

Installation, service and operating instruction

Cetetherm AquaCompact DHW heater, indirect system





GB

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Contents

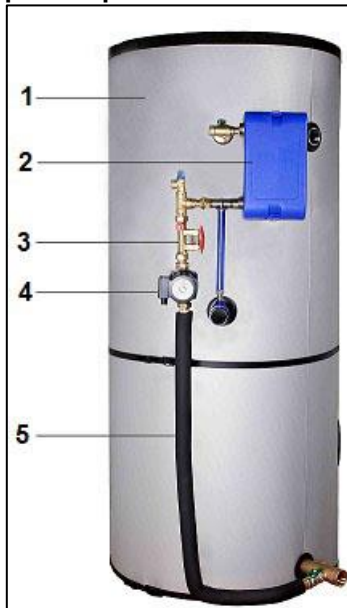
1	Product overview	5
1.1	Working pressure and temperature	6
1.2	Packing format	6
2	Options	7
2.1	2PSA primary kit – Thermostatic 2-way control valve featuring	7
2.2	2PE primary kit - Electrical 2-way control valve featuring	7
2.3	3PE primary kit - Three-way control valve featuring	8
3	Installation.....	9
3.1	Siting	9
3.2	Hydraulic connections	9
3.3	Basic version	9
3.4	Commissioning	10
4	Setting the DHW flow rate	11
5	Electrical connections.....	12
5.1	Basic model with or without option 2PSA	12
5.2	Option 2P and 3P	12
5.3	Electrical power ratings table	12
5.4	Current limiting fuses.....	12
6	Electrical installation of control box, option.....	13
6.1	Controller components	13
6.2	Electrical wiring diagram, option 2PE	14
6.3	Electrical wiring diagram, option 3PE	15
7	User instruction operator control panel Micro 3000.....	16
7.2	Home screen	17
7.3	Command symbols.....	17
7.4	Password and login	17
7.5	Setting the time and date	18
7.6	Changing the date format.....	18
7.7	Setting the daylight-saving time	18
7.8	Saving changes	18
8	End user mode.....	19
8.1	Set the hot water temperature	19
8.2	Time programs	19
8.3	Changing time and temperature in a time program.....	20
8.3.1	Special days	20
8.4	Making a quick temperature change	21
9	Technician menu	22
9.1	Login	22
9.2	The technician Main menu	22
9.3	Configuration menu	23
9.4	S1 Menu Secondary Outlet	24
9.5	Thermal Treatment Menu	24
9.6	Safety Function.....	25
9.7	Eco-Booster Function	25
9.8	Fouling function	26
9.9	230V Triac menu	26
9.10	Autotest menu	27
9.11	Clear alarm menu	28
10	Service Menu 	29
10.1	Change password for technician level	29
10.2	Login installer	29
10.3	Menu Continue	30
10.4	Operating hours	31
10.5	Trending parameters menu	32
10.6	Display the trend buffer	33

10.7	Point Data.....	33
11	Alarm menu 	34
12	Parameters' list	35
13	Factory reset	36
14	Modbus	37
14.1	Modbus communication	37
14.2	Connecting multiple Micro 3000 control boxes	37
14.3	Change Modbus parameters	38
14.4	Modbus slave communication parameters	39
15	Trouble shooting	40
16	Maintenance and repairs	41
16.1	Antibacterial treatment of the Aquatank	42
16.2	Clean the heat exchanger plates (P series)	42
16.3	Clean the fusion-bonded or copper brazes plate heat exchangers (F/B-series)	43
16.4	Open the control box	44
16.5	Change fuses	44
16.6	Pumps' number	45
16.7	Add an extra sensor	45
16.8	Connect to 230V Triac output.....	45
16.9	Add relay 1 and relay 2	45
16.10	Add a remote control contact	45
17	Assembly of the charging kit to the Aquatank	46
17.1	Specific points for assembling the M3 charging kit	49
17.2	Mounting the flexible hose onto the tank.....	50
18	Flowcharts	51
18.1	Flowchart AquaCompact	51
18.2	Flowchart AquaCompact with primary kit 2PSA.....	52
18.3	Flowchart AquaCompact with primary kit 2PE	52
18.4	Flowchart AquaCompact with primary kit 3PE	53
19	Wiring the charging pump	54
20	Special instructions for options	55
20.1	Special instructions for 2PSA primary kits	55
20.2	Special instructions for 2PE primary kit.....	55
20.2.1	Electrical wiring	55
20.2.2	Wiring diagram	55
20.3	Special instructions for 3PE Primary kit	56
20.3.1	Wiring diagram (also available for 2PE kit)	56
21	Commissioning report	57
22	Declaration of Conformity	58
23	Warranty	59
23.1	Spare parts	59
23.2	How to contact Cetetherm	59

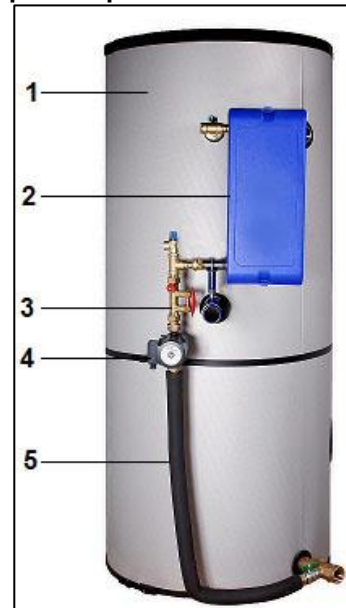
1 Product overview

The basic version of the Cetetherm AquaCompact DHW heater, indirect (semi-instantaneous) system comprises:

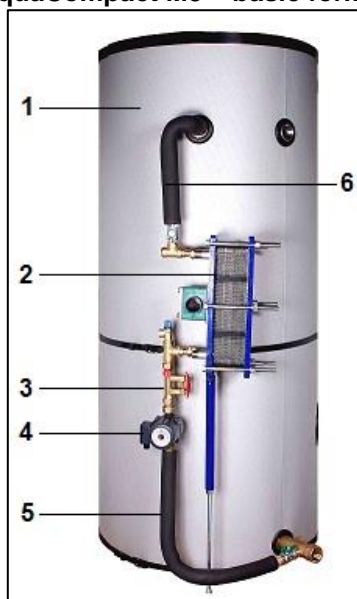
AquaCompact 27 – basic format



AquaCompact 52 – 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 dismantable 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		

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	16	130	10	95
M3	10	110	10	95
2PSA Kit (CB/FB/M3)	10	110	10	95
2P kits (CB/FB/M3)	10	110	10	95
3Pkits (CB/FB/M3)	10	110	10	95

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 in [17 Assembly of the charging kit to the Aquatank.](#)

Bulb thermostat to be installed at the end of the fitting.

Slotted bulb end, to be positioned slot-end upwards

Copper capillary tube

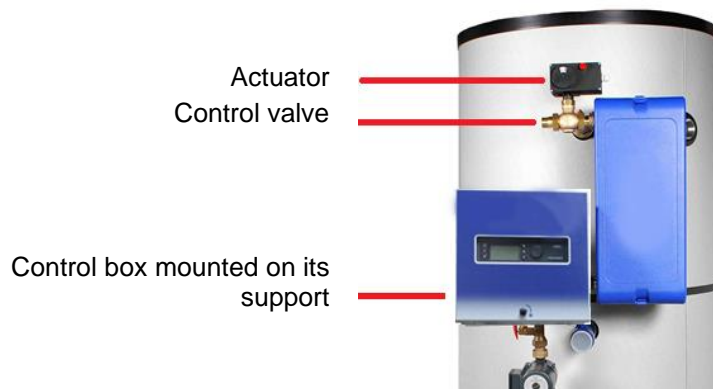
Setting thermostat



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

- One 2-port PN25 valve body
- One Pt100 temperature sensor
- One actuator, 230V 3 points with return to zero
- One PID controller box with piping and support, depending on the model selected

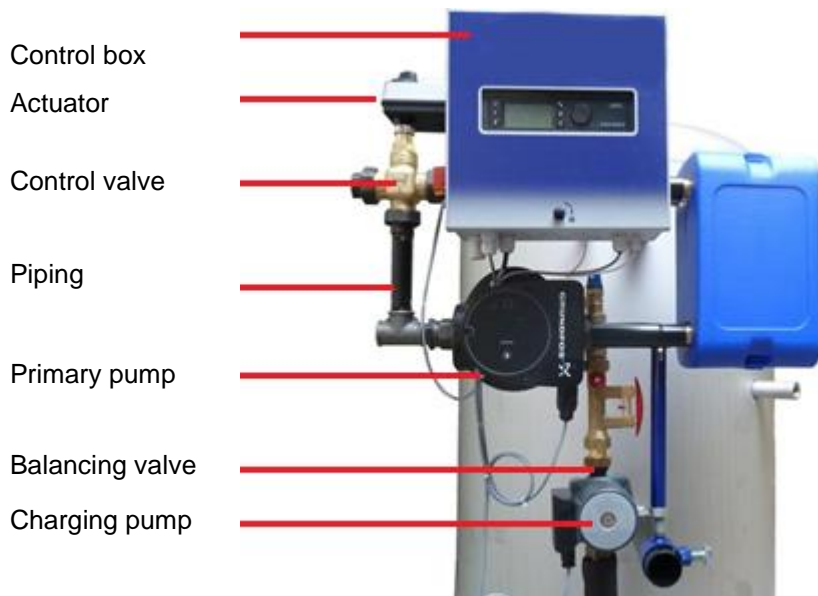
The primary circuit is pre-assembled on the exchanger. Follow the assembly instructions in [17 Assembly of the charging kit to the Aquatank.](#)



2.3 3PE primary kit - Three-way control valve featuring

- One 3-port control valve, PN16
- One primary pump, PN10
- One actuator, 24V AC feed-in and 0-10V DC controller current
- One PID controller box with Pt100 temperature sensor
- 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 in [17 Assembly of the charging kit to the Aquatank.](#)



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 indirect 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 in [17 Assembly of the charging kit to the Aquatank](#).

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)



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

3.4 Commissioning

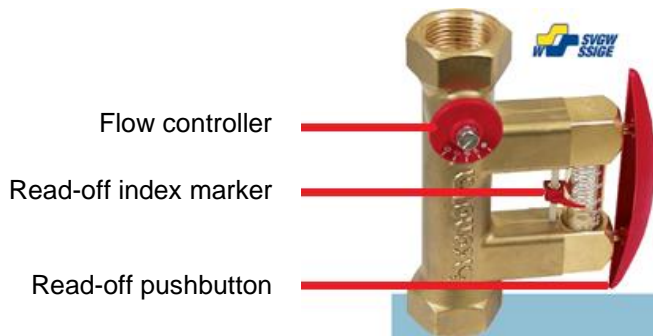
- Flood the various circuits and flush-bleed the pumps.
- Power-up.
- Set the secondary (charging) flow rate using the setting valve (read-off + setting)

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.



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 has to be 60% maximum of the secondary flow rate.

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	TOTAL + Control box ¹⁾
Basic / Basic+2PSA	-	-	UP20-45N	115W 0.5A	125W 0.6A ²⁾
Basic / Basic +2PSA	-	-	UPS 32-80N	240W 1.05A	245W 1.15A ²⁾
Basic + 2PE primary kit	-	-	UP20-45N	115W 0.5A	125W 0.8A
Basic + 2PE primary kit	-	-	UPS 32-80N	240W 1.05A	250W 1.17A
Basic + 3PE primary kit	Magna 1 32-80	151W 1.22A	UP20-45N	115W 0.5A	266W 2.02A
Basic + 3PE primary kit	Magna 1 32-80	151W 1.22A	UPS 32-80N	240W 1.05A	391W 2.57A
SINGLE-PHASE 230 VOLTS + GROUND					

¹⁾ The electrical consumption of the control box and the actuator is 10W, 0.3A.

Figures are rounded up to the nearest 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
Protection	PUMP 1	N/A	PUMP	N/A	PCB
Size (mm)	6.3x32	6.3x32	6.3x32	6.3x32	6.3x32
Calibre	2.5A		2.5A		250mA
Voltage	250V	250V	250V	250V	250V

Safety fuses are supplied inside the control box.

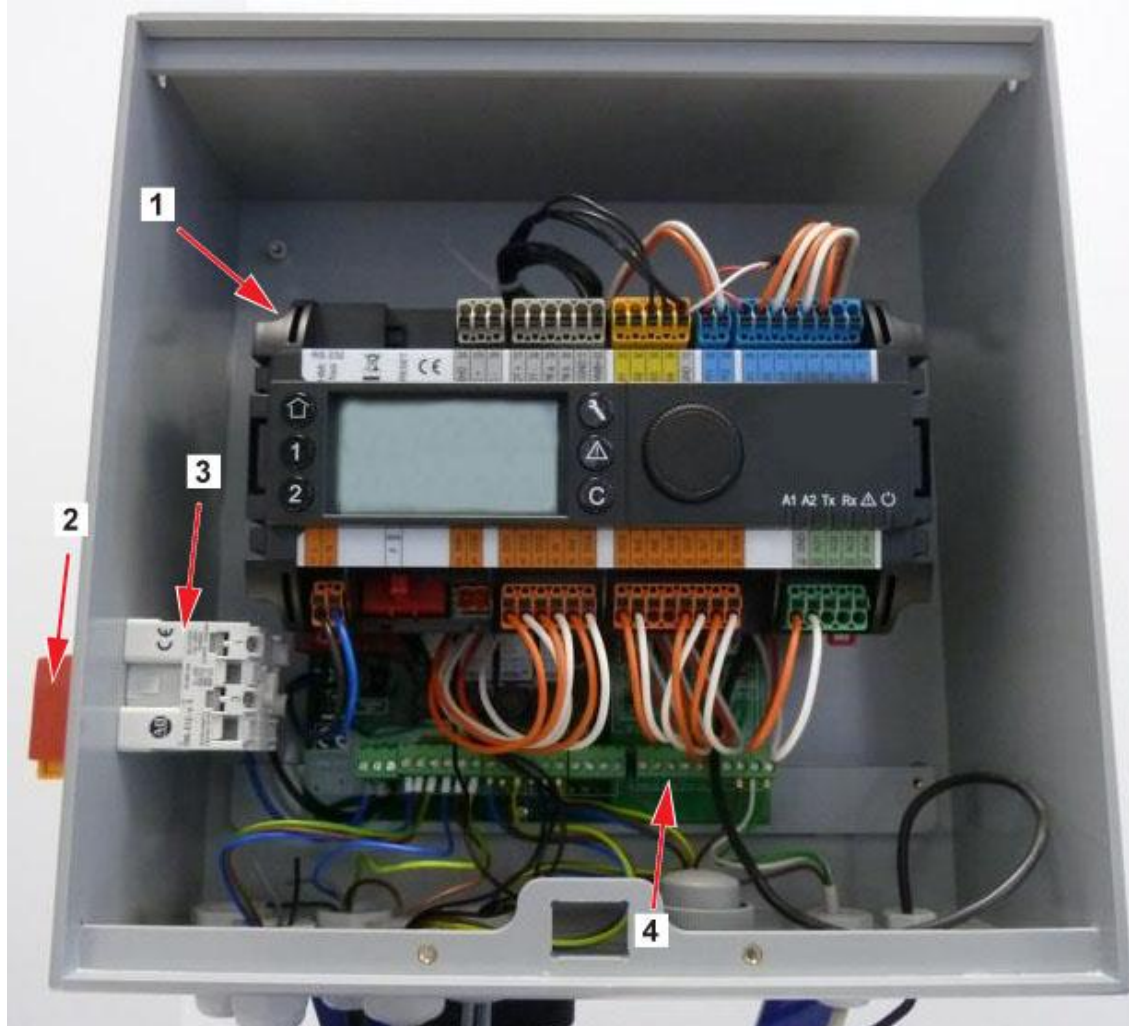
6 Electrical installation of control box, option

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



Human protections and protection against short circuits and over intensity must be installed in the main electric box.

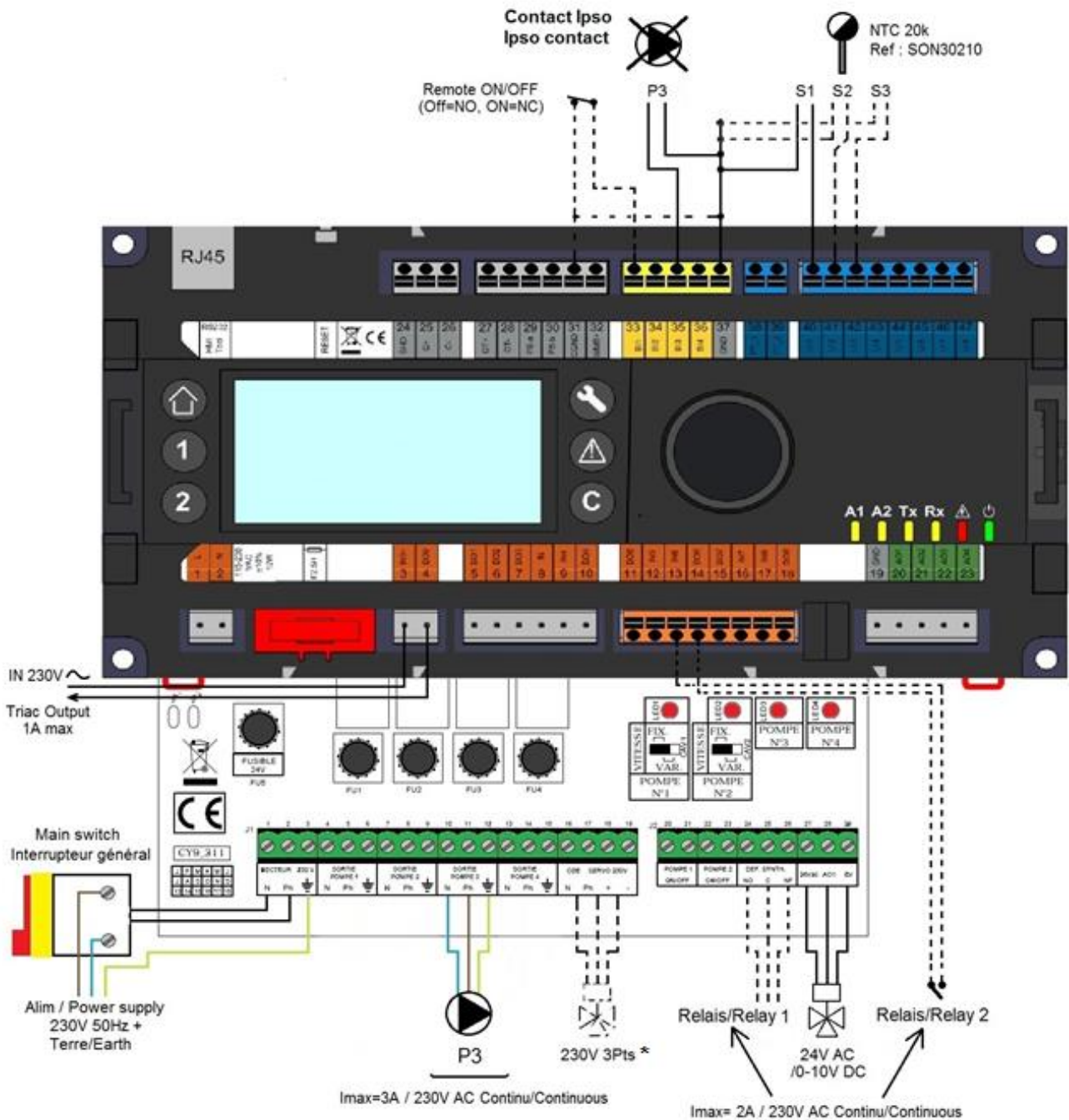
6.1 Controller components



1	Controller, Micro 3000	3	Power Supply contact
2	Main switch	4	Printed Circuit Board

6.2 Electrical wiring diagram, option 2PE

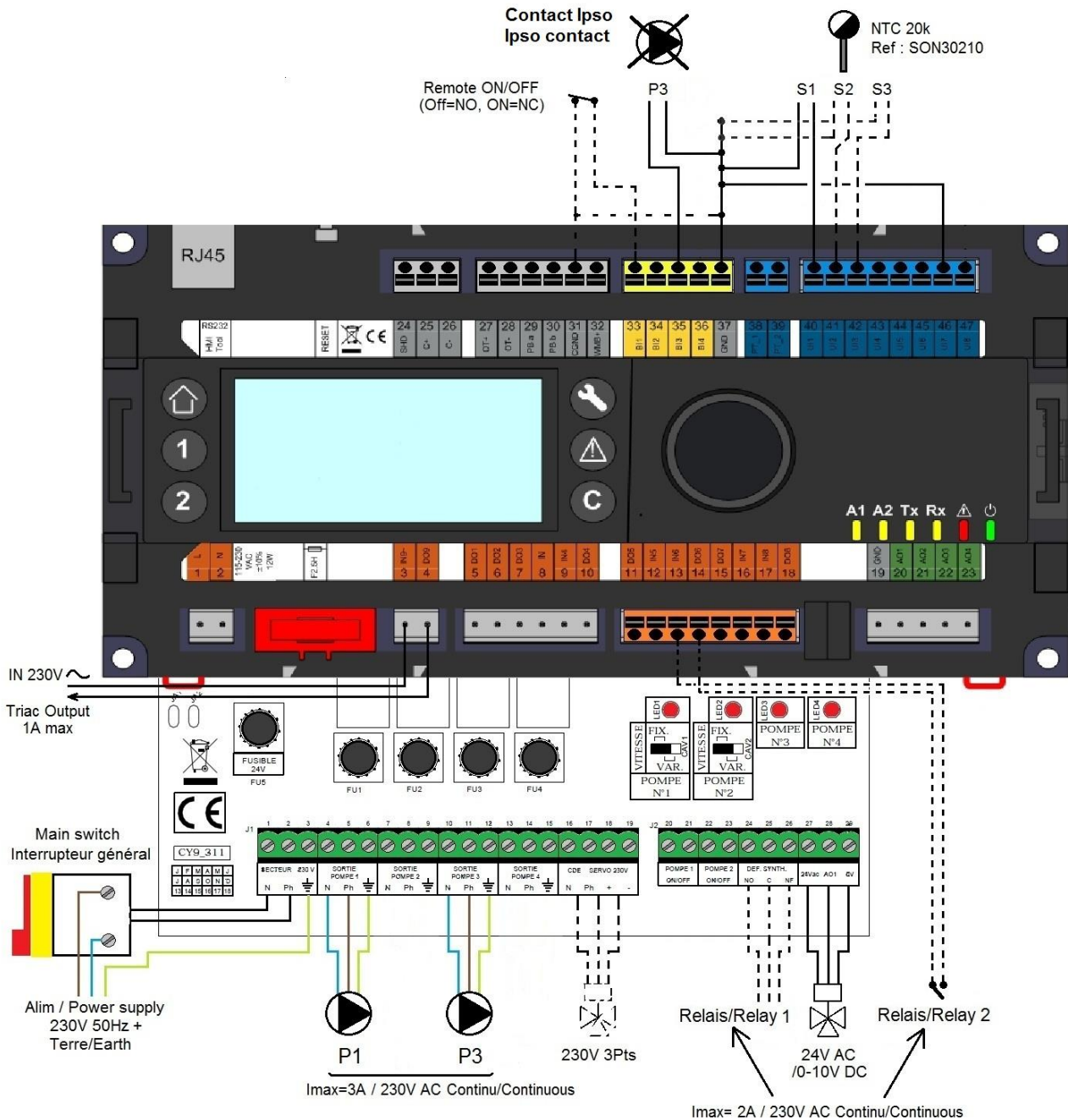
NOTE: When the remote-control contact is open, the unit operates normally. If it is closed the unit is in standby.



NOTE: *) 230V 3pts actuator wiring, see [20 Special instructions for options](#).

6.3 Electrical wiring diagram, option 3PE

NOTE: When the remote-control contact is open, the unit operates normally. If it is closed the unit is in standby.



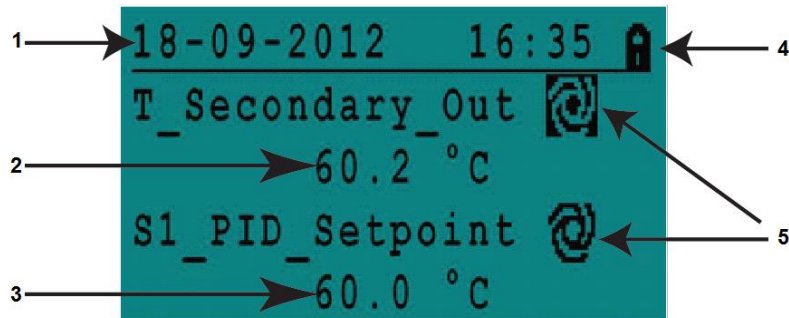
7 User instruction operator control panel Micro 3000



Button	Function
	Rotary button, wheel, for scrolling through the menus. Access sub-menus and change settings by pressing it. To activate the line or change a highlighted value, simply press the wheel. Works like an Enter key.
	Press to exit a level and return to the previous menu/parameter. Works like an ESC key.
	Press to access the maintenance / monitoring menu. NOTE: Requires a password.
	Press to go to the Home screen, Main Menu
	Press to access the Alarm Menu.
	Not used
	Not used
	Relay 1 activated.
	Relay 2 activated.
	Active data transmission
	Active data reception
	Alarm indicator
	The Control box is switched on.

7.2 Home screen

When starting up the Micro 3000 controller this menu displays on them screen. The menu is called the Home screen.



- | | | | |
|---|-----------------|---|---|
| 1 | Date / hour | 4 | Access level:
Locked=restricted /
Key= total (3333) |
| 2 | DHW Temperature | 5 | Commando symbols |
| 3 | DHW Set point | | |

NOTE: if there is an ongoing alarm when starting up the controller AquaCompact, an alarm text will be displayed on the screen. Press the House button to enter the Home screen.

7.3 Command symbols



Auto

Datapoint is in automatic operation and can be switched into manual operation.



Manual

Datapoint in manual operation and can be switched into automatic operation.



Today function

Datapoint value can be overridden for a particular time period within the next 24 hours. Datapoint must have a daily time program assigned.



Time Program

Datapoint has a daily time program assigned. Daily time program can be selected and edited.



Edit

Item (datapoint, time program etc.) can be edited.



Add

Item (datapoint, time program etc.) can be added to a list e.g. datapoint can be put to a list of trended datapoints.



Deleted

Item can be deleted



Enable/disable

- Checked: item is enabled
- Unchecked: item is disabled

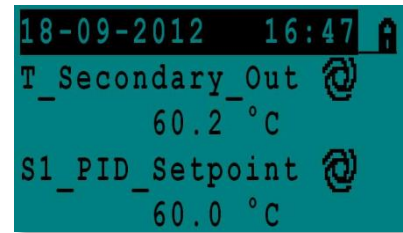
7.4 Password and login

The controller has password protection, allowing accesses to different menus.

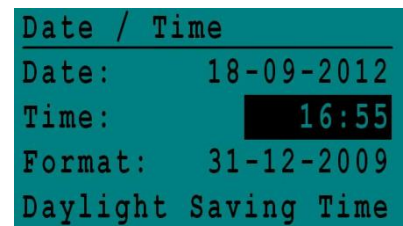
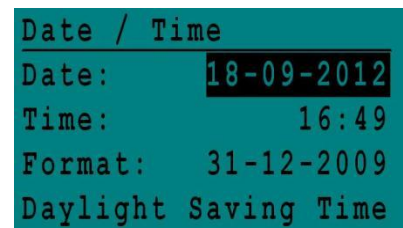
- **End user level**- requires no login. Marked with a locker in the upper right corner.
- **Technician level**- access to all menus requires login. Marked with a key in the upper right corner.

7.5 Setting the time and date

1. Turn the wheel anticlockwise to highlight the line with time and date at the top of the screen. Press the wheel to enter the Date/Time menu.



2. Press the wheel to change the first variable, the year.
3. When the year flashes, increase or reduce the set value by rotating the wheel. Once the right value is displayed, press the wheel to confirm the setting. Next parameter to change starts to flash.
4. Proceed in the same way to set the month, date and time (hour: minute).



7.6 Changing the date format

In the Date/Time menu the date format can be changed. Choose between the following formats:

- yyyy-mm-dd
- mm-dd-yyyy
- dd-mm-yyyy
- dd.mm.yyyy
- dd/mm/yyyy



7.7 Setting the daylight-saving time

Summer time

Changing between summer/winter time can be automatic or turned off. You can also define the dates for changes if they are altered.

The default settings for summertime is:
Last Sunday in March to last Sunday in October.



7.8 Saving changes

Once a value has been changed and confirmed by pressing the wheel, the corresponding change will be immediately updated. Press the or to return to the home screen.

8 End user mode

The following changes can be done in end user mode:

- Settings which are identical/different for each day of the week at defined times
- Normal temperature(s)
- Lower temperature(s)
- Special period of defined duration during the current year
- Waiver with change of setting at a specific time.
- One-time temperature change at a specific time.

8.1 Set the hot water temperature

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.

8.2 Time programs

The time programs used in AquaCompact are adjusted the same way.

Time programs:

- SP_T_Sec_Outlet, to be found in the menu [9.4 S1 Menu Secondary Outlet](#). It is to set the DHW temperature
- ThTr_Activated to be found in [9.5 Thermal Treatment Menu](#), to activate a thermal treatment (1 sensor mode).
- Multi_P to be found in [9.9 230V Triac menu](#), to activate the 230V power output on the controller

The time program has two different temperature modes - week program or weekend-program.

For each day of the week, define which time program to use.

By default has the weekend-program the same settings as the week- program.

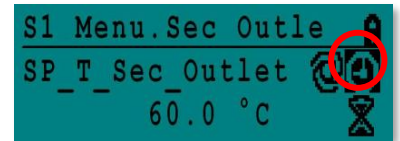
It is even possible to customize the temperature programs with special dates (holidays periods or free days).

Each time program can have several different times set per day, each time can have a different temperature. The set temperature is then in effect until the next time occurs. If only one temperature is set, the program will run with the set temperature.

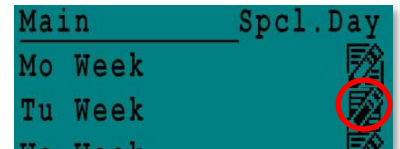
8.3 Changing time and temperature in a time program

By default, the DHW set point SP_T_Sec_Outlet, set to 60°C by default, at any time, all the days of the week. Add extra temperature set points at different times of the day. These changes will be reported to all days with the time program week, excluding the time program; weekend.



1. Use the wheel and mark the clock logo. Press the wheel.

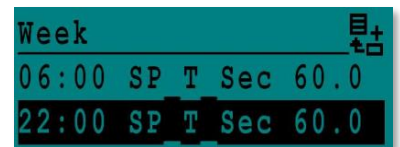
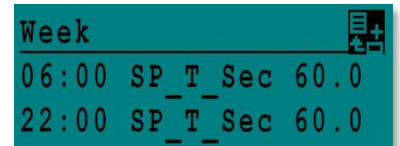


2. Mark the day you want to change. Press the wheel.



Now you can choose to:

- a) Change a time or temperature.
Mark the line and press the wheel. Change the value by turning the wheel.
Confirm the new setting by pressing the wheel.
- b) Add a new time or set point; choose .
- c) To delete a time or set point; choose; .



In this example the set point is 60°C at 22h00.

You can choose to reduce the temperature during the night, in this example the night temperature is set to 55°C.



8.3.1 Special days

Exception days, so called special days, can be defined. The calendar in the controller controls the exceptions that can be selected in the Time program. Exception days override the weekly schedule.

In the Main screen menu, mark 'Spcl.Days' and press the wheel. Choose between:

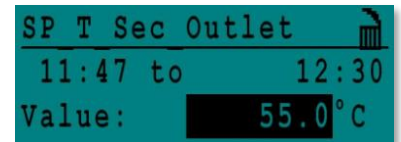
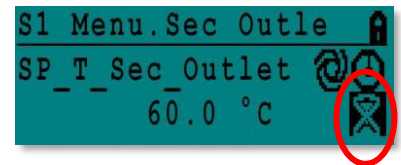
- Annual - holiday periods where you have to specify beginning date, end date and DHW set point. This mode is applicable to schools, offices and so on.
- Bank Holiday - special days during the year where set points can be different ex: Christmas, New Year.
- Daily programs - particular days where you want to change the temperature set point.



8.4 Making a quick temperature change

It is possible to quickly define a “one time” temperature change, a period of the day with a different setting. When the change period has expired, the temperature set point goes back to standard time schedule program.

1. In the home-screen, use the wheel and mark the hourglass. Press the wheel.
2. Define the starting and ending time, and the temperature set point value.



9 Technician menu


In the technician menu you can:

- make settings for the secondary outlet temperature
- enable/disable functions like Eco, booster, thermal treatment
- change parameters
- start an auto test
- clear alarm.

You need to be logged in to:


- see all submenus and change pre-set values
- have full read and write access in the technician menu

9.1 Login

1. Mark the lock  in the upper right corner of the screen and press the wheel.
2. Enter: 3333, to access the technician level.

NOTE: You will be automatically logout after ten minutes if no data has been entered.

9.2 The technician Main menu

To enter the Main menu, press the  key.

The grey marked parameters or menus are not available in the AquaCompact application.
Their value does not have any impact on the AquaCompact.

Main Menu		Description
T_Secondary_Out	<i>Read Only</i>	Measured temperature ECS
S1_PID_Setpoint	<i>Read Only</i>	DHW temperature setpoint
T_Secondary_Inlet	<i>Read Only</i>	N/A
T_Primary_Outlet	<i>Read Only</i>	The temperature measured by S3 (option)
T_Primary_Inlet	<i>Read Only</i>	N/A
T_Recovery1	<i>Read Only</i>	N/A
T_Recovery2	<i>Read Only</i>	N/A
T_Outdoor	<i>Read Only</i>	N/A
Configuration	<i>Sub Menu</i>	See 9.3 Configuration menu
S1 Menu Sec.Outlet	<i>Sub Menu</i>	See 9.4 S1 Menu Secondary Outlet
S2 Menu Sec.Inlet	<i>Sub Menu</i>	N/A
Delta T (S3-S2)	<i>Sub Menu</i>	N/A
S4 Menu Prim Inlet	<i>Sub Menu</i>	N/A
S5 Menu Outdoor T	<i>Sub Menu</i>	N/A
Thermal Treatment	<i>Sub Menu</i>	See 9.5 Thermal Treatment Menu
SAFETY Function	<i>Sub Menu</i>	See 9.6 Safety Function
Eco Booster Fcts	<i>Sub Menu</i>	See 9.7 Eco-Booster Function
Fouling Function	<i>Sub Menu</i>	See 9.8 Fouling function
Pumps Menu	<i>Sub Menu</i>	N/A
Solar Menu	<i>Sub Menu</i>	N/A
Aquaprot_Heating	<i>N/A</i>	N/A
230V Triac Menu	<i>Sub Menu</i>	See 9.9 230V Triac menu
Auto Test	<i>Sub Menu</i>	See 9.10 Autotest menu
Clear Alarm(s)	<i>Sub Menu</i>	See 9.11 Clear alarm menu


9.3 Configuration menu

NOTE: After resetting the controller, this sub menu should be accessed to configure pumps' number.

Parameter	Factory Setting	Optional setting	Description
Type 0= First 1=Eff	0	0= AquaFirst 1= AquaEff	Set to 0
S5 Active heating	0	0 Disables / 1 Enables heat curve	Set to 0
Cooling Mode AO1	0	0=Heating/ 1=Cooling mode	Set to 0
P12 Nbr of Pumps	1/0	0/1/2	Primary pump(s) number
MinSpeedP1P2	40	10 >100	N/A
P34 Nbr of Pumps	1	0/1	Set to 1
Modbus Factor	1	1/10/100	To set displayed decimals on Modbus values. 1=integer value, eg:58°C 10=1 decimal, e.g. 583/10=58,3°C 100=2 decimals, e.g. 5836/100=58,36°C
Relay 1 function*)	1	0..7	0=No action 1=General Default (GD) 2=High temp Alarm (HA) 3=Eco function (E) 4=Booster function (B) N/A 5=Thermal Treatment (TT) 6=Pump Fault (PF) 7=Tank loaded (TL) N/A
Relay 2 function*)	2	0..7	
Renewable Config 0:N 1:SF 2:AA 3:AP	Keep 0	N/A	N/A
APilot rev 0=Off 1=On	Keep 0	N/A	N/A
SP distrib 0=I 1=E	0	N/A	N/A
SW AL Version	4.0	N/A	Firmware Version

*) Both relay 1 and 2 are programmable.

9.4 S1 Menu Secondary Outlet

Parameter	Factory Default Setting	Optional setting	Description
SP_T_Sec_Outlet 	60°C	DHW Setpoint	Change setpoint value in clock program
Delta T S1 HiAlm	10°C	0-50	High Temperature Alarm if Ts1 SP_T_Sec_Outlet+Delta Ts1 HiAlm
High T Alarm Delay	1 min	0-60	High temp alarm is effective after this time
High Alarm Auto Reset	0	0/1	0=MANUAL alarm clear / 1=AUTO alarm clear
High_Alm_Reset	Off	Off/On	Put ON to clear an high temp alarm, then put Off
P_Band AquaFirst	40	0<P<200°C	↑P to be less reactive /more accurate
	(-200 to 200)	Negative values in cooling	↓P to be more reactive (be careful of "pumping" effect)
I_Time AquaFirst	15	0-200 sec	↑P to be less reactive
			↓P to be more reactive (be careful of "pumping" effect)
D_Time AquaFirst	2 sec	0-200 sec	Derivative
P_Band AquaEff	80	0<P<200°C	N/A
	(-200 to 200)	Negative values in cooling	
I_Time AquaFirst	15	0-200 sec	N/A
D_Time AquaFirst	2 sec	0-200 sec	N/A

9.5 Thermal Treatment Menu


The function Thermal Treatment is disabled by default.

Activate it by setting TrTh_Activated to ON.

The clock program logically activates it automatically or not.

The thermal treatment starts when the thermal treatment is switch on inside the clock program and ends at the end of the thermal treatment duration (ThermTr Duration) or at the end of the authorized period, when thermal treatment is OFF in the clock program.

The user has to define a one (1) sensor mode - fixed duration as per Therm.Tr duration parameter.

Parameter	Factory Setting	Optional setting	Description
ThTr_Setpoint	70°C		Usual value
TrTh_Activated 	Off	Off/On	Enable or Disable the function as per clock program
Sensor_Nbr NS 0=Auto/1/2S	Auto	Auto/1 sensor/2 sensors	Use 1 sensor (set to 1)
ThTr Duration	1 min	1-240 min (4 hours max)	Adjust value according to the installation + buffer vessel capacity
Fixed duration (1 sensor)	1	0/1	Set to 1
ThTr Max try time	1 min	1-240 min	N/A
DeltaT S1S2 ThTr	7°C	1 - 20°C	N/A
Inhibition time	30 min	0-180 (0 à 3 hours)	High temp alarm inhibition time after thermal treatment

9.6 Safety Function

This function activates all the pumps' power relays at the same time without considering isothermic contacts' inputs.

NOTE: This function can be enabled from end user level.

Parameter	Factory Setting	Optional Setting
SAFETY_Speed	75%	Not used
SAFETY_FCT	Off	Off/On



In case of high temperature alarm on S1, the primary pumps are stopped, even if the function is activated.

9.7 Eco-Booster Function

- ECO:** When control valve is sufficiently closed (Valve Hysteresis) during a sufficient long time (ECO delay), primary pump switches off and primary mixing valve close down.
 The system is switch ON when S1 temperature has gone down more than the set value of "Eco Hysteresis".
 If secondary pumps are connected (SS/DS/DD series) they are still in operation during the Eco function.
- Booster** function is not available in AquaCompact

Parameter	Factory Setting	Optional setting	Description
0:- 1:E 2:B 3:E+B	0	0/1/	0 = No function 1 = Eco Function only 2 = N/A 3 = N/A
Fct_Selection	Normal	Normal/Eco/Boost/ EcoBoost	Playback function selected in 1: Eco, 2:Booster, 3:ECoboot
Eco Delay	5 min	1-30 min	Scan time before activating function if possible
Eco Hysteresis	5°C	1-20°C	Temperature range in which the function is applicable
Valve Hysteresis.	10%	0-80%	Maximum opening of the valve before switching function
Booster Delay	2 sec	2-200 sec	Time delay between the Booster functions stops and the second pump stops (N/A)
Booster Gradient	2°K/s	1 to 20°K/sec	Minimum temperature fall speed at which the function operates (N/A)

9.8 Fouling function

Accessing the scaling-menu requires login at Technician level.
Scaling function can be activated when the sensor S3 is connected.




If the temperature in S3 is too high for a long time this function activates an alarm that consider the heat exchanger fouled.

Parameter	Factory Setting	Optional setting	Description
Fouling alm activ	0	0/1	0=disabled / 1=enabled
Fouling_alarm	Normal/Default		Read only
SP_Fouling	65°C	60-80	Depends on the HE type and Primary inlet temperature

9.9 230V Triac menu

Accessing the 230C Triac-menu requires login at Technician level.

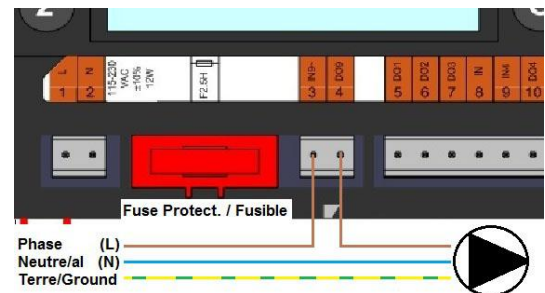
This menu allows using a 230VAC Triac output.

Parameter	Factory Setting	Optional setting	Description
Multi P   	Off	Off / On	Enable or Disable the 230V output as per clock program
Pulse Duration	5 sec	1-3600	230V pulse duration in seconds
Bypass 0=Off 1= ON	N/A	N/A	N/A
DeltaT Bypass	N/A	N/A	N/A

The 230V electrical output can be configured as a pulse function. For example, it can be used to shortly activate an electrical drain valve.

In this configuration, the pulse duration can be programmed to be active a day, week or special day.
For example, each Sunday at 10h00 for 5 seconds.

Connected device must not exceed 230VAC 1A.



9.10 Autotest menu

Accessing the Autotest menu requires login at Technician level.

This submenu allows testing analog (contacts) and digital (0-10V) outputs that manage pumps start/stop, both programmable relays, 230V Triac output and valve' signal. It is possible to run an automatic sequence or to test manually each output individually.

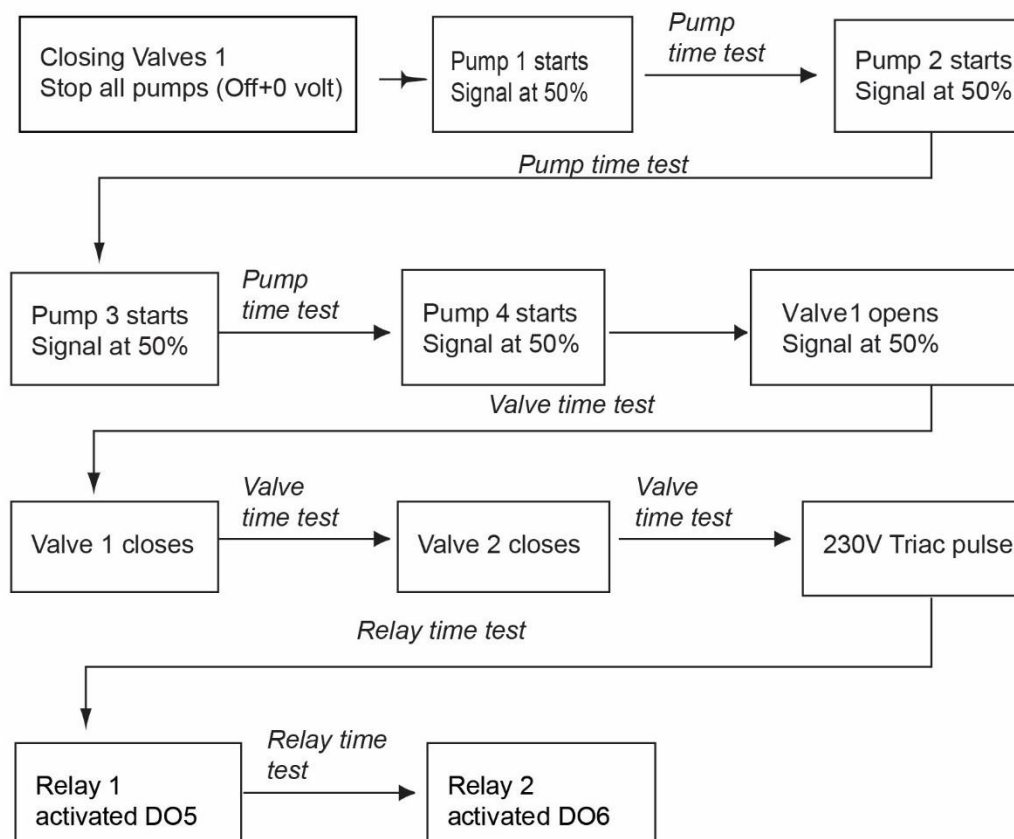
In case of Auto test (automatic sequence), it is possible to reduce or increase tests' temporizations. Pump, valve and relays test times can be adjusted individually. The time test value will impact on the total auto test time sequence.

Parameter	Factory Setting	Optional Setting	Description
Start AutoTest	0	0/1	Set 1 to start auto test. When finished, the value goes back to zero.
Pump_Fault_Reset	Off	Off/On	Set to On after an Auto test.
Pump time test	4 sec	1-600 sec	Pumps activated this time value
Valve time test	4 sec	1-600 sec	Valve activated this time value
Alarm time test	4 sec	1-600 sec	Relays 1 and 2 test
Cmd_P1	On/Off	On/Off	Activates pump 1 relay
Cmd_P2	Off/On	On/Off	Activates pump 2 relay
Speed_P1P2	xx %	0-100 %	Not used
Cmd_P3	On/Off	On/Off	Activates pump 3 relay
Cmd_P4	Off/On	On/Off	Activates pump 4 relay
Speed_P3P4	xx %	0-100 %	Not used
Relay 2	Off	On/Off	Activates relay 2
Relay 1	Off	On/Off	Activates Relay 1
Triac_Output	Off	On/Off	Activates 230V triac output
Valve signal	xx %	0-100 %	Valve opening/closing
Valve2 signal	xx %	0-100 %	N/A
Valve_DO	xx %	0-100 %	N/A



NOTE ! Once test is manually done and finished, remember to put the point on Automatic mode, logo .

The Auto test sekvens described in the picture is a general test procedure. It may vary depending on connected components.



NOTE: A pump fault may occur after Auto test. In this case, clear the alarm according to [9.11 Clear alarm menu](#).


9.11 Clear alarm menu

Accessing the Clear Alarm menu requires login at Technician level.

All alarms are cleared the same way.

Parameter	Factory Setting	Optional Setting	
High_Alm_Reset	Off	Off/On	Select On to clear the alarm, then return to Off or wait a few seconds for automatic return to Off . Off: the alarm is cleared
Pump-Fault_Reset	Off	Off/On	Select On to clear the alarm, then return to Off or wait a few seconds for automatic return to Off . Off: the alarm is cleared

10 Service Menu


Press the  key to enter the Service menu. In the service menu you can:

- change password for technician level
- trending parameters
- display the trend buffer
- check operating hours

From Point Data sub-menu, you can, read or change binary or analog outputs to start/stop a pump, open/close control valve for example.

10.1 Change password for technician level

NOTE: To change the password you need the password for the Technician level, level 3.

1. Press  key to access to Service Menu, go to “Login Installer”, press the wheel.
2. Enter the current password, press the wheel to validate.

```
Service Menue
Continue
Login Installer
```

3. Mark “Change Password” then press the wheel.

```
Enter your Password
****
Next
Change Password
```

4. Go to Level 3 line and then click on the password to change it. Press the wheel to validate.

```
Change Password
Level 2:      2222
Level 3:      3333
Installer Service
```

NOTE: Level 2 password is not in use.

10.2 Login installer

Login Installer	****		Enter 3333 if not in technician mode
	Change password		

10.3 Menu Continue

Menu	Sub-menu	Sub-menu	Description
Continue	Operating hours		Viewing operating hours of internal parameters
	Trending	Points in trend	Select variables to trend for example temperature sensors
		Display Trend buffer	View the records
	Interface Config (com)	C-Bus active	Factory pre-set
		Ctr#1 9600	Factory pre-set
		B-port 9600	Factory pre-set
		Append bus number to data point name	Activated
		RF Teach in (N/A)	Factory pre-set
		Modbus	Device ID: 10 Baud Rate: 9600 Parity: None No.stop bits: 1
	Time Programs	Solar	Not used
		Main	It is SP_T_Sec_Oulet (main temperature program). See 9.4 S1 Menu Secondary Outlet .
		TSP_Amb	Not used
		Multi Pulse	See 9.9 230V Triac menu
		Therm. treatment	See 9.5 Thermal Treatment Menu
	Point Data	Internal parameters +I/O visualisation	
		Analog input	Sensor values
		Pseudo Analog	Can be set points or internal parameters
		Analog Output	Valve output signal
		Binary input	Ipsothermic contacts from pumps, remote contact
		Pseudo Binary	Internal flags
		Binary Output	Pump start/stop contacts, relays contacts, 230V Triac
		Totalizer	N/A
		Remote Analog	N/A
		Remote Binary	N/A
	System Data	System information	
		Parameters	N/A
		Date/Time	Clock settings
		System Info	Hardware/Software info (version, date)
		Interface Config	Access to Modbus parameters see 14 Modbus .
		DDC Times	Program's time constant
		Flash memory	Info on flashing. Allows saving all settings. It can be reloaded after a Reset

10.4 Operating hours

Operating hours for the following parameters can be checked:

- Therm_Protec_P1 /P3
- Cmd_P1/P3
- High_Temp_Alarm
- Main_Alarm
- AFF_leg_active
- SAFETY_FCT
- Multi P
- ECO


For more information and descriptions see [12 Parameters' list](#).

1. Press  key to access to Service Menu, then click on "Continue".

```
Service Menu
Continue
Login Installer
```

2. Select "Operating Hours" in the menu.
The first time you enter this menu, the list is empty.

```
Service
Operating Hours
Trending
Interface Config
Time Program
```

3. To add a variable to trend; choose .


```
Activate Oper. Hours
Cmd_Distant
Therm_Protec_P1
Therm_Protec_P2
Therm_Protec_P3
```


4. Mark one variable to follow and press the wheel.

```
Activate Oper. Hours
Therm_Protec_P4
Cmd_P1
Cmd_P2
```

5. Validate the variable by clicking in the Operating Hours box. If this box is empty the variable is in the list but it is not recorded.


```
Operating Hours: 
```

When you go back in the menu ( key), you can see the list with "Cmd_P1" parameter, and on the right side, the operating hours.

```
Cmd_P1
Operating Hours: 
```

```
Operating Hours (h) 
Cmd_P1 0
```

For more details, click on the line to open the sub-menu.
Here you can read that P1 has been operating less than 1 hour, has been switched one time and status is On.

```
Cmd_P1
Operating Hours: 
Hours: 0
Switches: 1
Status: On
```

Proceed the same way to add extra variables.

10.5 Trending parameters menu

A lot of different variables can be recorded or trended. It can be temperatures' measurement, valves or pumps' signals, isothermal contacts, alarms, thermal treatments etc.

1. Press  key to access to Service Menu, then click on "Continue".


```
Service Menu
Continue
Login Installer
```

2. Select "Trending" in the menu

```
Service
Operating Hours
Trending
Interface Config
Time Program
```

3. Select "Points in Trend".
The first time you enter this menu, the list is empty.

```
Trending
Points in Trend
Display Trend Buffer
```

4. To add a variable to trend; choose .

```
Points in Trend
```

5. Mark the variable to follow and press the wheel.
In this example the Secondary outlet temperature, S1.

```
Set Points in Trend
Pilot_Signal
Pt1
Pt2
S1
```

6. Validate the variable by ticking in the Trend Log box. If this box is empty the variable is in the list but it is not record.

There are two different ways to record (method a and b):

- a) Only the temperature change is recorded.**
This saves memory and allows a longer sampling period compared to method b.
Select the record hysteresis. In our case, every 1°C temperature change is recorded. The hysteresis value can be changed by clicking on it.
- b) Record on a time base, whatever the temperature changes or not.**
Note that this method consumes memory, especially if a short time base is selected. Here the time base selected is 10 minutes recording (1 record every 10 minutes).

```
S1
Trend Log: ☒
Trend Hyst: 1
Trend Cycle: 0min
```

```
S1
Trend Log: ☒
Trend Hyst: 1
Trend Cycle: 10min
```

For method **a** set *Trend cycle* to zero and set *Trend Hyst* value different to zero. For method **b**, set *Trend Hyst* to zero and set *Trend cycle* value different to zero.

10.6 Display the trend buffer

1. Press  key to access to Service Menu, then click on "Continue".

```
Service Menu
Continue
Login Installer
```

2. Select "Trending" in the menu.

```
Service
Operating Hours
Trending
Interface Config
```

3. Select "Display Trend Buffer".

```
Trending
Points in Trend
Display Trend Buffer
```

4. Select the variable to display, S1 in this case, and press the wheel.

```
Trend Buffer
S1
```

Date, time and temperature at the time can be read.

For example, on 21st of September at 14h22 was the temperature in S1 58°C.

```
S1
21-09 14:22 58
21-09 14:22 60
21-09 14:22 59
21-09 14:22 57
```

10.7 Point Data

From the menu Point Data you can:


- read or change binary or analog outputs
- start and stop pumps
- open or close control valve.

This sub menu is very similar with Autotest as it performs same actions in manual mode.

NOTE ! Once test is manually done and finished, remember to put the point on Automatic mode, logo  .

11 Alarm menu

Alarm indication is a volt Free Contacts (VFCs), 2 Amps maxi, each under 230 V.

Press  key to access to Alarm menu. The menu contains four different lists:

- **Alarm Buffer**
Lists all events with; date, time and type of event.
- **Points in Manual**
List of all points actually in manual mode this list should be empty. When point values are forced for tests for example, they should be place in automatic mode at the end.
- **Points in Alarm**
Lists all events with alarm condition.
- **Critical Alarms**
Lists all alarms with critical alarm condition.
Critical alarms are important alarms, like high temp.
- **Non-Critical Alarms**
Lists all non-critical alarm condition.
These alarms are more information, like power failure.

For example, in the alarm buffer you can read:

15:52	SAFETY_FCT
15:51	SAFETY_Speed
15:41	SAFETY_Speed
15:40	SAFETY_FCT

Note that the alarms are listed with the latest at the top.

Press a line to see more information about the alarm.

Displayed	Meaning
19-06-2012 15:52 SAFETY_FCT On Auto operation	The safety function has been set to auto mode, stopping the safety function at 15h52.
19-06-2012 15:51 SAFETY_Speed 100% Auto operation	The safety speed has been set in Auto mode at 100% at 15h51.
19-06-2012 15:41 SAFETY_Speed 75% Manual operation	The speed pump has been set manually to 75% at 15h41.
19-06-2012 15:40 SAFETY_FCT On Manual Operation	The safety function has been activated manually the 19th of June 2012 at 15h40.

12 Parameters' list

There are more than 100 different parameters used in the controller. Most of them are used for internal programs and calculations. Here we describe the main points.



Name	Description	Unit	Modbus Address*
Therm_Protec P1	Ipsothermic input from P1 pump	0/1	11
Therm_Protec P3	Ipsothermic input from P3 pump	0/1	13
PD_Cmd_P1	P1 command. It is the pump Start/Stop output	On/Off	15
PD_Cmd_P3	P3 command. It is the pump Start/Stop output	On/Off	17
PriP1_Alarm_On	Primary pump 1 default	0/1	19
PriP2_Alarm_On	Primary pump 2 default	0/1	20
Sec_P3_Fault	Secondary pump3 default	0/1	25
PDMain_Alarm	General Alarm	0/1	28
High_Temp_Alarm	High temperature alarm on S1 sensor	0/1	29
Fouling_Alarm	Fouling heat exchanger Alarm	0/1	30
Ret_High_Alarm	High temperature alarm on S2	0/1	31
ThermTr_Alarm	Thermal treatment failed	0/1	32
SAFETY_FCT	The safety function state	0/1	35
Disp_Leg_active	Thermal treatment running	0/1	36
Remote_Control	The unit is remotely controlled	0/1	37
ECOMode	ECO function activated	0/1	42
Tank_load	Tank loaded (sensor S2 need to be connected)	0/1	44
PA10_valve1	Primary valve actuator	0-100%	47
S1_10	Secondary Outlet temperature measurement (S1 sensor)	°C	50
S2_10	Secondary Inlet temperature measurement (S2 sensor if present)	°C	51
S3_10	Primary Outlet temperature measurement (S3 sensor if present)	°C	52
S1_PID_SP_10	Current temperature set point of the main control loop on S1	°C	62
High_Alm_Reset	To Reset an high temperature alarm	On/Off	201
Pump_Fault_Reset	Resets a pump fault	On/Off	202
SP_T_Sec_Outlet	Domestic Hot Water Setpoint (S1)	°C	211
ThTr_Setpoint	Thermal treatment temperature set point	°C	213
PD_Triac_Output	230V Triac output state.	On/off	33

* Please refer to [14 Modbus](#).

13 Factory reset



After a reset must the controller be configured,
see [9.3 Configuration menu](#).
Especially the number of pumps must be configured.

1. Press both  and  for 5 seconds.
2. Rotate the wheel; select the last line, program name with a star at the end.
3. Press the wheel a few seconds and the program will start after 1 minute.

Settings are now factory settings.

Note that on some software versions, the displayed language can be changed.

1. Rotate the wheel clockwise to display all available languages.
2. Select and press the wheel.
3. Select *Factory* line and press the wheel, the controller will restart.

NOTE: If another line is available, it contains previous set parameters and function before Reset was done. You can then recover all the parameters.

```
15-10-2012      13:41
Wiring Check
C-Bus:          ☒
CTR#   1        19200
AL 09 2ST 12-10-12 *
```

```
02/07/2013      15:27
Alfa Laval Startup
C-Bus config:    ☒
CTR#   2        38400
Select Language:
English (1)
French
```

14 Modbus

14.1 Modbus communication

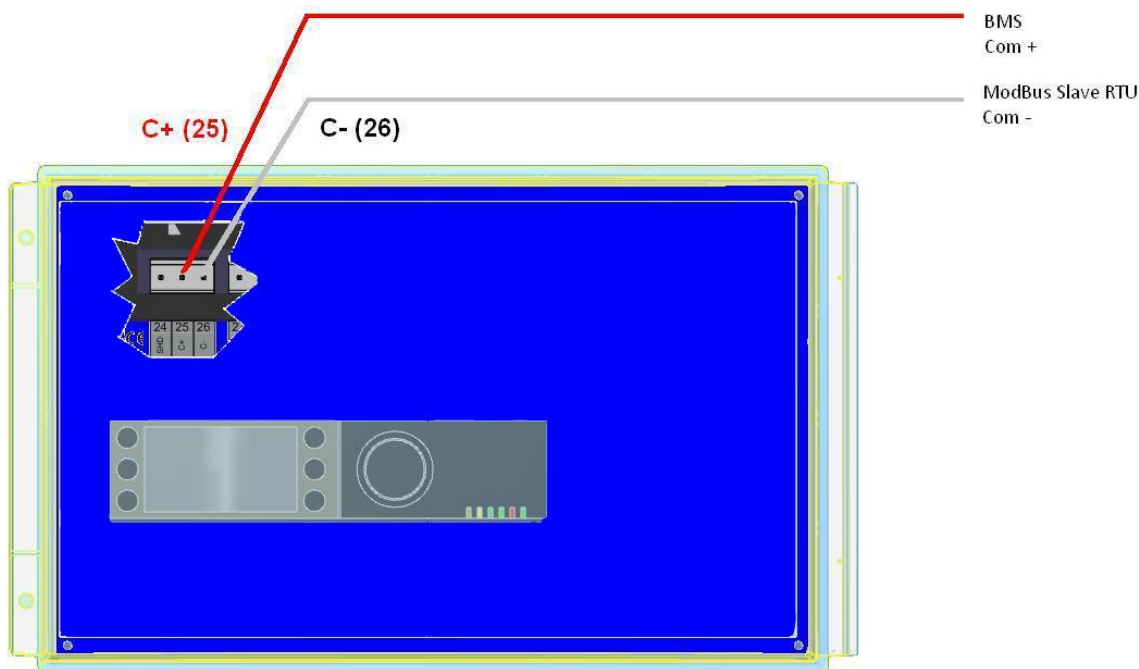
The controller includes a Modbus slave communication protocol, type Modbus RTU RS485.

Connection between BMS (building management system) and Micro 3000 requires two polarized wires on C+ and C-, respectively labelled 25 and 26 on controller C Bus terminal.



The connection via shielded cable is not required but can be performed with the terminal 24.

For this, it is necessary to unscrew the front panel.



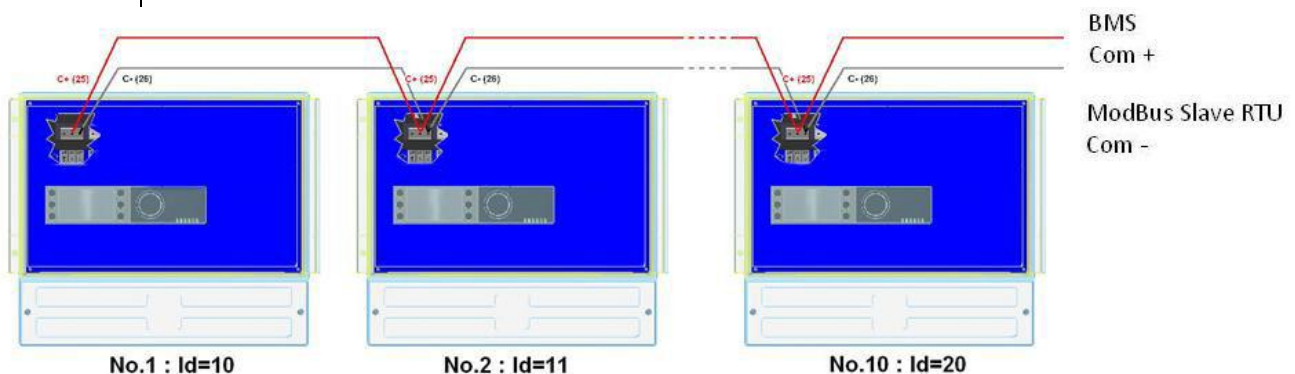
14.2 Connecting multiple Micro 3000 control boxes




Rules to respect

Max length between BMS and farer control box is 500 meters

Connection (C+ and C-) has to be done directly on the controller C Bus terminal, without using derivation boxes. Respecting this, there are two wires per terminal, except the farer control box.



14.3 Change Modbus parameters

1. Press  key to access to Service Menu, go to "Login Installer", press the wheel.
2. Enter the current password, press the wheel to validate.
3. Mark "Next" then press the wheel.
4. Select "Interface Config".
5. Select "Modbus".
6. Select the variable to change
Press the wheel to validate.
 - Device ID = Modbus Address of the controller
 - Baud Rate=Com speed
 - Parity = None (0) / Even /Odd
 - No of Stop Bits= 0/1

```
Service Menue
Continue
Login Installer
```

```
Enter your Password
****
Next
Change Password
```

```
Service
Operating Hours
Trending
Interface Config
Time Program
```

```
Interface Config
Append bus number to
data point name ☒
RF Teach-in
Modbus
```

```
Modbus Communication
Device ID: 10
Baud Rate: 9600
Parity: NONE
No. Stop Bits: 1
```

14.4 Modbus slave communication parameters

MODBUS PARAMETERS	Speed:	9600
	Bit number:*	8
	Stop bit:	1
	Parity:	None
	Mode:	RTU

In case of multiple controllers, change ModBus slave number

ModBus Points	MODBUS adress**	Type	Sub-type	Mode	Value	Comment
---------------	--------------------	------	----------	------	-------	---------

Read Only digital						
PD Cmd P1	15	HR 16	BOOL	R	0=Off, 1=On	Command P1
PD Cmd P3	17	HR 16	BOOL	R	0=Off, 1=On	Command P3
PriP1 Alarm On	19	HR 16	BOOL	R	0=OK, 1=Alarm	P1 Fault
PriP2 Alarm On	20	HR 16	BOOL	R	0=OK, 1=Alarm	P2 Fault
SecP3 Alarm On	23	HR 16	BOOL	R	0=OK, 1=Alarm	P3 Fault
PD High Alarm	27	HR 16	BOOL	R	0=OK, 1=Alarm	S1 High Temp Alarm
PDMain Alarm	28	HR 16	BOOL	R	0=OK, 1=Alarm	General default
Fooling Alarm	30	HR 16	BOOL	R	0=OK, 1=Alarm	Fooling alarm (S3)
ThermTr Alarm	32	HR 16	BOOL	R	0=OK, 1=Alarm	Therm.Treat. Failed
PD Triac Output	33	HR 16	BOOL	R	0=Off, 1=On	230V Triac output
SAFETY FCT	35	HR 16	BOOL	R	0=Off, 1=On	Safety function
Disp Leq active	36	HR 16	BOOL	R	0=Off, 1=On	Therm.Treat. On going
Remote Control R	37	HR 16	BOOL	R	0=Off, 1=On	Remote control
AFF FD20	39	HR 16	BOOL	R	0=Off, 1=On	Heating mode
AFF FD22	40	HR 16	BOOL	R	0=Off, 1=On	Cooling mode
EcoMode	42	HR 16	BOOL	R	0=Off, 1=On	ECO activated
PD Pumps Fault	43	HR 16	BOOL	R	0=Off, 1=On	Synthesis pump(s) fault
Tank load	44	HR 16	BOOL	R	0=Off, 1=On	Tank loaded
(16 bit integer/Entier 16 bit)*						

Read Only Analogic						
SW AL Version	34	HR 16	int16	R		Software version
PA10 valve1	47	HR 16	int16	R	%	Control vlave 1 signal
S1 10	50	HR 16	int16	R	°C	Sensor 1 measurement
S2 10	51	HR 16	int16	R	°C	Sensor 2 measurement
S3 10	52	HR 16	int16	R	°C	Sensor 3 measurement
S1 PID SP 10	62	HR 16	int16	R	°C	Calculated S1 setpoint
(16 bit integer/Entier 16 bit)*						

Read-Write digital						
High Alm Reset	201	HR 16	BOOL	R/W	1=Reset fault. Pulse point necessary 30 seconds On/Off	
Pump fault Reset	202	HR 16	BOOL	R/W	1=Reset fault. Pulse point necessary 30 seconds On/Off	
(16 bit integer/Entier 16 bit)*						

Read-Write Analogic						
SP T Sec Outlet	211	HR 16	int16	R/W	°C	S1 fixed setpoint (DHW)
ThTr setpoint	213	HR 16	int16	R/W	°C	Thermal treatment setpoint
(16 bit integer/Entier 16 bit)*						

* For some supervisors, it is necessary to implement BOOL as int16

** For some supervisors, remove 1 to adress number (ex : S1 10 adress=49)

*** If present

15 Trouble shooting

FINDINGS	PROBABLE CAUSES	REMEDIES
Pump not operating	Locked rotor or damaged	Force to rotate. Replace if required
	Corresponding led is not lit	Replace Power Board
	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	Contact After Sales Service
Low temp alarm condition	Primary pump stopped	See "Pump 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 3 way valve remains closed	See "The actuator does not operate"
The actuator 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 then replace if necessary
	Supply wires improperly tightened	Check wires, re-tighten connections
	Actuator stroke restricted	Dismount then clean the valve
High alarm condition detected	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
	Actuator not closing	Refer to "The actuator does not operate" above
	Too much differential of pressure across the actuator	Check the way the TWM is piped-up. A mixing bottle 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
	Shut-off valves closed	Open shut-off valves
	Air presence in the primary circuit	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 tank 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 (FR =Flow Rate)

16 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 [16.1 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.

16.1 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.

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.

16.2 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.

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

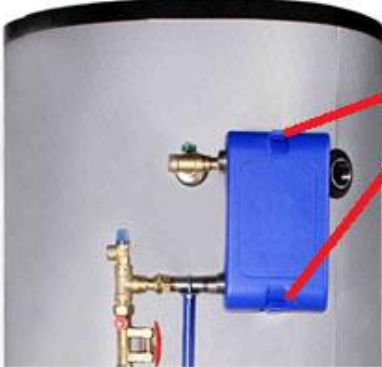


Only the specially designed, pre-fitted cleaning kit and compatible agents should be used for cleaning fusion-bonded or soldered plate heat exchangers.



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.



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.

16.4 Open the control box

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



Unscrew the two screws in bottom and lift up the panel.

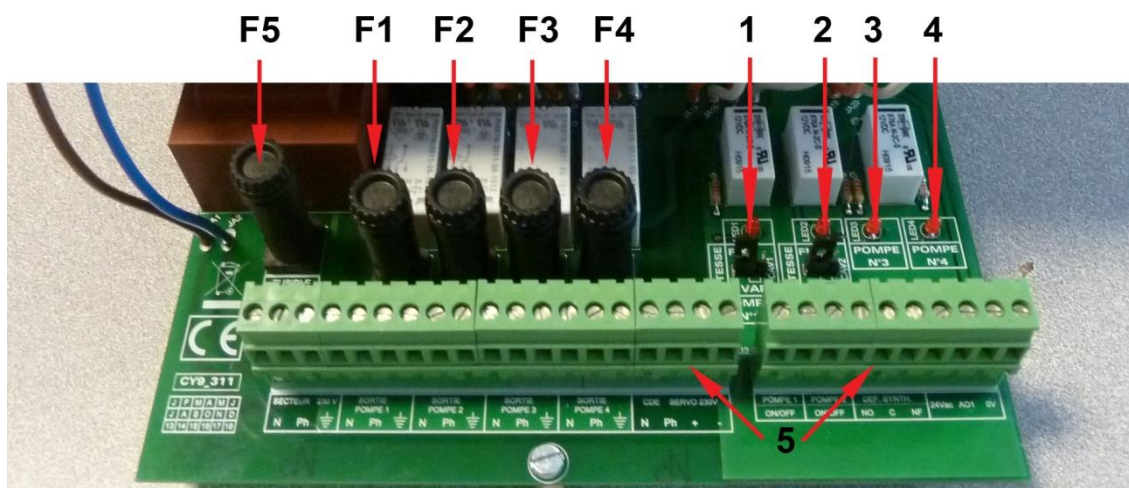


16.5 Change fuses

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.



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



F5 Fuse F5
F1 Fuse F1
F2 Fuse F2
F3 Fuse F3
F4 Fuse F4

1 Led 1, lit when pump P1 is power supplied
2 Led 2, lit when pump P2 is power supplied
3 Led 3, lit when pump P3 is power supplied
4 Led 4, lit when pump P4 is power supplied
5 Terminal block

For technical information about the fuses, see [5.4 Current limiting fuses](#).

16.6 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)
2PE kit	1 charging pump	P3
3PE kit	1 primary pump + 1 charging pump	P1+P3

16.7 Add an extra sensor

Please see [6.2 Electrical wiring diagram, option 2PE](#) and [6.3 Electrical wiring diagram, option 3PE](#).

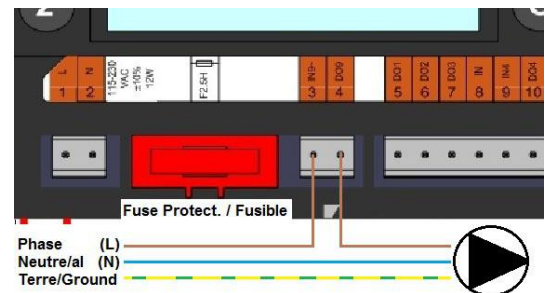
S1-S3 are temperature sensors, NTC20k.

16.8 Connect to 230V Triac output

The 230V electrical output can be configured as a pulse function. For example it can be used to shortly activate an electrical drain valve.

In this configuration, the pulse duration can be programmed to be active a day, week or special day.
For example each Sunday at 10h00 for 5 seconds.

See [9.9 230V Triac menu](#).



Connected device must not exceed 230VAC 1A.

16.9 Add relay 1 and relay 2

Relay 1 can be NO (normally open) or NC (normally closed). Relay 2 is always NO (normally open).

Connect the relay 1:

Operating mode	Connections on PCB bottom terminal
NO	C-NO (25-24)
NC	C-NF (25-26)

Connect relay 2 to the controller terminal 13(IN6) and 14 (OUT6).

See [6.2 Electrical wiring diagram, option 2PE](#) and [6.3 Electrical wiring diagram, option 3PE](#).



If using 230V phase through this contact, do not exceed 2A load.

16.10 Add a remote control contact

The AquaCompact can be operated by a remote controller. To enable that connect a volt free contact between BI1 and GND.

Wire terminal name	Wire terminal number
BI1	33
GND	31 or 37



NOTE: When the contact is open, the unit operates normally. If it is closed the unit is in standby (mode) but the controller display remains activated.

DO NOT power supply this contact! It is a volt free contact.

See [6.2 Electrical wiring diagram, option 2PE](#) and [6.3 Electrical wiring diagram, option 3PE](#).

17 Assembly of the charging kit to the Aquatank

NOTE: The photos are non-binding – changes are liable to be 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.



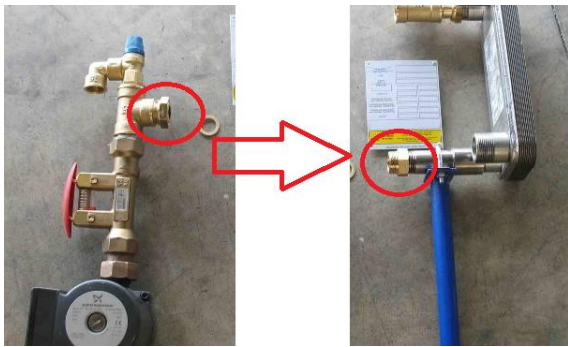
7. Then place the locking ring on the support coil.



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 side.** 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.

Cetetherm AquaCompact
Installation, service and operating instruction



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 [18 Flowchart](#).

17.1 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 up the top-section hose:

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

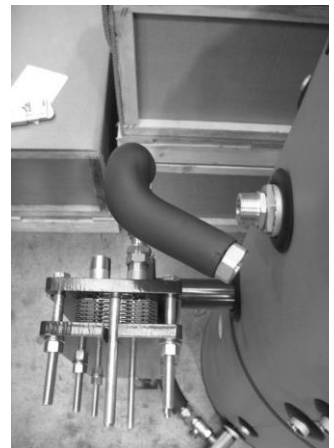
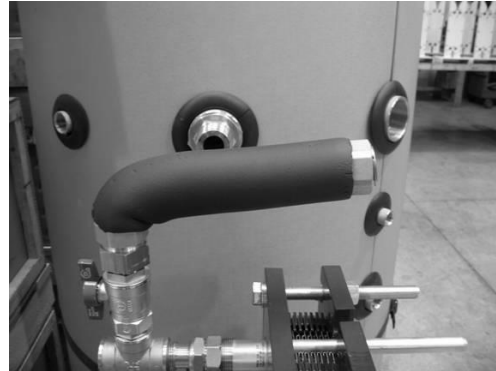
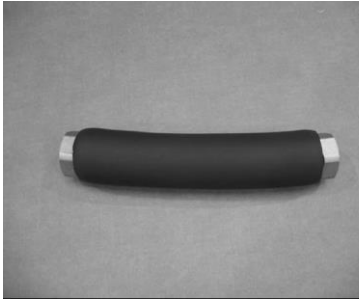


Final assembling

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

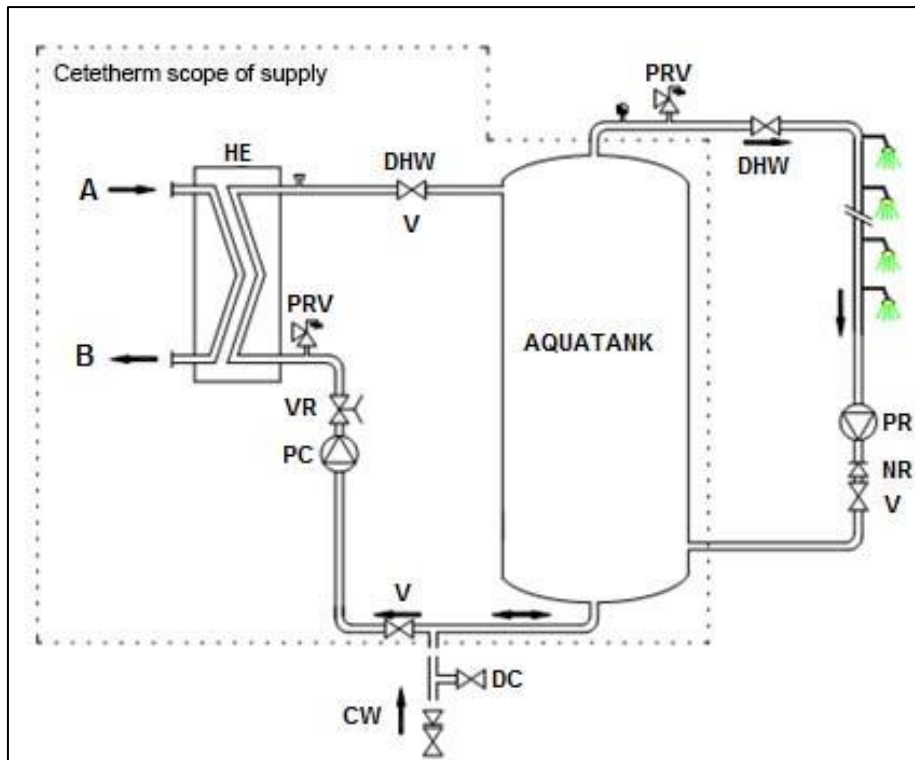


17.2 Mounting the flexible hose onto the tank



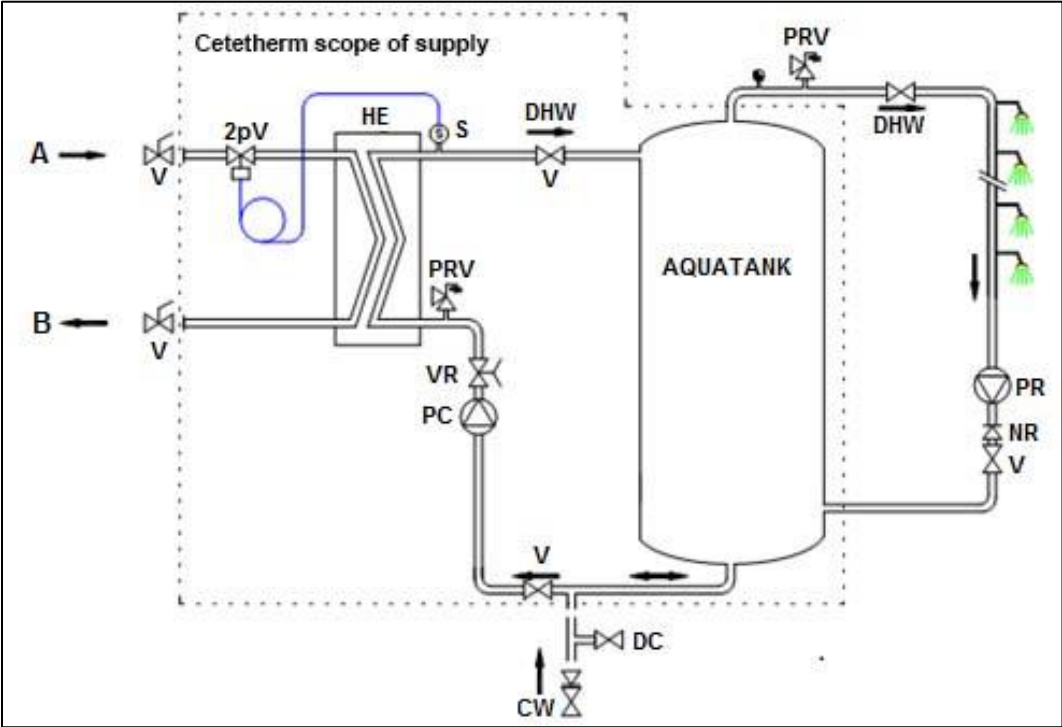
18 Flowcharts

18.1 Flowchart AquaCompact



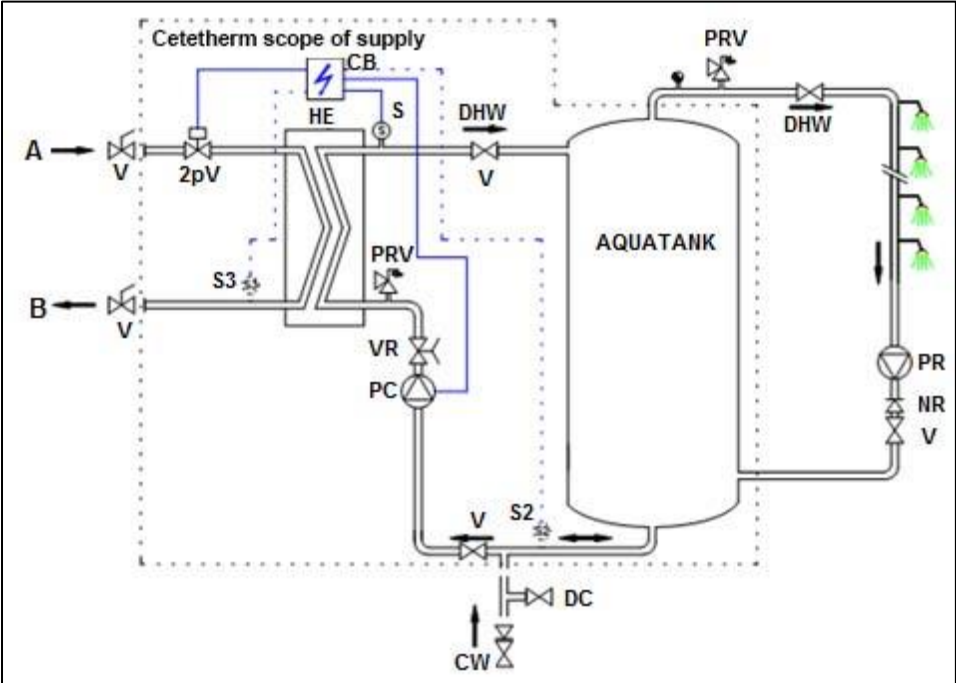
ID.	NAME	ID.	NAME
A	Primary supply	VR	Balancing valve
B	Primary return	PC	Charging pump (secondary)
HE	Heat Exchanger	PR	DHWC pump (recirculation pump)
V	Shut-off valves	NR	Non Return Valve
PRV	Safety valve	DHW	Domestic Hot water
DC	Drain valve	CW	Cold Water

18.2 Flowchart AquaCompact with primary kit 2PSA



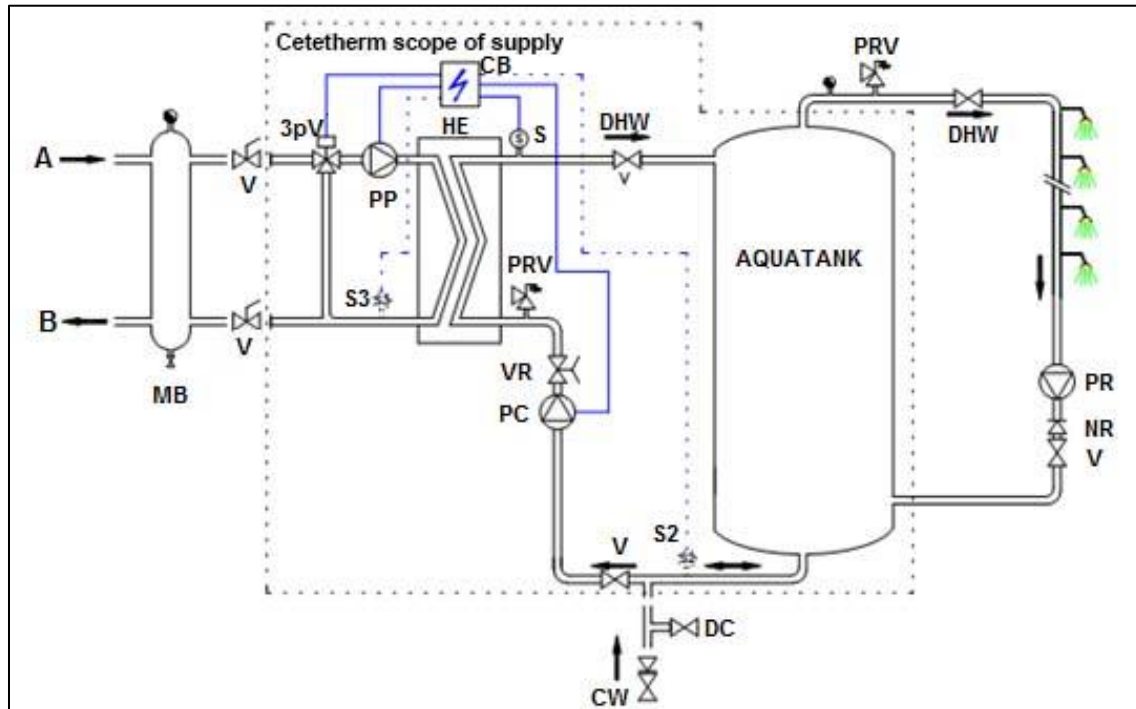
ID.	Name	ID.	Name
S	Immersion temperature sensor	V2p	2-port control valve with self-acting actuator

18.3 Flowchart AquaCompact with primary kit 2PE



ID.	Name	ID.	Name
S	Immersion temperature sensor	CB	Control box
V2p	2-port control valve with actuator	S3	Temperature sensor
S2	CIP sensor		

18.4 Flowchart AquaCompact with primary kit 3PE



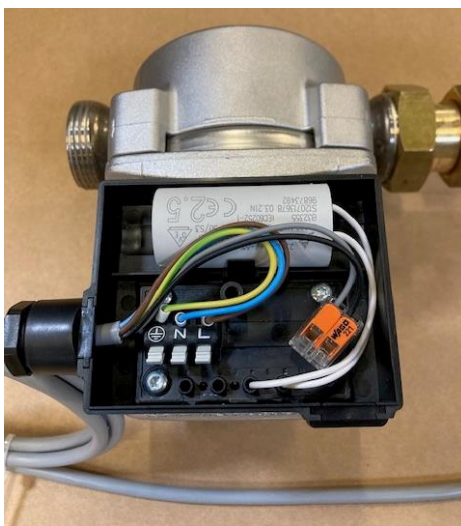
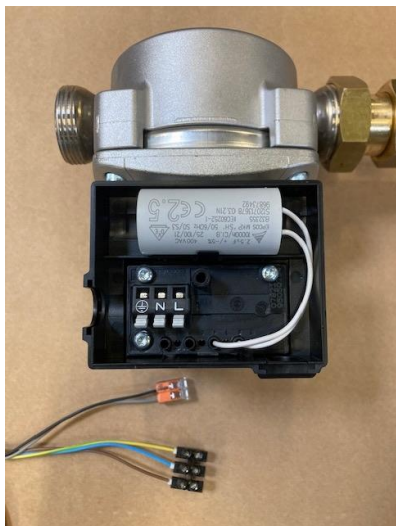
ID.	Name	ID.	Name
S	Immersion temperature sensor	V(cv)	Closing valve (primary side valves)
S2	CIP sensor	V3p	3-port control valve with actuator
CB	Control box	PP	Primary pump
S3	Temperature sensor	MB	Mixing bottle

19 Wiring the charging pump

Note: The charging pump has not been wired previous to delivery.
The five wires cable connected to the control box that must be wire 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 UP20-45N :



With UPS32-80N:



20 Special instructions for options

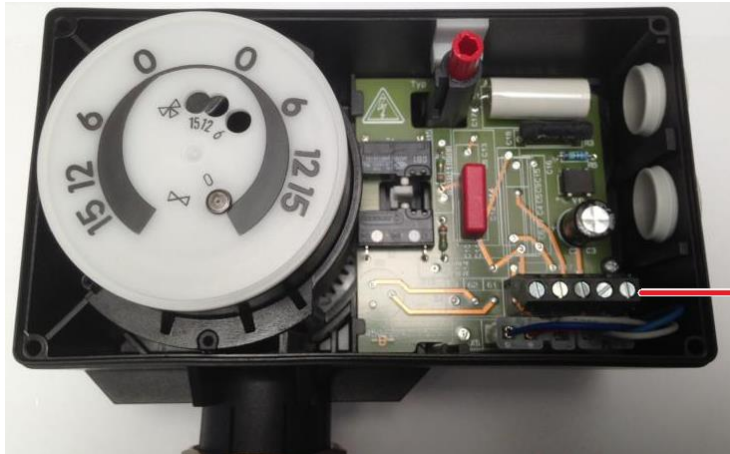
20.1 Special instructions for 2PSA primary kits

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.

20.2 Special instructions for 2PE primary kit

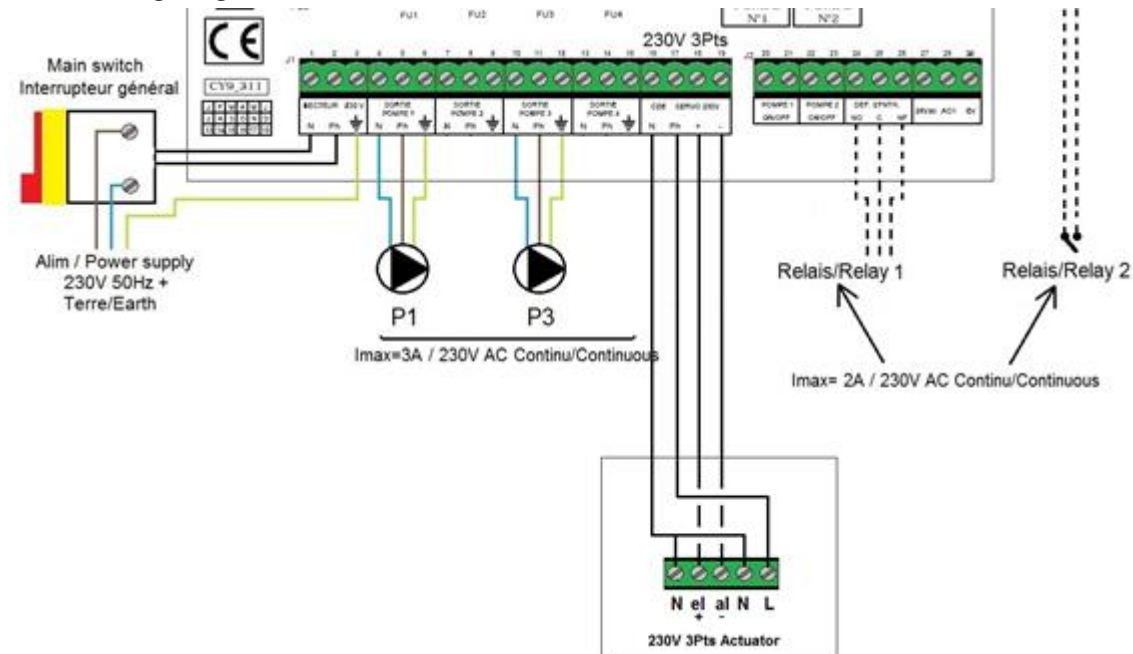
The actuator has been factory-calibrated. No special setting is needed.

20.2.1 Electrical wiring



Wire terminal

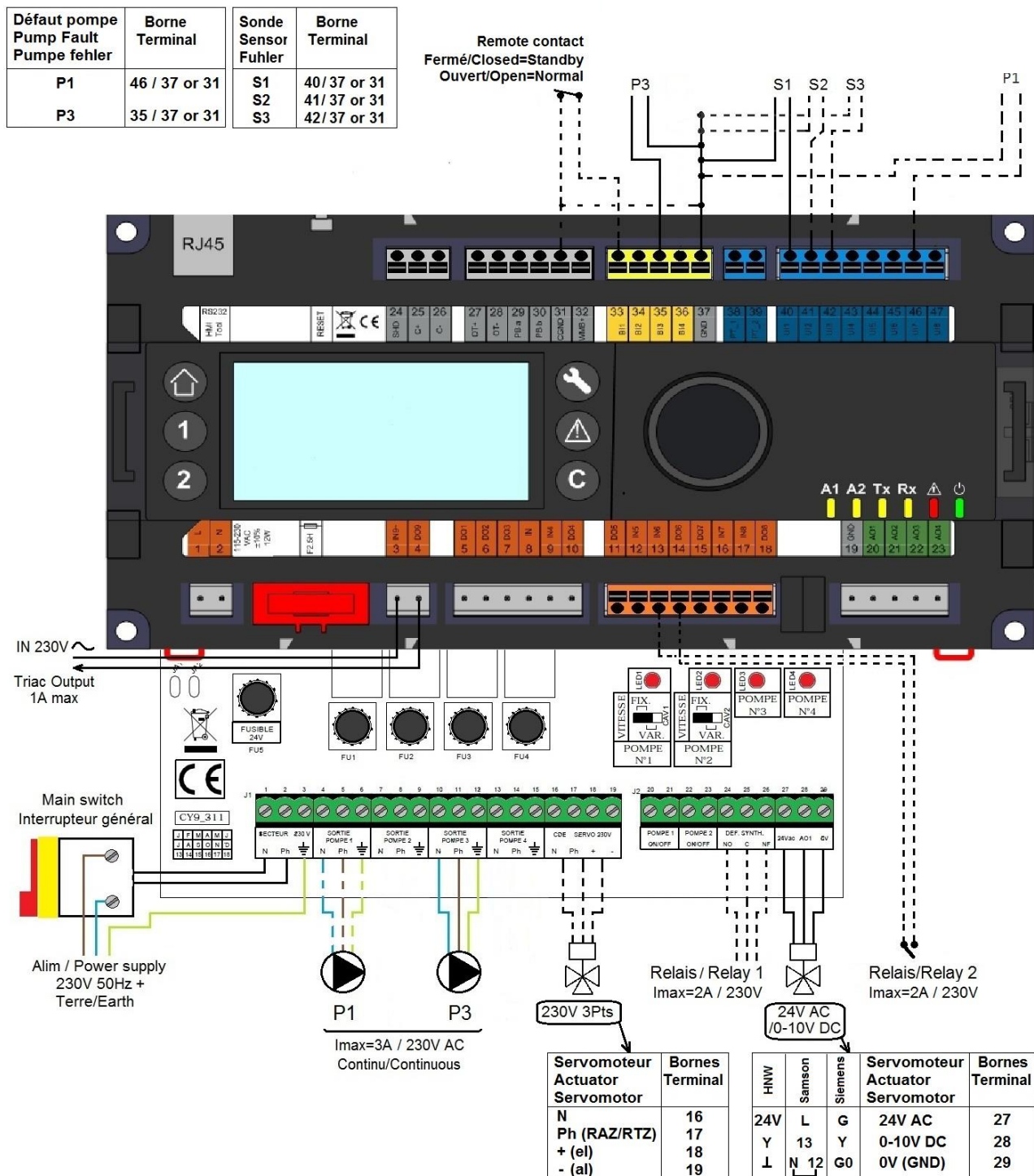
20.2.2 Wiring diagram



20.3 Special instructions for 3PE Primary kit

On this kit, primary pump P1 is present and wired.

20.3.1 Wiring diagram (also available for 2PE kit)



21 Commissioning report

All parts are not applicable to the AquaCompact.

COMMISSIONING 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

22 Declaration of Conformity

PED 2014/68/EU art 4.3, LVD, EMC, RoHS

Declaration of Conformity
Déclaration de conformité
Konformitätserklärung



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

- * Heat exchanger unit, District heating System, for heating and/or Domestic Hot Water
- * Échangeur 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
Cetetherm AquaCompact	Honeywell/ Grundfos

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 2014/68/EU (Richtlijn Drukapparatuur)

Used directives/ Directives utilisées/ Angewendete Direktiv/ Gebruikte richtlijnen
– PED 2014/68/EU
– LVD 2014/35/EU
– EMC 2014/30/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/ EN 60335-1 teilweise
– EN 60204-1 partly/ EN 60204-1 en partie/ EN 60204-1 teilweise

Conformity Assessment procedure:
Procédure d'évaluation de conformité :
Konformitätsbewertungsverfahren:
Conformiteitsbeoordelingsprocedure:

Sound Engineering practice
Règles de l'art
Gute Ingenieurpraxis
Regels van goed vakmanschap

Pontcharra sur Turdine, 01-06-2018
Matthieu Perrin
Product manager/ Responsable de la conformité/ Bevollmächtigter/ Verantwoordelijke voor conformiteit

23 Warranty

Our equipment comes with a 12-month warranty from the date of shipment. This may be extended to 6 months from the date of commissioning of the equipment, subject to commissioning report being mailed to Cetetherm. The warranty period is limited to 18 months from the actual date of shipment from the factory.

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.

23.1 Spare parts

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

23.2 How to contact Cetetherm

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

