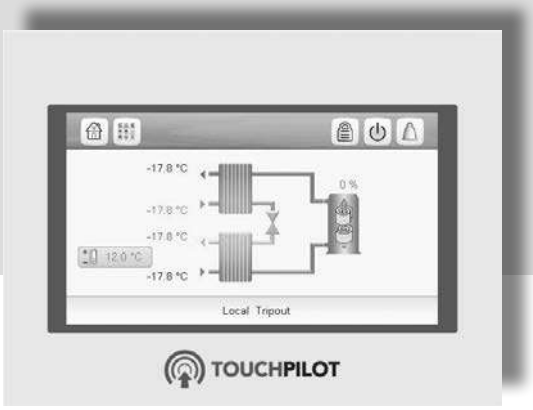
Carrier

United Technologies

CONTROLS MANUAL



Touch Pilot Junior Control

30WG / 30WGA / 61WG

Operation instructions

ISO9001 · ISO14001

Quality and Environment Management Systems Approval

Original document

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PREFACE

The goal of this manual is to give a broad overview of the main functions of the Touch Pilot Junior (TPJ) control system used to control and monitor the operation of the following units:

- 30WG / 61WG units (cooling or heating)
- 30WGA condenserless units (cooling)

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 and 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.

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.

30WG, 30WGA (20-140) and 61WG (20-90) units have only one circuit with one, two, or three compressors (A1, A2, A3).

30WG, 30WGA (150-190) units have two circuits with two compressors per circuit (A1, A2, B1, B2).

The following abbreviations are used frequently:

BMS	Building Management System
CCN	Carrier Comfort Network
DGT	Discharge Gas Temperature
DHW	Domestic Hot Water
EWT	Entering Water Temperature
EXV	Electronic Expansion Valve
FC	Free Cooling
HDC	Heating Device Control
HSM	Heating System Manager
LED	Light Emitting Diode
LEN	Internal communication bus linking the controller and the boards
LWT	Leaving Water Temperature
OAT	Outdoor Air Temperature
SHC	Space Heating Control
SST	Saturated Suction Temperature
TPJ	Touch Pilot Junior

1 - SAFETY CONSIDERATIONS

1.1 - General description

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 - CONTROLLER OVERVIEW

2.1 - Control system

30WG / 30WGA / 61WG units come with the **Touch Pilot Junior** control that serves as a user interface and a configuration tool for controlling the operation of the unit(s).

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 unit to maintain the correct refrigerant pressure in each circuit and monitors safety devices that protect the unit against failure and guarantee its optimal functioning.

Touch Pilot Junior 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 30WGA units with a remote condenser

2.3 - Touch Pilot Junior components

The controller manages a number of mechanisms that allow the unit to operate effectively, including the following:

- 4.3" touch screen
- BMS connection
- Scroll compressor technology
- Diagnostics
- Web connectivity / e-mail transmission
- Cooling control / Heating control
- Boiler control
- Domestic hot water production (optional)
- Free Cooling Dry Cooler control (optional)
- Condenser dry cooler control (optional) – only LEN connector provided (dry cooler installed separately)

2.4 - Operating modes

The control system 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 (CCN or BACnet). Data communication cable is used to connect the unit to the proprietary protocol communication bus.

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

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

3 - HARDWARE DESCRIPTION

3.1 - Control boards

The control system consists of the main controller, i.e. Touch Pilot Junior, and at least one SIOB 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 boards depends on the following:

- **Size of the unit:** Single-circuit units have one SIOB board by default, whereas dual-circuit units are fitted with two SIOB boards (the second SIOB board is normally used to support the second refrigerant circuit).
- **Additional options:** 20 to 140 units may be fitted with the second SIOB board only if the unit comes with additional functionalities, e.g. pump on the source side (condenser pump or cooler pump), partial heat recovery option, i.e. desupeheater (scheduled for future release).

In addition to SIOB board(s), 30WG / 30WGA / 61WG 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	30WG	30WGA	61WG
AUX1 board	Domestic Hot Water (DHW)	o		o
	Master/Slave assembly	o	o	o
	Brine to water			o
	Free cooling dry cooler*	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.

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

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.

3.3 - Light emitting diodes on boards

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 on the SIOB board 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. If the green LED is not flashing, this indicates a LEN bus wiring problem.

3.4 - 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).

3.5 - 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 (30WG/61WG)
The condenser entering and leaving water temperature sensors are used for heating capacity control and safety purposes.

Outdoor air temperature sensor (optional)
If available (30WG/61WG with DHW option, 30WGA 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.

3.6 - 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.

Flow switch
For units without internal pumps, a flow switch is mounted to ensure that the minimum flow rate required for the correct operation and protection of the system is maintained. 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. Touch Pilot Junior 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. 30WG/30WGA units can be fitted with a boiler which is energised only when requested by the controller in case of heating demand. For 61WG 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. See also section 8.10.1.

Electric heaters
Electric heaters are used as a supplementary heating source in the heating mode. See also section 8.10.2.

3.7 - Available connections

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

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

3.7.1 - Terminal block connections

Description	Board	Connector	Remarks
Remote On/Off contact	SIOB, cir A	+:32/ -:33	Used for the unit on/off control (Remote mode)
Remote Heat/ Cool contact	SIOB, cir A	+:63/ -:64	Used to set cooling and heating when the unit is in Remote mode
Switch-controlled demand limit	SIOB, cir A	+:73/ -:74	Used to control demand limit
Switch dual setpoint	SIOB, cir A	+:65/ -:66	Used to select the second cooling setpoint
Lock switch	SIOB, cir A	+:34/ -:35	Used for the customer safety loops
Condenser 3-way valve	SIOB, cir A	+:80+/-:80-	Used to control the water flow on the condenser side
Boiler	SIOB, cir A	+:69/ -:70	Used to command a boiler
Running	SIOB, cir A	+:37/-: 38	Used to signal a running status (at least one compressor start)
Alarm	SIOB, cir A	+: 30/-: 31	Used to signal an alarm
Domestic hot water (DHW)	AUX1	-:310 / CH12: 311	Used to control domestic hot water production
Domestic hot water (DHW) priority switch	AUX1	-:312 / +:313	Used to control domestic hot water priority
Summer switch	AUX1	-:323 / +:322	Used to stop the Space Heating loop additional pump during summer time
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
Additional pump command	AUX1	365 / 12	Used to command the additional pump in case of DHW option
DHW diverting valve	AUX1	340 / 12	Used to command the DHW loop in case of DHW option

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

For units with a boiler, on/off contacts and cooling/heating contacts are as follows:

	Off	Cooling	Heating
On/Off contact	open	closed	closed
Cooling/Heating contact	open	open	closed

Off: Unit is stopped
Cooling: Unit is allowed to start in Cooling
Heating: Unit is allowed to start in Heating

3.7.3 - 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. See also section 8.5.1.

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

3.7.4 - 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 (see section 5.6).

	100%	Limit 1	Limit 2	Limit 3
Demand limit 1 contact	open	closed	open	closed

3.7.5 - Summer switch (HDC option)

For units with HDC option, the summer switch can be used to control with the volt-free contact.

Summer switch	Summer mode
open	not active
closed	active

4 - TOUCH PILOT CONTROL INTERFACE

4.1 - User interface

Touch Pilot Junior is a 4.3" 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).

Example: Welcome screen for 30WG Touch Pilot Junior control

Touch Pilot Junior provides access to the following screens:

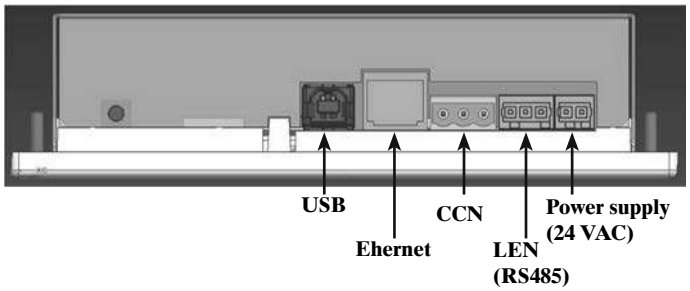
- Welcome screen (splash screen)
- Synoptic screen
- Operating mode selection screen
- Data/configuration screens
- Password entry and language selection screen
- Alarms screen
- Parameter modification screen
- Time schedule screen

IMPORTANT: If the user interface is not used for a long period, the Welcome screen is displayed, and then it goes blank. The control is always active and the operating mode remains unchanged. Press anywhere on the screen and the Welcome screen will be displayed.

4.2 - Connections

Connections are located on the bottom side of the controller.

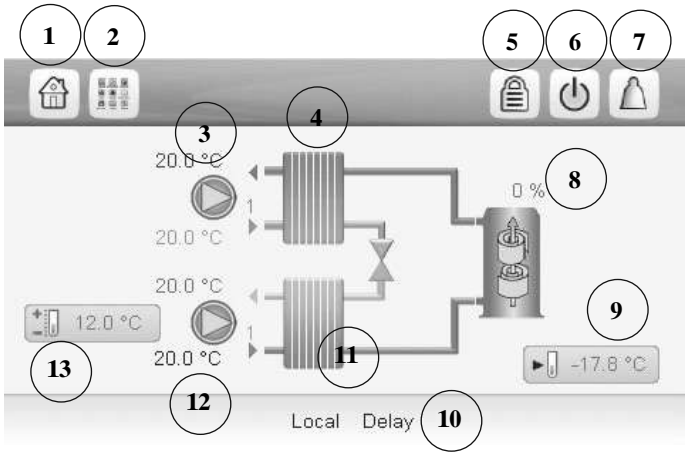
The controller comes with two RS485 ports, where the first port is used to connect to CCN (Carrier Comfort Network) and the second RS485 port is used for internal communication (LEN). The Ethernet port allows for TCP/IP communication or BMS (Building Management System) connection thanks to BACnet/IP communication.



4.3 - Synoptic screen

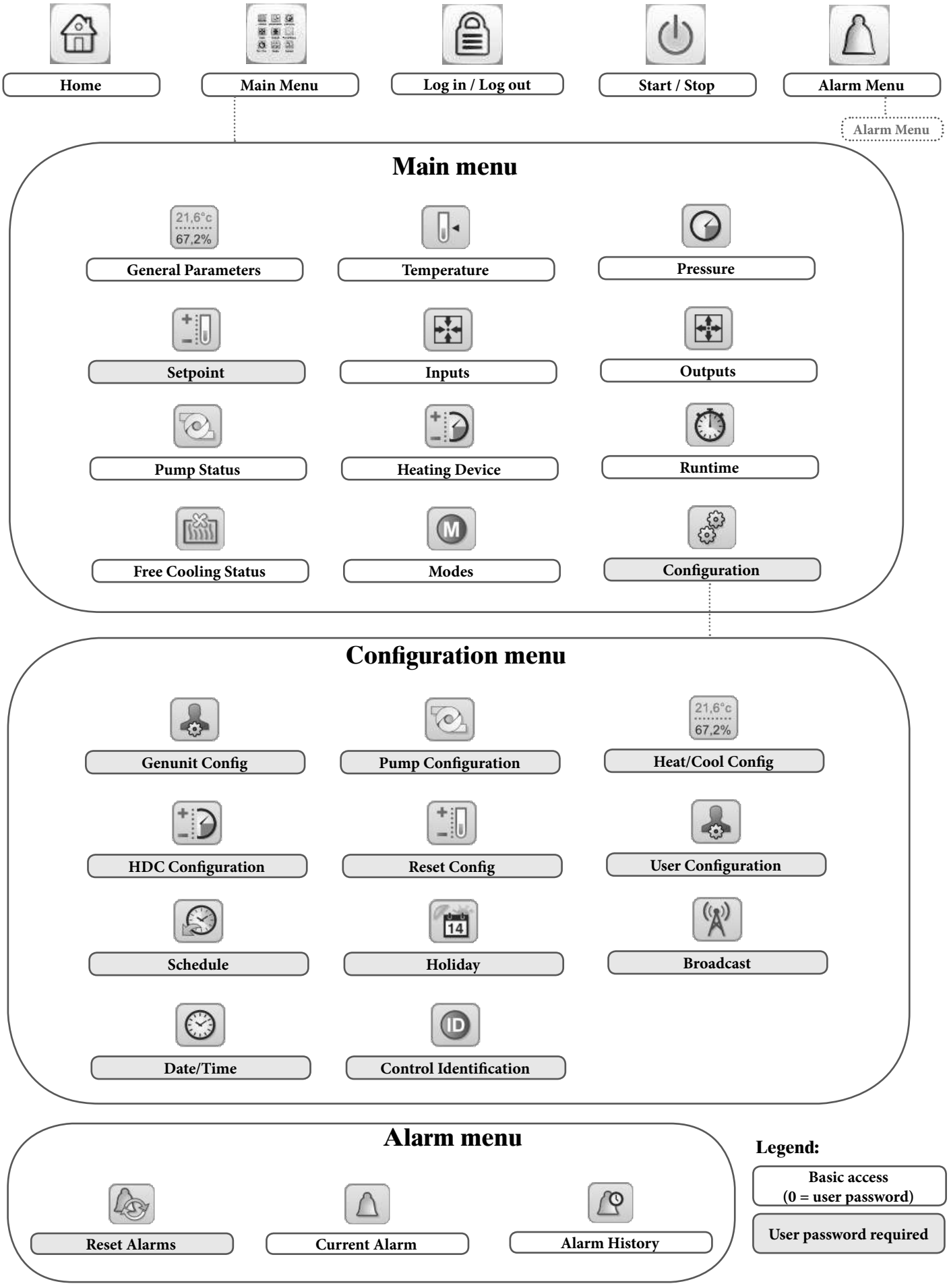
The Synoptic screen allows you to monitor the vapour-refrigeration cycle.

The diagram indicates the current status of the unit, giving information on the unit capacity, the status of water heat exchanger pumps, and the pre-defined setpoint parameter.



1	Home button
2	Main menu button
3	LWT and EWT (condenser)
4	Condenser
5	Login button (restricted access to menus)
6	Start/Stop button
7	Alarm button
8	Compressor + unit capacity
9	OAT (if OAT sensor available)
10	Unit running status
11	Evaporator
12	LWT and EWT (evaporator)
13	Control point (setpoint + offset)

4.4 - Menu structure (Basic / User access)



4.5 - Buttons

HOME SCREEN

Home button	Main Menu button	Back button
Home screen displayed	Main Menu displayed	Go back to the previous screen

Login button	Start/Stop button	Alarm button
Basic access	Unit is stopped	No alarm active on the unit
User access	Unit is running (green icon)	Blinking icon: Partial alarm (one circuit affected by the alarm) or Alert (no action taken on the unit), Steady icon: Alarm(s) active on the unit (see section 9.5)

OTHER SCREENS

Login screen	Parameters screen(s)
Login: Confirm advanced access login	Save changes
Logout: Reset the user level access and go to the splash screen	Cancel your modifications

Force screen (override)	Navigation buttons
Set force: Override the current command (if possible)	Displayed when the menu includes more than one page: Go to the previous page
Remove force: Remove the forced command	Displayed when the menu includes more than one page: Go to the next page

5 - SETTING UP TOUCH PILOT JUNIOR CONTROL

5.1 - Reading the Welcome screen

The Welcome screen is the first screen shown after starting the user interface. It displays the application name as well as the current software version number.

- To exit the Welcome screen and go to the Home screen (see section 4.3), press the **Home** button .

1	Home button
2	Software version number
3	Information message box

Information message box

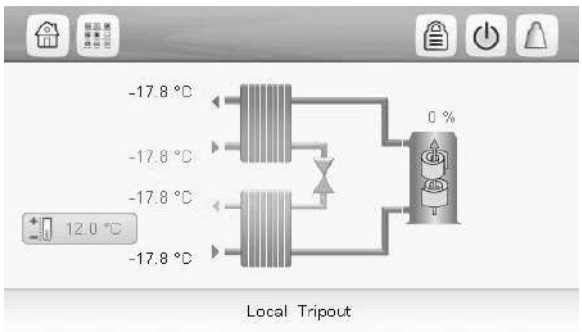
The information displayed in the status bar at the bottom of the screen includes relevant messages regarding the current user action. All screens presented further in this manual may display the following messages:

MESSAGE	STATUS
COMMUNICATION FAILURE!	Equipment controller did not respond while reading the table content.
ACCESS DENIED!	Equipment controller denies access to one of the table data blocks.
LIMIT EXCEEDED!	The value entered exceeds the table limits.
Save changes?	Modifications have been made. The exit must be confirmed by pressing Save or Cancel.
HIGHER FORCE IN EFFECT!	Equipment controller rejects Force or Auto command.
Too many users connected! Please try again later ...	Too many users connected at the same time (WEB INTERFACE ONLY)

5.2 - Exploring the Synoptic screen

The Synoptic screen provides an overview of the system control, allowing the user to monitor the vapour-refrigeration cycle. The diagram indicates the current status of the unit, giving information on the unit capacity, the status of water heat exchanger pumps, and the pre-defined setpoint parameter.

Press the **Main menu** button to access all unit functions.



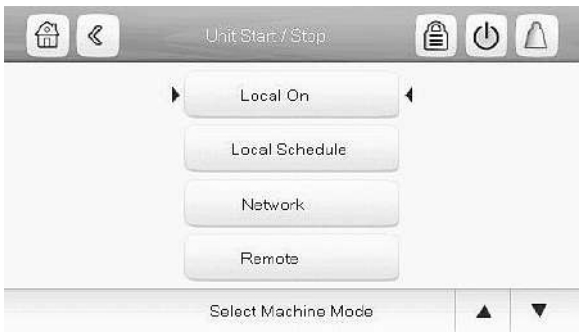
IMPORTANT: The Synoptic screen display may vary depending on pumps and OAT sensor availability.

5.3 - Starting / Stopping the unit

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.



This screen is displayed only when the unit is currently not running. If the unit was in the running state, then the Confirm stop message would be displayed (see below).

Press ▲ or ▼ to go to the next page.

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 allowed to start if the period is occupied.

To start the unit

1. Press the **Start/Stop** button.
2. Select the required Machine Mode.
3. The Welcome screen will be displayed.

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.

The bell located in the upper-right part of the screen lights when any fault is detected.

5.4 - Setting the schedule

The **first timer program** (schedule 1) 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) provides a means to automatically **switch the active setpoint from an occupied setpoint to an unoccupied setpoint**: cooling setpoint 1 is used during occupied periods, cooling or heating setpoint 2 during unoccupied periods.

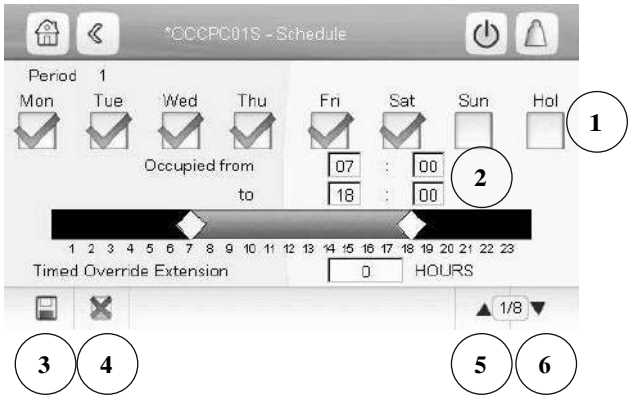
The **third timer program** (schedule 3) allows the unit to switch to the **domestic hot water production** mode. The DHW mode is allowed during occupied periods.

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 Menu** (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.



1	Selection of days for the time schedule
2	Start/end of the schedule
3	Save
4	Cancel
5	Previous time period
6	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, **the occupied mode takes priority over the unoccupied period**.

Example: Schedule setting

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								

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

	Occupied
	Unoccupied

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		

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.

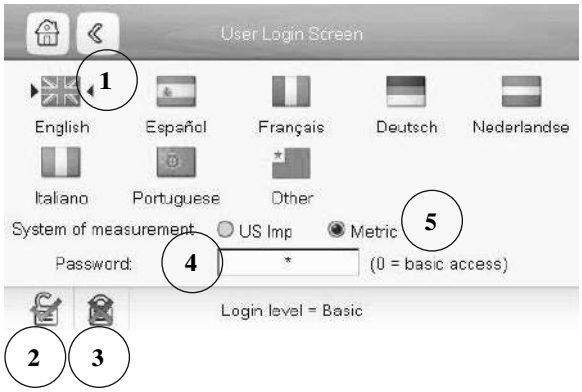
During the holiday periods, the controller will be in occupied or unoccupied mode, depending on the periods validated as holidays. Each holiday period can be modified by the user via the Configuration menu (see section 5.7).

5.5 - Display settings

The User Login screen allows the user to do the following:

- Select the language of the controller.
- Change the system of measurement (imperial or metric).
- Gain access to more control options.

To access the User Login screen, press the **Login** button in the upper-right corner of the Synoptic screen.



1	Cursor indicating the selected language
2	Logged-in button
3	Logged-off button
4	Password dialog box
5	System of measurement: Metric/Imperial

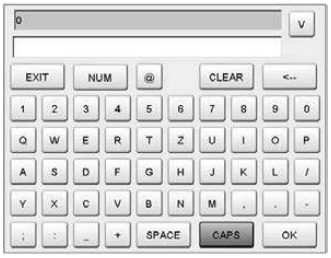
User login

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

The user password can be modified in the User Configuration menu (USERCONF).

To log in as user

1. Press the **Login** button to open User Login Screen.
2. Press the Password box. A dialog box appears.
3. Provide the password (11) and press OK.



4. The User Login screen appears.
5. Press the **Logged-in** button to save your changes or the **Logged-off** button to exit the screen without making modifications.

NOTE: You may also leave the screen by pressing the Back button. Your changes will be saved.

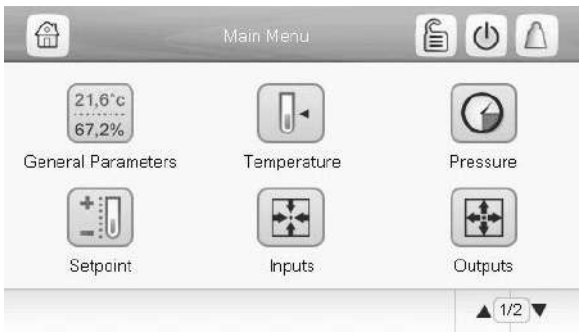
Security access settings

- User-level security ensures that only authorised users are allowed to modify critical unit parameters.
- Only logged-in users are allowed to access the Configuration menu.
- 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.
- Only people qualified to manage the unit should be familiarized with the password.

5.6 - Main menu

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

In order to access the menu, press the **Main menu** button located in the upper-left part of the Synoptic screen (see also section 4.3).



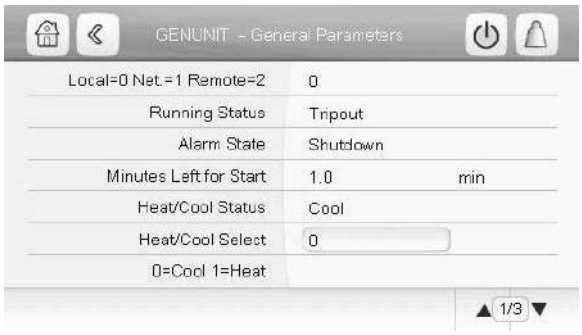
Specific unit parameters table/menu can be accessed by pressing the icon corresponding to the desired category.

In order to go back to the Synoptic screen, press

5.6.1 - General parameters screen

The General parameters screen provides access to a set of general unit parameters.

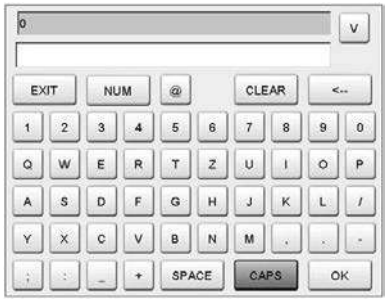
To access the General parameters screen, go to the Main menu and select **General Parameters** 21,6°c 67,2%



Press the **Up/Down** buttons ▲ ▼ to navigate between the screens.

5.6.2 - Parameter modification

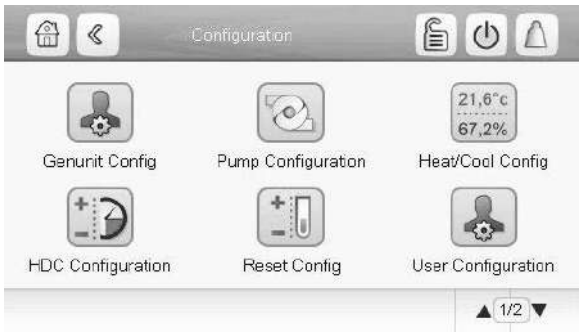
When the user selects the parameter to be modified, the following screen is displayed.



Press **OK** to save or **EXIT** to cancel the modification.

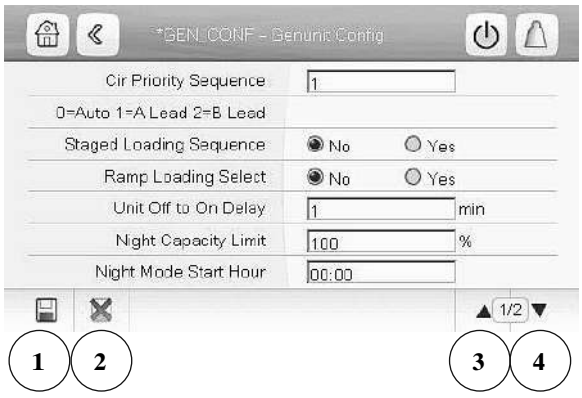
5.7 - Configuration menu

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



General configuration screen

To access the General configuration screen, go to the Configuration menu and select **Genunit Config**.



1	Save
2	Cancel
3	Previous page
4	Next page

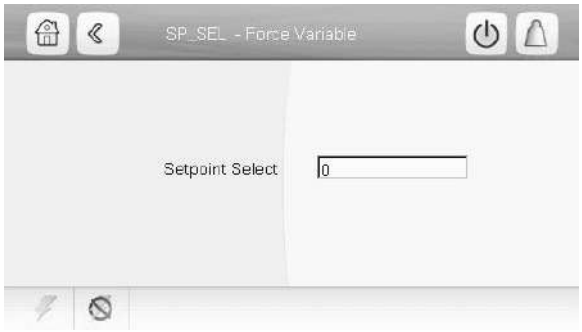
Press the field corresponding to the parameter to be modified and introduce all the necessary changes.

Once all the necessary modifications have been made, press to confirm or to cancel changes.

5.8 - Override screen

The override screen provides the option to issue the command overriding the current operation of the unit.

To access the override screen, press the forceable point of the data screen.



Press to set or to remove the forced point.

6 - WEB CONNECTION

6.1 - Web interface

The Touch Pilot Junior control can be accessed via a web browser (Internet Explorer, Mozilla Firefox, etc.).

Connection is from a PC using a web browser with Java.

IMPORTANT: Use firewalls and VPN for secure connection.

6.2 - Opening the web interface

To access the Touch Pilot Junior control, enter the IP address of the unit in the address bar of the web browser.

Unit default address: **169.254.0.1**.
This address can be changed.

IMPORTANT: Only two web connections can be authorised at the same time.

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.

6.3 - Web browser settings

Minimum web browser configuration:

- Internet Explorer (version 8 or higher) or Mozilla Firefox (version 26 or higher). In the advanced connection options add the unit IP address to the exceptions list. Do not use a proxy server.
- Java platform (version 6 or higher). In the control panel, clear the Keep temporary files on my computer check box and use a direct connection.

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

7 - TOUCH PILOT JUNIOR INTERFACE - DETAILED MENU STRUCTURE

7.1 - Main menu

Icon	Displayed text*	Description	Associated table
	General Parameters	General Parameters	GENUNIT
	Temperature	Temperature	TEMP
	Pressure	Pressure	PRESSURE
	Setpoint	Setpoint	SETPOINT
	Inputs	Inputs status	INPUTS
	Outputs	Outputs status	OUTPUTS
	Pump Status	Pump Status	PUMPSTAT
	Heating Device	Heating Device	HDC_STAT
	Runtime	Runtime	RUNTIME
	Free Cooling Status	Free Cooling Status	FCOOL_ST
	Modes	Modes	MODES
	Configuration	Configuration menu	CONFIG

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

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

General Parameters Menu – GENUNIT

No.	Point 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	-	-	Running Status	Off, Running, Stopping, Delay, Trip out, Ready, Override, etc.
3	ALM	-	-	Alarm State	Alarm state: Normal, Partial, Shutdown
4	min_left	-	min	Minutes Left for Start	Minutes before the unit start-up
5	HEATCOOL	-	-	Heat/Cool Status	Heating/cooling status: Heat/Cool
6	HC_SEL	0 to 1	-	Heat/Cool Select	Heating/cooling selection: 0 = Cooling 1 = Heating
7	SP_SEL	0 to 3	-	Setpoint Select	Setpoint selection
8				0=Auto 1=Spt1 2=Spt2 3=Spt3	0 = Auto (schedule control) 1 = Setpoint 1 2 = Setpoint 2 3 = Setpoint 3
9	SP_OCC	no / yes	-	Setpoint Occupied?	Setpoint occupancy status

General Parameters Menu – GENUNIT (continued)

No.	Point name	Status	Unit	Displayed text*	Description
10	CHIL_S_S	dsable / enable	-	Net.: Cmd Start/Stop	Unit start/stop via Network: When the unit is in Network mode, start/stop command can be forced
11	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
12	CAP_T	0 to 100	%	Percent Total Capacity	Total unit capacity
13	CAPA_T	0 to 100	%	Circuit A Total Capacity	Total capacity, circuit A
14	CAPB_T	0 to 100	%	Circuit B Total Capacity	Total capacity, circuit B
15	DEM_LIM	0 to 100	%	Active Demand Limit Val	Active demand limit value: When the unit is in Network mode, the minimum value will be used compared to the status of the external limit switch contact and the demand limit switch setpoint
16	SP	-	°C	Current Setpoint	Current setpoint
17	CTRL_PNT	-20.0 to 67.2	°C	Control Point	Control point: Water temperature that the unit must produce
18	EMSTOP	dsable / enable	-	Emergency Stop	Emergency stop: Used to stop the unit regardless of its active operating type

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

Temperature Menu – TEMP

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

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

Pressure Menu – PRESSURE

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

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

Setpoint Menu – SETPOINT

No.	Point name	Status	Default	Unit	Displayed text*	Description
1	csp1	-28.9 to 20.0	12.0	°C	Cooling Setpoint 1	Cooling setpoint 1 (used during occupied periods)
2	csp2	-28.9 to 20.0	12.0	°C	Cooling Setpoint 2	Cooling setpoint 2 (used during unoccupied periods)
3	ice_sp	-28.9 to 20.0	12.0	°C	Cooling Ice Setpoint	Cooling ice setpoint
4	hsp1	20.0 to 65.0	50.0	°C	Heating Setpoint 1	Heating setpoint 1 (used during occupied periods)
5	hsp2	20.0 to 65.0	50.0	°C	Heating Setpoint 2	Heating setpoint 2 (used during unoccupied periods)
6	hsp3	20.0 to 65.0	50.0	°C	Heating Setpoint 3	Used as Domestic Hot Water Setpoint when Heating Device Control is selected (optional)
7	ramp_sp	0.1 to 1.1	0.6	^C	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	Demand limit setpoint 2
10	lim_sp3	0 to 100	100	%	Switch Limit Setpoint 3	Demand limit setpoint 3
11	cond_sp	30.0 to 58.0	40.0	°C	Condensing Setpoint	Condensing setpoint (see also section 8.12.3)

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

Inputs Menu – INPUTS

No.	Point 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	off / cool / heat	-	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	LIM_SW2	open / close	-	Limit Switch 2 Status	Not applicable (please ignore this parameter)
8	FLOW_SW	open / close	-	Exchanger Flow Switch	Flow switch status
9	DIFF_FLW	open / close	-	Diff Exchanger Flow Sw	Condenser Flow switch status (currently not available)
10	LOCK_SW	open / close	-	Lock Input	Customer interlock status
11	DSHTR_SW	open / close	-	Desuper heater demand	Desuperheater demand (currently not available)
12	HP_SW_A	open / close	-	High Pressure Switch A	High pressure switch A
13	HP_SW_B	open / close	-	High Pressure Switch B	High pressure switch B
14	SP_RESET	0 to 20	mA	Setpoint Reset Signal	Setpoint reset signal

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

Outputs Menu – OUTPUTS

No.	Point 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	FAN_A		-	Condenser Fan Stages A	Condenser fan stages, circuit A
5	EXVPosA		%	EXV Position Circuit A	EXV position, circuit A
6	HD_POS_A		%	Head Pressure position A	Head pressure, circuit A
7	RV_A	off / on	-	Reverse Valve cir A	Not applicable (please ignore this parameter)
8	LLS_A	off / on	-	Liquid Line Solenoid A	Liquid line solenoid valve status, circuit A
9	CP_B1	off / on	-	Compressor B1 Output	Compressor B1 command
10	CP_B2	off / on	-	Compressor B2 Output	Compressor B2 command
11	FAN_B		-	Condenser Fan Stages B	Condenser fan stages, circuit B
12	EXVPosB		%	EXV Position Circuit B	EXV position, circuit B
13	HD_POS_B		%	Head Pressure position B	Head pressure, circuit B
14	RV_B	off / on	-	Reverse Valve cir B	Not applicable (please ignore this parameter)

Outputs Menu – OUTPUTS (continued)

No.	Point name	Status	Unit	Displayed text*	Description
15	LLS_B	off / on	-	Liquid Line Solenoid B	Liquid line solenoid valve status, circuit B
16	FAN_DRY		-	Dry Cooler Fan Stages	Dry cooler fan stages
17	VFAN_DRY		%	Variable Speed Fan DryC	Variable speed fan – dry cooler
18	Water3wv		%	Three Way Water Valve	Three-way water valve status
19	boiler	off / on	-	Boiler Output	Boiler command
20				Electrical Heat Stages	Electric heating command
21	alert	off / on	-	Alert Relay Output	Alert relay status
22	alarm	off / on	-	Alarm Relay Output	Alarm relay status
23	running	off / on	-	Running Status	Running relay status

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

Pump Status Menu – PUMPSTAT

No.	Point 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	Cool Inlet Water Press	Evaporator inlet water pressure
5	CL_WPOUT	-	kPa	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	Cool Water Press. Offset	Evaporator water pressure offset
8	CL_FILTR	-	kPa	Cool delta press. filt	Evaporator delta pressure filter
9	CL_WPMIN	-	kPa	Cool mini water pressure	Evaporator mini water pressure
10	CL_WFLOW	-	l/s	Cool Water flow	Evaporator water flow
11	CL_WdtSp	-	^C	Cool Water DT Setpoint	Evaporator water delta temp. setpoint
12	CL_WdpSp	-	kPa	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	Cond Inlet Water Press	Condenser inlet water press
22	CD_WPOUT	-	kPa	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	Cond Water Press. Offset	Condenser water pressure offset
25	CD_FILTR	-	kPa	Cond delta press. filt	Condenser delta pressure filter
26	CD_WPMIN	-	kPa	Cond mini water pressure	Condenser mini water pressure
27	CD_WFLOW	-	l/s	Cond Water flow	Condenser water flow
28	CD_WdtSp	-	^C	Cond Water DT Setpoint	Condenser water delta temp. setpoint
29	CD_WdpSp	-	kPa	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 (English by default).

Heating Device Menu – HDC_STAT

No.	Point name	Status	Unit	Displayed text*	Description
1	dhw_mode	0 to 2	-	Mode: 0=SHC,1=DHW, 2=moves	Mode: 0 = Space Heating Control (SHC) 1 = Domestic Hot Water (DHW) 2 = Changing between SHC and DHW
2	dhw_dem	no / yes	-	DHW Demand	DHW demand
3	dhw_time	-	-	Current DHW Runtime	Current DHW runtime
4	shc_time	-	-	Current SHC Runtime	Current SHC Runtime
5	sum_mode	no / yes	-	Summer Mode	Summer mode
6	ctrl_pnt	-	-	Current Control Point	Current Control Point
7	oat	-	-	Outdoor Air Temperature	Outdoor Air Temperature
8	DHW_REQ	open / close	-	DHW Request input	DHW Request input
9	DHW_SW	open / close	-	DHW Priority Switch	DHW Priority Switch
10	SUMM_SW	open / close	-	Summer Switch	Summer Switch
11	add_pump	off / on	-	Additional Pump Output	Additional Pump Output
12	dhw_vlv	off / on	-	DHW Valve Output	DHW Valve Output
13	ehs	-	-	Electric Heat Stages	Electric Heat Stages

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

Runtime Menu – RUNTIME

No.	Point name	Status	Unit	Displayed text*	Description
1	hr_mach	-	hour	Machine Operating Hours	Machine 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 machine 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_olpmp	-	hour	Open Loop Pump Hours	Operating hours, open loop pump
20	hr_ehs	-	hour	Electric Stages Hours	Operating hours, electric heating
21	hr_hdpmp	-	hour	HDC Pump Hours	Operating hours, HDC pump

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

Free Cooling Status Menu – FCOOL_ST

No.	Point name	Status	Unit	Displayed text*	Description
1	fc_oat	-	°C	Free Cooling OAT	Free Cooling / Dry cooler: OAT
2	fc_lwt	-	°C	FC Leaving Water Temp	Free Cooling / Dry Cooler: Leaving water temperature
3	fc_wloop	-	°C	FC Water Loop Temp	Free Cooling / Dry Cooler: Water loop temperature
4	m_fcool	no / yes	-	Free Cooling Mode Active	Free Cooling / Dry Cooler status
5	fc_cap	0 to 100	%	FC Capacity	Free Cooling / Dry Cooler capacity

Free Cooling Status Menu – FCOOL_ST (continued)

No.	Point name	Status	Unit	Displayed text*	Description
6	fc_fanst	0 to 10	-	FC Fan Stage	Free Cooling / Dry Cooler fan stage
7	fc_fansp	0 to 100	%	FC Varifan Speed	Free Cooling / Dry Cooler: Fan speed
8	FC_HOUR	0 to 999999	hour	FC Operating Hours	Free Cooling / Dry cooler: Operating hours
9	FC_FAN1S	0 to 999999	-	FC Fan Stage 1 Start	FC / Fan stage 1: Number of starts
10	FC_FAN1H	0 to 999999	hour	FC Fan Stage 1 Hours	FC / Fan stage 1: Operating hours
11	FC_FAN2S	0 to 999999	-	FC Fan Stage 2 Start	FC / Fan stage 2: Number of starts
12	FC_FAN2H	0 to 999999	hour	FC Fan Stage 2 Hours	FC / Fan stage 2: Operating hours
13	FC_FAN3S	0 to 999999	-	FC Fan Stage 3 Start	FC / Fan stage 3: Number of starts
14	FC_FAN3H	0 to 999999	hour	FC Fan Stage 3 Hours	FC / Fan stage 3: Operating hours
15	FC_FAN4S	0 to 999999	-	FC Fan Stage 4 Start	FC / Fan stage 4: Number of starts
16	FC_FAN4H	0 to 999999	hour	FC Fan Stage 4 Hours	FC / Fan stage 4: Operating hours
17	FC_FAN5S	0 to 999999	-	FC Fan Stage 5 Start	FC / Fan stage 5: Number of starts
18	FC_FAN5H	0 to 999999	hour	FC Fan Stage 5 Hours	FC / Fan stage 5: Operating hours
19	FC_FAN6S	0 to 999999	-	FC Fan Stage 6 Start	FC / Fan stage 6: Number of starts
20	FC_FAN6H	0 to 999999	hour	FC Fan Stage 6 Hours	FC / Fan stage 6: Operating hours
21	FC_FAN7S	0 to 999999	-	FC Fan Stage 7 Start	FC / Fan stage 7: Number of starts
22	FC_FAN7H	0 to 999999	hour	FC Fan Stage 7 Hours	FC / Fan stage 7: Operating hours

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

Modes Menu – MODES

No.	Point 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 setpoint 3 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
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	Domestic hot water mode status
25	m_summer	no / yes	-	Summer Mode Active	Summer mode status

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

7.2 - Configuration menu

Icon	Displayed text*	Description	Associated table
	Genunit Config	General configuration	GENCONF
	Pump Configuration	Pump configuration	PUMPCONF
	Heat/Cool Config	Heat/Cool configuration	HCCONFIG
	HDC Configuration	Heating Device Control configuration	HDC_CONF
	Reset Config	Reset configuration	RESETCFG
	User Configuration	User configuration	USERCONF
	Schedule	Schedule menu	SCHEDULE
	Holiday	Holiday menu	HOLIDAY
	Broadcast	Broadcast configuration	BROCASTS
	Date/Time	Date/time configuration	DATETIME
	Control Identification	Control identification	CTRL_ID

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

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

Genunit Config Menu – GENCONF

No.	Point name	Status	Default	Unit	Displayed text*	Description
1	lead_cir	0 to 2	0	-	Cir Priority Sequence	Circuit priority
2					0=Auto 1=A Lead 2=B Lead	0 = Automatic circuit selection 1 = Circuit A priority 2 = Circuit B priority
3	seq_typ	no / yes	no	-	Staged Loading Sequence	Staged loading sequence
4	ramp_sel	no / yes	no	-	Ramp Loading Select	Ramp loading selection
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 limit
7	nh_start	00:00	00:00	-	Night Mode Start Hour	Night mode start hour
8	nh_end	00:00	00:00	-	Night Mode End Hour	Night mode end hour

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

Pump Configuration Menu – PUMPCONF

No.	Point 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

Pump Configuration Menu – PUMPCONF (continued)

No.	Point name	Status	Default	Unit	Displayed text*	Description
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

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

Heat/Cool Config Menu – HCCONFIG

No.	Point 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 = None, 1 = OAT,
4					2=delta T, 3=4-20mA	2 = Delta T, 3 = 4-20 mA control
5	boil_on	no / yes	no		Boiler Manual Command	Boiler manual command: No = boiler control based on OAT control logic (see boil_th below) Yes = boiler control enabled if OAT sensor is NOT present or the sensor fails
6	boil_th	-15 to 15	-10	°C	Boiler OAT Threshold	Boiler OAT threshold
7	ehs_th	-4.90 to 21.42	5.2	°C	Elec Stage OAT Threshold	Electric heating stage, OAT threshold
8	both_sel	no / yes	no	-	HSM Both Command Select	HSM both command selection
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

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

HDC Configuration Menu – HDC_CONF

No.	Point name	Status	Default	Unit	Displayed text*	Description
1	adpmpper	no / yes	no	-	Add. Pump Anti-Sticking	Additional pump anti-sticking protection
2	summ_oat	15.0 to 30.0	20.0	°C	Summer OAT threshold	This threshold defines when Summer mode can be started
3	summ_on	0 to 12	5	hour	Summer OAT start delay	Summer mode is activated if OAT is above OAT Threshold [sum_oat] for at least the sum_on delay
4	summ_off	0 to 12	5	hour	Summer OAT stop delay	Summer mode is reset when OAT goes below OAT Threshold [sum_oat] minus 2K for at least the sum_off delay

HDC Configuration Menu – HDC_CONF (continued)

No.	Point name	Status	Default	Unit	Displayed text*	Description
5	shc_min	0 to 720	30	min	SHC Minimum On Time	Minimum duration of SHC
6	shc_max	-1 to 720	180	min	SHC Maximum On Time	Maximum duration of SHC
7	dhw_min	0 to 720	30	min	DHW Minimum On Time	Minimum duration of DHW
8	dhw_max	-1 to 720	180	min	DHW Maximum On Time	Maximum duration of DHW

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

Reset Config Menu – RESETCFG

No.	Point name	Status	Default	Unit	Displayed text*	Description
1					COOLING RESET	Cooling
2	oatcr_no	-30.1 to 52.2	25.3	°C	OAT No Reset Value	OAT, no reset value
3	oatcr_fu	-30.1 to 52.2	20.3	°C	OAT Full Reset Value	OAT, max. reset value
4	dt_cr_no	0 to 14.1	0	^C	Delta T No Reset Value	Delta T, no reset value
5	dt_cr_fu	0 to 14.1	0	^C	Delta T Full Reset Value	Delta T, max. reset value
6	l_cr_no	4 to 20	0	mA	Current No Reset Value	Current, no reset value
7	l_cr_fu	4 to 20	0	mA	Current Full Reset Value	Maximum cooling reset value
8	cr_deg	-50.4 to 50.4	0	^C	Cooling Reset Deg. Value	Cooling reset degenerative value
9					HEATING RESET	Heating
10	oathr_no	-30.1 to 52.2	20.3	°C	OAT No Reset Value	OAT, no reset value
11	oathr_fu	-30.1 to 52.2	40.5	°C	OAT Full Reset Value	OAT, max. reset value
12	dt_hr_no	0 to 14.1	0	^C	Delta T No Reset Value	Delta T, no reset value
13	dt_hr_fu	0 to 14.1	0	^C	Delta T Full Reset Value	Delta T, max. reset value
14	l_hr_no	4 to 20	0	mA	Current No Reset Value	Current, no reset value
15	l_hr_fu	4 to 20	0	mA	Current Full Reset Value	Maximum heating reset value
16	hr_deg	-50.4 to 50.4	10.1	^C	Heating Reset Deg. Value	Heating reset degenerative value

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

User Configuration Menu – USERCONF

No.	Point name	Status	Default	Unit	Displayed text*	Description
1	use_pass	0 to 9999	11	-	User Password	User password: The user password can be modified by changing the value in this line

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

Schedule Menu – SCHEDULE

No.	Point name	Displayed text*	Description
1	OCCPC01S	OCCPC01S - Schedule Menu	Unit on/off time schedule
2	OCCPC02S	OCCPC02S - Schedule Menu	Unit setpoint selection time schedule
3	OCCPC03S	OCCPC03S - Schedule Menu	Domestic hot water production schedule

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

Holiday Menu – HOLIDAY

No.	Point name	Status	Default	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 (English by default).

Broadcast Menu – BROCASTS

No.	Point name	Status	Default	Displayed text*	Description
1	Ccnbroad	0 to 2	2	Activate	Not applicable
OAT Broadcast					
2	oatbusnm	0 to 239	0	Bus	Bus number of the unit with the outdoor temperature sensor
3	oatlocad	0 to 239	0	Element	Element number of the unit with outdoor temperature
4	dayl_sel	disable/enable	disable	Daylight Savings Select	Summer/winter time activation (Daylight saving selection)
Daylight Savings Select – Summer time (entering)					
5	Startmon	1 to 12	3	Month	Month
6	Startdow	1 to 7	7	Day of Week (1=Monday)	Day of the week (1 = Monday)
7	Startwom	1 to 5	5	Week Number of Month	Week of the month
Daylight Savings Select – Winter time (leaving)					
8	Stopmon	1 to 12	10	Month	Month
9	Stopdow	1 to 7	7	Day of Week (1=Monday)	Day of the week (1 = Monday)
10	Stopwom	1 to 5	5	Week Number of Month	Week of the month

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

Date/Time Menu – DATETIME

No.	Point name	Status	Unit	Displayed text*	Description
Date (DD/MM/YY)					
1	d_of_m	1 to 31	-	Day of month	Day of the month
2	month	1 to 12	-	Month of year	Month
3	year	20nn	-	Year	Year
4	dow	Monday-Sunday	-	Day of Week	Day of the week
Time (HH:MM)					
5	hour	0 to 24	hour	Hour	Hour
6	minute	0 to 59	min	Minute	Minutes
Daylight Saving Time					
7	dlig_on	no/yes	-	Daylight sav. time on	Daylight saving time active
8	dlig_off	no/yes	-	Daylight sav. time off	Daylight saving time inactive
9	tom_hol	no/yes	-	Tomorrow is a holiday	The following day is a holiday
10	tod_hol	no/yes	-	Today is a holiday	The present day is a holiday

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

Control Identification Menu – CTRL_ID

No.	Status	Default	Displayed text*	Description
1	"xx chars"	30WG / 30WGA / 61WG	Device Description	Device description
2	"xx chars"		Location Description	Location description: The number corresponds to the country
3	"xx chars"	ECG-SR-20M4Bxxx	Software Part Number	Software version
4	"xx chars"	MAC address	Serial Number	Serial number (MAC address)

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

7.3 - Alarms menu

Icon	Displayed text*	Description	Associated table
	Reset Alarms	Alarm reset	ALARMRST
	Current Alarms	Current alarms	CUR_ALRM
	Alarm History	Alarm History	ALMHIST1

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

8 - TOUCH PILOT JUNIOR CONTROL OPERATION

8.1 - 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 summarises the unit control type [ctrl_typ] and its running status with regard to the following parameters:

- **Operating type:** 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]:** Unit start/stop force command can be used to control the unit state in the Network operating type.
  - **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 can be used to control the unit state in the Remote operating type.
- **Master control type [ms_ctrl]:** When the unit is the master unit in a two-unit master/slave arrangement, the master unit may be set to be controlled locally, remotely or via network (see also section 8.13).
- **Start/stop schedule [chill_occ]:** Occupied or unoccupied status of the unit.
- **Network emergency stop command [EMMSTOP]:** If activated, the unit shuts down regardless of the active operating type.
- **General alarm:** The unit shuts down due to failure.

8.2 - Cooling / Heating

Touch Pilot Junior control can manage the whole range of operations ensuring the correct functioning of the air-conditioning unit:

- Depending on the type of water connections, 30WG/61WG 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.
- 30WGA 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 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

Active operating type						Parameters status						Control type	Unit state
LOFF	L-C	L-SC	Rem	Net.	Mast	Start/Stop force command	Remote start/stop contact	Master control type	Start/Stop schedule	Network Emergency Shutdown	Alarm shutdown		
-	-	-	-	-	-	-	-	-	-	enabled	-	-	off
-	-	-	-	-	-	-	-	-	-	-	yes	-	off
active	-	-	-	-	-	-	-	-	-	-	-	local	off
-	-	active	-	-	-	-	-	-	unoccupied	-	-	local	off
-	-	-	active	-	-	-	open	-	-	-	-	remote	off
-	-	-	active	-	-	-	-	-	unoccupied	-	-	remote	off
-	-	-	-	active	-	disabled	-	-	-	-	-	network	off
-	-	-	-	active	-	-	-	-	unoccupied	-	-	network	off
-	-	-	-	-	active	-	-	local	unoccupied	-	-	local	off
-	-	-	-	-	active	-	open	remote	-	-	-	remote	off
-	-	-	-	-	active	-	-	remote	unoccupied	-	-	remote	off
-	-	-	-	-	active	disabled	-	network	-	-	-	network	off
-	-	-	-	-	active	-	-	network	unoccupied	-	-	network	off
-	active	-	-	-	-	-	-	-	-	disabled	no	local	on
-	-	active	-	-	-	-	-	-	occupied	disabled	no	local	on
-	-	-	active	-	-	-	closed	-	occupied	disabled	no	remote	on
-	-	-	-	active	-	enabled	-	-	occupied	disabled	no	network	on
-	-	-	-	-	active	-	-	local	occupied	disabled	no	local	on
-	-	-	-	-	active	-	closed	remote	occupied	disabled	no	remote	on
-	-	-	-	-	active	enabled	-	network	occupied	disabled	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.

8.3 - Control interlock contact

This contact checks the status of a loop (customer safety loop, see section 8.3). 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).

8.4 - 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 Config 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.

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
4. Set *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.

8.4.1 - 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.

8.4.2 - 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
4. Set *Pump Auto Rotation Delay* [cdpmpdel] for condenser.

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

8.4.3 - 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.

8.4.4 - 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
4. Set *Cond Pump Anti-Sticking* [cdpmpper].

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

8.5 - 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

8.5.1 - Active setpoint

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

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 and the **third heating setpoint** is used for domestic hot water control.

	Setpoint 1	**Setpoint 2**	**Setpoint 3**
Cooling **30WG/30WGA/61WG**	Occupied period	Unoccupied period	Ice storage cooling setpoint
Heating **30WG/61WG**	Occupied period	Unoccupied period	DHW setpoint

Depending on the current operating type, the active setpoint can be selected:

- By choosing the active setpoint in the General Parameters menu (Setpoint Select, GENUNIT).
- Via the volt-free contacts (see section 3.7.3).
- Via network commands [SP_SEL].
- Via the schedule setting (schedule 2).

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

- Heating/Cooling operating mode.
- Setpoint select.
- Setpoint selection contact status.
- Schedule 2 status for setpoint selection [SP_OCC].

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
	3	sp 3	-	heating setpoint 3
	0	auto	occupied	heating setpoint 1
	0	auto	unoccupied	heating setpoint 2
	0	auto	holiday	heating setpoint 3

8.5.2 - 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).

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 set Cooling / Heating Reset Select

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

Cooling Reset Select [cr_sel] Heating Reset Select [hr_sel]	
0 = none	2 = delta T
1 = OAT	3 = 4-20mA

The units use two control point reset types, cooling control point reset or heating control point reset. 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 (30WG / 30WGA / 61WG)
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.

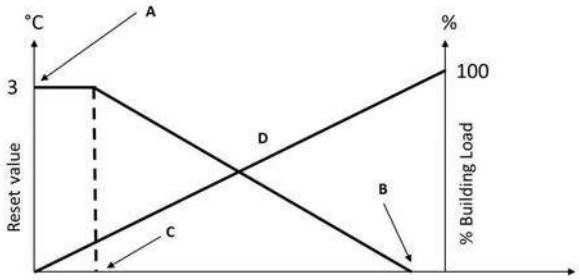
Heating mode (30WG / 61WG)
Heating control point reset is used to control the condenser water temperature reset.

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

Reset is a linear function based on three parameters:

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

Reset example in Cooling mode



10	Outdoor air temperature (OAT)	20
3	Heat exchanger delta T	5
4	Analogue input	20
no reset	**selection**	**full reset**

Legend:

A: Maximum reset value
B: OAT / delta T / 4-20 mA for no reset
C: OAT / delta T / 4-20 mA for full reset
D: Building load

8.6 - Capacity control

The Touch Pilot Junior 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).

8.7 - Demand limit

The demand limit functionality is used to limit the unit power consumption whenever possible.

Touch Pilot Junior allows limitation of the unit capacity:

- By means of user-controlled volt-free contacts. The unit capacity can never exceed the limit setpoint activated by these contacts. The limit setpoints can be modified in the SETPOINT menu.
- By setting the DEM_LIM value when the unit is in Network mode.
- By lag limit set by the master unit (master/slave assembly). If the unit is not in the Master/Slave assembly, the lag limit value is equal to 100%.
- By night capacity limitation. The limit can be modified in the GENCONF menu. See also section 8.8.

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).

To set Switch Limit Setpoint

1. Navigate to the Main menu.
2. Select *Setpoint* (SETPOINT).
3. Set *Switch Limit Setpoint (1, 2, 3)* [lim_sp1/lim_sp2/lim_sp3].

Switch Limit Setpoint … […]	
0 to 100	%

To set Night Capacity limitation

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	%

8.8 - Night mode

The night period is defined by a start time and an end time that are the same for each day of the week.

During the night period unit capacity can be limited (see also section 8.8.). These parameters can be set by logged-in users in the Genunit Config menu (GENCONF).

During the night period the condensing point is increased to limit the number of fans operating (30WG/30WGA units with dry cooler condensing control option).

To set night mode settings

1. Navigate to the Configuration menu.
2. Select *Genunit Config* (GENCONF).
3. Set *Night Mode Start Hour* [nh_start].
4. Set *Night Mode End Hour* [nh_end].

Night Mode Start Hour [nh_start] Night Mode End Hour [nh_end]
00:00

8.9 - Dry cooler free cooling

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”).

For units with this option, the Touch Pilot Junior control may use low outside air temperature to cool down the water loop and satisfy the cooling demand.

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.

The Touch Pilot Junior 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.

8.10 - Additional space heating control

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

8.10.1 - 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 “yes” 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 to 15°C	-10°C

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]
No = OAT sensor logic is applied) Yes = Boiler control activated (for units without OAT sensor, or when OAT sensor fails)

8.10.2 - Electric heating control

For more information about electric heater, please go to section 8.11.3 on page 29.

8.11 - Built-in DHW and space heating control (HDC)

30WG/61WG units with Heating Device Control are specially designed to optimise the operation of heating installations that require hot-water production for traditional heating and domestic hot water (DHW) requirements. In this case an AUX board is included in the unit control box.

The Touch Pilot J. control of the 30WG/61WG includes algorithms that permit constant and automatic optimisation:

- Control of a three-way directional on/off valve based on the heating or domestic hot water requirements (3-way valve used to switch between Space Heating and Domestic Hot Water).
- Control of the electric heater stages can complement the heating loop (booster heater), 1 to 4 electric heating stages.
- Hot water setpoint reset (heating units) based on the outside air temperature (weather compensation function).
- Priority control between heating and domestic hot water applications.

8.11.1 - Sensor

Outside air temperature sensor can be used to reset the setpoint or determine the summer/winter mode.

The control point is reset with a value calculated according to the outdoor air temperature reading.

8.11.2 - User connection terminals

Three volt-free contacts are available at a user connection terminal board.

- A contact for DHW demand from the tank.
- A volt-free contact for DHW priority.
- A volt-free contact for the summer mode.

8.11.3 - Control of electric heater stages

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 Configuration menu (HCCONFIG).
- Unit demand limitation is not active.

To set Electric heating stage 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 to 21°C	5°C

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.

The electric heater stages operate only in the heating mode, but not during domestic hot water production.

8.11.4 - Heating or domestic hot water mode

A three-way valve permits switching the heating capacity to a domestic hot water tank.

The unit requests changeover to the domestic hot water mode if all of the following conditions have been met:

- The volt-free tank request contact is closed.
- Time schedule 3 is occupied (DHW mode requested) OR the volt-free priority contact (DHW priority) is closed.

Based on the operating mode the water setpoint is adjusted:

- In heating mode, setpoints hsp1 and hsp2 are used. They can be modified by user reset or based on OAT.
- In domestic hot water production mode setpoint hsp3 is used. No setpoint reset is used.

The unit requests changeover to the heating mode if at least one of the following conditions applies:

- The volt-free tank request contact is open.
- The max. duration in the DHW mode has finished.
- Time schedule 3 is in an unoccupied period (DHW mode not requested).

If a mode change is requested while a compressor is operating, it is stopped before the three-way valve changes to the new mode, and then the unit is re-started.

If the unit is in domestic hot water production mode, a "DHW" message ("DHW running") is displayed on the user interface next to the current operating mode.

8.11.5 - Summer mode

The Summer mode is used to control DHW mode. When the Summer mode is active (space heating is not required) the unit can start the water tank to provide hot domestic water.

The Summer mode is activated when the Summer switch is closed OR outdoor air temperature exceeds the predefined Summer OAT threshold for a specific time period (start delay). The Summer mode is deactivated when the Summer switch is open OR outdoor air temperature is below the Summer OAT threshold for a specific time period (stop delay).

To verify Summer switch status

1. Navigate to the Main menu.
2. Select *Heating Device* (HDC_STAT).
3. Verify *Summer Switch* [SUMM_SW].

Summer Switch [SUMM_SW]	
open/closed	open = mode inactive; closed = mode active

To set Summer OAT threshold and start/stop delay

1. Navigate to the Configuration menu.
2. Select *HDC Configuration* (HDC_CONF).
3. Set *Summer OAT Threshold* [summ_oat].

Summer OAT Threshold [summ_oat]	
15 to 30°C	20°C

4. Set *Summer OAT start/stop delay* [summ_on / summ_off].

Summer OAT start delay [summ_on] / ...stop delay [summ_off]	
0-12 h	5 h

8.11.6 - Additional water pump

An additional water pump, installed in the heating water circuit starts if the summer mode is deactivated.

If the anti-stick function is configured, the additional water pump starts periodically.

8.12 - Condensing pressure control (optional)

30WG/61WG units can control a dry cooler to cool down the condenser water loop while 30WGA units can control an air condenser. These air exchangers include all compatible control electronics.

8.12.1 - 30WG/61WG 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 (value adjustable).
- 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).

8.12.2 - 30WGA units

30WGA 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. Carrier supplies specific documentation for this operation to the trained engineers.

The Touch Pilot Junior control system of 30WGA includes logic to permit control the different fixed and variable-speed fan variants. Touch Pilot Junior 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.

8.12.3 - 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
30WG/61WG	30°C	40°C	58°C
30WGA	40°C	45°C	55°C

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 re set deg. value) must be set in the Reset Configuration menu (RESETCFG). See also section 8.5.2 for more information about reset control.

8.13 - Master / Slave control

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, while the slave unit remains in Network mode.

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

If the master unit is turned off, while the master/slave function is active, then the slave unit 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 Carrier service.

9 - DIAGNOSTICS

Touch Pilot Junior control system has many fault tracing aid functions, protecting the unit against risks that could result in the failure of the unit.

9.1 - Control diagnostics

The user interface enables the quick display of the unit status:

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 local interface – TOUCH PILOT JUNIOR – gives the user quick access to monitor all unit operating conditions.

If an operating fault is detected, the alarm is triggered. All information regarding the existing alarms (current and past alarms) can be found in the Alarm menu.

		Viewing alarm information			
	Alarm menu	**Date**	**Hour**	**Code**	**Description**
	Current Alarms (basic access)	•	•		•
	Alarm History (basic access)	•	•		•
	Reset Alarms (user access)			•	

9.2 - 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 **Alarm** button in the upper-right part of the screen.
2. Select **Current Alarms**.
3. The list of active alarms will be displayed.

9.3 - Resetting alarms

The alarm can be reset either automatically by the control or manually through the touch panel display or the web interface (in the Reset Alarms menu). See also section 9.5.

- 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 **Alarm** button in the upper-right part of the screen.
2. Select **Reset Alarms**.
3. Set “Alarm Reset” to Yes.

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

CAUTION: 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.

9.4 - 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.

IMPORTANT: E-mail notifications can be configured only by Carrier service.

9.5 - Alarms description

This section includes all alarms/alerts associated with the operation of the unit as well as optional drives used to provide variable speed fans and variable speed pumps functionalities.

General alarm codes

The following table includes a list of alarms that might appear on the unit. Please note that the alarm number given in the first column can be useful when retrieving information regarding the existing alarms.

Code	Description	Possible cause	Action taken	Reset type
Thermistor failure				
15001	Water Exchanger Entering Fluid Thermistor Failure	Defective thermistor	Unit shuts down	Automatic, if thermistor reading returns to normal
15002	Water Exchanger Leaving Fluid Thermistor Failure	As above	As above	As above
15006	Condenser Entering Fluid Thermistor Failure	As above	As above	As above
15007	Condenser Leaving Fluid Thermistor Failure	As above	As above	As above
15010	OAT Thermistor Failure	As above	As above	As above
15011	Master/Slave Common Fluid Thermistor Failure	As above	As above	As above
15012	Circuit A Suction Gas Thermistor Failure	As above	As above	As above
15013	Circuit B Suction Gas Thermistor Failure	As above	As above	As above
15032	Master/Slave Common Heating Fluid Thermistor Failure	As above	As above	As above
15036	Dry Cooler LWT Thermistor Failure	As above	As above	As above
15044	Circuit A Discharge Gas Thermistor Failure	As above	As above	As above
15045	Circuit B Discharge Gas Thermistor Failure	As above	As above	As above
Transducer failure				
12001	Circuit A Discharge Pressure Transducer Failure	Defective transducer	Circuit A shuts down	Automatic, if sensor voltage reading returns to normal
12002	Circuit B Discharge Pressure Transducer Failure	As above	Circuit B shuts down	As above
12004	Circuit A Suction Pressure Transducer Failure	As above	Circuit A shuts down	Automatic (up to 3 alarms within 24h); otherwise, Manual
12005	Circuit B Suction Pressure Transducer Failure	As above	Circuit B shuts down	As above
12024	Water Exchanger Entering Fluid Transducer Failure	As above	Unit shuts down	Automatic, if sensor voltage reading returns to normal
12025	Water Exchanger Leaving Fluid Transducer Failure	As above	As above	As above
12026	Water Condenser Entering Fluid Transducer Failure	As above	As above	As above
12027	Water Condenser Leaving Fluid Transducer Failure	As above	As above	As above
Communication failure				
4901	Loss of communication with SIOB Board Number 1	Bus installation fault, communication error	Unit shuts down	Automatic, if communication is re-established
4902	Loss of communication with SIOB Board Number 2	As above	As above	As above
4601	Loss of communication with AUX1 Heating Device Control board	As above	As above	As above
4602	Loss of communication with AUX1 Condenser board	As above	As above	As above
4604	Loss of communication with AUX1 Options board	As above	Depends on the option (Master-Slave disabled / desuperheater disabled / unit shuts down)	As above
4605	Loss of communication with Free Cooling Board 1 (free cooling dry cooler)	As above	Unit returns to mechanical cooling	As above
Process failure				
10001	Cooler Water Exchanger Freeze Protection	No water flow, defective thermistor	Unit shuts down but the pump continues to run	Automatic (the first alarm in the last 24h); otherwise, Manual
10005	Circuit A Low Saturated Suction Temperature	Pressure transducer defective, EXV blocked or lack of refrigerant	Circuit A shuts down	As above
10006	Circuit B Low Saturated Suction Temperature	As above	Circuit B shuts down	As above

Alarm codes (cont.)

Code	Description	Possible cause	Action taken	Reset type
10008	Circuit A High Suction Superheat	Pressure transducer defective, temp. sensor defective, EXV blocked or lack of refrigerant	Circuit A shuts down	Manual
10009	Circuit B High Suction Superheat	As above	Circuit B shuts down	Manual
10011	Circuit A Low Suction Superheat	As above	Circuit A shuts down	Manual
10012	Circuit B Low Suction Superheat	As above	Circuit B shuts down	Manual
10015	Condenser Flow Switch Failure	Abnormal conditions on condenser side	Unit shuts down	Automatic (7 alarms within 24 hours); otherwise, Manual
10016	Compressor A1 Not Started or Pressure Increase not Established	Compressor breaker or fuse fault, compressor switch open	Compressor A1 shuts down	Manual
10017	Compressor A2 Not Started or Pressure Increase not Established	As above	Compressor A2 shuts down	Manual
10018	Compressor A3 Not Started or Pressure Increase not Established	As above	Compressor A3 shuts down	Manual
10020	Compressor B1 Not Started or Pressure Increase not Established	As above	Compressor B1 shuts down	Manual
10021	Compressor B2 Not Started or Pressure Increase not Established	As above	Compressor B2 shuts down	Manual
10028	Customer Interlock Failure	Customer interlock input set on	Unit shuts down	Automatic (if the unit was stopped); otherwise, Manual
10029	Loss of communication with System Manager	Communication error	Unit returns to the standalone mode	Automatic, if communication with System Manager is restored
10030	Master/Slave communication Failure	Bus installation fault	Master/Slave control is stopped / Unit returns to the stand-alone mode	Automatic, if communication is restored
10031	Unit is in CCN emergency stop	Network emergency stop command	Unit shuts down	Automatic, if emergency stop is deactivated
10032	Cooler pump 1 default	Flow switch or water pump fault	Unit is restarted with another pump running; If no pump is available, the unit shuts down	Manual
10033	Cooler pump 2 default	Flow switch or water pump fault	As above	Manual
10037	Circuit A Repeated High Discharge Gas Overrides	Repetitive capacity decreases	None OR circuit A shuts down	Automatic (no discharge gas overrides within 30 min) or Manual
10038	Circuit B Repeated High Discharge Gas Overrides	As above	None OR circuit B shuts down	As above
10040	Circuit A Repeated low suction temperature overrides	As above	Circuit A shuts down	Manual
10041	Circuit B Repeated low suction temperature overrides	As above	Circuit B shuts down	Manual
10043	Low entering water temperature in heating	Low entering fluid temp. in Heating mode	None	Automatic, if water temperature returns to normal or heating mode is stopped
10051	Cooler flow switch failure	Flow switch fault	Unit shuts down	Manual
10063	Circuit A High pressure switch Failure	High pressure switch is open, compressor fault	Circuit A shuts down	Manual
10064	Circuit B High pressure switch Failure	As above	Circuit B shuts down	Manual
10073	Condenser pump 1 default	Water pump fault	Unit is restarted with another pump running; If no pump is available, the unit shuts down	Manual
10074	Condenser pump 2 default	As above	Unit is restarted with another pump running; If no pump is available, the unit shuts down	Manual
10097	Cooler Water Exchanger Temperature Sensors Swapped	Inlet and outlet temp. reversed	Unit shuts down	Manual
10098	Condenser Water Exchanger Temperature Sensors Swapped	As above	Unit shuts down	Manual

Alarm codes (cont.)

Code	Description	Possible cause	Action taken	Reset type
10101	Free Cooler Process Failure	Dry cooler fault	None	Automatic, if operating conditions return to normal
15046	FreeCooler Water Loop Thermistor Failure	Defective thermistor	Free cooling (dry cooler) mode is stopped	Automatic, if thermistor reading returns to normal
15047	FreeCooler Leaving Water Thermistor Failure	As above	As above	As above
15048	FreeCooler OAT Sensor Failure	As above	OAT thermistor reading is used instead of Dry Cooler OAT reading	As above
Service and factory				
7001	Illegal configuration	No factory configuration	Unit cannot be started	Automatic, if configuration is provided
90nn	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 returns to the standalone mode
Master/Slave failure				
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	Depending on the severity of the alarm, the unit may continue to operate or the unit shuts down	Manual
Condenser water loop failure (111-nn)				
11102	Condenser water loop failure - zero error	Calibration failed	Unit shuts down	Automatic
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
11104	Condenser water loop failure - pump not started	Too low or high water pressure reading	Unit shuts down	As above
11106	Condenser water loop failure - pump overload	Water loop pressure drop too low	Unit shuts down	Automatic
11107	Condenser water loop failure - switch fail	Switch fault	Unit shuts down	Automatic (6 times within 24 hours); otherwise, manual
11108	Condenser water loop failure - press cross	Pressure sensors crossed	Unit shuts down	As above
Cooler water loop process failure (112-nn)				
11202	Cooler water loop process failure - zero error	Calibration failed	Unit shuts down	Automatic
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
11204	Cooler water loop failure - pump not started	Too low or high water pressure reading	Unit shuts down	As above
11206	Cooler water loop failure - pump overload	Water loop pressure drop too low	Unit shuts down	Automatic
11207	Cooler water loop failure - switch fail	Switch fault	Unit shuts down	Automatic (6 times within 24 hours); otherwise, manual
11208	Cooler water loop failure - press cross	Pressure sensors crossed	Unit shuts down	As above
Device failure				
19nnn	Cooler Water pump Variable Speed Failure	Speed controller fault	Unit shuts down	Automatic, if detected fault is fixed
20nnn	Condenser Water pump Variable Speed Failure	As above	As above	As above
57001	SIOB 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 in the last 24h); otherwise, Manual
57002	SIOB 2 Low Voltage Failure	As above	As above	As above
57020	Main EXV stepper motor failure - cir A	EXV motor fault	Circuit A shuts down	Manual
57021	Main EXV stepper motor failure - cir B	EXV motor fault	Circuit B shuts down	Manual

NOTE: When the "action taken" given in the table above is defined as "none", it means that the alarm message is displayed, but no action is taken on the unit.

10 - MAINTENANCE

In order to ensure the optimal operation of the equipment as well as the optimization of all the available functionalities, it is recommended to activate a Maintenance Contract with your local Manufacturer 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 Manufacturer provides a wide range of service contracts which embrace the assistance of highly qualified HVAC engineering professionals ready to help if needed. The Maintenance contracts represent 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.

To find the best type of contract that will meet all of your expectations, please contact your local Manufacturer representatives.

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