

Controller manual

EN

User

17-01-2025



Series:

Beta Series

Zeta Series

Tetris Series

Titan Series

Tetris Rev W LC

Tetris Rev W LC/HP



BlueBox 
by Swegon

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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 the necessary information for the use of the controller and relevant software application in the units indicated on the cover.

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

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 IPG315D controller functions

The software application for the electronic microprocessor controller of the iPro IPG315D 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.

The IPG315D board is connected to the various modules and communicates with them through a high speed, highly reliable field bus.

The user interface of the controller is a graphic LCD display having 8 multifunction buttons.

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.

1.2 Digital Services

The information below is referred to the units controlled by advanced controllers, set up for connection to Swegon cloud services.

1.2.4 Product data sheet Digital Services

1.2.4.1 Connectivity

The product is equipped with functionality that, when enabled, will connect to the Swegon INSIDE Cloud when given access to the internet. Such connection is made either through the building's local internet access point or by using a supplied modem. When connecting through the building's internet access point, the local firewall must be configured to allow traffic according to the firewall settings.

The functionality is by default disabled and can be enabled in the product. By enabling this functionality the customer agrees to the general terms and conditions for Digital Service, DS-23.

The customer can disable the connection to the Swegon INSIDE Cloud in the product user interface at any time.

1.2.4.2 Which data is sent

Through the connection to Swegon INSIDE Cloud, the product will exchange data to Swegon INSIDE Cloud about certain actions and parameter settings of the product. Each data point has different thresholds for when to send data to Swegon, therefore the data sent depends on the data point type and configuration. The data is sent in intervals, at which point the data is aggregated together with other data from that interval.

1.2.4.3 Who has access to the data

The data sent to Swegon INSIDE Cloud is used by Swegon for purposes of performance, functionality and development of the product.

Consequently, Swegon has the right to use the data sent from all products connected to Swegon INSIDE Cloud.

The data is used in accordance with Swegon's DS-23 general terms and conditions, and our sales agreement with the customer.

1.2.4.4 Requirements

To connect a product to Swegon INSIDE Cloud, a secure internet connection via the property's internal network or via Swegon's external modem is required.

In addition to a secure internet connection, a valid certificate for each individual product is also required to approve them to share data with INSIDE Cloud.

Some products will come with a valid certificate out of the factory, while other products need to be equipped with a certificate to authorize the product to share data.

To find out if the product is INSIDE Ready (i.e. ready to share data) or not visit INSIDE Ready | www.swegon.com.

1.2.4.5 Safety

The Swegon INSIDE product is connected to azure IoT Hub.

The connection uses MQTT and is secured using TLS and client certificates (MTLS). DigiCert is used as registration authority and key management.

DigiCert is used as registration authority and key management.

The Swegon cloud platform uses Azure SaaS offerings for hosting of applications and APIs.

Digital services communicate with Swegon Cloud using standard technologies such as Rest APIs and message Queues.

Users and authorization is handled by an internal identity provider.

1.2.4.6 Firewall settings for Swegon Cloud

Swegon cloud solution is using Microsoft Azure services and certificates from DigiCert to secure the connection.

If the firewall in front of the products is allowing outbound traffic to internet it will work.

If the firewall is set up to control outbound traffic the following ports and destinations must be allowed.

If only filtering on ports, 443 and 8883 are used.

Domain (including sub domain)	Port	Protocol	Notes
*.azure-devices-provisioning.net (dps-Swegon-Cloud-common-we.azure-devices-provisioning.net global.azure-devices-provisioning.net)	443 8883	https mqtt	Azure Device Provisioning Service
*.azure-devices.net (iot-SwegonCloud-prod-we.azure-devices.net)	443 8883	https mqtt	Azure IoT Hub
*.blob.core.windows.net (stswciotfilestorageprod.blob.core.windows.net)	443	https	Azure storage
clientauth.one.digicert.com	443	https	DigiCert Enrolment over Secure Transport (EST) for certificate enrolment and reenrolment



Additional instructions on how to make the connection to **"Swegon INSIDE Cloud"** are available in the controller manual.

2 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.

2.1 Graphic conventions

Thanks to the characteristics of the graphic display, use has been made of the possibility of using symbols and icons for immediate understanding of the functionalities and to make it easy to navigate between the screens of the various menus. All the symbols and icons present in the various screens of the user interface are shown below, divided by homogeneity of function.

2.1.1 Conventions

Again, in order to make it easy to understand and use the user interface, conventions in the use of symbols and icons for displaying information in the screens have been maintained:

 When the icon flashes, there is an active alarm.

 When the parameter is on a white background, it means it is not selected.

 When the parameter is on a black background, it means it is selected.

 When the parameter is flashing "white/black", it means it can be edited.



When the image is on a white background, it means the represented function cannot be selected.



When the image is on a black background, it means the represented function can be selected.

2.1.2 General button symbols

The advantage of the multifunction buttons present on the display is that they can carry out different functions in different screens.

When a button can be used in a screen, the symbol of the relevant function appears on the last line of the display.

The functions of the buttons are:

 Return to the previous menu.

 Return to the previous menu.

 Activates an editable field.

 Selects the next editable field in a screen or increases the value when an editable field is selected.

 Selects the previous editable field in a screen or decreases the value when an editable field is selected.

 Scrolling in the previous page with the same graphic structure.

 Scrolling in the next page with the same graphic structure.

 Scrolling in the previous page with different graphic structure.

 Scrolling in the next page with different graphic structure.

 Increase of an editable value.

 Decrease of an editable value.

 When flashing alternately, allows access to the alarm screens.

 This appears when there is an alarm, and the alarm screen can be accessed by pressing it.

2.1.3 Function buttons

The multifunction buttons are used to navigate through the pages of the display and to edit the parameters.

Below is a brief description of the meaning of some of the different icons that the software links to the buttons when surfing the pages.

 The unit is switched on/off by holding down the button for 3 seconds.

 Operation in cooling mode.

 Operation in heating mode.

 Clears all the active alarms.

 Defrost cycle in progress.

 Recovery function enabled from button.

 Free cooling function enabled from button.

 Compressor with inverter.

 Recovery function disabled from button.

 Multilogic function enabled.

 Free cooling function disabled from button.

 Multifree function enabled.

 Multifree function disabled from button.

 Enables/disables the selected component.

 Accesses the alarm screens.

 Request for password to access protected screens.

2.1.4 Enabling/disabling operations

Some symbols indicate the status of the functions to which they refer.

 The unit is switched on/off by holding down the button for 3 seconds.

 Recovery function enabled from button.

 Free cooling function enabled from button.

2.1.5 "Service" menu icons

In the first screen of the "Service" menu, there is a set of icons allowing access to the relevant branch of screens.



Access to the branch of screens regarding the programming parameters of the functions of the unit.



Access to the branch of screens regarding management of the screw compressors.



Access to the branch of screens regarding management of the scroll compressors.



Access to the branch of screens regarding management of auxiliary heating.



Access to the branch of screens regarding management of the pumps.



Access to branch of screens regarding management of the files for programming and updates.



Access to the branch of screens regarding the status of the inputs and outputs of the controller.

2.1.6 Access to the branches of screens

In the last line of the display

ALARM Access to the alarms page.

CIRC. Access to the branch of screens regarding the refrigerant circuits shown.

VAL. 1 Access to the screens regarding the parameters for adjusting the electronic expansion valve shown.

PROBES Access to the branch of screens where the reading of the managed probes is present.

① Access to the general information screens.

MENU Access to the main menu screen.

3 THE SCREENS

3.1 Main Screens

The Visograph display is the interface between the unit and the user.

Interaction with the unit and access to the parameters take place through the Visograph display.

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.

For the next descriptions of the manual, there are reference screens for access to the various functions.



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

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

3.1.1 Screensaver page

When a few tens of seconds have passed after powering up the controller or after 120 seconds of inactivity of the keypad, the screen shown below appears on the display.



Fig. 1 Screensaver page

Press any button to access the main screen.

3.1.2 Main mask

The main screen is accessed directly when any button is pressed while the screensaver screen is present on the display. You will return to the main screen, from whichever other screen you are in, by pressing once or twice on **EXIT** . The main screen is the starting point for navigating through the various branches of the application.

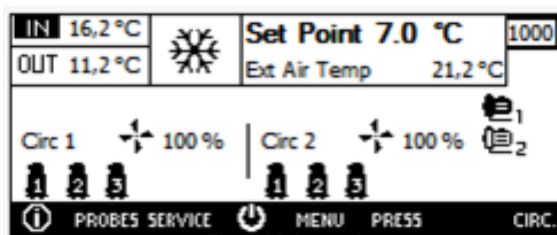


Fig. 2 Main mask

The graphic part of the main screen differs according to the installed application. The following buttons are in any case present:

- **i** that gives access to the screen with information on the unit;
- **PROBES** that gives access to the branch of screens where the values read by the temperature probes are shown;
- **SERVICE** that gives access to the relevant password-protected branches;
- **Power** that, when pressed and held for a few seconds, allows the unit to be started and stopped;
- **MENU** that gives access to the relevant branches of screens;
- **PRESS** that, when there is at least one active alarm, alternates with button **ALARM** , allows access to the screens of active alarms;
- **CIRC.** that gives access to the screens that show the functional parameters of the refrigerant circuits present in the unit.
- **ACS** It is included with the “ACS” accessory and grants access to the screens where the corresponding parameters are controlled.

3.1.3 "Menu" screen

The branch of screens, where the user can edit the values and the functions present in the controller, can be accessed from the "Menu" screen.

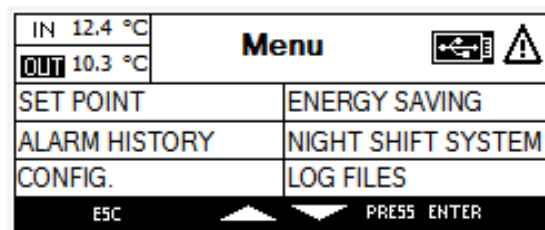


Fig. 3 "Menu" screen

The branches of screens are:

- "SET POINT", where the operating setpoint(s) of the unit can be changed;
- "ALARM LOG", where the recorded alarms can be seen;
- "CONFIG.", where the setting of the display can be configured;
- "ENERGY SAVING", where the time bands for switching the unit on and off and automatic change of the operating setpoint(s) can be set;
- "NIGHT SHIFT SYSTEM", where the time bands for reducing the noise of the fans can be set;
- "LOG FILES", where the various log files present in the controller can be downloaded.

3.2 Main screen information

The main screen shows the characteristic operating conditions and values of the unit so that you can easily monitor the operating status.

In addition to the lower part, where the functions of the buttons are shown, the main screen can be considered as being virtually made up of 5 areas of uniform content.

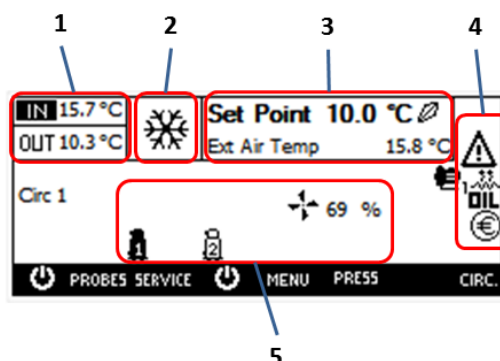


Fig. 4 The 5 areas of the main screen

3.2.1 Description of the symbols

Without affecting the composition of the main screen, some symbols are linked to the presence of accessories or of particular operating states.

These are described below.

3.2.1.1 Area 1

The fields of area 1 show the water temperature values at the inlet and outlet of the unit.

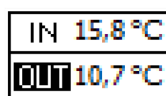


Fig. 5 Image of area 1

Control by the controller takes place on the value "IN" or "OUT" in reverse video.

The image shows the case of control on the outlet water temperature.

3.2.1.2 Area 2

The field in area 2 shows the unit operating status.



Fig. 6 Image of area 2

If the unit has been switched off from the keypad, only "OFF" is present.

Otherwise, if the unit has been switched off in another way, a symbol appears under "OFF" that specifies this.

OFF
— Switch-off has occurred from digital input.

OFF
⌚ Switch-off has occurred from the management of time bands.

OFF
📡 Switch-off has occurred via serial port through a supervision system.

Alternatively, symbols are provided to indicate the operating status.

❄ Operation in cooling mode.

☀ Operation in heating mode.

Additionally, the following icons are provided in units featuring the "ACS" accessory:

⏸ switch to new operating mode in progress - from system to "ACS" and vice versa;

🏠 ACS unit operation.

Other icons can appear according to the configurations present or functions active.

3.2.1.3 Area 3

Area 3 shows the control set point for the active operation, and the outside air temperature value.

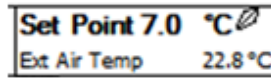


Fig. 7 Image of area 3

Also, the following symbol is visible

 SmartLink (if the accessory is enabled).

3.2.1.4 Area 4

The presence of symbols in this area is linked to the configurations of the unit and to the active functions. A description, from top to bottom, of the symbols used is given below.



Fig. 8 Image of area 4

XXXX The percentage of required capacity appears in this field (present only when the unit has the control on the temperature read by the water probe situated at the inlet).

 at least one alarm is active. As well as in the main screen, this symbol, in the same condition, appears in the same place in all the screens.

 The pump present in the unit is running.

 The pump present in the unit is not running.

 The pump present is disabled.

Beside the pump symbol, there is a "U" if it is the user-side pump and an "R" for the recovery pump.

The number of the pump referred to is shown below the "U" and "R".

 Anti-freeze heaters active.

 "Energy Saving" function is active.

 Flashing and appears when the compressor oil return function is active.

3.2.1.5 Area 5

This area shows the main information regarding operation of the compressors.

The screen can vary according to the number of compressors and refrigerant circuits managed by the controller.

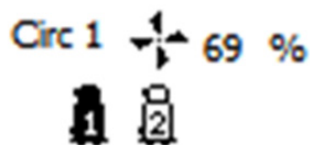


Fig. 9 Image of area 5

The information refers to circuit 1.

-  Fixed icon: fan not active.
-  Moving icon: fan active beside the percentage of the control signal.
-  Compressor off.
-  Compressor disabled from the keypad or from digital input.
-  Compressor on.

3.3 Info branch screens

This branch of screens is accessed by pressing the button with icon  .

To scroll the screens of the branch, use buttons  and .

A set of screens that regard the unit and others regarding individual circuits are present in the branch.

3.3.1 Unit information

Information regarding the unit present in the screens consists of:

- the serial number of type "SB1XXXXXX";
- the type of unit;
- the model;
- the type of refrigerant gas present;
- the tester's code;
- the software version installed in the controller;
- the software version installed in the user interface.

The next pages show the hours of operation of the unit, the partial and total hours of operation of the individual compressors and relevant number of switch-ons.

If at least one pump is present in the unit, on pressing the button with symbol  you will access the page where the relevant total and partial number of hours of operation is shown.

In this set of screens, the following icon is present:  .

When you press the button under icon  you will access the main screen of the maintenance loop.

3.3.2 Outlet thermoregulation

If there is an outlet control in this branch, when you press the button  accesses the screens which graphically display thermoregulation status.

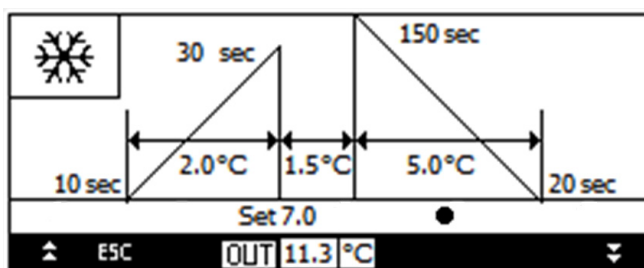


Fig. 10 Operation in cooling mode

If the heating function is included in the unit, the appropriate screen is displayed.

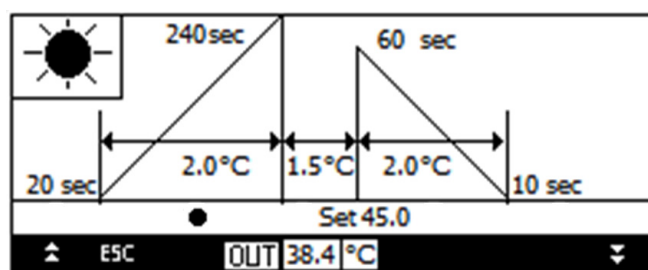


Fig. 11 Operation in heating mode

In the screen referring to active operation, there is a flashing point under the area of the graphic diagram in which thermoregulation is in operation.

3.4 Probes branch screens

This branch of screens is accessed by pressing the button with icon .

To scroll the screens of the branch, use buttons  and .

A set of screens that regard the values measured by the temperature probes present in the unit are present in the branch.

3.4.1 Display of probes

Depending on the configuration of the unit and as shown in the relevant description, in this screen, probes regarding the following are present:

- the temperature in the common section at the heat exchanger inlet of the unit;
- the temperatures in the section at the outlet of heat exchangers 1,2,3,4 of the unit;
- the temperature in the common section at the heat exchanger outlet of the unit;
- the air temperature;
- the dynamic set point function, and the probe can be of various types: NTC, 4-20mA, 0-1V, 0-10V, 2-20mA;
- the temperature at the inlet of the recovery exchanger;
- the reference water temperature in the "ACS" circuit;
- the 4-20ma type signal from the amperometric transformer.

Other temperature and pressure probes are present in the unit and their values are shown in the screens regarding the refrigerant circuit.

3.5 "CIRC." branch screens

A branch of screens is accessed where a refrigerant circuit with relevant operating parameters is represented on each screen.

From the main screen, when you press the button with symbol **CIRC.** you can access the branch.

Using buttons  and  parameters of the same level are displayed for the various refrigerant circuits present in the unit.

From the screen of operating parameters of each circuit, using button **VAL 1** you will access a screen where the expansion valve operating parameters are shown.

From this screen, when you press on button **PASSW** and enter the service branch password, you will access the screen for manual management of the expansion valve.

With buttons  and  you can go to the other screens of the same level.

On pressing button **ESC** you will return to the screen in the previous level.

3.5.1 Refrigerant circuit screen

All parameters and functions regarding the refrigerant circuit are present in this screen.



The icons present in the screen depend on the functions enabled in the software.

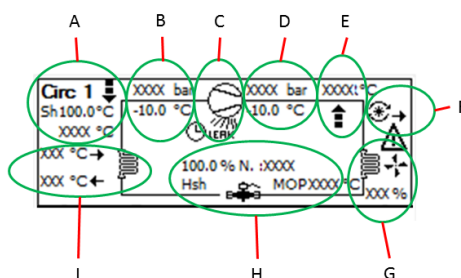


Fig. 12 Screen for refrigerant circuit parameters

The following information is displayed:

- in area A, "CIRC 1" identifies the displayed circuit, SH identifies the superheating temperature with the measured compressor suction temperature underneath. Symbol  indicates reduced capacity operation of the compressor/circuit;
- area B shows the suction gas pressure of the compressor and relevant conversion into temperature;
- in area C, the status of the compressor is identified, and this is  if it is not running, whereas it is  if the compressor is running. Symbol  identifies a gas leak (only if the leak detection accessory is present). Symbol  when flashing, indicates that the minimum switched off time or the time between two switch-ons of the compressor is passing;
- area D shows the delivery gas pressure of the compressor and relevant conversion into temperature;
- area E shows the measured delivery gas temperature of the compressor. The value can be the common temperature "for units equipped with circuit probe" or the maximum temperature of all compressors "for units with all compressors equipped with probe". Symbol  is displayed when the liquid injection valve of the compressor is active;
- in area F, symbol  indicates that heat recovery is active whereas symbol  indicates that the discharging of refrigerant from the exchanger not used is active;
- in area G, symbol  indicates the source-side exchanger, and the percentage value is the fan control signal. If the unit is a heat pump, the temperature of the coil is displayed;
- area H shows the opening percentage of the expansion valve with relevant number of steps and, if the circuit is working outside the set limits, the relevant exceeded limit warning appears and this can be "Hsh" high superheating, "Lsh" low superheating, "MOP" maximum operating pressure and "LOP" lowest operating pressure;
- in area I, symbol  indicates the user-side exchanger. Symbol  indicates the water temperature value at the exchanger inlet while  indicates the water temperature value at the outlet.

3.5.2 Screen of expansion valve parameters

From the screen of the refrigerant circuit, when you press button **VAL.1** you will access the screen where the expansion valve operating parameters are shown.

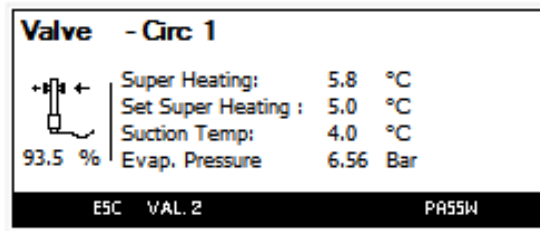


Fig. 13 Expansion valve parameters

The following values are displayed:

- the opening percentage;
- the current superheating value;
- the set superheating set point value;
- the gas temperature value measured on the suction side;
- the gas pressure value measured on the suction side.

3.5.3 Inverter parameter screens

From the screen of the refrigerant circuit, when you press button  you will access the screen where the inverter operating parameters are shown.

Compressor	X	
Request	XXX.X %	Alarm Code Active
Speed feedback	XXXX rpm	X X X X
Speed feedback	XXX.X %	
Status		Alarm Code Passed
0.Disable		X X X X
ESC		PRESS

Fig. 14 Parameters of compressor with inverter

The following values are displayed:

- inverter demand in percentage;
- compressor rotation speed in rpm;
- compressor rotation speed in percentage;
- active alarm code, if any - "if no alarm is active, 0000 appears";
- code of last tripped alarm;
- inverter operating code.

The alarm codes in this screen are the same appearing on the inverter display.

The alarms to which the codes refer are listed in the inverter manual.

The inverter operating statuses include:

- Disable - this appears when the compressor is disabled by the controller: the inverter is blocked;
- Alarms - this appears when an inverter alarm is active;
- Regulation - this appears when the inverter is operating in regulation mode;
- Start up - this appears when the inverter is running a compressor start-up procedure;
- Off - this appears when there is no demand to the compressor;
- Oil function - this appears when the inverter is running an oil return procedure.

With repeated pressing of button **ESC** you will return to the screens in the previous level.

4 SOFTWARE FUNCTIONS

4.1 Controller functions

The controller manages the units through specially developed logics.

Some functions are always present in all the units, others are connected with the type of unit or expressly requested by the customer.

The managed functions are summarized in the following chapters.

4.1.1 Set point management

The operating set point is the temperature value for which the controller activates the compressors in order to make the handled fluid reach its value.

Normally, the operating set point is set on the controller; in some cases its value can be linked to the operating conditions or be set from controllers outside the unit.

4.1.2 Circuits and compressors

The application of the controller includes the activation and deactivation of the compressors and correct management of them in order to prevent malfunctions and faults.

Through its inputs, the controller constantly checks the operating conditions and acts promptly when necessary, with the aim of ensuring uninterrupted service of the system.

The switching on and off of the compressors is linked to compliance with delays in order to ensure they remain in good working order for as long as possible.

4.1.3 Ventilation

Ventilation depends on the constructional features of the unit and on the operating conditions.

The controller manages ventilation to ensure that the operating conditions of the refrigerant circuit remain within optimal operating values.

According to the type of unit, control can be stepped or modulating and can be just one for the entire unit or separate for each refrigerant circuit.

4.1.4 Pumps

For system water circulation, the controller can manage one or two pumps (when there are two pumps, they act as backup to each other).

Management by the controller ensures that water is flowing through the heat exchangers of the unit before starting the compressors and that it is kept within the set limits until after they are switched off.

If this is not possible, the controller will stop operation of the unit.

If included in the unit, the controller can manage the pumps to circulate the water inside the unit in order to prevent ice from forming in the heat exchangers.

4.1.5 Heat recovery

During operation of the unit in chiller mode, this function allows recovery of the heat that is normally rejected by the condensing coil. Heat recovery takes place by heating the water.

When the function is active, condensation takes place in a water exchanger while the condensing coil and the ventilation are deactivated.

4.1.6 Pump down

This function causes the compressors to stop and confines most of the refrigerant charge inside the high-pressure circuit.

4.1.7 Refrigerant leak detection management

When it is active, this function manages refrigerant leaks.

Leaks are controlled through a refrigerant detector whose sensor is installed in the compressor compartment of the unit. On the controller, for each refrigerant circuit of the unit, there are digital inputs to which the refrigerant detectors are connected.

If the amount of refrigerant measured by the sensor exceeds the alarm threshold, the detector opens a digital input of the controller of the unit.

According to the settings, in case of refrigerant leaks, the controller stops the relevant circuit in pump down or just gives a warning.

4.1.8 Free Cooling

Free cooling is the function that allows air temperature to be used to cool the user water.

According to the set parameters, the controller can manage this function in various ways.

In any case, when conditions are suitable, the controller activates the free cooling resources before the compressors and deactivates them after deactivating the compressors.

4.1.9 Defrost

Defrosting is a procedure in which frost accumulation on the condensing/evaporating coil is prevented and/or any frost that has formed is removed during operation in heat pump mode of an air/water unit.

An effective defrost cycle ends with a completely clean condensing/evaporating coil.

The controller manages defrosting differently according to the settings made and the air temperature conditions.

4.1.10 Anti-freeze heaters

During operation of the units, or while they are in stand-by conditions and the ambient temperature is below zero, the water inside the exchangers can freeze.

Ice formation inside the exchangers can irreparably damage them.

To prevent ice formation inside the exchangers, the controller can manage auxiliary heaters.

4.1.11 Fast Restart

To protect the integrity of the compressors, the controller manages the maximum number of starts per hour by means of the delay between two consecutive starts.

When present, the Fast Restart function allows a quick restart of the unit in case of blackout.

The quick restart after a blackout depends on the thermoregulation request. The reference water temperature must be above the activation off-set.

4.1.12 Auxiliary heating

When present, this function allows management of a heating device to supplement operation in heat pump mode or as an alternative to it.

Its activation is linked to the system water temperature and the air temperature.

4.1.13 "DHW: domestic hot water".

When featured, this function is designed to feed the air conditioning system and the domestic hot water system.

The unit produces either hot or cold water for the air conditioning system or hot water for the domestic hot water system. A 3-way valve managed by the unit controller causes the unit to switch between the two operating modes above.

4.1.14 Flowzer

When featured, this function helps manage the variable flow pump installed in the unit.

Depending on the installation type, the pump equipped in the unit can also operate as the system pump

The logic that manages the pump speed depends on the installation type and the parameters set in the controller.

4.1.15 2-zone control

When featured, this function is designed to control two system zones for the sake of ensuring comfort where different temperatures apply. The two zones can be controlled using either one or two 3-way modulating valves.

The function also includes optimisation of the unit operating setpoint, taking as reference the setpoints in the active zones.

4.1.16 Thermoregulation from tank-mounted probe

Where the system consists of one primary and multiple secondary circuits, the pump in the primary circuit only gets started when required by the probe mounted in the storage tank.

This function is intended to save on the power absorbed by the pump in the primary circuit when the water temperature in the storage tank meets the required load.

4.1.17 SMART Link , SMART Link+, and SMART Link DX

The "SMART Link" and "SMART Link+" functions equip the refrigerant units for connection with "GOLD" ventilating units.

The two functions differ in the type of network they use: The "SMART link" function uses an RS485 serial network; the "SMART Link+" function uses an Ethernet network.

Through the connection, the "GOLD" unit intervenes in the water temperature value of the refrigerating unit

This function is available for both chiller units and heat pump units.

4.1.18 Energy meter

The option "Energy meter" is designed to control the main electrical parameters of the unit.

This measuring instrument is installed in the electrical cabinet of the unit and it is configured at the factory. It communicates with the controller serially.

With this accessory there can be a function that limits the current absorbed by the unit.

4.1.19 System management

The Multilogic function is designed to allow for coordinated operation of several units on condition that they are properly connected.

This function is characterised by the presence of a Master unit that controls several Slave units and enables the compressors depending on the set parameters and the demands from the systems.

4.1.20 Smart Grid Ready

This function is intended to optimise the production of hot water, based on mains energy availability.

The two digital inputs provided help override thermoregulation to operation in hot mode. This function does not trigger when thermoregulation is operating in cold mode.

Units are always provided with this function although it is not enabled.

When the function is enabled, the status of the two featured digital inputs combined activates the 4 operating modes listed in the table.

When the function is enabled, the status of the two featured digital inputs combined activates 4 operating modes:

1. thermoregulation in hot mode is disabled for as long as the condition persists, but in any case the max. time is never exceeded;
2. thermoregulation follows the demand of the stored operating setpoint;
3. thermoregulation follows the demand of dedicated "setpoint 1";
4. thermoregulation follows the demand of dedicated "setpoint 2";

4.1.21 Swegon Inside

Starting from the second half of 2023, the manufactured units have been provided with digital certificates which offer the possibility to enable the "Swegon Inside" function.

This function gives the user safe access to the identification and operating parameters of the unit via the cloud.

Access requires that the user creates his/her own account on our website (<https://www.swegon.com/it/support/software/>).

To create the account, scroll the website page down until the header "Software for connected products".

Click the link "Create account for INSIDE portal", fill out the form with the required information, and then press "SUBMIT".

The information you need to enter is found in the unit nameplate on the side of the electric panel or in the decal affixed inside the door of the electrical panel: alternatively, you can press the Info button in the controller.

Registration is confirmed by email to the address specified. A few days are required for the function to be activated.

After a few days have elapsed, data can be read in the section of the Swegon website (<https://www.swegon.com/it/support/software/>) named "Software for connected products" by clicking the link "Go to INSIDE portal" where you have to log in.

The certificate requires that the connection is activated within two years from its issue.



A connection between a fixed unit IP and the Internet is required.

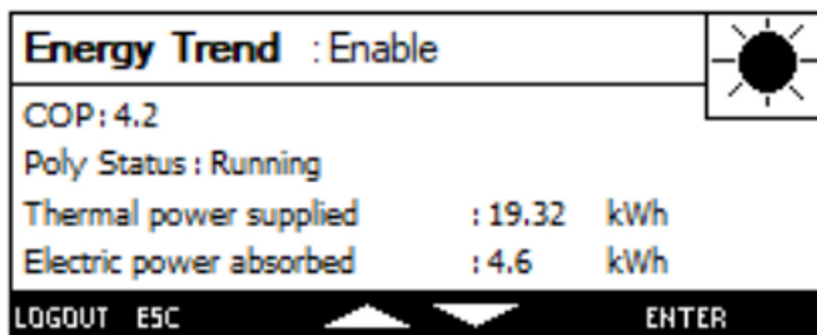
If problems are experienced, please contact the Swegon after-sales service network.

4.1.22 Energy Trend

The function “Energy trend” is featured on units as an option.

This function estimates the unit operational efficiency (“EER” when operating in cooling mode or “COP” when operating in heating mode) as the current operating conditions and the set parameters change.

If you wish to access the data estimated by the function, go to the main menu and select the function “ENERGY TREND” with the arrow, after which press the button “ENTER” to confirm.



The “EER” or “COP” values and the delivered and absorbed power values used for the calculation are not measured, but only estimated using models referred to unit operation.

The direct measurement of these values may be different from the values displayed in the controller screen.

The function is only active after a long enough time has elapsed for parameter stabilization within the intended unit operating range and it is updated as these values change.



In special cases of unit operation, such as free cooling, heat recovery, use of a supplementary source and production of domestic hot water (“ACS” function), the efficiency estimation process is suspended and the controller resets the values to zero.

The purpose of this function is to give the user information as required to optimise unit use.

Whenever efficiency reduction is checked over a prolonged period of time, a message is output to warn the user about the need, if any, to perform unscheduled maintenance.

4.1.23 Logs

The measured operating values are not only viewed on the display, but they are also recorded in the controller memory over time.

The values are recorded in the “logs”.

“EnergyTrendHours” is used to record the values concerning the energy absorbed and generated on an hourly basis, and the number of minutes the unit has been in operation every hour.

“EnergyTrendHistory” is used to record the values concerning the energy absorbed and generated on a daily basis, and the number of hours the unit has been in operation every day.

Contact our After-Sales Service department for the “logs”.

5 ALARMS

5.1 Introduction

The controller is programmed to manage the components of the unit safely, by adjusting their operation as conditions change with the aim of maintaining uninterrupted service.

Within the scope of this control function, the controller will partially or completely limit operation of the unit when hazardous conditions are approaching.

When the controller limits operation of the unit, the flashing alarm icon appears on the display .

In this condition, there are messages in the alarms menu that can be viewed by pressing on button **ALARM**.

As well as by icon  flashing, the messages can also be accompanied by a sound signal and are recorded in the unit operation log.

The codes with their descriptions for the various conditions that can appear in the alarm menu are given in the next chapter.

If you notice there are error messages with the unit running and with it stopped, you should promptly inform the customer support centre and given them the code and the message description and wait for their instructions.



Do not take initiatives before consulting the customer support centre.

5.2 Alarm table

A list of alarm codes with their descriptions is given below.

Code	Description	Code	Description
AL1	Internal memory error	AL21	Circ. 1 - Therm. comp. 4
AL2	User Pump Flow switch	AL22	Circ. 2 - Therm. comp. 1
AL3	User Pump Flow switch	AL23	Circ. 2 - Therm. comp. 2
AL4	Source Pump Flow switch	AL24	Circ. 2 - Therm. comp. 3
AL5	FC Pump Flow switch	AL25	Circ. 2 - Therm. comp. 4
AL6	High pressure switch circ. 1	AL26	Circ. 3 - Therm. comp. 1
AL7	High pressure switch circ. 2	AL27	Circ. 3 - Therm. comp. 2
AL8	High pressure switch circ. 3	AL28	Circ. 3 - Therm. comp. 3
AL9	High pressure switch circ. 4	AL29	Circ. 3 - Therm. comp. 4
AL10	High Pressure 1	AL30	Circ. 4 - Therm. comp. 1
AL11	High Pressure 2	AL31	Circ. 4 - Therm. comp. 2
AL12	High Pressure 3	AL32	Circ. 4 - Therm. comp. 3
AL13	High Pressure 4	AL33	Circ. 4 - Therm. comp. 4
AL14	Low Temp Water used HP	AL34	Oper. limit ext. air
AL15	Master/Slave status not aligned	AL35	Therm. fan circ. 1
AL16	Master communication error	AL36	Therm. fan circ. 2
AL17	BMS communication error	AL37	Therm. fan circ. 3
AL18	Circ. 1 - Therm. comp. 1	AL38	Therm. fan circ. 4
AL19	Circ. 1 - Therm. comp. 2	AL39	Therm. fan circ ½
AL20	Circ. 1 - Therm. comp. 3	AL40	Therm. fan circ ¾

Code	Description	Code	Description
AL41	Therm. fan Free Cooling 1	AL90	Liquid temp. probe error 3
AL42	Therm. fan Free Cooling 2	AL91	Aux. temp. probe error #4
AL43	Therm. fan Free Cooling 3	AL92	Temp. probe error at dry cooler inlet
AL44	Therm. fan Free Cooling 4	AL93	Temp. probe error at dry cooler outlet
AL45	Therm. user pump 1	AL94	Error condensation pressure probe 1
AL46	Therm. user pump 2	AL95	Error condensation pressure probe 2
AL47	Therm. user pump 3	AL96	Error condensation pressure probe 3
AL48	Therm. source pump 1	AL97	Error condensation pressure probe 4
AL49	Therm. source pump 2	AL98	Error evaporation pressure probe 1
AL50	Overload protection in free cooling pump 1	AL99	Error evaporation pressure probe 2
AL51	Level oil compressor 1	AL100	Error evaporation pressure probe 3
AL52	Level oil compressor 2	AL101	Error evaporation pressure probe 4
AL53	Level oil compressor 3	AL102	Error intake temp. probe 1
AL54	Level oil compressor 4	AL103	Error intake temp. probe 2
AL55	Wrong phase sequence	AL104	Error intake temp. probe 3
AL56	Overload protection in free cooling pump 2	AL105	Error intake temp. probe 4
AL57	High discharge temp. cir.1	AL106	Aux. temp. probe error 1
AL58	High discharge temp. cir.2	AL107	Aux. temp. probe error 2
AL59	High discharge temp. cir.3	AL108	Flow meter alarm
AL60	High discharge temp. cir.4	AL109	"ACS" reference probe alarm
AL61	Probe alarm discharge temp. 1	AL110	Temp. error at system secondary circuit outlet
AL62	Probe alarm discharge temp. 2	AL111	Heat exch. Pressure transducer alarm
AL63	Probe alarm discharge temp. 3	AL112	Dynamic set point probe error
AL64	Probe alarm discharge temp. 4	AL113	Current measuring inlet probe error
AL65	Probe alarm user common inlet	AL114	Low press. diff. (HP/LP) circ. 1
AL66	Probe alarm user outlet 1	AL115	Low press. diff. (HP/LP) circ. 2
AL67	Probe alarm user outlet 2	AL116	Low press. diff. (HP/LP) circ. 3
AL68	Probe alarm user outlet 3	AL117	Low press. diff. (HP/LP) circ. 4
AL69	Probe alarm user outlet 4	AL118	Pump down at start up circ. 1
AL70	Probe alarm user outlet	AL119	Pump down at start up circ. 2
AL71	Temp. probe error at DC/DS comp. inlet	AL120	Pump down at start up circ. 3
AL72	Temp. probe error at DC/DS outlet 1	AL121	Pump down at start up circ. 4
AL73	Temp. probe error at DC/DS outlet 2	AL122	Pump down at stop circ. 1
AL74	Temp. probe error at DC/DS outlet 3	AL123	Pump down at stop circ. 2
AL75	Temp. probe error at DC/DS outlet 4	AL124	Pump down at stop circ. 3
AL76	Temp. probe error at recovery-side outlet 1	AL125	Pump down at stop circ. 4
AL77	Temp. probe error at recovery-side outlet 2	AL126	Unit Maintenance
AL78	Temp. probe error at recovery-side outlet 3	AL127	Circ.1 - Maintenance compr. n. 1
AL79	Temp. probe error at recovery-side outlet 4	AL128	Circ.1 - Maintenance compr. n. 2
AL80	Temp. probe error at DC/DS comp. outlet	AL129	Circ.1 - Maintenance compr. n. 3
AL81	Temp. probe error at H2O inlet (FC)	AL130	Circ.1 - Maintenance compr. n. 4
AL82	Temp. probe error at source-side com outlet	AL131	Circ.2 - Maintenance compr. n. 1
AL83	Temp. probe error for AE/SD/AH	AL132	Circ.2 - Maintenance compr. n. 2
AL84	Temp. probe error for H.P. coil 1	AL133	Circ.2 - Maintenance compr. n. 3
AL85	Temp. probe error for H.P. coil 2	AL134	Circ.2 - Maintenance compr. n. 4
AL86	Temp. probe error for H.P. coil 3	AL135	Circ.3 - Maintenance compr. n. 1
AL87	Temp. probe error for H.P. coil 4	AL136	Circ.3 - Maintenance compr. n. 2
AL88	Liquid temp. probe error 1	AL137	Circ.3 - Maintenance compr. n. 3
AL89	Liquid temp. probe error 2	AL138	Circ.3 - Maintenance compr. n. 4

Code	Description	Code	Description
AL139	Circ.4 - Maintenance compr. n. 1	AL189	Defrosting timeout circ. 4
AL140	Circ.4 - Maintenance compr. n. 2	AL190	Defrosting timeout -Circ ½
AL141	Circ.4 - Maintenance compr. n. 3	AL191	Defrosting timeout -Circ ¾
AL142	Circ.4 - Maintenance compr. n. 4	AL192	Min/Max voltage (24h)
AL143	Maintenance user-side pump 1	AL193	Evap. low pressure (Un) circ. 1
AL144	Maintenance user-side pump 2	AL194	Evap. low pressure (Un) circ. 2
AL145	Maintenance user-side pump 3	AL195	Evap. low pressure (Un) circ. 3
AL146	Maintenance source-side pump 1	AL196	Evap. low pressure (Un) circ. 4
AL147	Maintenance source-side pump 2	AL197	Cond. high pressure (Un) circ. 1
AL148	High temp. at H2O inlet (CH)	AL198	Cond. high pressure (Un) circ. 2
AL149	Err Temp. input plant (Multilogic)	AL199	Cond. high pressure (Un) circ. 3
AL150	Err Temp. output plant (Multilogic)	AL200	Cond. high pressure (Un) circ. 4
AL151	Temp. error at source 1-2 outlet	AL201	Min/Max voltage
AL152	Temp. error at source 3-4 outlet	AL202	Free Cooling antifreeze alarm
AL153	Temp. error at user 1-2 outlet	AL203	Evaporation low pressure circ. 1
AL154	Temp. error at user 3-4 outlet	AL204	Evaporation low pressure circ. 2
AL155	Temp. error at source inlet	AL205	Evaporation low pressure circ. 3
AL156	Pump Down Leak Detector circ. 1	AL206	Evaporation low pressure circ. 4
AL157	Pump Down Leak Detector circ. 2	AL207	Heat recovery alarm circ. 1
AL158	Pump Down Leak Detector circ. 3	AL208	Heat recovery alarm circ. 2
AL159	Pump Down Leak Detector circ. 4	AL209	Heat recovery alarm circ. 3
AL160	Off-line valve driver n. 1	AL210	Heat recovery alarm circ. 4
AL161	Off-line valve driver n. 2	AL211	RTC alarm
AL162	Off-line valve driver n. 3	AL212	Source-side flow switch bypassed
AL163	Off-line valve driver n. 4	AL213	User-side flow switch bypassed
AL164	Off-line expansion module n. 1	AL214	Source common side inlet antifreeze
AL165	Off-line expansion module n. 2	AL215	Source common side outlet antifreeze
AL166	Off-line inverter 1	AL216	User common side inlet antifreeze
AL167	Off-line inverter 2	AL217	User common side outlet antifreeze
AL168	Off-line inverter 3	AL233	Low switch pressure circ. 1
AL169	Off-line inverter 4	AL234	Low switch pressure circ. 2
AL170	Low Superheat circ. 1	AL235	Low switch pressure circ. 3
AL171	Low Superheat circ. 2	AL236	Low switch pressure circ. 4
AL172	Low Superheat circ. 3	AL237	Low In & Out temp. Diff. Cpr. ON
AL173	Low Superheat circ. 4	AL238	High In & Out temp. Diff. Cpr. OFF
AL174	Stop recovery, high press. circ. 1	AL239	Max num. of Fast Restart
AL175	Stop recovery, high press. circ. 2	AL240	Generic alarm
AL176	Stop recovery, high press. circ. 3	AL241	Maintenance recovery pump 1
AL177	Stop recovery, high press. circ. 4	AL242	Maintenance recovery pump 2
AL178	Antifreeze alarm user-side exchanger 1	AL243	Thermal prot. in DC/DS pump 1
AL179	Antifreeze alarm user-side exchanger 2	AL244	Thermal prot. in DC/DS pump 2
AL180	Antifreeze alarm user-side exchanger 3	AL245	Flowzer offline
AL181	Antifreeze alarm user-side exchanger 4	AL246	Energy Box offline
AL182	Antifreeze alarm source-side exchanger 1	AL247	Flowzer general alarm
AL183	Antifreeze alarm source-side exchanger 2	AL248	Maintenance of pump 1 in free cooling
AL184	Antifreeze alarm source-side exchanger 3	AL249	Locked inverter 1
AL185	Antifreeze alarm source-side exchanger 4	AL250	Thermal overload switch in heater 1
AL186	Defrosting timeout circ. 1	AL251	Thermal overload switch in heater 2
AL187	Defrosting timeout circ. 2	AL252	Thermal overload switch in heater 3
AL188	Defrosting timeout circ. 3	AL253	Thermal overload switch in heater 4

AL254	Maximum ACS time	AL324	System transducer error in return circuit
AL255	Maximum AL time	AL325	Bypass temperature probe error
AL256	Defrost failed - user disab.	AL326	Auxiliary heating alarm
AL257	ACS overridden output	AL327	Error in liquid pressure probe 1
AL258	Failure to perform AL cycle	AL328	Error in liquid pressure probe 2
AL261	Alarm: liquid injection in circ. 1	AL329	Error in liquid pressure probe 3
AL262	Alarm: liquid injection in circ. 2	AL330	Error: oil filter pressure probe in circuit 1
AL265	Err Probe Alarm inlet cold side comm.	AL331	Error: oil filter pressure probe in circuit 2
AL266	Err Probe Alarm outlet cold side c1	AL332	Error: oil filter pressure probe in circuit 3
AL267	Err Probe Alarm outlet cold side c2	AL333	Probe error in secondary circuit 1
AL268	Err Probe Alarm outlet cold side c3	AL334	Probe error in secondary circuit 2
AL269	Err Probe Alarm outlet cold side c4	AL335	Err. in temperature probe in motor 1
AL270	Err Probe Alarm outlet cold side comm.	AL336	Err. in temperature probe in motor 2
AL276	Err Probe Alarm outlet hot side 1	AL337	Err. in temperature probe in motor 3
AL277	Err Probe Alarm outlet hot side 2	AL339	Tank probe error
AL278	Err Probe Alarm outlet hot side 3	AL340	Secondary circuit 1 alarmed
AL279	Err Probe Alarm outlet hot side 4	AL341	Secondary circuit 2 alarmed
AL282	Err Probe Alarm outlet hot side comm.	AL342	Unit OFF - The time for leak detector calibration has expired.
AL283	Low delivery superheating in circ. 1	AL343	Circ. 4 - High discharge temp. in compr. 2
AL284	Low delivery superheating in circ. 2	AL344	Circ. 4 - High discharge temp. in compr. 3
AL285	Low delivery superheating in circ. 3	AL345	Therm. cold pump 1
AL286	Low delivery superheating in circ. 4	AL346	Therm. cold pump 2
AL287	Message: oil filter fouled in circ. 1	AL347	Therm. cold pump 3
AL288	Message: oil filter fouled in circ. 2	AL348	Therm hot pump 1
AL289	Message: oil filter fouled in circ. 3	AL349	Therm hot pump 2
AL290	Oil filter fouled in circ. 1	AL350	Maintenance required
AL291	Oil filter fouled in circ. 2	AL351	Err Probe Alarm outlet hot side 1-2
AL292	Oil filter fouled in circ. 3	AL352	Err Probe Alarm outlet hot side 3-4
AL293	Oil flow switch in circ. 1	AL353	Err Probe Alarm outlet cold side 1-2
AL294	Oil flow switch in circ. 2	AL354	Err Probe Alarm outlet cold side 3-4
AL295	Oil flow switch in circ. 3	AL355	Err Probe Alarm inlet hot side
AL297	Alarm: oil reserve in circ. 1	AL356	Circ. 1 - Error: discharge temp. probe from compr. 1
AL298	Alarm: oil reserve in circ. 2	AL357	Circ. 1 - Error: discharge temp. probe from compr. 2
AL299	Alarm: oil reserve in circ. 3	AL358	Circ. 1 - Error: discharge temp. probe from compr. 3
AL300	Refrigerant sensor inspection/calibration about to expire	AL359	Circ. 2 - Error: discharge temp. probe from compr. 1
AL302	Cold Pump Flow switch	AL360	Circ. 2 - Error: discharge temp. probe from compr. 2
AL303	Cold Pump Flow switch	AL361	Circ. 2 - Error: discharge temp. probe from compr. 3
AL304	Hot Pump Flow switch	AL362	Circ. 3 - Error: discharge temp. probe from compr. 1
AL305	Out of envelope - compr. 1	AL363	Circ. 3 - Error: discharge temp. probe from compr. 2
AL306	Out of envelope - compr. 2	AL364	Circ. 3 - Error: discharge temp. probe from compr. 3
AL307	Out of envelope - compr. 3	AL365	Circ. 4 - Error: discharge temp. probe from compr. 1
AL309	Locked inverter 1	AL366	Circ. 4 - Error: discharge temp. probe from compr. 2
AL310	Locked inverter 2	AL367	Circ. 4 - Error: discharge temp. probe from compr. 3
AL311	Locked inverter 3	AL368	Circ. 1 - High discharge temp. in compr. 1
AL319	High liquid level in evaporator 1	AL369	Circ. 1 - High discharge temp. in compr. 2
AL320	High liquid level in evaporator 2	AL370	Circ. 1 - High discharge temp. in compr. 3
AL321	High liquid level in evaporator 3	AL371	Circ. 2 - High discharge temp. in compr. 1
AL322	Refrigerant sensor calibration time expired	AL372	Circ. 2 - High discharge temp. in compr. 2
AL323	System transducer error in delivery circuit	AL373	Circ. 2 - High discharge temp. in compr. 3

Code	Description	Code	Description
AL374	Circ. 3 - High discharge temp. in compr. 1	AL392	User AHU 7 Offline
AL375	Circ. 3 - High discharge temp. in compr. 2	AL393	User AHU 8 Offline
AL376	Circ. 3 - High discharge temp. in compr. 3	AL394	User AHU 9 Offline
AL378	Antifreeze alarm cold-side exchanger 1	AL395	User AHU 10 Offline
AL379	Antifreeze alarm cold-side exchanger 2	AL412	Hot-side flow switch bypassed
AL380	Antifreeze alarm cold-side exchanger 3	AL413	Cold-side flow switch bypassed
AL381	Antifreeze alarm cold-side exchanger 4	AL415	Hot antifreeze alarm
AL382	Antifreeze alarm hot-side exchanger 1	AL417	Cold antifreeze alarm
AL383	Antifreeze alarm hot-side exchanger 2	AL443	Maintenance cold-side pump 1
AL384	Antifreeze alarm hot-side exchanger 3	AL444	Maintenance cold-side pump 2
AL385	Antifreeze alarm hot-side exchanger 4	AL445	Maintenance cold-side pump 3
AL386	User AHU 1 Offline	AL446	Maintenance hot-side pump 1
AL387	User AHU 2 Offline	AL447	Maintenance hot-side pump 2
AL388	User AHU 3 Offline	AL447	Maintenance hot-side pump 2
AL389	User AHU 4 Offline	-	-
AL390	User AHU 5 Offline	-	-
AL391	User AHU 6 Offline	-	-

6 FAQ

6.1 Frequently Asked Questions

The necessary instructions for working on the controller, with regard to the main functions of the unit, are given below.

6.2 Switching the unit on and off

6.2.1 Switch the unit on and off from the keypad

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

Press, for more than 2 seconds, the button with .

6.2.2 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.

6.2.3 Switch the unit on and off from the BMS

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

See dedicated BMS management document.

6.3 Changes in operation

6.3.1 Change of operating mode from cooling to heating from the keypad

In order to change the operating mode from the keypad, make sure the feature is active.

The change of operating mode takes place with the unit switched off.

If the operation takes place with the unit running, the unit will switch off automatically when the change is made.

Switch off the unit by pressing, for more than 2 seconds, the button .

With the unit switched off, press button **MENU**, and then confirm with **ENTER** and finally, press, for more than 2 seconds, the button  that will become  for operation in heating mode.

Press the button again  on the main screen to restart the unit.

6.3.2 Change of operating mode from heating to cooling and vice versa from external OK signal

In order to change operating mode from the external OK signal, make sure the feature is active.

The change of operating mode from the external OK signal is present as an alternative to the change from the keypad.

If there is provision in the unit for the change of operating mode from the external OK signal, it must be open for operation in cooling mode and closed for operation in heating mode.

Terminals "1" and "8" are present in the terminal board for connection of the external OK signal.

During the status change, the unit goes into standby and then into the destination mode.



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

6.3.3 Change of operating mode from heating to cooling and vice versa from the BMS



The change of operating mode from the BMS is equivalent to the change from the keypad, and therefore it is an alternative to the change from digital input.

In order to switch the unit on and off from the BMS, make sure the feature is active.
See dedicated BMS management document.

6.4 Changing the setpoint

6.4.1 Change of the set point in cooling operating mode from the keypad

Press the button **MENU**, press twice on button **ENTER**. It is now possible to change the set point value, within the set limits, with buttons  and .

The value must be confirmed by pressing the button **ENTER**. Pressing twice on the button **ESC** returns to the main screen.

6.4.2 Change of set point in heating operating mode from the keypad

Press the "Menu" button, after the first pressing of the button **ENTER** move the cursor to the winter setpoint by pressing the button  and then confirm with the button **ENTER**. It is now possible to change the value of the set point, within the set limits, with the buttons  and .

The value must be confirmed by pressing the button **ENTER**. Pressing twice on the button **ESC** returns to the main screen.

6.4.3 Change of set point in heating operating mode from the BMS

In order to switch the unit on and off from the BMS, make sure the feature is active.
See dedicated BMS management document.

6.4.4 Change of the second set point in cooling operating mode from the keypad

Press the button **MENU**, button **ENTER**, button  and then button **ENTER**. It is now possible to change the value of the second set point, within the set limits, with buttons  and .

The value must be confirmed by pressing the button **ENTER**. On pressing button  and pressing twice on button **ESC** returns to the main screen.

6.4.5 Change of the second set point in heating operating mode from the keypad

Press the button **MENU**, button **ENTER**, button  , button  and then button **ENTER**. It is now possible to change the value of the second set point, within the set limits, with buttons  and .

The value must be confirmed by pressing the button **ENTER**. On pressing button  and pressing twice on button **ESC** returns to the main screen.

6.4.6 Change of the set point from external OK signal

If the double set point from external OK signal is included in the unit, with OK signal open, the first set point is active, and with OK signal closed, the second set point is active.

Terminals "200" and "206" are present in the terminal board for connection of the external OK signal.



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

6.4.7 Time band setup procedure

A click on the “MENU” button in the main screen gives access to the “MENU” screen.

Use the “arrow down” button to select “ENERGY SAVING” and press “ENTER” to confirm and thus access the menu with the function setup screens.

The first screen is used to enable the “Energy saving” and “Auto shutdown” functions.

ES and automatic timed switch-on/off

Date/Hour	01/01/XXXX	Sunday	00:00	
ENERGY SAVING	:	ON		€
Auto shutdown	:	ON		

Navigation buttons: ESC, ALARM, ENTER

The second screen is used to define the three time bands specifying the start and end time. The time can be set up in intervals of ten minutes each.

	Start	End	
Working time band 1	00:00	00:00	
Working time band 2	00:00	00:00	€
Working time band 3	00:00	00:00	

Navigation buttons: ESC, ALARM, ENTER

The third and the fourth screens are used to allocate each week day a time band or a combination of the three time bands contemplated for the “Energy saving” and “Auto ON/OFF” functions.

	Energy Saving	Auto ON/OFF	
Monday	None	None	
Tuesday	None	None	€
Wednesday	None	None	

Navigation buttons: ESC, ALARM, ENTER

	Energy Saving	Auto ON/OFF	
Thursday	None	None	
Friday	None	None	€
Saturday	None	None	
Sunday	None	None	

Navigation buttons: ESC, ALARM, ENTER

When the unit is switched to “OFF” based on the time band, the symbol of a clock appears in the main screen under the text “OFF”.

When the “Energy saving” function is active, which changes the operating setpoint of the unit, the symbol “€” appears on the right-hand side of the screen.

6.5 Managing recovery

6.5.1 Activate and deactivate recovery from the keypad

From the main screen, press button  to move around in the recovery management screen.

On pressing and holding down, for 2 seconds, button  recovery will be deactivated.

On pressing and holding down, for 2 seconds, button  recovery will be activated.

On pressing button **ESC** returns to the main screen.

6.5.2 Activate and deactivate recovery from external OK signal

If activation of recovery from external OK signal is included in the unit, with OK signal closed, recovery is active and with OK signal open, recovery is not active.

Terminals "1" and "8" are present in the terminal board for connection of the external OK signal.



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



If activation of recovery from external OK signal is included in the unit, so that the controller can manage recovery, the external OK signal must be closed and recovery must have been activated from the keypad.

6.5.3 Change of the recovery set point from the keypad

From the main screen, press button  to move around in the recovery management screen.

After pressing button **ENTER** it is possible to change the recovery set point value, within the set limits, with buttons  and .

The value must be confirmed by pressing the button **ENTER**.

On pressing button **ESC** returns to the main screen.

6.6 “ACS” management

6.6.1 Switch the “ACS” on and off using the keypad.

To enable the “ACS” function using the controller, the operator has to go to the Home page and press button  which gives access to the screen for function management.

Once in the “ACS” function screen, press button  which will switch to  as soon as the function is enabled.

When you press button  which will switch to  The function will thus be disabled.

6.6.2 Switch the air conditioning system on and off using the keypad.

To enable the air conditioning system using the controller, the operator has to go to the Home page and press the button  which gives access to the screen for function management.

Once in the “ACS” function screen, press button  which will switch to  as soon as the function is enabled.

When you press button  which will switch to  The function will thus be disabled.

6.6.3 Switch the “ACS” on and off by means of an external OK signal.

In order to switch the “ACS” function on and off by means of an external OK signal, make sure the function is enabled.

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 "9" in the terminal board.



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

6.6.4 Switch the air conditioning system on and off by means of an external OK signal.

In order to switch the air conditioning system on and off by means of an external OK signal, make sure the function is enabled.

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 "7" in the terminal board.



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

6.6.5 Editing “ACS” setpoint

To edit the setpoint of the “ACS” function, the operator has to go to the Home page and press button  which gives access to the screen for function management.

When you press button **ENTER** A click on the setpoint field causes the keypad to appear. Buttons  and  are pressed to edit the parameter within the admissible value range.

The change must be confirmed with button **ENTER** .

6.7 RS485 serial port and Ethernet

6.7.1 RS485 serial connection

Controller IPG315 "V2" is provided with 5 RS485 serial ports.



Serial port "B", which corresponds to the terminals in boards 97, 98, and 99, has been provided for connection to a BMS or to a management system.

The use of the other ports is reserved.



Terminal "99", 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.

6.7.2 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. 15 Plastic connector, RJ45

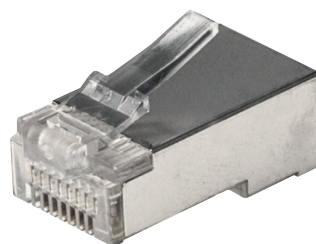


Fig. 16 Metal connector, RJ45

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.

6.8 Resetting of partial counters

6.8.1 Resetting the compressor hours of operation and starts

To reset the number of hours of operation of the compressors, the loop of "Maintenance" screens must be accessed.

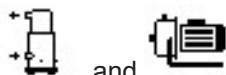
The "Maintenance" loop screens are present in the "info" branch.

In the "info" branch, when the screens showing the number of hours of operation of the compressors are accessed, the following icon is present: .

When you press the button under icon  you will access the main screen of the maintenance loop.

The maintenance branch is password protected.

With buttons ,  set the correct password and confirm with button **ENTER** to access the first of the protected screens.



In the first screen, the following symbols are present:

With buttons ,  select the compressor symbol in reverse video and confirm with button **ENTER** to access the modification screens.

With buttons ,  select the compressor and, using button **RESET HOURS** reset the hours of operation.

6.8.2 Resetting the number of starts of the compressors

To reset the number of starts of the compressors, the loop of "Maintenance" screens must be accessed.

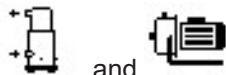
The "Maintenance" loop screens are present in the "info" branch.

In the "info" branch, when the screens showing the number of starts of the compressors are accessed, the following icon is present: .

When you press the button under icon  you will access the main screen of the maintenance loop.

The maintenance branch is password protected.

With buttons ,  set the correct password and confirm with button **ENTER** to access the first of the protected screens.



In the first screen, the following symbols are present:

With buttons ,  select the compressor symbol in reverse video and confirm with button **ENTER** to access the modification screens.

With buttons ,  select the compressor and, using button **RESET STARTS** the number of starts is reset.

6.8.3 Resetting of the number of hours of operation of the pumps

To reset the number of hours of operation of the pumps, the loop of "Maintenance" screens must be accessed.

The "Maintenance" loop screens are present in the "info" branch.

In the "info" branch, when the screens showing the number of hours of operation of the pumps are accessed, the following icon is present: .

When you press the button under icon  you will access the main screen of the maintenance loop.

The maintenance branch is password protected.

With buttons ,  set the correct password and confirm with button **ENTER** to access the first of the protected screens.

In the first screen, the following symbols are present:  and .

With buttons ,  select the pump symbol in reverse video and confirm with button **ENTER** to access the modification screens.

With buttons ,  select the pump and, using button **RESET HOURS** reset the hours of operation.

6.9 Controller functions

6.9.1 Updating the time and date of the controller



Since these updates require a reboot of the controller, the unit must be "OFF" in order to do them.

From the main screen, press button **MENU**.

Pressing twice on the button  select "CONFIG", confirm with button **ENTER** to enter the "Configuration" screen, and confirm again with button **ENTER** to enter the "Date/Time" screen.

With buttons ,  and **ENTER** it is possible to move around the screen and edit the parameters.

After the parameters have been updated, when you press on button **SET** the changes made are confirmed and the controller is restarted.

6.10 WEB pages

The web server integrated in the controller is accessed through the Ethernet port. Access to these pages requires the user to know his/her IP address.

The factory-set IP address is 10.2.3.20

The set IP address is in any case displayed in one of the controller screens. The steps to access the screen with the IP address are as follows:

- go to the main screen and press the "menu" button;
- use the arrows to select "CONFIG" and press "ENTER";
- select "SYSTEM INFORMATION" and press "ENTER" to access the screen with the IP address.

6.10.1 Access to controller WEB pages

Access to the WEB pages is gained as follows:

- open a web browser of your PC (FireFox, IE, etc.)
- in the address bar, type in 10.2.3.20 or the modified IP address;
- login

enter the Username, i.e. user1;

enter the Password, i.e. pwuser1.

It is now possible to browse the WEB pages of the controller.

6.10.2 Where to find the controller "MAC address"

Go to the user interface and follow the path: Menu -> CONFIG -> System information.

Use the WEB pages to access the "Information" screen.

6.11 Swegon Inside

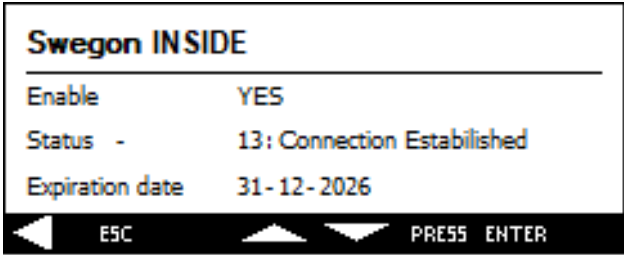
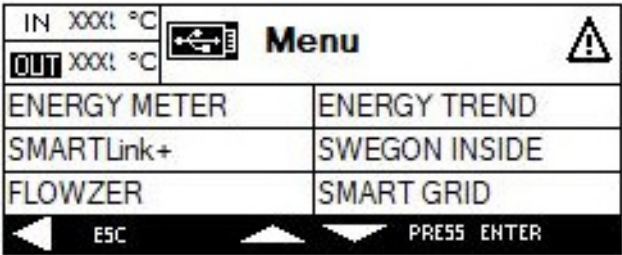
6.11.1 The unit can be connected to Swegon INSIDE.

All the units are supplied with an identification certificate “ID” which is required to connect them to Swegon INSIDE. If problems are experienced, please contact the Swegon after-sales service network.

6.11.2 How to access the Swegon INSIDE screens in the unit

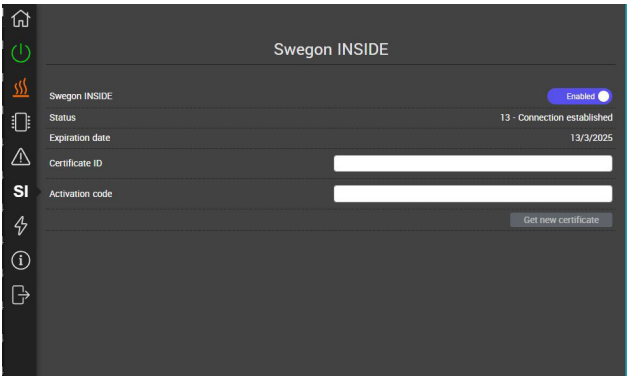
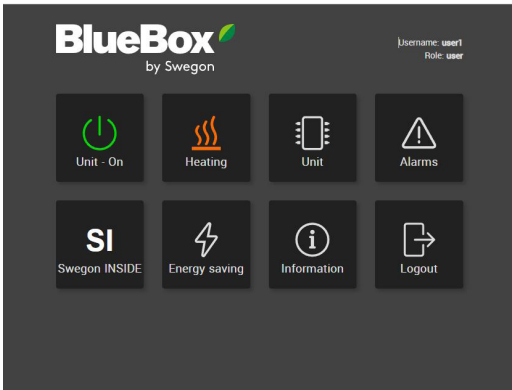
Access with the user interface

Access to this function is gained by selecting “Swegon INSIDE” in the Menu page.



Access with the Web pages

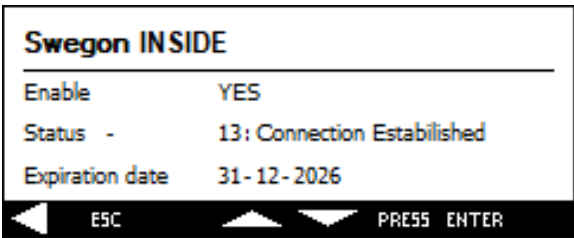
Access to this function is gained by selecting “YES” Swegon INSIDE in the main page.



6.11.3 How to enable/disable Swegon INSIDE

Access with the user interface

The Swegon INSIDE screen is used to enable/disable Swegon INSIDE.



Access with the Web pages

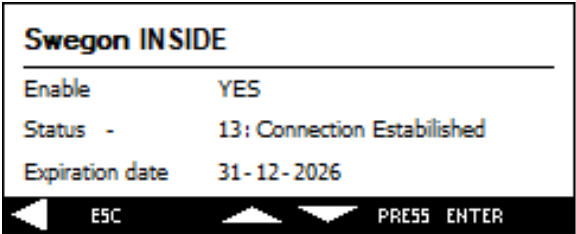
The Swegon INSIDE screen is used to enable/disable Swegon INSIDE.



6.11.4 How to view the certificate expiry date

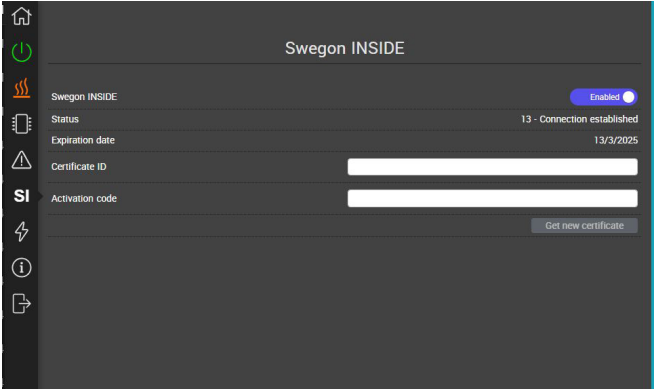
Access with the user interface

The expiry date of the certificate is visible in the Swegon INSIDE screen.



Access with the Web pages

The expiry date of the certificate is visible in the Swegon INSIDE screen.



6.11.5 Validity of ID certificate for connection to Swegon INSIDE

The ID certificate is valid for 2 years from the date of unit factory acceptance testing and it is renewed automatically if the connection to the Swegon INSIDE portal is made within the validity term.

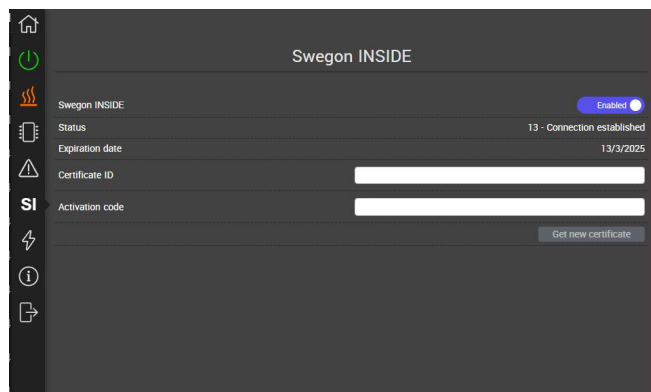
if the connection to the Swegon INSIDE portal is not made within the validity term of the ID certificate, the certificate expires.

6.11.6 What to do if the ID certificate has expired or is missing

If you need a new ID certificate, you have to access the Swegon portal - ref. section “How to access the Swegon INSIDE portal” - and click the link to ask for a new certificate.

Fill in the form and receive an alphanumeric code.

Enter the received information in the Swegon INSIDE web page of the unit controller.

The screenshot shows the 'Swegon INSIDE' web interface. On the left is a vertical sidebar with icons for home, power, flame, fan, warning, SI, lightning bolt, info, and share. The main content area has a title 'Swegon INSIDE' and a status section with a toggle switch labeled 'Enabled'. Below this, there are fields for 'Status' (13 - Connection established), 'Expiration date' (13/3/2025), 'Certificate ID' (with an input field), and 'Activation code' (with an input field). A 'Get new certificate' button is located at the bottom right of the form.

Click “Receive new certificate”.



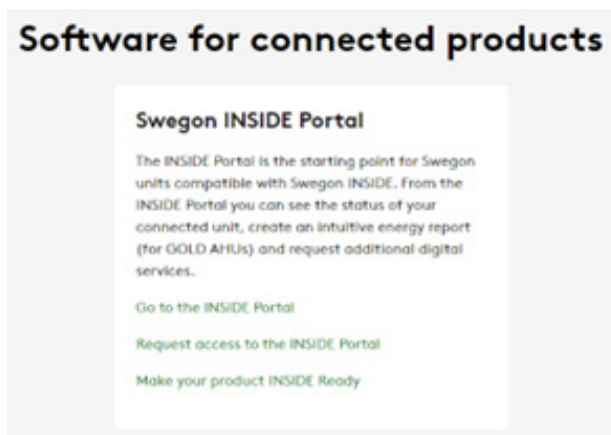
For the “Receive new certificate” field to be active, press the button on the top right-hand side to disable Swegon INSIDE.

It takes Swegon INSIDE around 30 seconds to be disabled.

6.11.7 How to gain access to the Swegon INSIDE portal

Access to the portal requires that the user creates his/her own account on our website (<https://www.swegon.com/it/support-to/software/>).

Scroll the page until “Software for connected products” and find the links required to access the portal, to create your account, and to ask for a new certificate.



Creating an account

To create an account, click the link “Ask for access to INSIDE portal”, fill out the form with the required information, and then press “SUBMIT”.

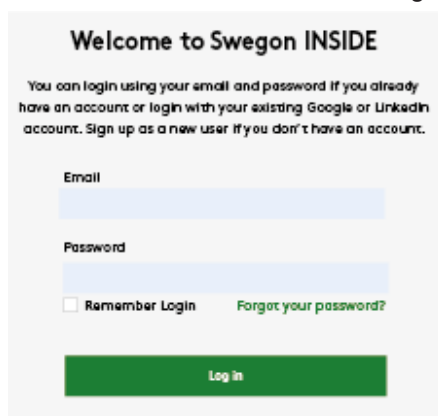
Generating the request for a new certificate

To ask for a new certificate, click the link “Make your INSIDE product ready”, fill out the form with the required information, and then press “SUBMIT”.



Select “Cooling & Heating” in the field “Select product”.

Create your account and register at least one unit, after which access the “log in” screen in the Swegon INSIDE portal.

A screenshot of the "Welcome to Swegon INSIDE" login page. It includes instructions on how to login (email/password, Google, or LinkedIn) and a sign-up option for new users. There are input fields for "Email" and "Password", a "Remember Login" checkbox, a "Forgot your password?" link, and a green "Log in" button at the bottom.

6.11.8 Information displayed in the Swegon INSIDE portal

The “Products” menu in the Swegon INSIDE portal gives access to the associated units.

Products						
Search (name, serial number)						
Name ↑	Product type	Building	Serial number	Software version	Active alarm	Connected
Epsilon Sky HI	BlueBox Epsilon SKY	Swegon Cantarana	5810169537	41.1.3		
GEYSER Sky R0 (R290)	BlueBox Chiller/Heatpump	Swegon Cantarana	5810169904	701.138.120.4		
OPEN SPACE	GOLD	Swegon Cantarana	2005780940	2.43		
Titan Sky Hi R0 HP	BlueBox Chiller/Heatpump	Swegon Cantarana	5810068684	701.138.120		
Zeta Rev	BlueBox Chiller/Heatpump	Swegon Cantarana	5810009172	701.138.120		

The last registered operating status and active alarms, if any, are visible for units that have an active connection.

Titan Sky Hi R0 HP

Connected

Software version: 701.138.129

Serial number: 5810068684

Information

Last update: less than 1 min ago

Device type

Air/Water Unit

Device model

6.1

User inlet

58.7 °C

User outlet

59.1 °C

Outdoor temperature

20.2 °C

Unit status

Heating

Real setpoint

60.0 °C

Alarm

No alarm

Cooling mode setpoint

7.0 °C

Heating mode setpoint

60.0 °C

Domestic hot water setpoint

-

Temperature

°C

°F

Active alarms

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