

Installation and service instruction

Cetetherm AquaProtect T1 instantaneous (direct) and semi-instantaneous (indirect)



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1 General information

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Cetetherm reserves the right, without prior notification, to make technical changes compared with the illustrations and information contained in these instructions, should it consider it necessary for improving the system.

These instructions provide important information that is necessary to ensure that the system is both reliable and safe. The operating/installation personnel must have access to these instructions. Therefore, please make sure that a copy of these instructions is available in plenty of time.

If the installation is sold, or there is a change of owner, please pass on these instructions to the new owner. Please let us have the name and address of the new owner for the unlikely event that we need to contact them regarding the safety of the installation.

Read these instructions carefully before installing the equipment. Pay particular attention to the safety information.

1.1 Intended use

The AquaProtect T (AQPRT) is a domestic hot water disinfection unit which eradicates Legionella in potable water systems by heating the water up to 70°C for a certain time and cooling it down to the requested distribution temperature.

AquaProtect ensures continuous disinfection of the entire domestic hot water circulation loop. Installation must be designed without dead ends and limited numbers of low tapping frequency arms.

The holding time is defined by the size of the reaction tank, chosen by the user.

AquaProtect T can be connected to all heating installations as local boilers and district heating networks, as shown below:

	Max. operating Pressure (barg)	Min operating Temperature (°C)	Max operating Temperature (°C)	HE type	Control valve type
AquaProtect T1 I/SI	10	80	110	Plates & gaskets	3 Port

1.1.1 Operating data on the Primary side

By combining hot water storage tanks of different sizes with the AQPRT of different power ratings, depending on the choice made, continuous outputs of 3 m3/h to 13 m3/h and peak extractions of approx. up to 30m3/h are possible (reference temperature 60°C).

The following laws and technical rules are taken into account when designing and choosing the components of the AQPRT:

PED 2014/68/EU Art.3., NF 15100, ACS (France), DVGW (Germany), WRAS(UK), BELGAQUAP (Belgium), KIWA(Netherlands) and other local sanitary rules (Other countries) certified components. Furthermore, when installing and connecting the unit, you may refer to local rules and recommendations.

Using the equipment as intended also includes following these operating instructions and maintaining the set values and maintenance conditions specified.

1.2 Misuse

Any use that exceeds the use described above is misuse. The manufacturer is not liable for damage resulting from misuse. The operator bears the risk. Please keep the order data/article numbers of the system handy so that we can deal with your needs and spares orders promptly.



2 Installation and connections

NOTE: please check the system delivered for completeness and possible damage in transit before transferring it to the place where it is to be installed.

Important: The system may only be installed and commissioned by a specialist company, which is then responsible for the correct installation, connection and the equipment.

Some of the components supplied are very heavy and have a high centre of gravity. Please transport these parts carefully and only use suitable equipment, e.g. forklift, crane, lifting truck.

2.1 Space required

Install the system in a room that is protected from frost, flooding and is adequately ventilated. The maximum admissible temperature in the room where the system is installed must not exceed 40°C. Make sure that there is adequate space between the system and the wall and other components to allow maintenance and inspection (minimum 60 cm).

2.2 Substrate/foundation/load-bearing capacity

The load-bearing capacity of the substrate must be adequate for the weight of the system (see delivery documents).

2.3 Alignment

Set up the system on the site and align horizontally. If the substrate is soft, place suitable shims under the foot ring/frame feet so that the system does not sink in.

2.4 Connection

The pipes for connecting the system must be designed so that they will safely withstand the expected chemical, mechanical, pressure and temperature stresses. The pipes connected to the system must not transfer any reaction forces and vibrations into the system.

2.5 Water connection on the primary side (heating)

The primary side must be connected by suitable, specialist personnel, in liaison with the district heat utility if necessary.

If district heat is used as the energy source, the utility will also commission the primary side and issue a test report.

Connect the supply and return to the points marked. The primary water introduced must comply with the common specifications of heating water.

Installation of a dirt trap to protect fouling of the control valve and heat exchanger is recommended to prevent operating problems.

The power of the heat exchanger has been calculated on the basis of a heating medium defined temperature. Higher temperatures can cause a premature deterioration in performance through lime scale deposits on the heating surfaces.

The primary circuit is operated with a controlled pre-mixing 3 port valve (all AquaProtect T1).



2.6 Water connection on the secondary side (Domestic hot water)

The secondary side must be connected by qualified personnel of the installation company. The common standards and the rules of the local water utilities must be observed in particular. Cold water supply and circulation must be connected to the tagged points.

Cold water introduced must comply with the specifications of the relevant drinking water directive.

We recommend the installation of a direct filter in the cold water pipe to filter out any solids brought in from the water mains, otherwise there is an increased risk of fouling and corrosion of the storage water heater supplied.

Particular attention must be paid to compatibility of the material of the pipe mains with the materials of the storage water heater supplied.

2.6.1 Operating data on the secondary side

	All AquaProtect types
Max. admissible operating temperature (°C)	90
Max. admissible operating pressure (bar gauge)	10

Safety unit 2.7

The sequence of the valves belonging to the safety unit must be observed exactly according to the common standards. The customer is responsible for supplying and installing the safety unit. The safety valve supplied as part of the AQPT is used exclusively for the intrinsic protection of the heat exchanger.

2.8 Water hardness

By nature, drinking water contains alkaline earths and also calcium and magnesium components that are the main cause of "water hardness". The temporary component of water hardness, carbonate hardness, is the part that is precipitated as boiler scale when the water is heated and is deposited on the surfaces of pipes, valves, heat exchangers, increasing with temperature and according to the "lime-carbon dioxide balance" of the water. For "hard" water, we recommend gasket plate heat exchanger, which can be opened for maintenance and the removal of lime scale deposits.

Water hardness is defined as shown:

	mmol/l	°TH French degree	°dH German degree	°e UK degree
Hard water	2.5 – 3.8	25	14	17
Very hard water	>3.8	37	21	26

If necessary, consult the water utility and take into account experience with lime scale deposits in the catchment area concerned.

Electrical connection 2.9

The electrical installation work may only be done by a contractor approved by the electricity utility in accordance with the rules and regulations force.

2.10 Checking the controller function

Follow the separate instructions for the Temperature Controller Manual.



3 Safety information

3.1 Regulations and standards

The system must be connected according to the current versions of local rules and recommendations or the regulations of the local water and district heat utilities.

Safety devices must be designed according to local rules.

Safety valves, blow-off pipes and drip pipes must be arranged so that nobody is exposed to water or steam if it escapes.

3.2 Health and safety instructions

The storage water heater is state of the art and reliable in operation. However, this system can be dangerous if it is incorrectly operated or maintained by unqualified personnel or is not used as intended.

Anyone responsible for its operation and maintenance must have read and understood the health and safety information.

The system, particularly its safety equipment, may only be operated and maintained by people (qualified people) who are fully conversant with it and have been informed of the dangers. If you are not sure about something, ask your manager or the system supplier or manufacturer.

The relevant regulations and also the other generally recognized rules must be observed.

Never work in a way that prejudices the safety of the system.

In principle, no safety equipment should be removed, taken out of service or adjusted without knowledge of the standards and a qualified person in attendance. The safety equipment protects against serious physical damage (burns, electric shock, etc.).

If damage to the system or defects is recognized, particularly those affecting the safety equipment, expansion tanks, etc. and if unusual noises or smells develop, switch the system off and inform your supplier. In principle any service and cleaning work on the system must only be done when it is stationary. The system must be protected against unauthorized operation.

3.3 Special danger points

If leaks occur on the primary side and the temperature is above 100°C, hot steam will escape. Contact with hot steam can cause considerable scalding. Therefore, avoid any contact with the steam. Remember that even after it has been switched off, the system will stay hot for some time longer and you may burn yourself.

All parts of the system that carry water are hot in operation. Contact with hot parts of the system can cause serious burns. Avoid any contact with hot parts of the system. Do not remove any water.

The pump, servo motor for the throughput/mixing valve, heating controller and control sensor are connected to the mains. Water spray or leaks can make the entire station dangerously live.

Therefore, when working on the system, make sure that the entire system is off and cold. Pull the mains plug out of the socket.

Local safety and accident prevention relations apply to installation, connection, operation and repair of the system in each case.

3.4 Warning against your own conversions and changes

For safety reasons, you must not convert or modify the system yourself. The guarantee covering the system will inevitably lapse if you do.



4 Installation

The system must be installed according to the following diagrams.

Annotation: The buffer vessel can be sited if space is available next to the heat exchanger module. All pipe works between the buffer vessel and the heat exchanger module as well as the circulation pump are not a part of the AquaProtect delivery.

4.1 AquaProtect T1- I

Heat exchanger module



С	Cold water Inlet	G	To top of disinfection vessel (holding tank)
D	Domestic Hot water Outlet	HS	Primary inlet (PI)
E	Recirculation loop Inlet	HR	Primary outlet (PO)
F	70°C disinfected water inlet, bottom of		
	disinfection vessel (holding tank)		



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4.2 AquaProtect T1- SI

Heat exchanger module

B C D E





5 Operation

5.1 Flow Schematics/settings

The position of the connections on the tank is given in the relevant tank dimension sheets or on the rating plates on the tank itself. The following illustrations are basic diagrams.

5.2 AquaProtect T1 - I (Instantaneous)



HS	Primary Inlet	С	Cold water inlet
HR	Primary Outlet	D	DHW Outlet
VA	Actuated control valve	Е	Recycling inlet from installation
S1	Temp sensor for desinfection temperature control	G	To top of tank
S3	Temperature sensor for DHW outlet control	F	Disinfected water out, from bottom of tank
PP	Primary pump	PR	Recycling pump

5.2.1 Settings

The factory pre-settings are:

- 70°C for the pasteurization temperature (PT100) on the controller AquaBox Protect connected to S1
- 60°C for the net-supply temperature (PT1000) on the integrated controller of the actuator of the secondary mixing valve connected to S3.

The primary pump is delivered with speed 3 (see also the individual instructions for the pump).



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5.3 AquaProtect T1 – S.I. (Semi-instantaneous)



HS	Primary Inlet	С	Cold water inlet
HR	Primary Outlet	D	DHW Outlet
VA	Actuated control valve	Е	Recycling inlet from installation
S1	Temp sensor for desinfection temperature control	G	From top of tank
S3	Temperature sensor for DHW outlet control	F	Disinfected water out
PP	Primary pump	В	Bottom of tank
CP	Charging pump	PR	Recycling pump (Installation)
SV	Setting valve to adjust secondary flow rate		

5.3.1 Settings

The factory pre-settings are:

- 70°C for the pasteurization temperature (PT100) on the controller AquaBox Protect
- 60°C for the net-supply temperature (PT1000) on the integrated controller of the actuator of the secondary mixing valve.

The set value for the balancing value is given in <u>6.3 AquaProtect T1-S.I. P</u>, see also individual instructions for the AV. The tank charging pump is set on 3 but maybe it has to be adjusted in combination with the balancing value while commissioning the unit.

The primary pump is delivered with speed 3 (see also the individual instructions for the pump).



5.4 AquaProtect T1-S.I. with multiple buffer tanks

If several hot water storage tanks are operated within a AQPRT, we recommend that the tanks are connected in series. In this case, the cold water connection of tank 1 is connected to the mains connection (hot water) of tank 2.



DI Disinfected water In

DO Disinfected Water Out

CW Cold water In or To the heating HE

Connection between the two tanks





5.5 Main features

5.5.1 Permanent operation of AquaProtect T systems

AquaProtect must be in operation 24h a day. This requires an uninterrupted energy supply on primary side at the right temperature level and an uninterrupted operation of the circulation pump. The protection of health takes priority over energy savings.

5.5.2 Net-disinfection

Accessory to the continuous pasteurization of the drinking water the control Box -when ordered- offers the possibility to disinfect/pasteurize the entire DHW pipe net.

This function allows to run the entire net from the AquaProtect to all taps and the circulation line back to the AquaProtect at 70°C pasteurization temperature.

This function <u>Anti-bacteria thermal treatment</u>, see chapter <u>13</u> can be set during commissioning the AQPRT. More detailed information can be found in the separate instruction manual.

We recommend to set this function in operation. The choice of the right settings like frequency, hour of start, duration etc.. depends on different net parameters as largeness, complexity, volume, age and frequency of use. If there is a risk of re-infection given by dead ends, arms with low frequency of use, fouling inside the net etc. then we recommend to ascertain the right frequency set for the Anti-bacteria function by bacteriological checkups of the water.

Contact with hot water of 70°C can cause considerable scalding. It is therefore strongly recommended all precautions be taken in order to avoid accidental injury of users.

5.5.3 Circulation

Flow rate

The entire circulation backflow goes through the two-stage pasteurization. There is no bypass between circulation and net supply. This ensures that all circulated water is pasteurized all the time. The circulation back flow should not exceed a third of the instant flow rate.

5.5.4 Heat load

Usually the temperature drop of the circulated water inside the pipe net is approx. 5°C. But it can happen that the temperature drop in old large pipe nets is more than 15°C. This heat loss will reduce the capacity output to the taps and secondly reduce the charging capacity to the buffer vessel connected to the AquaProtect T1-S.I.

5.6 Commissioning

When charging the system with the operating media for the first time, make sure that all screw connections are properly tightened, tighten any loose connections with a suitable tool and make sure that all seals are firmly seated and leak-tight, particularly the flange seal on the buffer tank.

5.6.1 Flushing and charging the system

Secondary side

Qualified staff of the installation contractor must flush and fill the secondary side. Make sure that no dirt is introduced into the system and check for controlled venting. The charging pressure must not exceed the set opening pressure of the safety valve. The opening pressure details are given on the safety valve. If the opening pressure is exceeded, the room will be flooded.

Primary side

The primary side must be flushed and filled by the contractor's qualified personnel, in liaison with the district heat utility if necessary. Otherwise, the same as described for the secondary side applies. Please remember that if there are any leaks on the primary side, there is a risk of scalding through hot water.



5.7 Decommissioning/faults/dismantling

Switch off the operating switch, if necessary pull the plug out of the circuit or switch off the system so that it is completely dead.

5.7.1 Faults

NB: risk of scalding

If there are any leaks on the primary side, water or steam with temperatures above 100°C can escape. Remember, even after the system has been switched off, it will still remain hot for some time, so you can burn yourself on it.

The pump, actuator for the motorised valve, control box and control sensor are connected to the mains voltage. Spray or leaks can make the entire station dangerously live.

- 1. Take the system out of service, i.e. interrupt the mains voltage by pulling out the plug or switching off the main fuse
- 2. Inform the company responsible for repairing mechanical or electronic faults
- 3. Do not try to trace or remedy the fault yourself.

5.7.2 Re-commissioning after a fault

After a fault, the system must be re-commissioned by qualified personnel, in liaison with the district heat utility if necessary.

The system must be re-commissioned according to the "Commissioning" section.

5.7.3 Measures after a long shutdown

After a fault, the system must be re-commissioned by qualified personnel, in liaison with the district heat utility if necessary.

Check the dirt traps installed and clean if necessary. Otherwise proceed according to the "Commissioning" section.

5.7.4 Dismantling

The following measures are necessary for dismantling the system:

- 1. Switch off the main power supply and prevent it from being switched on again accidentally.
- 2. Switch off the primary side, in liaison with the district heat utility if necessary.
- 3. Turn off the cold water supply
- 4. Allow the system to cool down before starting the dismantling work
- 5. Drain the system
- 6. Dismantle the system

If the system is taken out of service for the last time or scrapped, make sure that it is disposed of in the correct manner. Arrange to send parts that can be recycled to the manufacturer concerned.

5.7.5 Operation

After the system has been flushed, filled and the operating flows and temperatures have been correctly set, it works automatically.

If you wish to change the operating parameters, following the individual instructions for the components concerned.

These operating instructions will allow the contractor's qualified personnel to set the equipment.

NOTE: Any defects found must be reported immediately in writing.



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5.8 Service and maintenance

The leak-tightness of all screw and flange connection seals must be checked at regular intervals. Because of constantly fluctuating temperature loads, i.e. topping up with cold water when water is extracted and recharging to tank temperature, the elasticity of the seal materials used suffers during the life of the system. The tension of the screw connections can decline at the same time, resulting in leaks.

Therefore, after commissioning the system, we recommend that you check all screw and flange connection seals visually and physically at the same interval as the necessary safety valve function test. Other maintenance information is provided in the individual instructions for the components supplied.



6 Technical specifications

NOTE: Technical specifications can be changed without prior notice.

The heat exchangers are calculated with a heating surface margin for standard temperatures.

A more heavy duty use is possible and should be examined in the individual case.

AquaProtect T1-I Instantaneous (Direct) 6.1

Temperatures °C >> Primary: 80-50, Secondary: 10-60 with disinfection at 70°C

Part no.	Туре	Capacity kW	Primary Flow (m3/h)	Instant flow (60°C) m3/h	Circ. flow (m3/h)	Tap flow at mix temp. of (40°C) m3/h
AQPRT1I03P	3 P	174	5	3	1	4.5
AQPRT1I05P	5 P	291	8.3	5	1,67	7.5
AQPRT1I07P	7 P	407	11.6	7	2,3	10.5
AQPRT1I09P	9 P	523	15	9	3	13.5
AQPRT1I11P	11 P	640	18.3	11	3,67	16.5
AQPRT1I13P	13 P	756	21.7	13	4,33	19.5

AQP RT1- I		Main data AQUAPROTECT TTT													
								PH	E						
			COO	LING/PR	E-HEA	TING			DISIN	FECTION	VCHA	RGING			
			primar	y TW		seconda	ry TW			primar	y HZ		seconda	ry TW	
denominati	on	type	flow kg/h	dP kPa	kW	fow kg/h	dP kPa	kW	type	fow kg/h	dP kPa	kW	fow kg/h	dP kPa	kW
Art-No.	Type		T in °C	T out ℃		T in °C	T out ℃			T in °C	T out °C		T in °C	T out °C	
	20	T5M-EG 2H	529	2	35	3000	38	35	T5M-EG 20H	5001	17	174	3000	8	174
Aver IN HIVE		TOMPLO BIT	70	13		10	20		138141 0 2011	80	50		20	70	
	sр	T5M-FG 14H	866	2	- 58	5000	35	- 58	T5M-FG 30H	8336	21	291	5000	9	291
Agentinose			70	12		10	20			80	50		20	70	
AOD DT107D	7.0	TEM EC 2011	1201	1	81	7000	34	81	TEM FO ANU	11670	24	407	7000	10	407
AGERITIO/F	1	10M-FG 20H	70	12		10	20		10M-PG 40H	80	50		20	70	
	9 D	T5M-EG 24H	1558	2	105	9000	39	105	T5M_EG 54H	15000	23	523	9000	9	523
Aventinose		1000-10 2411	70	12		10	20		1001410-0411	80	50		20	70	
	11 D	M8-EG 19	1938	2	128	11000	29	128	MR EQ JAM	18340	26	640	11000	11	640
AGERITITE		MICH O TOL	70	13		10	20		M0-FG 40M	80	50		20	70	
AOP PT1/13P	13 P	M8-EG 201	2331	2	151	13000	32	151	MR-EG 58M	21670	26	756	13000	11	756
Aver INTITIOP	191	M0-FG 20L	70	14		10	20		MON O COM	80	50		20	70	

Component list AquaProtect T1-I Instantaneous (Direct) 6.2

AOP T	1 Inst.		Pri	mary o	ontr	ol valv	ve/Primä	irventil/Van	ine rég	julation primai	re	Heat Exchanger/	Närmeübe	rtrage	r/Echangeur
		Туре	DN	Kv	PN	Act	/ Serv.	Elec.		Ppe	Sensor/Fühler	Heating/Ladetauscher/	Chauffage	Cool	er/Kühler/Refroid.
AQPT1 I	3P	3226 Mixing	32	16	25	58	24-20	24V 0-10	N M	agna1D 32-80	Pt100	T5MFG-20H 0,5 EPDM		T5MF	G-8H 0,5 EPDM
AQPT1 I	5P	3226 Mixing	40	25	25	58	24-20	24V 0-10	W Ma	gna1D 32-120F	Pt100	T5MFG-30H 0,5 EPDM		T5MF	G-14H 0,5 EPDM
AQPT1 I	7P	3226 Mixing	50	40	25	58	24-20	24V 0-10	N Ma	gna1D 32-120F	Pt100	T5MFG-40H 0,5 EPDM		T5MF	G-20H 0,5 EPDM
AQPT1 I	9P	3226 Mixing	50	40	25	58	24-20	24V 0-10	W Ma	gna1D 40-120F	Pt100	T5MFG-54H 0,5 EPDM		T5MF	G-24H 0,5 EPDM
AQPT1 I	11P	3260 Mixing	65	60	16	58	324-30	24V 0-10	N Ma	Magna1D 50-120F Pt100 M6FG-46M 0.5 EPDM M6FG-		-18L 0,5 EPDM			
AQPT1 I	13P	3260 Mixing	65	60	16	58	324-30	24V 0-10	W Ma	gna1D 50-120F	Pt100	M6FG-56M 0,5 EPDM		M6FG	-20L 0,5 EPDM
AQP T	1 Inst.	Sec.mix	ing (ctrl va	lve a	ind se	ensor / I	Netz-Misch sonde	nventi	l / Vanne régu	ulation sec. Et	Taco Se	itter		Safety valve/Sicherheit
		Ту	pe		DN	KV F	N AC	t./Serv.	elec	sensor/F	ühler/sonde	Туре	DN	KV	sventil/soupape
AQPT1 I	3P	3226 Mixi	ing D	VGW	25	10	10 5	725-10	230V	1 x PT1000	5207-64	223.2561	32	17	DN20
AQPT11	5P	3226 Mixi	ng D	VGW	25	10	10 5	725-10	230V	1 x PT1000	5207-64	223.2661	40	30	DN25
AQPT1 I	7P	3226 Mixi	ing D	VGW	32	16	10 5	725-20	230V	1 x PT1000	5207-64	223.2661	40	30	DN32
AQPT1 I	9P	3226 Mixi	ng D	VGW	32	16	10 5	725-20	230V	1 x PT1000	5207-64	223.2861	50	54	DN32
AQPT1 I	11P	3226 Mixi	ing D	VGW	40	25	10 5	725-20	230V	1 x PT1000	5207-64	223.2861	50	54	DN32
	-	the second se	-		_	_							_		and the second s

230V 1 x PT1000

5207-64

223.2461/2861

25/50 8.1/54

DN32

5725-20

	Unit connections/Anschlüsse/												
Raccordement													
Hs	Hs Hr C D E F G												
32	32	32	32	20	32	32							
40	40	40	40	20	40	40							
50	50	50	50	25	50	50							
50	50	50	50	32	50	50							
65	65	65	65	32	65	65							
65	65	65	65	32	65	65							

3226 Mixing DVGW 40 25 10

AQPT1 I

13P



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6.3 AquaProtect T1-S.I. P Semi Instantaneous (indirect)

Temperatures °C >> Primary: 80-50, Secondary: 10-60 with disinfection at 70°C

Part no.	Туре	Capacity kW	Primary Flow (m3/h)	Instant flow (60°C) m3/h	Circ. flow (m3/h)	Peak flow Itr. in 10 min.(60°C)	Continuous flow ltr. in 60 min.(60°C)
AQPRT1SI03P	3 P	174	5	3	1	Depending o	n capacity of
AQPRT1SI05P	5 P	291	8.3	5	1,67	buffer tank* of	combined
AQPRT1SI07P	7 P	407	11.6	7	2,3	with the AQP	PRT1
AQPRT1SI09P	9 P	523	15	9	3		
AQPRT1SI11P	11 P	640	18.3	11	3,67]	
AQPRT1SI13P	13 P	756	21.7	13	4.33		

*) max. recommended storage capacity equal or less as instant flow rate in m³.

		Main data AQUAPROTECT T1 S.I.													
AQPRT1-SI		PHE													
			C00	LING/PR	E-HEA	TING				DISINFECTION/CHARGING					
			primary TW secondary TW							primar	y HZ		seconda	ry TW	
denominati	on	type	flow kg/h	dP kPa	kW	flow kg/h	dP kPa	kW	type	fow kg/h	dP kPa	kW	flow kg/h	dP kPa	kW
Art-No.	Type		T in °C	T out ℃		Tin°C	T out ℃			T in °C	T out °C		Tin°C	T out °C	
	20	TEM EG OL	529	2	35	3000	38	35	TEM EG 20H	5001	17	174	3000	8	174
AGENTISIUSE	31	1300-10 01	70	13		10	20		1001-10 2011	80	50		20	70	
	5 D	5 P T5M-FG 14H	866	2	58	5000	35	58	T5M-FG 30H	8336	21	291	5000	9	291
AGERITSNOF	9 F		70	12		10	20			80	50		20	70	
	7.0	TEM FO 2011	1201	1	81	7000	34	81	TEM FOLIADU	11670	24	407	7000	10	407
AQPRI150/P	7 P	TOM-FG 20H	70	12		10	20		ISM-PG 40H	80	50		20	70	
	0 D	TEM EC 24L	1558	2	105	9000	39	105	TEM DO EAU	15000	23	523	9000	9	523
AGERIISIJƏF	3	100-FG 24F	70	12		10	20		10M-PG 04H	80	50		20	70	
	44 D	M8 EG 19	1938	2	128	11000	29	128	M8 EG 48M	18340	26	640	11000	11	640
AGERITOILE LE	MU-FG TOL	70	13		10	20		MO-FG 40M	80	50		20	70		
	RT1SI13P 13 P M8-FG	MR EC 201	2331	2	151	13000	32	151	MR EO SRU	21670	26	758	13000	11	758
AGERHSHSE		M0-FG 20L	70	14		10	20		MO-FO SOM	80	50		20	70	

6.4 Component list AquaProtect T1-S.I. P Semi Instantaneous (indirect)

AQP	1 S.I.	Primary control valve/Primärventil/Vanne régulation primaire								Heat Exchanger/Wärmeübertrager/Echangeur		
		Туре	DN	Kv	PN	Act / Serv.	Elec.	Ppe	Sensor/Fühler	Heating/Ladetauscher/Chauffage	Cooler/Kühler/Refroid.	
AQPT1 SI	3P	3226 Mixing	32	16	25	5824-20	24V 0-10V	Magna1D 32-80	Pt100	T5MFG-20H 0,5 EPDM	T5MFG-8H 0,5 EPDM	
AQPT1 SI	5P	3226 Mixing	40	25	25	5824-20	24V 0-10V	Magna1D 32-120F	Pt100	T5MFG-30H 0,5 EPDM	T5MFG-14H 0,5 EPDM	
AQPT1 SI	7P	3226 Mixing	50	40	25	5824-20	24V 0-10V	Magna1D 32-120F	Pt100	T5MFG-40H 0,5 EPDM	T5MFG-20H 0,5 EPDM	
AQPT1 SI	9P	3226 Mixing	50	40	25	5824-20	24V 0-10V	Magna1D 40-120F	Pt100	T5MFG-54H 0,5 EPDM	T5MFG-24H 0,5 EPDM	
AQPT1 SI	11P	3260 Mixing	65	60	16	5824-30	24V 0-10V	Magna1D 50-120F	Pt100	M6FG-46M 0,5 EPDM	M6FG-18L 0,5 EPDM	
AQPT1 SI	13P	3260 Mixing	65	60	16	5824-30	24V 0-10V	Magna1D 50-120F	Pt100	M6FG-56M 0,5 EPDM	M6FG-20L 0,5 EPDM	
							_					

AQP T1 S.I.		Vanne Samson Secondaire ECS						Sonde Secondaire ECS		Taco Setter			Safety valve/Sicherheit	Sec.Pump/Lade pumpe/Pompe sec.
		Туре	DN	Kv	PN	Servomoteur	Alim	Sonde	Réf.	Туре	DN	Kv	svenursoupape	2 x
AQPT1 SI	3P	3226 Mixing DVGW	32	16	10	5725-20	230V	PT1000	5207-64	223.2561	32	17	DN20	UPS32-80N
AQPT1 SI	5P	3226 Mixing DVGW	40	25	10	5725-20	230V	PT1000	5207-64	223.2661	40	30	DN25	UPS32-80N
AQPT1 SI	7P	3226 Mixing DVGW	40	25	10	5725-20	230V	PT1000	5207-64	223.2661	40	30	DN32	UPS32-80N
AQPT1 SI	9P	3226 Mixing DVGW	50	40	10	5725-20	230V	PT1000	5207-64	223.2861	50	54	DN32	UPS40-120FB
AQPT1 SI	11P	3226 Mixing DVGW	50	40	10	5725-20	230V	PT1000	5207-64	223.2861	50	54	DN32	UPS40-120FB
AQPT1 SI	13P	3226 Mixing DVGW	50	40	10	5725-20	230V	PT1000	5207-64	223.2461/2861	25/50	8,1/54	DN32	UPS40-120FB

Unit connections/Anschlüsse/ Raccordt								
Hs	Hr	В	Е	F	ß			
32	32	32	32	32	20	32	32	
40	40	40	40	40	20	40	40	
50	50	50	60	60	25	50	50	
50	50	50	50	50	32	50	50	
65	65	65	65	65	32	65	65	
65	65	65	65	65	32	65	65	



6.5 Setting valves

Art. No	Secondary flow (m3/hr)	Secondary flow (I/min)	ТАСО Туре
AQPRT1SI03P	3	50	SD 2561 DN32 Kv17
AQPRT1SI05P	5	83	SD 2661 DN40 Kv30
AQPRT1SI07P	7	116	SD 2661 DN40 Kv30
AQPRT1SI09P	9	150	SD 2861 DN50 Kv54
AQPRT1SI11P	11	183	SD 2861 DN50 Kv54
AQPRT1SI13P	13	217	SD 2461 + SD 2861



7 Schematic diagrams with main components

7.1 Flowchart AquaProtect T1 instantaneous (direct)



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7.2 Flowchart AquaProtect T1 semi instantaneous (indirect)

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8 Aquabox protect



8.1 Fuses



Only authorized people should operate on the unit. Cut off the electrical supply to the unit before working on it.

The power boards are fitted with a set of fuses to protect the different components against overload.

Fuse	FU1	FU2	FU3	FU4
Protection	PUMP 1	PUMP 2	PUMP 3	PUMP 4
Size	6.3 x 32	6.3 x 32	6.3 x 32	6.3 x 32
Rating 1 Rating 2	2,5A 5A	2,5A 5A	2,5A 5A	2,5A 5A
Voltage	250V	250V	250V	250V

Rating 2 is used for AquaProtect T1-I/S.I. 11P and 13P (FU1 and FU2 only). For other modules' types, rating 1 is used as default (2,5 A fuses for pumps 1 to 4).

Extra fuses are included in the control box for quick servicing.



9 Wiring diagram – terminal block location

The schematics below shows the detail of component electrical connections to the power board for a tap water module fitted with double headed primary and secondary (buffer vessel charging) pumps: 2 possible cards' configurations: CY582+CY581 or CI572T+CI616.

The power relays are used as follows:

R1 and R2 for the 2 electric motors of the double headed primary pump or just R1 if single primary pump. R3 and R4 for the 2 electric motors of the double headed secondary pump or just R3 for single charging pump (Semi Instantaneous) or recycling pump (instantaneous models).

9.1 CI 572 + CI 616 card



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9.2 CY 582 + CY 582 card



9.3 Semi instantaneous

Only with added thermostat (stop charging pump).





10 Trouble shooting

Findings	Probable causes	Remedies
Pump not operating	Locked rotor or damaged Pump relay damaged Pump protection fuse blown High Alarm condition detected No voltage to control board terminals No voltage to pump motor terminals Controller improperly set	Force to rotate. Replace if required Replace Power Board Check then replace if necessary Clear alarm then reset system Check power supply cable and fuses, Check protection fuse on main board, cable condition and connections Contact After Sales Service
Low alarm condition	Primary pump stopped Too low primary temperature Too high tap water flow rate (SI) Alarm differential too low	See above Check for a closed valve in the primary Reduce buffer vessel charging flow rate Check and set the controller
	Set point too high 3 way valve remains closed	Refer to next box below
Modulating valve does not operate	Damaged or broken actuator Broken or improperly tightened coupling Valve blocked No signal from the controller Supply wires improperly tightened Actuator stroke restricted	Test then replace if necessary Check then replace if necessary Replace Check then replace if necessary Check wires, re-tighten connections Dismount then clean the valve
High alarm condition detected	Charging pump stopped (SI versions) Low recirculated flow rate (I versions) Alarm differential too low Modulating valve not closing Too much differential of pressure across the modulating valve	Refer to "Pump not operating" above Check and fix problem Check and set the controller Refer to previous box above Check the way the TWM is piped- up. Mixing arrangement should be used
Correct temperatures across the exchanger not obtained. Valve and pumps operating satisfactorily	Excessive exchanger scaling at the primary or secondary side Primary pipework obstructed or strainer upstream clogged Isolation valve closed Air presence in the primary Excessive pressure drops	Open and clean the exchanger according to cleaning instructions Inspect primary pipework. Clean strainer on the primary side Open isolation valves Purge. Check no high parts where air could be trapped exist Check pipe size is suitable for nominal flow rate
Temperature does not increase in the buffer vessel and the tap water value is correct	Recirculating flow rate exceeds charging flow rate.	Check and measure charging and recirculating flow rates. Adjust when necessary. Recirculating FR < 0.6 x Charging FR



11 Controller components

The control system consists in three main components:

- Power board,
- Logic board,
- Keypad with display

NOTE: 2 possible fittings: CY581+CY582 or CI572T+CI616.





1	Power board (CI 572T/CY 582T)	4	Connector
2	Logic card (CI 616/CY 581)	5	Bipolar main switch
3	Safety fuses	6	Keypad/display (LEXAN AQ)

6





3	Yellow Left arrow to scroll in the Temperature and Technician menus
4	Yellow Right arrow to enter then scroll in the Temperature menu
5	- key for decreasing the parameter values shown in the menus
6	+ key for increasing the parameter values shown in the menus or confirm validation
7	Validation / OK key
8	Hidden Reset key to restore parameters to factory values

11.1 Normal mode

1 2

The display shows the following information:



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11.2 Time and date menu

This menu enables to set:

- time
- date,
- automatic or manual winter/summer time function (DST)
- the normal/reduced temperature(s) for each day of the week.

Press;

➡ white (rep.2) to access clock menu,

S white (rep.2) to get to the next frame / setting,

C white (rep.1) to get to the previous frame / setting.

ACTION	DISPLAY
Set the hour	
Press white ⊃ .	
Press + or – to adjust the hour.	HOURS ADJUST
Press white 3 .	20:50
Press + or – to adjust the minutes.	
Press white D.	
Set the date	
Press + or – to adjust the day.	
Press white D.	
Press + or – to adjust the month.	DATE ADJUST
Press white I .	11: OCT 2000
Press + or – to adjust the year.	
Press white I .	
Set the hour format	
Press + or – to change the hour format.	TIME SYSTEM
Press white ⊃.	1x24h display
Automatic winter time / summer time shifting	
Press + or – to activate or not this function	
Press white 🥄	ENABLE
Set the Normal / Reduced parameters	
Press + to enter this sub-menu.	IST DAY / NIGHT
	COMMUTATIONS
Monday: Normal temperature starts at 6h00 (6 :00 am).	· · · · · · · · · · · · · · · · · · ·
Press + or – to adjust the hour.	Mon NIGHT -> DAY
Press white 🧙	
Press + or – to adjust the minutes.	ុច្ភុលប 22nuu
Press white C .	
Monday: Reduced temperature starts at 22h00 (10 :00 pm).	
Press + or – to adjust the hour.	
Press white ⊃.	Mon DAY -> NIGHT
Press + or – to adjust the minutes.	6h00 222h00
Press white D.	
Then, go to Tuesday settings, until Sunday.	
Save modifications	
At any time, you can interrupt the setting procedure and memorize the	
changes by pressing the Validation key	
changes by pressing the valuation key.	SAVING ?
To memorize modifications. Press \pm for VES and $-$ for NO	+ YES - NO
10 memorize modulo along, 1000 memorize modulo along, 10000 memorize modulo along, 100000 memorize modulo along, 1000000 memorize modulo along, 100000000000000000000000000000000000	
NOTE: All parameter modification must be validated this way.	



11.3 Temperature menu

This menu enables to set:

- Identical/different daily temperature set points
- the Normal (Day) temperature(s) set point(s)
- the Reduced (Night) temperature(s) set point(s)
- the High temperature alarm level
- the Low temperature alarm level.

Press:

Yellow ⊃ (key 4) to enter the menu yellow ⊃ (key 4) to get to the next frame/setting yellow ⊂ (key 3) to get to the previous frame/setting.

	ACTION	DISPLAY
	Identical / Different temperatures	
	Press Yellow C	
	Press + or – to select:	7 DAYS SETTINGS
	- Identical temperatures,	-SAMÉ
\sim	- Different temperatures,	
	Press Yellow C to go to next setting,	
L	Different temperatures	
	Displayed day "Normal" temperature	
	Press + or – to set the temperature,	MONDAT SETTING
	Press Yellow D,	258°C
	Use the same procedure as above for all the days of the week,	
	Displayed day "Reduced" temperature	
	Press + or – to set the temperature,	MON. NIGHT SET.
	Press Yellow I ,	-48°C
<u> </u>	Use the same procedure as above for all the days of the week,	<i></i>
	Identical temperatures	
	Normal	DAY SETTING
	Press + or – to set the temperature required during "Normal" operation,	-`58°C´
	Press Yellow D,	
	Reduced	
	Press + or – to set the temperature required during "Reduced" operation,	
	Press Yellow ⊃,	-58°C
	Low temperature alarm	
	Press + or – to modify the Low temperature alarm level,	
	The value displayed is the gap below the set point, not the actual alarm	
	temperature,	
	Press Yellow D	
	High temperature alarm	
	Press + or – to modify the High temperature alarm level,	HIGH ALARM
	The value displayed is the gap above the set point, not the actual alarm	
	temperature,	
	Press Yellow ⊃,	15 /21
	Save modifications	
	At any time, you can interrupt the setting procedure and memorize the	
	changes by pressing the Validation key.	SAVING ?
		+ YES - NO
	To memorize modifications, Press + for YES and – for NO.	
	NOTE: All parameter modification must be validated this way	
	NOTE . All parameter mounication must be valuated this way.	



12 Technician menu

This menu enables to set:

- Controller PID function parameters,
- High temperature alarm temporization,
- Low temperature alarm temporization,
- Type of reset for the high temperature alarm,
- Displayed parameters,
- Set point or sensor temperature,
- Display language,
- Charging pump sequencing frequency,
- Functions parameters settings,
- 2nd reduced temperature settings,

Press:

Yellow ⊂ key 3) and white ⊂ (key 1) to enter the menu. yellow ⊃ (key 4) to get to the next frame/setting yellow ⊂ (key 3) to get to the previous frame/setting.

ACTION	DISPLAY
Proportional band setting Press + or – to modify the value, Press yellow ⊃,	P.B. ADJUST
Derivate setting Press + or – to modify the value, Press yellow ⊃, Integral setting	
Press + or – to modify the value, Press yellow ⊃, High temperature alarm temporisation	- 50.0 SEC.
If the temperature at the sensor reaches the high alarm level, the alarm relay will only be energised after a period of time of x minutes. Press + or – to adjust the value of x, Press yellow \bigcirc ,	Hi. AL TEMPO.
Low temperature alarm temporisation If the temperature at the sensor reaches the low alarm level, the alarm relay will only be energised after a present period of time of y minutes. Press + or – to adjust the value of y, Press yellow ⊃,	Lo. AL TEMPO.
High temperature alarm reset Automatic or manual reset of the controller when high alarm condition is detected. We recommend setting to Manual reset. Press + or – to select the required parameter Press yellow ⊃,	
Displayed parameters Select displayed parameter: - Temperature measured at the sensor or, - Set point, Press + or – to select the required parameter Press yellow ⊃,	DEFAULT DISPLAY MĚASÚREMENT
Display Language Choose language used for display. Press + or – to select the required language, Press yellow €,	LANGUAGE



ACTION	DISPLAY
Pump rotation frequency Unit with double headed charging pump. This based on time function is in addition to the rotation performed when changing from Normal to Reduced operation. Press + or – to select the required value, Set value to 0 should no pump rotation on a time basis be required, Press yellow ⊃,	PUMP SWITCHING
Thermal treatment against legionella parameters Press + to enter this sub-menu, Refer to page 18 hereafter, Press vellow €.	THERMAL TREATMENT
ECO function parameters Press + to enter this sub-menu, Refer to page 19 hereafter, Press yellow ⊃,	ECO FUNCTION
BOOSTER function parameters Press + to enter this sub-menu, Refer to page 19 hereafter, Press yellow ⊃,	BOOSTER FUNCTION
Temperature recorder parameters Press + to enter this sub-menu, Refer to page 21 hereafter, Press yellow ♥,	TEMPERATURE RECORDER
Lime scaling parameters* Press + to enter this sub-menu, Refer to page 20 hereafter, Press yellow \bigcirc ,	LIME SCALING FUNCTION
HISTORY parameters Press + to enter this sub-menu, Refer to page 22 hereafter, Press yellow €,	SHOW EVENT MEMORY
AUTO TEST parameters Press + to enter this sub-menu, Refer to page 22 hereafter, Press yellow ⊃,	AUTOTEST
Reduced temperature parameters Second time based programation of reduced temperatures. Disabled by default (from 0h00 to 0h00 all days) and set point at 58 °C Press + to enter this sub-menu, Refer to page 24 hereafter, Press yellow ⊃	2nd DAY / NIGHT COMMUTATIONS
Save modifications At any time, you can interrupt the setting procedure and memorize the changes by pressing the Validation key.	SAVING ?

	To memorize	e modifications,	Press + for	YES and – for N	IO.
I					

+ YES - NO

NOTE: All parameter modification must be validated this way. * as per version or options.



13 Anti-bacteria thermal treatment

Temperature set point of the module will be increased during process. It is therefore strongly recommended all precautions be taken in order to avoid accidental injury of users.



The thermal treatment does not guarantee that the bacteria is destroyed in the distribution pipework or in the production system (tap water module or/and calorifier). It doesn't guarantee the total lack of legionella bacteria in the same devices. The user is fully responsible for control, monitoring and maintenance of the module and all the hot tap water installation.

To obtain a temperature increase while the treatment is running, it is necessary to have a primary temperature higher than 10°c compared to the setting point treatment. The treatment duration is to adapt as per each kind of installation.

In the Technician menu,

Press + when the message "THERMAL TREATMENT" is displayed to enter this sub-menu.

ACTION	DISPLAY
Day of treatment	
Select the day of treatment,	PROCESSING DAY
Only one day per week,	Sunday
Press + or – to adjust the day,	
Press yellow Э	
Treatment frequency	
The treatment can be initiated every n weeks (adjustable from 1 to 52),	FREQUENCY
Press + or – to adjust the day,	1. WEEK
Press yellow Э	
Hour of start	
Press + or – to adjust the hours,	PROCESSING HOUR
Press yellow ⊃,	:šh00
Press + or – to adjust the minutes,	
Press yellow C	
Temperature sensor N°2 configuration For semi instantaneous with	
calorifier	
An extra temperature sensor can be wired back to the controller.	
It can be used for example to monitor the buffer vessel temperature and	DISABLED
automatically adjust the duration of the treatment	
Press + or – to configurate the system,	
Press yellow	
Treatment duration	
Press + or – to adjust the duration of the treatment. Adjustable from 1 to 999	
MIN. Should cancer Nº 2 he present this duration will correspond to the buffer	PROCES DUBATION
Should sensor N=2 be present, this duration will correspond to the buller	Ó.MINUTES
Vessel treatment temperature notaing time.	
Should sensor N 2 be not present, this duration will correspond to that of the	
Temperature rice duration limitation	
Should concer Nº 2 be present	
Droce Lor to adjust the time you let the TWM for raising the temperature of	
the system to the treatment value. Adjustable from 1 to 000 minutes. Should	MAX. DURATION
the treatment temperature not be reached within the present period of time	1 MINUTES
the display would show "Treatment Failure"	



Treatment temperature Temperature set point of the treatment (adjustable from 70 to 100 °C), Press + or – to set the temperature, Press yellow ⊃	TEMPERATURE 70℃
High temperature alarm hold-off time Period of time during which the high temperature alarm will be hold off once treatment is completed. Adjustable from 1 to 999 minutes, Press + or – to configurate the system, Press yellow ⊃	ENDING DELAY ;ງໍ່ແຼ້ MINUTES
Enabling / Disabling the function Press + or – to Enable or Disable the function, Press yellow ⊃ and save your modifications, To save follow the instructions below.	PROCESSING DISABLE

13.1 Eco function

In the Technician menu, press + when the message "ECO FUNCTION" is displayed to enter this sub-menu.

ACTION	DISPLAY
Function activation delay Should the control valve be not open at more than 4 % during the set period of time, the primary pump will be switched off. Adjustable from 0,1 à 20 minutes, Press + or – to adjust the delay, Press yellow ⊃	DELAY
Hysteresis If the sensor temperature falls below Set point value – Hysteresis, the primary pump will be switched on. Adjustable from 0,1 à 10 °C, Press + or – to adjust the value, Press yellow ⊃	HYSTERESIS
Enabling / Disabling the function Press + or – to Enable or Disable the function, Press yellow ⊃ and save your modifications, To save follow the instructions below.	ĘCO DISABLĘ-
Save modificationsAt any time, you can interrupt the setting procedure and memorize the changes by pressing the Validation key.To memorize modifications, Press + for YES and – for NO.	SAVING ? + YES - NO

NOTE: All parameter modification must be validated this way.



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13.2 Booster function

This function only applies for tap water modules fitted with double headed primary pumps. In the Technician menu,

Press + when the message "BOOSTER FUNCTION" is displayed to enter this sub-menu.

ACTION	DISPLAY
Max. temperature falling speed If the temperature at the sensor decreases faster than the value set here, the second primary pump will be called in. The 2 primary pumps will then operate simultaneously. Adjustable from 1 to 20 °C/sec. Press + or – to adjust the value, Press yellow ⊃,	SLOPE THRESHOLD ະ) (c/SEC.
Pump 2 stop delay If the temperature at the sensor increases and reaches the set point value, an adjustable timer is energised. The 2 nd primary pump will only be switched off after the period of time set here. Adjustable from 2 to 200 sec. Press + or - to adjust the value, Press yellow ⊃,	DURATION ງໄປ SEC.
Enabling / Disabling the function Press + or – to Enable or Disable the function, Press yellow ⊃ and save your modifications, To save follow the instructions below.	BOOSTER ÈÈNABLE

Save modifications	
At any time, you can interrupt the setting procedure and memoriz changes by pressing the Validation key.	ze the SAVING ? + YES - NO
To memorize modifications, Press + for YES and – for NO. NOTE : All parameter modification must be validated this way.	

13.3 Lime scaling function

This function is based on different temperature calculation programs.

A lime scaled or fooled heat exchanger won't exchange temperature with the same efficiency as a clean one. Primary outlet temperature will then rise to a set up value.

An additional sensor has been added to advise when cleaning is required (sensor S3 on power board, refer to <u>9 Wiring diagram – terminal block location.</u>

In the Technician menu,

Press + when the message "SCALING FUNCTION" is displayed to enter this sub-menu.

ACTION	DISPLAY
Press + or – to enable or disable this function	LIME SCALING F. ENABLE
Then press yellow 🧢 to exit the sub-menu.	LIME SCALING FUNCTION

Save modifications	
At any time, you can interrupt the setting procedure and memorize the changes by pressing the Validation key.	SAVING ?
To memorize modifications. Press + for YES and – for NO	+ YES - NO
NOTE : All parameter modification must be validated this way.	

* Note that this function and devices are not necessary in standard unit.



It is highly recommended to plan a Cleaning In Place (CIP) when "SCALING" is displayed. Cleaning will consist of a chemical treatment if the system is equipped with a fusion or brazed heat exchanger.

For gasket heat exchangers, you will have to disassemble the heat exchanger to clean the plates with a soft plastic brush and water with a chemical treatment.

* **NOTE** that this function and devices are not necessary in standard unit. The following functions:



- THERMAL TREATMENT,ECO.
- BOOSTER,
- LIME SCALING

Are disabled when the modules leave the factory.

13.4 Temperatures recorder

In the Technician menu,

To access to this sub menu, press on + key when the message « TEMPERATURE RECORDER » is displayed.

Action	Display
Measuring frequency Enables to define the periodicity the measures will be taken. More the selected value is low, more the measures will be taken over a short period of time, Adjustable from 1 to 60 seconds, Setting 60 seconds enables to take measures on a 9 day period of time, 1 second on 3H51. Press yellow ⊃,	SAMPLING PERIOD -1. SEC. (3h51mn)
 Acquisition mode Temperature data can be recorded according to two different methods : Simple recording Once the available memory is full, recording stops, Scroll recording Once the available memory is full, the last temperature data input erases the first data recorded, Press + or - to select mode, Press yellow ⊃. 	ACQUISITION MODE SINGLE
Start / Stop recording Press + to start recording, Press + again to stop recording, Press yellow ⊃,	PRESS + TO START
Data transmission The system has the capability to remotely transmit the recorded measures via a special cable supplied as an option. Press yellow ⊃,	DOWNLOAD MEASURES
Memory erasure Press simultaneously + and – to erase all temperature records from memory.	MEMORY ERASED

Please note that recording is operated on the 3 possible sensors. If there are missing sensors (S1+S2 or S1 only), zero values will be recorded for this sensor.



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13.5 Event memory

In the Technician menu,

Press + when the message "HYSTORY" is displayed to enter this sub-menu.

Action	Display
Memorised events status Press +, Display shows the total number of events which have occurred. 500 events maximum can be stored in memory. 2 ways enable to consult the history.	n EVENTS STORED
Consult last events Press − The pointer goes to the end of the history list. It enables to consult the last events which have occurred. Then press – as much as required to scroll up in the event list. You will then reach the beginning of the history. Press yellow C to exit the sub-menu.	BEGINNING EVENT MEMORY END OF EVENT MEMORY
Consult first events Press + The pointer goes to the beginning of the history list. It enables to consult the first events which have occurred. Then press + as much as required to scroll down in the event list. You will then reach the end of the history. Press yellow € to exit the sub-menu.	END OF EVENT MEMORY BEGINNING EVENT MEMORY

13.6 Auto test

In the Technician menu,

Press + when the message "AUTO TEST" is displayed to enter this sub-menu.

Action	Display
Self test Enables to induvial check proper operation of each component of the tap water module :	SELF-TEST
Primary pump N° 1,	
 Primary pump N° 2 (When fitted), Secondary pump N° 1 (When fitted), Secondary pump N° 2 (When fitted), 	
General alarm relay,High temperature alarm relay,	
 Valve operation with a signal of 50 %, Valve operation with a signal of 100 %, 	
Press + or – to individually test proper operation of each of the components listed above.	
Press yellow C to exit the sub-menu.	



13.7 2nd day/night commutation

In the Technician menu.

Press + when the message "2nd DAY / NIGHT COMMUTATION" is displayed to enter this sub-menu.

Action	Display
Reduced temperatures N° 2 Second time based programation of reduced temperatures. Disabled by default (from 0h00 to 0h00 all days) and set point at 58 °C.	
Press white C	
Monday: Day operation starting. Press + or – to set the hour, Press white ⊃ Press + or – to adjust the minutes, Press white ⊃	2nd DAY / NIGHT COMMUTATIONS
Monday: Night operation starting. Press + or – to set the hour, Press white ⊃ Press + or – to adjust the minutes, Press white ⊃	
You then go to Tuesday settings Follow procedure listed above for all days of the week. Press white ⊃ To save follow the instructions below.	

Save modifications	
At any time, you can interrupt the setting procedure and memorize the changes by pressing the Validation key. To memorize your modifications, Press + for YES and – for NO.	SAVING ? + YES - NO
Any parameter modification must be validated this way	

13.8 Restoring factory settings

To restore factory settings/parameters into the memory,

Press RESET key at the left hand bottom of the Display/Keypad (Hidden key marked [®] on page 13). These default values/settings are shown in the right hand boxes above.

Restore factory settings	
Press hidden reset key marked 8 on page 13 Press + to restore Factory settings into the system memory Press – not to restore them	FACTORY SETTINGS + YES - NO



Installation and service instruction

13.9 Keypad quick functions

The keypad enables to access directly some of the functions using key combinations.



* As per equipment

13.10 Safety function

If the module if fitted with primary and/or secondary double headed pumps, should one pump motor trip, the safety function will :

- prevent from cycling on the second pump,
- switch on all the pumps available.

This function enables to switch all the pumps on at a same time, and prevents pump change over when system switches from Night to Day operation or when system is sequencing the pumps on a time basis.

Also enables to check for proper pump motor operation.

Key combination / Display	Description
	Press white ⊂ et ⊃ simultaneously
et et SAFETY FUNCTION	All four pump relays will be energized at same time



14 Displayed messages

The chart below shows the different messages may be displayed. Status indications or alarms can be displayed.

Display	Meaning
STATUS	
10 : 48 25/07/2001 MISE SOUS TENSION	Appears in the History and indicates when controller was energised
FORCE NORMAL	Normal mode has been manually activated by pressing OK and +
FORCE REDUCED	Reduced mode has been manually activated by pressing OK and -
RESET	An alarm has been manually cleared by pressing + and – then OK

FUNCTIONS		
VarTREATMENT	Thermal treatment active – Stored with date in the History.	
END TREATMENT	Appears in the History – End of the thermal treatment.	
TREATMENT FAIL	Shows system has failed to reach the required temperature at the 2nd	
	sensor.	
ECO MODE	ECO function active.	
END ECO MODE	Appears in the History – End of the ECO mode.	
BOOSTER	BOOSTER function active. Time delayed. No "End BOOSTER"	
	indication	

14.1 Alarm messages

Display	Description	Consequence
LOW ALARM	The tap water temperature has been lower than Set point – low temperature alarm level.	Message displayed + VFC indication. Automatic reset.
HIGH ALARM	The tap water temperature has raised higher than Set point + high temperature alarm level	Message displayed + Primary pump switched-off + Control valve closure + VFC indication Secondary pump switches off after 10 minutes if the temperature does not decrease. Manual or automatic reset
		(Refer to page <u>30</u>).
SCALED HE*	Primary return temperature is too high: very bad thermal transfer. Secondary should be scaled and HE need inspection/cleaning	Message displayed + VFC indication. Automatic reset after servicing
PRIM PUMP1 FAILURE	Primary pump 1 failure.	Message displayed + Primary pump 1 switched-off + Primary pump 2 switched-on (Double headed pump) + VFC indication. Manual reset.



Display	Description	Consequence
PRIM PUMP2 FAILURE	Primary pump 2 failure.	Message displayed + Primary pump 2 switched-off + Primary pump 1 switched-on (Double headed pump) + VFC indication.
		Manual reset.
SEC PUMP 1 FAILURE	Charging / Recirculating pump 1 failure (depending on configuration).	Message displayed + Pump 1 switched-off + Pump 2 switched-on (Double headed pump) + VFC indication. Manual reset.
SEC PUMP 2 FAILURE	Charging / Recirculating pump 2 failure (depending on configuration).	Message displayed + Pump 2 switched-off + Pump 1 switched-on (Double headed pump) + VFC indication. Manual reset.
FAULT SENSOR	Main temperature sensor faulty. Check connections.	Message displayed + Pumps switched-off + Control valve closure + VFC indication. Automatic reset.
FAULT SENSOR 2	2nd temperature sensor faulty. Check connections.	Message displayed + VFC indication. Automatic reset.
FAULT SENSOR 3	3rd temperature sensor faulty. Check connections.	Message displayed + VFC indication. Automatic reset.
WATCHDOG	Inputs / Outputs' internal survey	No consequence. May appear randomly
DEFAUT CRC EEP1/2	Message appearing after replacing an electronic card, after the 1st power on.	No consequence. Power off and on to clear the message.

14.2 Remarks

Alarm conditions – as long as their cause has been fixed – can be reset. Refer to <u>13.8 Restoring factory</u> <u>settings</u>.

They are displayed and stored in the History memory with hour and date. Others are simply stored in the History (Refer to the column "Description" above for information).



15 Legionella

Legionella bacteria are common and can be found naturally in environmental water sources such as rivers, lakes and reservoirs, usually in low numbers. The bacteria enter our water systems with thecold water delivered from the mains. They can sometimes cause a risk to humans if people get exposed to them through humidified contaminated air (aerosol). This wet air conditions can be found e.g. in bathes and shower rooms, spas, pools, air conditioning units etc.

People become infected when they breathe in air that contains tiny droplets of water known as aerosols, inside of which are the Legionella bacteria. If the bacteria get inhaled into the lungs they can cause infection. Legionnaires' disease cannot be got from water you drink that enters your stomach in the normal way – the bacterium has to get into the lungs through breathing it in. The illness is not spread from person to person.

Legionnaires' disease is an uncommon form of pneumonia. The disease has no particular clinical features that clearly distinguish it from other types of pneumonia, and laboratory investigations must be carried out to confirm the diagnosis. It normally takes between 2-10 days to develop symptoms (typically five to six days but very rarely some cases may take two to three weeks to develop symptoms). Patients usually start with a dry cough, fever, headache and sometimes diarrhoea and many people go on to get pneumonia. People over the age of 50 are more at risk than younger people and males more than females. Effective antibiotic treatment is available if the diagnosis is made early in the illness. Deaths occur in about 5-15% of travellers who get the disease, depending on their age and individual health status. Smokers are more at risk than non-smokers.

The organisms can survive in a wide range of conditions, including temperatures of 0 to 63°C, pH of 5.0 to 8.5, and dissolved oxygen concentrations of 0.2 to 15 ppm in water. Temperature is a critical determinant for Legionella proliferation. Colonization of the hot water system is more likely if the temperatures are between 40 and 50°C. Legionella and other microorganisms become attached to surfaces in an aquatic environment forming a biofilm. Legionella has been shown to attach to and colonize various materials found in water systems including plastics and rubber. Organic sediments, scale, and inorganic precipitates provide Legionella with a surface for attachment and a protective barrier. Interestingly, the growth of other environmental organisms is stimulated by organic sediment, which in turn leads to the formation of by-products that stimulate the growth of Legionella.

The thermal disinfection (pasteurization) at 70°C of the tap water combined with the periodically net disinfection at the same temperature is the safest way to keep the hot water system free of Legionella. It effects in the entire system on the water as well as on scales and fouling.



16 Warranty

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

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

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

Exclusion factors:

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

Also excluded from the warranty:

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

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

16.1 Spare parts

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

16.2 How to contact Cetetherm

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



17 Declaration of Conformity

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

Declaration of Conformity Déclaration de conformité Konformitätserklärung



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

* Heat exchanger unit, District heating System, for heating and/or Domestic Hot Water

* Échangeur thermique, système de chauffage urbain, pour le chauffage et l'eau chaude sanitaire

* Fernwärme-Kompaktstationen, für Heizung und/oder Trinkwarmwasser

Products/ Produits/ Produkte	Models/ Modèles /Varianten
Cetetherm AquaProtect	Honeywell/ Grundfos

Above mentioned products are in article 4.3 according to PED 2014/68/EU Les produits susmentionnés figurent à l'article 4.3 conformément à la DESP 2014/68/EU Vorstehend benannte Produkte fallen unter Artikel 4.3 der DGRL 2014/68/EU

Used directives/ Directives utilisées/ Angewendete Direktiv

- PED 2014/68/EU

- LVD 2014/35/EU

- EMC 2014/30/EU

- RoHS 2011/65/EU

Following norms have been applied/ Les normes suivantes ont été appliquées:/ Folgende Normen wurden angewendet:

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

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

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

PEREN

Sound Engineering practice Règles de l'art Gute Ingenieurpraxis

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



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

