

Installation Instructions for the TBLZ-3-66 control box. for controlling two air handling units (Twin Function) GOLD RX 04-120

1. General

The TBLZ-3-66 accessory is a control system incorporated into a control box. The control box is designed for installation in connection with GOLD RX air handling units (Version E/F).

Communication cables for Modbus communication should be connected between the control box and the GOLD air handling units.

The control box can be wired to a BMS via the Ethernet. The control box contains a PLC system and the front panel of the box has a control terminal with touch screen. The touch screen is used for entering settings and viewing readings for common functions.



2. Application area

The TBLZ-3-66 control box is a control system for controlling two parallel GOLD air handling units. One GOLD air handling unit is selected as the Master, and the other unit is selected as the Slave.

The control box transmits set points to both air handling units. These set points then control each unit separately. If the air handling units are to be regulated on a VAV basis and the duct pressure is to be kept constant, connect a standard pressure sensor to the GOLD unit that operates as the Master. The pressure readings are transmitted via the communication system to the control box and are processed there. This also applies to the external room temperature sensor and the CO₂ sensor, if one is used in the system.

Conditions

Parallel control is possible for the size 04–120 GOLD RX air handling units.

The GOLD air handling units involved must be of the same size.

The air handling units are considered parallel if they are connected to a common duct system.

Both air handling units must be equipped with the same accessories, such as an air heater, air cooler, dampers, etc.

3. Installation

The control box should be installed in connection with the GOLD unit selected as the Master.

It is advantageous if the control box touch screen and the hand-held micro terminal of the Master AHU are located in such a way that they can be operated and supervised

from the same place.

4. Technical data

Enclosure class	IP 66
Ambient temp.	0 - +50°C
at relative humidity	5 - 85% (non-condensing)
Weight	7 kg
Dimensions	380x300x220 (WidthxHeightxDepth)

5. Electrical connections

The electrical connections should be wired by a qualified electrician in accordance with local electrical safety regulations.

The supply voltage to the control box must be single-phase, 230 V, and the cable conductors must be connected to wiring terminals 101 (L) and 102 (N).

The control box must be connected to the control circuit card of the GOLD air handling unit with twisted-pair, shielded communication cables. Communication is conducted via Modbus RTU and the control circuit card of the control box is the communication Master.

The following wiring terminals must be connected as specified below:

Terminal in control box Terminal in GOLD unit

401	2 in the Master AHU
402	1 in the Master AHU
403	2 in the Slave AHU
404	1 in the Slave AHU

6. Commissioning

Energize the control box and both GOLD air handling units.

Set the Modbus addresses for communication in both GOLD units.

In the hand-held micro terminal, scroll to Communication under Functions.

Select EIA-485 and check under Protocol that Modbus is selected.

Scroll to Settings and set the following parameters:

Modbus ID 1 for the Master AHU (AHU 1) and Modbus ID 2 (AHU 2) for the Slave AHU.

The Baud rate should be 38,400; the parity should be "Even"; Stop bits should be 1. This applies to both GOLD air handling units.

Start the GOLD units via the hand-held micro terminal of each air handling unit.

7. Description of functions

The ordinary control circuit card in the GOLD air handling units controls its respective functions, but obtains set points for certain functions of the control circuit card in the control box.

The type of temperature and fan regulation to be used can be selected on the touch screen of the control box.

Set the time and schedule in the hand-held micro terminal of the GOLD air handling unit serving as functional Master.

The settings in the Master AHU are automatically copied over to the Slave AHU.

7.1 Temperature regulation:

ERS, Supply air and Extract air/Room regulation

ERS, supply air and extract air regulation are controlled in each GOLD unit. The settings in the control box are automatically transmitted over to the air handling units. If room sensors are used for room regulation, this is activated in the Master unit.

Set the set points for ERS regulation in the Master AHU (AHU 1).

7.2 Fan regulation

Flow regulation

The total flow set on the control box touch screen is split equally and is transmitted to the flow controllers of the GOLD air handling units. The air handling units are then automatically set for flow regulation.

Pressure regulation

The pressure regulation controller is located inside the control box. The pressure controller controls how the air handling units operate by transmitting flow set points to both GOLD air handling units. The control circuit cards of the air handling units maintain constant airflow in both air handling units. The air handling units are automatically set for flow regulation.

The standard pressure sensor of the GOLD units are used as duct pressure sensors in the common ducts. The duct pressure sensors are connected to the Master AHU's connections marked COM 1-3.

The control box controller receives pressure values from the Master AHU via the communication system.

Demand control

If demand control is used, the Master AHU's extract air fan is controlled via signals on wiring terminals, inputs 18-19. The supply air fan of the Master AHU is controlled in response to the extract airflow as a Slave. The Slave AHU copies the current flow regulation values and set points from the Master air handling unit. The air handling units are then automatically set for their respective functions.

8. Touch screen and menus

8.1 Touch screen symbols

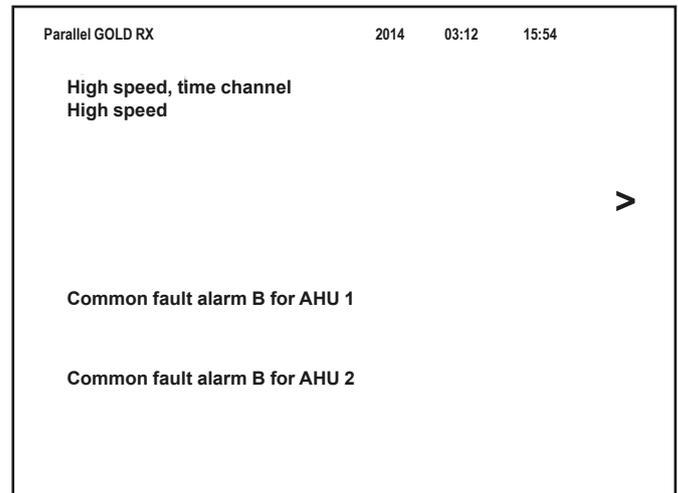
- < Used for scrolling back to the previous menu
- > Used for scrolling ahead to the next menu
-  Used for navigating to the main menu

Press on the relevant action bar pull-down menu or text box to change a function or a value. The value can then be changed by selecting a new function, or by entering a new value on the keyboard.

8.2 Menus in the touch screen

8.2.1 Main menu

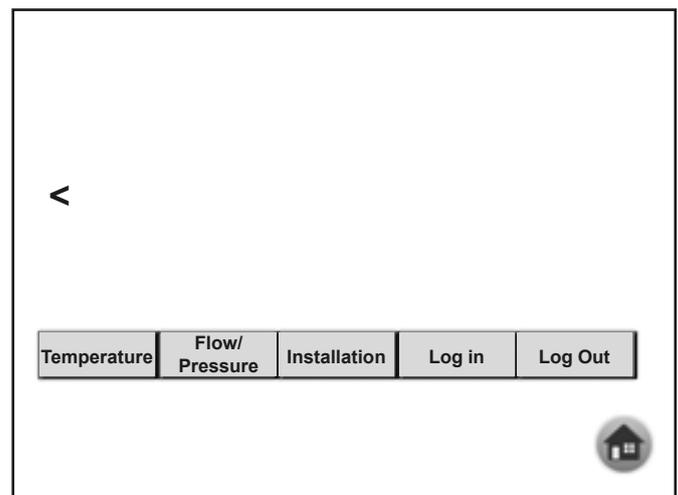
The uppermost text line shows the type of air handling unit, date and time of day.
 The second line shows the current operational status of the Master air handling unit.
 The third line shows the current operating mode of the Master air handling unit, according to Time and schedule.
 Possible common fault alarms are displayed. Alarms are displayed as common fault alarm A or B and specify which air handling unit it refers to.



8.2.2 Settings menu

The buttons and touch screen are used for scrolling ahead to the desired function/menu image.

- Temperature:** Reading/setting temperatures.
The entering of settings requires that you log in.
- Flow/Pressure:** Reading/setting flows/pressures.
The entering of settings requires that you log in.
- Installation:** Selection of temperature and flow functions. The entering of settings requires that you log in.
- Log in:** Opens the Authorization level. Requires that you enter a code.
- Log out:** Manual log out.
Closes the Authorization level.



8.2.3 Temperature

In order to be able to change the set points The operator must log in, See Section 8.2.6.

The appearance of the menu varies depending on the type of regulation selected. Extract air/room regulation is shown in the menu to the right.

The current temperatures can be viewed and set here. For reading current temperatures in the Master unit (AHU 1) and Slave unit (AHU 2).

The first value for SA shows the current supply air temperature of each air handling unit, the second value shows the current supply air set point of each air handling unit. The first value for EA shows the current extract air temperature of each air handling unit, the second value shows the current extract air set point.

The values for OUTDOORS shows the current outdoor temperature of the relevant air handling unit.

The values for Room 1-4 show the Master AHU's room temperature reading.

The room set point is displayed.

The temperature set points as well as the min. and max. limiting can be changed.

Temperature	AHU 1		AHU 2	
SA	14.76 °C	/ 14.00 °C	14.75 °C	/ 14.00 °C
EA	22.62 °C	/ 20.00 °C	22.18 °C	
Outdoor	12.37 °C		12.50 °C	
Room 1	20.19 °C			
Room 2	21.18 °C			
Setp. Roo	20.00 °C			
Temperature set points				
EA/Room	20.00 °C			
Min. limit.	14.00 °C			
Max. limit.	30.00 °C			

Extract air/Room regulation.

8.2.4 Flow/Pressure

In order to be able to change the values, the operator must log in. See Section 8.2.6.

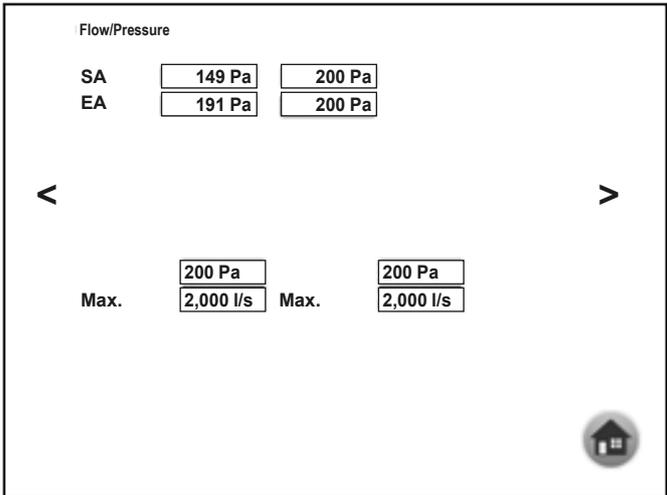
The appearance of the menus varies depending on the type of regulation selected. Pressure regulation and flow regulation are shown in menus to the right.

The flows and pressures of immediate importance can be viewed and set here.

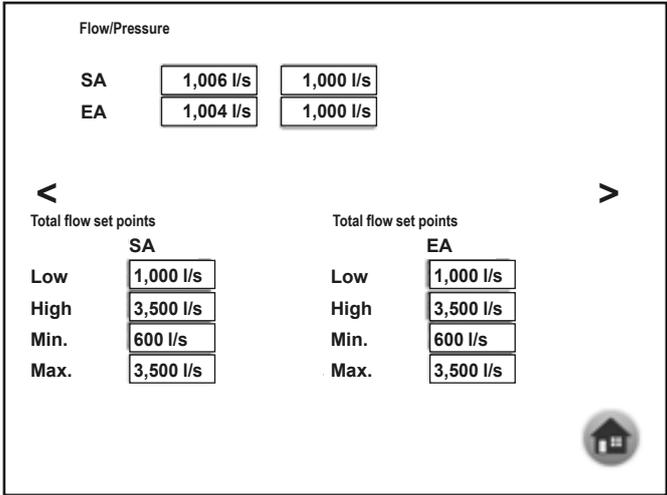
The first value for SA/EA shows the current pressure or flow; the second value shows the current pressure set point or flow set point.

If the AHU is operating in the flow regulation mode, the min. and max. flows (total min. and max. flows) are specified; if the AHU is operating in the pressure regulation mode, only the max. flow is specified. The AHU's possible min. and max. flows can be found in the Operation Level section of the Operation and Maintenance instructions for the GOLD air handling unit or in the hand-held micro terminal's help texts under Functions/Airflow.

If flow regulation is used, the control system of the control box splits the total airflow into two equal airflows and transmits the set points to each air handling unit. The total airflow is displayed.



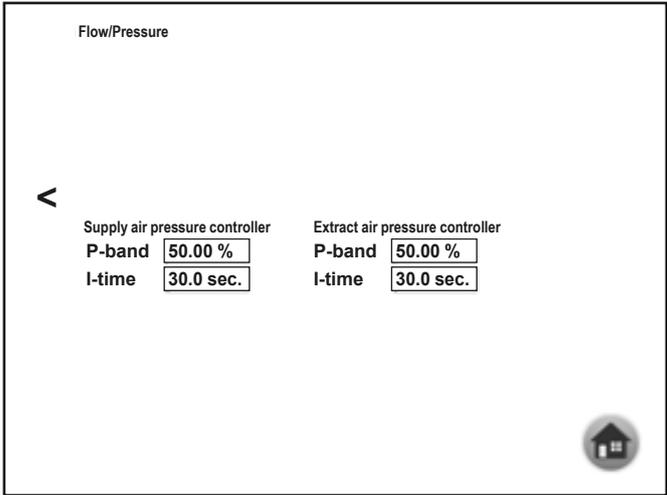
Pressure regulation



Flow regulation

Pressure regulation

The P-band and I-times can be viewed and set here when the AHU is operating in the pressure regulation mode.



Pressure regulation

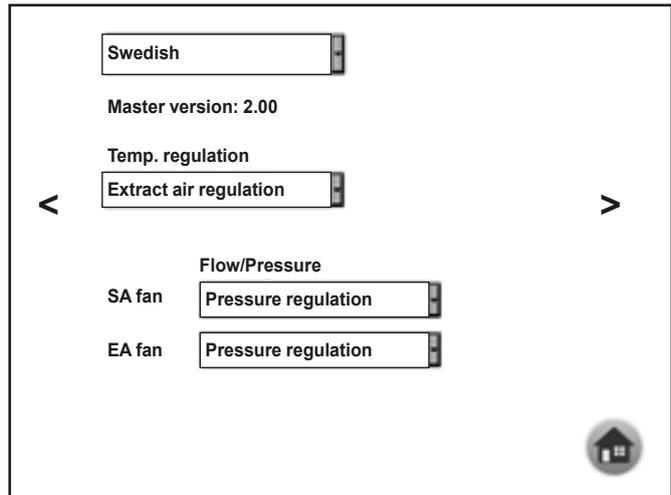
8.2.5 Installation

The language setting can be changed without having to log in..

In order to be able to change the functions for temperature or flow/pressure regulation, the operator must log in. See Section 8.2.6.

Selection of temperature regulation and/or flow/pressure regulation

The form of regulation for temperature regulation or flow/pressure regulation can be selected in the action bar pull-down menu..



To set the communication means with the main control system

The function must be initiated in the touch screen. After initiation, alterations can be carried out both in the touch-screen as well as on the web page.

Touch screen

Initiation:

Press on ">" under the installation menu for access.

Press on "Read IP-address". Then the IP-address, subnet mask and gateway is read to the touch screen.

Web page

Access:

Fill in IP-address/start.html in a web browser (e.g. 192.168.1.10/start.html).

Touch screen and web page

Alterations:

Press on ">" under the installation menu for access.

Enter the IP address, subnet and gateway if applicable.

Press on "Update IP-address".

If the IP-address in the PLC system has been altered, the communication settings in the touch screen must also be altered. This is due to that the communication between the PLC system and the touch screen is carried out via Ethernet.

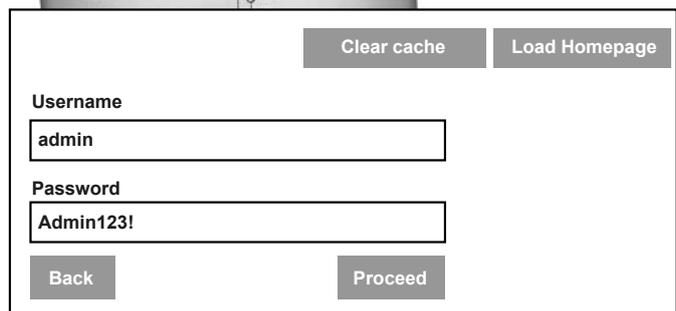
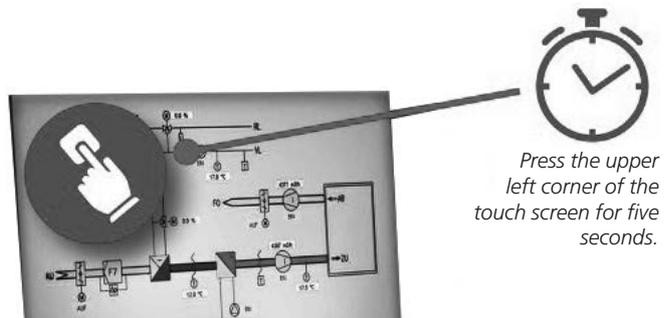
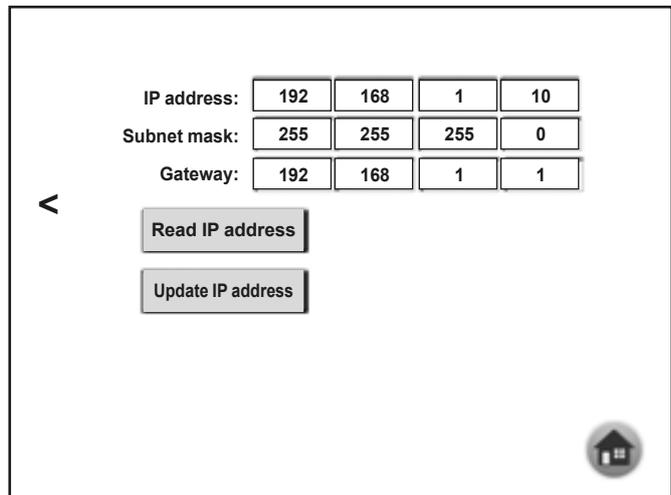
In order to log in to the settings page and alter the communication settings, press the upper left corner of the touch screen for five seconds. Then the log in page will be displayed.

Write Username and Password as below.

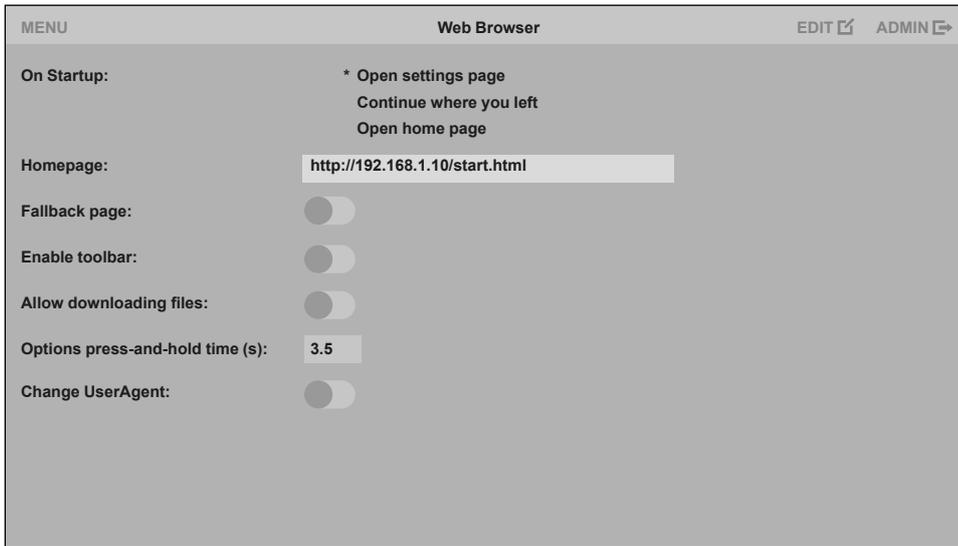
Username: admin.

Password: Admin123!

NOTE! The password can not be removed or reset if it has been forgotten or altered. In these cases, the touch screen has to be reset via a retailer.



After logging in, the menu below appears:



Perform the steps below to change your browser settings:

1. Press "EDIT" in the top right-hand corner.

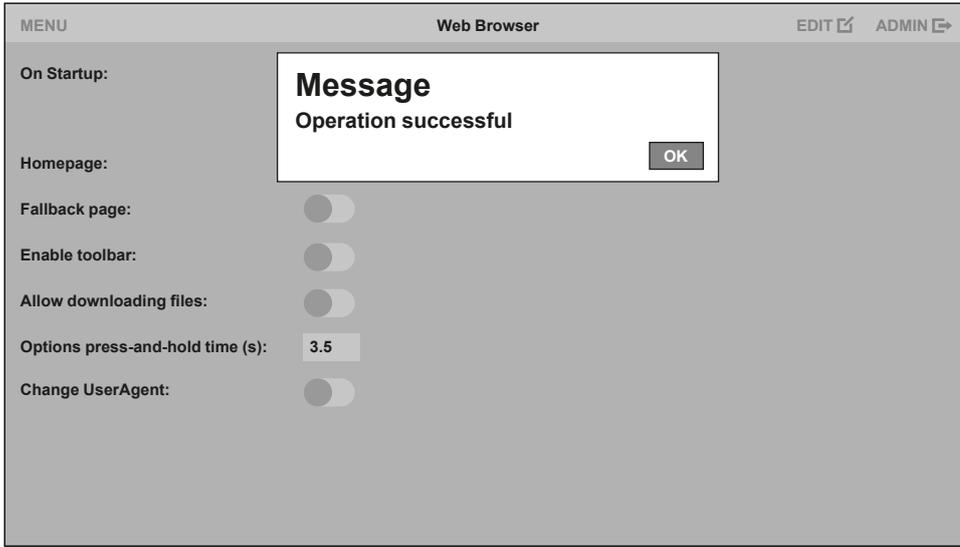
The menu below then appears:



2. Change the preset address: `http://192.168.1.10/start.html` to the same IP address as in the PLC system and press "SAVE".

Note: Change only the IP address, nothing else should be changed.

The message below will appear:

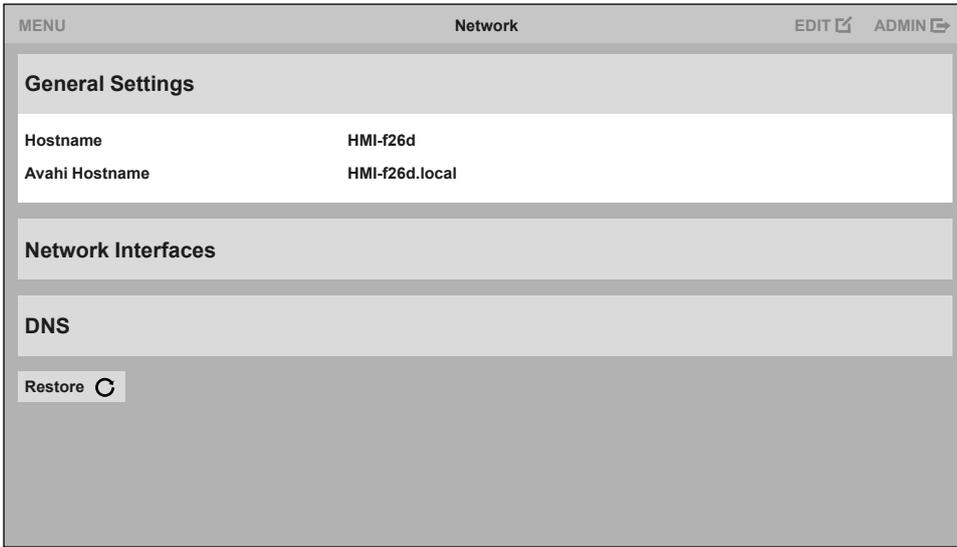


3. Acknowledge the message by pressing "OK".
4. To change the IP address on the touch screen, press the "MENU" button in the top left-hand corner. The menu below then appears:

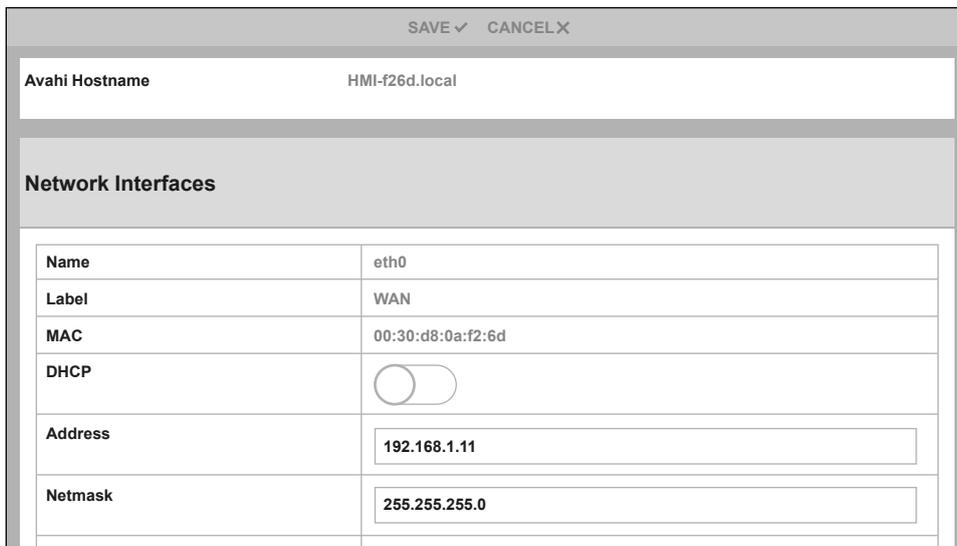
System Settings
Language
System
Logs
Date & Time
Network
Management
Display
Fonts

5. Press "Network".

The menu below then appears:



6. Press "EDIT" in the top right-hand corner and then press on "Network Interfaces". The menu below then appears:



7. Change the IP address to an IP address that is in the same number range as the IP address in the PLC system. Now press "SAVE". A message indicates that the change has been saved. Keep in mind that both the PLC system and the touch screen will be on the network with a fixed IP address, which must be excluded from DHCP assignment.

8. When changes have been made, the touch screen must be restarted.

Press "MENU" in the top left-hand corner. The following menu will then appear.

System Settings
Language
System
Logs
Date & Time
Network
Management
Display
Fonts

9. Scroll down to "EXIT" (at the bottom of the list). Press "EXIT". Then restart the touch screen by disconnecting the power.

8.2.6 To log In/Out

In order to obtain authorization for making changes in the temperature and flow regulation functions, you must log in.

Enter "user" in the box for entering user and "1111" in the box for entering password. The login symbol will then change from a lock symbol to a house symbol. Press on the house symbol to log in.

Your authorization will last for 5 minutes; then you will be automatically logged out.

To log out manually, press on "Log Out".

