CTRL-HS

CE

aerauliqa®

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CTRL-HS INSTRUCTION

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Read this manual carefully before using the product and keep it in a safe place for reference. This product was constructed up to standard and in compliance with regulations relating to electrical equipment and must be installed by technically qualified personnel. The manufacturer assumes no responsibility for damage to persons or property resulting from failure to observe the regulations contained in this booklet.

1.PRECAUTIONS

- Make sure that the mains supply to the unit is disconnected before performing any installation, service, maintenance or electrical work!
- The installation and service of the unit and complete ventilation system must be performed by an authorized installer and in accordance with local rules and regulations.
- If any abnormality in operation is detected, disconnect the device from the mains supply and contact a qualified technician immediately.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- A wrong electrical wiring can cause damage to the fan and interfere with other electronic devices. In addition to the local safety requirements, please observe the following actions:
  - Separate the power and motor control cables by a minimum of 15cm (6 in);
  - Wire each single fan separately;
  - **The CTRL-HS can control up to 4 HVLS fans.**
- **It is recommended that each fan has a dedicated power supply switch since the setting of the Modbus address to one fan must be carried out when only one fan is connected to the Modbus network.**

2.INSTALLATION

Refer to the manual supplied in the control panel packaging or consult the website www.aerauliqa.com

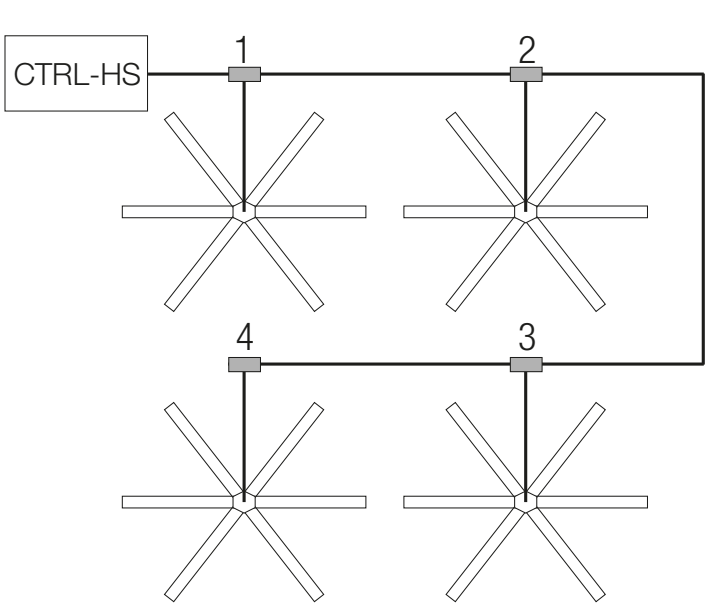
3.WIRING DIAGRAM

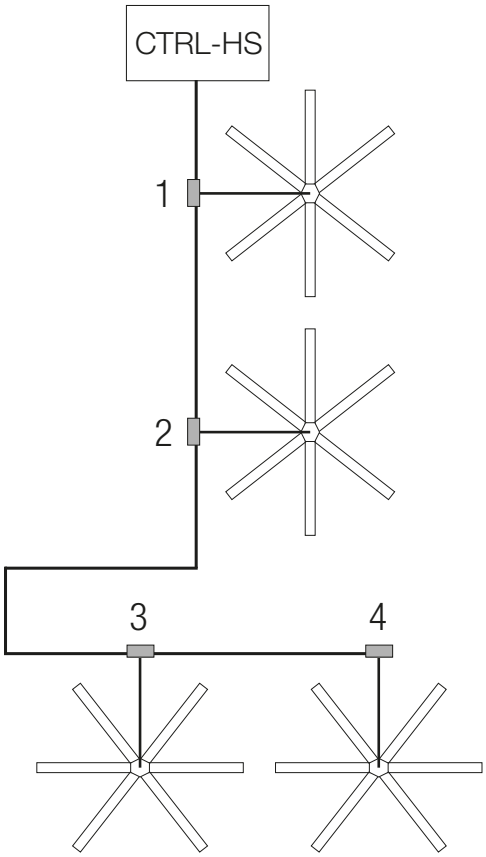
Refer to the manual supplied in the control panel packaging or consult the website www.aerauliqa.com

3.1 MODBUS NETWORK INSTALLATION (DAISY CHAIN)

- Use twisted pair cable type
- Minimum 24AWG (0,5mm) cable cross section.
- Run the wires as far away as possible from high voltage AC cables, fluorescent lights, arc welders, and other equipment that transmits EMI (electromagnetic interference).
- Do not run the twisted-pair cable in conduit with high voltage AC cables.
- Max length of the twisted-pair cable between each fan of the network: 120m (400ft)

If more fans (up to 4) need to be connected to one controller, the connection must have one beginning (CTRL-HS) and one end (last fan) as shown in the below images:





T junction

Fig. 1

If the fans are not connected as per Fig.1, there will be a degradation of the communication signal and the fan network may not function correctly.
Attention: each fan must have a unique Modbus address.
It is recommended that each fan has a dedicated power supply switch since the setting of the Modbus address to one fan must be carried out when only one fan is connected to the Modbus network.

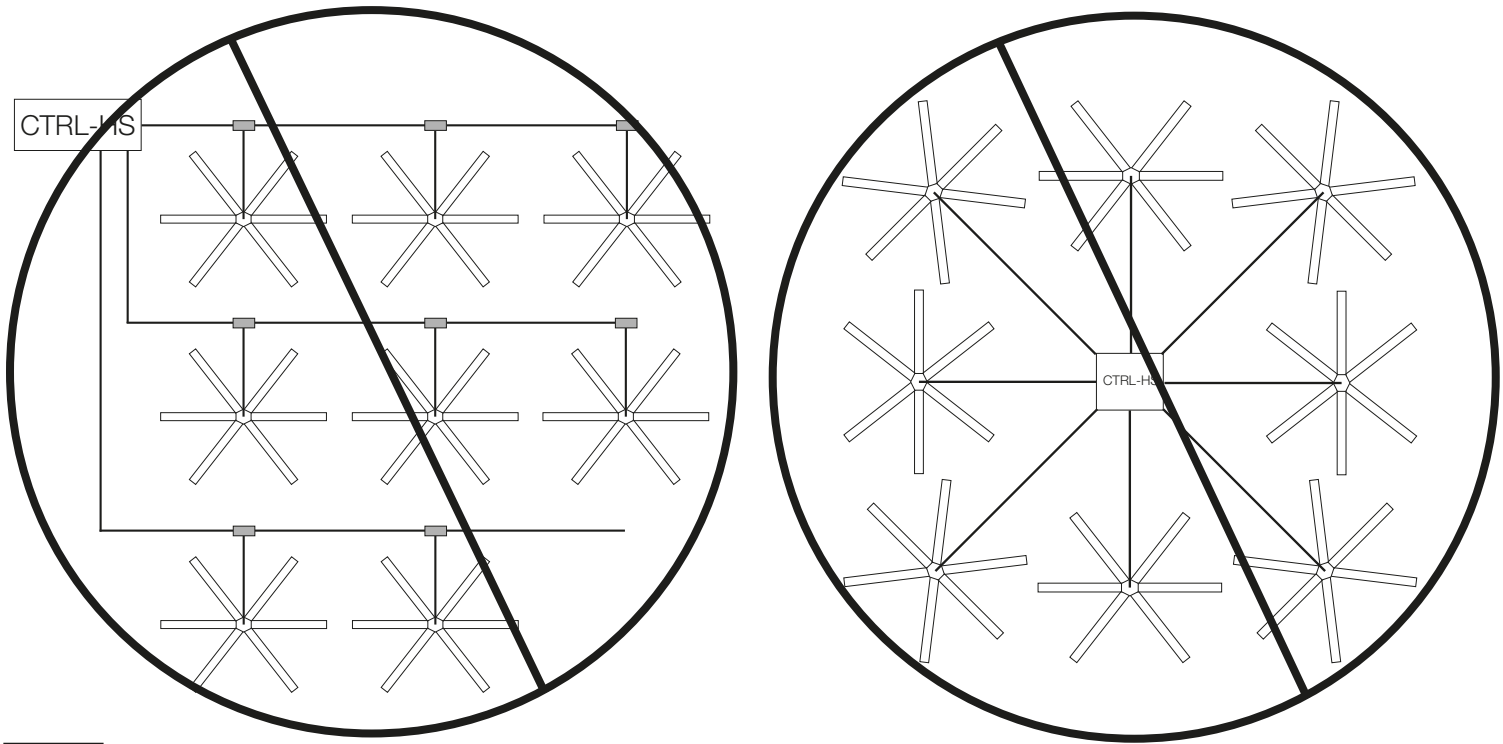


Fig. 2

To avoid any noise/interference in the communication signal, it is recommended that extra cable should not be coiled up and that there is no more than 0,6m (2ft) of excess cable at each connection point. If a longer cable is needed for future relocation of the fan, run the cable up toward the ceiling and back down in a horseshoe shape.

ALWAYS AVOID SHARP BENDS OF THE CABLE.

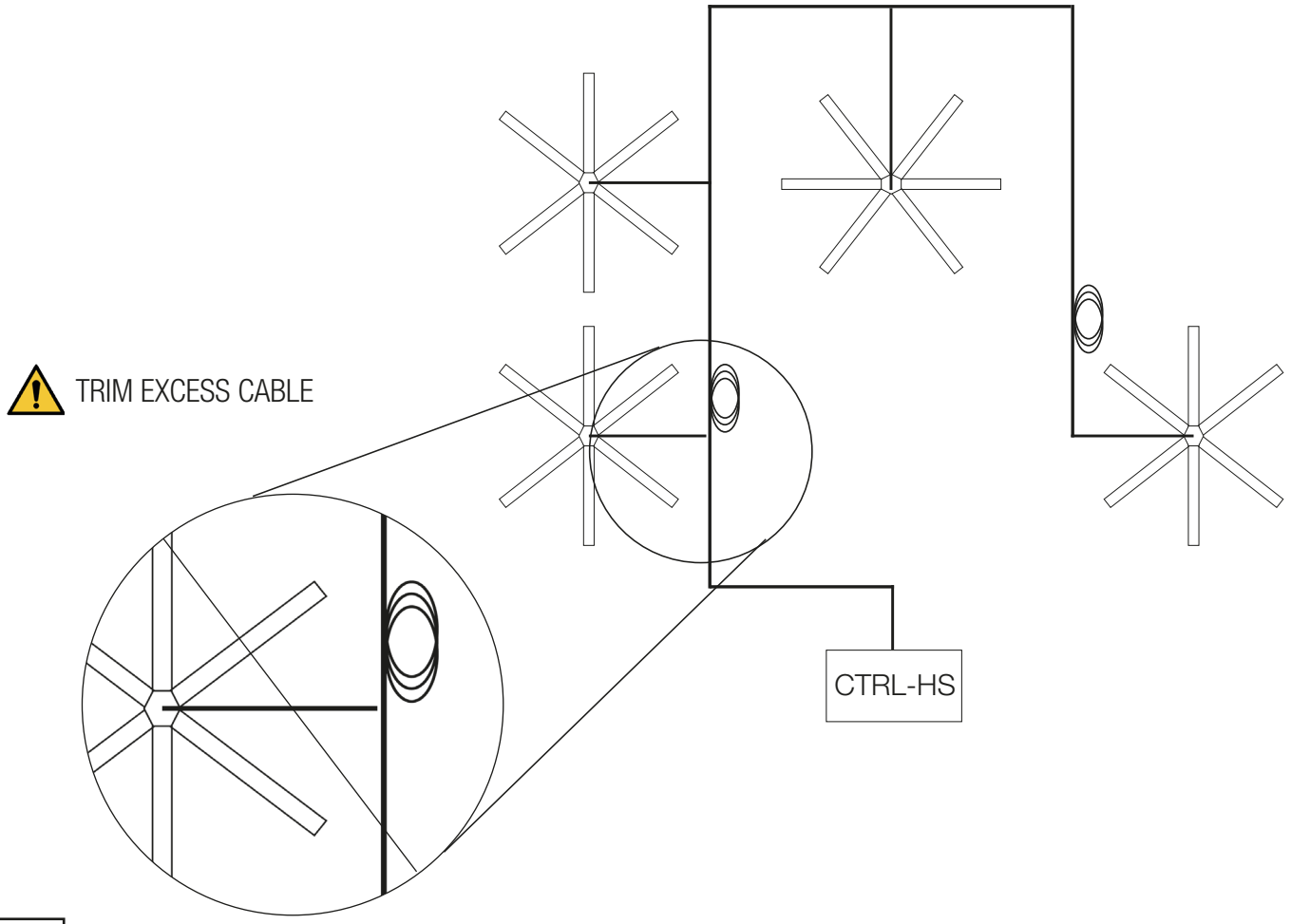
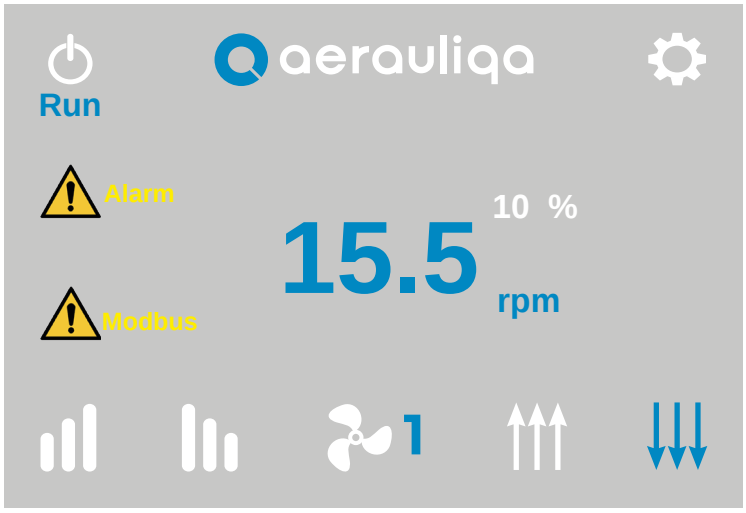


Fig. 3

4.OPERATION

4.1 HOME PAGE



Button	Description
	Selection between “Run” mode (fan rotates) or “Stop” (fans does not rotate)
	Fan settings (paragraph 4.5)
	Selection of the air flow direction (if available): touching the icons you can change the flow direction. The selected icon turns blue after few seconds.
	Fan selection: touching the icon the fan number can be selected
	Speed seeting: touching the symbols or the speed (%) of the selected fan increases or decreases. The actual motor speed is displayed (rpm). To set the speed limits, refer to paragraph 4.6
Modbus	Alarm Modbus: the symbol is displayed and blinks if one of the fans does not communicate on the Modbus network. Touching it, the “Alarm identification” screen of the faulty fan is accessed (paragraph 4.4)
Alarm	Alarm: the symbol is displayed if one of the fans has one or more alarms active. Touching it, the “Alarm identification” screen of the fan is accessed (paragraph 4.6)

4.2 SETTING OF THE LANGUAGE AND OF THE NUMBER OF THE FANS OF THE NETWORK

When the unit is powered on for the first time, the following screen is diplayed:

Button	Description
Language Set	Language selection (English or Italian or Spanish or Français)
Fans Set	Setting of the number of fans of the network up to 4 units
Ok	Confirm and access to the next screen

It is not possible to access the next screen without setting the number of fans of the network (from 1 to 4) .

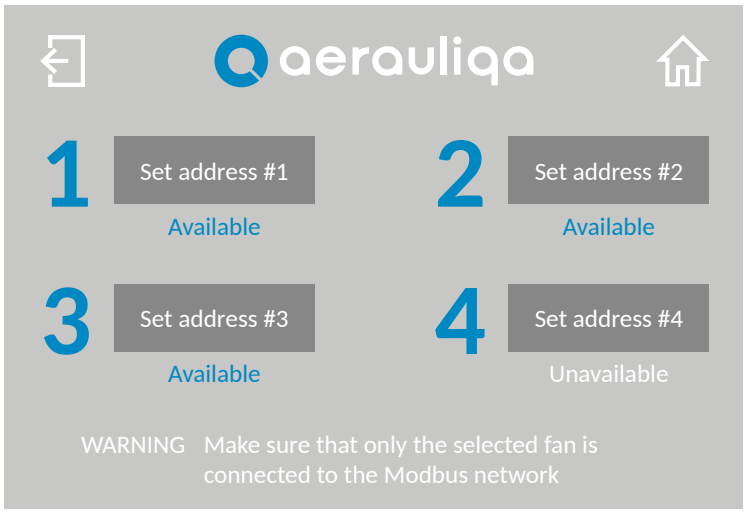
Touching the Ok button the following screen is accessed:

Button	Description
	Back to the previous screen
Select family #1	Family selection of fan #1
Select family #2	Family selection of fan #2
Select family #3	Family selection of fan #3
Select family #4	Family selection of fan #4
Select addresses	Access to the “Modbus address setting” screen (paragraph 4.3): in case of first connection, the Modbus address must be assigned to each fan of the system
Continue	Back to the Home Page

Touching the Select family button the following screen is displayed:

Button	Description
	Back to the previous screen
Select	Selection of the fan family
Confirm	Confirm and assignment of the fan family; repeat this operation for each available fan

4.3 SETTING OF THE MODBUS ADDRESS

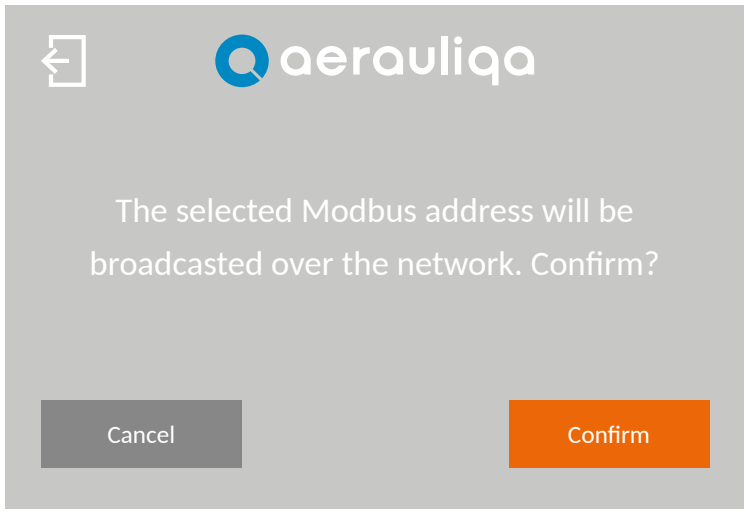


Button	Description
	Back to the previous screen
	Back to the Home Page
Set address #1	Setting of the Modbus address of fan #1
Set address #2	Setting of the Modbus address of fan #2
Set address #3	Setting of the Modbus address of fan #3
Set address #4	Setting of the Modbus address of fan #4

The Modbus address can be “Available” or “Unavailable” depending on the number of fans in the system (paragraph 4.2)

ATTENTION: To set the Modbus address to each fan, only the selected fan must communicate on the Modbus network. Therefore, it is recommended that each fan has a dedicated power supply switch.

If a fan with an available Modbus address is selected, the following screen is displayed:



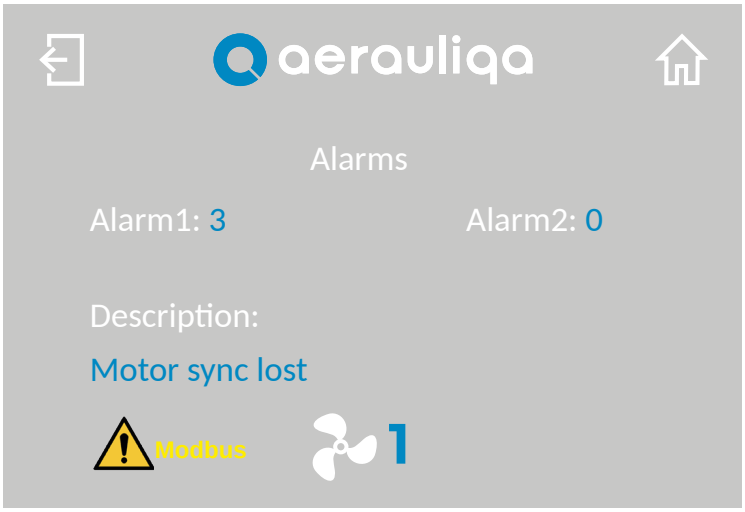
Button	Description
	Back to the previous screen
Confirm	Confirm and assignment of the Modbus address: repeat this operation for each available fan
Cancel	Cancellation of the operation and back to the previous screen

If a fan with an unavailable Modbus address is selected, the following screen is displayed:

Button	Description
	Back to the previous screen
Ok	Back to the previous screen

4.4 ALARM IDENTIFICATION

Touching the icon Alarm in the Home Page, the following screen is displayed:

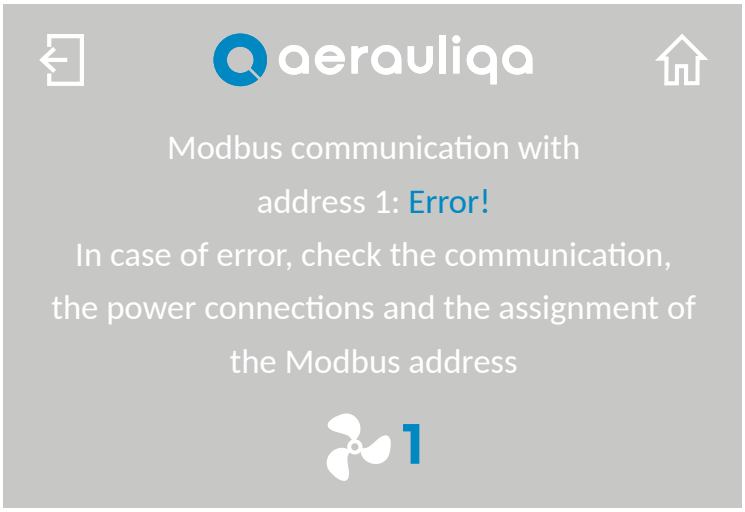


Button	Description
	Back to the previous screen
	Back to the Home Page
	Selection of the fan number
Modbus	Alarm Modbus: the symbol is displayed and blinks if one of the fans does not communicate on the Modbus network. Touching it the “Alarm identification” screen of the faulty fan is accessed

On the screen the motor Alarms 1 and 2 are displayed as well as the anomaly description.

ALARM 1 VALUE	ALARM 2 VALUE	LED BLINKS (single blink approx. duration)	ALARM DESCRIPTION POSSIBLE CAUSE	TROUBLESHOOTING
0	0	1 Blink/2s (1s)	No error	-
1	0	1 Blink/s (0.5s)	Memory error – motor parameters lost	Contact manufacturer/technical support
2	0	2 Blink/s (0.25s)	Short circuit – electronics power module damaged	Board damaged – Contact manufacturer/technical support
3	0	3 Blink/s (0.17s)	Motor synchronization lost – wrong motor parameters or electronics damaged	Check motor windings. If motor windings OK (all 3 windings have same resistance), contact manufacturer/technical support. If motor windings damaged (open/short circuit), replace motor
4	1	5 Blink/s (0.1s)	Supply voltage out of range 135Vac÷550Vac (DC bus voltage 190÷780V) only with motor still - not running	Check power supply voltage / check power supply wiring
4	32	5 Blink/s	Supply voltage above 565Vac (DC bus voltage over 800V) during motor running (instantaneous value)	Check power supply voltage / check power supply wiring
4	33	5 Blink/s	Supply voltage below 107Vac (DC bus voltage below 150V) during motor running (instantaneous value)	Check power supply voltage / check power supply wiring
4	34	5 Blink/s	“Restart on the fly” failed	The drive couldn’t catch the impeller – power cycle/retry
4	49	4 Blink/s (0.13s)	U phase voltage missing/disconnected (or wrong motor parameters)	Check power supply/wiring. If wiring OK, contact manufacturer/technical support
4	50	4 Blink/s	V phase voltage missing/disconnected (or wrong motor parameters)	Check power supply/wiring. If wiring OK, contact manufacturer/technical support
4	51	4 Blink/s	W phase voltage missing/disconnected (or wrong motor parameters)	Check power supply/wiring. If wiring OK, contact manufacturer/technical support
4	113	6 Blink/s (0.08s)	Electronics temperature over 85°C	Check if operating temperature is above rated maximum operating temperature. Check mechanical load for anomalies (e.g. difficult turning)
4	114	7 Blink/s (0.07s)	Motor windings temperature over 125°C	Check if operating temperature is above rated maximum operating temperature. Check mechanical load for anomalies (e.g. difficult turning)
4	115	no Blink	Short circuit on Pt100 motor temperature probe	Check temperature probe wiring – detects temperature probe manumission

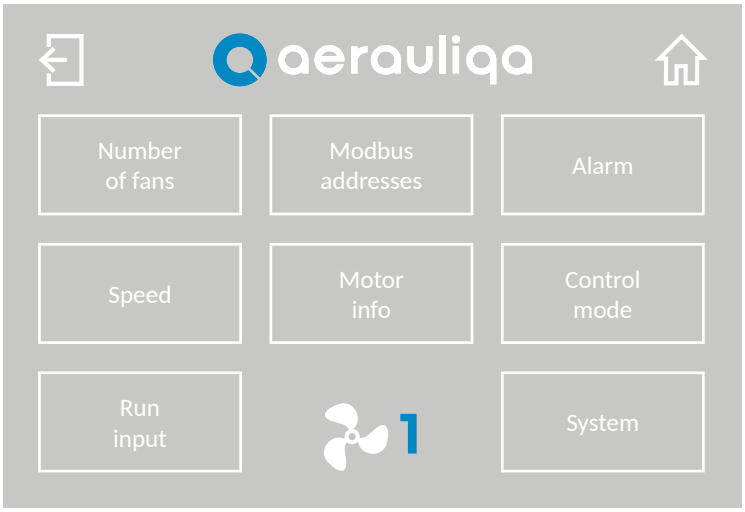
Touching the icon Modbus in the Home Page, the following screen is displayed:



Button	Description
	Back to the previous screen
	Back to the Home Page
	Selection of the fan number

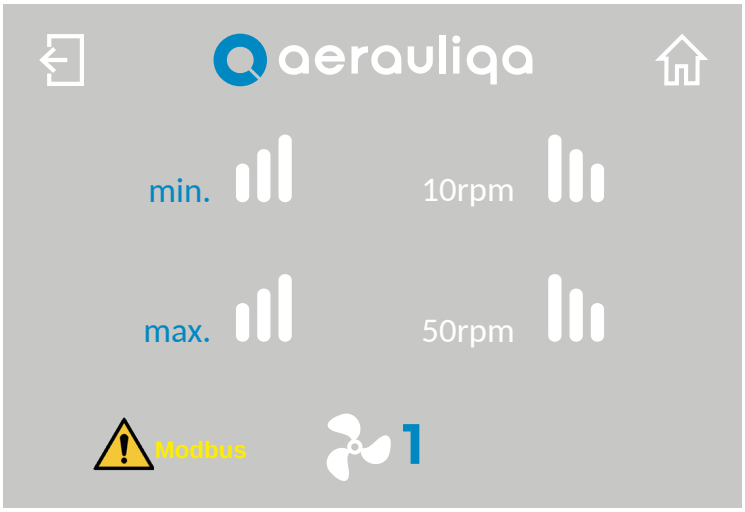
On the screen the wording “Error!” and the Modbus address of the faulty fan are displayed.
The instructions how to solve the problem is displayed.

4.5 SETTING



Button	Description
	Back to the previous screen
	Back to the Home Page
	Selection of the fan number
Number of fans	Setting of the number of fans of the network (paragraph 4.2)
Modbus addresses	Setting of the Modbus addresses (paragraph 4.3)
Alarm	Alarms identification (paragraph 4.4)
Speed	Setting of the speed limits (paragraph 4.6)
Motor info	Motor information (paragraph 4.7)
Control mode	Control mode setting (paragraph 4.8)
Run input	Setting of the run input (paragraph 4.9)
System	System information (paragraph 4.10)

4.6 SPEED SETTING



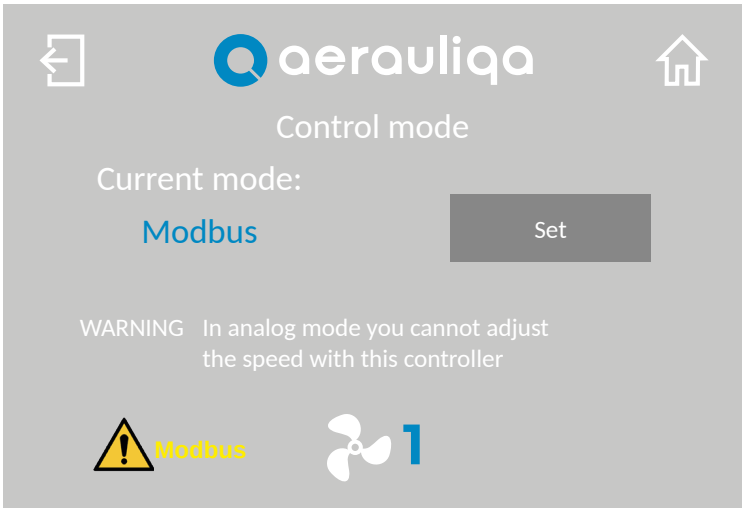
Button	Description
	Back to the previous screen
	Back to the Home Page
	Selection of the fan number
Modbus	Alarm Modbus: the symbol is displayed and blinks if one of the fans does not communicate on the Modbus network. Touching it, the “Alarm identification” screen of the faulty fan is accessed (paragraph 4.4)
min.	Setting of the minimum speed (from 10rpm): touching the symbols or the minimum speed value increases or decreases.
max.	Setting of the maximum speed: touching the symbols or the maximum speed value increases or decreases.

ATTENTION: to set the speed limits the fan MUST be stopped (not turning).

4.7 MOTOR INFORMATION

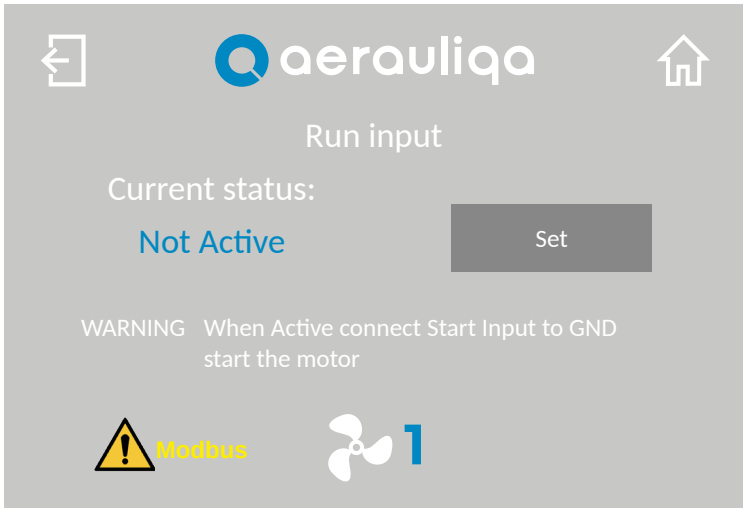
Button	Description
	Back to the previous screen
	Back to the Home Page
	Selection of the fan number
Modbus	Alarm Modbus: the symbol is displayed and blinks if one of the fans does not communicate on the Modbus network. Touching it the “Alarm identification” screen of the faulty fan is accessed (paragraph 4.4)
Run time	Run hour counter of the motor
Default set	Indication of the motor parameters

4.8 CONTROL SETTING



Button	Description
	Back to the previous screen
	Back to the Home Page
Set	Setting between Modbus or Analogic. In Analogic mode the fan speed and the Run/Stop mode can not be set with the CTRL-HS. Any other functionality remains active
	Selection of the fan number
Modbus	Alarm Modbus: the symbol is displayed and blinks if one of the fans does not communicate on the Modbus network. Touching it, the “Alarm identification” screen of the faulty fan is accessed (paragraph 4.4)

4.9 RUN INPUT SETTING



Button	Description
	Back to the previous screen
	Back to the Home Page
Change	Run Input contact activation: if active, Start Input of the motor connector must be connected to GND to start the rotation
	Selection of the fan number
Modbus	Alarm Modbus: the symbol is displayed and blinks if one of the fans does not communicate on the Modbus network. Touching it, the "Alarm identification" screen of the faulty fan is accessed (paragraph 4.4)

4.10 SYSTEM INFORMATION

Button	Description
	Back to the previous screen
	Back to the Home Page
Firmware	Firmware information
Language Set	Language selection (English or Italian or Spanish or Français)
Buzzer Set	Setting of the buzzer: can be "on sensitive", "no beep" or "everywhere"
Backlight Set	Setting of the backlight: can be always "on" or turn-on "time". Backlight timeout is set 60 seconds at factory (fixed time)
Password	Setting of the password (paragraph 4.10.1) Factory default set: disabled

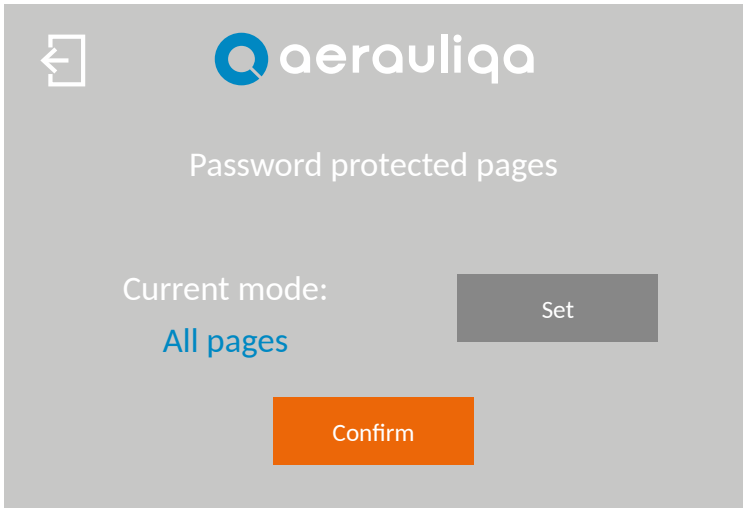
4.10.1 PASSWORD

Button	Description
⎋	Back to the previous screen
Set	Setting of the password (insert numbers only, from 1 to 9999)
Scope	Choose whether to protect “All pages” or “Setting pages” only
Disable	Disable the password

Touching the Set Password button, the following screen is displayed:

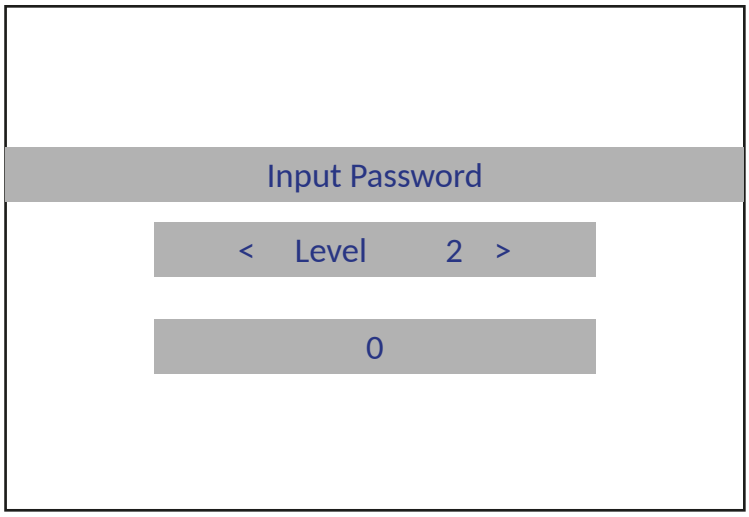
Button	Description
⎋	Back to the previous screen
0	Enter the password twice
Confirm	Press to confirm / enable the password

Touching the Password Scope button, the following screen is displayed:

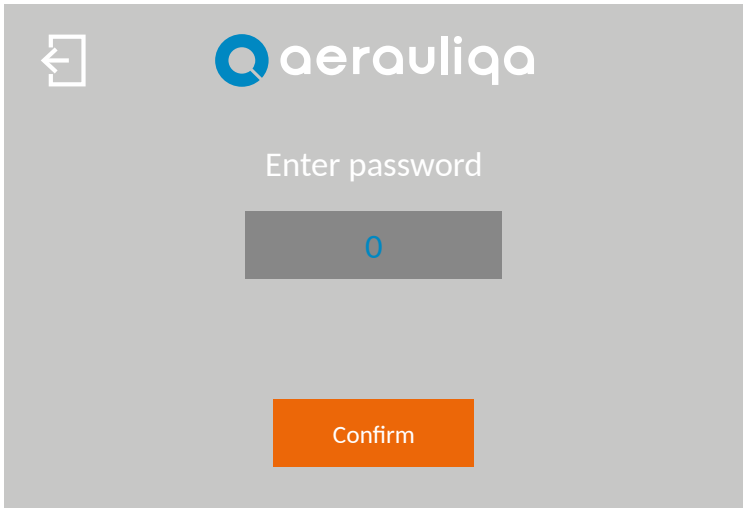


Button	Description
	Back to the previous screen
Set	Selection of the pages to be protected between “All pages” or “Setting pages”
Confirm	Press to confirm

If the password is enabled, when needed, the following screen is displayed:
Enter the correct password to continue.
If the screen does not change, verify the password and try again.
If you have forgotten the password, call the customer’s service.



Touching the Disable Password button, the following screen is displayed:



Button	Description
	Back to the previous screen
0	Enter the password
Confirm	Press to disable the password