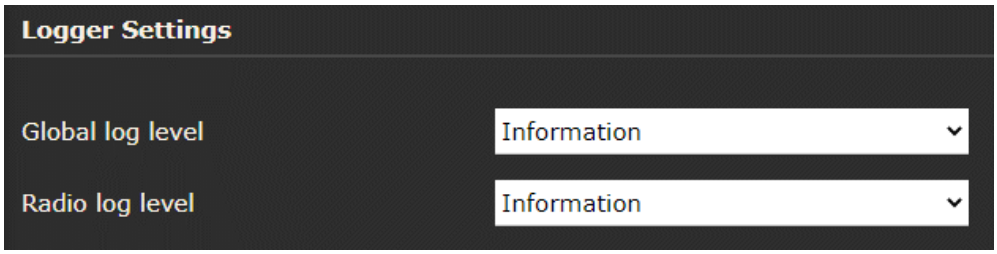
Changing the log level

The web interface has several integrated message loggers, which can be adjusted separately. These were integrated, for example, to output or record status changes and current measured values in different levels of detail.

These are:

- Global message logger (**Global log level**)
  - Outputs status changes, warnings and errors that take place in the main processes
- Radio module message logger (**Radio log level**)
  - Outputs status changes, warnings and errors for the radio module



In principle, the lower the level (Verbose = 0, Fatal = 5), the more data is output.

The following levels can be adjusted for each logger:

Level	Description
Verbose	This is the level with the most outputs. Please note that a lot of data may be output here and that this can affect the performance of the gateway.
Debug	This is the level that is normally used for development purposes. This is preferable in the case of troubleshooting, as a relatively large amount of information about the system is output here.
Information	Only information, warnings, errors and fatal errors are displayed from this level. This is the standard adjustment, as it contains the most important information for normal operation.
Warning	This level is preferable if the normal information is not relevant and only warnings, errors and fatal errors are important. For example, to check whether the system runs smoothly without interruptions in the connection or package loss over a longer period of time.
Error	Use this level to reduce the data output to an absolute minimum.
Fatal	This level is reserved for the operating system. If this ever occurs, it is usually due to errors that result in a complete system restart. These can be errors with the memory or even crashed processes, for example. Since we always try to test our systems to the limit, these errors are extremely rare. However, this can never be ruled out completely.

Please Observe:

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The log level is saved on the gateway so that the log level is also restored after the gateway is restarted. This means it does not have to be changed over and over again. For this reason, the log level should always be reset to **Warning** as soon as the system analysis is completed and the system is to be used normally again.

Messages and data logger

2 different loggers are installed in the system. One is the message logger, which only outputs the system messages from the 2 loggers described above, and the other is the data logger. This has been included so that no extra information such as status changes between the data is output in ***run mode*** during quick data output.

There is also the option of saving the data in a text document or deleting it here. The ***run mode*** can be switched on or off again here.

Important:
The message and data loggers are part of the web interface. This data is not stored on the gateway. As soon as the webpage is reloaded, all data from the recordings will be permanently lost.

Attention:
Data recording always starts as soon as the web interface is called up. Depending on the data rate adjustment and recording duration, several 100 megabytes can be generated per day. We have not placed a limit here, so that recordings can be taken for several day. Since older PCs cannot save large data packet, we recommend saving the recordings regularly and restarting the recording to avoid data loss.

The message logger

As already mentioned, the message logger only outputs the system messages. This includes information such as status changes, warnings and errors.

The following figure shows an output of the logger with the log level information. To identify errors and warnings more quickly, these are also highlighted in colour.

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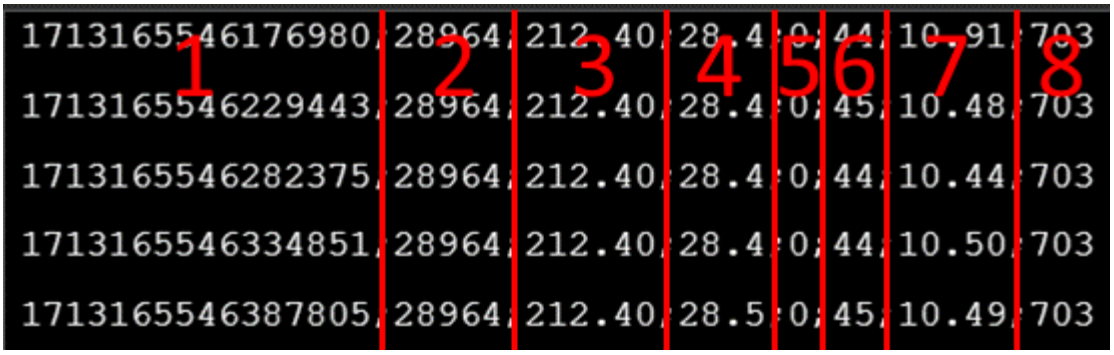
```
2024/04/15 09:33:38.050 [WRN] [RDC] Rotor connection timeout
2024/04/15 09:33:38.225 [INF] [RDC] Received it's me from device 0x6C0025F0 with default channel 255
2024/04/15 09:33:38.332 [INF] [RDC] State changed successfull to 2
2024/04/15 09:33:38.833 [INF] [RDC] 28964 Digits; 24.63V; 0 rpm; 3782.44 ms; ch 1; buffLen 1
2024/04/15 09:33:38.922 [INF] [RDC] Received Error Flags
2024/04/15 09:33:38.928 [INF] [RDC] Set rotor time successful
2024/04/15 09:33:38.936 [INF] [RDC] Transmit rate changed successfull to 50
2024/04/15 09:33:38.942 [INF] [RDC] Transmit rate changed successfull to 50
2024/04/15 09:33:38.949 [INF] [RDC] State changed successfull to 3
2024/04/15 09:33:38.961 [WRN] [RDC] Lost 1 package(s), Total: 3
2024/04/15 09:33:38.963 [INF] [RDC] Set rotor time successful
2024/04/15 09:33:38.982 [WRN] [RDC] Lost 1 package(s), Total: 4
2024/04/15 09:39:24.520 [WRN] [RDC] Rotor connection timeout
2024/04/15 09:39:24.690 [INF] [RDC] Received it's me from device 0x6C0025F0 with default channel 255
```

Each logger has an integrated line limit of 100 lines so that the CPU usage on the PC does not become too high when a lot of data is output. Nevertheless, all data continues to be recorded in the background until it is deleted manually.

The data logger

The data logger is responsible for displaying the data during quick data output in ***run mode***. The output frequency depends on the adjusted transfer rate (see **Adjusting the transfer rate**).

As can be seen in the following figure, only raw data is output here without any extra descriptions. These are separated by a semicolon so that they can be easily opened in Excel or a compatible program.



The structure of the data is as follows from left to right:

1. Timestamp UTC in microseconds
2. Torque as analog value from -32768 to 32767
3. Torque in Newton metres
4. Current measuring sleeve temperature in °C

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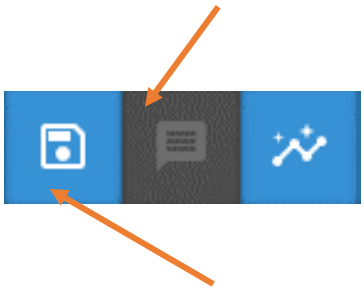
5. Current speed in rpm
6. Current data buffer size for the analog output
7. Package receipt rate from measuring sleeve to gateway in milliseconds
8. Average sample rate of the measuring sleeve in microseconds

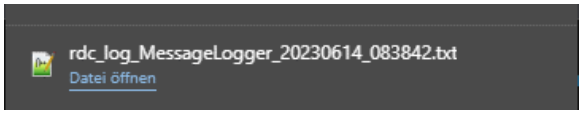
Please observe:
The output on the data logger always contains only the averaged torque value (3) from a complete data packet, as otherwise the output at high data rates would be in the 350-700 microsecond range. In our experience, this amount of data is sufficient to carry out a system analysis in most cases. The analog output should be used if higher data resolution is required.

Saving the active logger data

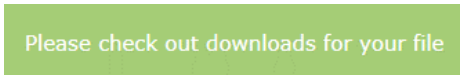
Before saving the output of a logger on the PC, the desired logger must first be selected. The message logger is already selected in the following figure.



Simply click on the disc symbol to save the current output of the message logger. This automatically creates a file with all the recorded data and saves it in the download folder set in the network browser.



The following message is also displayed in the status bar.



The file always has the following structure:

rdc_log_(type)_(date)_(time).txt

In this case, **Type** should be either MessageLogger or DataLogger.

The date is always specified in the format YYYYMMDD (year, month, day) and the time is always specified in the format HHMMSS (hour, minute, second).

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Deleting the active logger data

The current recording can be easily deleted by clicking on the button with the small X on the left-hand side.

Attention:
The data will be permanently deleted without requesting confirmation. All data must be saved beforehand if it is still needed.

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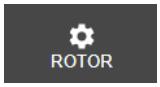
Measuring sleeve adjustments / Display



The current torque calibration values and calibration date can be displayed in the measuring sleeve adjustments.

In addition, torque sensor adjustments such as filter, sensor size and maximum torque can be displayed and, in some cases, edited here.

Important:
As long as the measuring sleeve is in ***run mode***, no changes can be made to the measuring sleeve adjustments. This is indicated by the following message in the status bar when an attempt is made to change the adjustments in ***run mode***.

Information on how to exit ***run mode*** can be found in the **Toggle run mode** chapter.

Most fields are for informational purposes only and therefore cannot be changed. However, if the measuring sleeve is defective, this information can provide us with indications about the cause of the fault (defective memory, etc.). For this reason, screenshots of this page should be sent to us if there are any problems with the measuring sleeve so that we can analyse it in more detail. However, this is not necessary if these fields are all empty.

Factory reset

Attention:
Clicking on the ***Factory reset*** button resets **all** measuring sleeve adjustments to the as-delivered condition! For this reason, it is also limited to the “Customer service” service level.

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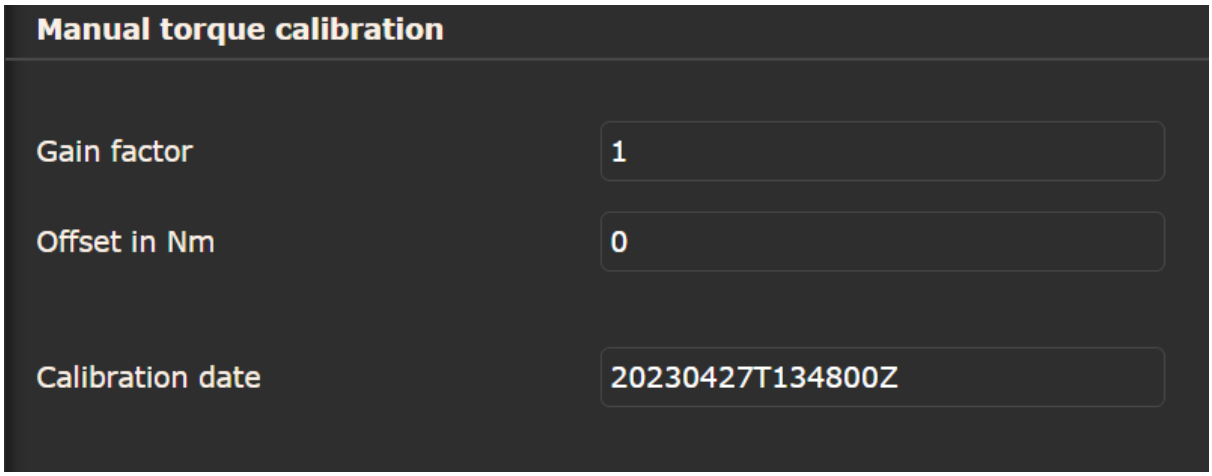
Manual torque calibration

Manual torque calibration is carried out once at the factory for each measuring sleeve.

This is for informational purposes only and therefore cannot be changed.



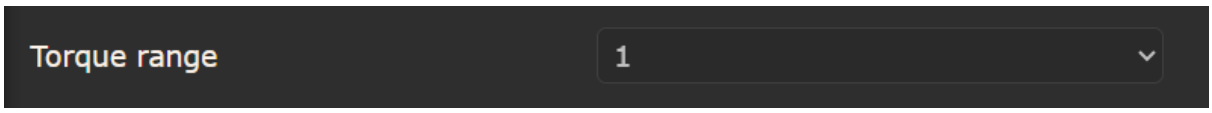
Torque range

The ***torque range*** currently has 2 setting options, 0 and 1. These ranges depend on the installed measuring sleeve and are automatically pre-adjusted during testing at the factory, depending on the desired maximum torque.

This field is for informational purposes only and therefore cannot be changed.

The range 0 is a gain factor of 0.5 - 1.5 (peak torque) in relation to the nominal torque.

The range 1 is a gain factor of 0.416 - 1.25 (peak torque) in relation to the nominal torque.



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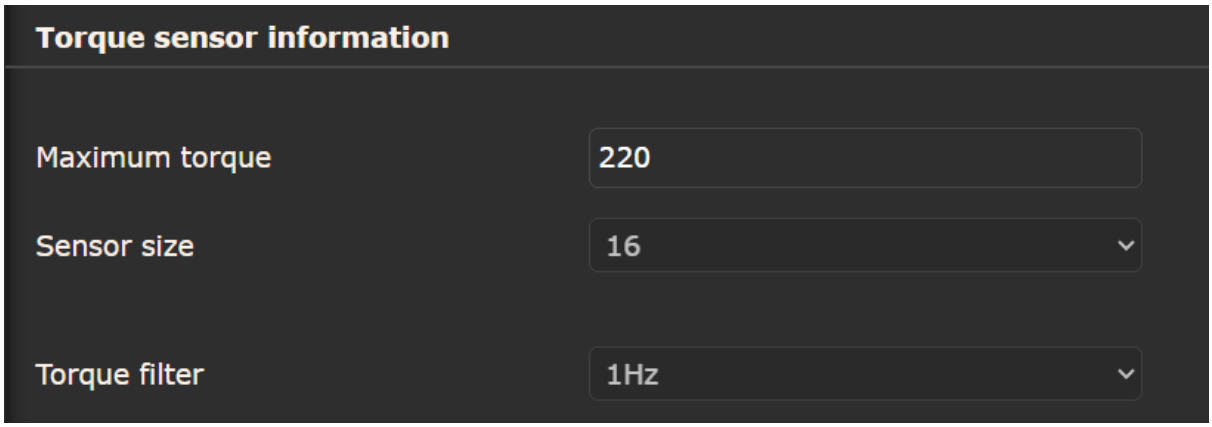
Torque sensor information



Maximum torque

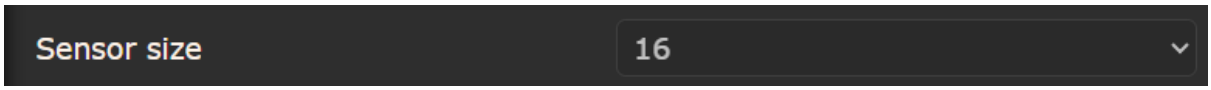
The maximum torque is the torque to which the measuring sleeve has been calibrated. Even if a measuring sleeve with size 16 has a maximum torque of 190 Nm, it may have been calibrated with 160 Nm at the customer's request, which means the actual calibration value and not the maximum possible value is displayed here.

This field is for informational purposes only and therefore cannot be changed.

Sensor size

The sensor size is pre-adjusted by us during testing. A table with the different measuring sleeve sizes can be found in the Appendix.

This field is for informational purposes only and therefore cannot be changed.



Torque measuring filter

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The ***torque filter*** is responsible for pre-filtering the values for the analog output. This can be changed from the authorisation level ***Customer*** (end customer).

In principle, the smaller the filter frequency (1 Hz = small, 1000 Hz = large), the stronger the signal is filtered and quick changes are filtered out.

Important:
The measuring sleeve must be restarted for the filter to be applied to the measuring sleeve. The correct value is then also displayed on the web interface.

The following adjustments are possible:

Limit frequency	Description
1 Hz	Data output digitally filtered with 1 Hz Bessel first-order low-pass filter with 1.25 kS/s effective data rate. The strongest filtering to remove quick changes (peaks) from the signal as far as possible
10 Hz	Data output digitally filtered with 10 Hz Bessel first-order low-pass filter with 1.25 kS/s effective data rate.
100 Hz	Data output digitally filtered with 100 Hz Bessel first-order low-pass filter with 1.25 kS/s effective data rate.
200 Hz	Data output digitally filtered with 200 Hz Bessel first-order low-pass filter with 2.5 kS/s effective data rate.
500 Hz	Data output digitally filtered with 500 Hz Bessel first-order low-pass filter with 2.5 kS/s effective data rate.
1000 Hz	Data output digitally filtered with 1000 Hz Bessel first-order low-pass filter with 2.5 kS/s effective data rate. This is the standard value

Table 2 Filter adjustments

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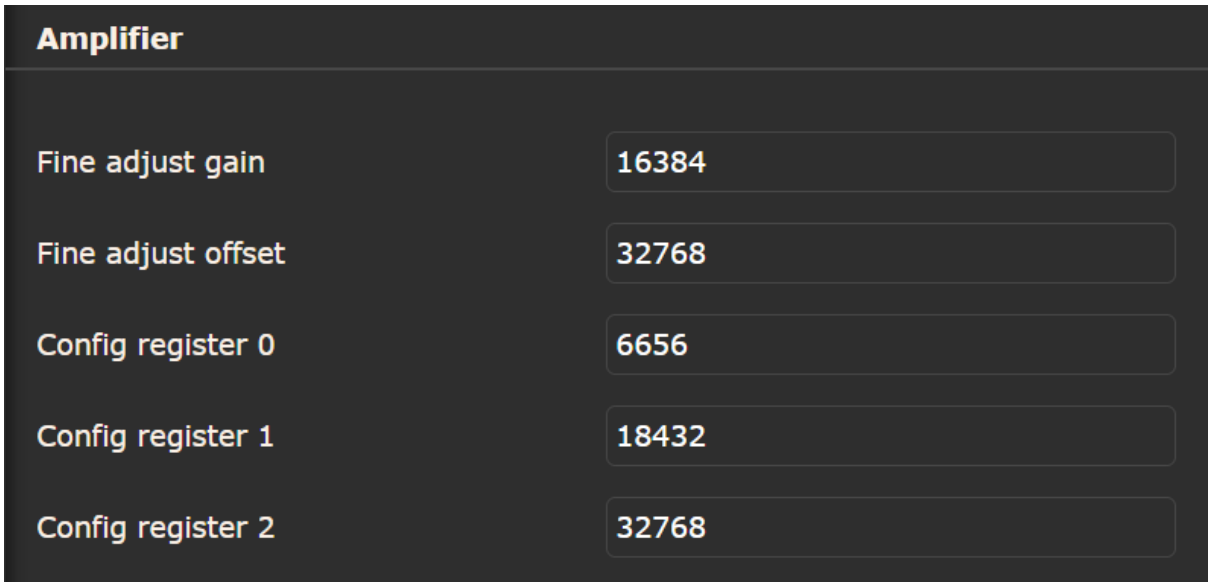
Torque amplifier

These are the adjustments of the torque amplifier of the measuring sleeve. These are automatically pre-adjusted during testing at the factory, depending on the desired maximum torque.

This field is for informational purposes only and therefore cannot be changed.



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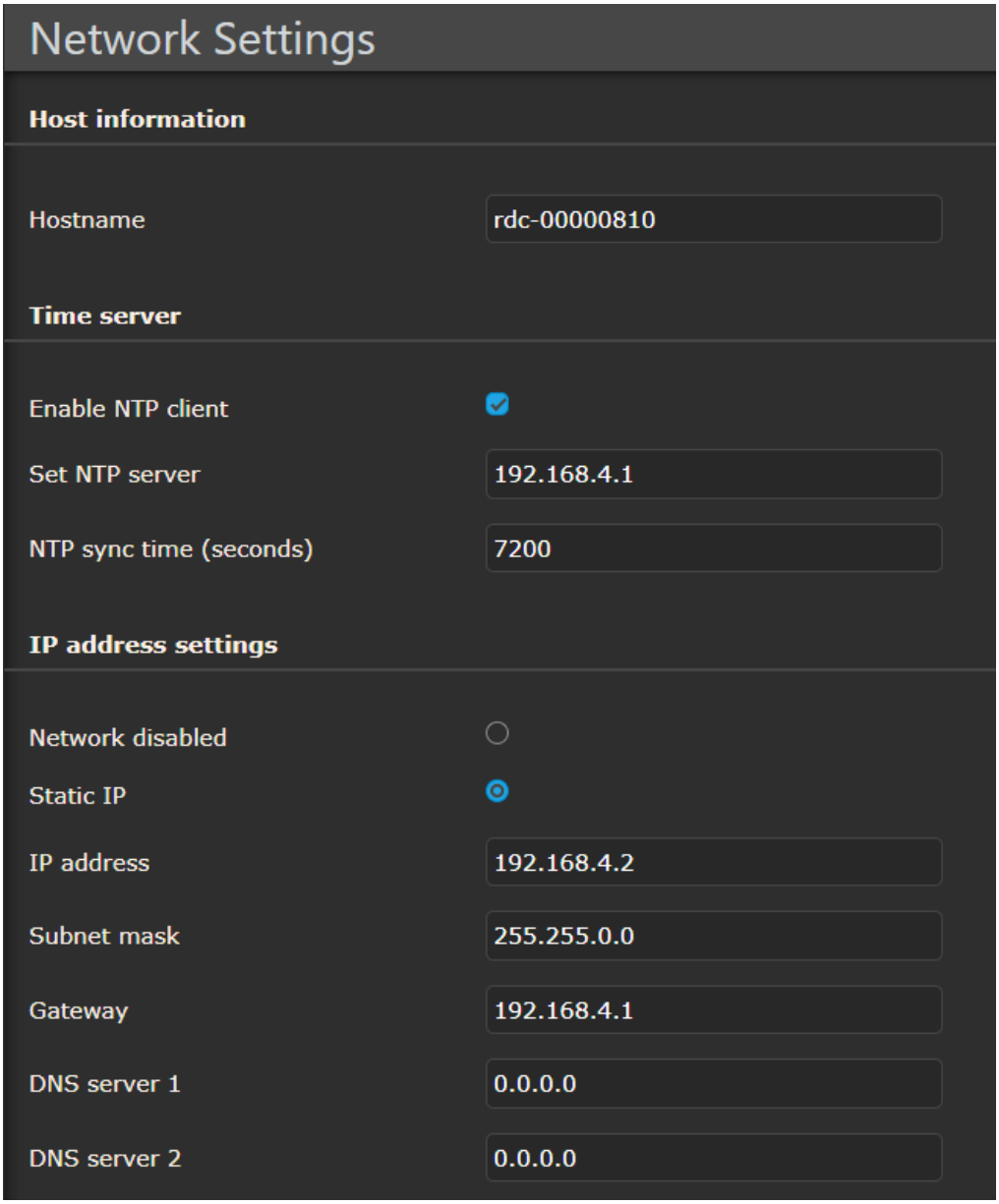
Network adjustments / Display

Various adjustments in relation to time servers, static or dynamic IP addresses can be made in the network adjustments. The network can also be completed deactivated here. As standard, the ROBA Drive Checker is assigned the static IP address 192.168.4.2 to enable a direct connection to the system.



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Changing the host name

In the default setting, the host name is pre-adjusted with the combination rdc-{*serial number*}, as already described in the **Establishing the connection to the gateway** chapter.

If this needs to be changed for any reason, this can be done here. To do this, the new name simply needs to be entered in the field shown above and ***Save*** pressed at the bottom of the page.

This causes the changes to be applied immediately, and the gateway restarts automatically.

Important:
The connection will be restored to the same host name shortly afterwards, as most DHCP servers buffer both host names for a certain time, but it will usually be no longer possible to connect after a few minutes. This is why it's advisable to establish the connection via the new host name immediately after restarting.

Important:
If a static IP address has been set, *the gateway must be addressed via this address if no DNS server has been configured in the network*. The IT system administrator should be contacted if there are any questions about this.

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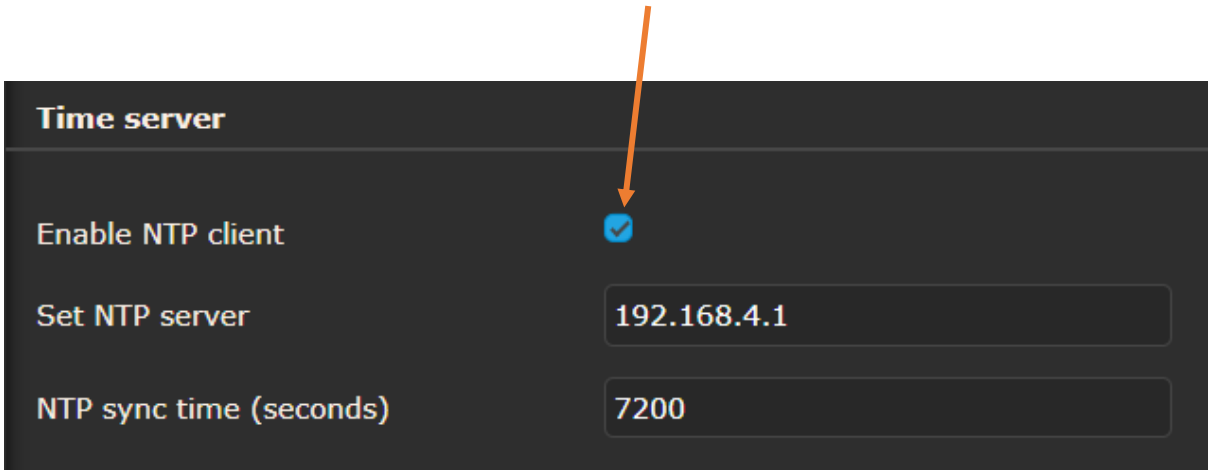
Adjusting the time server

So that the gateway can always use the current time for recordings, the option of specifying a time server (***NTP server***) has been added in the event that no PC is connected to the gateway. This can either be a server in the company network or, if an Internet connection is available, a global time server may also be used.

If a PC with an open web interface is connected, the gateway can also adopt the time on the PC system. This happens automatically without the user's input.

Requesting the time from the time server is activated as standard (***Enable NTP Client***). Click on the checkbox shown in the following figure to deactivate or activate the query.



The update time (***NTP sync time***) can also be specified in seconds here. The standard adjustment is 7200 seconds, i.e. every two hours.

Click the ***Save*** button to save the changes.

If a time server is not being used, but an *Internet connection* instead, it is also possible to enter one of the following time servers.

- 0.de.pool.ntp.org
- 1.de.pool.ntp.org
- 2.de.pool.ntp.org
- 3.de.pool.ntp.org

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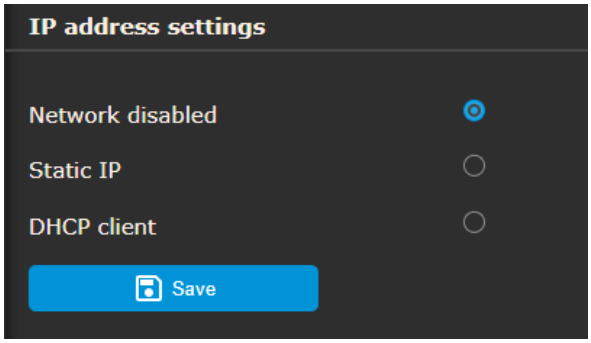
Deactivating the network

If the network needs to be completely deactivated for any reason, this can be done here. To do this, the **Network disabled** button simply needs to be clicked on as shown in the following figure. The changes are applied by clicking on **Save**.

Attention:
This causes the gateway to restart automatically. If there is a need for any additional adjustments, make these beforehand.



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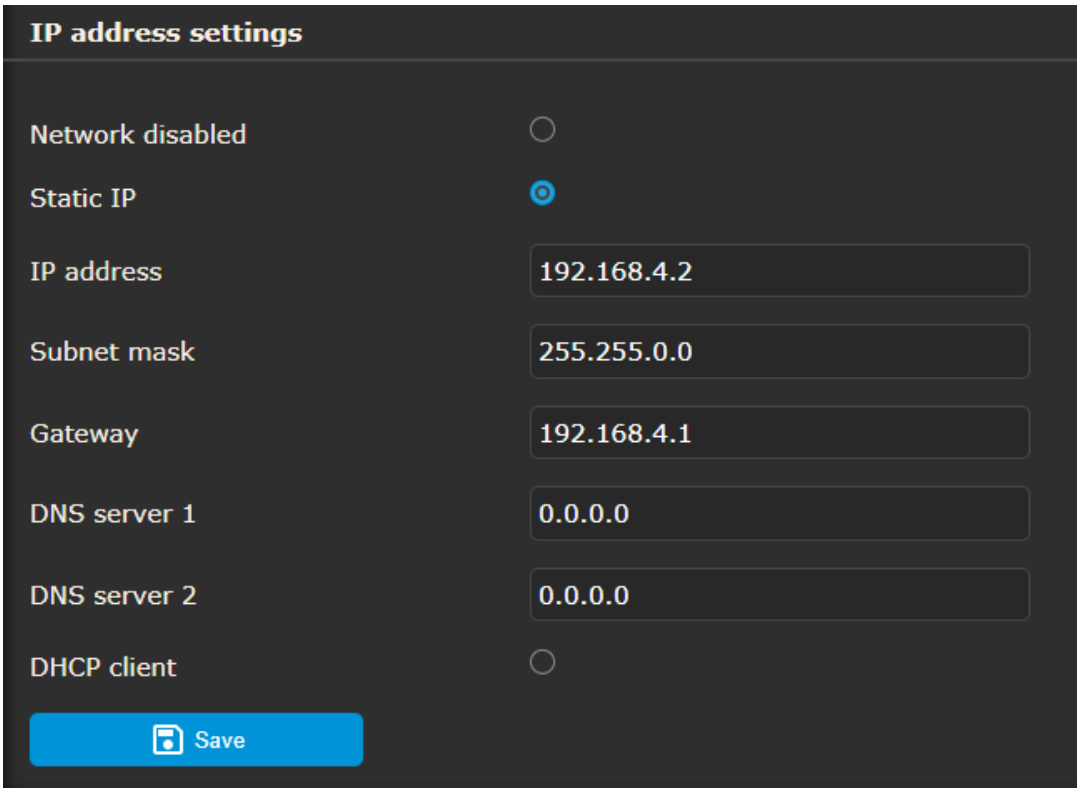
Assigning a static IP address

A static IP address can be useful if no DHCP server is available or if each device requires a fixed address to enable a direct connection to the device.

Please contact the IT system administrator if specific adjustments are required for the company network.



The static IP can be activated by clicking the top radio button next to ***Static IP***. Now the IP address, subnet mask, gateway and DNS server addresses assigned by the system administrator can be entered.

Clicking on ***Save*** applies the adjustments. The gateway then restarts. The new configuration is active.

Important:
The gateway must be reconnected after restarting. To do this, the previously assigned IP address must be directly entered into the network browser.

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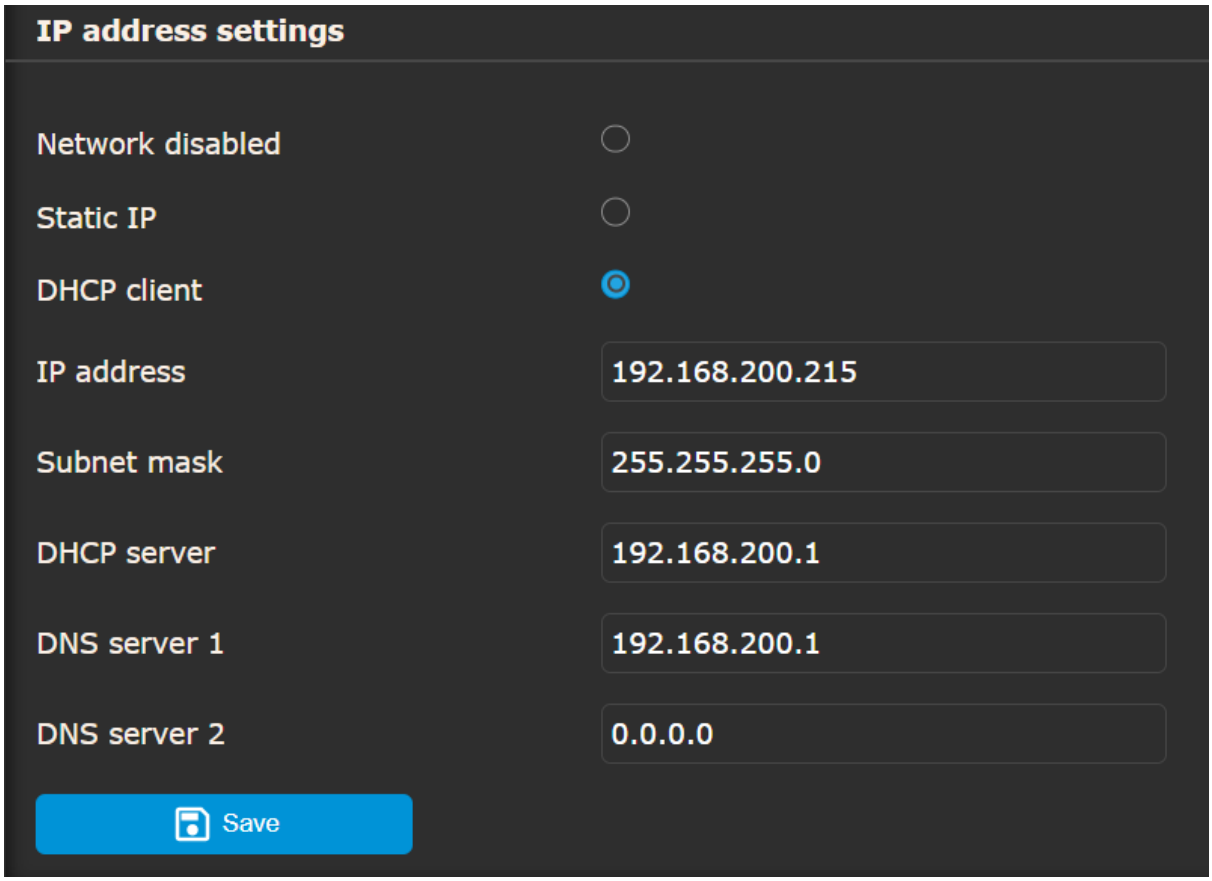
Configuring the gateway as a DHCP client

A DHCP client is a device that is automatically configured by a DHCP server in the network, which is why the displayed values cannot be changed.

Please contact the IT system administrator to find out whether there is a DHCP server in the used network.



The DHCP client can be activated by clicking the bottom radio button next to ***DHCP Client***. Clicking on ***Save*** applies the adjustments. The gateway then restarts. The new configuration is active.

Important:
The gateway must be reconnected after restarting. When configuring as a DHCP Client, either the host name or the IP address (if known) can be entered in the network browser.

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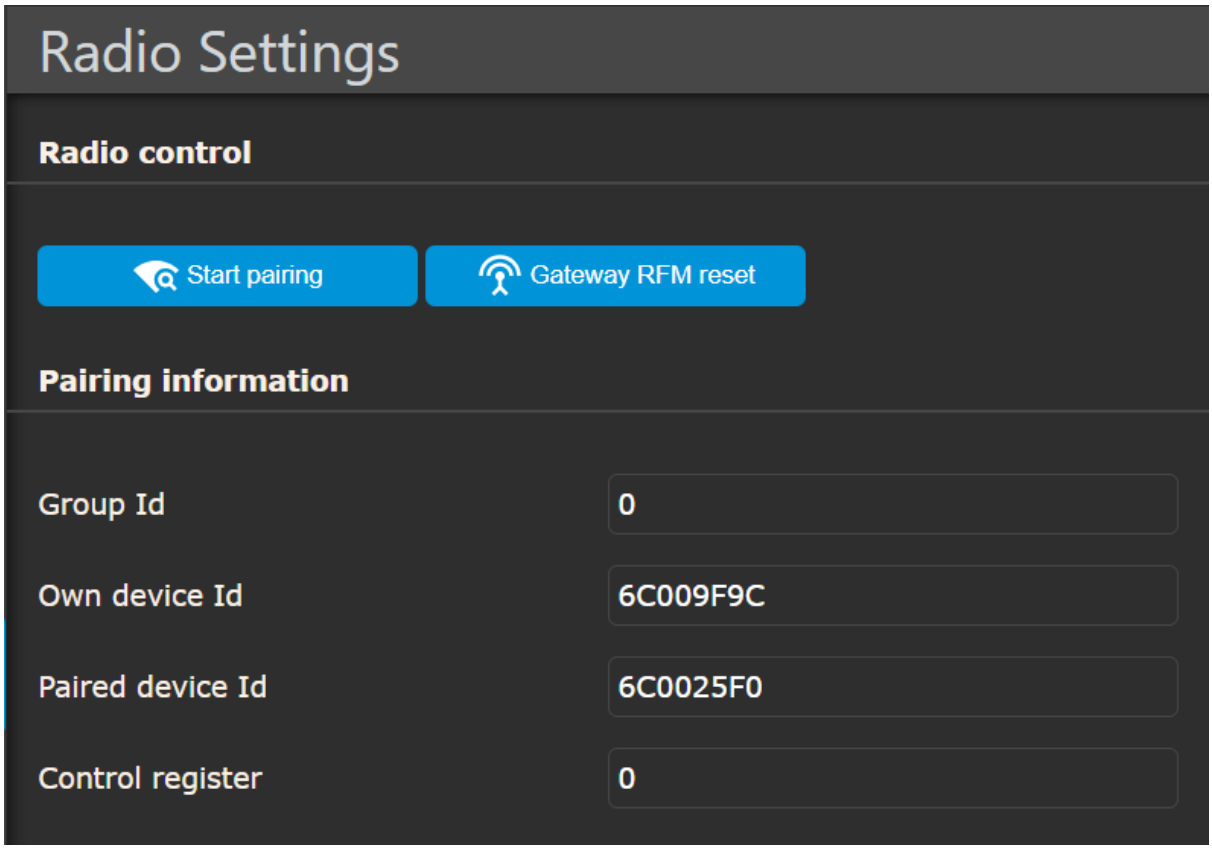
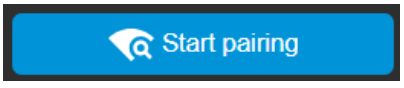
Radio display

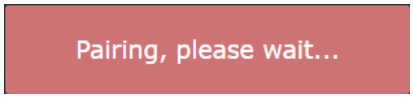
A new measuring sleeve can be connected to the gateway here if required. Information about the group ID and the IDs of the paired devices is also displayed here.



Pairing a new measuring sleeve



Clicking on the ***Start pairing*** button starts the device pairing and the following message is displayed in the status bar.



If the pairing process is successful, the paired device ID is then entered in the field below and the measuring sleeve LED in the status bar at the bottom right changes from red to green.

The following message is also displayed in the status bar.

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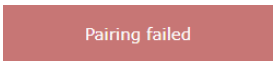
However, if the process fails, the following message is displayed.



If this happens, check the distance and correct alignment between the gateway and the measuring sleeve. Guidelines on this can be found in the operational instructions.

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Resetting the gateway radio module firmware

This function should only be used if the pairing process fails repeatedly. The function is therefore only available with the authorisation level ***Service***.

Clicking on the ***Gateway RFM Reset*** button resets the firmware of the radio module to the factory settings. This may be necessary if the gateway and measuring sleeve can no longer be connected to each other, for example, if too many different devices have been connected to each other for test purposes.

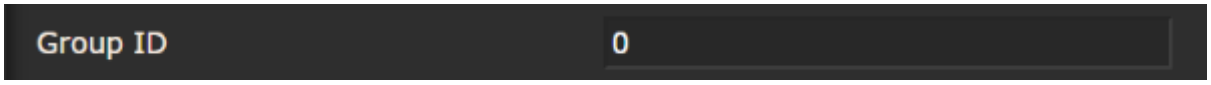
Important:
After the radio module reset, the gateway is automatically restarted and the pairing process must be initiated again.

Information about the paired device

Please Observe:
Please note that the current transfer channel has been deliberately left out here, as it is always available in the status bar.

Group ID

The ***Group ID*** indicates the device group in which the gateway and measuring sleeve are located. This can be used in future, for example, to create specific system groups. One example would be that a machine contains several drive checkers, which are then combined in a group in order to define a clear device/machine association and to be able to identify these groups more quickly.



Information:
The Group ID is currently deactivated. However, this will be added in a future firmware version.

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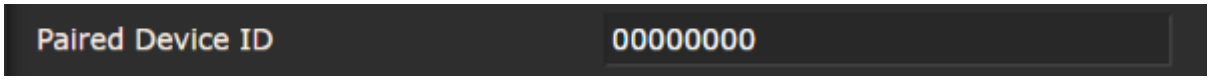
Own Device ID

The ***Own Device ID*** is the identification number of the gateway radio module. If 00000000 appears here, then the gateway's radio module was not found or not initialised correctly; otherwise an 8-digit hexadecimal number can be found here. This is for informational purposes only and cannot be changed.

Please Observe:
If 00000000 is actually displayed here, restart the gateway. In most cases, this will correct the problem. If the problem persists, it may also be due to a faulty radio module. In this case, please contact our customer service.

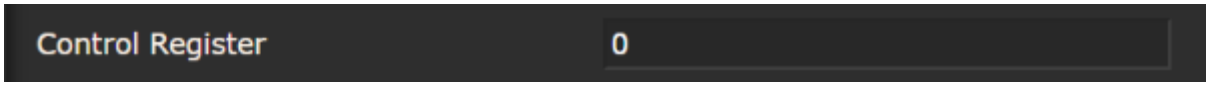
Paired Device ID

The ***Paired Device ID*** is the identification number of the measuring sleeve. If 00000000 is displayed here, then no measuring sleeve has been paired yet, otherwise the ID of the measuring sleeve is displayed here. This is for informational purposes only and cannot be changed.



Control Register

The ***Control Register*** is intended for development purposes only. This is for informational purposes only and cannot be changed.



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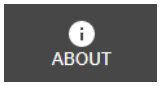
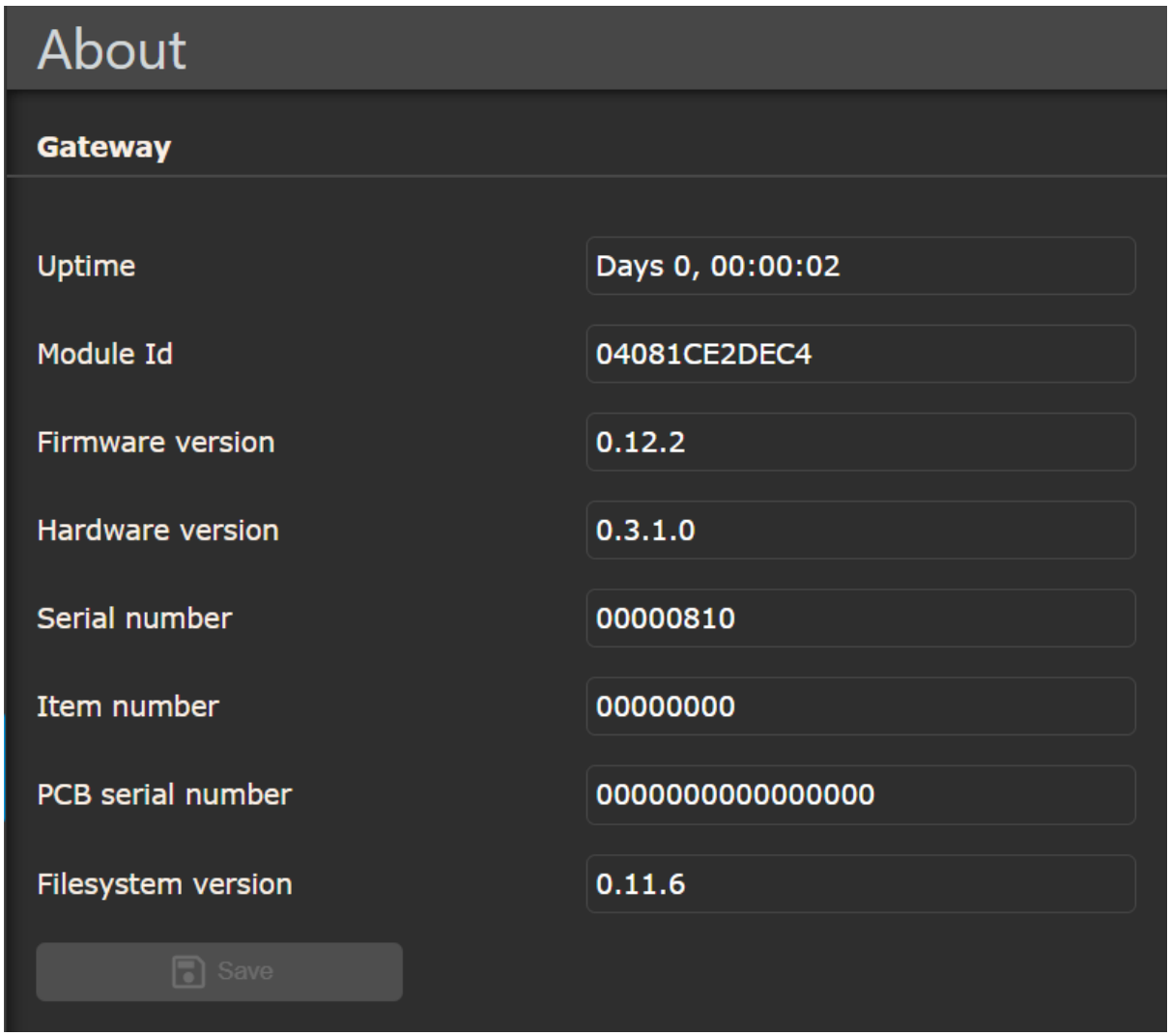
About – adjustments / Display



The About page displays the serial numbers, firmware and hardware status of the measuring sleeve and gateway.

There's also the option to easily update the firmware and file system of the gateway as well as the firmware of the measuring sleeve.



Firmware / File system update

Even though we always aim to deliver absolutely faultless firmware, it can occur from time to time that errors creep in for certain configurations or areas of application. In some cases, it can simply be a matter of improvements or simple extensions.

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In order to offer the best-possible experience, we have therefore integrated an update service directly into the web interface.

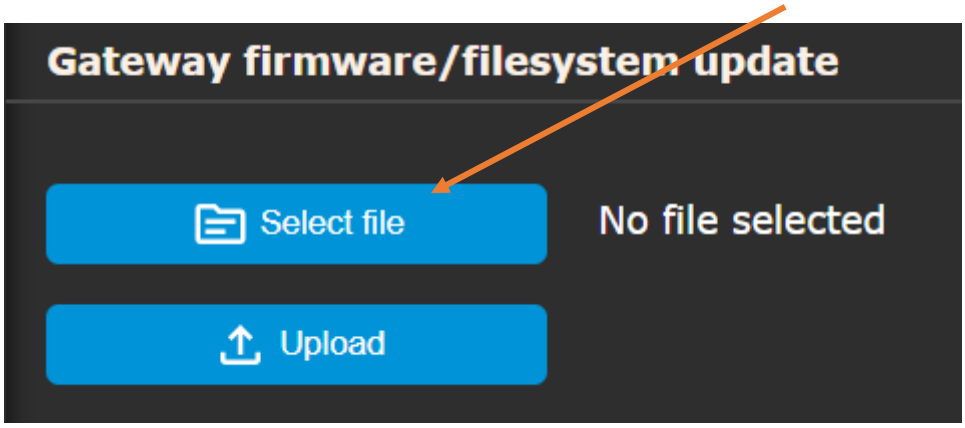
The procedure for the updating the gateway is briefly explained below. It does not matter whether the firmware or the file system is uploaded. Either one can be selected using the same button and the gateway automatically knows what kind of file it is.

The firmware and file system files have the following structure:
Typename**_FW**Versionsnumber

Example of a firmware file:
053-900-6**_FW**0-1-2.bin with the type 053-900-6 and firmware version 0.1.2

Example of a file system file:
053-900-6**_FS**0-1-0.bin with the type 053-900-6 and the file system version 0.1.0

First select a firmware or the file system by clicking on ***Select File***.



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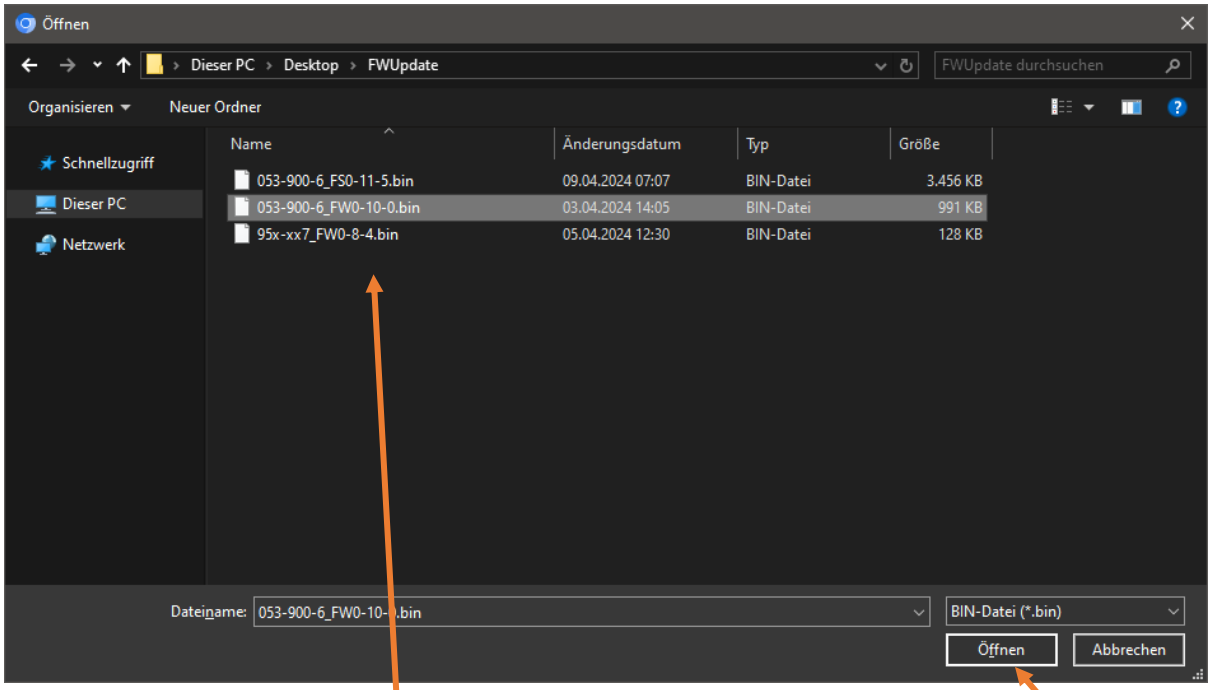
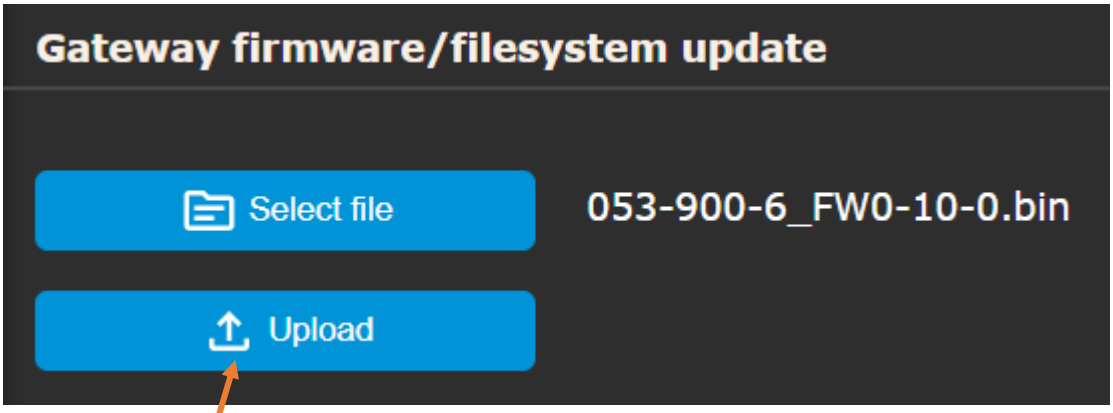
This opens a selection window which filters for .bin files.



Search for the firmware or file system file and select the file. Click on ***Open*** to load the file.

The selected file is then also displayed on the web interface and the ***Upload*** button is activated.



Click on ***Upload*** to start the firmware update. The progress will be displayed in the status bar.

Once the update is complete, the gateway is automatically restarted and attempts to load the new firmware. If this fails for any reason, the last firmware version used is automatically restored.

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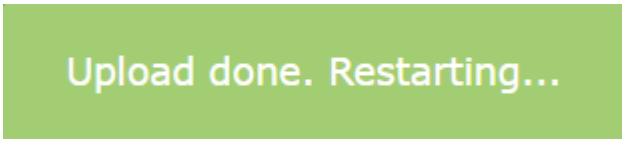
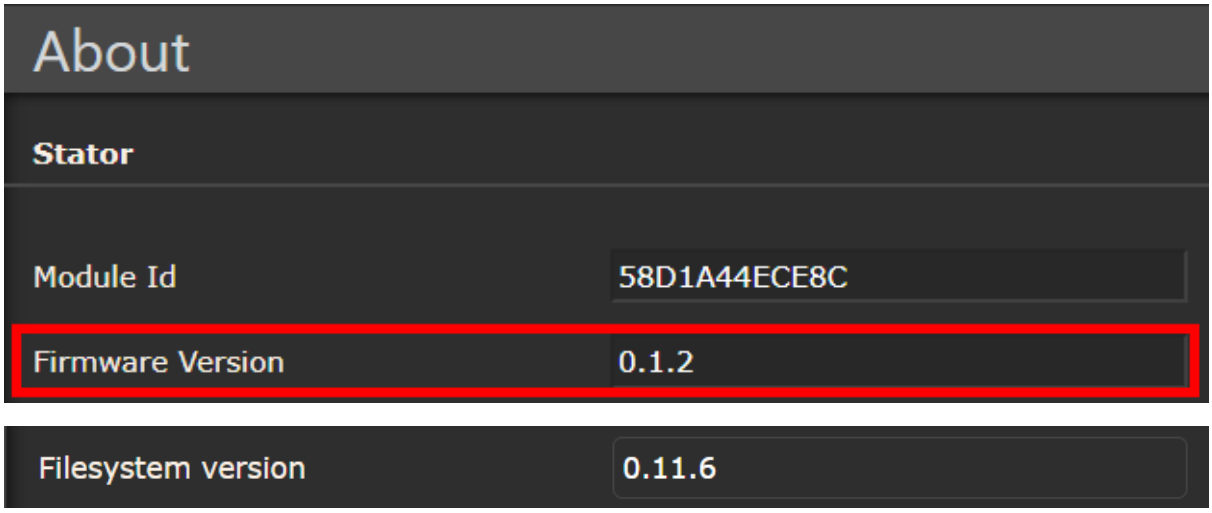


To ensure that the file has actually been loaded correctly, it is recommended to check the version again under *About -> Gateway -> **Firmware version/File system version***.



Please Observe:
If the file system has been updated, the website will reload automatically after a short time.

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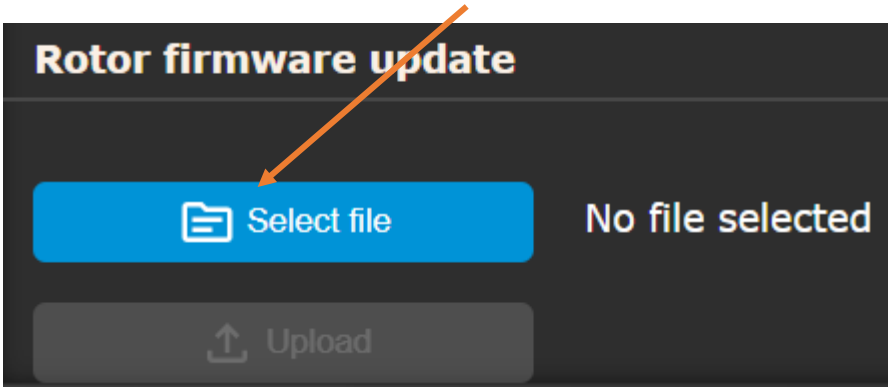
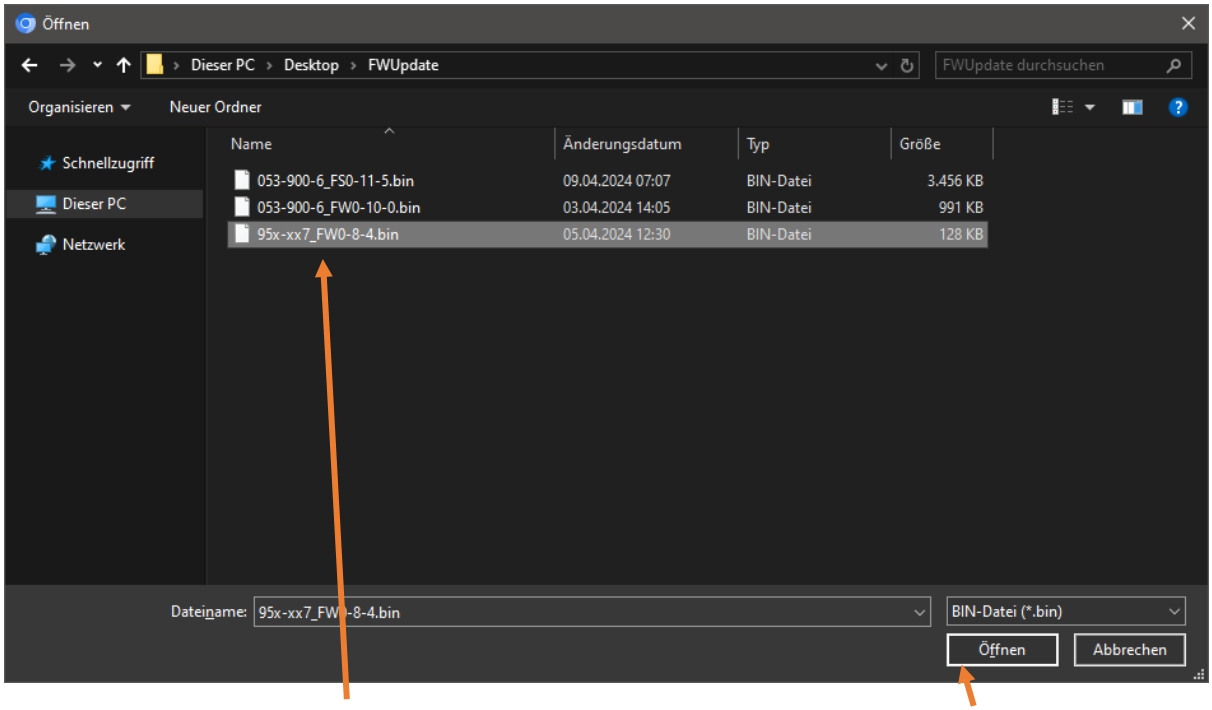
Measuring sleeve firmware update

In addition to the gateway firmware update, it is also possible to update the measuring sleeve firmware to the latest version. The process is almost identical to the gateway update.

First select the firmware by clicking on ***Select File***.



This opens a selection window which filters for .bin files.



Search for and select the firmware file. Click on ***Open*** to load the file.

The selected file is then also displayed on the web interface and the ***Upload*** button is activated.

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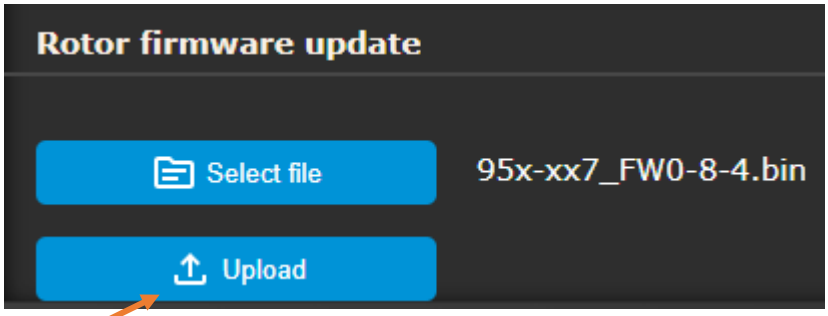
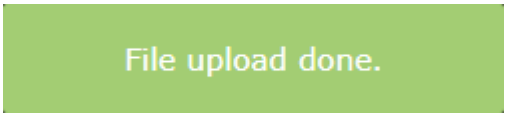


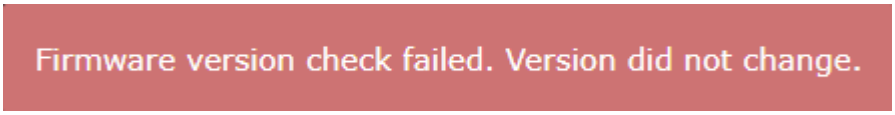
Click on ***Upload*** to start the firmware update. The progress will be displayed in the status bar.

Once the update is complete, the measuring sleeve is automatically restarted and attempts to load the new firmware. If this fails for any reason, the last firmware version used is automatically restored as soon as the measuring sleeve is restarted.

The following message is displayed after the update is successful.



If the current firmware was accidentally installed again (e.g. an update from 1.0.0 to 1.0.0), the following message is displayed.



This is to let the user know that no actual update has taken place, but that the same firmware has been installed again. In this case, recheck whether the correct firmware has been selected. However, this does not affect the operation of the system.

Please Observe:
If the update fails for any reason, the measuring sleeve remains in the bootloader until either the update is successful or until the measuring sleeve is restarted. In this case, the following additional information will be displayed in the web interface.

The orange LED in the status bar also indicates that the measuring sleeve is in the bootloader. The status LED on the gateway (front plate) also flashes orange.

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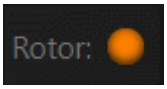
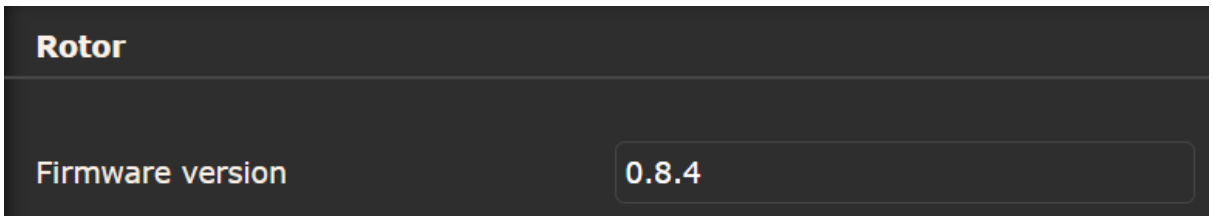


To ensure that the file has actually been loaded correctly, it is recommended to check the version again under *About -> Rotor->* ***Firmware version***.



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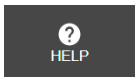
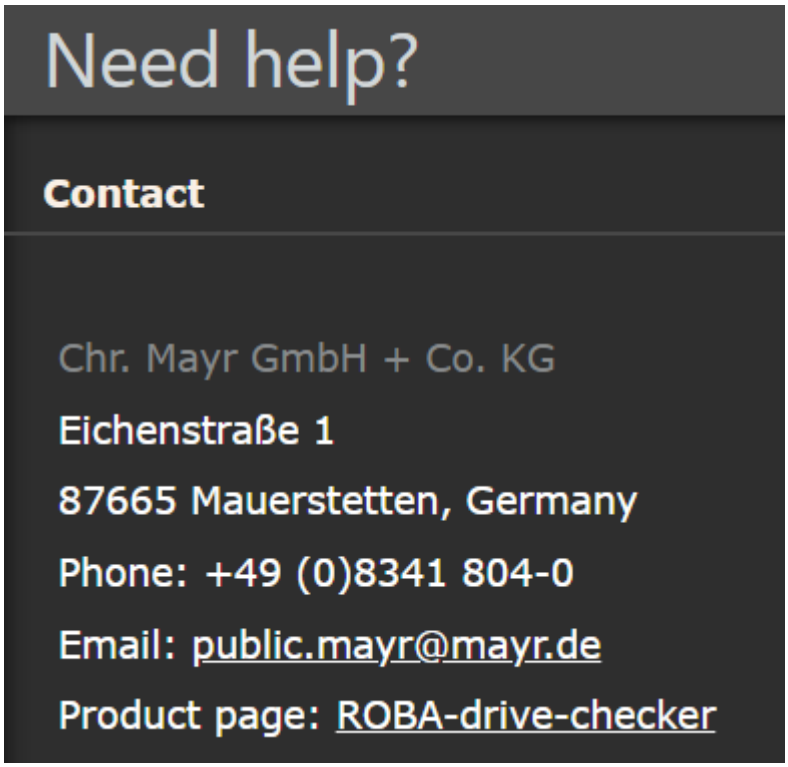
Help page



We have stored our contact details and links to our product page here to provide help quickly.

Clicking on the link on the contact page sends an email directly to our support team (Internet connection and email application required). Otherwise, support can also be contacted by telephone using the telephone number provided.

The latest operational instructions, product information and data sheets can be found under Downloads on the product page.



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Appendix

Measuring sleeve size table

	Size			
	16	**40**	**100**	**160**
Nominal torque Nm	190	450	800	1600
Peak torque Nm	285	675	1200	2400
Max. speed	13600	10100	7300	6200

Table 3 Measuring sleeve sizes

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