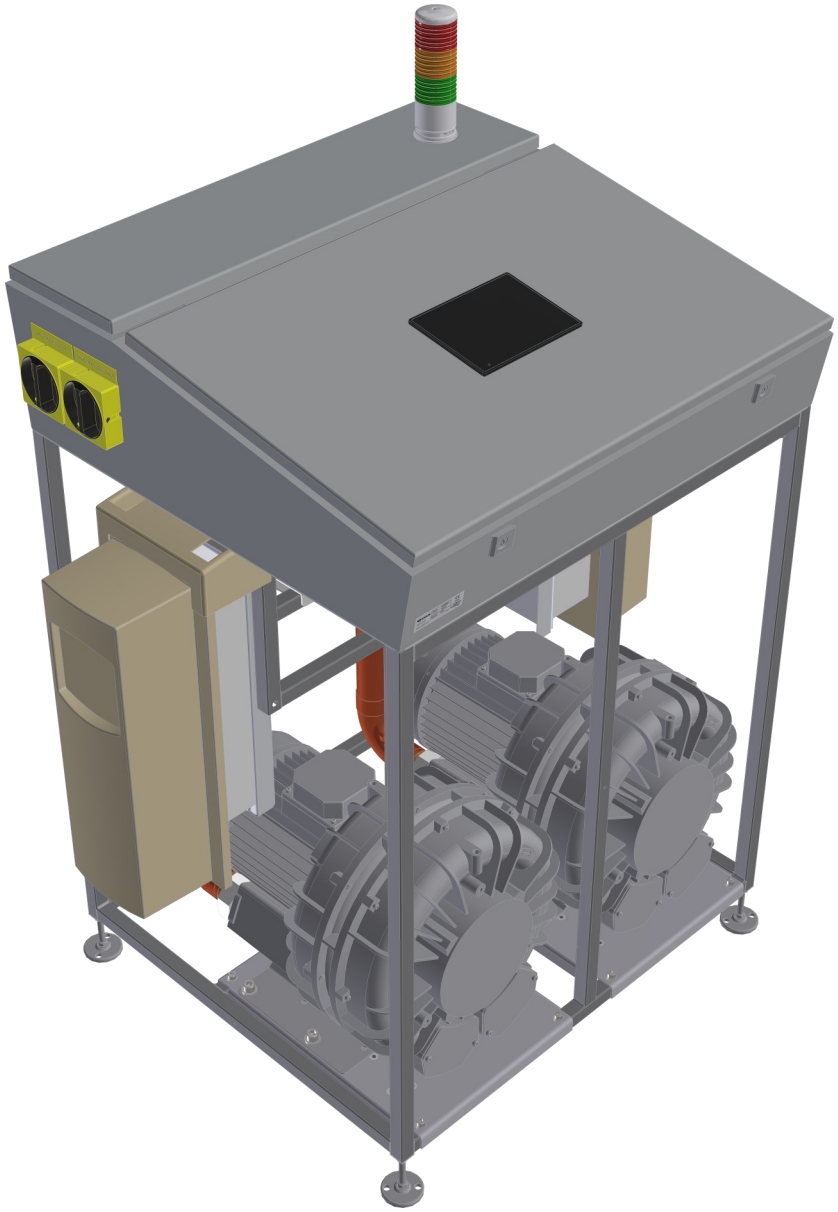
CE 0044

INFORMATION FOR USE

AGSS



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Thank you for choosing AGSS from QMT-tech AB

Your new AGSS is an advanced medical device with high-quality components and features for safe operation and high performance.

Please read the information for use before installation, commissioning and use so that you are well informed about how to install, commission and use it safely.

Handling information is complemented by installation, operation and maintenance instructions for long and trouble-free operation.

We wish you a long, safe and trouble-free operation.

This information for use describes the functions of the AGSS for safe installation, commissioning and use.

The manual should be read and understood by all intended users.

The following symbols are used in the instructions for use:

Warning

Note, important information

Read the information for use

Digital copy can be downloaded from qmt3.com

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Section	Page
Introduction	2
Intended use	5
Overview	6
Overview reference list	7
Installation & Commissioning	8
Wiring diagram Power device	9
Wiring diagram Control valve	10
Adjustment of AGSS Control Valve	11
Operating instructions	12
HMI Panel - Start window	13
HMI Panel - Overview	14
HMI Panel - Current Alarms	15
HMI Panel - Historical Alarms	16
HMI Panel - Settings menu	17
HMI Panel - Alarm Limits	18
HMI Panel - Time/Date	19
HMI Panel - Other	20
Maintenance	21
Warnings & Important Information	22
Accessories	23
Technical data	24
Regulatory information	25
Used product and recycling	26

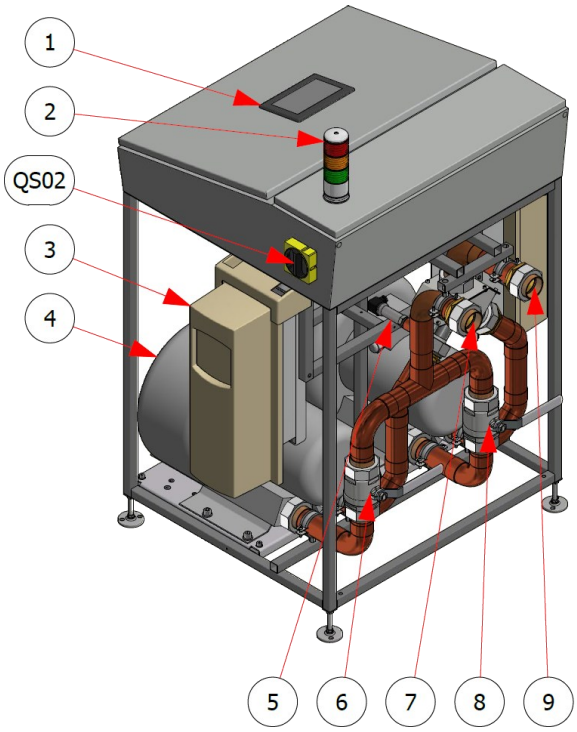
Intended use:
This is the power device and control system for a system for scavenging of anesthetic gases from clinical areas. The power device consists of two redundant vacuum fans, each capable of maintaining the required system flow. Each vacuum fan is driven by frequency converters controlled by a PLC system to maintain only the required system flow and vacuum level as needed to save energy. The system includes control valves for each treatment area and silencers to reduce the noise level in the piping system. The power of the unit is optimized also for the higher flow required for “double mask” systems, which are common in the Nordic countries. The unit is available in two variants: AGSS500 with larger vacuum fans for up to 10 treatment areas or AGSS320 with smaller vacuum fans for up to 5 treatment areas, in other respects the two devices are identical. To get a complete AGSS system, a piping system and connectors in the patient room for connecting equipment to this system are added, these components are not provided by QMT-Tech and are not described in this manual.

Intended users:
Installation - Installer
Daily use - The hospital operations technician every day supervision and running of the device, clinical personnel will have an off/low-flow/high-flow switch for starting and stopping the vacuum flow.
Service and maintenance - QMT-Tech technician do service and maintenance to the device.

Target group:
Not restricted, the device is not involved in the treatment of the patients, but connected medical devices use the created vacuum for scavenging of anesthetic medical gases that are used in all areas of the hospital.

Indications:
Non-specific, the device is not involved in the treatment of the patients, but connected medical devices use the created vacuum for scavenging of anesthetic medical gases that are used in all areas of the hospital.

Contra indications:
Non-specific, the device is not involved in the treatment of the patients, but connected medical devices use the created vacuum for scavenging of anesthetic medical gases that are used in all areas of the hospital.


1
2
QS02
3
4
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6
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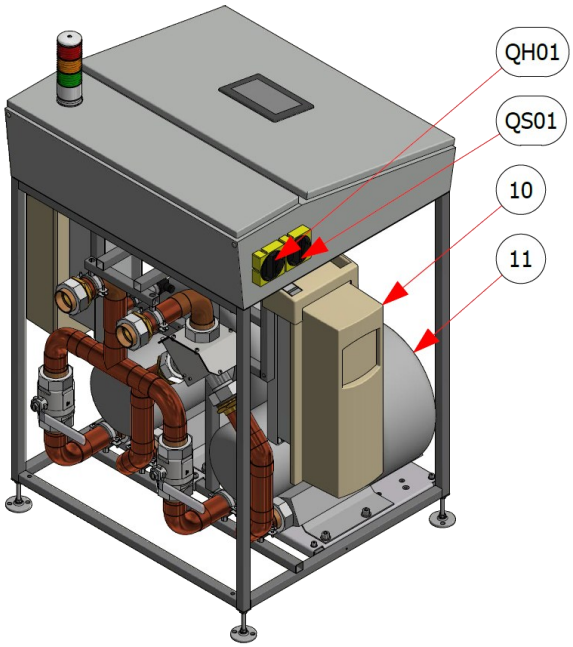
8
9


QH01
QS01
10
11

1	HMI Display
2	Light column with sound
3	Frequency converter right side
4	Vacuum fan right side
5	Vacuum sensor
6	Shut-off valve suction side right
7	Connection suction side
8	Shut-off valve suction side left
9	Connection outlet
10	Frequency converter left side
11	Vacuum fan left side
QH01	Main switch
QS01	Safety switch left side
QS02	Safety switch right side

Installation:

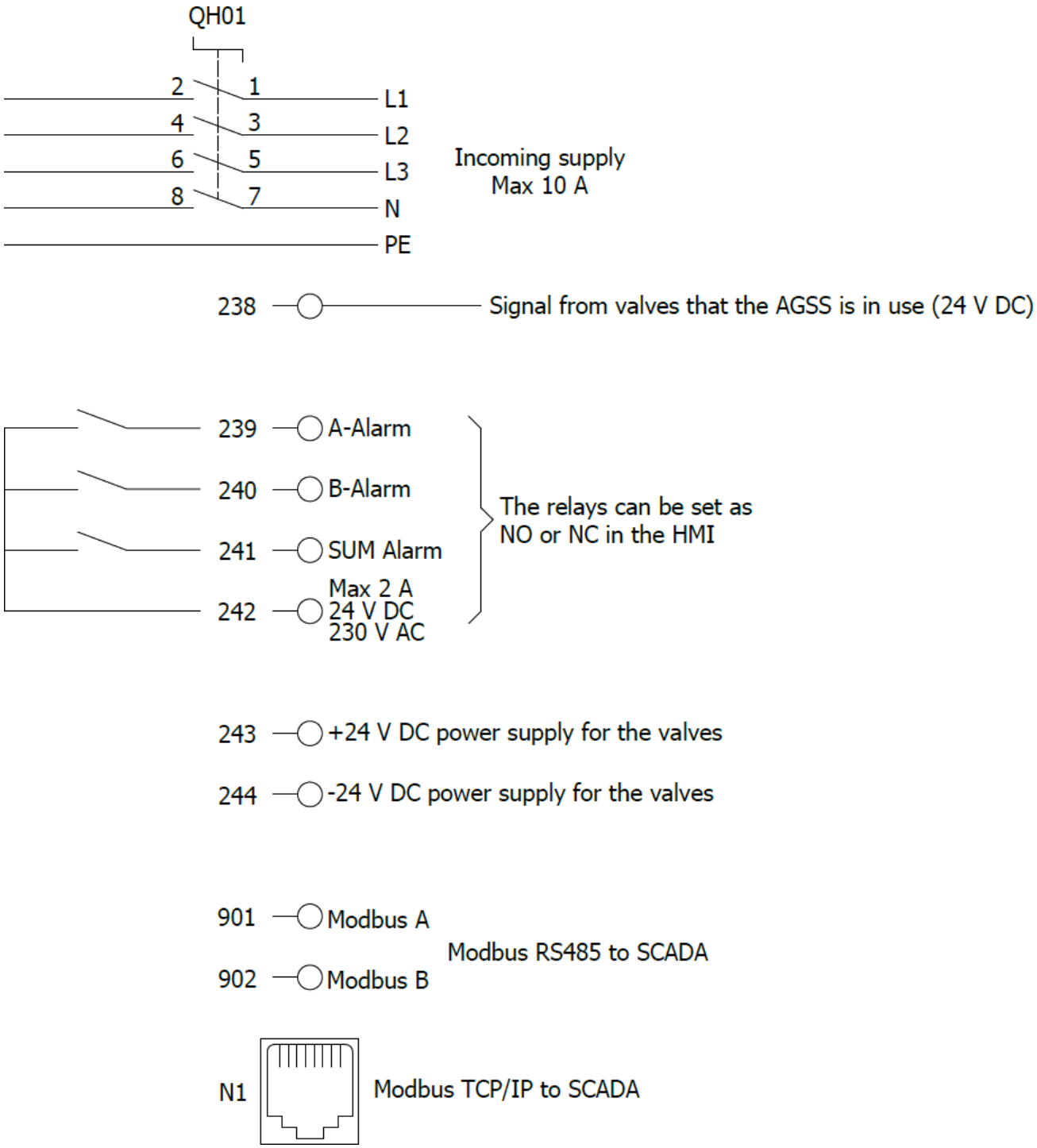
1. The installation shall be carried out by technicians with good knowledge of medical gas pipeline systems and have soldering training in accordance with SIS HB 370 and soldering certificates in accordance with EN ISO 13585:2024 and EN 13134:2001.
2. Remember to check that switches QH01, QS01 & QS02 are in the OFF position during installation. These can be locked in the OFF position with a padlock so that they are not accidentally turned on.
3. The power device is placed in a suitable location in a normal indoor environment.
4. Ensure that there is sufficient space around the power device to allow access to cooling air and that the unit's components are accessible for service, about 1,0 m of free space around the machine is a good rule of thumb.
5. Do not remove the plugs protecting the connections until the connection is made.
6. The connection to the suction side (7) and the discharge side (9) is made with 50 mm PVC pipe that is glued in place.
7. The exhaust side must be evacuated to the outside of the building.
8. Increase the pipe size as soon as possible after the connections to the dimensioned pipe size to minimize pressure drop losses.
9. Control valve and silencers at patient location shall be installed as close to exhaust outlet as possible.
10. Electricity and communications are connected according to Picture 1 Wiring diagram on page 8 and Picture 2 on page 9.

Commissioning:

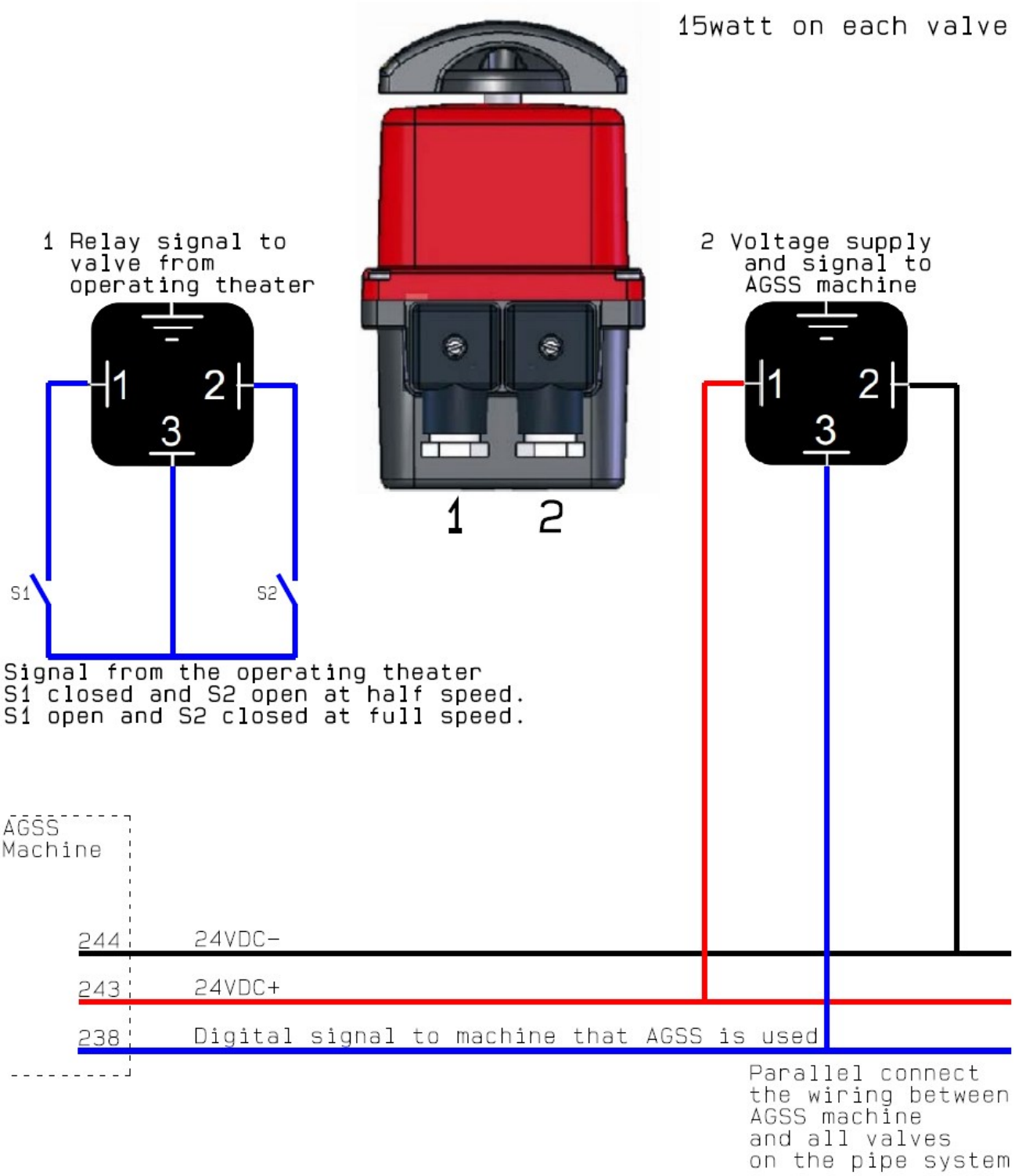
1. Make sure that the Main switch (QH01) and the two Safety switches (QS01 & QS02) are in the ON position.
2. Valves 6 and 8 shall be open.
3. Check and/or set the desired vacuum and alarm limits.
4. On the HMI screen press the “Settings” button.
5. Press the “Desired vacuum” button.
6. Check that the desired vacuum is set, adjust with +/- to correct the value.
7. Press the “Low/High vacuum” button.
8. Check the low and high vacuum alarm levels, adjust with +/- to correct the values.
9. The system is now ready for operation.
10. Start the system by setting the control to high or low flow for at least 1 room.
11. If the system has been de-energized (main switch QH01 has been OFF) for some time, the system pressure may fluctuate slightly for the first few minutes until new history/data has been written to the PID controller. This is perfectly normal and will be corrected when the PID controller gets new history/data to work against.
12. Check that no alarms are generated during the operational test.
13. Turn off the system in the room that was started.

- Do not use grease or oil
- NOTE! If a major leak is detected during start-up, turn off the unit and troubleshoot. Correct the fault before putting the system into operation!

- Wear safety glasses when working with the device.
- NOTE! Switches QH01, QS01 & QS02 must remain in the ON position after start-up.
- Sizing and selection of piping and equipment shall be carried out and added for a complete anesthetic gas scavenging system.
- Results from testing and adjustment shall be documented and stored after completion of the process.

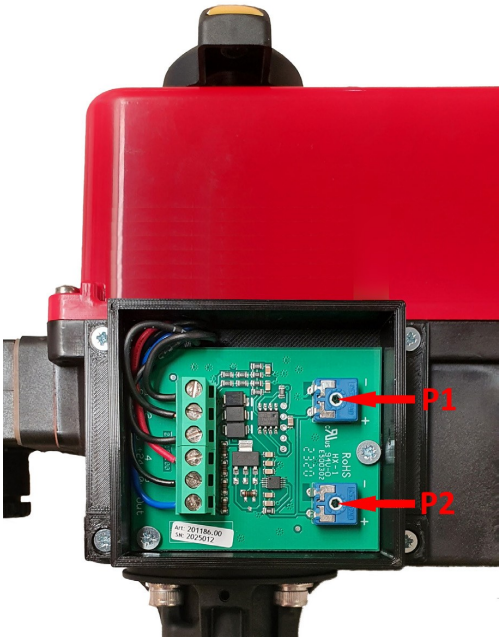


Picture 1 Wiring diagram Power device



Picture 1 Wiring diagram Regulating valve

Picture 3 Circuit box Regulating valve



Picture 4 Potentiometer Regulating valve

Adjustment instruction:

1. The control board is located on the side of the valve. Loosen the 2 screws to access the control board.
2. Connect a flow meter to the AGSS terminal unit that the valve controls. Turn on half speed (S1) and adjust the valve. You increase the flow by adjusting potentiometer P1 clockwise. Reduces the flow by turning potentiometer P1 counterclockwise.
3. Turn on full speed (S2) and adjust the valve. You increase the flow by adjusting potentiometer P2 clockwise. Reduces the flow by turning potentiometer P2 counterclockwise.
4. When both flows are set correctly, close the valve. Open again at half/full speed and check that the flows are correct otherwise adjust again.
5. When both flows are set correctly, switch off the AGSS, put the lid on the control card. Perform the same procedure on the remaining valves on the AGSS system.

- Ensure that flows, performance and piping comply with the applicable requirements of EN ISO 7396-2 or local hospital regulations.
- The system should only be installed and adjusted by a person with the required knowledge.
- Results from testing and adjustment shall be documented and stored after completion of the process.

Operating instruction:

1. Check that valves 6 & 8 are open.
2. Check that main switch QH01 and safety switches QS01 & QS02 are in ON position.
3. Check that the light tower (2) is green.
4. Check that the HMI panel shows “System OK”.
5. In each room connected to this system there is a control switch to set the suction flow to low flow or high flow. This control may be integrated with the OR panel or other customer solution, check how this is solved in your hospital.
6. To start the unit, set the control switch (described in point 5 above) in any room to low flow or high flow.
7. It is also possible to switch directly from low flow mode to high flow mode or vice versa.
8. To turn off the suction flow in the room, set the control switch to the OFF position. Note that the power device can still run if another room is still using the system.

Control of vacuum fan operating side change:

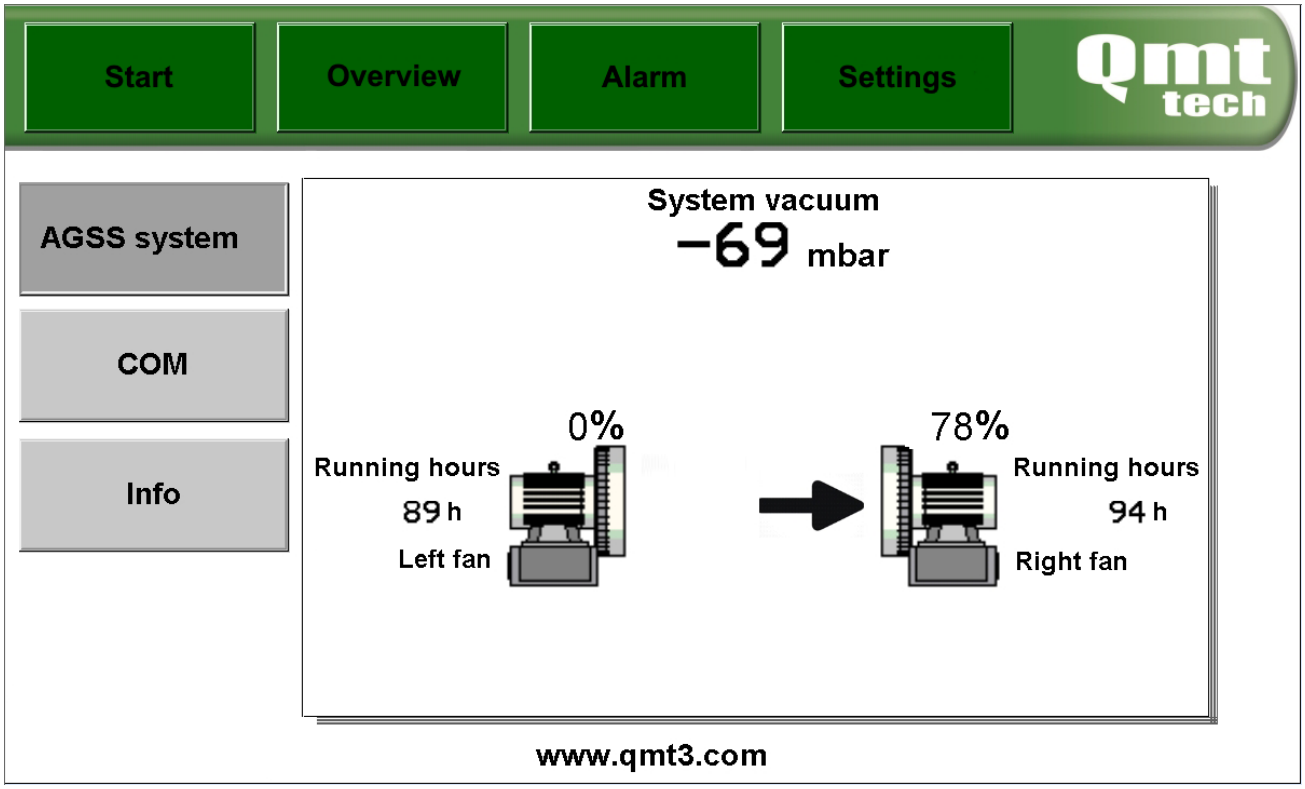
1. Start the system by setting the control switch to high or low flow for at least 1 room.
2. Check that the system is operational and no alarms are generated.
3. Check which side is in operation.
4. Set the safety switch QS01 or QS02 to OFF for the side that is in operation.
5. The system should now switch operating side and alarm is generated.
6. Acknowledge the alarm.
7. Set safety switch QS01 or QS02 back to ON for the side that was switched off.
8. Now set safety switch QS01 or QS02 to OFF for the new operating side.
9. The system should now switch back to the original side and alarm is generated.
10. Acknowledge the alarm
11. Set safety switch QS01 or QS02 back to ON for the side that was switched off.

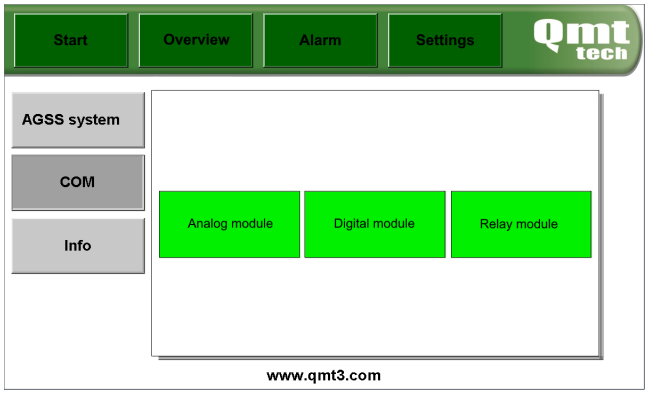
- Bear in mind to only check the operating side change when the system is not in use!

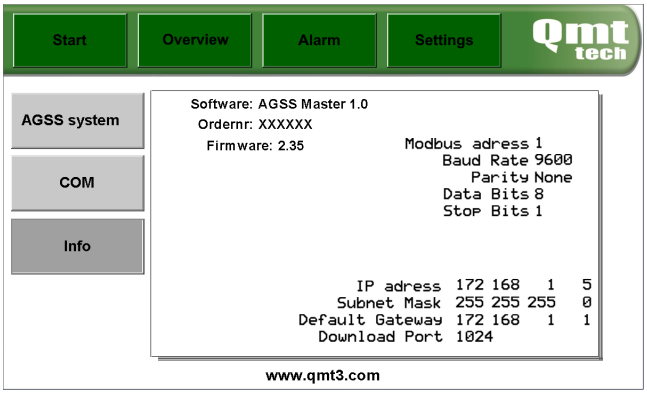
- Results from testing and adjustment shall be documented and stored after completion of the process.

Start window:
This is a general overview of the system status. If the square is green and the text “System OK”, the system is working as intended. If there is a red square and the text “Alarm activated”, one or more alarms are active for the device.

Press the buttons at the top of the window to access the desired function:
Start - Opens the startup window (the one shown in the picture)
Overview - Shows the status of the vacuum fans and if there are any alarms
Alarm - Displays a list of current and/or historical alarms
Settings - Here you adjust alarm limits and other settings

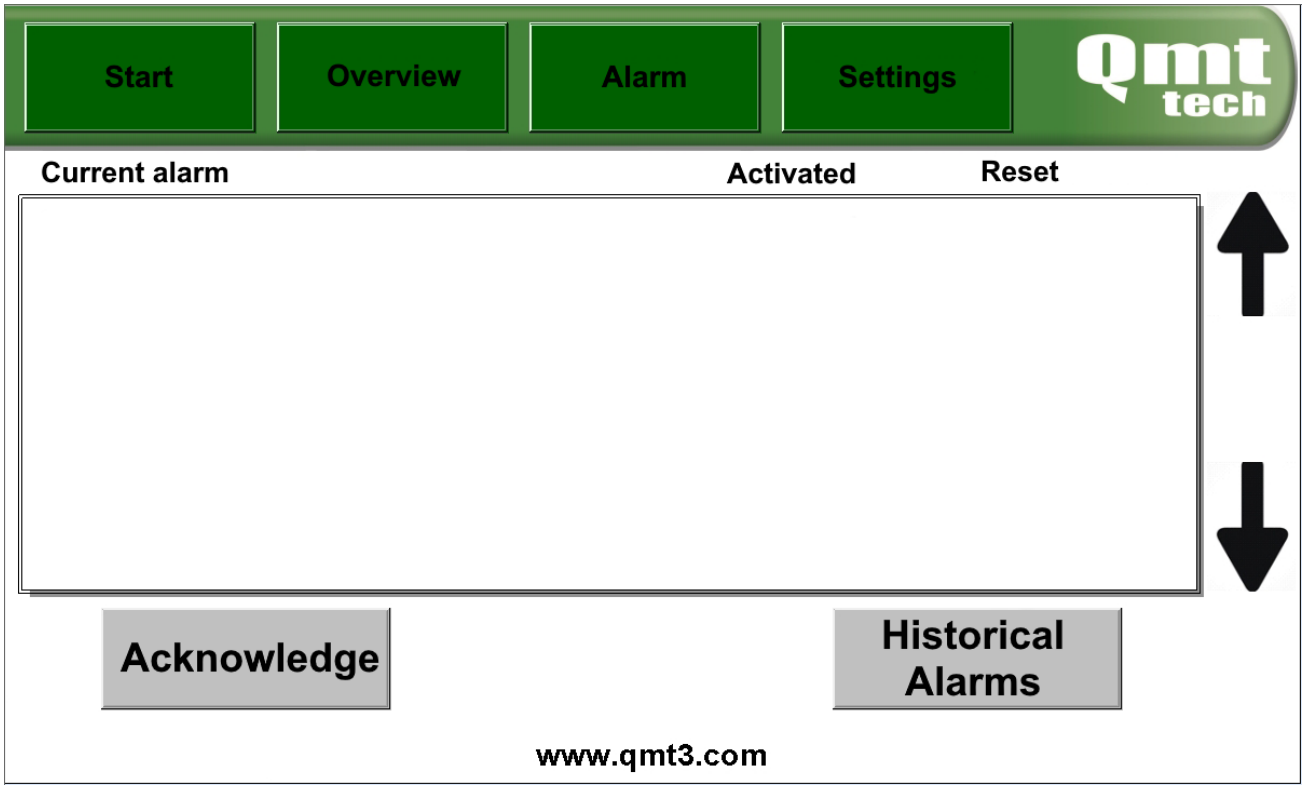






Overview:
This window displays detailed status of the AGSS machine, communications and system settings information.

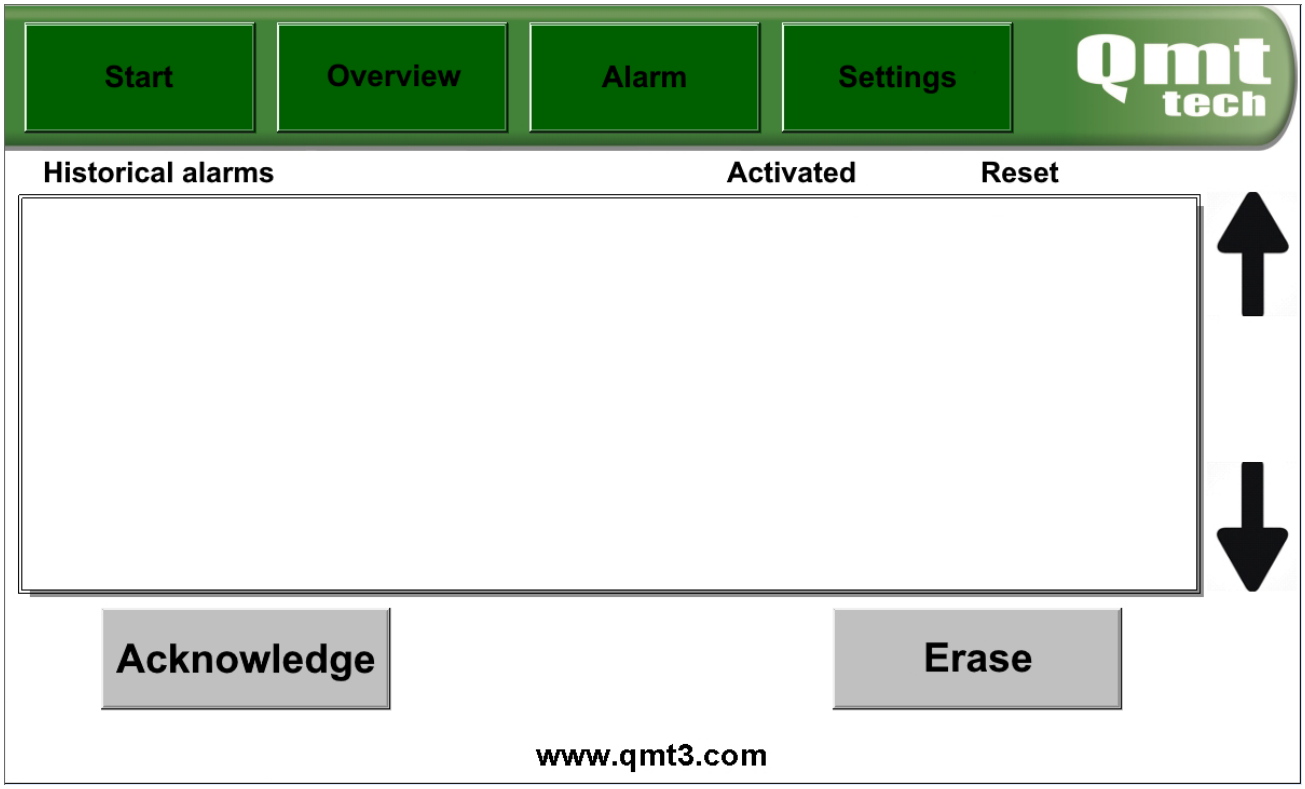
Press the gray buttons on the right to change which information is displayed:
AGSS System - Displays the status of the unit's vacuum fans (pumps), their hours of operation, whether the right or left vacuum fan is operating, and the % capacity the fan is currently running at.
COM - Shows the status of the I/O modules. If they are green, the communication is ok. If they are red, there is a communication error for that module.
Info - Shows information about software version, communication settings for Modbus TCP/IP and communication settings for Modbus RS485. These settings can be adjusted in the settings menu.



Alarm list current alarms:
This list shows all active alarms. The list is in chronological order with the most recent alarms at the top and older ones in descending order.
Use the arrows to scroll through the alarm list.
Press the gray “Historical alarms” button to see the historical alarm list.

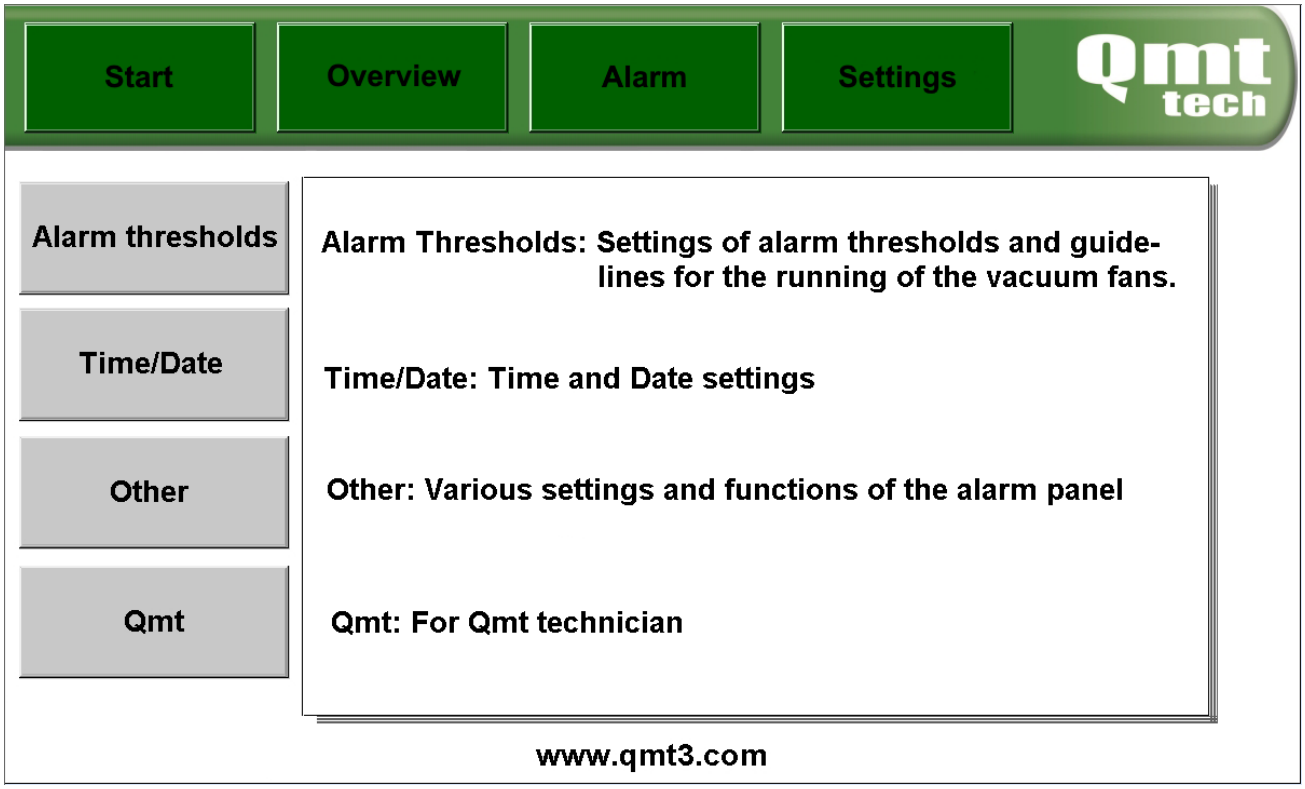
If there are unacknowledged alarms and the buzzer sounds:

1. Acknowledge and silence the buzzer by pressing the “Acknowledge” button. The “Acknowledge” button is only visible if there are unacknowledged alarms.
2. The button disappears if all alarms are acknowledged.
3. The system will re-alarm every 15 minutes if an A-alarm is still active.



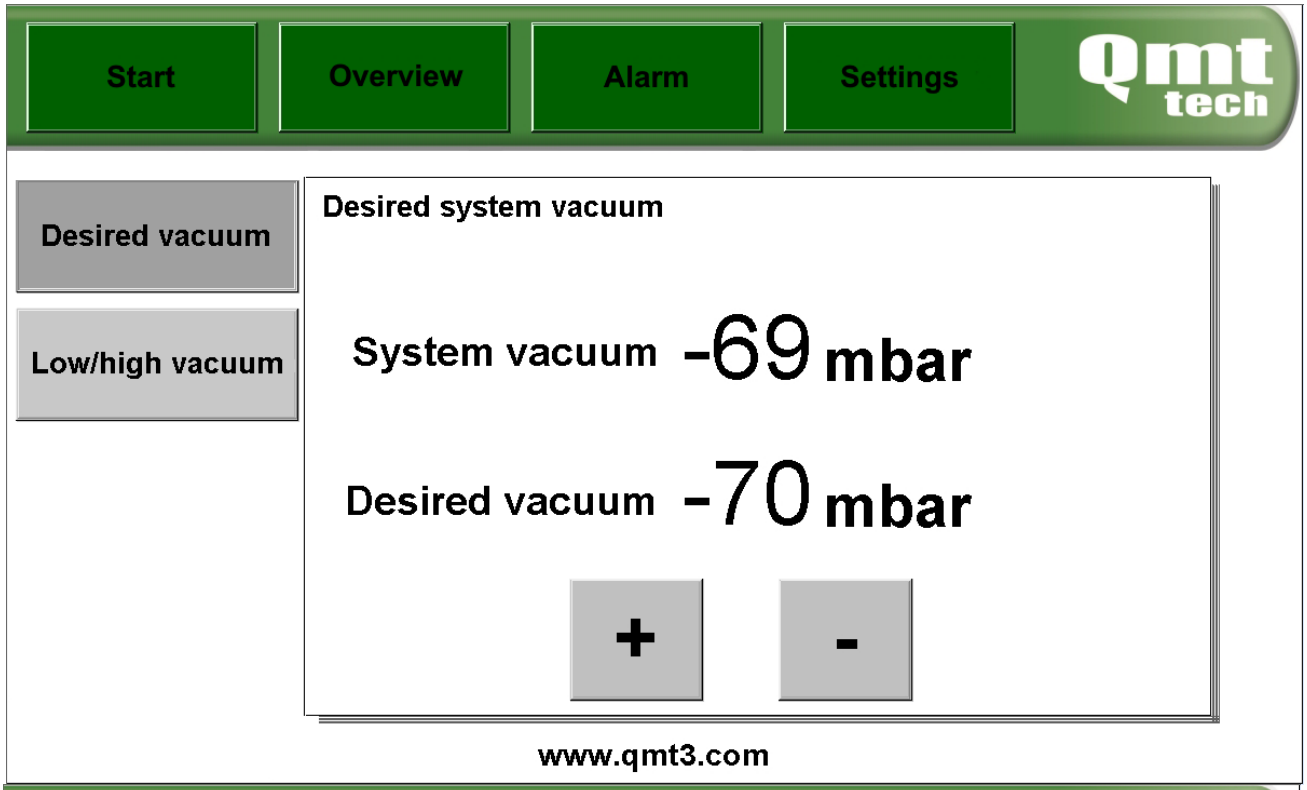
Alarm list historical alarms:
This list shows all historical alarms. The list is in chronological order with the most recent alarms at the top and older ones in descending order.
Use the arrows to scroll through the alarm list.
Press the green “Alarm” button to see the alarm list for active alarms.
By pressing the gray “Erase” button you can erase the entire historical alarm list. The menu for erasing the historical alarm list is password protected so that no one can accidentally erase the list.

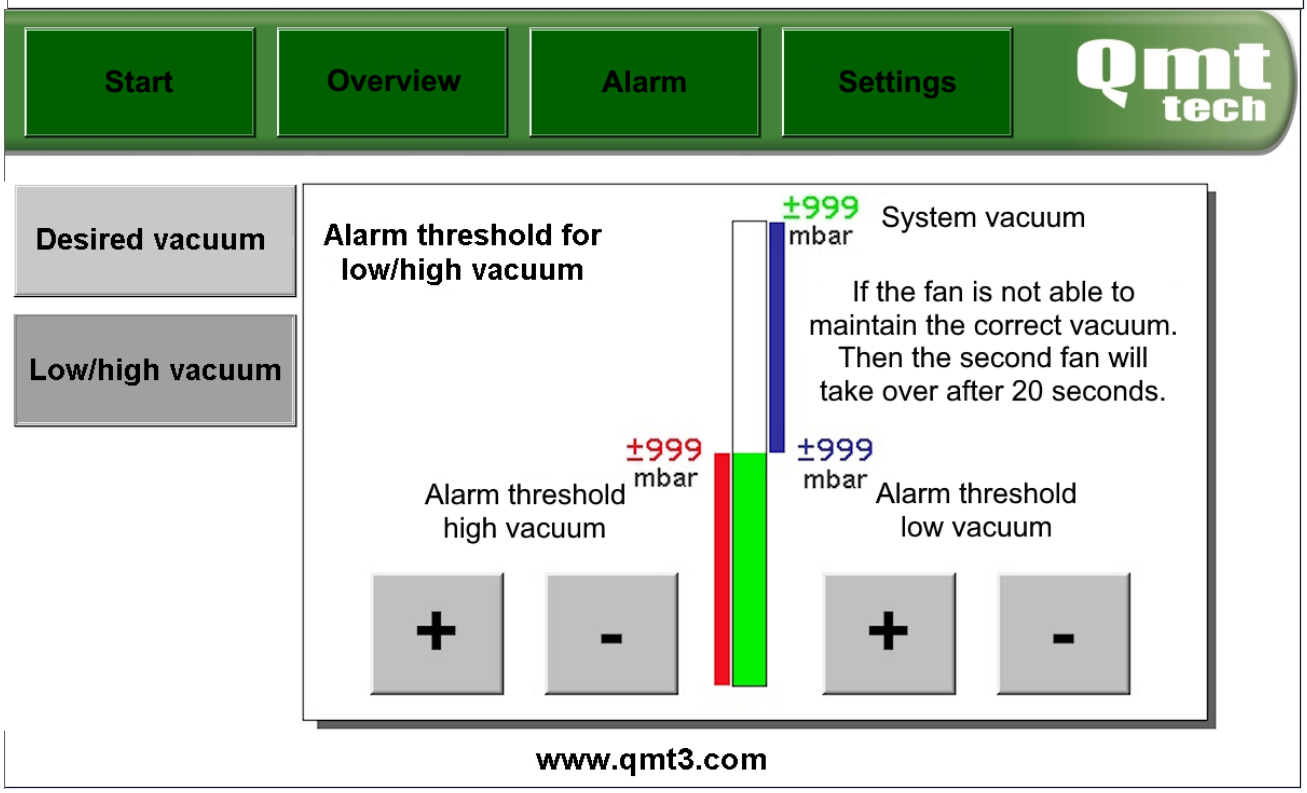
If there are unacknowledged alarms and the buzzer sounds:
1. Acknowledge and silence the buzzer by pressing the “Acknowledge” button. The “Acknowledge” button is only visible if there are unacknowledged alarms.
2. The button goes out if all alarms are acknowledged.
3. The system will re-alarm every 15 minutes if an A-alarm is still active.



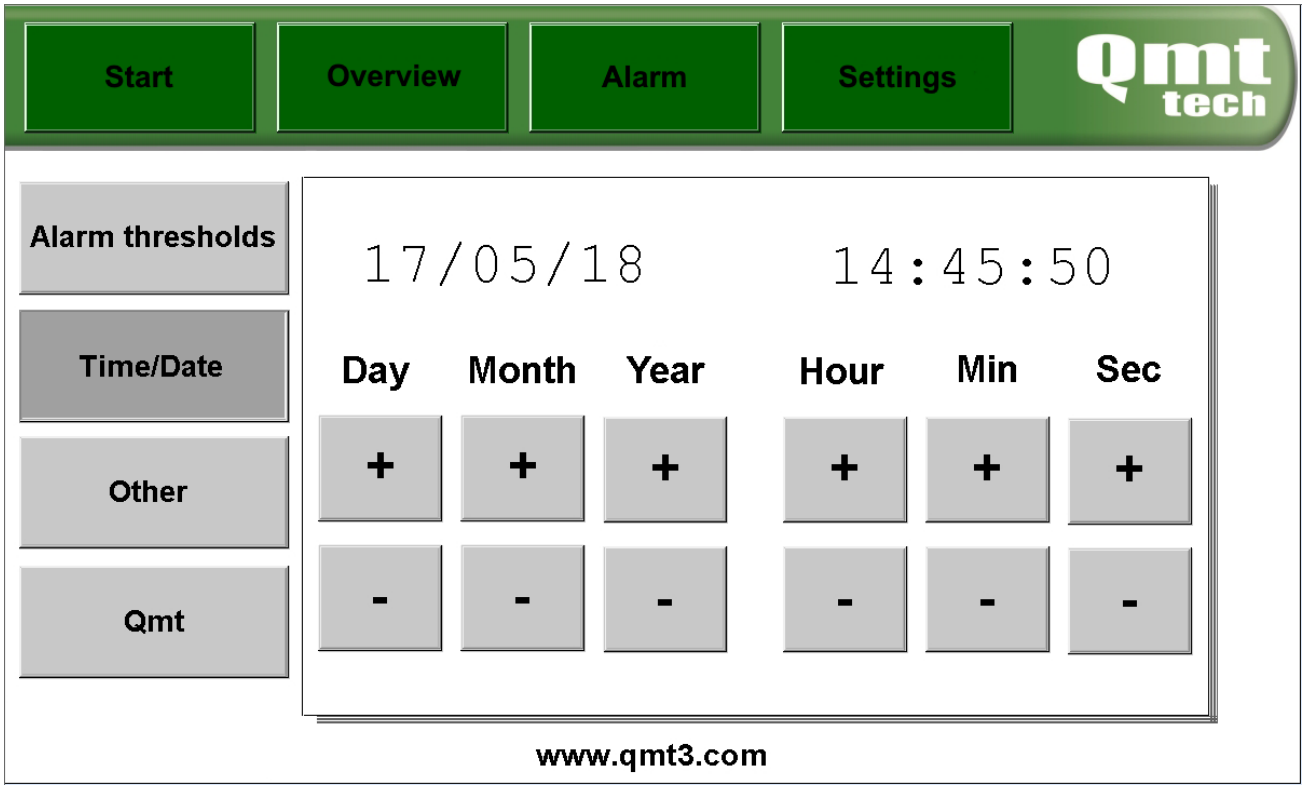
The settings menu:
The gray buttons on the left open the different setting menus.
NOTE! After 5 minutes of inactivity in the menus for the different settings, the screen automatically returns to the start screen.

Alarm thresholds - Opens windows where vacuum level and alarm limits for high and low vacuum can be set.
Time/Date - Opens window where time and date can be set.
Other - Opens windows where alarm supply, relay outputs NO/NC, button sound ON/OFF, screen saver time, screen brightness, and communication settings can be adjusted.
Qmt - This menu is locked for service technicians from QMT-Tech and is not described in this information for use.

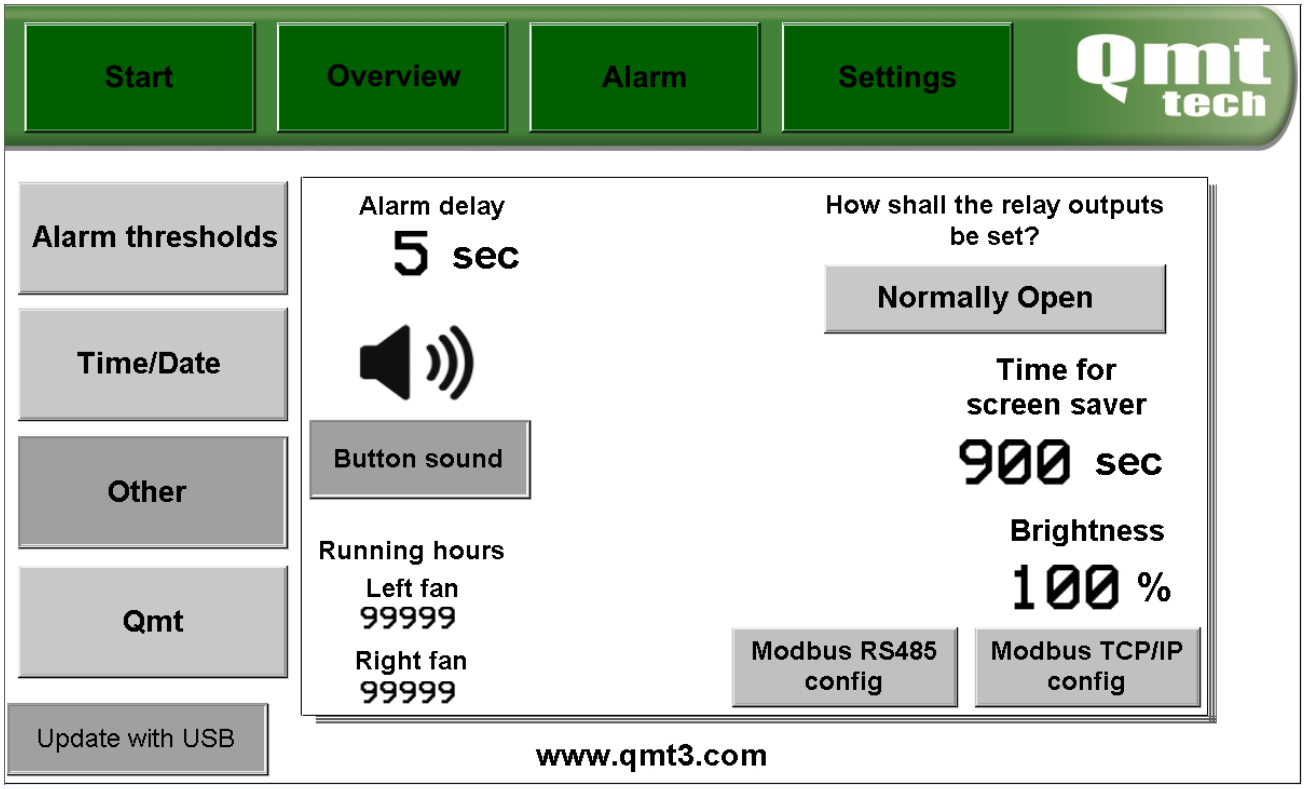




Alarm thresholds:
The gray buttons toggle between desired vacuum or high and low vacuum alarm limits.
Increase or decrease values with the +/- buttons.



Time/Date:
In this window you set the date and time for the HMI panel. Use the +/- buttons to change the values.



Other:
In this window you can make various basic system settings.

Alarm delay - Press the number to open a pop-up window where a new time in seconds can be set.
Button sound - Press the "Button sound" button to enable or disable button sound.
Relay function - Press the button to switch between Normally open and Normally closed.
Screensaver - Press the numbers to open a pop-up window where the new time in seconds, for the screensaver to be activated if no one presses the screen, can be set.
Brightness - Press the numbers to open a pop-up window where the screen brightness can be adjusted in percent.
Modbus RS485 config - Press this button to adjust the Modbus RS485 settings
Modbus TCP/IP config - Press this button to adjust settings for Modbus TCP/IP

Maintenance instruction:
The AGSS-500 system is normally maintenance free, but the unit should be checked regularly for proper operation. Should any alarm be generated that either cannot be remedied or errors that often recur, the system should be troubleshot to locate the cause of the error.

Carry out the following checks every three months:

- Check that the pressure displayed on the alarm panel is at the operating pressure set for the plant.
- Check that valves 6 & 8 are open and that main switch QH01 and safety switches QS01 & QS02 are in the ON/ON position.
- Check that the central unit performs the fan changeover correctly (see “Checking the operating side changeover of the vacuum fan”).

- Carry out the maintenance with the correct instruments and wrenches.
- All instruments used for maintenance should be clean and degreased.
- Wear safety goggles during maintenance.

- Maintenance shall only be carried out by technicians from QMT-Tech ab or technicians authorized by QMT-Tech ab.
- Spare parts shall be original parts from QMT-Tech ab.
- QMT-Tech ab disclaims all responsibility for maintenance and installations carried out by personnel who are not expressly authorized and qualified for the task.
- QMT-Tech ab disclaims all liability if spare parts other than original spare parts are used.
- Results from testing and maintenance shall be documented and stored after completion of the process.

- Products from Qmt-Tech ab must not, either during installation, service or operation, be exposed to temperatures exceeding 100°C. Should this happen, or if it is suspected that this has happened, the product must be replaced and the system decontaminated. In the event of fire, the affected section must be immediately separated and decontaminated before operation.
- Do not clean any parts on installation site as the cleanliness requirement cannot be validated.

- Do not install any QMT-Tech ab product if the sealing plugs are removed. The product may be contaminated and unsafe to install in medical gas systems.
- Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user is established.

Article number	Designation	Nr. Of
QMT7251831	Silencers for AGSS	1
QMT7221972	Ball valve Anesthesia	1

Manufacturer:	QMT-tech AB Amerikavägen 6 39354 Kalmar
Basic UDI-DI:	734020614MN
UDI-DI:	734026100047
Product name:	AGSS Power device 500 AGSS Power device 320
Article number:	QMT7AGSS500 QMT7AGSS320
Inlet pressure:	Max -0,135 bar (-13,5 kPa) vacuum
Accuracy pressure transducer:	≤±0,1 % FSO
Flow:	AGSS500 - 400 m^3/h (approx. 10 patient areas) AGSS320 - 200 m^3/h (approx. 5 patient areas)
Storage:	-20 till 60 °C dry indoors, all connections must be plugged
Operating condition:	-15 till 40 °C dry indoors
Size:	800 x 750 x 1400 mm (width x depth x height)
Weight:	Approx. 180 kg
Connecting pipe size:	50 mm (both inlet and outlet)
Technical service life:	20 years provided that maintenance is carried out in accordance with this information for use.

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Manufacturer:	QMT-tech AB Amerikavägen 6 39354 Kalmar
Basic UDI-DI:	734020614MN
UDI-DI:	734026100047
Product name:	AGSS Power device 500 AGSS Power device 320
Article number:	QMT7AGSS500 QMT7AGSS320
EMDN code	A0601010299

Complies with the requirements of:

MDR 2017/745	Klass IIa
EN ISO 7396-2	2007
EN 60601-1	2006
EN ISO 80601-2-13	2022
EN 62304	2007

CE *0044*

- All metals in the unit can be recycled, shall be handed over to an authorized recycling company.
- Rubber gaskets are handed over to an authorized recycling company.
- Teflon gaskets are handed over to an authorized recycling company.
- In normal use, the product is not contaminated by residues that are hazardous to health or the environment.

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