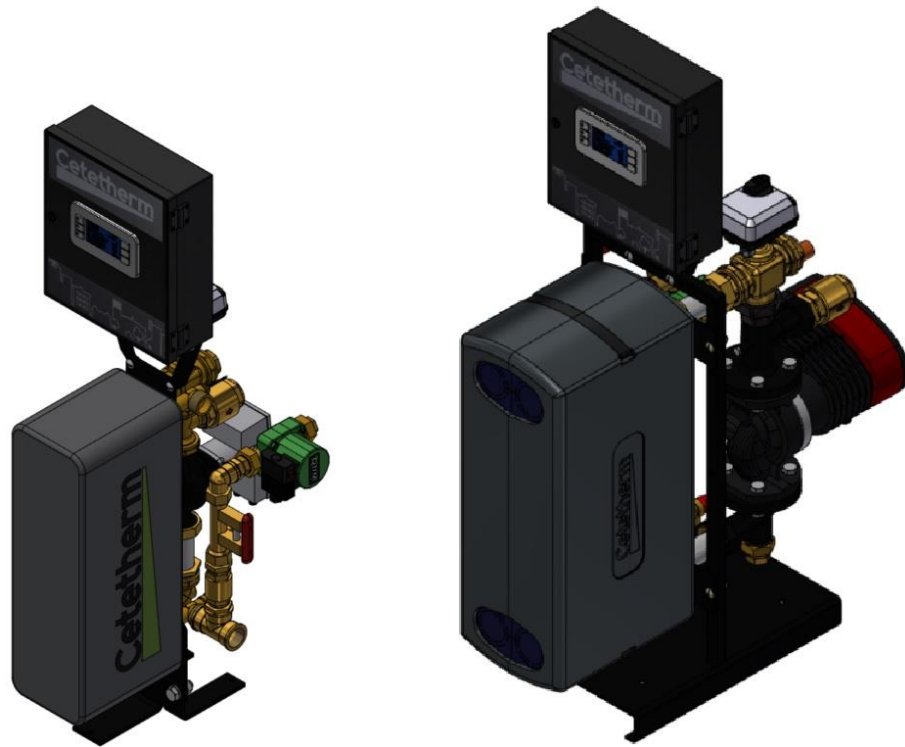


Cetetherm AquaEfficiency ISRN

Installation, service and operating instructions



EN

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1 General Presentation

Cetetherm AquaEfficiency ISRN is a compact tap water systems (TWS) product, including a heat exchanger, motorised control valve and managed variable speed 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 combined with flat gaskets for easy maintenance. Each unit has been tested hydraulically and electrically at the factory.

AquaEfficiency ISRN is available in two plate sizes:

- EFB60 series using Copper Brazed (CB) with stainless steel plates heat exchangers.
- EFB112 series using Copper Brazed (CB) with stainless steel plates heat exchangers.

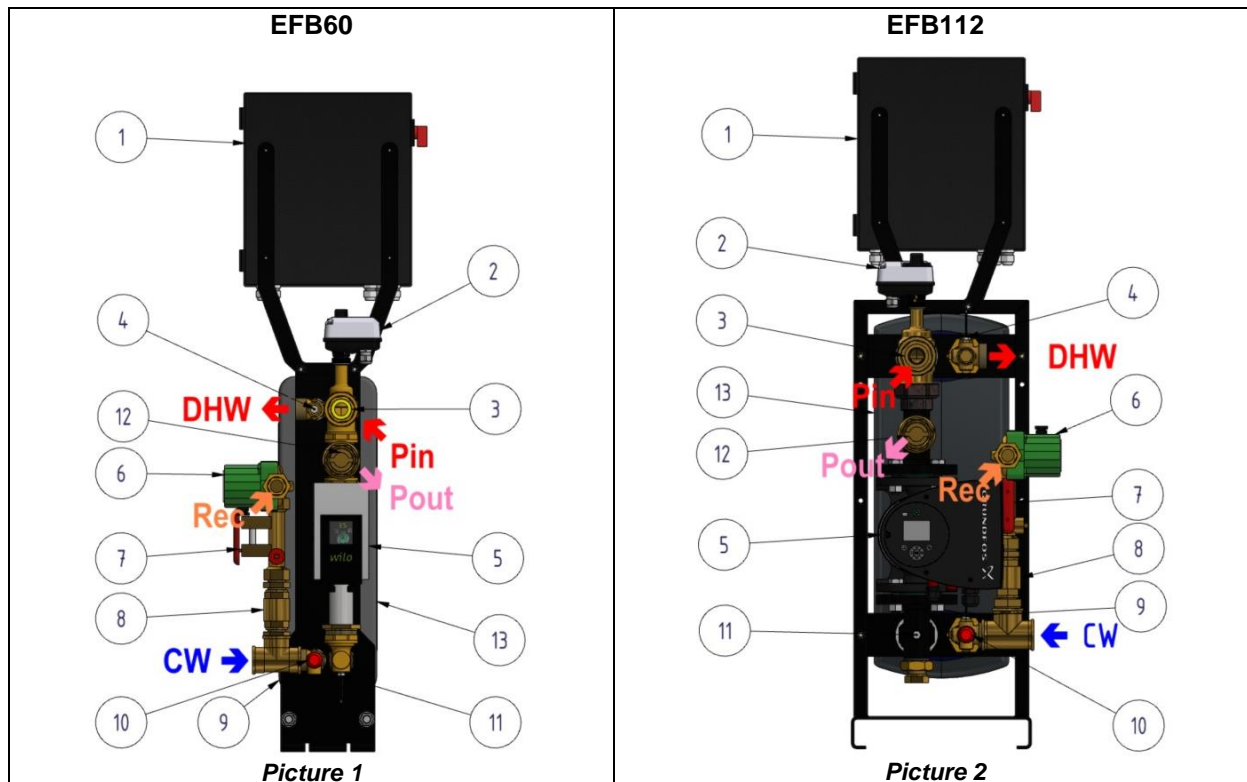
All models are declined in different plates' number and different pump(s) arrangement. All types have a single primary pump and a recycling pump on the secondary side.

These tap water systems must be connected to a primary heating source, like a boiler, a heat exchanger or a primary tank heated by a heat pump.

The secondary side is connected to cold water inlet, recycling inlet and to domestic hot water (DHW) network, see flowcharts for more details.

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

1.1 Product overview



Rep.	Designation	Rep.	Designation
Pin	Primary inlet (hot water from heat source)	5	Primary single pump, with 0-10V signal input
Pout	Primary Outlet (cooled water back to heat source)	6	Recycling pump
CW	Cold sanitary Water	7	Setting valve
Rec	DHW Recycling inlet	8	Check valve
DHW	Domestic Hot Water heated by primary	9	S2 temperature sensor (secondary inlet)
1	Control box	10	Safety valve on secondary inlet
2	24V AC actuator with 0-10V DC signal	11	S3 temperature sensor (on primary outlet)
3	3 Port mixing control valve	12	Check valve on primary outlet
4	S1 temperature sensor (master)	13	Heat exchanger with insulation

Operating principle:

- Primary water enters the 3-port modulating valve (2)+(3) that opens more or less, depending of the heat demand.
- The primary water circulates help with the primary pump (5).
- When no demand, the 3-port valve is almost closed and primary water loops between primary pump and heat exchanger at low speed as pump is at its minimal signal input.
- When big demand (peak period), the primary control valve is almost fully open and water circulates at the primary inlet temperature through the heat exchanger and leave the unit on the primary outlet port. The pump is almost at full speed also.
- Cold water enters at bottom part of the secondary side, is heated into the heat exchanger and leaves the unit on the secondary top part of the heat exchanger.
- The S1 temperature sensor measures the DHW temperature and indicates to the controller if the 3-port modulating valve must open or close proportionally and to increase or decrease pump signal / speed in parallel.
- Integrated patented DeltaT(S3-S2) function ensures that the primary outlet is at the minimal possible temperature, this to help boilers condensing.

2 Installation



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



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



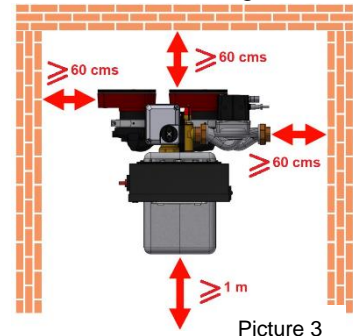
The temperature and the pressure of the water are very high. Only qualified technicians are allowed to work on the unit. Incorrect operation may cause serious personal injury and result in damage to the building



Minimum pressure/temperature on primary side: 1.0 bar/ 2°C, 1.5 bar / 100°C
Maximum pressure/temperature on primary side :10 bar /100°C
Maximum pressure/temperature on secondary side: 10 bar/ 85°C

2.1 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.
- Also check:
 - Air vent position
 - Settling pot presence on primary side
 - Boiler installation and capacity conformity
 - Pressure breaker (primary vessel, mixing bottle or equivalent) presence on primary side
 - Balancing valve on secondary side of semi-instantaneous installations
 - Accessibility of unit and components: **leave at least 60 cms on the left, right and back sides around the heat exchanger the front side should be fully accessible.**
- Pipe the primary and the secondary sides of the module.
- Fill-up both sides progressively with water.
- Purge air at high parts.
- Purge all the pump bodies.
- Install electrically the unit respecting electrical installation information see chapter
- Switch the power on.
- Check controller setting and enable the required functions.



Picture 3

2.2 Commissioning

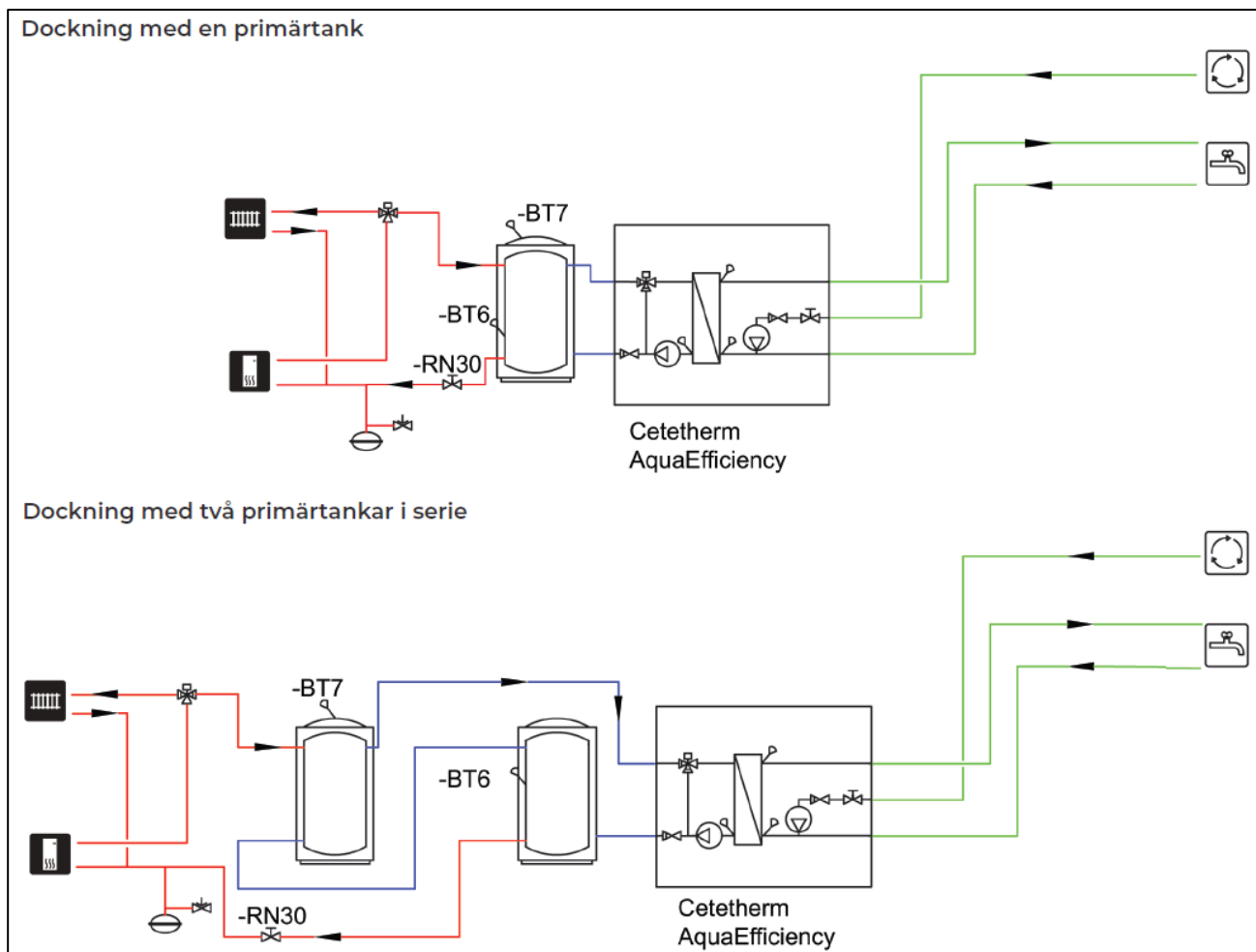
Before installation this manual must be read.

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.

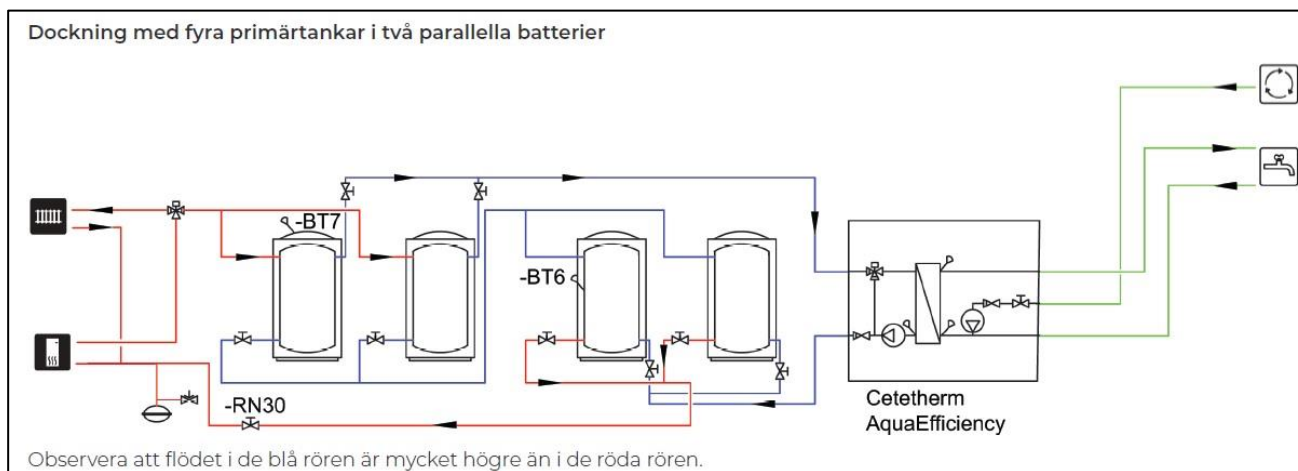
Fill out the form in chapter “Commissioning report”_

3 Flowcharts

 AquaEfficiency ISRN should be installed according to the following schematics.



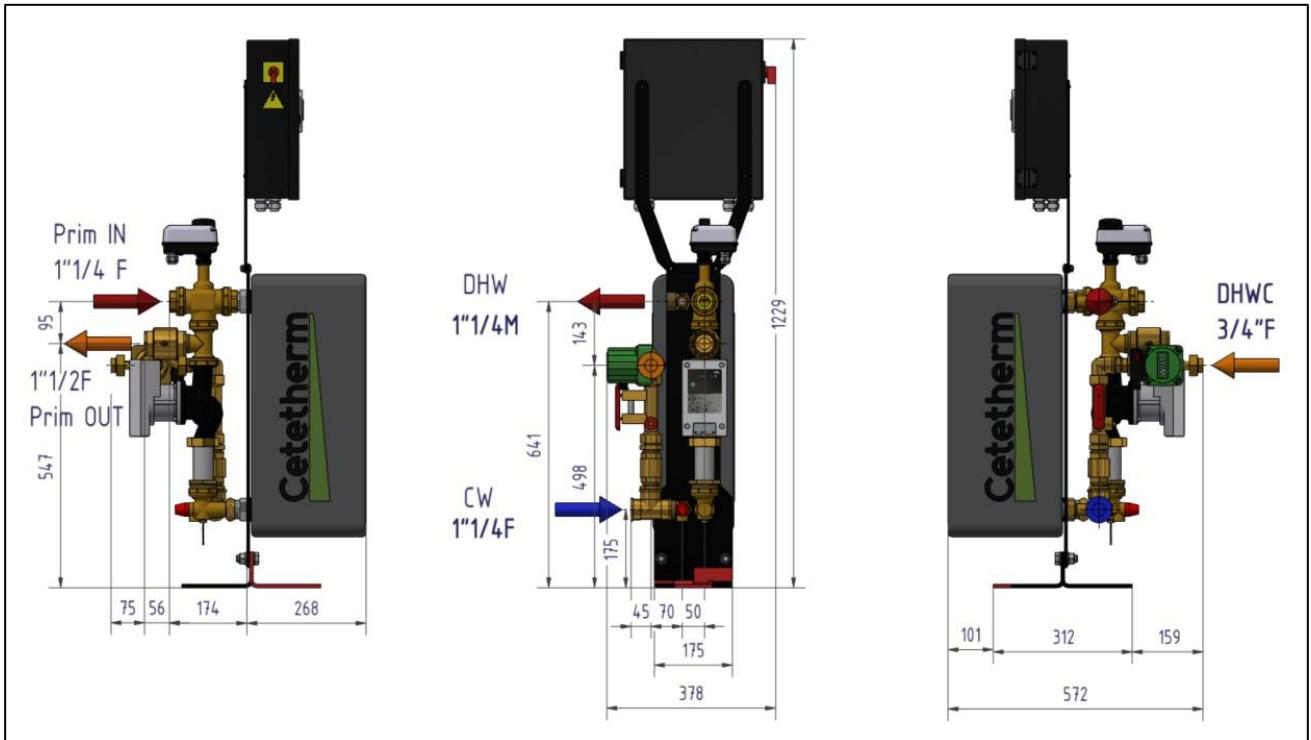
Picture 4



Picture 5

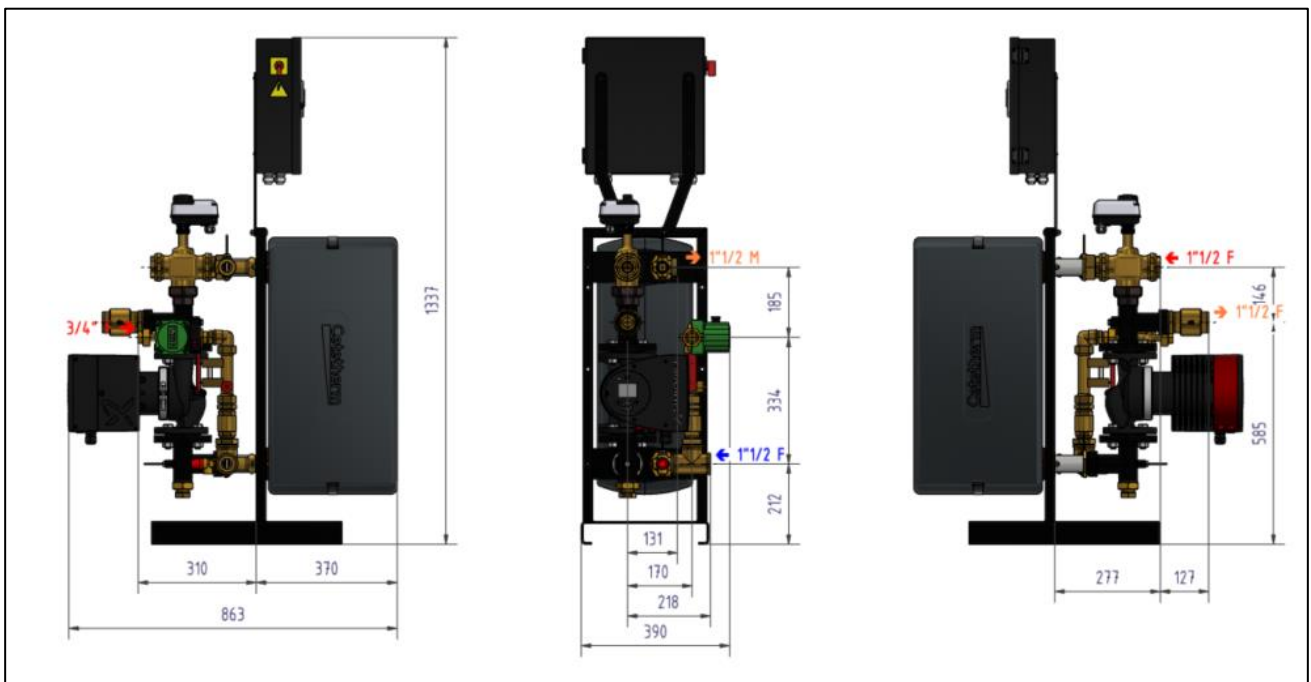
4 Measure sketches

4.1 EFB60 ISRN



Picture 6

4.2 EFB112 ISRN



Picture 7

5 Electrical installation

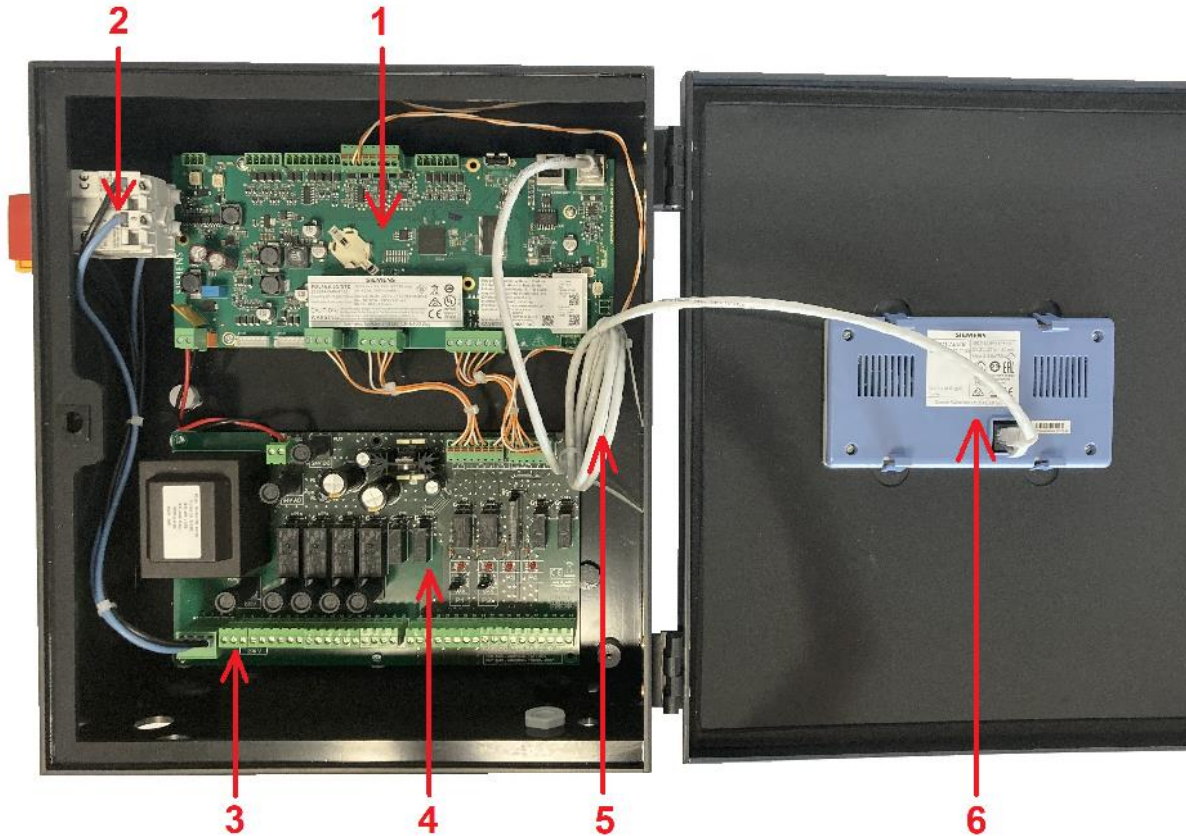


Power supply the control box with 230V 50 Hz + Earth, using electric protection in the main electric power box. The TWS control box is a secondary electrical control box. Human protections and protections against short circuits and over intensity must be installed in the main electric box.



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

Control box components



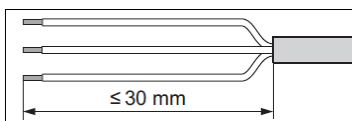
Picture 8

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



Use a 3 poles power supply cable with yellow/green earth wire of the following types: H05-VVH2-F, H05-V2V2-F, H05-V2V2H2-F, H05-Z1Z1-F, H05-Z1Z1H2-F, H05-RR-F, H05-VV-F. Wire section: 2,5mm².

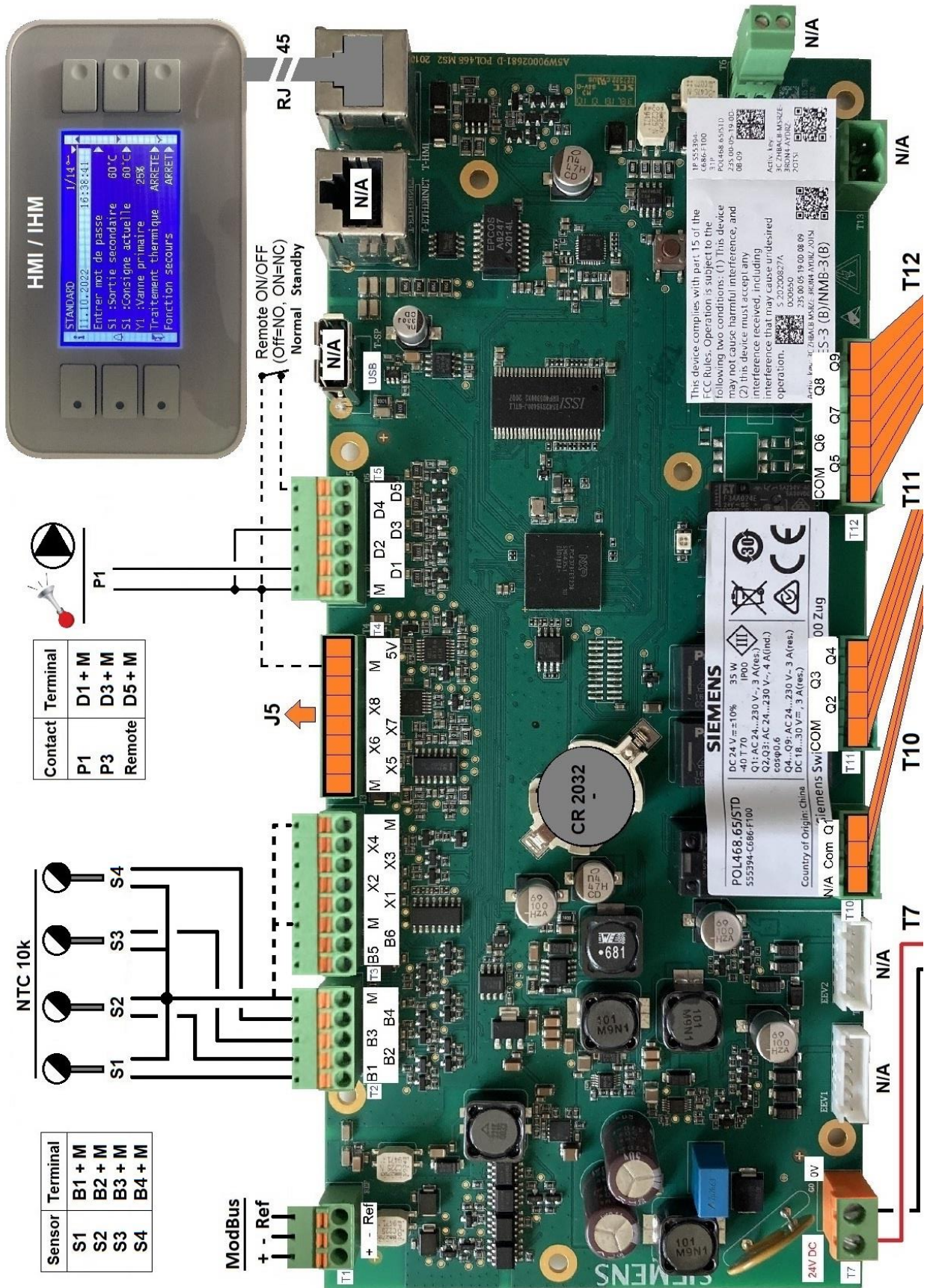
Do not tin the cable ends which will be exposed to contact pressure in the terminal blocks.



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

Picture 9

5.1 Electrical wiring diagram



Picture 10

Wiring details:

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

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

Unit power supply 230V 50Hz + Ground on terminals 5,6 and 7.
Terminals 8 to 10 power supply P1, terminals 14 to 16 power supply P3.



Do not exceed 2.5 A per pump.

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

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
0V	M/A	0V	Y2	0V	M/A	0V	Y2	24V	Y1	0V	NO	C	NF	C	NO	C	NO
Wilco: N/A Wire S/S Grundfos	P1 0-10V signal		N/A		N/A		32= 24V AC 33=0-10V signal 34=0V		Relay 1			Relay 2		Relay 3			

Valve' signal

32	33	34
24V AC	Y1	0V
Ctrl Valve		

Control valve = Primary control valve.
Actuator power supply between 34 and 32 terminals (24V AC)
Actuator control signal between 34 and 33 terminals (0-10V DC)



Total available power for valve actuator is 10VA

Temperature sensors' inputs and pump fault contact input

T 2	B1	B2	B3	B4	M	T 3	B 5	B 6	M	X 1	X 2	X 3	X 4	M	T 5	M	D 1	D 2	D 3	D 4	D5	
	S1	S2	S3	N/A	Gnd		N/A			N/A								P 1	P 3			Rem ote
	T° Sensors				Common												Pump fault input					



Sensors' wires must be connected to a common terminal, labelled "M" as per available space and corresponding input B1...B4
There is no polarity on all contacts and temperature sensors.

Remote contact



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

Modbus terminal T1 on controller board (upper left corner on control box)



Modbus cable's wires must be connected directly on T1 terminal on the temperature controller PCB. Please refer to corresponding chapter.

6 Using the temperature controller

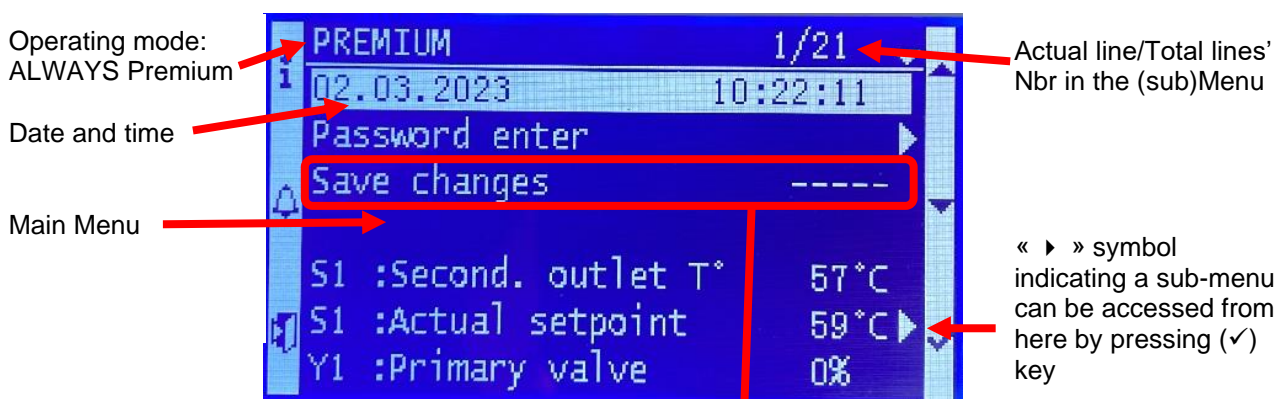
When the unit is power supplied, wait one minute before navigating into the menu.



Picture 12

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

Home screen Display:



Picture 13



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

6.1 Display settings (HMI)

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

6.2 Setting Date and Hour

1. Go to Line #1. This can be done by pressing several times « Escape » key or by pushing ▲ key several times if needed.	PREMIUM 1/14 11.10.2022 14 :06 :57 ...
2. Press on ✓ key and using ▲ and ▼ keys, change the current date. Then, press on ✓ key to change the month and process the same way to change the year if needed.	PREMIUM 1/14 11.10.2022 14 :06 :57 ...
3. Setting hour. Process the same way as above to change hours, minutes and seconds still by using ▲ / ▼ keys and confirming by pressing ✓ each time.	PREMIUM 1/14 11.10.2022 14 :06 :57 ...
When settings are done, line #1 remains highlighted.	PREMIUM 1/14 11.10.2022 14 :06 :57 ...
4. It is now possible to navigate into the menu by pressing ▲ / ▼ keys.	

<p>1. From the main menu and using ▲ / ▼ keys, go to line “Safety function” as shown: Then press ✓ key.</p>	<pre> PREMIUM 7/14 ... Thermal treatment OFF Safety function OFF ▶ ... </pre>
<p>2. To activate the safety function, press on ✓ key</p>	<pre> Safety function 1/3 Enable OFF Pump signal setpoint 100% Valve signal setpoint 50% </pre>
<p>3. Select « ON » using the ▼ key and press ✓ key.</p>	<pre> ✓OFF ON </pre>
<p>4. Now, display has changed to « Enable ON » and the alarm key red flashes, indicating a function is on-going: Note : It is possible to view the actual function by pressing ⏏ key. Please refer to « Alarm(s)/Function(s) button » part</p>	<pre> Safety function 1/3 Enable ON Pump signal setpoint 100%* Valve signal setpoint 50%* </pre>
<p>5. To stop the function from line#1 of safety function menu, press twice on ✓ key (OFF state on display). The alarm/function button stops flashing (except if another alarm/function is on-going). Exit this sub-menu by pressing « Esc » key.</p>	

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

8 Technician access level

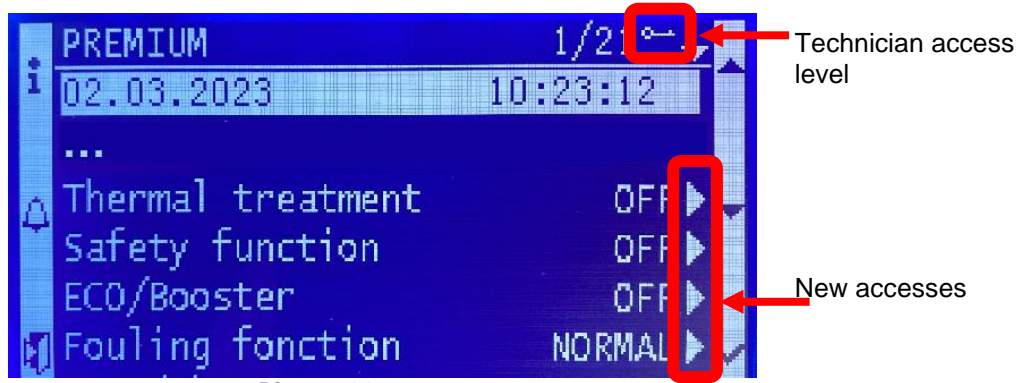
Technician access level allows to:

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

8.1 Login

Access code is 1000.

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



Picture 14

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

8.2 Log out

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

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



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

8.3 Main Menu

To access to the first line, press several times « Esc » key OR ▲ key.

Display		Meaning
PREMIUM	n/t ↔	Premium mode (always). n=No of curent line, t=total lines'number (variable, as per sensor(s)'number and activated extended funct)
jj.mm.aaaa	hh :mm :ss	Date and time
Password enter	▶	Log in / Log out
Save changes	-----	At any parameter(s) change or activated function(s), press on "✓" and select "Yes" to save.
S1 : Second. Outlet T°	55°C	S1 (DHW) temperature sensor, reading only
S1 : Actual setpoint	55°C ▶	Access to S1 sub-menu
Y1 : Primary valve	nnn%	Primary control valve signal to the actuator, reading only
S2 : Second. Inlet T°	nn°C ▶	S2 temperature reading + access to S2 sub-menu.
S3 : Primary outlet T°	nn°C	S3 temperature sensor, read-only.
Delta.T°(S3-S2)	nn°C ▶	Access to efficiency function
Thermal treatment	OFF ▶	Access to thermal treatment sub-menu
Safety function	OFF ▶	Access to safety function sub-menu
ECO / BOOSTER	ARRETE ▶	Access to ECO function sub-menu
Fouling fonction	NORMAL ▶	Access to fouling function sub-menu
Pump(s) menu	P1 P3 ▶	Access to pump(s) menu + configured pump(s)' number
Extended functions	▶	N/A
Test sequence	▶	Access to test sequence sub-menu
Communication	▶	Access to Modbus RTU communication sub-menu
Wired inputs – outputs	▶	Access to inputs / outputs reading / writing sub-menu

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




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

8.4 S1 Sensor menu

This menu allows to:

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

Temperature Setpoint(s) and clock program(s)

	If the green led of ① key is flashing, it is not possible to change the setpoint(s). To solve this, access to technician level (see further on), go to "Communication" sub-menu and select « Modbus RTU », then press ✓ key. Go to the last line « Writing priority » and select « POL468 » then press ✓ key. The green LED will stop flashing. You can now change the setpoint. When done, do not forget to go back to Communication\Writing priority and to select "BMS".
---	---

1. From the main menu and using ▲ / ▼ keys, go to line No.6 as shown: Then press ✓ key to access to S1 sub-menu	PREMIUM 6 / t ⇌ ... S1 : Actual setpoint 55°C ▶
2. Press ▼ key to go to line No.2 ① : Tap water applications require FIXED setpoint. DO NOT SELECT CURVE.	S1 MENU 2 / 10 ⇌ Setpoint selection FIXED ✓FIXED CURVE
3. Press ▼ key to access to next line	
4. Go to line No. 4, "S1 Setpoint" and press ✓ key to access to setpoint(s) settings and clock program(s)	S1 MENU 4 / 10 ⇌ S1 setpoint 55°C ▶ ...

There are 2 methods to adjust setpoints: a) Default setpoint if no time program defined → b) Different setpoints or not depending of week day and hours of the day. It is possible to get up to 6 different setpoints per day and different from day to day. We describe here the 2 nd method, the first one being described in the end-user access level (simple setpoint without clock program). ① : Current day of the week is indicated by a cross (x) into the S1setpoint schedule menu.	S1 setpoint schedule 1/11 ⇌ Setpoint w/o Schedule 55°C Monday 55°C Tuesday x 55°C Wednesday 55°C Thursday 55°C Friday 55°C Saturday 55°C Sunday 55°C Copy Monday from Tue. To Sun Activate copy NO
--	--

Clock program. Let's take the following sample: • S1 setpoint 60°C from 6h00 to 22h00 Monday to Friday • S1 setpoint 55°C from 22h00 to 6h00 Monday to Friday • S1 setpoint 55°C the week-end, all day (Saturday+Sunday) Acces to line #2 and press ✓ key. ALWAYS START ON MONDAY TO COPY TIME SCHEDULE ON OTHER WEEK DAYS	S1 setpoint schedule 2/11 ⇌ S1 Sp without schedule 60°C Monday 60°C ...
--	--

Display looks like this: * : * means all the time=the whole day. If the same temperature setpoint is required during all day, let « * : * » and just indicate the setpoint temperature. ① : 0°C value means last current setpoint will be used. If all days get 0°C, the simple temperature setpoint will be used (60°C by default).	d01 : Monday 1/12 ⇌ Time 1 * : * Value 1 0°C ... Time 6 * : * Value 6 0°C
--	--

Press on ✓ key and use ▲ / ▼ keys to display 0 (0 hour or midnight) then press ✓ key to validate. Next, set minutes that can also be changed using ▲ / ▼ keys. Here we want 0 minute, so press on ▲ key to remove the star and	Time 1 0 : * Time 1 0 : 00
---	-------------------------------

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

High and Low S1 temperature alarms

High temperature alarm:

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

- Delta T (DT) high alarm, 10°C by default above S1 setpoint. This delta T follows the current setpoint. If setpoint is 60°C, high alarm condition will appear if S1>70°C (60+10°C).
- High alarm temporisation, 1 minute by default. If delta T is exceeded, the temporisation starts. When it ends, if delta T still exceeded, the high temperature alarm will be effective: Primary pump(s) stopped and primary control valve signal at 0% (request for closing). Alarm button will red flash and event stored into memory. Furthermore, relay 1 and 2 will be activated by default as relay 1 is general default and relay 2 is high temperature alarm. Temporisation is the same for high and low temperature alarms.

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

Low temperature alarm :

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

Alarms parameters' settings

<p>5. Go to line #5 of S1 Menu and press ✓ key to access to high alarm Delta T setting. Press ▲ / ▼ keys to change the value. Setting range: 0 to 50°C. ① : The 10°C default value suits almost all cases. Only few installations can motivate a value change.</p>	<p>S1 MENU 5 / 10 ⇌ ... DT° High alarm Sp. 10°C ...</p>
<p>6. Then press ✓ to confirm or « Escape » to cancel value change 7. Press ▼ key to go to next line</p>	
<p>8. Low temperature alarm delta T is set the same way. Setting range: 0 to 50°C. ① : The -10°C default value suits almost all cases. Only few installations can motivate a value change.</p>	<p>S1 MENU 6 / 10 ⇌ ... DT° Low alarm Sp. -10°C ...</p>
<p>9. Then press ✓ to confirm or « Escape » to cancel value change 10. Press ▼ key to go to next line</p>	
<p>11. High and Low alarm delay before it activates. Press ▲ / ▼ keys to change the value. Setting range: 0 to 60 mins. ① : This delay ensures the actuator has had sufficient time to close (high alarm) or open (low alarm) before alarm occurs. For slow actuators (>60 secs) it is recommended to increase the value higher than actuator's running time.</p>	<p>S1 MENU 7 / 10 ⇌ ... Alarm delay 1.0min ...</p>
<p>12. Then press ✓ to confirm or « Escape » to cancel value change 13. Press ▼ key to go to next line</p>	
<p>14. This parameter is set to acknowledge high temperature alarm AUTOMATICALLY or MANUALLY. Press ✓ key and use keys ▲ / ▼ to change the value NO<->YES. Validate by pressing ✓ key. ① : Please refer to local rules to check if Automatic restart is allowed.</p>	<p>S1 MENU 8 / 10 ⇌ ... High Al.T° AutoReset YES ...</p>
<p>15. Press ▼ key to go to next line</p>	

S1 Temperature controller

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

<p>The right number indicates the actual PID output (%).</p>	<p>S1 MENU 9 / 10 ⇌</p>
<p>1. Press ✓ key to access to PID settings</p>	<p>S1 T° controller nnn% ▶</p>
<p>2. Press ✓ key to change the proportional band (P factor of PID). Use ▲ / ▼ keys to change its value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 1000°C.</p>	<p>S1 T° controller 1 / 6 ⇌ Proportional band: 40.0°C ...</p>
<p>3. Press ▼ key to go to next line.</p>	

4. Press ✓ key to change the integral factor (I factor of PID). Use ▲ / ▼ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Setting values: 0 to 2000 s.	S1 T° controller 2 / 6 ⇌ ... Integral factor : 15s ...
5. Press ▼ key to go to next line.	
6. Press ✓ key to change the derivative factor (D factor of PID). Use ▲ / ▼ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Setting values: 0 to 2000s.	S1 T° controller 3 / 6 ⇌ ... Differential factor : 2s ...
7. Press ▼ key to go to next line.	
Lines No.4 to 6 are read only informations. Line 4 : Measured S1 temperature Line 5: S1 current setpoint temperature Line 6: S1 PID controller output in %	S1 T° controller 4-6 / 6 ⇌ Present value: 55°C Setpoint : 55°C Controller output: nnn%
8. Press twice « Esc » key to get back to main menu.	

8.5 S2 Menu

In this menu, you can adjust the S2 gradient function

Working principle of Gradient function:

This function is based on S2 temperature sensor and especially its temperature variation in time. If S2 temperature increases more than defined setpoint, it will generate a signal removed to the main PID signal. At the opposite, if S2 decreases more than defined setpoint, it generates a signal that will be added to the main PID. Signal is proportional to the difference between measured changes and setpoint.

This function allows to anticipate temperature variations, by removing heat exchanger plus S1 temperature sensor constant times.

Settings :


1. Press ▼ key twice, go to line “S2 gradient factor” as shown here: ① : Line 4 indicates the current measured gradient on S2	S2 MENU 5/ t ⇌ S2 Gradient n°C/s S2 Gradient factor 0.75 0.75 0↓ 7200 [--- --- --- --- --- --- --- --- --- --- --- ---]
2. Press ✓ key to adjust value, using ▲ / ▼ keys and pressing ✓ to confirm or Esc to cancel. Setting range: 0 to 7200. ① : this value allows to amplify the function action	
3. Press ▼ key to go to next line.	
4. Press ✓ key to change gradient setpoint value, using ▲ / ▼ keys and pressing ✓ to confirm or Esc to cancel. Setting range: -5°C to 5°C.	S2 MENU 6/t ⇌ S2 Gradient setpoint n°C/s 5 °C -5°C ↓5°C [--- --- --- --- --- --- --- --- --- --- --- ---]
5. Press ▼ key to go to next line.	
6. Press ✓ key to change gradient setpoint value, using ▲ / ▼ keys and pressing ✓ to confirm or Esc to cancel. Setting range: 0% to 100%. ① : this value allows to reduce the signal value	S2 MENU 7/t ⇌ Influence nnn% 100 % 0% 100%↓ [--- --- --- --- --- --- --- --- --- --- --- ---]
7. Press ▼ key to go to next line.	
8. Current gradient signal value added to main PID.	S2 MENU 8/t ⇌
9. Press « Esc » key to get back to main menu.	S2 Gradient signal nnn%

8.6 Delta T (S3-S2) function

Principle:

This patented function limits the primary return temperature S3 at its maximum, acting on primary pump signal (speed). It acts like a virtual setting valve, limiting the primary flow rate by minimizing (or not) the signal sent to the pump, taking care of the differences S3-S2. So if S3 temperature is too high, compared with delta T setpoint and S2 measured temperature, the primary pump slows down to let more time to primary water to exchange

and the to cool down. This allows to get the coldest possible primary return temperatures, which is helpful especially when using condensing boilers or renewable primary heating sources.

	<p>Delta T value should remain around 15°C, the default value, as if too high (>25°C) no effect and if too low (<10°C) unit will be clamped as temperature physically unreachable and primary pump at its minimal speed even during tapping periods.</p> <p>Typically, for GPHE recommended value is 15°C to 20°C. For BHE/FHE, recommended value is 10°C to 20°C, these ones being more efficient.</p>
---	--

Settings :


<p>1. From the main menu and using \uparrow / \downarrow keys, go to line "Delta.T°(S3-S2)" as shown here: Then press \checkmark key to access this sub-menu</p>	<pre>PREMIUM / t ⇄ Delta T°(S3-S2) nn°C ▶ ... </pre>
<p>2. Function is enabled by default but can be disabled for other application: heating loop, 2 port primary ctrl valve.... To disable the function, press \checkmark key twice. At this moment you can see the DeltaT controller output will pass to 0%</p> <p>3. For function settings, press \downarrow key to access next line</p>	<pre>Delta.T° (S3-S2) 1/3 ⇄ Enable ON OFF ✓ ON </pre>
<p>4. Press \checkmark key to change setpoint value, using \uparrow / \downarrow keys and pressing \checkmark to confirm or Esc to cancel. Setting range: -50°C to 50°C.</p>	<pre>Delta.T°(S3-S2) 2/3 ⇄ Setpoint 15°C 15 °C -50°C ↓ 50°C [--- --- --- --- --- --- --- --- --- ---] </pre>
<p>5. Press \downarrow key to go to next line.</p>	<pre>Delta.T°(S3-S2) 3/3 ⇄ Delta T° controller nnn% ▶ </pre>
<p>7. Press \checkmark key to adjust proportional band value, using \uparrow / \downarrow keys and pressing \checkmark to confirm or Esc to cancel. Setting range: 0°C to 1000°C. ① : <i>We recommend you keep this value except if particular case</i></p>	<pre>DT(S3-S2) controller 1/6 ⇄ Proportional band : 80°C 80 °C 0°C ↓ 1000°C [--- --- --- --- --- --- --- --- --- ---] </pre>
<p>8. Press \downarrow key to go to next line.</p>	<pre>DT(S3-S2) controller 2/6 ⇄ Integral Factor : 60 s 60 s 0s ↓ 2000s [--- --- --- --- --- --- --- --- --- ---] </pre>
<p>9. Press \checkmark key to adjust integral time value, using \uparrow / \downarrow keys and pressing \checkmark to confirm or Esc to cancel. Setting range: 0s to 2000s. ① : <i>We recommend you keep this value except if particular case</i></p>	<pre>DT(S3-S2) controller 3/6 ⇄ Differential Factor : 2 s 2 s 0s ↓ 2000s [--- --- --- --- --- --- --- --- --- ---] </pre>
<p>10. Press \downarrow key to go to next line.</p>	<pre>DT(S3-S2) controller 4/6 ⇄ Present value : nn°C Setpoint : 15°C Controller output : nnn% 100% (full action) </pre>
<p>11. Press \checkmark key to adjust derivative time value, using \uparrow / \downarrow keys and pressing \checkmark to confirm or Esc to cancel. Setting range: 0s to 2000s. ① : <i>We recommend you keep this value except if particular case</i></p>	<pre>DT(S3-S2) controller 4/6 ⇄ Present value : nn°C Setpoint : 15°C Controller output : nnn% 100% (full action) </pre>
<p>12. Press \downarrow key to go to next line.</p>	<pre>DT(S3-S2) controller 4/6 ⇄ Present value : nn°C Setpoint : 15°C Controller output : nnn% 100% (full action) </pre>
<p>13. Next lines are readings only Current measured DT(S3-S2) value : Current DT(S3-S2) setpoint value : Current ctrl loop output on DT(S3-S2) from 0% (no action) to 100% (full action)</p>	<pre>DT(S3-S2) controller 4/6 ⇄ Present value : nn°C Setpoint : 15°C Controller output : nnn% 100% (full action) </pre>
<p>14. Press twice « Esc » key to get back to main menu.</p>	


8.7 Thermal treatment function



Applicable if primary inlet > 75.
Not applicable with heat pump as primary heating source.

Principle:


This function increases temperature setpoint (70°C by default) as per a clock program for a certain time to define, depending of secondary flow rate and storage vessel volume (in general, this duration is between 1 and 2 hours). When treatment starts, the  button green flashes (except if pending alarm).

Function includes an alarm which indicates that temperature level has not been reach, exception of tolerance (2°C by default, settable). In this case, the  button red flashes.














Example : If S1 temperature doesn't reach 68°C for a 70°C treatment setpoint, alarm will start after function duration.

When function stops, normal S1 temperature setpoint replaces thermal treatment setpoint and high temperature alarm is inhibited for a settable time (if thermal treatment setpoint >70°C and high buffer tank volume, it will take time to cool down and it could be S1 higher than high temperature level).



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

Settings :

<p>1. From the main menu and using  /  keys, go to line "Thermal treatment" as shown here: Then press ✓ key to access this sub-menu</p>	<pre>PREMIUM /t ⇌ ... Thermal treatment OFF ▶</pre>
<p>2. Press ✓ key to enable (ON) / disable (OFF) the thermal treatment, using  /  keys and pressing ✓ to confirm.</p> <p>3. Press  key to go to next line.</p>	<pre>Thermal treatment 1 / 6 ⇌ Enable OFF</pre>
<p>4. Press ✓ key to change setpoint value, using  /  keys and pressing ✓ to confirm. Setting range: 60°C to 80°C.  : Primary inlet temperature should be at least 7 to 10°C higher than this setpoint to reach thermal treatment temperature setpoint. If not the case, thermal treatment failure alarm may appear at the end.</p> <p>5. Press  key to go to next line.</p>	<pre>Thermal treatment 2 / 6 ⇌ Setpoint 70°C 70 °C ↓ 60°C 80°C [--- --- --- --- --- --- --- --- --- ---]</pre>
<p>6. Press ✓ key to access to clock program.</p>	<pre>Thermal treatment 3 / 6 ⇌ Schedule ▶</pre>
<p>7. Use  /  keys to change value and ✓ key to confirm date(s) and time(s).</p> <p> DATES / TIMES FORMATS EXPLANATIONS « * » symbol means « all ». For a daily treatment at 2h00, you need to input: Date= *.*.*.* (all the days of the week, all the monthes, all the year.) and Time= 02.00 (2 h 00) For a weekly treatment, every Monday at 2h00(recommanded frequency), you need to input:</p> <p>For a monthly treatment, each 1st of the month at 2h00, without taking care of the day it is, you have to input: Date= *.01.*.*.* and Time=02.00 (not the best frequency)</p> <p>8. Press « Escape » key to get back to thermal treatment sub-menu 9. Press  key to go to next line.</p>	<pre>Date *.*.*.* (dw.dd.mm.yyyy) Time *.* (hh.mm) Date *.*.*.* Time *.* Date Mo.*.*.* Time 02.00</pre>

<p>10. Press ✓ key to change treatment's duration. Duration is voluntary set to zero, as you have to estimate tank/installation loading time, depending of nominal secondary flow rate, recycling loop flow rate and storage tank volume. Duration setting : 0 to 240 min (4 hours) Example : Sec. Flow rate Q=2m³/h, Tank volume 500L=V=0,5m³ and recycling flow rate=q=1000 l/h. Tank loading time, so minimal treatment duration = V/(Q-q) Let 0,5/(2-1)=0,5 hour. If you wish to maintain at this temperature for 1 hour, you need 1h30 duration (0.5h+1h) or 90 minutes.</p> <p>11. Press ▼ key to access to next line.</p>	<pre> Thermal treatment 4 / 6 ←→ ... Duration 0min 0 min ↓0min 240min [--- --- --- --- --- --- --- --- --- ---] </pre>
<p>12. Press ✓ key to change tolerance value. Use ▲ / ▼ kys to change value and ✓ key to validate. Setting values : 0 to 10°C. Ⓢ : If setpoint temperature – tolerance is not reached, an error message will appear at the end of treatment duration.</p> <p>13. Press ▼ key to access to next line.</p>	<pre> Thermal treatment 5 / 6 ←→ ... Tolerance 2°C 2 °C 0°C ↓ 10°C [--- --- --- --- --- --- --- --- --- ---] </pre>
<p>14. Press ✓ to change S1 high temperature alarm inhibition time. Press ▲ / ▼ keys to change value and ✓ key to validate. Setting values : 0 to 240 minutes.</p>	<pre> Thermal treatment 6 / 6 ←→ ... Inhibition time 30min </pre>
<p>15. Press twice « Esc » key to get back to main menu.</p>	

8.8 Safety function

Principle:

This function activates the 4 pumps' relays at the same time without considering pumps faults' inputs.

Valve and pump(s)' signals are settable, at the opposite of end-user access level.

It is possible to adjust Y2 and Y3, 100% by default and actuator signal Y1=50% by default.

Settings :

<p>1. From the main menu and using ▲ / ▼ keys, go to line "Safety function" as shown here: Then press ✓ key to access this sub-menu</p>	<pre> PREMIUM 1 / t ←→ ... Safety function OFF ▶ </pre>
<p>2. To activate the function, press ✓ key</p>	<pre> Safety function 1/3 ←→ Enable OFF </pre>
<p>3. Select « ON » using ▼ key then press ✓ key</p>	<pre> ✓OFF ON </pre>
<p>4. Display indicates « Enable ON » and the alarm/function button red flashes, showing a function is on-going: Ⓢ : It is possible at any time to check the on-going function(s) (or alarm(s)) by pressing Ⓢ button, please refer to "Alarm/function button part."</p>	<pre> Safety function 1/3 ←→ Enable ON Pump signal setpoint 100% Valve signal setpoint 50% </pre>
<p>5. Press ▼ key to access to next line.</p>	
<p>6. Press ✓ key to change P1 to P4 signal value (Y2+Y3 signals). Use ▲ / ▼ keys to change its value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 100%. Ⓢ : If not 0-10V primary pump(s), no effect.</p>	<pre> Safety function 2/3 ←→ Pump signal setpoint 100% 100 % 0°C 100%↓ [--- --- --- --- --- --- --- --- --- ---] </pre>
<p>7. Press ▼ key to access to next line.</p>	
<p>8. Press ✓ key to change primary valve signal value (Y1 signal). Use ▲ / ▼ keys to change its value and press ✓ key to validate or "Esc" key to cancel change. Setting values: 0 to 100%.</p>	<pre> Safety function 3/3 ←→ Valve signal setpoint 50% 50 % 0°C ↓ 100% [--- --- --- --- --- --- --- --- --- ---] </pre>
<p>9. To stop the function, go to line#1 and press twice ✓ key (state OFF on display). The alarm button then stops flashing, except if other alarm(s) or/and function(s) are pending.</p>	
<p>10. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.</p>	



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

8.9 ECO function.

Eco function principle:

When control valve is sufficiently closed (valve signal ≤ "Y1 setpoint") during a sufficient long time ("switch-on delay"), primary pump(s) switch(es) off and primary mixing valve closes down.

The system is switched ON when S1 temperature has gone down more than the S1 setpoint value – "Hysteresis" parameter. It is normal that the primary control valve starts to open during the function. This to anticipate valve opening when the pump will start again. If secondary pumps are connected (SS/DS/DD series) they are still in operation during the Eco function.

Settings :

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



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

8.10 Fouling function

Function Principle:

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

Settings:

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



If function criteria are reached, the fouling state is active and display indicates "DEFAULT" on corresponding line and Alarm/Function button red flashes.

8.11 Pump(s) menu



This menu appears if at least one pump is declared. Otherwise it is not visible into the main menu. Furthermore, depending of pumps' number, some lines will appear or not.

Settings :

1. From the main menu and using ▲ / ▼ keys, go to line "Pump(s) Menu" as shown here: *Note that declared pump(s) is(are) displayed on the right side. Then press ✓ key to access this sub-menu	PREMIUM I/t ⬅ ... Pump(s) menu P1 ▶ ...
2. Full menu pump represented here:	Pump(s) Menu 1 / 4 ⬅ - P1P2- Minimum speed 25% Maximum speed 100% -P3P4-
3. Press ▼ key to access to next line.	
4. Press ✓ key to change the minimum speed. Use ▲ / ▼ keys to change its value and press ✓ key to validate or "Esc" key to cancel change. Setting values : 0 to 100%	Pumps(s) menu 2/4 ⬅ - P1P2- Minimum speed 25%
5. Press ▼ key to access to next line.	...

6. Press ✓ key to change the maximum speed. Use ▲ / ▼ keys to change its value and press ✓ key to validate or “Esc” key to cancel change. Settings values : 0 to 100%	Pumps(s) menu 3/4 ↔ ... Maximum speed 100% ...
7. Press « Esc » key to get back to main menu.	

8.12 S4 Temperature limitation function menu (optional S4 sensor required)



This function requires S4 temperature sensor, included with AquaEfficiency ISRN models. S4 temperature sensor must be placed on the primary inlet pipe.

Principle:

This function compares current S1 temperature setpoint with S4, primary inlet temperature. If $S4 < S1 \text{ setpoint} - \Delta T \text{ setpoint}$, then S1 setpoint is decreased to $S4 - \Delta T \text{ setpoint}$. This function allows to charge quicker installations with primary tank as heating source without disturbing too long the secondary supply. Delta T is called “setpoint” into this menu.

Settings :

1. From the main menu and using ▲ / ▼ keys, go to line “S4 T°Limit.function” as shown here: Then press ✓ key to access this sub-menu	PREMIUM / t ↔ ... S4 T°Limit.function OFF ▶
2. To activate the function, press ✓ key and ▼ key, then press ✓ key	S4 T°Limit.function 1/2 ↔ Enable OFF
3. Select « ON » using ▼ key then press ✓ key	✓OFF ON
4. Display indicates « Enable ON »	S4 T°Limit.function 1/2 ↔ Enable ON
5. Press ▼ key to access to next line.	
6. Press ✓ key to change setpoint value. Use ▲ / ▼ keys to change value and press ✓ key to validate or “Esc” key to cancel change. Setting values: 0 to 50°C (10°C default value).	S4 T°Limit.function 2/2 ↔ Setpoint 5°C
7. Press « Esc » key to get back to main menu. Press again “Esc” to point 1 st line of Main menu.	

8.13 Test sequence



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

Settings :

1. From main menu, use ▲ / ▼ keys to go to « Test sequence » line : Then Press ✓ key	PREMIUM / t ↔ Test sequence ▶
2. To activate the sequence, press ✓ key then ▼ key to select ON and press ✓ key. Then controller activates outputs (contacts and signals) in the following order : All signals to 0V → Relay R1 → Command P1 → Command P2 → Command P3 → Command P4 → 230V 3pts -> 230V 3pts + → Relay R2 → Relay R3 → Y1 to 10V → Y2 to 10V → Y3 to 10V → Y4 to 10V → End of sequence and back to normal control.	Test Sequence 1 / 4 ↔ Enable OFF ✓OFF ON Y1=Actuator 0-10V control signal Y2=Primary pump(s) 0-10V ctrl signal Y2=Second. pump(s) 0-10V ctrl signal Y4=Actuator#2 (used on some extended fcts) 0-10V control signal
3. Press ▼ key to go to next line.	

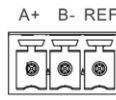
<p>4. Press ✓ key to change pumps' test duration. Use ▲ / ▼ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 0 to 60 secondes (4 sec by default).</p>	<table border="1" style="width: 100%;"> <tr><td>Test Sequence</td><td style="text-align: right;">2/4 ↔</td></tr> <tr><td>Enable</td><td style="text-align: right;">OFF</td></tr> <tr><td>Pump test time</td><td style="text-align: right;">4s</td></tr> <tr><td>Signal test time</td><td style="text-align: right;">4s</td></tr> <tr><td>Relay test time</td><td style="text-align: right;">4s</td></tr> </table>	Test Sequence	2/4 ↔	Enable	OFF	Pump test time	4s	Signal test time	4s	Relay test time	4s
Test Sequence	2/4 ↔										
Enable	OFF										
Pump test time	4s										
Signal test time	4s										
Relay test time	4s										
<p>5. Press ▼ key to go to next line.</p>											
<p>6. Press ✓ key to change 0-10V signals' duration. Use ▲ / ▼ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 0 to 60 secondes (4 sec by default).</p>	<table border="1" style="width: 100%;"> <tr><td>Test Sequence</td><td style="text-align: right;">3/4 ↔</td></tr> <tr><td>Enable</td><td style="text-align: right;">OFF</td></tr> <tr><td>Pump test time</td><td style="text-align: right;">4s</td></tr> <tr><td>Signal test time</td><td style="text-align: right;">4s</td></tr> <tr><td>Relay test time</td><td style="text-align: right;">4s</td></tr> </table>	Test Sequence	3/4 ↔	Enable	OFF	Pump test time	4s	Signal test time	4s	Relay test time	4s
Test Sequence	3/4 ↔										
Enable	OFF										
Pump test time	4s										
Signal test time	4s										
Relay test time	4s										
<p>7. Press ▼ key to go to next line.</p>											
<p>8. Press ✓ key to change contacts' tests duration. Use ▲ / ▼ keys to change value and press ✓ key to validate or "Esc" key to cancel change. Setting range: 0 to 60 secondes (4 sec by default).</p>	<table border="1" style="width: 100%;"> <tr><td>Test Sequence</td><td style="text-align: right;">4/4 ↔</td></tr> <tr><td>Enable</td><td style="text-align: right;">OFF</td></tr> <tr><td>Pump test time</td><td style="text-align: right;">4s</td></tr> <tr><td>Signal test time</td><td style="text-align: right;">4s</td></tr> <tr><td>Relay test time</td><td style="text-align: right;">4s</td></tr> </table>	Test Sequence	4/4 ↔	Enable	OFF	Pump test time	4s	Signal test time	4s	Relay test time	4s
Test Sequence	4/4 ↔										
Enable	OFF										
Pump test time	4s										
Signal test time	4s										
Relay test time	4s										
<p>9. Press « Esc » key to get back to main menu. Press again "Esc" to point 1st line of Main menu.</p>											

8.14 Modbus RTU Communication Menu



Be sure modbus cable wires are connected on T1 terminal (upper left corner of the control box) to get Modbus communication.
Wiring made on terminals labelled A+ and B-. If cable length exceeds 3 meters, it is recommended to use a shielded cable, connecting shield to REF terminal.

Settings :



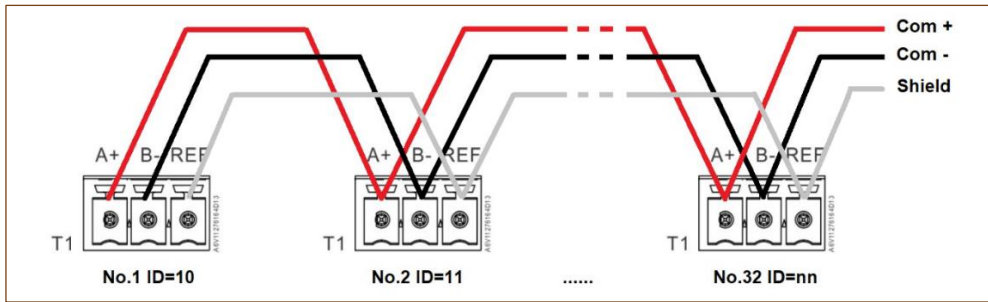
<p>1. From main menu, use ▲ / ▼ keys to go to line: « Communication » Then Press ✓ key</p>	<table border="1" style="width: 100%;"> <tr><td>PREMIUM</td><td style="text-align: right;">1/t ↔</td></tr> <tr><td>...</td><td></td></tr> <tr><td>Communication</td><td style="text-align: right;">▶</td></tr> </table>	PREMIUM	1/t ↔	...		Communication	▶								
PREMIUM	1/t ↔														
...															
Communication	▶														
<p>2. Press ▼ key, then ✓ key to check/modify communication parameter(s). If a least one parameter is modified, you have to RESTART the controller. For that, go to line#1 and press ✓ key, then select ON by pressing ▼ key and finally press ✓ key.</p>	<table border="1" style="width: 100%;"> <tr><td>Communication</td><td style="text-align: right;">1 /2 ↔</td></tr> <tr><td>Restart</td><td style="text-align: right;">OFF</td></tr> <tr><td>Modbus RTU (RS485) COMM.OK</td><td></td></tr> </table>	Communication	1 /2 ↔	Restart	OFF	Modbus RTU (RS485) COMM.OK									
Communication	1 /2 ↔														
Restart	OFF														
Modbus RTU (RS485) COMM.OK															
<p>3. Press ✓ key to access to communication parameters. Use ▲ / ▼ keys to select line and press ✓ to access line.</p> <p>4. Use ▲ / ▼ keys to change value and press ✓ to validate or "Esc" key to cancel. Explanations bellow: Controller adress from de 0 to 32 (10 by default) Communication speed from 600 to 115200 baud (defaut=19200) Parity : Even/Odd/None (by default) Bit stop number : 1 (by default) / 2 For any change, RESTART controller (same as previous screen) See below :</p>	<table border="1" style="width: 100%;"> <tr><td>Modbus RTU (RS485)</td><td style="text-align: right;">1/6 ↔</td></tr> <tr><td>Slave Address</td><td style="text-align: right;">10</td></tr> <tr><td>Baud rate</td><td style="text-align: right;">19200</td></tr> <tr><td>Parity</td><td style="text-align: right;">None</td></tr> <tr><td>Stop</td><td style="text-align: right;">1 bit</td></tr> <tr><td>Restart required !</td><td style="text-align: right;">OFF</td></tr> <tr><td>Writing priority</td><td style="text-align: right;">POL468</td></tr> </table>	Modbus RTU (RS485)	1/6 ↔	Slave Address	10	Baud rate	19200	Parity	None	Stop	1 bit	Restart required !	OFF	Writing priority	POL468
Modbus RTU (RS485)	1/6 ↔														
Slave Address	10														
Baud rate	19200														
Parity	None														
Stop	1 bit														
Restart required !	OFF														
Writing priority	POL468														
<p>5. Writing priority: POL486 (by default) / BMS If priority let to controller (POL468), it is not possible to write value from BMS, but only possibility to read values. If it is necessary to write values from BMS to controller, select « BMS ». In this case, it is not possible to modify some values from controller. Concerned parameters are listed bellow :</p> <ul style="list-style-type: none"> • S1 temperature setpoint • Thermal treatment setpoint 	<table border="1" style="width: 100%;"> <tr><td>Writing priority</td><td style="text-align: right;">POL468</td></tr> <tr><td>✓ POL 468</td><td></td></tr> <tr><td>BMS</td><td></td></tr> </table>	Writing priority	POL468	✓ POL 468		BMS									
Writing priority	POL468														
✓ POL 468															
BMS															
<p>6. If no restart required, press twice « Esc » key to get back to the main menu.</p>															

Connecting several control boxes (units) :

Controller address being changeable, it is then possible to connect up to 32 units.

In the case of several units connected each other, respect Modbus cable wirings as per bellow diagram:

Cetetherm AquaEfficiency ISRN
 Installation, service and operating instructions



Picture 15

Modbus parameters' list:

		Default values	
MODBUS PARAMETERS (Default values) :	Speed :	19200	* In case of multiple controllers, change ModBus slave number
	Bit number :	8	
	Stop bit :	1	
	Parity :	None	
	Mode :	RTU	** On some BMS, add/subtract one
	Address* :	10	

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

Read Only digital					
P1 Command	14	HR_16	R	0=Off, 1=On	Command P1
P3 Command	16	HR_16	R	0=Off, 1=On	Command P3
P1 Alarm	18	HR_16	R	0=OK, 1=Alarm	P1 Fault
P3 Alarm	22	HR_16	R	0=OK, 1=Alarm	P3 Fault
High S1 T° Alarm	26	HR_16	R	0=OK, 1=Alarm	S1 High Temp Alarm
General Default	27	HR_16	R	0=OK, 1=Alarm	General default
Fooling Alarm	29	HR_16	R	0=OK, 1=Alarm	Fooling alarm (S3)
ThermTr Alarm	31	HR_16	R	0=OK, 1=Alarm	Thermal Treatment Failed
Th_Tr_running	35	HR_16	R	0=Off, 1=On	Thermal Treatment On going
Remote contact	36	HR_16	R	0=Off, 1=On	Unit in standby
BOOSTER function	40	HR_16	R	0=Off, 1=On	BOOSTER activated
ECO function	41	HR_16	R	0=Off, 1=On	ECO activated
Pump(s) Fault	42	HR_16	R	0=Off, 1=On	Synthesis pump(s) fault
S1 Sp limitation	70	HR_16	R	0=Off, 1=On	S1 Sp limitation fonction activated
Safety function	75	HR_16	R	0=Off, 1=On	Safety fonction
(16 bit integer/Entier 16 bit)*					

Read Only Analogic					
Software Version	33	HR_16	R		Software version
P1P2 Nbr of pump	71	HR_16	R	0/1=P1/2=P2/3=P1+P2	Primary pumps' number
P3P4 Nbr of pump	72	HR_16	R	0/1=P3/2=P4/3=P3+P4	Secondary pumps' number
Signal P1P2	44	HR_16	R	%	Primary pump signal Y2
Signal Valve	46	HR_16	R	%	Control valve 1 signal Y1
S1	49	HR_16	R	°C	Sensor 1 measurement
S2	50	HR_16	R	°C	Sensor 2 measurement
S3	51	HR_16	R	°C	Sensor 3 measurement
S4	52	HR_16	R	°C	Sensor 4 measurement (option)
Relay1 Fct	62	HR_16	R	0=Nothing	1=General alarm 2=High S1 temperature Alarm
Relay2 Fct	63	HR_16	R	3=Low S1 temperature alarm	4=ECO fonction 5=Clock 6=Thermal treatment
Relay3 Fct	64	HR_16	R	7=N/A	8=Pump fault 9=Fooled HE 10=N/A
(16 bit integer/Entier 16 bit)*					

Read-Write digital					
Alarm(s) acknowledge	200	HR_16	R/W		1=Reset fault. Pulse point necessary 30 seconds On/Off
(16 bit integer/Entier 16 bit)*					
1=Acquittement. Fréquence impulsion max On/Off=30 secondes					

Read-Write Analogic					
S1 T° Setpoint	210	HR_16	R/W	°C	S1 (DHW) temperature setpoint
Therm.Treat. setpoint	212	HR_16	R/W	°C	Thermal treatment temperature setpoint
(16 bit integer/Entier 16 bit)*					


Picture 16


8.15 Inputs / Outputs menu



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

Settings :

<p>1. From the main menu, use \blacktriangle / \blacktriangledown keys to go to the line « Wired inputs – outputs »: Then press \checkmark key.</p>	<pre>PREMIUM /t ⇌ ... Wired inputs-outputs ></pre>
<p>2. Press \blacktriangledown / \blacktriangle keys to access to selected line and press \checkmark to validate. AI=Analog inputs=temperature sensors AO=Analog outputs=Y1, Y2 0-10V signals DI=Digital inputs=Pump fault + Remote contact DO=Digital outputs=Command pump + Relays contacts</p>	<pre>Wired inputs – outputs 1 /4 ⇌ Analog Inputs > Analog Outputs > Digital Inputs > Digital Outputs ></pre>
<p>Analog inputs Inputs (like outputs) are gathered on the controller by blocks labelled T1 to T12. On these blocks, each terminal is labelled. Example: S1 sensor is connected to terminals B1 of T2 block All inputs are read only, no possibility to change a sensor value.</p>	<pre>Analog Inputs 12/12 ⇌ ----- T2 CONNECTOR ----- B1 :S1 : nn°C B2 :S2 : nn°C B3 :S3 : nn°C B4 :S4 : 0°C ----- T3 CONNECTOR ----- B5 to X4 :--- N/A : 0°C</pre>
<p>Analog outputs Navigate into the display using \blacktriangle / \blacktriangledown keys and press \checkmark key to change value. Signal Y1 = Primary Valve control signal, 0 to 10 volts. Signal Y2 = Primary pump signal P1/P2, 0 to 10 volts (used with variable speed pump(s) only) « AUT » value indicates the controller controls this signal nnn% indicates the actual signal value (0%=0V up to 100%=10V). PASS INTO MANUAL MODE It is possible to override the original signal. To do that, select the line and press \checkmark key. Now, using \blacktriangle / \blacktriangledown keys, change from « AUT » to «MAN» value, meaning «MANUAL». Now press \checkmark key and using \blacktriangle / \blacktriangledown keys, input the signal value you want. Example: To check the actuator is moving and the primary valve fully closes, enter 0%. At the opposite, to check it fully opens, input 100%. To repute a point into automatic mode, select MAN and by pressing \blacktriangle or \blacktriangledown, display «AUT» and validate by pressing \checkmark key, then press « Esc ».  Once at least 1 point is in manual mode, $\textcircled{1}$ button is orange lit. DO NOT FORGET TO PUT THE POINT(S) IN AUTO BEFORE LEAVING THIS SUB-MENU. To see easily which point(s) are in manual mode, a « \boxtimes » logo is displayed on the corresponding line:</p>	<pre>Analog Outputs 1/5 ⇌ ----- T4 CONNECTOR ----- X5 :SIGNAL Y1 : AUT-nnn% X6 :SIGNAL Y2 : AUT-nnn% X7 :--- : AUT- 0% X8 :--- : AUT- 0%</pre> <p>AUT → MAN → nnn%</p> <p>To find back a point let in manual mode corresponding to our example, you can see the « \boxtimes » symbol :</p> <pre>Wired inputs – outputs 1 /4 ⇌ Analog Inputs > Analog Outputs \boxtimes > Digital Inputs > Digital Outputs ></pre>
<p>Binary (or digital) inputs All inputs are read only, no possibility to change a sensor value. External stop = remote contact. If ON, Remote is active and the unit is in standby mode.</p>	<pre>Binaru Inputs 1/6 ⇌ ----- T5 CONNECTOR ----- D1 :P1 Alarm : NORMAL D3 :P3 alarm : NORMAL D5 :External stop : OFF</pre>

<p>Binary (or digital) outputs As for analog outputs, it is possible to force these contacts to ON or OFF. To do that, pass from AUTO to MANual mode.</p> <p>R1=Relay 1, R2=Relay 2, R3=Relay 3. P1 Command corresponds to P1 pump ON/OFF. Y1 CLOSE/OPEN COM. Are not applicable</p> <p>Example: We want to Stop P1 pump. Select line #4, press ✓ key, press ▼ key then ✓ key and press ▼ then ✓ key to pass from ON to OFF. Do not forget to repress in automatic mode after the test.</p>  <p>Once at least 1 point is in manual mode, ① button is orange lit. DO NOT FORGET TO PUT THE POINT(S) IN AUTO BEFORE LEAVING THIS SUB-MENU. To see easily which point(s) are in manual mode, a « 𐄂 » logo is displayed on the corresponding line →</p> <p>Press « Esc » key to get back to main menu. Press again “Esc” to point 1st line of Main menu.</p>	<p>Binary Outputs 1/12 ↔</p> <p>----- T10 CONNECTOR ----- Q1: R1 COMMAND : AUT-OFF</p> <p>----- T11 CONNECTOR ----- Q2: P1 COMMAND : AUT-ON Q3: --- : AUT-OFF Q4: P3 COMMAND : AUT-ON</p> <p>----- T12 CONNECTOR ----- Q5: --- : AUT-OFF Q6: Y1.CLOSE.COM.: AUT-OFF Q7: Y1.OPEN.COM. : AUT-OFF Q8: R2 COMMAND : AUT-OFF Q9: R3 COMMAND : AUT-OFF</p> <p>Wired inputs – outputs 1 /4 ↔</p> <p>Analog Inputs ▶ Analog Outputs ▶ Digital Inputs ▶ Digital Outputs 𐄂 ▶</p>
---	--

9 Configuration access level

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

9.1 Login

Access code is 2000.

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

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

9.2 Logout



It is possible to log out at any time. For that:



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

9.3 Configuration menu

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

Settings :

1. From the main menu, use ▲ / ▼ keys to go to the line « Configuration »: Then press ✓ key.	PREMIUM n/t ⇌ ⇌ Configuration ▶																						
2. Press ▼ key then ✓ key to select PREMIUM. If STANDARD is indicated, put on premium mode using ▲ / ▼ keys and ✓ key to validate.	Configuration 2/ 17 ⇌ ⇌ Model selection PREMIUM																						
3. Press ▼ key to access to next line.																							
4. Press ✓ key to change actuator's type. Use ▲ / ▼ keys to change value and ✓ key to confirm or "Esc" key to cancel. Select Aq.E ① : Other values correspond to other products.	Configuration 3/ 17 ⇌ ⇌ ... Actuator type Aq.E Aq.F ✓Aq.E ...																						
5. Press ▼ key to access to next line	...																						
6. Keep on OFF state. Press ▼ key to access to next line	Configuration 4/ 17 ⇌ ⇌ Cooling Mode OFF																						
7. Press ✓ key to enable/disable S4 temperature sensor. Press ▲ / ▼ keys to change value to YES and press ✓ key to validate or "Esc" key to cancel. ① : S4 activation enables the limitation function.	Configuration 5/ 17 ⇌ ⇌ ... S4 Activation NO ...																						
8. Press ▼ key to access to next line	...																						
9. Press ✓ key to define primary pump(s)'number. Use ▲ / ▼ keys to select value "P1" and press ✓ key to confirm.  THIS STEP IS MANDATORY TO GET AN OPERATING UNIT!	Configuration 6/ 17 ⇌ ⇌ ... P1P2 pump selector P1* ...																						
10. Press ▼ key to access to next line	* Actual configuration appears on the right side of the line																						
11. Press ✓ key to define primary pump(s)'number. Use ▲ / ▼ keys to select value "P3" and press ✓ key to confirm.  THIS STEP IS MANDATORY TO GET AN OPERATING UNIT!	Configuration 7/ 17 ⇌ ⇌ ... P3P4 pump selector P3* ...																						
12. Press ▼ key to access to next line	* Actual configuration appears on the right side of the line																						
13. Press ✓ key to change relay 1 function. Use ▲ / ▼ keys to change value and ✓ key to validate. Default value is General alarm: will be activated for any default Possible values are:	Configuration 8/ 17 ⇌ ⇌ ... Relay 1 function General alarm ...																						
	<table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">No action</td> <td>Nothing</td> </tr> <tr> <td style="text-align: right;">Any default (default value)</td> <td>✓General alarm</td> </tr> <tr> <td style="text-align: right;">High temperature alarm on S1</td> <td>High T° alarm</td> </tr> <tr> <td style="text-align: right;">Low temperature alarm on S1</td> <td>Low T° alarm</td> </tr> <tr> <td style="text-align: right;">ECO function running</td> <td>ECO function</td> </tr> <tr> <td style="text-align: right;">Clock program</td> <td>Timer**</td> </tr> <tr> <td style="text-align: right;">Thermal treatment running</td> <td>Th.Tr activated</td> </tr> <tr> <td style="text-align: right;">N/A</td> <td>Tank loaded</td> </tr> <tr> <td style="text-align: right;">Pump(s) default</td> <td>Pump default</td> </tr> <tr> <td style="text-align: right;">Heat exchanger fouled as per fouling fct parameters</td> <td>HE fouled</td> </tr> <tr> <td style="text-align: right;">Limitation function (needs optional S4 sensor)</td> <td>Primary too low</td> </tr> </table>	No action	Nothing	Any default (default value)	✓General alarm	High temperature alarm on S1	High T° alarm	Low temperature alarm on S1	Low T° alarm	ECO function running	ECO function	Clock program	Timer**	Thermal treatment running	Th.Tr activated	N/A	Tank loaded	Pump(s) default	Pump default	Heat exchanger fouled as per fouling fct parameters	HE fouled	Limitation function (needs optional S4 sensor)	Primary too low
No action	Nothing																						
Any default (default value)	✓General alarm																						
High temperature alarm on S1	High T° alarm																						
Low temperature alarm on S1	Low T° alarm																						
ECO function running	ECO function																						
Clock program	Timer**																						
Thermal treatment running	Th.Tr activated																						
N/A	Tank loaded																						
Pump(s) default	Pump default																						
Heat exchanger fouled as per fouling fct parameters	HE fouled																						
Limitation function (needs optional S4 sensor)	Primary too low																						
14. Press ▼ key to access to next line																							
15. Press ✓ key to change relay 2 function. Use ▲ / ▼ keys to change value and ✓ key to validate. Default value is High T° alarm: will be activated with high temp alarm	Configuration 9/ 17 ⇌ ⇌ Relay 2 function High T° alarm ... General alarm ✓High T° alarm																						

Possible values are the same as relay 1, see above (step 13) 16. Press ∇ key to access to next line	...
17. Press \checkmark key to change relay 3 function. Use \wedge / ∇ keys to change value and \checkmark key to validate. Default value is nothing (no action). Possible values are the same as relay 1, see above (step 13) 18. Press ∇ key to access to next line	Configuration 10/ 17 \leftrightarrow \leftrightarrow Relay 3 function Nothing ... \checkmark Nothing General alarm ...
19. 230V 3 points actuator output. Keep OFF. \textcircled{i} : 230V 3 points output is disabled as not used on standard units and to avoid noise and to avoid wear of the corresponding relays. 20. Press ∇ key to access to next line	Configuration 11/ 17 \leftrightarrow \leftrightarrow ... 3 points valve on Y1 OFF ...
\textcircled{i} : No action if 3 points valve is set to OFF. 21. Press ∇ key to access to next line	Configuration 12/ 17 \leftrightarrow \leftrightarrow - Open time 30s ...
\textcircled{i} : No action if 3 points valve is set to OFF. 22. Press ∇ key to access to next line	Configuration 13/ 17 \leftrightarrow \leftrightarrow - Close time 30s ...
23. Press \checkmark key to change the display language. Use \wedge / ∇ keys to change value and press \checkmark key to validate or "Esc" key to cancel. \textcircled{i} : All menus will be displayed in the selected language*** 24. Press ∇ key to access to next line	Configuration 14/ 17 \leftrightarrow \leftrightarrow ... Language selection English ... Svenska ...
25. Press \checkmark key to production reset the controller. Use \wedge / ∇ keys to change value NO/YES and press \checkmark key to validate or "Esc" key to cancel.  At the opposite of describe restart found in some sub-menus, this production reset put all parameters by default, as described into this manual, putting the controller in its original state, before factory configuration of pump(s) and sensor(s). It will be necessary to reconfigure these last ones. 26. Press ∇ key to access to next line	Configuration 15/ 17 \leftrightarrow \leftrightarrow ... Production reset NO ...
27. Software version. Read only. Also visible into the info menu or by pressing the \textcircled{i} key. 28. Press ∇ key to access to next line	Configuration 16/ 17 \leftrightarrow \leftrightarrow ... Software version V.nn ...
29. Press \checkmark key then use \wedge / ∇ to change value OFF/ON, press \checkmark to enable or « Esc » to cancel.  ANY CHANGE INTO THIS MENU, EXCEPT LANGUAGE SELECTION REQUIRES A CONTROLLER RESTART!	Configuration 17/ 17 \leftrightarrow \leftrightarrow ... Restart required ! OFF ...
30. Press « Esc » key to get back to main menu. Press again to point 1 st line of Main menu.	

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





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

10 Alarms/Functions and acknowledgement




10.1 Alarms

Alarms are indicated via  key that red flashes.




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



Possible alarms are listed below:

Display :	Meaning :
Alarm history nn/tt	Nn=Alarm(s) number, tt=Total lines number
Acknowledge	Press  , then  and  to acknowledge ALL alarms
S1 150°C ▶	S1 sensor is faulty or wires disconnected.
S2 150°C ▶	S2 resistance disconnected from controller PCB.
S3 150°C ▶	S3 resistance disconnected from controller PCB.
S4 150°C* ▶	S4 sensor is faulty or wires disconnected.
P1 Alarm FAULT ▶	Primary pump 1 default.
S1 high T° FAULT ▶	High temperature alarm measured by S1 temperature sensor.
S1 low T° FAULT ▶	Low temperature alarm measured by S1 temperature sensor.
S4 too low T° FAULT* ▶	Limitation function activated and low temperature measured on S4
Therm. treat. FAILURE ▶	Thermal treatment temperature not reached as per fct parameters

* As per equipment.

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

10.2 Functions

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





It is not possible to acknowledge an active alarm or function.

The different functions are listed below:

Display :	Meaning :
Alarm list detail nn/tt	Nn=Function(s) number, tt=Total lines number
SAFETY ACTIVE ▶	Safety function running
SAFETY INACTIVE ▶	End of safety function
Therm. Treat. Started ▶	Thermal treatment running
Therm. Treat. Stopped ▶	End of Thermal treatment
ECO MODE STARTED ▶	ECO function running
ECO MODE STOPPED ▶	End of ECO function
STANDBY ACTIVE ▶	Standby function activated. Remote contact closed, unit in standby
STANDBY INACTIVE ▶	Standby function not active. Unit operating normally

10.3 Events'list

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

11 Production RESET

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

Access code is 2000.

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

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

Log out

It is not necessary to wait 10 minutes until logging out. It is possible to log out at any time.

For that :

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



Once a production reset is done, it is MANDATORY to configure the unit, especially operating mode (Standard or Premium) AND pumps' number.

For that, check [Configuration](#).

12 Trouble shooting

FINDINGS	PROBABLE CAUSES	REMEDIES
Controller doesn't start	No power from mains or PCB transformer	Check FU5 (230V transfo), FU7 (24VDC transfo) and mains supply
Pump not operating	Locked rotor or damaged	Force to rotate. Replace if required
	Corresponding led is not lit on PCB	Check FU5 and FU6 fuses
	Pump relay damaged	Replace Power Board
	Pump protection fuse blown	Check then replace if necessary
	High Alarm condition detected	Clear alarm then reset system
	No voltage to control board terminals	Check power supply cable and fuses
	No voltage to pump motor terminals	Check protection fuse on main board, cable condition and connections
	Controller improperly set	Check pumps' configuration into Configuration menu
Low temp alarm condition	Primary pump stopped	See "Pump not operating"
	Too low primary temperature	Check for a closed valve on the primary side
	Too high tap water flow rate (SI)	Reduce buffer vessel charging flow rate
	S1 set point too high	Adjust setpoint into S1 Menu
	Control valve remains closed	See "Modulating valve does not operate"
Modulating valve does not operate	Damaged or broken actuator	Test and replace if necessary
	Broken or improperly tightened coupling	Check and replace if necessary
	Valve blocked	Replace
	No signal from the controller	Check FU6 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 into S1 Menu
	Actuator not closing	Refer to "The actuator does not operate".
	Too much differential pressure across the control valve	Check the way the TWM is piped-up. Eventually install small bypass before the unit to break DP
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

13 Maintenance and repairs

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



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 and exchanger cool down before starting out with maintenance work.

13.1 Cleaning Copper Brazed and Fusion Bonded heat exchangers (B/F-series)

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



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



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



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



Open top and bottom clips to remove insulation.

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



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



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



DO NOT USE water containing more than 300 ppm Cl for the preparation of cleaning solutions.

Nitric acid (for calcium carbonate), sulphamic acid (for calcium sulphate) or citric acid (for silt clay) can be used. The concentration should not exceed 4% at 60 ° C. Gloves and goggles should always be worn during these operations. Gently rinse the plates with clean water before cleaning.

13.2 Opening the control box

Open the front panel by turning the lock button counter clockwise and pull the front panel.



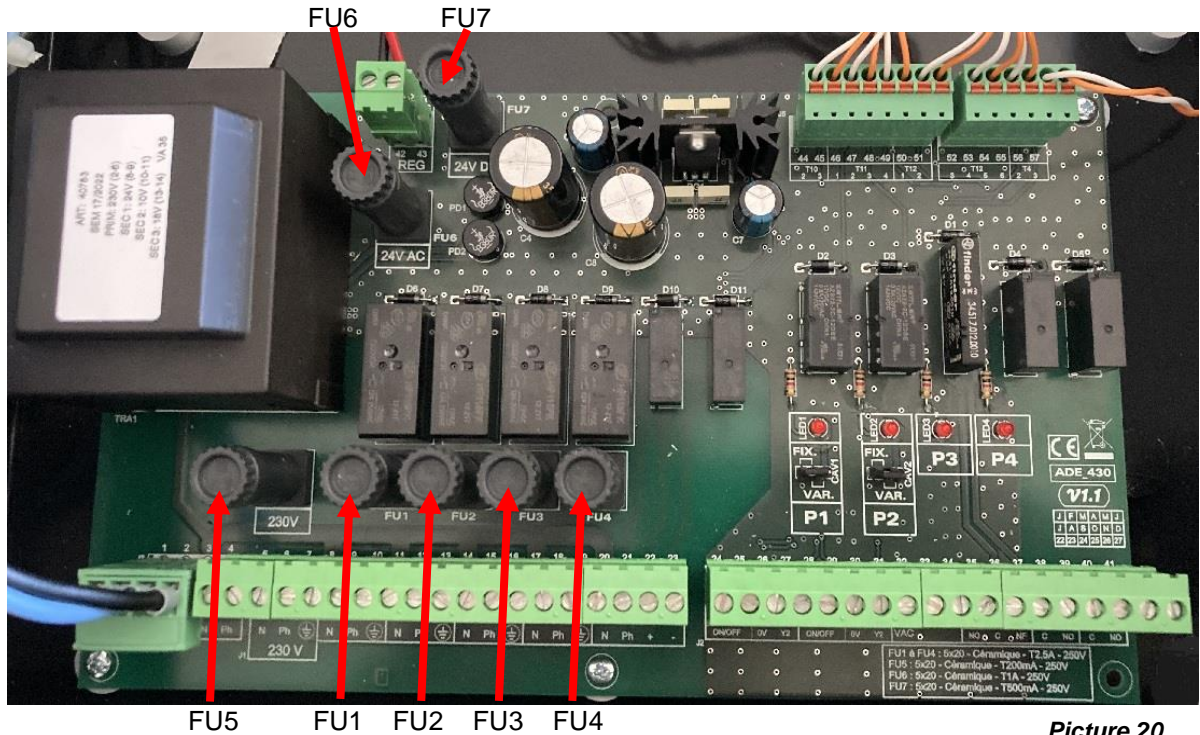
13.3 Change fuses

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 20

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

13.4 Relays' wiring

Relay 1 is NO/NC (Normally Open or Normally Closed), Relays 2 and 3 are NO only (normally open).

Relay number	Operating mode	Connection on PCB terminal		
		C	NO	NC
1	NO/NC	40	39	41
2	NO	42	43	
3	NO	44	45	



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

13.5 Remote control wiring


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



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

Working principle :

When contact is open (by default), unit is operating normally.

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

13.6 Technical data

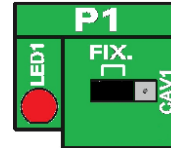
All models are power supplied 230V 50Hz + Ground.

Model	3 P CV DN (Kv)	Pump type	I _{max} (A)	P _{max} (W)	Max Weight (kg)	Max Dim LxWxH (mm)
EFB60 ISRN	32 (16)	Wilco Para Maxo 30-180-10 F02 I	2.6	285	47	545x350x1225
EFB112 ISRN	40 (25)	Grundfos Magna 3 40-100	2.8	450	106	865x355x1290

14 Pump wirings/settings

14.1 Wilco Para Maxo pump

- Set Fixed pump for P1 on power PCB (left position)
- Pump wiring is made using cables' plugs (no internal wiring). Each plug is specific and there is no possibility to mix them.



Picture 21

Pump is already set. In case of replacement, follow the bellow setting procedure:

- Power on the unit. The pump will be energized a few seconds later.
- Using the unique button, press it several times to display "4" on the led display:
- Press 3 seconds to light "Ext" light (0-10V input) as shown:
- Press 9 seconds to lock pump setting.
- You can also press 9 seconds + to unlock pump setting.



Picture 22

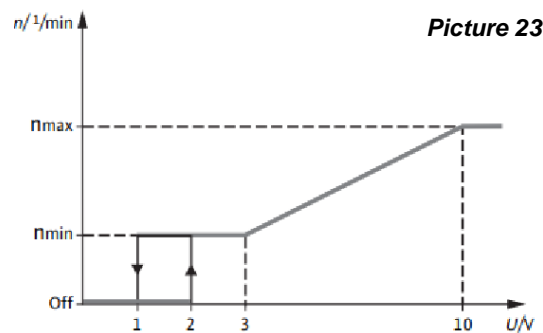
Pump behaviour as per 0-10V signal input

- If signal decreasing from high value (between 10V and >3V), pump speed decreases linearly as per Y2 voltage value.
- If Y2 signal decreasing below 3 volts, pump operates at min speed.
- If signal increasing from min to 3 volts, pump operates at min speed
- If signal increasing above 3 volts, pump speed increases linearly as per Y2 voltage value.

Note :

Unless you lower min speed signal down to 10%, the pump will never stop, except using ECO function.

Analogue signal input (V)	Pump reaction
< 1	Pump stops.
1 ... 3 (operation)	Pump runs at minimum speed.
2 ... 3 (starting)	Pump runs at minimum speed.
3 ... 10	The speed of the pump increases linearly from n_{min} to n_{max} .



Picture 23

Pump status:



Green lit: No fault. Pump is operating normally.



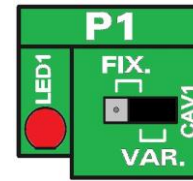
Red/Green flashing: warning. Default contact stays closed. No information to the controller.



Red flashing: alarm. Default contact opens and controller gets information.

14.2 Grundfos Magna3 pump

- Set Variable speed pump for P1 on power PCB (right position)



- Wire pump power supply from the power terminal in the control box.

	Connection on PCB terminal			Connection on Magna 3 pump
	N	Ph	⊥	
Pump 1	8	9	10	<p>Picture 24</p>

- Ipsothermic or default pump contact wiring
 NC and C are alarm output. There is no polarity. NO terminal not used.

	Connection on controller T5 terminal		Connection on Magna 3 pump
	C	NC	
Pump 1	M	D1	<p>Picture 25</p>

- **ON/OFF (or Start/Stop) contact wiring**
 No polarity. Must be a potential-free contact.

	Connection on PCB terminal		Connection on Magna 3 pump
	⊥	S/S	
Pump 1	24	25	<p>Picture 26</p>

- **0-10V Contact**
 Respect the polarity.

	Connection on PCB terminal		Connection on Magna 3 pump
	0V ⊥	0/10V IN	
Pump 1	26	27	<p>0 V Signal 0-10 V</p> <p>Picture 27 Connect ⊥ and IN.</p>

Once pump is electrically wired, remember to declare it into “Configuration” menu.


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



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

Working principle :

When contact is open (by default), unit is operating normally.






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

- **Pump settings**



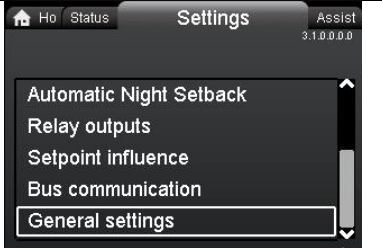

Pumps of delivered units have all been factory programmed. This guide is more applicable in case of adding a pump or pump replacement for which it is not set.

Picture 28

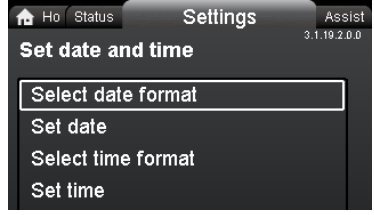
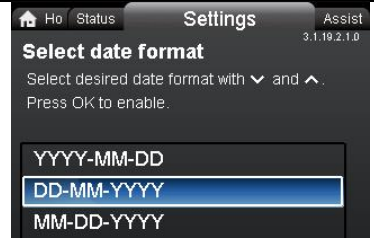
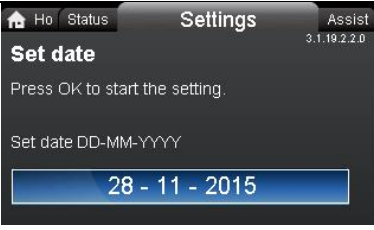
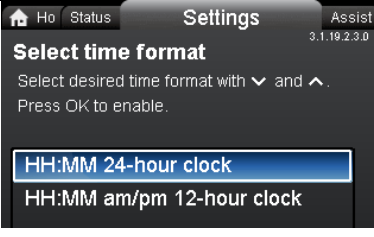
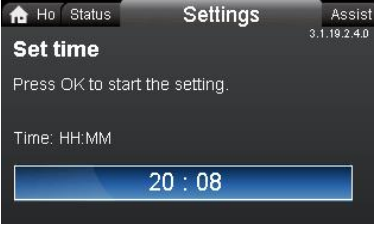
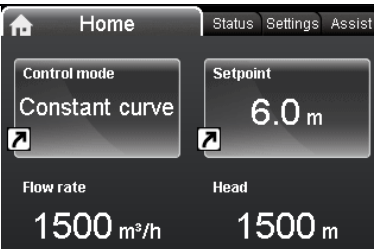
Button	Function
	Goes to the "Home" menu.
	Returns to the previous action.
	Navigates between main menus, displays and digits. When the menu is changed, the display will always show the top display of the new menu.
	Navigates between submenus.
	Saves changed values, resets alarms and expands the value field.

The pump incorporates a startup guide which is started at the first startup. After the startup guide, the four main menus will appear in the display. The startup guide will guide you through the general settings of the pump, such as language, date and time.

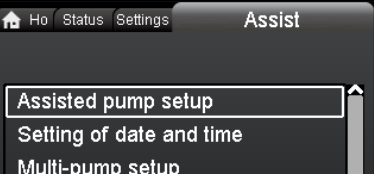
Setting Language


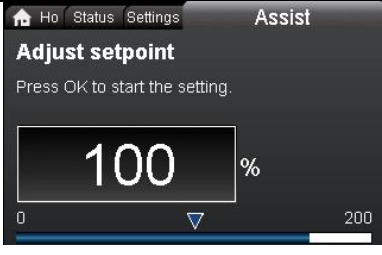
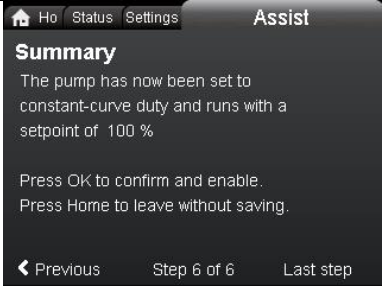
<p>NOTE: Measuring units are automatically changed according to selected language.</p> <ol style="list-style-type: none"> 1. Navigate from "Home" to "Settings". 2. Select the line "General settings". 3. Press [OK]. 	
<ol style="list-style-type: none"> 4. Select the line "Language". 5. Press [OK]. 6. Select what language to use. 7. Press [OK] to enable. 	

Set date and time

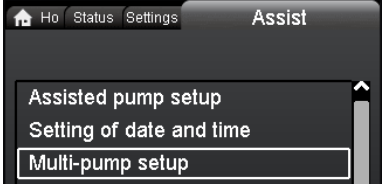
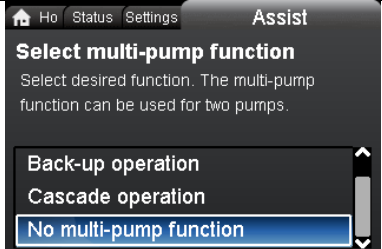

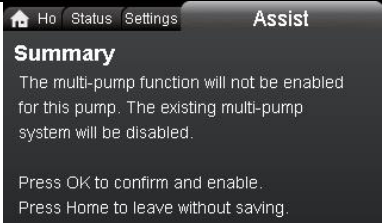
<ol style="list-style-type: none"> 1. Navigate from “Home” to “Settings”. 2. Select the line “General settings”. 3. Press [OK]. 4. Select the line “Set date and time”. 5. Press [OK]. 	
<ol style="list-style-type: none"> 6. Select the line “Select date format”. 7. Select format using ^ v keys 8. Press [OK] to enable. 9. Press < to return to the menu “Set date and time” 	
<ol style="list-style-type: none"> 10. Select the line “Set date”. 11. Press [OK]. 12. Press [OK] to start setting and select digit with < > and adjust with ^ v . 13. Press [OK] to save. 14. Press < to return to the menu “Set date and time” 	
<ol style="list-style-type: none"> 15. Select the line “Select time format”. 16. Press [OK] to enable. 17. Press < to return to the menu “Set date and time” 	
<ol style="list-style-type: none"> 18. Select the line “Set time”. 19. Press [OK]. 20. Press [OK] to start setting and select digit with < > and adjust with ^ v . 21. Press [OK] to save. 22. Press < to return to the menu “Set date and time” 	
<ol style="list-style-type: none"> 23. When all settings are done, press < to return to the main menu “Settings” or on Home to come back to the home screen. 	

Setting pump control mode

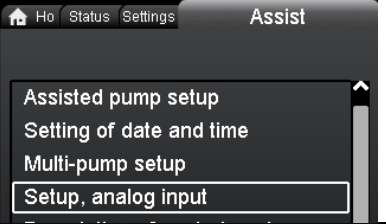
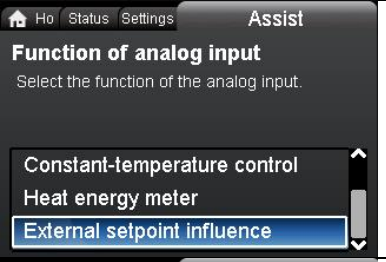
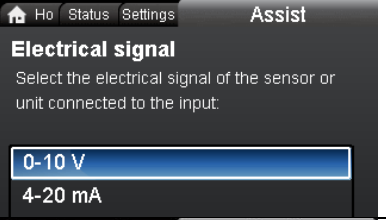
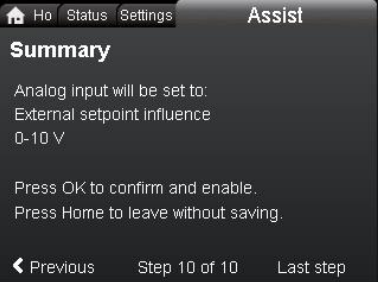
<p>Note: Cetetherm recommend to use, Constant Curve and with setpoint 100%.</p> <ol style="list-style-type: none"> 1. Navigate from “Home” to “Assist”. 2. Select the line “Assisted pump setup”. 3. Press [OK] then > twice 	
---	---

<ol style="list-style-type: none"> 4. Go to the submenu "Select control mode". 5. Select the line "Constant curve". 6. Press [OK] to save. 	
<ol style="list-style-type: none"> 7. Go to the submenu "Adjust setpoint", press [OK] to start the setting. 8. Select digit with < > and adjust with ^ v . 9. Press [OK] to save. 	
<ol style="list-style-type: none"> 10. Press > to see setting summary. 11. Press [OK] to confirm and enable. 	


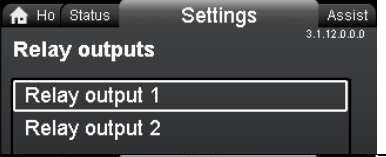

Settings for double pumps

<ol style="list-style-type: none"> 1. Navigate from "Home" to "Assist". 2. Select the line "Multi-pump setup". 3. Press [OK]. 	
<ol style="list-style-type: none"> 4. Go to submenu "Select multi-pump function". 5. Select the line "No multi-pump function". 6. Press [OK] to save the setting. 	
<ol style="list-style-type: none"> 7. Press > to see settings summary. 8. Press [OK] to confirm and enable. 9. Press  to get back to home screen. 	

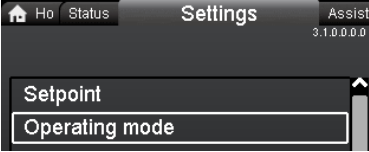
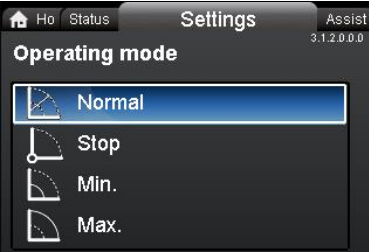
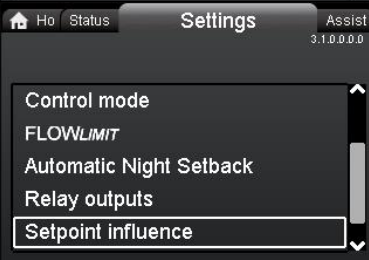

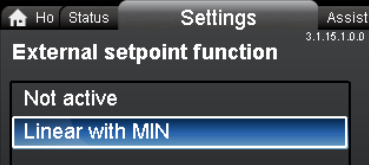
Setup analog inputs

<ol style="list-style-type: none"> 1. Navigate from “Home” to “Assist”. 2. Select the line “Setup, analog input”. 	
<ol style="list-style-type: none"> 3. Go to the submenu “Function of analog input”. 4. Select the line “External setpoint influence”. 5. Press [OK]. 	
<ol style="list-style-type: none"> 6. Go to the submenu “Electrical signal”. 7. Select the line “0-10V”. 8. Press [OK] to save the setting. 	
<ol style="list-style-type: none"> 9. Press > to see settings summary. 10. Press [OK] to confirm and enable. 	

Setup Relay1 output

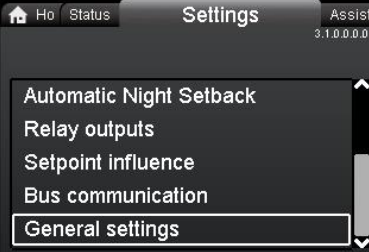
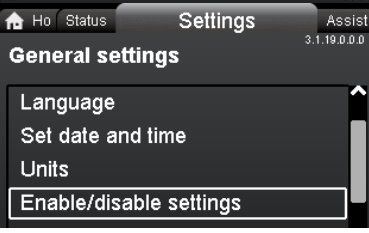
<ol style="list-style-type: none"> 1. Navigate from “Home” to “Settings”. 2. Select the line “Relay outputs”. 3. Press [OK]. 	
<ol style="list-style-type: none"> 4. Select the line “Relay output 1”. 5. Press [OK]. <p><i>ⓘ: Relay#2 is not used</i></p>	
<ol style="list-style-type: none"> 6. Select “Alarm”. 7. Press [OK] to save the setting. 	






Pump settings

<ol style="list-style-type: none"> Navigate from "Home" to "Settings". Select the line "Operating mode". Press [OK]. 	
<ol style="list-style-type: none"> Select "Normal". Press [OK] to save the setting. 	
<ol style="list-style-type: none"> Return to the main menu "Settings". Select the line "Setpoint influence". Press [OK]. 	
<ol style="list-style-type: none"> Select "External setpoint function". Press [OK]. 	
<ol style="list-style-type: none"> Select "Linear with MIN". Press [OK] to save the setting. <p>Note: The operating mode must be set to "Normal" before a control mode can be enabled.</p>	








Enable/disable settings

The possibility of making settings can be disabled for protective reasons.

<ol style="list-style-type: none"> Navigate from "Home" to "Settings". Select the line "General settings". Press [OK]. 	
<ol style="list-style-type: none"> Select the line "Enable/disable settings". Press [OK]. 	

<p>6. To lock the pump, use   and select "Disable".</p> <p>7. Press [OK] to save the setting.</p> <p>The pump will now be locked for settings. Only the "Home" display will be available.</p> <p>To unlock the pump and allow settings, press both   simultaneously for at least 5 seconds.</p>	
---	---

Grundfos Eye operating indications

Grundfos Eye	Indication	Cause
	No light on	Power off Pump not running
	Two opposite green indicator lights running in the direction of rotation of the pump.	Power on. Pump running.
	Two opposite green indicator lights permanently on.	Power on. Pump not running.
	One yellow indicator light running in the direction of rotation of the pump.	Warning. Pump running.
	One yellow indicator light permanently on.	Warning. Pump stopped.
	Two opposite red indicator lights flashing simultaneously.	Alarm. Pump stopped.
	One green indicator light in the middle permanently on (in addition to another indication).	Remote-controlled. The pump is currently being accessed by the Grundfos GO.

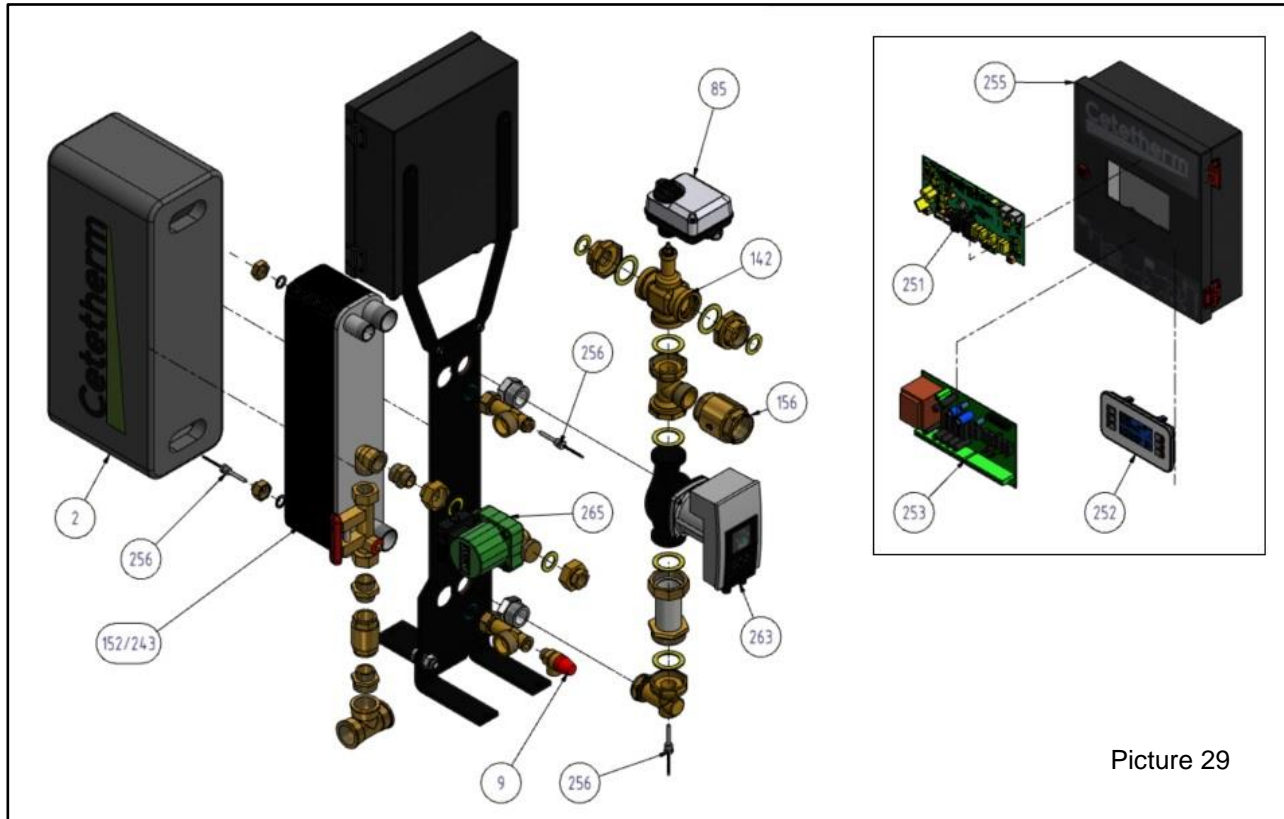
Warning and alarm codes	Fault	Auto restart?	Corrective actions
Pump communication fault (10) Alarm	Communication fault between different parts of the electronics.	Yes	Replace the pump or call GRUNDFOS SERVICE for assistance. Check if the pump is running in turbine operation. See code (29) Forced pumping.
Forced pumping (29) Alarm	Other pumps or sources force flow through the pump even if the pump is stopped and switched off.	Yes	Switch off the pump on the main switch. If the light in the Grundfos Eye is on, the pump is running in forced-pumping mode. Check the system for defective non-return valves and replace, if necessary. Check the system for correct position of non-return valves, etc.
Undervoltage (40, 75) Alarm	Supply voltage to the pump too low.	Yes	Check that the power supply is within the specified range.
Blocked pump (51) Alarm	The pump is blocked.	No	Dismantle the pump and remove any foreign matter or impurities preventing the pump from rotating.
Dry running (57) Alarm	No water at the pump inlet or the water contains too much air.	No	Air vent the pump before a new startup. Check that the static pressure is correct. If still issues after, replace the pump, or call GRUNDFOS SERVICE for assistance.
High motor temperature (64) Alarm	Temperature in stator windings too high.	No	Check the winding resistance.
Internal fault (72, 84, 155, 157) Warning/alarm	Internal fault in the pump electronics.	Yes	Replace the pump, or call GRUNDFOS SERVICE for assistance
Overvoltage (74) Alarm	Supply voltage to the pump too high.	Yes	Check that the power supply is within the specified range.

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Communication fault, twin-head pump (77) Warning	Communication between pump heads disturbed or broken.	Yes	Check that the second pump head is powered or connected to the power supply.
Internal sensor fault (88) Warning	The pump is receiving a signal from the internal sensor which is outside the normal range.	Yes	Check that the plug and cable are connected correctly in the sensor. The sensor is located on the back of the pump housing. Replace the sensor or call GRUNDFOS SERVICE for assistance.
External sensor fault (93) Warning	The pump is receiving a signal from the external sensor which is outside the normal range.	Yes	Does the electrical signal set (0-10 V or 4-20 mA) match the sensor output signal? If not, change the setting of the analog input. Check the sensor cable for damage. Check the cable connection at the pump and at the sensor. Correct the connection, if required. See section 16.2 Sensor condition. The sensor has been removed, but the analog input has not been disabled. Replace the sensor or call GRUNDFOS SERVICE for assistance.

15 Exploded views and spare parts' list

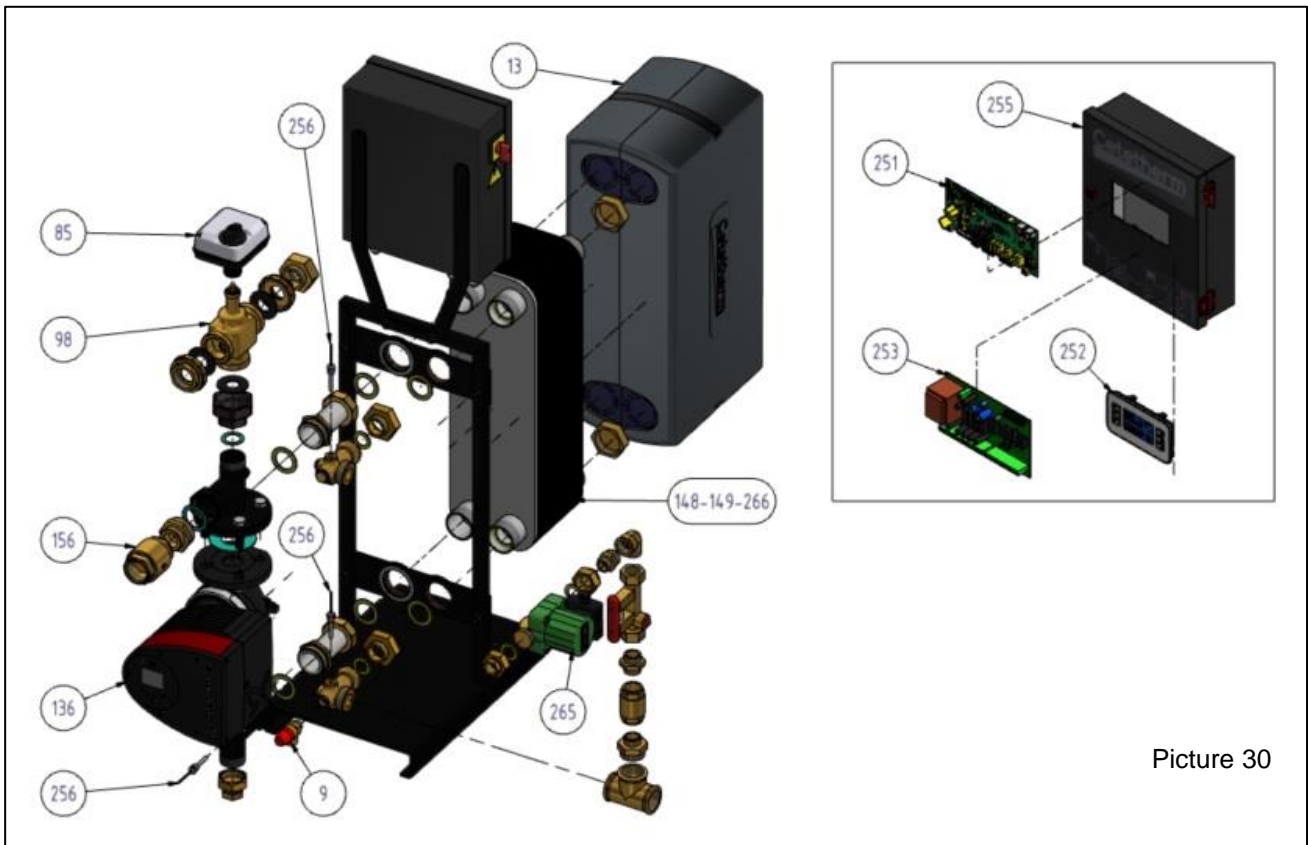
15.1 EFB60 ISRN



Picture 29

REP	DESCRIPTION
251	Temperature controller Micro 4000
252	HMI display with cable for Micro 4000
253	ADE_430 power board with connectors
255	Control box, empty
256	Temperature sensor Micro 4000
9	Safety valve 15/21 10B
152	Copper brazed heat exchanger (CB60) 50 plaques
243	Copper brazed heat exchanger (CB60) 80 plates
263	Pump WILO Para Maxo 30 180 1-10 1*230V
85	Actuator 24V supply 0-10 Volts signal 15 s
142	Kit body 3 Port control valve DN32
2	HE Insulation
265	Recycling pump WILO STAR Z 20/7

15.2 EFB112 ISRN



Picture 30

REP	DESCRIPTION
251	Temperature controller Micro 4000
252	HMI display with cable for Micro 4000
253	ADE_430 power board with connectors
255	Control box, empty
256	Temperature sensor Micro 4000
9	Safety valve 15/21 10B
148	Copper brazed heat exchanger (CB112) 50 plates
149	Copper brazed heat exchanger (CB112) 70 plates
266	Copper brazed heat exchanger (CB112) 130 plates
136	Pump Grundfos Magna 3 40-100 1*230V
85	Actuator 24V supply 0-10 Volts signal 15 s
98	Kit body 3 Port control valve DN40
13	Insulation
265	Recycling pump WILO STAR Z 20/7

16 Commissioning report

COMMISSIONING REPORT																										
Installation																										
Heat source type and capacity	<input style="width: 100%; height: 20px;" type="text"/>																									
Air vent position	<input style="width: 100%; height: 20px;" type="text"/>																									
Settling Pot presence on primary	<input style="width: 100%; height: 20px;" type="text"/>																									
Mixing bottle required / Presence	<input style="width: 100%; height: 20px;" type="text"/>																									
Balancing valve presence on Semi Instantaneous installations	<input type="checkbox"/>																									
Primary filled, air vented and under pressure	<input type="checkbox"/>				Primary working pressure	<input type="checkbox"/>																				
Secondary filled, air vented and under pressure	<input type="checkbox"/>				Secondary working pressure	<input type="checkbox"/>																				
Accessibility of unit and components	<input type="checkbox"/>																									
Unit Configuration																										
Sensors	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>S1</th> <th>S2</th> <th>S3</th> <th>S4</th> <th>S5</th> <th>S6</th> <th>Pt1</th> <th>Pt2</th> </tr> </thead> <tbody> <tr> <td colspan="9" style="height: 40px;">Specific function</td> </tr> </tbody> </table>									S1	S2	S3	S4	S5	S6	Pt1	Pt2	Specific function								
S1	S2	S3	S4	S5	S6	Pt1	Pt2																			
Specific function																										
Primary Pumps:								Accept																		
Pump 1	<input type="checkbox"/>	0-10V signal :	<input type="checkbox"/>	Pump 2	<input type="checkbox"/>	0-10V signal :	<input type="checkbox"/>																			
Secondary Pumps:																										
Pump 3	<input type="checkbox"/>	0-10V signal :	<input type="checkbox"/>	Pump 4	<input type="checkbox"/>	0-10V signal :	<input type="checkbox"/>																			
Electrical bridges control for pumps on power plate																										
Pump1	<input type="checkbox"/>	Pump2	<input type="checkbox"/>	Pump3	<input type="checkbox"/>	Pump4	<input type="checkbox"/>																			
Sensors' switches control	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Pt1</th> <th>Pt2</th> <th>S1</th> <th>S2</th> <th>S3</th> <th>S4</th> <th>S5</th> <th>S6</th> </tr> </thead> <tbody> <tr> <td colspan="8">Control valve working</td> <td><input type="checkbox"/></td> </tr> </tbody> </table>									Pt1	Pt2	S1	S2	S3	S4	S5	S6	Control valve working								<input type="checkbox"/>
Pt1	Pt2	S1	S2	S3	S4	S5	S6																			
Control valve working								<input type="checkbox"/>																		
Settings																										
S1 (DHW) setpoint :	<input type="checkbox"/>	Curve Sp:	<input type="checkbox"/>	Cooling?	<input type="checkbox"/>																					
Special PID setting: P	<input type="checkbox"/>	I	<input type="checkbox"/>	D	<input type="checkbox"/>																					
High alarm setting DT:	<input type="checkbox"/>	Manual	<input type="checkbox"/>	Auto	<input type="checkbox"/>	restart	Tempo :	<input type="checkbox"/>																		
Thermal Treatment	<input type="checkbox"/>	Setpoint:	<input type="checkbox"/>	Freq.:	<input type="checkbox"/>	Time :	<input type="checkbox"/>																			
Efficiency DT(S3-S2)	<input type="checkbox"/>	Delta T Sp:	<input type="checkbox"/>																							
Eco function:	<input type="checkbox"/>	Booster fct:	<input type="checkbox"/>	Fouling fct:	<input type="checkbox"/>	Limitation fct (S4):	<input type="checkbox"/>																			
Booster function:	<input type="checkbox"/>																									
Relay 1 fct :	General	High T	Low T	Eco	Timer	Th.Tr.	Tank loaded	Pump alm	Fouled	S4 low																
Relay 2 fct :	General	High T	Low T	Eco	Timer	Th.Tr.	Tank loaded	Pump alm	Fouled	S4 low																
Relay 3 fct :	General	High T	Low T	Eco	Timer	Th.Tr.	Tank loaded	Pump alm	Fouled	S4 low																
Remote contact wired ?	<input type="checkbox"/>																									
Other comments:	<input style="width: 100%; height: 30px;" type="text"/>																									
Identification of the unit:																										
Unit ID:	<input style="width: 100%;" type="text"/>				Type:	<input style="width: 100%;" type="text"/>																				
Installer / Company Name					Site adress																					
<input style="width: 100%; height: 40px;" type="text"/>					<input style="width: 100%; height: 40px;" type="text"/>																					
Date :																										
<input style="width: 100%; height: 40px;" type="text"/>					<input style="width: 100%; height: 40px;" type="text"/>																					
Name:					Signature:																					
<input style="width: 100%; height: 40px;" type="text"/>					<input style="width: 100%; height: 40px;" type="text"/>																					

Picture 31

17 Declaration of conformity

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

Declaration of Conformity
Déclaration de Conformité
Konformitätserklärung
Conformiteitsverklaring

Manufacturer / Fabricant / Hersteller / Fabrikant:

Cetetherm SAS

Route du Stade ZI du Moulin, 69490 Pontcharra sur Turdine, France

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

Products / Produits / Produkte / Producten	Models / Modèles / Varianten / Modellen
FIBLR	FIBLR CB60 / FIBLR CB112

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

Used directives / Directives utilisées / Angewendete Direktiv / Gebruikte richtlijnen :

- PED 2014/68/EU
- LVD 2014/35/EU
- EMC 2013/35/EU
- RoHS 2011/65/EU

Used other standards and specifications / Autres normes et spécifications utilisées / Weitere angewendete Standards / Andere gebruikte standaarden en specificaties :

- EN 60335-1 partly / EN 60335-1 en partie / EN60335-1 teilweise / EN6335-1 gedeeltelijk
- EN 60204-1 partly / EN 60204-1 en partie / EN 60204-1 teilweise / EN60204-1 gedeeltelijk

Jean-Michel Montoni

Pontcharra sur Turdine, Mai 2023

Jean-Michel Montoni

Product manager / Chef de produit / Bevollmächtigter / Conformiteits verantwoordelijke

18 Warranty

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

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

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

Exclusion factors:

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

Also excluded from the warranty:

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

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

18.1 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

Cetetherm

The logo for Cetetherm features the company name in a bold, black, sans-serif font. A solid green horizontal bar is positioned directly beneath the text, extending from the start of the 'C' to the end of the 'm'.