



EN



**MANUALE USO • USAGE MANUAL • MANUEL D'UTILISATION
BEDIENUNGSANLEITUNG • MANUAL DE INSTRUCCIONES**

REGOLAZIONE ELETTRONICA • ELECTRONIC REGULATION • REGLAGE ELECTRONIQUE
ELEKTRISCHE REGELVORRICHTUNG • REGULACIÓN ELÉCTRICA

**WATER
CHILLER
MODUCONTROL**

**CHILLERS
REVERSIBLE HEAT PUMPS
CONDENSING UNITS**

- EXTERNAL UNITS
- HIGH EFFICIENCY
- HOT WATER PRODUCTION
UP TO 50°C

INDEX

Precautions and safety regulations.....	4
Characteristics of the regulation.....	5
USER MENU default settings.....	6
ELECTRIC HEATER default settings.....	7
INSTALLER MENU default settings.....	8
INSTALLER MENU 2 default settings.....	10
Unit configurations with MODUCONTROL.....	11
User interface and parameter visualisations.....	12
Readings menu	13
ADVANCED READINGS menu	14
USER menu.....	15
Setting operational parameters (user level).....	15
Setting of operational mode (HOT/COLD).....	15
Setting of cooling temperature.....	15
Setting of proportional cooling band.....	16
Setting heating mode temperature set.....	16
Setting of proportional heating band.....	16
Settings made on the basis of outside temperature.....	16
Setting cooling temperature setpoint 1	17
Setting the outside air temperature 1	17
Setting cooling temperature setpoint 2.....	17
Setting the outside air temperature 2.....	17
Setting heating set 1	17
Setting the outside air temperature 1 (heating).....	17
Setting heating set 2.....	18
Setting the outside air temperature 2 (heating).....	18
Setting DHW set.....	18
Setting domestic water proportional band.....	18
INSTALLER menu.....	19
Setting operational parameters (installer level).....	19
Setting of input and output regulation.....	19
Setting cooling FORCE-OFF.....	19
Setting heating FORCE-OFF.....	20
Setting the safety threshold.....	20
Setting integral time.....	20
Setting derivation time.....	20
Setting the anti-freeze threshold.....	20
Setting frost protection.....	20
Setting the supplementary electric heater or activating the boiler.....	21

Panel control configuration.....	21
Enabling domestic water.....	21
Power dedicated to domestic water production.....	22
Standby time in Input/Output.....	22
Standby time in Input/Output.....	22
Enabling flow switch bypass.....	22
Time for flow switch bypass.....	22
High room temperature standby.....	23
High temperature threshold for input water.....	23
Screensaver configuration.....	23
Modbus supervisor address.....	23
Supervisor baud rate.....	23
Supervisor write enabled.....	23
INSTALLER 2 menu.....	24
Setting operational parameters (installer level).....	24
Threshold for reactivation after shutdown force off.....	24
Configuration of the heating cable (ANK only).....	24
Heating cable setpoint (ANK only).....	24
Thermostat pump switch-off.....	24
INSTALLER 3 menu.....	25
Setting operational parameters (installer level).....	25
Factory settings.....	25
Setting maximum DCP Volt.....	25
Managing the electric heater.....	25
Selection logic for electric heater management mode.....	25
Supplementary electric heater logic:.....	25
Replacement electric heater logic:.....	25
Replacement electric heater logVic:.....	25
ELECTRIC HEATER menu.....	26
Setting operational parameters (electric heater level).....	26
Setting anti-freeze electric heater setpoints.....	26
Setting anti-freeze electric heater band.....	26
Setting supplementary electric heater setpoint.....	27
Setting electric heater band in supplementary/replacement mode.....	27
Setting outside air temperature threshold for supplementary mode.....	27
Setting outside air temperature threshold for replacement mode.....	27
Setting the band for air temperature.....	27
Table of DIP-SWITCH configuration.....	28
Alarms summary table.....	30

Precautions and safety regulations

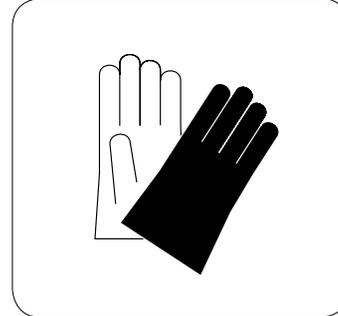
DO NOT dampen the packaging



DO NOT tread on the packaging



Handle with care



Disposal information

Caution: this product contains electrical and electronic equipment that may not be disposed of through normal municipal rubbish collection channels. There are special centres for the separate collection of this material.

The electrical and electronic apparatus must be treated - separately and in accordance with the relevant legislation in force in the country the apparatus is installed in. Batteries or accumulators in the apparatus must be disposed of separately in accordance with local regulations.

Safety symbols



Danger: power supply



Warning



Danger: moving parts

Notes regarding the documentation



Store the manuals in a dry location to avoid deterioration, as they must be kept for at least 10 years for any future reference.

Carefully and thoroughly read all the information referred to in this manual. Pay particular attention to the usage instructions accompanied by the words "DANGER" or "WARNING" because, if not observed, they can cause damage to the machine and/or property and/or injury to people. If any kind of malfunction is not included in this manual, contact the local After Sales Service immediately. The device must be installed in such a way that maintenance and/or repair operations are possible.

The warranty of the device does not in any case cover costs owing to ladder trucks, lifts or other lifting systems that may be required in order to carry out the interventions under guarantee. AERMEC S.p.A. declines all liability for any damage due to improper use of the machine, or the partial or superficial reading of the information contained in this manual.

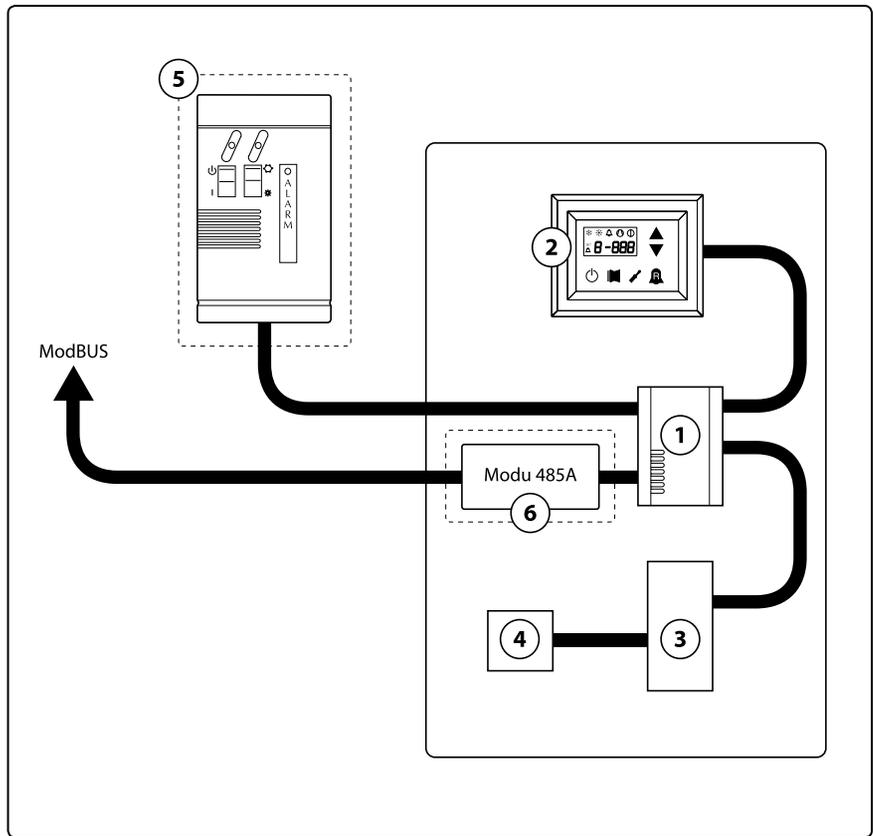
Characteristics of the regulation

The command panel of the unit allows the rapid setting of the working parameters of the machine, and their visualisation.

The display consists of 4 figures and various LEDs for indicating the type of operational mode, the visualisation of the parameters set and of any alarms triggered. The card stores all the default settings and any modifications. With the installation of the PR3 remote panel accessory, it is possible to control the switching on and off from a distance, as well as the setting of the operational mode (cooling-heating), and the visualisation of the alarm summary.

Modu_485A adding the accessory, the unit can be managed in a VMF, or be managed via a BMS via Modbus protocol.

After the absence of voltage for any period of time, the unit is able to start up again automatically, maintaining the original settings.



Index	Element	Notes
1	Moducontrol Board	
2	Command interface on the machine	
3	Board for probes, valves and communication management with inverter module	Present on ANLI units only
4	Board for inverter compressor management	Present on ANLI units only
5	Simplified remote panel	Accessory PR3
6	ModBus protocol interface board	Modu_485A accessory

ATTENTION: If you wish to implement a BMS management system, a manual is available on our site www.aermec.com with all specifications necessary for the realisation of a serial supervision system.

USER MENU default settings

Present on the units																	
String parameter	StA	StF	bnF	StC	bnC	CSt	SF1	tF1	SF2	tF2	SC1	tC1	SC2	tC2	SAS	bAS	
Index parameter	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
Unit	ANL	0	7	5	45	5	0	12	18	7	30	45	0	35	18	50	10
	ANLI	0	7	5	45	5	0	12	18	7	30	45	0	35	18	50	10
	ANR	0	7	5	45	5	0	12	18	7	30	45	0	35	18	50	10
	ANF	0	7	5	45	5	0	12	18	7	30	45	0	35	18	50	10
	ANK	0	7	5	45	5	0	12	18	7	30	45	0	35	18	50	10
	SRPV1	1	---	---	65	5	0	12	18	7	30	45	0	35	18	50	10
	SRA	1	---	---	65	5	0	12	18	7	30	45	0	35	18	50	10
	WRL	---	7	5	---	---	0	12	18	7	30	---	---	---	---	---	---

	Unit able to produce hot water (heat pump water or heating only unit)
	Unit able to produce cold water (reversible heat pump water or cooling only unit)
	All units (heat pumps, heating only or cooling only)
	Unit that can produce domestic hot water

Functions relative to USER parameters			
Index String	Function	Index String	Function
0 - StA	Operating mode selection	8 - SF2	Set at cooling 2
1 - StF	Set at cooling	9 - tF2	Outdoor air temperature (cooling)
2 - bnF	Cooling band	A - SC1	Set at heating 1
3 - StC	Set at heating	B - tC1	Outdoor air temperature 1 (heating)
4 - bnC	Heating band	C - SC2	Set at heating 2
5 - CSt	Correction set	D - tC2	Outdoor air temperature 2 (heating)
6 - SF1	Set at cooling 1	E - SAS	DHW Set
7 - tF1	Outdoor air temperature 1	F - bAS	DHW Band

ELECTRIC HEATER default settings

Electric Heater menu parameters (Password 001)								
Present on the units								
String parameter	SrA	brA	Sri	bri	tA1	tA2	bA	
Index parameter	0	1	2	3	4	5	6	
Unit	ANL	4	1	3	4	5	-30	2
	ANLI	4	1	3	4	5	-30	2
	ANR	4	1	3	4	5	-30	2
	ANF	4	1	3	4	5	-30	2
	ANK	4	1	3	4	5	-30	2
	SRPV1	4	1	3	4	5	-20	2
	SRA	4	1	3	4	5	-20	2
	WRL	4	1	---	---	---	---	---
	Unit able to produce hot water (heat pump or heating only unit), in which an integrative electric resistance is envisioned							
	All units (heat pumps, heating only or cooling only)							

Functions relative to Electric Heater parameters			
Index String	Function	Index String	Function
0 - SrA	Anti-freeze resistance set	4 - tA1	Outdoor air set 1
1 - brA	Anti-freeze resistance band	5 - tA2	Outdoor air set 2
2 - Sri	Integrative resistance set	6 - bA	Band on air temperature set
3 - bri	Integrative resistance band		

INSTALLER MENU default settings

Present on the units															
String parameter	iu	oFF	oFC	SAF	int	dEr	AG	FrP	rin	PAN	ASA	ASP	AAS	trA	
Index parameter	0	1	2	3	4	5	6	7	8	9	A	B	C	D	
Unit	ANL	0	4	54	5	600	0	3	2	0	0	1	70	0	0
	ANLI	0	4	54	5	600	0	3	2	0	0	1	70	0	0
	ANR	0	4	58	5	600	0	3	2	0	0	1	70	0	0
	ANF	0	4	54	5	600	0	3	2	0	0	1	70	0	0
	ANK	0	4	63	5	600	0	3	2	0	0	1	70	0	0
	SRPV1	0	4	65	5	600	0	3	2	1	0	1	70	0	2
	SRA	0	4	65	5	600	0	3	2	1	0	1	70	0	2
	WRL	0	4	---	5	600	0	3	3	---	0	---	---	---	---

	Unit able to produce hot water (heat pump water or heating only unit)
	Unit able to produce cold water (reversible heat pump water or cooling only unit)
	All units (heat pumps, heating only or cooling only)
	Unit that can produce domestic hot water

Functions relative to INSTALLER parameters			
Index String	Function	Index String	Function
0 - iu	Input/output regulation	7 - FrP	Frost protection
1 - oFF	Force - off at cooling	8 - rin	Integration resistance
2 - oFC	Force - off at heating	9 - PAN	Remote panel configuration
3 - SAF	Force - off rearm band	A - ASA	Enabling DHW
4 - int	Integral time	B - ASP	DHW production power
5 - dEr	Derivative time	C - AAS	Input stand-by time
6 - AG	Anti-freeze	D - trA	Enabling room thermostat

INSTALLER menu parameters (Password 030)														
Present on the units														
String parameter	bAF	tbF	OAE	Ati	SCr	Ad1	Bd1	AS1	LA1	St1	LA2	St2	LSP	
Index parameter	E	F	G	H	I	J	L	N	O	P	Q	R	T	
Unit	ANL	0	180	45	64	1	1	1	0	-15	43	-10	58	50
	ANLI	0	180	45	64	1	1	1	0	-15	43	-10	58	55
	ANR	0	180	45	64	1	1	1	0	-15	43	-10	58	55
	ANF	0	180	45	64	1	1	1	0	-15	43	-10	58	55
	ANK	0	180	45	65	1	1	1	0	-20	53	-10	62	60
	SRPV1	0	180	45	58	0	1	1	0	-20	62	-10	65	63
	SRA	0	180	45	58	0	1	1	0	-20	62	-10	65	63
	WRL	---	---	---	---	1	1	1	0	---	---	---	---	---

	Unit able to produce hot water (heat pump water or heating only unit)
	All units (heat pumps, heating only or cooling only)
	Unit that can produce domestic hot water

Functions relative to INSTALLER parameters			
Index String	Function	Index String	Function
E - bAF	Enabling of flow switch by-pass	N - AS1	Enabling of supervisor writing
F - tbF	Flow switch by-pass time	O - LA1	Air temperature 1 limit
G - OAE	Outdoor temperature stand-by	P - St1	Water temperature 1 limit
H - Ati	High temperature return water	Q - LA2	Air temperature 2 limit
I - SCr	Screen saver configuration	R - St2	Water temperature 2 limit
J - Ad1	Supervisor modbus address	T - LSP	Maximum heating set-point limit that can be set
L - Bd1	Supervisor baudrate		

INSTALLER MENU 2 default settings

INSTALLER 2 menu parameters - (Password 131)					
Present on the units					
Index parameter	0	1	2	3	
Unit	ANL	6	0	0	0
	ANLI	6	0	0	0
	ANR	6	0	0	0
	ANF	6	0	0	0
	ANK	6	0	0	0
	SRPV1	6	0	0	0
	SRA	6	0	0	0
	WRL	0	---	---	0

	Unit able to produce hot water (heat pump water or heating only unit)
	All units (heat pumps, heating only or cooling only)

Functions relative to INSTALLER 2 menu parameters	
Index String	Function
0	Temperature Delta for reactivation of the compressor after FORCE OFF intervention
1	Heating cable configuration
2	Heating cable set-point
3	Pump switch off for thermostat

Unit configurations with MODUCONTROL

	Configurations available for every unit					
						
ANL	✓	✗	✗	Only sizes; 100, 150, 200	✗	✓
ANL H	✓	✓	✓	Only sizes; 100, 150, 200	✗	✓
ANLI	✓	✓	✓	✗	✓	✓
ANR	✓	✓	✓	✓	✗	✓
ANF	✓	✓	✓	✗	✗	✓
ANK	✓	✓	✓	Only sizes; 100, 150	✗	✓
SRPV1	✗	✓	✓	✗	✗	✗
SRA	✗	✓	✓	✗	✗	✗
WRL	✓	✗	✗	Only sizes; 100, 140, 160	✗	✗

	Unit able to produce cold water (reversible heat pump water or cooling only unit)
	Unit able to produce hot water (heat pump water or heating only unit)
	Unit that can produce domestic hot water NOTE: the units with integrated storage tank ARE NOT suitable for the production of DHW.
	Unit fitted with twin compressor
	Unit fitted with inverter compressor
	Unit fitted with condensation control device (DCPX)

✓	Configuration AVAILABLE
✗	Configuration NOT AVAILABLE

User interface and parameter visualisations

The main user interface is represented by a LED panel with capacitive keyboard (touch keys); the visualisations are arranged in three menus:

- **READINGS menu (key (C) Fig.1)**

Containing the information (visualisation mode only) relating to current unit functioning.

- **SETTINGS menu (key (D) Fig.1)**

Containing all the parameters that the user can modify according to system requirements; these parameters are grouped together in various sub-menus:

- **USER menu (Password 000);**
- **INSTALLER menu (Password 030);**
- **ELECTRIC HEATER menu (Password 001);**

- **ALARM log (key (E) Fig.1)**

The alarm log records unit error and/or malfunctioning conditions (whether alarms or pre-alarms).

During normal functioning, the monitor visualises the last parameter modified; if no other keys are pressed for at least 5 minutes, the monitor activates the screensaver mode (this function can be set via the parameter (i) in the **INSTALLER menu**).

To display parameters and/or readings, 4 figures are used; the first is the indicator i.e. a number allowing the user to know which parameter or reading he is visualising (Fig.3).

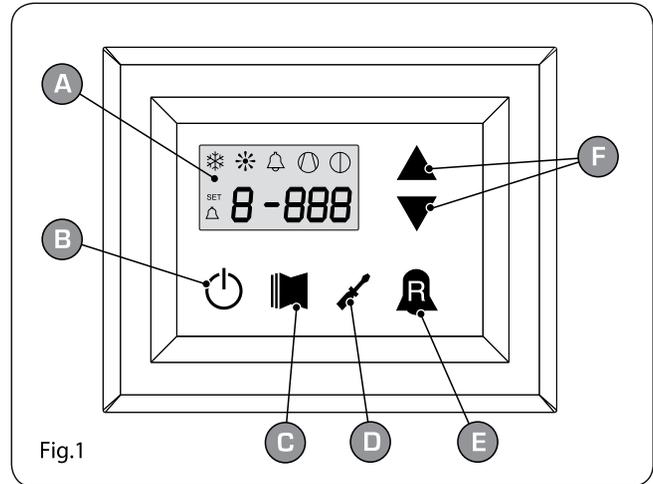


Fig.1

User interface (Fig.1)	
A	Monitor visualisation
B	"ON" key
C	Key to access readings menu
D	Button key to access set menu
E	Button key to access alarm record
F	Keys to scroll/increase-decrease parameters

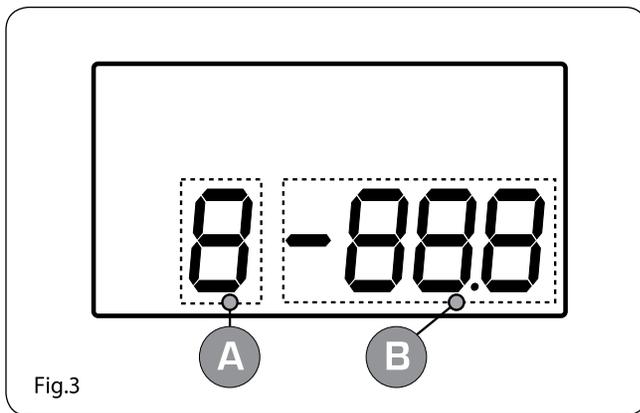


Fig.3

User interface (Fig.3)	
A	Parameter index
B	Parameter abbreviation / Parameter value

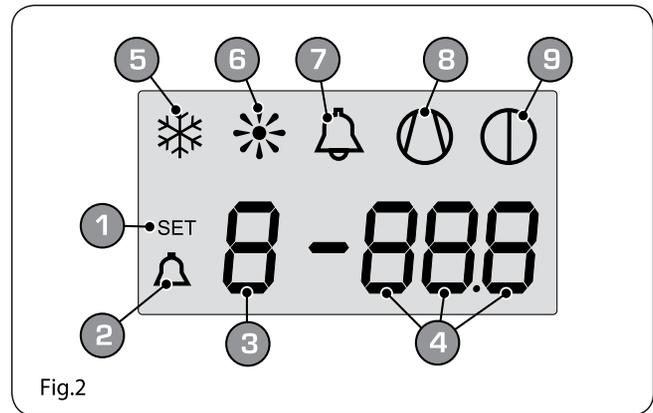


Fig.2

Monitor visualisation (Fig.2)	
1	SETTINGS menu currently visualised
2	ALARMS menu currently visualised
3	Parameter index
4	Parameter abbreviation / Parameter value
5	Season indicator SUMMER
6	Season indicator WINTER
7	Indicator of current alarm status
8	Indicator of current compressor operational mode (this indication can have different flashing frequencies).
9	Indicator of stop in progress

Readings menu

To access the readings menu, press the key in (Fig.4); once the readings menu has been accessed, the monitor will display the readings index and a 3-character string that identifies it; the string will be displayed for one second, after which it is replaced by

the value of the reading itself. To move on to the next reading, press the key in (Fig.5); to go back to the previous one, press the key in (Fig.6). Every time you pass from one reading to another, apart from the change in the index value you will also see (for one

second) the string identifying the current reading (it is possible, however, to identify any reading via the value of the indicator, comparing it with the table below).

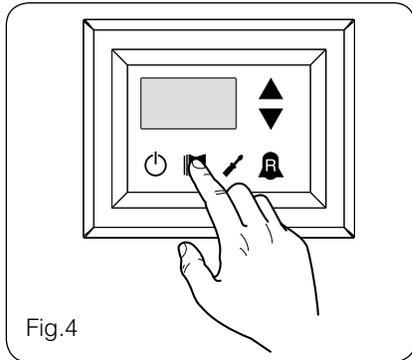


Fig.4

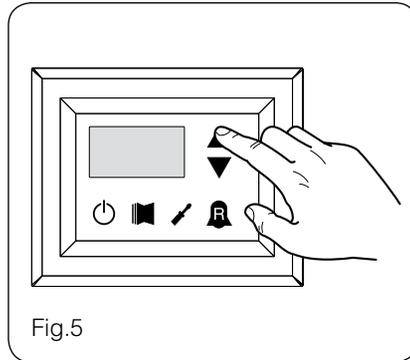


Fig.5

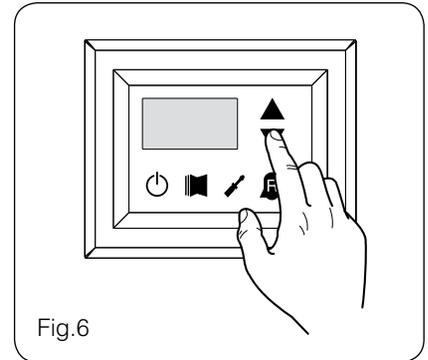


Fig.6

Index - String	Meaning of the reading
0 t _o A	Water output temperature
1 t _i A	Water input temperature
2 t _{Sb}	Coil temperature
3 t _{CP}	Force gas temperature
4 t _{AE}	Outside air temperature
5 AP	Delivery pressure
6 b _P	Suction pressure
7 t _{Er}	Thermostat
8 SA _b	Safety band on force-off
9 CP	CP times
A HCO	Hours of operation (thousands)
b HCO	Hours of operation (units)
C SPO	Compressor pickup current (thousands)

Index - String	Meaning of the reading
d SPO	Compressor pickup current (units)
E rEL	Software release
F bLd	Minor software releases
G SEt	Setting currently in use
H dCP	DCP pressure setting
, dCP	DCP pressure differential
J HC1	Operating hours COMPRESSOR 2 (thousands)
L HC1	Operating hours COMPRESSOR 2 (units)
n SP1	Compressor pickup current COMPRESSOR 2 (thousands)
o SP1	Compressor pickup current COMPRESSOR 2 (units)
P P _o	Power fraction
q rFq	Required frequency (INVERTER)
r PrF	Pressure drop

	Parameter visible on ALL the units
	Parameter ONLY visible on units suitable for production of hot water

	Parameter ONLY visible on units with condensation control device on board
	Parameter ONLY visible on units fitted with twin compressor
	Parameter ONLY visible on units fitted with inverter compressor

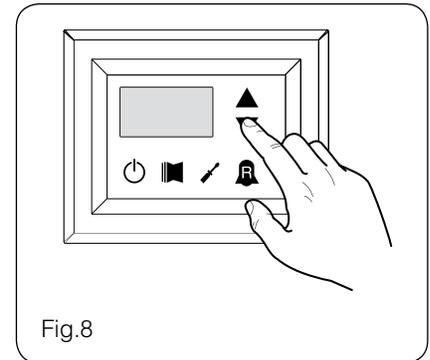
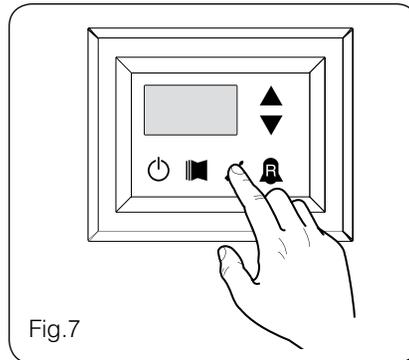
ADVANCED READINGS menu

To enter the ADVANCED READINGS menu, press the key shown in (Fig.7). Once the key has been pressed the password must be inserted for access to the various menus. To access the user menu the password is 010. To

modify the value of the password use the arrow keys. Once the correct password has been inserted, press the key shown in (Fig.7). The display shows the index of the reading and a string of three characters that identify

it. The string remains displayed for one second, after which it is replaced by the value relative to the reading itself. To pass to the next reading, use the arrow keys (Fig.8).

PASSWORD = 010



Index - String	Reading Meaning	Notes
0 Cor	Inverter Current	Current (in Amperes) measured by the inverter module; Parameter displayed with ANLI 21, 26, 40, 45, 71, 75, 80,100 only;
1 Uo	Inverter output voltage	Output voltage (in Volt) measured by the inverter module; Parameter displayed with ANLI21, 26, 40, 45, 71, 75, 80,100 only;
2 Uob	BUS voltage	BUS voltage (in Volt) measured by the inverter module; Parameter displayed with ANLI21, 26, 40, 45, 71, 75, 80,100 only;
3 HSt	Inverter dissipater temperature	Temperature (in C°) of the inverter module heat dissipater; Parameter displayed with ANL21, 26, 40, 45, 71, 75, 80,100 inverter only;
4 dFo	Value of the dynamic OFF force	Current dynamic ForceOff value calculated on the basis of the outdoor air temperature
5 dHt	DHW remote probe value	Value read by the remote probe positioned in the plant water storage tank; function enabled by the parameter (0) in the INSTALLER menu
6 ASP	Compressor intake probe value	Temperature read from the robe positioned on compressor intake. Parameter displayed only with ANLI 21, 26, 40, 45, 71, 75, 80;

USER menu

To access the USER menu, press the key in (Fig.7). Once the key has been pressed, you must insert the password to access the various menus; to access the user menu, the password is 000 (displayed by default). To modify the value of the passwords, use the arrow

keys. When you have inserted the correct password, press the key in (Fig.7). The monitor will show the index of the USER parameter and a 3-character string that identifies it; the string will be displayed for one second, after which it is replaced by the value of the pa-

rameter itself. To move on to the next parameter, use the arrow keys (Fig.8). To modify a parameter, just select it, press the key in (Fig.7), modify the assigned value using the arrow keys in (Fig.8), and confirm the modification by pressing the key in (Fig.7) again.

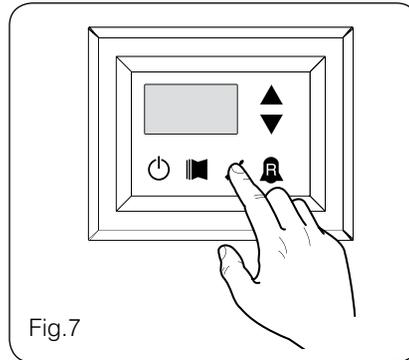


Fig.7

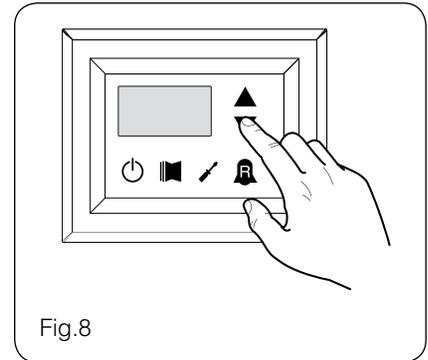


Fig.8

Setting operational parameters (user level)

Setting of operational mode (HOT/COLD)			
Index - String	MIN value	MAX value	Parameter function
0 S _{LR} 	0	1	This parameter identifies the functioning mode set for the unit: <ul style="list-style-type: none"> • set value = 0 - Cooling mode; • set value = 1 - Heating mode. In cooling only units, this parameter is displayed but it cannot be modified. In software versions prior to 3.75, to make the season change the unit must be in standby.

Setting of cooling temperature			
Index - String	MIN value	MAX value	Parameter function
1 S _{LF}	-20 °C	26 °C	This parameter indicates the value of the work setting active in cooling mode.



Parameter visible ONLY on units suitable for the production of hot water



Parameter visible ONLY on units suitable for the production of DHW



Parameter visible ONLY on units with condensation control device on board



Parameter ONLY visible on units fitted with twin compressor

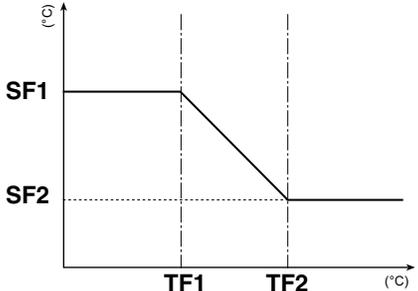
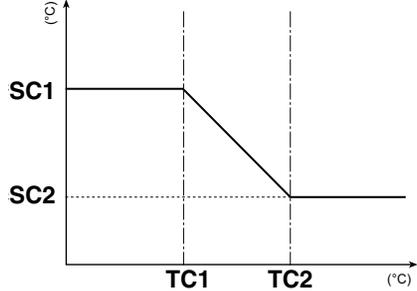


Parameter ONLY visible on units fitted with inverter compressor

Setting of proportional cooling band			
Index - String	MIN value	MAX value	Parameter function
2 bnf	1 °C	20 °C	This parameter indicates the proportional band applied to the cooling set; this band produces the optimised management of the compressor, only switching it on if the inlet/outlet water temperature (depending on the type of control set by parameter (0) in the installer menu) is greater than the cooling work set (parameter (1) user menu) plus the value of this parameter.

Setting heating mode temperature set			
Index - string	Value MIN	Value MAX	Parameter function
3 StC 	25 °C	(*)	This parameter indicates the active work set value in the heating mode. This parameter is displayed in the cooling only units but cannot be modified. (*): - the maximum limit can be configured via the parameter (t) of the installer menu; - if the parameter (8) of the installer menu is set at 4, the maximum limit becomes 70°C in order to allow insertion of a set-point for boiler adjustment;

Setting of proportional heating band			
Index - String	MIN value	MAX value	Parameter function
4 bnC 	1 °C	20 °C	This parameter indicates the proportional band applied to the heating set; this band produces the optimised management of the compressor, only switching it on if the inlet/outlet water temperature (depending on the type of control set by parameter (0) in the installer menu) is less than the heating work set (parameter (3) user menu), minus the value of this parameter. In cooling only units, this parameter is displayed but it cannot be modified.

Settings made on the basis of outside temperature			
Index - String	MIN value	MAX value	Parameter function
5 CSt	0	3	<p>This setting activates the algorithm of compensation of the work setting:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>SF1 SF2 TF1 TF2 (°C)</p> <p>SF1: index (6) user menu; SF2: index (8) user menu; TF1: index (7) user menu; TF2: index (9) user menu;</p> <p>In cooling mode, the work setting is calculated automatically on the basis of the outside temperature, following the logic highlighted in the diagram.</p> </div> <div style="text-align: center;">  <p>SC1 SC2 TC1 TC2 (°C)</p> <p>SC1: index (A) user menu; SC2: index (C) user menu; TC1: index (B) user menu; TC2: index (d) user menu;</p> <p>In heating mode, the work setting is calculated automatically on the basis of the outside temperature, following the logic highlighted in the diagram.</p> </div> </div>



Parameter visible ONLY on units suitable for the production of hot water



Parameter visible ONLY on units suitable for the production of DHW



Parameter visible ONLY on units with condensation control device on board



Parameter ONLY visible on units fitted with twin compressor



Parameter ONLY visible on units fitted with inverter compressor

Setting cooling temperature setpoint 1			
Index - String	MIN value	MAX value	Parameter function
6 SF1	-20 °C	26 °C	This parameter indicates the maximum value of the cooling setting, corresponding with the minimum outside air temperature (index (7) user menu). This parameter is only visible if the compensation function has been activated (index (5) user menu).

Setting the outside air temperature 1			
Index - String	MIN value	MAX value	Parameter function
7 tF1	-40 °C	50 °C	This parameter indicates the minimum outside air temperature taken into consideration for cooling compensation. This parameter is only visible if the compensation function has been activated (index (5) user menu).

Setting cooling temperature setpoint 2			
Index - String	MIN value	MAX value	Parameter function
8 SF2	-20 °C	26 °C	This parameter indicates the minimum value of the cooling setting, corresponding with the maximum outside air temperature (index (9) user menu). This parameter is only visible if the compensation function has been activated (index (5) user menu).

Setting the outside air temperature 2			
Index - String	MIN value	MAX value	Parameter function
9 tF2	-40 °C	50 °C	This parameter indicates the maximum outside air temperature taken into consideration for cooling compensation. This parameter is only visible if the compensation function has been activated (index (5) user menu).

Setting heating set 1			
Index - string	Value MIN	Value MAX	Parameter function
A SC1 	25 °C	(*)	This parameter indicates the maximum value set at heating, in correspondence with the minimum outdoor air temperature (user menu index (b) This parameter is visible only if the compensation function is activated (use menu index (5)). (*): - the maximum limit can be configured via the parameter (t) of the installer menu; - if the parameter (8) of the installer menu is set at 4, the maximum limit becomes 70°C in order to allow insertion of a set-point for boiler adjustment;

Setting the outside air temperature 1 (heating)			
Index - String	MIN value	MAX value	Parameter function
6 tC1 	-40 °C	50 °C	This parameter indicates the minimum outside air temperature taken into consideration for heating compensation. This parameter is only visible if the compensation function has been activated (index (5) user menu).



Parameter visible ONLY on units suitable for the production of hot water



Parameter visible ONLY on units suitable for the production of DHW



Parameter visible ONLY on units with condensation control device on board



Parameter ONLY visible on units fitted with twin compressor



Parameter ONLY visible on units fitted with inverter compressor

Setting heating set 2			
Index - string	Value MIN	Value MAX	Parameter function
 C SC2	25 °C	(*)	This parameter indicates the minimum value set at heating, in correspondence with the maximum outdoor air temperature (user menu index (c) This parameter is visible only if the compensation function is activated (use menu index (5)). (*): - the maximum limit can be configured via the parameter (t) of the installer menu; - if the parameter (8) of the installer menu is set at 4, the maximum limit becomes 70°C in order to allow insertion of a set-point for boiler adjustment;

Setting the outside air temperature 2 (heating)			
Index - String	MIN value	MAX value	Parameter function
 d tC2	-40 °C	50 °C	This parameter indicates the maximum outside air temperature taken into consideration for heating compensation. This parameter is only visible if the compensation function has been activated [index [5] user menu].

Setting DHW set			
Index - string	Value MIN	Value MAX	Parameter function
 E SAS	25 °C	(*)	The heat pumps have a work set for the production of DHW; this set indicates the produced water temperature above which the compressor is stopped. Remember that to display this set, the parameter (A) of the installer menu must be active (value set = 1). (*): - the maximum limit can be configured via the parameter (t) of the installer menu; - if the parameter (8) of the installer menu is set at 4, the maximum limit becomes 70°C in order to allow insertion of a set-point for boiler adjustment;

Setting domestic water proportional band			
Index - String	MIN value	MAX value	Parameter function
 F bAS	1 °C	20 °C	This parameter indicates the proportional band applied to the hot domestic water set; this band produces the optimised management of the compressor, only switching it on if the inlet/outlet water temperature (depending on the type of control set by parameter (0) in the installer menu) is less than the hot domestic water set (parameter (E) user menu), minus the value of this parameter. In cooling only units, this parameter is displayed but it cannot be modified.



Parameter visible ONLY on units suitable for the production of hot water



Parameter visible ONLY on units suitable for the production of DHW



Parameter visible ONLY on units with condensation control device on board



Parameter ONLY visible on units fitted with twin compressor



Parameter ONLY visible on units fitted with inverter compressor

INSTALLER menu

To access the INSTALLER menu, press the key in (Fig.9). Once the key has been pressed, you must insert the password to access the various menus; to access the user menu, the password is 030. To modify the value of the passwords, use the arrow keys.

When you have inserted the correct password, press the key in (Fig.9). The monitor will show the index of the INSTALLER parameter and a 3-character string that identifies it; the string will be displayed for one second, after which it is replaced by the value of the parameter itself.

To move on to the next parameter, use the arrow keys (Fig.10). To modify a parameter, just select it, press the key in (Fig.9), modify the assigned value using the arrow keys in (Fig.10), and confirm the modification by pressing the key in (Fig.9) again.

WARNING The following parameters must only be modified by qualified personnel authorised to install the unit.

PASSWORD = 030

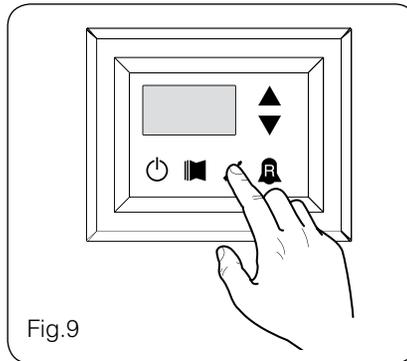


Fig.9

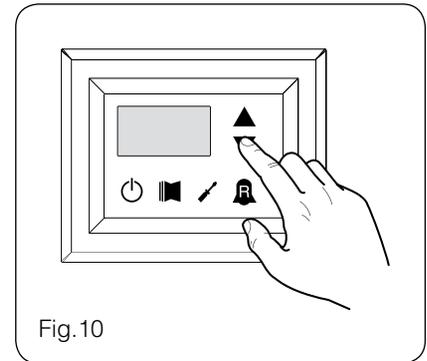


Fig.10

Setting operational parameters (installer level)

Setting of input and output regulation			
Index - String	MIN value	MAX value	Parameter function
0 u	0	2	<p>The machine adjustment will depend on the value of this parameter:</p> <ul style="list-style-type: none"> • if 0, the machine adjustment is based on the output temperature; • if 1, the machine adjustment is based on the input temperature; • if 2, the machine adjustment is based on the temperature of the remote probe, as read on the DHW panel (in the event of a fault on the remote probe, the machine adjustment is based on the built-in probe, signalling this fact via alarm code 157). <p>If the production of hot domestic water is activated, the adjustment is automatically forced on the water output temperature, regardless of the value of this parameter.</p>

Setting cooling FORCE-OFF			
Index - String	MIN value	MAX value	Parameter function
1 OFF	-25 °C	25 °C	<p>The units check the working temperature (input or output), to which a safety threshold is connected, and beyond which the compressor is switched off immediately and automatically; this threshold is called FORCE-OFF.</p>



Parameters only visible in heat pump models



Parameters only visible in models set for hot domestic water production



Parameters only visible in the models with DCP installed



Parameters only visible in bicompressor models



Parameters only visible in the models with inverter compressor

Setting heating FORCE-OFF			
Index - String	MIN value	MAX value	Parameter function
2 ofc 	30 °C	70 °C	The heat pumps check the working temperature (input or output), to which a safety threshold is connected, and beyond which the compressor is switched off immediately and automatically; this threshold is called FORCE-OFF.

Setting the safety threshold			
Index - String	MIN value	MAX value	Parameter function
3 SAF	0,5 °C	20 °C	Temperature threshold above the force-off, which reactivates the start-up of the compressor after the switching off for force-off.

Setting integral time			
Index - String	MIN value	MAX value	Parameter function
4 int	0 s	999 s	The units possess an advanced logic for controlling the processed water temperature; the complete check prevents the system arriving at a point of equilibrium at a higher or lower temperature compared with the one set in the work setting. Remember that an increase in the integration time weakens the effect of the integral control.

Setting derivation time			
Index - String	MIN value	MAX value	Parameter function
5 der	0 s	120 s	Time within which the input water temperature is checked to estimate the load on the system; if the band on the setting value is exceeded within this time, the unit will be activated.

Setting the anti-freeze threshold			
Index - String	MIN value	MAX value	Parameter function
6 AG	-50 °C	20 °C	In the units it is possible to set a threshold for the anti-freeze alarm; this value specifies at what temperature the anti-freeze alarm is activated. Remember that, to modify the anti-freeze threshold parameter, the corresponding dip-switch must be activated (see the dip-switch configuration table).

Setting frost protection			
Index - String	MIN value	MAX value	Parameter function
7 FrP	0	4	In the units, it is possible to set a safety control on the water output temperature; on the basis of the value assigned to this parameter, the anti-freeze electric heater is managed as follows: <ul style="list-style-type: none"> • value 0, anti-freeze electric heater absent; • value 1, anti-freeze electric heater installed and working only with machine in heat or cool mode; • value 2, anti-freeze electric heater installed and working also in standby, but switching on the pump; • value 3, anti-freeze electric heater working in standby without the pump being activated; • value 4, with external air temperature less than 3°C, the pump is activated for 2 minutes every 30, to monitor the temperature of the water throughout the system.



Parameters only visible in heat pump models



Parameters only visible in models set for hot domestic water production



Parameters only visible in the models with DCP installed



Parameters only visible in bicompressor models



Parameters only visible in the models with inverter compressor

Setting the supplementary electric heater or activating the boiler			
Index - String	MIN value	MAX value	Parameter function
8 r in	0	4	<p>This parameter indicates which logic must be used to manage the supplementary electric heater; the choice of logic is determined by the value set in this parameter so, depending on the value, the settings are:</p> <p>0 = no supplementary electric heater present on the unit 1 = supplementary electric heater present, but cannot be activated during hot domestic water production 2 = electric heater activation command used as consent for activation of an external boiler 3 = supplementary electric heater present and active during hot domestic water production 4 = electric heater activation command used as consent for activation of an external boiler which can also be used in supplementary mode</p> <p>WARNING:</p> <ul style="list-style-type: none"> • on the SRP V1 units, it is ABSOLUTELY FORBIDDEN to set this parameter value at (3); • to set the value at (4), the DHW accessory is needed.

Panel control configuration			
Index - String	MIN value	MAX value	Parameter function
9 PAN	0	3	<p>This setting configures the type of control applicable to the units; depending on the value decided for this setting, the controls on the functioning mode (HEAT/COOL) and the unit on/off command will be managed in the following way:</p> <p>Set value 0:</p> <ul style="list-style-type: none"> • Setting functioning mode = set parameter 0 • ON/OFF control = from the panel on the machine <p>Set value 1:</p> <ul style="list-style-type: none"> • Setting functioning mode = set parameter 0 • ON/OFF control = from the remote panel <p>Set value 2:</p> <ul style="list-style-type: none"> • Setting functioning mode = set from remote contact • ON/OFF control = from the panel on the machine <p>Set value 3:</p> <ul style="list-style-type: none"> • Setting functioning mode = set from remote contact • ON/OFF control = from the remote contact

Enabling domestic water			
Index - String	MIN value	MAX value	Parameter function
A ASA 	0	1	<p>In the heat pump models, there is the possibility to produce hot water for domestic use; this production has its own modifiable setting and its own band (parameters E, F user menu); with this parameter you can make parameters E and F visible and usable. Remember that to guide the domestic water production request, once the function has been activated you must use digital input ID6 (marked on the electric card enclosed with the unit as TWS). Remember also that setting this parameter with a value of:</p> <ul style="list-style-type: none"> • 1, you ENABLE the domestic water function • 0, you DISABLE the domestic water function <p>The CLOSED status of the clamp means the domestic water function is ACTIVE. This function is available from software version 3.7 (the software version is visible as a reading, with index E). The minimum compressor functioning time, and the defrosting time, take priority over the production of domestic water. From software version 4.2, when domestic water is activated the adjustment is automatically set on the basis of the output temperature, regardless of the value of the parameter (0) in this menu.</p>



Parameters only visible in heat pump models



Parameters only visible in models set for hot domestic water production



Parameters only visible in the models with DCP installed



Parameters only visible in bicompressor models



Parameters only visible in the models with inverter compressor

Power dedicated to domestic water production			
Index - String	MIN value	MAX value	Parameter function
b ASP 	0 %	100 %	In those units that can produce domestic water, once this function has been activated it is possible to decide the percentage of power to use for the production. This function allows you to set a threshold to guarantee reduced energy consumption during domestic water production.

Standby time in Input/Output			
Index - String	MIN value	MAX value	Parameter function
C AAS 	0 s	600 s	This parameter allows you to establish the standby time (in seconds) for reversing the 3-way valve inserted in the system for producing domestic water.

Standby time in Input/Output			
Index - String	MIN value	MAX value	Parameter function
d trA 	0	3	This parameter enables the possibility to join the ID digital clamp (marked on the electric card enclosed with the unit as TRA) with a room thermostat on which the functioning of the compressors and supplementary electric heaters will be disabled. Remember also that setting this parameter with a value of: <ul style="list-style-type: none"> • 1 or 2, you ENABLE this function • 0 or 3, you DISABLE this function Remember that the OPEN status of the clamp means: <ul style="list-style-type: none"> • the function blocks the compressors and electric heaters if the parameter is set at 1 • the function blocks the compressors, pump and electric heaters if the parameter is set at 2 • the pump alarm (as in the previous software version), if the parameter is set at 3 Remember also that by setting this parameter at 3, the moducontrol card is compatible with the previous software version (3.6).

Enabling flow switch bypass			
Index - String	MIN value	MAX value	Parameter function
E bAF 	0	1	In those units that produce domestic water, the flow switch alarm can be bypassed to allow the correct synchronisation between a diverting valve installed in the system, and unit functioning during the production of hot domestic water.

Time for flow switch bypass			
Index - String	MIN value	MAX value	Parameter function
F tBF 	0 s	300 s	This parameter allows you to establish the time (in seconds) for flow switch bypass.



Parameters only visible in model set for hot water production



Parameters only visible in models set for hot domestic water production



Parameters only visible in the models with DCP installed



Parameters only visible in bicompressor models



Parameters only visible in the models with inverter compressor

High room temperature standby			
Index - String	MIN value	MAX value	Parameter function
 G OAE	0	70	This parameter lets you establish the room temperature threshold above which the heat pump is disabled; once the threshold has been exceeded, the compressor and pump are switched off.

High temperature threshold for input water			
Index - String	MIN value	MAX value	Parameter function
 H At ,	40	80	This parameter indicates the temperature of the input water above which the pump is switched off and a pre-alarm is generated. After the intervention of the pre-alarm, there is a waiting time of 15 minutes before the pump starts up again. After the third intervention, the machine goes into alarm/lockout. Active also with the pump switched off, and the chiller in standby. In the latter case, the alarm is generated.

Screensaver configuration			
Index - String	MIN value	MAX value	Parameter function
 , SCR	0	2	This parameter indicates the configuration of the screensaver: <ul style="list-style-type: none"> • value 0, screensaver disabled; • value 1, screensaver with visualisation of the dashes (to be used with the control panels with software prior to version 1.3); • value 2, screensaver without visualisation of the dashes (to be used with the control panels with software from version 1.3 onwards).

Modbus supervisor address			
Index - String	MIN value	MAX value	Parameter function
 J Ad I	0	999	This parameter indicates the Modbus address assigned to the supervisor; this address will be used in the communication between supervisor and Moducontrol.

Supervisor baud rate			
Index - String	MIN value	MAX value	Parameter function
 L Bd I	0	2	This parameter indicates the speed of communication between supervisor and Moducontrol; this speed is set on the basis of the value selected for this parameter: 0 = 9600 bps 1 = 19200 bps 2 = 38400 bps

Supervisor write enabled			
Index - String	MIN value	MAX value	Parameter function
 n AS I	0	1	This parameter enables the write commands for the supervisor; this enablement is set on the basis of the value selected for this parameter: 0 = write command disabled 1 = write command enabled Remember that the read commands are always active.

 Parameters only visible in model set for hot water production

 Parameters only visible in models set for hot domestic water production

 Parameters only visible in the models with DCP installed

 Parameters only visible in bicompressor models

 Parameters only visible in the models with inverter compressor

Air temperature limit 1(*)			
Index - String	MIN value	MAX value	Parameter function
o LA1 	-25°C	45°C	This parameter indicates the external air temperature at which the machine can produce its maximum water value (this value is specified in parameter P - St1).

Water temperature limit 1(*)			
Index - String	MIN value	MAX value	Parameter function
P St1 	0°C	70°C	This parameter indicates the maximum temperature of the water produced, in line with the outside air temperature specified in parameter O - LA1.

Air temperature limit 2(*)			
Index - String	MIN value	MAX value	Parameter function
9 LA2 	-25°C	45°C	This parameter indicates the external air temperature at which the machine can produce its maximum water value (this value is specified in parameter R - St2).

Water temperature limit 2(*)			
Index - String	MIN value	MAX value	Parameter function
r St2 	0°C	70°C	This parameter indicates the maximum temperature of the water produced, in line with the outside air temperature specified in parameter Q - LA2.

Maximum heating set point			
Index - String	MIN value	MAX value	Parameter function
t LSP 	15°C	65°C	This parameter indicates the maximum temperature of the water produced by the unit in heat mode.



Parameters only visible in model set for hot water production



Parameters only visible in models set for hot domestic water production



Parameters only visible in the models with DCP installed



Parameters only visible in bicompressor models



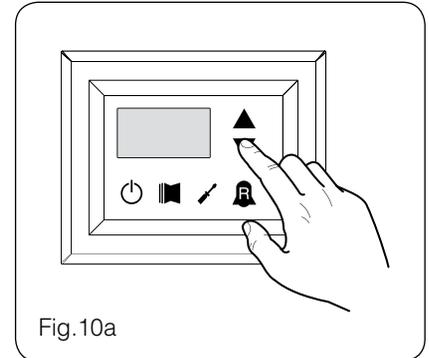
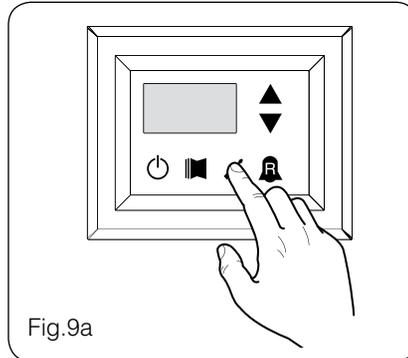
Parameters only visible in the models with inverter compressor

INSTALLER 2 menu

To access the INSTALLER_2 menu, follow the same procedure described for the INSTALLER menu; the only difference is the value of the password, which is 31.

WARNING The following parameters must only be modified by qualified personnel authorised to install the unit.

PASSWORD = 031



Setting operational parameters (installer level)

Threshold for reactivation after shutdown force off			
Index - String	MIN value	MAX value	Parameter function
0	0 °C	30 °C	If the parameter value $r_{in} = 4$ (parameter 8 of the Installer menu), then this is a probe storage system, this parameter indicates how much lower the threshold of force off so as to prevent the compressor is reactivated after the intervention of ForceOff dynamic extinguished soon after.

Configuration of the heating cable (ANK only)			
Index - String	MIN value	MAX value	Parameter function
1	0	2	Setting the output to which the heating cable is connected: 0- no heating cable 1- heating cable on the CPA output (the parameter (0) of the menu with password=72 "according to CP must be 0" 2- heating cable on the VGC output if not used (the configuration of the dip switches must be: DIP1 = ON, DIP2=ON, DIP5=ON, DIP8=OFF, DIP9=OFF)

Heating cable setpoint (ANK only)			
Index - String	MIN value	MAX value	Parameter function
2	-20 °C	10 °C	Heating cable activated with an external air temperature lower than the value of this parameter. Heating cable deactivated with an external air temperature higher than the value of this parameter, plus 1.0° hysteresis.

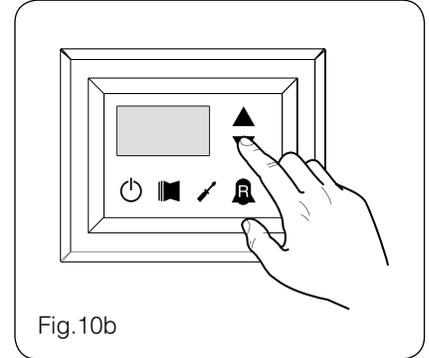
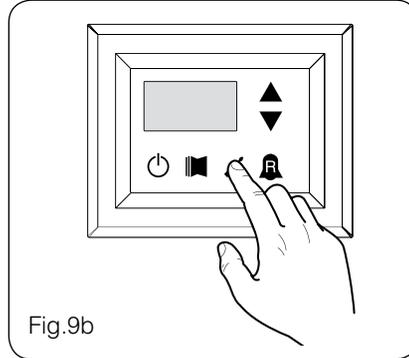
Thermostat pump switch-off			
Index - String	MIN value	MAX value	Parameter function
3	0	1	0 = the pump continues to function when the set point temperature is reached. 1 = the pump switches off when the set point temperature is reached (when this option is selected, the adjustment is automatically activated on the basis of the input temperature). This parameter is only visible with the adjustment on the basis of the input temperature (parameter (0) =1 or 2).

INSTALLER 3 menu

To access the INSTALLER_2 menu, follow the same procedure described for the INSTALLER menu; the only difference is the value of the password, which is 84.

WARNING The following parameters must only be modified by qualified personnel authorised to install the unit.

PASSWORD = 084



Setting operational parameters (installer level)

Factory settings			
Index - String	MIN value	MAX value	Parameter function
0,1,2,3	0	999	factory settings

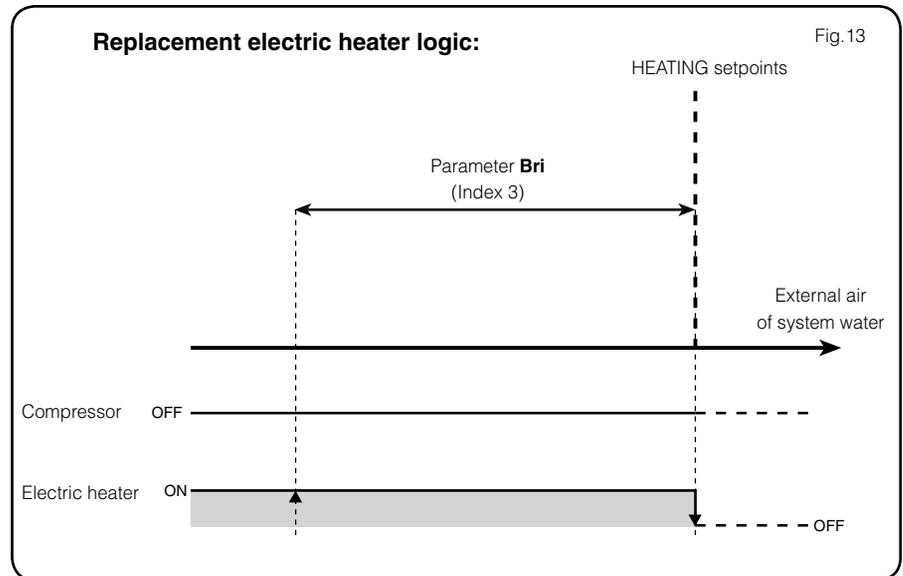
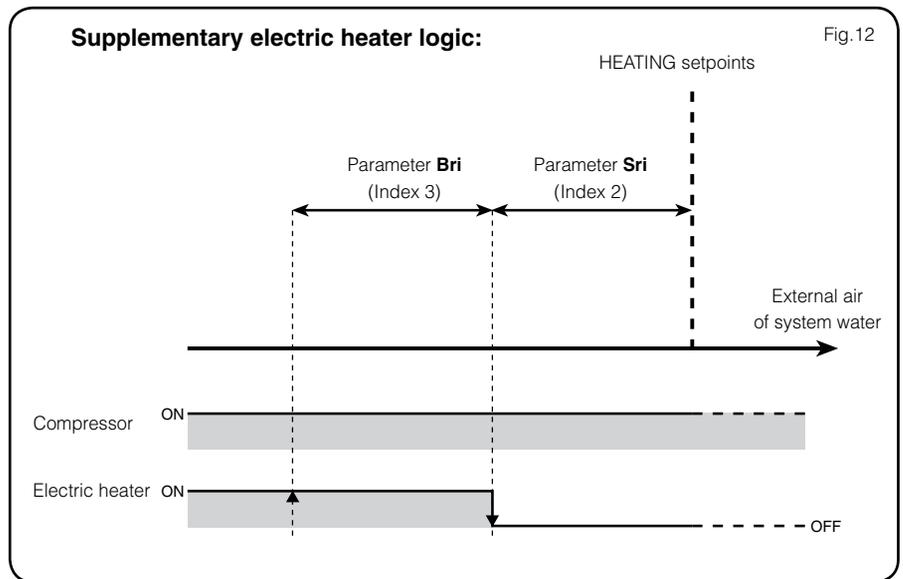
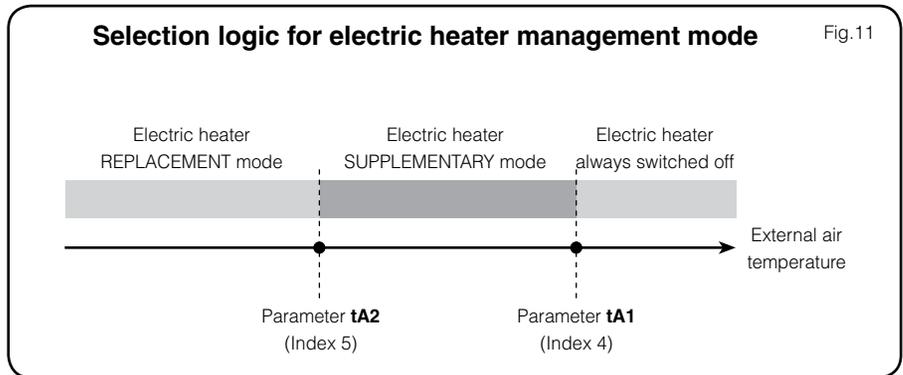
Setting maximum DCP Volt			
Index - String	MIN value	MAX value	Parameter function
4	2.0V	9.9V	This parameter allows you to set the maximum speed of the fans in the CL units, the greater the value of this parameter, the higher the pressure available at fan; for an accurate setting of this parameter, please consult the table "Setting maximum DCP Volt" the manual installation of the units CL

Managing the electric heater

The units with moducontrol offer the possibility to manage an electric heater; this heater can be managed in different ways:

- supplementary (the simultaneous use of the heat pump and the electric heater);
 - anti-freeze, or replacement (the heat pump compressor is switched off and the electric heater alone is activated);
- The operational specifications of both modes are shown in the diagrams below. The choice of supplementary or replacement mode depends on the external air temperature, and in case this falls below the threshold indicated in the relative diagram.

WARNING: all parameters referred to in the chart alongside are contained in the electric heater menu, shown on the next pages.



ELECTRIC HEATER menu

To access the ELECTRIC HEATER menu, press the key in (Fig. 14). Once the key has been pressed, you must insert the password to access the various menus; to access the user menu, the password is 001. To modify the value of the passwords, use the arrow keys. When you have inserted the correct

password, press the key in (Fig. 14). The monitor will show the index of the ELECTRIC HEATER parameter and a 3-character string that identifies it; the string will be displayed for one second, after which it is replaced by the value of the parameter itself. To move on to the next parameter, use

the arrow keys (Fig. 15). To modify a parameter, just select it, press the key in (Fig. 14), modify the assigned value using the arrow keys in (Fig. 15), and confirm the modification by pressing the key in (Fig. 14) again.

WARNING The following parameters must only be modified by qualified personnel authorised to install the unit.

PASSWORD = 001

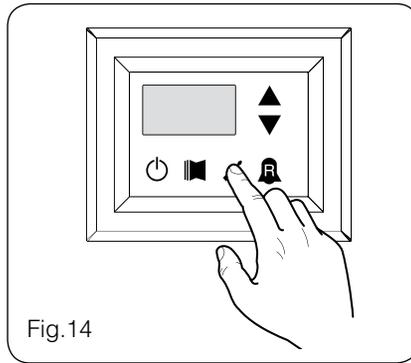


Fig. 14

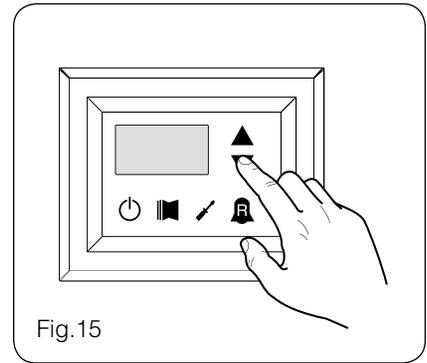


Fig. 15

Setting operational parameters (electric heater level)

Setting anti-freeze electric heater setpoints			
Index - String	MIN value	MAX value	Parameter function
0 SrA	-20°C	50°C	The units offer the possibility to set a threshold for the activation of the anti-freeze electric heater; if the temperature read by one of the two water sensors (input or output, depending on the type of check enabled) reaches the value set in this parameter, the anti-freeze electric heater is activated.

Setting anti-freeze electric heater band			
Index - String	MIN value	MAX value	Parameter function
1 brA	0.3°C	10°C	The units offer the possibility to set a threshold for the activation of the anti-freeze electric heater; if the temperature read by one of the two water sensors (input or output, depending on the type of check enabled) reaches the value set in this parameter, the anti-freeze electric heater is activated.

Setting supplementary electric heater setpoint			
Index - String	MIN value	MAX value	Parameter function
2 S _{r1} 	0°C	65°C	This parameter indicates the deviation from the heating setpoint, for switching off the electric heater (if active) in supplementary mode; as shown in Fig.12 on the previous page (Parameter Sri).

Setting electric heater band in supplementary/replacement mode			
Index - String	MIN value	MAX value	Parameter function
3 b _{r1} 	0°C	20°C	In supplementary mode, the temperature of the water in the system is checked before the unit is switched on. If the temperature is less than/equal to the value calculated for the switch-on band, the electric heater will be switched on and will operate as per the diagram on the previous page Fig.12. The value of the switch-on band is calculated as follows: switch-on band = (Heating setpoint) - (Parameter Sri) - (Parameter Bri); see Fig.12 on previous page; In replacement mode, this parameter represents the band of deviation from the heating setpoint, within which the heater will be activated or deactivated, as shown on the previous page Fig.13.

Setting outside air temperature threshold for supplementary mode			
Index - String	MIN value	MAX value	Parameter function
4 tA1 	-40°C	50°C	This parameter indicates the outside air temperature threshold, beneath which the heater is activated in supplementary mode; as shown on the previous page, in Fig.11 Parameter tA1.

Setting outside air temperature threshold for replacement mode			
Index - String	MIN value	MAX value	Parameter function
5 tA2 	-40°C	50°C	This parameter indicates the outside air temperature threshold, beneath which the heater is activated in replacement mode; as shown on the previous page, in [Fig.A] Parameter tA2.

Setting the band for air temperature			
Index - String	MIN value	MAX value	Parameter function
6 bA 	0°C	20°C	This parameter indicates the band applied to the air temperature setpoints (tA1-tA2).

-  Parameters only visible in model set for hot water production
-  Parameters only visible in models set for hot domestic water production

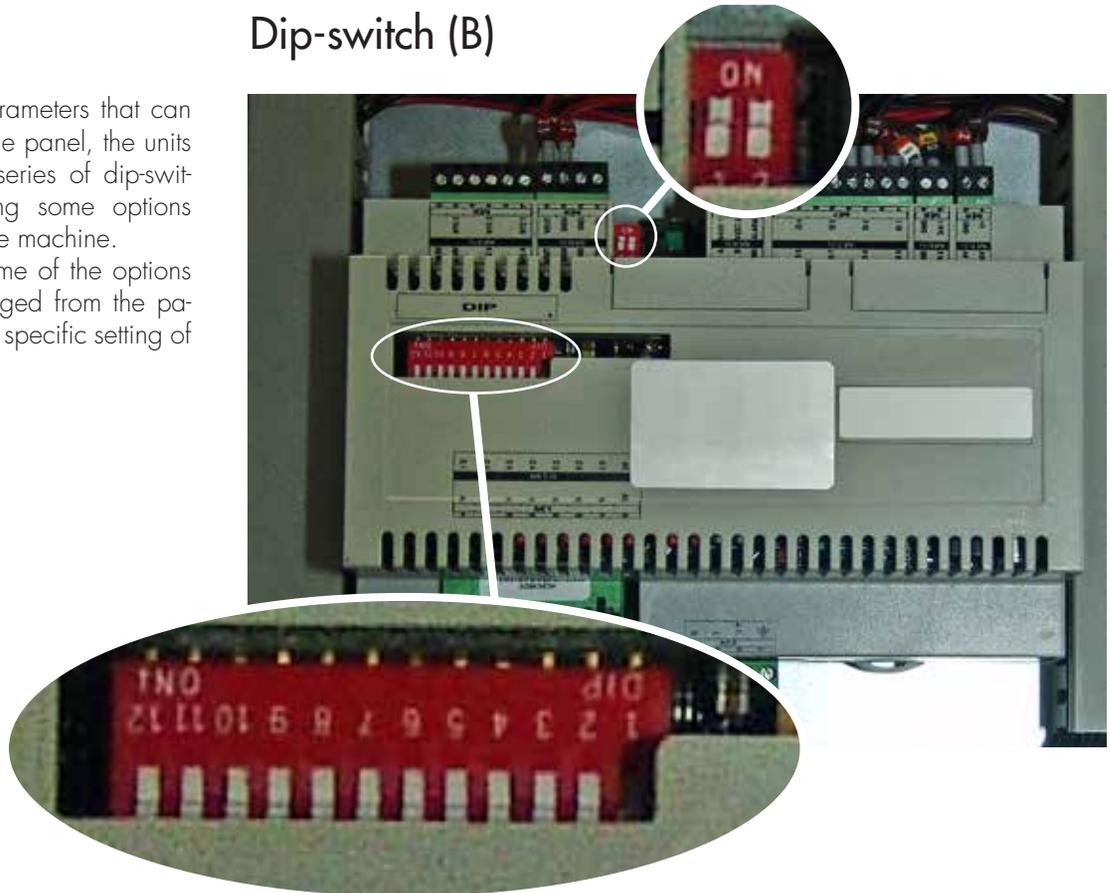
-  Parameters only visible in the models with DCP installed
-  Parameters only visible in bicompressor models
-  Parameters only visible in the models with inverter compressor

Table of DIP-SWITCH configuration

Dip-switch (B)

Apart from the parameters that can be inserted from the panel, the units are fitted with a series of dip-switches for managing some options and functions of the machine.

Remember that some of the options that can be managed from the panel are bound to a specific setting of some dipswitches.



Heat recovery unit	DIP-SWITCH (A)												DIP-SWITCH (B)	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2
ANL	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	---	---	OFF	OFF
ANL H	ON	OFF	---	---	OFF	OFF								
ANL C	ON	OFF	ON	---	---	OFF	OFF							
ANL A/Q	ON	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	---	---	OFF	OFF
ANL HA/HQ	ON	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	---	---	OFF	OFF
ANL Z/Y	ON	OFF	ON	OFF	---	---	OFF	OFF						
ANLI H	ON	OFF	ON	OFF	---	---	ON	OFF						
ANR H	ON	OFF	---	---	OFF	OFF								
ANR HA/HK	ON	OFF	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	---	---	OFF	OFF
ANR HP	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	---	---	OFF	OFF
ANF H	ON	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	---	---	OFF	OFF
ANF HA/HK/HJ	ON	ON	OFF	ON	ON	ON	OFF	ON	OFF	OFF	---	---	OFF	OFF
ANF HP	ON	ON	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	---	---	OFF	OFF
ANK	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	---	---	OFF	OFF
ANK Z/Y	ON	ON	ON	OFF	---	---	OFF	OFF						
ANK A	ON	ON	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	---	---	OFF	OFF
SRP	ON	ON	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	---	---	OFF	OFF

Dip-switch	Status	Function	
A	1	ON	Machine set as heat pump
		OFF	Machine set for cooling only
	2	ON	Defrosting only by cycle reversal
		OFF	Defrosting by hot gas injection
	3	ON	Glycol water: anti-freeze setting can be modified
		OFF	Anti-freeze setting (parameter B) blocked
	4	ON	Output control deactivated
		OFF	Output control activated
	5	ON	Safety capacity controls deactivated
		OFF	Safety capacity controls activated
	6	ON	Algorithm for check of low water content deactivated
		OFF	Algorithm for check of low water content activated
	7	ON	Condensation pressure control device present (accessory DCP)
		OFF	Condensation pressure control device absent (accessory DCP)
	8	ON	Configuration of the card for ANR unit (R407C)
		OFF	Configuration of the card for ANL unit (R410A)
	9	ON	Configuration of the card for inverter unit
		OFF	Configuration of the card for ON/OFF chiller unit
	10	ON	Configuration of the card for condenser unit
		OFF	Configuration of the card for chiller unit
	11	ON	Not used
		OFF	Not used
	12	ON	Not used
		OFF	Not used

Dip-switch	Dip combinations		Function
	DIP 1	DIP 2	
B	OFF	OFF	Factory settings
	ON	OFF	Factory settings
	ON	ON	Factory settings
	OFF	ON	Factory settings

Alarms summary table

The units envision two types of malfunctioning signals:

- Pre-alarm
- Alarm

The first type is indicated by the flashing of the red LED on the display, successive pressing of the bell key allows

to display the list of alarms (with index and cause indicated in the table below). A pre-alarm remains such for 60 seconds: if after this time the condition that caused the prealarm has not disappeared, the same becomes an alarm. The alarms are displayed in the

same way as the pre-alarms, except for the switch-on of the fixed red LED. Before rearming the unit, it is recommended to contact the after-sales service. To rearm the unit, switch it off and back on again using the stand-by key.

ATTENTION:

The pre-alarms can become alarms when:

- A time has passed longer than or equal to 60 seconds, in the pre-alarm condition.
- The maximum number of pre-alarms in one hour (five) has been exceeded. In this case, every successive pre-alarm will be displayed directly as an alarm, and as such, will stop the machine until the reason for the same is solved.

Code Alarm	Code Pre-alarm	Causes	Notes
1	101	Compressor magnet circuit breaker	This signal intervenes if the contact relative to the magnet circuit breaker switch protecting the MTC compressor opens (Table 2, contact ID1, clamps M7.1 - M7.2, normally closed)
		Fan magnet circuit breaker	
		Pump magnet circuit breaker	
2	102	Fan magnet circuit breaker	This signal intervenes if the contact relative to the magnet circuit breaker switch protecting the MTV fans opens (Table 2, contact ID6, clamps M7S.3 - M7S.4, normally closed) This code is displayed only if the board is used as a board spare part with SW up to version 3.6.
3	103	High pressure switch	This signal DOES NOT give the state of the high pressure switch itself but of the compressor switch. The high pressure switch operates directly on the compressor switches. If the board commands compressor switch-on and the switch does not become active after 3 seconds, this signal occurs. This alarm can also be caused by an operating defect of the return relay from the compressor switch to the board (indicated as RAP in the wiring diagrams). This signal occurs if the compressor switch deactivates during operation. AP (Table 2, contact ID4, clamps M7.7 - M7.8, normally closed)
4	104	Flow switch	This signal occurs with the opening of the contact relative to the differential flow switch or pressure switch; this alarm is not relative for the first 40" from pump start-up. The machine blocks in alarm mode when the maximum number of flow switch interventions allowed (expressed by the set_factory parameter (y): default 5) is exceeded. If the frost protection in standby mode is activated (and therefore also the pump), the state of the flow switch is also controlled. FL/PD (Table 2, contact ID2, clamps M7.3 - M7.4, normally closed)
		Water differential pressure switch	
5	105	Low pressure switch	This signal intervenes when the contact relative to the low pressure switch opens (compressor intake). BP (Table 2, contact ID5, clamps M7S.1 - M7S.2)
6	106	No water inlet probe	This signal occurs when the water inlet probe is disconnected
7	107	No water outlet probe	This signal occurs when the water outlet probe is disconnected
8	108	Water freezing	This signal occurs when the anti-freeze threshold is reached (set_installer (6) default: 3°C) from the output water temperature. The pre-alarm state is exited with outlet water temperature exceeding the set_installer (6) + set_factory (J) (default 3+1=4°C). The anti-freeze alarm is suspended (in heating mode) for a period of time equal to 3' (set_factory parameter (H)) from compressor switch on.
9	109	No pressing line probe	This signal occurs when the pressing line gas probe is absent
10	110	High pressing line gas temperature	This signal occurs when the temperature of the pressing line gas (SGP probe) exceeds the threshold envisioned by the parameter (set_factory (6), default 135°C). The pre-alarm state is exited with set_factory (7) temperature (default 135 - 10 = 125 °C)
11	111	Flow pressure transducer no compressor	This signal occurs when the compressor flow transducer is absent and the machine is set as heat pump or the presence of the DCP is set

Code Alarm	Code Pre-alarm	Causes	Notes
12	112	High pressure	This signal occurs when the transducer detects a flow pressure over the set-factory parameter threshold (8) (default: 40 bar). The pre-alarm state is exited with set_factory (8) – set_factory (b) pressure (default 40 – 2 = 38 bar)
13	113	No defrosting probe	This signal occurs when the defrosting probe is absent and the machine is set as heat pump
14	114	Intake pressure transducer no compressor	This signal occurs when the compressor intake transducer is absent and the machine is set as heat pump
15	115	Low pressure	This signal occurs when the compressor flow transducer indicates an intake pressure below the threshold set by the set_factory (9) parameter in cooling mode (default 4 bar), set_factory(A) ion heating mode (default 2 bar). The pre-alarm state is exited when the intake pressure exceeds the intervention set_factory(b) threshold default equal to 2 bar. The low pressure alarm is suspended in heating mode for a period of time equal to 3' (set_factory parameter (H parameter) from compressor switch on. It is permanently suspended during cycle reverse
16	-	Low performance	Every time the machine is powered, the control checks compressor behaviour once via the yield control procedure (see 8.1); this control is disabled from dip switch
17	117	Pump magnet circuit breaker	This signal intervenes if the magnet circuit breaker switch protecting the pump is opened. MTP (table 2, contact ID3, clamps M7.5 – M7.6, normally closed). This code is displayed only if the board is used as a board spare part with SW up to version 3.6.
18	118	High pressure partialisation	This signal occurs every time a partialisation takes place due to the threshold mentioned in paragraph 8.5 being reached. The machine blocks in alarm mode when the maximum number of partialisation interventions allowed (expressed by the set_factory (5) parameter: default 5) is exceeded. With inverter machine mode, it also indicates a partialisation due to high compression ratio.
19	119	Low pressure partialisation	This signal occurs every time a low pressure partialisation takes place, par. 8.5. The machine blocks in alarm mode when the maximum number of partialisations allowed (expressed by the set_factory (5) parameter: default 5) is exceeded.
20	120	Pressing line temperature partialisation	This signal occurs every time a pressing line temperature partialisation takes place (par. 8.5), the machine blocks in alarm mode when the maximum number of partialisation interventions (expressed by the set_factory (5) parameter: default 5) permitted is exceeded.
21	121	Bemf error	Error in detection of the back emf. This error is returned by the inverter control board and is linked to compressor peak problems (longertek 4 code or longertek 20 code)
22	122	Internal communication error	The inverter control board has internal communication problems (longertek 5 code)
23	123	Over-current	Excess current absorption by compressor (longertek 6 code)
24	124	No load	The compressor does not absorb enough current, it may turn in idle mode (longertek 7 code)
25	125	Incorrect voltage	The inverter control board indicates incorrect bus voltage (longertek 8 code)
26	126	Error on start-up	The inverter control board indicates incorrect start-up of the PMSM motor (longertek code 9)
27	127	IPM protection error	Error on the IGBT (longertek 12 code)
28	128	EEPROM error	Eeprom error on the inverter control board (longertek 13 code)
29	129	Compressor stall	Code longertek 16
30	130	No communication	The inverter control board does not respond. It may not be powered or the serial cable could be disconnected or the A and B signals reversed
31	131	PFC Module	PFC inverter module error (longertek 23 code)
32	132	Cooling fin overheating	(code APY 1)
33	133	Over current in acceleration mode	Hardware error (cod. APY 2)
34	134	Over-current at constant speed	Hardware error (cod. APY 3)
35	135	Over current in deceleration mode	Hardware error (cod. APY 4)
36	136	Under-voltage on the DC Bus	(code APY 5)

Code Alarm	Code Pre-alarm	Causes	Notes
37	137	DC Bus over-voltage	(code APY 6)
40	140	PFC Converter Fault Error in the PFC module	Software error (code APY 9)
41	141	Over current in acceleration mode	Software error (code APY 10)
42	142	Overload	(code APY 11)
43	143	Over-current at constant speed	Software error (code APY 12)
44	144	Over current in deceleration mode	Software error (code APY 13)
45	145	Compressor not connected correctly	(code APY 14)
46	146	No communication	(code APY 15)
47	147	Cooling fin temperature sensor error	(code APY 16)
51	151	Anomalous condition	Protection frequency against over-current and overheating reduced. (code APY 20)
54	--	Cycle reverse valve faulty	The cycle reverse valve could be faulty or broken. (see 8.4)
55	155	Water inlet high temperature	The water inlet temperature has exceeded the set_installer (H) parameter value. Probable boiler presence on same plant. At the third intervention of the pre-alarm, the machine goes into alarm mode and blocks
--	156	Cycle reverse due to high temperature of the pressing line gas	This pre-alarm indicates the intervention of defrosting due to cycle reverse without having respected the times between cycle reverses. Cycle reverse has been triggered by the pressing line gas high temperature partialisation threshold being exceeded, set_factory (6)-set_factory (4) = default 130°. This pre-alarm does not cause compressor stop and does not have a limited number of interventions
57	157	Reading error of the DHW control board remote probe.	This pre-alarm indicates a remote probe fault or a communication problem with the DHW control board. The alarm is only active if the parameter (0)=2 or the parameter (8)=4 in the menu with password = 30
58	158	Outdoor air temperature probe reading error	This pre-alarm indicates an outdoor air temperature probe fault when the DCP is present or the machine is in heat pump mode.
59	159	Inlet water probe no condenser (ONLY WRL)	This pre-alarm indicates a condenser inlet water temperature probe fault
60	160	Output water probe no condenser (ONLY WRL)	This pre-alarm indicates a condenser outlet water temperature probe fault
61	161	Over-current	Carel Inverter
62	162	Compressor motor overload	Carel Inverter
63	163	Over-voltage	Carel Inverter
64	164	Under-voltage	Carel Inverter
65	165	Drive overheating	Carel Inverter
66	166	Drive underheating	Carel Inverter
67	167	Hardware over-current	Carel Inverter
68	168	Compressor overheating	Carel Inverter
69	169	Reserved	Carel Inverter
70	170	CPU error	Carel Inverter
71	171	Default parameters	Carel Inverter
72	172	DC bus ripple	Carel Inverter
73	173	No communication between inverter and uPC	Carel Inverter
74	174	Drive temperature sensor fault	Carel Inverter
75	175	Self-configuration failed	Carel Inverter
76	176	Inverter drive disabled	Carel Inverter
77	177	Motor phases error	Carel Inverter
78	178	Cooling fan Inverter faulty	Carel Inverter
79	179	Speed fault	Carel Inverter

Code Alarm	Code Pre-alarm	Causes	Notes
80	180	PFC fault	Alarm that occurs with PFC enabled while the bus DC is very low
81	181	PFC overload trip	This alarm will no longer be present in the new firmware versions.
82	182	Input voltage error	When the power supply drops below 170 V with engine running
83	183	Generic inverter error	Carel Inverter, carel modbus address 213
84	184	Probe B1 fault (uPC)	Control wiring
85	185	Probe B2 fault (uPC)	Control wiring
86	186	Probe B3 fault (uPC)	Control wiring
87	187	Probe B4 fault (uPC)	Control wiring
88	188	Probe B5 fault (uPC)	Control wiring
89	189	Probe B6 fault (uPC)	Control wiring
90	190	Probe B7 fault (uPC)	Control wiring
91	191	High pressure alarm (uPC)	Control wiring
92	192	Low pressure alarm (uPC)	Control wiring
93	193	Gas high temperature alarm pressing line (uPC)	Control wiring
94	194	Pressure differential lower than that specified (uPC)	Control wiring
95	195	Compressor start-up failed (uPC)	Control wiring
96	196	Time exceeding operational limits alarm (uPC)	Control wiring
97	197	Super Heat low alarm (uPC)	Control wiring
98	198	MOP alarm (uPC)	Control wiring
99	199	Low intake temperature alarm (uPC)	Control wiring
200	300	EVD EVO alarm: Evtunes alarm (uPC)	Control wiring
201	301	EVD EVO regulation alarm (uPC)	Control wiring
202	302	EVD EVO system alarms probe errors alarm (uPC)	Control wiring
203	303	Reserved. (uPC)	Control wiring
204	304	No communication between inverter and uPC. (uPC error)	Control wiring
205	305	Inverter not compatible with the compressor selected (uPC)	Control wiring
206	306	Delta P greater than the permit at start up (uPC)	Control wiring
207	307	Low pressure limit	Discharged unit

CAUTION:

Remember that pre-alarms are auto-reset, while the alarms are reset manually.

Software version 3.9.0 has been used to reset alarms by ON / OFF remote contact if enabled.

From position on, if it goes off and returns to within 5 seconds resets alarms; Via the ON / OFF contact, you can run up to 3 reset every hour.

First you have to reset the alarms with the "R" key. If there is no voltage, the alarms are reset.