



Water polishing system

Adrona Connect

INSTALLATION & OPERATION MANUAL

Version 3.9 (2024)



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INTRODUCTION

Using This Manual

This is a user manual for Adrona Connect water purification system. We strongly advise you to read this manual before installing and using the water purification system.

All pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

Safety Information

WARNING! Read and understand all sections in this guide before installing or operating the system. The symbols used below are internationally accepted symbols that warn of potential hazards with electrical products.



This HAZARD symbol is used to refer to instructions in this manual that need to be done safely and carefully



This ATTENTION symbol is used to refer to instructions in this manual that need to be done carefully



This ELECTRICAL GROUND symbol is used to refer to a position where an electrical ground connection is made



This ELECTRICAL DANGER symbol means that there are dangerous voltages present within the unit



This DANGER symbol indicates that it is necessary for the user to refer to the owner's manual, read, understand and follow the instructions



This UV RADIATION symbol indicates the ultraviolet radiation (UV) danger. Failure to comply with safety instructions may result in personal injury

Ensure that anyone who operates the water purification system has received instructions in both general safety practices for laboratories and specific safety practices for the unit.

Contact Adrona

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PRODUCT OVERVIEW

Adrona Connect Water System General Description

Adrona Connect is water polishing system which requires a connection to a water pretreatment unit or a distilled water distribution system. There are 3 variations available: Connect Trace, Connect HPLC and Connect Bio.

“Connect” system can be used in two configurations:

- Pressurized feed water configuration (default). The system draws water from a pressurized pre-treated water supply.
- Non-pressurized feed water configuration. The system draws water from a non-pressurized feed water supply.

Water purification system Adrona Connect produces pure water that complies with ISO 3696 Grade 1 water requirements.

Ultrapure (ISO 3696 Grade 1) water applications include but are not limited to:

- High sensitivity analytical techniques (ICP-MS);
- High performance liquid chromatography;
- Molecular biology;
- TOC analysis;
- Cell culture.

System Overview



Water Specifications

Purified water specification	Connect Trace	Connect HPLC	Connect Bio
Grade 1 water resistivity at 25 °C	18.2 MΩ x cm	18.2 MΩ x cm	18.2 MΩ x cm
Grade 1 water conductivity at 25 °C	0.055 μS/cm	0.055 μS/cm	0.055 μS/cm
TOC	<10 ppb	<5 ppb*	<5 ppb*
RNase	-	-	<1 pg/mL
DNase	-	-	<5 pg/mL
Bacteria	<0.01 CFU/mL	<0.01 CFU/mL	<0.01 CFU/mL
Endotoxins	<0.15 EU/mL	<0.15 EU/mL	<0.001 EU/mL
Particles >0.22 μm	<1/mL	<1/mL	<0.05/ mL

*In appropriate operating conditions <2 ppb, otherwise normally <5 ppb.

Technical Specifications



Dimensions and weight

	Connect Trace	Connect HPLC	Connect Bio
Dimensions (W*D*H)	30*44*64 cm	30*44*64 cm	30*44*64 cm
System weight	16 kg	17 kg	17 kg
Operating weight	19 kg	20 kg	20 kg

Noise level

Water purification system Connect (Trace/ HPLC/ Bio) can generate a maximum sound pressure level of 47 dB at 1 m distance from the system.

Electrical requirements

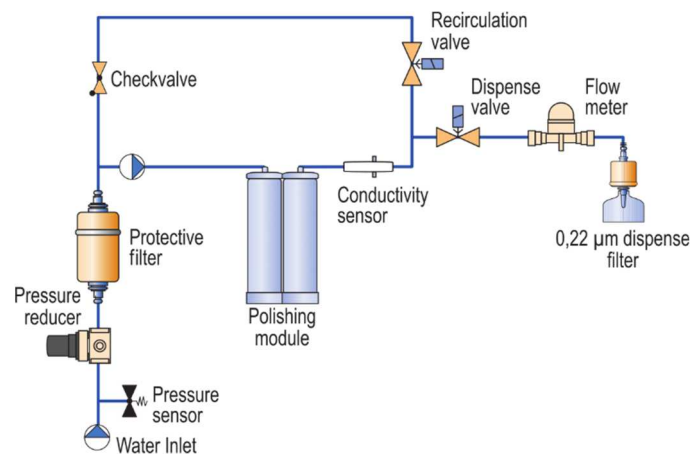
The water purification system is configured for 230 V ± 5%, 3.15 A max.

In areas where the supplied power is subject to voltage fluctuations exceeding 10% of the nominal voltage, a power line regulator may be required.

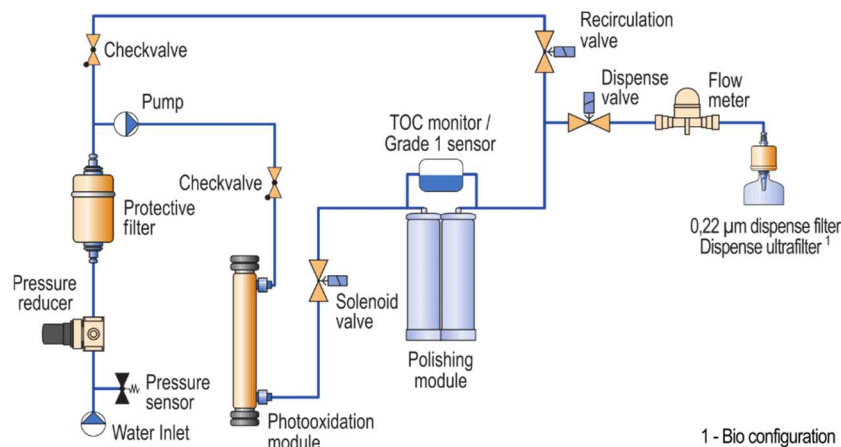
Power supply receptacle should be within 1.5 meters from the installation site.

System Components in Flow Chart

Connect Trace



Connect HPLC/ Bio



Principle

Pre-treated water is supplied in one of the following ways:

- From a centralized pre-treatment water system;
- From a pressurized water distribution system ("Connect", pressurized feed water configuration);
- Provided in an external non-pressurized tank ("Connect", non-pressurized feed water configuration).

After the system has been switched on, the pump circulates water through the photooxidation (HPLC/ Bio configuration) module and polishing module.

The photooxidation module destroys organic molecules, breaking them down into ionized fragments and oxidized to CO₂, and the polishing module removes dissolved solids from the water, including fragments of organic molecules, bringing water resistivity to the theoretical limit of 18.2 MΩ x cm.

A high-level water quality is maintained through the recirculation process. The recirculation interval is user-specified.

Grade 1 water is dispensed through the 0.22 µm dispense filter (Bio configuration is equipped with an ultrafilter).

PRE-INSTALLATION

Make sure the pre-installation requirements are met before installing the system.

Feedwater requirements

The feed water must be pre-treated by reverse osmosis, distillation, electrodeionisation or deionisation technologies.

Conductivity (at 25 °C)	<100 µS/cm
Temperature	5–35 °C
TOC	<50 ppb

Feedwater connection

Feed water connection port has to be 1/2" NPTF (male) thread. The system is equipped with feed water tube (1/4" OD) and adapter for 1/2" NPTF (female) water supply connection. The feed water tube should be connected to the 1/4" John Guest port of the adapter. Feed water connection port should be equipped with a valve allowing shutting off water supply.

Feed water supply connector and drain should be within 3 meters from the installation site.

Feed water Piping Connection	1/4" JG
Minimum pressure	≥ 0.4 bar
Maximum pressure	≤ 4.0 bar

Site requirements

The system requires up to 300x440x640 mm (W*D*H) space on the bench. If the system is equipped with the tank, allow enough space for the tank. The tank can be placed under the bench. The system can also be mounted on a wall to save space on the laboratory bench.

Environmental requirements

The water purification system is intended for indoor use only, in an environment that has nonconductive pollutants only.

Ensure that the site is maintained under the following conditions:

Condition	Acceptable range
Temperature	15 to 30 °C (59 to 86 °F)
Humidity	20% to 80% relative humidity, noncondensing

Water leakage safety

- Make sure that all water connection tubes are kink-free.
- Make sure that all water connections are tight.
- Feed water supply connector and drain should be within 3 meters or less from the installation site.
- Feedwater connection port has to be 1/2" NPTF male thread.

UNPACKING

Remove packing materials carefully and retain for them future shipment or storage of the unit. Examine the unit carefully for any damage incurred during transit. The warranty does not cover in-transit damage.



Due to the unit's weight its unpacking and installing is to be carried out by two persons. When opening the shipping box, we advise to compare received parts with the Packing List included.



Contact Adrona if any part is missing.

INSTALLATION

Preparation of the System

Review "Pre-installation requirements" chapter above.

Unpack the water purification system and place it on the laboratory bench.

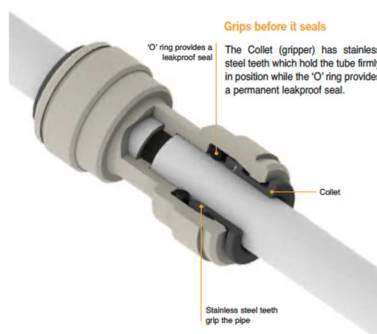
Remove the protective packing materials.

Pre-treated water is supplied in one of the following ways:

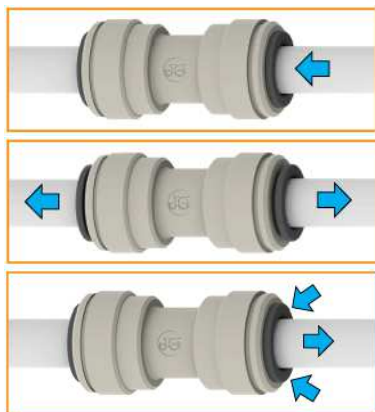
- From a pressurized water distribution system ("Connect", pressurized feed water configuration);
- Provided in an external non-pressurized tank ("Connect", non-pressurized feed water configuration).

Introduction to John Guest tubing system

Adrona water purification systems are equipped with John Guest push-fit fittings and tubes. We will use abbreviation JG for John Guest parts in further text.



To make a connection, the tube is simply pushed in by hand; the unique patented John Guest collet locking system then holds the tube firmly in place without deforming it or restricting flow



Push the tube into the fitting, to the tube stop

Pull on the tube to check it is secure. Test the system before use

To disconnect, ensure the system is depressurized, push the collet square against the fitting. With the collet held in this position the tube can be removed

Rear and side panel

Look at the rear panel of the Adrona Connect water purification system and polishing module installation site as well as inlet and outlet fittings.

Rear panel



- 1 – Connection to PC
- 2 – Operation
- 3 – Connection to water dispenser “Adrona Flow Point 3”
- 4 – Electric cable plug
- 5 – Power switch
- 6 – Information about system & serial number
- 7 – 1 1/4” connection to water dispenser “Adrona Flow Point 3”
- 8 – REC IN (depending on configuration: input water or connection to the tank)
- 9 – REC OUT (connection to the tank)

Side panel



- Open the right door and locate the polishing module (part no. 10030):
- 10 –Polishing module fittings
 - 11 –Polishing module slit

Installation procedure

Open the right door where polishing module (part no. 10030) is located.



[1]

Open the right door and locate the installation slot



[2]

Locate the polishing module marked with SILVER sticker

Remove both protective 1/4" JG plugs from deionization module.

Option 1.

You need to push the little ring down and you will be able to take out the plug



[3]

Option 2.

Protective 1/4" JG plug removal from polishing module using Adrotool.

You need to push the little ring down with Adrotool and you will be able to take out the plug



[4]





[5]

Locate connectors (2 pcs.) for polishing module (JG stem elbow with 1/4" tubes)



[6]

Insert connectors in the module fittings
Make sure they are secured



[7]

Place the module in the slit



[8]

Place connector tubes in slots.
Make sure that connectors are properly attached

Dispense filter mounting



[1]

Ultrafilter packaging (part no. 10120)



For **Bio** configuration only



[2]

0.22 µm dispense filter packaging (part no. 10013)



For **HPL** and **Trace** configuration



[3]



[4]

O-rings:

1 – transparent for ultrafilter

2 – black for 0.22 µm dispense filter



[5]

For Bio systems, unpack the ultrafilter and screw it to the holder in front of the system. Before that, make sure that the transparent O-ring is inside the holder



[6]

Ultrafilter connected with the system.



After water dispensing put the bell cap back to the bell!



[7]

For HPLC and Trace systems, unpack the 0.22 µm dispense filter and screw it to the holder in front of the system. Before that, make sure that the black O-ring is inside the holder



[8]

0.22 µm dispense filter connected with system.



After water dispensing put the bell cap back to the bell!

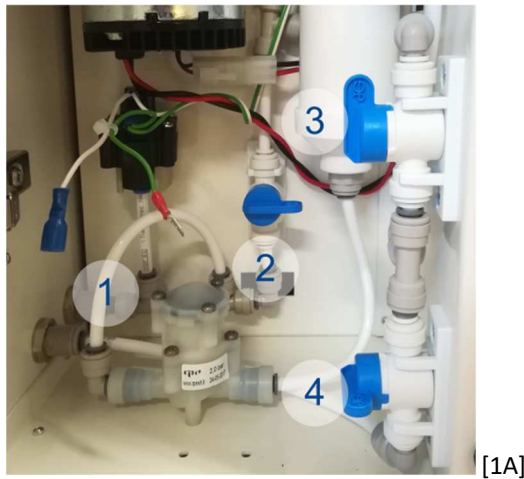


The microfilter (or ultrafilter) should be rinsed prior to use!
When the tank is full, press the “Dispense” button and rinse the microfilter (or ultrafilter) with at least 10 liters (or 20 liters respectively) of purified water.

Connection of tubing

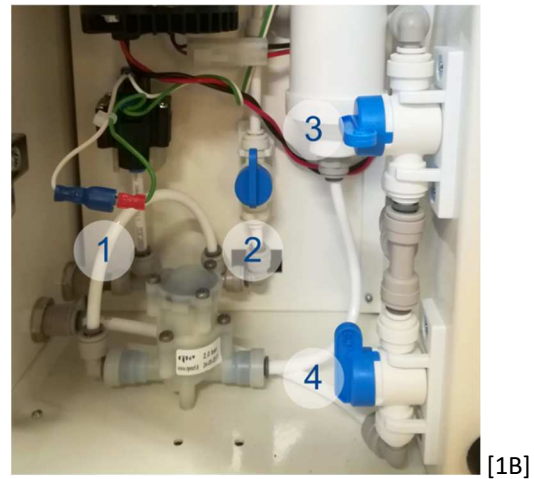
Open the door on the left.

Pressurized feed water supply configuration



- 1 – Green and white wires should stay **not connected**
- 2 – Closed
- 3 – Open
- 4 – Closed

Non-pressurized feed water supply configuration



- 1 – Green and white wires should **be connected**
- 2 – Open
- 3 – Closed
- 4 – Open



- 5 – Connect the pressurized water supply tube to the REC IN fitting on the rear lower part of the Connect system
- 6 – Install 1/4" JG protective plug in the REC OUT connector



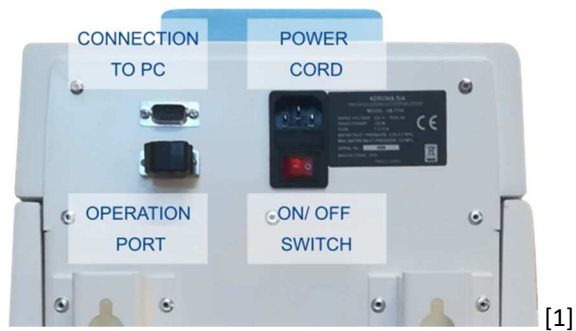
- 5 – Connect the external tank to the REC IN
- 6 – Connect the external tank to the REC OUT fittings on the rear lower part of the Connect system

The system will circulate water in the tank.



If system equipped with water distribution unit Flow Point 3 for connection refer to its manual. If Flow Point 3 is not used connect fittings "1" and "2".

Connection to PC and power cord



Connection to PC and power cord is located on the rear panel of the system



Operation dangle is used for receiving conductivity measurement



Locate the power cord



Plug the power cord into the system.



Plug the other end of the power cord into an appropriate source of electrical power.



Make sure the system is properly grounded.



The water purification system is connected to the main supply via electric cable that is supplied with the unit.



In case the supply cord is damaged, it should be replaced with an equivalent cord, in accordance with manufacturer's specifications.

USING THE SYSTEM



The system is switched on and off with the main switch at the rear panel of the unit

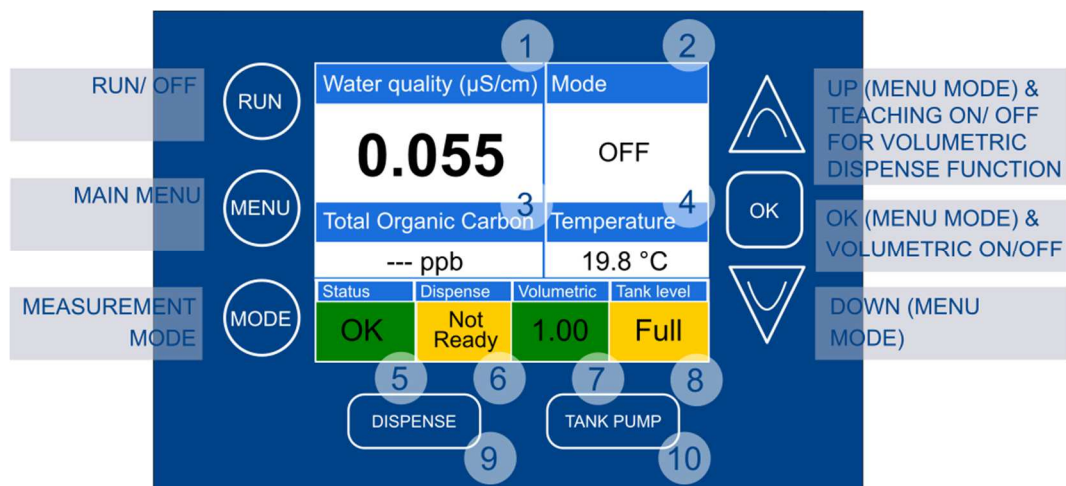


It is necessary to shut off the water supply valve when the system is not under observation.

Display

All functions are accessible via control buttons at the front panel.

The LCD screen displays information regarding water quality, TOC measurements, operation status, errors and button functions.



Description:s

- | | |
|--|----------------------------------|
| 1 – Water quality | 6 – Dispense status |
| 2 – Operation status | 7 – Dispense volume |
| 3 – TOC level (HPLC & Bio configuration) | 8 – Tank level status |
| 4 – Water temperature | 9 – Dispense button |
| 5 – Error message/ system status | 10 – Tank Pump button (not used) |

Detailed description of each line can be found in the table below:

No.	Line	Description
1	Water quality	Displays quality of water filling the tank (Grade 1)
2	Operation status	Shows current status. Possible messages are: - "LowPres" – no feed water pressure; - "TnkFull" – tank is full or disconnected; - "Recirculate" – the unit is performing a recirculation; - "Dispense" – water is dispensed via the end filter; - "Rinsing" – the system is rinsing
3	TOC level	Total organic carbon measurement
4	Water temperature	Displays water temperature. Water temperature measurement is necessary for accurate water quality measurement
5	Error message	Errors occurred during operation. Possible error is: - Fail – polishing module error
6	Dispense status	Ready / Not Ready
7	Dispense volume	You can indicate necessary dispense volume / Enable or disable the teaching mode
8	Tank level status	Shows tank level status

TOC reduction and monitoring

Total organic carbon (TOC) describes level of organic contaminants in pure water. High concentration of organic contaminants may affect results of several analytical methods, e.g. high-performance liquid chromatography. Therefore, for some applications TOC level should be controlled and kept minimal.

To keep TOC readings at low levels requires regular recirculation of purified water through the module of photooxidation and polishing modules.

Unfortunately, organic contaminants may not have effect on conductivity of water, so conductivity sensors cannot be used for TOC monitoring. A special TOC monitoring module is needed to measure TOC level. The monitoring module consists of a TOC photooxidation module, valve and a conductivity sensor.

TOC monitoring module operation principle



This section does not refer to Trace configuration.

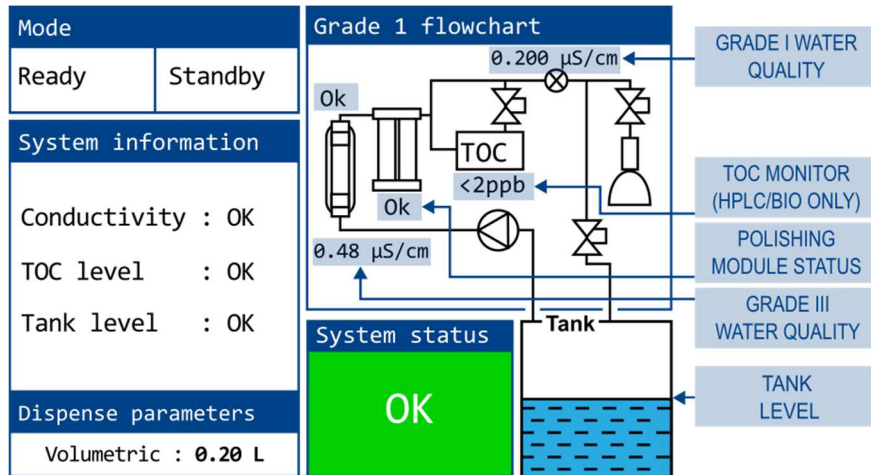
During recirculation stage a water sample is introduced into the TOC photooxidation module where it is oxidized for several minutes. During this phase water conductivity rises because of oxidation of organic molecules. The rise of conductivity is proportional to TOC level of water.

After the oxidation phase is finished, water is released from the TOC photooxidation module and its conductivity is measured by the conductivity sensor. TOC level is calculated from the rise of conductivity.

Note: As TOC measurement is made during the recirculation stage, the TOC value is shown on the display only after the system has partially filled the storage tank with water and completed at least one recirculation cycle.

Diagnostic screen

If the “Mode” has been pressed, the Diagnostic screen is shown. The diagnostic screen displays status of all the sensors and components as well as tank level.



Connection to PC

To transfer log information from the system to PC you need:

- 1 – RS232-USB adapter;
- 2 – Install RS232 drivers on the PC that will be used for data collection;
- 3 – Download from Internet freeware program “RealTerm: Serial/TCP Terminal”;
- 4 – Install the program;
- 5 – Open program & set “Port” settings:
 - Baud: 19200
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Hardware flow control: None
- 6 – Choose the right port and press “Open”. Data will be sent every 5 minutes.
- 7 – The log of water quality and errors is stored inside the microcontroller as well.
- 8 – To obtain the saved log go to:

Menu→Sensors→Send log to PC

The log is rewritten after it is sent to PC.

- 9 – To save data in file:
 - Press Capture;
 - Choose directory where you want to save the file;
 - Press: “Start Append” or “Start Underwrite”;
 - Files will be saved in your file directory and data will be sent every 5 minutes to this file;
 - To obtain the saved log, you can go to:

Menu→Sensors→Send log to PC

- The log is rewritten after it is sent to PC.

Rinsing the system

Press Run button to start operation. Leave the system running for 2 hours. Check through the right door that the connectors were not loosened during the transportation and that there are no water leaks.



The microfilter (or ultrafilter) should be rinsed prior to use! When the tank is full, press the “Dispense” button and rinse the microfilter (or ultrafilter) with at least 10 liters of purified water.

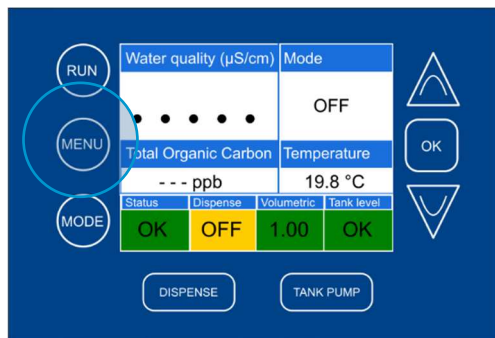
If the Connect system is used in pressurized feed water configuration in “Recirculation” mode it will recirculate water that is inside system. Allow the Connect system to recirculate water, remove all the residual organic contamination inside system and reduce TOC reading to <2 ppb (for HPLC and Bio configurations).

If the Connect system is used in non-pressurized feed water configuration in “Recirculation” mode it will recirculate water that is inside system and water storage tank. Allow the Connect system to recirculate water, remove all the residual organic contamination inside system and reduce TOC reading to <2 ppb (for HPLC and Bio configurations).

Calibration

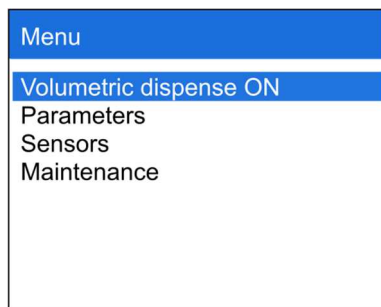
Adrona water purification systems are already calibrated. Additional calibration is not needed.

Introduction to Connect operating modes



[1]

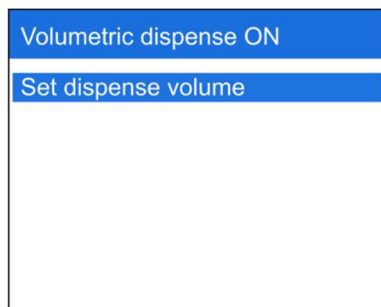
To enter Menu, press the “Menu” button



[2]

The display will show menu, consisting of:

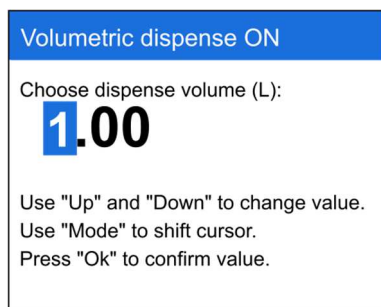
- Volumetric Dispense;
- Parameters;
- Sensors;
- Maintenance



[3]

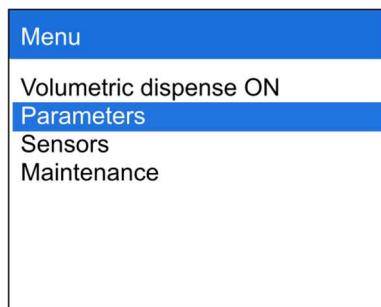
VOLUMETRIC DISPENSE ON

To enable volumetric dispense function, enter the first section “Volumetric Dispense ON” and press “Set dispense volume”



[4]

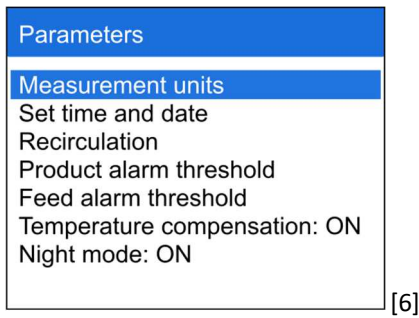
Set the dispensing volume as described on the display



[5]

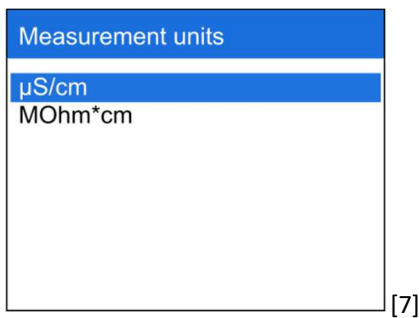
PARAMETERS

Choose section “Parameters” if you need to change measurement units, to set date or recirculation parameters



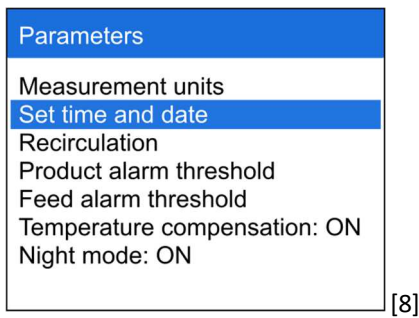
The display will show sub-menu, consisting of:

- Measurement units;
- Set date and time;
- Recirculation;
- Product alarm threshold;
- Feed alarm threshold;
- Temperature compensation;
- Night mode

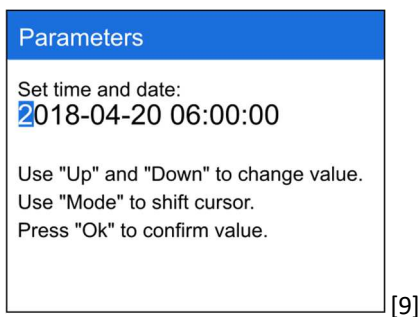


Section “Measurement units” allow you to set following units:

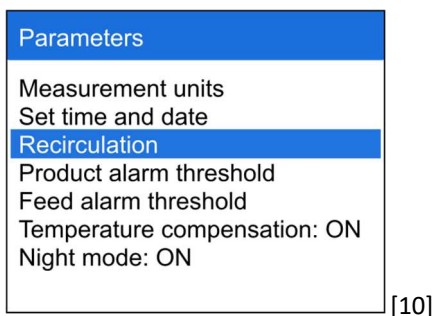
- μS/ cm;
- MOhm*cm



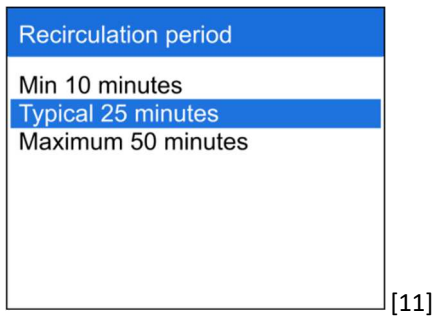
Section “Set time and date”



Set the current time and date as described on the display

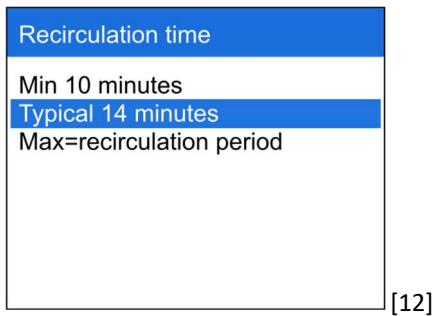


Section “Recirculation”



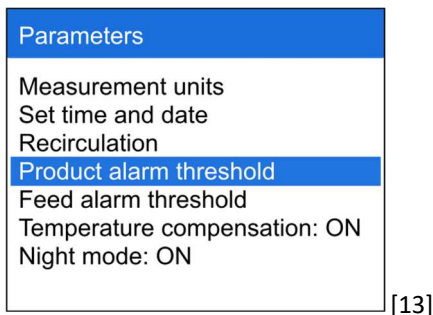
In section "Recirculation period" you can choose one of three pre-sets:

- 10 minutes;
- 25 minutes;
- 50 minutes



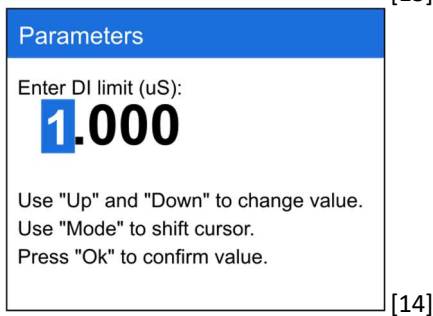
In section "Recirculation time" you can choose one of three pre-sets:

- 10 minutes;
- 14 minutes;
- Max (recirculation period)



PRODUCT ALARM THRESHOLD

If you need to control product's conductivity, you can set up a limit value



Set desired product's conductivity limit in $\mu\text{S}/\text{cm}$ unit of measurement as described.

If the value is exceeded, the system's flowchart shows *Fail* message. You can view flowchart by pressing "Mode" twice to display it

FEED ALARM THRESHOLD

If you want to control feed water conductivity, you can set up a limit value.

- The feed water must be pre-treated: conductivity at 25°C should be $<100 \mu\text{S}/\text{cm}$.
- The lower the conductivity, the longer the *Polishing* module life.

Parameters

Enter feed limit (uS):
50.0

Use "Up" and "Down" to change value.
Use "Mode" to shift cursor.
Press "Ok" to confirm value.

[16]

Parameters

Measurement units
Set time and date
Recirculation
Product alarm threshold
Feed alarm threshold
Temperature compensation: ON
Night mode: ON

[17]

Parameters

Measurement units
Set time and date
Recirculation
Product alarm threshold
Feed alarm threshold
Temperature compensation: ON
Night mode: ON

[18]

Menu

Volumetric dispense ON
Parameters
Sensors
Maintenance

[19]

Sensors

Validate TOC sensor
Validate Grade 1 sensor
Send log to PC

[20]

Set desired feed water conductivity limit in $\mu\text{S}/\text{cm}$ unit of measurement as described.

Status

Fail

If the value is exceeded, the system's flowchart shows *Fail* message.
You can view flowchart by pressing "Mode" twice to display it.

TEMPERATURE COMPENSATION

This function enables/ disables *Temperature compensation* function



To enable temperature compensation function, you need to set:
– Measurement units;
– Time and date.

NIGHT MODE

This function enables/ disables *Night mode* function.

It is a system's safety mode that shuts down boost pump and photooxidation from 8 PM to 8 AM.

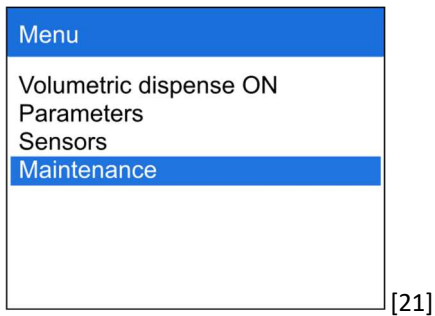
SENSORS

Choose section "Sensors" if you need send information to PC.



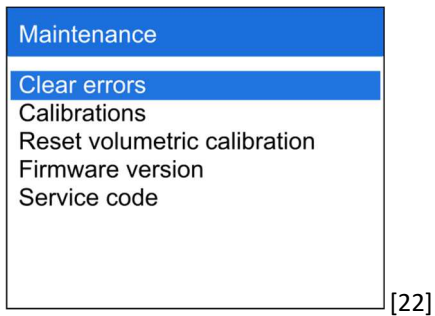
Validation of the TOC sensor and Grade 1 sensor is not currently available.

Refer to chapter "Connection to PC" for instruction on how to transfer information to PC

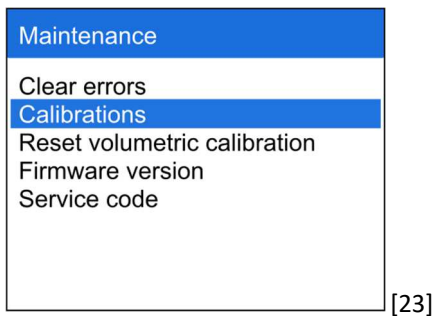


MAINTENANCE

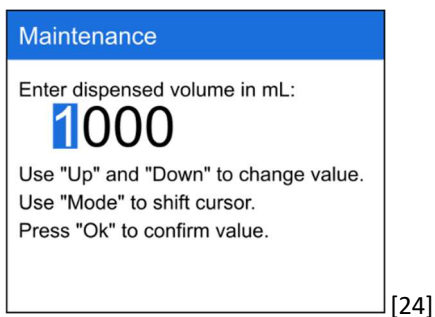
Choose section "Maintenance" if you need to do reset, calibration or to check firmware version



Press "Clear errors" after errors are solved



Press "Calibrations" to fulfill dispensed volume calibration

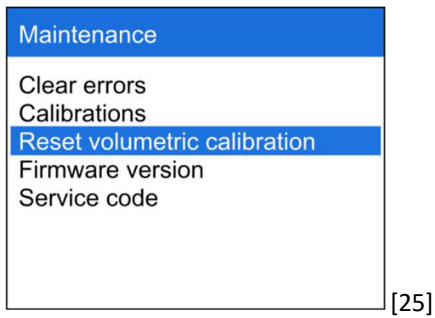


To calibrate volumetric, dispense function please follow the procedure below:

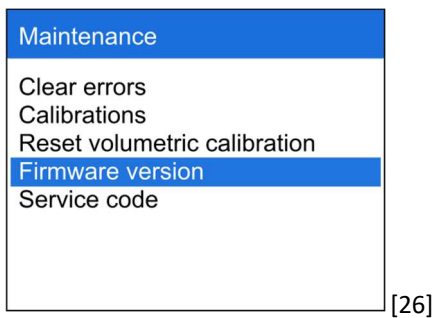
1. Set dispense volume to 1 liter (Menu -> Volumetric dispense);
2. Dispense water to 2 liters measuring beaker;
3. Note the actual dispensed volume in milliliters;
4. Go to Menu → Maintenance → Calibrate volumetric;
5. Enter the actual dispensed volume (in mL);
6. Press OK



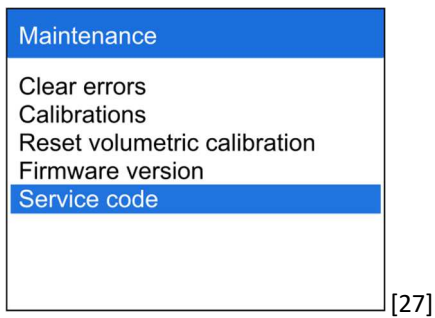
Calibration can be fulfilled per 1 liter only



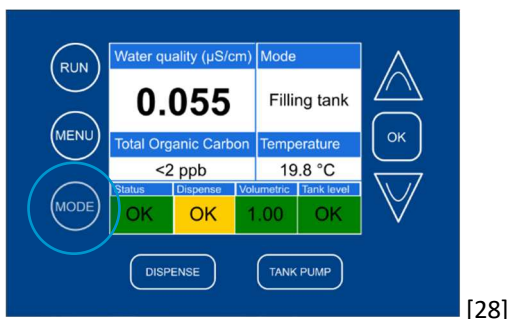
Press “Reset volumetric calibration” to clear system settings



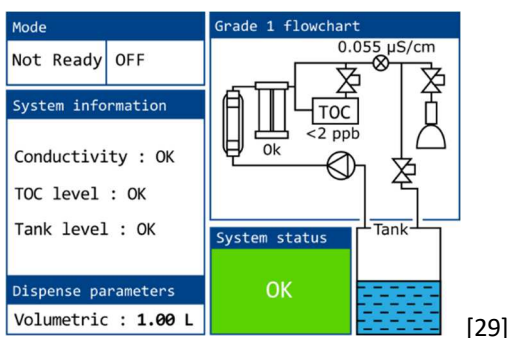
Press “Firmware version” to get information about the version of system



Section “Service code” has limited access to service personnel only



Press “Mode” once to switch from default mode to diagnostic screen.



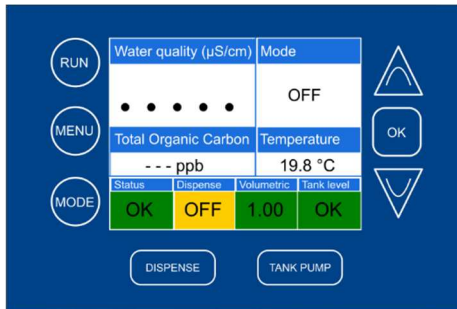
Press “Mode” once to switch from diagnostic screen to default mode.

Operating Connect tap water systems



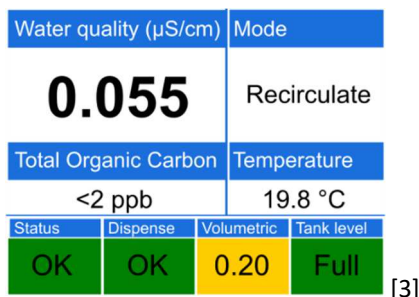
[1]

Open the tap water supply and switch on the system with the power switch located on the rear panel



[2]

The display indicates the status window after few seconds.

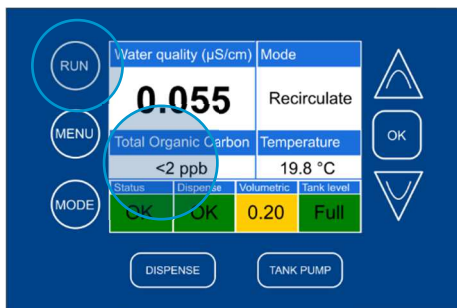


[3]

The status window shows the system status and temperature. There is also indication of water quality.



However, the precise reading of water quality can be obtained when the system is in "Rinsing" or "Recirculation" mode



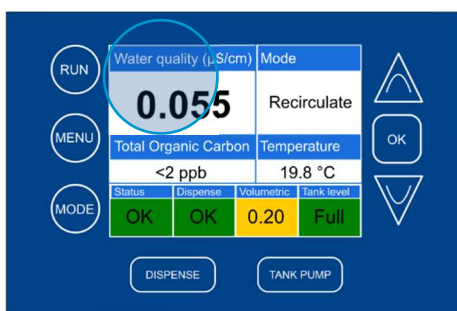
[4]

The display shows TOC reading.



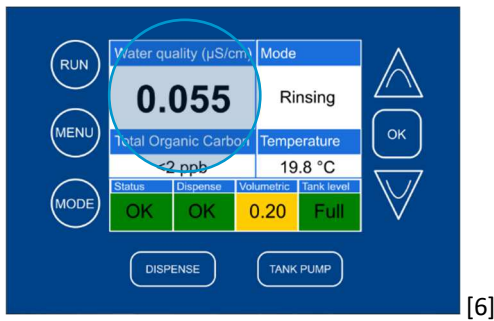
However, the TOC reading will be shown only after the storage tank is at least partially filled with water and at least one recirculation cycle has finished.

Normally it takes about one hour after the system has been switched on and the run button has been pressed

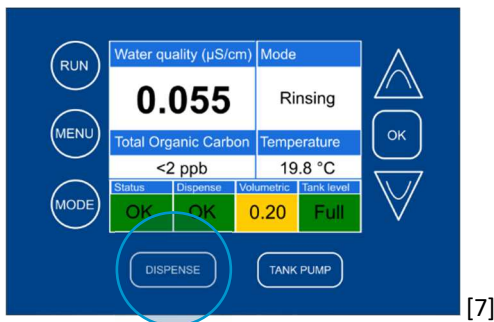


[5]

The Grade 1 sensor used for controlling quality of Grade 1 water that is dispensed via the dispense port



When the system is in “Rinsing” or “Recirculate” mode, the reading of the Grade 1 water sensor is shown on the display

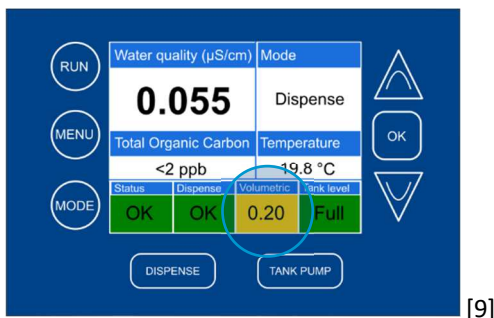


To dispense Grade 1 water:

- press “Dispense” button;
- The system rinses the tubing for 5-10 seconds;
- Then Grade 1 water is dispensed via the 0.22 µm dispense filter or the ultrafilter (for Bio configuration only).



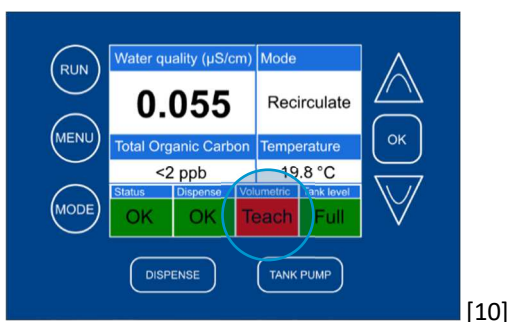
- To get rid of the air in the dispense filter, slightly loosen the degassing valve;
- Press the “Dispense” button again, to stop water dispensing.



If volumetric dispense is on, water dispensing will be finished after the pre-set volume has been dispensed.

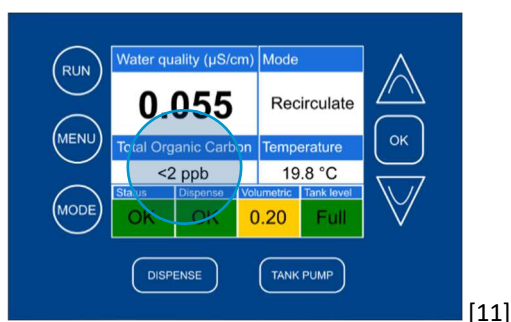
The volume can be set either:

- through menu command;
- or by using teaching mode



When “Up” button is pressed, the system switches to the teaching mode:

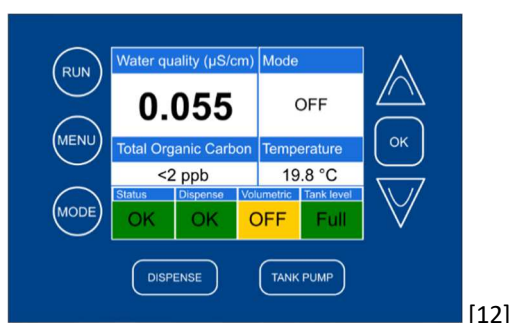
- Operator should press the dispense button to start dispensing of water;
- Once necessary volume is dispensed, the operator should press “Dispense” button again to stop dispensing;
- The dispensed volume will be memorized and used for further volumetric dispense cycles



[11]

Recirculation:

- During recirculation phase the reading of Grade 1 water is shown on the display;
- For the systems with TOC monitoring module, display shows TOC reading in ppb;
- TOC reading appears in the left bottom display area when at least one recirculation stage is completed



[12]

Recirculation is switched off when the system is in the OFF mode.



To prolong life of polishing module:

- set the system to the OFF mode by pressing “Run” button if it is not used for long time (e.g. for the weekend);
- turn on “Night mode”.



Always shut off water supply to the system when it is left unattended (e. g. overnight).

MAINTENANCE

Maintenance schedule

Only the replacement components that meet the manufacturer’s specifications should be used. Components have to be replaced according to the table:

Part number	Description	Replacement interval	Comments
10030	Replacement polishing module	– When conductivity of dispensed Grade 1 water is constantly >0.1 µS/cm – When “Fail” is shown – Recommended: every 12 months	Depends on water consumption
10018	Replacement photooxidation UV bulb	– When required (audible alarm) – On average: every 12 months	For HPLC and Bio configurations
10013	Replacement 0.22 µm dispense filter, sterile	Every 6–12 months	For HPLC and Trace configurations
10120	Replacement ultrafilter	Every 3–6 months	For Bio configuration

Replacement of the polishing module



[1]

To remove the module, you need to use the Adrotool that is included in the set

Insert the Adrotool in the module connector slot



[2]

Pull down the tool and remove the connector from the module.

Do the same with the second connector



[3]

Turn the connectors as shown in the picture



[4]

Take the polishing module out



[5]

Remove both protective 1/4" JG plugs from polishing module:

- Option 1.

You need to push the little ring down and you will be able to take out the plug

- Option 2.

You can use Adrotool for more convenient removal



[6]

Insert the module into the system



[7]

Connect both connectors to the module



[8]

Calibration

Adrona water purification systems are already calibrated. Additional calibration is not needed.

Adrona Recirculation Sanitization

- 1 – Fill in the external or internal tank with 1% hydrogen peroxide;
- 2 – It is possible to proceed with sanitization with partial tank by disconnecting tank level sensor;
- 3 – Press “Run” button to switch unit to “StandBy” mode;
- 4 – Disconnect Polishing cartridges and connect Polishing cartridge outlets with a bypass tube (see picture below for reference);



30% hydrogen peroxide solution can damage polypropylene components.



Use safety equipment when handling unsafe liquids.

- 5 – After adding sanitization liquid switch unit to the running mode;
- 6 – It is advised to leave recirculation interval and recirculation time to the standard 10 and 5 minutes respectively;
- 7 – Leave the system recirculating for 4-6 hours;
- 8 – After sanitization period, disconnect 0.22 μm dispense filter and tank level sensor, if it was not disconnected in point 2. Dispense part of the liquid. If the tank is equipped with tank pump, dispense other half of the liquid using it.
- 9 – Fill the tank partially. Disconnect the tank level sensor and let the system recirculate for an hour.
- 10 – Drain the water and repeat point no. 9.
- 11 – Drain the water, connect polishing cartridge and 0.22 μm dispense filter.
- 12 – Proceed working with the system as described in manual.



Clean the exterior of the system with soft tissue and water. Do not use any chemicals.

TROUBLESHOOTING

Problem		Solution
Status Fail	"Fail"	- Check the system flowchart: the limit of feed or product conductivity could be exceeded; - Use command <i>Maintenance</i> → <i>Clear errors</i> in the menu and put the system into recirculation mode with the button „Tank pump“; - If the message appears again in the next hour, polishing module (part no. 10030) needs to be replaced
Water quality (µS/cm) • • • • •	Conductivity reading is "...."	- Conductivity sensor is empty (not filled with water); - Operation dongle is not connected. Connect operation dongle to the system
		Water quality is below 10 µm
Temperature -- , - °C	Temperature reading is "--,-"	Temperature sensor is not connected or it is damaged
Total Organic Carbon --- ppb	TOC reading is "- - -"	- TOC has not been measured yet; - Wait approx. 1 hour until at least one recirculation cycle has been completed and TOC measurement has been made
"Low pressure"		Check the input water pressure. If it is <0.4 bar, messages are alternating
Audible alarm during and after "Recirculate" and "Dispense" mode		Photooxidation bulb (part no. 10018) needs replacement (for HPLC and Bio configurations)

SPARE PARTS AND CONSUMABLES

Part number	Description
10030	Replacement polishing module
10018	Replacement photooxidation UV bulb
10013	Replacement 0.22 µm dispense filter, sterile
10120	Replacement ultrafilter (for Bio configuration only)

To obtain the best performance from Adrona systems, company advises regularly scheduled preventive maintenance operation.

WARRANTY AND CLAIMS

The Manufacturer guarantees the compliance of the unit with the Requirements of Specifications, provided the Customer follows the operation, storage and transportation instructions.

Warranty period for the new system is 24 months from installation date but no more than 26 months from the invoice date.

If any manufacturing defects are discovered by the Customer, an unsatisfactory equipment claim shall be compiled and sent to the local dealer address.

The following information will be required in the event that warranty or post-warranty service comes necessary. Complete and retain for your records.

Model (<u>underline the appropriate system</u>)	Connect Trace / Connect HPLC / Connect Bio
Serial number	
Date of sale	