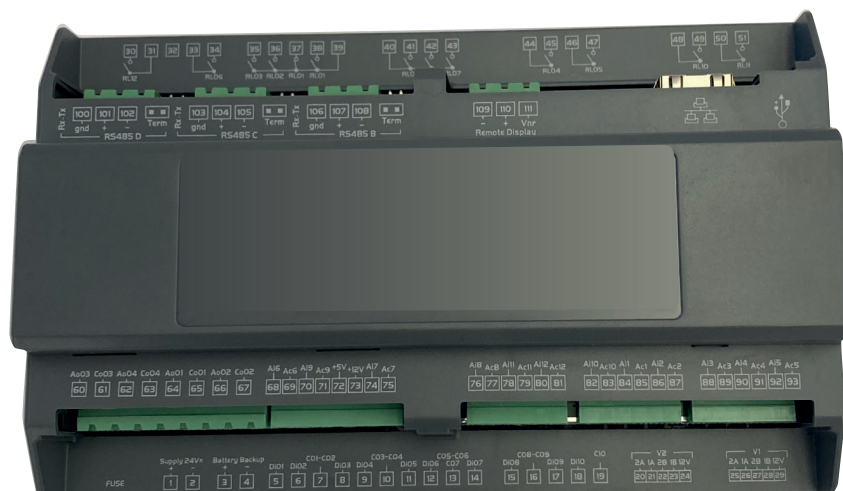


Controller manual

EN

06-02-2025



**iProLite controller
with touch display**



BlueBox 
by Swegon

Page intentionally blank

Contents

1	Introduction	5
1.1	General	5
1.1.1	<i>Purpose of the manual</i>	5
1.1.2	<i>iPRO_Lite controller functions</i>	5
1.1.3	<i>Recommendations for digital security</i>	5
2	System hardware	6
2.1	IPL500D board	6
2.2	RS485 serial port and Ethernet	7
2.2.1	<i>RS485 serial connection</i>	7
2.2.2	<i>Ethernet connection</i>	7
2.3	Expansion board c.pCOe	8
2.4	iProLink board	9
2.5	XEC Supercap module	10
2.6	pGD Touch-Screen Display	11
2.6.1	<i>Local display</i>	11
2.6.2	<i>Remote display</i>	11
2.7	iProLink installation	12
3	Addressing of components	13
3.1	Expansion board addressing procedure	13
3.2	IP addressing	14
3.2.1	<i>IP address change with computer</i>	14
3.2.2	<i>Search for the IP address</i>	14
4	Graphics on the display	15
4.1	Graphic conventions	15
4.1.1	<i>Icons</i>	15
4.1.2	<i>“User Menu” icons</i>	16
4.1.3	<i>“Video Display” Menu icons</i>	17
4.1.4	<i>“Maintenance” Menu icons</i>	17
4.1.5	<i>“Service Menu” icons</i>	18
4.1.6	<i>“Control Panel Menu” icons</i>	19
5	Software management	22
5.1	Installing the software	22
5.1.1	<i>iPRO programming</i>	23
5.2	Updating the software	24
5.2.1	<i>Updating the iPRO</i>	24
5.2.2	<i>Pen drive preparation for display programming</i>	26
5.2.3	<i>Display programming procedure</i>	26
5.2.4	<i>Programming completion procedure</i>	27
5.3	Editing the IP addresses of the controller and the user interface	28

5.3.1	<i>Editing the network references of the controller</i>	28
5.3.2	<i>Re-addressing the user interface</i>	29
5.4	iPro Link settings	30
5.4.1	<i>IP address change with computer</i>	30
5.4.2	<i>Search for the IP address</i>	30
5.4.3	<i>"Device instance" setup</i>	31
6	The screens	32
6.1	User Interface	32
6.1.1	<i>Home page</i>	32
6.1.2	<i>Screen tree</i>	33
6.1.3	<i>Controls Menu</i>	34
6.1.4	<i>Access to protected menus</i>	35
6.1.5	<i>Access to the Parameters menu</i>	36
6.2	Base setup parameters	37
6.2.1	<i>Switching the unit on and off</i>	37
6.2.2	<i>Change of set points</i>	37
6.2.3	<i>Change language</i>	37
6.2.4	<i>Change date and time</i>	37

1 INTRODUCTION

1.1 General

Some information on the use of this manual.

1.1.1 Purpose of the manual

The purpose of this manual is to provide all necessary information for installing and programming the controller that manages the units listed on the cover and it is complementary to the manual describing the software functions.

This manual is the “SERVICE” version, that is, it is intended only for after-sales service technicians and Factory technicians. Information regarding installation of the units and relevant tests and checks for the first starting is not given in this manual. It is taken for granted that the unit has been installed correctly, the tests and checks prior to start-up have been carried out and that routine maintenance is carried out, according to the information given in the “Installation, operation and maintenance” manual for the units.

We thank in advance all those who will wish to let us know of any errors, omissions, sections requiring further explanation or operations that have not been included.

1.1.2 iPRO_Lite controller functions

The software application for the electronic microprocessor controller of the iProLite series was designed to manage refrigerant units and heat pumps.

Through appropriate configuration, this gives the possibility of managing a wide range of units with relevant specific functionalities.

By management of refrigerant units we mean safe control of operation of their component parts, during their various operating stages.

There are various sizes of modules in the iPro electronic microprocessor controller family. Through flexibility of the software, this allows their use to be optimized by using those that have the necessary number of inputs and outputs for each application.

Other expansion modules are used for unit control in addition to the iProLite microprocessor controller.

The iProLite board is connected to the various modules and communicates with them via a high speed, highly reliable field bus.

The user interface of the controller consists in a high resolution touch screen display.

1.1.3 Recommendations for digital security

This unit is designed for connection to an Ethernet network.

Unit networking must be implemented by technicians who can take the appropriate security measures required to prevent system violations.

In particular:

- We recommend that access to the unit controller be restricted to the network inside the organization. System exposure to the Internet is strongly not recommended.
- If remote access is required, the connection must be encrypted via SSL/TLS or VPN and through a firewall configuration within the internal IT environment.
- The authorization to use a remote access must only be granted to equipment that the organization has supplied and approved, as specified in the previous item.

2 SYSTEM HARDWARE

This chapter describes the basic parts making up the system and any accessories as concerns the operation of this software.

Refer to the wiring diagram of the unit for the various connections.

2.1 IPL500D board

The IPL500D controller with SSR is the main hardware component of the system and it is designed to control the unit via inputs and outputs.

A picture of the controller, the layout of the inputs and outputs and relevant description are shown below.



Fig. 1 iProLite500D

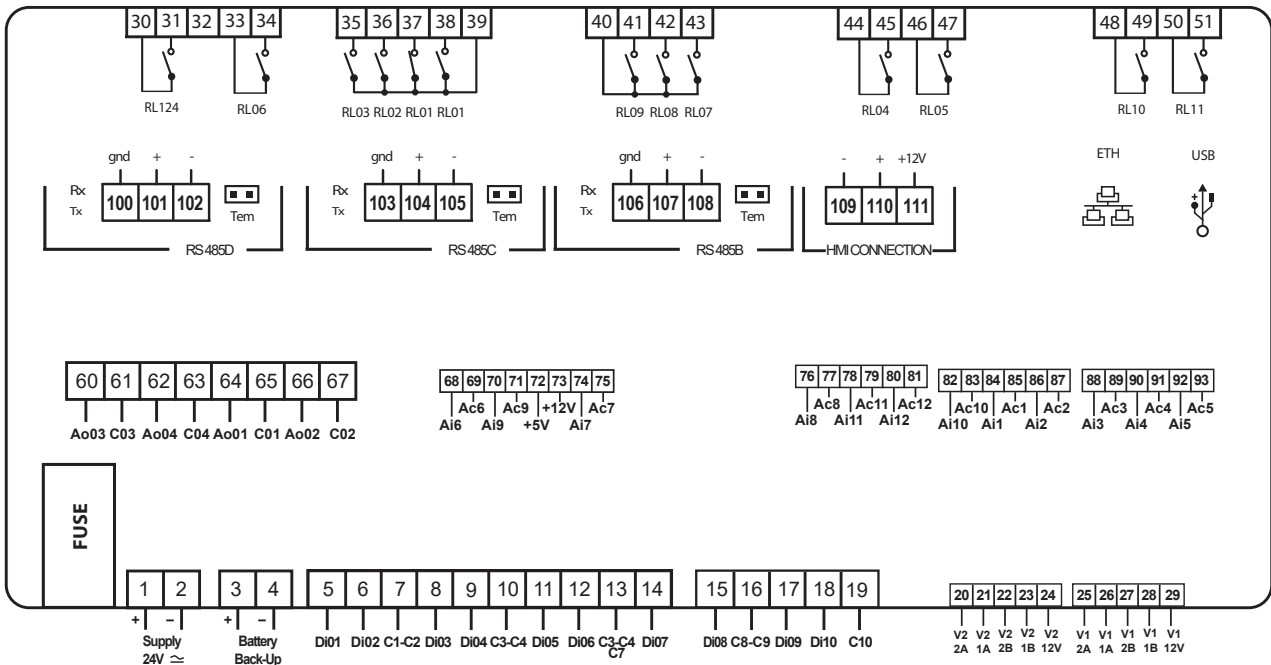


Fig. 2 IPL500D inputs and outputs

PIN	DESCRIPTION
1.2	24Vac or 24Vdc power supply
3.4	Backup coil
5-6-7, 8-9-10, 11-12-14-13	Digital inputs
15-17-16, 18-19	Digital inputs
20-21-22-23-24	Electronic expansion valve 2
25-26-27-28-29	Electronic expansion valve 1
30-31, 33-34	Digital outputs
35-36-37-38-39	Digital outputs
40-41-42-43	Digital outputs
44-45, 46-47	Digital outputs
48-49, 50-51	Digital outputs
60-61, 62-63, 64-65, 66-67	Analogue outputs
68-69, 70-71, 74-75	Analogue inputs
72 - 73	Power supplies for analogue inputs (+5Vdc) - (+12Vdc)
76-77, 78-79, 80-81	Analogue inputs
82-83, 84-85, 86-87	Analogue inputs
88-89, 90-91, 92-93	Analogue inputs
100-101-102	Serial port RS485 "D"
103-104-105	Serial port RS485 "C"
106-107-108	Serial port RS485 "B"
109-110-111	User interface connection

2.2 RS485 serial port and Ethernet

2.2.1 RS485 serial connection

The connection must be made through serial port "**RS485 C**" using terminals 103, 104 and 105 and observing the indicated polarities.



Terminal "103", marked with "gnd", should be used only if you are certain it is not earthed.
The serial communication works even without its connection.



Connection of the "gnd" terminal to earth will damage the controller with consequent shutting down of the unit.

2.2.2 Ethernet connection

RJ45 connectors and a 8 twisted wire cable must be used for the connection.

The connectors can be of either plastic or metal material.



Fig. 3 Plastic connector, RJ45

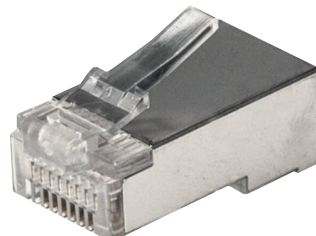


Fig. 4 Metal connector, RJ45

The cables can be either "FTP" (with aluminium shielding) or "UTP" type (without shielding). Cable type **Cat.5e** is a suitable choice.



The shielding must not be linked to the connector if metal RJ45 connectors and a shielded cable are used.
Connecting the shielding to the metal connector may damage the controller irreparably.

2.3 Expansion board c.pCOe

The c.pCOe board is an expansion module of the main controller.

A picture of the board, the layout of the inputs and outputs and relevant description are shown below.

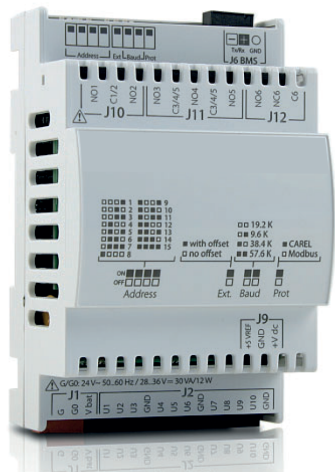


Fig. 5 l.pCOe

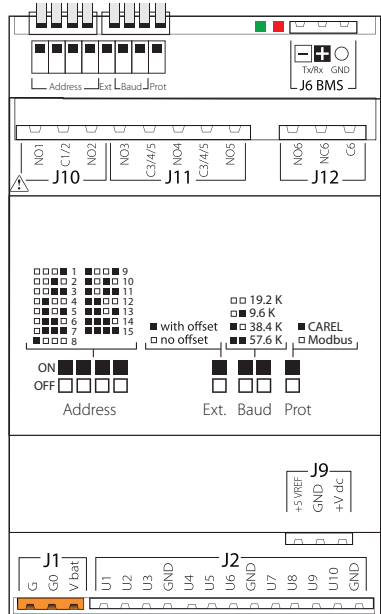


Fig. 6 c.pCOe inputs and outputs

Reference	DESCRIPTION
J1	Power connector [G(+), G0(-), Vbat]
J2	Universal inputs/outputs
J6	BMS connector
J9	+VdC: power supply for active probes +5V: power supply for ratiometric probes
J10-J11-J12	Relay digital outputs

2.4 iProLink board

The iProLink board is supplied with a web server.
It is used when the number of serial ports in the controller are not enough.
A picture of the board and the layout of the serial ports is given below.



Fig. 7 IProLink

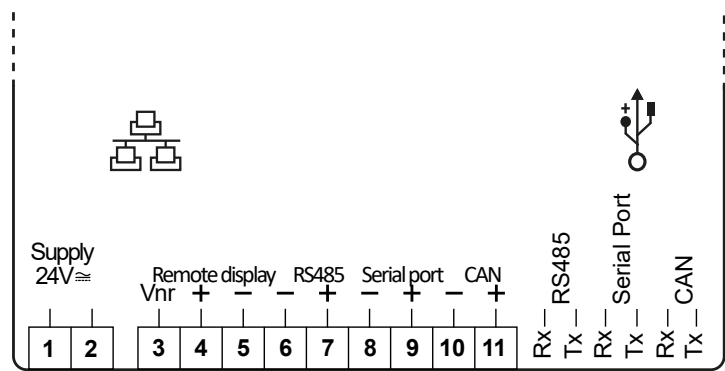


Fig. 8 iProLink inputs and outputs

Pin	DESCRIPTION
1 - 2	24Vac/dc voltage
3 -4 -5	Vnr/+/- Remote display
6 - 7	-/+ Serial port RS485
8 - 9	-/+ Serial port
10 - 11	-/+ Serial port CAN
Rx - Tx RS485	Rx/Tx Serial port RS485
Rx - Tx Serial Port	Rx/Tx Serial port
Rx - Tx Can	Rx/Tx Serial port CAN

2.5 XEC Supercap module

The supercap module is designed to close the electronic expansion valve in case of sudden failure of the power supply to the unit.

A picture of the controller, the layout of the inputs and outputs and relevant description are shown below.



Fig. 9 XEC supercap module

PIN	DESCRIPTION
1,2	("24V ac/dc", "GND") Power supply
3,4	("gnd", "+12Vcc") Output

2.6 pGD Touch-Screen Display

The pGD Touch-Screen display (graphic LCD display [4.3"]) is the interface through which the controller is managed. Two displays can be connected to one single controller. This application is designed to connect a display on board of the unit via a serial port and a remote display via Ethernet.

2.6.1 Local display

The local display is connected to the controller via an AWG24 cable with terminals.

If the display needs replacing, the connections in the wiring diagram of the unit must be checked.

2.6.2 Remote display

The remote display is supplied with a 230Vac/24Vdc power unit and it is connected to the controller via an Ethernet cable with "RJ45" connectors.

The power supply unit must be installed near the remote display.

Use the orange terminal to power the remote display.

A network switch is featured in the electric panel of the unit for connection.

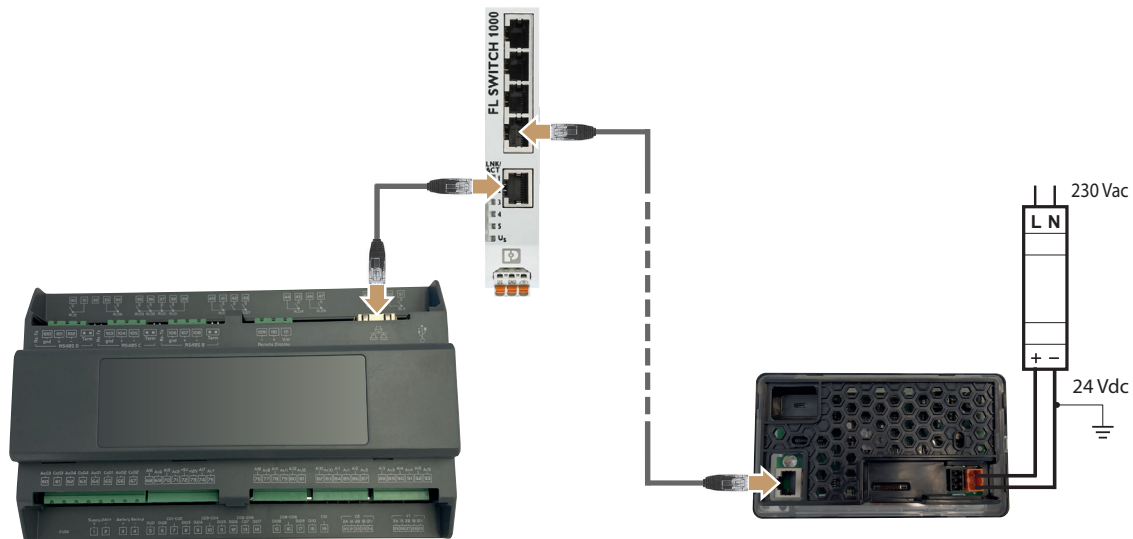


Fig. 10 Remote display connection

2.7 iProLink installation

iProLink is an expansion module used as Web Server or for serial communication protocols in controllers that are not provided with one.

As a rule, the expansion module is supplied factory programmed and ready for unit connection to the Ethernet.

The connection between the iProLink expansion module and the unit controller is implemented via serial port RS485, as shown in the wiring diagram.

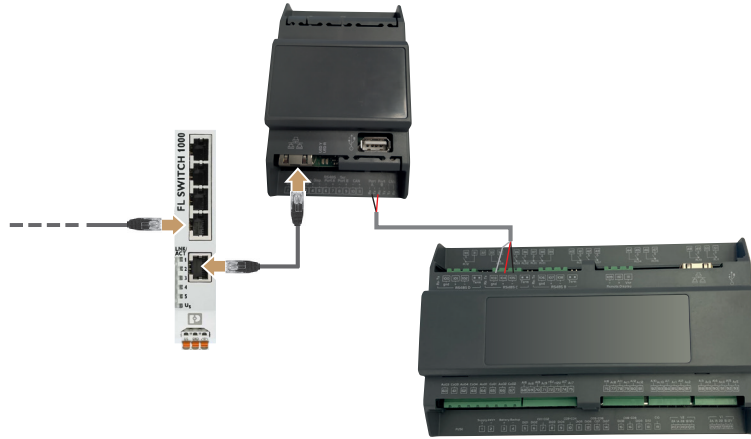


Fig. 11 iProLink connection

The network switch featured in the electrical panel must be used for connection to the network. Reference should be made to the “IP addressing” section to set up the network communication parameters.

3 ADDRESSING OF COMPONENTS

The components making up the system that controls the units are networked together.

Each component must have a different address in a network.

The user interface must be addressed via software; the expansion board must be addressed via a dip-switch.

3.1 Expansion board addressing procedure

The hardware address is allocated using the first 4 dip-switches located on the left in the expansion boards.

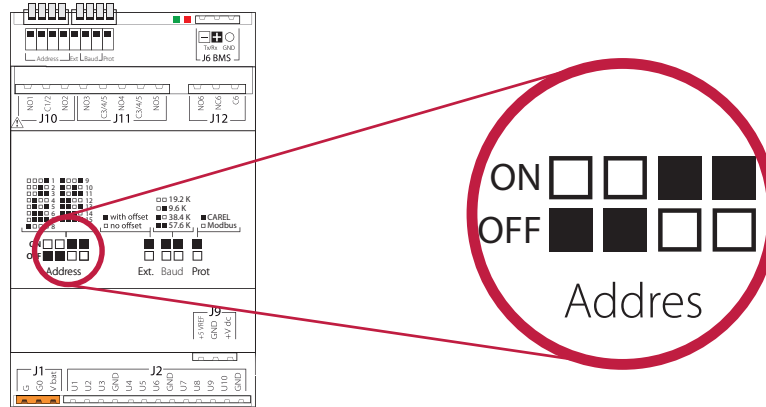


Fig. 12 Dip-switches in expansion board

The dip-switches are ON in the up position. The address is given in binary mode with the ON position of the dip-switches. The address of the expansion board must be set to “3”: this value is achieved by moving the dip-switches to position “ON”, as shown in the previous picture.

The following 4 dip-switches are used to determine the communication features, including in order:

- the offset, present or not;
- the communication speed in kBaud;
- the protocol type, “Carel” or “Modbus”.

The dip-switches must be set up as illustrated in the next picture for use in our applications.

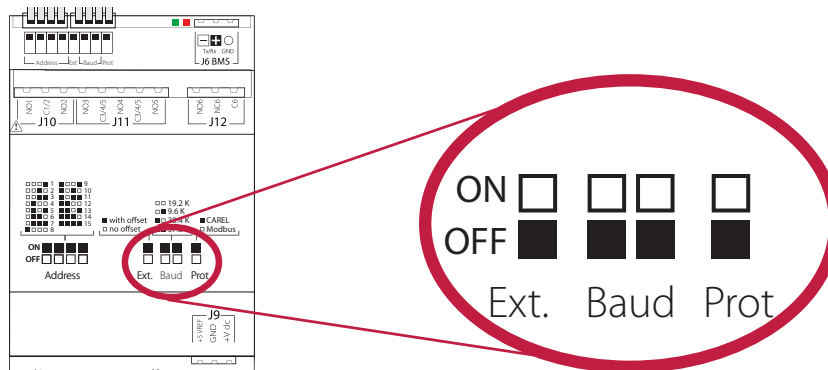


Fig. 13 Dip-switches in expansion board

Our setting requires serial communication with the Modbus protocol, 19200 baud, without expansion offset.



The address must be set before powering the board.

3.2 IP addressing

The Ethernet port in the controller is used to access the web server built in the iProLink expansion board.

To access the controller in this way, it is necessary to know its IP address.

Even for programming with USB pen drive, it is necessary to know the IP address of the controller.

The factory set IP address for the **iProLite controller is 10.2.3.20**; the address for the **iProLink expansion board is 10.2.3.17**.

3.2.1 IP address change with computer

To connect the unit to a network, its IP address must be changed.

The IP address of the iProLite controller cannot be changed if the connection to the computer is point-to-point type.

The change can however be implemented via the User Interface. Refer to the chapter titled “Editing the network references of the controller”.

3.2.2 Search for the IP address

If you do not know the IP address of the controller, you can restore the default address.

This procedure also applies to the iProLink expansion board.

Below is the procedure to restore the default address.

- Power up the controller.
- Create a folder in a USB pen drive and name it “ipro” (all small letters) in the root directory.
- In the “ipro” folder, create a file and name it “tempip.txt”.
- When the controller is on and running, plug the USB pen drive into the USB port in the controller.
- A few seconds later, the controller will respond with IP “192.168.0.250”.
- change the IP address of your computer to address 192.168.0.249
- make sure the network screen is 255.255.255.0
- open a web browser of your PC (FireFox, Edge, etc.)
- in the address bar, type 192.168.0.250/panel
- login
- enter Password = servicebb
- The panel opens in the “Info” window of the “SYSTEM” menu where the correct controller IP address is read.

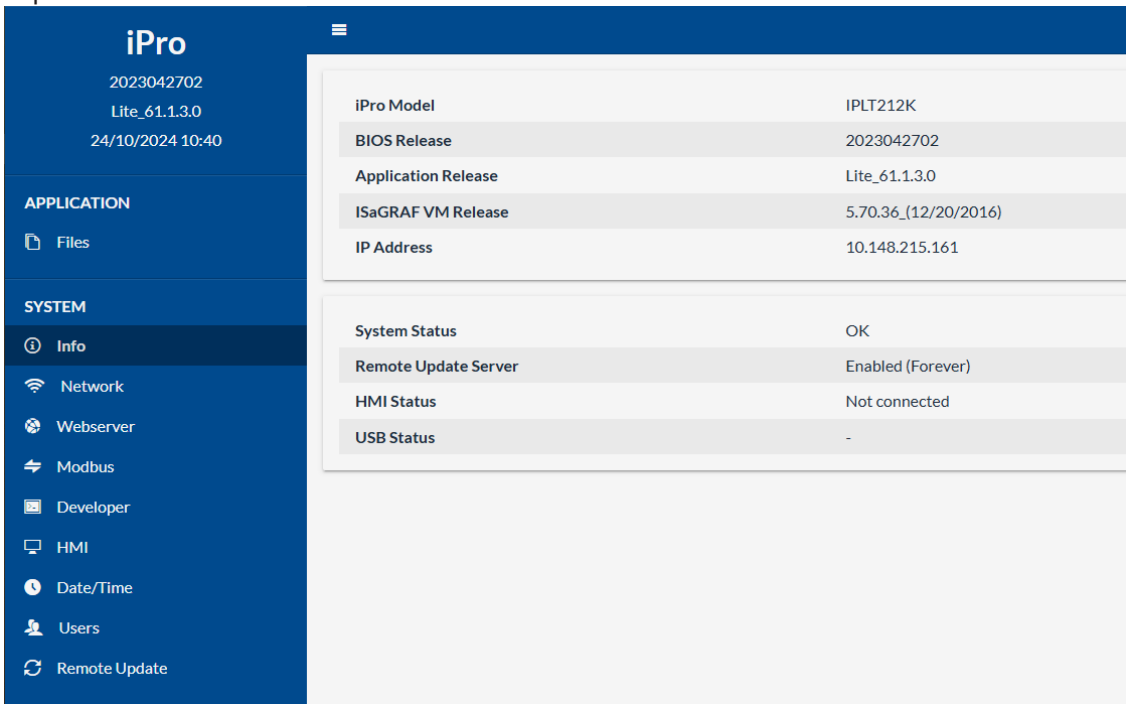


Fig. 14 Panel screen to view the controller IP address

4 GRAPHICS ON THE DISPLAY

During development of the application, particular attention was given to intuitive use of the user interface. That is why large use has been made of symbols and icons.

4.1 Graphic conventions

The touch-screen display is designed to browse the interface.

Provision has been made for some intuitive icon buttons that are tapped to easily browse the featured screens and menus.

Other user-friendly symbols are used to locate parts and active functions.

Below is a list of the icons used as buttons and the symbols featured in the various screens of the interface.

4.1.1 Icons

Icons are used as physical buttons in the touch-screen display to browse the menus and screens. The featured icons include:



The “**Commands Menu**” icon placed on the top right-hand side of the screen gives access to a drop-down menu featuring the icons of the other menus.



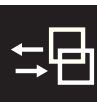
The “**On-Off**” icon in the bottom left-hand side of the screen gives access to the window where the unit is started/stopped.



This icon is featured in the top part of the display during the defrost cycle.



If the function “Domestic hot water” is featured, the icon “**DHW**” on the bottom right-hand side shows the operating status. A tap on the icon gives access to the screen where the setpoint is changed.



If the function “Management of mixed heating/cooling installations” is featured, the icon “**2 zones**” on the left-hand side shows the operating status of the existing zones. A tap on the icon gives access to the function-specific screen: the arrow on the right is used to enable/disable the function and to edit the setpoint. The unit must be in operation in order for the user to be able to edit the setpoint.



If the function “Thermoregulation with tank-mounted probe” is featured, the icon **Tank** is enabled on the left. The colour of the icon gives an indication of whether the unit status is “OFF” or if the unit is operating in either heating or cooling mode.

A tap on the icon “**Tank**” gives access to the screen where the setpoint is edited.



If the “SmartLink”, “SmartLink+” or “SmartLink DX” function is enabled, the icon “**SmartLink**” is provided at the centre of the main screen next to the value measured by the reference sensor.

When the drop-down menu on the left-hand side is opened, icons appear that give access to the other menus.

The drop-down menu features the following icons.



The icon “**LH arrow**” in this position is clicked to close the menu. When in the other screens, it is clicked to go back to the previous screen or to the main screen.



The icon “**Info**” gives access to the information screens.



The icon **“User Menu”** gives access to the screen where the following icons are always featured: “Alarms History”, “Video display”, “Network”, “File Management”, and “Refrigerant circuit”. The icons “Flowzer”, “DHW” and “2 Zones” are featured depending on which functions the controller controls.



The icon **“Change of operating mode”** is clicked to switch operation in units featuring cycle reversal via the keyboard.



The icon **“Night Shift System”** gives access to the screen where it is possible to enable and to programme the time bands of the second set of ventilation parameters in order to reduce noise in the night hours.



The icon **“Time bands”** gives access to the screen where it is possible to enable and to programme the time bands according to which the unit must be switched on/off and the energy saving setpoint.



The icon **“Languages”** gives access to the screen where it is possible to set a new language.



The icon **“Access”** gives access to the screen used to log in to the menu branches that are protected by a password.

4.1.2 “User Menu” icons

A tap on the icon **“User Menu”** gives access to the screen where the following icons are present:



The icon **“Alarms History”** and the text “Alarms History” give access to the screen where the start and end times of alarm activation in the unit are recorded.



The icon **“Video display”** and the text “Video display” give access to the “Video display menu” where the icons “Back-lighting”, “Led”, “Font” and “Network” are featured for video display management.



The icon **“Network”** and the text “Network” give access to the screen where information is given about the “IP” address, the “Modbus” address and the “Baud-rate” of the controller.



The icon **“File management”** and the text “File management” give access to the screen where it is possible to unload the Logs to a USB pen drive. These functions can be used after plugging the USB pen drive into the controller.



The icon **“Refrigerant circuit”** and the text “Refrigerant circuit” give access to the loop of screens where it is possible to view the operating parameters of the unit.



The icon **“Flowzer”** and the text “Flowzer” give access to the loop of screens where it is possible to view the operating parameters of the relevant function.



If the function “Management of mixed heating/cooling installations” is featured, the icon **“2 zones”** on the left-hand side shows the operating status of the existing zones. A tap on the icon gives access to the function-specific screen: the arrow on the right is used to enable/disable the function and to edit the setpoint.

The unit must be in operation in order for the user to be able to edit the setpoint.

4.1.3 “Video Display” Menu icons

The “**User Menu**” features the “**Video display**” icon which is used to access the screen where the following icons are present:



The icon “**Back-lighting**” and the text “Back-lighting” give access to the screen where it is possible to edit the time during which the display is lit when in use. This screen also shows the number of hours during which the back-lighting has been active.



The icon “**Led**” and the text “Led” give access to the screen where it is possible to disable operation of the side LED in the display. Normally, the display is supplied with the side LED enabled.



The icon “**Network**” and the text “Network” give access to the screen where it is possible to view the parameters for video display connection to the Internet.



The icon “**Network**” is only featured if the video display is supplied with an Ethernet port.

4.1.4 “Maintenance” Menu icons

The icon “**Access**” in the drop-down menu on the side of the screen gives access to password-protected menus.

Access to the protected “Maintenance” branch requires entry of the password **200**.

The Maintenance Menu features the icons below.



The icon “**Setpoint**” and the text “Setpoint” give access to the screen where it is possible to set up the parameters of the unit setpoint. The setpoint according to which the unit is operating can be changed from the main screen also.



The icon “**I/O**” and the text “I/O” give access to the screens where it is possible to view the status of the inputs and outputs.



The icon “**Compressors**” and the text “Compressors” give access to the screen where it is possible to enable and disable operation of the compressors, as well as to view and reset, where needed, the number of hours of operation and the number of start-ups.



The icon “**Alarms History**” and the text “Alarms History” give access to the screen where the start and end times of alarm activation in the unit are recorded.



The icon “**Refrigerant circuit**” and the text “Refrigerant circuit” give access to the loop of screens where it is possible to view the operating parameters of the unit.



The icon in this screen and the text “Parameters” give access the “Parameters” menu. The “Parameters” menu includes the screens giving access to parameters, which are sorted in homogeneous groups depending on their function.



The icon “**Pumps**” and the text “Pumps” give access to the screen where it is possible to enable and disable operation of the pumps, as well as to view and reset the number of hours of operation.



The icon “**SM GR**” and the text “Smart Grid ready” give access to the screen where the function management parameters are set up.



This icon and the text “Unit hour meter” give access to the screen where the number of unit hours of operation is reset.



This icon and the wording “Smartlink DX/0-10V signal mode” give access to a loop of screens that are used to change the operating mode of the unit from “Smart Link DX” to “0-10V” and vice versa.

4.1.5 “Service Menu” icons

The icon “**Access**” in the drop-down menu on the side of the screen gives access to password-protected menus.

A password is required to access the screens making up the “Service” menu. The password is available on the SAP portal, in connection with the unit serial number.

The “Service” menu features the icons below.



The icon “**Setpoint**” and the text “Setpoint” give access to the screen where it is possible to set up the parameters of the unit setpoint. The setpoint according to which the unit is operating can be changed from the main screen also.



The icon “**I/O**” and the text “I/O” give access to the screens where it is possible to view the status of the inputs and outputs.



The icon “**Compressors**” and the text “Compressors” give access to the screen where it is possible to enable and disable operation of the compressors, as well as to view and reset, where needed, the number of hours of operation and the number of start-ups.



The icon “**Alarms History**” and the text “Alarms History” give access to the screen where the start and end times of alarm activation in the unit are recorded.



The icon in this screen and the text “Control panel” give access to the “Control panel” menu.



The icon “**Refrigerant circuit**” and the text “Refrigerant circuit” give access to the loop of screens where it is possible to view the operating parameters of the unit.

The next screen contains the icons below.



The icon in this screen and the text “Parameters” give access the “Parameters” menu. The “Parameters” menu includes the screens giving access to parameters, which are sorted in homogeneous groups depending on their function.



The icon “**Pumps**” and the text “Pumps” give access to the screen where it is possible to enable and disable operation of the pumps, as well as to view and reset the number of hours of operation.



The icon “**DHW**” and the text “Domestic hot water” give access to the screens where it is possible to enable and disable domestic hot water production, to edit the setpoint, to override the anti Legionella cycle, and to access the specific parameters to the access level.



The icon “**Flowzer**” and the text “Flowzer” give access to the loop of screens where it is possible to view the parameters of the relevant function. The arrow on the right gives access to the parameters associated with the entered access level.



The icon “**Flame**” and the text “Auxiliary heating” give access to the screens where it is possible to enable/disable and edit the 0-10V setpoint according to the control setpoints of the function.



The icon “SM GR” and the text “Smart Grid ready” give access to the screen where the function management parameters are set up.



This icon and the text “Unit hour meter” give access to the screen where the number of unit hours of operation is reset.



This icon and the wording “Smartlink DX/0-10V signal mode” give access to a loop of screens that are used to change the operating mode of the unit from “Smart Link DX” to “0-10V” and vice versa.

4.1.6 “Control Panel Menu” icons

The “Control Panel” screen contains the icons below.



This icon and the text “Parameter file management” give access to the screen where the following control buttons are featured: “Update parameters from control”, “Save current configuration”, and “Upload default parameters”.

4.1.6.1 Update control parameters



When updating the controller, if it is already installed on a unit, disconnect the 230V auxiliary circuit.

This function makes operational the parameters of the “actual.conf” file stored in the controller.



This operation must always be carried out whenever the software is updated: it consists in the downloading of the files to the controller with a USB pen drive, as instructed in the chapters titled “Software deployment” and “Software upgrade”.

The function gets started by merely pressing the control button and is normally completed in a few seconds.



When the update is finished, turn the power to the controller off and then on again.

4.1.6.2 Save current configuration

The “Save current configuration” control creates a file with extension “conf” in the memory of the controller; the parameters with which the unit is configured are present in this file.

This file can be requested from the manufacture to check the correct setting of the parameters in the unit.

The function gets started by merely pressing the control button and is normally completed in a few seconds.

The saved file can be downloaded to a USB pen drive using the “Copy current configuration to USB” function featured in the “Log file management” menu.

4.1.6.3 Upload default parameters

The “Upload default parameters” control automatically restores the original setting of the factory parameters in the controller.

This operation may become necessary if, after making changes to the software parameters, the parameters fail to meet the operating requirements and not all the initial values can be restored manually.

The function gets started by merely pressing the control button and is normally completed in a few seconds.

The saved file can be downloaded to a USB pen drive through the “Copy current configuration to USB” function.



This icon and the text “Log file management” give access to the screen where the following control buttons are featured: “Copy ALARMLOG to USB”, “Copy ACCESSLOG to USB”, “Copy TIMELOG to USB”, “Copy current configuration to USB”, “Copy alarm configuration to USB”, and “Copy all LOG files to USB”.



These control buttons are only enabled if a pen drive is inserted in the USB port.

If the message “Warning: USB not ready” appears after inserting the pen drive in the USB port, check that the USB pen drive is formatted and in good working order.

4.1.6.4 Log File Management

Some measured or calculated values are saved in the memory of the controller during operation. These values are saved every 15 seconds.

In addition to recording at intervals, the alarms and accesses are recorded automatically and the setting of the parameters present in the unit is recorded manually.

The controller saves these data in files that can be copied to a USB pen drive.

When copying, the controller creates the folder structure shown in the figure in the USB pen drive.

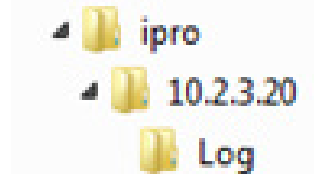


Fig. 15 Structure created in the USB pen drive

The files are copied to the "Log" folder



If considered useful, the manufacturer can ask for some or all of the Log files to be sent.



To upload log files to USB, the unit must be OFF!

When the control starts, a copy progress bar appears in the screen.

Depending on the amount of data, the copying operation can take from a few seconds to a few minutes.

At the end of data copying, a message appears confirming that the operation has been completed successfully.



Before continuing with this operation, make sure the USB pen drive has sufficient free space, "at least 30 Mb".

Free the memory in the pen drive or replace it with one that has more free space available.



If the problem persists, replace the USB pen drive.

4.1.6.5 Copy ALARMLOG to USB

In the USB pen drive, this control creates the "alarmlog.txt" file containing the operating parameters of the previous 5 minutes for each alarm.

4.1.6.6 Copy ACCESSLOG to USB

In the USB pen drive, this control creates the "accesslog.txt" file that contains a record of the time of access to the parameters of the service menu from the display or via WEB and the edited values.

4.1.6.7 Copy TIMELOG to USB

In the USB pen drive, this control creates a "timelog_dd_a.txt" file for each day of controller operation where the operating values, with 15 seconds as acquisition frequency, are recorded.

4.1.6.8 Copy current configuration to USB

This command creates the file "Sb10000xxxx_settings.txt" in the USB pen drive. The file contains the current setpoints of the controller operating parameters.

The file needs to be renamed "actual.conf" in order for it to be reused.

To upload the file "actual.conf" into the controller, it must be copied onto an empty "USB" pen drive in the "ipro/10.2.3.20/conf" directory.



When a file needs to be imported back into the main controller after a software upgrade or for any other reason, the file must be renamed "actual.conf".

4.1.6.9 Copy alarm configuration to USB

This command creates a copy of the “alarm.conf” stored in the controller on the USB pen drive. The file “alarm.conf” helps manage the alarms on the two digital outputs or treat the alarm as merely a warning message.

The file “alarm.conf” can be changed using a text editor. Instructions to edit the file are given in the first line of the file.

If you wish to update the file “alarm.conf” on the controller, you should reference the section “iPRO update”.

4.1.6.10 Copy all LOG files to USB

This command copies all the log files mentioned above at the same time.



This icon and the text “System information” give access to the screen where it is possible to set the IP address of the board, the Modbus address, the communication speed, i.e. the Baud-rate, and the BACnet address.

4.1.6.11 System information

In this screen, the IP address, the serial address, the communication speed, and the "device number" if the BACnet protocol is present, are shown and can be changed.

The numbers making up the IP address can be changed individually using the virtual keypad on the display.



To activate the changes, the controller must be restarted.

5 SOFTWARE MANAGEMENT

It is essential for those who service units provided with this controller to be able to program it or correctly update its software. These operations can make the system unserviceable if they are not carried out correctly. All useful information for proceeding correctly is given in the next chapters.

5.1 Installing the software

The system includes the iProLite controller and the pGDX display.

Both must be programmed to operate and this requires uploading of some files.

The descriptions below illustrate both the programming of new components and their upgrading.

The easiest way to upload the programming files is through the USB port of the controller and the micro USB port of the display using formatted USB pen drives.

The USB pen drives of both the controller and the display must be "FAT32" formatted, the maximum storage capacity being 64 GB.



This operation requires that the operator has a pen drive with two connections or a USB pen drive and a USB/micro USB adapter.



If a controller already installed on the machine has to be programmed, disconnect the 230 V auxiliary circuit. Close the 230 V auxiliary circuit again only after complete programming of the controller and the display.



Use the USB port on the right to programme the iProLite boards.



Fig. 16 Special IPLT500D board

5.1.1 iPRO programming

Programming of the controller is carried out easily and securely using a USB pen drive.



Plug out the "Ethernet" connection, if fitted, before starting board programming.



Use a USB pen drive that has a LED. This will enable you to follow the progress of the controller programming and be certain that it has finished when the LED remains on and steady.



The USB pen drive must be "FAT32" formatted. the maximum storage capacity being 64 GB.

Prepare the USB pen drive as follows:

- Create the "ipro" folder in root;
- create the "10.2.3.20" folder in the "ipro" folder;
- create the folders "app" and "conf" in the "10.2.3.20" folder;
- the "isadix" file must be inserted in the "app" folder;
- The configuration files must be added to the "conf" folder. The configuration files depend on the features the controller is designed to control.



The compressed file "www.zip" inserted in the "10.2.3.20" folder must not be unzipped.

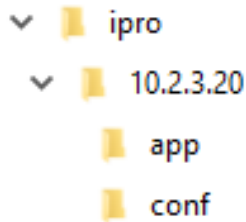


Fig. 17 Folder structure of the USB pen drive



The USB pen drive can be plugged into and unplugged from the controller without turning off the power.

Once the USB pen drive has been prepared as described above, programming will start automatically when it is plugged into the controller.

The LED on the USB pen drive will flash during transfer of the data.

The entire operation takes a few minutes.



Do not remove the USB pen drive from the controller until the programming has been completed.



Completion of the programming procedure is confirmed when the software version you wish to install appears on the screen saver page.



In some cases, the controller is automatically restarted 60 seconds after programming to finalise the configuration. A restart countdown appears in the screen saver page and the red LED of the controller will flash rapidly.



The USB pen drive can be removed after completing the programming process.

5.2 Updating the software

Conditions may occur that require updating of the software of the controller, the display or both.

Updating of the software is carried out easily and securely using a USB pen drive.



The USB pen drives of both the controller and the display must be “FAT32” formatted, the maximum storage capacity being 64 GB.



Use the USB port on the right to programme the iProLite boards.



Fig. 18 Special IPLT500D board

Updating of the software is divided into two operations:

- insertion of new files in the controller;
- updating of the parameters.



As for programming, if the controller is already installed on a unit, the 230 V auxiliary circuit must be disconnected when updating.

Close the 230 V auxiliary circuit again only after complete updating of the controller and the display.

5.2.1 Updating the iPRO

As for programming, to update the iPRO controller, the folder structure, as shown in the image, must be created in a USB pen drive.

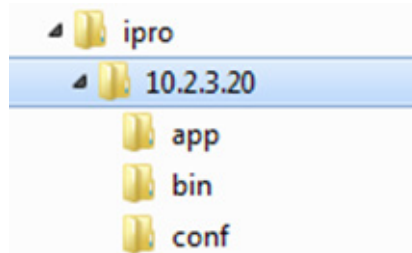


Fig. 19 Folder structure in the USB pen drive



Use a USB pen drive that has a LED. This will enable you to follow the progress of the controller programming and be certain that it has finished when the LED remains on and steady.

Not all the files mentioned in the controller programming chapter are necessary for updating. To simplify the operation, the manufacturer provides only the necessary files and therefore some folders may remain empty.

Prepare the USB pen drive as follows:

- Create the "ipro" folder in root;
- create the folder with the IP address of the controller in the "ipro" folder. If it has not been changed, this is "10.2.3.20" by default;
- create the 3 folders called "app", "bin" and "conf", in the folder with the IP address of the controller;
- the "isadix" file, if present, must be inserted in the "app" folder;
- any files with extension ".bin" must be inserted in the "bin" folder;
- files with extension ".conf" must be inserted in the "conf" folder;



The USB pen drive can be plugged into and unplugged from the controller without turning off the power.

Once the USB pen drive has been prepared as described above, updating of the controller will start automatically when it is plugged in.

The LED on the USB pen drive will flash during transfer of the data.

The entire operation takes a few minutes.



Do not remove the USB pen drive from the controller until the update has been completed.



Completion of the programming procedure is confirmed when the software version you wish to install appears on the screen saver page.



In some cases, the controller is automatically restarted 60 seconds after programming to finalise the configuration. A restart countdown appears in the screen saver page and the red LED of the controller will flash rapidly.



If the update requires installation of a new software version, check that the revision index appearing on the screen saver matches the number in the files to confirm successful completion of the operation.

If the update is required to enable a function, successful completion of the operation needs to be confirmed by checking that the new parameters are set up.

5.2.2 Pen drive preparation for display programming

The zipped folder "UpdatePackage.zip" is needed for display programming.

5.2.3 Display programming procedure

The port of the pGDX display is micro USB type.

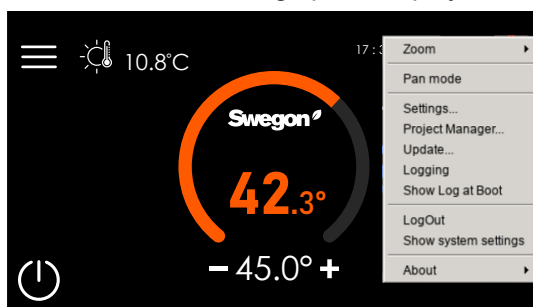
A micro-USB port is located at the top right of the display, covered by the frame.

To access the micro-USB port you need to remove the display frame.

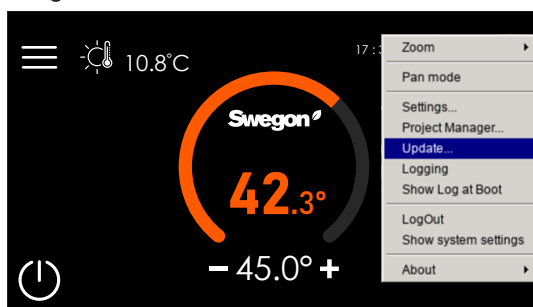


The procedure for display programming consists in the steps below.

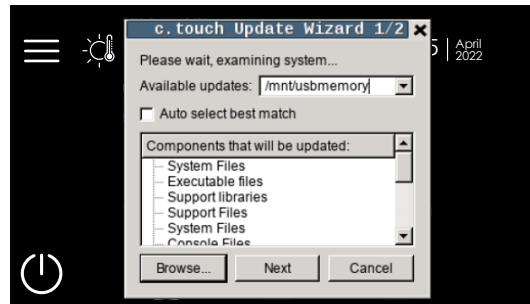
- Fit the USB pen drive in the display port.
- After initialization, the display shows the home page.
- press on the right side of the screen for 5 seconds to bring up the display menu;



- Click "Update" to call up the programming menu.



- Click “Next” to start downloading the programming file (the download takes a couple of minutes).



- The display is restarted automatically after the programming files have been downloaded.



Power to the display must be cut out and then restored and the programming procedure must be started again from the beginning in cases when a no-exit menu or an incorrect menu is selected by error in one of the various steps of the procedure.

5.2.4 Programming completion procedure

At the end of the programming procedure, after all or some of the illustrated steps have been performed, as required in each specific case, the controller must be de-energised and then energised again.

5.3 Editing the IP addresses of the controller and the user interface

The unit can be Ethernet networked. In the network, the controller is identified by its IP address.

The need may arise to change the IP address of the controller and of the user interface connected to the controller via Ethernet.

These are easy operations if you use the user interface.

A “Service” profile must be used to log in if you wish to change the IP address of the controller.

On the other hand, no access to password-protected menus is required to change the IP address of the user interface connected via Ethernet.

5.3.1 Editing the network references of the controller

The IP address, the serial address, the communication speed, and the “device number”, where a BACnet protocol is fitted, are edited on a series of screens, access to which is gained by logging in to the “Service” branch with the required password and by then selecting “Control panel” followed by “System information”.

The values in the fields provided on the screens can be edited using the virtual keypad of the display.

The featured screens are shown below.

Network 

Main Board IP address : 10 .2 .3 .20

Subnet : 255 .255 .255 .0

Network: 10 .2 .3 .0

Gateway: 10 .2 .3 .1

< >

Network 

DNS 1: 10 .148 .0 .11

DNS 1: 10 .148 .0 .12

< >

If a BACnet board is fitted, the following screen too is provided where the protocol parameters are set up.

Network

Modbus address : 1

Baudrate : 19200

BACnet: X X X X X X X X

<

After editing, the edited parameters must be saved tapping the icon “Save” on the top right-hand side of the screen.

At least one parameter must have been edited to start the saving process: a green tick appears to confirm that the new value was saved.

The iPro Lite controller must be connected to an iPro Link for communication with the BACnet protocol.

The BACnet IP address “Device instance” must be set up on the iPro Link used for the serial connection with the BACnet protocol.

Refer to the chapter titled “Continue” for the setup procedure of the “Device instance”.

Network  

Main Board IP address : 10 .2 .3 .20

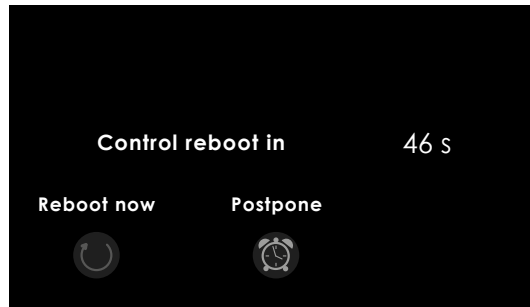
Subnet : 255 .255 .255 .0

Network: 10 .2 .3 .0

Gateway: 10 .2 .3 .1

< >

When the tick disappears, a screen pops up to warn about controller restarting.

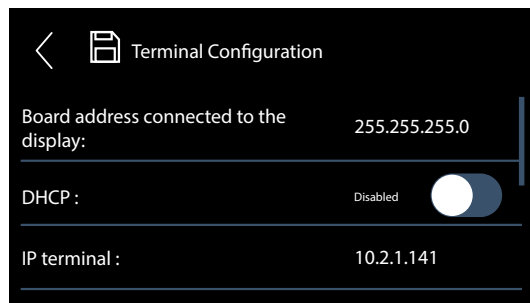


Restarting occurs automatically after a given delay and it can be postponed. If restarting is put off, the screen disappears. The screen with the message requesting restarting pops up every five minutes until the controller gets restarted.

5.3.2 Re-addressing the user interface

The terminals for the user interface connected to the Ethernet port must be addressed.

Once in the user menu, select “Video display” followed by “Network” to access the screen where the network values of the video display are edited.



This screen is used to set up the IP address of the controller with which the display communicates: select the option “DHCP” and the IP address of the terminal, and finally scroll down to select the “Subnet mask” and the Gateway. After changing the values, click the floppy disk icon to save any entered data.

5.4 iPro Link settings

5.4.1 IP address change with computer

To connect the unit to a network, its IP address must be changed.

To do this, the user must connect point-to-point with a computer.

The procedure to follow is:

- change the IP address of your computer to address 10.2.3.19
- make sure the network screen is 255.255.255.0
- open a web browser of your PC (FireFox, IE, etc.)
- In the address bar, type 10.2.3.17.
- login
- enter Username = service
- enter Password = servicebb
- Press **“Network”**.

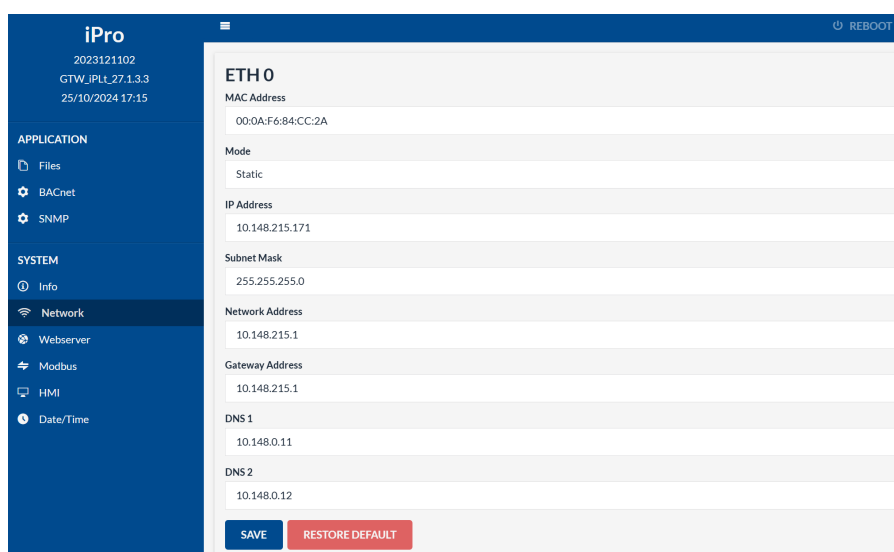


Fig. 20 Panel screen to view the controller IP address

5.4.2 Search for the IP address

If you do not know the IP address of the controller, you can restore the default address.

This procedure also applies to the iPro Link expansion board.

Below is the procedure to restore the default address.

- Power up the controller.
- Create a folder in a USB pen drive and name it “ipro” (all small letters) in the root directory.
- In the “ipro” folder, create a file and name it “tempip.txt”.
- When the controller is on and running, plug the USB pen drive into the USB port in the controller.
- A few seconds later, the controller will respond with IP “192.168.0.250”.
- change the IP address of your computer to address 192.168.0.249
- make sure the network screen is 255.255.255.0
- open a web browser of your PC (FireFox, Edge, etc.)
- in the address bar, type 192.168.0.250/panel
- login

- enter Password = servicebb
- The panel opens in the “Info” window of the “SYSTEM” menu where the correct IP address of the iProLink expansion board is read.

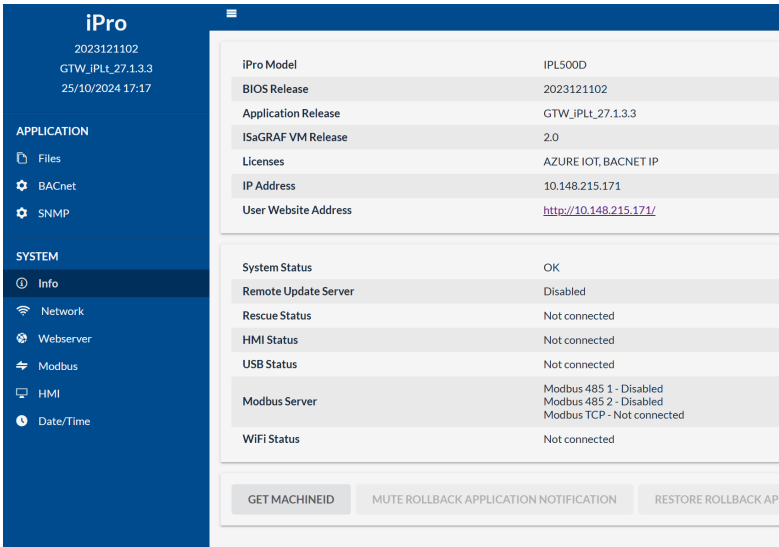
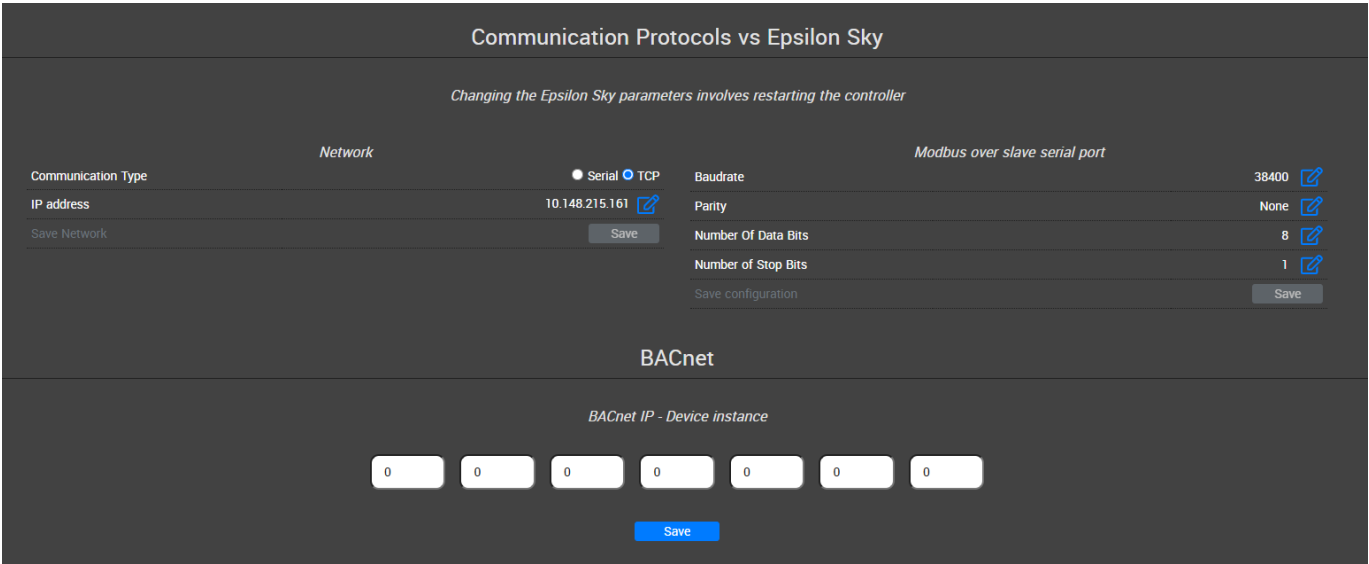


Fig. 21 Panel screen to view the IP address of the iPro Link expansion board

The iPro Link must be restarted after editing the IP address and pressing the button “Save” to confirm the operation.

5.4.3 “Device instance” setup

The iPro Lite controller must be connected to an iPro Link for communication with the BACnet protocol. The BACnet IP address “Device instance” must be set up on the iPro Link used for the serial connection with the BACnet protocol. To set up the “Device instance”, the user can connect to the web pages of the iPro Link. The factory setting of the IP address of the iPro Link is “10.2.3.17”. Connection is required to the web pages of the iPro Link, “Tools” menu, “Communication Protocols vs Epsilon Sky” section. In this section, the user can read and set up all the controller communication parameters.



The area at the bottom of this page is used to set up the “Device instance” for communication with the BACnet protocol. If the existing values need editing, the controller must be restarted after pressing the button “Save” to confirm.

6 THE SCREENS

6.1 User Interface

The display is the interface between the unit and the user. The display is the tool used for interaction with the unit and for access to parameters.

Information regarding installation of the units and relevant tests and checks for the first starting is not given in this manual.

Navigate through the various menus to access the screens where you can carry out the necessary operations for operation of the unit, edit the operating parameters and download the records.



The images and the values shown in the screens are for illustrative purposes only.

They can vary according to the configurations and functions featured in the controller.

6.1.1 Home page

The display switches off after it has been inactive for a while. The time during which the display is ON is set up in the video display management page(s) of the user menu.

When the display is touched, access is gained to the main screen. The “LH arrow” is pressed to go back to the main screen.

The main screen is the starting point for navigating through the various branches of the application.

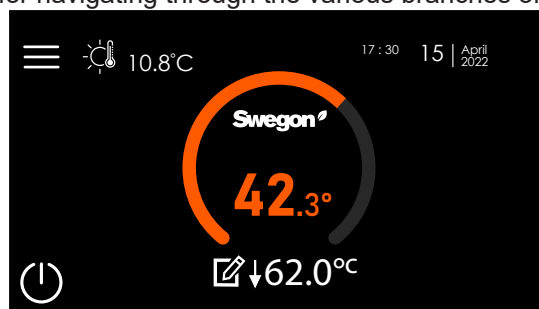


Fig. 22 Home page

The “On-Off” icon is featured on the bottom left-hand side of the screen and it is pressed to start/stop the unit.

The “Controls Menu” icon is featured on the top left-hand side of the main screen. The “Controls Menu” icon is sided by the symbol of the outside air temperature, which shows the detected value.

The date and time are displayed on the top right-hand side. Refer the “Changing the time and date” chapter for the procedure to edit the date and the time.

The central part of the screen shows base information on the operating status of the unit.



The colour of the dial shows the operating status.

Grey indicates that the unit is off; orange indicates operation in heating mode; and cyan indicates operation in cooling mode.

The value inside the box is the reference water temperature value.

The bottom part of the screen shows the operating setpoint. Refer to the “Changing the setpoint” chapter to edit the setpoint value.

The right-hand side of the screen indicates the enabled functions. Symbols are provided to indicate the various functions. The symbols of the functions are as follows.



The “**Alarm**” symbol indicates that at least one alarm is active: the figure aside the symbol indicates the number of active alarms.



The “**Night Shift System**” symbol indicates that the “Night Shift System” function is active. Refer to the section titled “Night Shift System” for further information on how to manage this function.



The “**Energy saving**” symbol indicates that the “Energy Saving” function is active. Refer to the section titled “Time bands” for further information on how to manage this function.



The “**Set OFF Time**” symbol indicates that the “Set OFF Time” function is active. Refer to the section titled “Time bands” for further information on how to manage this function.

6.1.2 Screen tree

The user interface gives access to any and all information on the operating parameters of the unit. The software manual describes the access procedure to the desired information and to the parameter pages where the various functions can be set up.

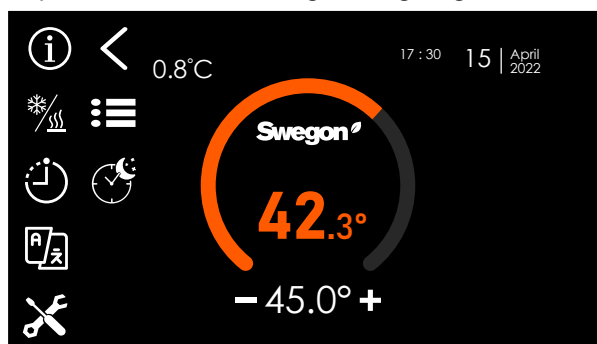
Menus are also provided, which the user can browse, to find additional information to that given in the main screen. For easier browsing, the screen tree is given below.

- Side Menu
 - Info
 - Close side menu
 - summer/winter
- User Menu
 - Alarm History
 - Video display
 - Back-lighting
 - LED
 - Font
 - Network
 - Network
 - File Management
- Time bands
- Night Shift System
- Languages
- Protected Menus
 - Setpoint
 - I/O
 - Compressors
 - Alarm History

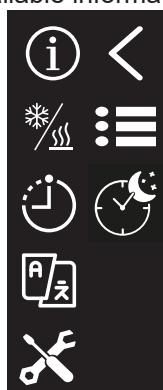
Access to the protected menus requires entry of the relevant password.

6.1.3 Controls Menu

The icon “Controls Menu” opens a drop-down menu featuring icons giving access to the other menus.



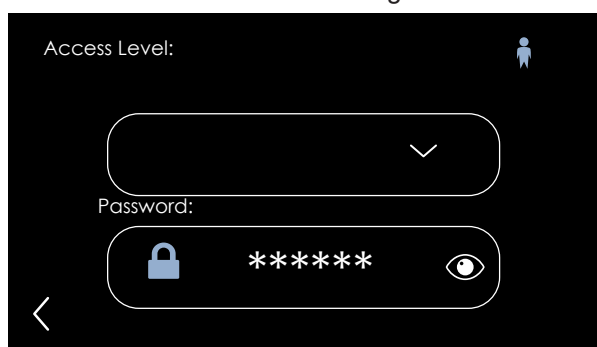
The icons featured in this menu give access to all available information and parameters.



Login using personal credentials is necessary to browse password-protected menus. After login, it is possible to gain access to a protected menu for the following thirty minutes without having to enter the password again.

6.1.4 Access to protected menus

The “Access” icon gives access to the screen where the user can log in to access the password-protected menus.



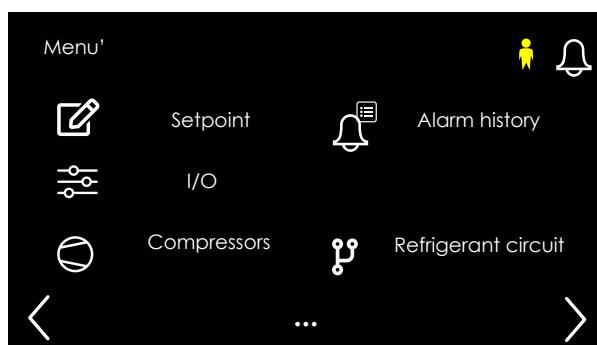
In the top area, the user has to select the profile for which he has credentials to access the protected menus.

The bottom area is used to enter the password.

A click on the asterisks enables the virtual keypad used for password entry.

The password needs to be confirmed by clicking the green tick symbol located on the right-hand side of the keypad.

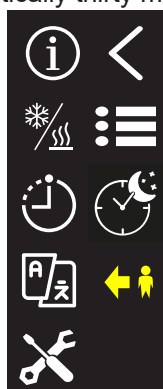
Tap on the “RH arrow” icon to confirm the request for access. Entry of the correct password gives access to the protected menu screen.



Once in the protected menus, you can browse them for an unlimited period of time.

When you exit password-protected menus, you can enter them again without having to log in for the following thirty minutes.

When you log in, the symbol “logout” appears in the “Command menu”: this symbol is used to override exit from the protected menus, which would in any case occur automatically thirty minutes after access.



6.1.5 Access to the Parameters menu

The icon "Parameters" is featured in the screen loop of password-protected menus.

The icon "Parameters" gives access to the screens with the unit operating parameters that are split into homogeneous groups.

The following groups are present:

- "ST : Thermoregulation", in which the parameters of group "ST" are stored;
- "CF : Configuration", in which the parameters of group "CF" are located;
- "SP : Machine set-up", in which the parameters of group "SP" are located;
- "SD: Dynamic Setpoint", in which the parameters of group "SD" are stored;
- "ES : ES and automatic ON/OFF", in which the parameters of group "ES" are located;
- "AH: Auxiliary heating", in which the parameters of group "AH" are located;
- "CO : Compressor", in which the parameters of group "CO" are located;
- "PA : Water pump", in which the parameters of group "PA" are located;
- "UN: Unloading", in which the parameters of group "UN" are stored;
- "FA : Ventilation", in which the parameters of group "FA" are located;
- "AR: Anti-freeze Heaters", in which the parameters of group "AR" are stored;
- "DF: Defrost", in which the parameters of group "DF" are stored;
- "SDH: Desuperheater", in which the parameters of group "SDH" are stored;
- "US : Auxiliary outputs", in which the parameters of group "US" are located;
- "SUB: Subcooling", in which the parameters of group "SUB" are stored;
- "PAL : Alarm parameters", in which the parameters of group "PAL" are located;
- "ET: Electronic Valve", in which the parameters of group "ET" are stored;
- "RA : Limits of analogue inputs", in which the parameters of group "RA" are located;
- "CA : Calibration of analogue inputs", in which the parameters of group "CA" are located;
- "MS : Multilogic", in which the parameters of group "MS" are located;
- "ENV : Envelope", in which the parameters of group "ENV" are stored;
- "ACS = Hot Sanitary Water" in which the parameters of the "ACS" unit are stored;
- "FMG: Flowzer", in which the parameters of group "FMG" are stored;
- "SML: SmartLink+", in which the parameters of group "SML" are stored;
- "PID: PID parameters", in which the parameters of group "PID" are stored;

6.2 Base setup parameters

The base setup parameters can be entered either on the main screen or in easy-to-reach menus.

6.2.1 Switching the unit on and off

The user can switch the unit either on or off from the display or via an external signal, as well as from the time bands and serially.

6.2.1.1 Switch the unit on and off from the display.

Use the “On/Off” icon on the main screen to go to the screen where the buttons to start and stop the unit are featured.

The top area of the screen shows the status of the unit: the “On/Off” icon is provided in the central area.

A tap on the icon changes the status of the unit from “on” to “off” and vice versa.

When the unit switches status, the On/Off icon goes from green (unit ON, in operation) to white (unit OFF).

6.2.1.2 Switch the unit on and off from external OK signal

In order to switch the unit on and off from external OK signal, make sure the feature is active.

To switch the unit on, close the external OK signal. To switch it off, open it.

The external OK signal should be connected to terminals "1" and "2" present in the terminal board.



The external OK signal must be a potential-free contact.

6.2.2 Change of set points

The setpoint is displayed in the bottom part of the main screen.

To edit the setpoint value, access must be gained to relevant parameters. Direct access to the parameters is gained by tapping the icon “**Setpoint**” or the field with the setpoint value.

Tap the value requiring editing to call up the virtual keypad.

The new setpoint value must be (green) ticked to be confirmed.

6.2.3 Change language

The “User Menu” icon enables a drop-down menu where all the function icons are featured.

A click on the “Languages” icon gives access to the screen where a list of the available languages is given.

A click on the language name or its flag causes switching to a new language.

6.2.4 Change date and time



The unit must be Off to edit the date and the time.

When the unit is off, a click on the area where the time and the date are displayed on the main screen gives access to the edit screen.

Select the write icon in the bottom right-hand side to access the edit screen.

The keypad appears when the values of the time and the date are tapped individually. Use the keypad to set up the value you wish to edit and then tap the green save icon on the bottom right-hand side of the keypad to confirm.

After all the necessary changes have been made, tap the green icon on the bottom right-hand side of the screen to update the values.

The controller gets restarted as soon as the updated value is confirmed by pressing the green “OK” icon.



Controller restarting takes a couple of minutes.

Page intentionally blank

Page intentionally blank

Swegon Operations s.r.l.

Via Valletta, 5 - 30010

Cantarana di Cona, (VE) Italy - T. +39 0426 921111 - F. +39 0426 302222

www.blueboxcooling.com - info@swegon.it

Swegon Operations s.r.l. with sole shareholder - VAT no. 02481290282

Company directed and coordinated by Investment Latour (Sweden)

