

ATECPOOL MP Series Reactors MPL Series

INSTALLATION AND MAINTENANCE MANUAL MPL 140, MPL 200, MPL 300, MPL 500



We thank you for choosing a Atecpool reactor.

Our equipment has been designed to give you reliable and safe operation for many years to come.

The Atecpool reactors have been designed for speed and ease of installation.

Their design also makes them easy to maintain.

Read these instructions carefully in order to optimize the operation of your reactor.

TABLE OF CONTENTS :

pages
pugeo

A. Technical characteristics	3
B. Avertissements de sécurité	4
 C. Installation guide	5 5 5 5 5 5 5 5 5 5 5 5 5 7 7 7 7 8 8
D. Starting up	9
 E. Flow controller adjustment	
 G. Servicing recommendations 1. Recommendations for operations checking	15 15 15
H. Dismounting UV lamp and quartz sleeve	16
I. Maintenance file	19
J. Electrical description	20
K. Exploded view	21
L. Warranties	22
ANNEX 1 : Clearance dimensions, Blown up view, Designation	23
ANNEXE 2 : Electrical diagrams	25

A. TECHNICAL CHARACTERISTICS

MPL	UNIT		MPL140	MPL220	MPL300	MPL500
DEACTOR			1800W	3000W	3000W	5000W
REACTOR Material			SS2161	\$\$216	SS2161	SS2161
	-		Sond	Sond	Soord	Sand
Finishing	-		Blasted	Blasted	Blasted	Blasted
A) Full length	mm		600	600	600	800
B) Flance	mm		285	340	395	505
C) Width	mm		337	300	454	536
D) Service spacing	mm		250	272	332	<u> </u>
E) Height	mm		207	350	404	505
Type of connection			Flandes	Flanges	Flandes	Flanges
Connection			DN150		DN250	DN350
Position I/O			In line		In line	In line
Weight	ka		18	26	31	17
Drain in high point	Ky –		Ves	Z0 Ves	Ves	Ves
Drain in low point			Ves	Ves	Ves	Ves
May Service Pressure	har		10	10	10	10
	Dai	1	Horizontal	Horizontal	Horizontal	Horizontal
Standard mounting	-	•	Vertical	Vertical	Vertical	Vertical
CABINET						
Matarial			Painted	Painted	Painted	Painted
material	-		steel	steel	steel	steel
F) Height	mm		600	600	600	600
G) Width	mm		600	600	600	600
H) Depth	mm		300	300	300	400
Cabinet / reactor cable	m		10	10	10	10
length			10	10	10	10
Weight	kg		45	57	57	65
Cabinet ventilating	-		Yes	Yes	Yes	Yes
Filters	-		grid	grid	grid	grid
Power supply	V		220-240	220-240	220-240	220-240
Frequency	Hz		50/60	50/60	50/60	50/60
Type of power supply	-		1P+N	1P+N	1P+N	1P+N
Cable Type/Gauge	mm²		3G2,5	3G6	3G6	3G6
Section of the earth cable	mm²		6	6	6	6
Nominal amperage	Α		8.79-8.06	14.65-13.43	14.65-13.43	24.41-22.38
Power	W		1895	3158	3158	5263
Differential protection	-		30 mA	30 mA	30 mA	30 mA
Magnetothermic protection	-		16A	20A	20A	32A
Trigger curve	-		Curve C	Curve C	Curve C	Curve C
Ingress Protection	-		IP54	IP54	IP54	IP54
UV LAMPS				I		
Number of lamps	-		1	1	1	1
Power unitary	W		1800	3000	3000	5000
Type of Jamp	-		Medium	Medium	Medium	Medium
			pressure	pressure	pressure	pressure
UV Power unitary	W		270	475	475	800
Total UV Power	W		270	475	475	800
Average life expectancy for 1	h		9 000 to	9 000 to	9 000 to	9 000 to
start/stop per day			12 000	12 000	12 000	12 000

B. AVERTISSEMENTS DE SÉCURITÉ





- Switch off the device 30 minutes before any intervention to let it cool down.
- Stop the system in the event of a prolonged stop of the water flow
- Never expose yourself to the radiation of the ultraviolet lamps when lit. This may cause severe injuries or burns and may even lead to loss of eyesight.
- When the lamps are running, do not take the lamps of the reactor out or remove the protection covers



• When dismounting UV lamp or quartz tube, it is necessary to wear **protection gloves** not to let fingerprints that could affect the UV emissions quality



- Even when stopped, power is present in the electrical unit so make sure that the main power supply upstream of the electrical cabinet is switched off before carrying out any work on the equipment.
- Do not use the reactor if the **power supply wire is worn or damaged**. In this case it should be replaced.
- To avoid electric short-circuits, **do not place the electric wires or the reactor in the pool water** or in any other maintenance or cleaning fluid.
- Do not perform electrical measurement on ballast output (risk of overvoltage)



- Never unscrew the quartz tube sealing nut **when the reactor is on load** as the quartz tube could be blown out of the reactor with force and injure you.
- In case of a microleakage, the reactor must be isolated and drained to perform maintenance as soon as possible.
- Do not use the Atecpool reactor for any other use than that for which it was designed.

C. INSTALLATION GUIDE

1. Foreword

Atecpool reactors are ready to install, no works is required inside the reactor.



It is necessary to read all the instructions in this manual before switching on the reactor.

2. Usage environment

Location	Room protected from direct sunlight and bad weather
Ambient temperature	Between 5°C et 40°C
Corrosive	Protect the electrical cabinet and the reactor from any corrosive emanations (chlorine,
environment	salt)
Ambient humidity	< 80% without condensation

3. Reactor installation

a.) Recommendations for optimal installation

- > The reactor can be installed from two different ways :
 - In vertical position (inlet downward) with draining point on the lower part



• In horizontal position always keeping the lamp horizontal, the UV sensor on the top and the draining point below the reactor



> For an easier maintenance, we recommend to install a By-pass.

> In order to avoid turbulence phenomena driving to vibrations that could affect the proper functioning of the device, it is recommended to:

- Observe a straight length of at least 3 times the piping diameter (*) between the inlet/outlet of the reactor and a T or an angle connection
- Install reducers at a minimum distance of 50cm (**) from the inlet/outlet of the reactor

> (**)Do not install upstream or downstream shut-off valves or reducers directly on the UV reactor but close enough to make the reactor draining and the maintenance operations easier : 50cm recommended

> To protect the pool in case of quartz sleeve breakage, install a strainer on the outlet flange of the UV reactor



b.) Requirements

> The reactor must be always located after the filtration

> It is necessary to provide a service space (D) required to remove the lamp and the quartz on each side of the reactor

MPL	UNIT		MPL140 1800W	MPL220 3000W	MPL300 3000W	MPL500 5000W
D) Service space	mm		250	272	332	412

> The reactors must be installed to run continuously in full hydraulic load, especially if the reactor is located above the pool (siphon risks, reactor half filled...)

Flow direction must be observed

> Whatever the installation way of the reactor (horizontal or vertical), the lamps must always be perfectly horizontal

> In case of horizontal installation, position the reactor so that a drain is below and the sensors above

> The maximum pressure of the piping should never be higher than the reactor maximum pressure (see Technical characteristics table, page 3)



4. Instructions for electrical connections

a.) Cabinet installation

IMPORTANT:



- Wirings must be performed by a qualified technician.
- A suitable thermal circuit breaker (see table paragraph b.)) must be installed on the power supply of the device. This breaker must be able to cut phase and neutral
 The supply voltage must meet specifications indicated on the label on the side of the device.
- Before proceeding to the wiring, switch off the power supplies.
 - Disconnect means must be provided on the power supply of the unit to allow a complete break in accordance with the installation rules. This must be tagged in order to be quickly identified.
- > The electrical unit should be positioned in order to be protected from water at eye level

Fix the cabinet to the wall, observing the clearances around the ventilation grills (400mm) and a sufficient space in front of the cabinet to open the door (600mm).

> The air vent of fan must not be obstructed and accessible to dismount or clean the filtering elements.



Dimensions of the electrical cabinets

MPL	UNIT	MP 18	L 140 00W	MPL220 3000W	MPL 300 3000W	MPL 500 5000W
F) Height	mm	6	600	600	600	600
G) Width	mm	6	600	600	600	600
H) Depth	mm	3	300	300	300	400
Weight	kg		45	57	57	65

b.) Electrical cabinet wiring

➤ <u>The electrical cabinet</u> must be connected to a constant power source inside the LVMDP (Low Voltage Main Distribution Panel) on its assigned breaker. It is necessary to provide a protection reserved for the UV reactor inside the LVMDP cabinet with suitable power breaker.

MPL	UNIT	MPL140 1800W	MPL220 3000W	MPL300 3000W	MPL500 5000W
Power	W	1895	3158	3158	5263
Min section of power cable	mm²	3G2,5	3G6	3G6	3G6
Differential protection	-	30 mA	30 mA	30 mA	30 mA
Minimum suitable protection	А	16	20	20	32
(according to NF C15-100 standard)	-	Courbe C	Courbe C	Courbe C	Courbe C

> The lamps and sensors cables are already connected inside the cabinet. These cables have a standard length of 10m and should not be shortened but completely unwinded in long loops to prevent any malfunction caused by parasites and inductive effects.



It is possible to disconnect the lamps and sensors cables from the electrical cabinet (wall crossing, cable tray...). So, it will be necessary to mark each wire and cable to properly wire back the same way as originally.

> To make the connections, refer to the wiring diagram so as to identify the corresponding terminal strips.

c.) Reactor connection to earth

The reactor should always be connected to earth as indicated on the picture here below with yellow/green lines.



The cables 1 is supplied with the reactor. All cables have a **6mm²** cross section. Any reactor earthing fault will lead to guarantee exclusion in the event of electrolytic corrosion.

d.) Alarms wiring

> The alarm outputs are dry contacts which must be powered from the outside in order to receive and return the signal. They are configured with positive safety, that is to say the contacts are closed as long as there are no fault, so the contacts open when a fault occurs.

- The available alarms are :
 - General defect : Potential-free alarm contact combining the UV alarm (Main alarm) and overheating reactor (Option). The contact opens when the UV level is too low or the reactor overheats (Option).
 - <u>UV irradiance pre-alarm</u> : Pre-alarm UV contact free of potential. The contact opens in case of low UV level.
 - Lamp defect : Contact defect lamp (s) free of potential. The contact opens when the lamp is stopped during operation.
- The contacts can tolerate a maximum of 150Vdc, 250Vac, 5A.

> To make the connections, refer to the wiring diagram so as to identify the corresponding terminal strips. A 2x0.75mm² cable is sufficient to connect up an alarm.

D. STARTING UP

- 1 First, check the reactor and the electrical cabinet has been correctly installed (see C. Installation guide)
- 2 Fill the reactor with water, by-pass open and check there is no leak.
- 3 Start the pumps, then slowly close the by-pass still checking there is no leak.

Slightly open the upper draining plug until water is forced out under pressure Close the plug.



4

8

If water is not forced out and, at the opposite, air comes into the reactor, then a siphon phenomenon occurs somewhere in the piping: reduce the opening of the UV outlet to reduce this phenomenon.

- 5 Power on the cabinet : white light is on
- 6 Proceed to the calibration of the flow controller (see E. Flow controller adjustment, page 10)
- Power on the lamps by using the On/Off switch.Check the green indicator of the lamp is on after 30mn.

Test functioning of the enslavement to the flow controller by stopping the pumps: the lamps should power off and the red light "Lamp fault" should be on.

- Start again the pumps and wait 30mn the lamps lights on a gain
- 9 Check hour counter is running.

If a UV sensor is installed, set the manual regulation to 100%, then proceed to UV sensor calibration (for the first commissioning or after a lamp replacement, see F. Manual of the monitor ATECPOOL page 11).

- **10** Note: This step should be done when the lamp has been switched on for at least 10 minutes. Once the calibration is complete, return to the automatic regulation mode. The regulation should change be at 70% after few minutes.
- 11 Fill maintenance file (see I. Maintenance file, page 19)
 - The device should always run
 - Filled with circulating water
 - Bled from air,
 - By-pass closed,



• The device is supposed to run nonstop, 24h/24h, but it is recommended to switch off the reactor in the event of prolonged halt of the water flow (risk of overheating or deposits on the quartz sleeve) despite the enslavement to flow controller. However, it would be better to limit the run/stop of the lamp to optimize their time of efficiency.

• In case of reactor stop, wait for 30 minutes the lamp is cooled before restarting it, to spare its lifetime.

• When the lamp is switched on, it works at 100% during 10 minutes to pre-heat the lamp, even if the regulation has been set differently.

E. FLOW CONTROLLER ADJUSTMENT

The function of the flow controller is to stop the UV reactor when there is no flow (overheating risk).

The flow controller is on the reactor as indicated here below.





• During reactor start up, it is **necessary** to perform the calibration of the flow controller on the **minimum flow** of the installation (e.g.: functioning with only one pump or with the by-pass open.

• During the filters cleaning, the lamp should not have to be stopped by the switch but check this is the flow controller that switches it off

• The good functioning of the flow controller should be checked at least once a month.

1. Calibration

- 1. Power on the cabinet, lamp off
- 2. Start up the filtration (pumps)
- 3. Set filtration flow to the minimum (e.g. : By-Pass opening or 1 pump on 2)
- 4. Press on button ▶ of the flow controller and **hold it** until the LED nr 9 flashes (about 5 seconds).
- 5. Release the button, calibration is over (lights 0 to 8 are on fixed, nr 9 flashes; if not, carry out again operations 4 to 5)

2. Adjustment of the triggering threshold

To avoid too many stops/starts of the lamp due to flow variation, the triggering threshold (orange LED) should be positioned in the middle, on nr 4 or 5. If not, proceed as following:

- 1. Press briefly on ⊲ or ▶, several times to move the orange light to the LED nr 4 or 5
- 2. The device is operational. Set back the flow to the maximum (By-pass closing, all pumps on). The lamp can be started again.



Checking:

- Stop the filtration : check the lamp stops in a delay of 60seconds maximum, the green lights should turn off one by one until below the threshold that lights on red
- Restart the filtration : the lamp restart will only be done after a delay of 30 minutes.

F. MANUAL OF THE MONITOR ATECPOOL



1. General information

This operating manual describes all possible options, Some of them aren't available on your device according to your reactor type. (« OFF » on the screen).

Definition of the 3 letters on the first display

- **R:** means that the reactor is switched on and operating.
- F: means that the water is flowing and that the flow is adequate in relation to the setting that you made on the flowmeter.
- C: means that the automatic cleaning function is activated.

Note: for the reactors which don't have a flowmeter, the letter "F" stays always on the display.

• The screen is backlit: Just pressing on a key switches the back lighting on for one minute.

• Activation/deactivation of automatic cleaning: Pressing simultaneously on buttons A and B activates or deactivates the automatic cleaning.

• Caution: if the cleaning is deactivated when the cleaning is in progress, the cleaning carriage may stop in the middle of the reactor and block some of the UV rays.

2. Alert messages

The screen flashes when there is an alert message.

The alert messages are always shown on the secondary display and are independent of what is displayed on the main display unit.

Display	Meaning of the alert	Solutions				
UVC VALUE 100,0 % OVERHEAT CABINET	This message appears when the temperature of the cabinet exceeds 60°C. The reactor is stopped automatically.	Check that the cabinet vents are not blocked. Check that the fans are working properly.				
UVC VALUE 100.0 % OVERHEAT REACTOR	This message appears when the temperature of the reactor exceeds 44.5°C. The lamps are stopped automatically.	Check that enough water is flowing through the installation. If there is a flowmeter, check that is correctly calibrated.				
RF UUC VALUE 100.0 % LAMP ALARM 1	This message appears when one or several lamps are faulty. The numbers show which of the lamps are faulty.	Diagnose the cause of the breakdown.				
UUC UALUE 100.0 % CLEANING FAULT	This message appears when the cleaning system is blocked.	Diagnose the cause of the breakdown.				
	These 4 alert messages can be cleared b It is preferable to carry out a maintenance op	by pressing on the key "OK". eration before clearing the fault.				
UUC VALUE 057.1 % PRE ALARM	This message appears when the intensity of the UVC radiation falls below the pre-alarm threshold.	Check that the quartz sleeves are clean. Check that the UV sensor is clean.				
N.B.: when the	e lamps have been operating for a certain number wear of the lam	r of hours, this message appears naturally (normal ps)				
UVC VALUE 042.8 % PRE ALARM MAIN ALARM	This message appears when intensity of the UVC radiation falls below the main-alarm threshold.	Check that the quartz sleeves are clean. Check that the UV sensor is clean. Chang the UV lamps.				
THE SYSTEM WILL RESIAT 30 MINUTES HFTER RETURN FLOW lamps will not be relit until after a time delay of 30 minutes. This time delay is to protect the la						
UVC VALUE 100.0 % SELECT LAMP	This message appears when the selection of the lamp power is set to zero	Selection of the value of the corresponding lamp power in the regulation screen (B during 5s, then +/-)				
UV SENSOR SETTING NOT PERMITTED-LAMP OFF- ESC TO CANCEL	This message appears when a calibration is asked while the lamp is off.	Switch on the lamp then return to the calibration menu.				
These 5 messages cannot be cleared unless the problem has been resolved.						

3. Content of menus and sub-menus

Use the + or – keys to change from one menu to another.

Press on key A for 5 seconds to enter a menu.

When the word "OFF" is displayed, this means that the display option is not available on your device.

_	r	THE DECC	
A		UUC UALUE 100.0 %	Display of the UVC intensity measured by the sensor.
	A1	RF UUC SENSOR OK->CALIBRATION B->SETTING ALARM ESC->CANCEL	 Calibrating the sensor: It is important to carry out this operation when commissioning the reactor and also when changing a lamp even if the display already shows 100%. It is important to wait 5 minutes before carrying out the calibration, to allow the lamps to heat up. If your device is equipped with the power regulator, it is ESSENTIAL to switch over to manual regulation (100%) before calibrating the sensor.
	A2	RF UVC VALUE 100.0 % PRE ALARM 00060%	Menu to adjust the pre-alarm threshold. Set in the factory at 75%. Allows you to set the UVC value at which the pre-alarm will trigger.
	A3	RF UVC VALUE 100,0 % MAIN ALARM 00050%	Menu to adjust the main alarm threshold. Set in the factory at 50%. Allows you to set the UVC value at which the main alarm will trigger.
в		COUNTER H:M 00000h 00min r	Display of lamp operating time. It is recommended to reset this counter at zero when you change a lamp.
	B1	COUNTER H:M 00000h 18min OK->RESET COUNTERS ESC->CANCEL	Set the hour counter and the lamp start number counter to zero.
с	ADDE	COUNTER H:M R 00000h 00min	Display the reactor's total operating time since it was put into service. This counter cannot be reset to zero.
D	OF S	TOTAL NUMBER TARTING 00000	Display of the number of lamp starts performed. Setting this counter to zero is linked to the hour counter reset.
E		CLEANING No 00000	Display of the total number of cleaning operations performed since the reactor was put into service. This counter cannot be reset to zero.
	E1	CLEANING No 00000 AUTOMATIC CLEANING EVERY 000064	Set the frequency of the automatic cleaning cycle. Factory setting: one cleaning operation every 6 hours. Can be increased to a maximum of one cleaning operation per hour.
F	REAC	TEMPERATURE TOR: 0026.7 C	Display the reactor temperature.
G	DIMM	MANUAL ING 100%	Display the power regulation.
	G1	DIMMING OK->AUTOMATIC B->MANUAL AT 100% ESC->CANCEL	Selection of the power regulation mode Automatic : the power is adjusted according to the UV sensor measure Manual : the lamp runs at 100% continuously
		MANUAL DIMMING 100% +/- AND OK FOR CHANGE REGULATION	Selection of the manual regulation level : 70%, 85% or 100% Without UV sensor
	G2	OK->TO SELECT LAMP TYPE ESC->CANCEL	Display the access to the lamp power selection
	G3	+/- SELECT LAMP TYPE 1000W	Selection of power of the installed lamp: 1000W, 1800W, 3000W, 5000W (set in factory) If 0 is selected , the defect "Lamp selection will appear.

4. Temperature probe (option)

In the case of a temperature probe, the values are as following:

	Temperature read on the monitor
Probe disconnected or broken	73°C
Minimum temperature of the probe	0°C
Trigging threshold (Stop device)	44.5°C

G. SERVICING RECOMMENDATIONS



When work is carried out on the UV reactor, ensure that the personnel are qualified and approved.

1. Recommendations for operations checking

The following points must be regularly checked in order to ensure the perfect operation of the UV reactor :

- Check the operation of the lamps: Green indicator lamp lit
- Check the correct operation of the fans in the electrical cabinet, so as to prevent any risk of overheating. Check that the grid is not obstructed.
- Check the good operation of the **flow controller** at least once a month: If the flow rate is interrupted (filter back-washing operation for example), the UV lamps must switch off automatically within 15 seconds, and restart 30 min after restarting the reactor.
- Check UV intensity: the display on the screen must indicate a value greater than 50%
- Check the number of **lamp start-ups/stops** on the screen, which must be consistent with the number and frequency of the maintenance operations (filter back-washing, etc.).



If the UV intensity is faulty (<50%); do not perform the UV sensor calibration procedure which must only be carried out with: new lamp(s), clean quartz(es), clean UV sensor Reminder: if the UV measure is carried out in W/m², the sensor calibration is useless.

2. Recommendations checking and preventive maintenance

	OPERATIONS	FREQUENCY
1	Check the general state of the UV reactor	Once a week
2	Replacement of the UV lamps	 When end of lifetime: Either once a year, Or the main UV alarm screen displays: UV intensity <50% Or combined chlorine rate in the pool
3	Replacement of quartz sleeve seals	At each replacement of the lamp and at least once a year
4	Cleaning or replacement of the quartz sleeve Check presence of Teflon shim of the quartz sleeve	At each replacement of the lamp if necessary or at least once a year
5	Check flow meter operation	At least once a week
6	Clean the fans grilles	Once a week
7	UV sensor cleaning	At each lamp replacement or at least once a year
8	UV sensor calibration (if measure in %)	At each lamp replacement. Only with a new lamp, a clean or new quartz sleeve, UV sensor cleaned
9	Check circuit-breaker operation	At least once a year
10	Check the tightness of: - terminals in the cabinet - connectors - UV lamps connections - earth connections	Recommended at each lamp replacement

H. DISMOUNTING UV LAMP AND QUARTZ SLEEVE

These operations must be carried out for :

- The dismounting/changing of the lamp or the quartz sleeve
- The checking/cleaning of the quartz sleeve
- The replacement of the tightening seals of the quartz sleeve







I. MAINTENANCE FILE



CAUTION: This sheet must be kept up to date. It provides a record of the **reactor's operating cycle**.

Date	Action	done by

J. ELECTRICAL DESCRIPTION





N°	Designation	Mark	References	5		
1	M3 monitor	M3	ELE002401			
2	White light	H1	ELE000274			
3	Green light	H2	ELE000272			
4	Red light	H3	ELE001303			
5	24VDC supply	U1	ELE002161			
6	Ballast	B1	BAL006152	MPL030	1000W	
			BAL007327	MPL030	1800W	
			BAL007327	MPL140	1800W	
			BAL005762	MPL220	3000W	
			BAL005762	MPL300	3000W	
			BAL004533	MPL500	5000W	
7	Thermostat	F0	ELE000335			
8	Relay	KA	ELE001060			
9	Fan	М	ELE000189 All other		odels	
			ELE000241		5000\	
			(filtering element : ELE001871)		500000	

K. EXPLODED VIEW



N°	Designation	References			
1	Lamp cover	PIE010409			
2	Lamp centring washer	centring washer USI006738-100			
3		LPE007577	MPL030	1000W	
		LPE010443	MPL030	1800W	
	LIV/ Jomp	LPE010443	MPL140	1800W	
	0 v lamp	LPE010201	MPL220	3000W	
		LPE010444	MPL300	3000W	
		LPE010202	MPL500	5000W	
4	Knurled nut	USI000019			
5	Quartz washer	PIE000487			
		QUA006980	MPL030	1000W	
6		QUA007975	MPL030	1800W	
		QUA009792	MPL140	1800W	
	Qualiz sleeve	QUA009798	MPL220	3000W	
		QUA007124	MPL300	3000W	
		QUA002693	MPL500	5000W	
7	Quadring seal	JTS000098			
8	Flow controller	ELE000057			
9	LIV consor	ELE014301	All other	models	
		ELE014094	MPL500	5000W	
10	Ceramic terminal	ELE000068			
11	Seal	JTS000230			
12	Draining plug	ACC000410			