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Installation, service and operating instruction

Cetetherm AquaCompact DHW heater

EN

Contents

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1 Product overview

The basic version of the Cetetherm AquaCompact DHW heater, semi-instantaneous system includes:

AquaCompact 30 – basic format
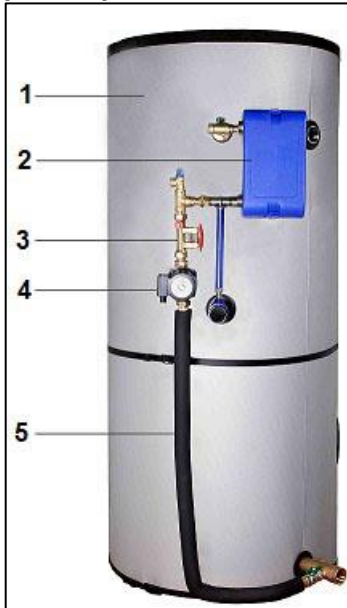
AquaCompact 60 – basic format
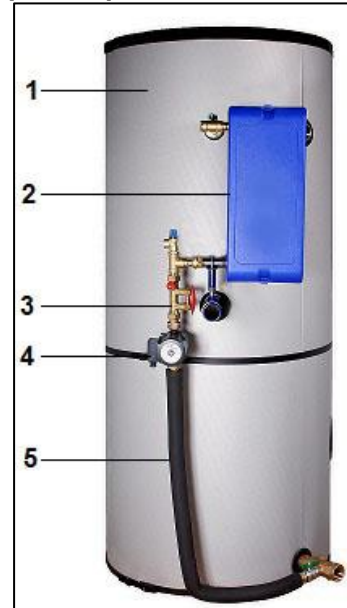
AquaCompact M3 – basic format
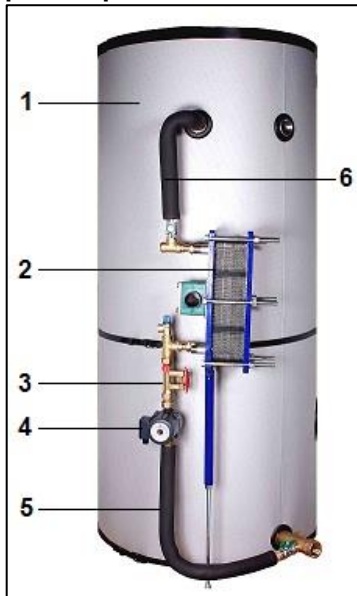
Aquatank
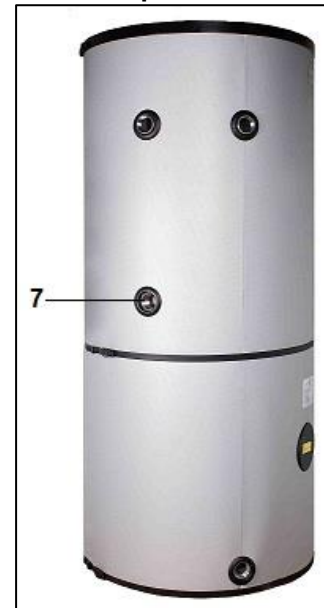
1.	Storage tank, 316Ti stainless steel storage tank, with a heat-insulated cover	5.	Connector hose between tank and charging pump, thermally-insulated
2.	Plate heat exchanger, 316-grade stainless steel fusion-bonded, copper-welded or dismountable plates and gaskets	6.	Connector hose between exchanger outlet and upper tank, thermally-insulated (plates and gaskets exchangers only).
3.	Balancing valve	7.	Charging kit support
4	Charging pump		

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1.1 Working pressure and temperature

Version	Primary side		Secondary side	
	Max working pressure (bar)	Max temperature (°C)	Max working pressure (bar)	Max temperature (°C)
CB	10	100	10	85
M3	10	100	10	85
2PSA Kit (CB/FB/M3)	10	100	10	85
2PE kits (CB/FB/M3)	10	100	10	85
3EPkits (CB/FB/M3)	10	100	10	85

1.2 Packing format

AquaCompact is delivered in three packages:
- storage tank
- insulation
- exchanger kit.

2 Options

There are three different control systems available as option.

2.1 2PSA primary kit – Thermostatic 2-way control valve featuring

- One 2-port control valve, PN25
- One programmable Immersion temperature sensor
- Screw-in connection fixtures

The primary circuit is pre-assembled (valve body). Follow the assembly instructions end of this manual, assembly of the charging kit.

Bulb thermostat to be installed at the end of the the fitting. Slotted bulb end, to be positioned slot-end upwards

2-port control valve

Copper capillary tub

Setting thermostat

2.2 2PE primary kit - Electrical 2-way control valve featuring

- One 2-port PN25 valve body
- One NTC10k temperature sensor
- One actuator, 24V AC/ 0-10V DC signal or 230V 3 points with return to zero
- One Control box with piping and support

The primary circuit is pre-assembled on the exchanger. Follow the assembly instructions end of this manual, assembly of the charging kit..

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Actuator
Control valve

Control box mounted on its
support
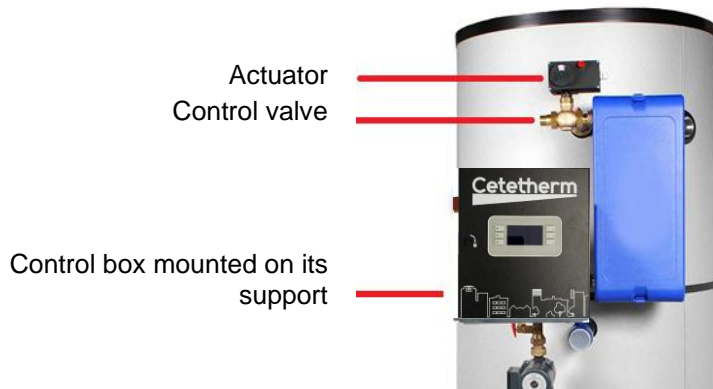
2.3   3PE primary kit - Three-way control valve including

- One 3-port control valve, PN16
- One primary pump, PN10
- One actuator, 24V AC feed-in and 0-10V DC controller current
- One control box including PID controller and power PCB
- Primary piping, sized differently according to heat exchanger type
- Control box support

The primary circuit is pre-assembled on the exchanger. Follow the assembly instructions end of this manual, assembly of the charging kit.

Control box

Actuator

Control valve

Piping

Primary pump

Balancing valve

Charging pump

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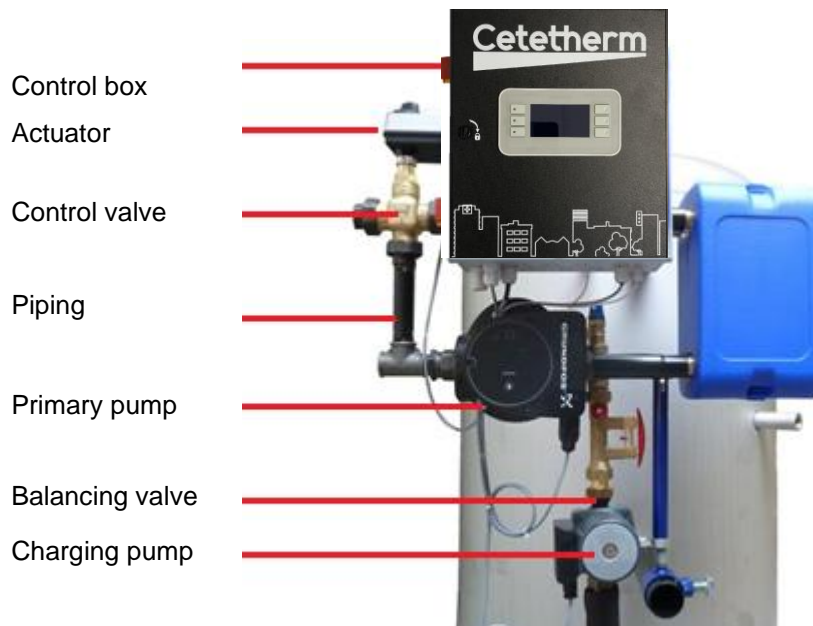
3 Installation

3.1 Siting

The AquaCompact hot water heater shall be installed in a dry place where room temperature is below 40°C, and ideally in ventilated premises.
AquaCompact is placed preferably on a sub-base footing.

3.2 Hydraulic connections

Connect the charging kit (exchanger + control valve + charging pump) to the storage tank using the interlink kit.

⚠️ **Make arrangements for fitting the insulation onto the tank before connecting up the piping.**

The AquaCompact module can run without a recirculation system fitted.

To avoid creating a galvanic coupling, check that the materials used in the installation have similar corrosion potentials.

3.3 Basic version

Assembly: refer to the instructions given end of this manual, assembly of the charging kit..
Connect the primary supply and return connections.
Connect the cold water supply, hot water outlet and the recirculation system to the tank.

Fit the tank with a safety valve, a drain valve in the top section and a draw-off in the bottom section.
NOTE: The valve is a compulsory fixture that has to be pre-loaded at the storage tank operating pressure.

NOTE: The safety valve on the charging kit only protects the secondary system – it will neither protect nor surge-feed the installation and the volume stored, in correspondence with local rules.

The safety valve shall have the same diameter as the cold water inlet fixture
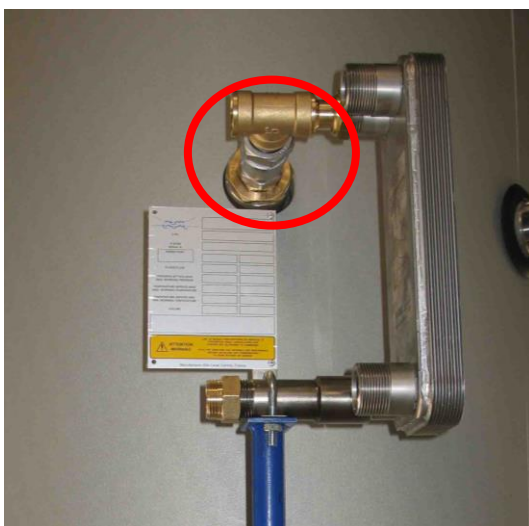
Top section connection	Exchanger support + accessories (size will vary with exchanger type)

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Bottom section connection, shut-off valve inserted between the conduit hose and the cold water inlet fixture.

3.4 Commissioning

- Flood the various circuits and flush bleed the pumps.
- Power-up.
- Set the secondary (charging) flow rate using the setting valve (read-off + setting)

NOTE: When first heated, the water in the tank will expand, increasing the pressure. A water hammer-arrester-type surge tank qualified for DHW systems may be fitted to prevent the relief valve from opening. Check the water network pressure.

4 Setting the DHW flow rate

The secondary DHW flow rate is set with the tank full and the primary circuit at nominal operating temperature and at the available exchanger power capacity required for the generator.

1. Fully open the control valve on the primary side.
2. If a 3-way control valve is fitted, wait for it to open completely.
3. Adjust the secondary flow circuit, as set out in the table below.
   The flow rate can be read by pressing on the red pushbutton and reading the index marker against the float.

Flow controller

Read-off index marker

Read-off pushbutton
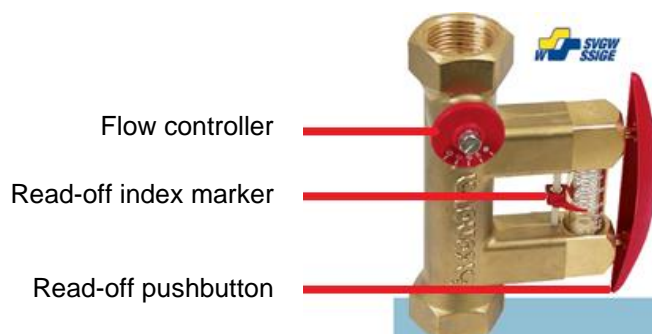
P(kW) DHW T(°C)	30	40	50	60	70	80	90	100	125	150	175	200	240
10 > 55°C	9.5	13	16	19	22	25.5	28.5	32	40	48	56	63	76
10 > 60°C	8.5	11.5	14	17	20	23	26	28	35	43	50	57	68
5 > 70°C	6	9	11	13	15	17	20	22	27	33	38	44	53

⚠️ **The recirculation flow rate must be 60% maximum of the secondary flow rate.**

9

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5 Electrical connections

All devices shall be connected in compliance with the governing standards.

⚠️ All work on control box and other electrical components must be done by qualified people.

⚠️ The main electrical box should be equipped with short-circuits protection

5.1 Basic model with or without option 2PSA

⚠️ The charging pump has to be powered constantly.

5.2 Option 2P and 3P

For more information about the Operator Control box, see chapter *6 Electrical installation of control box, option*, and forward.

⚠️ Power the control box via a single-phase 230 V + ground.
Electrical system components pre-cabled according to the hardware ordered.

5.3 Electrical power ratings table

VERSION	Primary pump type	Primary pump consumption. W, A	Secondary pump type	Secondary pump consumption, W, A	TOTAL [1]
Basic / Basic+2PSA	-	-	UP20-45N	120 W 0.5 A	120 W 0.5 A [2]
Basic / Basic +2PSA	-	-	UPS 32-80N	220 W 1.0 A	220 W 1.0 A [2]
Basic + 2PE primary kit	-	-	UP20-45N	120 W 0.5 A	150 W 1.6 A
Basic + 2PE primary kit	-		UPS 32-80N	220 W 1.0 A	250 W 1.6 A
Basic + 3PE primary kit	Magna 1 32-80	151 W 1.22 A	UP20-45N	120 W 0.5 A	305 W 1.8 A
Basic + 3PE primary kit	Magna 1 32-80	151 W 1.22 A	UPS 32-80N	220 W 1.0 A	405 W 2.6 A
SINGLE-PHASE 230 VOLTS + GROUND					

[1] Including control box and actuator (except 2PSA kits) electrical consumptions.
Figures are rounded up to the nearest higher value.
[2] Has no control box

5.4 Current limiting fuses

Power cards are equipped with fuses, labelled FU1 to FU5 on the printed circuit.

Fuse	FU1	FU2	FU3	FU4	FU5	FU6	FU7
Protection	PUMP 1	N/A	PUMP 3	N/A	PCB	24V AC	24V DC
Size (mm)	5x20	5x20	5x20	5x20	5x20	5x20	5x20
Rating	2.5A		2.5A		200mA	1 A	1 A
Voltage	250V	250V	250V	250V	250V	250V	250V

Safety fuses are supplied inside the control box.

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6 Electrical installation of control box, option

Power supply the control box with 230VAC 50 Hz. The control box with the controller Micro 3000 is called the secondary control box.

> ⚠️ 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.

6.1 Controller components
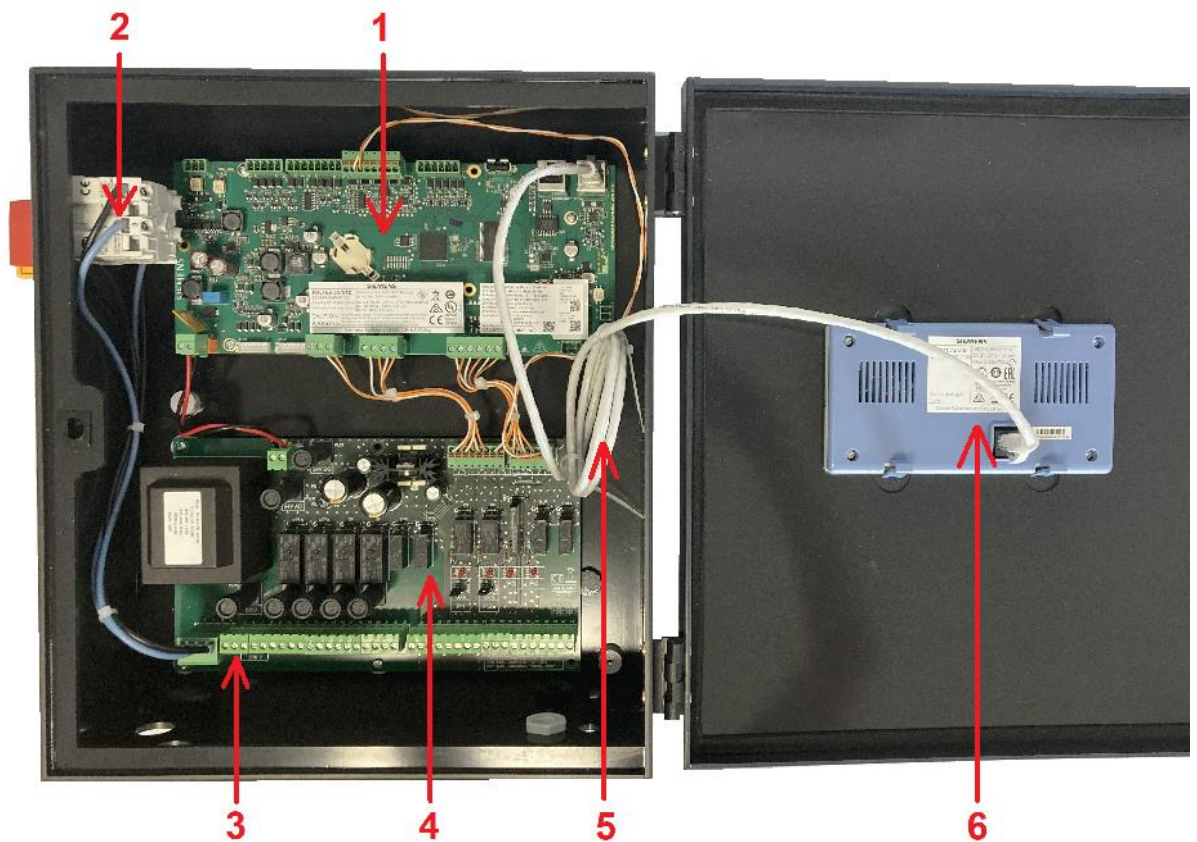
1	Temperature Controller Micro 4000	4	Power PCB ADE-430
2	Main switch, bipolar.	5	HMI cable
3	**Protected customer power supply (N, L, Earth)**	6	HMI (rear view)

> ⚠️ 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.

≤ 30 mm
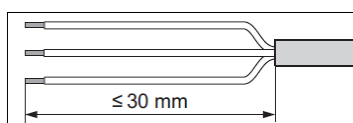
Strip the cables as shown opposite. Be careful not to damage the insulation of the various electrical wires.

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6.2 Electrical wiring diagram, option 2PE
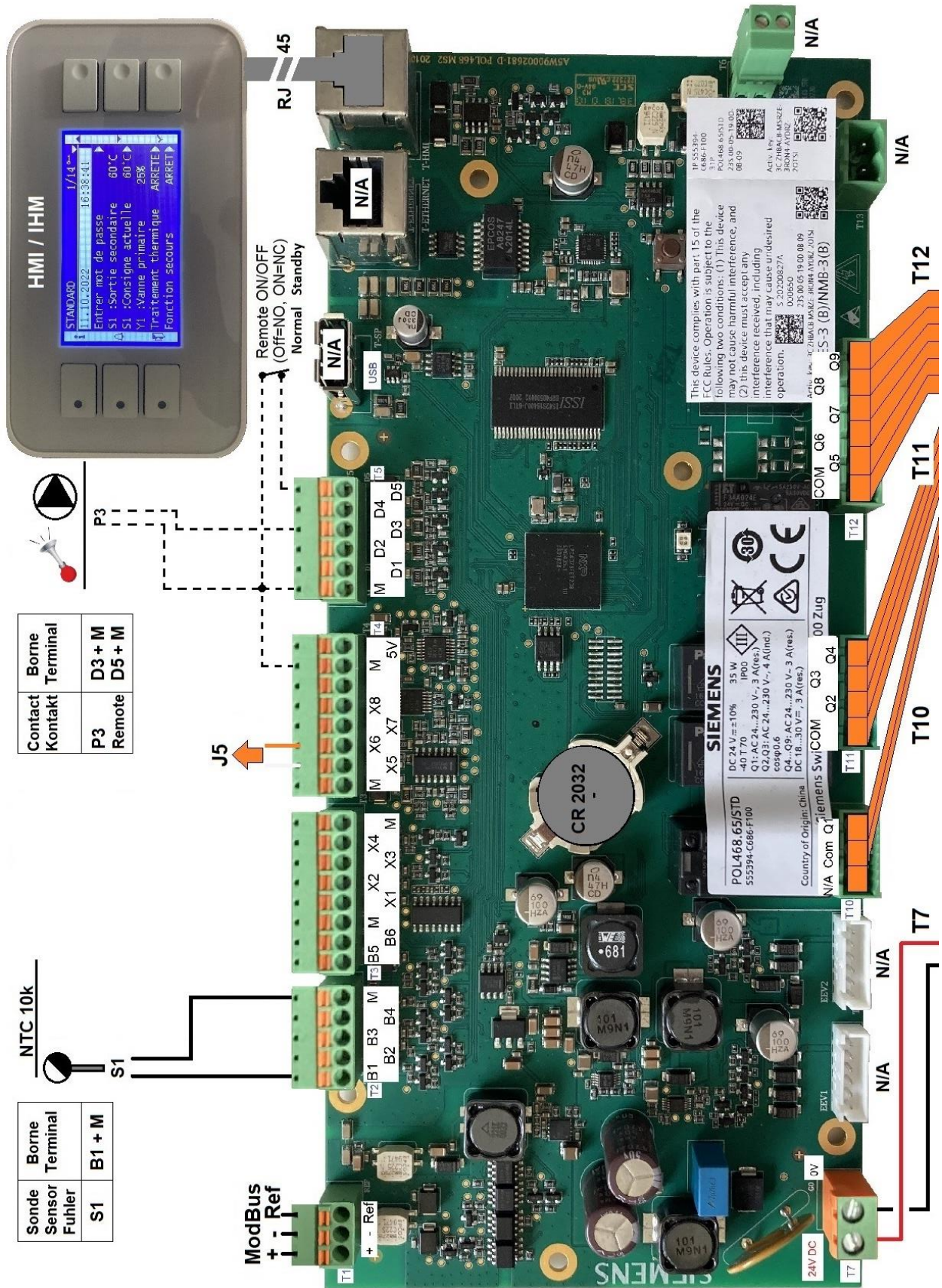
Contact Kontakt	Borne Terminal
P3 Remote	D3 + M D5 + M

Sonde Sensor Fuhler	Borne Terminal
S1	B1 + M

Remote contact: Volt free contact between M and D5 terminals on the temperature controller PCB.
Open Contact (by default) = unit operating normally, **Closed contact= unit in standby = no temperature regulation**

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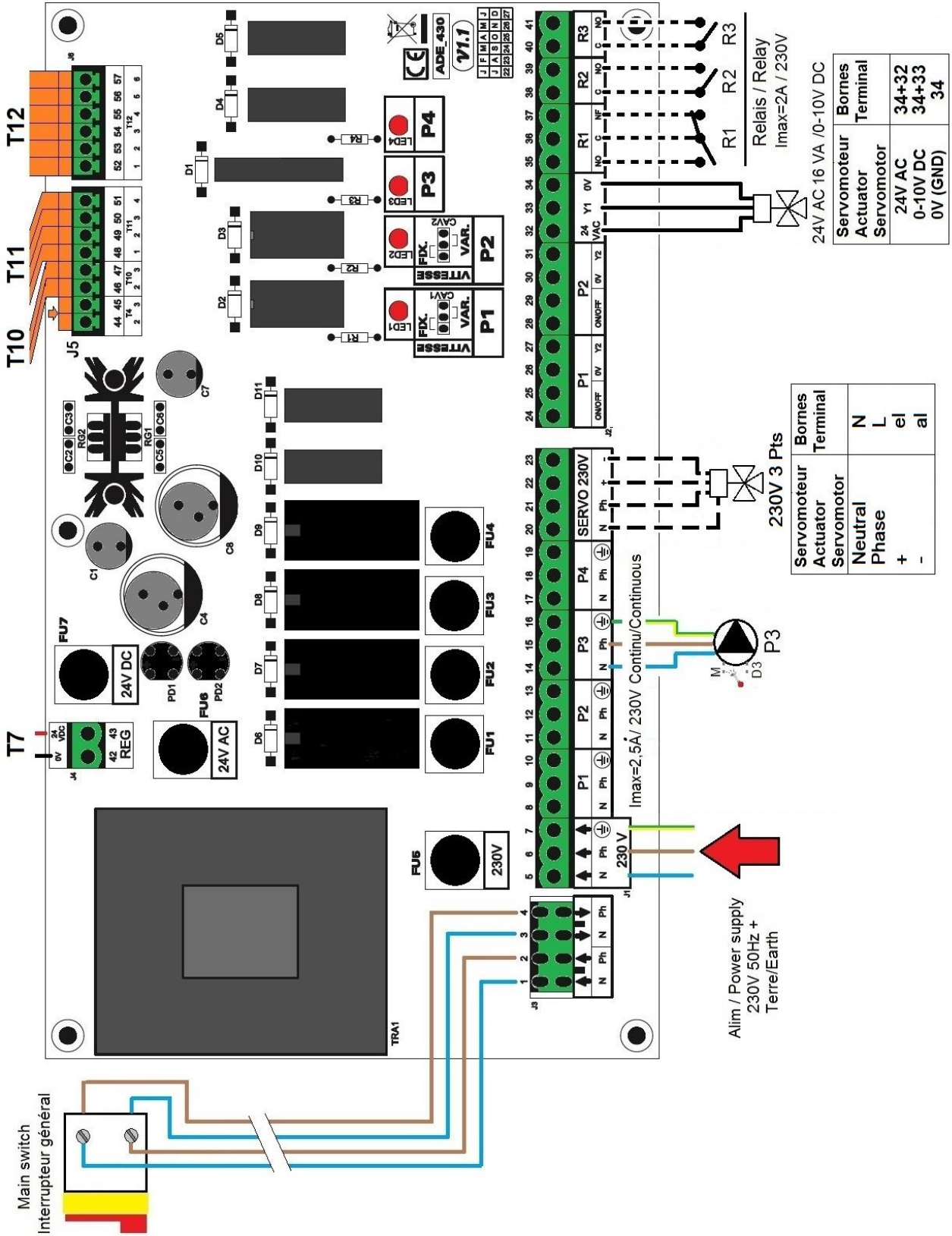
NOTE: If 230V 3pts actuator wiring, see *18 Special instructions for options*.

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6.3 Electrical wiring diagram, option 3PE
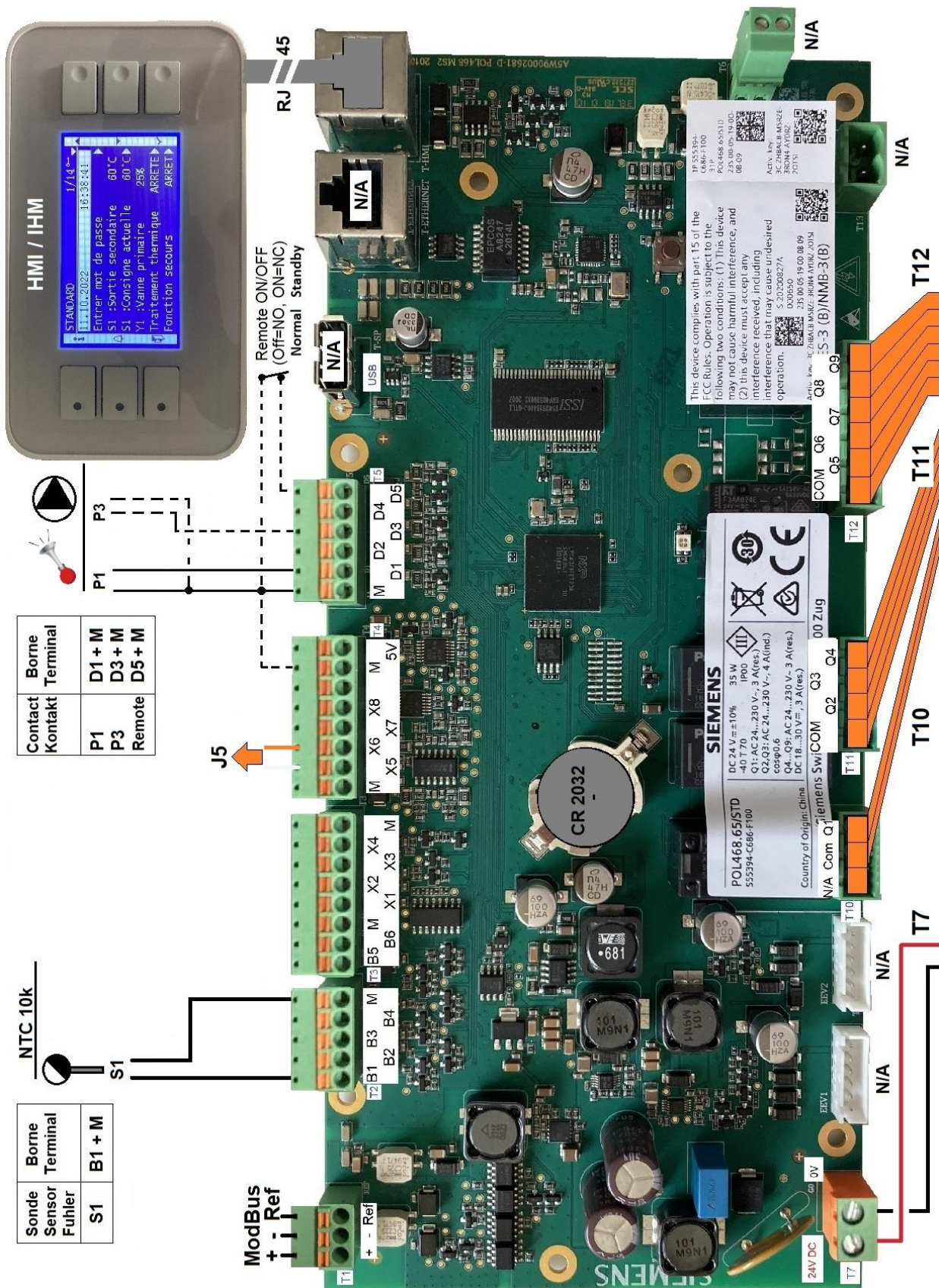
Sonde Sensor Fuhler	Borne Terminal
S1	B1 + M

Contact Kontakt	Borne Terminal
P1	D1 + M
P3	D3 + M
Remote	D5 + M

Remote contact: Volt free contact between M and D5 terminals on the temperature controller PCB.
Open Contact (by default) = unit operating normally, **Closed contact= unit in standby = no temperature regulation**

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Servomoteur Actuator Servomotor	Bornes Terminal
24V AC	34+32
0-10V DC	34+33
0V (GND)	34

24V AC 16 VA /0-10V DC

Relais / Relay
Imax=2A / 230V

SERVO 230V

Imax=2,5A / 230V Continu/Continuous

Alim / Power supply
230V 50Hz +
Terre/Earth

Main switch
Interrupteur général

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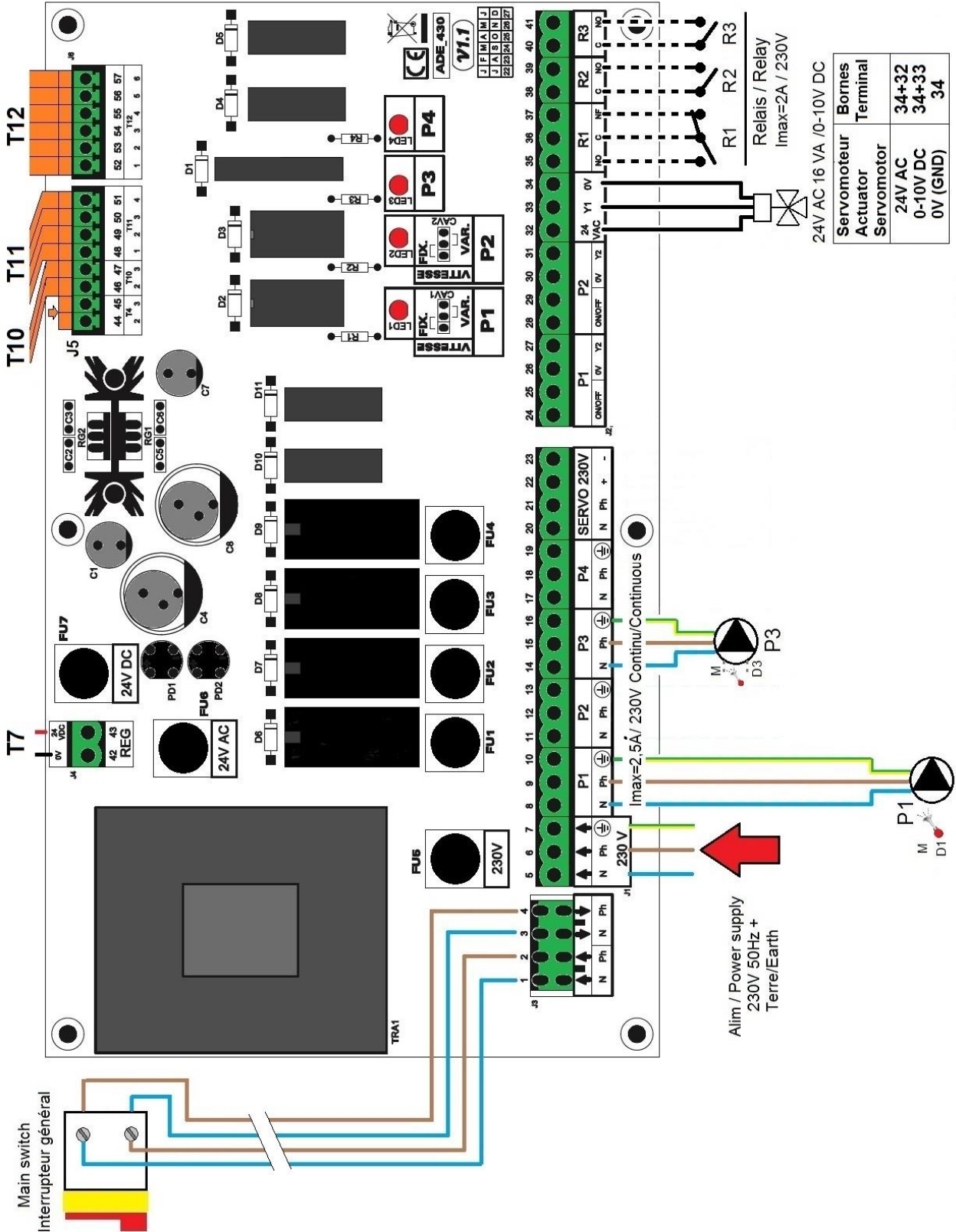
7 User instruction control panel Micro 4000

When the unit is power supplied, wait one minute before navigating into the menu.
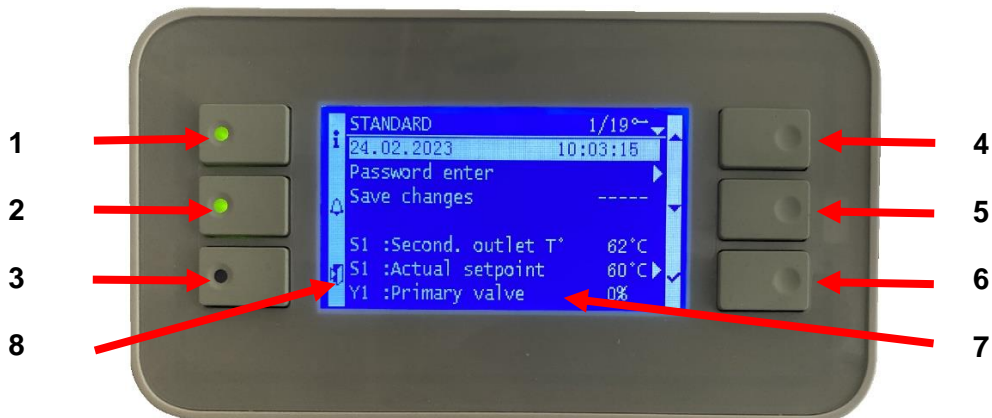
Rep	Designation
1	ⓘ key to display firmware/software versions. It is equipped of an orange LED if point in manual OR Green flashing if modbus connection with BMS writing priority. Please refer to specific chapters.
2	Alarm(s)/Function(s) ⌂ key, refer to specific chapters. Equipped with a LED. In case 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 :

Operating mode:
ALWAYS standard

Date and hour

Main Menu

Access level (see further)

Actual line (l)/Total lines'Nbr (t) in the (sub)Menu

« ▶ » symbol indicating a sub-menu can be accessed from here by pressing (✓) key

⚠ 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).

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7.1 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. <u>Note</u>: 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

7.2 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.		

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8. 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.

8.1. 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 : Actual setpoint 58°C
2. S1 menu appears. Select line #2 using ⋎ key. Then press twice on ✓ key.	S1 MENU 2/ 2 S1 setpoint 58°C ▶
3. Adjust setpoint value using ⋏ / ⋎ keys and confirm by pressing ✓ key. To cancel new setpoint value, just press « Esc » key.	58 °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 "BMS".

8.2. 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) and 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. Select « ON » using the ⋎ key and press ✓ key.	✓OFF ON

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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
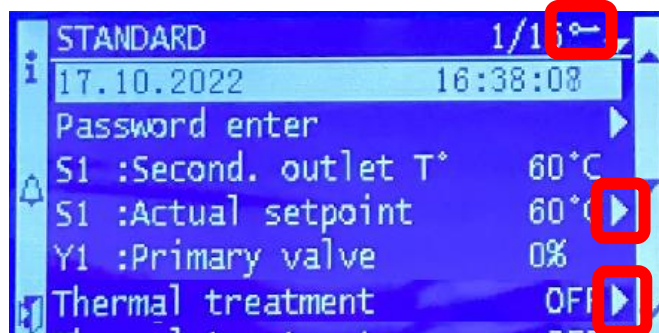
9. Technician access level

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.

9.1. 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:

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.

9.2. 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 disappeared 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.

9.3. 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
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
Pump(s) menu	P1 P3 ▶	Access to pump(s) menu + configured pump(s)' number indication
Extended functions	▶	**N/A for AquaCompact.**
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 are disabled.
Each installation is different. Functions 'parameters have to be set according to the site and then can be enabled and adjusted if required.

9.4. 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

9.4.1 *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 "BMS".

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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 60°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 weekday 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 weekend, 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. 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 : * Time 1 0 : 00 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

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Then press « Esc » key to get back one step and press several times ⋎ key to go to line #10:	Copy Monday from Tue.to Sun.
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.	Tue. To Fri. ✓Tue. To Sun.
Note: If you want to duplicate all the days of the week, select "Tue. To Sun. » instead.	
Display indicates:	Copy Monday from Tue.to Fri.
Go to next line	
Press ✓ key, select « YES » and press ✓ key to validate.	Activate copy NO
Now go to Saturday and press ✓ key.	Saturday 60°C
Required setpoint is 55°C all the day, so let * : * or input 0h00 for Time 1.	Time 1 0h00 / * : *
Go to line #2.	Value 1 0°C
Press ✓ key and using ⋏ / ⋎ keys, display 55°C, corresponding to required setpoint.	Value 1 55°C
Press « Esc » key and select now Sunday line.	Sunday 60°C
Repeat same procedure as for Saturday, required setpoint being 55°C all day.	Sunday 55°C
Clock program is now completed and effective. Press « Escape » key several times to go back to S1 menu.	

9.4.2 *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. 3 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 temporization, 1 minute by default. If delta T is exceeded, the temporization 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. Temporization 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 temporization. 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. Temporization is the same for high and low temperature alarms.

Alarms parameters' settings :

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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. ① : 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. ① : 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 ① : *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. ① : *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 …

9.4.3 *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 "Esc" key to cancel change. Setting values: 0 to 1000°C. 4. Press ∀ key to go to next line.	S1 T° controller 1/6 ⌐ Proportional band: 40.0°C 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.	

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9.5. 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 "BMS".

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 l / 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). ⚠️ 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.	Date *.*. *.**** (dw.dd.mm.yyyy) 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)	Thermal treatment 4 / 6 ⊶ Duration 0min 0 min ↓0min 240min [---|---|---|---|---|---|---|---|---|---|---]

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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 ⅴ key to access to next line.	

12. Press ✓ key to change tolerance value.
    Use ⋏ / ⅴ kys to change value and ✓ key to validate.
    Setting values : 0 to 10°C.
 ① : If setpoint temperature – tolerance is not reached, an error message will appear at the end of treatment duration.
 13. Press ⅴ 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 ⋏ / ⅴ 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.

9.6. 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 ⋏ / ⅴ keys, go to line "Safety function" as shown here: Then press ✓ key to access this sub-menu	STANDARD I / t ⊶ … Safety function OFF ▸
2. To activate the function, press ✓ key	Safety function 1/3 ⊶ Enable OFF
3. Select « ON » using ⅴ key then press ✓ key	✓OFF ON
4. Display indicates « Enable ON » and the alarm/function button red flashes, showing a function is on-going: *① : 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 ⅴ 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 ⋏ / ⅴ keys to change its value and press ✓ key to validate or "Esc" key to cancel change.
     Setting values: 0 to 100%.
 ① : *If not 0-10V primary pump(s), no effect.*
 7. Press ⅴ key to access to next line.
	Safety function 2/3 ⊶
	 Pump signal setpoint 100%
	                 100 %
	 0°C 100%↓
	 [---|---|---|---|---|---|---|---|---|---]

8. Press ✓ key to change primary valve signal value (Y1 signal).
     Use ⋏ / ⅴ 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.	

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

9.7. ECO function.

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.
Secondary pump is 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.*	ECO/Booster 3 / t ⌐ Switch-on delay 5min 5 min 0min ↓ 20min
6. Press ⋎ key to access to next line.	[---|---|---|---|---|---|---|---|---|---|---]

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.*	ECO/Booster 4 / t ⌐
	Hysteresis 5°C
	                  5 °C
	0°C 20°C
	                  ↓

8. Press ⋎ key to access to next line.	[---|---|---|---|---|---|---|---|---|---|---]
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!*	ECO/Booster 5 / t ⌐ … Y1 setpoint 10% 10 % 0% ↓ 80%
10. Press ⋎ key to access to next line.	[---|---|---|---|---|---|---|---|---|---|---]
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.

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9.8. 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: *Note that declared pump(s) is(are) displayed on the right side. Then press ✓ key to access this sub-menu	STANDARD l / t ⌁ … Pump(s) menu P1 P3 ▸ …
2. Full menu pump represented here: * If P1/P2 not 0-10V controlled, no effect on the unit. 3. Press ⋎ key to access to next line.	Pump(s) Menu 1/ 4 ⌁ - P1P2- Minimum speed* 25% Maximum speed* 100% -P3P4-
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 « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.	Pump(s) menu 3/nn ⌁ Maximum speed 100% …

9.9. 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.
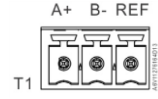
Settings :

1. From main menu, use ⋏ / ⋎ keys to go to « Test sequence » line : Then Press ✓ key	STANDARD l / 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

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9.10. 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.

A+ B- REF

T1 [terminal] 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 l / 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. 4.	Press ✓ key to access to communication parameters. Use ⋏ / ⋎ keys to select line and press ✓ to access line. 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 ». <u>In this case, it is not possible to modifiy some values from controller</u>.** **Concerned parameters are listed bellow :** **• S1 temperature setpoint** **• Acknowledge default** **• Thermal treatment setpoint**	Writing priority 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:

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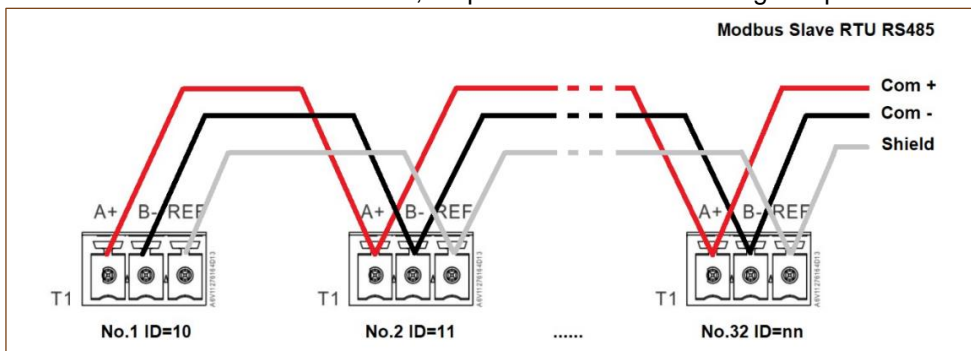
Modbus parameters' list :

COMMUNICATION POINTS								

			Default values					
MODBUS PARAMETERS / PARAMETRES MODBUS :	Speed / Vitesse : Bit number / Nbre de bits : Stop bit / Bit de stop : Parity / Parité : Mode : Adresse* :		19200 8 1 None / Aucune RTU 10		* In case of multiple controllers, change ModBus slave number * En cas d'echangeur en cascade changer le N° d' esclave du mode bus ** On some BMS, add/substract one ** sur certains superviseurs, ajouter/soustraire 1			

ModBus Points (English)	Points ModBus (Français)	Modbus Punkte (Deutsh)	MODBUS adress** Adresse ModBus**	Type	Sub-type Sous-type	Mode	Value Valeur	Comment Commentaire
Read Only digital / Lecture seule Digitaux								
Cmd_P1	Cmd_P1	Pumpe1_Befehl	14	HR _16	BOOL	R	0=Off, 1=On	Command(e) P1
Cmd_P2	Cmd_P2	Pumpe2_Befehl	15	HR _16	BOOL	R	0=Off, 1=On	Command(e) P2
Cmd_P3	Cmd_P3	Pumpe3_Befehl	16	HR _16	BOOL	R	0=Off, 1=On	Command(e) P3
PriP1_Alarm_On	PriP1_Alarme_Ma	Pumpe1_Alarmmeld	18	HR _16	BOOL	R	0=OK, 1=Alarm	P1 Fault / Défaut P1
PriP2_Alarm_On	PriP2_Alarme_Ma	Pumpe2_Alarmmeld	19	HR _16	BOOL	R	0=OK, 1=Alarm	P2 Fault / Défaut P2
SecP3_Alarm_On	SecP3_Alarme_Ma	Pumpe3_Alarmmeld	22	HR _16	BOOL	R	0=OK, 1=Alarm	P3 Fault / Défaut P3
High_T_Alarm	Alarme_T_Hte	Max_Alarm	26	HR _16	BOOL	R	0=OK, 1=Alarm	S1 High Temp Alarm/Alarme haute S1
General_Default	Alarme_Synthese	Sammelstoerung	27	HR _16	BOOL	R	0=OK, 1=Alarm	General default / Défaut synthèse
ThermTr_Alarm	Alarme_TrTh	ThBe_ALARM	31	HR _16	BOOL	R	0=OK, 1=Alarm	Therm.Treat. Failed / Echec traitement therm.
Th_Tr_running	TrTh_actif	Leg_activ	35	HR _16	BOOL	R	0=Off, 1=On	Therm.Treat. On going / Trait. Therm. En cours
Remote_Control	Contrl_Distant	Fernseuerung	36	HR _16	BOOL	R	0=Off, 1=On	Remote control / Contrôle distant
BOOSTER	BOOSTER	BoostMode	40	HR _16	BOOL	R	0=Off, 1=On	BOOSTER active
ECO	ECO	EcoMode	41	HR _16	BOOL	R	0=Off, 1=On	ECO activated
PD_Pumps_Fault	PD_Defaut_pompes	PD_Pumpenfehler	42	HR _16	BOOL	R	0=Off, 1=On	Synthesis pump(s) fault / Défaut synthèse pompe(s)
SAFETY_FCT	FCT_SECOURS	Sicherheit_Fkt	75	HR _16	BOOL	R	0=Off, 1=On	Safety function / Fonction Secours
			(16 bit integer/Entier 16 bit)*					
Read Only Analogic / Lecture seule Analogiques								
Soft Version	Verion soft	Soft Version	33	HR_16	int16	R		Software version / Version logiciel
P1P2 Nbr of pump	Nbre pompe P1P2	P1P2 Nbr of pump	71	HR_16	int16	R	0/1/2/3	0=No pump / 1=P1 / 2=P2 / 3=P1+P2
P3P4 Nbr of pump	Nbre pompe P3P4	P3P4 Nbr of pump	72	HR_16	int16	R	0/1/2/3	0=No pump / 1=P3 / 2=P4 / 3=P3+P4
Signal P1P2	Signal P1P2	Drehz_P1P2	44	HR_16	int16	R	%	Primary pump signal Y2 / Signal pompe primaire Y2
Signal Valve	Signal Vanne	Signal_Ventil	46	HR_16	int16	R	%	Control valve 1 signal Y1/ Signal servomoteur 1, Y1
S1	S1	S1	49	HR_16	int16	R	°C	Sensor 1 measurement / Mesure Sonde S1
S2	S2	S2	50	HR_16	int16	R	°C	Sensor 2 measurement / Mesure Sonde S2
S3	S3	S3	51	HR_16	int16	R	°C	Sensor 3 measurement / Mesure Sonde S3
Relay1 Fct	Fct Relais 1	Relais1 Fkt	62	HR_16	int16	R	0/1/2/3/4/5/6/7/8/9/10	Relay1 function / Fonction relais 1
Relay2 Fct	Fct Relais 2	Relais2 Fkt	63	HR_16	int16	R	0/1/2/3/4/5/6/7/8/9/10	Relay2 function / Fonction relais 2
Relay3 Fct	Fct Relais 3	Relais3 Fkt	64	HR_16	int16	R	0/1/2/3/4/5/6/7/8/9/10	Relay2 function / Fonction relais 3
Mode	Mode	Mode	66	HR_16	int16	R	0=Standard, 1=PREMIUM	
			(16 bit integer/Entier 16 bit)*					
Read-Write digital / Lecture-Ecriture Digitaux								
Alarm(s) acknowledge	Acquit.alarme(s)		200	HR_16	BOOL	R/W		1=Reset fault. Pulse point necessary 30 seconds On/Off
			(16 bit integer/Entier 16 bit)*					
Read-Write Analogic / Lecture-Ecriture Analogiques								
SP_T_Sec_Outlet	**Consigne_S1**	**SW_T_Sek_Ausgang**	**210**	**HR_16**	**int16**	**R/W**	**°C**	**S1 fixed setpoint (DHW) / Consigne fixe S1 (ECS)**
ThTr_setpoint	PC_TrTh	ThBe_Sollwert	212	HR_16	int16	R/W	°C	Thermal treatment setpoint / Consigne trait. thermique
			(16 bit integer/Entier 16 bit)*					

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9.11. 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 I / 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.	Analog Inputs 12/12 ↵ -------- T2 CONNECTOR --------- B1 :S1 : 60°C B2 to B4 :--- : 0°C -------- T3 CONNECTOR --------- B5 to X4 :--- : 0°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, ① 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. 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 : --- : NORMAL D3 : P3 Alarm : NORMAL D4 : --- : NORMAL D5 : External stop : OFF

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Binary (or digital) outputs	BO-IO Aut.st 1/12 ⌐
As for analog outputs, it is possible to force these contacts to ON or OFF. To do that, pass from AUTO to MANual mode.	------- T10 CONNECTOR --------
R1=Relay 1, R2=Relay 2, R3=Relay 3.	Q1: R1 COMMAND : AUT-OFF
Com. FER.Y1 = Closing contact for 230V 3 points actuator (-)	------- T11 CONNECTOR --------
Com. OUV.Y1 = Opening contact for 230V 3 points actuator (+)	Q2: P1 COMMAND : AUT-ON
	Q3: --- : AUT-OFF
Example: We want to Start P2 pump (considering it is present).	Q4: P3 COMMAND : AUT-ON
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**	------- T12 CONNECTOR --------
automatic mode after the test.	Q5: --- : AUT-OFF
	Q6: Y1 CloseCommd : AUT-ON
⚠ **Once at least 1 point is in manual mode, ① button is**	Q7: Y1 OpenCommd : AUT-OFF
orange lit. DO NOT FORGET TO PUT THE POINT(S) IN AUTO	Q8: R2 COMMAND : AUT-OFF
BEFORE LEAVING THIS SUB-MENU. To see easily which	Q9: R3 COMMAND : AUT-OFF
point(s) are in manual mode, a « ¤ » logo is displayed on the	
corresponding line ➔	Wired inputs – outputs 1 /4 ⌐
	Analog Inputs ▶
Press « Esc » key to get back to main menu. Press again "Esc" to	Analog Outputs ▶
point 1ˢᵗ line of Main menu.	Digital Inputs ▶
	Digital Outputs ¤ ▶

10. 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.

10.1. 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.

10.2. 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.

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10.3. 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 I / 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)	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
4. Press Esc to get back to the configuration sub-menu.	
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 to P1 for 3 Port control valve option or to NONE for other configurations** and press ✓ key to confirm. ⚠ **THIS STEP IS MANDATORY TO GET AN OPERATING UNIT !** 15. Press ⅋ key to access to next line	Configuration 8/ 19 ⊶ ⊶ P1P2 pump selector NONE / P1* … * Actual configuration appears on the right side of the line
16. Press ✓ key to define primary pump(s)'number. Use ⅄ / ⅋ keys to change value to P3 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 P3* … * 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.	Configuration 10/ 19 ⊶ ⊶ … Relay 1 function General alarm

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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)	Nothing ✓General alarm High T° alarm Low T° alarm ECO function Timer** Th.Tr activated Tank loaded Pump default HE fouled Primary too low
19. Press ⅄ key to access to next line	
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. ⚠ **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	Configuration 17/ 19⌁ ⌁ … 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.	

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** 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.

11.   Alarms/Functions and acknowledgement

11.1. 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
P1 Alarm FAULT ▸	Primary pump 1 default.
P3 Alarm FAULT ▸	Pump 3 default (secondary charge pump).
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

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

11.2 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
STANDBY ACTIVE ▸	Remote function running
STANDBY INACTIVE ▸	Fin de la fonction Remote

11.3 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.

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12. Production RESET

If lot of parameters have been changed (PID, 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

13. 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

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14. Maintenance and repairs

Cetetherm AquaCompact does not require any specific maintenance.
The frequency of the inspections depends on the water hardness, temperature and flow rate.

Weekly inspections:

- Check for leaks on pipes and components.
- Check that the operation control system is stable, and that the temperature does not fluctuate. Temperature hunting causes unnecessary wear of valves, actuators.

Annually:

- Check the control box electrical connections tightening.
- Check the control valve for leaks.
- Check the electric current requirement of the circulation pump.
- Clean and disinfect the system at least once a year, see _12_
-
-
- _Antibacterial treatment of_ the Aquatank.

Regularly:

- The cleaning schedule for the exchanger will depend on the quality of the water and how much demand is placed on the system.
- Flush-out the tank on a regular basis.
- Check regularly that the safety devices (like safety valve, etc.) are working properly.
- Lime scaling on the connected devices.

Scaling of the secondary side will be evidenced by:

- A high pressure drop on the secondary side of the exchanger that 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.

⚠️ 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.

14.1 Antibacterial treatment of the Aquatank

Clean and disinfect the system at least once a year

⚠️ Whenever the Aquatank or exchanger circuits are to be drained, it is crucial to let the water cool down to preclude any risk of scolding or burns.

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The Aquatank is fitted with a dismounting inspection hole.

To work on the inside of the tank:
- use the shut-off to isolate the exchanger kit
- isolate the installation's power circuit
- close the cold water inlet, and drain out the tank.

Access is through the inspection hole, once the tightening screws have been loosened.

NOTE: Comply with all currently applicable governing standards of, cleaning and disinfecting the system at least once a year.

14.2 Clean the heat exchanger plates (P series)

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.

Carefully rinse the plates with clean water after cleaning.

1. Measure the tightening lengths of the exchanger (distance between two frames plates).
2. Open the exchanger by loosening and removing the support anchor bolts.
3. Remove the plates without damaging the gaskets and readjusting their orientation and position.
4. Clean the plates gently to avoid damage them. Do not use metal implements – use a metal-free nylon brush.
5. Lime scale can be removed by soaking the plates in a correctly-dosed acid solution
6. Refit the plates in the same order and position, as when they were disassembled.
7. Tighten up the exchanger, using the tightening length as initially.
8. Make sure the thermometer pocket of the control sensor is properly cleaned.

Ask your local Cetetherm Company for more information on maintenance procedures, disassembly, cleaning, remounting; see the Cetetherm instructions manual, document reference number 1644725-01.

14.3 Clean the fusion-bonded or copper brazes plate heat exchangers (F/B-series)

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.

Use the specially-engineered plugs and isolate the secondary circuit using the gate valves.

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Unclip the heat insulator at the top and bottom of the exchanger

Isolate the exchanger and use the special connective fittings for cleaning, removing the plugs. CIP connector: 3/4''

Cetetherm recommends the use of a pre-fitted Cetetherm CIP 20-type cleaning unit together with a specific cleaning agent, such as AlfaPhos that is environmentally friendly.
There are several product solutions available depending on the cleaning job to be tackled. Use a neutralizing solution, such as AlfaNeutra, before rinsing.

Alfa CIP 20

- The circulator systems and pumps require no specific maintenance action.
- The motor-driven control valves do not need any particular maintenance. Run annual checks to ensure that the valve glands do not show signs of leakage.
- The control box requires no specific maintenance action. Run an annual check to make sure the electrical connections hold tight.

14.4 Open the control box

Remove the front panel by turning the lock button counter clockwise and lift up the cover.
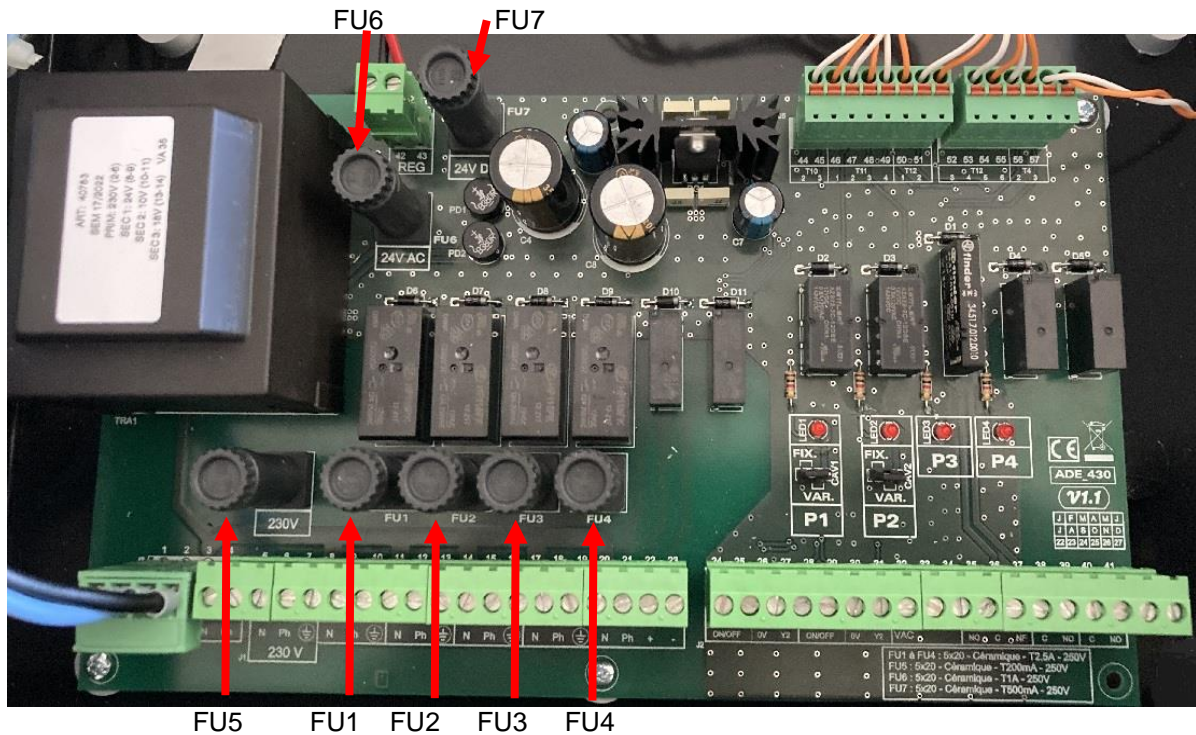

14.5 Fuses replacement

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.

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

Picture 1

Fuse	FU1	FU2	FU3	FU4	FU5	FU6	FU7
Protection	P 1	P 2 N/A	P 3	P 4 N/A	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

14.6 Pumps' number

The pumps' configuration and connections is factory made.
In a servicing situation the correct pump must be identified.

Codification	Meaning	Connected pump(s)
No kit	1 charging pump	P3
2PE kit	1 charging pump	P3
3PE kit	1 primary pump + 1 charging pump	P1+P3

14.7 Relay 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 bottom terminal ADE_430
NO	C-NO (36-35)
NC	C-NC (36-37)

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- 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.

14.8   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 ACTIVE ».

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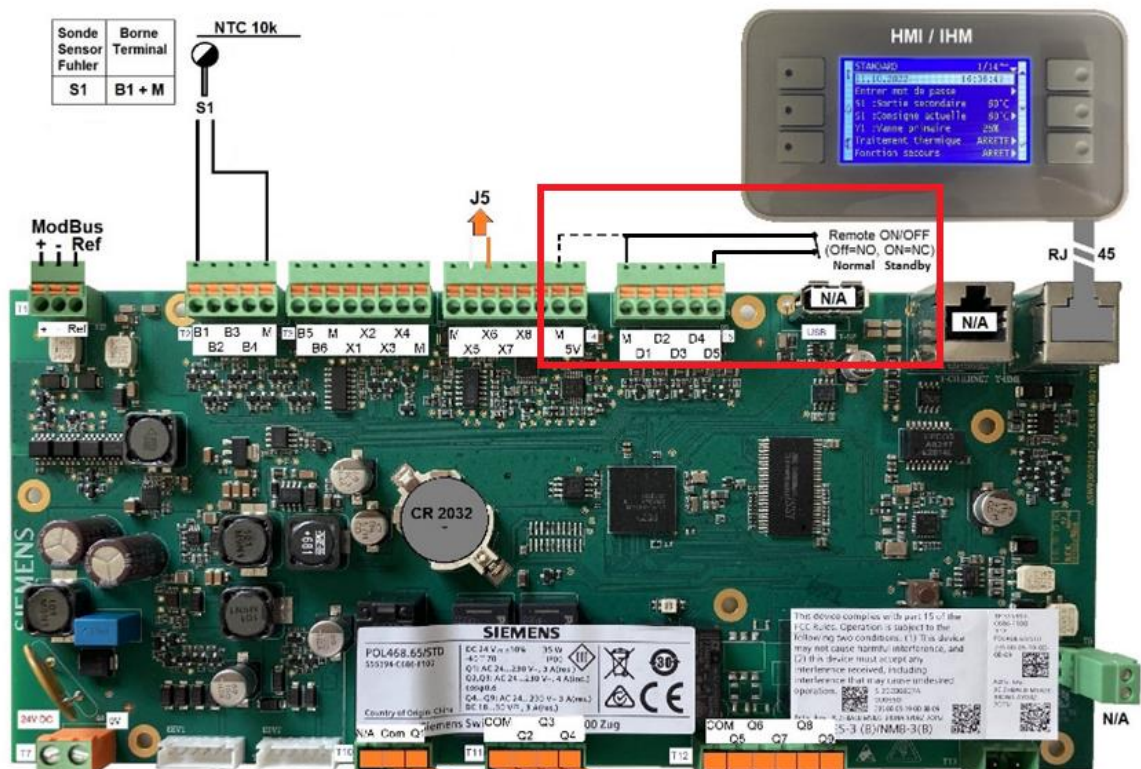
15 Assembly of the charging kit to the Aquatank

NOTE: The photos are non-binding – changes are liable to made without notice.

1. Start by fitting the insulation onto the tank.

⚠️ The insulation must be mounted before the tank is definitively connected up. Refer to the guidelines of the Aquatank instructions manual.

2. Exchanger kit
   Shown here, the 3P kit, primary circuit three-way valve, controller and circulation system.

3. Install the hot water outlet fitting on the top vertical tank connection.

4. Mount the cold water inlet fixture onto the bottom vertical tank off-take. If necessary, use the sleeve provided to install the fixture if the tank tubing is configured as male.

5. Once the bottom fixture has been fitted, install the shut-off valve and the hose connector.

6. Screw the support coil into the one-ended tank sleeve. On 300-L models, use the lower-left sleeve.


7. Then place the locking ring on the support coil.

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8. Set an initial position by fitting the threaded rod of the support into the tube and screwing the union connector at the exchange outlet into the pre-fitted tank shut-off valve.

9. Readjust the assembly to make sure the exchange is perfectly vertical and parallel to the tank shell. Once this is done, tighten the support ring blocking screws.
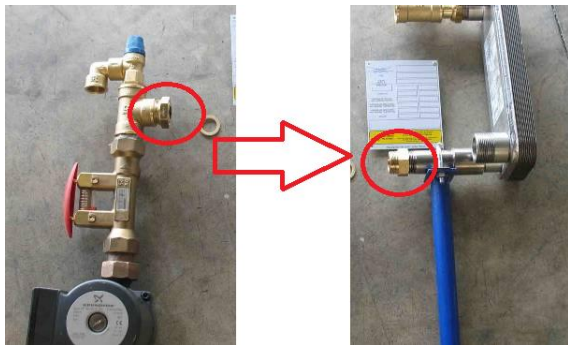
10. Then sit the pump / balancing valve / safety valve assembly opposite the secondary circuit exchanger inlet (bottom-left connection). Do not forget the flat gasket. **The two parts are assembled using a union connector installed on the pump sid**e.
Electrically connect the pump to the control box or header cabinet, depending on the equipment.

11. Mount the exchanger heat-insulator by assembling the shells and fixing them together with the plastic clips at the top and bottom of the exchanger.

    The charging kit should look like the one in the photo.

    The final step is to install the connector hose hydraulically linking the bottom of the tank to the pump suction system.

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12. Connect the upper flexible pipe to the pump.

13. Repeat the procedure to link the bottom of the hose to the cold water inlet fixture located toward the base of the tank.

The charging kit is now mounted on the storage tank.
At that point, it may or may not be equipped with a pre-mounted primary kit like the one shown in the photo opposite.

Now establish electrical and hydraulic connections to the exchanger's primary circuit. Follow the instructions given in chapter *16 Flowchart.*

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15.1 Specific points for assembling the M3 charging kit

The kit is anchored onto a support sleeve via a clamp collar that should be positioned to the middle of the sleeve before being adjusted and tightened. Use the adjustable support fixture on the exchanger when guiding the kit into the correct position.

Sit the exchanger and its clamp collar on the support sleeve and tighten the locking screws when everything is properly aligned.
Place the "jaws" at the extreme end of the support pipe.

Connecting the top-section hose:

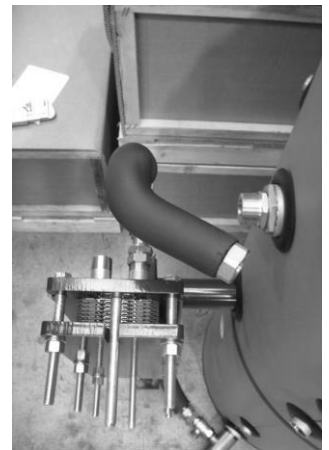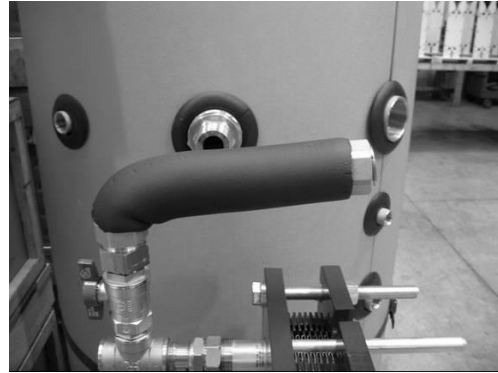Go through the same procedures as for the bottom-section hose.

Final assembling
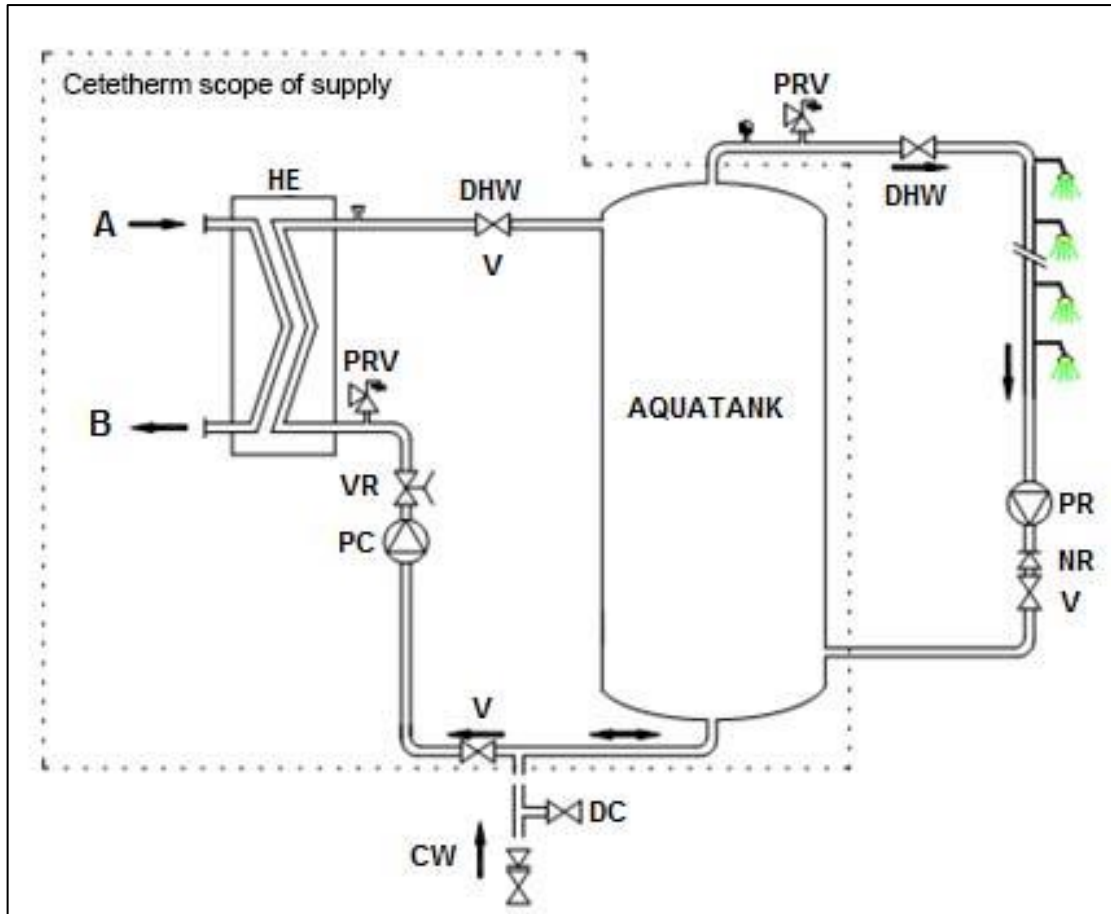
NOTE: For the 300L Tank, use the top-section support.

15.2 Mounting the flexible hose onto the tank

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16 Flowcharts

16.1 Flowchart AquaCompact

ID.	Description	ID.	Description
A	Primary supply	VR	Balancing valve
B	Primary return	PC	Charging pump (secondary)
HE	Heat Exchanger	PR	DHWC pump (recirculation pump)
V	Shut-off valves	NR	Non Return Valve
PRV	Safety valve	DHW	Domestic Hot water
DC	Drain valve	CW	Cold Water

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16.2 Flowchart AquaCompact with primary kit 2PSA
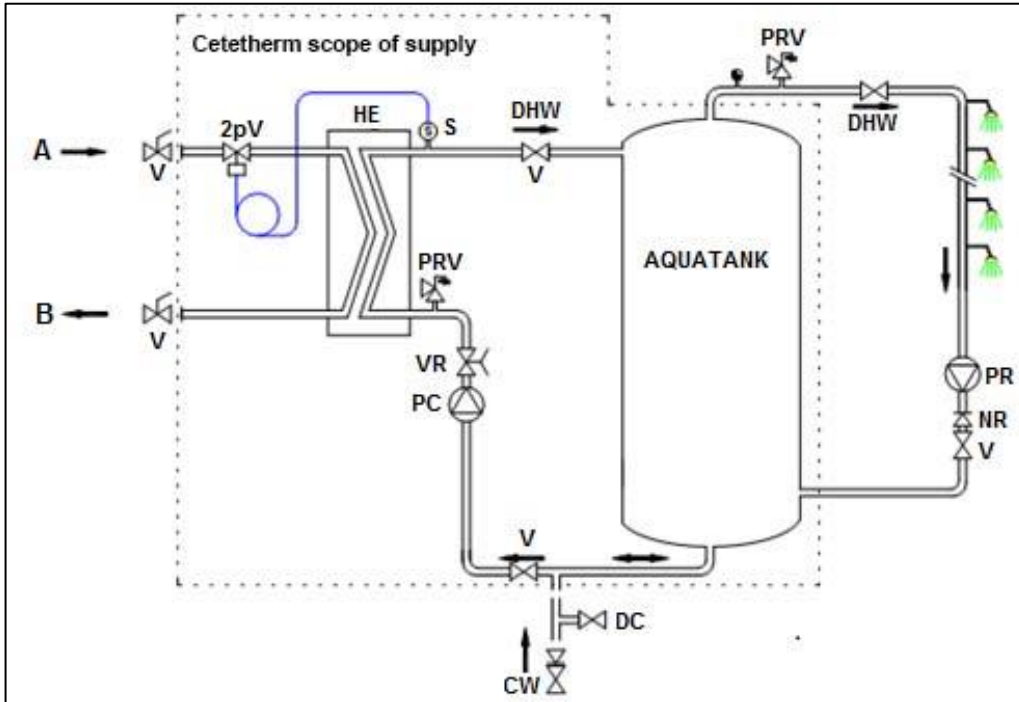
| ID.	Description	ID.	Description
S	Immersion temperature sensor	V2p	2-port control valve with self-acting actuator

16.3 Flowchart AquaCompact with primary kit 2PE
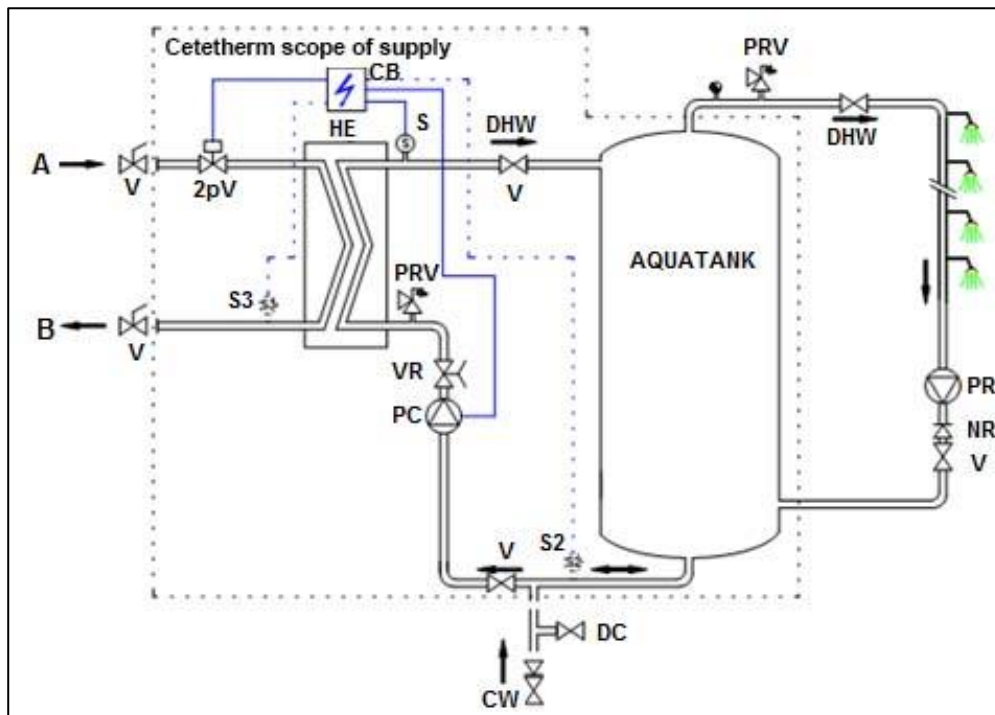
ID.	Description	ID.	Description
S	Immersion temperature sensor	CB	Control box
V2p	2-port control valve with actuator	S3	Temperature sensor
S2	CIP sensor		

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16.4 Flowchart AquaCompact with primary kit 3PE
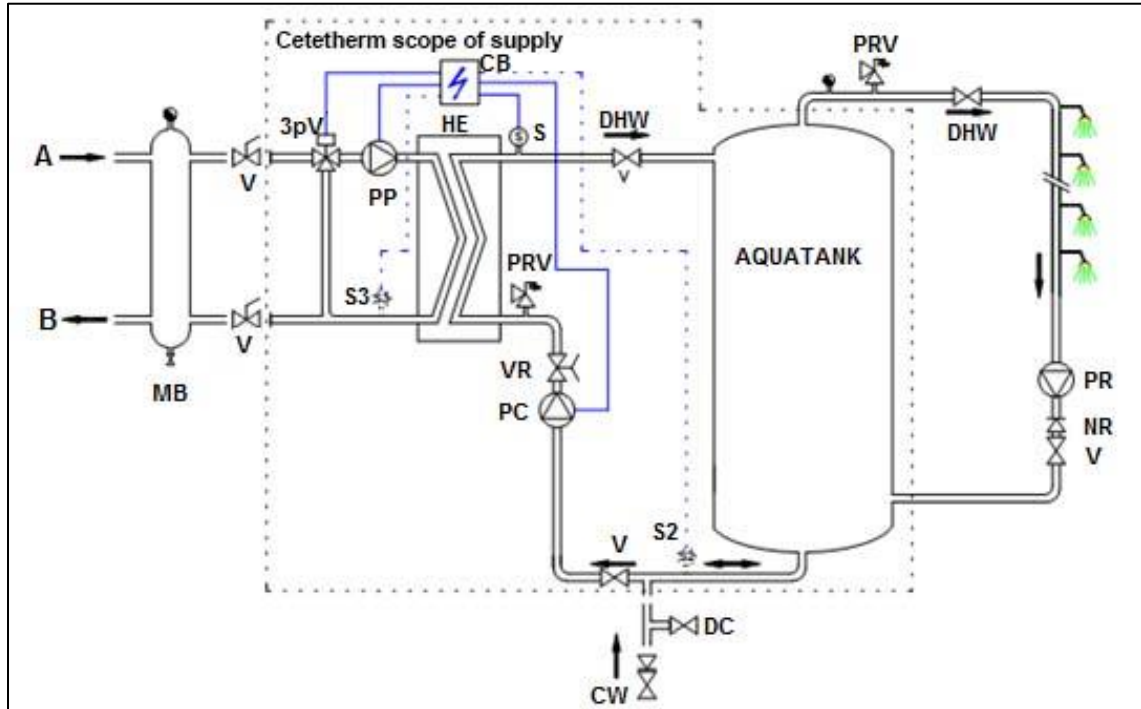
| ID.	Name	ID.	Name
S	Immersion temperature sensor	V(cv)	Closing valve (primary side valves)
S2	CIP sensor	V3p	3-port control valve with actuator
CB	Control box	PP	Primary pump
S3	Temperature sensor	MB	Mixing bottle

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17 Wiring the charging pump

Note: The charging pump has not been wired before delivery. The five wires cable connected to the control box must be wired to the charging pump.
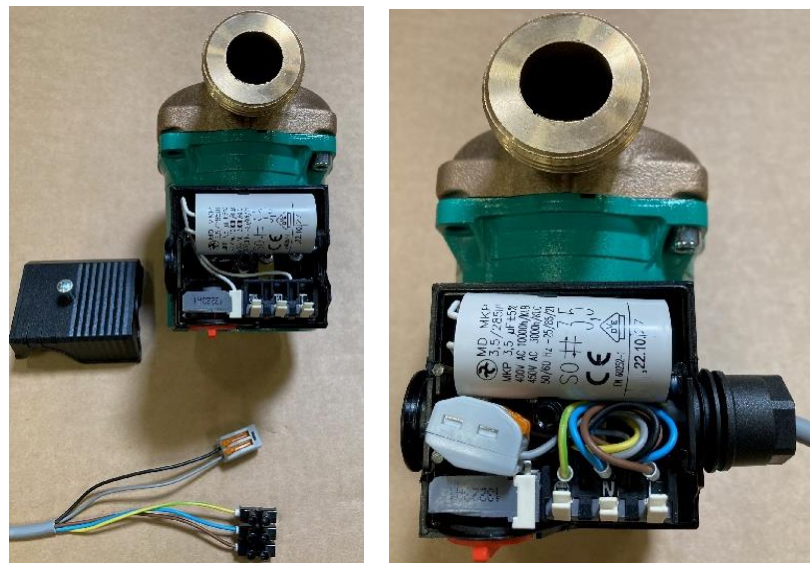Please proceed as follow:
Ensure the system is not connected to the main power supply. If the control box is connected to the main power supply, ensure that the main switch is turned off and locked.

With Grundfos UP20-45N :
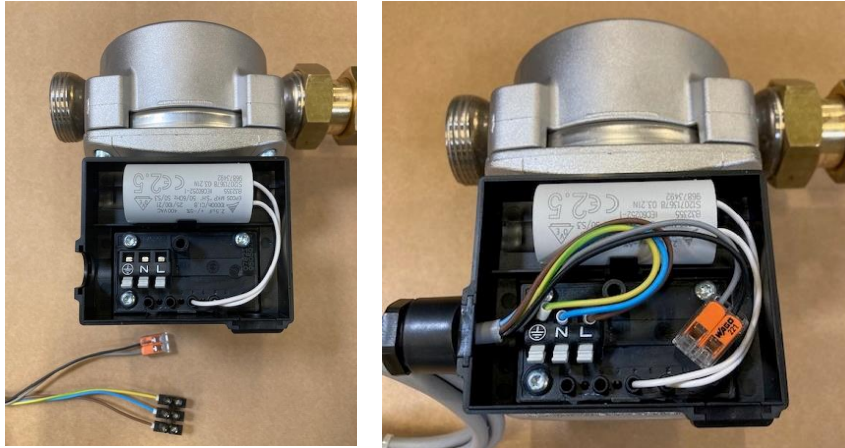
With Wilo Star Z 20/7:

With Grundfos UPS32-80N:

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18 Special instructions for options

18.1 Special instructions for 2PSA primary kits

Please refer to the guide supplied with the thermostatic control valve.
Always position the black slot upwards, see *2.1 2PSA primary kit – Thermostatic 2-way control* valve featuring.

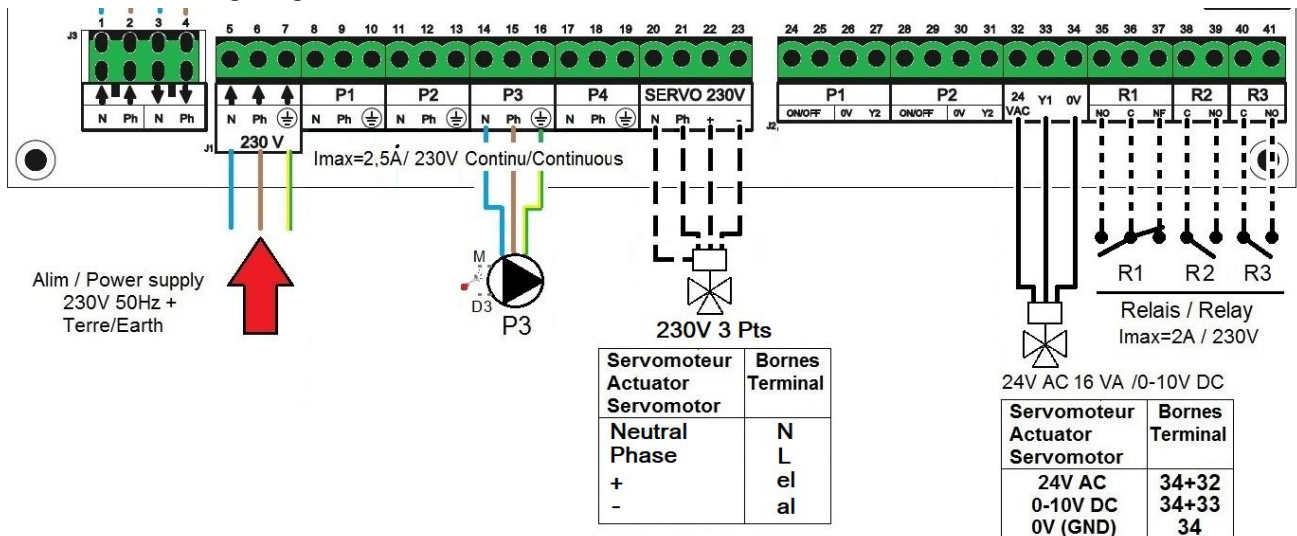## 18.2 Special instructions for 2PE primary kit

The actuator has been factory-calibrated. No special setting is needed.

Electrical wiring

Wire terminal

Wiring diagram

Servomoteur Actuator Servomotor	Bornes Terminal
Neutral	N
Phase	L
+	el
-	al

Servomoteur Actuator Servomotor	Bornes Terminal
24V AC	34+32
0-10V DC	34+33
0V (GND)	34

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19 Commissioning report

All parts are not applicable to the AquaCompact.

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
Other

Primary Pumps:			Secondary Pumps:	
Pump 1		Pump 2	Pump 3	Pump 4

Electrical bridges control for pumps on power plate

Pump 1	Pump 2	Pump 3	Pump 4

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
Trending and/or Modbus value activated

Volt free Remote contact wired or not

TRIAC 230 V connections wired or not

Other comments:

Identification of the unit:

Unit ID N°	Installer / Company Name	Installation site	Date

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20 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
AQUACOMPACT	All / Tous

- 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 2024
Jean-Michel Montoni
Product manager / Chef de produit / Bevollmächtigter / Conformiteits verantwoordelijke

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21 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.

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