

Installation, service and operating instruction Cetetherm AquaGenius

Domestic hot water supply





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1 AquaGenius general presentation

Cetetherm AquaGenius is a compact tap water system product including a heat exchanger, motorised control valve and managed primary and secondary pumps, as per versions.

It is equipped with a control box including a dedicated PCB and communicant temperature controller. Piping is made of specially designed brass parts sealed by flat gaskets for easy maintenance.

AquaGenius has been tested hydraulically and electrically at the factory.

The AquaGenius must be connected to a primary heating source, like a boiler or a heat exchanger. The secondary side is connected to cold water inlet and to domestic hot water network, see flowcharts for more details.

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

PRODUCT RANGE :

VERSIONS CB / CB VERSIONS

				8	82 - / 10-60				80 - / 10-60				70 - / 10-6	0			65 - / 10-6	0
Modèle	Np	QI	P Inst.	P S.I.	QII Inst/S.I.	∆P max II	PI	nst. PS.	I. QII Inst/S.I.	∆P max II	1	P I/SI	QII Inst/S.I.	∆P max II		P I/SI	QII Inst/S.I.	∆P max II
Model		(m3/hr)	(k)	V)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)
FIB20	20	2,4	150	150	2,6	4,9	1	40 140	2,4	4,3		105	1,8	2,5		80	1,4	1,5
FIB40	40	3,7	245	245	4,2	3,3	2	40 240	4,1	3,3		180	3,1	1,9		140	2,4	1,2
FIB50	50	5,7	375	345	6.4 / 5.9	5	3	50 350	6,0	4,3		270	4,6	2,7		215	3,7	1,8
FIB60	60	6,1	410	370	7.1/6.3	4,5	4	20 🖂	6,9	4,3	J	300	5,2	2,5	J	235	4,0	1,6
											_							
				8	32 - / 10-55				80 - / 10-55				70 - / 10-5	5			65 - / 10-5	5
Modèle	Np	QI	P Inst.	P S.I.	QII Inst/S.I.	∆P max II	PI	nst. PS.	I. QII Inst/S.I.	∆P max II		P I/SI	QII Inst/S.I.	∆P max II		P I/SI	QII Inst/S.I.	∆P max II
Model		(m3/hr)	(k)	V)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)
FIB20	20	2,4	140	140	2,7	5,2	1	40 140	2,7	5,2		115	2,2	3,6		100	1,9	2,8
FIB40	40	3,8	260	260	5,0	4,5	2	50 250	4,8	4,2		200	3,8	2,8		170	3,2	2,1
FIB50	50	5,7	350	310	6.7 / 5.9	5,3	3	50 310	6.7/5.9	5,3		300	5,7	4		250	4,8	2,9
FIB60	60	6	400	340	7.6 / 6.5	5,2	4	00 340	7.6/6.5	5,2		330	6,3	3,6		280	5,4	2,7
VERSION	IS FB	/ FB VE		IS 8	32 - / 10-60				80 - / 10-60	1	I		70 - / 10-6	0			65 - / 10-6	0
Modèle	Np	QI	P Inst.	P S.I.	QII Inst/S.I.	∆P max II	PI	nst. PS.	I. QII Inst/S.I.	∆P max II		P I/SI	QII Inst/S.I.	∆P max II		P I/SI	QII Inst/S.I.	∆P max II
Model		(m3/hr)	(k)	V)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)
FIN20	20	1,9	120	120	2,1	3,80		115	2,0	3,5		90	1,5	2,2		65	1,1	1,2
FIN40	40	3,2	220	220	3,8	3,50		205	3,5	2,9		160	2,8	1,8		130	2,2	1,2
FIN50	50	5,1	340	320	5.9 / 5.5	5,10		320	5,5	4,5		250	4,3	2,8		200	3,4	1,7
FIN60	60	5,6	380	360	6.6 / 6.2	5		355	6,1	4,1		280	4,8	2,5		225	3,9	1,6
82 - / 10-55						80 - / 10-55			1		70 - / 10-5	5	65 - / 10-55			5		
Modèle	Np	Q	P Inst.	P S.I.	Oll Inst/S.I.	AP max II	PI	nst. P S.	I. Oll Inst/S.I.	AP max II	1	P I/SI	QII Inst/S.I.	AP max II	1	P I/SI	QII Inst/S.I.	AP max II

Modèle	Np	QI	P Inst.	P S.I.	QII Inst/S.I.	∆P max II	P Inst.	P S.I.	QII Inst/S.I.	∆P max II	1	P I/SI	QII Inst/S.I.	∆P max II	P I/SI	QII Inst/S.I.	∆P max II
Model		(m3/hr)	(kV	V)	(m3/hr)	(mCE)	(k)	W)	(m3/hr)	(mCE)		(kW)	(m3/hr)	(mCE)	(kW)	(m3/hr)	(mCE)
FIN20	20	1,9	125	125	2,4	5,2	120	120	2,3	4,7]	100	1,9	3,3	75	1,4	1,9
FIN40	40	3,2	230	230	4,4	4,7	220	220	4,2	4,1		175	3,3	2,6	150	2,9	1,9
FIN50	50	5,1	300	280	6.7 / 5.9	5,3	310	290	6.7 / 5.9	5,2		270	5,2	4	220	4,2	2,7
FIN60	60	5,6	350	310	7.6 / 6.5	5,2	360	340	7.6 / 6.5	5		300	5,7	3,5	260	5,0	2,7
	-																

Available pressure on primary side : at least 5 kPa on all models. This pressure results from the difference between the primary pump head and all the pressure drops (heat exchanger, control valve and piping).

If pressure drop between AquaGenius and heating source is higher than 5 kPa, use either a transfer pump of the same flow rate as primary pump or a mixing bottle. Please refer to flowcharts in this manual.



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1.1 Product overview AquaGenius



Designation

Control box with Micro 3000 controller

Valve actuator

Secondary charging pump (DD version only) S1 Temperature sensor

Single or Double primary pump (as per version) Secondary charging pump (SS,DS,DD versions) Safety valve

3 port mixing control valve

Copper brazed or 100% stainless steel heat exchanger with insulation

Picture 1

2 Operating principle

- The primary water enters the 3-port modulating valve (1) and leaves through the fitting (2).
- Cold water enters at bottom part (3) and leaves at the required temperature at high part (4).
- The secondary circuit should be equipped with a recirculation or a charging pump,
- Modules suitable for 230V 1 phase / 50 Hz + Earth,
- Make sure power supply in the field corresponds to the above voltage,
- A fuse protection should be provided on site.
- Relays: Volt Free Contacts (VFCs), 2 Amps maxi, each under 230 V.



3 Installation



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

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



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

Maximum pressure/temperature on primary side :10 bar /110°C

Maximum pressure on secondary side: 10 bar/ 100°C

3.1 Unpacking/Preparation/Mounting

- Rinse the pipes, before connecting them to the tap water module.
 Pipe works may contain solid particles that could block or prevent the modulating valve to operate correctly.
- Pipe the primary and the secondary of the module.
- Fill-up both sides progressively with water.
- Purge air at high parts.
- Purge all the pump bodies.
- Switch the power on.
- Check controller setting and enable the required functions.

3.2 Commissioning

Before installation this manual must be read.

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

Fill out the form in chapter 15 Commissioning report.



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3.3 Installation of an AquaGenius Direct (Instantaneous) units

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



Picture 6

3.4 Installation of an AquaGenius Indirect (Semi-Instantaneous) unit



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

Protect the storage tank by installing the added safety valve. Pressure gage=tank MAX working pressure and can be different from tap water module's safety valve pressure gauge. The safety valve protects the storage vessel and not the tap water system. Secondary charging pumps have the following limitations as per water quality:

pH 6 to 9 and TH<25 French degrees (25°TH) or 14 German degrees (14°dH).



Picture /

REP DESIGNATION

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

REP DESIGNATION

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



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3.5 Measure sketch AquaGenius ID (Instantaneous Double)*







3.6 Measure sketch AquaGenius DS Semi-Instantaneous version*



Picture 9

* Single or Double primary pump. Shown version on drawing is with double primary pump.



← G 1"1/4

→ Rp 1"1/4

312

452



3.7 Measure sketch AquaGenius DD Semi-Instantaneous version



Picture 10



4 Electrical installation



Power supply the control box with 230V 50 Hz + Earth, using electric protection in the main electric power box. Micro 3000 box is a secondary electrical control box. Human protections and protection against short circuits and over intensity must be installed in the main electric box.

4.1 Regulator Components



Picture 11

- 1 Controller, Micro 3000
- 2 Main switch

- 3 Power Supply
- 4 Printed Circuit Board



4.2 Electrical wiring diagram

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



Picture 12



Earth or Ground wiring on the PCB IS MANDATORY. It must be connected to terminal No.3. Remote contact:

If contact closed, the unit is in standby mode. If contact open, the unit is operating normally.



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4.3 Wiring details

4.3.1 Power terminal on PCB

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ν	Ph	⊥	Ν	Ph	⊥	Ν	Ph	⊥	Ν	Ph	⊥	Ν	Ph	⊥
23	230V Main Pump 1		Pump 2			F	ump	3	Pump 4					
Power supply		(Primary)			(Primary)			(Secondary)			(Secondary)			

Control box power supply: 230V 50Hz + Ground terminals 1,2 and 3. Terminals 4 to 15 are dedicated to P1, P2, P3, P4 230V power supply.



Do not exceed 3A per pump.

4.3.2 230V 3 points actuator terminals on PCB

16	17	18	19			
Ν	Ph	+	-			
230V 3 points actuator						

Opening of the actuator is made sending 230V pulses between terminals 16 (N) and 18 (+). Closing of the actuator is made sending 230V pulses between terminals 16 (N) and 19 (-).

Terminal 17 (permanent Phase) can be used with return to zero (RTZ) actuators.



3 points 230V and 0-10V signals (or pulses) are sent continuously even if they are not wired.

4.3.3 Low voltage outputs on PCB

20	21	22	23	24	25	26	27	28	29
0V	S/S	0V	S/S	NO	С	NC	24Vac	AO1 (0-10V)	0V
Pump 1 Pump 2		Rela	y 1 co	ntact	0-10V DC actuator, 24V AC 5VA power				
Start / Stop Start / Stop		NO or NC to			supplied				
N/A		N/	Ά	(choose	Э	0V is c	ommon on both	signals

4.3.4 Low voltage inputs (contacts / Sensors) on controller

31	33	35	36	37	40	41	42	46	47	
GND	Bi1	lpso	lpso	GND	UI1	UI2	UI3	lpso	lpso	
		P3	P4		S1	S2	S 3	P1	P2	
	Remote	Seco	Secondary		Tei	mperat	ure	Secondary		
Common	Common Contact* pump(s) defau) default Common		s	ensor(s)	pump(s) default		
		input co	ntact(s)*		i	nput(s)	*	input contact(s)*		



*For each of these inputs / outputs, the second wire must be connected to the common terminal 37 or 31 as per available space.

There is no polarity on all contacts and temperature sensors.



Temperature sensors' inputs except S1 are already wired. To add a temperature sensor, remove existing wire from the terminal and isolate its end. Connect the sensor's wire instead and its second wire to common terminal, 31 or 37.



5 User instruction operator control panel Micro 3000

Wheel/Button



Picture 13	
Button	Function
	Rotary button 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.
C	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.
1	Not used
2	Not used
A1	Relay 1 activated. By default set to General Default. The parameter is set in the Configuration menu.
A2	Relay 2 activated. By by default set to High temp Alarm. The parameter is set in the Configuration menu.
Tx	Active data transmission
Rx	Active data reception
A	Alarm indicator
ර	The Control box is switched on.

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5.1 Home screen

When starting up the Micro 3000 controller the Home Screen menu displays on the screen.



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

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.

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

5.2 **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

and edited.

Datapoint value can be overridden for a particular time period within the next 24 hours.

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

Datapoint must have a daily time program assigned. **Time Program**

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



Add

Edit

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



5.3 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.
- 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).





Date / Ti	me
Date:	18-09-2012
Time:	16:49
Format:	31-12-2009
Daylight	Saving Time

Date / Ti	ime
Date:	18-09-2012
Time:	16:55
Format:	31-12-2009
Daylight	Saving Time

Date / Ti	me
Date:	18-09-2012
Time:	16:56
Format:	31-12-2009
Daylight	Saving Time

Dayligh	nt :	Saving	Time
Sunday	of	month	
Begin:		Last	t Mar
End:		Last	t Oct

5.4 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

5.5 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.

5.6 Saving changes

Once a value has been changed and confirmed by pressing the wheel, the corresponding change will be immediately updated.

Press the ^O or ^O to return to the home screen.



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6 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
- One time temperature change at a specific time.

6.1 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.

6.2 Time programs

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

Time programs:

- SP_T_Sec_Outlet, to be found in the menu <u>S1 Menu Secondary Outlet</u>. It is to set the DHW temperature
- ThTr_Activated to be found in <u>Thermal Treatment Menu</u>, to activate a thermal treatment (1 sensor mode).
- Multi_P to be found in 230V Triac menu, to activate the 230V power output on the controller

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

Define for each day of the week which mode to use.

By default has the weekend-temperature mode the same settings as the week-temperature mode. It is even possible to customize the temperature programs with special dates (holidays periods or free days).

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



6.3 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.





Week				
06:00	SP	Т	Sec	60.0
22:00	SP	Т	Sec	60.0

Week				타
06:00	SP	Т	Sec	60.0
22:00	SP	Т	Sec	60.0







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 ^C.

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.

6.3.1 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.



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6.4 Making a Quick temperature change

You can 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, mark the hourglass icon and choose it, by pressing the wheel.



2. Define the starting and ending time, and the temperature set point value.

SP	T	S	ec		Outlet		ì
11	: 4	7	t	0	1	2 :	30
Val	ue	:			55.	0°	С



7 Technician menu, total read and write level

In the technician menu you can:

- make settings for the secondary outlet temperature
- enable/disable functions like Eco, booster, thermal treatment
- enable/disable the fouling function (option)
- 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

7.1 Login

- 1. Mark the lock \bigoplus 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.

7.2 The technician Main menu

To enter the Main menu you press the Wey. The grey marked parameters or menus are not available in the AquaFirst application. Their value does not have any impact on the AquaFirst.

Main Mer	u	
T_Secondary_Out	Read Only	Measured temperature DHW
S1_PID_Setpoint	Read Only	DHW temperature setpoint
T_Secondary_Inlet	Read Only	N/A
T_Primary_Outlet	Read Only	The temperature measured by S3 (option)
T_Primary_Inlet	Read Only	N/A
T_Recovery1	Read Only	N/A
T_Recovery2	Read Only	N/A
T_Outdoor	Read Only	N/A
Configuration	Sub Menu	See 7.3 Configuration menu
S1 Menu Sec.Outlet	Sub Menu	See 7.4 S1 Menu Secondary Outlet
S2 Menu Sec.Inlet	Sub Menu	N/A
Delta T (S3-S2)	Sub Menu	N/A
S4 Menu Prim Inlet	Sub Menu	N/A
S5 Menu Outdoor T	Sub Menu	N/A
Thermal Treatment	Sub Menu	See 7.5 Thermal Treatment Menu
SAFETY Function	Sub Menu	See 7.6 Safety Function
Eco Booster Fcts	Sub Menu	See 7.7 Eco-Booster Function
Fouling Function	Sub Menu	See 7.8 Fouling function
Pumps Menu	Sub Menu	See <u>7.10 Pumps Menu</u>
Solar Menu	Sub Menu	N/A
Aquaprot_Heating	N/A	N/A
230V Triac Menu	Sub Menu	See 7.9 230V Triac menu
Auto Test	Sub Menu	See 7.11 Autotest menu
Clear Alarm(s)	Sub Menu	See <u>7.12 Clear alarm menu</u>



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7.3 **Configuration menu**

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

Parameter	Factory	Optional setting	Description
	Setting	optional ootting	
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	0	0/1/2	Primary pump(s) number
MinSpeedP1P2	40	10 >100	N/A
P34 Nbr of Pumps	0	0/1/2	Secondary pump(s) number
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	07	0=No action 1=General Default (GD) 2=High temp Alarm (HA) 3=Eco function (E)
Relay 2 function*)	2	07	4=Booster function (B) 5=Thermal Treatment (TT) 6=Pump Fault (PF) 7=Tank loaded (TL)**. **Requires sensor S2.
Renewable Config	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	ХХ	N/A	Firmware Version

^{*)} Both relay 1 and 2 are programmable.



Parameter	Factory 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	0-30	High temp alarm is effective after this temporisation
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< th=""><th>↑P to be less reactive</th></p<200°c<>	↑P to be less reactive
	(-200 to 200)	Negative values in cooling	↓P to be more reactive (be careful of "pumping" effect)
I_Time AquaFirst	15	0-200 sec	\uparrow P to be less reactive
			↓P to be more reactive (be careful of "pumping" effect)
D_Time AquaFirst	2 sec	0-200 sec	
P_Band AquaEff	80	0 <p<200°c< th=""><th>N/A</th></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

7.4 S1 Menu Secondary Outlet

7.5 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.

N	Fastama	Outlough	Decembration	
The user has to define	e a one (1) senso	or mode - fixed dura	ation as per Therm.Tr	duration parameter.

Parameter	Factory Setting	Optional setting	Description
ThTr_Setpoint	70°C		Usual value
ThTr_Activated ⊕+వ	Off	Off/On	Define the thermal treatment authorized period
Sensor_Nbr NS 0=Auto/1/2S	1	Auto/1 sensor/2 sensors	Use 1 sensor (set on 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
TT Max try time	1 min	1-240 min (4 hours max)	Not used
DeltaT S1S2 ThTr	7°C	1 - 20°C	Not used
Inhibition time	30 min	0-180 (0 à 3 hours)	High temp alarm inhibition time after thermal treatment



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7.6 Safety Function

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

NOTE: This function can be enabled from base access 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.

7.7 Eco-Booster Function

One or both functions can be activated at the same time.

• **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**: If DHW temperature is dropping down faster than "Booster Gradient", the second primary pump (if existing) is energized, to increase the primary flow rate. Function stops when DHW temperature is back to the setpoint value and after "Booster Delay" parameter.

Parameter	Factory Setting	Optional setting	Description
0:- 1:E 2:B 3:E+B	0	0/1/2/3	0 = No function 1 = Eco Function only 2 = Booster function only 3 = Accumulated two functions
Fct_Selection	Normal	Normal/Eco/Boost/ EcoBoost	Playback function selected in 1:Eco 2:Booster 3:ECoBoost
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
Booster Gradient	2°K/s	1 to 20°K/sec	Minimum temperature fall speed at which the function operates



7.8 Fouling function

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

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

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

7.9 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.



Picture 15



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7.10 Pumps Menu

P1 and P2=Primary pumps P3 and P4=Secondary pumps

Parameter	Factory Setting	Optional setting	Description
P1P2 Diff.work time	12 hrs	1 - 1000 hours	P1 or P2 Working time
P1P2 Cycling.Type	2	0=Fixed time	0 : See P12 Permut Hour
		1=Fixed time+ diff.work time 2=Immediately	 1 : If diff reached at this time, pump shift 2 : Don't care of permutation day+hour
P1P2 Cycling.Period	0	0=None 1=Daily 2=Weekly 3=Monthly	
P1P2 Cycling day	1	From 1st to 31st	Available only if "P12 Cycling Period" =3"
P1P2 Cycling Hour	10h00 pm	00h00 - 23h59 (11h59 pm)	Pump shift time
Min Speed P1P2	40	10->100	N/A
P1P2 Overlap	6	0-10 seconds	Time to start P2(P1) before stopping P1(P2), to let the other pump start
P3P4 Diff.work time	12 hrs	1 - 24 hours	P3 or P4 Working time
P3P4 Cycling Type	2	0=Fixed time	0 : See P34 Cycling Hour
	1=Fixed time+ diff.work time		1 : If diff reached at this time, pump shift
		2=Immediately after Diff.hrs	2 : Don't care of Cycling day+hour
P3P4 Cycling Period	0	0=None 1=Daily 2=Weekly 3=Monthly	
P3P4 Cycling day	1	From 1st to 31st	Available only if "P34 Cycling Period=3"
P3P4 Cycling Hour	10h00 pm	00h00 - 23h59 (11h59 pm)	
P3P4 Overlap	6	0-10 seconds	Time to start P4(P3) before stopping P3(P4), to let the other pump start
Pump_Fault_Reset	Off	Off/On	To clear a pump default, set to On, then Off



7.11 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	Not used
Valve time test	4 sec	1-600 sec	Temporisations to adjust test duration.
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



NOTE: A pump fault may occur after Auto test. In this case, clear the alarm according to <u>7.12 Clear</u> <u>alarm menu</u>.

7.12 Clear alarm menu

Accessing the Clear Alarm menu requires login at Technician level.

D						-	0
All a	larms	are	cleared	the	same	way.	

Parameter	Factory Setting	Optional Setting	Description
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
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



8 Service Menu 🛇

Press 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.

8.1 Change password for technician level

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

- 1. Press Skey to access to Service Menu, go to "Login Installer", press the wheel.
- 2. Enter the current password, press the wheel to validate.

Servi	ce Menue	
Conti	nue	
Login	Installer	

3. Mark "Change Password" then press the wheel.

Enter	your	Password
* * * *		
Next		
Change	Pass	sword

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

Change Pass	sword
Level 2:	2222
Level 3:	3333
Installer :	Service

NOTE: Level 2 password is not in use.

8.2 Login installer

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



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8.3 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	C-Bus active	Factory pre-set
	(com)	Ctr#	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 Program	Solar	Not used
		Main	It is SP_T_Sec_Oulet (main
			temperature program).
			See <u>7.4 S1 Menu Secondary Outlet</u> .
		TSP Amb	Not used
		Multi Pulse	See 7.9 230V Triac menu
		Therm. treatment	See 7.5 Thermal Treatment Menu
	Point Data	Internal parar	neters +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	Syste	em informations
		Parameters	N/A
		Date/Time	Clock settings
		System Info	Hardware/Software info (version, date)
		Interface Config	Access to Modbus parameters
		DDC Times	Program's time constant
		Flash memory	Info on flashing. Allows saving all settings. It can be reloaded after a Reset



8.4 Operating hours

Operating hours for the following variables can be checked:

- Therm_Protec_P1/P2/P3/P4
- Cmd_P1/P2/P3/P4
- Main_Alarm
- High_Temp_Alarm
- ECO

- AFF_leg_active
- SAFETY_FCT
- Multi_P
- ThTr_Activated Booster
- For more information and description see <u>10 Parameters list</u>.
- 1. Press 💟 key to access to Service Menu, then click on "Continue".

Servic	e Menue	
Contin	ue	
Login	Installer	

- 2. Select "Operating Hours" in the menu. The first time you enter this menu, the list is empty.
- 3. To add a variable to trend; choose
- 4. Mark one variable to follow and press the wheel.

Net inche	0	
Time Prog	ram	
Interface	Config	
Trending		
Operating	Hours	
Service		

ACLIVA	ite	oper	£ •	nour
Cmd Di	sta	ant		
Therm	Pro	tec	P1	
Therm	Pro	tec	P2	2.
Therm	Dre	ten	DI	2

Act	iva	te	Oper	c.	Hours
The	rm_	Pro	otec	P 4	l
Cmd	_P1				
Cmd	_P2				

Operating Hours:

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

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

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.

Proceed the same way to add extra variables.





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8.5 Trending parameters

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

- 1. Press 🔍 key to access to Service Menu, then click on "Continue.
- 2. Select "Trending" in the menu

Service Menue <mark>Continue</mark> Login Installer

- Service Operating Hours Trending Interface Config Time Program
- Select "Points in Trend". The first time you enter this menu, the list is empty.
- 4. To add a variable to trend; choose
- Mark the variable to follow and press the wheel. In this example the Secondary outlet temperature, 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:

- a) Only the temperature change is recorded. This saves memory and allows a longer sampling period compared to method 2.
 Select the record hysteresis. In our case, every 1°C temperature change is recorded. You can change the hysteresis value 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 is the time base selected to 10 minutes recording (1 record every 10 minutes).

For method **a** set "Trend cycle" to zero, for method **b**, set "Trend Hyst" to zero.











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8.6 Display the trend buffer

- Press key to access to Service Menu, then click on "Continue".
- 2. Select "Trending" in the menu.
- 3. Select "Display Trend Buffer".
- 4. Select the variable to display, S1 in this case, and press the wheel.

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.

Servic	ce Menue	
Contin	ue	
Login	Installer	

Service		
Operating	Hours	
Trending		
Interface	Config	

Trendin	g		
Points	in !	Tren	d
Display	Tr	end	Buffer

Trend	Buffer	
S1		

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

8.7 Point Data

From the menu Point Data, it is possible to start/stop a pump, open/close the control valve for example.

This menu includes

- read or change analog inputs
- read or change digital inputs
- read or write digital outputs (start and stop a pump)
- read or write analog outputs (open or close control valve for example).

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





9 Alarm menu 🚳

Alarm indication: Is 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.



10 Parameters list

There are more than 100 different variables 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 P2	Ipsothermic input from P2 pump	0/1	12
Therm_Protec P3	Ipsothermic input from P3 pump	0/1	13
Therm_Protec P4	Ipsothermic input from P4 pump	0/1	14
PD_Cmd_P1	P1 command. It is the pump Start/Stop output	On/Off	15
PD_Cmd_P2	P2 command. It is the pump Start/Stop output	On/Off	16
PD_Cmd_P3	P3 command. It is the pump Start/Stop output	On/Off	17
PD_Cmd_P4	P4 command. It is the pump Start/Stop output	On/Off	18
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
Sec_P4_Fault	Secondary pump4 default	0/1	26
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
BOOSTMode	Booster function activated	0/1	41
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 a high temperature alarm	On/Off	201
Pump_Fault_Rese t	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 "MODBUS" section in next pages.



11 Factory RESET



After a reset must the controller be configured, see 7.3 Configuration menu. Especially the number of pumps must be configured.

- Press both S and G for 5 seconds.
 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. Then, press on "Factory" line to start the controller.

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	Ľ.	13:4	1
Wir	ing	Che	ck		
C-B	us:				/
CTR	#	1		1920	0
AL	09	2ST	12-1(0-12	*

0	2	/	0	7	/	2	0	1	3						1	5	ŝ	2	1
A	1	f	a		L	a	V	a	1		\$	t	a	r	t	u	p		
C		B	u	s		C	0	n	f	i	g	•						V	1
C	T	R	ŧ			2									3	8	4	0	0
S	e	1	e	C	t		L	a	n	g	u	a	g	e	ŧ				

nglish (1) rench



12 Modbus

12.1 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 if long wire distance or electromagnetic disturbances into the heating room. For this, it is necessary to unscrew the front panel.



Picture 17

12.2 Connecting multiple Micro 3000 control boxes



Rules to respect

Max length between BMS and farer control box: 500 meters Connection continuity (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.



Picture 18



Picture 16



12.3 Change Modbus parameters

- 1. Press Ney 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

your	Password
	your

Service Operating Hours Trending

Change Password

Interface Config

Time Program 🗌

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

Modbus	Communic	ation
Device	ID:	10
Baud Ra	te:	9600
Parity:		NONE
No. Sto	p Bits:	1



12.4 Modbus slave communication parameters

MODBUS PARAMETERS :	Speed: Bit number:* Stop bit: Parity: Mode:	9600 8 1 None RTU	In case of multiple controllers, change ModBus slave number					
ModBus Points	MODBUS adress**	Туре	Sub-type	Mode	Value	Comment		
			Read O	nly dig	jital			
				_				
PD Cmd P1	15	HR 16	BOOL	R	0=Off, 1=On	Command P1		
PD Cmd P2	16	HR 16	BOOL	R	0=Off, 1=On	Command P2		
PD Cmd P3	17	HR 16	BOOL	R	0=Off, 1=On	Command P3		
	10	HR 16	BOOL	R		Command P4		
PriP1 Alarm On	19	HR 16	BOOL	R		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		
SecP4 Alarm On	24	HR 16	BOOL	R	0=OK, 1=Alarm	P4 Fault		
PD High Alarm	27	HR 16	BOOL	R		ST High Temp Alarm		
Poliviain Alarm	28	HR 16	BOOL	R		General default		
Fouling Alarm	30	HR 16	BOOL	R	0=OK, 1=Alarm	Fooling alarm (S3)		
DD Trice Output	32		BOOL	R		220\/ Trice output		
	35		BOOL	R		Sofety function		
Dian Log active	30		BOOL	R	0=011, 1=0n	Therm Treat On going		
Disp Leg active	30		BOOL	R		Remete control		
ALE ED20	37		BOOL	R	0=011, 1=011	Heating mode		
	39		BOOL		0=011, 1=01	Cooling mode		
ReastMode	40		BOOL	R	0=011, 1=01	BOOSTER active		
EcoMode	41		BOOL	R D	0-01, 1-01	ECO activated		
PD Pumps Foult	42		BOOL	P	0-0ff 1-0n	Synthesis pump(s) fault		
Tank load	43	HR 16	BOOL	R	0=0ff 1=0n	Tank loaded		
	(16 bit	integer/Entie	16 bit)*	N	0-01, 1-01			

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 bi	t integer/Entier 1	16 bit)*								

Read-Write digital										
High Alm Reset	201	HR 16 HR 16	BOOL	R/W 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 (16 bi	HR 16 t integer/Entier	int16 16 bit)*	R/W	°Č	Thermal treatment setpoint				

* 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



13 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	Check power supply cable and fuses
	terminals	
	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	See "Modulating valve does not
	3 way valve remains closed	operate"
Modulating valve does not	Damaged or broken actuator	Test and replace if necessary
operate	Broken or improperly tightened	Check and replace if necessary
	coupling	
	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	Refer to "Pump not operating"
	versions)	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 of pressure	Check the way the TWM is piped-
	across the modulating valve	up. Mixing arrangement should be used
Correct temperatures across	Excessive exchanger scaling at the	Open and clean the exchanger
the exchanger not obtained.	primary or secondary side	according to cleaning instructions
Valve and pumps operating	Primary pipe work obstructed or	Inspect primary pipe work.
satisfactorily	strainer upstream clogged	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	Recirculation flow rate exceeds	Check and measure charging and
increase in the buffer vessel	charging flow rate.	recirculation flow rates. Adjust when
and the tap water value is		necessary
correct.		Recirculation FR < 0.6 x Charging
		FR

14 Maintenance and repairs

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

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

Scaling of the secondary side will be evidenced by:

- a high pressure drop on the secondary side of the exchanger
- 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 **<u>original</u>** 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.



Cetetherm AquaGenius

Installation, service and operating instruction

14.1 Open the control box

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



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



Picture 20

14.2 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 for quick servicing.



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



Picture 21

F5	Fuse F5
F1	Fuse F1
F2	Fuse F2

- F3 Fuse F3
- F4 Fuse F4

Led 1, lit when pump P1 is power supplied

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

Fuse	FU1	FU2	FU3	FU4	FU5
Protection	PUMP 1	PUMP 2	PUMP 3	PUMP 4	Power card
Size	6,3 x 32				
Rating	2,5 A	2,5 A	2,5 A	2,5 A	800 mA
Voltage	250 V				

1

2 3

4

5



14.3 Pumps' number

The pumps' configuration and connections is factory made.

ra servicing situation the concerpting must be identified.						
Codification	Meaning	Connected pump(s)				
FIxxxIS	Instantaneous Single	P1				
FIxxxID	Instantaneous Double	P1+P2				
FIxxxSS	Semi-instantaneous Single / Single	P1+P3				
FIxxxDS	Semi-instantaneous Double / Single	P1+P2+P3				
FIxxxxDD	Semi-instantaneous Double / Double	P1+P2+P3+P4				

14.4 Add a recycling pump to an AquaFirst Direct

A recycling pump can be added to an AquaFirst Direct. The pump must be connected to P3.

14.5 Add an extra pump

AquaGenius uses Class A constant speed primary pumps.

NOTE: After adding a pump, make sure that the pump selector is correctly set.

- 1. Open the Control Box.
- 2. On the right side of the printed circuit board, PCB; find the selector for the actual pump.
- 3. Place the pump type selector to the left, constant speed pump.

If lit, the corresponding pump is energized.



Picture 22

14.6 Primary pump wiring

14.6.1 Wirings inside pump

Description	Controller Terminal No.	Corresponding Pump's Terminal			
Primary pump Ipsothermic contact	46 (Pump1) 47 (Pump2) * ⁾	NC	Normally closed contact (NC)		
	37 or 31 (GND)	C	Common contact (C)		
Pump Start / Stop	N.A.	S/S }	Shunt ⊥ and S/S if not already done		

* As per equipment



Cetetherm AquaGenius

Installation, service and operating instruction

14.6.2 Pump head setting



14.6.3 Operating status

Indication on pump head	Cause	Operating status
000000	No electric power supply	Pump is not running
000000	Pump is power supplied	Pump is running
	Multiple(s)	Warning
	Multiple(s)	Alarm The pump is stopped

14.7 Add an extra sensor



Please see <u>4.2 Electrical wiring diagram</u>. S1-S3 are temperature sensors, NTC20k.

14.8 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, you can program pulse duration, day, week or special days you want this to happen.

For example, each Sunday at 10h00 for 5 seconds.

See 7.9 230V Triac menu.

Connected device must not exceed 230VAC 1A.



Picture 23



14.9 Relay 1 and 2 contacts

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 <u>4.2 Electrical wiring diagram</u>.



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

14.10 Remote Control contact

The AquaFirst 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

See 4.2 Electrical wiring diagram.

NOTE: When the contact is open, the unit operates normally. If it is closed, primary and secondary pump are stopped and valves get a 0% (0 volt) signal. The unit is in standby but the controller display remains activated.



14.11 Cleaning heat exchangers



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

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

Protective gloves and glasses should always be worn while these operations.



Open top and bottom clips to remove insulation.

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



Cetetherm recommends the use of a pre-fitted 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.







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

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

Gently rinse the plates with clean water before cleaning.

14.12Technical data

	Modèles IS/ID	Modèles SS/DS/DD
Electrical data:	230 V/50 Hz, Monophasé + Terre	230 V/50 Hz, Monophasé + Terre
Main measurements:	Max. 485x535x970mm (LxWxH)	Max. 850x505x1315mm (LxWxH)
Weight:	50-100 kg	60-110 kg
Electric consumption, Pmax (W)	Pmax : 312 W* Imax : 3 A*	Pmax : 752 W* Imax : 5 A*

*With Booster function activated



14.13 Spare parts

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



* AquaGenius FIB/FIN20 and 30 include a Magna1(D)32-40 and AquaGenius FIB/FIN 50 and 60 include a Magna1(D)32-80 pump.

** As per version



15 Commissioning report

	COMMISSIONNING REPORT							
Installation								
Tightening	Tightening dimension control							
Air vent po	Air vent position							
Settling Po	Settling Pot presence on primary							
Boiler Brer	nd. installatio	on and poy	wer					
Mixing bot	tle required	/ Presence	۵. ۵					
Balancing	valve presen	ce on Indi	- rect (Semi In	stantaneou	s) installati	ons		
Close drain	n valves				s / mstanati	0115		
Primary co	nformity							
Secondary	conformity:							
Accessibilit	ty of unit and	d compone	onts					
Configuration men	J	. compone		L				
Sensors	Γ							
Pumps	ŀ							
Other	F							
Primary Pu	lmns [.]				Secondary	Pumns		
T Tilliary F C	Pump 1		Pump 2		Pump 3		Pump 4	
Electrical b	ridges contr	ol for pum	ips on powe	r plate	l, amb e]	
	Pump 1	orrer pun	Pump 2		Pump 3		Pump 4	
Control va	ve working							
Settings	0			1				
DHW seco	ndarv outlet	T° setting	: S1					
PID setting	,	0						
High alarm	, setting]	Manual			Auto	
Thermal Tr	reatment		Type		Setting			
Eco functio	n activation	1	Type		Jetting		Time	1
Booster fu	nction activa	tion						
Other function activation								
Belay 1 fur	Below 1 functions							
Relay 1 fur	Relay 1 function							
Relay 2 function								
Volt free Pomoto or	Volt free Pereste contact wired or not			1				
TRIAC 220 V connections wired or not								
Other commonte:								
	e unit:	omnonu N	200	Installation	a cito		Data	
	Installer / Company Name				isite]



16 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, 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 AquaFirst	Honeywell/Samson/Grundfos/Wilo	

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 60335-1 gedeeltelijk
- EN 60204-1 partly/ EN 60204-1 en partie/ EN 60204-1 teilweise/ EN 60204-1 gedeeltelijk

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, 11-10-2019 Jean Michel Montoni

Product manager/ Responsable de la conformité/ Bevollmächtigter/ Verantwoordelijke voor conformiteit/



17 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.

17.1 How to contact Cetetherm

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



Cetetherm sas ZI du Moulin, Route du Stade 69490 Pontcharra sur Turdine - France www.cetetherm.com

