INSTALLATION, OPERATING AND MAINTENANCE

CHILLER AND FANCOIL CONTROL

HYDROCONTROL

LENNOX

HYDROCONTROL

Installation, operating and maintenance

Ref : HYDROCONTROL-IOM-1804-E

Safety codes & regulations

THE DISPLAY MUST BE INSTALLED IN ACCORDANCE WITH LOCAL SAFETY CODES AND REGULATIONS.
PLEASE READ CAREFULLY THE MANUFACTURER'S INSTRUCTIONS BEFORE STARTING THIS DISPLAY.

Version concerned

The following manual is only valid for version higher or equal to 11.7 of LennoxHydrocontrol display. In case of Chiller connected to the LennoxHydrocontrol the version of Chiller control must be higher than Ch60 v2r3.3 or eCH v0r2.2

WARRANTY

The warranty of the display is subject to the warranty definitions as agreed upon in the order.
It is expected that the design and installation of the display utilises good working practices.
The warranty will be legally null and void if:
• *Modifications have been made to the equipment without prior written permission by LENNOX.*
• *Settings and protections have been modified without prior written permission by LENNOX.*
• *The equipment has not been installed and/or connected in accordance with the installation instructions.*
• *The equipment is being used improperly, incorrectly, negligently or not in accordance with its nature and/or purpose.*
In these circumstances LENNOX is indemnified from any product liability claims from third parties.

Abbreviations

The following abbreviations are used in this document
. HMI = LennoxHydrocontrol display
. FCU = FanCoil units

WARNING - All the technical and technological information contained in this manual, including any drawing and technical descriptions provided by us, remain the property of LENNOX and must not be utilised (except in operation of this product),reproduced, issued to or made available to third parties without the prior written agreement of LENNOX. The technical information and specifications contained in this manual are for reference only. The manufacturer reserves the right to modify these without warning and without obligation to modify equipment already sold.

Technical features

The HMI is a touch-sensitive screen LCD display. It is managing up to 32 FCU. This display can also be connected to 1 Chiller which allows to managed the working mode changeover and the water temperature. The HMI is able to control up to 9 different schedules.

Six languages are supported by the HMI

- English
- French
- Italian
- Spanish
- German
- Portuguese

The HMI uses 24Vac 50/60Hz power supply. In case of power failure the HMI will use its supercapacitor for internal memory.
2 entire days are necessary to fully charge the supercapacitor

The HMI is compatible with the LENNOX Chillers with a version higher than Ch60 v2r3.3 or eCH v0r2.2 and the FCU mounted with the CTRL2303D4A-BDC controller. It can be used even if the FCU already have a connected thermostat.

Dimensions & weight

The following table indicates the dimensions and the weight of the HMI:

Device	Height (mm)	Width (mm)	Thickness (mm)	Weight (g)
HMI	142	208	35	460

Compatibility

The HMI offers a web access via an Ethernet connection using a web browser.
The connection between HMI and FCU uses the MS/TP BACnet protocol.
The HMI can be connected to the FCU even if a thermostats is already connected.

Opening the HMI

To access the wiring and fixing area you have to open the HMI on the top of the device and spin the screen. /!\ The display is screwed to the black case.

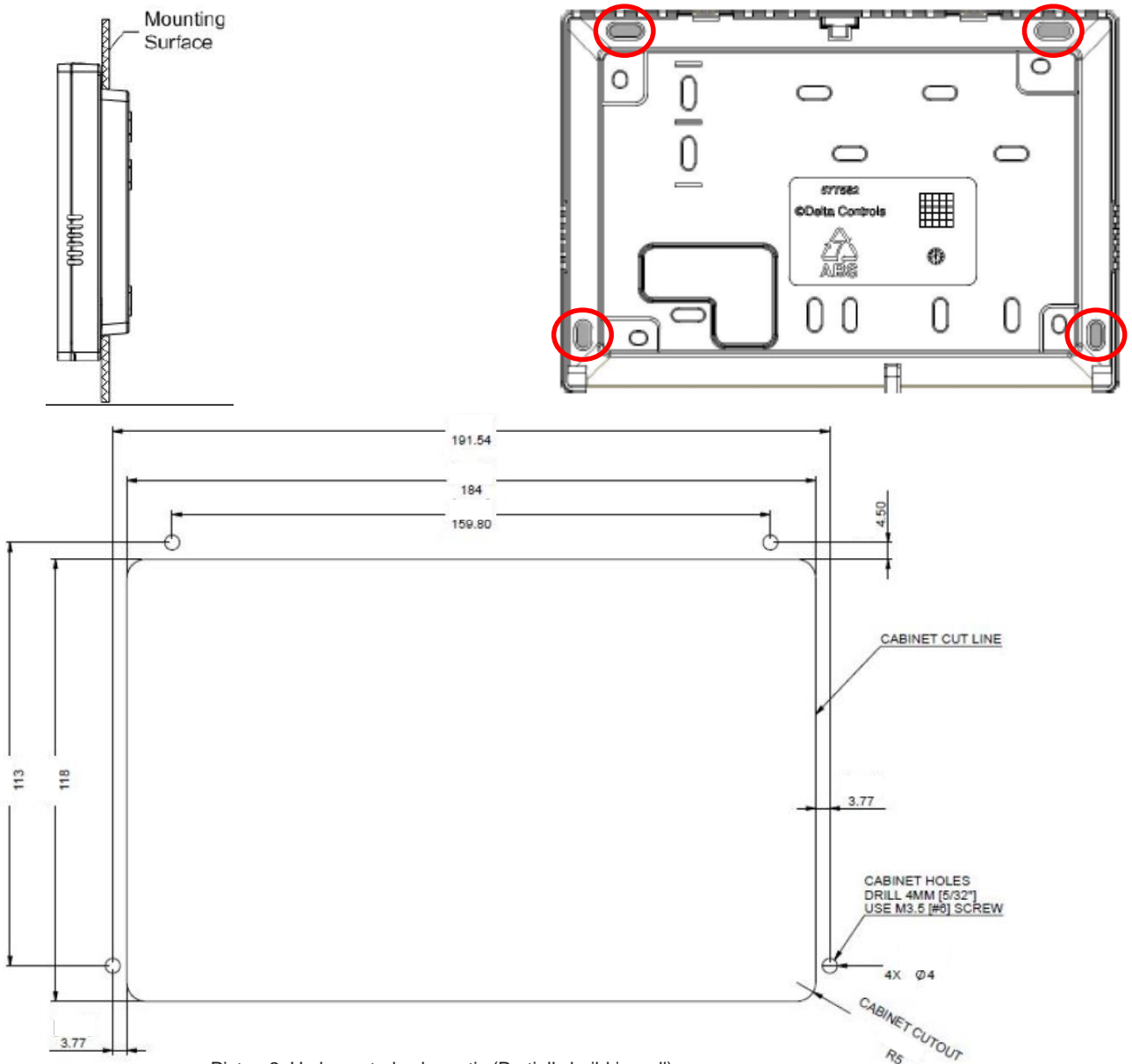
Picture1: Top view of the Hydroctonrol

Fastening

The HMI is a wall mounted display. To fasten the HMI on a wall we recommend to use the dedicated holes at the back of the device.

There are two possibilities to fasten the HMI.

1. Partially build in the wall
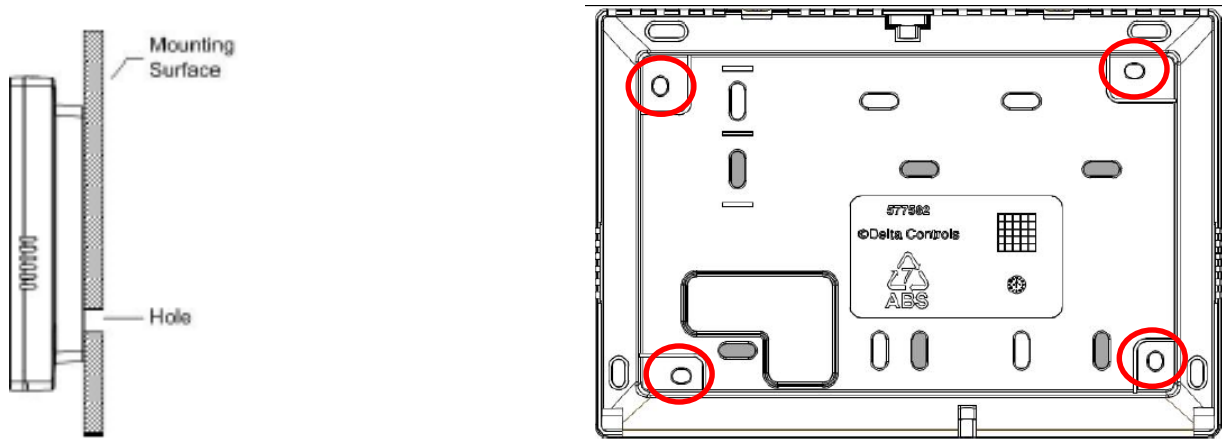   - Cut a hole into the surface
   - Mount the HMI using the 4 outside mounting holes

Picture2: Hydrocontrol schematic (Partially build in wall)

2. On a wall

    Place the HMI on the wall and mark at least 4 points for screws and the hole for electrical wirings

    Cut the hole for wiring and drill screw holes

    Mount the HMI on the surface

Picture3: Hydrocontrol schematic (On a wall)

Wirings

Two different connections are necessary. But some other can be added in case of option

1. Power supply connection

    The 24Vac 50/60 Hz power supply is required and has to be connected in the following pins: See picture index 1

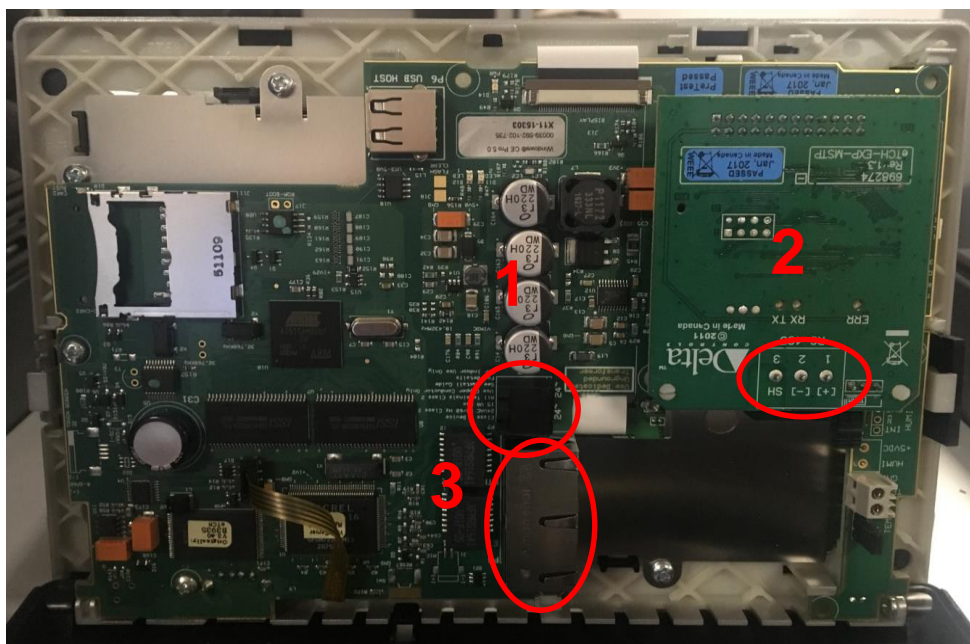2. BACnet MS/TP connection

    Connect the BACnet MS/TP network to the dedicated pins. We recommend to use shielded twisted pair cable. The daisy-chain connection is required. (star and ring connections are forbidden): See picture index 2

    Chiller connection (Option)

    In case the HMI is also connected to the Lennox chiller, The BACnet MS/TP communication card (S/n: (EL)4770643E) is required on the controller of the chiller.
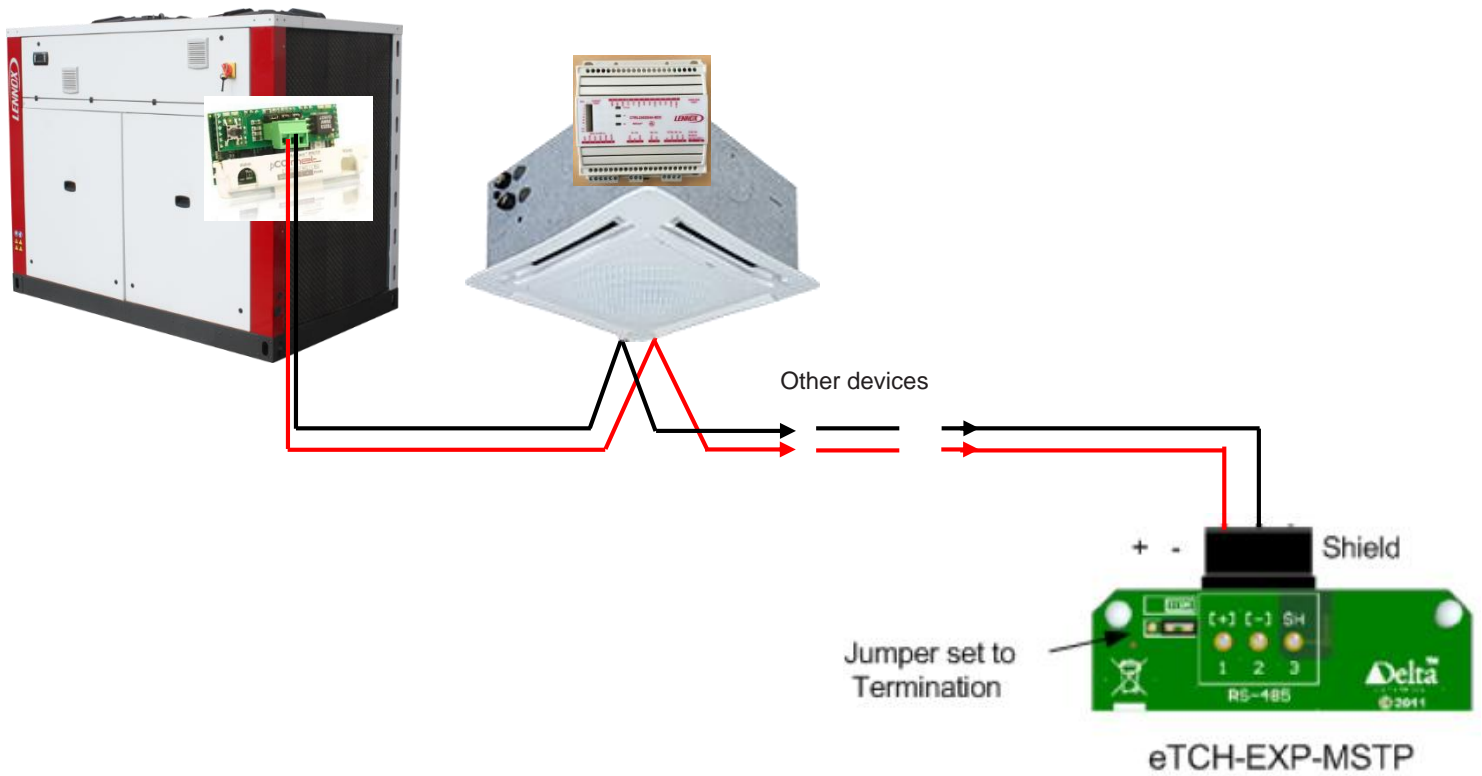
3. Ethernet connection (Option)

    The HMI offers the possibility to be a web server. This means the display is also accessible via internet. You can connect the HMI to your network using the RJ45 cable. See picture index 3
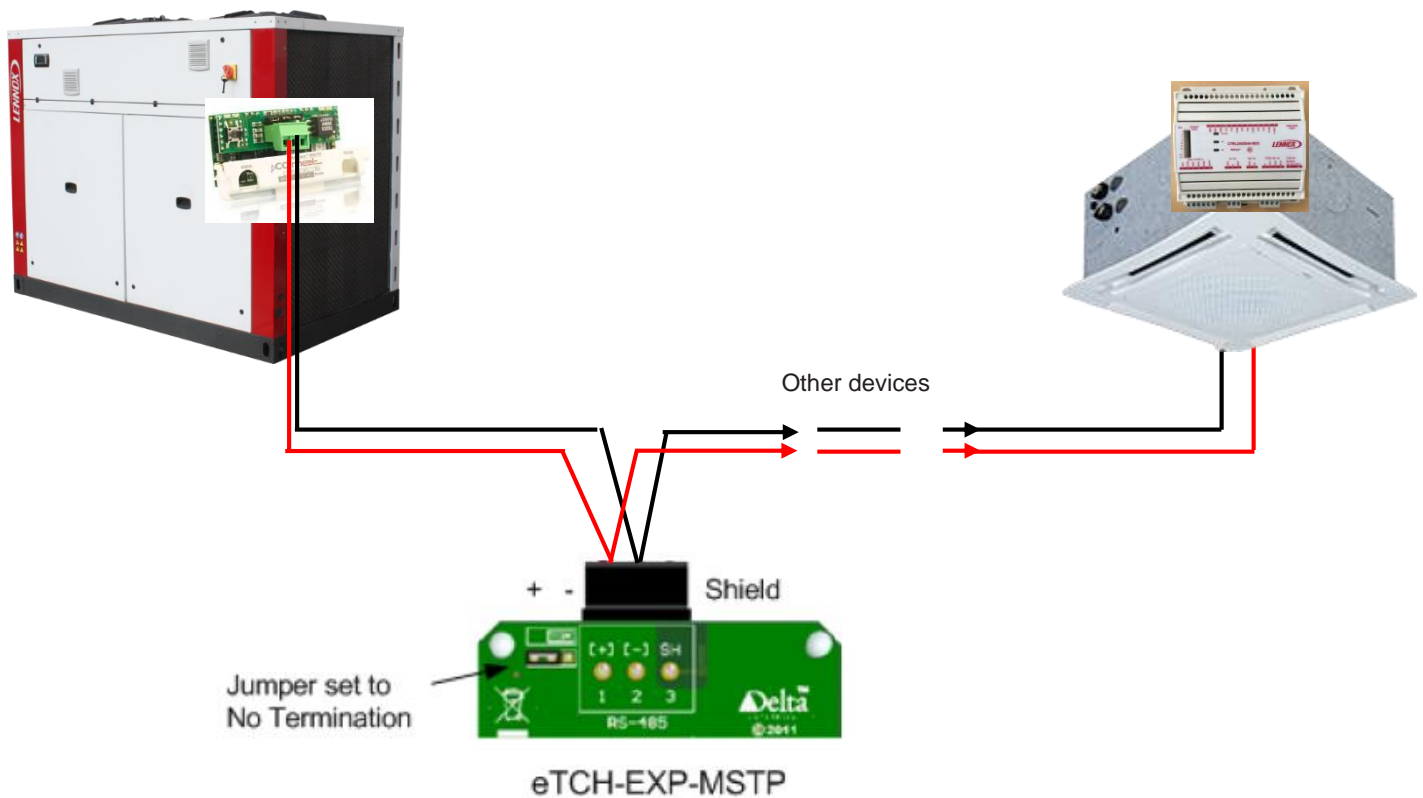

Picture4: Hydrocontrol main board

- HMI at the end of daisy-chain connection:
    Set the jumper of the MS/TP communication card according the following:

Other devices

+ -   Shield

Jumper set to
Termination

[+] [-] SH
1   2   3
RS-485

Delta
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eTCH-EXP-MSTP

Picture5: BACnet MS/TP wiring example (HMI in middle of the line)

- HMI in the middle of daisy-chain connection:
    Set the jumper of MS/TP communication card according the following:

Other devices

+ -   Shield

Jumper set to
No Termination

[+] [-] SH
1   2   3
RS-485

Delta
©2011

eTCH-EXP-MSTP

Picture6: BACnet MS/TP wiring example (HMI in middle of the line)

Software installation

The HMI is supply without the HYDROCONTROL application loaded inside it. To load the application you must use one USB flash drive with the both files (ask them to a LENNOX technician):

- Lennox Suite V11_7.PDB (You have to use at least the version 11.7)
- eTCH_V340_B-3935.FLS

Then insert the flash drive in one of the USB connectors of the HMI and power the display. The following display will appear:
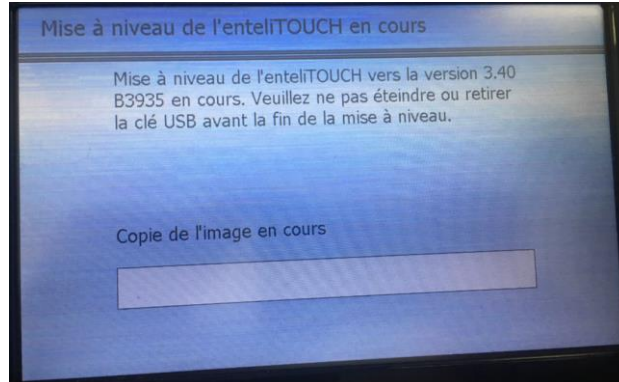

Picture7: USB port for software update
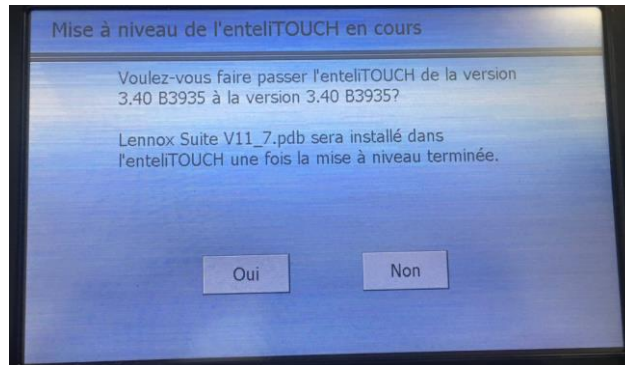
Picture8: Update home screen

Press "Oui" (yes) and the installation will start and the next screen will appear:

Picture9: Update progression

Wait the end of the installation

Picture10: Update finished

Once it is done please remove the flash drive and the HMI will restart automatically

Fan coil settings

To make the FCU communicating with the Hydrocontrol and working accordingly your requests you will have to set them with the EC-Smart_Vue thermostat.
Connect the thermostat to the FCU controller using a RJ45 cable
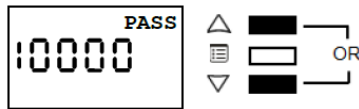

FCU Controller:
CTRL2303D4A-BDC
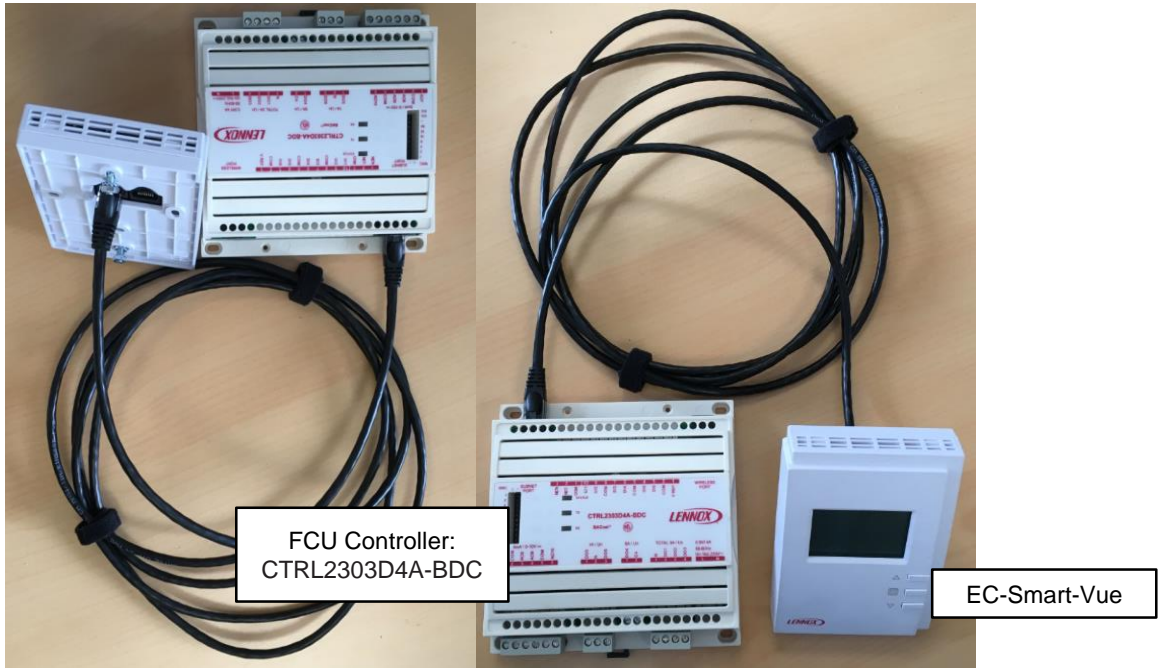
EC-Smart-Vue

Picture11: EC-Smart-Vue / CTRL2303D4A-BDC

To access all the parameters, from the home screen press the menu button for 5 seconds.
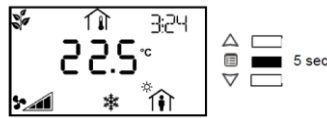

Use the arrows to set the password to 9995

You will then access the different setting menu. Use the button menu to choose the submenu you want to go and use one of both arrow to enter inside the submenu. Once you are inside the submenu you the button menu to choose the parameter you want to set and use the arrow to change the value. Once the value is set use the button menu to go to "Exit" and press an arrow to validate and come back to the submenu selection
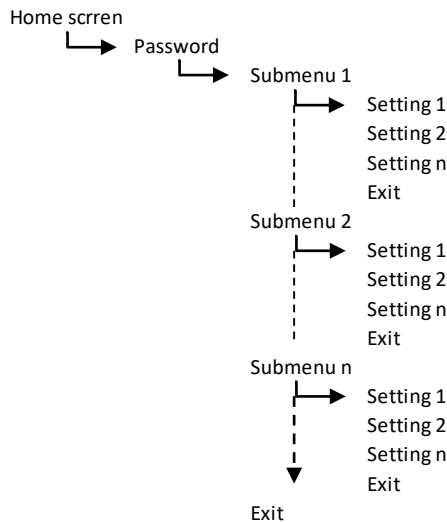
Once you enter in the submenu list you have access to (See the end of this Paragraph):

−   Unit: set here the unit in °C of °F
    •   Use directly the arrow to change the value

−   SYS CFG: System configuration ➔ Use it to set the system configuration
    •   Type: Choose the system type (2 Tubes/ 4 Tubes…)

    •   Ctrl: Choose the control type (Local, Master, Slave).

    •   TEMPCTRL: Choose the temperature control type

    •   Room: Set the room number to configure the master/slave network.

    •   FAN: Choose the fan type.

    •   FANM: Choose the fan functioning mode.

    •   Exit
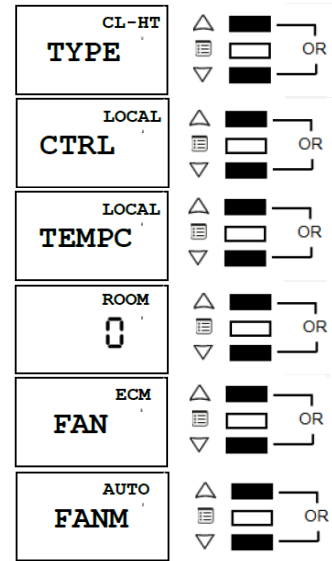
−   IN CFG: Inputs configuration ➔ Use it to set the inputs of the controller
    •   SI3: Set the source of SI3

    •   UI2: Set the source of UI2

    •   DI4: Set the source of DI4

    •   DI5: Set the source of DI5

    •   DI6: Set the source of DI6

    •   Exit
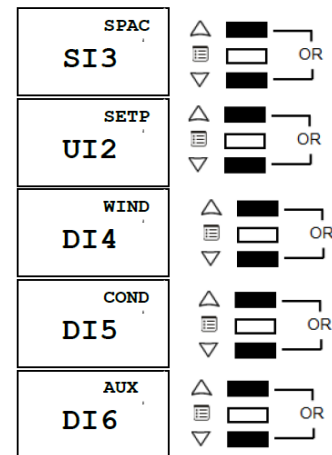
−   OUT CFG: Outputs configuration ➔ Use it to set the outputs of the controller
    •   CLG TYPE: Set the type of the cool water valve

    •   CLG NO/NC: set the direction of the cool water valve

    •   HTG TYPE: Set the type of the heat water valve (only for 4 tubes)

    •   HTG NO/NC: set the direction of the heat water valve (only for 4 tubes)

    •   Exit

LENNOX
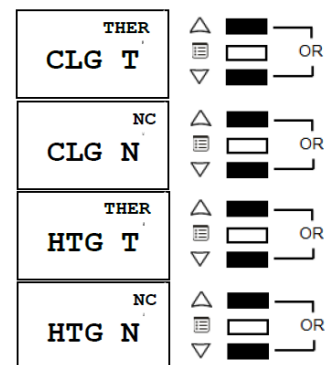
– INPUTS: Display input values ➔ Use it to see the current input values
  • UI1: Displays the UI1 value (Volt)

UI1
5

  • Disch Temp: Displays the discharge (supply) temperature

DISCH
22 °C

  • Return Temp: Displays the return temperature

RETUR
22 °C

  • Water Temp: Displays the water temperature

WATER
22 °C

  • SP Offset UI2: Displays the set point offset input on UI2

SP OF
0

  • Space Temp SI3: Displays the room temperature

SPACE
22 °C

  • DI4: Displays the DI4 status

DI4
0

  • DI5: Displays the DI5 status

DI5
0

 • DI6: Displays the DI6 status

DI6
0

  • Exit
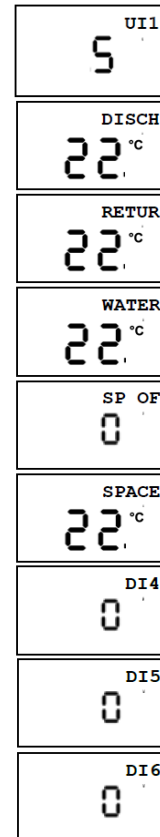
– OUTPUTS: Equipment override➔ Use it to override the current controller outputs. Press both arrow buttons at the same time to release an override)
  • CLG/CHG Valve: Override the water cooling valve position (only if cooling configured)

CLG
0 %

  • Heat Valve: Override the water heating valve position (only if heating configured)

HTG
0 %

  • Elec Heat: Override the electrical element (PWM)

ELEC
0 %

  • Damper: Override the damper position

DAMM
0 %

  • Exit
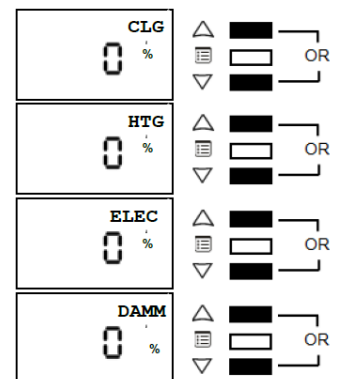
– GEN CFG: General Configuration ➔ Use it to set the general configuration and the BACnet MS/TP address
  • Mac Address: Set the BACnet MS/TP address. (Unique from 10 to 32)

MAC A
126

  • Subnet: Set the subnet parameter

SUBNE
1

  • Dev ID: Hardware version of the controller

DEV I

  • Contrast: Set the contrast of the EC Smart View

CONTR
100

  • Baud Rate: Set the BACnet MS/TP Baud Rate value

BAUD
Auto

  • Exit
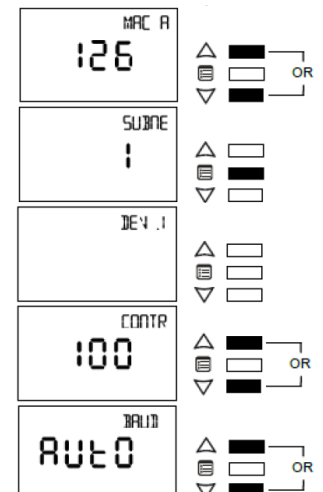
- CALIB: Calibration ➔ Calibrate the temperature, humidity and motion sensor reading. On each screen use the arrow to change the calibration and the menu button to validate the value.
  - 1st screen: Temperature calibration.

  - 2nd screen: Humidity calibration.

  - 3rd screen: Motion sensor calibration

  - Exit

- EXIT ➔ Press one of the arrow buttons to go back to the home screen
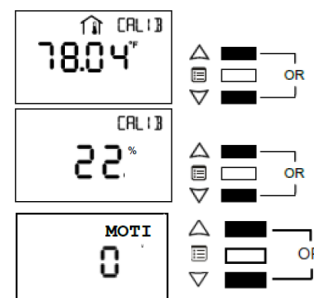
The FCU controller can be addressed using the EC-Smart-View thermostat or using the DIP switch directly physically on the controller. To set it directly using the DIP see appendix 2 « DIP switch position » page 32. To set the MAC address using the EC-Smart-View enter the main menu with the password. Once you are in the main menu go to the GEN CFG menu by pressing 7 times on the menu button and 1 time on one arrow button to enter in it. You access directly to the MAC address setting so use the arrow to select the MAC address (10-32) then press 5 times on the menu button to access the Exit and press one arrow to validate. /!\ If the address is set manually with the DIP you will not be able to change it using the EC-Smart-View. To reset the manual address setting set all DIP switches in OFF position like the following:

DIP Switch		
1		OFF
2		OFF
4		OFF
8		OFF
16		OFF
32		OFF
64		OFF
-		
EOL		
EOL		

ECB-PTU-207					
Submenu	Parameter	Default		Valid Choices	Description
SYS CFG	TYPE		1	CL	2 Pipes cooling
			2	CL-EH	2 Pipes cooling with electric heater
			3	CO	2 Pipes changeover
			4	CO-EH	2 Pipes change over with electric heater
			5	HT	2 pipes heating
			6	HT-EH	2 pipes heating with electric heater
		X	7	CL-HT	4 pipes
			8	CL-HT-EH	4 pipes with electrical heater
	CTRL	X	1	LOCAL	Stand alone FCU
			2	MASTER	Master FCU
			3	SLAVE	Slave FCU
	TEMPCTRL	X	1	LOCAL	Local space temperature is used
			2	MASTER	Local space temperature is used and sent over the network
			3	SLAVE	Space temperature of master controller is used
			4	AUTO	Space temperature of master controller is used with fallback to local value
	ROOM	1	0	127	Room value for master/slave network
	FAN		1	NONE	Fan control not used
		X	2	ECM	ECM motor (0-10V output)
			3	3SP	3 Speed fan is used
	FANM		1	ON	Fan control between minimum speed and 100%
			2	AUTO	Fan control based on terminal load (stopped when dead band)
		X	3	SMART	Fan control based on terminal load when unoccupied, controlled between minimum speed and 100% in other occupancy

				ECB-PTU-207	
Submenu	Parameter	Default		Valid Choices	Description
IN CFG	SI3		1	UNUSED	Not used
			2	DISCH TEMP	Discharge temperature sensor connected to this input
			3	RETURN TEMP	Return air temperature sensor connected to this input
			4	WATER TEMP	Water temperature sensore connected to this input
		X	5	SPACE TEMP	Room temperature sensor connected to this input
	UI2		1	UNUSED	Not used
			2	DISCH TEMP	Discharge temperature sensor connected to this input
			3	RETURN TEMP	Return air temperature sensor connected to this input
			4	WATER TEMP	Water temperature sensore connected to this input
		X	5	SETPOINT OFFSET	Setpoint offset connected to this input
	DI4		1	UNUSED	Not used
		X	2	WINDOW NO	Window contact normaly open
			3	WINDOW NC	Window contact normaly close
	DI5		1	UNUSED	Not used
			2	AUX CONT NO	Auxilliary contact normaly open
			3	AUX CONT NC	Auxilliary contact normaly close
			4	CHG OVER HEAT	Change over contact (TRUE = Heat / FALSE = Cool)
			5	CHG OVER COOL	Change over contact (TRUE = Cool / FALSE = Heat)
		X	6	COND SENSOR NO	Condensation sensor normaly open
			7	COND SENSOR NC	Condensation sensor normaly close
	DI6	X	1	UNUSED	Not used
			2	AUX CONT NO	Auxilliary contact normaly open
			3	AUX CONT NC	Auxilliary contact normaly close
			4	CHG OVER HEAT	Change over contact (TRUE = Heat / FALSE = Cool)
			5	CHG OVER COOL	Change over contact (TRUE = Cool / FALSE = Heat)
			6	OCC SENSOR NO	Occupancy sensor normaly open
			7	OCC SENSOR NC	Occupancy sensor normaly close
OUT CFG	CLG TYPE	X	1	UNUSED	Cooling valve is not used
			2	0-10V	0-10V cooling valve only is used
			3	THERMAL	Thermal and 0-10V cool valve is used
			4	ON_OFF	On/Off and 0-10V cool valve is used
			5	FLOATING	Floating and 0-10V cool valve is used
	CLG NO/NC	X	1	NORM CLOSE	Cooling valve is normaly close
			2	NORM OPEN	Cooling valve is normaly open
	HTG TYPE		1	UNUSED	heating valve is not used
		X	2	0-10V	0-10V heating valve only is used
			3	THERMAL	Thermal and 0-10V heat valve is used
			4	ON_OFF	On/Off and 0-10V heat valve is used
			5	FLOATING	Floating and 0-10V heat valve is used
	HTG NO/NC	X	1	NORM CLOSE	Heating valve is normaly close
			2	NORM OPEN	Heating valve is normaly open
GEN CFG	MAC ADDRESS	10	1	126	BACnet MS/TP address of the controller
	SUBNET	1	1	12	Subnet address
	CONTRAST	100	0	100	Contrast value
	BAUD RATE		1	9.6	BAUD = 9600
			2	19.2	BAUD = 19200
			3	38.4	BAUD = 38400
			4	76.8	BAUD = 76800
		X	5	AUTO	The BAUD will be automatically search on the network

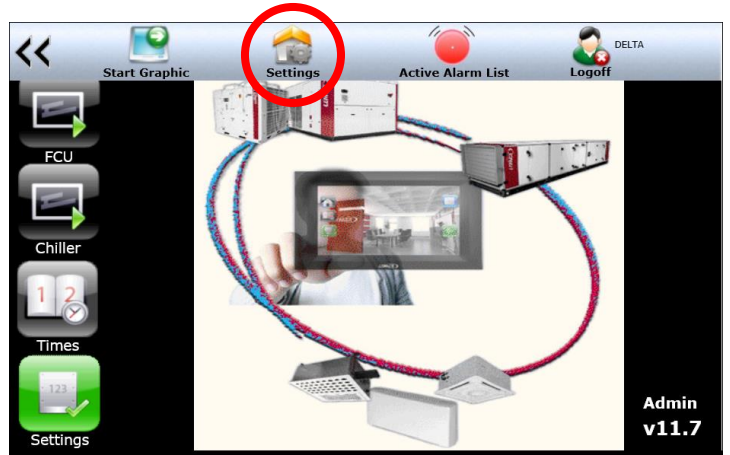## HMI settings

To access the following setting one account need to be logged on the HMI (see Password management paragraph)
Except for the date and the hour the HMI setting are set by default and it is not required to set them during start up.

To access the HMI setting click on the arrow button at the top left on the screen and then click on settings
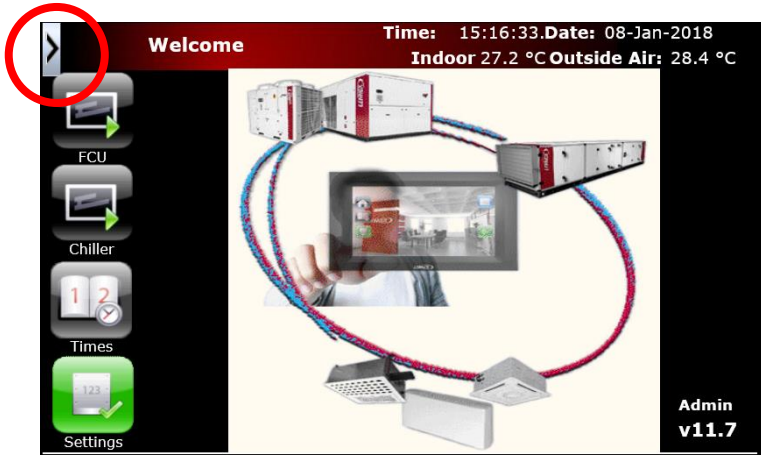
Picture12: Home page (Admin)

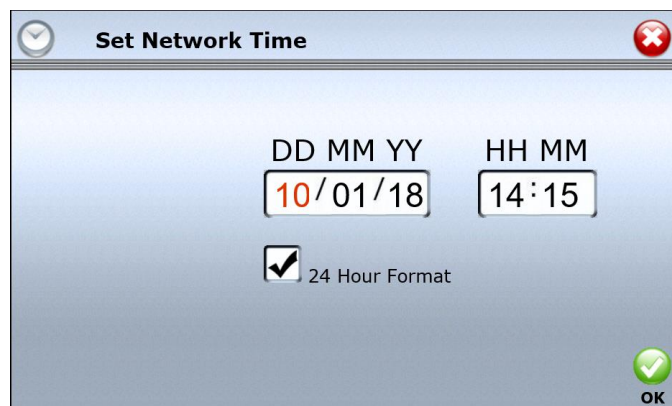Picture13: Home page (HMI setting access)
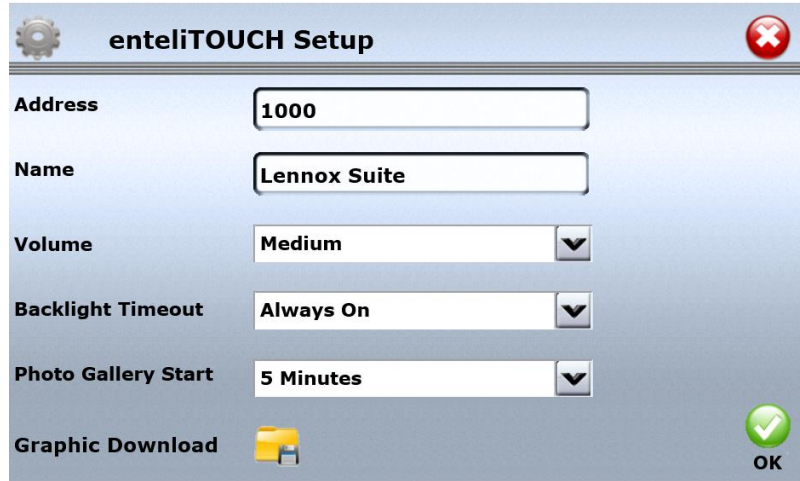
Then you will access the following setting menu:

Picture14: Main setting menu

The setting menu is divided into 7 different parts.
If you click on the clock you will access the time setting. To set the hour just click on the part you want to edit and use the numeric keypad to enter the correct value

Picture15: Date / Time setting

enteliTOUCH setup:

Picture16: enteliTOUCH setup

You can set the device address (BACnet Ethernet),the device name, the volume, backlight time out. The photo gallery start is not available until one USB drive with picture inside is not connected. The pictures are displayed according the following:
1) Root directory ➔ Alphanumeric order
2) Folder directory ➔ The folder are chosen using alphanumeric order
3) Inside the folder ➔ The pictures are displayed using alphanumeric order

You can download some graphic view (Only for Lennox technicians) using the web browser. If you access this screen directly with the HMI the download is replaced by the Calibration.
To edit one screen click on modify (HMI view) and use the alphanumeric keypad to edit the field or drop the list and select the correct field value.

Network Setup:
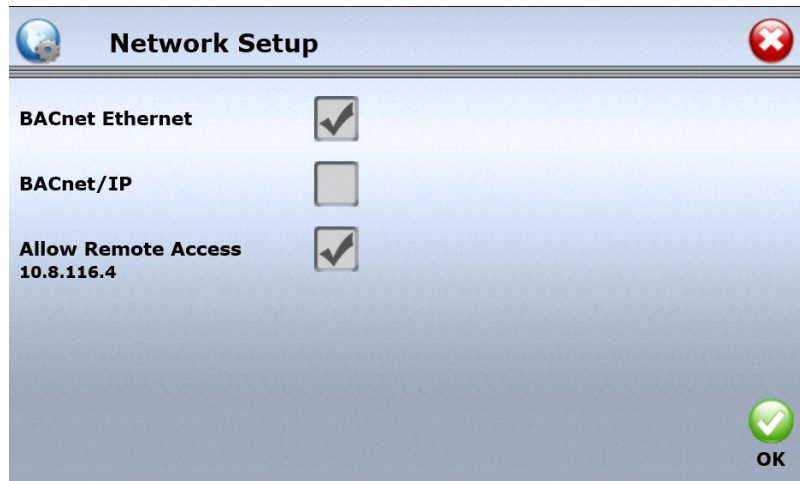
Picture17: Network setup

You can set the remote access from this screen. The modification is available only in the HMI screen. If you access this screen via a browser you will not be able to modify the settings.
In case you have more than 1 HMI connected on your network remove the BACnet Ethernet flag. The BACnet /IP is not used and has to be unchecked.
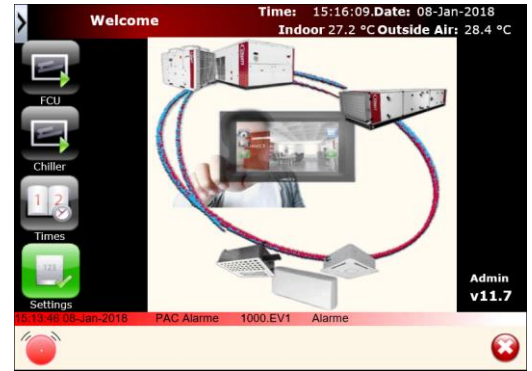If the remote access flag is not checked the connection from a computer will not be allowed. In the HMI screen you will also be able to modify the remote access port which is by default equal to 80.

Access setup:
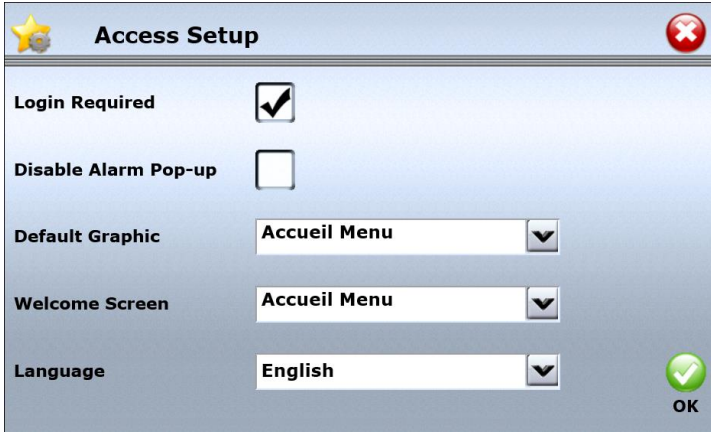
Picture18: Access setup

Picture19: Alarm pop up

The first field « Login Required » has to be checked if you want to have a password management. If this flag is not checked all users will be able to modify some FCU and chiller settings even if there is no account logged in.
The alarm pop up at the bottom of the screen can be disabled if the «Disable Alarm Pop-up » is flagged
You can select the default screen and welcome screen (see Appendix 1: "Screen list" for screen name)
Default screen ➔ This is the default screen which will appear as home page or when the user touches the default graphic button on menu bar.
Welcome screen ➔ this screen is displayed on power-up and when a user logs off. This graphic is not display by the web access.
The language can be selected from this screen. If the language is also available inside the HYDROCONTROL application, the application will also changes its language. Otherwise the application language will remain the same as the previous one.

User Setup:
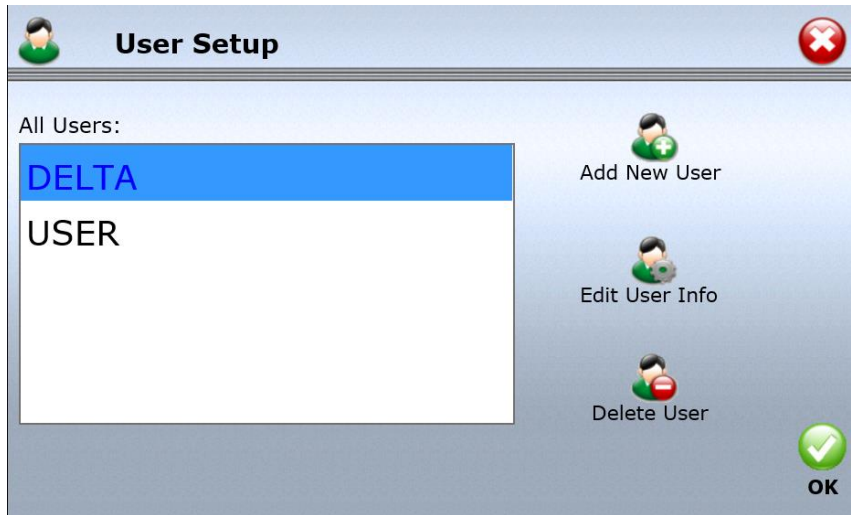
Picture20: User setup

To add one new user touch "Add New User". Then follow the steps:
1) Enter the name using the keypad
2) Enter the password using the keypad (Exactly same screen than step 1)
3) Modify the start graphic by dropping the list (see Edit user screen)
4) Modify the Auto logoff period (use the modify button when using HMI) (see edit user screen)
5) Press the green button "OK" to validate

To edit one user select the user on the screen and touch "edit user info"
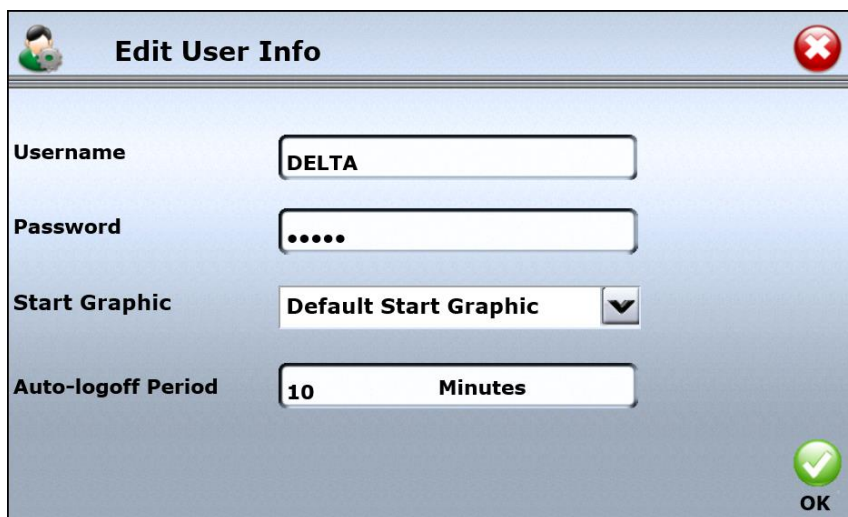
Picture21: Edit user account

Then modify the fields using the modify button for HMI view or directly by clicking on the field for web view. Once it is done touch the green button "OK" to validate.

Graphic mode:

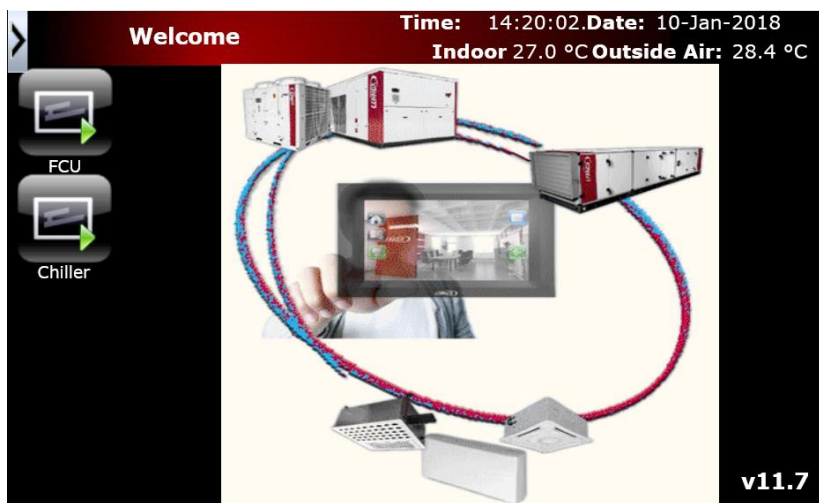The graphic mode is displaying the HYDROCONTROL application using the default graphic set in the Access setup menu.

User Logoff:

It is login off the current user and it displays automatically the default graphic

HYDROCONTROL Home page

The home page of the HYDROCONTROL application is divided in 3 main screen depending on the user level

1) No user logged on

Picture22: Homepage (No user logged on)

This screen gives the access to:
- The HMI menu (arrow top left)
- FCU menus (button FCU)
- Chiller menu (Button chiller)
- The time and date
- The average of all air temperature measured by the FCU (Indoor at the top right) (Note: hidden if the chiller option is disabled)
- The outside air temperature measured by the chiller (Note: hidden if the chiller option is disabled)
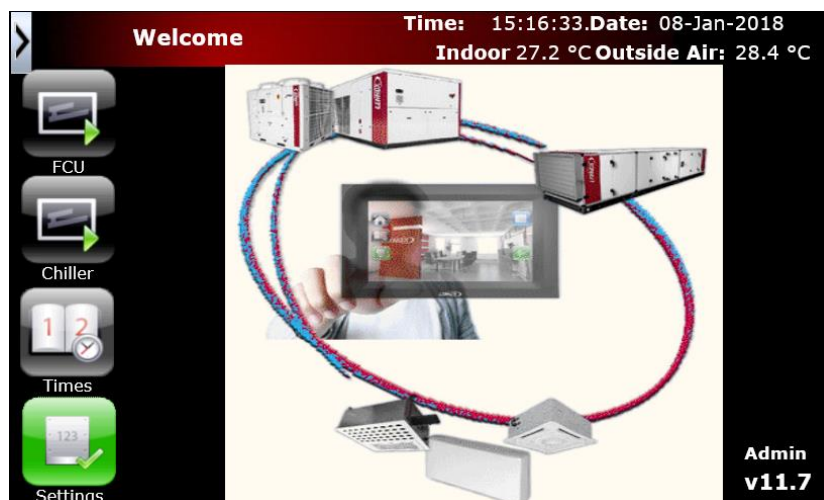- HYDROCONTROL version number (at the bottom right)

2) User logged on
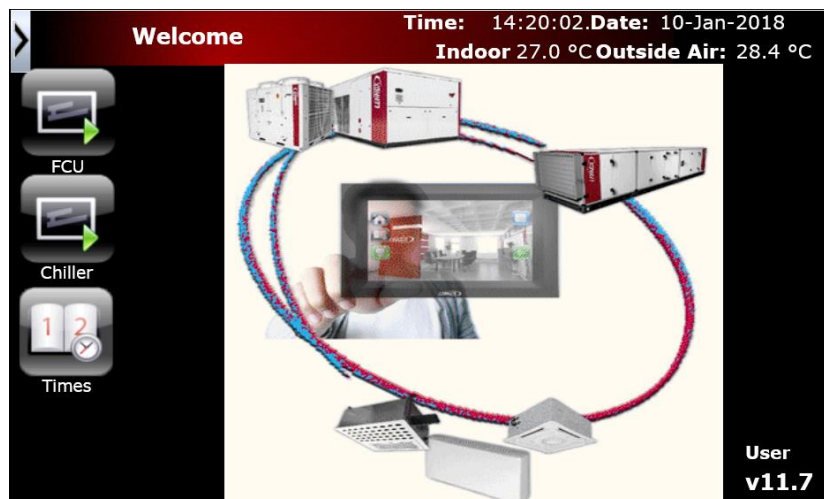
Picture23: Homepage (User logged on)

This screen adds the access to
- Times/schedule menu (button times)

Moreover the word "User" is displayed at the bottom right just above the HYDROCONTROL version number.

3) Admin logged on

Picture24: Homepage (Admin logged on)

This screen adds the access to:
- Setting menu (button settings)

The word "User" is replaced by the "Admin"

Note: For all levels if the chiller option is disable, the chiller button will be hidden

Password management

Three main levels of password are managed by the application.
1) No connection: It is a visualisation level. The user has access only to functioning displays. The schedule and setting displays are hidden.
2) User level: This is a operator level. The user has the access to schedule menus. He can change some set points, create the schedule and add the FCU/chiller to the schedule zones.
3) Admin level: The user has the full access to the application. He can change the HMI settings and the application settings. This mode is required during the start up.
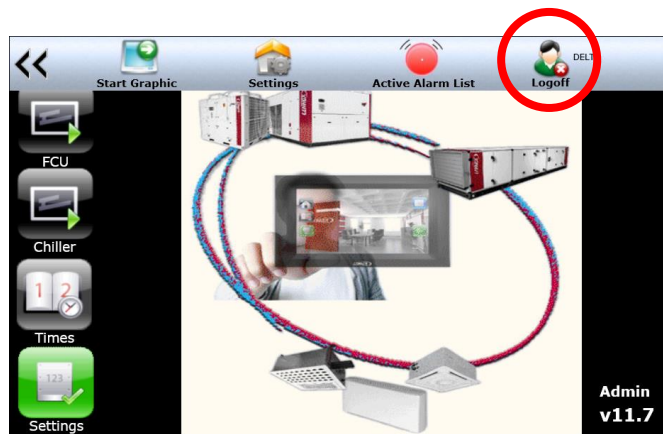
By default the users/passwords are:
- user / user
- delta / login

The usernames and password can be change in the HMI setting (see HMI settings paragraph / User setup). Note that the admin level is mandatory and can't be deleted but you can change the name and the password. All the following accounts which will be created will have the user level.


Picture25: Log in

Picture26: Log out

To log in expend the menu bar and touch the Login button.
Use the drop list to select the account and enter the password using the keypad.
To log off expend the menu bar and touch the Logoff button or wait the period time define in user account.

HYDROCONTROL Start up

To setup the HYDROCONTROL application the admin password is required.
From the home page go to the setting page using the setting button.
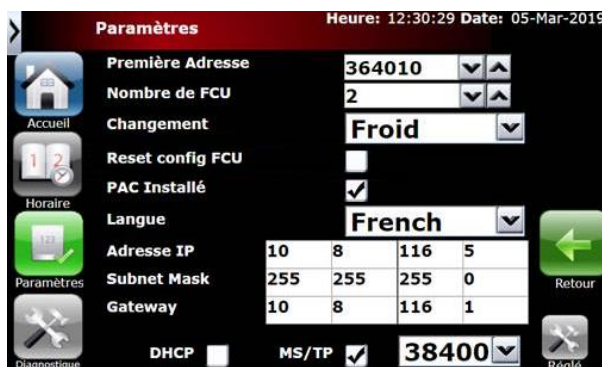
Picture27: Start up settings

1) First address: Select the first address of the FCU connected to the HMI i.e. FCU addresses = 12-13-14-15 ➔ first address = 364012
2) Number of FCUs: Select the number of fan coil connected to the HMI
3) Changeover:
   1) Chiller: the FCU changeovers are based on the chiller changeover
   2) First FCU: the FCU changeovers are based on the changeover of the FCU which have the first address
   3) Cooling: All the FCU are forced in cooling mode
   4) Heating: All the FCU are forced in heating mode

4) Reset FCU config: Check this flag to reset the display of the FCU according to there configuration
5) Chiller installed: If the HMI is connected to one chiller then check this flag.
6) Language: The HMI language will also change according the selection
7) IP address / Subnet Mask / Gateway: You can set here the Ethernet connections
8) DHCP: By default the HMI is not set as DHCP. must be flag for DHCP connection
9) MS/TP: This flag must be always checked to have the BACnet MS/TP connection with the FCU and the chiller. The drop list at the right of MS/TP flag is the MS/TP baud rate. By default the baud rate is 38400.

/!\ To change the IP / subnet / getaway setting please read the instruction on next page.

To change the net settings follow these instructions:
1) Touch the field which has to be changed
2) Change the "Auto" mode to manual by touching the Auto button:

Picture28: Editing pop up (Auto)

3) Touch the writing field and use the keypad to enter the new value
4) Repeat the action 1 to 3 for all the field you have to change
5) Once new values are written touch the set button

Picture29: Set IP modification

6) Wait 10 seconds and reset all field to auto value by touching the field and then touching the manual button. /!\ do not change the value
7) Press enter to validate

If the value remains the same, the HMI did correctly take in count the new network parameters
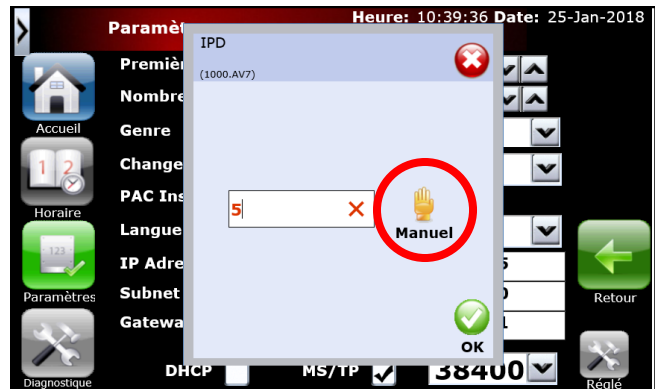
Picture30: Editing pop up (Manual)

Chiller screens

The chiller screens are available only if the chiller option is set (see HYDROCONTROL start up paragraph). To access the chiller screen click on the chiller button from the home page (see HYDROCONTROL home page paragraph).
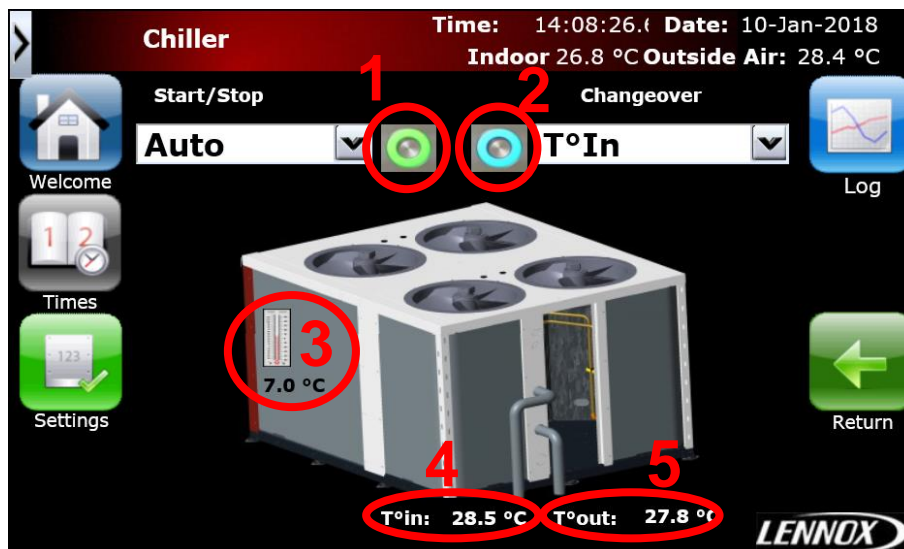
Picture31: Chiller main screen

Buttons:
- Welcome: To return to the home page
- Times: To go to the schedule zone page (See schedule management paragraph)
- Settings: To go to the chiller setting page
- Log: To go to the log page. (A147 = Out temperature / A148 = Water input temperature / A149 = Water output temperature
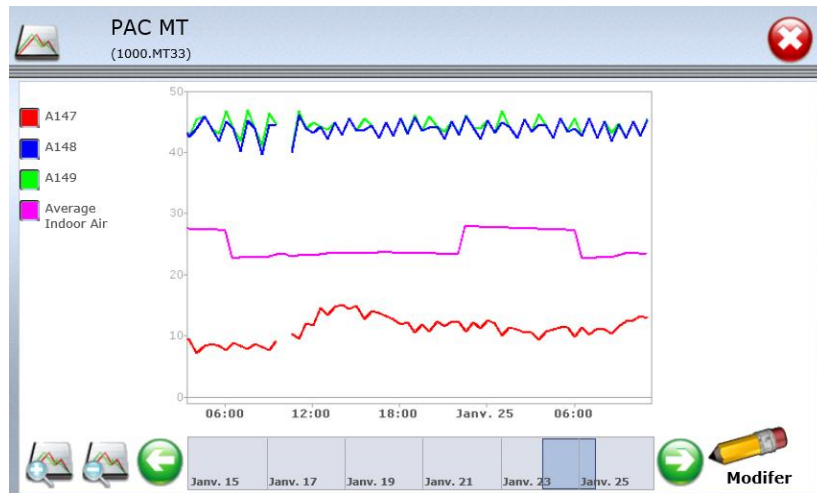
Picture32: Chiller log screen

- Return: To go to the previous page

Drop Lists:
- Start/Stop: Change here the chiller status (On/Off).
    - Auto: the chiller is managing its own On/Off
    - Off: Set the chiller to Off. Once the chiller is Off the drop list goes automatically to "Auto" mode
    - On: Set the chiller to On. Once the chiller is On the drop list goes automatically to "Auto" mode
    - Schedule: set the chiller start/stop according to schedule. /!\ if the schedule is in On mode the chiller will be forced in On mode. Please remove this mode or the BMS connection before operating on the chiller.
Note: If the chiller is On the condenser fans on the HMI view will turn. If the chiller is off they will not move.

- Changeover: Change the chiller mode (Heat/Cool)
    - Cool: Set the chiller in cooling mode
    - Heat: Set the chiller in heating mode
    - T°out: The chiller will automatically set its own mode according the outside temperature.
    - T°in: The HMI automatically sets the chiller mode according the indoor temperature average.

Indexes:
1) Light: This light shows the chiller status. Green = On / Red = Off
2) Light: This light shows the chiller mode. Blue = Cool / Red = Heat / Yellow = Dead zone
3) Temperature: It shows the actual chiller set point
4) Temperature: It shows the water input temperature
5) Temperature: It shows the water output temperature

T°in mode:
This mode uses all the space temperature measured by fan coils which are in occupied mode (On) and makes an average. If the average is above the high limit (see chiller settings) the chiller will turn in cooling mode. If the average is below the low limit (see chiller setting) the chiller will turn in heating mode. If the average is between the two limits the chiller will remain in the same mode he was (it doesn't set the chiller in dead zone).
If all the fan coil are in uncopied mode (off) during night for example. The average be calculated using all the fan coil space temperature and the HMI will use the protection settings (see chiller settings) to turn the chiller in heating or in cooling mode.

T°out mode:
This mode uses the outside temperature measured by the chiller to turn the chiller in heating or cooling mode. If the outside temperature is above the high limit (see chiller settings) the chiller will turn in cooling mode. If the outside temperature is below the low limit (see chiller settings) the chiller will turn in heating mode.

Chiller settings:
The chiller setting page is dynamic and depends on the chiller changeover selection (T°in / T°out)
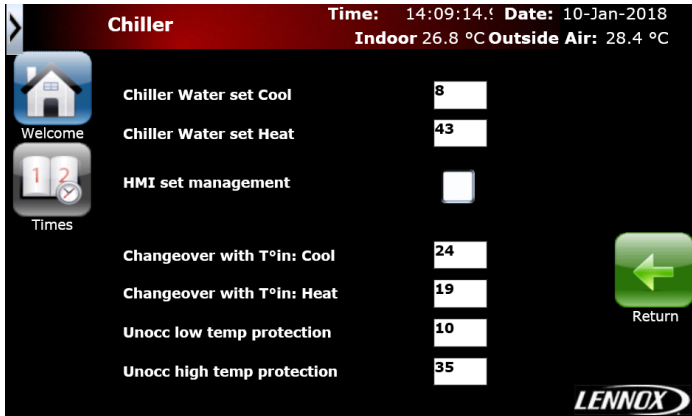
Picture33: Chiller setting screen (T°in view)
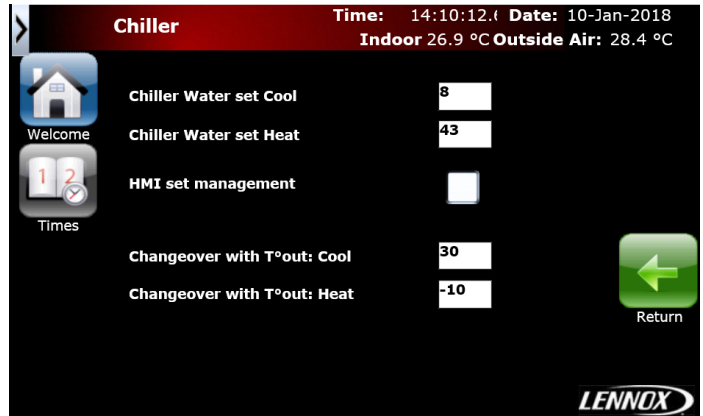
Picture34: Chiller setting screen (T°out view)

- Buttons:
  - Welcome: To return to the home page
  - Times: To go to the schedule zone page (See schedule management paragraph)
  - Return: To go to the previous page

- Chiller Water set Cool: Set here the chiller water set point in cooling mode
- Chiller Water set Heat: Set here the chiller water set point in heating mode
- HMI set management: flag this box to send the 2 previous set points to the chiller. If the box is flagged the chiller will use the HMI set points. If the box is not flagged the chiller will use its own parameters

T°in View
- Changeover with T°in: Cool: The chiller turns in cooling mode if the occupied FCU's average temperature is above this setting
- Changeover with T°in: Heat: The chiller turns in heating mode if the occupied FCU's average temperature is below this setting
- Unocc low temp protection: The chiller turns in cooling mode if the unoccupied FCU's average temperature is above this setting
- Unocc high temp protection: The chiller turns in heating mode if the unoccupied FCU's average temperature is below this setting

T°out View
- Changeover with T°out: Cool: The chiller turns in cooling mode if the outside temperature is above this setting
- Changeover with T°out: Heat: The chiller turns in heating mode if the outside temperature is below this setting

To change the net settings follow these instructions:
1) Touch the field which has to be changed
2) Change the "Auto" mode to manual by touching the Auto button:
3) Touch the writing field and use the keypad to enter the new value
4) Repeat the action 1 to 3 for all the field you have to change

Picture35: editing pop up (Auto)

Fan coil screens

To access the fan coil screens click on the FCU button from the home page (see HYDROCONTROL home page paragraph).

You will access the FCU menu where all fan coil connected to the HMI are displayed. This page is dynamic and displays only the FCU which are set in the HMI setting (see HYDROCONTROL start up paragraph)
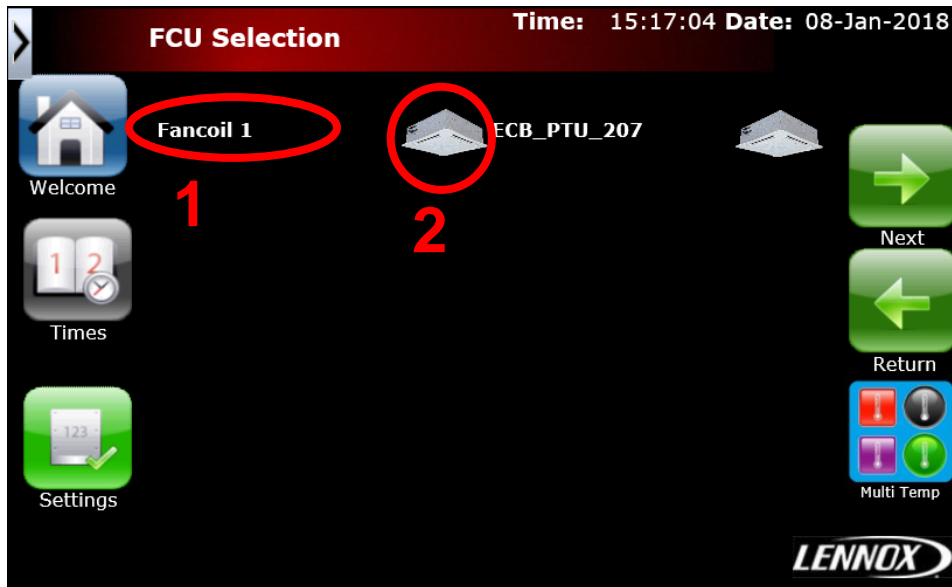

Picture36: FCU menu screen

Buttons:
- Welcome: To return to the home page
- Times: To go to the schedule zone page (See schedule management paragraph)
- Settings: To go to the FCU setting page
- Next: to access the rest of the FCU connected to the HMI
- Return: to access the previous page
- Multi Temp: to access the multi temp view

Indexes:
1) Name of the first FCU
2) Button to access the first FCU page

By clicking on the FCU image (index 2) you will access the dedicated FCU page:
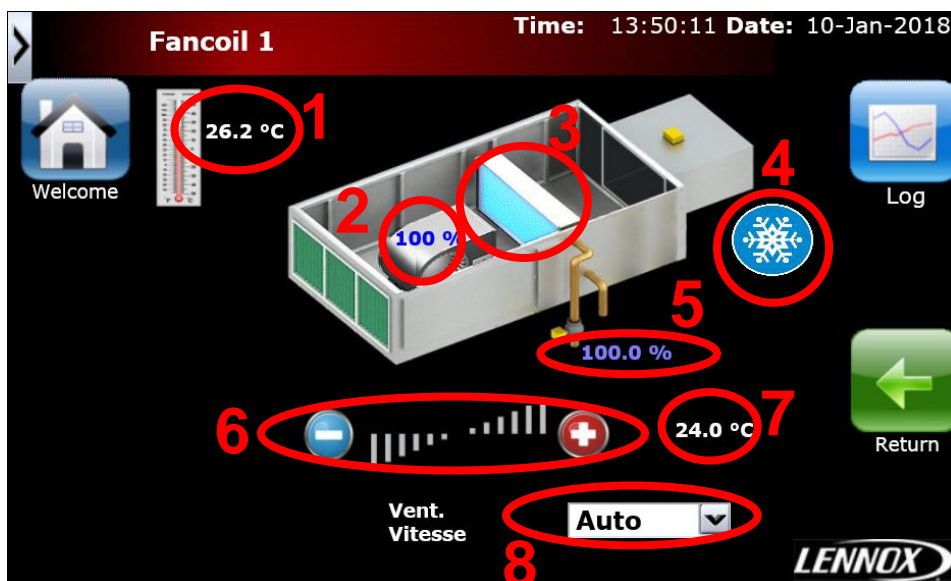
Picture37: FCU main screen

Buttons:
- Welcome: To return to the home page
- Return: to access the previous page
- Log: To go to the log page.
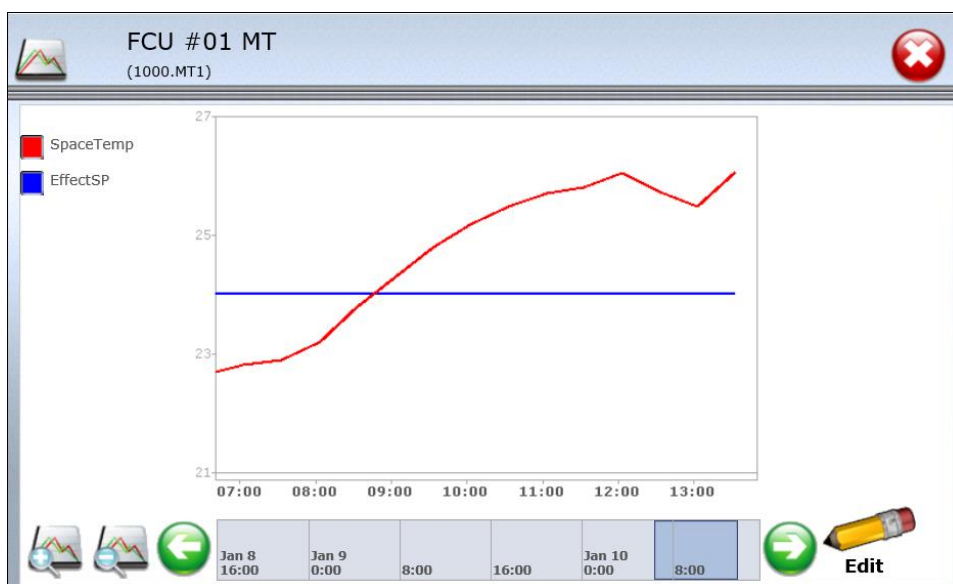
Picture38: FCU log screen

On the bottom left of the log page you can click on the zoom in (+) and zoom out (-) buttons which allow to change the displayed time range. The current time range is the highlighted blue square
On the bottom right the edit button allows the user to select the curve to displayed and the time range of the graphic.
With the two green arrow you can go back or front in time.

Indexes:
1) Temperature value controlled by the selected FCU (return, ambient, master, slave…)
2) Current FCU fan speed
3) FCU current cooling capacity: Blue = cool / Red = Heat. The more intense is the colour the more the valve is opened
4) FCU mode: Blue snow = cooling mode / Red Sun = heating mode
5) FCU valve opening percentage. Blue = cooling mode / Red = heating mode
6) Set point offset: Click on "-" or "+" to decrease or increase the set point. The central sticks will be coloured in blue or red if the offset decrease or increase the set point.
7) Real set point used by the FCU
8) Fan mode: select Auto to let the FCU manages the fan speed by itself / Off to stop the fan / Low to run the fan at 33% / medium to run the fan at 66% / High to run the fan at full speed.

Note: The FCU page is dynamic and displays the option according the setting of the HMI (2 tubes / 4 tubes ...) For example in case of 4 tube FCU a second coil is displayed behind the default one.

Schedule management
To access the schedule menu you need to log on with at least the user level.

The schedule is divided in two main functions:
- Set the different schedules ➔ Up to 9 different schedules available
- Associate each FCU with the previously created schedules

Set the different schedules:
To access schedule menu click on the button Times from home page (See HYDROCONTROL home page paragraph). You will access the schedule menu with all the available schedule named from A to H and the dedicated one for the chiller
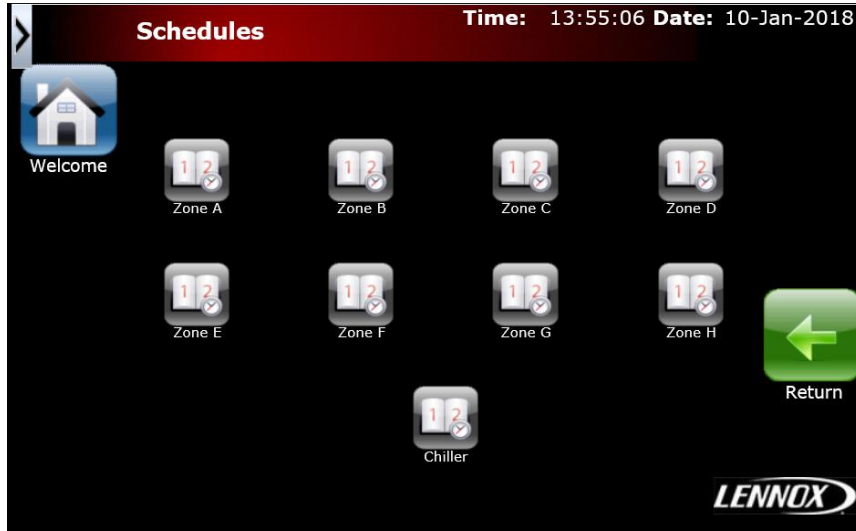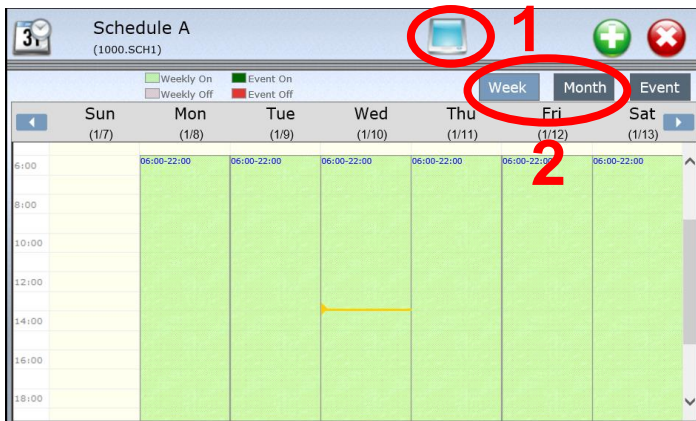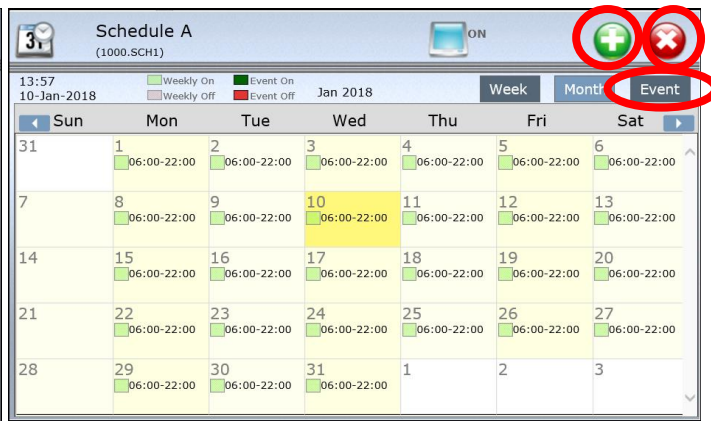
Picture39: Schedule menu screen

Buttons:
- Welcome: To return to the home page
- Return: to access the previous page

To access a specific schedule click on the dedicated button above each schedule name.


Picture40: Schedule weekly screen

Picture41: Schedule monthly screen

Indexes:
1) Schedule value (On/Off) of the current time
2) View selection: Select week to display a weekly view. Select month to display a monthly view.
3) Click on this button to add a new time range.
4) Click on this button to validate and leave the schedule page.
5) Click on this button to display and manage the special event for this schedule.

The schedule value can be manually override by clicking on the button (index 1):
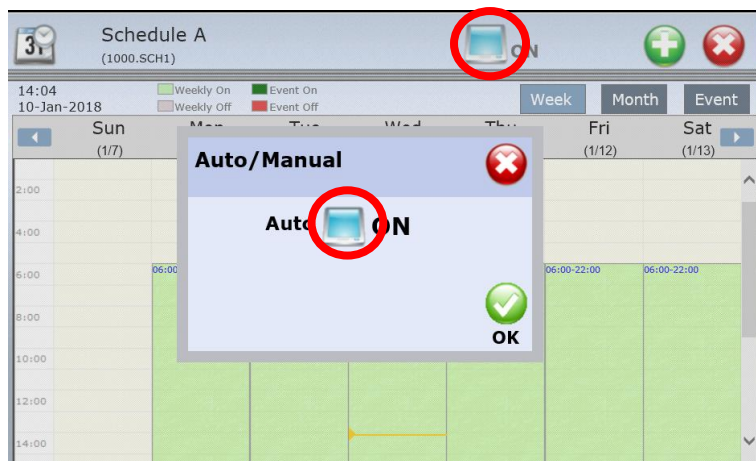
Picture42: Schedule Manual/Auto change

Then click on the Auto button and set it in manual mode. After that you will be able to set the manual value to OFF or ON.

To add a new schedule click on the button "+"
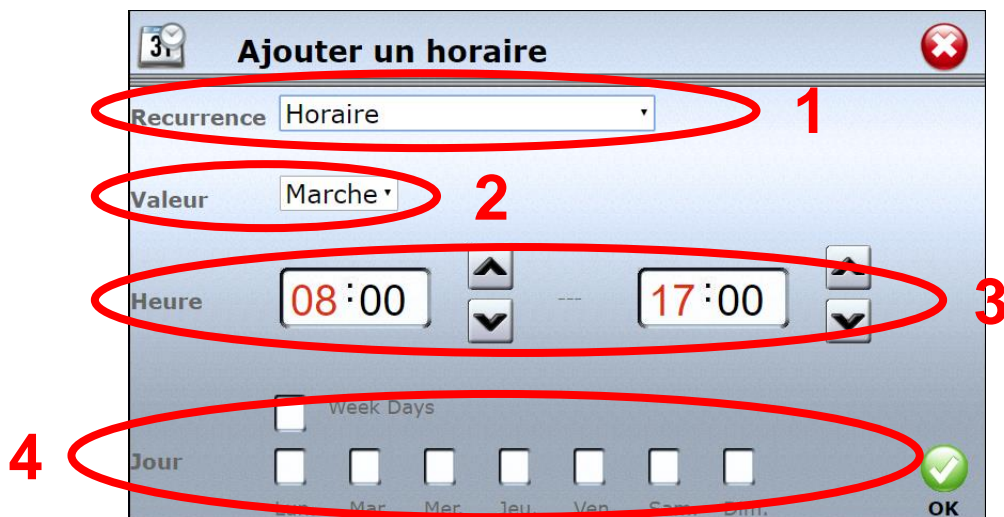
Picture43: Add a schedule

Indexes:
1) Recurrence: Select here the type of schedule you want to add:
   - Weekly Schedule: To add a quick weekly recurring schedule (Use this one by default)
   - Single or recurring date: To add a single or recurring event
   - Date Range: To add a date range event
   - Recurring week and day: To add a single or recurring event
   - Calendar reference: Not available
2) Value: select here the value of the specific schedule / event.
3) Time: select here the starting and ending time of the schedule / event
4) This field can take 2 different values:
   - Day: Only for Weekly schedule mode: select here the days you want to apply the schedule
   - Priority: Select the event priority from 1 (highest) to 16 (Lowest). If 2 events want to act on the same date, they will follow the priority to define which one is managing the general On/Off value.

Use the Weekly schedule to set the main working hours and use the other mode to set an event (vacations, special close…). You can add up to 100 events. The weekly schedule will be applied every weeks, every months and every years.

To edit a schedule click on the specific day or event you want to edit and change the time and value according the new requirements.
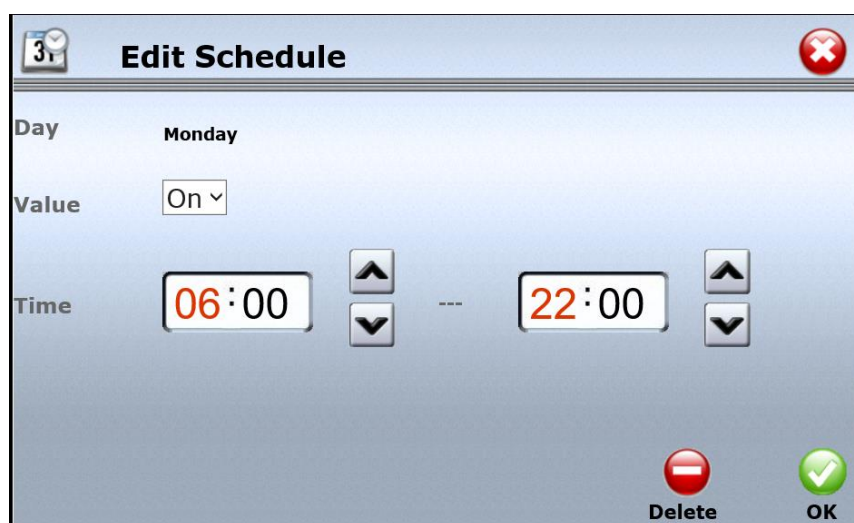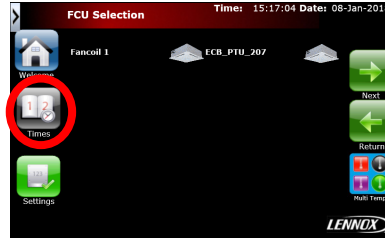

Picture44: Edit a schedule

Once the modifications are done press Ok to validate or delete to completely delete the schedule.

Associate FCU with schedules:
Once the different schedules are created you must associate them with the fan coils. To access the page you must go to the FCU menu and click on the Time button:

Picture45: Home page

Picture46: FCU menu

Picture47: Associate the FCU to the schedule

Buttons:
- Welcome: To return to the home page
- Next: To access the next page with the next FCUs
- Prev: To access the previous page with the previous FCUs

Each circle column represent the dedicated fan coil which is named at its top. Click on the desired circle which correspond to a unique line (A,B,C,…) to associated the FCU with the corresponding schedule (A,B,C,…). The green point shows which schedule is associated to the fan coil.
/!\ If you click on multiple circle to quickly the green button can move back to its previous position for 2-3 seconds. Wait 5-10 seconds before leaving the screen to be sure the changes have been realized correctly.

Multi temp view

The multi temp view allows you to see all the controlled temperature (return, room,…) from each fan coil connected to the Hydrocontrol. To access it click on the button Multi temp from the FCU menu (See Fan coil screens Paragraph). The name and the temperature of all the fan coils set in the HMI are shown in this view.
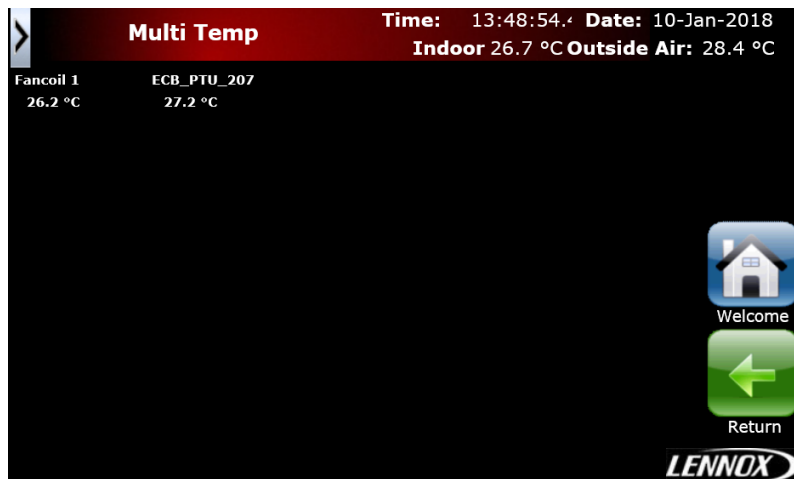

Picture48: Multi temp view

Set the fan coil using the HMI

Fan coil basic settings can be changed directly with the Hydrocontrol. The admin connection is necessary to do this action. To access the setting page click on the setting button from the fan coil menu (See Fan coil screens Paragraph).
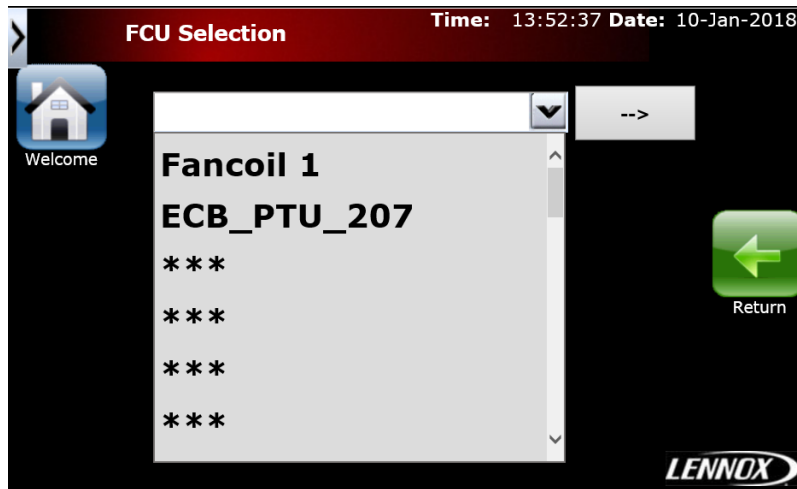
Picture49: Choose which FCU will be set

Click on the drop list to select the fan coil you want to set and click on the button "-->" to access the setting page.
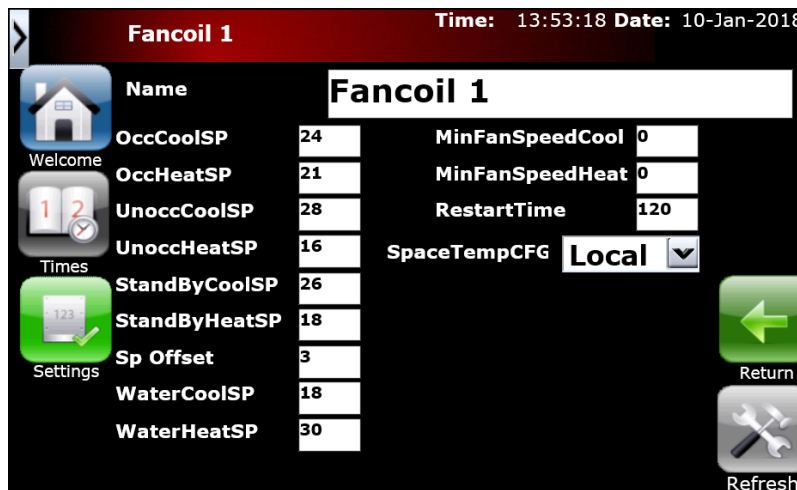
Picture50: FCU setting page

Buttons:
- Welcome: To return to the home page
- Times: To go to the schedule zone page
- Settings: To go to the start up setting page
- Return: to access the previous page
- Refresh: to refresh the name list

| Name	Description	Default	Min	Max
OccCoolSP	Temperature setpoint in occupied and cooling mode	24°C	N/A	N/A
OccHeatSP	Temperature setpoint in occupied and Heating mode	21°C	N/A	N/A
UnoccCoolSP	Temperature setpoint in unoccupied and cooling mode	28°C	N/A	N/A
UnoccHeatSP	Temperature setpoint in occupied and heating mode	17°C	N/A	N/A
StandByCoolSP	Temperature setpoint in StandBy and cooling mode	26°C	N/A	N/A
StandByHeatSP	Temperature setpoint in occupied and heating mode	19°C	N/A	N/A
Sp Offset	Min/Max set point offset. E.i. if 3 the setpoint can be change by +- 3°C using the offset	3K	0K	10K
WaterCoolSP	If the water is below this temperature the FCU switch in cooling mode	15°C	N/A	N/A
WaterHeatSP	If the water is above this temperature the FCU switch in heating mode	20°C	N/A	N/A
MinFanSpeedCool	Minimum fan speed in cooling mode (work with ECM fan only)	0%	0%	100%
MinFanSpeedHeat	Minimum fan speed in heating mode (work with ECM fan only)	0%	0%	100%
RestartTime	Minimum functioning time if the FCU has been restarted with the thermostat	120 min	N/A	N/A
SpaceTempCFG	Configuration of which temperature the FCU will control (Master/Slave)	Local	N/A	N/A

To change the net settings follow these instructions:
1) Touch the field which has to be changed
2) Change the "Auto" mode to manual by touching the Auto button:

Picture51: Editing pop up (auto)

3) Touch the writing field and use the keypad to enter the new value
4) Repeat the action 1 to 3 for all the field you have to change
5) Wait 10 seconds and reset all field to auto value by touching the field and then touching the manual button. /!\ do not change the value
6) Press Ok to validate

If the value remains the same, the HMI did correctly take in count the new network parameters
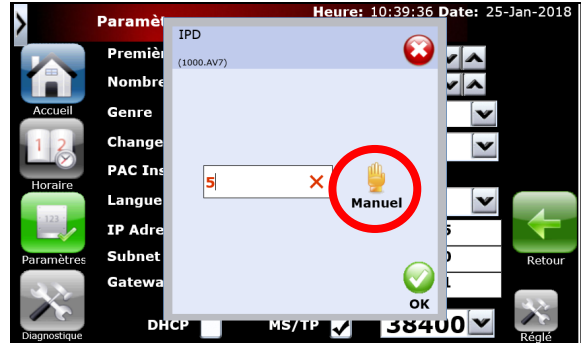
Picture52: Editing pop up (manual)

If you change the name of the HMI touch the button refresh once it is done. This will allow the HMI to take in count the new name of the FCU.
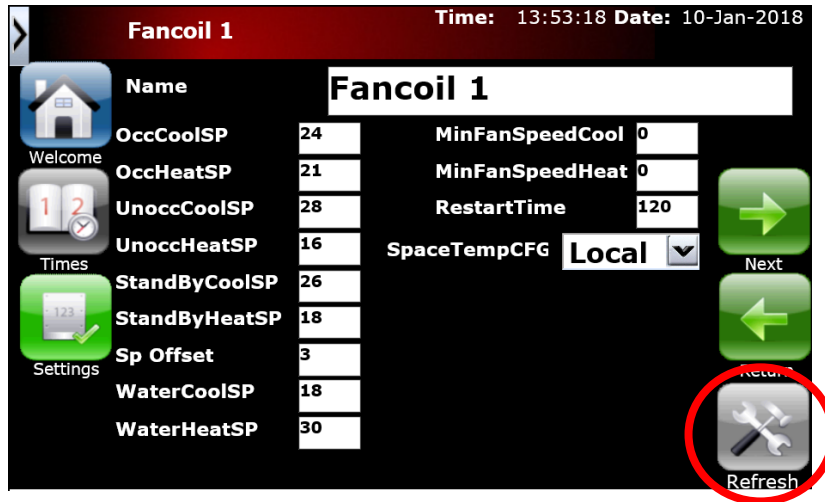
Picture53: HMI name change validation

Connect the HMI using a browser

If the Hydroctonrol is connected to your local network (See wirings Paragraph) you will be able to access the HMI with a web browser. To access it enter the Hydrocontrol IP address in the URL tab of your browser. Then enter the same user and password you are using in the HMI.
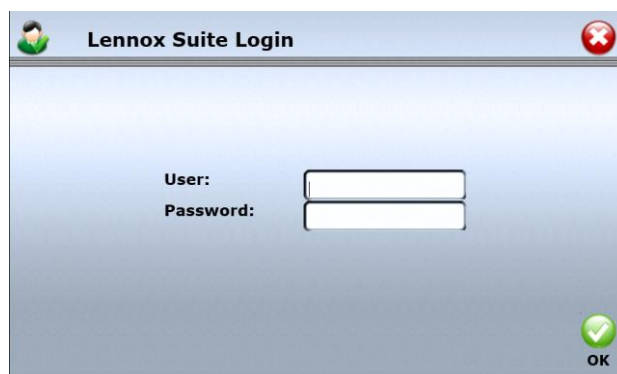
Picture54: Browser login page

Diagnostics

This screen is designed for Lennox technicians. To access it click on the button "diagnostic" from the start up setting page (see Picture 26; Hydrocontrol start up Paragraph)

Picture55: Diagnostic page

Buttons:
- Welcome: To return to the home page
- Time: To access the schedule page
- Settings: To access the start up settings page
- Reset: To reboot the HMI
- Return: To access the previous page

From here you can set the HMI BACnet MS/TP address and the maximum value of the HMI address (which is the master in the network).

Below you can see:
- Total frame sent and received by the HMI on the network
- Number of error (sent and received) detected by the HMI
- The 10 minute value which is the number of the total frame sent each 10 minute (If during 10 minute the value didn't increase the HMI will perform an automatic reboot)
- Reset count: the number of manually + automatically reboot performed by the HMI.

Chiller parameters (Climatic™)

In case a chiller is connected you will have to set the BMS connection:

3826 Address = 1
3827 Protocol = Carel
3828 Baudrate = 19200
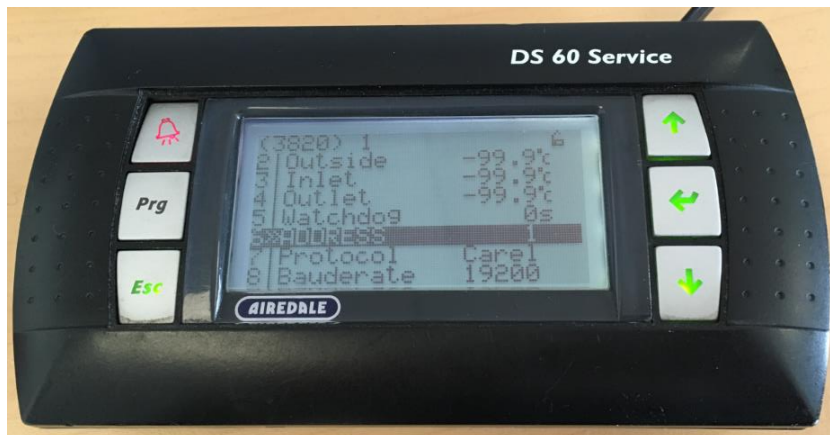
Picture56: Chiller settings (Climatic™)

Screen list

Screen names	Pictures	Screen names	Pictures
Acceuil Menu		FC Unit (100XX)	
Chiller		FCU Cfg	
Chiller Param		Multi Temp	
Diagnostic		Parametres	
FC Cfg		Schedules	
FC Selector XX-XX		Schedules XX-XX	

LENNOX

DIP Switch Positions

Address	1	2	4	8	16	32	64
10	OFF	ON	OFF	ON	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF
31	ON	ON	ON	ON	ON	OFF	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF
33	ON	OFF	OFF	OFF	OFF	ON	OFF
34	OFF	ON	OFF	OFF	OFF	ON	OFF
35	ON	ON	OFF	OFF	OFF	ON	OFF
36	OFF	OFF	ON	OFF	OFF	ON	OFF
37	ON	OFF	ON	OFF	OFF	ON	OFF
38	OFF	ON	ON	OFF	OFF	ON	OFF
39	ON	ON	ON	OFF	OFF	ON	OFF
40	OFF	OFF	OFF	ON	OFF	ON	OFF
41	ON	OFF	OFF	OFF	OFF	ON	OFF

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