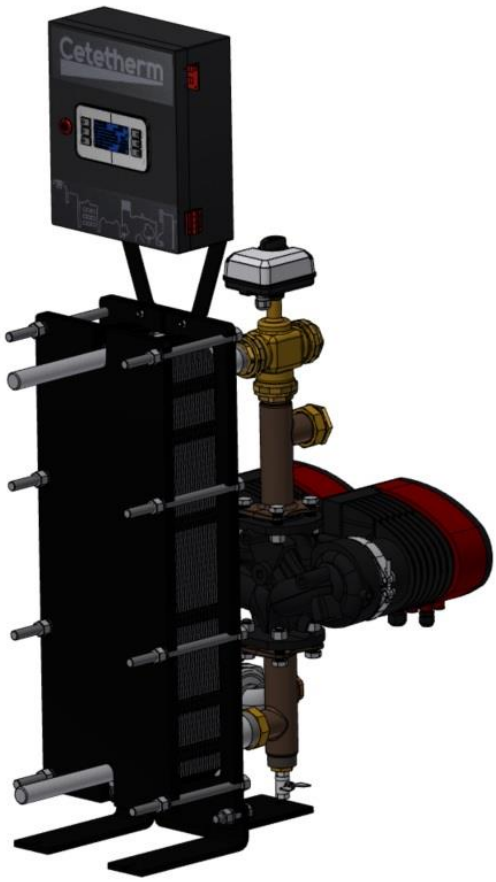
Cetetherm

Installation, service and operating instruction Cetetherm AquaFirst / AquaGenius Neo

Tap Water System



WRAS APPROVED PRODUCT
CERTIFICATION MARK

EN

Contents

1. General Presentation

Cetetherm AquaFirst and AquaGenius Neo are compact tap water systems (TWS) products, including a heat exchanger, motorised control valve and managed primary and secondary pumps, as per versions. They are equipped with a control box including a dedicated PCB and communicant temperature controller. Piping is made of specially designed brass parts combined with flat gaskets for easy maintenance. Each unit has been tested hydraulically and electrically at the factory.

AquaFirst is available in three plate sizes:

- Series FI2000 and FI4000.
- Series FI5000
- Series FI6100 and FI8000.

All models are declined in different plates' number and different pump(s) arrangement. All types can have single or double pumps.

Options :

- Rock wool insulation with cladded aluminium sheet
- Extra temperature sensors S2 / S3
- Extra temperature sensor(s) PT1 and/or PT2 to manage primary tank loading
- Speed control on primary pump(s)
- Return To Zero actuator
- Dry motor pump on secondary side for semi-instantaneous units

AquaGenius is available in one plates' size and 2 different heat exchangers :

- Series FIB: Copper Brazed heat exchanger (CB).
- Series FIN: 100% stainless steel Fusion Bonded heat exchanger (AN).

All models are declined in different plates' number and different pump(s) arrangement. All types can have single or double pumps.

AquaGenius doesn't propose extra sensor(s) like S2, S3, Pt1 or Pt2. All functions using these extra sensors (fouling, pre-heating, primary tank loading) are not applicable for these products.

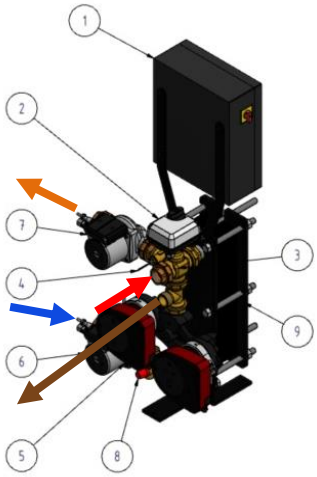
These tap water systems must be connected to a primary heating source, like a boiler, a heat exchanger or a primary tank heated by a heat pump. The secondary side is connected to cold water inlet and to domestic hot water network, see flowcharts for more details.

The tap water modules are designed for indoor installation, for example in a plant room. The ambient temperature in the room must be min 0°C and max 40°C, max humidity 85% without condensation.

AquaFirst is **WRAS approved**. This approval demonstrates it is of a suitable quality and standard against the requirements of the UK Water Supply (Water Fittings) Regulations and Water Supply (Water Fittings) (Scotland) Byelaws, provided it is installed and used in accordance with the installation and requirement notes and any other restrictions within the approval. These are available on the WRAS approval directory https://www.wras.co.uk/search/products/

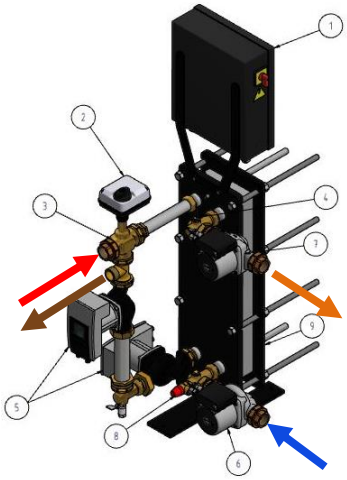
1.1 Products' overview

AquaFirst 2000 & 4000



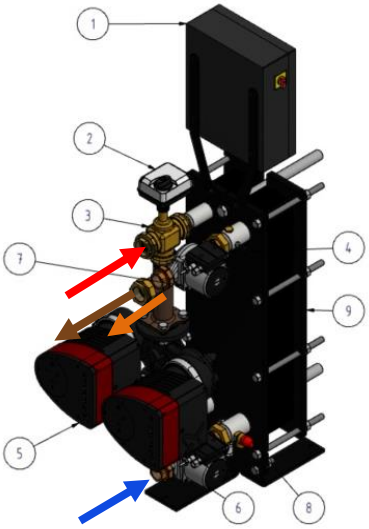
Picture 1

AquaFirst 5000



Picture 2

AquaFirst 6100 & 8000



Picture 3

AquaGenius FIB / FIN

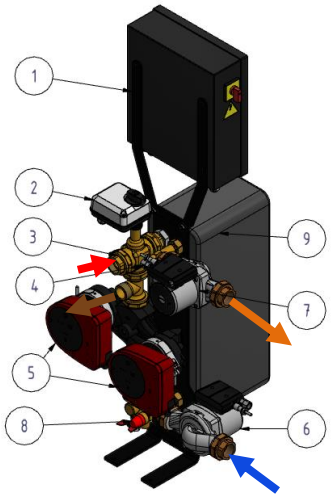


Image 4

Rep.	Designation
1	Control box
2	Actuator
3	3 port mixing control valve
4	S1 Temperature sensor
5	Primary Single or Double pump
6	Secondary pump (SS/DS versions)
7	Secondary pump (DD versions)
8	Safety valve
9	Heat exchanger with insulation
→	Primary inlet (red)
←	Primary outlet (brown)
→	Secondary inlet (blue)
←	Secondary Outlet (DHW, orange)

Operating principle :

- The primary water enters the 3-port modulating valve (1) that opens more or less, depending of the heat demand.
- The primary water circulates thanks to the primary pump.
- When no demand, the 3-port valve is almost closed and water loops between primary pump and heat exchanger
- When big demand (peak period), the primary control valve is almost fully opened and water circulates at the primary inlet temperature through the heat exchanger and leave the unit on the primary outlet port.
- Cold water enters at bottom part of the secondary side, is heated into the heat exchanger and leaves the unit on the secondary top part of the heat exchanger.
- The S1 temperature sensor measure the DHW temperature and indicates to the controller if the 3-port modulating valve must open or close proportionally.
- Secondary circuit should be equipped with a recirculation or a charging pump,

2. Installation

The installation work must be carried out by an authorized installation contractor

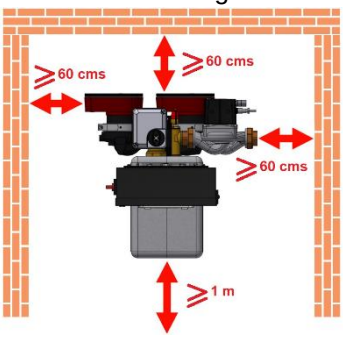
The tap water modules are designed for indoor installation, typically in a plant room only accessible by qualified technicians. The ambient temperature in the room must be min 0°C and max 40°C, max humidity 85% without condensation.

The temperature and the pressure of the water are very high. Only qualified technicians are allowed to work on the unit. Incorrect operation may cause serious personal injury and result in damage to the building

Minimum pressure/temperature on primary side: 1.0 bar/ 2°C, 1.5 bar / 110°C
Maximum pressure/temperature on primary side :10 bar /110°C
Maximum pressure on secondary side: 10 bar/ 85°C

Unpacking / Preparation / Mounting

- Rinse the pipes, before connecting them to the tap water module.
  Pipe works may contain solid particles that could block or prevent the modulating valve to operate correctly.
- Also check:
  - Air vent position
  - Settling pot presence on primary side
  - Boiler installation and capacity conformity
  - Pressure breaker (primary vessel, mixing bottle or equivalent) presence on primary side
  - Balancing valve on secondary side of semi-instantaneous installations
  - Accessibility of unit and components: **leave at least 60 cms on the left, right and back sides around the product. The front side should be fully accessible.**



- Pipe the primary and the secondary of the module.
- Fill-up both sides progressively with water.
- Purge air at high parts.
- Purge all the pump bodies.
- Install electrically the unit respecting electrical installation, see next chapter.
- Switch the power on.
- Check controller setting and enable the required functions.

Commissioning

Before installation this manual must be read.

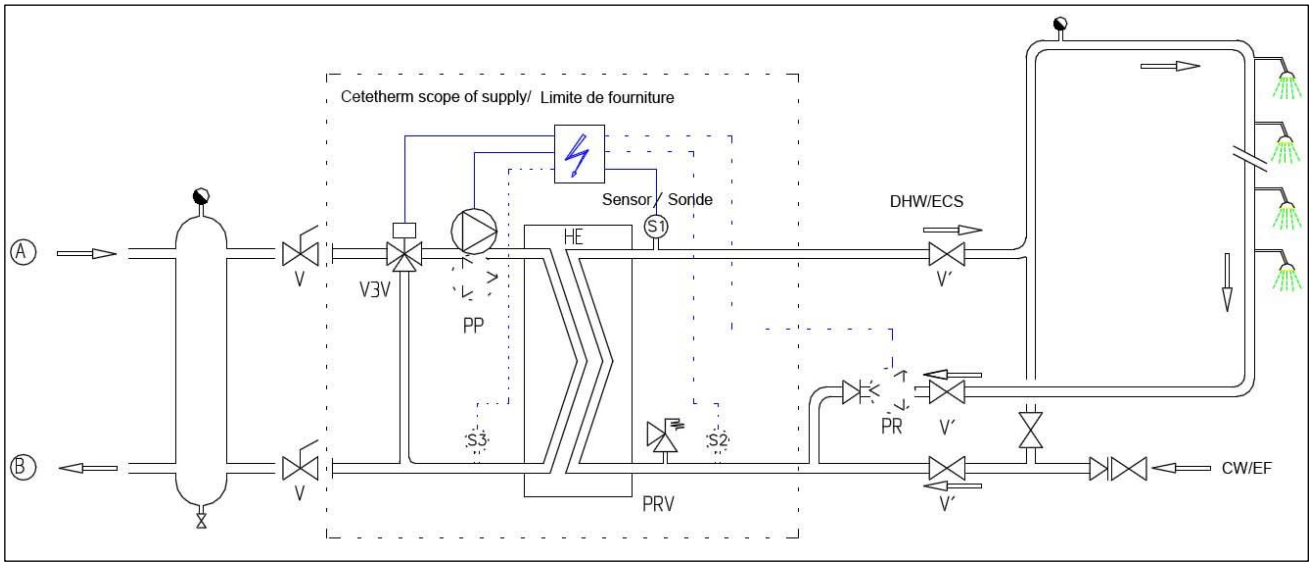
The controller has been set at the factory. If any function needs tuning, values can be changed with reference to this manual for parameter setting. Initially, the commissioning process should be carried out with the factory settings.

Fill out the form in chapter “Commissioning report”.

Do not turn pump head, keep it in delivery position.

Installation of Instantaneous units

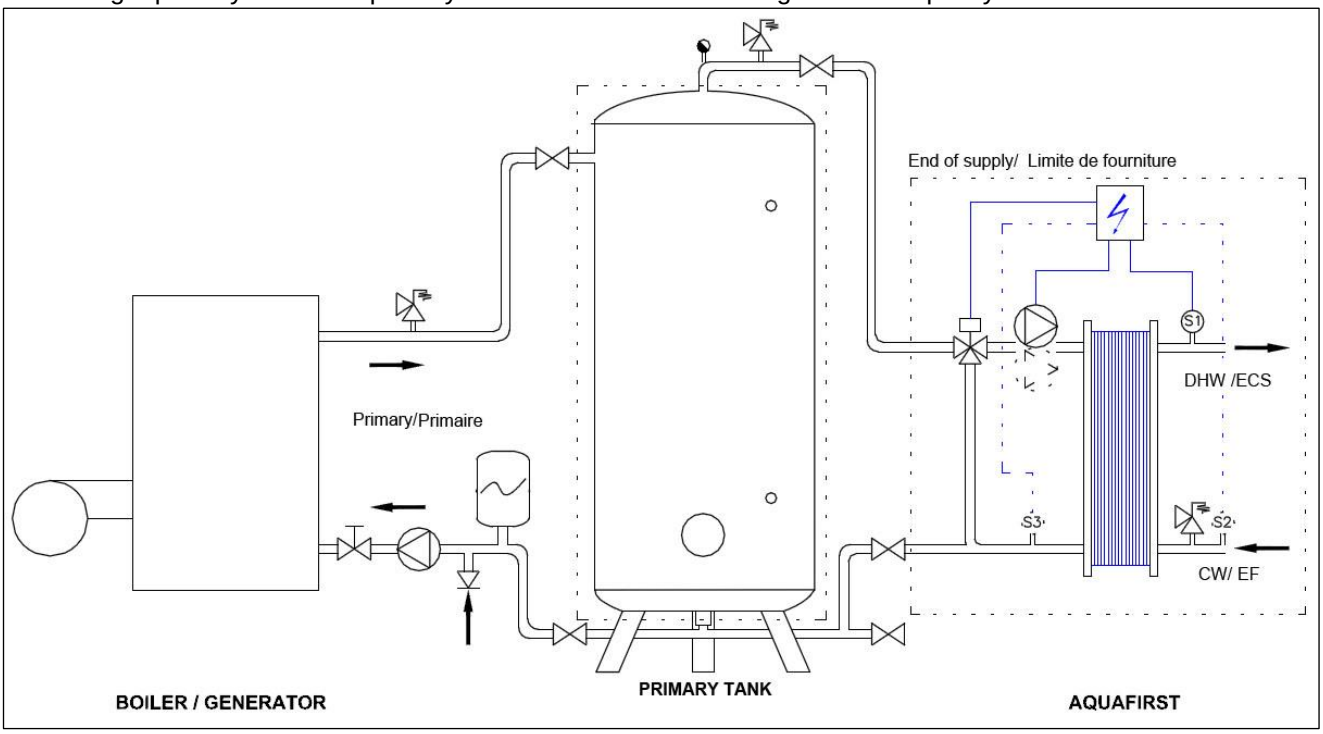
The tap water systems should be installed according to the following schematics.



Picture 5

REP.	DESIGNATION	REP.	DESIGNATION
A	Primary inlet	HE	Heat Exchanger
B	Primary Outlet	PP	Primary pump (single/double)
CW	Cold water inlet	PR	Recycling pump (option)
V3V	Mixing 3 port control valve with actuator	V, V'	Manual gate valve
PRV	Pressure relief valve	S1	DHW temperature sensor (master)

Using a primary tank. The primary water tank limits available generator capacity

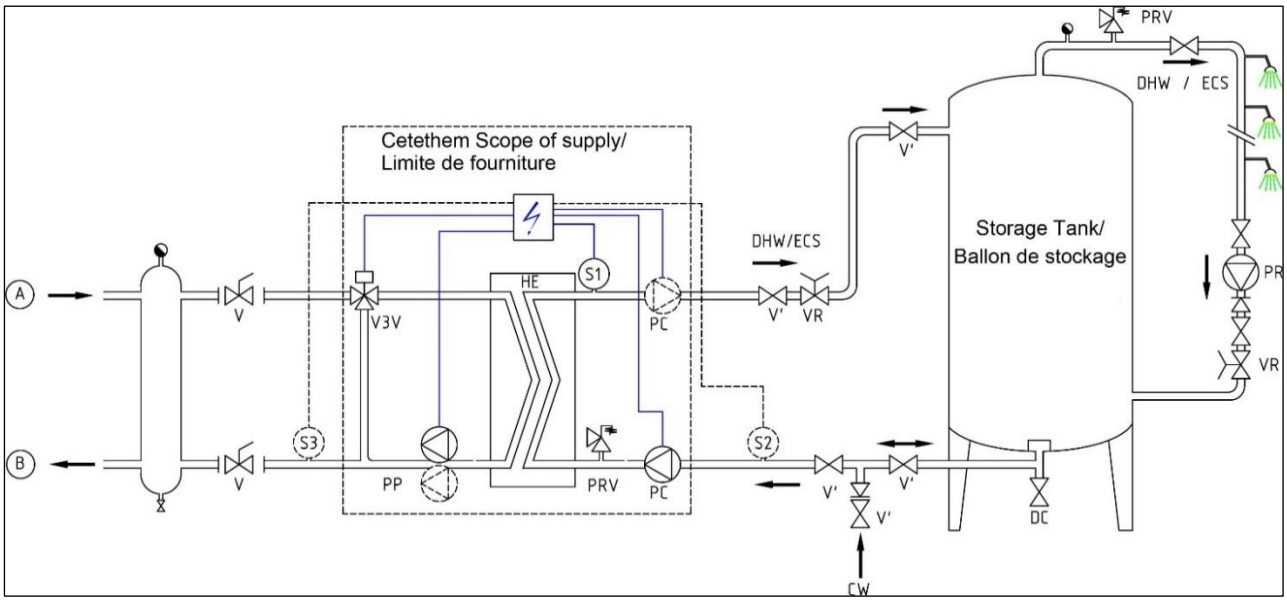


Picture 6

Installation of Semi-Instantaneous units

Recycling flow rate PR must be < 60% PC flow rate..

Protect the storage tank by installing the added safety valve. Pressure gage=tank MAX working pressure and can be different from tap water module's safety valve pressure gauge. The safety valve protects the storage vessel and not the tap water system.
Secondary charging pumps have the following limitations as per water quality:
pH 6 to 9 and TH<25 French degrees (25°TH) or 14 German degrees (14°dH).



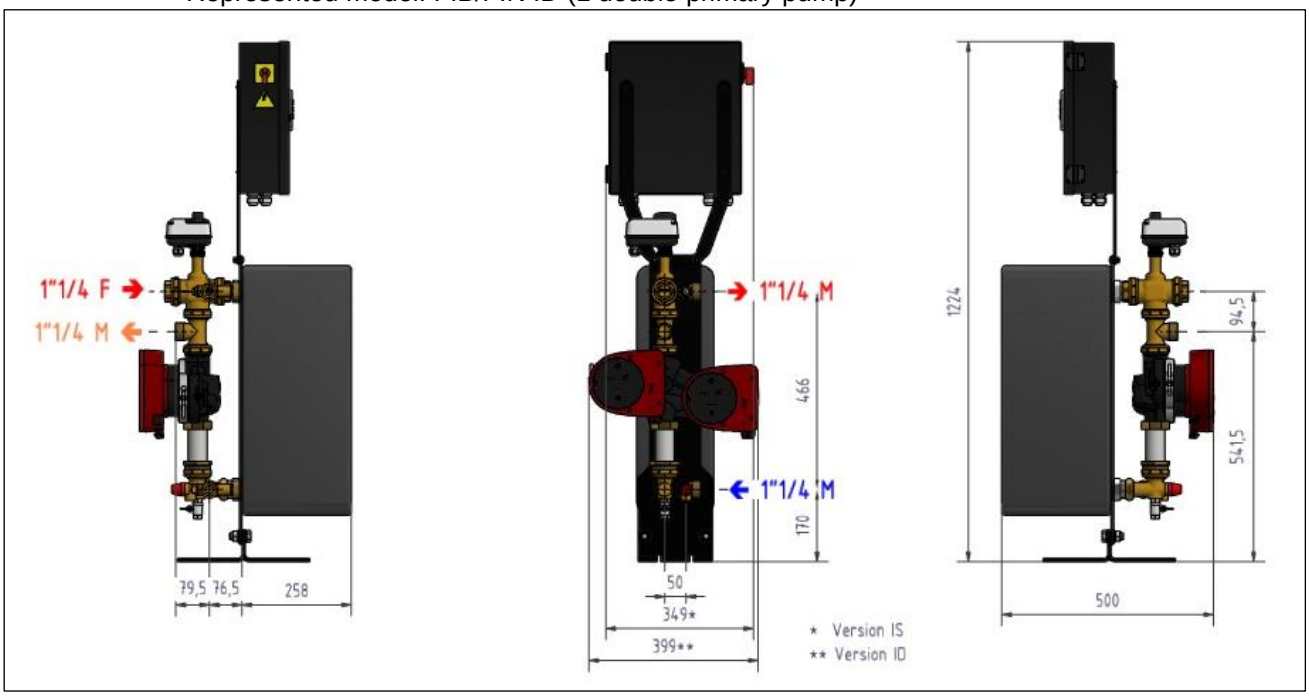
Picture 7

REP.	DESIGNATION
A	Primary inlet
B	Primary Outlet
VR	Setting valve
CW	Cold water inlet
V3V	Mixing 3 port control valve with actuator
PRV	Pressure relief valve

REP.	DESIGNATION
HE	Heat Exchanger (PHE)
PP	Primary pump (single/double)
PC	Charging Pump (1 or 2)
PR	Recycling pump (on installation)
V	Manual gate valve
S1	DHW temperature sensor (master)

Measure sketch of AquaGenius FIB/FIN Instantaneous

Represented model: FIB/FIN ID (1 double primary pump)

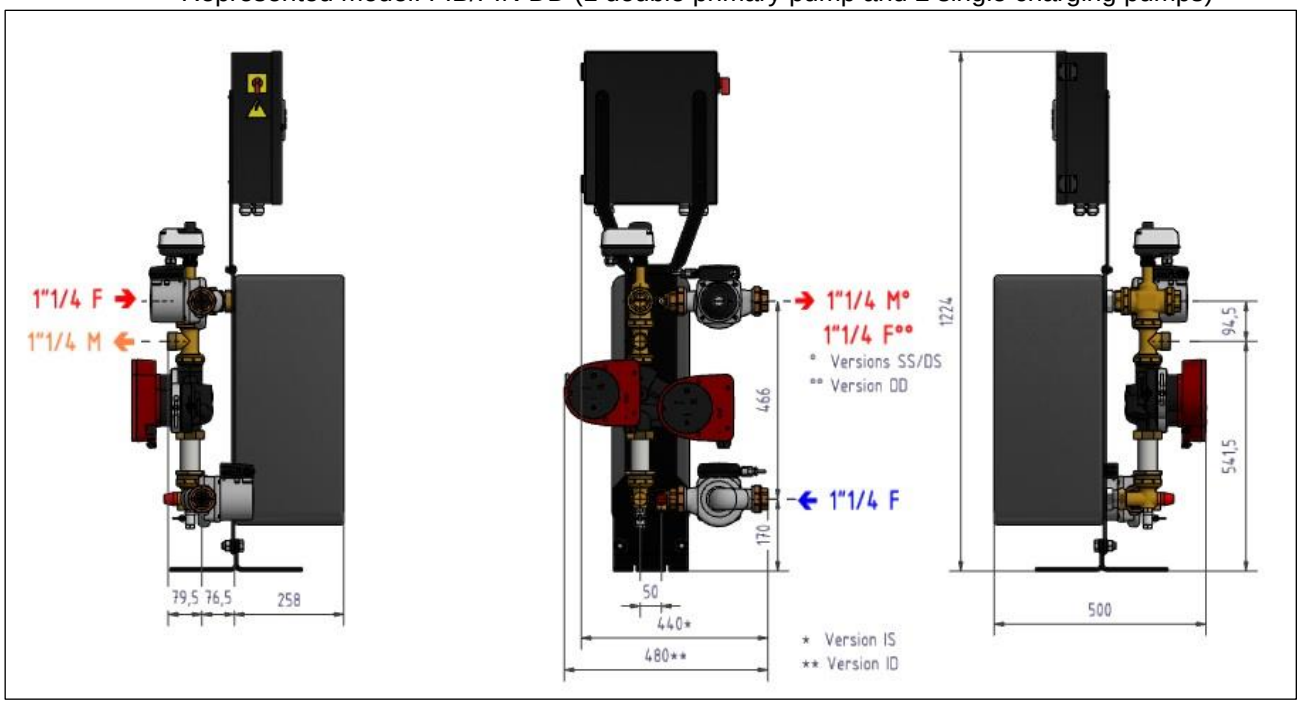


Picture 8

* Single Primary pump / ** Double Primary pump

Measure sketch of AquaGenius FIB/FIN Semi-Instantaneous

Represented model: FIB/FIN DD (1 double primary pump and 2 single charging pumps)



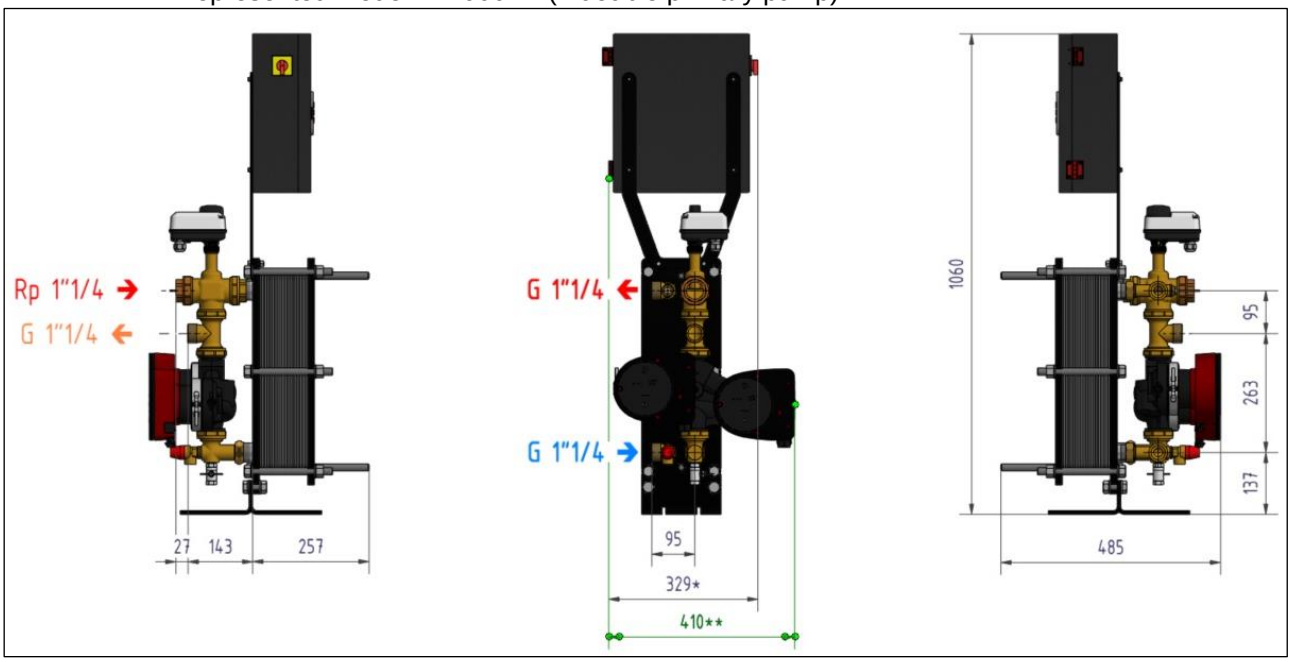
Picture 9

* Single Primary pump / ** Double Primary pump

° 1 single charging pump / °° 2 single charging pumps

Measure sketch of Aqua First 2000 & 4000 Instantaneous

Represented model: FI2000 ID (1 double primary pump)

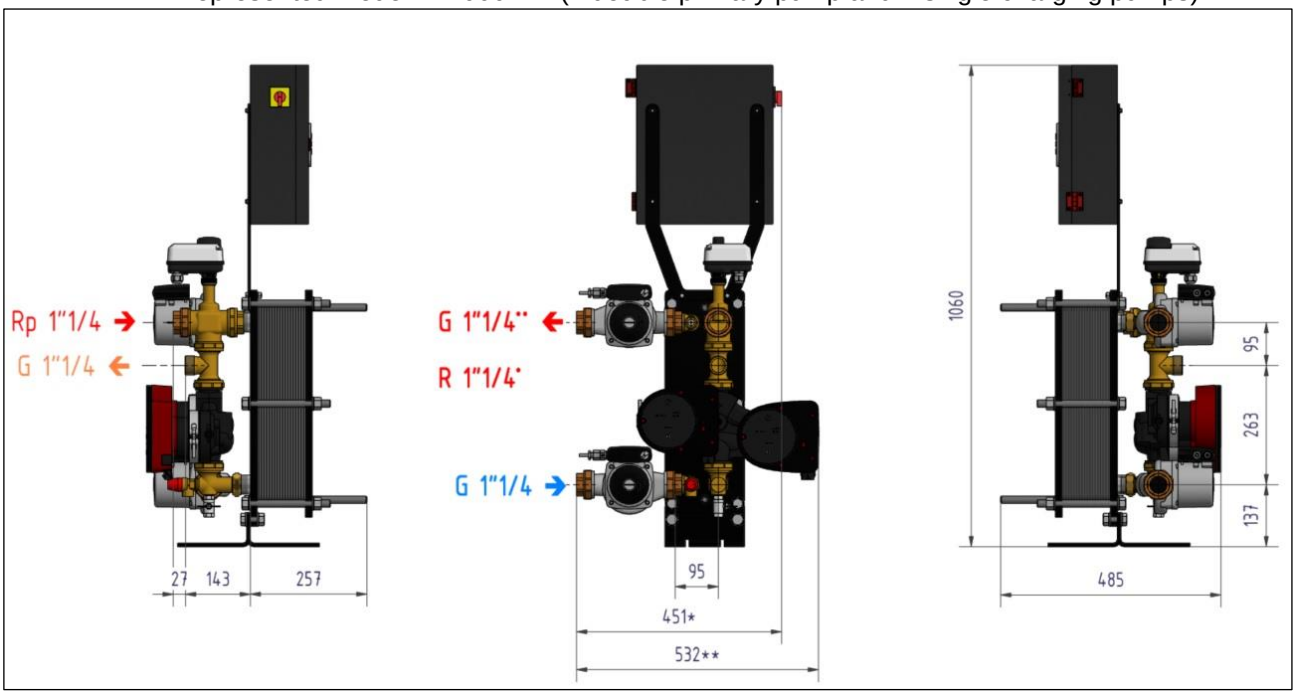


Picture 10

* Single Primary pump / ** Double Primary pump

Measure sketch of AquaFirst 2000 & 4000 Semi-instantaneous

Represented model: FI2000 DD (1 double primary pump and 2 single charging pumps)



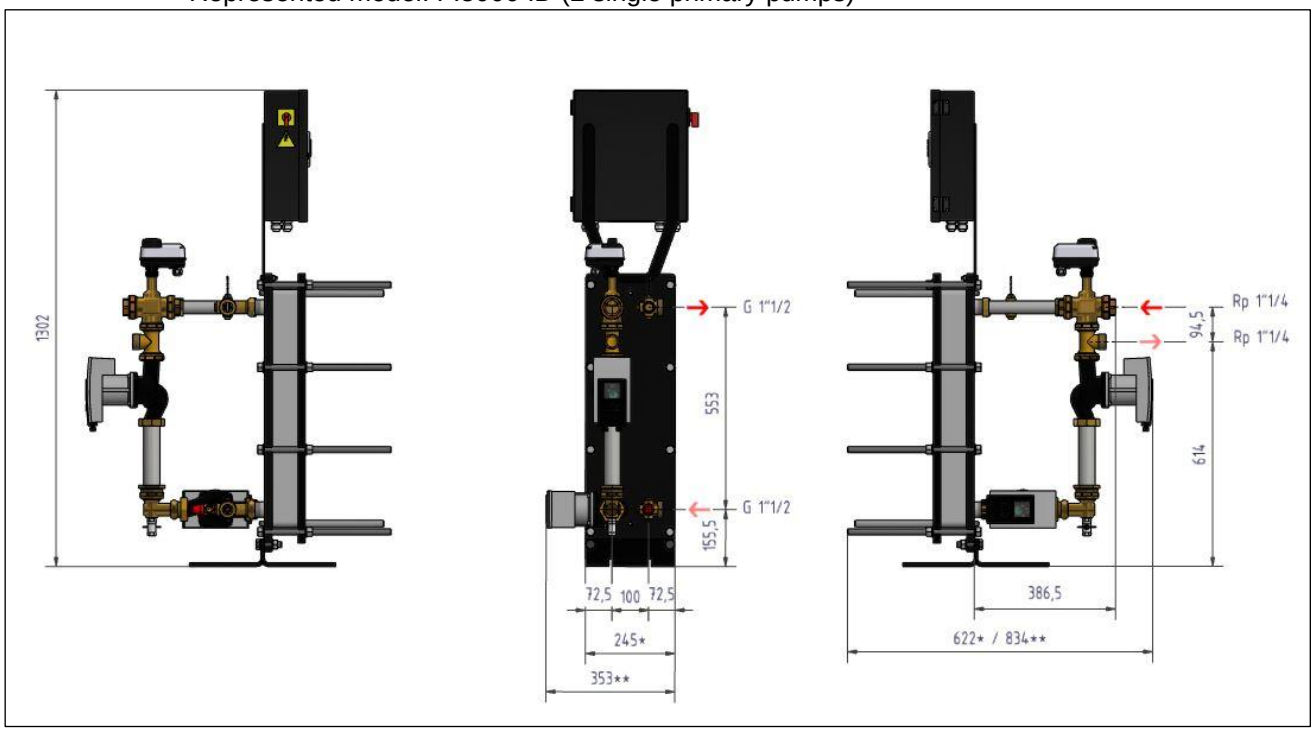
Picture 11

* Single Primary pump / ** Double Primary pump

° 1 single charging pump / °° 2 single charging pumps

Measure sketch of AquaFirst 5000 Instantaneous

Represented model: FI5000 ID (2 single primary pumps)

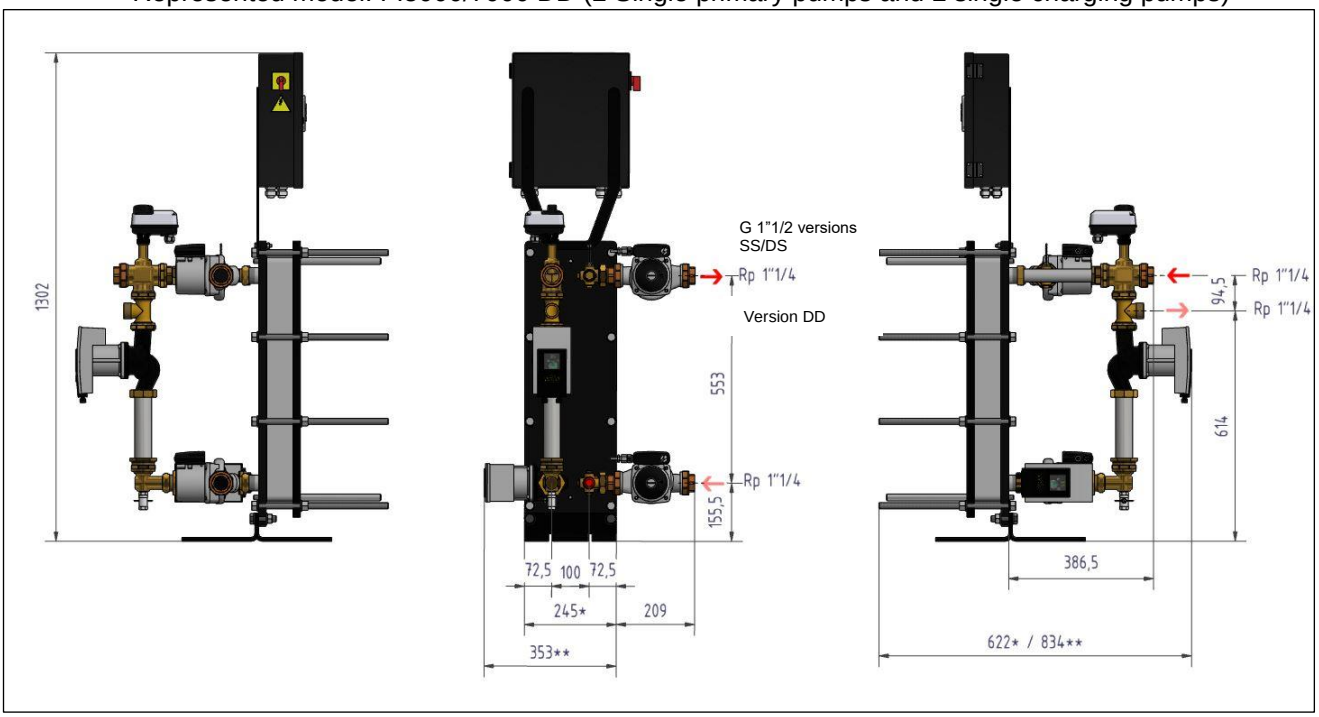


Picture 12

* 1 Single Primary pump / ** 2 Single primary pumps

Measure sketch of AquaFirst 5000 Semi-instantaneous

Represented model: FI5000/7000 DD (2 Single primary pumps and 2 single charging pumps)



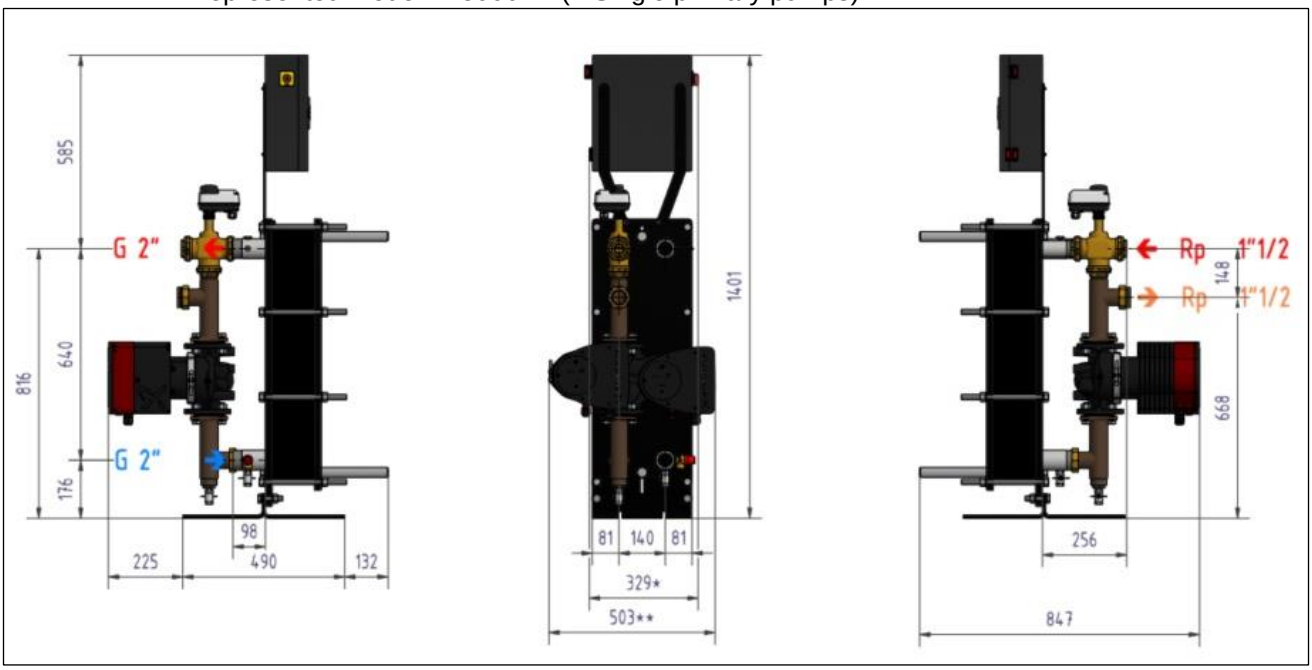
Picture 13

* 1 Single Primary pump / ** 2 Single Primary pumps

° 1 single charging pump / °° 2 single charging pumps

Measure sketch of Aqua First 6100 & 8000 Instantaneous

Represented model: FI8000 ID (2 Single primary pumps)

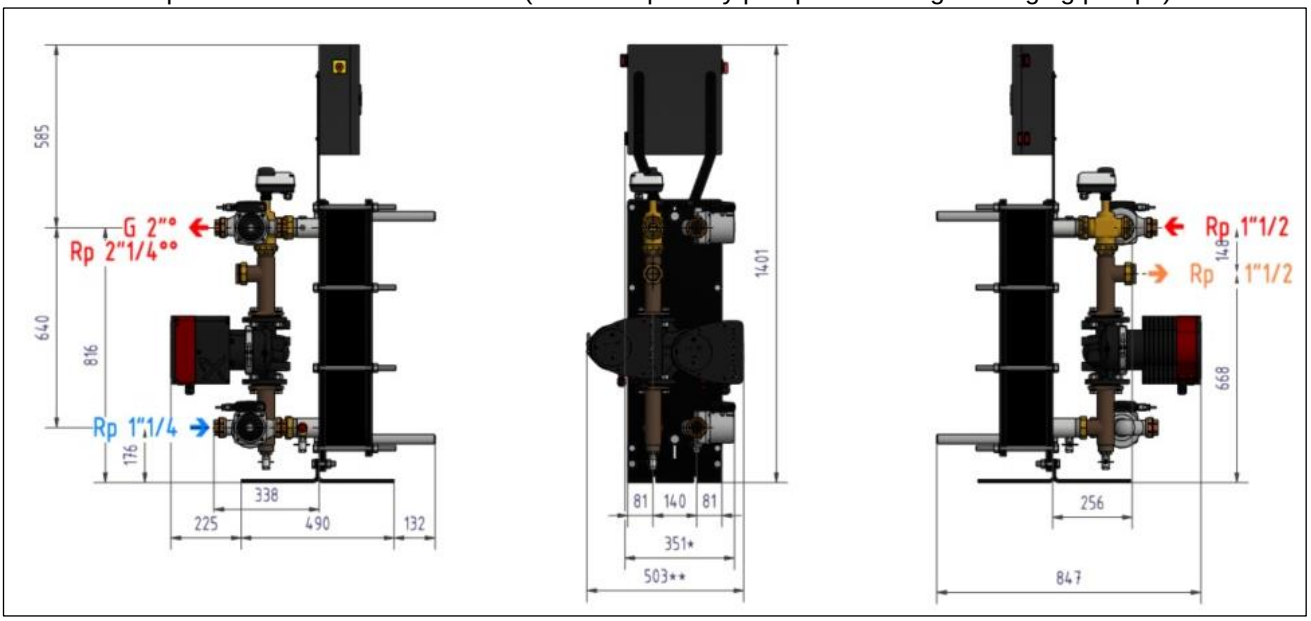


Picture 14

* Single Primary pump / ** Double Primary pump

Measure sketch of Aqua First 6100 & 8000 Semi-Instantaneous

Represented model:: FI8000 DD (1 Double primary pump and 2 Single charging pumps)



Picture 15

* Single Primary pump / ** Double Primary pump

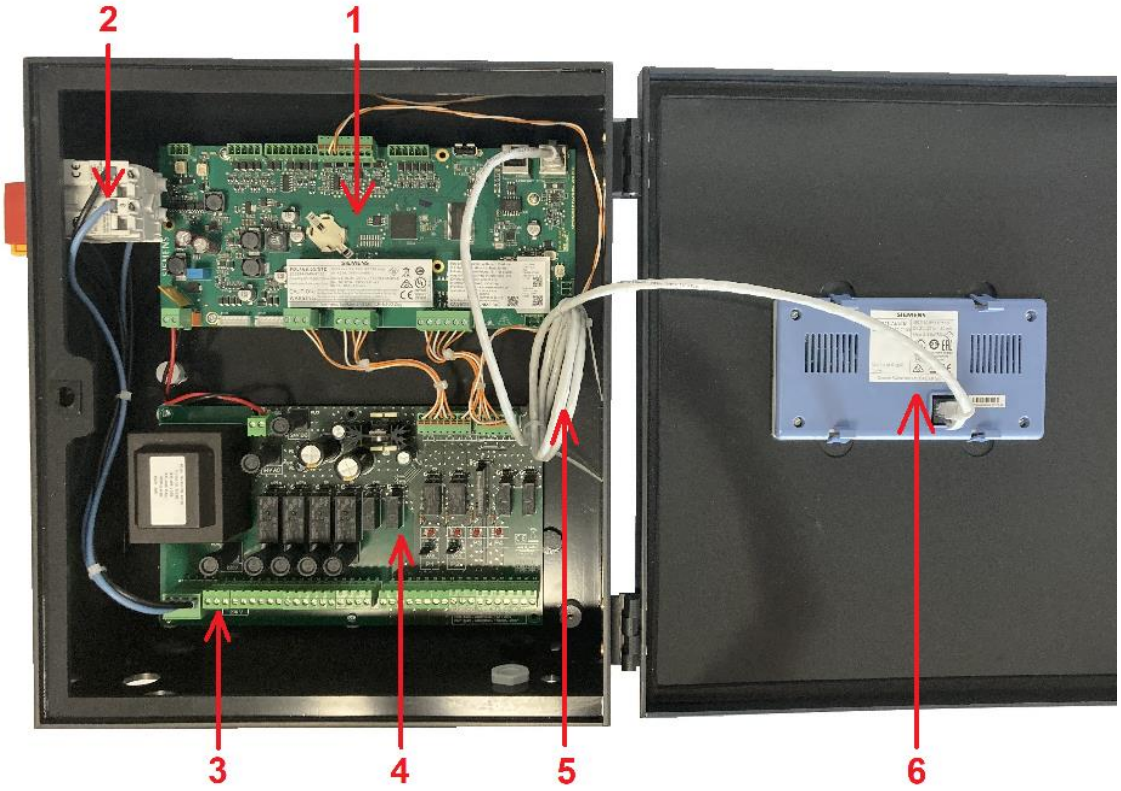
° 1 single charging pump / °° 2 single charging pumps

3. Electrical Installation

Power supply the control box with 230V 50 Hz + Earth, using electric protection in the main electric power box. The TWS control box is a secondary electrical control box.
Human protections and protections against short circuits and over intensity must be installed in the main electric box.

Earth (Ground) must be wired to the control box to avoid any risk of electrical shock when touching the unit. Neutral and Phase must be respected: do not invert.

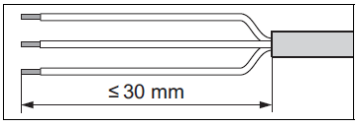
Control box components



Picture 16

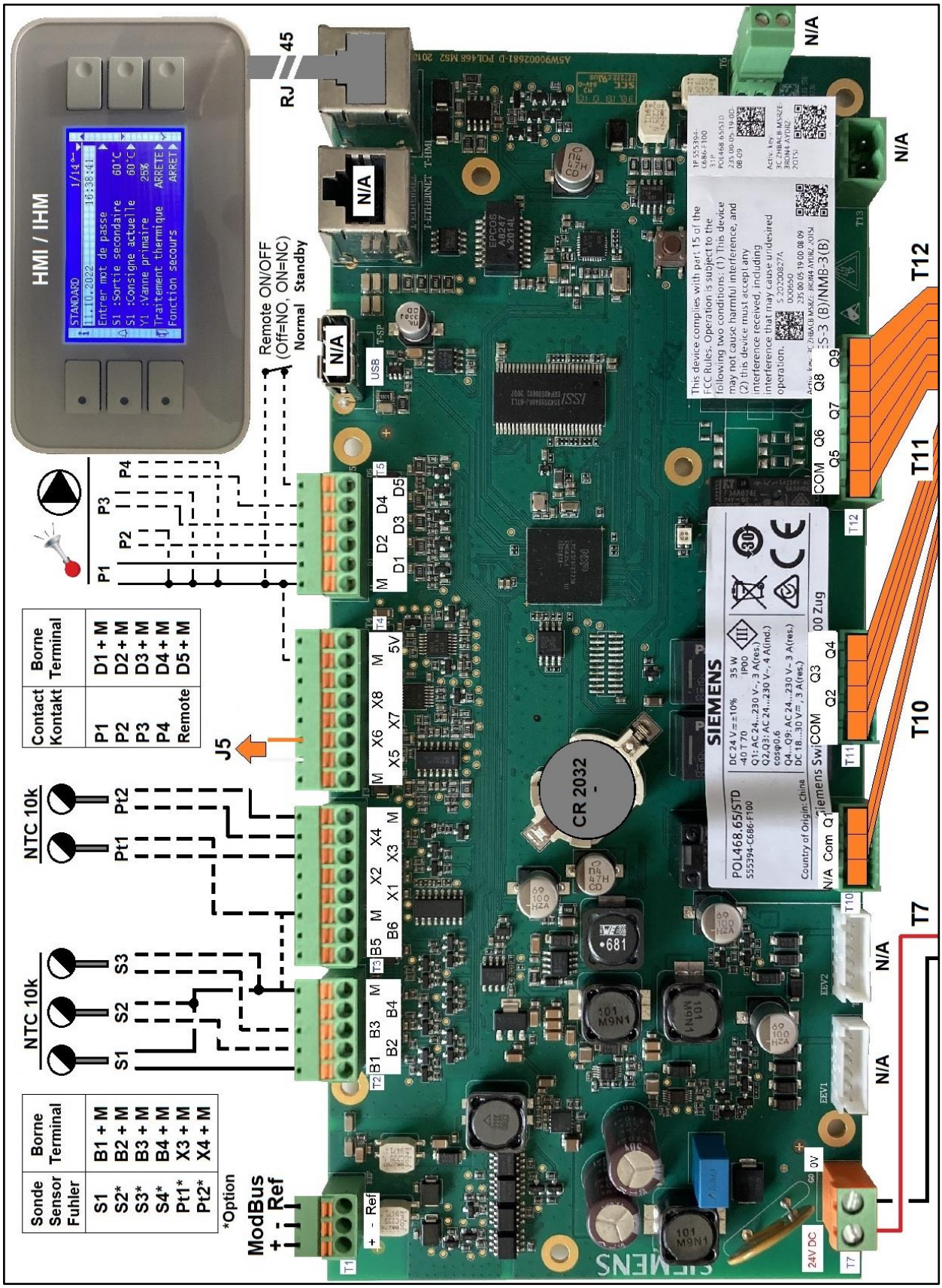
1	Temperature Controller	4	Power PCB ADE-430
2	Main switch, bipolar.	5	Display cable
3	**Protected customer power supply (N, L, Earth)**	6	Display (rear view)

Use a 3 poles power supply cable with yellow/green earth wire of the following types: H05-VVH2-F, H05-V2V2-F, H05-V2V2H2-F, H05-Z1Z1-F, H05-Z1Z1H2-F, H05-RR-F, H05-VV-F. Wire section : 2,5mm².
Do not tin the cable ends which will be exposed to contact pressure in the terminal blocks.

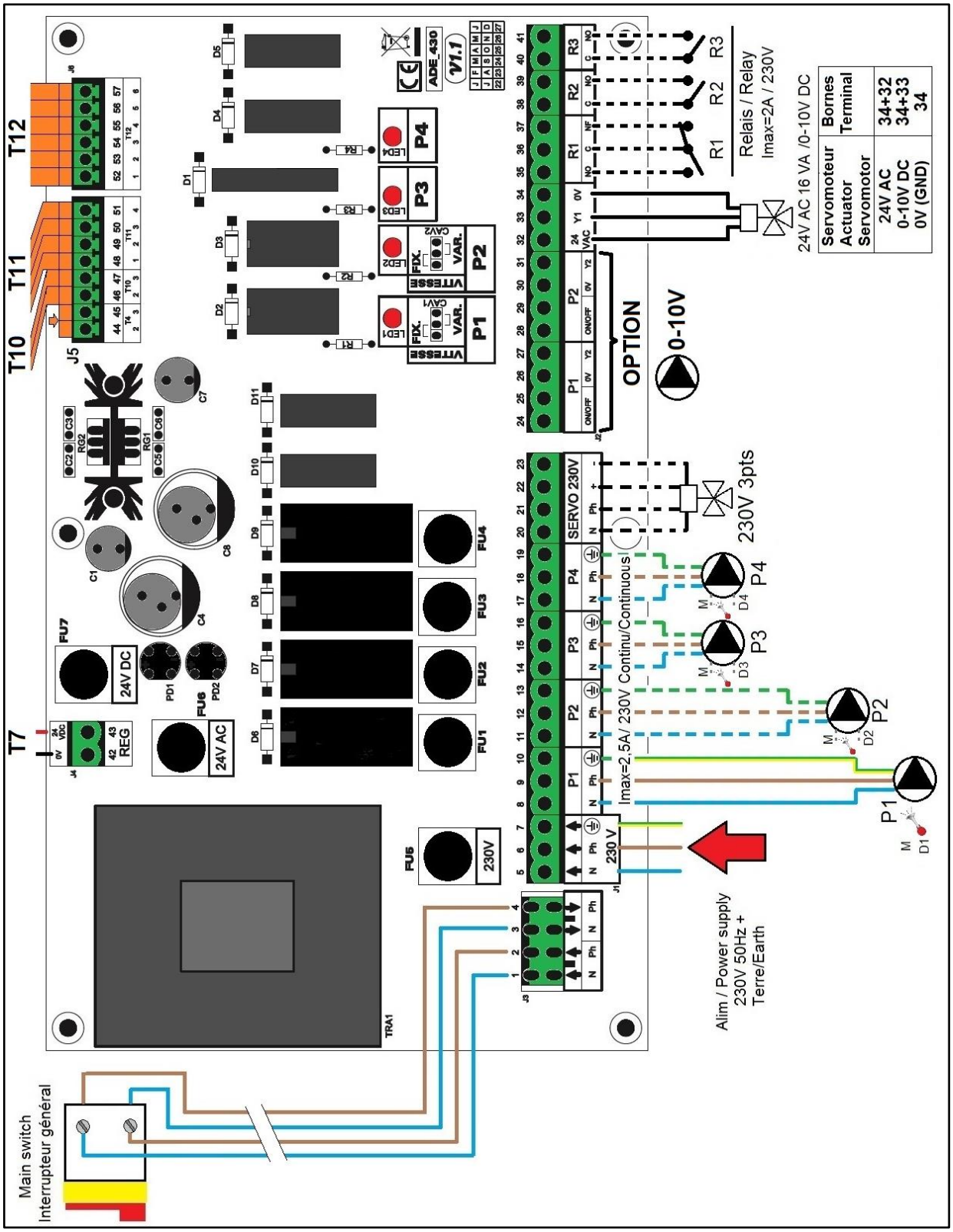


Strip the cables as shown opposite. Be careful not to damage the insulation of the various electrical wires.

Electric wiring diagram



Picture 17



Picture 18

The earth must be connected to terminal 7 of the power PCB.
Protect the power supply upstream of the product by means of a fixed connection and a separator with a cut-off interval of at least 3mm (fuse or switch)
Input: 30A, I∆n: 30mA, trip characteristic: C.

Wiring details :

Power terminal on PCB (lower part of control box, left side)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
N	Ph	N	Ph				N	Ph	⏚	N	Ph	⏚	N	Ph	⏚	N	Ph	⏚
↑	↑ Main switch already wired		↓	↑ N	↑ Ph	↑ ⏚	Pump 1 (Primary)			Pump 2 (Primary)			Pump 3 (Secondary)			Pump 4 (Secondary)		

Unit power supply 230V 50Hz + Ground on terminals 5,6 and 7.
Terminals 8 to 19 power supply up to 4 pumps P1, P2, P3, P4 (as per equipment)

Do not exceed 2.5 A per pump.

230V 3 points actuator terminals (lower part of control box)

20	21	22	23
N	Ph	+	-
230V 3 points actuator			

Opening of the actuator is made sending 230V pulses between terminals 20 (N) and 22 (Ph +).
Closing of the actuator is made sending 230V pulses between terminals 20 (N) and 23 (Ph -).
Terminal 21 (permanent Phase) can be used with return to zero (RTZ) actuators.

3 points 230V pulses are effective ONLY IF activated into the « Configuration » menu. At the opposite, the 0-10V actuator signal is always effective.
In a standard configuration, these signals are not used.

Low voltage outputs on PCB (lower part of control box, right side)

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
0V	M/A	0V	Y2	0V	M/A	0V	Y2	24V	Y1	0V	NO	C	NF	C	NO	C	NO
P1 On / Off *		P1 0-10V signal*		P2 On / Off *		P2 0-10V signal*		32= 24V AC 33=0-10V signal 34=0V			Relay 1			Relay 2		Relay 3	

***Option**

Temperature sensor(s) / Pump fault contacts on controller (Upper part of control box)

T2	B1	B2	B3	B4	M
	S1	S2*	S3*	N/A	Gnd
	Sensor(s)*				Common

T3	B5	B6	M	X1	X2	X3	X4	M
	N/A			N/A		Pt1 *	Pt2 *	
						Sensor(s) *		

T5	M	D1	D2	D3	D4	D5
		P1	P2	P3	P4	Remote
		Pump(s) fault contact(s) *				

*For each of these inputs / outputs, the second wire must be connected to a common terminal, labelled “M” as per available space.
There is no polarity on all contacts and temperature sensors.

When wiring a temperature sensor, connect 1 wire on corresponding terminal and the other one on common terminal labelled « M ».

T1 terminal is used for ModBus communication. Please refer to corresponding chapter.
T4 terminal is already wired, do not remove connected wires on it. It is just possible to wire a « M » terminal on it.

<u>« Remote » contact information:</u>
Open Contact=unit operating normally (by default)
Closed contact= unit in standby = no temperature regulation

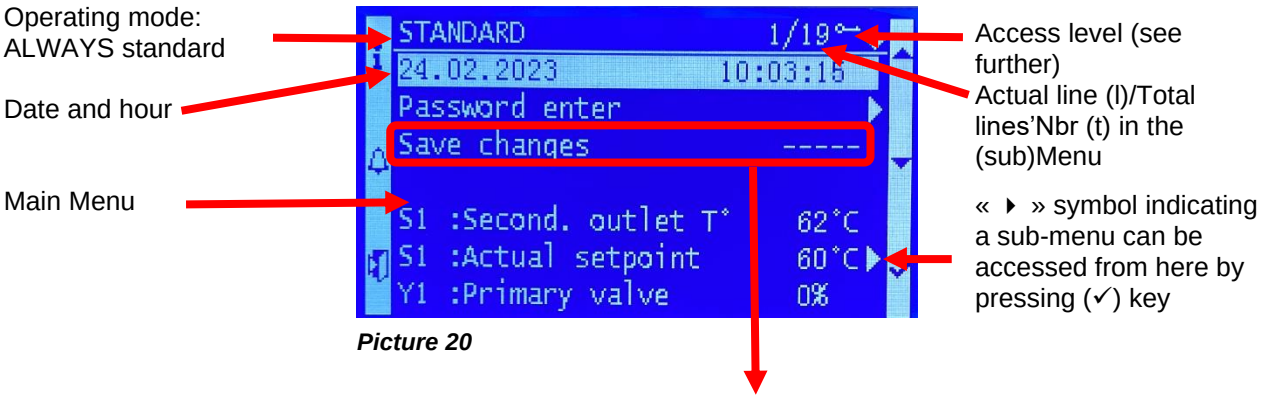
4. Using the temperature controller

When the unit is power supplied, wait one minute before navigating into the menu.

Picture 19

Rep	Designation
1	ⓘ key to display firmware/software versions. It is equipped of an orange LED if point in manual OR Green flashing if modbus connection with BMS writing priority. Please refer to specific chapters.
2	Alarm(s)/Function(s) 🔔 key, refer to specific chapters. Equipped with a LED. In case of pending alarm a red LED is flashing. In case of pending function (like thermal treatment, Eco…), led will green flash. In case of multiple functions, it will orange flash until last function has ended.
3	«Escape» key, to step backwards into the menu structure or to cancel pending parameter value.
4	⮝/+ key, to access to previous menu line OR to increase setting value.
5	⮟/- key, to access to next menu line OR to decrease setting value.
6	Enter (✓) key, to validate a parameter value or a choice (like On or Off)
7	Display (8 lines of 30 characters).
8	Keys' functions

Display :



Picture 20

For any modification of setpoint(s), parameter(s) or function(s), it is mandatory to save changes. Otherwise, the changes will be lost in the event of a power cut.
Go to line 3, then press Enter (✓) key and select "Yes" then Enter to save data.
An automatic data saving is also performed every day at night (1h00).

4.1 Display settings (HMI)

1. Press a few seconds on « Escape » key to access to HMI settings: Then press (✓) key	1 /2 HMI settings Local connection
2. Press on ⩛ key then on ✓ key to change backlight colour. There are 2 possible choices: White or Blue. Change coulour by pressing ⩛ and ⩓ keys. Once done, press on ✓ to validate the choice. Press on ⩛ key to access to next line.	HMI settings 2 /6 Vxx.xx xxxx Backlight color Blue …
3. Press on ✓ key to change backlight duration. Use ⩛ and ⩓ keys to change the value and press ✓ key to validate. 0 (default value) = permanent backlight 300 = Backlight stop after 300 seconds (5 mins) if no key pressed. Note: When backlight is off, pressing any key will activate it for the defined duration. Press ⩛ key to access to next line	HMI settings 3 / 6 … Backl.turn off ti. 0 …
4. Process the same way to adjust contrast and brightness if needed.	HMI settings 4-5 / 6 … Contrast 60 Brightness 60
5. The last line is not effective. Keep the value to « No ».	HMI settings 6 / 6 … Firmware Update No
6. Press « Escape» key, then ⩛ to point « Local Connection» line and press ✓ key to exit from HMI settings and get back to the main menu (home screen).	2 /2 HMI settings Local connection

4.2 Setting Date and Hour

1. Go to Line #1. This can be done by pressing several times « Escape » key or by pushing ⩓ key several times if needed.	STANDARD 1/t 11.10.2022 14 :06 :57 …
2. Press on ✓ key and using ⩓ and ⩛ keys, change the current date. Then, press on ✓ key to change the month and process the same way to change the year if needed.	STANDARD 1/t 11.10.2022 14 :06 :57 …
3. Setting hour. Process the same way as above to change hours, minutes and seconds still by using ⩓ / ⩛ keys and confirming by pressing ✓ each time. When settings are done, line No.1 remains highlighted.	STANDARD 1/t 11.10.2022 14 :06 :57 … STANDARD 1/t 11.10.2022 14 :06 :57 …
It is now possible to navigate into the menu by pressing ⩓ / ⩛ keys.	

5. End user Mode

Following changes can be done in end-user mode:

- Changing simple temperature setpoint
- Activate safety function

These changes (except date and hour) are indicated by the logo « ▸ » at the end of corresponding line.

5.1. Changing the Simple DHW S1 setpoint.

Please set a hot water production temperature in line with current national legislation and recommendations (UTD, Standards EN, ISO etc.)
All countries have different rules for how hot or cold tap water should be.
Cetetherm recommends the hot water temperature is at least 55°C and a hot water recirculation not less than 50°C.

At a temperature below 50°C there is a risk of bacterial growth. Note that at temperatures above 60°C the risk of scalding increases.
Set points above 63°C result in an increased risk of precipitation of lime scaling on the surfaces of the heat exchanger.

Default temperature setpoint is 60°C. To change it, refer to instructions bellow:

1. From the main menu, use ⮝ / ⮟ keys to go to line #6 as shown here: Then press on ✓ key.	STANDARD 6 / t … S1 : Second.outlet T° 58°C S1 : Actual setpoint 58°C
2. S1 menu appears. Select line #2 using ⮟ key. Then press twice on ✓ key. 3. Adjust setpoint value using ⮝ / ⮟ keys and confirm by pressing ✓ key. To cancel new setpoint value, just press « Esc » instead of ✓ key.	S1 MENU 2/ 2 Measure 58°C S1 setpoint 58°C ▸ 60 °C 0°C ↓ 85°C [---|---|---|---|---|---|---|---|---|---|---]
4. If no other change required, you can save the new setpoint at line No.3 (equal line 3 of main menu). Otherwise, press “Esc” twice to get back to main menu.	Save changes -----

	If the green led of ⓘ key is flashing, it is not possible to change the setpoint. To solve this, access to technician level (see further on), go to “Communication” sub-menu and select « Modbus RTU », then press ✓ key. Go to the last line « Writing priority » and select « POL468 » then press ✓ key. The green LED will stop flashing. You can now change the setpoint. When done, do not forget to go back to Communication\Writing priority and to select “GTC”.

5.2. Safety function

This function power supplies the 4 pumps’ relays (even if there are no 4 pumps connected). This energies the 4 pumps power supplies without checking if the pump is faulty or not.
Furthermore, pump(s) signals (for variable speed ones on P1/P2) and actuator signal are also forced to a preset value.
Valve signal is 50%, (5V)
Pump(s) signal is 100%, 10V.

Settings:

1. From the main menu and using ⮝ / ⮟ keys, go to corresponding line as shown: Then press ✓ key.	STANDARD l/t … Safety function OFF ▸ …

2. To activate the safety function, press on ✓ key	Safety function 1/3 Enable OFF …
3. Sélect « ON » using the ⩛ key and press ✓ key.	✓OFF ON
4. Now, display has changed to « Enable ON » and the alarm key green flashes, indicating a function is on-going.	Safety function 1/3 Enable ON Pump signal setpoint 100%* Valve signal setpoint 50%*
5. To stop the function from line#1 of safety function menu, press twice on ✓ key (OFF state on display). The alarm/function button stops flashing (except if another alarm/function is on-going). Exit this sub-menu by pressing « Esc » key.	

*** :** It is not possible at this access level to change pump and valve signal setpoint values

6. Technician access level

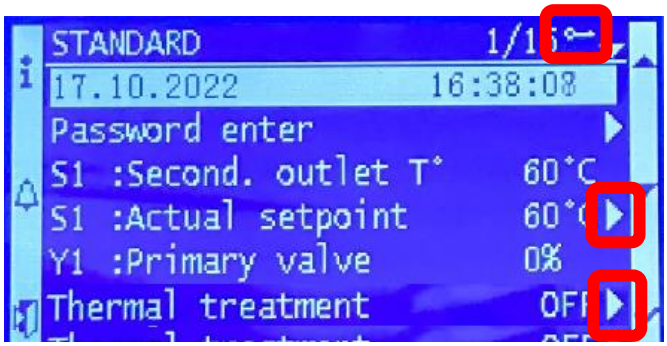
Technician access level allows to:

- Enable all sub-menu access (not possible from end-user access level)
- Adjust temperature setpoint(s) as per clock program(s)
- Enable/Disable functions like Eco, Booster, Thermal treatment…
- Check and/or force contact(s) or signal(s) output(s)
- Access to extended functions for specific applications, like primary tanks' charging pump(s) management or heat recovery for solar or geothermal applications
- Enable/Disable Modbus communication with priority or not to BMS writing.

6.1. Login

Access code is 1000.

1. From the main menu, go to line#2 : Password enter ▸. Then press ✓ key
   OR
   Press a few seconds on ✓ key
2. Display indicates « Login » and a cursor is placed on **0 - - -**
3. Using ⩚ / ⩛ keys (meaning + / -), enter the 1st digit and validate by pressing ✓ key. The 1st digit must be 1. So you have to display **1 - - -** by pressing once the + key, then pressing ✓ key.
4. Now comes the 2nd digit that must be 0 (zero). Just press on ✓ key as the default digit value is already zero.
5. Repeat the same operation for 3rd and 4th digits that must be zero also. For that, just press twice the ✓ key.
6. Once correct code is entered, information display appears (hardware/software versions, controller reference...). Press « Esc » key to come back to the main menu.
   The display now shows one key on its top right corner, indicating technician access level is activated. Now, most of the lines show « ▸ » at their end, meaning their access is now possible:



Picture 21

Remark: After 10 minutes without pressing any key, the software logs out from technician level, the key disappears, and the software is back to end-user access level.

6.2. Log out

You don't have to wait 10 minutes until logging out. It is possible to log out at any time.
For that :

1. Press a few seconds on ✓ key
2. Select « Log off » by pressing ➢ key
3. Press ✓ key
4. The key symbol has diseapeared from the display. Access level is now back to end-user.
5. Save parameters, line No.3

Except for specific reason, DO NOT log off if points let in manual mode (with the ⓘ button orange flashing). Please refer to « Wired inputs-outputs » sub-menu.

6.3. Main Menu

To access to the first line, press serval times « Esc » key OR ➢ key.

Display	Meaning
STANDARD l/t 🗝	Standard mode (always). l=No of curent line, t=total lines'number (variable, as per sensor(s)'number and activated extended function)
jj.mm.aaaa hh :mm :ss	Date and time
Password enter ▸	Log in / Log out
Save changes -----	After changing parameters/activating functions, access this line, press Enter, select "Yes" and press Enter to save data
S1 : Second. Outlet T° 60°C	S1 (DHW) temperature sensor, read only
S1 : Actual setpoint 60°C ▸	Access to S1 sub-menu
Y1 : Primary valve nnn%	Primary control valve signal to the actuator, reading only
S2 : Second. Inlet T° 20°C	Access to S2 sub-menu. (ONLY IF S2 is activated, otherwise line not displayed). **N/A for AquaGenius.**
S3 : Primary outlet T° 37°C	Access to S3 sub-menu. (ONLY IF S3 is activated, otherwise line not displayed). **N/A for AquaGenius.**
Thermal treatment OFF ▸	Access to thermal treatment sub-menu
Safety function OFF ▸	Access to safety function sub-menu
ECO / BOOSTER ARRETE ▸	Access to ECO/Booster function(s)' sub-menu
Fouling function NORMAL ▸	Access to fouling function sub-menu ONLY IF S3 temperature sensor present and activated). **N/A for AquaGenius.**
Pump(s) menu P1/P2/P3/P4 ▸	Access to pump(s) menu + configurated pump(s)' number indication
Extended functions ▸	Access to extended functions sub-menu. **N/A for AquaGenius.**
Test sequence ▸	Access to test sequence sub-menu
Communication ▸	Access to Modbus RTU communication sub-menu
Wired inputs – outputs ▸	Access to inputs / outputs reading / writing sub-menu

Please refer to next pages to get detail of each sub-menu.

All functions: Thermal treatment, Eco, Booster, Fouling, Safety are disabled.
Each installation is different. Functions 'parameters have to be set according the site and then can be enabled and adjusted if required.

6.4. S1 Sensor menu

This menu allows to:

- Adjust one or more daily or weekly temperature setpoint(s) as per clock program(s).
- Adjust high and low temperature alarm setpoints
- Adjust PID parameters

Temperature Setpoint(s) and clock program(s)

	If the green led of ⓘ key is flashing, it is not possible to change the setpoint(s). To solve this, access to technician level (see further on), go to "Communication" sub-menu and select « Modbus RTU », then press ✓ key. Go to the last line « Writing priority » and select « POL468 » then press ✓ key. The green LED will stop flashing. You can now change the setpoint. When done, do not forget to go back to Communication\Writing priority and to select "GTC".

1. From the main menu and using ⮝ / ⮟ keys, go to line #6 as shown : Then press ✓ key to access to S1 sub-menu	STANDARD 6 / t 🗝 … S1 : Actual setpoint 58°C ▸ …
2. Go to line No.2 and press ✓ key to access to setpoint(s) settings and clock program(s)	S1 MENU 2/ 8 🗝 … S1 setpoint 60°C ▸ …
There are 2 methods to adjust setpoints: a) Default setpoint if no clock program defined ➔ b) Different setpoints or not depending on week day and hours of the day. It is possible to get up to 6 different setpoints per day and different from day to day. We describe here the 2nd method, the first one being described in the end-user access level (simple setpoint without clock program). ⓘ : *Current day of the week is indicated by a cross (x) into the S1setpoint schedule menu.*	S1 setpoint schedule 1/11 🗝 Setpoint w/o Schedule 60°C Monday 60°C Tuesday x 60°C Wednesday 60°C Thursday 60°C Friday 60°C Saturday 60°C Sunday 60°C Copy Monday from Tue. To Sun Activate copy NO
Clock program. Let's take the following sample : • S1 setpoint 60°C from 6h00 to 22h00 Monday to Friday • S1 setpoint 55°C from 22h00 to 6h00 Monday to Friday • S1 setpoint 55°C the week-end, all day (Saturday+Sunday) Acces to line #2 and press ✓ key.	S1 setpoint schedule 2/11 🗝 S1 Sp without schedule 60°C Monday 60°C …
Always start on Monday to duplicate time program to other week days	
Display looks like this : * : * means all the time=the whole day. If the same temperature setpoint is required during all day, let « * : * " and just indicate the setpoint temperature. ⓘ *: 0°C value means last current setpoint will be used. If all days get 0°C, the simple temperature setpoint will be used (60°C by default).*	d01 : Monday 1/12 🗝 Time 1 * : * Value 1 0°C … Time 6 * : * Value 6 0°C
Press on ✓ key and use ⮝ / ⮟ keys to display 0 (0 hour or midnight) then press ✓ key to validate. Next, set minutes that can also be changed using ⮝ / ⮟ keys.	Time 1 0 : * Time 1 0 : 00

Here we want 0 minute, so press on ⮝ key to remove the star and display 0 then press ✓ key. Then press ⮟ key to go to next line. Here, we input the temperature setpoint (55°C). Press ✓ key and using ⮝ / ⮟ keys, display 60 (60°C) then press ✓ key to validate. Display indicates:	Time 1 0 : 00 Value 1 0°C Value 1 55°C
Press ⮟ key to access next line. Here, we indicate the 2nd program time: Process the same way as before to change time. Here we indicate 6h00. Then press on ⮟ key to access to next line. Here, we input 2nd setpoint value (60°C). Process the same way as before to change S1 temperature setpoint. Display indicates :	Time 2 * : * Time 2 6 : 00 Value 2 60°C
Press ⮟ key to access next line. Here, we indicate the 3rd program time: Process the same way as before to change time. Here we indicate 22h00. Then press on ⮟ key to access to next line. Here, we input 3rd setpoint value (55°C). Process the same way as before to change S1 temperature setpoint. Display indicates :	Time 3 * : * Time 3 22 : 00 Value 3 55°C
Then press « Esc » key to get back one step and press several times ⮟ key to go to line #10: Press ✓ key. In ours ample, we want to duplicate values except Saturday and Sunday. So we have to select « Tue. To Fri. ». To do this, press ✓ key. Note: If you want to duplicate all the days of the week, select “Tue. To Sun. » instead. Display indicates: Go to next line Press ✓ key, select « YES » and press ✓ key to validate.	Copy Monday from Tue.to Sun. Tue. To Fri. ✓Tue. To Sun. Copy Monday from Tue.to Fri. Activate copy NO
Now go to Saturday and press ✓ key. Required setpoint is 55°C all the day, so let * : * or input 0h00 for Time 1. Go to line #2. Press ✓ key and using ⮝ / ⮟ keys, display 55°C, corresponding to required setpoint. Press « Esc » key and select now Sunday line. Repeat same procedure as for Saturday, required setpoint being 55°C all day.	Saturday 60°C Time 1 0h00 / * : * Value 1 0°C Value 1 55°C Sunday 60°C Sunday 55°C
Clock program is now completed and effective. Press « Escape » key several times to go back to S1 menu.	

High and Low S1 temperature alarm

High temperature alarm :

The controller includes a security closing the primary control valve AND stopping primary pump(s) in case of too high S1 measured temperature, compared to the S1 temperature setpoint. 2 parameters define this alarm :

- Delta T (DT) high alarm, 10°C by default above S1 setpoint. This delta T follows the current setpoint. If setpoint is 60°C, high alarm condition will appear if S1>70°C (60+10°C).
- High alarm temporisation, 1 minute by default. If delta T is exceeded, the temporisation starts. When it ends, if delta T still exceeded, the high temperature alarm will be effective: Primary pump(s) stopped and primary control valve signal at

0% (request for closing). Alarm button will red flash and event stored into memory. Furthermore, relay 1 and 2 will be activated by default as relay 1 is general default and relay 2 is high temperature alarm. Temporisation is the same for high and low temperature alarms.

- Acknowledgement type: acknowledgement can be manual or automatic, depending of local rules. Manual restart = need to acknowledge default on site (or via modbus if connected). Automatic restart = if temperature drops down, the unit will start.

Low temperature alarm :

- The same way, an alarm indicates if S1 temperature is too low. Alarm condition = S1 < S1 setpoint – DT after the temporisation. This alarm acknowledges automatically (automatic restart by default) and doesn't stop pump and doesn't close the primary control valve.
- Alarm button will red flash and event stored into memory. Furthermore, relay 1 will be activated by default as relay 1 is general default. Temporisation is the same for high and low temperature alarms.

Alarms parameters' settings

1. Go to line #3 of S1 Menu and press ✓ key to access to high alarm Delta T setting. Press ⮝ / ⮟ keys to change the value. Setting range: 0 to 50°C. ⓘ : The *10°C default value suits almost all cases. Only few installations can motivate a value change.* 2. Then press ✓ to confirm or « Escape » to cancel value change 3. Press ⮟ key to go to next line	S1 MENU 3 / 8 🗝 … DT° High alarm Sp. 10°C …
4. Low temperature alarm delta T is set the same way. Setting range: 0 to 50°C. ⓘ : The *-10°C default value suits almost all cases. Only few installations can motivate a value change.* 5. Then press ✓ to confirm or « Escape » to cancel value change 6. Press ⮟ key to go to next line	S1 MENU 4 / 8 🗝 … DT° Low alarm Sp. -10°C …
7. High and Low alarm delay before it activates. Press ⮝ / ⮟ keys to change the value. Setting range: 0 to 60 minutes ⓘ : *This delay ensures the actuator has had sufficient time to close (high alarm) or open (low alarm) before alarm occurs. For slow actuators (>60 secs) it is recommended to increase the value higher than running time.* 8. Then press ✓ to confirm or « Escape » to cancel value change 9. Press ⮟ key to go to next line	S1 MENU 5 / 8 🗝 … Alarm delay 1.0min …
10. This parameter is set to acknowledge high temperature alarm AUTOMATICALLY or MANUALLY. Press ✓ key and use keys ⮝ / ⮟ to change the value NO<>YES. Validate by pressing ✓ key. ⓘ : *Please refer to local rules to check if Automatic restart is allowed.* 11. Press ⮟ key to go to next line	S1 MENU 6 / 8 🗝 … High Al.T° AutoReset NO …

S1 Temperature controller

This is the main PID control loop of the unit, connected to S1 temperature sensor and acting on primary control valve and eventually on primary pump speed (variable primary pump(s) option). Default values are suitable for most of installations and might not be changed. Only particular installations may need parameters' change.

1. The right number indicates the actual PID output (%). 2. Press ✓ key to access to PID settings	S1 MENU 7 / 8 🗝 … S1 T° controller nnn% ▸
3. Press ✓ key to change the proportional band (P factor of PID). Use ⮝ / ⮟ keys to change its value and press ✓ key to validate or	S1 T° controller 1/ 6 🗝 Proportional band: 40.0°C

“Esc” key to cancel change. Setting values: 0 to 1000°C. 4. Press ⩛ key to go to next line.	40 °C 0°C ↓ 1000°C [---|---|---|---|---|---|---|---|---|---|---]
5. Press ✓ key to change the integral factor (I factor of PID). Use ⩚ / ⩛ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Setting values: 0 to 2000 s. 6. Press ⩛ key to go to next line.	S1 T° controller 2 / 6 🗝 Integral factor : 15s 15 s 0s↓ 2000s [---|---|---|---|---|---|---|---|---|---|---]
7. Press ✓ key to change the derivative factor (D factor of PID). Use ⩚ / ⩛ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Setting values: 0 to 2000s. 8. Press ⩛ key to go to next line.	S1 T° controller 3 / 6 🗝 Derivative factor : 2s 2 s 0s↓ 2000s [---|---|---|---|---|---|---|---|---|---|---]
Lines 4 to 6 are read only informations. Line 4 : Measured S1 temperature Line 5 : S1 setpoint temperature Line 6 : S1 PID controller output in %	S1 T° controller 4-6 / 6 🗝 Present value: 60°C Setpoint : 60°C Controller output: nnn%
Press twice « Esc » key to get back to main menu.	

6.5. Thermal treatment function

Principle :
S1 temperature setpoint is raised (70°C by default) as per a clock program, for a set duration, in general between 1 and 2 hours, depending of secondary flow rate and storage tank capacity.
The function includes an alarm indicating eventually the temperature – tolerance (2°C by default) was never reached during the treatment. Treatment setpoint has also to be reached at least once.
Example : For a 70°C treatment setpoint, if S1 never reaches 68°C, alarm will be activated when function stops.
When function has ended, the normal S1 temperature setpoint is back and high temperature alarm is inhibited as per “Inhibition time” parameter. When inhibition time has passed, the high temperature alarm is active again.

If the green led of ⓘ key is flashing, it is not possible to change the thermal treatment setpoint. To solve this, access to technician level (see further on), go to “Communication” sub-menu and select « Modbus RTU », then press ✓ key. Go to the last line « Writing priority » and select « POL468 » then press ✓ key. The green LED will stop flashing. You can now change the setpoint. When done, do not forget to go back to Communication\Writing priority and to select “GTC”.

Settings :

1. From the main menu and using ⩚ / ⩛ keys, go to line “Thermal treatment” as shown here: Then press ✓ key to access this sub-menu	STANDARD I / t 🗝 … Thermal treatment OFF ▸
2. Press ✓ key to enable (ON) / disable (OFF) the thermal treatment, using ⩚ / ⩛ keys and pressing ✓ to confirm. 3. Press ⩛ key to go to next line.	Thermal treatment 1 / 6 🗝 Enable OFF …
4. Press ✓ key to change setpoint value, using ⩚ / ⩛ keys and pressing ✓ to confirm. Setting range: 60°C to 80°C. ⓘ : *Primary inlet temperature should be at least 7 to 70°C higher than this setpoint to reach thermal treatment temperature. If not the case, thermal treatment failure alarm may appear at the end.* 5. Press ⩛ key to go to next line.	Thermal treatment 2 / 6 🗝 Setpoint 70°C 70 °C 60°C ↓ 80°C [---|---|---|---|---|---|---|---|---|---|---]
6. Press ✓ key to access to clock program.	Thermal treatment 3 / 6 🗝 … Schedule ▸ …
7. Use ⩚ / ⩛ keys to change value and ✓ key to confirm date(s) and time(s).	Date *. *. *.**** (dw.dd.mm.yyyy)

⚠ DATES / TIMES FORMATS « * » symbol means « all ». For a daily treatment at 2h00, you need to input: Date= *. *. *.**** (all the days of the week, all the monthes, all the year.) and Time= 02.00 (2 h 00) For a **weekly treatment**, every Monday at 2h00**(recommanded frequency)**, you need to input: For a monthly treatment, each 1st of the month at 2h00, without taking care of the day it is, you have to input: Date= *.01. *.**** and Time=02.00 (not the best frequency) 8. Press « Escape» key to get back to thermal treatment sub-menu 9. Press ⩛ key to go to next line.	Time *. * (hh.mm) Date *. *. *.**** Time *. * **Date Mo.* .*.**** Time 02.00**
10. Press ✓ key to change treatment's duration. Duration is voluntary set to zero, as you have to estimate tank/installation loading time, depending of nominal secondary flow rate, recycling loop flow rate and storage tank volume. Duration setting : 0 to 240 min (4 hours) Example : Sec. Flow rate Q=2m3/h, Tank volume 500L=V=0,5m3 and recycling flow rate=q=1000 l/h. Tank loading time, so minimal treatment duration = V/(Q-q) Let 0,5/(2-1)=0,5 hour. If you wish to maintain at this temperature for 1 hour, you need 1h30 duration (0.5h+1h) or 90 minutes. 11. Press ⩛ key to access to next line.	Thermal treatment 4 / 6 🗝 … Duration 0min … 0 min ↓0min 240min [---|---|---|---|---|---|---|---|---|---|---]
12. Press ✓ key to change tolerance value. Use ⩚ / ⩛ kys to change value and ✓ key to validate. Setting values : 0 to 10°C. *ⓘ : If setpoint temperature – tolerance is not reached, an error message will appear at the end of treatment duration.* 13. Press ⩛ key to access to next line.	Thermal treatment 5/ 6 🗝 … Tolerance 2°C 2 °C 0°C ↓ 10°C [---|---|---|---|---|---|---|---|---|---|---]
14. Press ✓ key to change S1 high temperature alarm inhibition time. Press ⩚ / ⩛ keys to change value and ✓ key to validate. Setting values : 0 to 240 minutes.	Thermal treatment 6/ 6 🗝 … Inhibition time 30min
15. Press twice « Esc » key to get back to main menu.	

⚠ When Thermal Treatment is on-going, the Alarm/function led button flashes green.

6.6 Safety function

Principle :
This function activates the 4 pumps' relays at the same time without considering pumps faults' inputs.
Valve and pump(s)' signals are settable, at the opposite of end-user access level.
If the unit is equipped with P1/P2 variable speed pump(s) on the primary side, it is also possible to adjust their 0-10V signal, Y2=100% by default.
This function forces also the actuator signal Y1=50% by default.

Settings:

1. From the main menu and using ⩚ / ⩛ keys, go to line "Safety function" as shown here:	STANDARD I / t 🗝 … Thermal treatment OFF

Then press ✓ key to access this sub-menu	Safety function OFF ▸
2. To activate the function, press ✓ key	Safety function 1/3 🗝 Enable OFF …
3. Select « ON » using ⩛ key then press ✓ key	✓OFF ON
4. Display indicates « Enable ON » and the alarm/function button red flashes, showing a function is on-going: *ⓘ : It is possible at any time to check the on-going function(s) (or alarm(s)) by pressing 🔔 button, please refer to "Alarm/function button part.* 5. Press ⩛ key to access to next line.	Safety function 1/3 🗝 Enable ON Pump signal setpoint 100% Valve signal setpoint 50%
6. Press ✓ key to change P1/P2 signal value (Y2 signal). Use ⩚ / ⩛ keys to change its value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 100%. ⓘ : *If not 0-10V primary pump(s), no effect.* 7. Press ⩛ key to access to next line.	Safety function 2/3 🗝 Enable ON Pump signal setpoint 100% Valve signal setpoint 50% 100 % 0°C 100%↓ [---|---|---|---|---|---|---|---|---|---|---]
8. Press ✓ key to change primary valve signal value (Y1 signal). Use ⩚ / ⩛ keys to change its value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 100%.	Safety function 3/3 🗝 … Valve signal setpoint 50% 50 % 0°C ↓ 100% [---|---|---|---|---|---|---|---|---|---|---]
9. To stop the function, go to line#1 and press twice ✓ key (state OFF on display). The alarm button then stops flashing, except if other alarm(s) or/and function(s) are pending. 10. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	

When the safety function is ON, the Alarm(s)/Function(s) button green flashes.

6.7. ECO / Booster functions.

Eco function principle:
When control valve is sufficiently closed (valve signal<="Y1 setpoint") during a sufficient long time ("switch-on delay"), primary pump(s) switch(es) off and primary mixing valve closes down.
The system is switched ON when S1 temperature has gone down more than the S1 setpoint value – "Hysteresis" parameter. It is normal that the primary control valve starts to open during the function. This to anticipate valve opening when the pump will start again.
If secondary pumps are connected (SS/DS/DD series) they are still in operation during the Eco function.

NOTE : ECO function needs at least one primary pump. If not the case (2 port control valve systems for example, the function disappears from the menu.

Settings:

1. From the main menu and using ⩚ / ⩛ keys, go to line "ECO/Booster" as shown here: Then press ✓ key to access this sub-menu	STANDARD I / t 🗝 … ECO/Booster OFF ▸
2. To activate ECO function, press ⩛ key to access line #2 and then press ✓ key	ECO/Booster 2 / t 🗝 Enable OFF
3. Select « ON » using ⩛ key then press ✓ key	✓OFF ON

4. Display indicates « Enable ON » Press ⩛ key to access to next line.	ECO/Booster 2 / t 🗝 Enable ON
5. Press ✓ key to change the switch-on delay. Use ⩚ / ⩛ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Setting values : 0 to 20 minutes. ⓘ : *Delay to be adjusted as per installation characteristics.* 6. Press ⩛ key to access to next line.	ECO/Booster 3 / t 🗝 Switch-on delay 5min 5 min 0min ↓ 20min [---|---|---|---|---|---|---|---|---|---|---]
7. Press ✓ key to change the hysteresis value on S1. Use ⩚ / ⩛ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Setting values : 0 to 20 °C. ⓘ *: To avoid repetitive and frequent pump start/stop, select a value above 5°C.* 8. Press ⩛ key to access to next line.	ECO/Booster 4 / t 🗝 Hysteresis 5°C 5 °C 0°C 20°C ↓ [---|---|---|---|---|---|---|---|---|---|---]
9. Press ✓ key to change the Y1 setpoint value (max allowed signal on the valve to allow the function to start). Use ⩚ / ⩛ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Setting values : 0 to 80%. ⓘ *: Do not input too high value. The pump would be stopped under medium-high load!* 10. Press ⩛ key to access to next line.	ECO/Booster 5 / t 🗝 … Y1 setpoint 10% 10 % 0% ↓ 80% [---|---|---|---|---|---|---|---|---|---|---]
11. To stop the function at any time, go to line #1, press twice ✓ key (state OFF on display). The alarm button then stops flashing if function was running, except if other alarm(s) or/and function(s) are pending. 12. Press « Esc » key to get back to main menu. Press again “Esc” to point 1st line of Main menu.	

When ECO function is running, display indicates « ECO function RUNNING », the main menu indicates “ECO/Booster RUNNING” and the Alarm(s)/Function(s) key green flashes.

Booster function principle:
If DHW temperature is dropping down faster than "S1Gradient setpoint" parameter, the second primary pump (if existing) is energized, to increase the primary flow rate and raise faster the secondary outlet temperature S1.
Function stops when DHW temperature is back to the setpoint value and after "Switch-off delay" parameter temporisation. Then, the second primary pump is stopped.

NOTE: Booster function requires 2 primary pumps installed on the unit, P1+P2 (séries ID/DS/DD). If not the case, the function will be hidden from menu.

Settings:

1. From the ECO/Booster sub-menu, go to line #7 2. To activate Booster function, press ✓ key	ECO/Booster 7/11🗝 Enable OFF
3. Select « ON » using ⩛ key then press ✓ key	✓OFF ON
4. Display indicates « Enable ON » Press ⩛ key to access to next line.	ECO/Booster 7/11🗝 Enable ON
5. Press ✓ key to change temporization before stopping the 2nd pump, once S1 setpoint has been reached on S1. Use ⩚ / ⩛ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Setting values : 0 to 200 seconds. 6. Press ⩛ key to access to next line.	ECO/Booster 8/11🗝 Switch-on delay 2s 2 s 0s↓ 200s [---|---|---|---|---|---|---|---|---|---|---]
This is a read-only value, indicating the actual temperature gradient or variation rate on S1 (in degrees celsius / second). 7. Press ⩛ key to access to next line.	ECO/Booster 9/11🗝 S1 Gradient 0°C/s …
This is a read-only value, indicating the impact of gradient value on main PID. 0.75=75%. 8. Press ⩛ key to access to next line.	ECO/Booster 10/11🗝 S1 Gradient factor 0.75 …
9. Press ✓ key to change the gradient setpoint value. Use ⩚ / ⩛ keys to change value and press ✓ key to validate or	ECO/Booster 11/11🗝 …

"Esc" key to cancel change. Setting values: 1 to 20 °C/second. ⓘ *: The higher value, the lower effect and the lower value, the higher effect. Value should be set as per installation characteristics*	S1 Gradient setpoint 2°C/s 2 °C 1°C ↓ 20°C [---|---|---|---|---|---|---|---|---|---|---]
10. To stop the function, go to line #7, press twice ✓ key (state OFF on display). The alarm button then stops flashing if function was running, except if other alarm(s) or/and function(s) are pending. 11. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	

When Booster function starts, display indicates « Booster function RUNNING » in this sub-menu, the main menu indicates "ECO/Booster RUNNING" and the Alarm(s)/Function(s) key green flashes.

6.8. Fouling function

This function requires S3 sensor (primary outlet temperature sensor) connected and activated. Otherwise it is not applicable and not visible. **This function doesn't apply to AquaGenius product range**.

Function Principle :
It is based on S3 (primary outlet temperature sensor) scrutation. If S3 gets higher than defined setpoint (65°C, settable) that means heat exchanger is fouled. A temporization (10 hours, settable) eliminates potential transitory temperatures, like thermal treatment which could interfer. If fouling conditions are reached, this will generate an alarm and will make the alarm button red flashing.

Settings :

1. From the main menu and using ⮝ / ⮟ keys, go to line "Fouling function" as shown here: Then press ✓ key to access this sub-menu	STANDARD l / t 🗝 … Fouling function NORMAL ▸
2. To activate the function, press ✓ key and ⮟ key, then press ✓ key	Fouling function 1/3🗝 Enable OFF
3. Select « ON » using ⮟ key then press ✓ key	✓OFF ON
4. Display indicates « Enable ON » Press ⮟ key to access to next line.	Fouling function 1/3🗝 Enable ON
5. Press ✓ key to change the fouling temperature setpoint on S3. Use ⮝ / ⮟ keys to change its value and press ✓ key to validate or "Esc" key to cancel change. Setting values : 30 to 80 °C. 6. Press ⮟ key to access to next line.	Fouling function 2/3🗝 S3 fouling setpoint 65°C 65 °C 30°C ↓ 80°C [---|---|---|---|---|---|---|---|---|---|---]
7. Press ✓ key to change the temporization before activating the alarm. Use ⮝ / ⮟ keys to change its value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 240 hours.	Fouling function 3/3🗝 Switch-on delay 10h 10 h 0h↓ 240h [---|---|---|---|---|---|---|---|---|---|---]
8. To stop the function, scroll-up to line 1 and press twice on ✓ key (state OFF on display). 9. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	

When fouling criteria are reached, display indicates « Fouling DEFAULT » and alarm/function key red flashes.

6.9. Pump(s) menu

This menu appears if at least one pump is declared. Otherwise it is not visible.

Settings :

1. From the main menu and using ⮝ / ⮟ keys, go to line "Pump(s) Menu" as shown here:	STANDARD l / t 🗝 … Fouling function NORMAL ▸

*Note that declared pump(s) is(are) displayed on the right side. Then press ✓ key to access this sub-menu	Pump(s) menu P1/P2/P3/P4* ▸
2. Full menu pump represented here: * Depending of pumps' number, menu length varies from 3 up to 10 lines. ** If only 1 configured pump (only P1 or only P2 /only P3 or only P4) this line doesn't appear *** If P1/P2 0-10V controlled, refer to specific manual 3. Press ⩛ key to access to next line.	Pump(s) Menu 1/ n*🗝 - P1P2- Minimum speed*** 25% Maximum speed*** 100% Priority pump choice ** AUTO Cycling time** 12h Overlap time** 6s -P3P4- Priority pump choice ** AUTO Cycling time** 12h Overlap time** 6s
4. **N/A for constant speed pump.** If optional variable speed pump(s) installed, please refer to specific manual. Press ⩛ key to access to next line.	Pump(s) menu 2/nn 🗝 Minimum speed 25% …
5. **N/A for constant speed pump.** If optional variable speed pump(s) installed, please refer to specific manual. Press ⩛ key to access to next line.	Pump(s) menu 3/nn 🗝 Maximum speed 100% …
6. Press ✓ key to change P1/P2 pump priority (only if 2 primary pumps). Use ⩚ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting values: AUTO / P1 /P2. AUTO = allows to shift pumps (or pump's motors) P1 = No permutation. Only P1 will be used (locked) P2 = No permutation. Only P2 will be used (locked) 7. Press ⩛ key to access to next line.	Pump(s) menu 4/nn 🗝 … Priority Pump Choice AUTO ✓ AUTO P1 P2
8. Press ✓ key to change P1/P2 operating hour(s) (only if 2 primary pumps). Use ⩚ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 24h (12h default value). 9. Press ⩛ key to access to next line.	Pump(s) menu 5/nn 🗝 … Cycling time 12h …
10. Press ✓ key to change P1/P2 overlapping time (only if 2 primary pumps). Use ⩚ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 60s (6s default value). 11. Press twice ⩛ key to access to line+2.	Pump(s) menu 6/nn 🗝 … Overlap time 6s …
12. Press ✓ key to change P3/P4 pump priority (only if 2 secondary pumps). Use ⩚ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting values: AUTO / P3 /P4. AUTO = allows to shift pumps (or pump's motors) P3 = No permutation. Only P3 will be used (locked) P4 = No permutation. Only P4 will be used (locked) 13. Press ⩛ key to access to next line.	Pump(s) menu 8/10 🗝 -P3P4- Priority Pump Choice AUTO ✓ AUTO P3 P4
14. Press ✓ key to change P3/P4 operating hour(s) (only if 2 secondary pumps). Use ⩚ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 24h (12h default value). 15. Press ⩛ key to access to next line.	Pump(s) menu 9/10 🗝 … Cycling time 12h …
16. Press ✓ key to change P3/P4 overlapping time (only if 2 secondary pumps). Use ⩚ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 60s (6s default value). 17. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	Pump(s) menu 10/10 🗝 … Overlap time 6s …

6.10. Extended Functions

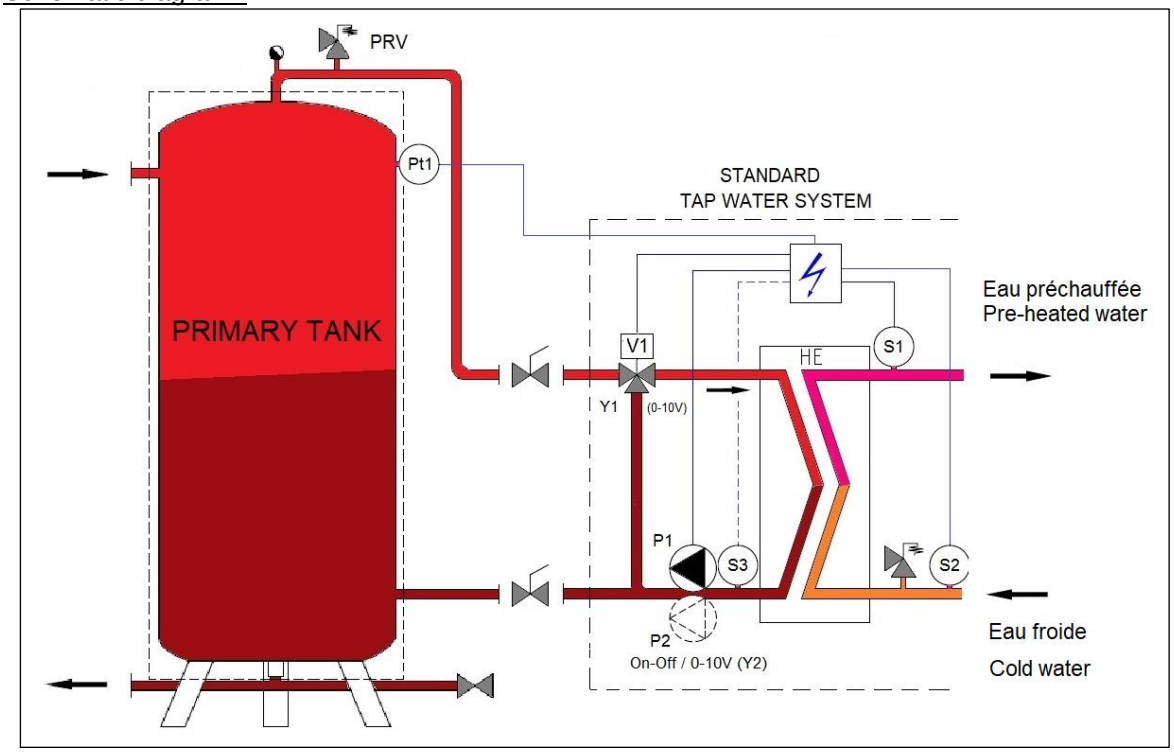
Extended functions require to add temperature sensor(s) PT1 and/or PT2 that must be connected on terminals M and X3 for PT1 and M and X4 for PT2. These connections are located on terminal T3 of the controller, upper part of the control box. For preheat function, S2 sensor must also be wired on M and B2, terminal T2 of the controller. **These functions don't apply to AquaGenius models.**

Pre-heat Function

Principle :

This function allows to pre-heat cold water using a primarystorage vessel heaten by any energy source like solar or geothermal. As soon as temperature on top of the primary vessel (measured by PT1) is higher than temperature entering on the secondary inlet of heat exchanger (S2 sensor) + delta T, the unit starts (primary pump energized and control valve operating). If PT1 temperature is lower than S2 + Delta T, unit stops (standby mode) avoiding to cool down secondary water.
Used sensor for primary tank is PT1. Used sensor for cold water is S2.

Schematic diagram :



Picture 22

IF PT1>=S2+Delta T ➔ Unit operating, cold water is pre-heaten to S1 setpoint (if possible)
IF PT1< S2+delta T ➔ Unit in standby to avoid cooling down secondary water.

Settings:

1. From main menu, using ⮝ / ⮟ keys, go to line#2 as shown here : Then press ✓ key to enter password	STANDARD 2 / t 11.10.2022 14 :07 :22 Password enter ▸
2. As described before, enter « 2000 » and validate	Login . Login **2 0 0 0**

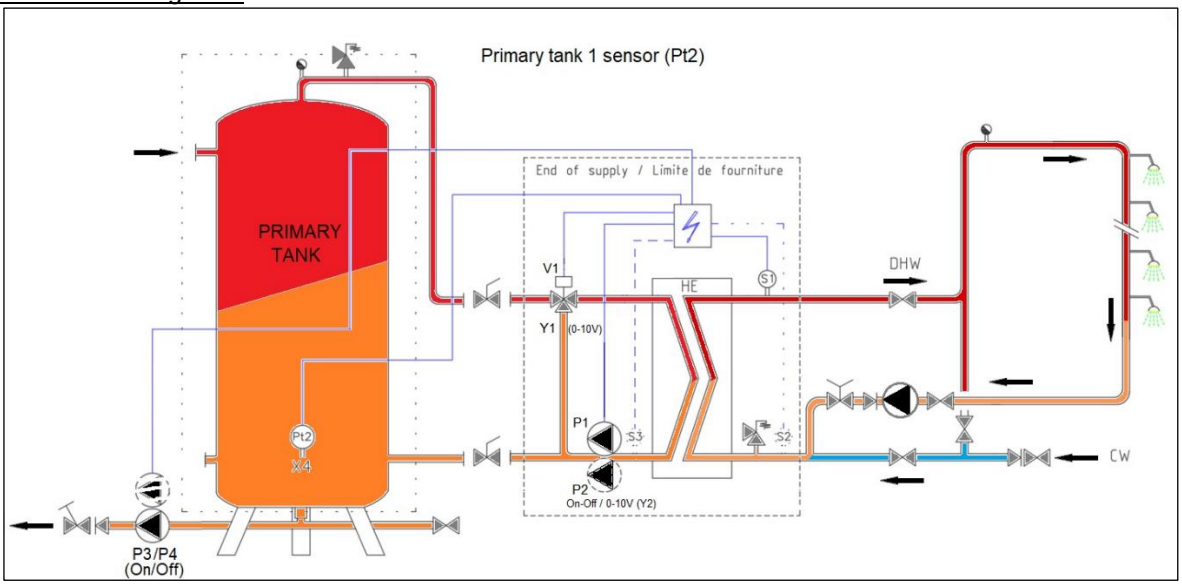
3. Info screen appears. Press on « Esc » key to come back to main menu. Now, 2 keys appear in the display, top right corner, indicating factory access level is effective.	STANDARD 1/ t 🗝🗝 11.10.2022 14 :07 :22 Password enter ▸
4. Press several time on ⩛ key to access to line « Configuration » then press ✓ key.	STANDARD l / t 🗝🗝 … Configuration ▸
5. Press several times on ⩛ key to access to line #5 : S2 Activation. 6. Press ✓ key, then ⩛ key to indicate YES 7. Press ✓ key to validate	Configuration 6 / 19 🗝🗝 … S2 activation YES …
8. Press « Esc » key to get back to main menu 9. Press several times ⩛ key to access to « Extended functions » line and press ✓ key.	STANDARD l / t 🗝🗝 … Extended functions ▸
10. Press ✓ key. 11. Press ⩛ key to select « PREHEATING » and press ✓ key	Extended Functions 2/4 🗝🗝 Function selection NONE ✓NONE PREHEATING
12. Press ⩛ key then ✓ and ⩛ keys to put state ON 13. Press ✓ key to RESTART the controller. ⚠ It is MANDATORY to restart the controller. Otherwise PT1, S2 and defined function won ‘t be effective and not visible into the menus. **Wait the controller restarts before going on.**	Extended functions 1/2 🗝🗝 Fction Selection PREHEATING Restart required ! OFF Restart required ! OFF ✓ON
14. When restarting, new lines are visible : S2 and PT1 temperature sensors into the main menu :	STANDARD l / t 🗝🗝 … S2 : Second. Inlet T° xx°C PT1:Top prim.tank T° yy°C …
15. Press several times on ⩛ key to access to « Extended functions » line and press ✓ key	STANDARD l / t 🗝🗝 … Extended functions ▸
16. Press twice ⩛ key to access to line #3 and press ✓ key to eventually adjust the Delta T value. 17. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or “Esc” key to cancel change. Setting range: 0 to 40°C (5°C default). 18. Press « Esc » key to get back to main menu. Press again “Esc” to point 1st line of Main menu.	Extended functions 3/3 🗝🗝 Fction selection PREHEATING Restart required ! Delta.T Min.setpoint 5°C 5 °C 0°C ↓ 40°C [---|---|---|---|---|---|---|---|---|---|---]

Function is now activated.

Primary tank 1 sensor (PT2) function

Principle :
This function allows to manage a primary tank load, source of accumulated energy using P3 and/or P4 pumps. If water on bottom tank is too cold, P3 or P4 are energized to allow tank to be loaded, until temperature on PT2 gets hot enough, meaning the tank has been recharged as it is loading from top to bottom. Then P3/P4 stops. A new discharge cycle begins until temperature on PT2 gets cold, starting again P3/P4 for a new loading phase.
Primary tank charging pump ON if PT2< PT2 setpoint.
Primary tank charging pump OFF if PT2>=PT2 setpoint + Delta Tmin

Schematic diagram :



Picture 23

Settings :

1. Press several times ⩛ key to access to « Extended functions » line and press ✓ key.	STANDARD I / t 🗝 Extended Functions ▸
2. Press twice ⩛ key then ✓ key to activate Primary tank 1 sensor PT2 function, « PR.TANK PT2 ».	3/4 🗝 ✓NONE PREHEATING PR.TANK PT2
3. Press ⩛ key to access next line. Press ✓ key then ⩛ key to put indicator on ON state 4. Press ✓ key to restart the controller. ⚠ It is MANDATORY to restart the controller. Otherwise, PT2 sensor and defined function won 't be effective and not visible into the menus. **Wait the controller restarts before going on.**	Extended functions 2/2 🗝 Fction selection PR.TANK PT2 Restart required ! OFF ✓OFF ON
5. A new line appears into the menu :	STANDARD I / t 🗝 PT2: Bot. Prim.tank T° yy°C
6. Press several times on ⩛ key to access to « Extended functions » line and press ✓ key to enter sub-menu	STANDARD I / t 🗝 Extended functions ▸
7. Using ⩛ key, go to line 3 and press ✓ key to eventually adjust delta T value. 8. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change.Setting range: 0 to 40°C (5°C default). 9. Press ⩛ key to go to next line.	Extended functions 3/4🗝 … Delta.T°Min.setpoint 5°C 5 °C 0°C ↓ 40°C [---|---|---|---|---|---|---|---|---|---|---]
10. Press ✓ key to eventually adjust PT2 temperature setpoint.	Extended functions 4/4🗝

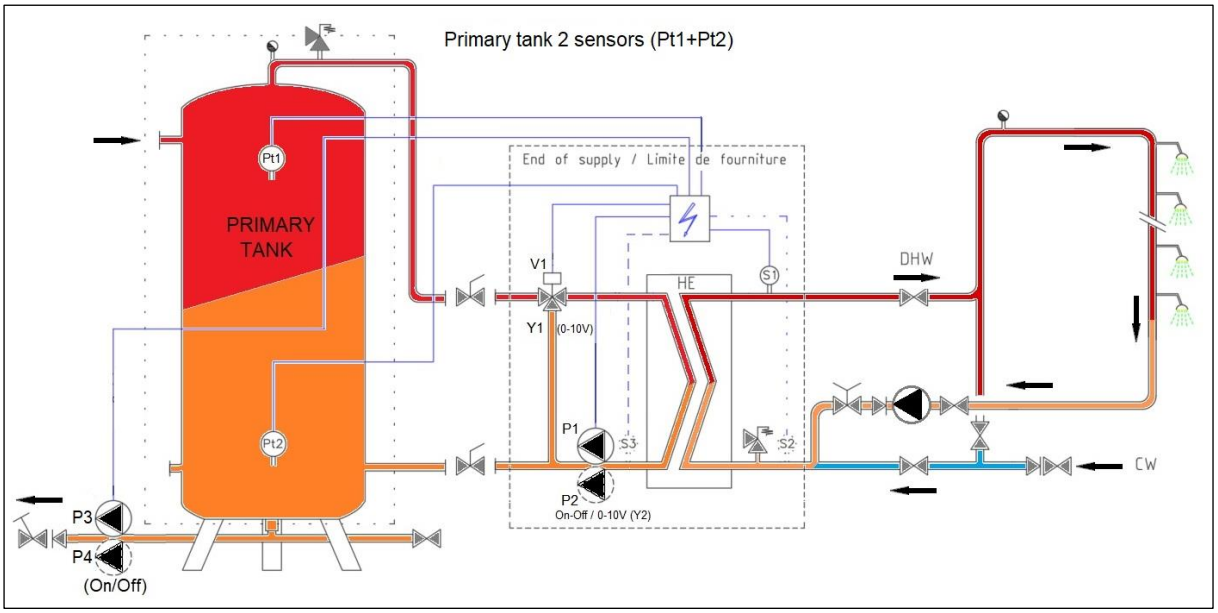
11. Use ⮝ / ⮟ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 10 to 90°C (65°C default).. 12. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	… PT2 T° setpoint 65°C 65 °C 10°C ↓ 90°C [---|---|---|---|---|---|---|---|---|---|---]

Function is now activated.

Primary tank 2 sensors function (PT1 +PT2) :

Principle :
This function allows to manage a primary tank load, source of accumulated energy using P3 and/or P4 pumps. We use here 2 temperature sensors instead of one.
When tank is discharged (meaning cold), P3/P4 is energized until water in the tank top is hot enough (measured by PT1 sensor) AND tank bottom is also hot enough (measured by PT2 sensor) as the tank is loaded from top to bottom.
Loading pump(s) P3/P4 stops when PT1 and PT2>= PT2 setpoint.
When tapping occurs, tank discharges in energy and PT2 cools down first (the tank flow from the tap water system is from bottom to top when discharging) until tank top (PT1) cools down also. The charging pump will start when PT1<=PT2 setpoint – Delta T. A new cycle begins.

Schematic diagram:



Picture 24

Settings :

1. Press several times ⮟ key to access to « Extended functions » line and press ✓ key.	STANDARD I / t 🗝 … Extended Functions ▸
2. Press ✓ key ta access functions' list 3. Press 3 times ⮟ key then ✓ key to activate Primary tank 2 sensors PT1+PT2 function, « PR.TANK PT1+PT2 ».	Extended functions 4/4 🗝 ✓NONE … PR.TANK PT1+PT2
4. Press ⮟ key to access next line. Press ✓ key then ⮟ key to put indicator on ON state 5. Press ✓ key to restart the controller.	Extended functions 2/2 🗝 Fction select.PRTANK PT1+PT2

⚠ It is MANDATORY to restart the controller. Otherwise, PT2 sensor and defined function won 't be effective and not visible into the menus. **Wait the controller restarts before going on.**	Restart required ! OFF ✓OFF ON
6. 2 extra lines appear into the menu :	STANDARD I / t 🗝 … PT1 :Top prim.tank T° xx°C PT2: Bot. Prim.tank T° yy°C
7. Press several times on ⩛ key to access to « Extended functions » line and press ✓ key to enter sub-menu	STANDARD I / t 🗝 … Extended functions ▸
8. Using ⩛ key, go to line #3 and press ✓ key to eventually adjust delta T value. 9. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 0 to 40°C (5°C default). 10. Press ⩛ key to go to next line.	Extended functions 3/4🗝 Delta.T°Min.setpoint 5°C … 5 °C 0°C ↓ 40°C [---|---|---|---|---|---|---|---|---|---|---]
11. Press ✓ key to eventually adjust PT2 temperature setpoint. 12. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 10 to 90°C (65°C default). 13. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	Extended functions 4/4🗝 … PT2 T° setpoint 65°C 65 °C 10°C ↓ 90°C [---|---|---|---|---|---|---|---|---|---|---]

Function is now activated.

6.11. Test sequence

This function is used at the factory and is part of manufacturing process of the unit to check control valve, pump(s), relays are operating. However, we recommend using the « Wired inputs-outputs » sub-menu for a deeper inputs/outputs tests, especially for commissioning or maintenance operations.

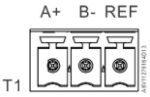
Settings :

1. From main menu, use ⩓ / ⩛ keys to go to « Test sequence » line : Then Press ✓ key	STANDARD I / t 🗝 … Test sequence ▸
2. To activate the sequence, press ✓ key then ⩛ key to select ON and press ✓ key. Then controller activates outputs (contacts and signals) in the following order : All signals to 0V ➔Relay R1➔Command P1➔Command P2➔Command P3➔Command P4➔230V 3pts -➔230V 3pts +➔Relay R2➔Relay R3➔Y1 to 10V➔Y2 to 10V➔End of sequence and back to normal control. 3. Press ⩛ key to go to next line.	Test Sequence 1 /4 🗝 Enable OFF ✓OFF ON
4. Press ✓ key to change pumps'test duration. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 0 to 60 secondes (4 sec by default). 5. Press ⩛ key to go to next line.	Test Sequence 2/4 🗝 Enable OFF Pump test time 4s Signal test time 4s Relay test time 4s
6. Press ✓ key to change 0-10V signals' duration. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 0 to 60 secondes (4 sec by default). 7. Press ⩛ key to go to next line.	Test Sequence 3/4 🗝 Enable OFF Pump test time 4s Signal test time 4s Relay test time 4s

8. Press ✓ key to change contacts' tests duration. Use ⮝ / ⮟ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 0 to 60 secondes (4 sec by default). 9. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	Test Sequence 4/4 🗝 Enable OFF Pump test time 4s Signal test time 4s Relay test time 4s

6.12. Modbus RTU Communication Menu

Be sure modbus cable wires are connected on T1 terminal (upper left corner of the control box) to get Modbus communication.



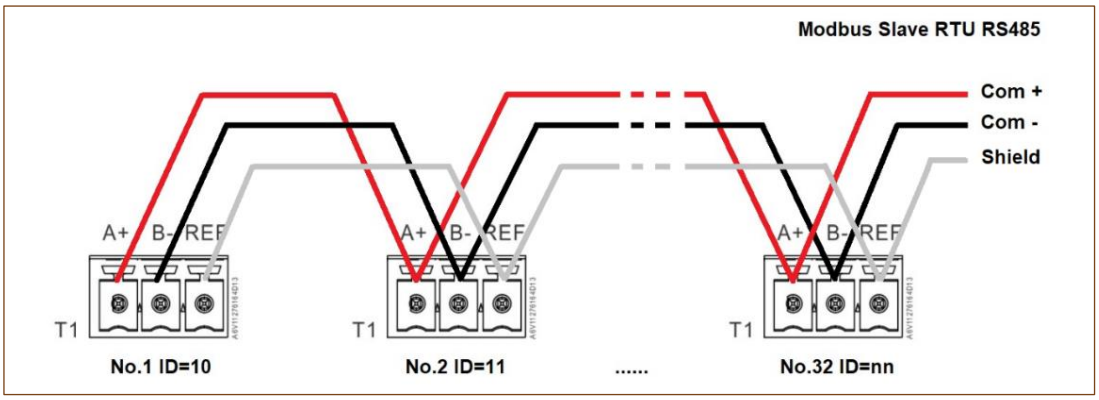
Wiring made on terminals labelled A+ and B-. If cable lengh exceeds 3 meters, it is recommended to use a shielded cable, connecting shiled to REF terminal.

Settings :

1. From main menu, use ⮝ / ⮟ keys to go to « Communication » line: Then Press ✓ key	STANDARD I / t 🗝 … Communication ▸
2. Press ⮟ key, then ✓ key to check/modify communication parameter(s). **If a least one parameter is modified, you have to RESTART the controller. For that, go to line#1 and press ✓ key, then select ON by pressing ⮟ key and finally press ✓ key.**	Communication 1 /2 🗝 Restart OFF Modbus RTU (RS485) COMM.OK
3. Press ✓ key to access to communication parameters. Use ⮝ / ⮟ keys to select line and press ✓ to access line. 4. Use ⮝ / ⮟ keys to change value and press ✓ to validate or "Esc" key to cancel. Explanations bellow : Controller adress from de 0 to 32 (10 by default) Communication speed from 600 to 115200 baud (defaut=19200) Parity : Even/Odd/None (by default) Bit stop number : 1 (by default) / 2 For any change, RESTART controller (same as previous screen) See bellow :	Modbus RTU (RS485) 1/6 🗝 Slave Adress 10 Baud rate 19200 Parity None Stop 1 bit Restart required ! OFF Writing priority POL468
5. Writing priority: POL486 (by default) / BMS **If priority let to controller (POL468), it is not possible to write value from BMS, but only possibility to read values.** **If it is necessary to write values from BMS to controller, select « BMS ». In this case, it is not possible to modifiy some values from controller.** **Concerned parameters are listed bellow :** • **S1 temperature setpoint** • **Acknowledge default** • **Thermal treatment setpoint**	Priorité d'écriture POL468 POL 468 BMS
6. If no restart required, press twice « Esc » key to get back to the main menu.	

Connecting several control boxes (units) :

Controller address being changeable, it is then possible to connect up to 32 units.
In the case of several units connected each other, respect Modbus cable wirings as per bellow diagram:



Picture 25

Modbus parameters' list :

MODBUS POINTS / POINT MODBUS

		Default values
MODBUS PARAMETERS / PARAMETRES MODBUS :	**Speed / Vitesse :**	**19200**
	Bit number / Nbre de l	**8**
	Stop bit / Bit de stop :	**1**
	Parity / Parité :	**None / Aucune**
	Mode :	**RTU**
	Adresse* :	**10**

* In case of multiple controllers, change ModBus slave number
* Si plusieurs appareils connectés, changer le N° d' esclave du Modbus

** On some BMS, add/substract one
** sur certains superviseurs, ajouter/soustraire 1

ModBus Points (English)	Points ModBus (Français)	MODBUS adress** Adresse ModBus**	Type	Mode	Value Valeur	Comment Commentaire
Read Only digital / Lecture seule Digitaux						
P1 Command	Commande P1	14	HR _16	R	0=Off, 1=On	Command(e) P1
P2 Command	Commande P2	15	HR _16	R	0=Off, 1=On	Command(e) P2
P3 Command	Commande P3	16	HR _16	R	0=Off, 1=On	Command(e) P3
P4 Command	Commande P4	17	HR _16	R	0=Off, 1=On	Command(e) P4
P1 Alarm	Alarme P1	18	HR _16	R	0=OK, 1=Alarm	P1 Fault / Défaut P1
P2 Alarm	Alarme P2	19	HR _16	R	0=OK, 1=Alarm	P2 Fault / Défaut P2
P3 Alarm	Alarme P3	22	HR _16	R	0=OK, 1=Alarm	P3 Fault / Défaut P3
P4 Alarm	Alarme P4	23	HR _16	R	0=OK, 1=Alarm	P4 Fault / Défaut P4
High S1 T° Alarm	Alarme T° S1 Haute	26	HR_16	R	0=OK, 1=Alarm	S1 High Temp Alarm/Alarme haute S1
General Default	Alarme de Synthese	27	HR_16	R	0=OK, 1=Alarm	General default / Défaut synthèse
Fooling_Alarm	Alarme Encrassement	29	HR_16	R	0=OK, 1=Alarm	Fooling alarm (S3) / Alarme encrassement (S3)
Therm. Treat. Alarm	Alarme Trait.Thermique	31	HR_16	R	0=OK, 1=Alarm	Therm.Treat. Failed / Echec traitement therm.
Therm. Treat. running	Trait.Therm. en cours	35	HR_16	R	0=Off, 1=On	Therm.Treat. On going / Trait. Therm. En cours
Remote contact	Contact remote	36	HR_16	R	0=Off, 1=On	Unit in standby / Appareil en standby
BOOSTER function	fonction BOOSTER	40	HR_16	R	0=Off, 1=On	BOOSTER fct activated / Fct BOOSTER active
ECO function	Fonction ECO	41	HR_16	R	0=Off, 1=On	ECO function activated / Fonction ECO active
Pump(s) Fault	Défaut pompe(s)	42	HR_16	R	0=Off, 1=On	Synthesis pump(s) fault / Défaut synthèse pompe(s)
Safety function	Fonction Secours	75	HR_16	R	0=Off, 1=On	Safety function / Fonction Secours
		(16 bit integer/Entier 16 bit)				
Read Only Analogic / Lecture seule Analogiques						
Software Version	Version Software	33	HR_16	R		Software version / Version logiciel
P1P2 Nbr of pump(s)	Nbre pompe(s) P1P2	71	HR_16	R	0/1=P1/2=P2/3=P1+P2	Primary pumps' number / Nbre de pompe(s) primaire
P3P4 Nbr of pump(s)	Nbre pompe(s) P3P4	72	HR_16	R	0/1=P3/2=P4/3=P3+P4	Second. pumps' number / Nbre de pompe(s) second.
Signal P1P2	Signal P1P2	44	HR_16	R	%	Primary pump signal Y2 / Signal pompe primaire Y2
Signal Valve	Signal Vanne	46	HR_16	R	%	Control valve signal, Y1/ Signal servomoteur, Y1
S1	S1	49	HR_16	R	°C	Sensor 1 measurement / Mesure Sonde S1
S2	S2	50	HR_16	R	°C	Sensor 2 measurement / Mesure Sonde S2
S3	S3	51	HR_16	R	°C	Sensor 3 measurement / Mesure Sonde S3
Pt1	Pt1	55	HR_16	R	°C	Sensor Pt1 measurement / Mesure Sonde Pt1
Pt2	Pt2	56	HR_16	R	°C	Sensor Pt2 measurement / Mesure Sonde Pt2
Relay1 Fct	Fct Relais 1	62	HR_16	R	0=Nothing/Rien 1=General alm/Déf.synthèse 2=High T° Alrm/Alrme T° haute	
Relay2 Fct	Fct Relais 2	63	HR_16	R	3=Low T°Alm/Alm T°basse 4=ECO fct/Fct ECO 5=Clock/Horloge	
Relay3 Fct	Fct Relais 3	64	HR_16	R	6=Th.Tr./Tr.Th. 7=N/A 8=P fault/Défaut P 9=Fool.HE/Ech.encr. 10=N/A	
XFcts	XFcts	65	HR_16	R	0=no/pas/keine Option 1=Pre-heat 2=N/A 3=N/A 4=Primary tank Pt2 5=PrimTank Pt1+Pt2 6=N/A 7=N/A	
Mode	Mode	66	HR_16	R	0=Standard,1=PREMIUM Must be 0 / doit être 0	
		(16 bit integer/Entier 16 bit)				
Read-Write digital / Lecture-Ecriture Digitaux						
Alarm(s) acknowledge	Acquittement alarme(s)	200	HR_16	R/W	1=Reset fault. Pulse point necessary 30 seconds On/Off	
		(16 bit integer/Entier 16 bit)			1=Acquittement. Fréquence impulsion max On/Off=30 secondes	
Read-Write Analogic / Lecture-Ecriture Analogiques						
S1 T° Setpoint	**Consigne T° S1**	**210**	**HR_16**	**R/W**	**°C**	**S1 fixed setpoint (DHW) / Consigne fixe S1 (ECS)**
Therm.Treat. setpoint	Consigne Trait.Therm.	212	HR_16	R/W	°C	Thermal treatment setpoint / Consigne trait. thermique
		(16 bit integer/Entier 16 bit)				

Picture 26

6.13. Wired Inputs / Outputs menu

This sub-menu is very useful to commission or to diagnostic an unit : check valve is opening/closing, check pump is running or check contacts' relays.
It is more powerful than the « Test sequence » sub-menu.

Settings :

1. From the main menu, use ⮝ / ⮟ keys to go to the line « Wired inputs – outputs » : Then press ✓ key.	STANDARD l / t 🗝 … Wired inputs-outputs ▸
2. Press ⮟ / ⮝ keys to access to selected line and press ✓ to validate. AI=Analog inputs=temperature sensor(s) AO=Analog outputs=Y1, Y2 0-10V signal(s) DI=Digital inputs=Pump(s) fault + Remote contact DO=Digital outputs=Command pump(s) + Relays contacts + 230V 3pts contacts	Wired inputs – outputs 1 /4 🗝 Analog Inputs ▸ Analog Outputs ▸ Digital Inputs ▸ Digital Outputs ▸
Analog inputs Inputs (like outputs) are gathered on the controller by blocks labelled T1 to T12. On these blocks, each terminal is labelled. Example: S1 sensor is connected to terminals B1 of T2 block All inputs are read only, no possibility to change a sensor value. * Optional sensor(s) for AquaFirst. Not available for AquaGenius. These sensors are activated into the « Configuration » and/or into the « Extended functions » sub-menus. Please refer to corresponding chapters.	Analog Inputs 12/12 🗝 -------- T2 CONNECTOR --------- B1 :S1 : 60°C B2 :S2* : 20°C B3 :S3* : 37°C B4 : --- : 0°C -------- T3 CONNECTOR --------- B5 :--- : 0°C B6 :--- : 0°C X1 :--- : 0°C X2 :--- : 0°C X3 : PT1* : 70°C X4 : PT2* : 70°C
Analog outputs Navigate into the display using ⮝ / ⮟ keys and press ✓ key to change value. Signal Y1 = Primary Valve control signal, 0 to 10 volts. Signal Y2 = Primary pump signal P1/P2, 0 to 10 volts (used with variable speed pump(s) only) « AUT » value indicates the controller controls this signal nnn% indicates the actual signal value (0%=0V up to 100%=10V). **PASS INTO MANUAL MODE** It is possible to override the original signal. To do that, select the line and press ✓ key. Now, using ⮝ / ⮟ keys, change from « AUT » to "MAN" value, meaning "MANUAL". Now press ✓ key and using ⮝ / ⮟ keys, input the signal value you want. Example: To check the actuator is moving and the primary valve fully closes, enter 0%. At the opposite, to check it fully opens, input 100%. To reput a point into automatic mode, select MAN and by pressing ⮝ or ⮟, display "AUT" and validate by pressing ✓ key, then press « Esc ». **Once at least 1 point is in manual mode, ⓘ button is orange lit. DO NOT FORGET TO PUT THE POINT(S) IN AUTO BEFORE LEAVING THIS SUB-MENU. To see easily which point(s) are in manual mode, a « ⌑ » logo is displayed on the corresponding line :**	Analog Outputs 1/5 🗝 -------- T4 CONNECTOR --------- X5 :Y1 SIGNAL : AUT-nnn% X6 :Y2 SIGNAL : AUT-nnn% X7 : --- : AUT- 0% X8 : --- : AUT- 0% AUT ➔ MAN ➔ nnn% To find back a point let in manual mode corresponding to our example, you can see the "⌑ » symbol : Wired inputs – outputs 1 /4 🗝 Analog Inputs ▸ Analog Outputs ⌑ ▸ Digital Inputs ▸ Digital Outputs ▸

Binary (or digital) inputs All inputs are read only, no possibility to change a sensor value. * Depending of pump(s)'number. If no pump, display indicates ' --- ' External stop = remote contact. If ON, Remote is active and the unit is in standby mode.	BI-IO Aut.st 1/6 🗝 -------- T5 CONNECTOR --------- D1 : P1 Alarm : NORMAL D2 : P2 Alarm * : NORMAL D3 : P3 Alarm * : NORMAL D4 : P4 Alarm * : NORMAL D5 : External stop : OFF
Binary (or digital) outputs As for analog outputs, it is possible to force these contacts to ON or OFF. To do that, pass from AUTO to MANual mode. R1=Relay 1, R2=Relay 2, R3=Relay 3. *Pn Command (1 to 4) commands corresponding pump ON/OFF. If no pump, display indicates '--- ' Com. FER.Y1 = Closing contact for 230V 3 points actuator (-) Com. OUV.Y1 = Opening contact for 230V 3 points actuator (+) Example: We want to Start P2 pump (considering it is present). Select line #5, press ✓ key, press ⩛ key then ✓ key and press ⩛ then ✓ key to pass from OFF to ON. **Do not forget to repass in automatic mode after the test.** ⚠ **Once at least 1 point is in manual mode, ⓘ button is orange lit. DO NOT FORGET TO PUT THE POINT(S) IN AUTO BEFORE LEAVING THIS SUB-MENU. To see easily which point(s) are in manual mode, a « ⌑ » logo is displayed on the corresponding line ➔** Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	BO-IO Aut.st 1/12 🗝 ------- T10 CONNECTOR -------- Q1: R1 COMMAND : AUT-OFF ------- T11 CONNECTOR -------- Q2: P1 COMMAND : AUT-ON Q3: P2 COMMAND* : AUT-OFF Q4: P3 COMMAND* : AUT-ON ------- T12 CONNECTOR -------- Q5: P4 COMMAND* : AUT-OFF Q6: Y1 CloseCommd : AUT-ON Q7: Y1 OpenCommd : AUT-OFF Q8: R2 COMMAND : AUT-OFF Q9: R3 COMMAND : AUT-OFF Wired inputs – outputs 1 /4 🗝 Analog Inputs ▸ Analog Outputs ▸ Digital Inputs ▸ Digital Outputs ⌑ ▸

7. Configuration access level

This access level is identical to technician level EXCEPT it displays an extra « Configuration » sub-menu. The configuration sub-menu allows to configure sensor(s)' number and also pump(s)' number. It is a part of the factory manufacturing process, as each unit must have its sensor(s)/pump(s) configured.

7.1. Login

Access code is 2000.

1. From the main menu, go to line#2 : Password enter ▸. Then press ✓ key
   OR
   Press a few seconds on ✓ key
2. Display indicates « Login » and a cursor is placed on **0 - - -**
3. Using ⩚ / ⩛ keys (meaning + / -), enter the 1st digit and validate by pressing ✓ key. The 1st digit must be 1. So you have to display **2 - - -** by pressing once the + key, then pressing ✓ key.
4. Now comes the 2nd digit that must be 0 (zero). Just press on ✓ key as the default digit value is already zero.
5. Repeat the same operation for 3rd and 4th digits that must be zero also. For that, just press twice the ✓ key.
6. Once correct code is entered, information display appears (hardware/software versions, controller reference...). Press « Esc » key to come back to the main menu.
   The display now shows 2 keys on its top right corner, indicating configuration sub-menu is now accessible.

Remark: After 10 minutes without pressing any key, the software logs out, the keys disappear and the software is back to end-user access level.

7.2. Logout

You don't have to wait 10 minutes until logging out. It is possible to log out at any time.
For that :

1. Press a few seconds on ✓ key
2. Select « Log off » by pressing ⩛ key
3. Press ✓ key
4. The key symbol has disappeared from the display. Access level is now back to end-user.

7.3. Configuration menu

Note ! If Reseted contrôler or spare part controller, pump(s) and sensor(s) number MUST be configured using this sub-menu.

Settings :

1. From the main menu, use ⩓ / ⩛ keys to go to the line « Configuration » : Then press ✓ key.	STANDARD l / t 🗝🗝 … Configuration ▸
2. Press ✓ key to change daylight saving time parameters. By default it set on automatic mode	Configuration 1/ 19 🗝🗝 Daylight sav.time
3. Here is the description of possible settings : Use ⩓ / ⩛ keys to change line or value, ✓ key to validate or "Esc" to cancel. Enable/Disable auto time change. Keep on yes. Here is the time to add/substract, should be kept to 1 hour Month for summer time (should be kept to March) Day for summer time (should be kept to Sunday) Do not change Time change will occur at 2h00 at night Month for winter time (should be kept to October) Day for winter time (should be kept to Sunday) Do not change Time change will occur at 3h00 at night UTC reference time (European UTC by default) 4. Press Esc to get back to the configuration sub-menu.	Daylight sav.time 1/11 🗝🗝 Enable Yes Time 1h Start month Mar Start week day Su Start offset 4 Start hour 2h End month Oct End week day Su End offset 4 End hour 3 UTC difference -60min
5. Press twice ⩛ key then ✓ key to select STANDARD. If PREMIUM is indicated, put on STANDARD mode using ⩓ / ⩛ keys and ✓ key to validate. 6. Press ⩛key to access to next line.	Configuration 3/ 19 🗝🗝 Model selection STANDARD
7. Press ✓ key to change actuator's type. Use ⩓ / ⩛ keys to change value and ✓ key to confirm or "Esc" key to cancel. **For AquaFirst, AquaGenius or AquaCompact, select Aq.F** ⓘ : *Other values correspond to other products.* 8. Press ⩛ key to access to next line	Configuration 4/ 19 🗝🗝 … Actuator type Aq.F ✓Aq.F …
9. Keep on OFF state. Press ⩛ key to access to next line	Configuration 5/ 19🗝🗝 Cooling Mode OFF
10. Press ✓ key to enable/disable S2 temperature sensor. Press ⩓ / ⩛ keys to change value to YES/NO and press ✓ key to validate or "Esc" key to cancel. ⓘ : *S2 activation enable extra line on main display and in sub-menus.* 11. Press ⩛ key to access to next line	Configuration 6/ 19🗝🗝 … S2 Activation NO …
12. Press ✓ key to enable/disable S3 temperature sensor. Press ⩓ / ⩛ keys to change value to YES/NO and press ✓ key to validate or "Esc" key to cancel. ⓘ : *S3 activation enable extra lines on main display and sub-menus.* 13. Press ⩛ key to access to next line	Configuration 7/ 19🗝🗝 … S3 Activation NO …
14. Press ✓ key to define primary pump(s)'number. Use ⩓ / ⩛ keys to change value NONE/P1/P2/P1+P2 and press ✓ key to confirm.	Configuration 8/ 19🗝🗝 …

⚠ **THIS STEP IS MANDATORY TO GET AN OPERATING UNIT !** 15. Press ⩛ key to access to next line	P1P2 pump selector None/P1/P2* … * Actual configuration appears on the right side of the line
16. Press ✓ key to define primary pump(s)'number. Use ⩓ / ⩛ keys to change value NONE/P3/P4/P3+P4 and press ✓ key to confirm. ⚠ **THIS STEP IS MANDATORY TO GET AN OPERATING UNIT !** 17. Press ⩛ key to access to next line	Configuration 9/ 19🗝🗝 … P3P4 pump selector None/P3/P4* … * Actual configuration appears on the right side of the line
18. Press ✓ key to change relay 1 function. Use ⩓ / ⩛ keys to change value and ✓ key to validate. Default value is General alarm: will be activated for any default Possible values are : No action Any default (default value) High temperature alarm on S1 Low temperature alarm on S1 ECO function running Clock program Thermal treatment running Secondary tank loaded (requires S2 sensor) Pump(s) default Fouling function on alarm (requires S3 sensor) (N/A) 19. Press ⩛ key to access to next line	Configuration 10/ 19🗝🗝 … Relay 1 function General alarm … Nothing ✓General alarm High T° alarm Low T° alarm ECO function Timer** Th.Tr activated Tank loaded Pump default HE fouled Primary too low
20. Press ✓ key to change relay 2 function. Use ⩓ / ⩛ keys to change value and ✓ key to validate. Default value is High T° alarm. Possible values are the same as Relay 1. See above. 21. Press ⩛ key to access to next line	Configuration 11/ 19🗝🗝 … Relay 1 function General alarm ✓High T° alarm …
22. Press ✓ key to change relay 3 function. Use ⩓ / ⩛ keys to change value and ✓ key to validate. Default value is nothing (no action). Possible values are the same as Relay 1. See above. 23. Press ⩛ key to access to next line	Configuration 12/ 19🗝🗝 … Relay 3 function General alarm ✓Nothing …
24. Press ✓ key to enable 230V 3 points output. Use ⩓ / ⩛ to change value OFF/ON, press ✓ to enable or « Esc » to cancel. ⓘ : *230V 3 points output is disabled as not used on standard units and to avoid noise and to avoid wear of the corresponding relays.* 25. Press ⩛ key to access to next line	Configuration 13/ 19🗝🗝 … 3 points valve on Y1 OFF …
26. Press ✓ key to modify 3 points valve opening time. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel. ⓘ : *No action if 3 points valve is set to OFF.* 27. Press ⩛ key to access to next line	Configuration 14/ 19🗝🗝 … - Open time 30s …
28. Press ✓ key to modify 3 points valve closing time. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel. ⓘ : *No action if 3 points valve is set to OFF.* 29. Press ⩛ key to access to next line	Configuration 15/ 20🗝🗝 … - Close time 30s …
30. Press ✓ key to change the display language. Use ⩓ / ⩛ keys to change value and press ✓ key to validate or "Esc" key to cancel. ⓘ : *All menus will be displayed in the selected language**** 31. Press ⩛ key to access to next line	Configuration 16/ 19🗝🗝 … Language selection English …
32. Press ✓ key to production reset the controller. Use ⩓ / ⩛ keys to change value NO/YES and press ✓ key to validate or "Esc" key to cancel.	Configuration 17/ 19🗝🗝 …

⚠ **At the opposite of describe restart found in some sub-menus, this production reset put all parameters by default, as described into this manual, putting the controller in its original state, before factory configuration of pump(s and sensor(s). It will be necessary to reconfigure these last ones.** 33. Press ⮟ key to access to next line	Production reset NO …
34. Software version. Read only. Also visible into the info menu or by pressing the ⓘ key. 35. Press ⮟ key to access to next line	Configuration 18/ 19🗝🗝 … Software version V.nn …
36. Press ✓ key then use ⮝ / ⮟ to change value OFF/ON, press ✓ to enable or « Esc » to cancel. ⚠ **ANY CHANGE INTO THIS MENU, EXCEPT LANGUAGE SELECTION REQUIRES A CONTROLLER RESTART!**	Configuration 19/ 19🗝🗝 … Restart required ! OFF …
37. Press « Esc » key to get back to main menu. Press again “Esc” to point 1st line of Main menu.	

** If Timer selected, and extra line will be displayed. This will add a clock program, with 6 possible daily time schedules to ON/OFF relay contact. Please refer to S1 clock program as settings are similar (except they apply to ON/OFF instead of a setpoint value).

*** It is not necessary to restart the controller when changing the language only.

8. Alarms/Functions and acknowledgement

8.1. Alarms

Alarms are indicated via 🔔 key that red flashes.

⚠ **To acknowledge an alarm, press twice on 🔔 key, press ✓ key, then on ⮟ key (Execute) and finally on ✓ key to confirm. If several alarms are displayed but not active anymore, they will all be cleared and their status passes from FAULT to NORMAL.**

Possible alarms are listed bellow :

Display :	**Meaning :**
Alarm history nn/tt	Nn=Alarm(s) number, tt=Total lines number
Acknowledge	Press ✓, then ⮟ and ✓ to acknowledge ALL alarms
S1 150°C ▸	S1 sensor is faulty or wires disconnected: value = 150°C
S2 150°C* ▸	S2 sensor is faulty or wires disconnected: value = 150°C
S3 150°C* ▸	S3 sensor is faulty or wires disconnected: value = 150°C
PT1 150°C* ▸	Pt1 sensor is faulty or wires disconnected: value = 150°C
PT2 150°C* ▸	Pt2 sensor is faulty or wires disconnected: value = 150°C
P1 Alarm FAULT ▸	Primary pump 1 default.
P2 Alarm FAULT* ▸	Primary pump 2 default
P3 Alarm FAULT* ▸	Pump 3 default (secondary or primary tank charge pump as per config.).
P4 Alarm FAULT* ▸	Pump 4 default (secondary or primary tank charge pump as per config.).
S1 high T° FAULT ▸	High temperature alarm measured by S1 temperature sensor.
S1 low T° FAULT ▸	Low temperature alarm measured by S1 temperature sensor.
Therm. Treatm. FAILURE ▸	Thermal treatment failed
Fouled exchanger FAULT ▸	Heat exchanger fouled as per function’s parameters

* As per equipment.
To get alarm detail (date and time it occured), select requested alarme into the list and press ✓ key.

8.2 Functions

Running functions are indicated with 🔔 button led green flashing. The different functions are listed below. Pressing 🔔 button indicates the last function event, with its occurrence details (date and time).

Display :	Meaning :
Alarm list detail nn / tt	Nn=Function(s) number, tt=Total lines number
SAFETY ACTIVE ▸	Safety function running
SAFETY INACTIVE ▸	End of safety function
Thermal Treatment Started ▸	Thermal treatment running
Thermal Treatment Stopped ▸	End of Thermal treatment
ECO MODE STARTED ▸	ECO function running
ECO MODE STOPPED ▸	End of ECO function
MODE BOOSTER STARTED ▸	BOOSTER function running
MODE BOOSTER STOPPED ▸	End of BOOSTER function
STANDBY ACTIVE ▸	Remote function running
STANDBY INACTIVE ▸	Fin de la fonction Remote

8.3 Events'list

If 🔔 button is not flashing, press it once. If flashing, press it 3 times to access to events' list. The last 50 events are displayed from more recent to oldest. To get more info, select one and press ✓ key to get occurrence date and time.

9. Production RESET

If lot of parameters have been changed (PID, extended functions…) and you want to find back all default settings at once, you should proceed the production reset.

Access code is 2000.

1. From the main menu, go to line#2: Password enter ▸. Then press ✓ key
   OR
   Press a few seconds on ✓ key
2. Display indicates « Login » and a cursor is placed on **0 - - -**
3. Using ▲ / ▼ keys (meaning + / -), enter the 1st digit and validate by pressing ✓ key. The 1st digit must be 2. So you have to display **2 - - -** by pressing once the + key, then pressing ✓ key.
4. Now comes the 2nd digit that must be 0 (zero). Just press on ✓ key as the default digit value is already zero.
5. Repeat the same operation for 3rd and 4th digits that must be zero also. For that, just press twice the ✓ key.
6. Once correct code is entered, information display appears (hardware/software versions, controller reference...). Press « Esc » key to come back to the main menu.
   The display now shows two keys on its top right corner, indicating the factory level access is activated. Now, most of the lines show « ▸ » at their end, meaning their access is now possible and the configuration menu can be accessed now.
7. Go to "Configuration" line and press ✓ key.
8. Go to "Production Reset" line and press ✓ key.
9. Press ▼ key to select YES and press ✓ key to confirm
10. Controller restarts
11. Repeat steps 1 to 7 to access again to Configuration sub-menu
12. Adjust parameters: AT LEAST pumps' number: P1/P2 and P3/P4
13. Then go to the last line "Restart required!", press ✓ key, then ▼ and ✓ key to restart.
14. Controller restarts with new configuration.

Remark: After 10 minutes without pressing any key, the software logs out from factory level, the key disappears and the software is back to end-user access level.

Log out

You don't have to wait 10 minutes until logging out. It is possible to log out at any time.
For that :

1. Press a few seconds on ✓ key
2. Select « Log off » by pressing ➢ key
3. Press ✓ key
4. The key symbol has disappeared from the display. Access level is now back to end-user.
5. Save parameter at line No. 3

10. Trouble shooting

FINDINGS	PROBABLE CAUSES	REMEDIES
Controller doesn't start	No power from mains or PCB transformer	Check FU5 (230V transfo), FU7 (24VDC transfo) and mains supply
Pump(s) not operating	Locked rotor or damaged	Force to rotate. Replace if required
	Corresponding led is not lit on power board	Check FU5 (transfo primary) and FU6 (transfo secondary) fuses
	Pump relay damaged	Replace Power Board
	Pump protection fuse blown	Check then replace if necessary
	High Alarm condition detected	Clear alarm then reset system
	No voltage to control board terminals	Check power supply cable and fuses
	No voltage to pump motor terminals	Check protection fuse on main board, cable condition and connections
	Controller improperly set	Check pumps' configuration into Configuration menu
Low temperature alarm	Primary pump stopped	See "Pump(s) not operating"
	Too low primary temperature	Check for a closed valve in the primary
	Too high tap water flow rate (SI)	Reduce buffer vessel charging flow rate
	Set point too high	Adjust setpoint into S1 Menu
	Control valve remains closed	See "Modulating valve does not operate"
Modulating valve does not operate	Damaged or broken actuator	Test and replace if necessary
	Broken or improperly tightened coupling	Check and replace if necessary
	Valve blocked	Replace
	No signal from the controller	Check 24V AC fuse on power board
	Supply wires improperly tightened	Check wires, re-tighten connections
	Actuator stroke restricted	Dismount then clean the valve
High temperature alarm	Charging pump stopped (SI versions)	Refer to ''Pump not operating'' above
	Low recirculation flow rate (I versions)	Check and fix problem
	Alarm differential too low	Check and set the controller
	Modulating valve not closing	Refer to previous box above
	Too much differential pressure across the modulating valve	Check the way the TWM is piped-up. Mixing arrangement should be used

Correct temperatures across the exchanger not obtained. Valve and pumps operating satisfactorily	Excessive exchanger scaling at the primary or secondary side	Open and clean the exchanger according to cleaning instructions
	Primary pipe work obstructed or strainer upstream clogged	Inspect primary pipe work. Clean strainer on the primary side
	Isolation valve closed	Open isolation valves
	Air presence in the primary	Purge. Check no high parts where air could be trapped exist
	Excessive pressure drops	Check pipe size is suitable for nominal flow rate
Temperature does not increase in the buffer vessel and the tap water value is correct.	Recirculation flow rate exceeds charging flow rate.	Check and measure charging and recirculation flow rates. Adjust when necessary
		Recirculation FR < 0.6 x Charging FR

11. Maintenance and repairs

Cetetherm AquaFirst and AquaGenius don't require any specific maintenance.
The frequency of the inspections depends on the water hardness, temperature and hot water consumption.

- Regularly check for leaks from pipes or components.
- Regularly check that the operation control systems is stable and that the temperature does not fluctuate. Temperature hunting causes unnecessary wear of valves, actuators.
- The control box does not require any specific maintenance; annually check the electrical connections tightening.
- Annually check the control valve that no leaks are detected.
- Regularly check lime scaling on the connected devices as scaling depends of water quality, hardness and temperatures levels.

Scaling of the secondary side will be evidenced by:

- A high pressure drop on the secondary side of the exchanger. This one should not exceed 50 kPa on all models (heat exchanger only)
- Improper temperature range on the secondary side of the exchanger
- Low temperature difference between inlet and outlet on the primary side of the exchanger when the control valve is fully open.
- An alarm message if fouling function is set correctly and activated (option).

Only replace any defective parts with the **original** spare parts.
Please contact your Cetetherm distributor for spare parts, note serial number and model designation.

Maintenance work must be carried out by a qualified and authorized technician.

Hazard of severe electrical shock or burn.
Before cleaning and servicing, disconnect power supplies.

Risk of burns. Let the pipes cool down before starting out with maintenance work.

11.1 Opening the control box

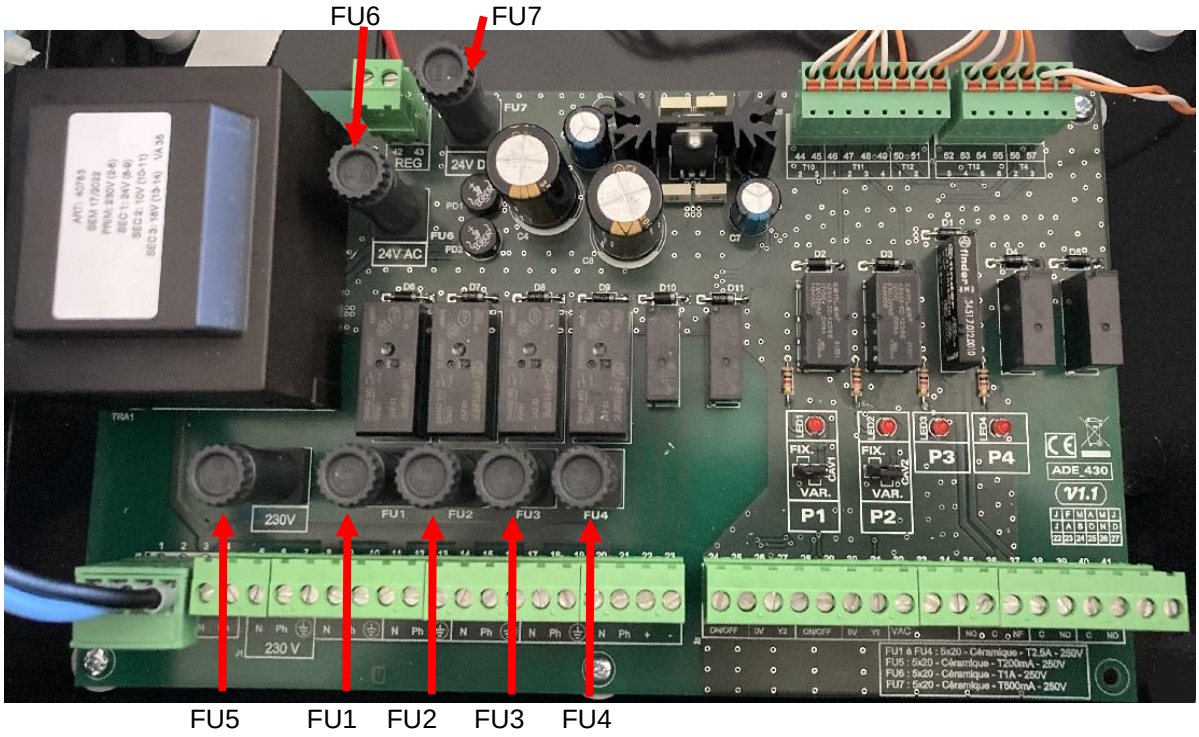
Open the front panel by turning the lock button counterclockwise.

Picture 27

11.2 Fuses replacement

The control box is fitted with a set of fuses to protect the different components against overload. Extra fuses are included in the control box for quick servicing.

The service work must be carried out by an authorized service technician.
Turn off the power supply before starting to work.



Picture 28

Fuse	FU1	FU2	FU3	FU4	FU5	FU6	FU7
Protection	P 1	P 2	P 3	P 4	230V Transfo. primary (Power PCB protection)	24V AC actuator	24V DC Controller
Size	5 x 20	5 x 20	5 x 20	5 x 20	5 x 20	5 x 20	5 x 20
Rating	2,5 A	2,5 A	2,5 A	2,5 A	200 mA	1 A	500 mA
Voltage	250 V	250 V	250 V	250 V	250 V	250 V	250 V

11.3 Replace / add a pump

The pumps' configuration and connections are factory made. It could happen a pump is added (recycling pump typically). In a servicing situation the correct pump must be identified.

Codification	Meaning	Connected pump(s)
FIxxxIS / FI(B/N)xIS	**I**nstantaneous **S**ingle	P1 or P2
FIxxxID / FI(B/N)xID	**I**nstantaneous **D**ouble	P1+P2
FIxxxSS / FI(B/N)xSS	Semi-instantaneous **S**ingle / **S**ingle	P1 or P2 + P3 or P4
FIxxxDS / FI(B/N)xDS	Semi-instantaneous **D**ouble / **S**ingle	P1+P2+ P3 or P4
FIxxxxDD / FI(B/N)xDD	Semi-instantaneous **D**ouble / **D**ouble	P1+P2+P3+P4

Add a recycling pump to an Instantaneous system.

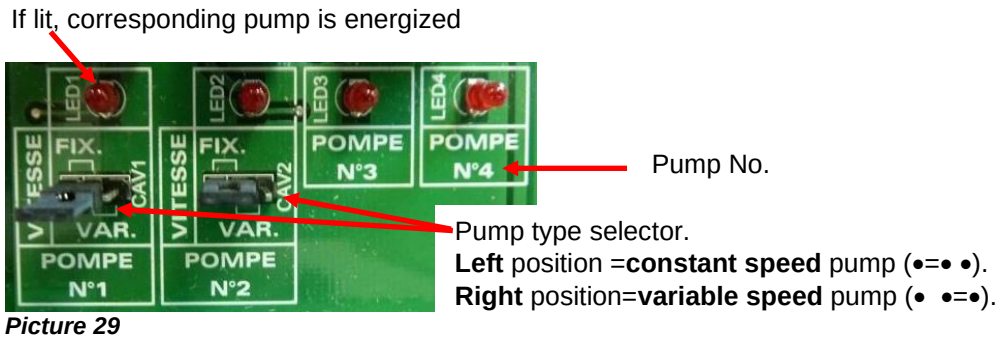
It is possible to add a recycling pump to an AquaFirst or AquaGenius unit. This one must be wired on P3 or P4 terminal on the power PCB. If this pump is not equipped with default contact, shunt D3 and M terminals for P3 or D4 and M for P4 pump. This shunt has to be made directly on controller terminals, upper part of the control box.
Set the pump into the Configuration menu to enable it.

Change pump type : constant speed <> variable speed.

AquaFirst and AquaGenius use constant or variable speed with 0-10v signal (option) class A pumps, only for primary pump(s) P1 / P2. Please refer to specific instructions' manual for variable speed pump(s) installation.

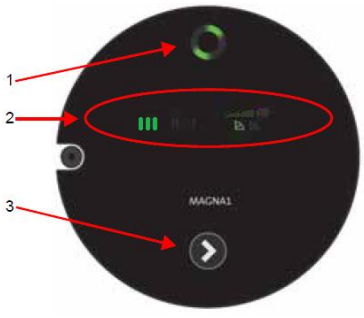
NOTE : After installing or changing pump type, check the type selector is correctly set.

1. Open the control box
2. On the power PCB, right side, identify the pump type selector for P1 and P2.
3. The selector should be placed on the left side for constant speed pump(s), "FIX" label.



Picture 29

Constant speed pump settings, Grundfos pump head.



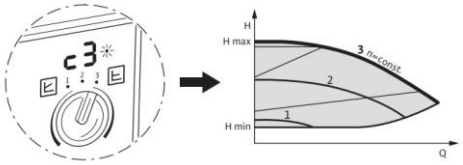
Picture 30

Rep.	Designation
1	Operating status, see below.
2	Light fields indicating the pump setting.
3	Push-button for selection of pump setting. Press several times to set speed 3 in Zone 2, indicates with « III »
4	With a double head pump, press for 3 seconds on each push-button to disable the radio communication between the heads. To be done on each head. For that, go to « Wired inputs/outputs » sub-menu and then « DO » and force P1 / P2 to start (once at the time) to energize corresponding pump head. A faire sur chaque tête en utilisant le menu Autotest par exemple pour mettre sous tension chaque tête. Once communication disabled, the central light of the pump (rep.1) must disappear.

Operating status

Indication on pump head	Cause	Operating status
	No electric power supply	Pump is not running
	Pump is power supplied	Pump is running
	Multiple(s)	Warning
	Multiple(s)	Alarm The pump is stopped

Constant speed pump settings, Wilo pump

Rep.	Designation
1	LED display
2	Pump setting to put on **C3** (constant max speed) 

Picture 31

Defaults' indications on display:

Code	Panne	Cause	Remède
E04	Mains undervoltage	Power supply too low	Check mains voltage
E05	Mains overvoltage	Power supply too high	Check mains voltage
E10	Blocking	Rotor is blocked	Unblock if possible
E23	Short-circuit	Motor current too high	Check
E25	Contacting / motor winding	Motor winding defective	Call customer service
E30	Module overheated	Module interior too warm	Check room ventilation and operating conditions
E31	Power section overheated	Ambient temperature too high	
E36	Electronic fault	Electronics defective	Call customer service
Warnings' indications on display:			
E07	Generator operation	Fluid running through the stopped pump	
E11	Dry running	Air into the pump	Remove air

11.4 Add an extra temperature sensor

Please refer to Electric wiring diagram chapter for connections.
All temperature sensors are NTC10k type. Do not forget to declare new sensor(s) into the « Configuration » sub-menu for S2 and S3 and into "Extended functions" for PT1 and PT2.

11.5 Relays 1, 2 and 3 wiring

Relay 1 output can be (Normaly Open) or NC (Normaly Closed) using corresponding terminals.
Relays 2 and 3 are NO (Normaly Open).

- Relay 1 wiring

Operating mode	Connections on PCB botom terminal ADE_430
NO	C-NO (36-35)
NC	C-NC (36-37)

- Relay 2 wiring: Terminals 38 (C) and 39 (NO) on PCB ADE_430.
- Relay 3 wiring: Terminals 40 (C) and 41 (NO) on PCB ADE_430.

Please refer to Electric wiring diagram chapter for connections. If 230V AC through relay, do not exceed 2A by relay.

11.6 Remote Control Contact

The unit can be placed in “standby” mode, via the remote contact. To do so, a volt free contact should be connected directly on the controller in the upper part of the control box.
The contact is wired on terminals D5 and M of T5 block.

Please refer to Electric wiring diagram chapter for connections.**DO NOT** power supply this contact, Volt free contact only.

Working principle :
When contact is open (by default), unit is operating normally.
If contact closes, pump(s) is (are) stopped and control valve closes (0V signal). The unit is then in standby mode, but still power supplied as the controller. The 🔔 key flashes and pressing on it you can read « STANDBY ACTIF ».

11.7 Cleaning Plates and gaskets Heat Exchangers

Opening heat exchanger should be done as per following procedure :

1. Isolate primary and secondary hydraulic circuits.
2. Open the purge cocks to drop the internal pressure of each side.
3. Measure the distance between the two frames of the exchanger (Plate pack thickness) and note it down.
4. Open the exchanger by unscrewing and removing the frame compression bolts.

Plates’ pack thickness PHE in between frames :

FI2000 & FI4000

Plates Number 0,5mm SS316	7	17	27	45
Plates’pack thickness (mm)	21,8	50,8	79,8	132,0

FI5000

Plates Number 0,5mm SS316	15	21	29	37	47	51
Plates’pack thickness (mm)	54	75	103	131	166	180

FI6100 & FI8000

Plates Number 0,5mm SS316	11	13	17	23	31	55
Plates’pack thickness (mm)	40	47	61	82	110	194

NOTE: To avoid injuries owing to sharp edges, protective gloves should always be worn when handling plates and protective sheets (like the ones for insulation).

5. Remove the plates without damaging the gaskets and note their orientation and position.
6. Clean the plates using a soft plastic brush and water or a solution of diluted acid in accordance with PHE plate general cleaning instructions.

DO NOT USE hydrochloric acid or any acid that could corrode stainless steel plates.

DO NOT USE water with more than 330 ppm Cl when making a cleaning solution.
Nitric (for calcium carbonate), sulfamic (for calcium sulphate) or citric (for silt) acids can be used. Concentration should not exceed 4% at 60°c. Protective gloves and glasses should always be worn while these operations.

7. Carefully rinse the plates with clean water after cleaning.
8. Remount the plates in the same order and at the same position they were before.
9. Screw the frames to the same distance they were before (Plate pack thickness dimension).
10. Clean the control sensor pocket.

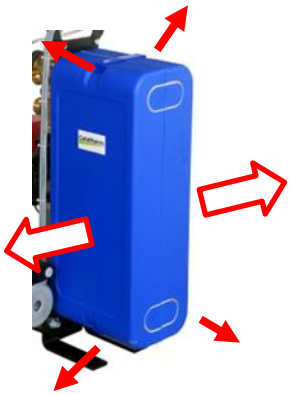
11.8 Cleaning copper brazed heat exchangers

Accessing to the heat exchanger is a quick process, following the next steps:

Be sure the heat exchanger has been isolated, using primary and secondary closing valves

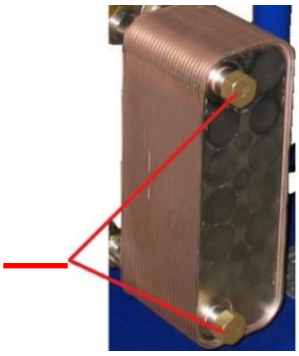
Wait water contained in system has cooled down enough before unscrewing CIP connections to lose pressure and then draining circuit, to remove water from it.

Only the specially designed, pre-fitted cleaning kit and compatible agents should be used for cleaning fusion-bonded or soldered plate heat exchangers.
Protective gloves and glasses should always be worn while these operations.



Open top and bottom clips to remove insulation.

To process cleaning, use CIP connections 3/4" (CB60/FB52) or 1”1/2 (CB/FB76). Remove the caps on the connections and plug in the cleaning system.



Cetetherm recommends the use of a pre-fitted cleaning unit together with a specific cleaning agent that is environmentally friendly. There are several product solutions available depending on the cleaning job to be tackled. Use a neutralizing solution before rinsing.
For further informations, contact a dedicated heat exchangers’ cleaning company.

DO NOT USE hydrochloric acid or any other acid that may corrode stainless steel plates.

DO NOT USE water containing more than 300 ppm Cl for the preparation of cleaning solutions**.**
Nitric acid (for calcium carbonate), sulphamic acid (for calcium sulphate) or citric acid (for silt clay) can be used. The concentration should not exceed 4% at 60 ° C. Gloves and goggles should always be worn during these operations.
Gently rinse the plates with clean water before cleaning.

11.9 Technical data

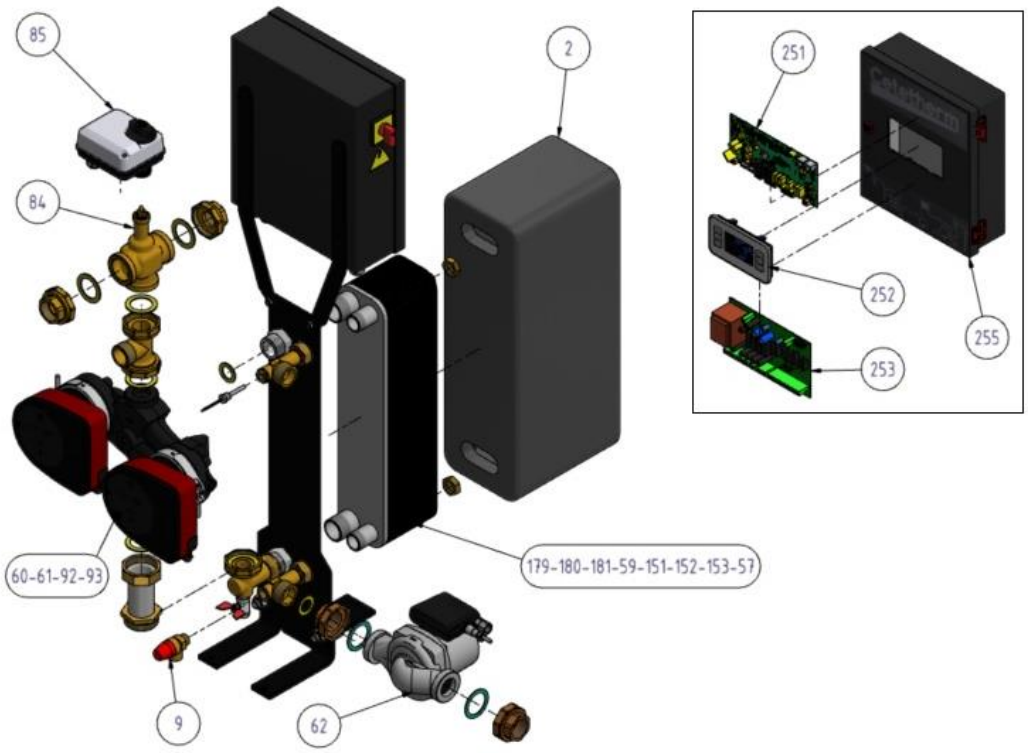
	FIB/FIN	FI 2000/4000	FI 5000	FI 6100/8000
Dimensions lxPxH (mm) :	480x500x1225 Max.	485x535x1060 Max.	580x785x1280 Max.	505x850x1400 Max.
Weight :	41 - 68 kg	57 - 85 kg	110 – 150 kg	155-233 kg
Electric Consumption min – max*	P (W) : 85-750* I (A) : 1.2-5.0*	P(W) : 200-750* I (A) : 1.8-5.0*	P(W) : 315-1310* I (A) : 1.9-6.2*	P (W) : 205-1440* I (A) : 2.2-6.9*

* Max considering 4 pumps (DD versions) and safety function activated (all pumps running)

12. Spare Parts

12.1. AquaGenius FIB/FIN

Only replace any defective part with the **original** spare part. Please contact your local Cetetherm agency.

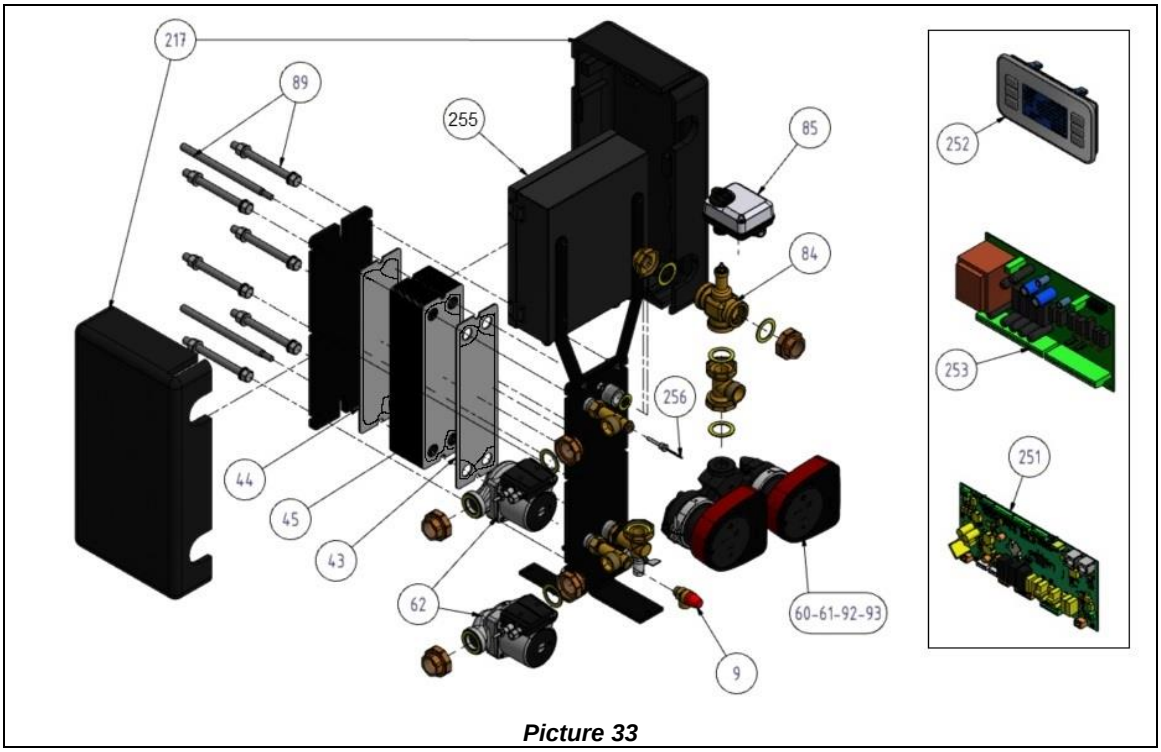


Picture 32

Rep.	Description
251	Temperature controller Micro 4000
252	HMI display with cable for Micro 4000
253	ADE_430 power board with connectors
255	Control box, empty
256	Temperature sensor Micro 4000
9	Safety valve 15/21 10B
179	Copper brazed heat exchanger (CB) 20 plaques
180	Copper brazed heat exchanger (CB) 30 plaques
181	Copper brazed heat exchanger (CB) 50 plaques
59	Copper brazed heat exchanger (CB) 60 plaques
151	Fusion bonded 100% stainless steel heat exchanger (FB) 20 plates
152	Fusion bonded 100% stainless steel heat exchanger (FB) 30 plates
153	Fusion bonded 100% stainless steel heat exchanger (FB) 50 plates
57	Fusion bonded 100% stainless steel heat exchanger (FB) 60 plates
60	WILO Primary single pump 1*230V, all models
61	Primary double GRUNDFOS pump 1*230V for FIB/FIN 20 and 30 plates
93	Primary double GRUNDFOS pump 1*230V for FIB/FIN 50 and 60 plates
62	Stainless steel wired Secondary pump 1*230V
84	3 Port valve body DN32
85	Actuator 24V supply 0-10 Volts signal 15 s
2	AquaGenius Insulation

12.2. AquaFirst 2000 & 4000

Only replace any defective part with the **original** spare part. Please contact your local Cetetherm agency.

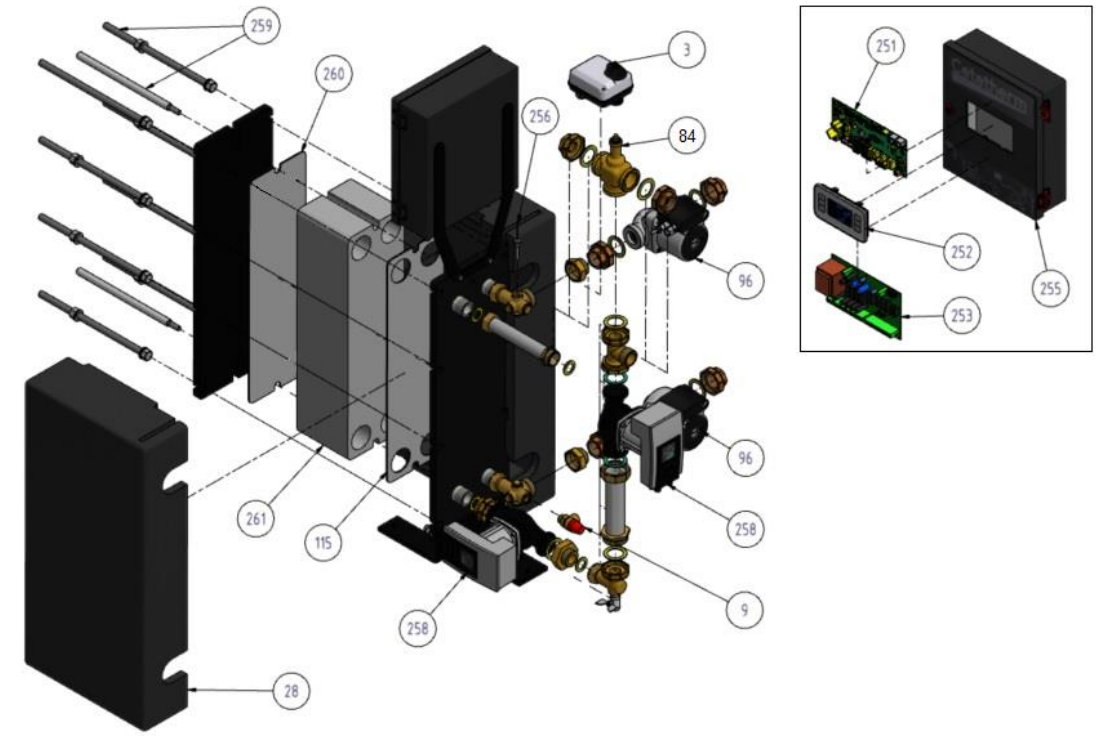


Picture 33

Rep.	Description
251	Temperature controller Micro 4000
252	HMI display with cable for Micro 4000
253	ADE_430 power board with connectors
255	Control box, empty
256	Temperature sensor Micro 4000
9	Safety valve 15/21 10B
60	Primary single pump 1”1/4 1x230V for AquaFirst series 2000
61	Primary double pump 1”1/4 1x230V for AquaFirst series 2000
92	Primary single pump 1”1/4 1x230V for AquaFirst series 4000
93	Primary double pump 1”1/4 1x230V for AquaFirst series 4000
62	SS316 Charging pump 1”1/4 1x230V
43	Starting plate SS316 - 0,5mm with 4 rings EPDMFF gasket
44	End plate SS316 - 0,5mm 0 hole with standard EPDM gasket
45	Middle plate SS316 - 0,5mm with standard EPDM gasket
85	Actuator 24V supply 0-10 Volts signal 15 s
84	3 Port valve body DN32
89	Set of tightening bolts AquaFirst 2000-4000
217	Insulation for AquaFirst 2000-4000

12.3. AquaFirst 5000

Only replace any defective part with the **original** spare part. Please contact your local Cetetherm agency.

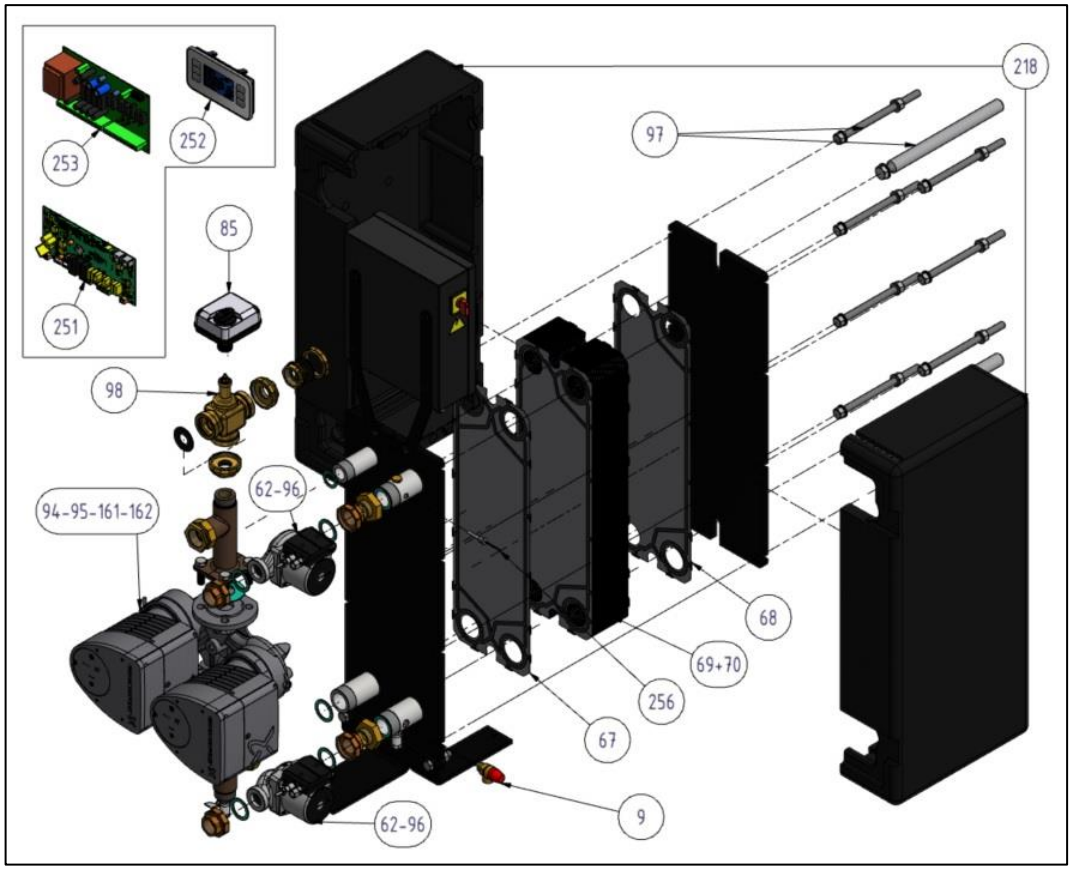


Picture 34

Rep.	Description
251	Temperature controller Micro 4000
252	HMI display with cable for Micro 4000
253	ADE_430 power board with connectors
255	Control box, empty
256	Temperature sensor Micro 4000
9	Safety valve 15/21 10B
62	Stainless steel Secondary pump, 1”1/4 1x230V for series 5000
96	Stainless steel Secondary pump, 1”1/4 1x230V for series 7000
258	Primary single pump DN32 1*230V for AquaFirst 5000/7000
115	Starting plate SS316 - 0,5mm with 4 rings EPDMFF gasket
260	End plate SS316 - 0,5mm 0 hole with standard EPDM gasket
261	Standard plate SS316 - 0,5mm with standard EPDM gasket
84	3 Port valve body DN32
85	Actuator 24V supply 0-10 Volts signal 15 s
259	Set of tightening bolts AquaFirst 5000/7000
262	Calorifuge AquaFirst 5000 / 7000

12.4 AquaFirst 6100 & 8000

Only replace any defective part with the **original** spare part. Please contact your local Cetetherm agency.



Picture 35

Rep.	Description
251	Temperature controller Micro 4000
252	HMI display with cable for Micro 4000
253	ADE_430 power board with connectors
255	Control box, empty
256	Temperature sensor Micro 4000
9	Safety valve 15/21 10B
161	Primary Single pump DN40 1*230V for AquaFirst 6100
162	Primary Double pump DN40 1*230V for AquaFirst 6100
94	Primary Single pump DN40 1*230V for AquaFirst 8000
95	Primary Double pump DN40 1*230V pour AquaFirst 8000
62	Stainless steel Secondary pump 1”1/4 1x230V for AquaFirst 6100
96	Stainless steel Secondary pump 1”1/4 1x230V for AquaFirst 8000
67	Starting plate SS316 - 0,5mm with 4 rings EPDMFF gasket
68	End plate SS316 - 0,5mm 0 hole with standard EPDM gasket
69	Standard Middle plate H SS316 - 0,5mm with standard EPDM gasket
70	Standard Middle plate L SS316 - 0,5mm with standard EPDM gasket
98	3 Port valve body DN40
85	Actuator 24V supply 0-10 Volts signal 15 s
97	Set of tightening bolts AquaFirst 6100 8000
218	Aquafirst 6100-8000 insulation

13. Commissioning report

COMMISSIONNING REPORT

Installation

Tightening dimension control	
Air vent position	
Settling Pot presence on primary	
Boiler Brend, installation and power	
Mixing bottle required / Presence	
Balancing valve presence on Indirect (Semi Instantaneous) installations	
Close drain valves	
Primary conformity:	
Secondary conformity:	
Accessibility of unit and components	

Configuration menu

Sensors	
Pumps	
Extended function	
Other	

Electrical bridges control for pumps on power plate

Pump1	Pump2

Control valve working	

Settings

DHW secondary outlet T° setting: S1							
PID setting							
High alarm setting			Manual			Auto	
Thermal Treatment		Type		Setting		Time	
Eco function activation							
Booster function activation							
Other functions activated							
Relay 1 function							
Relay 2 function							
Relay 3 function							
remote function wired ?							

Other comments:

Identification of the unit:

Serial No. **Type :**

Installer / Company Name	Installation site	Date

Picture 36

14. Declaration of conformity

PED 2014/68/EU art. 4.3, LVD, EMC, RoHS
Declaration of Conformity
Déclaration de Conformité
Konformitätserklärung
Conformiteitsverklaring

Manufacturer / Fabricant / Hersteller / Fabrikant:
Cetetherm SAS
Route du Stade ZI du Moulin, 69490 Pontcharra sur Turdine, France

- Heat exchanger unit, District heating system for heating and/or Domestic Hot Water
- Echangeur thermique, Système de chauffage urbain pour le chauffage et l'eau chaude sanitaire
- Fernwärme-Kompaktstationen für Heizung und/oder Trinkwarmwasser
- Warmtewisselaarunit, stadsverwarmingsysteem voor verwarmingswater en/of sanitair warm water

Products / Produits / Produkte / Producten	Models / Modèles / Varianten / Modellen
AQUAGENIUS AQUAFIRST	FIB / FIN 2-3-5-6 2000-4000-5000-7000-6000-6100-8000

- Above mentioned products are in article 4.3 according to PED 2014/68/EU
- Les produits susmentionnés figurent à l'article 4.3 conformément à la DESP 2014/68/EU
- Vorstehend benannte Produkte fallen unter Artikel 4.3 der DGRL 2014/68/EU
- Bovengenoemde producten zijn conform artikel 4.3 van Richtlijn Drukapparatuur 2014/68/EU

Used directives / Directives utilisées / Angewendete Direktiv / Gebruikte richtlijnen :
- PED 2014/68/EU
- LVD 2014/35/EU
- EMC 2013/35/EU
- RoHS 2011/65/EU

Used other standards and specifications / Autres normes et spécifications utilisées / Weitere angewendete Standards / Andere gebruikte standaarden en specificaties :
- EN 60335-1 partly / EN 60335-1 en partie / EN60335-1 teilweise / EN6335-1 gedeeltelijk
- EN 60204-1 partly / EN 60204-1 en partie / EN 60204-1 teilweise /EN60204-1 gedeeltelijk

Jean-Michel Montoni

Pontcharra sur Turdine, Mai 2022
Jean-Michel Montoni
Product manager / Chef de produit / Bevollmächtigter / Conformiteits verantwoordelijke

15. Warranty

Our equipment comes with a 24-month warranty from the date of shipment.

The manufacturer's liability is limited to the replacement of any defective part that cannot be repaired. No other financial compensation may be claimed in any case under the warranty

The nature and probable cause of the defect must be reported to the manufacturer before any action is taken. The defective part should then be returned to our factory in France for assessment unless written agreement to proceed otherwise has been obtained from Cetetherm. The results of the assessment can only state whether the terms of the warranty apply.

Exclusion factors:
Non-compliance with the guidelines for installation, configuration and maintenance:
Over pressures, water-hammer, scaling, noncompliant water quality

Also excluded from the warranty:

- Fitting costs, refitting costs, packaging, transport, and any accessories or equipment not manufactured by Cetetherm, which will only be covered by any warranties issued by said third-party manufacturers.
- Any damage caused by connection errors, insufficient protection, misapplication or faulty or careless operations.
- Equipment disassembled or repaired by any other party than Cetetherm.

Non-payment will lead to all operational warranties covering the delivered equipment being terminated.

How to contact Cetetherm

Our contact details are updated on our website www.cetetherm.com.

Cetetherm sas
ZI du Moulin, Route du Stade
69490 Pontcharra sur Turdine - France