

NXW

Usage manual

Electronic adjustment
for water-cooled heat pumps



TROX[®] TECHNIK

EN

INXWUX - 4437800_01 - 1109



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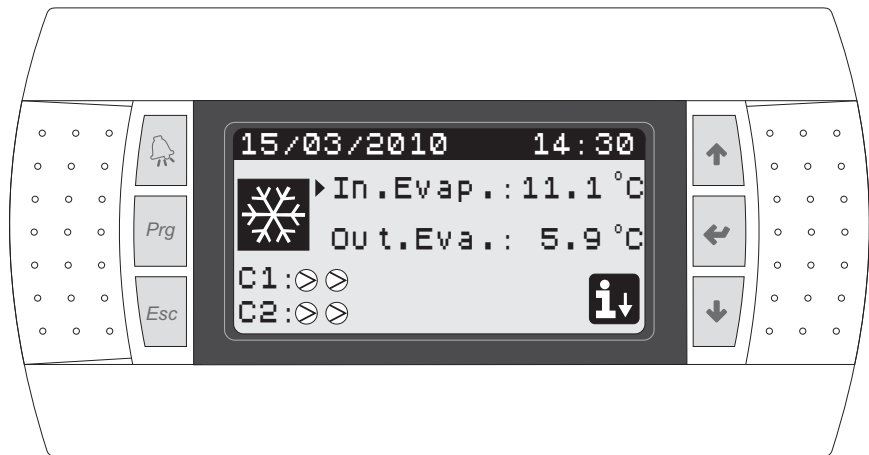
User interface

The unit control panel allows quick setting of the machine functioning parameters and their display. The display is made up from a graphical matrix with 132 x 64 pixel in order to signal the type of functioning, displaying set pa-







rameters and any alarms that have intervened. All default settings and any modifications are memorised in the board. With installation of the PGD1 remote panel, it is possible to replicate all functions and settings available from

the machine at a distance. After a power cut, the unit can re-start automatically keeping the original settings.












The user interface is represented by a graphical display with six keys for navigation. The displays are organised via a hierarchy of menus, which can be activated by pressing the navigation keys. The display default of these menus is represented by the main menu. Navigation among the various parameters takes place using the arrow keys positioned on the right side of the panel. These keys are also used to modify the selected parameters.



• INTERFACE COMMAND KEYS:

Function	Key
	ALARMS key <ul style="list-style-type: none"> • One press displays the list of active alarms; • One prolonged press (at least 5 seconds) resets the active alarm;
	MENU ACTIVATION key <ul style="list-style-type: none"> • Pressing this key activates navigation among the menus;
	MENU EXIT key <ul style="list-style-type: none"> • Pressing this key goes back to the display of the previous menu;
	NAVIGATION key (+) <ul style="list-style-type: none"> • Pressing this key while navigating among the menus/parameters, allows to pass to the next menu/parameter; • Pressing this key during modification of a parameter, increases the value of the parameter selected;
	NAVIGATION key (enter) <ul style="list-style-type: none"> • Pressing this key while navigating among the menus, allows to enter the menu selected; • Pressing this key during navigation among parameters, allows to select the parameter displayed and enter the modification mode; • Pressing this key during modification of a parameter, confirms the modifications to the value of the parameter selected;
	NAVIGATION key (-) <ul style="list-style-type: none"> • Pressing this key while navigating among the menus/parameters, allows to pass to the previous menu/parameter; • Pressing this key during modification of a parameter, decreases the value of the parameter selected;

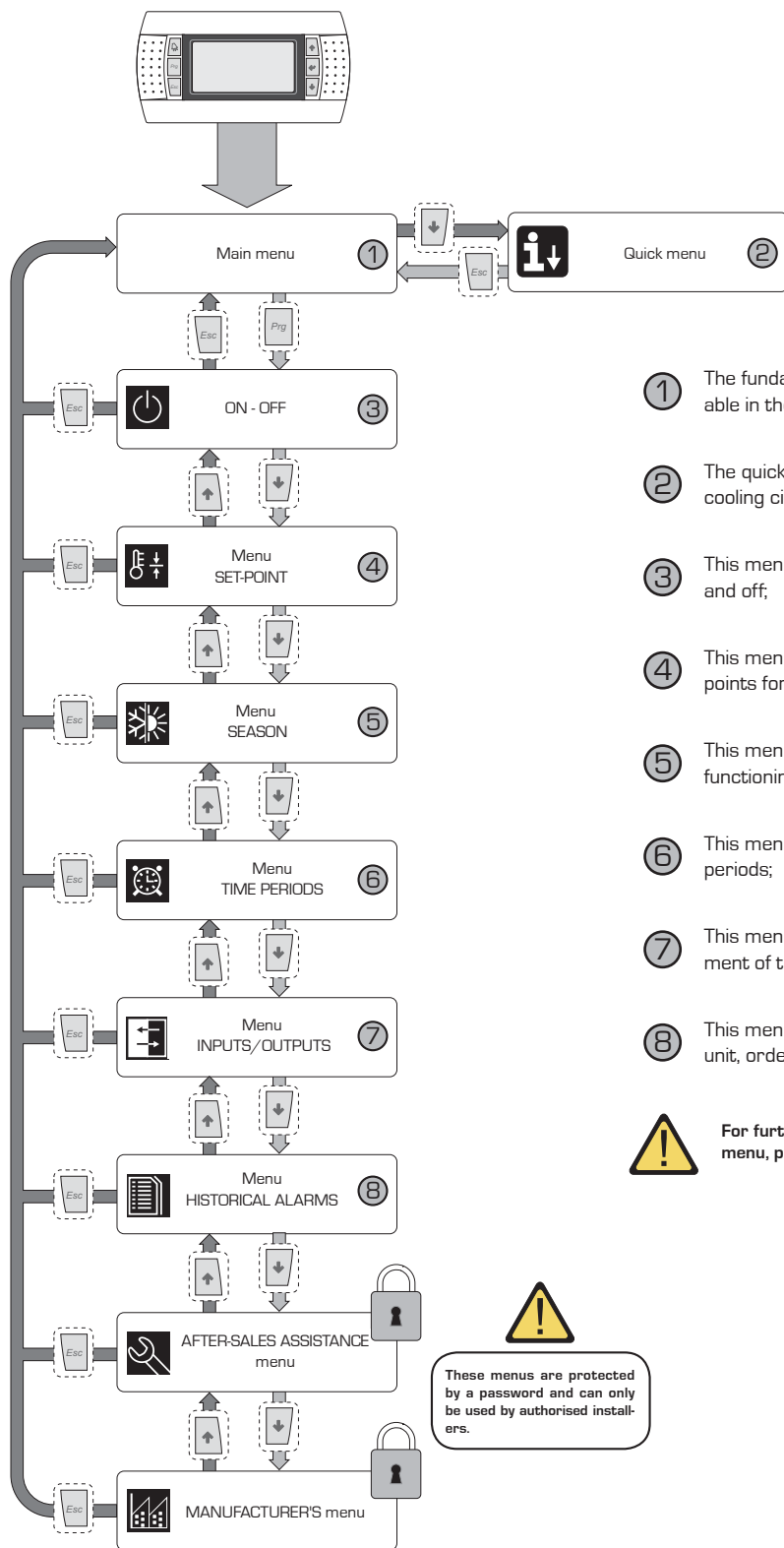
• MAIN MENU ICONS:

Icon	Meaning
	Cooling mode activated
	Heating mode activated
	Simultaneous defrosting mode activated
	Separate defrosting mode activated. This mode is only available for twin-circuit models, in which it is possible to proceed with defrosting engaging just one circuit;
Icon	Meaning
	<ul style="list-style-type: none"> • FIXED icon = Compressor OFF; • FLASHING icon = Compressor in switch-on phase, in stand-by due to safety times;
	<ul style="list-style-type: none"> • FIXED icon = Compressor ON; • FLASHING icon = Compressor in switch-off phase, in stand-by due to safety times;
	Compressor forced off;
	Limited compressor;
	Compressor in alarm conditions;
	Access to the "quick menu" by pressing the  key

Menu structure and navigation

Navigation in the various menus for the management of the NXW units is represented by the layout shown at the side. In this layout find the representation of the various menus, via

which the unit functions are managed, ordered by sequence and highlighting which function keys must be pressed to navigate among the various menus.



- ① The fundamental information regarding use of the unit is available in the main menu;
- ② The quick menu contains some information regarding the cooling circuit and the unit compressors;
- ③ This menu contains the commands for switching the unit on and off;
- ④ This menu contains the parameters for setting the work set points for the various functioning modes of the unit;
- ⑤ This menu contains the parameters for selecting the various functioning modes of the unit;
- ⑥ This menu contains the parameters for setting the timer periods;
- ⑦ This menu contains the parameters linked to the management of the inputs and the outputs piloted by the unit boards;
- ⑧ This menu contains the list of the alarms occurring on the unit, ordered by date;



For further details regarding the parameters contained in every menu, please refer to the relative chapters at every menu.



These menus are protected by a password and can only be used by authorised installers.



Use operational procedures

To manage or modify the operational parameters of the NXW units, the control panel interface on the machine must be used. The fundamental operations that the user must be able to perform for correct use of the unit are the following:

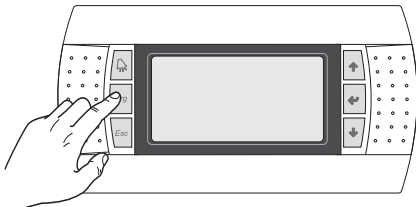
(1) Pass from one menu to another;

(2) Select and modify a parameter;

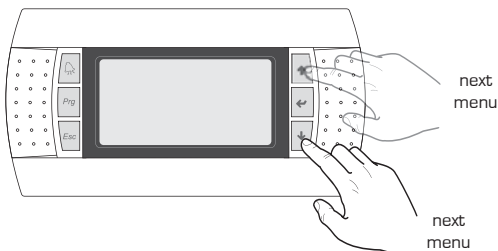
1

Pass from one menu to another

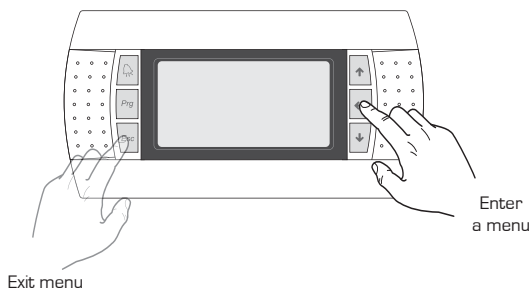
(a) In order to scroll the various menus (the order with which the menus are displayed is represented in the previous page) it is first necessary to enter the menu selection mode by pressing the **[Prg]** key;



(b) Once the menu selection mode has been entered, scroll these using the arrow keys: the **[↑]** key to pass to the previous menu and the **[↓]** key to pass to the next menu;



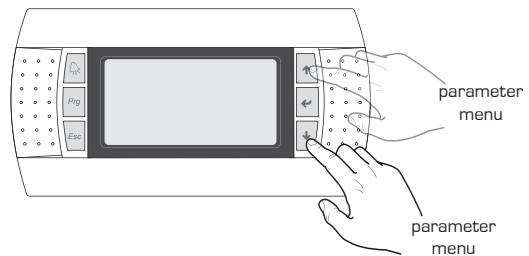
(c) When the desired menu is displayed, press the **[↵]** key to enter the menu. To exit the menu and go back to the menu selection mode, press the **[Esc]** key;



2

Selecting and modifying a parameter

(a) Once the selected menu has been entered (following the procedure 1) it is possible to scroll the windows that make it up using the arrow keys, using the **[↑]** key to pass to the previous parameter and the **[↓]** key to pass to the next parameter;



(c) When the desired parameter is displayed, press the **[↵]** key to enter the parameter. To exit the parameter and go back to the parameter selection mode, press the **[Esc]** key;

ATTENTION:

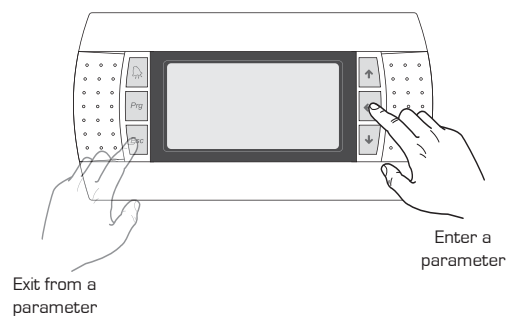
Once a parameter has been selected, by pressing the **[↵]** key, automatically enter the modification mode of that parameter. From this mode it is possible to set the desired values for the parameters, following the procedure below:

(1) pressing the **[↵]** key, a flashing cursor will appear near to the first field of the parameter that can be modified (if fields that can be modified are not displayed, no cursor will appear);

(2) pressing the **[↑]** key or the **[↓]** key, the value of the field will increase or decrease;

(3) by pressing the **[↵]** key, the modifications to the field value will be confirmed, saving it in the memory;

On the basis of the type of parameter selected, the number of fields that can be modified may vary;



MAIN menu

MAIN menu		
Visualisation on unit display	Index	Display/Parameter
	A	Date and time: this data is only displayed in this window (default window on unit switch-on or during normal functioning).
	B	Evaporator inlet temperature: displays the temperature of the return water to the system;
	C	Evaporator outlet temperature: displays the temperature of the water produced by the machine;
	D	QUICK MENU key: icon that represents access to the quick menu (to access this menu, press the key);
	E	Mode: displays the unit functioning mode: <ul style="list-style-type: none"> • Cooling mode (); • Heating mode (); • Simultaneous defrosting mode (); • Separate defrosting mode ();
	F/G	Compressor circuit 1/2 state: the state of the compressors of circuit 1/2 is represented (if the unit envisions two cooling circuits) with an icon (if circuit 1 or 2 is composed of several compressors, an icon is used for every compressor); the icons that can be used are: <ul style="list-style-type: none"> • • FIXED icon = Compressor OFF; • • FLASHING icon = Compressor in switch-on phase, in stand-by due to safety times; • • FIXED icon = Compressor ON; • • FLASHING icon = Compressor in switch-off phase, in stand-by due to safety times; • Compressor forced off; • Limited compressor; • Compressor in alarm conditions;



QUICK-MENU parameters

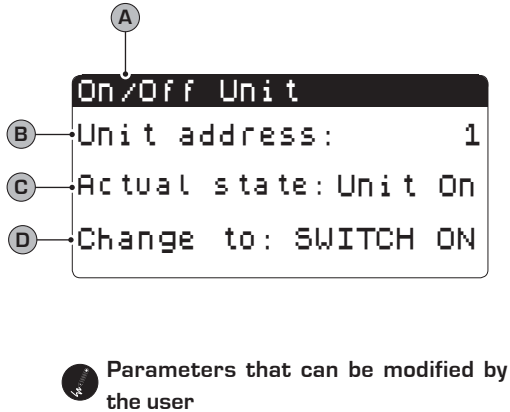
MAIN MENU - QUICK MENU - Cooling circuit information		
Visualisation on unit display	Index	Display/Parameter
	A	Circuit number: Indicates to which cooling circuit the data displayed refers to.
	B	High pressure: Indicates the high pressure value measured on the cooling circuit; this data is expressed in (bar) but the corresponding temperature data is also displayed.
	C	Low pressure: Indicates the low pressure value measured on the cooling circuit; this data is expressed in (bar) but the corresponding temperature data is also displayed.
	D/E	Compressor 1/2 state: Indicates the state of the compressor 1 (of the circuit to which it refers), this state can be one of the following: ON = compressor ON; OFF = compressor OFF; OFF alarm = compressor off due to alarm; OFF stand-by 180s = compressor request but cannot switch-on due to safety times; OFF stand-by 180s = compressor request but cannot switch-on due to safety times;

MAIN MENU - QUICK MENU - General regulation settings		
Visualisation on unit display	Index	Display/Parameter
	A	Unit: Indicates the general parameters with which the unit is set.
	B	Current set point: Indicates the value currently set as work set point.
	C	Regulation temperature: Indicates the temperature detected by the probe used (this probe can vary on the basis of the type of functioning).
	D	Partialisation steps requested: Indicates how many compressors are on instant by instant.

MORE PARAMETERS WILL BE DISPLAYED, ONLY IF ENABLED BY TROX TECHNIK SERVICE



ON/OFF MENU parameters

ON/OFF menu - Unit switch-on or switch-off from PGD1 panel		
Visualisation on unit display	Index	Display/Parameter
 <p>Parameters that can be modified by the user</p>	A	Unit On/Off: Indicates the ON/OFF state of the unit.
	B	Board address: logical address of the board.
	C	State: Indicates the current state of the unit.
	D	Change into: indicates the status in which the unit will be put after the parameter value has been confirmed. Normally the value of this field is in line with that of field (C). To switch-on (if the unit is off) or switch-off (if the unit is on), this field must be modified and the modification confirmed (via the "selection and modification of a parameter" procedure explained in the "Use operational procedure" chapter).



SET POINT MENU parameters

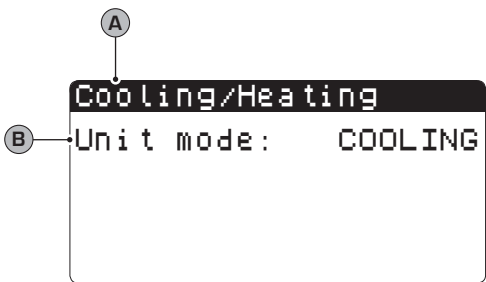

SET POINT menu- Displays the set point currently in use		
Visualisation on unit display	Index	Display/Parameter
	A	Set point: Indicates the work temperature.
	B	Current set point: indicates the work set point currently in use on the basis of the envisioned functioning mode.

SET POINT menu - Setting the work set points for COOLING mode		
Visualisation on unit display	Index	Display/Parameter
<p>Parameters that can be modified by the user</p>	A	Set point: Indicates the work temperature.
	B	Cooling set point 1: indicates the temperature set with which to make the unit work when cold.
	C	Cooling set 2: NOT USED.

SET POINT menu - Setting the work set points for HEATING mode		
Visualisation on unit display	Index	Display/Parameter
<p>Parameters that can be modified by the user</p>	A	Set point: Indicates the work temperature.
	B	Heating set point 1: indicates the temperature set with which to make the unit work when hot.
	C	Heating set 2: NOT USED.



COOLING/HEATING menu parameters

COOLING/HEATING menu - Setting the functioning mode		
Visualisation on unit display	Index	Display/Parameter
 <p>Parameters that can be modified by the user</p>	<p>A</p> <p>B</p> 	<p>Cooling/Heating: Indicates the functioning mode for the unit.</p> <p>Unit Functioning: indicates the unit functioning mode.</p>



CLOCK/PERIOD MENU parameters

CLOCK/PERIOD menu - Setting the system date and time

Visualisation on unit display	Index	Display/Parameter
<p>Parameters that can be modified by the user</p>	A	Clock: Indicates the date and time of the system
	B	Day: indicates the day of the week (on the basis of system settings).
	C	Date: Indicates today's date.
	D	Time: indicates the current time.

CLOCK/PERIOD menu - Setting the daily time periods

Visualisation on unit display	Index	Display/Parameter
<p>Parameters that can be modified by the user</p>	A	Clock: Indicates the date and time of the system
	B	Day: indicates the day of the week to which the time periods refer, set in the same page.
	C	Copy to: Indicates the possibility of copying the time period settings of the day selected in the field (B), also for the other days (thus preventing having to repeat the same insertion). This option can be used to copy the settings in a single day (selecting the desired day) or for every day of the week.
	D	Start time period: indicates the start time of the various time periods (maximum 4 periods daily). It is only specified at the start of the time period as it is considered that the end of a time period coincides with the start of the successive one.
	E / F	Cooling/Heating: indicates the setting used during the specific time period in the cooling or heating mode. Remember that the time periods specified in this menu are used during the winter season (heating mode) and for the summer (cooling mode), therefore on the basis of the mode active on the unit, appropriate settings will be performed. The possible settings both for cooling and heating are: <ul style="list-style-type: none"> • SET1 = unit on and functioning with set point 1 (the coherent set point will be selected on the basis of the season activated); • OFF = the unit is switched off;

CLOCK/PERIOD menu - Setting SPECIAL PERIODS

Visualisation on unit display	Index	Display/Parameter
<p>Parameters that can be modified by the user</p>	A	Clock: Indicates the date and time of the system
	B	Special periods: indicates a maximum series of three periods (periods mean at least two days) in which a particular behaviour can be programmed. WARNING: the settings introduced as special periods have priority with respect to normal time periods.
	C	Start: Indicates the date of the start of the special period selected (remember that the special period can only be specified within the year in progress, for this reason the date is expressed as a day and month).
	D	End: indicates the date of the end of the special period selected (remember that the special period can only be specified within the year in progress, for this reason the date is expressed as a day and month).
	E / F	Cooling/Heating: indicates the setting used during the specific time period in the cooling or heating mode. Remember that the time periods specified in this menu are used during the winter season (heating mode) and for the summer (cooling mode), therefore on the basis of the mode active on the unit, appropriate settings will be performed. The possible settings both for cooling and heating are: <ul style="list-style-type: none"> • SET1 = unit on and functioning with set point 1 (the coherent set point will be selected on the basis of the season activated); • OFF = the unit is switched off;

CLOCK/PERIOD menu - Setting SPECIAL DAYS

Visualisation on unit display	Index	Display/Parameter
<p>Parameters that can be modified by the user</p>	A	Clock: Indicates the date and time of the system
	B	Special days: indicates a series of days when particular behaviour can be programmed. WARNING: the settings introduced as special days have priority with respect to normal time periods and special periods.
	C	Start: Indicates the special day selected (remember that the special day can only be specified within the year in progress, for this reason the date is expressed as a day and month).
	D/E	Cooling/Heating: indicates the setting used during the specific time period in the cooling or heating mode. Remember that the time periods specified in this menu are used during the winter season (heating mode) and for the summer (cooling mode), therefore on the basis of the mode active on the unit, appropriate settings will be performed. The possible settings both for cooling and heating are: <ul style="list-style-type: none"> • SET1 = unit on and functioning with set point 1 (the coherent set point will be selected on the basis of the season activated); • OFF = the unit is switched off;



INPUTS/OUTPUTS MENU parameters

INPUTS/OUTPUTS menu - HIGH/LOW pressure transducers analogue inputs (circuit 1)		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> Analogue inputs; Digital inputs; Digital outputs;
	C	B1: indicates the value read on the high pressure side of the cooling circuit indicated. This reading is expressed as a pressure value and a temperature value.
	D	B2: indicates the value read on the low pressure side of the cooling circuit indicated. This reading is expressed as a pressure value and a temperature value.

INPUTS/OUTPUTS menu - Evaporator IN/OUT temperature analogue inputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> Analogue inputs; Digital inputs; Digital outputs;
	C	B3: indicates the temperature value of the water in output from the evaporator.
	D	B2: indicates the temperature value of the water in input to the evaporator.

INPUTS/OUTPUTS menu - Condenser OUTPUT temperature analogue inputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> Analogue inputs; Digital inputs; Digital outputs;
	C	B5: indicates the temperature value of the water in output from the condenser.

INPUTS/OUTPUTS menu - HIGH/LOW pressure transducers analogue inputs (circuit 2)		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> Analogue inputs; Digital inputs; Digital outputs;
	C	B6: indicates the value read on the high pressure side of the cooling circuit indicated. This reading is expressed as a pressure value and a temperature value.
	D	B7: indicates the value read on the low pressure side of the cooling circuit indicated. This reading is expressed as a pressure value and a temperature value.

INPUTS/OUTPUTS menu - Condenser INPUT temperature analogue inputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C	B10: indicates the temperature value of the water in input to the condenser.

INPUTS/OUTPUTS menu - HIGH/LOW pressure pressure switch status digital inputs (circuit 1)		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C	01: indicates the status of the high pressure switch, mounted on the cooling circuit indicated. The status of this component can be one of the following: <ul style="list-style-type: none"> • Closed = normal working state; • Open = maximum pressure threshold exceeded (HIGH PRESSURE alarm);
	D	02: indicates the status of the low pressure switch, mounted on the cooling circuit indicated. The status of this component can be one of the following: <ul style="list-style-type: none"> • Closed = normal working state; • Open = minimum pressure threshold exceeded (LOW PRESSURE alarm);

INPUTS/OUTPUTS menu - Remote commands digital inputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C	03: indicates the status of the digital input with remote ON-OFF function. The status of this input can be one of the following: <ul style="list-style-type: none"> • Closed = unit ON from remote; • Open = unit OFF from remote; • -- = input not used;
	D	04: indicates the status of the digital input with remote ON-OFF function. The status of this input can be one of the following: <ul style="list-style-type: none"> • Closed = COOLING mode set from remote; • Open = HEATING mode set from remote; • -- = input not used;

INPUTS/OUTPUTS menu - Compressor magnet circuit breaker flow switch digital inputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> Analogue inputs; Digital inputs; Digital outputs;
	C	05: indicates the status of the flow switch positioned on the evaporator; the status of this input can be one of the following: <ul style="list-style-type: none"> Closed = normal functioning; Open = minimum water flow rate threshold exceeded at the evaporator (Flow switch alarm);
	D	06: indicates the status of the compressor magnet circuit breaker indicated, the status of this input can be one of the following: <ul style="list-style-type: none"> Closed = normal functioning; Open = the compressor load has exceeded the maximum threshold (Compressor magnet circuit breaker alarm);

INPUTS/OUTPUTS menu - Compressor 2 magnet circuit breaker digital inputs and compressor phases		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> Analogue inputs; Digital inputs; Digital outputs;
	C	07: indicates the status of the compressor magnet circuit breaker indicated, the status of this input can be one of the following: <ul style="list-style-type: none"> Closed = normal functioning; Open = the compressor load has exceeded the maximum threshold (Compressor magnet circuit breaker alarm);
	D	08: indicates the status of the phase control on the compressors, the status of this input can be one of the following: <ul style="list-style-type: none"> Closed = normal functioning; Open = incorrect phases detected on the compressor indicated (Serious alarm);

INPUTS/OUTPUTS menu - HIGH/LOW pressure pressure switch status digital inputs (circuit 2)		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> Analogue inputs; Digital inputs; Digital outputs;
	C	01: indicates the status of the high pressure switch, mounted on the cooling circuit indicated. The status of this component can be one of the following: <ul style="list-style-type: none"> Closed = normal working state; Open = maximum pressure threshold exceeded (HIGH PRESSURE alarm);
	D	02: indicates the status of the low pressure switch, mounted on the cooling circuit indicated. The status of this component can be one of the following: <ul style="list-style-type: none"> Closed = normal working state; Open = minimum pressure threshold exceeded (LOW PRESSURE alarm);

INPUTS/OUTPUTS menu - Compressor 2 magnet circuit breaker digital inputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C	11: indicates the status of the compressor magnet circuit breaker indicated, the status of this input can be one of the following: <ul style="list-style-type: none"> • Closed = normal functioning; • Open = the compressor load has exceeded the maximum threshold (Compressor magnet circuit breaker alarm);
	D	12: indicates the status of the compressor magnet circuit breaker indicated, the status of this input can be one of the following: <ul style="list-style-type: none"> • Closed = normal functioning; • Open = the compressor load has exceeded the maximum threshold (Compressor magnet circuit breaker alarm);

INPUTS/OUTPUTS menu - Evaporators pump magnet circuit breaker digital inputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C/D	13-14: indicates the status of the evaporator pump magnet circuit breaker indicated. The status of this input can be one of the following: <ul style="list-style-type: none"> • Closed = normal functioning; • Open = the pump load has exceeded the maximum threshold (Pump magnet circuit breaker alarm);

INPUTS/OUTPUTS menu - Condenser pump magnet circuit breaker digital inputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C/D	13-14: indicates the status of the condenser pump magnet circuit breaker indicated. The status of this input can be one of the following: <ul style="list-style-type: none"> • Closed = normal functioning; • Open = the pump load has exceeded the maximum threshold (Pump magnet circuit breaker alarm);

INPUTS/OUTPUTS menu - Condenser flow switch digital inputs

Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C	17: indicates the status of the flow switch positioned on the condenser; the status of this input can be one of the following: <ul style="list-style-type: none"> • Closed = normal functioning; • Open = minimum water flow rate threshold exceeded at the condenser (Flow switch alarm);

INPUTS/OUTPUTS menu - Compressors digital outputs (circuit 1)

Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C/D	01-02: indicates the status of the compressors indicated, the status of these outputs can be one of the following: <ul style="list-style-type: none"> • Closed = compressor ON; • Open = compressor OFF;

INPUTS/OUTPUTS menu - Compressors digital outputs (circuit 2)

Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C/D	01-02: indicates the status of the compressors indicated, the status of these outputs can be one of the following: <ul style="list-style-type: none"> • Closed = compressor ON; • Open = compressor OFF;

INPUTS/OUTPUTS menu - Condenser pumps digital outputs

Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C/D	05-06: indicates the status of the pumps indicated, the status of these outputs can be one of the following: <ul style="list-style-type: none"> • Closed = pumps ON; • Open = pumps OFF; • -- = pump not present;

INPUTS/OUTPUTS menu - Anti-freeze resistance and compressor phases alarm digital outputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C	07: indicates the status of the digital output linked to the anti-freeze resistance. The status of this output can be one of the following: <ul style="list-style-type: none"> • Closed = normal functioning • Open = Anti-freeze alarm active;
	D	08: indicates the status of the digital output linked to the compressor phases alarm. The status of this output can be one of the following: <ul style="list-style-type: none"> • Closed = compressor phases alarm in progress; • Open = no alarm in progress;

INPUTS/OUTPUTS menu - Evaporator pump digital outputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C	09: indicates the status of the pump indicated, the status of this output can be one of the following: <ul style="list-style-type: none"> • Closed = pump ON; • Open = pump OFF;

INPUTS/OUTPUTS menu - Solenoid valves digital outputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C/D	10-11: indicates the status of the solenoid valves indicated, the status of this output can be one of the following: <ul style="list-style-type: none"> • Closed = valve ON; • Open =valve OFF; • -- = valve not present;

INPUTS/OUTPUTS menu - 4-way valves digital outputs		
Visualisation on unit display	Index	Display/Parameter
	A	Inputs/Outputs: Indicates the state of the different entries/exits.
	B	Master: indicates the type of data displayed; the displays can be: <ul style="list-style-type: none"> • Analogue inputs; • Digital inputs; • Digital outputs;
	C/D	12-13: indicates the status of the 4-way valves indicated, the status of this output can be one of the following: <ul style="list-style-type: none"> • Closed = valve ON; • Open =valve OFF; • -- = valve not present;



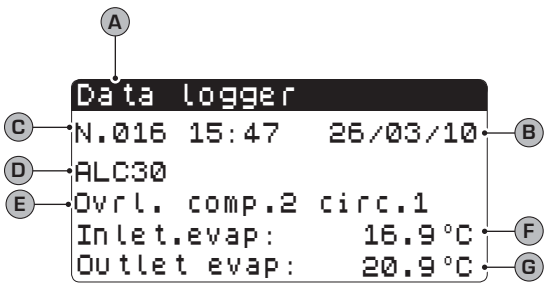
Historical ALARMS

The alarms historical menu does not contain user parameters like the menus previously explained, but it is possible to scroll the last 50 alarms that have occurred, ordered by data with some information recorded regarding the status of the machine at the time the alarm was triggered.



Navigate this menu by pressing the () key, as the first display represents the last alarm triggered, while the alarm with index 001 represents the oldest alarm memorised.

HISTORICAL ALARMS menu - Example of historical alarms

Visualisation on unit display	Index	Display
	A	Historical alarms: Indicates the alarms recorded in the memory.
	B	Date: indicates the time and date when the alarm was triggered.
	C	Index: indicates the index with which the alarm is saved in the memory. The lower the index the older the alarm.
	D	Code: indicates the identification code of the alarm (see alarms table)
	E	Description: brief description of the alarm.
	F/G	Input-Output: indicates the evaporator water input and output temperature value at the time the alarm in question was triggered.



AFTER-SALES ASSISTANCE menu



The after-sales assistance menu contains some sub-menus that are protected by a password. These sub-menus are not available to the user and their management is only allowed by staff authorised for after-sales assistance of the unit.

AFTER-SALES ASSISTANCE menu - LANGUAGE CHANGE sub-menu - Language selection		
Visualisation on unit display	Index	Display
	A	Language: Indicates the system language.
	B	Language: indicates which language is set for the display.
	C	Control: indicates the control for modifying the system language.
		Parameters that can be modified by the user

AFTER-SALES ASSISTANCE menu - LANGUAGE CHANGE sub-menu - Enabling of language selection on start-up		
Visualisation on unit display	Index	Display
	A	Language: Indicates the system language.
	B	Control: indicates the possibility to enable or disable the system language selection at every unit start-up.
	C	Display time: indicates the time within which it will be possible to select the system language during the start window. If the language selection window option is disabled on start-up, this parameter will not be visible.
		Parameters that can be modified by the user

AFTER-SALES ASSISTANCE menu - INFORMATION sub-menu - Display of system information		
Visualisation on unit display	Index	Display
	A	Information: Indicates information regarding the system.
	B	This window indicates some information linked to the control system hardware.

AFTER-SALES ASSISTANCE menu - BOARD CHANGE sub-menu - Display of board address		
Visualisation on unit display	Index	Display
	A	Board change: Indicates the address of the board.
	B	This window indicates the address of the control board.

AFTER-SALES ASSISTANCE menu - HORS WORKED sub-menu - Display of evaporator pump functioning hours		
Visualisation on unit display	Index	Display
<p>The screenshot shows a monochrome display with the following text: 'Work.hours' at the top, 'Evaporator pump 1: 0012h' below it, and 'Evaporator pump 2: -- h' at the bottom. Circled letters A, B, and C point to the title, the first pump entry, and the second pump entry respectively.</p>	A	Hour counter: Indicates the number of hours of work of the components:
	B	Evaporator pump 1: indicates how many functioning hours of the pump on the evaporator 1 (if present).
	C	Evaporator pump 2: indicates how many functioning hours of the pump on the evaporator 2 (if present).

AFTER-SALES ASSISTANCE menu - HORS WORKED sub-menu - Display of compressors functioning hours		
Visualisation on unit display	Index	Display
<p>The screenshot shows a monochrome display with the following text: 'Work.hours' at the top, 'Circuit 1' below it, 'Compressor 1: 0006h', 'Compressor 2: 0003h', and 'Compressor 3: -- h' at the bottom. Circled letters A, B, C, D, and E point to the title, circuit name, and each compressor entry respectively.</p>	A	Hour counter: Indicates the number of hours of work of the components:
	B	Circuit 1: Indicates the number of the circuit to which the compressors refer.
	C/D/E	Compressor: indicates how many functioning hours of the compressors present on the unit.

AFTER-SALES ASSISTANCE menu - HORS WORKED sub-menu - Display of condenser pump functioning hours		
Visualisation on unit display	Index	Display
<p>The screenshot shows a monochrome display with the following text: 'Work.hours' at the top, 'Condenser pump 1: 0012h' below it, and 'Condenser pump 2: -- h' at the bottom. Circled letters A, B, and C point to the title, the first pump entry, and the second pump entry respectively.</p>	A	Hour counter: Indicates the number of hours of work of the components:
	B	Condenser 1 pump: indicates how many functioning hours of the pump on the condenser 1 (if present).
	C	Condenser 2 pump: indicates how many functioning hours of the pump on the condenser 2 (if present).

AFTER-SALES ASSISTANCE menu - Submenu CONFIG. BMS - Configuration of supervising service		
Visualisation on unit display	Index	Display
<p>The screenshot shows a monochrome display with the following text: 'Config. BMS' at the top, 'Conf.porta supervisione' below it, 'Protocollo: MODBUS', 'Velocita comun.: 19200', 'Indirizzo seriale: 1', and 'LON Works: NO'. Circled letters A, B, C, D, and E point to the title, protocol, speed, serial address, and LON Works setting respectively. A legend at the bottom left shows a circle with a diagonal line and the text 'Parametri modificabili dall'utente'.</p>	A	Config. BMS: Indicates the settings for the supervising systems.
	B	Protocol: Indicates which communication protocol is used for BMS; possible selections are: • MODBUS; • CAREL (use for LON Work protocol);
	C	Com. speed: Indicates the communication speed to be used, for BMS management.
	D	Serial address: Indicates the address to be assigned to the unit; this address allows BMS to communicate with the unit board.
	E	LON Work: Indicates whether to activate LON Work protocol.

Alarms summary table

The units envision the signalling of the possible unit malfunctions. These signals are indicated by the flashing alarm key (bell) on the left part of the display. If the bell is pressed again it allows to display the alarm in progress. The rearm of these alarms can take place automati-

cally, manually or semi-automatically (on the basis of the type and seriousness of the alarm that has occurred). To reset the alarm message, the bell key must be pressed again (remember that resetting the alarm does not solve the cause that generated it, but just the dis-

play is cancelled). The following table lists the possible errors that the unit can generate, and a brief explanation of the possible causes.

Alarms rearm mode:



Manual rearm mode:

The unit is re-started manually by removing and re-applying the voltage.



Automatic rearm mode:

The unit is re-started automatically.















































Semi-automatic rearm mode:























The unit is re-started automatically if the alarm repeats a maximum of three times consecutively, after which any new alarm blocks the unit and makes manual rearm necessary.























ALARMS summary table























Alarm code	Rearm	Description
ALG01		Clock board broken or not connected
ALG02		Memory expansion damaged
ALR03		Serious alarm from digital input
ALO04		Slave off-line
ALA05		High pressure probe circuit 1 broken or not connected
ALA06		High pressure probe circuit 2 broken or not connected
ALA07		High pressure probe circuit 3 broken or not connected
ALA08		High pressure probe circuit 4 broken or not connected
ALA09		Low pressure probe circuit 1 broken or not connected
ALA10		Low pressure probe circuit 2 broken or not connected























ALARMS summary table		
Alarm code	Rearm	Description
ALA11		Low pressure probe circuit 3 broken or not connected
ALA12		Low pressure probe circuit 4 broken or not connected
ALA13		Evaporator inlet water temperature probe broken or not connected
ALA14		Condenser inlet water temperature probe broken or not connected
ALA15		Evaporator outlet water temperature probe broken or not connected
ALA16		Evaporator 1 outlet water temperature probe broken or not connected
ALA17		Evaporator 2 outlet water temperature probe broken or not connected
ALA18		Evaporator 3 outlet water temperature probe broken or not connected
ALA19		Evaporator 4 outlet water temperature probe broken or not connected
ALA20		Condenser 1 outlet water temperature probe broken or not connected
ALA21		Condenser 2 outlet water temperature probe broken or not connected
ALA22		Condenser 3 outlet water temperature probe broken or not connected
ALA23		Condenser 4 outlet water temperature probe broken or not connected
ALA24		Evaporator water temperature probe broken or not connected
ALA25		External temperature probe broken or not connected
ALT26		Compressor 1 - circuit 1 maintenance request
ALT26		Compressor 2 - circuit 1 maintenance request
ALT26		Compressor 3 - circuit 1 maintenance request
ALT26		Compressor 1 - circuit 2 maintenance request
ALT26		Compressor 2 - circuit 2 maintenance request
ALT26		Compressor 3 - circuit 2 maintenance request
ALT26		Compressor 1 - circuit 3 maintenance request























ALARMS summary table		
Alarm code	Rearm	Description
ALT26		Compressor 2 - circuit 3 maintenance request
ALT26		Compressor 3 - circuit 3 maintenance request
ALT26		Compressor 1 - circuit 4 maintenance request
ALT26		Compressor 2 - circuit 4 maintenance request
ALT26		Compressor 3 - circuit 4 maintenance request
ALT27		Condensation fan unit 1 maintenance request
ALT27		Condensation fan unit 2 maintenance request
ALT28		Condenser pump 1 maintenance request
ALT28		Condenser pump 2 maintenance request
ALT29		Evaporator pump 1 maintenance request
ALT29		Condenser pump 2 maintenance request
ALC30		Compressor 1 circuit 1 circuit breaker
ALC30		Compressor 2 circuit 1 circuit breaker
ALC30		Compressor 3 circuit 1 circuit breaker
ALC30		Compressor 1 circuit 2 circuit breaker
ALC30		Compressor 2 circuit 2 circuit breaker
ALC30		Compressor 3 circuit 2 circuit breaker
ALC30		Compressor 1 circuit 3 circuit breaker
ALC30		Compressor 2 circuit 3 circuit breaker
ALC30		Compressor 3 circuit 3 circuit breaker
ALC30		Compressor 1 circuit 4 circuit breaker
ALC30		Compressor 2 circuit 4 circuit breaker


ALARMS summary table		
Alarm code	Rearm	Description
ALC30		Compressor 3 circuit 4 circuit breaker
ALW31		Compressor circuit 1 forced OFF by antifreeze
ALW31		Compressor circuit 2 forced OFF by antifreeze
ALW31		Compressor circuit 3 forced OFF by antifreeze
ALW31		Compressor circuit 4 forced OFF by antifreeze
ALW32		Circuit 1 defrost end for maximum time
ALW32		Circuit 2 defrost end for maximum time
ALW32		Circuit 3 defrost end for maximum time
ALW32		Circuit 4 defrost end for maximum time
ALW33		Circuit 1 pump-down end for maximum time
ALW33		Circuit 2 pump-down end for maximum time
ALW33		Circuit 3 pump-down end for maximum time
ALW33		Circuit 4 pump-down end for maximum time
ALB34		Low pressure from pressure switch circuit 1
ALB34		Low pressure from pressure switch circuit 2
ALB34		Low pressure from pressure switch circuit 3
ALB34		Low pressure from pressure switch circuit 4
ALB35		Low pressure from probe circuit 1
ALB35		Low pressure from probe circuit 2
ALB35		Low pressure from probe circuit 3
ALB35		Low pressure from probe circuit 4
ALB36		High pressure from pressure switch circuit 1

ALARMS summary table		
Alarm code	Rearm	Description
ALB36		High pressure from pressure switch circuit 2
ALB36		High pressure from pressure switch circuit 3
ALB36		High pressure from pressure switch circuit 4
ALB36		High pressure from probe circuit 1
ALB36		High pressure from probe circuit 2
ALB36		High pressure from probe circuit 3
ALB36		High pressure from probe circuit 4
ALP38		Evaporator pump 1 no flow warning
ALP39		Evaporator pump 2 no flow warning
ALP40		Evaporator pump 1 no flow
ALP41		Evaporator pump 2 no flow
ALP42		Evaporator pump 1 circuit breaker
ALP43		Evaporator pump 2 circuit breaker
ALP44		Condenser pump 1 no flow warning
ALP45		Condenser pump 2 no flow warning
ALP46		Condenser pump 1 no flow
ALP47		Condenser pump 2 no flow
ALP48		Circuit 1 antifreeze alarm
ALP48		Circuit 2 antifreeze alarm
ALP48		Circuit 3 antifreeze alarm
ALP48		Circuit 4 antifreeze alarm
ALP49		Circuit 1-2 antifreeze alarm

ALARMS summary table		
Alarm code	Rearm	Description
ALP49		Circuit 3-4 antifreeze alarm
ALC50		Unit antifreeze alarm
ALC51		Circuit 1 high pressure prevention warning
ALC51		Circuit 1 low pressure prevention warning
ALC51		Circuit 1 antifreeze prevention warning
ALC52		Circuit 2 high pressure prevention warning
ALC52		Circuit 2 low pressure prevention warning
ALC52		Circuit 2 antifreeze prevention warning
ALC53		Circuit 3 high pressure prevention warning
ALC53		Circuit 3 low pressure prevention warning
ALC53		Circuit 3 antifreeze prevention warning
ALC54		Circuit 4 high pressure prevention warning
ALC54		Circuit 4 low pressure prevention warning
ALC54		Circuit 4 antifreeze prevention warning
ALC55		Circuit 1-2 antifreeze prevention warning
ALC55		Circuit 3-4 antifreeze prevention warning
ALC56		Unit antifreeze prevention warning
AL57		pCO _e offline alarm
AL58		pCO _e probe 1 faulty alarm
AL59		pCO _e probe 2 faulty alarm
AL60		pCO _e probe 3 faulty alarm
AL61		pCO _e probe 4 faulty alarm

ALARMS summary table		
Alarm code	Rearm	Description
AL62		I/O mismatch alarm
AL63		Condenser pump 1 circuit breaker alarm
AL64		Condenser pump 2 circuit breaker alarm
AL65		Circuit 1 fans circuit breaker alarm
AL66		Circuit 2 fans circuit breaker alarm
AL67		Evaporator pump 1 no water flow Slave
AL68		Evaporator pump 2 no water flow Slave
AL69		Evaporat. pump 1 no water flow warning Slave
AL70		Evaporat. pump 2 no water flow warning Slave
AL71		Condenser pump 1 no water flow Slave
AL72		Condenser pump 2 no water flow Slave
AL73		Condenser pump 1 no water flow warning Slave
AL74		Condenser pump 2 no water flow warning Slave
AL75		BP Low Circuit 1 alarm
AL76		BP Low Circuit 2 alarm
AL77		BP Low Circuit 3 alarm (Slave)
AL78		BP Low Circuit 4 alarm (Slave)
AL79		Evaporator pump 1 circuit breaker alarm (Slave)
AL80		Evaporator pump 2 circuit breaker alarm (Slave)
AL81		Evap. water temperature probe broken or not connected (Slave)
AL82		Evap. common outlet water temp. probe broken or not connected (Slave)
AL83		Cond. common outlet water temp. probe broken or not connected (Slave)

ALARMS summary table		
Alarm code	Rearm	Description
AL84		Condenser pump 1 circuit breaker alarm (Slave)
AL85		Evaporator pump 2 circuit breaker alarm (Slave)
AL86		Evap. inlet water temperature probe slave broken or not connected
AL87		Cond. inlet water temperature probe broken or not connected slave
AL88		Cond. outlet water temperature probe broken or not connected slave
AL89		pCOe offline
AL90		pCOe: Analogue input channel 1 probe disconnected or broken (Slave)
AL91		pCOe: Analogue input channel 2 probe disconnected or broken (Slave)
AL92		pCOe: Analogue input channel 3 probe disconnected or broken (Slave)
AL93		pCOe: Analogue input channel 4 probe disconnected or broken (Slave)
AL94		pCOe: I/O mismatch alarm (no confirmation of pattern for 10s)
AL95		pCOe offline (Slave)
AL96		pCOe: Analogue input channel 1 probe disconnected or broken (Slave)
AL97		pCOe: Analogue input channel 2 probe disconnected or broken (Slave)
AL98		pCOe: Analogue input channel 3 probe disconnected or broken (Slave)
AL99		pCOe: Analogue input channel 4 probe disconnected or broken (Slave)
AL100		pCOe: I/O mismatch alarm (no confirmation of pattern for 10s) (Slave)
AL101		pCOe number 2: offline (DK version probes expansion)
AL102		pCOe number 2: Analogue input channel 1 probe disconnected or broken (DK version Probes expansion)
AL103		pCOe number 2: Analogue input channel 2 probe disconnected or broken (DK version Probes expansion)
AL104		pCOe number 2: Analogue input channel 3 probe disconnected or broken (DK version Probes expansion)
AL105		pCOe number 2: Analogue input channel 4 probe disconnected or broken (DK version Probes expansion)

ALARMS summary table		
Alarm code	Rearm	Description
AL106		pCO ₂ number 2: I/O mismatch alarm (no confirmation of pattern for 10s) (DK version Probes expansion)

NOTE

Not all alarms will be visible, but depending on the type of machine.

BMS addresses table

Analog variables			
BMS Address	Description	UOM	Read/Write
1	SUW - Evap. outlet temp. 1	°C	R
2	SUW - Evap. inlet temp. 1	°C	R
3	Outlet water condenser temp.	°C	R
4	Inlet water condenser temp.	°C	R
5	SUR1 - Circ.1 recovery outlet temp.	°C	R
6	SIR - Recovery inlet temp.	°C	R
7	TAP1 - Circ.1 high pressure	BarG	R
8	TBP1 - Circ.1 low pressure	BarG	R
9	TAP2 - Circ.2 high pressure	BarG	R
10	TBP2 - Circ.2 low pressure	BarG	R
11	TAE - External air temp. 1	°C	R
16	Defrost battery temp circuit 1	°C	R
17	Defrost battery temp circuit 2	°C	R
18	Actual setpoint	°C	R
19	Multifunction input	—	R
20	Circuit 2 total recovery outlet water temperature (only DK units)	°C	R
21	Common total recovery outlet water temperature (only DK units)	°C	R
22	SUW2 - Evaporator 2 water outlet probe (only DK units)	°C	R
23	SUCE - Evaporators common outlet probe (only DK units)	°C	R
24	SUWH2 - Condenser 2 outlet probe (only DK units)	°C	R
25	SUCC - Condensers common outlet probe (only DK units)	°C	R
201	Total recovery differential	°C	R/W
202	System summer differential	°C	R/W
203	System winter differential	°C	R/W
204	Set point 1, summer	°C	R/W
205	Set point 2, summer	°C	R/W
206	Set point 1, winter	°C	R/W
207	Set point 2, winter	°C	R/W
Integer variables			
BMS Address	Description	UOM	Direction
209	Chiller Mode State: Heat = 1 , Cool =2		R
210	Chiller Mode Request: Heat = 1 , Cool =2		R/W
216	Top part timer, evaporator pumps 1	—	R
217	Bottom part timer evaporator pumps 1	—	R
218	Bottom part timer condenser pumps 1	—	R

219	Top part timer, condenser pumps 1	—	R
220	Top part timer, comp.1 circ.1	—	R
221	Bottom part timer, comp.1 circ.1	—	R
222	Top part timer, comp.2 circ.1	—	R
223	Bottom part timer, comp.2 circ.1	—	R
224	Top part timer, comp.3 circ.1	—	R
225	Bottom part timer, comp.3 circ.1	—	R
226	Top part timer, comp.1 circ.2	—	R
227	Bottom part timer, comp.1 circ.2	—	R
228	Top part timer, comp.2 circ.2	—	R
229	Bottom part timer, comp.2 circ.2	—	R
230	Top part timer, comp.3 circ.2	—	R
231	Bottom part timer, comp.3 circ.2	—	R
232	Thermostat %		R
233	Modulating pump evaporator		R
234	Modulating pump condenser		R
235	Fan speed 1 (0..1000)	—	R
236	Fan speed 2 (0..1000)	—	R
237	Top part timer, evaporator pumps 2	—	R
238	Bottom part timer evaporator pumps 2	—	R
239	Bottom part timer condenser pumps 2	—	R
240	Top part timer condenser pumps 2	—	R
241	Actual Power Capacity	%	R
414	Limit (0-100%) (the multifunction input from B8 input must be disabled)	%	R/W
415	Demand (0-100%) (the multifunction input from B8 input must be disabled) (the digital address 7 must be enabled)	%	R/W
Digital variables			
BMS Address	Description	UOM	Direction
1	Unit On/Off control (delayed by 120 sec)	—	R/W
2	Summer/winter (0=cold water prod.)	—	R/W
3	Reset alarms (1= reset)	—	R/W
4	Unit switch-on request from digital input	—	R
5	System cold/hot request from digital input	—	R
6	On/Off status	—	R
7	Enables thermostat from BMS	—	R/W
30	Evaporative pump 1	—	R
31	Evaporative pump 2	—	R
32	Condenser pump 1	—	R
33	Condenser pump 2	—	R
36	CCP1 - Compressor 1 circ.1	—	R
37	CCP1A - Compressor 2 circ.1	—	R
39	CCP2 - Compressor 1 circ.2	—	R
40	CCP2A - Compressor 1 circ.2	—	R
42	CV - Fan 1	—	R
43	CV1 - Fan 2	—	R
44	VIC- cycle reversing valve, Circ 1	—	R
45	VIC- cycle reversing valve, Circ 2	—	R
46	VS1 - liquid solenoid valve 1 circ.1	—	R

47	VS1 - liquid solenoid valve 1 circ.2	—	R
54	Circuit 1 total recovery bypass valve	—	R
55	Circuit 2 total recovery bypass valve	—	R
56	Circuit 1 spillage from recovery	—	R
57	Circuit 1 spillage from condenser	—	R
58	Circuit 2 spillage from recovery	—	R
59	Circuit 2 spillage from condenser	—	R
100	Alarm summary	—	R
101	ALP40 - evaporator pump 1 flow switch alarm	—	R
102	AL46 - condenser pump 1 flow switch alarm	—	R
103	ALP42 - Evaporator pump 1 circuit breaker alarm	—	R
104	ALP43 - Evaporator pump 2 circuit breaker alarm	—	R
105	AL63 - Condenser pump 1 circuit breaker alarm	—	R
106	AL64 - Condenser pump 2 circuit breaker alarm	—	R
109	ALC30 - Compressor 1 circ. 1 circuit breaker alarm	—	R
110	ALC30 - Compressor 2 circ. 1 circuit breaker alarm	—	R
111	ALC30 - Compressor 3 circ. 1 circuit breaker alarm	—	R
112	ALC30 - Compressor 1 circ. 2 circuit breaker alarm	—	R
113	ALC30 - Compressor 2 circ. 2 circuit breaker alarm	—	R
114	ALC30 - Compressor 3 circ. 2 circuit breaker alarm	—	R
115	AL65 - Fan 1 circuit breaker alarm	—	R
116	AL66 - Fan 2 circuit breaker alarm	—	R
117	ALU50 - Evaporator antifreeze alarm	—	R
118	Not used		
119	ALB34 - Circ. 1 low pressure switch alarm	—	R
120	ALB34 - Circ. 2 low pressure switch alarm	—	R
121	ALB35 - Circ. 1 low pressure alarm	—	R
122	ALB35 - Circ. 2 low pressure alarm	—	R
123	AL75 - Circ. 1 serious low pressure alarm	—	R
124	AL76 - Circ. 2 serious low pressure alarm	—	R
125	ALB36 - Circ. 1 high pressure switch alarm	—	R
126	ALB36 - Circ. 2 high pressure switch alarm	—	R
127	ALB37 - Circ. 1 high pressure alarm	—	R
128	ALB37 - Circ. 2 high pressure alarm	—	R
129	ALR03 Phase monitor alarm	—	R
130	ALA15 - Evap. 1 outlet probe faulty alarm	—	R
131	ALA13 - Evap. 1 inlet probe faulty alarm	—	R
132	ALA20 - Condenser 1 outlet probe faulty alarm		
133	ALA14 - Condenser 1 inlet probe faulty alarm		
134	AL91- Recovery 1 outlet probe faulty alarm	—	R
135	AL90- Recovery 1 inlet probe faulty alarm	—	R
136	ALA05 - Circ. 1 high pressure probe faulty alarm	—	R
137	ALA09 - Circ. 1 low pressure probe faulty alarm	—	R
138	ALA06 - Circ. 2 high pressure probe faulty alarm	—	R
139	ALA10 - Circ. 2 low pressure probe faulty alarm	—	R
140	ALA25 - External temperature probe faulty alarm	—	R
147	ALP41 - evaporator pump 2 flow switch alarm	—	R
148	ALP47 - condenser pump 2 flow switch alarm	—	R

149	Not used - Free	—	R
150	AL004 Slave offline	—	R
151	ALA07 - High pressure probe circuit 3 broken or not connected (SLAVE)	—	R
152	ALA08 - High pressure probe circuit 4 broken or not connected (SLAVE)	—	R
153	ALA11 - Low pressure probe circuit 3 broken or not connected (SLAVE)	—	R
154	ALA12 - Low pressure probe circuit 4 broken or not connected (SLAVE)	—	R
155	ALA17 - Evap. 2 outlet temperature probe broken or not connected	—	R
156	ALA18 - Evap. 3 outlet water temperature probe broken or not connected (SLAVE)	—	R
157	ALA19 - Evap. 4 outlet water temperature probe broken or not connected (SLAVE)	—	R
158	ALA21 - Cond. 2 outlet water temperature probe broken or not connected	—	R
159	ALA22 - Cond. 3 outlet water temperature probe broken or not connected (SLAVE)	—	R
160	ALA23 - Cond. 4 outlet water temperature probe broken or not connected (SLAVE)	—	R
161	ALT26 - Compressors maintenance request	—	R
162	ALT27 - Fans maintenance request	—	R
163	ALT28 - Condenser pump maintenance request	—	R
164	ALT29 - Evaporator pump maintenance request	—	R
165	ALB48 - Circuit 1 antifreeze alarm	—	R
166	ALB48 - Circuit 2 antifreeze alarm	—	R
167	ALP67 - evaporator pump 1 flow switch alarm (SLAVE)	—	R
168	ALP68 - evaporator pump 2 flow switch alarm (SLAVE)	—	R
169	ALP71 - condenser pump 1 flow switch alarm (SLAVE)	—	R
170	ALP72 - condenser pump 2 flow switch alarm (SLAVE)	—	R
171	AL77 - BP Low Circuit 3 alarm (SLAVE)	—	R
172	AL78 - BP Low Circuit 4 alarm (SLAVE)	—	R
173	AL79 - Evaporator pump 1 circuit breaker alarm (SLAVE)	—	R
174	AL80 - Evaporator pump 2 circuit breaker alarm (SLAVE)	—	R
175	AL81 - Evap. water outlet temperature probe Faulty or not connected (SLAVE)	—	R
176	AL82 - Evap. common outlet water temp. probe broken or not connected (SLAVE)	—	R
177	AL83 - Cond. common outlet water temp. probe broken or not connected (SLAVE)	—	R
178	AL84 - Condenser pump 1 circuit breaker alarm (SLAVE)	—	R
179	AL85 - Evaporator pump 2 circuit breaker alarm (SLAVE)	—	R
180	AL86 - Evap. inlet water temperature probe Broken or not connected (SLAVE)	—	R
181	AL87 - Cond. inlet water temperature probe broken or not connected (SLAVE)	—	R
182	AL88 - Cond. outlet water temperature probe broken or not connected (SLAVE)	—	R
183	AL89 - pCOe Total recovery Offline	—	R
184	AL93 - pCOe Total recovery - Channel 3 input probe faulty or not connected	—	R
185	AL94 - pCOe Total recovery - Channel 4 input probe faulty or not connected	—	R
186	AL95 - pCOe Total recovery Offline (SLAVE)	—	R
187	AL96 - pCOe Total recovery (SLAVE) - Channel 1 input probe faulty or not connected	—	R
188	AL97 - pCOe Total recovery (SLAVE) - Channel 2 input probe faulty or not connected	—	R
189	AL98 - pCOe Total recovery (SLAVE) - Channel 3 input probe faulty or not connected	—	R
190	AL99 - pCOe Total recovery (SLAVE) - Channel 4 input probe faulty or not connected	—	R
191	AL101 - pCOe number 2- Offline (DK units)	—	R
192	AL102 - pCOe number 2- (DK units) Channel 1 input probe faulty or not connected	—	R

193	AL103 - pCOe number 2- (DK units) Channel 2 input probe faulty or not connected	—	R
194	AL104 - pCOe number 2- (DK units) Channel 3 input probe faulty or not connected	—	R
195	AL105 - pCOe number 2- (DK units) Channel 4 input probe faulty or not connected	—	R



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