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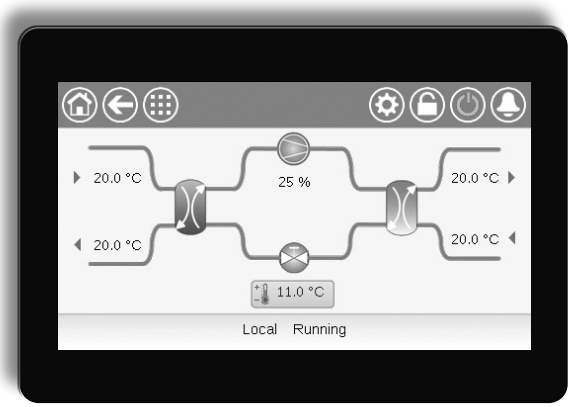
DYNACIAT LG/LGN (80-600)

CONNECT TOUCH



Instruction manual

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PREFACE

The goal of this document is to give a broad overview of the main functions of the control system used to control and monitor the operation of the following units:

- **DYNACIAT LG series** (cooling or heating): units with water-cooled condenser
- **DYNACIAT LGN series** (cooling): units without condenser

Instructions in this manual are given as a guide to good practice in the installation, start-up and operation of the control system. This document does not contain full service procedures for the correct operation of the equipment.

The support of a qualified Manufacturer Service Engineer is strongly recommended to ensure optimal operation of the equipment as well as the optimization of all available functionalities.

Note that this document may refer to optional components and certain functions, options or accessories may not be available for the specific unit.

IMPORTANT: All screenshots of the user interface provided in this manual include text in English. After changing the language of the system, all labels will be in the language selected by the user.

Please read all instructions prior to proceeding with any work. Pay attention to all safety warnings.

The information provided herein is solely for the purpose of allowing customers to operate and service the equipment and it is not to be reproduced, modified or used for any other purpose without the prior consent of the Manufacturer.

Acronyms/abbreviations

In this manual, the refrigerant circuits are called circuit A and circuit B. Compressors in circuit A are labelled A1, A2 and A3. Those in circuit B are B1 and B2.

- Dynaciat LG - LGN (080-450) units have only one circuit with one, two, or three compressors (A1, A2, A3).
- Dynaciat LG - LGN (480-600) units have two circuits with two compressors per circuit (A1, A2, B1, B2).

The following abbreviations are used frequently:

BMS	Building Management System
BPHE	Brazed Plate Heat Exchanger
DCFC	Dry Cooler Free Cooling
DGT	Discharge Gas Temperature
EHS	Electric Heater Stage
EWT	Entering Water Temperature
EXV	Electronic Expansion Valve
HSM	Hydronic System Manager
LED	Light Emitting Diode
LEN	Sensor Bus (internal communication bus linking the basic board to slave boards)
LWT	Leaving Water Temperature
OAT	Outdoor Air Temperature
SCT	Saturated Condensing Temperature
SST	Saturated Suction Temperature

Operating modes:

Local-Off/LOFF	Operating type: Local Off
Local-Schedule/L-SC	Operating type: Local On following a time schedule
Local-On/L-C	Operating type: Local On mode
Master mode/Mast	Operating type: Master unit (master/slave assembly)
Network mode/Net	Operating type: Network
Remote mode/Rem	Operating type: Remote contacts

1 - SAFETY CONSIDERATIONS

1.1 - Safety guidelines

Installation, start-up and servicing of equipment can be hazardous if certain factors particular to the installation are not considered: operating pressures, presence of electrical components and voltages and the installation site (elevated plinths and built-up structures).

Only properly qualified installation engineers and highly qualified installers and technicians, fully trained for the product, are authorised to install and start up the equipment safely.

During all servicing operations all instructions and recommendations which appear in the installation and service instructions for the product, as well as on tags and labels fixed to the equipment and components and accompanying parts supplied separately, must be read, understood and followed.

Failure to comply with the instructions provided by the manufacturer may result in injury or product damage.

- **Apply all standard safety codes and practices.**
- **Wear safety glasses and gloves.**
- **Use the proper tools to move heavy objects.**
- **Move units carefully and set them down gently.**

1.2 - Safety precautions

Only personnel qualified in accordance with IEC (International Electrotechnical Commission) recommendations may be permitted access to electrical components.

It is particularly recommended that all sources of electricity to the unit be shut off before any work is begun. Shut off the main power supply at the main circuit breaker or isolator.

IMPORTANT: This equipment conforms to all applicable codes regarding electromagnetic compatibility.

RISK OF ELECTROCUTION! Even when the main circuit breaker or isolator is switched off, specific circuits may still be energised as they may be connected to a separate power source.

RISK OF BURNS! Electrical currents may cause components to get hot. Handle the power cable, electrical cables and conduits, terminal box covers and motor frames with great care.

2 - CONTROL OVERVIEW

2.1 - Control system

Dynaciat units come with a Connect Touch control that serves as the user interface and configuration tool for the communicating devices.

Connect Touch controls:

- compressor start-up to control the water loop
- fixed or variable-speed pumps to optimise water loop operation
- fan stages for units fitted with a dry cooler or LGN units with a remote condenser

Connect Touch control can function as a stand-alone system or it may be connected to the building management system using a communication bus.

IMPORTANT: This document may refer to optional components and certain functions, options or accessories may not be available for the specific unit.

2.2 - System functionalities

The system controls the start-up of the compressors needed to maintain the desired heat exchanger entering and leaving water temperature. It constantly manages the operation of the fans in order to maintain the correct refrigerant pressure in each circuit and monitors safety devices that protect the unit against failure and guarantee its optimal functioning.

Connect Touch control system:

- Allows users to control the unit via the Connect Touch user interface.
- Provides web connectivity technology.
- Supports Enhanced Control Management (BluEdge Digital, Cristo'Control2, Power'Control, Smart CIATControl) for multiple chillers/heat pump configuration.
- Provides direct BMS integration capabilities via Modbus RTU/TCP and BACnet IP.

2.3 - Operating modes

The control can operate in three independent modes:

- Local mode: The unit is controlled by commands from the user interface.
- Remote mode: The unit is controlled by dry contacts.
- Network mode: The unit is controlled by network commands (Proprietary Protocol / BACnet / Modbus).

When the control operates autonomously (Local or Remote), it retains all of its control capabilities but does not offer any of the features of the Network.

Emergency stop! The Network emergency stop command stops the unit regardless of its active operating type.

Features overview

Feature	Dynaciat LG		Dynaciat LGN	
	standard	optional	standard	optional
4.3" touch screen (Connect Touch)	x		x	
Web connectivity	x		x	
E-mail transmission	x		x	
Language packs (+ language pack customization)	x		x	
Metric / Imperial unit display	x		x	
Modbus RTU / Modbus TCP communication (option 149B)	x		x	
BACnet IP communication (option 149)		x		x
Scroll compressor technology	x		x	
Fluid type: Medium Brine (option 5)				x
Fluid type: Low Brine (option 6)		x		
Diagnostics	x		x	
User quick test	x		x	
Variable speed pump		x		
Cooling control	x		x	
Heating control		x		
Boiler heating control		x		
Electric heating control		x		
Dry Cooler Free Cooling control (DCFC)		x		x
Condenser dry cooler - only LEN connector provided (dry cooler installed separately)		x		x

3.1 - Control boards

The control system consists of the main controller, i.e. Connect Touch, and at least one SIOB/CIOB board. The controller constantly monitors the unit and manages the information received from various pressure and temperature probes.

The electrical box includes all boards controlling the unit and the user interface. All boards communicate via an internal bus.

The number of SIOB/CIOB boards depends on the following:

- Size of the unit: Single-circuit units have one SIOB/CIOB board by default, whereas dual-circuit units are fitted with two SIOB/CIOB boards (the second SIOB/CIOB board is normally used to support the second refrigerant circuit).
- Additional options: 080 to 450 size units may be fitted with the second SIOB/CIOB board only if the unit comes with additional functionalities, e.g. pump on the source side (condenser for cooling mode and cooler for heating mode).

In addition to SIOB/CIOB board(s), Dynaciat LG/LGN units of all sizes can be equipped with AUX1 board(s).

The number of AUX1 boards installed on the unit depends on the selected options (see below).

	Option	LG	LGN
AUX1 board	Master/Slave assembly	o	o
	Dry Cooler Free Cooling*	o	o
	Dry cooler (condenser)*	o	o

*For these two options the board is directly installed in the dry cooler itself, not in the control box of the air-conditioning unit.

3.2 - Power supply to boards

All boards are supplied from a common 24 VAC supply referred to earth. In the event of a power supply interrupt, the unit restarts automatically without the need for an external command. However, any faults active when the supply is interrupted are saved and may in certain cases prevent a given circuit or the unit from restarting.

CAUTION: Maintain correct polarity when connecting the power supply to the boards, otherwise the boards may be damaged.

3.3 - Light emitting diodes

All boards continuously check and indicate the proper operation of their electronic circuits. A light emitting diode (LED) lights on each board when it is operating properly.

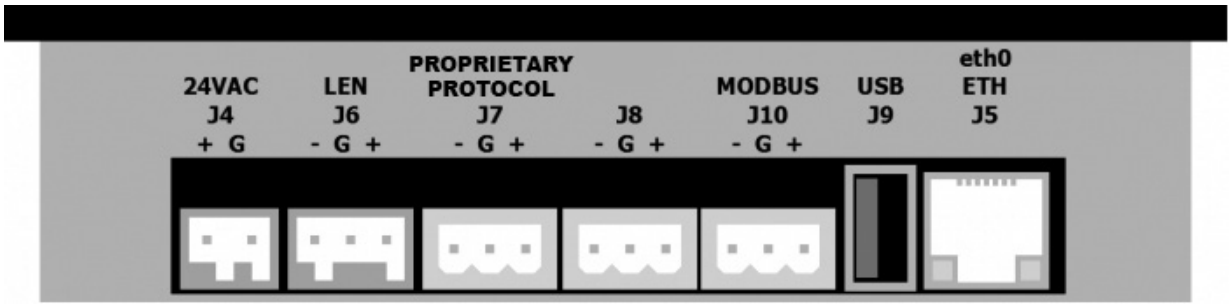
- The red LED flashing for a two-second period indicates correct operation. A different rate indicates a board or a software failure.
- The green LED flashes continuously on all boards to show that the board is communicating correctly over its internal bus (LEN bus). If the green LED is not flashing, this indicates a LEN bus wiring problem or a configuration issue.

3.4 - Connect Touch connections

Connections are located on the bottom of the main controller.

- The control offers communication protocols such as LEN, Proprietary Protocol, Modbus RTU or Modbus TCP and/or BACnet IP.
- It is possible to enable and disable end of line resistors via the System menu (see section 5.6).
- One Ethernet port allows for TCP/IP communication or BMS (Building Management System) connection.

Connect Touch connections



3.5 - Pressure transducers

The control implements three types of pressure transducers, where two pressure transducers (high pressure and low pressure) are used to measure the suction and discharge pressure in each circuit and the third transducer type is water pressure type used in case of units fitted with the hydronic kit option.

- **Discharge pressure transducers (high pressure type)**
  These transducers measure the discharge pressure in each circuit. They are used to control head pressure or high pressure load shedding. Discharge pressure sensors are mounted on the discharge line piping of each circuit.
- **Suction pressure sensors (low pressure type)**
  These transducers measure the suction pressure in each circuit. They are used to control EXV, evaporating pressure (in heating mode) and monitor suction pressure safeties related to the compressor operating envelope. Suction pressure sensors are located on the suction piping of each circuit.
- **Water pressure transducers**
  As an option (hydronic kit option), these sensors are used to monitor the water pressure and the water flow by measuring the water pressure in two different locations. The water flow rate is calculated, the unit is protected against water flow losses and the pump is protected against cavitation (low pump entering pressure).

3.6 - Temperature sensors

Temperature sensors constantly measure the temperature of various components of the unit, ensuring the correct operation of the system.

- **Water heat exchanger entering and leaving water temp. sensors**
  The water heat exchanger entering and leaving water temp. sensors are used for capacity control and safety purposes. The water temperature sensors are installed in the entering and leaving side.
- **Suction temperature sensors**
  Suction temperature sensors are used to control temperature at the compressor inlet line in order to ensure correct capacity control management.
- **Condenser entering and leaving water temp. sensors (Dynaciat LG)**
  The condenser entering and leaving water temperature sensors are used for heating capacity control and safety purposes.
- **Outdoor air temperature sensor (optional)**
  If available (Dynaciat LGN as standard), this sensor measuring the outdoor air temperature is used for the reset signal calculation and for condensing fan control (standard for dry cooler and condenserless unit control).
- **Master/Slave water sensors (optional)**
  These sensors measure the common water temperature in the master/slave system capacity control. They are installed only in the case of master/slave units.

3.7 - Actuators

- **Electronic expansion valve**
  The electronic expansion valve (EXV) is used to adjust the refrigerant flow to changes in the operating conditions of the machine. The high degree of accuracy with which the piston is positioned provides precise control of the refrigerant flow and suction superheat.
- **Water flow switch**
  For units without internal pumps, the water flow switch configuration allows for the automatic control of the minimum water flow setpoint of the water flow switch. The configuration depends on the unit size and is made automatically at the start-up. If the flow switch fails, the alarm condition shuts off the unit.
- **Water pumps (optional)**
  The controller can independently regulate each water heat exchanger pump. The controller enables constant flow control based on the minimum pump speed setpoint.
  Water flow control can also be based on the heat exchanger temperature difference or the water pressure difference.
- **Boiler**
  If there is a unit fault in the heating mode this output authorises start-up and shutdown of a boiler. Dynaciat LG units can be fitted with a boiler which is energised only when requested by the controller in case of heating demand. For Dynaciat LG units, the boiler is activated when the operating conditions are not suitable for thermodynamic heating or the unit is down due to a detected failure.
- **Electric heaters**
  Electric heaters are used as a supplementary heating source in the heating mode.

3.8 - Terminal block connections

Connections available at the user terminal block may vary depending on the selected options. The following table summarizes the connections at the user terminal block.

IMPORTANT: Some contacts can be accessed only when the unit operates in Remote mode.

Description	Board	Connector	Remarks
Remote On/Off contact	SIOB/CIOB, cir A	+:32/ -:33	Used for the unit on/off control (Remote mode)
Remote Heat/Cool contact	SIOB/CIOB, cir A	+:63/ -:64	Used to set cooling and heating when the unit is in Remote mode
Switch-controlled demand limit	SIOB/CIOB, cir A	+:73/ -:74	Used to control demand limit
Switch dual setpoint	SIOB/CIOB, cir A	+:65/ -:66	Used to select the second cooling setpoint
Lock switch	SIOB/CIOB, cir A	+:34/ -:35	Used for the customer safety loops
Condenser 3-way valve	SIOB/CIOB, cir A	+:80+/-:80-	Used to control the water flow on the condenser side
Boiler	SIOB/CIOB, cir A	+:69/ -:70	Used to command a boiler
Running	SIOB/CIOB, cir A	+:37/-: 38	Used to signal a running status (at least one compressor started)
Alarm	SIOB/CIOB, cir A	+: 30/-: 31	Used to signal an alarm
Electrical Heater Stage 1	AUX1	341 / 12	Used to control the electrical heater stage 1
Electrical Heater Stage 2	AUX1	342 / 12	Used to control the electrical heater stage 2
Electrical Heater Stage 3	AUX1	343 / 12	Used to control the electrical heater stage 3
Electrical Heater Stage 4	AUX1	344 / 12	Used to control the electrical heater stage 4

NOTE: Please refer to the electrical scheme for more information about electrical terminal identification.

3.8.1 - Volt-free contact (on/off and cooling/heating)

For chillers with a boiler or heat pumps, on/off contacts and cooling/heating contacts are as follows:

Contact	Off	Cooling	Heating
On/Off contact [ON_OFF_SW]	open	closed	closed
Cooling/heating contact [HC_SW]	open	open	closed

Off: Unit is stopped

Cooling: Unit is allowed to start in Cooling

Heating: Unit is allowed to start in Heating (chiller with boiler control or heat pump)

3.8.2 - Volt-free setpoint selection contact

When the unit is under remote control, the volt-free contact is used to determine the active setpoint. This dry contact is used to switch between setpoints. It is active only when the control is in Remote mode.

Contact	Active setpoint			
	SP1	SP2	SP3	Auto
SETP_SW1	open	closed	open	closed
SETP_SW2	open	open	closed	closed

3.8.3 - Volt-free demand limit selection contact

One dry contact can be used to limit unit capacity. The limit threshold can be defined via the user interface in the Setpoint menu.

Contact	100%	Limit 1
Demand limit 1 contact [LIM_SW1]	open	closed

3.9 - RS485 wiring (best practice)

For RS485 ports, one of the following cables can be used:

- For Proprietary Protocol or Modbus communication which is over 300 m or in a noisy environment with Variable Frequency Drive (VFD), a cable with two twisted pairs is recommended. For example, Belden 3106A or Alpha Wire 6454.
- For applications where the length of the cable is up to 300 m and there is no Variable Frequency Drive (VFD), it is possible to use cost-effective cable solutions, for example, Belden 8772.

Note that "+" and "-" are communication signals and they are from the same twisted pair.

The signal ground could be a single wire or a twisted pair and it should be connected to the "C" pin of J10 (Modbus RTU) or J7 (Proprietary Protocol). This wire is required so that all nodes on the bus share a common ground reference connection.

If a shield is used, then the shield cable should be properly terminated and connected as short as possible at ONLY one end to the chassis ground (4.3-inch controllers).

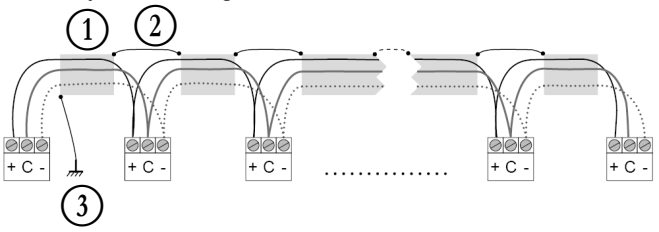
3.9.1 - RS485 wiring: 4.3-inch controller

The following diagrams illustrate possible RS485 wiring schemes for 4.3-inch controllers.

The first wiring scheme is the best option (RECOMMENDED), but the second or the third wiring can also be used.

3.9.2 - RS485: Daisy chain configuration

The following illustration shows proper 3-wire cable with a shield in a daisy chain configuration.



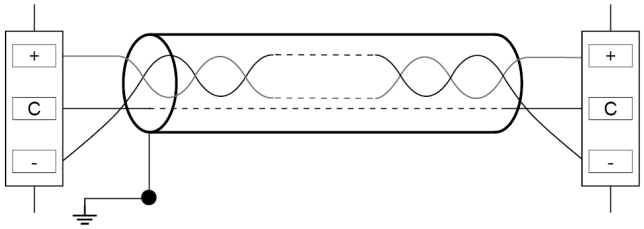
Legend
1. Shield
2. Keep shield continued
3. Connect shield to earth ground only at one point

End of Line Resistor: Termination is only needed when running at bus at very high speed over long distances.

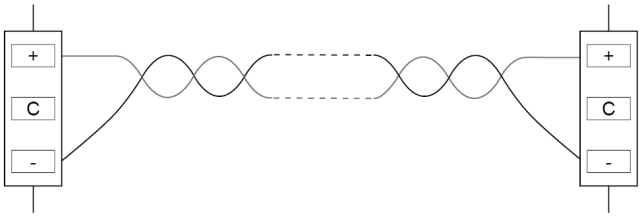
The speed of the bus and the cable distance determine whether termination is needed. It is meant to balance the bus to minimize the ringing that may be caused by fast signals and the inductance of the cabling.

At 9600 baud, termination will have little or no effect on the bus.

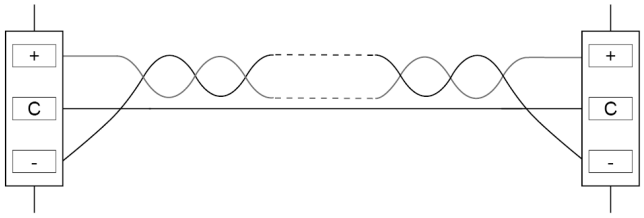
No.1 RS485 wiring diagram (RECOMMENDED)



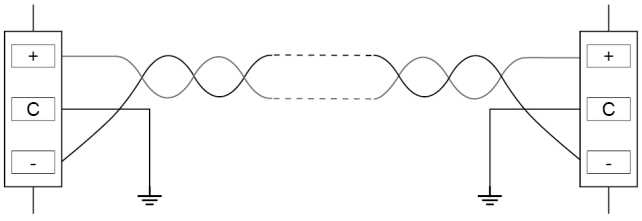
No. 4 RS485 wiring diagram (INCORRECT - Do not use!)



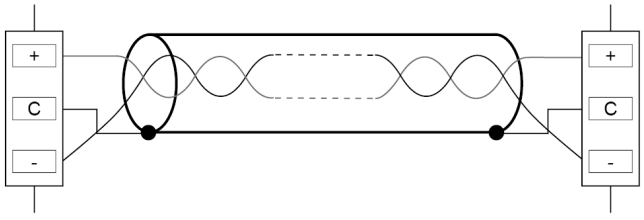
No. 2 RS485 wiring diagram (CORRECT)



No. 5 RS485 wiring diagram (INCORRECT - Do not use!)



No. 3 RS485 wiring diagram (CORRECT)



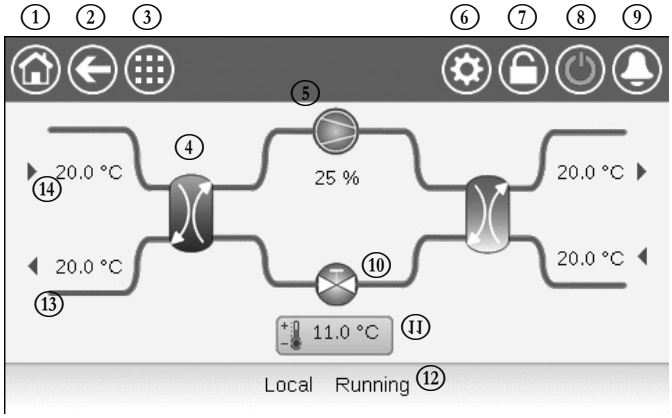
4.1 - Touch screen display

CONNECT TOUCH is a 4.3 in. colour touch screen with quick display of alarms, current unit operating status, etc. It allows for web connectivity and custom language support (control parameters displayed in the language selected by the user).

- If the touch screen is not used for a while, the screen will go black. The control system is always active and the operating mode remains unchanged. Press anywhere on the screen and the Home screen will be displayed.
- It is recommended to use a stylus for the navigation via the touch screen.

4.2 - Home screen (synoptic view)

The home screen is the starting point of the controller. It is also the first screen shown after starting the user interface.



① Home button
② Back button
③ Main menu button
④ Heat exchanger
⑤ Compressor
⑥ System menu
⑦ Login button (restricted access to menus)
⑧ Start/Stop button
⑨ Alarm button
⑩ EXV (Electronic Expansion Valve)
⑪ Setpoint
⑫ Unit status
⑬ LWT (Leaving Water Temperature)
⑭ EWT (Entering Water Temperature)

4.3 - Information message box

The information displayed in the status bar at the bottom of the screen includes relevant messages related to actions taken by the user.

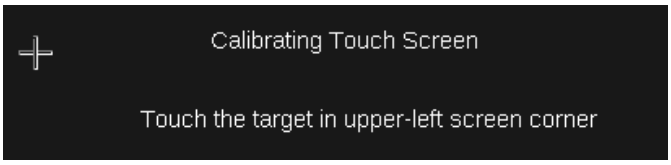
MESSAGE	STATUS
SUCCESS	Displayed when the requested action is executed.
INTERNAL COMMUNICATION FAILURE!	Displayed when the main application is not running.
HIGH FORCE IN EFFECT!	Displayed when the controller rejects the "Force" command (applicable only to status menus).
ACCESS DENIED!	Displayed when trying to perform actions not allowed at current access level.

4.4 - Screen calibration

The purpose of screen calibration is to make sure that the software acts correctly upon pressing icons on the user interface.

To calibrate the screen:

1. Press and hold anywhere on the screen.
2. The calibration process will start.
3. Please follow instructions displayed on the screen:
   "Touch the target in (...) screen corner"



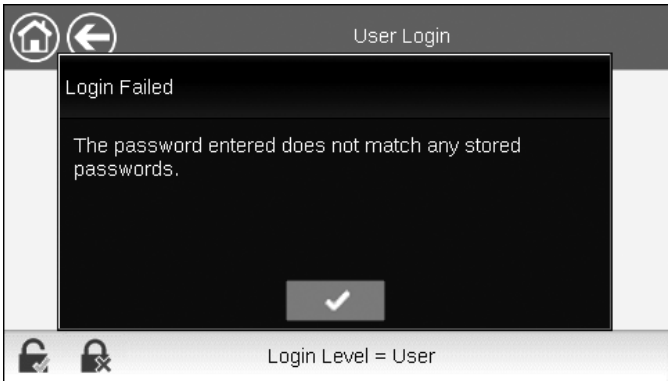
4.5 - Warning messages

Warning messages are used to inform the user that a problem occurred and the requested action cannot be completed successfully.

Login failure

If the wrong password is provided, the following warning message will be displayed:

"The password entered does not match any stored passwords"

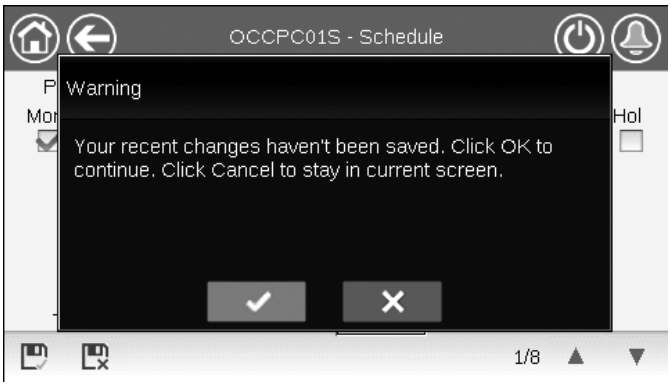


- Press the **Confirm** button and type the correct password (see section 5.7).

4.6 - Saving modifications

In case a parameter has been changed, but not saved with the **Save** button, the following warning message will be displayed:

"Your recent changes haven't been saved (...)"



- Press the **Confirm** button to continue without saving the modification.
- Press **Cancel** to come back to the current screen and then save the modification with the **Save** button.

4.7 - Header buttons

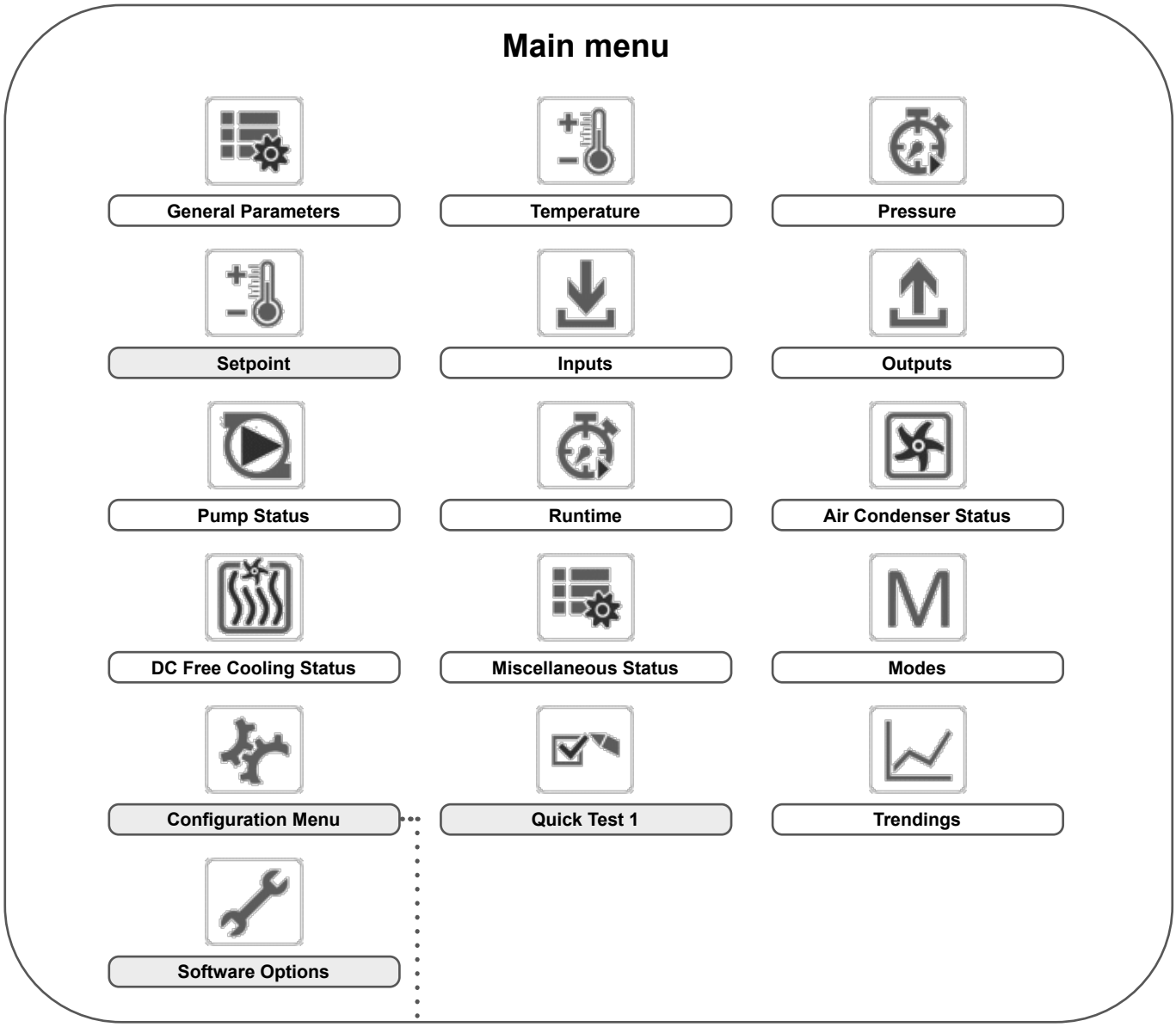
Button	Description
	**Home screen:** Press the button to go to the Home screen.
	**Previous screen:** Press the button to go back to the previous screen.
	**Main menu:** Press the button to go to the Main menu.
	**System menu:** Press the button to go to the System menu.
	**Login menu:** Used to log in to the controller in order to access higher configuration level.
	Not logged in.
	Advanced access level.
	**Unit Start/Stop:** Used to control the unit control mode.
	Unit is stopped.
	Unit is running.
	**Alarm menu:** Press the button to go to the Alarms menu.
	No alarm active on the unit
	Blinking icon: Partial alarm (one circuit affected by the existing alarm) or Alert (no action taken on the unit) Steady icon: Alarm(s) active on the unit

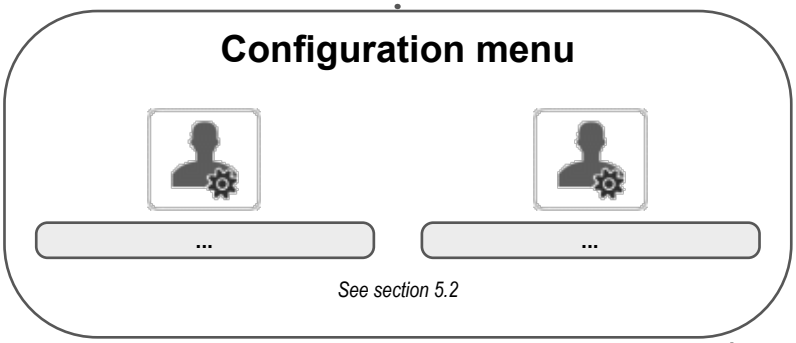
4.8 - Other buttons

Button	Description
	**Log in button:** Press the button to log in at specific access level.
	**Log off button:** Press the button to log off.
	**Save button:** Press the button to save the modification.
	**Cancel button:** Press the button to cancel the modification.
	**Force button:** Press the button to force the parameter.
	**Remove Force button:** Press the button to remove the forced parameter.
	**Up button:** Press the button to scroll up.
	**Down button:** Press the button to scroll down.
	**Confirm button:** Press the button to confirm the modification.
	**Cancel button:** Press the button to cancel the modification.
	**Trending button:** Press the button to display trends.
	**Zoom in button:** Press the button to magnify the current view.
	**Zoom out button:** Press the button to expand the current view.
	**Left button:** Press the button to go to the left.
	**Rewind button:** Press the button to go to the left faster than normal.
	**Right button:** Press the button to go to the right.
	**Fast-forward button:** Press the button to go the right faster than normal.

5 - USER INTERFACE: MENU STRUCTURE

5.1 - Main menu





See section 5.2

Legend:

Basic access (no password)

User password required

5 - USER INTERFACE: MENU STRUCTURE

The Main menu provides access to the main control parameters, including general parameters, inputs and outputs status, etc.

To access the menu, press the **Main menu** button located in the upper-left part of the Home screen.

Specific unit parameters can be accessed by pressing the icon corresponding to the desired category.

NOTE: The Trendings menu is displayed in form of a graph. For more information about Trendings, see section 6.19.

CAUTION: Since specific units may not include additional features, some tables may contain parameters that cannot be configured for a given unit.

GENUNIT – General Parameters

No.	Name	Status	Unit	Displayed text*	Description
1	CTRL_TYP	0 to 2	-	Local=0 Net.=1 Remote=2	Operating mode: 0 = Local 1 = Network 2 = Remote
2	STATUS	xxx	-	Running Status	Unit running status: 0 = Off, 1 = Running, 2 = Stopping, 3 = Delay, 4 = Trip out, 5 = Ready, 6 = Override, 7 = Defrost, 8 = Run Test, 9 = Test
3	ALM	xxx	-	Alarm State	Alarm state: Normal, Partial, Shutdown
4	min_left	-	min	Minutes Left for Start	Minutes left before the unit start-up
5	HEATCOOL	xxx	-	Heat/Cool Status	Heating/Cooling status: Heat/Cool
6	HC_SEL	0 to 1	-	Heat/Cool Select	Heating/Cooling selection:
7				0=Cool 1=Heat	0 = Cooling 1 = Heating
8	SP_SEL	0 to 3	-	Setpoint Select	Setpoint selection
9				0=Auto 1=Sp1 2=Sp2 3=Sp3	0 = Auto (schedule control) 1 = Setpoint 1 2 = Setpoint 2 3 = Setpoint 3
10	SP_OCC	no/yes	-	Setpoint Occupied?	Setpoint occupancy status
11	CHIL_S_S	disable/enable	-	Net.: Cmd Start/Stop	Unit start/stop via Network: When the unit is in Network mode, start/stop command can be forced
12	CHIL_OCC	no/yes	-	Net.: Cmd Occupied	Unit time schedule via Network: When the unit is in Network mode, the forced value can be used instead of the real occupancy state
13	CAP_T	0 to 100	%	Percent Total Capacity	Total unit capacity
14	CAPA_T	0 to 100	%	Circuit A Total Capacity	Total capacity, circuit A
15	CAPB_T	0 to 100	%	Circuit B Total Capacity	Total capacity, circuit B
16	DEM_LIM	0 to 100	%	Active Demand Limit Val	Active demand limit value: When the unit is Network mode, the minimum value will be used compared to the status of the external limit switch contact and the demand limit switch setpoint
17	SP	-	°C/°F	Current Setpoint	Current setpoint
18	CTRL_PNT	-20.0 to 67.0 -4.0 to 153.0	°C °F	Control Point	Control point: Water temperature that the unit must produce
19	EMSTOP	disable/enable	-	Emergency Stop	Emergency stop: Used to stop the unit regardless of its active operating type

*Depends on the selected language (French by default).

TEMP – Temperature

No.	Name	Status	Unit	Displayed text*	Description
1	EWT	-	°C/°F	Entering Water Temp	Entering water temperature: Used for capacity control
2	LWT	-	°C/°F	Leaving Water Temp	Leaving water temperature: Used for capacity control
3	SST_A	-	°C/°F	Saturated Suction Tp A	Saturated suction temperature, circuit A
4	SST_B	-	°C/°F	Saturated Suction Tp B	Saturated suction temperature, circuit B
5	SUCT_A	-	°C/°F	Gas Suction Temp A	Compressor suction temperature, circuit A
6	SUCT_B	-	°C/°F	Gas Suction Temp B	Compressor suction temperature, circuit B
7	OAT	-	°C/°F	Outside Air Temperature	Outdoor air temperature: Used to determine a number of control mechanisms
8	COND_EWT	-	°C/°F	Cond Entering Water Temp	Condenser entering water temperature
9	COND_LWT	-	°C/°F	Cond Leaving Water Temp	Condenser leaving water temperature
10	SCT_A	-	°C/°F	Saturated Condens Tp A	Saturated condensing temperature, circuit A
11	SCT_B	-	°C/°F	Saturated Condens Tp B	Saturated condensing temperature, circuit B
12	DGT_A	-	°C/°F	Discharge Gas Temp cir A	Discharge gas temperature, circuit A
13	DGT_B	-	°C/°F	Discharge Gas Temp cir B	Discharge gas temperature, circuit B
14	CHWSTEMP	-	°C/°F	Chilled Water Syst Temp	Chilled water system temperature (used for master/slave assembly control when cooling)
15	HTWSTEMP	-	°C/°F	Heat Water Syst Temp	Hot water system temperature (used for master/slave assembly control when heating)

*Depends on the selected language (French by default).

5 - USER INTERFACE: MENU STRUCTURE

PRESSURE – Pressure

No.	Name	Status	Unit	Displayed text*	Description
1	DP_A	-	kPa/PSI	Discharge Pressure A	Compressor discharge pressure, circuit A
2	SP_A	-	kPa/PSI	Suction Pressure A	Compressor suction pressure, circuit A
3	DP_B	-	kPa/PSI	Discharge Pressure B	Compressor discharge pressure, circuit B
4	SP_B	-	kPa/PSI	Suction Pressure B	Compressor suction pressure, circuit B

*Depends on the selected language (French by default).

SETPOINT – Setpoint

No.	Name	Status	Default	Unit	Displayed text*	Description
1	csp1	-28.9 to 25 -20 to 77	12 53.6	°C °F	Cooling Setpoint 1	Cooling setpoint 1 (used during occupied periods)
2	csp2	-28.9 to 25 -20 to 77	12 53.6	°C °F	Cooling Setpoint 2	Cooling setpoint 2 (used during unoccupied periods)
3	ice_sp	-28.9 to 25 -20 to 77	12 53.6	°C °F	Cooling Ice Setpoint	Cooling ice setpoint
4	hsp1	20 to 65 68 to 149	50 122	°C °F	Heating Setpoint 1	Heating setpoint 1 (used during occupied periods)
5	hsp2	20 to 65 68 to 149	50 122	°C °F	Heating Setpoint 2	Heating setpoint 2 (used during unoccupied periods)
6	hsp3	20 to 65 68 to 149	50 122	°C °F	Heating Setpoint 3	Not applicable (please ignore this parameter)
7	ramp_sp	0.11 to 1.11 0.2 to 2	0.56 1	^C ^F	Ramp Loading Setpoint	Ramp loading setpoint (rate at which the water temperature may change within one minute)
8	lim_sp1	0 to 100	100	%	Switch Limit Setpoint 1	Demand limit setpoint 1
9	lim_sp2	0 to 100	100	%	Switch Limit Setpoint 2	Not applicable (please ignore this parameter)
10	lim_sp3	0 to 100	100	%	Switch Limit Setpoint 3	Not applicable (please ignore this parameter)
11	cond_sp	26.7 to 60.0 80.0 to 140.0	40.0 104.0	°C °F	Condensing Setpoint	Condensing setpoint (see also section 6.9.3) Default setting for LGN units is 45°C (113°F)

*Depends on the selected language (French by default).

INPUTS – Inputs

No.	Name	Status	Unit	Displayed text*	Description
1	ONOFF_SW	open/close	-	On/Off - Remote Switch	Remote on/off switch
2	HC_SW	open/close	-	Remote heat/Cool Switch	Remote heating/cooling selection switch
3	on_ctrl	xxx	-	Current Control	Current control: Off, Cool, Heat
4	SETP_SW1	open/close	-	Remote Setpoint Switch1	Remote Setpoint Switch 1
5	SETP_SW2	open/close	-	Remote Setpoint Switch2	Remote Setpoint Switch 2
6	LIM_SW1	open/close	-	Limit Switch 1 Status	Demand limit switch 1
7	FLOW_SW	open/close	-	Exchanger Flow Switch	Flow switch status
8	DIFF_FLW	open/close	-	Diff Exchanger Flow Sw	Not applicable (please ignore this parameter)
9	LOCK_SW	open/close	-	Lock Input	Customer interlock status
10	HP_SW_A	open/close	-	High Pressure Switch A	High pressure switch A
11	HP_SW_B	open/close	-	High Pressure Switch B	High pressure switch B
12	SP_RESET	4 to 20	mA	Setpoint Reset Signal	Setpoint reset signal

*Depends on the selected language (French by default).

OUTPUTS – Outputs

No.	Name	Status	Unit	Displayed text*	Description
1	CP_A1	off/on	-	Compressor A1 Output	Compressor A1 command
2	CP_A2	off/on	-	Compressor A2 Output	Compressor A2 command
3	CP_A3	off/on	-	Compressor A3 Output	Compressor A3 command
4	EXVPosA	0 to 100	%	EXV Position Circuit A	EXV position, circuit A
5	LLS_A	off/on	-	Liquid Line Solenoid A	Liquid line solenoid valve status, circuit A
6	CP_B1	off/on	-	Compressor B1 Output	Compressor B1 command
7	CP_B2	off/on	-	Compressor B2 Output	Compressor B2 command
8	EXVPosB	0 to 100	%	EXV Position Circuit B	EXV position, circuit B

OUTPUTS – Outputs (continued)

No.	Name	Status	Unit	Displayed text*	Description
9	LLS_B	off/on	-	Liquid Line Solenoid B	Liquid line solenoid valve status, circuit B
10	Water3wv	0 to 100	%	Three Way Water Valve	Three-way water valve status
11	boiler	off/on	-	Boiler Output	Boiler command
12	EHS	0 to 4	-	Electrical Heat Stages	Electric heating command (number of electric heating stages depends on factory configuration)
13	alert	off/on	-	Alert status	Alert relay status
14	alarm	off/on	-	Alarm Relay Output	Alarm relay status
15	RUNNING	off/on	-	Running Status	Running relay status

*Depends on the selected language (French by default).

PUMPSTAT – Pump Status

No.	Name	Status	Unit	Displayed text*	Description
1				COOLER PUMP	Evaporator pump
2	CL_PUMP1	off/on	-	Cooler Pump 1 Command	Evaporator pump 1 control
3	CL_PUMP2	off/on	-	Cooler Pump 2 Command	Evaporator pump 2 control
4	CL_WPIN	-	kPa/PSI	Cool Inlet Water Press	Evaporator inlet water pressure
5	CL_WPOUT	-	kPa/PSI	Cool Outlet Water Press	Evaporator outlet water pressure
6	CL_WPCAL	no/yes	-	Cool Water Press. Calib?	Evaporator water pressure calibration
7	CL_OFFST	-	kPa/PSI	Cool Water Press. Offset	Evaporator water pressure offset
8	CL_FILTR	-	kPa/PSI	Cool delta press. filt	Evaporator delta pressure filter
9	CL_WPMIN	-	kPa/PSI	Cool mini water pressure	Evaporator mini water pressure
10	CL_WFLOW	-	l/s / GPS	Cool Water flow	Evaporator water flow
11	CL_WdtSp	-	kW	Cool Water DT Setpoint	Evaporator water delta temp. setpoint
12	CL_WdpSp	-	^C / ^F	Cool Water DP Setpoint	Evaporator water delta pressure setpoint
13	CL_DvPos	0 to 100	%	Cool Pump drive position	Evaporator pump drive position
14	CL_DrvPw	-	kW	Cool Pump drive Power	Evaporator pump drive power
15	CL_DrvI	-	A	Cool Pump drive Amps	Evaporator pump drive current
16	CL_DrvVs			Cool Pump drive version	Evaporator pump drive version
17	CL_DvTyp	-		Cool Pump drive type	Evaporator pump drive type
18				CONDENSER PUMP	Condenser pump
19	CD_PUMP1	off/on		Cond Pump 1 Command	Condenser pump 1 command
20	CD_PUMP2	off/on		Cond Pump 2 Command	Condenser pump 2 command
21	CD_WPIN	-	kPa/PSI	Cond Inlet Water Press	Condenser inlet water press
22	CD_WPOUT	-	kPa/PSI	Cond Outlet Water Press	Condenser outlet water press
23	CD_WPCAL	no/yes	-	Cond Water Press. Calib?	Condenser water pressure calibration
24	CD_OFFST	-	kPa/PSI	Cond Water Press. Offset	Condenser water pressure offset
25	CD_FILTR	-	kPa/PSI	Cond delta press. filt	Condenser delta pressure filter
26	CD_WPMIN	-	kPa/PSI	Cond mini water pressure	Condenser mini water pressure
27	CD_WFLOW	-	l/s / GPS	Cond Water flow	Condenser water flow
28	CD_WdtSp	-	kW	Cond Water DT Setpoint	Condenser water delta temp. setpoint
29	CD_WdpSp	-	^C / ^F	Cond Water DP Setpoint	Condenser water delta pressure setpoint
30	CD_DvPos	0 to 100	%	Cond Pump drive position	Condenser pump drive position
31	CD_DrvPw	-	kW	Cond Pump drive Power	Condenser pump drive power
32	CD_DrvI	-	A	Cond Pump drive Amps	Condenser pump drive current
33	CD_DrvVs	-		Cond Pump drive version	Condenser pump drive version
34	CD_DvTyp	-		Cond Pump drive type	Condenser pump drive type

*Depends on the selected language (French by default).

RUNTIME – Runtime

No.	Name	Status	Unit	Displayed text*	Description
1	hr_mach	-	hour	Machine Operating Hours	Unit operating hours
2	chr_mach	-	hour	Cooling Operating Hours	Operating hours in Cooling mode
3	hhr_mach	-	hour	Heating Operating Hours	Operating hours in Heating mode
4	st_mach	-	-	Machine Starts	Number of unit starts
5	hr_cp_a1	-	hour	Compressor A1 Hours	Operating hours, compressor A1
6	st_cp_a1	-	-	Compressor A1 Starts	Number of starts, compressor A1
7	hr_cp_a2	-	hour	Compressor A2 Hours	Operating hours, compressor A2
8	st_cp_a2	-	-	Compressor A2 Starts	Number of starts, compressor A2
9	hr_cp_a3	-	hour	Compressor A3 Hours	Operating hours, compressor A3
10	st_cp_a3	-	-	Compressor A3 Starts	Number of starts, compressor A3
11	hr_cp_b1	-	hour	Compressor B1 Hours	Operating hours, compressor B1
12	st_cp_b1	-	-	Compressor B1 Starts	Number of starts, compressor B1
13	hr_cp_b2	-	hour	Compressor B2 Hours	Operating hours, compressor B2
14	st_cp_b2	-	-	Compressor B2 Starts	Number of starts, compressor B2
15	hr_clpm1	-	hour	Cooler Pump 1 Hours	Operating hours, evaporator pump 1
16	hr_clpm2	-	hour	Cooler Pump 2 Hours	Operating hours, evaporator pump 2
17	hr_cdpm1	-	hour	Condenser Pump 1 Hours	Operating hours, condenser pump 1
18	hr_cdpm2	-	hour	Condenser Pump 2 Hours	Operating hours, condenser pump 2
19	hr_ehs	-	hour	Electric Stages Hours	Operating hours, electric heating
20	hr_hdpmp	-	hour	HDC Pump Hours	Not applicable (please ignore this parameter)

*Depends on the selected language (French by default).

AIR_COND – Air Condenser Status

No.	Name	Status	Unit	Displayed text*	Description
1	oat	-	°C/°F	Outdoor Air Temperature	Outdoor air temperature
2				Dry Cooler Status	Status of the Dry Cooler connected on the condenser side
3	DC_LWT	-	°C/°F	Leaving Water Temp	Leaving water temperature
4	DC_FanSt	-	-	Runing Fan Stages	Running fan stages
5	DC_FanSp	-	%	Variable Speed	Variable speed
6				Air Condensing	Status of the air condenser connected to the refrigerant circuits (Dynaciat LGN)
7	FanSt_A	-	-	Circuit A Fan Stages	Circuit A Fan Stages
8	FanSp_A	-	%	Variable Speed Fan A	Variable Speed Fan, circuit A
9	FanSt_B	-	-	Circuit B Fan Stages	Circuit B Fan Stages
10	FanSp_B	-	%	Variable Speed Fan B	Variable Speed Fan, circuit B
11				Runtime	Runtime
12	COND_F1S	0 to 99999999	-	Condensing Fan 1 Start	Condensing fan 1: Number of starts
13	COND_F1H	0 to 99999999	hour	Condensing Fan 1 Hours	Condensing fan 1: Operating hours
14	COND_F2S	0 to 99999999	-	Condensing Fan 2 Start	Condensing fan 2: Number of starts
15	COND_F2H	0 to 99999999	hour	Condensing Fan 2 Hours	Condensing fan 2: Operating hours
16	COND_F3S	0 to 99999999	-	Condensing Fan 3 Start	Condensing fan 3: Number of starts
17	COND_F3H	0 to 99999999	hour	Condensing Fan 3 Hours	Condensing fan 3: Operating hours
18	COND_F4S	0 to 99999999	-	Condensing Fan 4 Start	Condensing fan 4: Number of starts
19	COND_F4H	0 to 99999999	hour	Condensing Fan 4 Hours	Condensing fan 4: Operating hours
20	COND_F5S	0 to 99999999	-	Condensing Fan 5 Start	Condensing fan 5: Number of starts
21	COND_F5H	0 to 99999999	hour	Condensing Fan 5 Hours	Condensing fan 5: Operating hours
22	COND_F6S	0 to 99999999	-	Condensing Fan 6 Start	Condensing fan 6: Number of starts
23	COND_F6H	0 to 99999999	hour	Condensing Fan 6 Hours	Condensing fan 6: Operating hours
24	COND_F7S	0 to 99999999	-	Condensing Fan 7 Start	Condensing fan 7: Number of starts
25	COND_F7H	0 to 99999999	hour	Condensing Fan 7 Hours	Condensing fan 7: Operating hours
26	COND_F8S	0 to 99999999	-	Condensing Fan 8 Start	Condensing fan 8: Number of starts
27	COND_F8H	0 to 99999999	hour	Condensing Fan 8 Hours	Condensing fan 8: Operating hours
28	CirA_VFS	0 to 99999999	-	Cond VariFan CirA Start	Condensing variable speed fan (circuit A): Number of starts
29	CirA_VFH	0 to 99999999	hour	Cond VariFan CirA Hour	Condensing variable speed fan (circuit A): Operating hours
30	CirB_VFS	0 to 99999999	-	Cond VariFan CirB Start	Condensing variable speed fan (circuit B): Number of starts
31	CirB_VFH	0 to 99999999	hour	Cond VariFan CirB Hour	Condensing variable speed fan (circuit B): Operating hours

*Depends on the selected language (French by default).

DCFC_STA – DC Free Cooling Status

No.	Name	Status	Unit	Displayed text*	Description
1	oat	-	°C/°F	OAT Free Cooling	DCFC / Dry cooler: OAT
2	lwt	-	°C/°F	FC Leaving Water Temp	DCFC / Dry Cooler: Leaving water temperature
3	wloop	-	°C/°F	FC Water Loop Temp	DCFC / Dry Cooler: Water loop temperature
4	m_dcfc	no/yes	-	Free Cooling Mode Active	DC Free Cooling (DCFC) mode active
5	dcfc_cap	0 to 100	%	FC Capacity	DCFC capacity
6	f_stage	0 to 10	-	Fix Speed Fans Stage	DCFC fan stage (fix speed fans)
7	vf_speed	0 to 100	%	Varifan Speed	DCFC: Fan speed
8	pid_out	0 to 100	%	PID Output	Status of PID output
9	FC_HOUR	0 to 999999	hour	DCFC Operating Hours	Dry Cooler Free Cooling: Operating hours
10	FC_FAN1S	0 to 999999	-	DCFC Fan Stage 1 Start	DCFC / Fan stage 1: Number of starts
11	FC_FAN1H	0 to 999999	hour	DCFC Fan Stage 1 Hours	DCFC / Fan stage 1: Operating hours
12	FC_FAN2S	0 to 999999	-	DCFC Fan Stage 2 Start	DCFC / Fan stage 2: Number of starts
13	FC_FAN2H	0 to 999999	hour	DCFC Fan Stage 2 Hours	DCFC / Fan stage 2: Operating hours
14	FC_FAN3S	0 to 999999	-	DCFC Fan Stage 3 Start	DCFC / Fan stage 3: Number of starts
15	FC_FAN3H	0 to 999999	hour	DCFC Fan Stage 3 Hours	DCFC / Fan stage 3: Operating hours
16	FC_FAN4S	0 to 999999	-	DCFC Fan Stage 4 Start	DCFC / Fan stage 4: Number of starts
17	FC_FAN4H	0 to 999999	hour	DCFC Fan Stage 4 Hours	DCFC / Fan stage 4: Operating hours
18	FC_FAN5S	0 to 999999	-	DCFC Fan Stage 5 Start	DCFC / Fan stage 5: Number of starts
19	FC_FAN5H	0 to 999999	hour	DCFC Fan Stage 5 Hours	DCFC / Fan stage 5: Operating hours
20	FC_FAN6S	0 to 999999	-	DCFC Fan Stage 6 Start	DCFC / Fan stage 6: Number of starts
21	FC_FAN6H	0 to 999999	hour	DCFC Fan Stage 6 Hours	DCFC / Fan stage 6: Operating hours
22	FC_FAN7S	0 to 999999	-	DCFC Fan Stage 7 Start	DCFC / Fan stage 7: Number of starts
23	FC_FAN7H	0 to 999999	hour	DCFC Fan Stage 7 Hours	DCFC / Fan stage 7: Operating hours
24	FC_VFANS	0 to 999999	-	DCFC Variable Fan Start	DCFC / Variable speed fan: Number of starts
25	FC_VFANH	0 to 999999	hour	DCFC Variable Fan Hours	DCFC / Variable speed fan: Operating hours

*Depends on the selected language (French by default).

MSC_STAT – Miscellaneous Status

No.	Name	Status	Unit	Displayed text*	Description
1	m_ecopmp	no/yes	-	Eco Pump Mode Active	Eco pump mode status
2				Heating Device	
3	hdc_oat	-	°C/°F	Outdoor Air Temperature	Not applicable (please ignore this parameter)

*Depends on the selected language (French by default).

MODES – Modes

No.	Name	Status	Unit	Displayed text*	Description
1	m_delay	no/yes	-	Delay Active	Start-up delay in effect
2	m_2ndspt	no/yes	-	Second Setpoint Active	Second setpoint in use: The setpoint used during unoccupied periods
3	m_reset	no/yes	-	Reset Active	Setpoint reset active
4	m_limit	no/yes	-	Demand Limit Active	Demand limit active
5	m_ramp	no/yes	-	Ramp Loading Active	Ramp loading active
6	m_cooler	no/yes	-	Cooler Heater Active	Pump enabled for freeze protection
7	m_clpmpp	no/yes	-	Cooler Pump Per. Active	Evaporator pump active periodically
8	m_cdpmpp	no/yes	-	Cond. Pump Per. Active	Condenser pump active periodically
9	m_night	no/yes	-	Night Low Noise Active	Night low noise active
10	m_SM	no/yes	-	System Manager Active	System Manager active
11	m_leadla	no/yes	-	Master Slave Active	Master/slave mode active
12	m_heater	no/yes	-	Electric Heat Active	Electric heating active
13	m_lo_ewt	no/yes	-	Heating Low EWT lockout	Heating low EWT lockout
14	m_boiler	no/yes	-	Boiler Active	Boiler active status
15	m_ice	no/yes	-	Ice Mode Active	Ice mode active (cooling ice setpoint is used)
16	m_sst_a	no/yes	-	Low Suction Circuit A	Low suction, circuit A
17	m_sst_b	no/yes	-	Low Suction Circuit B	Low suction, circuit B
18	m_dgt_a	no/yes	-	High DGT Circuit A	High DGT, circuit A
19	m_dgt_b	no/yes	-	High DGT Circuit B	High DGT, circuit B

MODES – Modes (continued)

No.	Name	Status	Unit	Displayed text*	Description
20	m_hp_a	no/yes	-	High Pres Override cir A	High pressure override, circuit A
21	m_hp_b	no/yes	-	High Pres Override cir B	High pressure override, circuit B
22	m_sh_a	no/yes	-	Low SuperHeat circuit A	Low superheat, circuit A
23	m_sh_b	no/yes	-	Low SuperHeat circuit B	Low superheat, circuit B
24	m_dhw	no/yes	-	Domestic Hot Water Mode	Not applicable (please ignore this parameter)
25	m_summer	no/yes	-	Summer Mode Active	Not applicable (please ignore this parameter)

*Depends on the selected language (French by default).

Trendings

No.	Name	Status	Unit	Displayed text*	Description
1	GENUNIT_CAPA_T	-	%	-	Total capacity, circuit A
2	GENUNIT_CAPB_T	-	%	-	Total capacity, circuit B
3	GENUNIT_CTRL_PN	-	°C/°F	-	Control point
4	TEMP_EWT	-	°C/°F	-	Entering water temperature: Used for capacity control
5	TEMP_LWT	-	°C/°F	-	Leaving water temperature: Used for capacity control
6	TEMP_COND_EWT	-	°C/°F	-	Condenser entering water temperature
7	TEMP_COND_LWT	-	°C/°F	-	Condenser leaving water temperature
8	TEMP_SCT_A	-	°C/°F	-	Saturated condensing temperature, circuit A
9	TEMP_SCT_B	-	°C/°F	-	Saturated condensing temperature, circuit B
10	TEMP_SST_A	-	°C/°F	-	Saturated suction temperature, circuit A
11	TEMP_SST_B	-	°C/°F	-	Saturated suction temperature, circuit B

*Depends on the selected language (French by default).

OPT_STA – Software Options

No.	Name	Status	Unit	Displayed text*	Description
1	opt5	no/yes	-	OPT5: Medium Brine	Parameter set to “yes” means that Medium brine option which requires the Software Key is activated (see section 6.13)
2	opt6	no/yes	-	OPT6: Low Brine	Parameter set to “yes” means that Low brine option which requires the Software Key is activated (see section 6.13)
3	opt149	no/yes	-	OPT149: BACnet	Parameter set to “yes” means that BACnet option which requires the Software Key is activated (see also section 6.14)
4	opt149B	no/yes	-	OPT149B: Modbus	Modbus option does not require the Software Activation Key (see also section 6.15)

*Depends on the selected language (French by default).

QCK_TST1 – Quick Test 1

No.	Name	Status	Default	Unit	Displayed text*	Description
1	QCK_TEST	no/yes	no	-	Quick Test Enable	This parameter is used to enable the Quick Test functionality (Quick test Enable = yes) With Quick Test enabled: Forcing a specific parameter given in this table allows the user to verify if the component behaves correctly
2	FAN_A	0 to 8	0	-	Condenser Fan Stages A	Condenser fan stages, circuit A 0 = all fans are Off 1 to 8 = Used to turn on fan stage relays
3	FAN_B	0 to 8	0	-	Condenser Fan Stages B	Condenser fan stages, circuit B 0 = all fans are Off 1 to 8 = Used to turn on fan stage relays
4	FANSP_A	0 to 100	0	%	Variable Speed Fan A	Used to test a variable-speed fan, circuit A (dry cooler)
5	FANSP_B	0 to 100	0	%	Variable Speed Fan B	Used to test a variable-speed fan, circuit B (dry cooler)
6	EXV_A	0 to 100	0	%	EXV Position Circuit A	EXV position, circuit A 100% = EXV fully open
7	EXV_B	0 to 100	0	%	EXV Position Circuit B	EXV position, circuit B 100% = EXV fully open
8	Q_CLPMP1	0 to 2	0	-	Cooler Pump 1 Test	Cooler pump 1 test: 1 = Pump shall run for a short period of time 2 = Pump shall run all the time (set the value to “0” to stop the pump test)

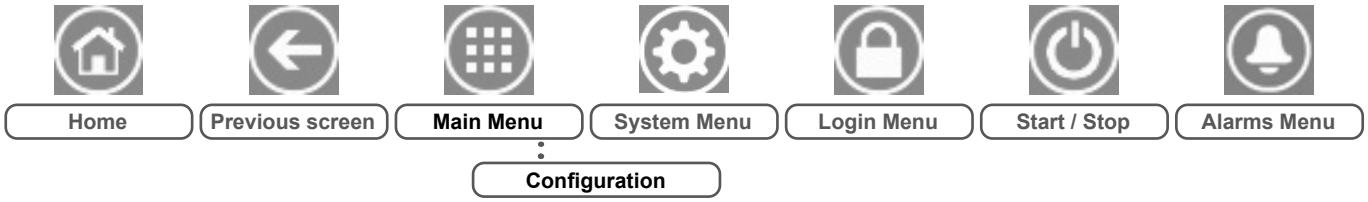
QCK_TST1 – Quick Test 1 (continued)

No.	Name	Status	Default	Unit	Displayed text*	Description
9	Q_CLPMP2	0 to 2	0	-	Cooler Pump 2 Test	Cooler pump 2 test: 1 = Pump shall run for a short period of time 2 = Pump shall run all the time (set the value to “0” to stop the pump test)
10	Q_CDPMP1	0 to 2	0	-	Condenser Pump 1 Test	Condenser pump 1 test: 1 = Pump shall run for a short period of time 2 = Pump shall run all the time (set the value to “0” to stop the pump test)
11	Q_CDPMP2	0 to 2	0	-	Condenser Pump 2 Test	Condenser pump 2 test: 1 = Pump shall run for a short period of time 2 = Pump shall run all the time (set the value to “0” to stop the pump test)
12	Q_CLVPMP	0 to 100	0	%	Cooler Var Pump Test	Variable speed pump command (cooler pump)
13	Q_CDVPMP	0 to 100	0	%	Condenser Var Pump Test	Variable speed pump command (condenser pump)
14	Q_3WV	0 to 100	0	-	Three Way Valve Test	Used to test 3-way valve opening command
15	LLS_A	off/on	off	-	Liquid Line Solenoid A	Test applicable to Dynaciat LGN units: LLS valve opening command, circuit A
16	LLS_B	off/on	off	-	Liquid Line Solenoid B	Test applicable to Dynaciat LGN units: LLS valve opening command, circuit B
17	Q_DRYFAN	0 to 8	0	-	Dry Fan Test	Dry cooler fan test: 0 = all fans are Off 1 to 8 = Used to turn on fan stage relays of the dry cooler
18	Q_DRYVFN	0 to 100	0	%	Dry Varifan Test	Used to test dry cooler fan speed
19	Q_BOILER	off/on	off	-	Boiler Output Test	Boiler command (boiler is “On” for a few seconds)
20	Q_EHS	0 to 4	0	-	Electrical Heat Stages	Electric heating command (number of electric heating stages depends on factory configuration)
21	Q_HDCPMP	off/on	off	-	HDC Additional Pump	Not applicable (please ignore this parameter)
22	Q_DHWVLV	off/on	off	-	DHW 3-way Valve	Not applicable (please ignore this parameter)
23	Q_ALARM	off/on	off	-	Alarm Status	Alarm relay status
24	Q_RUN	off/on	off	-	Running Status	Unit running status
25	Q_FC_WV	off/on	off	-	FC Water Valve Ouputs	Dry Cooler Free Cooling water valve output
26	Q_FCVFSP	0 to 100	0	%	FC Variable Fan Speed	Dry Cooler Free Cooling variable speed fan command
27	Q_FC_FST	0 to 10	0	-	FC Fan Stage	Dry Cooler Free Cooling fan stages
28						
29	HP_TEST	0 to 2	0		Hi Press Pressostat Test	High Pressure test: When activated, the unit will run until the High Pressure Safety Switch is open
30					0=Off / 1=CirA / 2=CirB	0 = No test 1 = High Pressure test, circuit A 2 = High Pressure test, circuit B

*Depends on the selected language (French by default).

IMPORTANT: To enable the Quick Test functionality, the unit must be stopped (Local off mode).

5.2 - Configuration menu



Configuration menu

Genunit Config
Pump Configuration
Heat/Cool Config
Reset Config
Schedule
Holiday
Date/Time
Network Menu
Control Identification
Add Options
Miscellaneous Service

Schedule menu

OCCPC01S
OCCPC02S
OCCPC03S

See section 5.3

Network menu

ModbusRTU Config.
ModbusTCP/IP Config.
BACnet Standard Conf.
Email Configuration

See section 5.5

Holiday menu

HOLDY_01
...

See section 5.4

Legend:

Basic access (no password)

User password required

5 - USER INTERFACE: MENU STRUCTURE

The Configuration menu gives access to a number of user-modifiable parameters such as pump configuration, schedule menu, etc. The Configuration menu is password-protected.

To access the Configuration menu, press the **Main menu** button located in the upper-left part of the Home screen, and then select Configuration Menu.

Once all the necessary modifications have been made, press the **Save** button to confirm your changes or the **Cancel** button to exit the screen without making modifications.

System configuration override: In some cases it is possible to override system configuration. Note that not all parameters can be overridden by the control.

CAUTION: Since specific units may not include additional features, some tables may contain parameters that cannot be configured for a given unit.

GENCONF – Genunit Config

No.	Name	Status	Default	Unit	Displayed text*	Description
1	lead_cir	0 to 2	0	-	Cir Priority Sequence	Circuit priority sequence
2					0=Auto 1=A Lead 2=B Lead	0 = Automatic changeover 1 = Circuit A lead 2 = Circuit B lead
3	seq_typ	no/yes	no	-	Staged Loading Sequence	Staged loading sequence
4	ramp_sel	no/yes	no	-	Ramp Loading Select	Ramp loading sequence
5	off_on_d	1 to 15	1	min	Unit Off to On Delay	Unit OFF to ON delay
6	nh_limit	0 to 100	100	%	Night Capacity Limit	Night capacity limitation
7	nh_start	-	00:00	-	Night Mode Start Hour	Night mode start hour
8	nh_end	-	00:00	-	Night Mode End Hour	Night mode end hour
9	al_rever	no/yes	no	-	Reverse Alarms Relay	Alarm / Alert signals reverted No = standard operation Yes = alarm/alert/shutdown outputs are “On” even if there is no alarm/alert (alarm output unavailable)
10	ewt_opt	no/yes	yes		Entering Fluid Control	Entering fluid control option (if selected, the system controls unit capacity based on the entering fluid temperature; otherwise the control is based on the leaving fluid temperature)

*Depends on the selected language (French by default).

PUMPCONF – Pump Configuration

No.	Name	Status	Default	Unit	Displayed text*	Description
1					COOLER PUMP	EVAPORATOR PUMP
2	clpmpseq	0 to 4	0	-	Cooler Pumps Sequence	Evaporator pumps sequence
3					0 = No Pump	0 = No Pump
4					1 = One Pump Only	1 = One Pump Only
5					2 = Two Pumps Auto	2 = Two Pumps Auto (units with two pumps)
6					3 = Pump#1 Manual	3 = Pump#1 Manual
7					4 = Pump#2 Manual	4 = Pump#2 Manual
8	clpmpdel	24 to 3000	48	hour	Pump Auto Rotation Delay	Pump auto rotation delay (units with two pumps = auto control)
9	clpmpper	no/yes	no	-	Cool Pump Anti-Sticking	Evaporator pump anti-sticking protection
10	clpmpsby	no/yes	no	-	Cool Pump Stopped in Sby	Not applicable (please ignore this parameter)
11	clpmploc	no/yes	no	-	Flow Checked if Pump Off	Water flow is checked when the pump is off
12					CONDENSER PUMP	CONDENSER PUMP
13	cdpmpseq	0 to 4	0	-	Condenser Pumps Sequence	Condenser pump sequence
14					0 = No Pump	0 = No Pump
15					1 = One Pump Only	1 = One Pump Only
16					2 = Two Pumps Auto	2 = Two Pumps Auto (units with two pumps)
17					3 = Pump#1 Manual	3 = Pump#1 Manual
18					4 = Pump#2 Manual	4 = Pump#2 Manual
19	cdpmpdel	24 to 3000	48	hour	Pump Auto Rotation Delay	Pump Auto Rotation Delay (units with two pumps = auto control)
20	cdpmpper	no/yes	no	-	Cond Pump Anti-Sticking	Condenser pump anti-sticking protection
21	cdpmpsby	no/yes	no	-	Cond Pump Stopped in Sby	Not applicable (please ignore this parameter)
22	cdpmploc	no/yes	no	-	Flow Checked if Pump Off	Water flow is checked when the pump is off
23	ol_pump	no/yes	no	-	Open loop pump Control	Open loop pump control
24				-	Cool Water Loop control	Cooler water loop control
25	cl_w_ct	0 to 2	0	-	Cool Flow Ctrl Method	Water flow control method (cooler)
26				-	0 fixed, 1 dt T, 2 dt P	0 = none 1 = water flow control based on delta temperature 2 = water flow control based on delta pressure

PUMPCONF – Pump Configuration (continued)

No.	Name	Status	Default	Unit	Displayed text*	Description
27	clwdtspt	3.0 to 10.0 5.4 to 18.0	5.0 9.0	^C ^F	Cool Flow DT setpoint	Water delta temperature setpoint
28	clwdpspt	50.0 to 200.0 7.25 to 29.01	140.0 20.3	kPa PSI	Cool Flow DP Setpoint	Water delta pressure setpoint
29	cl_p_min	30 to 100	50	%	Cooler Pump Min Speed	Minimum pump speed
30	cl_p_max	60 to 100	100	%	Cooler Pump Max Speed	Maximum pump speed
31	cl_wzval	-137.9 to 20.7 -20.0 to 3.0	-99.0 -14.4	kPa PSI	Cool Wtr Prs Zero P2-P1	Water pressure zero (P2 - P1)
32	WtPmpMxP	48.3 to 551.6 7.0 to 80.0	500.0 72.52	kPa PSIG	Water Pump Max Delta P	Maximum water pump delta pressure
33				-	Cond Water Loop control	Condenser water loop control
34	cd_w_ct	0 to 2	0	-	Cond Flow Ctrl Method	Water flow control method (condenser)
35				-	0 fixed, 1 dt T, 2 dt P	0 = none 1 = water flow control based on delta temperature 2 = water flow control based on delta pressure
36	cdwdtspt	3.0 to 16.0 5.4 to 28.8	5.0 9.0	^C ^F	Cond Flow DT setpoint	Water delta temperature setpoint
37	cdwdpspt	50.0 to 200.0 7.25 to 29.01	140.0 20.3	kPa PSI	Cond Flow DP Setpoint	Water delta pressure setpoint
38	cd_p_min	30 to 100	50	%	Condenser Pump Min Speed	Minimum pump speed
39	cd_p_max	60 to 100	100	%	Condenser Pump Max Speed	Maximum pump speed
40	cd_wzval	-137.9 to 20.7 -20.0 to 3.0	-99.0 -14.4	kPa PSI	Cond Wtr Prs Zero P4-P3	Water pressure zero (P4 - P3)
41	CdPmpMxP	48.3 to 551.6 7.0 to 80.0	500.0 72.52	kPa PSIG	Cond Pump Max Delta P	Maximum water pump delta pressure

*Depends on the selected language (French by default).

HCCONFIG – Heat/Cool Config

No.	Name	Status	Default	Unit	Displayed text*	Description
1	cr_sel	0 to 3	0	-	Cooling Reset Select	Cooling reset selection
2	hr_sel	0 to 3	0	-	Heating Reset Select	Heating reset selection
3					0=none, 1=OAT,	0 = No reset 1 = Reset based on OAT
4					2=delta T, 3=4-20mA	2 = Reset based on delta T 3 = Reset based on analog input (4-20 mA)
5	boil_on	off/on	off		Boiler Manual Command	Boiler manual command: Used to allow the boiler to start in Heating without OAT sensor. Off = boiler control is based on OAT control logic (see boil_th below) On = boiler control enabled if OAT sensor is NOT present or the sensor fails
6	boil_th	-15.0 to 15.0 5.0 to 59.0	-9.9 14.2	°C °F	Boiler OAT Threshold	Boiler OAT threshold
7	ehs_th	-5.0 to 21.1 23.0 to 70.0	5.0 41.0	°C °F	Elec Stage OAT Threshold	Electric heating stage OAT threshold
8	both_sel	no/yes	no	-	HSM Both Command Select	HSM command (System Manager)
9	ehs_back	no/yes	no	-	1 Elec Stage for Backup	One electric heating stage used for back-up
10	ehs_pull	0 to 60	0	min	Electrical pulldown time	Electrical pull-down time: It defines the time between starting the unit and determining whether the electric heating stage should be started

*Depends on the selected language (French by default).

RESETCFG – Reset Config

No.	Name	Status	Default	Unit	Displayed text*	Description
1					COOLING RESET	Cooling reset parameters
2	oatcr_no	-30.0 to 51.7 -22.0 to 125.0	25.0 77.0	°C °F	OAT No Reset Value	OAT no reset value
3	oatcr_fu	-30.0 to 51.7 -22.0 to 125.0	20.0 68.0	°C °F	OAT Full Reset Value	OAT full reset value
4	dt_cr_no	0 to 14.0 0 to 25.2	0 0	^C ^F	Delta T No Reset Value	Delta T no reset value

RESETCFG – Reset Config (continued)

No.	Name	Status	Default	Unit	Displayed text*	Description
5	dt_cr_fu	0 to 14.0 0 to 25.2	0 0	^C ^F	Delta T Full Reset Value	Delta T full reset value
6	l_cr_no	4 to 20	4	mA	Current No Reset Value	Current no reset value
7	l_cr_fu	4 to 20	4	mA	Current Full Reset Value	Current full reset value
8	cr_deg	-50.0 to 50.0 -90.0 to 90.0	0 0	^C ^F	Cooling Reset Deg. Value	Cooling reset deg. value
9					HEATING RESET	Heating reset parameters
10	oathr_no	-30.0 to 51.7 -22.0 to 125.0	25.0 77.0	°C °F	OAT No Reset Value	OAT no reset value
11	oathr_fu	-30.0 to 51.7 -22.0 to 125.0	20.0 68.0	°C °F	OAT Full Reset Value	OAT full reset value
12	dt_hr_no	0 to 14.0 0 to 25.2	0 0	^C ^F	Delta T No Reset Value	Delta T no reset value
13	dt_hr_fu	0 to 14.0 0 to 25.2	0 0	^C ^F	Delta T Full Reset Value	Delta T full reset value
14	l_hr_no	4 to 20	4	mA	Current No Reset Value	Current no reset value
15	l_hr_fu	4 to 20	4	mA	Current Full Reset Value	Current full reset value
16	hr_deg	-16.7 to 16.7 -30.0 to 30.0	0 0	^C ^F	Heating Reset Deg. Value	Heating reset deg. value

*Depends on the selected language (French by default).

DATETIME – Date/Time

No.	Status	Displayed text*	Description
1	on/off	Daylight Saving Time	Summer/winter time activation
2	Greenwich Mean Time (UTC)	Location	Time zone
3	YYYY/MM/DD, HH:MM:SS	Date/Time	Current date and time (must be set manually)
4	no/yes	Today is a Holiday	Information about holidays (read-only). Please note that holidays are set in the Holiday menu (see also section 5.4)
5	no/yes	Tomorrow is a Holiday	Information about the upcoming holiday period (read-only). Please note that holidays are set in the Holiday menu (see also section 5.4)

*Depends on the selected language (French by default).

CTRLID – Control Identification

No.	Status	Default	Displayed text*	Description
1	1-239	1	Element Number	Element number
2	0-239	0	Bus Number	Bus number
3	9600 / 19200 / 38400	9600	Baud Rate	Communication speed
4	-	DYNACIAT LG/N/P pic6	Device Description	Device description (range of units)
5	-	-	Location Description	Location description
6	-	ECG-SR-20V45100	Software Version	Software version
7	-	MAC address	Serial Number	Serial number (MAC address)

*Depends on the selected language (French by default).

ADD_OPT – Add Options

No.	Displayed text*	Description
1	MAC Address	Controller MAC address: This MAC address is requested by your local service representative when ordering any software-protected option (see also section 6.16)
2	Please Enter Your Software Activation Key	Software Activation Key provided by a service technician (see also section 6.16)
3	Unit must be Off	The unit should not be operating when installing the Software Activation Key

*Depends on the selected language (French by default).

NOTE: If you need to add an option, please contact your local service representative.

MSC_SERV – Miscellaneous Service

No.	Name	Status	Default	Unit	Displayed text*	Description
1					ECO PUMP CONFIG	Eco pump configuration
2	eco_pmp	no/yes	no	-	Eco Pump Enable	This parameter is used to enable the eco pump mode. When the Eco pump function is enabled, the pump is stopped when the unit is in Standby mode. Then, after a configurable delay, the pump is started again in order to determine the heating or cooling demand.
3	ecop_off	2 to 60	2	min	Eco Pump Mode Off Delay	The delay set before stopping the Eco pump mode
4	ecop_on	5 to 60	5	min	Eco Pump Mode On Delay	The delay set before starting the Eco pump mode

*Depends on the selected language (French by default).

5.3 - Schedule menu

The Schedule menu includes three time schedules, where the first one (OCCPC01S) is used to control the unit start/stop, the second one (OCCPC02S) is used to control the dual setpoint, and the third one (OCCPC03S) is used to control DHW production schedule (not applicable to LG - LGN series!).

SCHEDULE – Schedule Menu

Icon	Name	Displayed text*	Description
	OCCPC01S	OCCPC01S - Schedule	Unit on/off time schedule
	OCCPC02S	OCCPC02S - Schedule	Unit setpoint selection time schedule
	OCCPC03S	OCCPC03S - Schedule	*Domestic hot water production schedule* (Not applicable to LG/LGN series!)

*Depends on the selected language (French by default).

IMPORTANT: For more information about schedule setting, please see section 6.17.

5.4 - Holiday menu

The Holiday menu allows the user to set up to 16 holiday periods, which are defined by the start month, start day, and duration.

HOLIDAY – Holiday Menu

Icon	Name	Displayed text*	Description
	HOLDY_01	HOLIDAY - HOLDY_01	Holiday period No.1 settings
	...	...	...
	HOLDY_16	HOLIDAY - HOLDY_16	Holiday period No.16 settings

*Depends on the selected language (French by default).

HOLIDAY – HOLDY_01 (...)

No.	Name	Status	Default	Unit	Displayed text*	Description
1	HOL_MON	0-12	0	-	Holiday Start Month	Holiday start month
2	HOL_DAY	0-31	0	-	Start Day	Holiday start day
3	HOL_LEN	0-99	0	-	Duration (days)	Holiday duration (days)

*Depends on the selected language (French by default).

IMPORTANT: For more information about holiday setting, please see section 6.19.

5.5 - Network menu

The Network menu allows the user to change network setting for BACnet/Modbus and define e-mail accounts used for alarm notifications (see section 8.3).

NETWORK – Network Menu

Icon	Name	Displayed text*	Description
	MODBUSRS	ModbusRTU Config.	Modbus RTU configuration
	MODBUSIP	ModbusTCP/IP Config.	Modbus TCP/IP configuration
	BACNET	BACnet Standard Conf.	BACnet configuration
	EMAILCFG	Email Configuration	Email configuration

*Depends on the selected language (French by default).

MODBUSRS – ModbusRTU Config.

No.	Name	Status	Default	Unit	Displayed text*	Description
1	modrt_en	no/yes	no	-	RTU Server Enable	RTU Server Enable
2	ser_UID	1 to 247	1	-	Server UID	Server UID
3	metric	no/yes	yes	-	Metric Unit	Metric Unit
4	swap_b	0 to 1	0	-	Swap Bytes	Swap Bytes
5					0 = Big Endian	0 = Big Endian
6					1 = Little Endian	1 = Little Endian
7	baudrate	0 to 2	0	-	Baudrate	Baudrate
8					0 = 9600	0 = 9600
9					1 = 19200	1 = 19200
10					2 = 38400	2 = 38400
11	parity	0 to 2	0	-	Parity	Parity
12					0 = No Parity	0 = No Parity
13					1 = Odd Parity	1 = Odd Parity
14					2 = Even Parity	2 = Even Parity
15	stop_bit	0 to 1	0	-	Stop bit number	Stop bit number
16					0 = One Stop Bit	0 = One Stop Bit
17					1 = Two Stop Bits	1 = Two Stop Bits
18	real_typ	0 to 1	1	-	Real type management	Real type management
19					0 = Float X10	0 = Float X10
20					1 = IEEE 754	1 = IEEE 754
21	reg32bit	0 to 1	1	-	Enable 32 bits registers	Enable 32 bits registers
22					0 = IR/HR in 16 bit mode	0 = IR/HR in 16 bit mode
23					1 = IR/HR in 32 bit mode	1 = IR/HR in 32 bit mode

*Depends on the selected language (French by default).

MODBUSIP – ModbusTCP/IP Config.

No.	Name	Status	Default	Unit	Displayed text*	Description
1	modip_en	no/yes	no	-	TCP/IP Server Enable	TCP/IP Server Enable
2	ser_UID	1 to 247	1	-	Server UID	Server UID
3	port_nbr	0 to 65535	502	-	Port Number	Port Number
4	metric	no/yes	yes	-	Metric Unit	Metric Unit
5	swap_b	0 to 1	0	-	Swap Bytes	Swap Bytes
6					0 = Big Endian	0 = Big Endian
7					1 = Little Endian	1 = Little Endian
8	real_typ	0 to 1	1	-	Real type management	Real type management

MODBUSIP – ModbusTCP/IP Config. (continued)

No.	Name	Status	Default	Unit	Displayed text*	Description
9					0 = Float X10	0 = Float X10
10					1 = IEEE 754	1 = IEEE 754
11	reg32bit	0 to 1	1	-	Enable 32 bits registers	Enable 32 bits registers
12					0 = IR/HR in 16 bit mode	0 = IR/HR in 16 bit mode
13					1 = IR/HR in 32 bit mode	1 = IR/HR in 32 bit mode
14	conifnam	0 to 1	0	-	IP port interface name	IP port interface name
15					0 = J5 / J15	0 = J5 / J15
16					1 = J16	1 = J16
17	timeout	60 to 600	120	sec	Com. timeout (s)	Com. timeout (s)
18	idle	0 to 30	10	sec	Keepalive idle delay(s)	Keepalive idle delay(s)
19	intrvl	0 to 2	1	sec	Keepalive interval(s)	Keepalive interval(s)
20	probes	0 to 10	10	-	Keepalive probes nb	Keepalive probes number

*Depends on the selected language (French by default).

BACNET – BACnet Standard Conf.

No.	Name	Status	Default	Unit	Displayed text*	Description
1	bacena	disable/enable	disable	-	BACnet Enable	BACnet Enable
2	bacunit	no/yes	yes	-	Metric Units?	Metric Units?
3	network	1 to 40000	1600	-	Network	Network
4	udpport	47808 to 47823	47808	-	UDP Port Number	UDP Port Number
5	bac_id	1 to 4194302	1600001	-	Device Id manual	Device Id manual
6	auid_opt	disable/enable	disable	-	Device Id Auto Option	Device Id Auto Option
7	balmena	disable/enable	enable	-	Alarm reporting	Alarm reporting
8	mng_occ	no/yes	no	-	BACnet Manage Occupancy	BACnet Manage Occupancy
9	conifnam	0 to 1	0	-	IP port interface name	IP port interface name
10					0 = J5 / J15	0 = J5 / J15
11					1 = J16	1 = J16

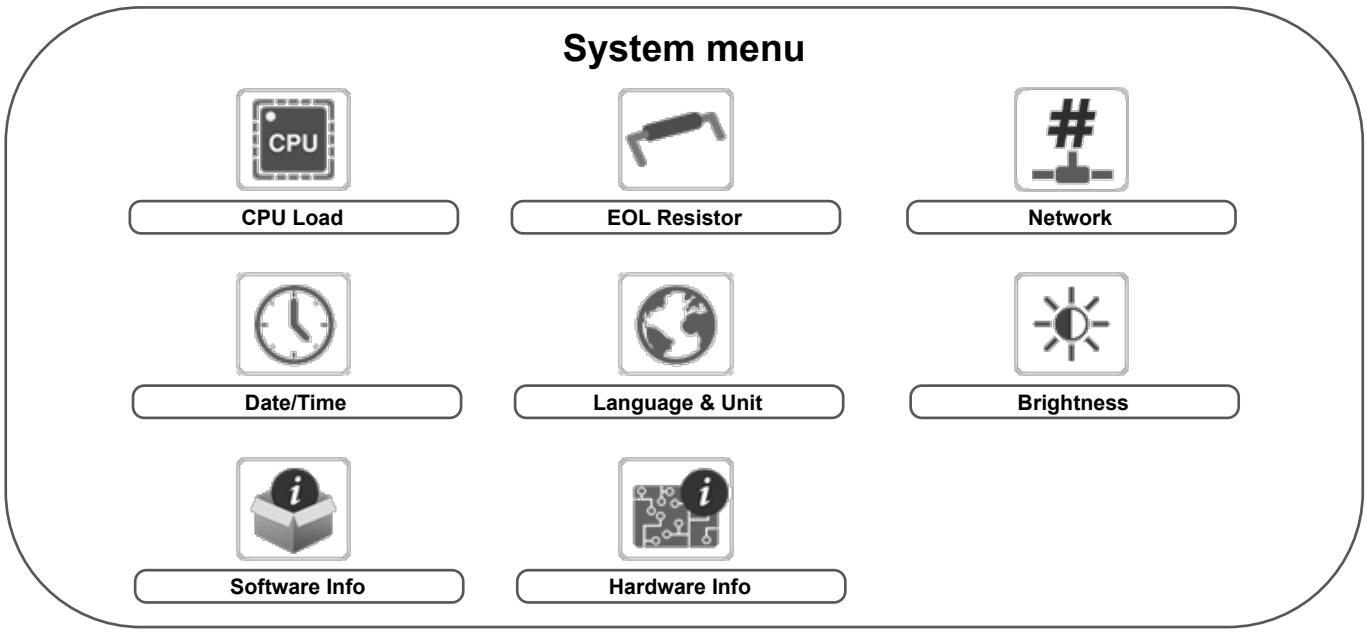
*Depends on the selected language (French by default).

EMAILCFG – Email Configuration

No.	Name	Status	Default	Unit	Displayed text*	Description
1	senderP1	-	-	-	Sender Email Part1	Sender e-mail, identifier part
2					@	@
3	senderP2	-	-	-	Sender Email Part2	Sender e-mail, identifier part
4	recip1P1	-	-	-	Recip1 Email Part1	Recipient 1,identifier part
5					@	@
6	recip1P2	-	-	-	Recip1 Email Part2	Recipient 1,domain part
7	recip2P1	-	-	-	Recip2 Email Part1	Recipient 2,identifier part
8					@	@
9	recip2P2	-	-	-	Recip2 Email Part2	Recipient 2,domain part
10	smtpP1	0 to 255	0	-	SMTP IP Addr Part 1	SMTP IP address part 1
11	smtpP2	0 to 255	0	-	SMTP IP Addr Part 2	SMTP IP address part 2
12	smtpP3	0 to 255	0	-	SMTP IP Addr Part 3	SMTP IP address part 3
13	smtpP4	0 to 255	0	-	SMTP IP Addr Part 4	SMTP IP address part 4
14	accP1	-	-	-	Account Email Part1	Account e-mail, identifier part
15					@	@
16	accP2	-	-	-	Account Email Part2	Account e-mail, domain part
17	accPass	-	-	-	Account Password	Account password
18	portNbr	0 to 65535	25	-	Port Number	Port number
19	srvTim	0 to 255	30	sec	Server Timeout	Server timeout
20	srvAut	0 to 1	0	-	Server Authentication	Server authentication

*Depends on the selected language (French by default).

5.6 - System menu



Legend:

Basic access (no password)

User password required

The System menu allows the user to verify software, hardware, or network information and change some display settings, including language, date/time, or brightness.

- To access the System menu, press the **System menu** button located in the upper-right part of the Home screen.

CAUTION: Since specific units may not include additional features, some tables may contain parameters that cannot be configured for a given unit.

CPU Load

No.	Status	Default	Unit	Displayed text*	Description
1	0 to 100	-	%	CPU load	CPU utilization
2	0 to 100	-	%	RAM Memory utilization	RAM usage
3	0 to 100	-	%	FLASH Memory utilization	Flash memory usage

*Depends on the selected language (French by default).

EOLRES – EOL Resistor

No.	Status	Default	Unit	Displayed text*	Description
1	disable/enable	disable	-	End of Line Res. J6 (LEN)	End of line resistor J6 (LEN bus)
2	disable/enable	disable	-	End of Line Res. J7	End of line resistor J7
3	disable/enable	disable	-	End of Line Resistor J8	End of line resistor J8
4	disable/enable	disable	-	End of Line Resistor J10	End of line resistor J10 (Modbus)

*Depends on the selected language (French by default).

Network

No.	Status	Default	Unit	Displayed text*	Description
1				IP Network Interface J5 (eth0):	IP Network Interface J5 (Ethernet 0):
2		xx:xx:xx:xx:xx:xx	-	MAC Address	MAC Address

Network (continued)

No.	Status	Default	Unit	Displayed text*	Description
3		169.254.1.1	-	TCP/IP Address	TCP/IP Address: Changing the IP address and mask is possible but a reboot is mandatory if Modbus TCP or BACnet IP is enabled (the reboot is required to make changes effective).
4		255.255.255.0	-	Subnet Mask	Subnet Mask
5		169.254.1.3	-	Default Gateway	Default Gateway
6		255.255.0.0	-	Gateway Mask	Gateway Mask
7		169.254.1.3	-	Domain Name Server (DNS)	Domain Name Server (DNS)
8		169.254.1.4			

*Depends on the selected language (French by default).

Date/Time

No.	Status	Displayed text*	Description
1	on/off	Daylight Saving Time	Summer/winter time activation
2	Greenwich Mean Time (UTC)	Location	Time zone
3	YYYY/MM/DD, HH:MM:SS	Date/Time	Current date and time (must be set manually)
4	no/yes	Today is a Holiday	Information about holidays (read-only). Please note that holidays are set in the Holiday menu (see also section 5.4)
5	no/yes	Tomorrow is a Holiday	Information about the upcoming holiday period (read-only). Please note that holidays are set in the Holiday menu (see also section 5.4)

*Depends on the selected language (French by default).

Language & Unit

No.	Displayed text*	Description
1		**Display languages:** English, Spanish, French, German, Dutch, Italian, Portuguese, custom language. **Custom language (Custom1):** The control system allows users to add new languages to the control. To learn more about language customization, please contact your local service representative. Custom languages can be uploaded only by a service representative.
2	System of measurement: US Imp/Metric	US Imp = Parameters displayed in US Imperial units Metric = Parameters displayed in metric units

*Depends on the selected language (French by default).

Brightness

No.	Status	Default	Unit	Displayed text*	Description
1	0 to 100	80	%	Brightness	Screen brightness

*Depends on the selected language (French by default).

Software Info

No.	Status	Displayed text*	Description
1	ECG-SR-20V45100	Software Version	Software version number
2	N.NNN.N	SDK Version	SDK version number
3	NN	UI Version	User interface version
4	CIAT	Brand	Brand

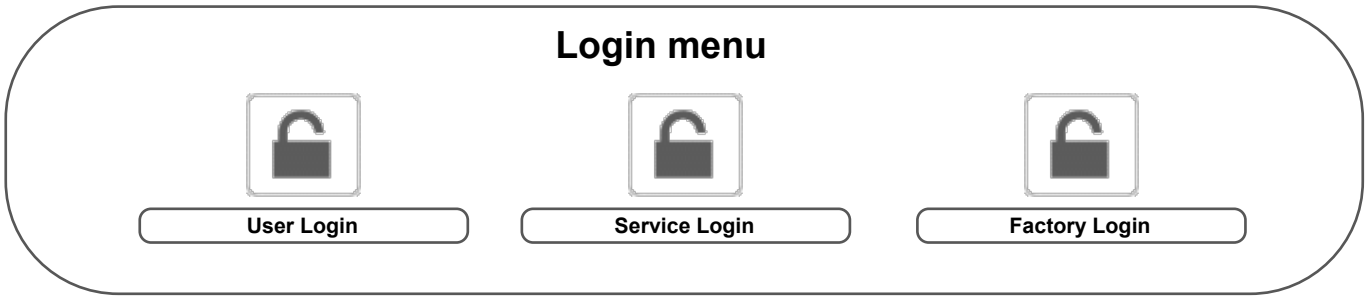
*Depends on the selected language (French by default).

Hardware Info

No.	Status	Displayed text*	Description
1	-	Board Variant	Board variant
2	-	Board Revision	Board revision
3	43	Screen size	Screen size in inches (4.3-inch controller)

*Depends on the selected language (French by default).

5.7 - Login menu



Legend:

- Basic access (no password)
- User password required

5.7.1 - Access control

- Login menu provides access to three different access levels, i.e. user configuration, service configuration, and factory configuration.
- Multilevel security ensures that only authorised users are allowed to modify critical unit parameters.
- Only people qualified to manage the unit should be familiarized with the password.
- Configuration menu can be accessed only by logged-in users (user configuration level or higher).

IMPORTANT: It is strongly recommended to change the default password of the user interface to exclude the possibility of changing any parameters by an unqualified person.

5.7.2 - User login

Only logged-in users can access configurable unit parameters. By default, user password is “11”.

To log in

1. Press the **Login** button, and then select *User Login*.
2. Press the Password box.
3. Provide the password (11) and press the **Confirm** button.

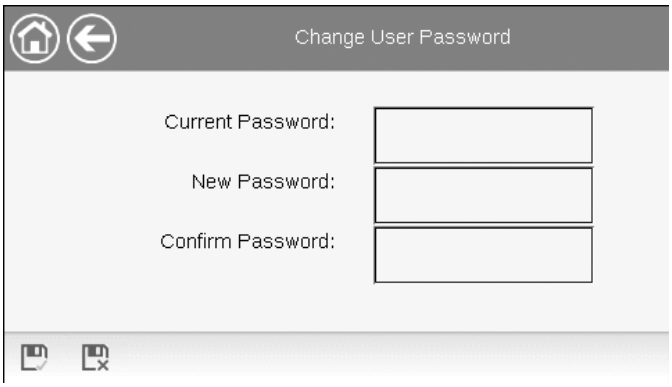
4. The Login screen appears.

5.7.3 - User password

User password can be modified in the User Login menu.

To change your password

1. Press the **Login** button, and then select *User Login*.
2. Press the **Change User Password** button.
3. The Change User Password screen will be displayed.



4. Please provide the current password, and then type the new password twice.
5. Press the **Save** button to confirm password update or the **Cancel** button to exit the screen without making modifications.

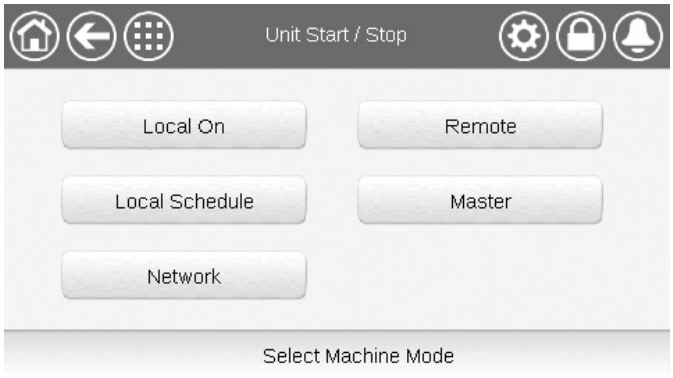
5.7.4 - Service & Factory login

Service and factory login menus are dedicated to service technicians and factory line. To learn more about advanced access control, please refer to the Control Service Guide (service technicians only).

5.8 - Start / stop menu

5.8.1 - Unit operating mode

With the unit in the Local off mode: To display the list of operating modes and select the required mode, press the **Start/Stop** button in the upper-right corner of the Synoptic screen.



IMPORTANT: When entering the menu, please note that the currently selected item corresponds to the last running operating mode.

Unit start/stop screen (operating modes)	
Local On	Local On: The unit is in the local control mode and allowed to start.
Local Schedule	Local Schedule: The unit is in the local control mode and allowed to start if the period is occupied.
Network	Network: The unit is controlled by network commands and allowed to start if the period is occupied.
Remote	Remote: The unit is controlled by external commands and allowed to start if the period is occupied.
Master	Master: The unit operates as the master in the master/slave assembly and it is allowed to start if the period is occupied.

5.8.2 - Unit start

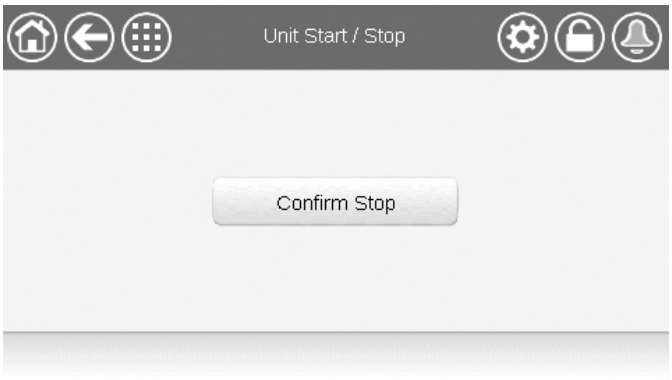
To start the unit

1. Press the **Start/Stop** button.
2. Select the required Machine Mode.
   - Local On
   - Local Schedule
   - Network
   - Remote
   - Master (Master button is displayed if Master/Slave control is enabled)
3. The Home screen will be displayed.

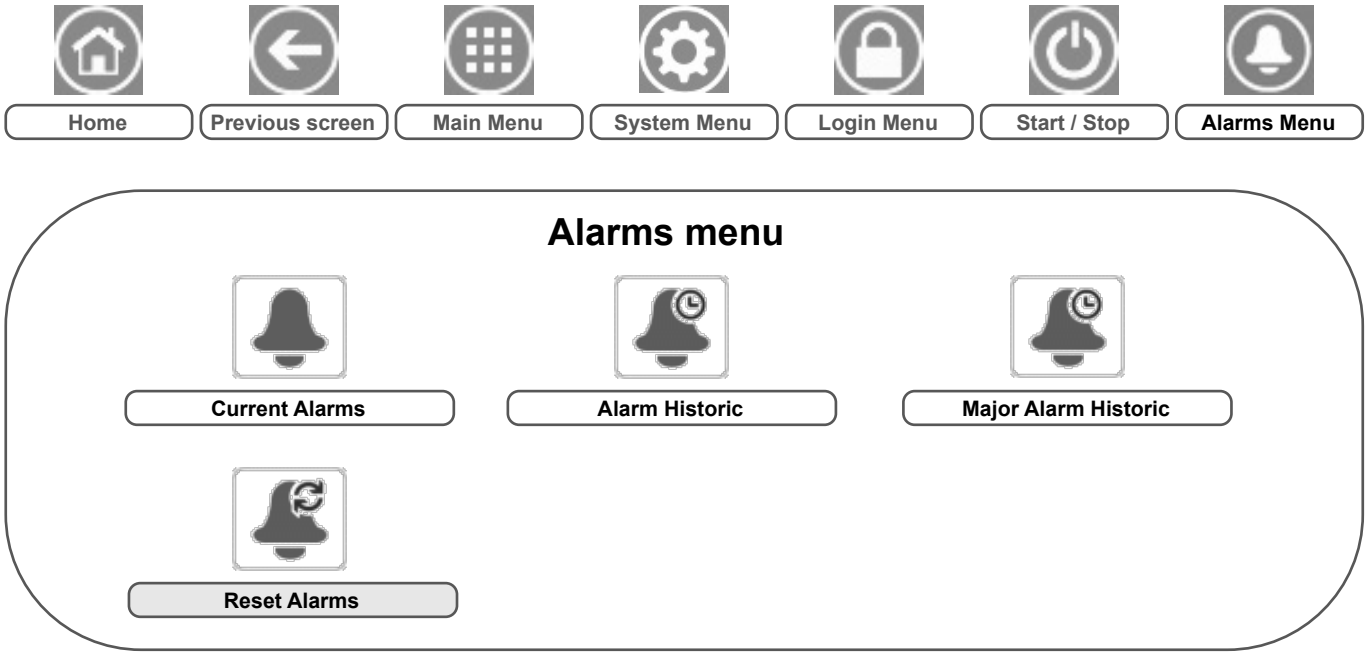
5.8.3 - Unit stop

To stop the unit

1. Press the **Start/Stop** button.
2. Confirm the unit shutdown by pressing **Confirm Stop** or cancel the unit shutdown by pressing the **Back** button.



5.9 - Alarms menu



The Alarms menu allows the user to monitor alarms that occurred on the unit as well as reset alarms that require manual reset.

- To access the Alarms menu, press the **Alarms menu** button located in the upper-right part of the Home screen.

The Alarm history is divided into two parts:

- Alarm Historic that displays up to 50 recent general alarms.
- Alarm Major Historic that displays up to 50 recent major alarms, including alarms connected with process failure, compressor failure, and drives.

IMPORTANT: For more information about alarms, please go to section 8.6.

CUR_ALM – Current Alarms

No.	Name	Date	Hour	Alarm text
1	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)
...	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)
10	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)

*Depends on the selected language (French by default).

ALMHIST1 – Alarm Historic

No.	Name	Date	Hour	Alarm text
1	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)
...	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)
50	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)

*Depends on the selected language (French by default).

ALMHIST2 – Major Alarm Historic

No.	Name	Date	Hour	Alarm text
1	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)
...	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)
50	Alarm	YYYY/MM/DD	HH:MM	Alarm text (see section 8.6)

*Depends on the selected language (French by default).

ALARMRST – Reset Alarms

No.	Name	Status	Displayed text*	Description
1	RST_ALM	no/yes	Alarm Reset	Used to reset active alarms
2	ALM	-	Alarm State	Alarm state: Normal = No alarm Partial = There is an alarm, but the unit continues to operate Shutdown = Unit shuts down
3	alarm_1c	-	Current Alarm 1	Alarm code (see section 8.6)
4	alarm_2c	-	Current Alarm 2	Alarm code (see section 8.6)
5	alarm_3c	-	Current Alarm 3	Alarm code (see section 8.6)
6	alarm_4c	-	Current Alarm 4	Alarm code (see section 8.6)
7	alarm_5c	-	Current Alarm 5	Alarm code (see section 8.6)
8	alarm_1	-	Jbus Current Alarm 1	JBus alarm code (see section 8.6)
9	alarm_2	-	Jbus Current Alarm 2	JBus alarm code (see section 8.6)
10	alarm_3	-	Jbus Current Alarm 3	JBus alarm code (see section 8.6)
11	alarm_4	-	Jbus Current Alarm 4	JBus alarm code (see section 8.6)
12	alarm_5	-	Jbus Current Alarm 5	JBus alarm code (see section 8.6)

*Depends on the selected language (French by default).

IMPORTANT: JBus vs. Modbus: Data exchange services offered by Modbus and JBus protocols are the same and therefore these terms can be used interchangeably.

6.1 - Unit start/stop control

The unit state is determined based on a number of factors, including its operating type, active overrides, open contacts, master/slave configuration, or alarms triggered due to operating conditions.

The table given below summarizes the unit control type [ctrl_typ] and its running status with regard to the following parameters:

- **Operating type:** This operating type is selected using the **Start/Stop** button on the user interface.

LOFF	Local off
L-C	Local on
L-SC	Local schedule
Rem	Remote
Net	Network
Mast	Master unit

- **Start/stop force command [CHIL_S_S]:** Chiller start/stop force command can be used to control the chiller state in the Network mode.
  - Command set to stop: The unit is halted.
  - Command set to start: The unit runs in accordance with schedule 1.
- **Remote start/stop contact status [Onoff_sw]:** Start/stop contact status can be used to control the chiller state in the Remote operating type.
- **Master control type [ms_ctrl]:** When the unit is the master unit in a two-chiller master/slave arrangement, the master unit may be set to be controlled locally, remotely or via network.
- **Start/stop schedule [chil_occ]:** Occupied or unoccupied status of the unit.
- **Network emergency stop command [EMSTOP]:** If activated, the unit shuts down regardless of the active operating type.
- **General alarm:** The unit shuts down due to failure.

Active operating type						Parameter status						Result	
LOFF	L-C	L-SC	Rem	Net	Mast	Start/stop force command	Remote start/ stop contact	Master control type	Start/stop time schedule	Network emergency shutdown	General alarm	Control type	Unit state
-	-	-	-	-	-	-	-	-	-	enable	-	-	off
-	-	-	-	-	-	-	-	-	-	-	yes	-	off
active	-	-	-	-	-	-	-	-	-	-	-	local	off
-	-	active		-	-	-		-	unoccupied	-	-	local	off
-	-	-	active	-	-	-	off	-	-	-	-	remote	off
-	-	-	active	-	-	-	-	-	unoccupied	-	-	remote	off
-	-	-	-	active	-	disable	-	-	-	-	-	network	off
-	-	-	-	active	-	-	-	-	unoccupied	-	-	network	off
-	-	-	-	-	active	-	-	local	unoccupied	-	-	local	off
-	-	-	-	-	active	-	off	remote	-	-	-	remote	off
-	-	-	-	-	active	-	-	remote	unoccupied	-	-	remote	off
-	-	-	-	-	active	disable	-	network	-	-	-	network	off
-	-	-	-	-	active	-	-	network	unoccupied	-	-	network	off
-	active	-	-	-	-	-	-	-	-	disable	no	local	on
-	-	active	-	-	-	-	-	-	occupied	disable	no	local	on
-	-	-	active	-	-	-	on_cool	-	occupied	disable	no	remote	on
-	-	-	active	-	-	-	on_heat	-	occupied	disable	no	remote	on
-	-	-	active	-	-	-	on_auto	-	occupied	disable	no	remote	on
-	-	-	-	active	-	enable	-	-	occupied	disable	no	network	on
-	-	-	-	-	active	-	-	local	occupied	disable	no	local	on
-	-	-	-	-	active	-	on_cool	remote	occupied	disable	no	remote	on
-	-	-	-	-	active	-	on_heat	remote	occupied	disable	no	remote	on
-	-	-	-	-	active	-	on_auto	remote	occupied	disable	no	remote	on
-	-	-	-	-	active	enable	-	network	occupied	disable	no	network	on

IMPORTANT: When the unit is stopping or there is a demand to stop the unit, compressors are stopped consecutively.

In case of emergency stop, all compressors are stopped at the same time.

6.2 - Control interlock contact

This contact checks the status of a loop (customer safety loop). It prevents the unit from starting if it is open when the delay at start-up has expired. This open contact leads to an alarm shut-down, if the unit is running (alarm 10028).

6.3 - Cooling/Heating

The controller can manage the whole range of operations ensuring the correct functioning of the air-conditioning unit:

- Depending on the type of water connections, Dynaciat LG units can operate in either Cooling or Heating. The user may change the operating mode (cooling to heating OR heating to cooling) at any time when the unit is in the OFF state.
- Dynaciat LGN condenserless units may operate in Cooling mode only.

The unit operation is based on the following parameters:

- Unit On/Off status: This parameter indicates whether the unit is shut down (not authorised to start) or in operation (authorised to start).
- Control type: Indicates whether the unit operates in Local, Remote or Network mode.
- Heating/Cooling selection in Local mode: The operating mode is selected via the user interface (see GENUNIT menu).
- Heat/Cool switch status in Remote mode: These contacts are active only when the unit is under remote control.
- Heat/Cool selection in Network mode: The network command [HC_SEL] permits heating/cooling control if the unit is in Network operating mode.

Status	Control type	Heat/Cool in Local	Heat/Cool in Remote	Heat/Cool in Network	Current mode
off	-	-	-	-	-
on	local	cool	-	-	cooling
on	local	heat	-	-	heating
on	remote	-	on_cool	-	cooling
on	remote	-	on_heat	-	heating
on	network	-	-	cool	cooling
on	network	-	-	heat	heating

6.4 - Additional heating control

The control provides additional heating control by means of a boiler or electric heating stages.

6.4.1 - Boiler control

The unit can control the start-up of a boiler if it is in heating mode. When the boiler is operating, the unit water pump is stopped. The unit and the boiler cannot operate together at the same time.

The boiler output is activated under the following conditions:

- The unit is in heating mode, but a fault prevents the use of the unit capacity.
- The unit is in heating mode, but works at a very low outdoor temperature, making the unit capacity insufficient. It is possible to adjust the boiler start-up based on the outside temperature. By default, the boiler is started when the outside air temperature is -10°C. This threshold can be modified by logged-in users in the Heat/Cool Config menu (HCCONFIG).
- The unit is in heating mode and the boiler manual command is set to “On” all the time. This setting can be modified by logged-in users in the Heat/Cool Config menu (HCCONFIG). It is useful if there is no OAT sensor in the unit.

To set boiler OAT threshold

1. Navigate to the Configuration menu.
2. Select *Heat/Cool Config* (HCCONFIG).
3. Set *Boiler OAT Threshold* [boil_th].

Boiler OAT Threshold [boil_th]	
-15.0 to 15.0°C	-9.9°C
5.0 to 59.0°F	14.2°F

To set boiler manual command

1. Navigate to the Configuration menu.
2. Select *Heat/Cool Config* (HCCONFIG).
3. Set *Boiler Manual Command* [boil_on].

Boiler Manual Command [boil_on]	
Off	OAT sensor logic is applied
On	Boiler control activated for units without OAT sensor, or when OAT sensor fails

6.4.2 - Electric heating control

The unit can control up to four electric heater stages as supplementary heating.

Electric heater stages are activated to supplement the heating capacity under the following conditions:

- The unit uses 100% of its available heating capacity or the unit is limited in its operation by a protection mode (e.g. low suction temperature protection) and in all cases cannot satisfy the heating demand.
- The outside temperature is below a configurable threshold defined in the Heat/Cool Config menu (HCCONFIG).
- Unit demand limitation is not active.

To set electric heating OAT threshold

1. Navigate to the Configuration menu.
2. Select *Heat/Cool Config* (HCCONFIG).
3. Set *Elec Stage OAT* Threshold [ehs_th].

Elec Stage OAT Threshold [ehs_th]	
-5.0 to 21.0°C	5.0°C
23.0 to 70.0°F	41.0°F

If required, the user can configure the last electric heater stage available as a safety stage. That safety stage is only activated in addition to the other stages if there is a unit fault that prevents the use of the heating capacity. The other electric heater stages continue to operate as described earlier.

6.5 - Control point

The control point represents the water temperature that the unit must produce. The heat exchanger entering water temperature is controlled by default, but the heat exchanger leaving water temperature can also be controlled (service configuration is required).

Control point = Active setpoint + Reset

The control point is calculated based on the active setpoint and the reset calculation. The forced value can be used instead of any other setpoint calculation only when the unit is in the Network operating type.

To verify the control point

1. Navigate to the Main menu.
2. Select *General Parameters* (GENUNIT).
3. Verify *Control Point* [CTRL_PNT].

Control Point [CTRL_PNT]
-20.0 to 67.0°C
-4.0 to 153.0°F

6.5.1 - Active setpoint

Three setpoints in Cooling mode and two setpoints in Heating mode can be selected as “active setpoints”.

The first cooling/heating setpoint is normally used during occupied periods and the second cooling/heating setpoint is used during unoccupied periods. The third cooling setpoint is used for ice storage.

	Setpoint 1	Setpoint 2	Setpoint 3
Cooling	Occupied period	Unoccupied period	Ice storage cooling setpoint
Heating	Occupied period	Unoccupied period	*not available*

Depending on the current operation type, the active setpoint can be selected manually via the Main menu on the user interface, with the volt-free user contacts, with network commands or automatically with the setpoint time schedule (schedule 2).

The following table summarises possible setpoint selections based on the control type (local, remote, network) and the following parameters:

- Heating or Cooling operating mode [HC_SEL]: Heat/Cool select (GENUNIT – General Parameters).
- Setpoint selection [sp_sel]: Setpoint select permits selection of the active setpoint if the unit is in the Local operating type (GENUNIT – General Parameters).
- Setpoint switch status [SETP_SW]: Remote Setpoint Switch (INPUTS – Inputs).
- Occupied state of dual setpoint time schedule [SP_OCC]: Schedule for setpoint selection.

Mode	Parameters status			Active setpoint
	SP_SEL (Local/Net)	Setpoint select (Local/Net) / Setpoint switch (Remote)	Setpoint occupancy [SP_OCC]	
cooling	1	sp 1	-	cooling setpoint 1
	2	sp 2	-	cooling setpoint 2
	3	sp 3	-	ice storage setpoint
	0	auto	occupied	cooling setpoint 1
	0	auto	unoccupied	cooling setpoint 2
	0	auto	holiday	cooling setpoint 2
heating	1	sp 1	-	heating setpoint 1
	2	sp 2	-	heating setpoint 2
	0	auto	occupied	heating setpoint 1
	0	auto	unoccupied	heating setpoint 2

6.5.2 - Reset

Reset means that the active control point is modified so that the machine capacity required is adjusted to be as close as possible to the demand.

The reset source can be provided by one of the following:

- Outdoor air temperature (that gives a measure of the load trends for the building).
- Return water temperature (heat exchanger delta T gives an average building load).
- 4-20 mA reset signal (4-20 mA signal / external temperature reading indicates the load trend).

In general units use two control point reset types: cooling control point reset or heating control point reset. At the same time, the dry cooler condenser option has condensing setpoint reset which can be applied if the condensing setpoint control depends on outdoor air temperature reading (reset source = OAT).

Cooling mode (Dynaciat LG/LGN)
Cooling control point reset is used to control the evaporator water temperature reset. Heating control point reset is NOT used for temperature control in the condenser water loop.

Heating reset may be used to reset the condensing setpoint for optimised condenser operation. This is only possible on the outside temperature. Delta T is not used.

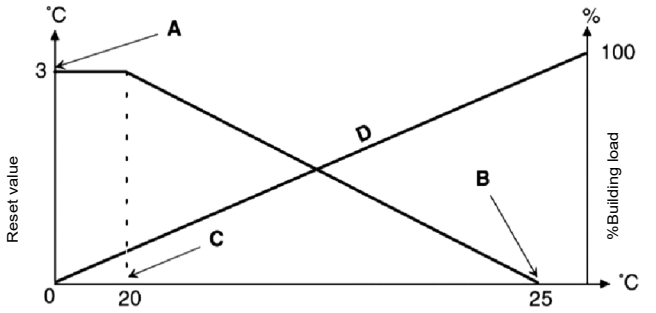
Heating mode (Dynaciat LG)
Heating control point reset is used to control the condenser water temperature reset.

In both cases (cooling and heating mode) the reset parameters, i.e. slope, reset, and maximum value, are configurable in the Reset Config menu (RESETCFG).

Reset is a linear function based on three parameters:

- A reference at which reset is zero (outdoor temperature / delta T / 4-20 mA signal – no reset value).
- A reference at which reset is maximum (OAT / delta T / 4-20 mA signal – full reset value).
- The maximum reset value.

Reset example in Cooling mode:



20	Reset based on OAT	25
0	Reset based on delta T	3
4	Reset based on analog input	20
no_reset	**Selection**	**full_reset**

Legend
A: Maximum reset value
B: Reference for zero reset
C: Reference for maximum reset
D: Building load

The source of the reset can be configured in the Heat/Cool Config menu (HCCONFIG). In response to a change in the outside temperature, delta T, or 4-20 mA reset signal reading, the control point is reset to optimise unit performance.

To select the type of reset

1. Navigate to the Configuration menu.
2. Select *Heat/Cool Config* (HCCONFIG).
3. Set *Cooling Reset Select* [cr_sel] or *Heating Reset Select* [hr_sel].

Cooling Reset Select [cr_sel] / Heating Reset Select [hr_sel]	
0	None
1	OAT
2	DeltaT
3	4-20 mA

6.6 - Heat exchanger water pump control

The unit can control one or two water pump(s) per heat exchanger. The pump is turned on when the option is configured in the Pump Configuration menu (PUMPCONF) and the unit is in heating/cooling mode (depending on the unit) or in delay mode. Since the minimum value for delay at start-up is 1 minute (configurable between 1 and 15 minutes), the pump will run for at least one minute before the first compressor starts.

Please note that in case of units with two pumps on one heat exchanger, only one pump can be running at a time.

As an option, the customer fixed-speed pump can be used instead of the internal pump. However, the water flow control is done with the flow switch which means that the pump protection cannot be assured. To enable the customer pump control, please set the pump sequence to “1”.

To set pump(s) and its sequence

1. Navigate to the Configuration menu.
2. Select *Pump Configuration* (PUMPCONF).
3. Set *Cooler Pumps Sequence* [clpumpseq] OR *Condenser Pumps Sequence* [cdpmpseq].

Cooler Pumps Sequence [clpumpseq] * Condenser Pumps Sequence [cdpmpseq] *	
0	No Pump
1	One Pump Only
2	Two Pumps Auto
3	Pump#1 Manual
4	Pump#2 Manual

*Values between 2 and 4 can be selected only in case of dual pumps control.

6.6.1 - Pump operation

The pump keeps running for 2 minutes after the unit goes to the stopping mode.

The pump is turned off if the unit is shut down due to an alarm unless the fault is a freeze protection error. The pump can be started in particular operating conditions when freeze protection of the heat exchanger is active.

If the pump has failed and another pump is available, the unit is stopped and started again with the second pump. If there is no pump available, the unit shuts down.

6.6.2 - Automatic pump selection

If two pumps are controlled and the reversing function has been selected (PUMPCONF), the control balances the pump run time to match the configured pump changeover delay.

If this delay has elapsed, the pump reversing function is activated during the next time when there is no compressor running in the system.

To set pump automatic rotation delay

1. Navigate to the Configuration menu.
2. Select *Pump Configuration* (PUMPCONF).
3. Set *Pump Auto Rotation Delay* [clpmpdel] for cooler OR *Pump Auto Rotation Delay* [cdpmpdel] for condenser.

Pump Auto Rotation Delay [clpmpdel / cdpmpdel]	
24 to 3000 h	48 h

6.6.3 - Pump speed control

If the pump with variable flow option has been selected (factory-installed option), it is possible to control the water flow in three ways:

- Adjusted fixed flow rate: The control ensures a constant pump speed based on compressor capacity.
- Constant temperature difference: Water flow control based on constant delta T on the water exchanger.
- Constant pressure difference: Water flow control based on constant water delta pressure (the control continuously acts on the pump speed).

Choosing the best possible method of water loop control allows for optimising the water delivery in the water loop. Pump speed control may also be optimised by the installer at service-access level.

6.6.4 - Pump protection (pump anti-stick function)

The control provides a means to automatically start the pump each day at 14:00 for 2 seconds when the unit is off (pump anti-sticking).

If the unit is fitted with two pumps, the first pump is started on even days and the second pump is started on odd days.

Starting the pump periodically for a few seconds extends the lifetime of the pump bearings and the tightness of the pump seal.

To set periodical pump quick start

1. Navigate to the Configuration menu.
2. Select *Pump Configuration* (PUMPCONF).
3. Set *Cool Pump Anti-Sticking* [clpmpper] OR *Cond Pump Anti-Sticking* [cdpmpper] to “yes”.

Cool Pump Anti-Sticking [clpmpper] Cond Pump Anti-Sticking [cdpmpper]	
no/yes	yes

6.6.5 - ECO pump mode

The control provides the Eco pump functionality which allows for stopping the pump periodically when the unit is in satisfied mode (no cooling or heating is required). This Eco pump mode allows for energy-cost savings.

The Eco pump mode can be applied to the condenser pump when the unit is in Heating mode and the cooler pump when in Cooling mode.

To verify the Eco Pump configuration

1. Navigate to the Main menu.
2. Select *Miscellaneous Status* (MSC_STAT).
3. Verify *Eco Pump Mode Active* [m_ecopmp].

Eco Pump Mode Active [m_ecopmp]	
No/Yes	Yes

The Eco pump mode can be configured in the Miscellaneous Service menu (MSC_SERV).

IMPORTANT: The Eco pump mode is not available when the controller manages a variable speed pump. This option applies only to units that have flow control based on fixed speed water pump.

6.7 - Capacity control

The control adjusts the number of active compressors to keep the heat exchanger temperature at its setpoint. The precision with which this is achieved depends on the capacity of the water loop, the flow rate, the load, and the number of stages available on the unit.

To determine the optimum moment at which to add or withdraw a capacity stage, the control system continuously takes account of the temperature error with respect to the control point, as well as the rate of change in this error and the difference between entering and leaving water temperatures.

If the unit undergoes too many starts within an hour or the compressor runs below one minute each time it is started, this automatically brings about reduction of compressor starts, which makes the controlled leaving water temperature less precise.

The high pressure, low pressure or water loop conditions can also affect temperature control accuracy. Compressors are started and stopped in a sequence designed to equalise the number of start-ups (value weighted by their operating time).

6.7.1 - Circuit loading sequence

This function determines in which order the circuit capacity is changed. Compressor loading is managed by starting/stopping the compressors. Two types of sequencing, i.e. balanced and staged loading sequence, are available and can be configured by the user via the user interface (GENCONF – Genunit Config).

- **Balanced loading sequence**: The control maintains equal capacity between all circuits as the machine loads and unloads. Balanced loading sequence is the default sequence employed by the control.
- **Staged loading sequence:** The control loads the lead circuit completely before the lag circuits are started. When the load is decreasing, the lag circuit is unloaded first. Staged loading sequence is active when one of the circuits is shut down due to its failure; the circuit is in capacity override mode; or the remaining circuits are shut down or fully charged.

To set the circuit loading sequence

1. Navigate to the Configuration menu.
2. Select *Genunit Config* (GENCONF).
3. Set *Staged Loading Sequence* [seq_typ].

Staged loading sequence [seq_typ]	
No/Yes	No

6.7.2 - Capacity for multi-circuit unit

The circuit lead/lag function determines the lead and lag circuit of the unit. This function controls the start/stop sequence of two refrigeration circuits called circuit A and circuit B.

The circuit authorised to start first is the lead circuit. Lead circuit is used first for capacity increases and at the same time should be decreased first when decreasing capacity. The lead/lag circuits can be selected manually or automatically (Cir Priority Sequence, GENCONF – Genunit Config).

- **Manual lead/lag circuit determination:** Circuit A or circuit B selected as the lead circuit. The selected circuit takes priority over another circuit.
- **Automatic lead/lag circuit determination:** The control system determines the lead circuit to equalise the operating time of each circuit (value weighted by the number of start-ups of each circuit). As a result, the circuit with the lowest number of operating hours always starts first.

To set circuit priority

1. Navigate to the Configuration menu.
2. Select *Genunit Config* (GENCONF).
3. Set *Cir Priority Sequence* [lead_cir].

Cir Priority Sequence [lead_cir]	
0	Auto
1	A Lead
2	B Lead

6.8 - Capacity limitation

The control system allows for the constant control of the unit capacity by setting its maximum allowable capacity.

Capacity limitation is expressed in percentage, where a limit value of 100% means that the unit may run with its full capacity (no limitation is implemented).

The unit capacity can be limited:

- By means of a user-controlled volt-free contact. The unit capacity can never exceed the limit setpoint activated by this contact.

	Switch Limit Setpoint	
Contact	None (100%)	Limit 1
LIM_SW1	Open	Close

- By demand limit [DEM_LIM] set via the communication protocol (System Manager or the Master unit in the Master/Slave assembly control).
- By night mode limitation control. If the night mode is active and the night capacity limitation is lower than the limitation due to contacts, then the night capacity limit will be used.

To set limit setpoints

1. Navigate to the Main menu.
2. Select *Setpoint* (SETPOINT).
3. Set *Switch Limit Setpoint 1* [lim_sp1].

Switch Limit Setpoint 1 [lim_sp1]	
0 to 100%	100%

To verify the active demand limit

1. Navigate to the Main menu.
2. Select General Parameters (GENUNIT).
3. Verify Active Demand Limit Val [DEM_LIM].

Active Demand Limit Val [DEM_LIM]	
0 to 100%	100%

Based on the limit source, the active demand limit value (DEM_LIM) is set to the lowest possible value. Active Demand Limit Val [DEM_LIM] can be forced by Network.

To set the night mode limit

1. Navigate to the Configuration menu.
2. Select *Genunit Config* (GENCONF).
3. Set *Night Capacity Limit* [nh_limit].

Night Capacity Limit [nh_limit]	
0 to 100%	100%

6.9 - Condensing pressure control (optional)

Dynaciat LG units can control a dry cooler to cool down the condenser water loop while LGN units can control an air condenser. These air exchangers include all compatible control electronics.

6.9.1 - Dynaciat LG units

The control can regulate the following configurations:

- Dry cooler and variable-speed condenser pump. The fixed fan stages and the pump speed are controlled to maintain a fixed condensing setpoint (adjustable value).
- Variable-speed condenser pump (without dry cooler control). The condenser pump integrated into the unit is controlled to maintain a fixed condensing setpoint (value adjustable).
- Dry cooler and three-way valves. The fixed fan stages and the three-way valve position are controlled to permit start-ups at low outside temperatures and maintaining a fixed condensing setpoint (value adjustable).
- Three-way valve only (without dry cooler control). The position of the three-way valve is controlled to maintain a fixed condensing setpoint (value adjustable).
- Dry cooler only (fixed or variable speed). Only the dry cooler fan stages are controlled by reference to a fixed dry cooler water outlet (value adjustable).

6.9.2 - Dynaciat LGN units

Dynaciat LGN units have been specially designed to optimise the operation of split installations, using air-cooled condensers as the heat rejection system.

The control configuration of the air-cooled condenser must be done by a specially trained and qualified engineer during the unit installation. The Manufacturer supplies specific documentation for this operation to the trained engineers.

The control system of Dynaciat LGN includes logic to permit control the different fixed and variable-speed fan variants. The controller continuously optimises system operation to obtain the best system efficiency by controlling the number of fans required for any thermal load and outside temperature conditions.

6.9.3 - Condensing setpoint

The condensing setpoint is adjustable in the Setpoint menu (SETPOINT).

The condensing setpoint can be reset by reference to the outside temperature to optimise the operation of the condensing system.

Condensing control point	Minimum value	Default value	Maximum value
LG series	30°C (86°F)	40°C (104°F)	58°C (136.4°F)
LGN series	35°C (95°F)	45°C (113°F))	55°C (131°F)

To set the condensing setpoint reset, the following adjustments are necessary:

- hr_sel (Heating Reset Select) set to “1” (OAT) in the Heat/ Cool Config menu (HCCONFIG).
- oathr_no (OAT no reset value), oathr_fu (OAT full reset value) and hr_deg (heating reset deg. value) must be set in the Reset Config menu (RESETCFG). See also section 6.5.2 for more information about reset control.

6.10 - Dry Cooler Free Cooling (DCFC)

Units fitted with a dry cooler provide the “free cooling” functionality which means that the chilled water system directly exchanges heat using the air-to-water heat exchanger (“dry cooler”).

The installation of a dry cooler allows for “free cooling”, i.e. a method of using low outdoor air temperature as an aid to chilling water that is later used in the air-conditioning system. The system is the most effective when the outdoor air temperature is below 0°C (32°F).

The dry cooler is used not only to assist in producing cooling water to meet the current cooling demand but it also allows for reducing energy consumption.

This “dry cooler free cooling” mode is enabled when the outside air temperature (“OAT Free Cooling”) is below the water loop temperature and the service-configured threshold parameter.

NOTE: Dry cooler water loop temperature and free cooling OAT measured by the control are read-only values that can be verified in the DC Free Cooling Status menu (DCFC_STA).

The control distinguishes between two types of fan control for a dry cooler free cooling option, where the first one embraces the use of fan staging and the second one that includes the use of variable speed fan. Mixed configuration can also be used (fixed and variable-speed fan control at the same time).

Dry cooler free cooling is normally stopped when the outside air temperature (“OAT Free Cooling”) is above the water loop temperature and the service-configured threshold parameter. However, if it turns out that the cooling power of the dry cooler is not enough in order to reach the cooling setpoint, then the mechanical cooling will be started (when FC capacity is at 100%, then mechanical cooling can be started).

To verify water loop temperature

1. Navigate to the Main menu.
2. Select *DC Free Cooling Status* (DCFC_STA).
3. Verify *FC Water Loop Temp* [wloop].

FC Water Loop Temp [wloop]
°C/°F

To verify outdoor air temperature

1. Navigate to the Main menu.
2. Select *DC Free Cooling Status* (DCFC_STA).
3. Verify *OAT Free Cooling* [oat].

OAT Free Cooling [oat]
°C/°F

NOTE: OAT can also be read from the Synoptic screen.

6.11 - Master/Slave assembly

The control system allows for master/slave control of two units linked by the network. The master unit can be controlled locally, remotely or by network commands (proprietary protocol), while the slave unit remains in Network mode.

All control commands to the master/slave assembly (start/stop, setpoint selection, heating/cooling, etc.) are handled by the unit which is configured as the master. The commands are transmitted automatically to the slave unit.

If the master chiller is turned off while the master/slave function is active, then the slave chiller will be stopped. Under certain circumstances, the slave unit may be started first to ensure that the run times of the two units are equalised.

In the event of a communication failure between the two units, each unit will return to an autonomous operating mode until the fault is cleared. If the master unit is stopped due to an alarm, the slave unit is authorised to start.

IMPORTANT: Master/slave assembly can be configured only by service technicians.

6.12 - Night mode

Night mode allows users to configure the unit to operate with specific parameters in a specific time period. During the night period, the unit capacity is limited. The number of operating fans is reduced (in cooling mode only).

The night period is defined by a start time and an end time that are the same for each day of the week. The Night mode settings or the maximum capacity value can be configured via the Configuration menu (GENCONF – General Config). Only logged-in users can modify the night mode settings.

To set the night mode

1. Navigate to the Configuration menu (logged-in users only).
2. Select *General Config* (GENCONF).
3. Set parameters corresponding to the night mode.

Night Mode Start Hour [nh_start]	
00:00 to 24:00	
Night Mode End Hour [nh_end]	
00:00 to 24:00	
Night Capacity Limit [nh_limit]	
0 to 100%	100%

6.13 - Brine option (option 5, option 6)

Dynaciat units offer different cooler fluid types, including standard water fluid as well as the optional brine fluid, i.e. medium brine (option 5), low brine (option 6). The brine option is commonly used for low temperature applications.

NOTE: This option requires the Software Activation Key (see section 6.16).

6.14 - BACnet (option 149)

The BACnet/IP communication protocol is used by the building management system or the programmable controllers to communicate with the Connect Touch control.

NOTE: This option requires the Software Activation Key (see section 6.16).

6.15 - Modbus (option 149B)

The Modbus communication protocol is used by the building management system or the programmable controllers to communicate with the Connect Touch control.

NOTE: Modbus option is provided as standard.

6.16 - Software Activation Key(s)

Dynaciat units with Connect Touch offer some additional options which require Software Activation Keys:

- **Cooler fluid type:**
  - medium brine, option 5 (Dynaciat LGN)
  - low brine, option 6 (Dynaciat LG)
- **BACnet** communication (option 149)

These software-protected options can be factory-installed or installed on-site by the service technician.

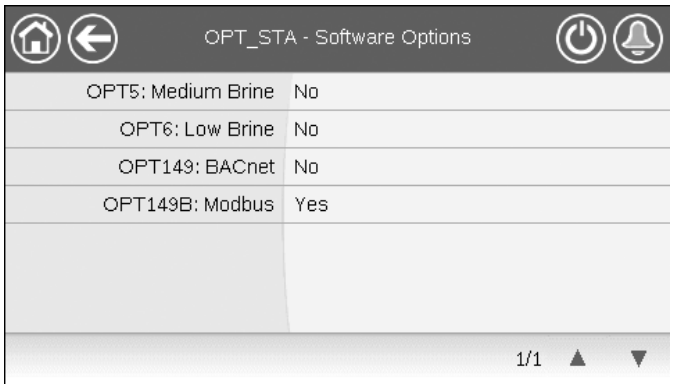
Each option requires an individual software activation key. To obtain the Software Activation Key, please contact your local service representative.

6.16.1 - Software options

The list of available software activation keys can be verified via the Main menu.

To verify available software options

1. Go to the Main menu.
2. Select *Software Option*s (OPT_STA). The menu can be accessed when logged in at user access level.
   • If the status of the option is set to "yes", it means that the Software Activation Key for this option is installed.



IMPORTANT: In case the controller is replaced, the NEW Software Activation Key(s) based on the new MAC address must be installed again (see also section 6.16.2).

6.16.2 - Replacement mode

If the controller is replaced with a new one, the system will be in the Replacement mode which may last up to 7 days beginning at the first start of the compressor.

- When replacing the controller, it is necessary to install NEW Software Activation Key(s).
- Please contact your local service representative immediately to request NEW Software Activation Key(s).

In the Replacement mode:

- Software option(s) will be unlocked for a limited period of time (7 days since the first start of the compressor). Only options that have been installed on the unit before will be active in the Replacement mode!
- The list of available software options can be verified via the Main menu (OPT_STA – Software Options).
- Alarm 10122 will be triggered. If the NEW Software Activation Key is not installed during the Replacement mode, the alarm will be reset automatically and software option(s) will be blocked.

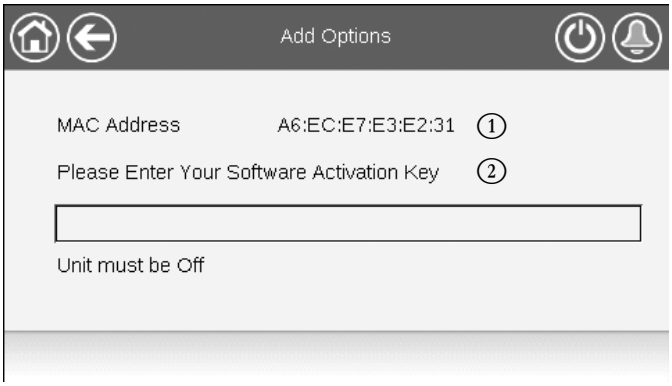
The Replacement mode ends when the Software Activation Key is installed or the period of 7 days elapsed (7 days since the first start of the compressor).

IMPORTANT: Only software options that were installed on the unit before replacing the controller will be active during the Replacement mode!

6.16.3 - Software key installation

To install the Software Activation Key via Connect Touch display

1. Go to the Main menu.
2. Navigate to the Configuration menu (logged-in users only) and select *Add Options* (ADD_OPT).
   • When installing the Software Activation Key, please make sure that the unit is stopped.



Legend
1. Controller MAC address
2. Software Activation Key

3. Enter the Software Activation Key.
   • If the Software Key ends with two equality signs (==), then these signs can be omitted. The Key will be accepted.
   • The Software Activation Key is case-sensitive.
4. Once the Software Activation Key is provided in the Keyboard screen, press **OK**.
5. Once the Software Activation Key is validated, the following message will be displayed: **"Software Activation Key Added"**.
6. The parameter connected with the activated functionality is set automatically and the control system will also be rebooted automatically.
   • If the Software Activation Key is incorrect, the following message will be displayed: *"Software Activation Key is Invalid"*.
   • If the Software Activation Key has been added before, the following message will be displayed: *"Key Already Set"*.

6.17 - Schedule setting

The control incorporates three time schedules, where the first one (OCCPC01S) is used for controlling the unit start/stop, the second one (OCCPC02S) is used for controlling the dual setpoint, and the third one - OCCPC03S (not applicable to LG - LGN series!).

The **first timer program** (schedule 1, OCCPC01S) provides a means to automatically switch the unit from an occupied mode to an unoccupied mode. The unit is started during occupied periods.

The **second timer program** (schedule 2, OCCPC02S) provides a means to automatically switch the active setpoint from an occupied setpoint to an unoccupied setpoint. Cooling/Heating setpoint 1 is used during occupied periods and cooling/heating setpoint 2 during unoccupied periods.

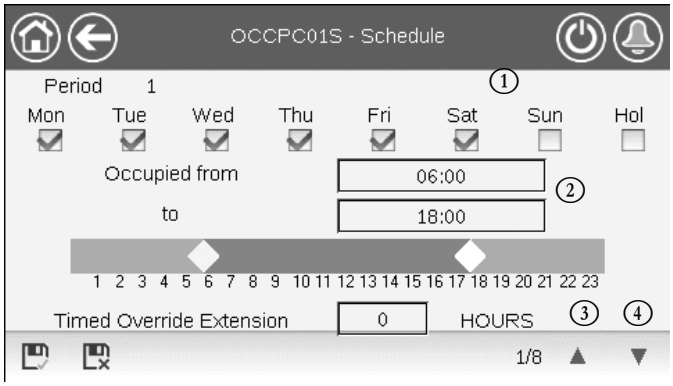
Occupancy periods

The control offers the user the possibility of setting eight occupancy periods where each occupancy period includes the following elements to be defined:

- **Day of the week:** Select the days when the period is occupied.
- **Occupancy time ("occupied from" to "occupied to"):** Set occupancy hours for the selected days.
- **Timed Override Extension:** Extend the schedule if necessary. This parameter can be used in the case of some unplanned events. Example: If the unit is normally scheduled to run between 8:00 to 18:00, but one day you want the air-conditioning system to operate longer, then set this timed override extension. If you set the parameter to "2", then the occupancy will end at 20:00.

To set the unit start/stop schedule

1. Go to the Main menu.
2. Navigate to the Configuration menu (logged-in users only) and select *Schedule* (SCHEDULE).
3. Go to *OCCPC01S*.
4. Select appropriate check boxes to set the unit occupancy on specific days.
5. Define the time of occupancy.
6. When the time schedule is set, the selected period will be presented in the form of the green band on the timeline.
7. Press the **Save** button to save your changes or the **Cancel** button to exit the screen without making modifications.



Legend
1. Selection of days for the time schedule
2. Start/end of the schedule
3. Previous time period
4. Next time period

Each program is in unoccupied mode unless a schedule time period is active.

If two periods overlap and are both active on the same day, then the occupied mode takes priority over the unoccupied period.

Example: Schedule setting (schedule 1)

Hour	MON	TUE	WED	THU	FRI	SAT	SUN	HOL
0:00	P1							
1:00	P1							
2:00	P1							
3:00								
4:00								
5:00								
6:00								
7:00	P2	P2	P3	P4	P4	P5		
8:00	P2	P2	P3	P4	P4	P5		
9:00	P2	P2	P3	P4	P4	P5		
10:00	P2	P2	P3	P4	P4	P5		
11:00	P2	P2	P3	P4	P4	P5		
12:00	P2	P2	P3	P4	P4			
13:00	P2	P2	P3	P4	P4			
14:00	P2	P2	P3	P4	P4			
15:00	P2	P2	P3	P4	P4			
16:00	P2	P2	P3	P4	P4			
17:00	P2	P2	P3					
18:00			P3					
19:00			P3					
20:00			P3					P6
21:00								
22:00								
23:00								

Occupied
Unoccupied

MON: Monday
TUE: Tuesday
WED: Wednesday
THU: Thursday
FRI: Friday
SAT: Saturday
SUN: Sunday
HOL: Holiday

Period/Schedule	Starts at	Stops at	Active on (days)
P1: Period 1	0:00	3:00	Monday
P2: Period 2	7:00	18:00	Monday + Tuesday
P3: Period 3	7:00	21:00	Wednesday
P4: Period 4	7:00	17:00	Thursday + Friday
P5: Period 5	7:00	12:00	Saturday
P6: Period 6	20:00	21:00	Holidays
P7: Period 7	Not used in this example		
P8: Period 8	Not used in this example		

6.18 - Holidays

The control allows the user to define 16 holiday periods, where each period is defined by three parameters: the month, the start day and the duration of the holiday period.

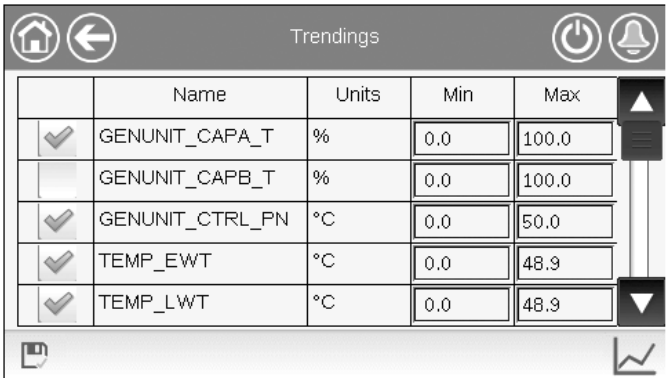
During the holiday periods the controller will be in occupied or unoccupied mode, depending on the periods validated as holidays. Each holiday period can be modified by the user via the Configuration menu (HOLIDAY – Holiday Menu).

6.19 - Trending

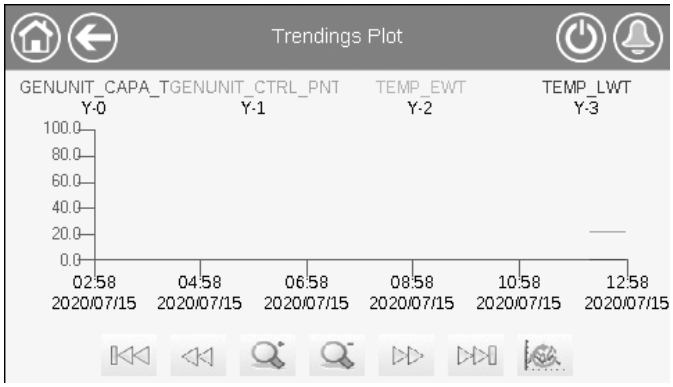
This function enables to visualise the operations of the unit and monitor a set of selected parameters.

To display trends

1. Go to the Main menu.
2. Select *Trendings* (TRENDING).
3. Select parameters to be displayed and press the **Save** button in the lower-left part of the screen.



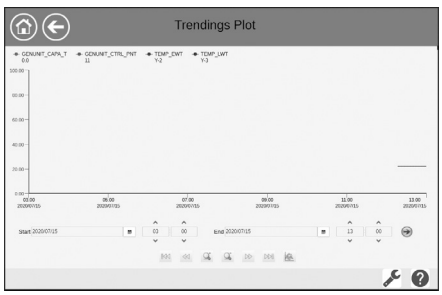
4. Press the **Trending** button to display the graph showing trends for the set of selected parameters.



- Press to navigate across the timeline or press to go to the beginning or the end of the selected period.
- Press the **Zoom in** button to magnify the view or the **Zoom out** button to expand the viewed area.
- Press the **Refresh** button to reload data.

For web interface only:

- Set the time range (start/end dates and time) at the bottom of the Trendings Plot screen and press the **Arrow** button on the right side to display the graph showing the performance of the unit within a selected period of time.



6.20 - User quick test

The Quick Test functionality allows users to test and verify if certain components of the unit behave correctly (only logged-in users can activate the Quick Test).

To enable Quick Test

1. Navigate to the Main menu.
2. Select *Quick Test 1* (QCK_TST1). The menu can be accessed when logged in at user access level.
3. Set *Quick test Enable* [QCK_TEST] to “yes”.

Quick test Enable [QCK_TEST]	
No/Yes	Yes

IMPORTANT: To enable the Quick Test functionality, the unit must be stopped (Local off mode).

Once the Quick Test functionality is enabled, it is possible to test parameters such as fans’ outputs, pumps’ commands, etc. For more details, please see the Quick Test 1 table description (QCK_TST1 – Quick Test 1) in section 5.1.

7.1 - Web interface

The Connect Touch control provides the functionality to access and control unit parameters from a web interface. To connect to the controller via the web interface, it is necessary to know the IP address of the unit.

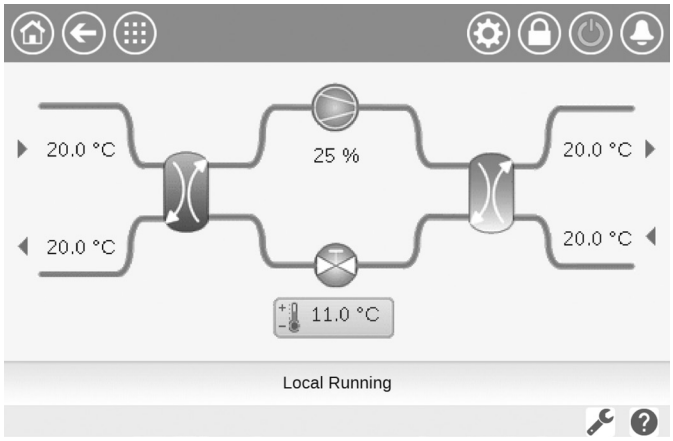
To verify unit IP address

1. Go to the System menu.
2. Select *Network* (NETWORK).
3. Verify *TCP/IP Address for* "IP Network Interface J5 (eth0)"
   - **Unit default address:** 169.254.1.1 (J5, eth0)
   - The unit IP address can be changed in the Network table in the System menu (see section 5.6).

To access Connect Touch web interface

1. Open the web browser.
2. Enter the IP address of the unit in the address bar of the web browser. Start with **https://** followed by the unit IP address.
   Example: **https://169.254.1.1**
3. Press Enter.
4. The web interface will be loaded.

IMPORTANT: Three users can be connected simultaneously with no priority between them. The last modification is always taken into account.



Minimum web browser configuration:

- Internet Explorer (version 11 or higher)
- Mozilla Firefox (version 60 or higher)
- Google Chrome (version 65 or higher)

For security reasons the unit cannot be started / stopped via the web interface. All other operations, including monitoring unit parameters or unit configuration, can be performed via the web browser interface.

Make sure that your network is protected from malicious attacks and any other security threats. Do not provide open access without proper network security safeguards.

The Manufacturer does not hold any responsibility or liability for damage caused by security breach.

7.2 - Technical documentation

When using the Connect Touch control via a PC web browser, you may easily access all technical documents related to the product and its components.

Once you connect to the Connect Touch control, click the **Technical documentation** button in order to see a list of documents related to the unit.

Technical documentation includes the following documents:

- Spare parts documentation: The list of spare parts included in the unit with reference, description and drafting.
- Misc: Documents such as electrical plans, dimension plans, unit certificates.
- PED: Pressure Equipment Directive.
- IOM: Installation operation and maintenance manual, controls installation/maintenance manual.

Click the **Help** button to get access to BACnet user guide, Modbus user guide and Open Source Licenses used by Connect Touch.

Document	Language	Type
BACnet User's guide	English	PDF
BACnet Guide utilisateur	French	PDF
ModBus User's guide	English	PDF
ModBus Guide utilisateur	French	PDF
License information	English	PDF

IMPORTANT: Please save all data (documents, drawings, diagrams, etc.), for example, on your computer. If display memory is erased or the display is replaced, all documents will be lost. Make sure that all documents are stored and may be accessed at any time.

8.1 - Control diagnostics

The control system has many fault tracing aid functions, protecting the unit against risks that could result in the failure of the unit. The local interface gives quick access to monitor all unit operating conditions. If an operating fault is detected, the alarm is triggered.

In the event of an alarm:

- The bell on the Connect Touch user interface starts “ringing”.

The **blinking bell** icon indicates that there is an alarm, but the unit is still running.

The **highlighted bell** icon indicates that the unit is shut down due to a detected fault.

- The corresponding alarm output(s) is/are activated.
- Error code is displayed.
- Message is sent over the network.

Connect Touch control distinguishes between two types of alarms:

- General alarms are used to indicate pumps failure, transducers faults, network connection problems, etc.
- Major alarms are used to indicate process failure.

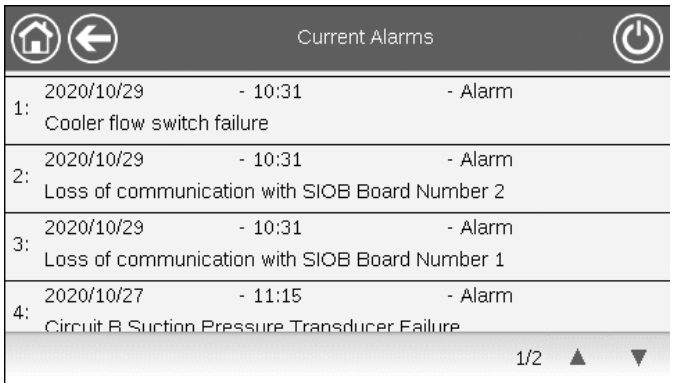
IMPORTANT: All information regarding alarms (current and past alarms) can be found in the Alarms menu.

8.2 - Displaying current alarms

The Current alarms menu may display up to 10 current alarms.

To access the list of currently active alarms

1. Press the **Alarms menu** button in the upper-right part of the screen.
2. Select *Current Alarms* (CUR_ALM).
3. The list of active alarms will be displayed.



8.3 - E-mail notifications

The control provides the option to define one or two recipients who receive e-mail notifications each time the new alarm occurs or all existing alarms have been reset.

To define e-mail recipients

1. Press the **Main menu** button and navigate to the Configuration menu.
2. Go to the Network menu.
3. Select *Email Configuration* (EMAILCFG).
4. Define user e-mail(s).

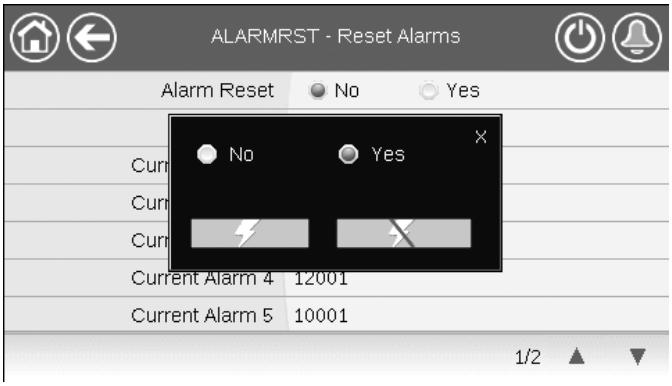
8.4 - Resetting alarms

The alarm can be reset either automatically by the control or manually through the touch panel display or the web interface.

- The Reset alarms menu displays up to 5 alarm codes which are currently active on the unit.
- Alarms can be reset without stopping the machine.
- Only logged-in users can reset the alarms on the unit.

To reset the alarm manually

1. Press the **Alarms menu** button in the upper-right part of the screen.
2. Select *Reset Alarms* (ALARMRST).
3. Set “Alarm Reset” to “Yes” and press the **Force** button.



In the event of a power supply interrupt, the unit restarts automatically without the need for an external command. However, any faults active when the supply is interrupted are saved and may in certain cases prevent a circuit or a unit from restarting. Once the cause of the alarm has been identified and corrected, it will be displayed in the alarm history.

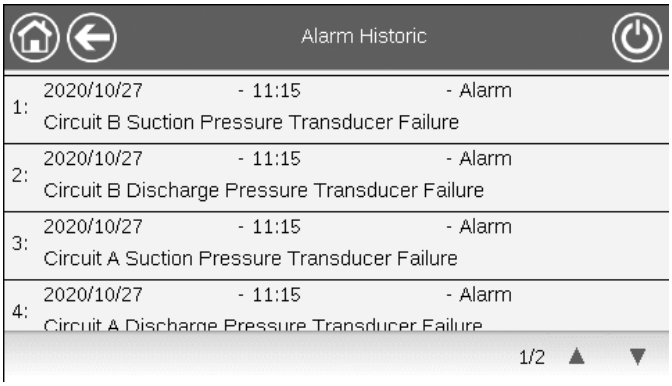
IMPORTANT: Not all alarms can be reset by the user. Some alarms are reset automatically when operating conditions return to normal.

8.5 - Alarm history

Information regarding resolved alarms is stored in the Alarm history menu which is divided into 50 recent alarms and 50 recent major alarms.

To access the alarm history

1. Press the **Alarms menu** button in the upper-right part of the screen.
2. Select *Alarm Historic* (ALMHIST1) or *Major Alarm Historic* (ALMHIST2).
3. The history of alarms will be displayed.



8.6 - Alarms description

Jbus No.	Alarm code	Description	Possible cause	Action taken	Reset type
Thermistor failure					
1	15001	Water Exchanger Entering Fluid Thermistor Failure	Defective thermistor	Unit shuts down	Automatic, if thermistor reading returns to normal
2	15002	Water Exchanger Leaving Fluid Thermistor Failure	As above	As above	As above
3	15006	Condenser Entering Fluid Thermistor Failure	As above	As above	As above
4	15007	Condenser Leaving Fluid Thermistor Failure	As above	As above	As above
5	15010	OAT Thermistor Failure	As above	As above	As above
6	15011	Master/Slave Common Fluid Thermistor Failure	As above	Master/Slave control is disabled and the unit returns to the standalone mode	As above
7	15012	Circuit A Suction Gas Thermistor Failure	As above	Circuit A shuts down	As above
8	15013	Circuit B Suction Gas Thermistor Failure	As above	Circuit B shuts down	As above
9	15032	Master/Slave Common Heating Fluid Thermistor Failure	As above	Master/Slave control is disabled and the unit returns to the standalone mode	As above
10	15036	Dry Cooler LWT Thermistor Failure	As above	Unit shuts down	As above
11	15044	Circuit A Discharge Gas Thermistor Failure	As above	Circuit A shuts down	As above
12	15045	Circuit B Discharge Gas Thermistor Failure	As above	Circuit B shuts down	As above
88	15046	Free Cooling Water Loop Thermistor Failure	As above	Dry Cooler Free Cooling mode is stopped	As above
89	15047	Free Cooling Leaving Water Thermistor Failure	As above	As above	As above
90	15048	Free Cooling OAT Sensor Failure	As above	As above	As above
Transducer failure					
13	12001	Circuit A Discharge Pressure Transducer Failure	Defective transducer	Circuit A shuts down	Automatic, if sensor voltage reading returns to normal
14	12002	Circuit B Discharge Pressure Transducer Failure	As above	Circuit B shuts down	As above
15	12004	Circuit A Suction Pressure Transducer Failure	As above	Circuit A shuts down	Automatic (up to 3 alarms within 24 hours); otherwise, Manual
16	12005	Circuit B Suction Pressure Transducer Failure	As above	Circuit B shuts down	As above
17	12024	Water Exchanger Entering Fluid Transducer Failure	As above	Unit shuts down	Automatic, if sensor voltage reading returns to normal
18	12025	Water Exchanger Leaving Fluid Transducer Failure	As above	As above	As above
19	12026	Water Condenser Entering Fluid Transducer Failure	As above	As above	As above
20	12027	Water Condenser Leaving Fluid Transducer Failure	As above	As above	As above
Communication failure					
21	4901	Loss of communication with SIOB/CIOB Board Number 1	Bus installation fault, communication error	Unit shuts down	Automatic, if communication is re-established
22	4902	Loss of communication with SIOB/CIOB Board Number 2	As above	As above	As above
23	4601	Loss of communication with AUX1 Heating Device Control board	As above	As above	As above
24	4602	Loss of communication with AUX1 Condenser board	As above	As above	As above
26	4604	Loss of communication with AUX1 Options board	As above	Depends on the option: Master/Slave: Master/Slave control is disabled and the unit returns to the standalone mode; Brine-to-water: Circuit A shuts down; OAT sensor: Unit shuts down	As above
27	4605	Loss of communication with Free Cooling Board 1 (DCFC)	As above	Unit returns to mechanical cooling	As above
Process failure					
28	10001	Cooler Water Exchanger Freeze Protection	No water flow, defective thermistor	Unit shuts down but the pump continues to run	Automatic (the first alarm within 24 hours); otherwise, Manual
29	10005	Circuit A Low Saturated Suction Temperature	Pressure transducer defective, EXV blocked or lack of refrigerant	Circuit A shuts down	As above
30	10006	Circuit B Low Saturated Suction Temperature	As above	Circuit B shuts down	As above
31	10008	Circuit A High Suction Superheat	Pressure transducer defective, temp. sensor defective, EXV blocked or lack of refrigerant	Circuit A shuts down	Manual
32	10009	Circuit B High Suction Superheat	As above	Circuit B shuts down	Manual
33	10011	Circuit A Low Suction Superheat	As above	Circuit A shuts down	Manual
34	10012	Circuit B Low Suction Superheat	As above	Circuit B shuts down	Manual
35	10015	Condenser Flow Switch Failure	Abnormal conditions on condenser side	Unit shuts down	Automatic (7 alarms within 24 hours); otherwise, Manual

Jbus No.	Alarm code	Description	Possible cause	Action taken	Reset type
36	10016	Compressor A1 Not Started or Pressure Increase not Established	Compressor breaker or fuse fault, compressor switch open	Compressor A1 shuts down	Manual
37	10017	Compressor A2 Not Started or Pressure Increase not Established	As above	Compressor A2 shuts down	Manual
38	10018	Compressor A3 Not Started or Pressure Increase not Established	As above	Compressor A3 shuts down	Manual
39	10020	Compressor B1 Not Started or Pressure Increase not Established	As above	Compressor B1 shuts down	Manual
40	10021	Compressor B2 Not Started or Pressure Increase not Established	As above	Compressor B2 shuts down	Manual
41	10028	Customer Interlock Failure	Customer interlock input set on (emergency switch is open)	Unit shuts down	Automatic (if the unit was stopped); otherwise, Manual
42	10029	Loss of communication with System Manager	Communication error	Unit returns to the standalone mode	Automatic, if communication with System Manager is restored
43	10030	Master/Slave communication Failure	Bus installation fault	Master/Slave control is stopped / Unit returns to the standalone mode	Automatic, if communication is restored
44	10031	Unit is in Network emergency stop	Network emergency stop command	Unit shuts down	Automatic, if emergency stop is deactivated
45	10032	Cooler pump 1 fault	Flow switch or water pump fault	Unit is restarted with another pump running; If no pump is available, the unit shuts down	Manual
46	10033	Cooler pump 2 fault	As above	As above	Manual
47	10037	Circuit A Repeated High Discharge Gas Overrides	Repetitive capacity decreases	None	Automatic (no discharge gas overrides within 30 min); otherwise, Manual
48	10038	Circuit B Repeated High Discharge Gas Overrides	As above	None	As above
49	10040	Circuit A Repeated low suction temperature overrides	As above	Circuit A shuts down	Manual
50	10041	Circuit B Repeated low suction temperature overrides	As above	Circuit B shuts down	Manual
51	10043	Low entering water temperature in condenser	Low entering fluid temp. in Heating mode	Unit shuts down	Automatic, if water temperature returns to normal or heating mode is stopped
52	10051	Cooler flow switch failure	Flow switch fault	Unit shuts down	Automatic, if the unit was stopped and no internal pump was configured; otherwise, Manual
53	10063	Circuit A High pressure switch Failure	High pressure switch is open, compressor fault	Circuit A shuts down	Manual
54	10064	Circuit B High pressure switch Failure	As above	Circuit B shuts down	Manual
55	10073	Condenser pump 1 fault	Water pump fault	Unit is restarted with another pump running; If no pump is available, the unit shuts down	Manual
56	10074	Condenser pump 2 fault	As above	Unit is restarted with another pump running; If no pump is available, the unit shuts down	Manual
57	10097	Cooler Water Exchanger Temperature Sensors Swapped	Inlet and outlet temp. reversed	Unit shuts down	Manual
58	10098	Condenser Water Exchanger Temperature Sensors Swapped	As above	Unit shuts down	Manual
86	10099	Possible Refrigerant Leakage Failure	Refrigerant leak detected	None	Automatic
87	10101	Free Cooling Process Failure	Dry cooler fault	None	Automatic, if operating conditions return to normal
Service and factory					
61	7001	Illegal configuration	No factory configuration	Unit cannot be started	Automatic, if configuration is provided
60	8000	Initial factory configuration required	The unit size has not been configured	Unit cannot be started	Automatic, if configuration is provided
92	8001	Illegal Brand Identifier	Incorrect unit configuration	Unit cannot be started	Automatic, if configuration is corrected
62	13nnn	001: Circuit A Loss of charge 002: Circuit B Loss of charge 003: Water loop size warning 004: Maintenance servicing required 005: F-Gas Scheduled Check required	Servicing action required / Contact Manufacturer Service Agency	None: Contact service technicians	Manual
91	10122	Replacement Mode: please contact service representative to activate options	Replacement Mode: Please contact your local service representative to obtain activation key(s) to retrieve (or activate) software options	Replacement Mode: Please contact your local service representative to obtain activation key(s) to retrieve (or activate) software options	Automatic, if Software Activation Key is installed Automatic, if Software Activation Key is not provided within 7 days since the first compressor start (the alarm will be reset and software-protected options will be blocked)

Jbus No.	Alarm code	Description	Possible cause	Action taken	Reset type
Master/Slave failure					
59	9001	Master/Slave configuration error	Configuration failure	Master/slave operation is disabled and the unit returns to the stand-alone mode	Automatic, if master/slave configuration returns to normal or the unit is no longer in Master machine mode
Condenser water loop failure					
73	11100	Condenser Water loop Failure			
74	11102	Condenser water loop failure - zero error	Calibration failed	Unit shuts down	Automatic
75	11103	Condenser water loop failure - water press too low	Entering water pressure under 60 kPa	Unit shuts down	Automatic (6 times within 24 hours); otherwise, Manual
76	11104	Condenser water loop failure - pump not started	Too low or high water pressure reading	Unit shuts down	As above
78	11106	Condenser water loop failure - pump overload	Water loop pressure drop too low	Unit shuts down	Automatic
79	11107	Condenser water loop failure - very low flow	Switch fault	Unit shuts down	Automatic (6 times within 24 hours); otherwise, Manual
80	11108	Condenser water loop failure - press cross	Pressure sensors crossed	Unit shuts down	Manual
Cooler water loop process failure					
65	11200	Cooler Water loop process Failure			
66	11202	Cooler water loop process failure - zero error	Calibration failed	Unit shuts down	Automatic
67	11203	Cooler water loop failure - water press too low	Entering water pressure under 60 kPa	Unit shuts down	Automatic (6 times within 24 hours); otherwise, Manual
68	11204	Cooler water loop failure - pump not started	Too low or high water pressure reading	Unit shuts down	As above
70	11206	Cooler water loop failure - pump overload	Water loop pressure drop too low	Unit shuts down	Automatic
71	11207	Cooler water loop failure - very low flow	Switch fault	Unit shuts down	Automatic (6 times within 24 hours); otherwise, Manual
72	11208	Cooler water loop failure - press cross	Pressure sensors crossed	Unit shuts down	Manual
Device failure					
63	19001	Cooler Water pump Variable Speed Failure	Speed controller fault	Unit shuts down	Automatic, if detected fault is fixed
64	20001	Condenser Water pump Variable Speed Failure	As above	Unit shuts down	As above
81	57001	SIOB/CIOB 1 Low Voltage Failure	Unstable electrical supply or electrical issue	Unit shuts down	Automatic (if water pressure reading returns to normal and the alarm occurred up to 6 times within 24 hours); otherwise, Manual
82	57002	SIOB/CIOB 2 Low Voltage Failure	As above	As above	As above
83	57020	Main EXV stepper motor failure - cir A	EXV motor fault	Circuit A shuts down	Manual
84	57021	Main EXV stepper motor failure - cir B	EXV motor fault	Circuit B shuts down	Manual

9 - MAINTENANCE

In order to ensure the optimal operation of the equipment as well as the optimisation of all the available functionalities, it is recommended to activate a Maintenance Contract with your local Service Agency.

The contract will ensure your equipment is regularly inspected by specialists so that any malfunction is detected and corrected quickly, and no serious damage can occur to your equipment.

The Maintenance Contract represents not only the best way to ensure the maximum operating life of your equipment, but also, through the expertise of qualified personnel, the optimal tool to manage your system in a cost-effective manner.

The quality management system of this product's assembly site has been certified in accordance with the requirements of the ISO 9001 standard (latest current version) after an assessment conducted by an authorized independent third party.
The environmental management system of this product's assembly site has been certified in accordance with the requirements of the ISO 14001 standard (latest current version) after an assessment conducted by an authorized independent third party.
The occupational health and safety management system of this product's assembly site has been certified in accordance with the requirements of the ISO 45001 standard (latest current version) after an assessment conducted by an authorized independent third party.
Please contact your sales representative for more information.

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