



EN



## SUMMARIZED USER MANUAL

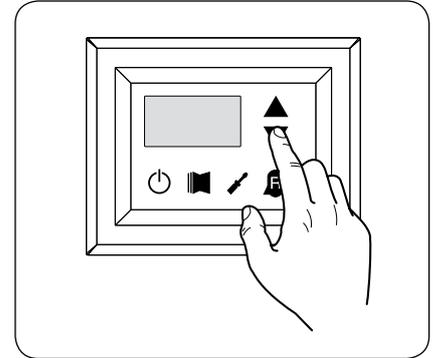
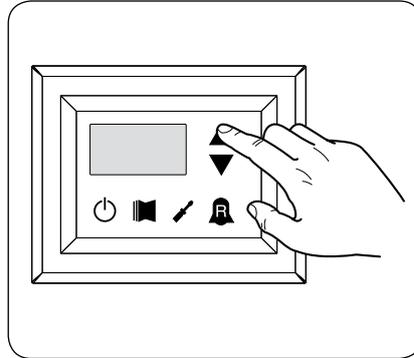
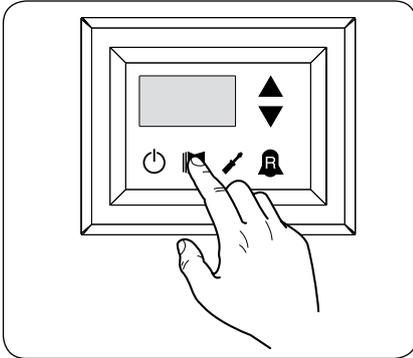
READING MENU • USER MENU • ERROR MENU

# WATER CHILLER MODUCONTROL

- CHILLERS
- REVERSIBLE HEAT PUMPS
- CONDENSING UNITS
- EXTERNAL UNITS
- HIGH EFFICIENCY
- HOT WATER PRODUCTION  
UP TO 50°C

# Reading menu

The reading menu gives the user the option to read all parameters



Index - String	Meaning of the reading
0 t <sub>o</sub> A	Water output temperature
1 t <sub>i</sub> A	Water input temperature
2 t <sub>S</sub> b	Coil temperature
3 t <sub>CP</sub>	Force gas temperature
4 t <sub>AE</sub>	Outside air temperature
5 AP	Delivery pressure
6 bP	Suction pressure
7 tEr	Thermostat
8 SA <sub>b</sub>	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
i dCP	DCP pressure differential
J HC 1	Operating hours COMPRESSOR 2 (thousands)
L HC 1	Operating hours COMPRESSOR 2 (units)
n SP 1	Compressor pickup current COMPRESSOR 2 (thousands)
o SP 1	Compressor pickup current COMPRESSOR 2 (units)
P P <sub>o</sub>	Power fraction
q rFq	Required frequency (INVERTER)
r P <sub>r</sub> F	Pressure drop

- 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

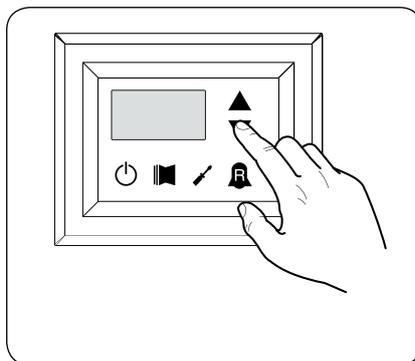
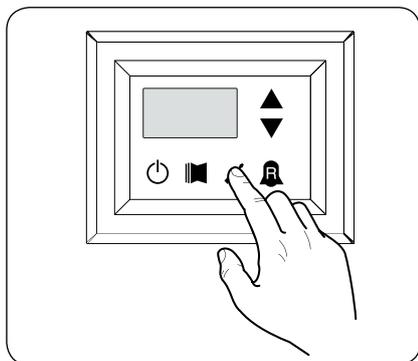
## User menu

The user menu gives the user the option to change settings

1. press the screwdriver symbol 
2. 000 appears
3. Press the screwdriver again 
4. Use up and down keys to find a setting 
5. Press the screwdriver again (blinking of index nr) 
6. Change the setting with up and down keys 
7. Confirm with screwdriver 

For Opticlimate set:

- 1 STF on 26°C
- 2 BNF on 1°C



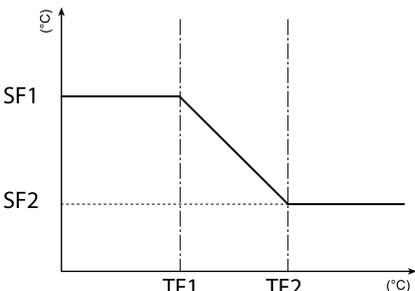
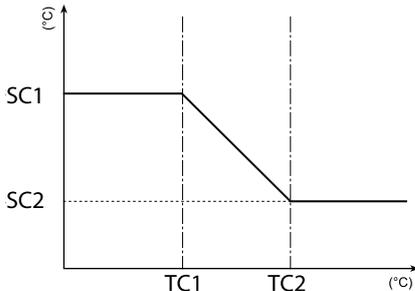
Setting of operational mode (HOT/COLD)			
Index - String	MIN value	MAX value	Parameter function
0 StA 	0	1	This parameter identifies the functioning mode set for the unit: <ul style="list-style-type: none"> <li>• set value = 0 - Cooling mode;</li> <li>• set value = 1 - Heating mode.</li> </ul> In cooling 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 StF	-20 °C	26 °C	This parameter indicates the value of the work setting active in cooling mode.

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>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 <b>cooling mode</b>, 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>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 <b>heating mode</b>, the work setting is calculated automatically on the basis of the outside temperature, following the logic highlighted in the diagram.</p> </div> </div>

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
b 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).

Setting heating set 2			
Index - string	Value MIN	Value MAX	Parameter function
	25 °C	(*)	<p>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)).</p> <p>(*):</p> <ul style="list-style-type: none"> <li>- the maximum limit can be configured via the parameter (t) of the installer menu;</li> <li>- 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;</li> </ul>

Setting the outside air temperature 2 (heating)			
Index - String	MIN value	MAX value	Parameter function
	-40 °C	50 °C	<p>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).</p>

Setting DHW set			
Index - string	Value MIN	Value MAX	Parameter function
	25 °C	(*)	<p>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).</p> <p>(*):</p> <ul style="list-style-type: none"> <li>- the maximum limit can be configured via the parameter (t) of the installer menu;</li> <li>- 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;</li> </ul>

Setting domestic water proportional band			
Index - String	MIN value	MAX value	Parameter function
	1 °C	20 °C	<p>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.</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

## Error

An error can be reset by switching the main power of the unit off for 5 seconds.

When there is air trapped inside the system E104 will appear. Bleed the system and switch the power off to reset. After first time operation E104 will appear several times until all air is out.

We advise to use automatic bleeders at the highest point of the water-system.

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 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.