SOMAG Mount Control App

User Manual

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Revision History

Version	Updated	Changes
/01	April 02, 2019	Initial Version / App Version 4.3.0.1
/02	October 15, 2019	App Version 4.3.0.3 function history excluded internal bug fixes OSM 4000 statements added
/03	February 26, 2020	App Version 4.4.0.1 SETTINGS / SETTINGS 2 / Trigger Event added SETTINGS / SETTINGS 2 / Top- and Bottom Position removed CONTROL / Mount Position added (includes Top- and Bottom Position) / Hydraulic added ANALYSIS / VARIABLES added (contains Operation Counter) ANALYSIS / STATUS / Status Overview / Group 5 and 6 added
/04	May 21, 2021	App Version 4.6.0 Ethernet interface implemented (Mount Select Dialog, Network Settings and ECL firmware update) Emergency Stop functionality in Main Page added Navigation system in SETTINGS 2 / AUX Port Config added End Stop Limits and Block Axis combined Collision Avoidance functionality added
/05	September 02, 2021	App Version 4.7.0 Specified explanations and descriptions Mount features
/06	February 02, 2022	App Version 4.8.0 Conversion to new corporate design Chapter 4.4.2 'SETTINGS 2' / Serial interface connection settings added
/07	January 25, 2023	App Version 5.1.0 Adaptation to the new App Version in the new corporate design Restructure due to the new corporate design Integration of the Mount Series 5 COMBI Interface Integration
/08	February 22, 2023	App Version 5.2.0 Chapter 4.5 'UPDATES' updated
/09	July 18, 2023	App Version 5.4.0 Chapter 3: added app settings, exchanged mount select pictures Changed picture in 4.3.4 Chapter 4.4: changed pictures to new profile creation Chapter 4.5: changed name 'ECL' to 'ECx'
/10	April 14 ,2025	Chapter 1: added link to feature overview Chapter 4.1: added clarifications about the effect of movement limits Chapter 4.2: Generalization of the button description to better cover all devices Chapter 4.5: Adjusted description of 'U2 – Mount Firmware Update'

Content

1 Introduction

The SOMAG Mount Control App is a software tool for Microsoft Windows users that simplifies the operation and configuration of the Stabilization Mount. Among others, the status of the Mount and its angles and movement limits are shown in the app. Furthermore, the Mount mode is selectable and the Mount angles can be changed in MAN mode via sliders.

Moreover, the app facilitates error analysis for support cases. For example, the Selftest checks the components and functionalities of the Mount and generates a text file, which can be sent to SOMAG AG Jena for a quick fault analysis. Another useful implementation is updating the Mount to get the latest firmware (FW) version.

Additionally, it is possible to unlock paid features to use special functions of the Mount. If they are not activated, they will be greyed out in the respective view. For example, if the feature 'End Stop Limits' is activated, the range of motion of the Mount can be restricted in the respective panel of the app.

There are basically two communication interfaces, USB and ethernet (ETH). The differences in handling are described in the following text. The corresponding manual of your individual Stabilization Mount shows the interfaces available, depending on the model and year of manufacture.

Note: The app was developed to configure the Mount and is therefore not suitable for real-time applications like FMS emulations or other real-time navigation solutions.

Note: The visualizations in the app manual refer to different Mounts and therefore have no correlation to each other in terms of functionality.

Note: Feature availability may vary depending on the mount type. A detailed compatibility overview is provided here https://www.somag-ag.de/products/accessories/software-features/.

2 Installation

2.1 Requirements

The following requirements are necessary for the SOMAG Mount Control App to run properly:

- Computer with Windows® 10 or higher operating system
- Microsoft .NET Framework 4.7.2 (will be installed if not available)
- Display resolution of at least 1280 x 800 dots
- Administrator rights on the computer (only for installation process)
- USB type A socket or Ethernet RJ45 socket

- **Do NOT connect the Mount before the app (incl. USB driver) has been installed.**
- **Do NOT use datalink cables.**

2.2 Installation Wizard

Run the setup.exe file as Administrator on the supplied USB flash drive. If an app update is necessary, the app can also be provided via a download link in which the setup.exe can be started.

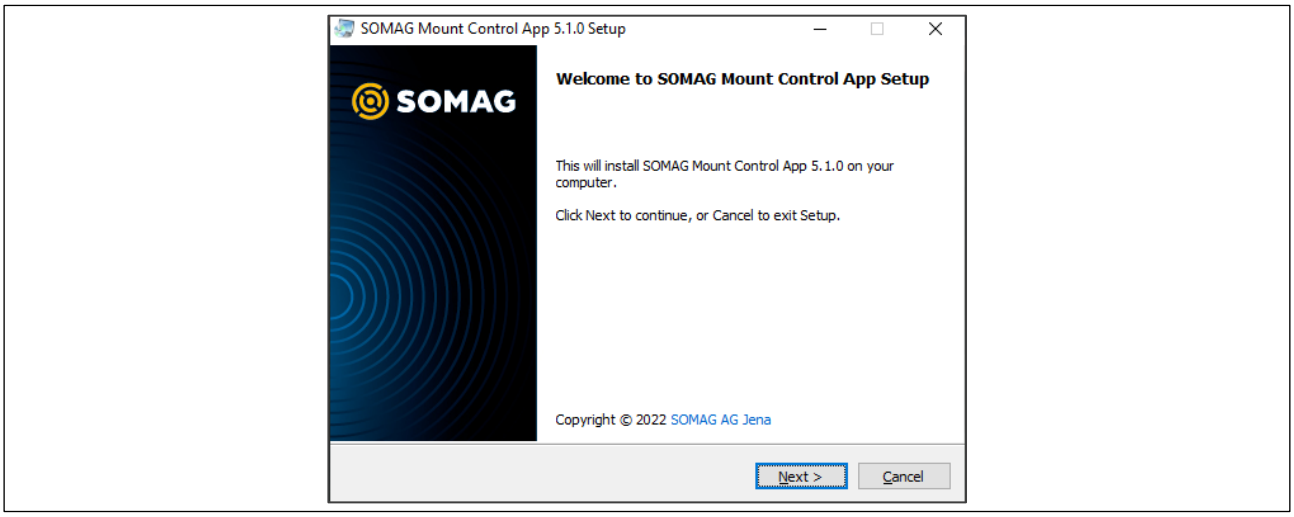

Figure 1: SOMAG Mount Control App setup wizard

During the app installation process, the USB driver will be also installed. A Windows® Security dialog window will open with information about the certified software publisher SOMAG AG Jena. Continue by clicking Install. Go through the installation procedure until the setup is completed.

Figure 2: USB driver security information

2.3 Connection

The connection is established automatically when the USB or ethernet cable is plugged in to the Mount and the computer. If more than one Mount is connected by hardware, the Mount Select dialog opens (see chapter 3) and a Mount can be selected. Furthermore, one of the methods described in the following text must be guaranteed for the ethernet connection establishment.

2.3.1 Ethernet

There are two ways to establish a connection via the ethernet interface:

- **Static IP Address:** The Mount and the pc are each assigned with a static IP address so that both are in the same network.
- **Dynamic IP Address:** The Mount provides a DHCP server that assigns a dynamic IP address to the network participants which have set an automatic IP address. If an additional DHCP server is used, the IP address of the Mounts must be adapted to the DHCP server address space.

The network settings of the Mount can be configured via the Right-Side Drop-Down Menu on the Main Page (see Mount Select).

2.3.2 Firewall security information

For the complete functionality of the 'SOMAG Mount Control App' , new firewall rules will be integrated into your system during this installation process:

- TCP
  - Port: 834 (in/out) – Mount communication
  - name: 'SOMAG Mount Control App – Communication 1 – x.x.x'
- UDP
  - port: 835, 836, 2323 (in/out) – Mount communication
  - name: 'SOMAG Mount Control App – Communication 2 – x.x.x'
- TCP/UDP
  - port: 22 (in/out) – SSH/SCP
  - name: 'SOMAG Mount Control App – Communication 3x[x] – x.x.x'

If required, please consult your system administrator for further information.

2.3.3 USB

When the PC is connected to the Mount via USB interface, an item labelled 'SOMAG USBport' will appear in the 'Ports'-section of the device manager. If this is not the case see chapter 5.

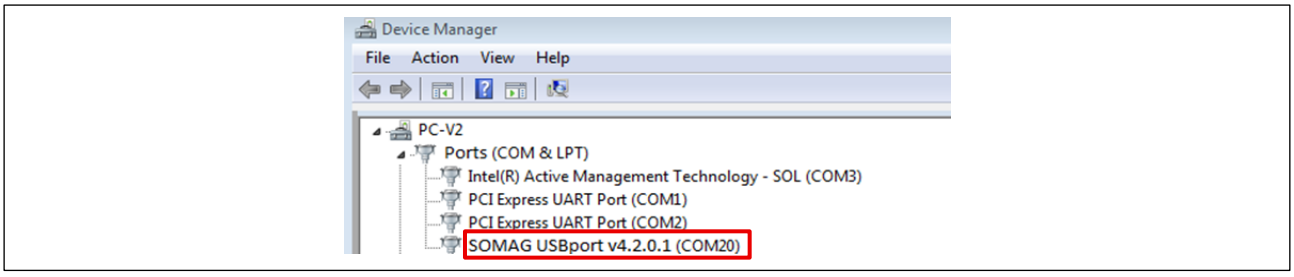

Figure 3: Device Manager - Ports section

3 Main Page

The Main Page contains a menu bar at the top, which consists of a navigation overview and a display with status components and app tools. Furthermore, the Main Page contains a Views Container, which represents the respective views and fills in the rest of the page.

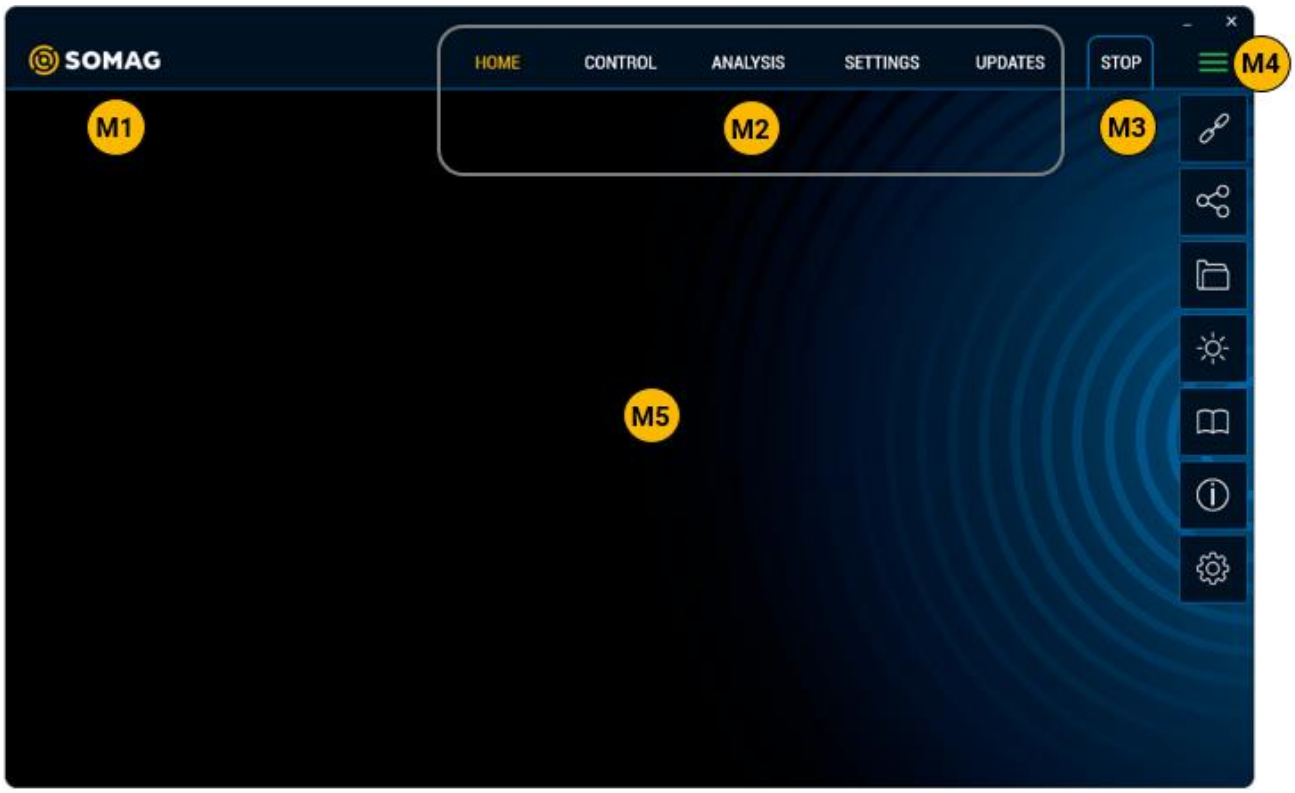

Figure 4: Main Page

M1 – SOMAG AG Jena Logo

The Logo acts as a button. If an internet connection is available, the SOMAG AG Jena website is opened in the current browser.

M2 – Tabbed Menu

The Tabbed Menu is required to navigate through the view tree and is structured as follows:

- HOME
- CONTROL
- ANALYSIS
  - Visualization
  - Status
  - Diagnose
  - Variables
- SETTINGS
  - General
  - Features 1
  - Features 2
- UPDATES

If there is a second level menu item, the first level acts as a toggle button and opens / closes the submenu. Currently open views are colored yellow.

M3 – Emergency Stop

The emergency stop function icon indicates the available options. The function is available for certain SOMAG devices. It turns off the motors and locks the hydraulic circuits preventing further movement of the Mount.

If the stop button is permanently visible, emergency stop is deactivated. By clicking this button, emergency stop is activated and the button starts to flash. Another click on the flashing button will deactivate the emergency stop.

M4 – Right-Side Drop-Down Menu / Mount Connection Status Indicator

The triple bar symbol acts as a connection indicator between the Mount and the computer. Four states are possible:

Figure 5: Connection indicator states

Furthermore, the symbol acts as a button and opens the right-side drop-down menu:

Connection Status

Opens a connection overview in the views container when pressed:

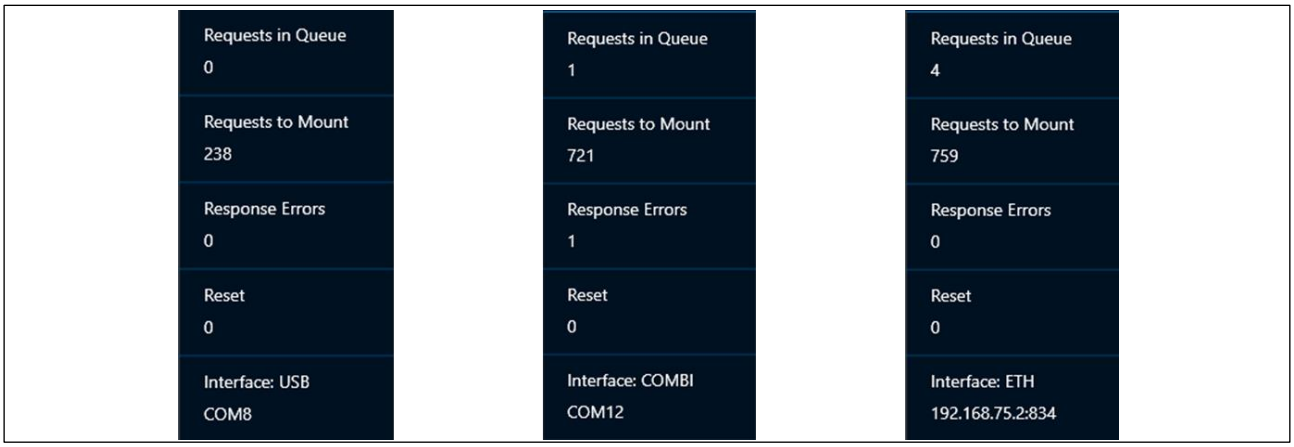

Figure 6: Connection overview; left: Mount with USB interface, middle: Mount with COMBI interface, right: Mount with Ethernet interface

These overview items have the following meaning:

- **Requests in Queue:** This variable counts the requests in the queue. If the counter has exceeded a lower threshold, the connection state 'Warning' is activated. Furthermore, if the counter has exceeded an upper threshold, the connection state 'Error' is activated. In the case of an error, this variable indicates a weak performance of the computer.
- **Requests to Mount:** This variable counts the total requests from the computer to the Mount.
- **Response Errors:** This variable counts the total response errors that can occur if there is a bad connection between the Mount and the computer. If the counter has exceeded a lower threshold, the connection state 'Warning' is activated. Furthermore, if the counter has exceeded an upper threshold, the connection state 'Error' is activated.
- **Reset:** This variable counts the performed Mount communication resets. If there is a bad connection between the Mount and the computer, the app can cause an automatic reconfiguration of the interface by a communication reset.
- **Interface:** This string represents
  - USB; the virtual serial port of the USB interface
  - ETH; the network IP address and the TCP port of the ethernet interface

Note: If there is a connection to a Mount and the corresponding USB or ethernet cable is disconnected, the following message is shown:

Figure 7: Connection lost message

Mount Select

Intended for opening the Mount Select dialog:

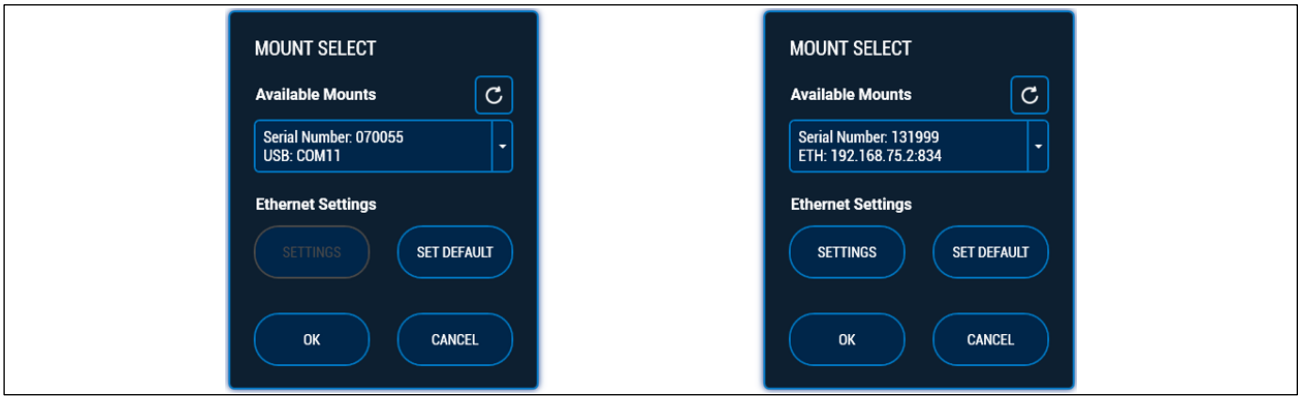

Figure 8: Mount Select dialog with selection combo box of available Mounts and Ethernet Settings; left: Mount with USB inter-face selected, right: Mount with Ethernet interface selected

If several Mounts are connected via USB or Ethernet, one can be selected in the Available Mounts combo box. By clicking the OK button, a connection to the selected Mount is established.

Note: The search for the Mounts in the network with an ethernet interface is done via a UDP broadcast request on port 835.

With the Set Default button, the network settings regarding the ethernet interface of all Mounts physically connected to the network will be reset to the factory settings. This is useful if the network settings of the Mount / Mounts have been forgotten. It is implemented by a UDP broadcast command on port 835. As a result of this resetting, an ethernet interface reboot is carried out, which takes about 60 s.

The Ethernet Settings button is only available if a Mount with an ethernet interface has been selected. By clicking this button, the following Network Settings dialog opens:

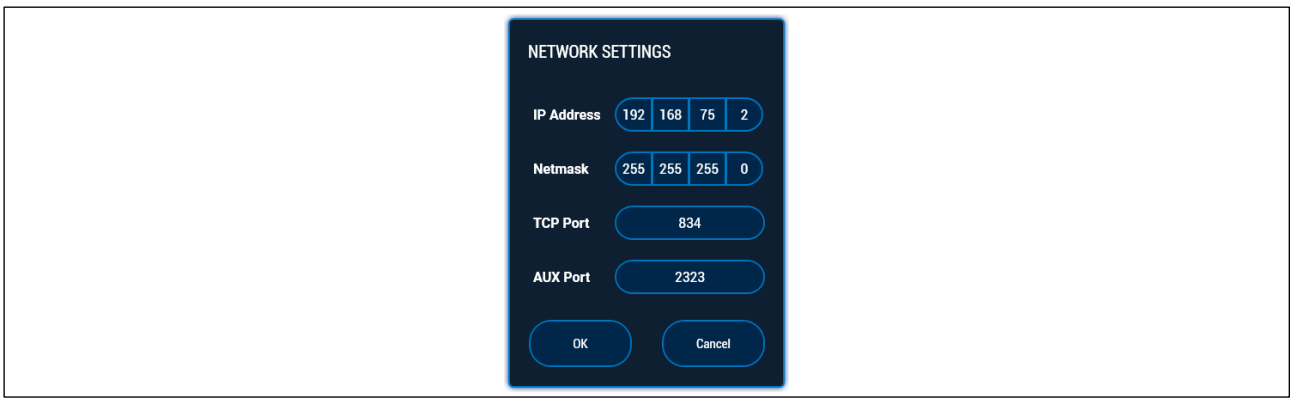

Figure 9: Network Settings dialog

- **IP Address (Default: 192.168.75.2):** Network IP address of the Mount.
- **Netmask (Default: 255.255.255.0):** Network netmask of the Mount.
- **TCP Port (Default: 834):** The Mount data communication port via the TCP protocol.
- **AUX Port (Default: 2323):** Data from external navigation systems can be received via this UDP port to improve stabilization performance of the Mount (see chapter 4.4.3).

By clicking the OK button, the new settings are adopted and an ethernet interface reboot is carried out, which takes about 60 s.

App Directory

Intended for opening the SOMAG Mount Control App folder (C:\ProgramData\SOMAG AG Jena\SOMAG Mount Control App). In this main path, the Selftest results can be accessed, depending on the day. Furthermore, every time the app starts, a file is generated in the Info folder containing information about the system, the USB driver and the app. Moreover, the manuals which can be displayed in the Document Viewer can be exchanged manually in the Documents folder when new manual versions are available.

Theme Switch

Toggle between dark and light App design. The selected mode is automatically saved and is also preselected the next time the app is opened.

Document Viewer

Here, the documents of the listed Mounts resp. applications can be found.

About

The ABOUT view shows Legal Information, a Liability Reference and App Information. The App Information could be vital for support purposes.

App Settings

The App Settings view is intended for disabling / enabling of communication interfaces (ETH, USB, COMBI) as well as for setting the default port of the COMBI interface. Confirm changes with the Apply button.

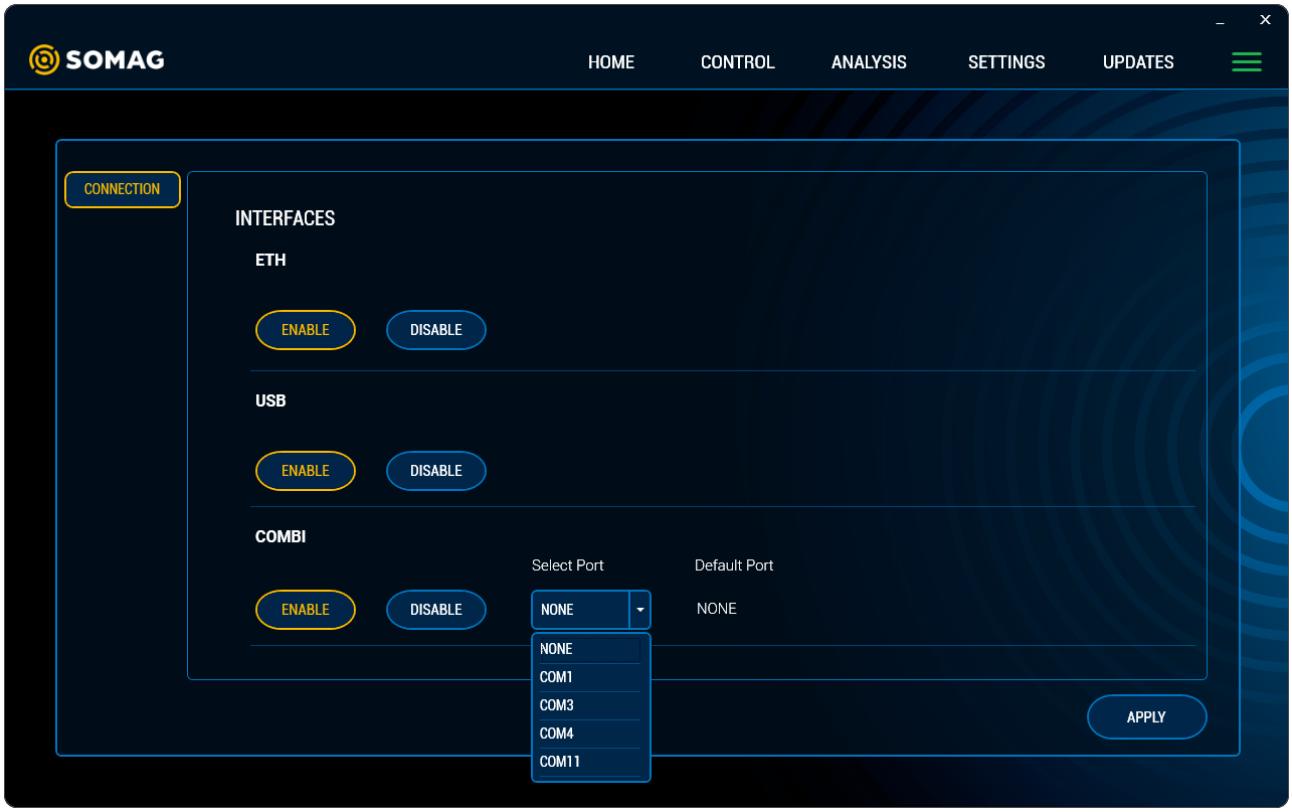

Figure 10: App Settings

M5 – Views Container

In this container, the views selected in the Views Menu are displayed.

4 Views Description

4.1 HOME

The HOME view is the start view of the app. The most commonly used panels like Mount Status, Mount Mode, Manual Mount Control and Current Mount Angles are located here. Please note that all angles are in regard to the vehicle frame.

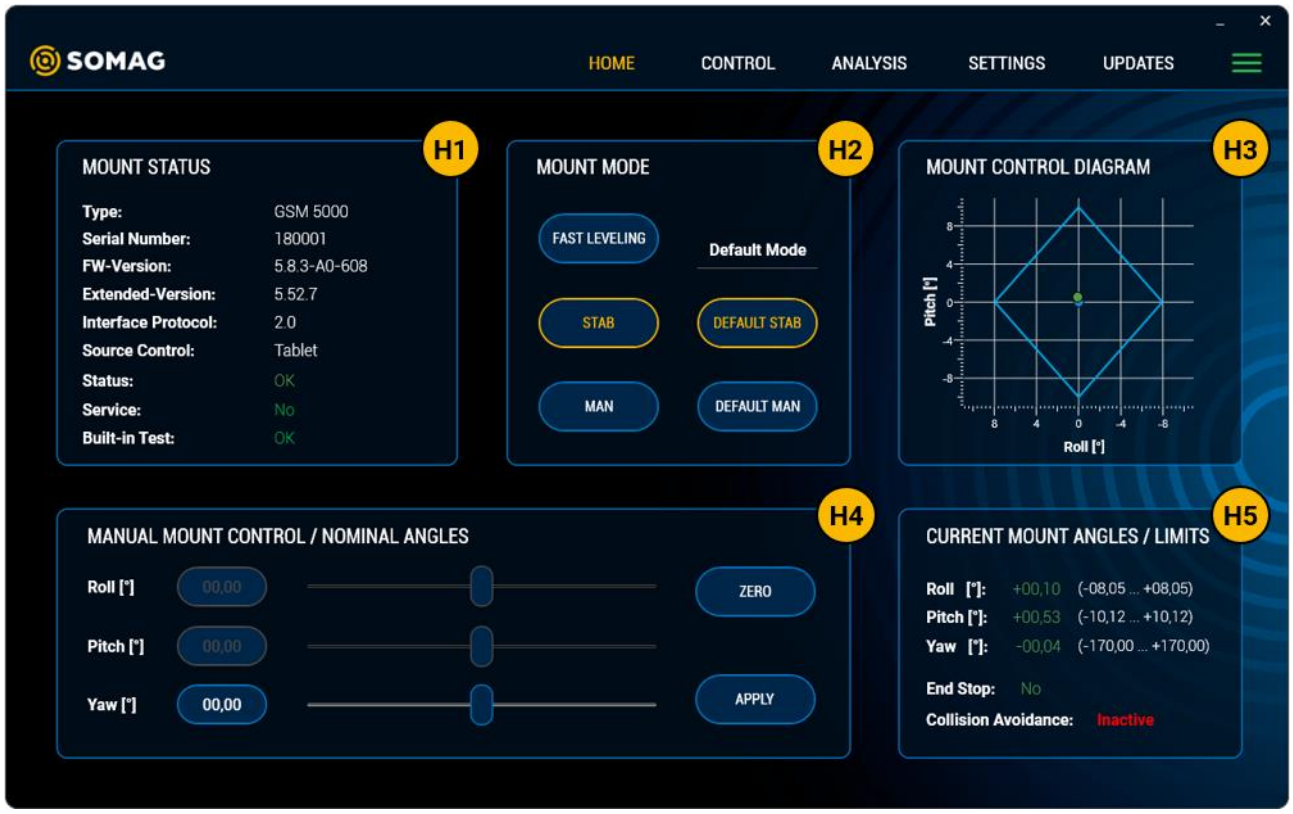

Figure 11: HOME view

H1 – Mount Status

- **Type:** The Type corresponds to the product name (e.g., GSM 4000, CSM 40)
- **Serial Number:** This field shows the specific Serial Number of each Mount
- **FW-Version / Extended-Version:** The FW-Version string describes the CPU processor versioning. Furthermore, the Mount has additional sub-processors, for which the versioning is shown in Extended-Version. All can be updated as described in section UPDATES.
- **Interface Protocol:** This number represents the current interface protocol selected in section SETTINGS / GENERAL.
- **Source Control:** During the Built-in Test, this field remains empty. Afterwards the source of data input is displayed as follows (multiple sources are possible):
  - FMS
  - AUX #[1]
  - Tablet

[1] The displayed number varies based on the configured 'AUX Port Config' (see chapter 4.4.3)

- **Status:** The Status field can prompt the following states (depending on availability):
  - OK: The Mount works properly.
  - Error: A general error has occurred.
  - Work Level Low: The hydraulic oil level is too low.
  - Work Level High: The hydraulic oil level is too high.
  - Sensor Fail: A problem with the sensors has occurred.
  - Motor Fail: A problem with the motors has occurred.
  - Manual Sensor: The turning knob for powerless top surface movement is activated. Please close the turning knob located on the housing. The necessary information can be found in the corresponding Mount manual.
  - Transit Position: Mount is in the transit position
  - Bottom Position: Mount is in the bottom position.
  - Top Position: Mount is in the top position.
  - Hydraulic Locked: Mount hydraulic is locked. No movement of the Mount is possible.
  - Hydraulic Moveable: Mount hydraulic is moveable. Movement of the Mount is possible.
  - Process Warning: A process variable exceeds a threshold, e.g., temperature too high.
  - Hydraulic Warning: Fill level of the hydraulic reservoir is low.

Note: If the Status is differing from your target status, please turn the Mount off and on again. If the error still persists, please contact SOMAG AG Jena for further diagnosis.

- Service: 'Maintenance' is shown when the operational hours of the Mount exceed the defined value. It indicates, whether a service should be performed to maintain the performance of the Mount. Otherwise, 'No' is displayed, so that there is no indication to take further action.
- Built-in Test: When the Mount starts, a Built-in Test is performed, which can assume the following states:
  - In Progress: The Built-in Test is currently running.
  - OK: The Built-in Test has been successfully completed.
  - Not Active: The Built-in Test is deactivated.
  - Error: An error has occurred. Please turn the Mount off and on again. If the error still persists, please contact SOMAG AG Jena for further diagnosis.

Note: In case support is needed, please provide the Type, the Serial Number, the FW-Version and the Extended-Version of the Mount. This information can be effortlessly captured by taking a screenshot of the HOME screen.

H2 – Mount Mode

The end user can switch quickly between STAB and MAN mode. The Fast-Leveling button enables the Mount to rapidly move towards the leveling and drift value.

Note: Fast-Leveling is only available in stabilization mode.

The Default Mode labels the currently selected mode which the Mount selects after the initialization phase. The buttons Default MAN and Default STAB can be used to change the Default Mode.

H3 – Mount Control Diagram

The diagram offers the possibility to enter Gyro Mount angles manually and interactively. The blue shape in the diagram (shape depends on the connected Mount) represents the maximum movement range of the respective Mount. If the movement range has been restricted by End Stop Limits, this is reflected by a change in the shape.

H4 – Manual Mount Control / Nominal Angles

Roll, Pitch and Yaw can be manually controlled by a slider or input field to set up different parameters. Please notice that the values for Roll and Pitch can only be changed in MAN mode. The Zero button enables the end user to reset their custom settings. Afterwards, the Mount moves towards 0° for Roll, Pitch and Yaw.

Blocked axes cannot be moved and restricted end stop limits cannot be exceeded.

H5 – Current Mount Angles / Limits

The Current Mount Angles show an overview of the current Roll, Pitch and Yaw angles including their end stop limits.

The End Stop message shows a warning label if the device is close to its mechanical end stops. In case the end stops of the device are reached or the stabilization angle is too high for the Mount to compensate, the End Stop message shows 'Yes'.

The Collision Avoidance message shows the status of this optional feature. If the feature is not available, this line is grayed out. If the feature is available and appropriate restrictions in the Roll or Pitch axis have been applied to the End Stop Limits (see chapter 4.4.2), the status will be displayed as 'Active'. If the feature is available and no restrictions have been applied (End Stop Limits are default), 'Inactive' is shown. If the Collision Avoidance feature is enabled, changes to the End Stop Limits (Block Axis) will result in the following additional changes:

- If a change of the Pump Direction is necessary due to the restriction of Roll and Pitch, a second message will be displayed and a possible Pump Direction will be set automatically.
- Changes made to the limits which result in a change of the working height (all values restricted) will trigger a request to lower the Mount so that it can initialize to its new working height. With the GSM 5000, on the other hand, the transit mode is activated and the Mount moves to the bottom position with guidance.
- The constraints imposed by the Collision Avoidance are also taken into account during the initialization of the Mount. If the working height has to be reduced due to the limitations, the pump-up routine changes to a slightly slower and more guided speed.

To also ensure collision prevention in the non-powered state, both Roll and Pitch limits must be set to the lowest achievable of the 4 values that will not cause the payload to collide. Consequently, all 4 values must be set identically. This way, the setup can be considered as mechanically secured.

4.2 CONTROL

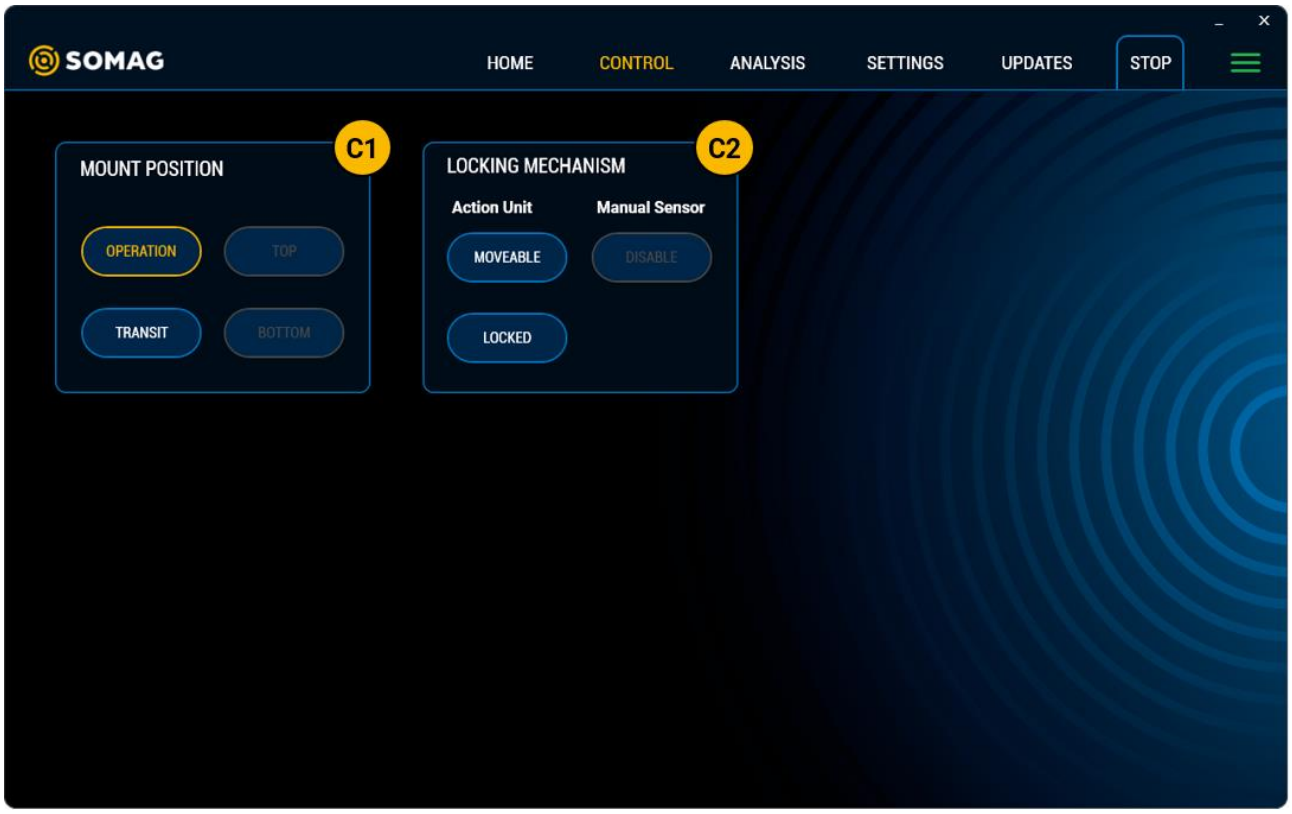

Figure 12: CONTROL view

Depending on availability by Mount.

C1 – Mount Position

For some Mounts, a translational movement is possible. With this functionality, the respective Mount can be moved translational in the top / bottom position, for example to carry out a latching operation or prepare the mount for shipping and storage.

The ‘Transit’ position transfers the land and marine Mount’s current angles to zero and locks the movability of the top plate. The GSM 5000, on the other hand, is hydraulically lowered from its operating height to its bottom position.

The ‘Operation’ button returns the device to the ready-to-operate state after the aforementioned functions have been used.

C2 – Hydraulic

Note: For password-protected buttons, the key must be requested from the SOMAG AG Jena.

It is possible to switch the moveable interior parts to be locked and moveable. In the ‘Locked’ state, the top surface of the Mount remains in the current position and is therefore useful for sensor mounting. In the ‘Moveable’ state, the Mount and its payload could be moved by external forces. Please consider securing your payload to prevent damage.

The manual sensor of the turning knob for powerless top surface movement can be disabled in order to preserve the functionality of the Mount, if the sensor remains in an error situation.

4.3 ANALYSIS

These views provide a possibility for data analysis, consisting of the visualization of the Mount angles in a chart, a detailed status and error analysis and a diagnostic option through the Selftest.

4.3.1 VISUALIZATION

Figure 13: ANALYSIS – VISUALIZATION view

A1 – Chart Viewer

The shown diagram visualizes the Mount movement in Roll and Pitch (update rate every 100 ms) regarding the vehicle frame.

A2 – Mount Variables

The Mount Variables view shows the actual Yaw angle (update rate every 100 ms). Below the Mount angle and the resulting adjusted angle in roll / pitch for the vehicle, the difference between the orientation of the Mount frame and the vehicle frame, is shown. If the Mount frame is exactly the same as the vehicle frame, both displayed angles are the same.

4.3.2 STATUS

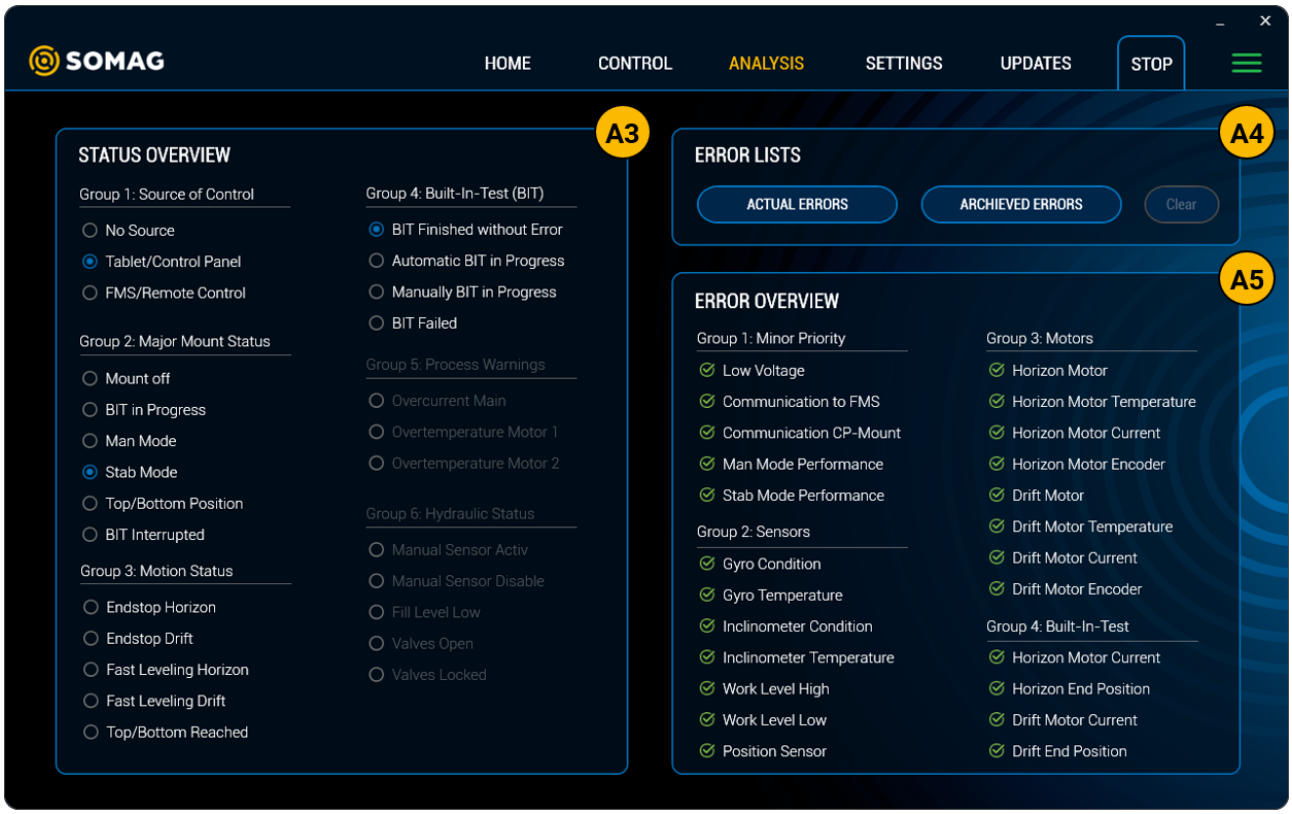

Figure 14: ANALYSIS – STATUS view

A3 – Status Overview

The Status Overview shows different condition groups of the Mount:

- **Group 1: Source of Control**

  This group corresponds to the Source Control described in H1. It is important to know that no buttons of the app and the Control Panel can be used, when an FMS/Remote Control computer controls the Mount.

- **Group 2: Major Mount Status**

  This detailed Mount status includes the Mount mode and an indication of whether the Top/Bottom mode is active as described in the SETTINGS 2 view. A failure has occurred if ‘BIT Interrupted’ is labeled.

- **Group 3: Motion Status**

  This group alerts various motion status messages, with the end stop messages being particularly important as they indicate that the Mount can no longer compensate the motion of the vehicle.

- **Group 4: Built-In-Test (BIT)**

  This group provides a detailed overview of the Built-In Test field described in H1. A distinction is made here as to whether an Automatic BIT, which occurs when the Mount starts, or a Manual BIT, which occurs during the Selftest, is in progress. A failure occurred if ‘BIT failed’ is labeled in this view.

- **Group 5: Process Warnings**

  This group visualizes process variables such as temperature or current exceeding a certain threshold.

- **Group 6: Hydraulic Status**

  This group shows the manual sensor status, a fill level warning and the positions of the hydraulic valves.

A4 – Error List

The Error list shows actual and archived errors. Especially archived error messages are important for trouble-shooting.

Note: On restart of the Mount, all errors are deleted.

A5 – Error Overview

The Error Overview window shows a variety of internal status checks which the Mount performs to ensure that the device works properly. All shown items need to be ok so that the Mount can work with its designated performance.

4.3.3 DIAGNOSE

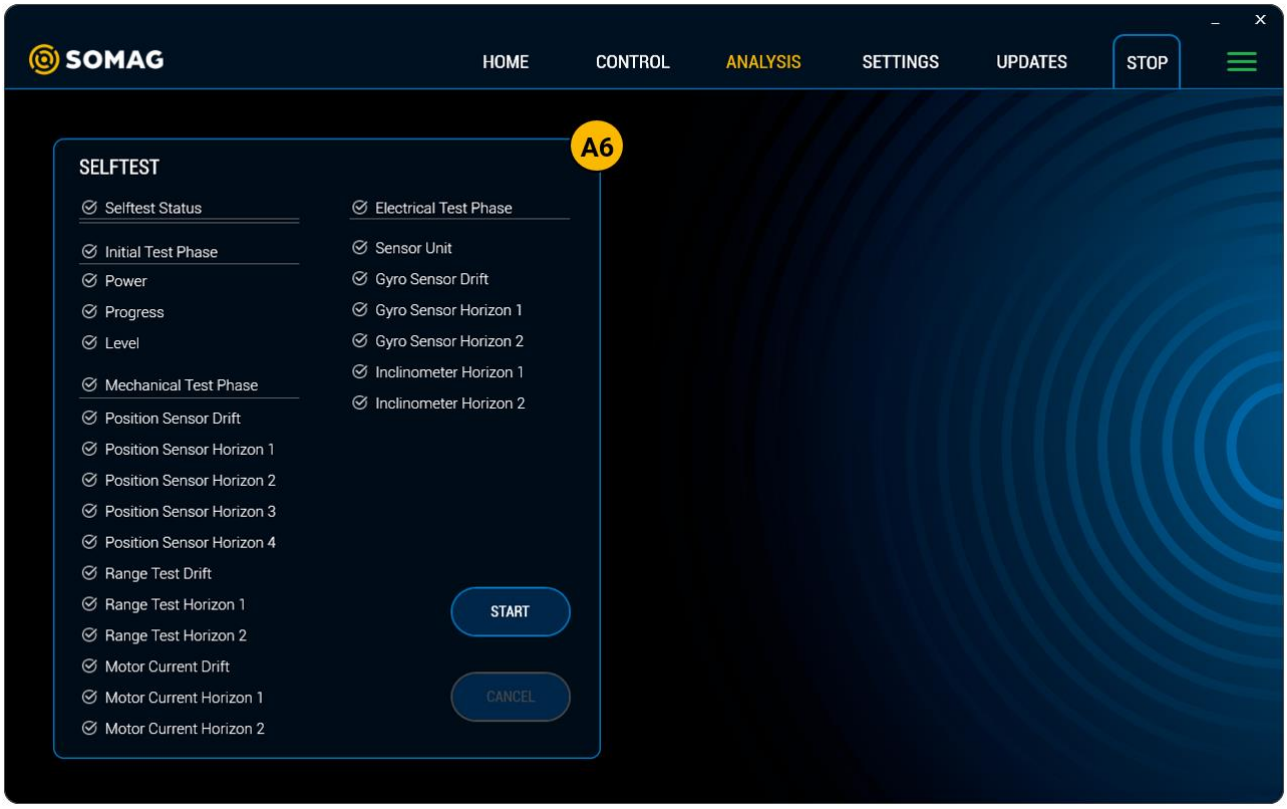

Figure 15: ANALYSIS – DIAGNOSE view

A6 – Selftest

The Selftest function executes a routine, which checks all sensors, mechanics and electronics and saves the results in a text file. SOMAG AG Jena can decrypt this text file and utilize it for troubleshooting purposes. To carry out the test, press ‘Start’ and go along with the displayed instructions. Make sure to disconnect all connectors except for power supply and USB / Ethernet.

Afterwards, a save file dialog is shown. Select the location of the text file, where the following initial directory is used: C:\ProgramData\SOMAG AG Jena\SOMAG Mount Control App\Tests\<Day>. For quick access, use the App Directory Symbol (See chapter 3).

4.3.4 VARIABLES

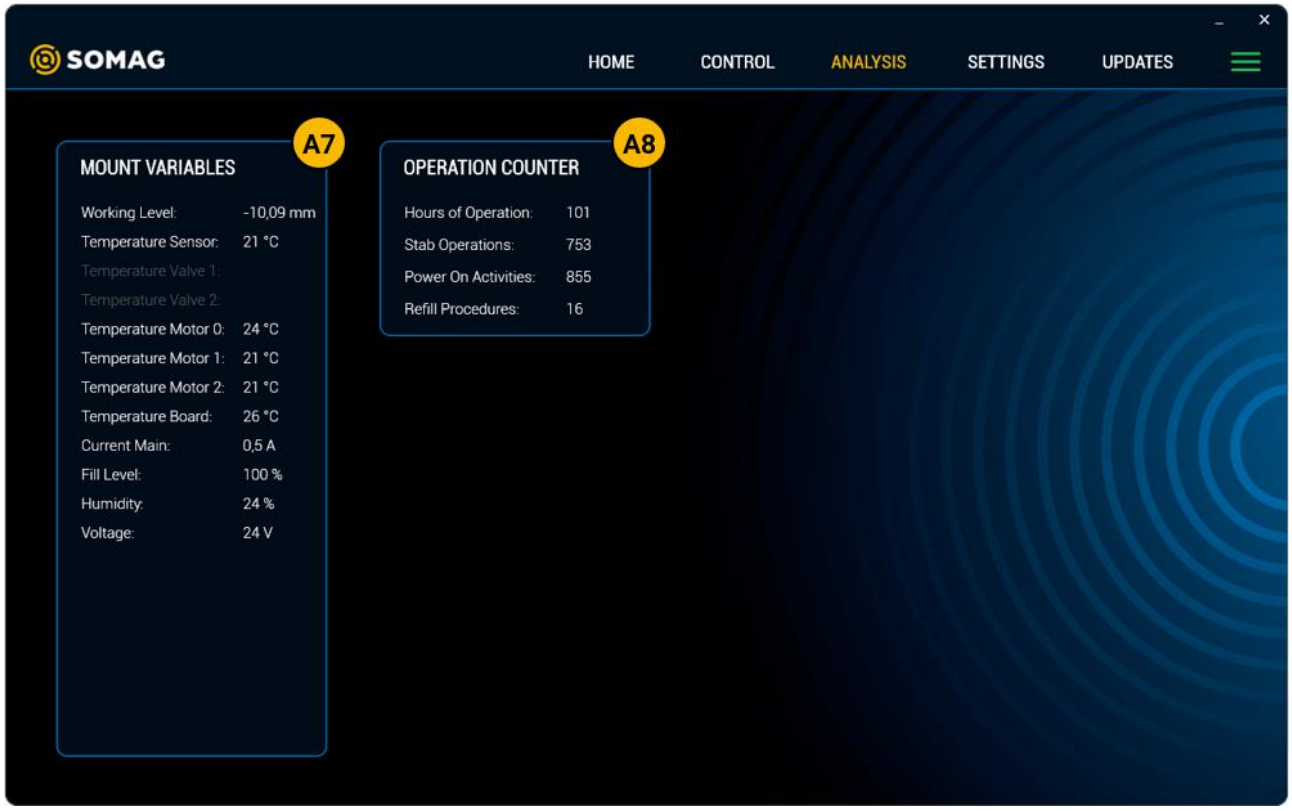

Figure 16: ANALYSIS – VARIABLES view

A7 – Operation Counter

This view contains various counters, which show how often different procedures have been executed.

A8 – Mount Variables

This view shows the working level and the temperature of a gyro sensor for all Mounts. The remaining variables such as temperatures (valves / motors / board), main current, fill level and humidity depend on availability.

4.4 SETTINGS

The SETTINGS views mainly contain functionalities, which need to be purchased and unlocked and thus provide special options for the Mounts. Except for the functions from the GENERAL view, these are available by default.

4.4.1 GENERAL

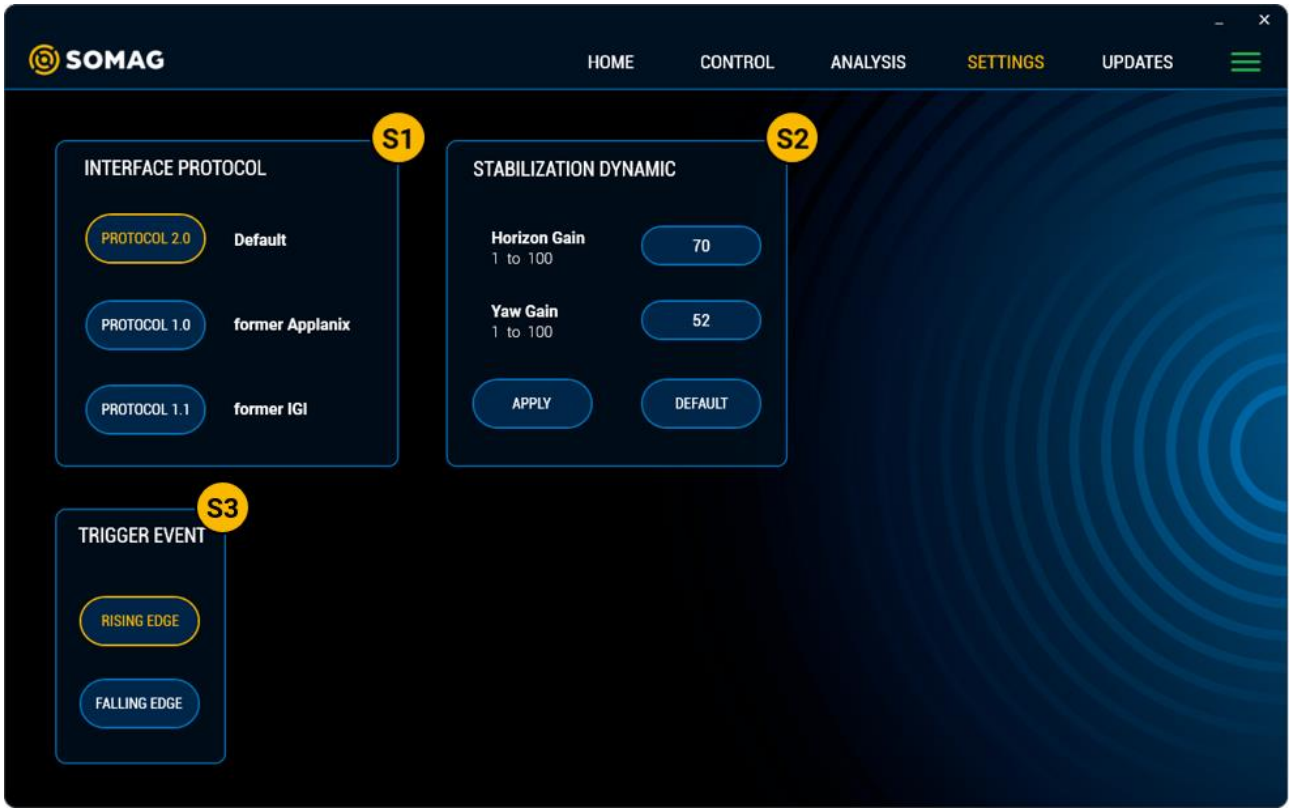

Figure 17: SETTINGS - GENERAL view

S1 – Interface Protocol Change

The app enables the user to switch between different communication protocols. Protocol 2.0 is the latest SOMAG Mount Communication Protocol and is the default protocol. It is possible to select older communication protocols for backward compatibility with Flight Management Systems from various manufacturers for use with GSM 3000.

Note: It is possible that the Mount starts to move when the user switches between the protocols because the mode of operation changes according to the selected protocol.

S2 – Stabilization Dynamic

The Horizontal and Yaw Gain Factor of the Mount labels the dynamics of the Mount. The higher the value, the faster the device responds. Please note that a high value may cause oscillations.

S3 – Trigger Event

When an edge on the trigger input is detected, the gimbal angles and the according internal time will be recorded. This data can be retrieved via the Serial Interface. In this panel, it is possible to switch between triggering on the rising edge (default) or on the falling edge. If the panel is grayed out, the corresponding Mount has not been equipped with the trigger function.

4.4.2 FEATURES 1

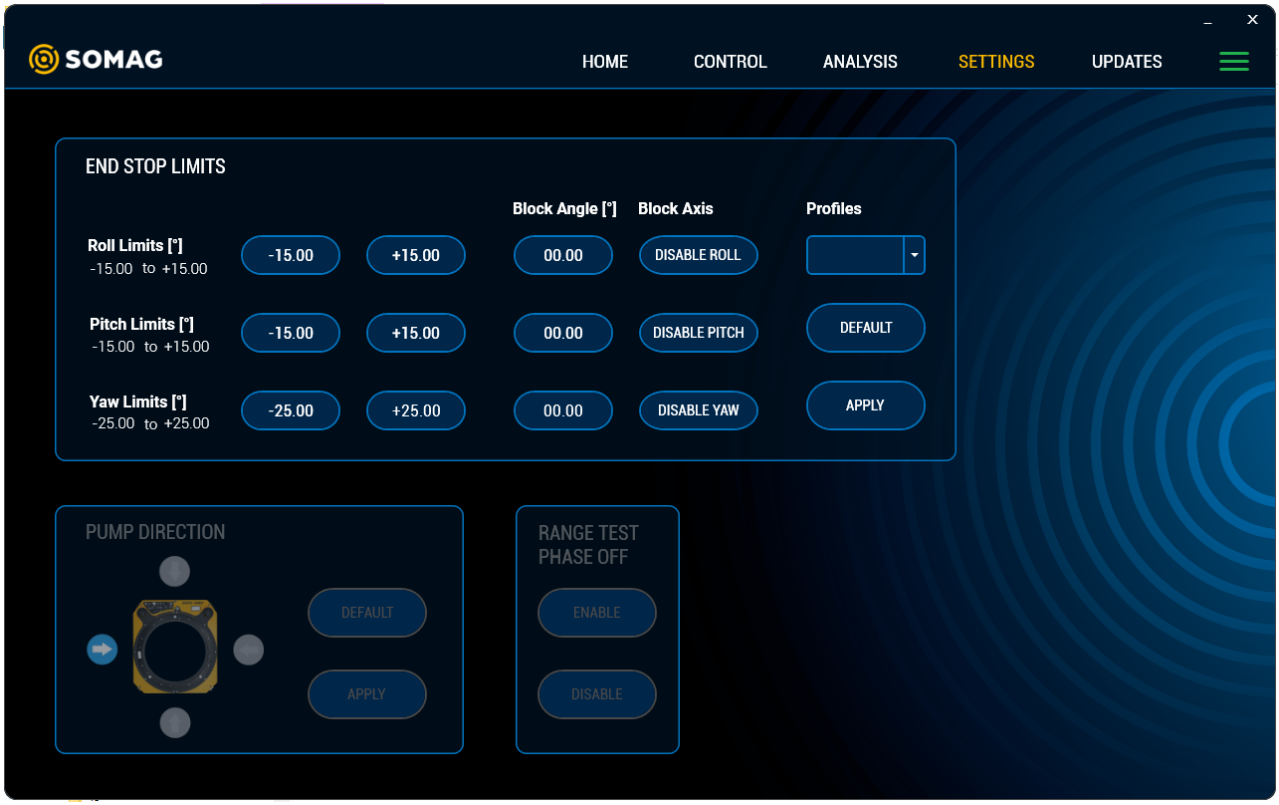

Figure 18: SETTINGS - FEATURES 1 view

S4 – End Stop Limits (Block Axis)

The movement range of the Mount can be limited in all three axes and in both directions (positive and negative) by the user. Please notice that it is only possible to type in values that correspond to the ranges specified in the limits section. Furthermore, it is not possible to restrict the axes only in the positive or only in the negative range of values. Additionally, those limits are in regard to the Mount frame.

If the amount between the positive value and the negative value, thus the limited travel range of the Mount, falls below 2 degrees, Block Axis is automatically activated. Block axis is only available on certain devices. With this feature axes can also be disabled so that they cannot move. The Block Angle, a value from the movement range, describes the point at which the axis is blocked. Due to the fact that Block Axis is only a software and not a mechanical blocking, the accuracy is ± 0.3°. This value also applies to the set block angles.

Select ‘Apply’ to confirm the new movement ranges and Block Axis settings. The current state of the settings is shown in a notification window. If the settings cannot be accepted, this also is indicated in the window. The ‘Default’ button can be used to reset to the default settings (max. movement range and all axes enabled).

App version 5.1.0 and higher now allows users to save their End Stop Limits settings as a profile with self-selected names. A maximum of ten profiles can be created. This makes it easy to switch back and forth between the preferred settings and profiles without having to re-enter the values into the app each time. This can be useful for users who either use different sensors in the same Mount and want to apply different movement ranges for the respective sensor, or for users who operate the Mount in different vehicles.

In order to save a new End Stop Limits profile, please follow these steps:

- Make your End Stop Limit settings: in the example below the roll axis is limited to -7° and +7° and the pitch axis is blocked at +3°. No change in the Yaw axis settings was made.
- Press ˇ and click on ‘Create New Profile’
- A window opens in which the new profile name can be assigned (max ten characters)
- Press ‘OK’ to confirm

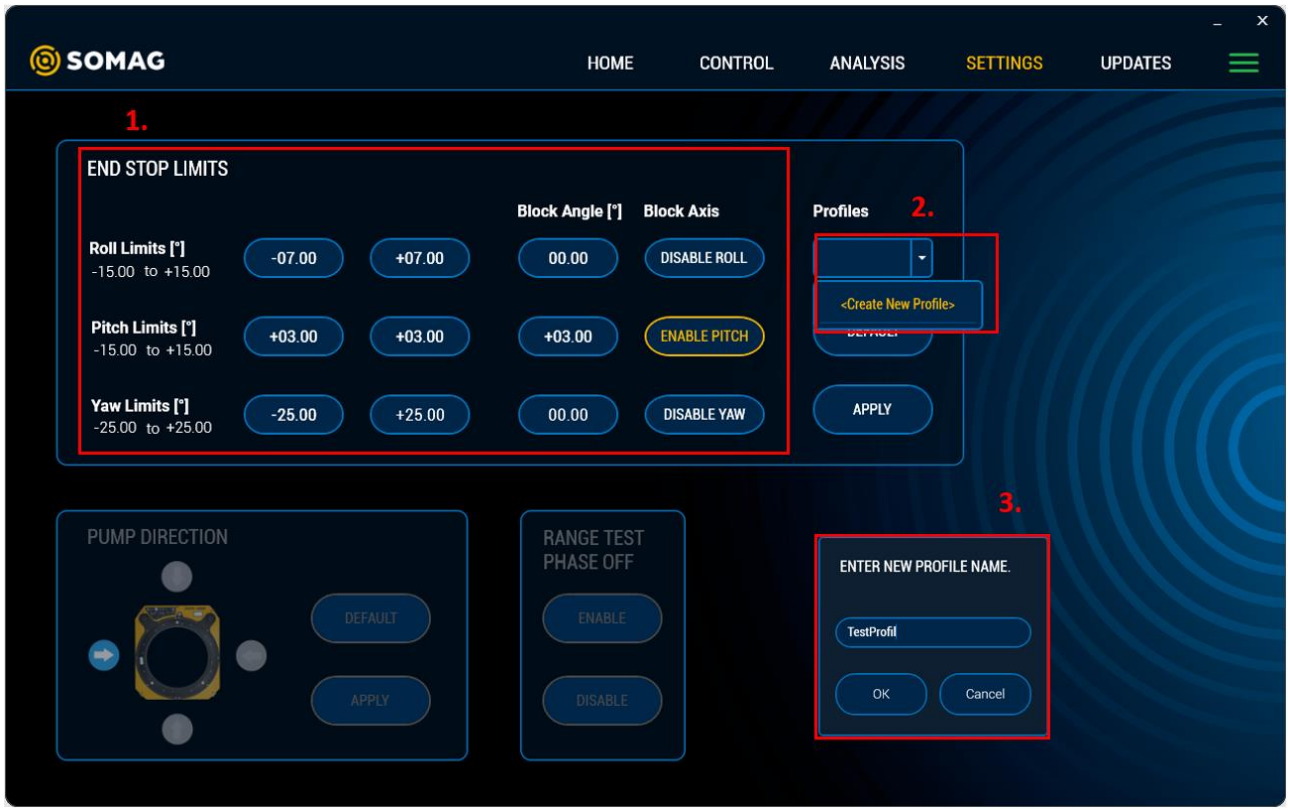

Figure 19: Create New Profile

- In the drop-down menu, all created profiles are displayed, including the newly created ‘TestProfil’
- To use a profile, select it from the drop-down list and press ‘Apply’

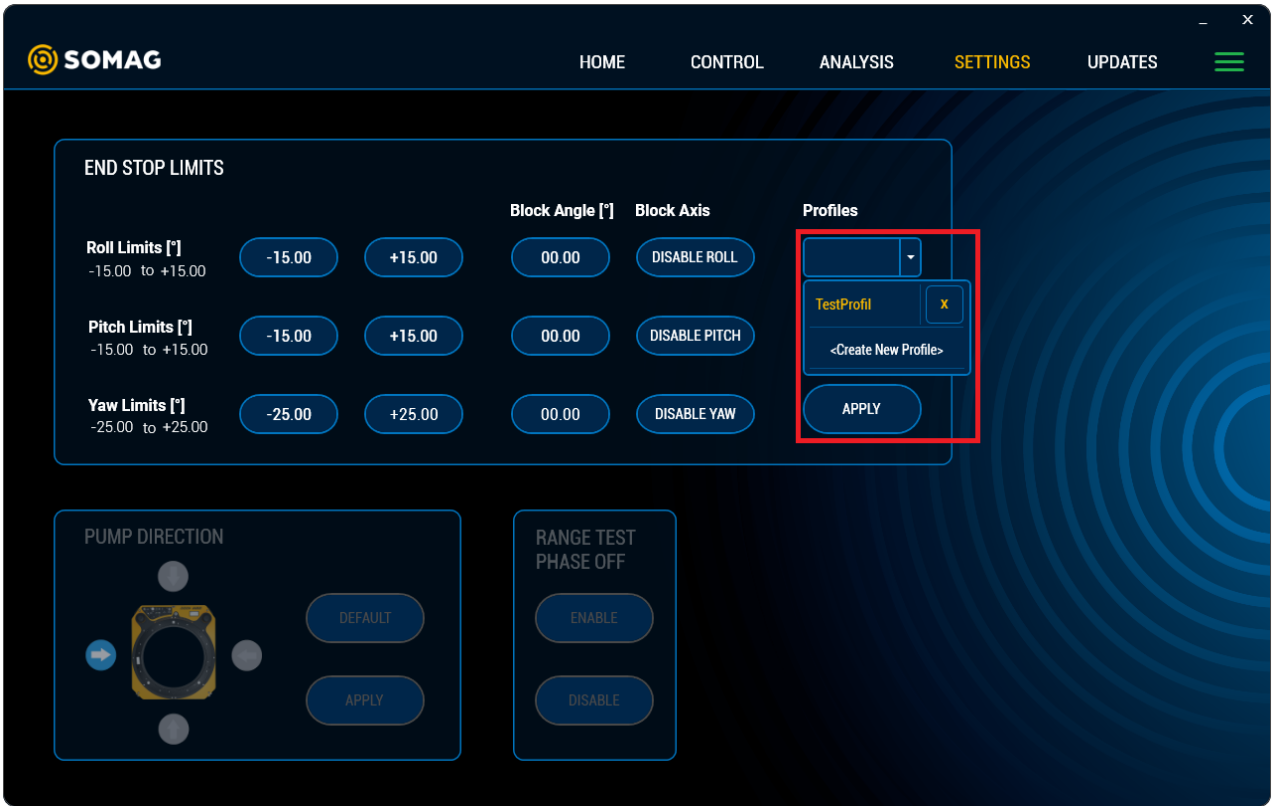

Figure 20: Select Profile

- After pressing Apply, a notification window opens in which the entered values to be sent to the Mount are summarized and must be confirmed with ‘OK’.
- To reset all settings, the ‘Default’ button must be pressed

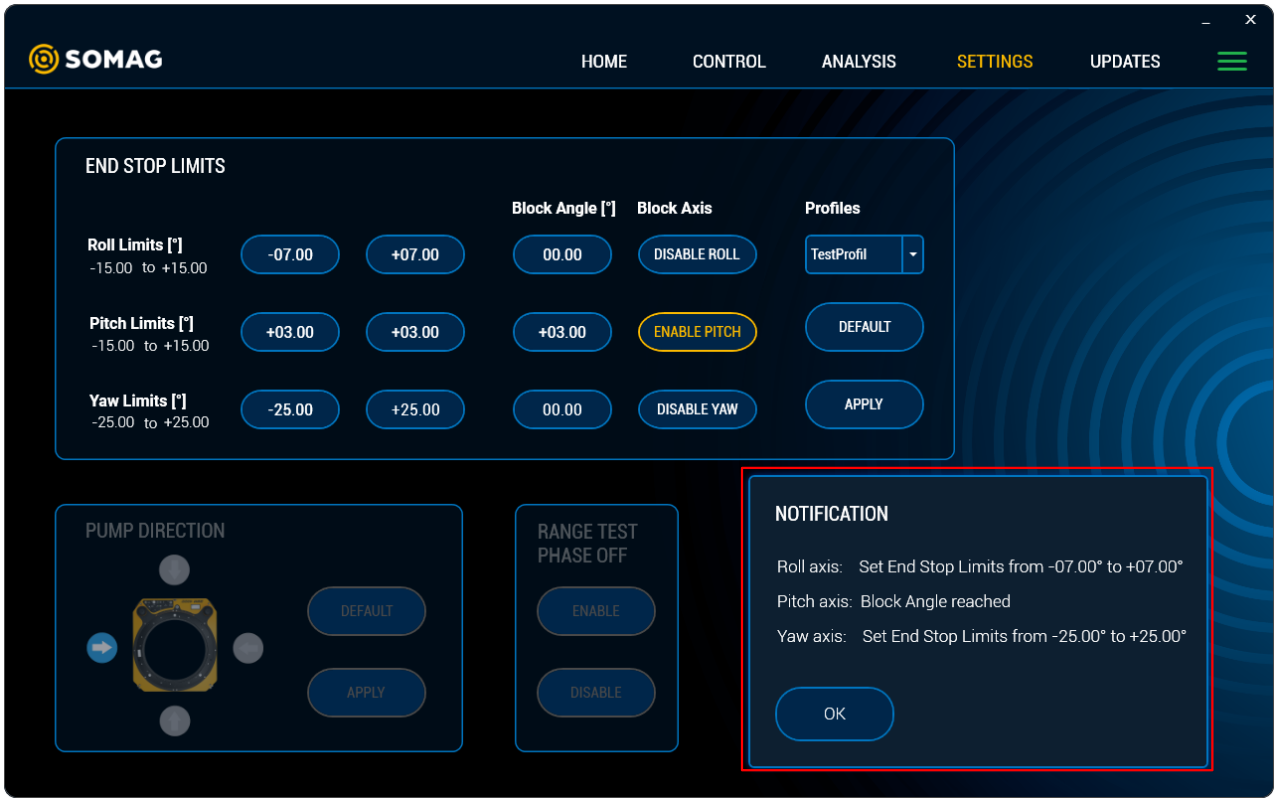

Figure 21: Profile Summary Notification

S5 – Pump Direction

The initialization process for the GSM 4000 follows a routine where the device starts to raise one side to fill its hydraulic circuits with oil. This feature specifies the side of the Mount which rises up first.

If the Collision Avoidance feature is activated, it is possible that certain pump directions are no longer displayed in order to avoid a collision when pumping up the GSM 4000.

S6 – Range Test Phase off / (legacy feature)

This feature offers the possibility to disable the rotational movement during the Mount Initialization Phase. The Mount will still work properly but it will not check its mechanical end stops.

With a Mount firmware of 4 and higher this feature is no longer required since the Mount then fulfills just a short movement, in the value range of 1 degree in all axes, to ensure its functionality at the initialization process.

4.4.3 FEATURES 2

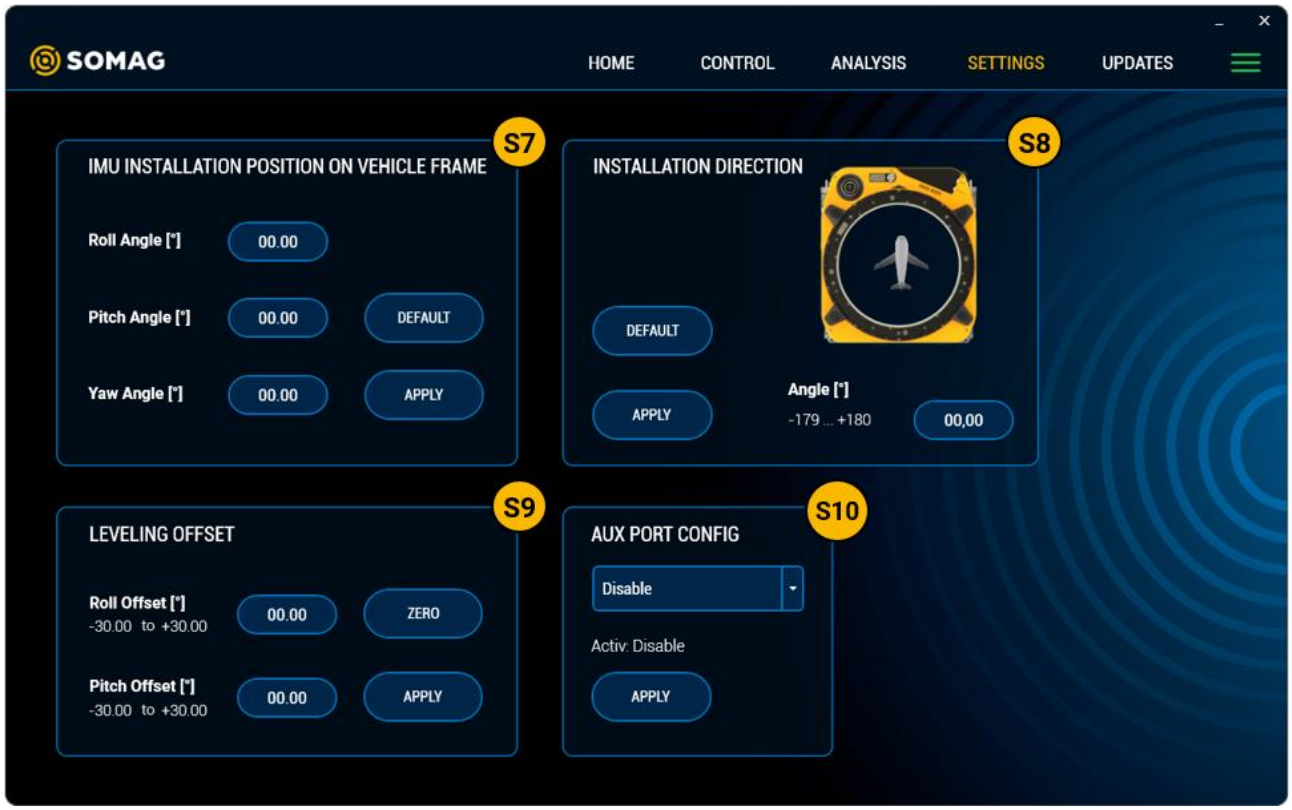

Figure 22: SETTINGS - FEATURES 2 view

S7 – IMU Installation Position on Vehicle Frame

If the Mount is connected to an IMU, which is not installed on the Mount itself, this feature can be used to setup the angles of the IMU with reference to the Mount frame. Set the installation angles of all axes of the IMU by using the 'Tate-Bryant' rotation sequence with the Mount coordinate system as the base frame. Apply a rotation around the z-axis (Yaw) first, then around the y-axis (Pitch) and finally around the x-axis (Roll). Please note, that each rotation is subject of the previously applied rotation.

S8 – Installation Direction

If the Mount needs to be installed in a direction different from its destinated forward direction, this feature needs to be used. It is only possible to change the horizontal rotation of the Mount. It is important that the installed sensor and the IMU continue to point in flight direction, as otherwise there is no proper function.

S9 – Leveling Offset

Using this feature, it is possible to set up a different leveling horizon and enable the Mount to use a new virtual horizon based on the entered values. This is useful for setting an orientation other than nadir (towards the ground).

S10 – AUX Port Config

An IMU / Navigation system can be connected directly via the AUX Port interface. This can generally be done via a serial interface with a defined baud rate. For systems that work via Ethernet interface, the baud rate is irrelevant and the settings network IP and UDP port must be setup correctly (see chapter 3).

In this panel, the predefined INS system can be selected in the combo box and activated via the Apply button.

4.5 UPDATES

In this view, the Mount can be updated to get the latest firmware versions. Furthermore, it is possible to unlock paid features to use special functions of the Mount.

The following description applies to both ‘Update Firmware’ and ‘Unlock Features’. The differences between the two functions are explained in the subitems U2 and U3.

Pressing Open Firmware / Load Features opens a file dialog for selecting a text file generated by SOMAG AG Jena. A ‘Notification’ window appears and provides a confirmation whether the initialization was successful or failed. If it was successful, the update can be started by pressing the ‘OK’ button. Pressing this button starts the ‘Update in Progress’ window (Figure 24/ Left), which visualizes the update process in a progress bar. After successful completion of the process, the Finish button becomes visible (Figure 24/ Right). This also applies in the event of an error and in addition, ‘Error in Line <line number>’ appears. Pressing the Finish button completes the update process and a Mount restart is performed.

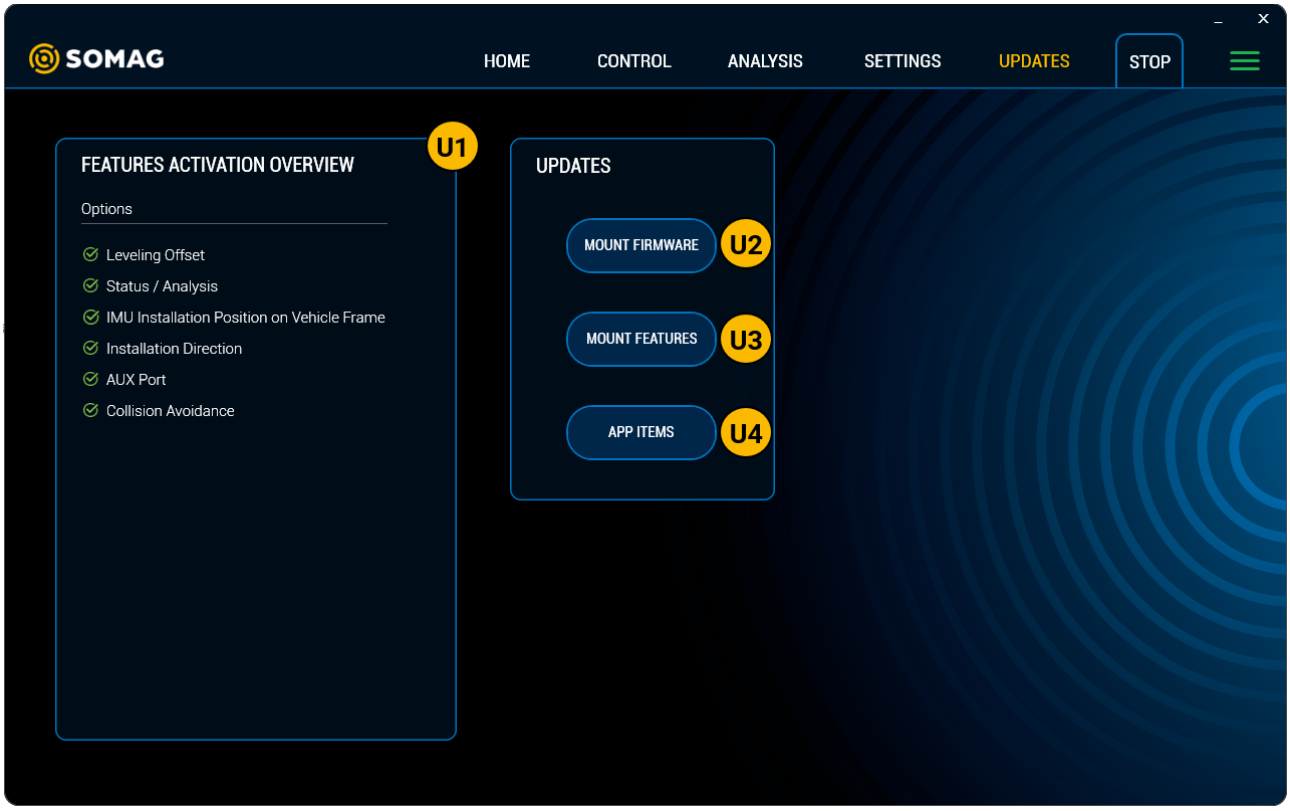

Figure 23: UPDATES view

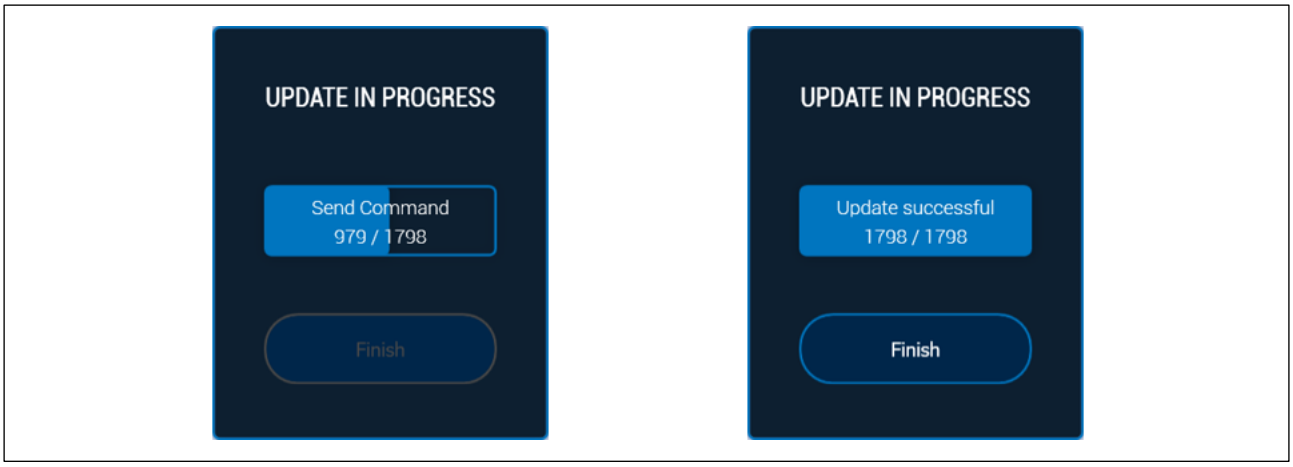

Figure 24: Update in Progress window with the running progress bar. right: The Finish button is enabled after the update process was successful.

U1 – Features Activation Overview

The Features Activation Overview shows all optional software features, that customers can acquire to adapt their Mount to their individual application demands. The features can be activated by SOMAG AG Jena, pricing and availability on demand.

U2 – Mount Firmware Update

In this panel, the Mount can be updated to get the latest firmware versions. It is possible to update the individual processors in the Mount separately. The procedure differs depending on the firmware type, which is included in the filename. For the firmware updates, the appropriate cables must be connected.

- **Main Firmware Update:** This update works over the USB-, the COMBI- or the Ethernet interface.

  The corresponding update file name starts with ‘SOMAG_Firmware_CPU’.

- **Extended Firmware Update:**
  - **CP – Update:** This update works over the Interface / Main or COMBI interface via a serial connection or over the Ethernet interface.

    The corresponding update file name starts with ‘SOMAG_Firmware_CP’.

    ECx – Update: This update only works with the marine/land Mounts over the COMBI- or the Ethernet interface. For the Ethernet interface, an SSH and SCP connection is established via port 22.

    The corresponding update file name starts with ‘SOMAG_Firmware_ECL’ / ‘SOMAG_Firmware_ECO’.

  - **IFC – Update:** This update only works with a GSM 5000 over the COMBI- or the Ethernet interface.

    The corresponding update file name starts with ‘SOMAG_Firmware_IFC’.

- **Motor Firmware Update:** This update works over the COMBI- or the Ethernet interface.

  The corresponding update file name starts with ‘SOMAG_Firmware_MDX’.

- **Touch Encoder Firmware Update:** This update only works with a GSM 5000 over the COMBI- or the Ethernet interface.

  The corresponding update file name starts with ‘SOMAG_Firmware_TE’.

- **If the Mount does not start right after selecting 'Finish', the Mount has to be switched off and on again.**

- **If an update fails, please try to connect only via the connection required for the update, i.e., avoid multiple plugged in cable connections. In case of a CPU-Update, also try using a shorter USB cable or a different PC. In case of a CP-Update via a serial connection, it is possible that a serial to USB adapter has caused an error. It is recommended to use a PC with a serial port or a different adapter.**
- **It is mandatory to not change the filename of the update files.**

U3 – Mount Features Unlock

The Unlock Feature is used to activate features of the Mount, such as End Stop Limits. For the implementation, SOMAG AG Jena generates three different files:

- The activation file, for initial unlocking, starts with the following string: SOMAG_Feature_Unlock
- The deactivation file, to carry out a permanent invalidation, starting with: SOMAG_Feature_Lock
- The info file contains the deliverables and an allocation to Mount serial number/ internal process number.

Furthermore, the SOMAG Mount Control App Manual and a quick guide is included in the supply.

Moreover, the unlock feature process consists of only two commands, which are visible in the progress bar. If the activation has been successful, the Features Activation Overview shows the new features as feedback.

- **It is mandatory to not change the filename of the unlock files.**

U4 – App Items

The App Items Unlock is used to install helpful addons with additional functionalities to the App. Please contact SOMAG Support for further information.

5 Troubleshooting

USB Connection

When the PC is connected to the Mount via USB interface and the SOMAG Mount Control App with its SOMAG USB driver was not previously installed, then a default driver may have been assigned. A connection to the Mount is not possible in this case. When switching off and on the Mount, you can see which entry of the ports the Mount is assigned to.

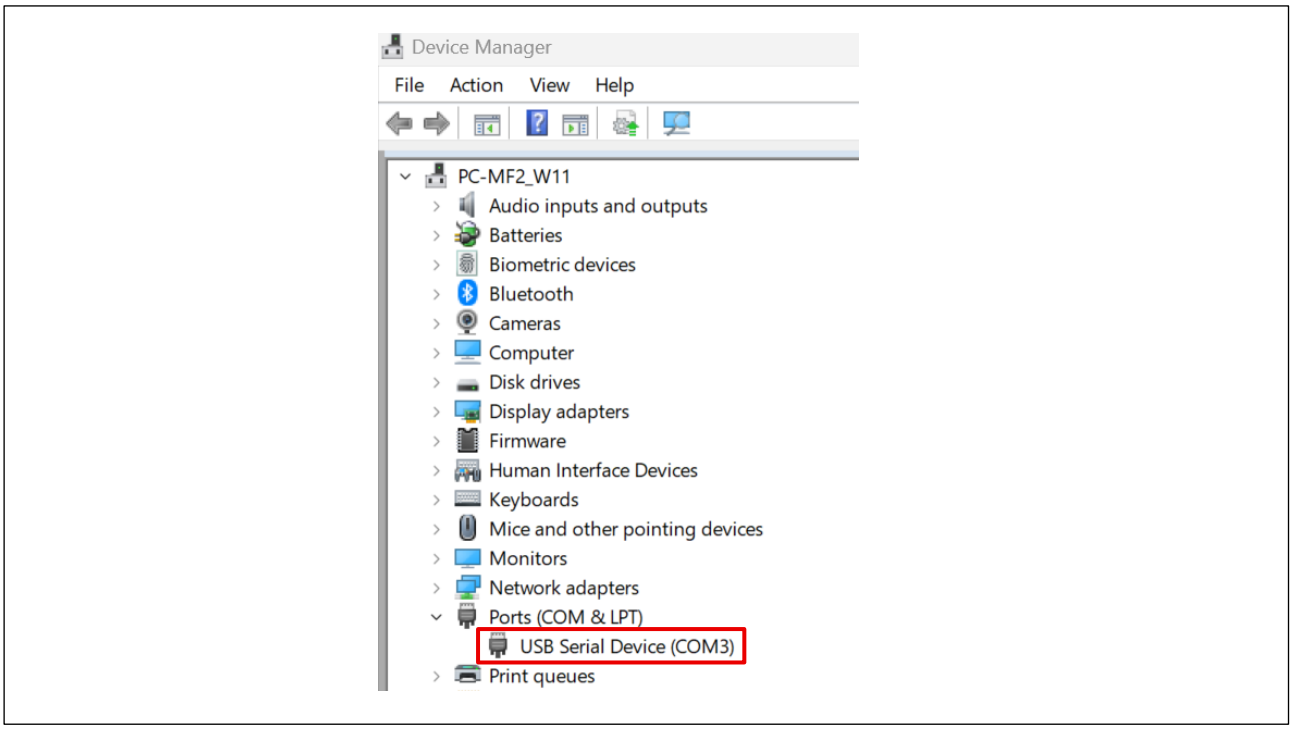

Figure 25: Device Manager – SOMAG driver is not used (‘SOMAG USBport’ is not shown in labeling)

The USB device must be added again (Figure 26):

- Disconnect the Mount from the PC.
- Activate the ‘Show hidden devices’ property in the menu of the device manager.
- Uninstall the device of the corresponding port.

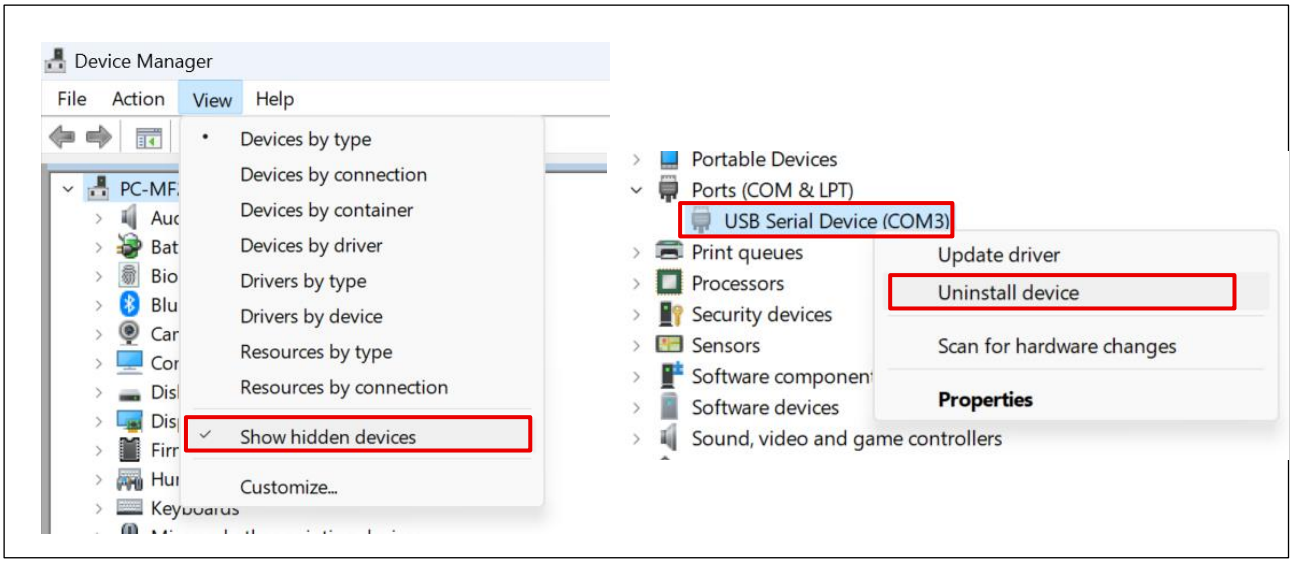

Figure 26: Device Manager – Show hidden devices / Uninstall device

If the SOMAG Mount Control App has been installed with the associated driver, the Mount will register with the SOMAG driver when you reconnect the Mount.

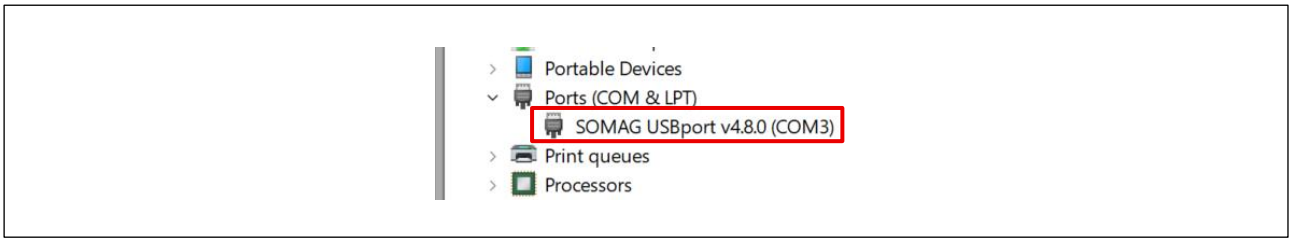

Figure 27: Device Manager – SOMAG driver successfully in use