



Acuva Arrow UV-LED Water Purifier

OWNER'S PRODUCT MANUAL

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Summary

This document is the product manual for the Arrow UV-LED Water Purifier, including safety, product specification, installation and maintenance information.

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Safety Information and Warnings

This section contains important information regarding the safe installation and operation of the Acuva Technologies UV-LED Water Purification Systems (the “device”). **PLEASE READ CAREFULLY.**

Installation or operation of the device in a manner contrary to this manual may result in property damage or personal injury.

Acuva recommends that the device be installed by a qualified technician and shall comply with applicable state and local regulations.

Warnings and Safety Precautions

DANGER

Do not store the device in freezing conditions.

Do not allow water to freeze in the device.

Do not use the device if damaged or dropped.

Do not submerge the device under water.

Do not connect to AC power without an AC to DC power converter; this device uses DC only.

This product is not ignition protected. Do not install in the engine compartment or other areas where explosive vapours may be present.

WARNING

A steady blue light on the device while water is flowing is the only indication that the water is safe to drink. If the blue light is not ON while the faucet is open, please check the “trouble shooting” section of this manual.

The UV device includes fragile parts, including parts made from glass. The device should not be dropped and must be transported/carried with sufficient care.

Install the device at an accessible and visible location for continuous monitoring of the system status using LED indicators and/or in case of any leakage.

CAUTION

Minor condensation may occur on the device in humid weather and with cold water temperatures (<dew point temperature). Condensation drip may be noticed from inside the unit.



Safety Information and Warnings Cont'd

Input Water Quality

The quality of the input water is important as it influences the effectiveness of the system and the safety of the water.

The input water should be from a potable cold-water source. Acuva purifiers are effective for microbial (viruses, bacteria, and protozoa) disinfection and a 5-micron filter is needed to remove particulate contamination from water. Do not drink or use any water that is of unknown origin or that has not undergone adequate treatment. A 5-micron carbon filter is recommended and included for removal of bad taste and odor from the water.

Acuva's recommended requirements for the input water are listed in **TABLE 1**.

UV transmittance	>93%
Temperature	1 C < T < 27 C
Hardness	< 120 (mg/L)
Turbidity	< 1 NTU
Manganese	< 0.05 mg/L
Tannins	< 0.1 mg/L
Iron	< 0.3 mg/L

TABLE 1 : WATER QUALITY REQUIREMENTS FOR OPTIMAL PERFORMANCE

Product Information

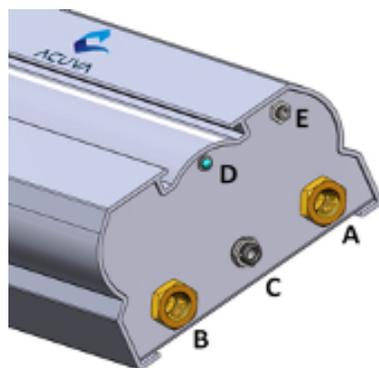
UV Device

Connections	Input: ¼" Female MNPT	Output: ¼" Female MNPT
Voltage	10 - 26V DC only	
Power Consumption	3.33 Amps, 40 W (Active), 0.48 W (Standby)	
Water Temperature	Min 33.8 °F (1°C)	Suggested Max. 80.6 °F (°27 C)
Operating Pressure	Min 30 psi (2 bar)	Suggested Max 100 psi (7 bar)

TABLE 2 : SPECS FOR THE UV DEVICE

Model	Flow Rate (L/min)	UV-Dose (mJ/cm ²)	Water Source
Arrow 5	5	>16	Chlorinated

TABLE 3 : ARROW MODEL FLOW RATES AND UV-DOSE



(A)	Water Inlet
(B)	Water Outlet
(C)	DC Power Jack
(D)	Status LED Indicator
(E)	Faucet Indicator Jack

FIG. 1 : UV DEVICE COMPONENTS

The Acuva UV Device is designed for automatic operation once the device is properly installed and used. See Fig. 3 for normal operation modes.

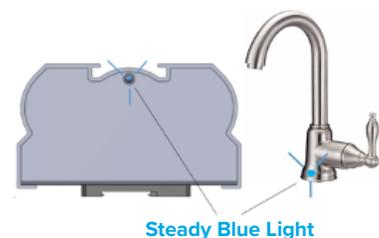


FIG. 2 : OPERATION MODES

When the device is first connected to power, the unit will power up, turn on the blue light for 10 seconds, and the blue light will turn off as the system enters stand-by mode. As soon as the faucet is opened, and water starts to flow, a steady blue light on the unit will indicate that the water purification is in progress and that it is safe to drink water from the device. When the faucet is closed, the blue light will stay on for 4 seconds, then goes out as the unit enters stand-by mode.



Product Information Cont'd

UV Device Smart Features

In order to ensure that any water passing through the Arrow system is effectively disinfected, the system includes smart features enabled by a micro-controller. The Arrow system has self monitoring features and disinfection cycle completion and self sanitation cycles.

SELF MONITORING: The Arrow measures the UV-LED health and temperature to ensure proper function.

DISINFECTION COMPLETION: The Arrow remains active for 5 seconds after each use to ensure that water having passed partially through the system is disinfected.

SELF SANITATION: The Arrow activates for 15 seconds after every 12 hours of inactivity.

Installation Guide

Acuva systems are designed for ease of installation. The Acuva Arrow is designed for in-line or point of use installations, with a cold-water line.

Installation instructions

1. Find a position with access to the cold-water line feeding your desired water fixtures and faucets for the UV device and the pre-filter to be mounted, that will allow space for the PE tubing to be connected without needing to bend the tube to the point where they risk pinching or folding.
2. Mount the Din-Rail that will hold the UV device with two #10 wood screws, and the mounting clips for the pre-filter, into position.
3. To install the 1/2" to 3/8"OD tube reducing union with shut-off valve fitting to the cold-water line (or a 1/2"x 1/2" x 3/8" Tee with shut-off valve fitting if used with a dedicated drinking water faucet only), assure that the cold-water line is not under pressure or that water flow is cut off by an upstream shutoff valve. Expect some water to drain from the cold-water line when cut, and cut the cold-water line with a tube cutter as straight and cleanly as possible. To fit the 1/2" cold-water line to the 1/2" end(s) of the fitting, push the tubes into the union as far as possible and pull the tubing outwards to create a tight seal within the fitting.
4. Attach a length of the provided 3/8" PE tubing that will connect the fitting to the pre-filter.

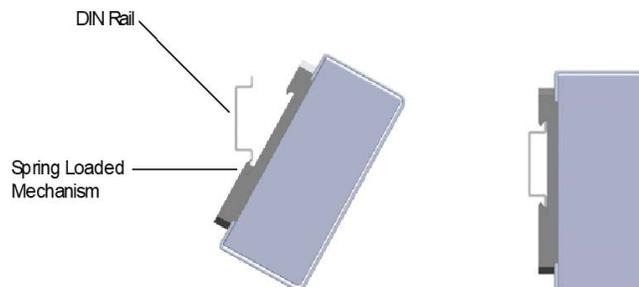
Installation Guide Cont'd

Installation Instructions Cont'd

5. To install the pre-filter, wrap the threads of the 3/8"OD – 1/4" MNPT Adapters with at least 4-5 wraps of Teflon tape and screw these adapters into the 2 female ends of the pre-filter, connect the 3/8" PE tube from the union into the inlet side of the pre-filter, making sure that water will flow in the proper direction as indicated on the filter, push the tube into the adapter as far as possible and pull the tubing outwards to assure that the adapter is properly sealed.
6. To install the UV device, wrap 4-5 layers of Teflon tape onto the threads of the 3/8"OD-1/4"MNPT adapters and fasten these adapters into the inlet and outlet female ends of the UV device.
7. Snap the pre-filter to its clips and mount the UV device to the din-rail.
8. Cut a length of 3/8"PE tubing that will connect the pre-filter to the UV device inlet and connect the tubing by pushing the tube into the adapters as far as possible and pulling the tubing outwards to ensure a tight seal.
9. To complete the installation (If used with a dedicated drinking water faucet, proceed to section 3.2), cut a length of 3/8" tubing and connect to UV device outlet adapter to the second 1/2"-3/8"OD tube reducing union, and connect the reducing union to the cold-water line feeding your desired faucets and fixtures.

Mounting the Unit

1. Engage the spring-loaded mechanism by hooking the clip onto the bottom edge of the din rail and adding slight pressure upwards.
2. As bottom portion engages, tilt the upper hook towards the din rail.
3. Release the spring mechanism once the unit is mounted on the rail.





Installation Guide Cont'd

UV Indicator Light

No Light: Unit is not active or no power connected

Blue Light: Unit is active and sterilizing water

Blinking Red Light: Unit overheating - Allow time to cool down

Steady Red Light: Unit malfunction - Call Acuva for support (1.604.431.9241)

Optional Smart-faucet Installation

If you have opted install the Acuva Smart Faucet with the provided 3/8" Tee after the UV device (or with a 1/2"x 1/2" x 3/8" Tee with shut-off valve fitting and 3/8"-1/4"OD Tube reducing union), use a short length of 3/8" tube to connect the Tee with 3/8"-1/4"OD Tube reducing union (or for single faucet applications, only the 3/8"-1/4"OD Tube reducing union), to connect a length of 1/4" PE tube to the drinking water faucet stem, and add the provided flow restrictor to the 1/4" line.

1. Drill a 3/4" hole into the counter top where the Smart Faucet will be inserted.
2. Thread the faucet power cord into the 3/4" hole and insert the faucet stem into the hole.
3. Thread the faucet power cord through the plastic spacer under the counter to ensure that the cord is not pinched against the counter when the faucet is fastened into place, making sure that the spacer's O-ring seal is facing up to seal against the counter.
4. Add the plastic threaded fastener to the faucet stem and tighten the fastener against the spacer to secure the faucet into place. Make sure that the faucet is positioned properly as required before tightening the fastener.
5. To connect the 1/4" water line to the faucet stem, slip the hex nut onto the tube, followed by the plastic ferrule and plastic tube support. Press the tube end and ferrule to the bottom of the faucet stem and tighten the hex nut by hand, then tighten the nut with a wrench while being careful not to over-tighten.

Installation Guide Cont'd

Final Installation Steps

1. Connect the power supply cord to the UV chamber DC power plug.
2. Activate the cold-water pressure in the plumbing system.
3. Open the fitting valves
4. Open the downstream faucet(s) or water appliances. (When water is flowing, the blue light on the device will come on steady which indicates the water purification is in progress as seen in Figure 6)
5. Keep the faucet on to flush the system for 3-5 minutes to release all the air pocket and bubbles and any loose granulated carbon from the pre-filter and the water flows smoothly.
6. Once all the bubbles are released, turn off the faucet and the device will automatically go into standby mode. At this point, the device is ready for regular use.

Maintenance

The Acuva UV-LED Water Purification Systems are designed to give years of trouble-free service. Using state-of-the-art long-life UV-LEDs, there are no mercury bulbs to replace and dispose annually. However, there are some simple tasks that should be performed to ensure continued trouble-free operation.

Regular Maintenance

1. Check that none of the connectors are leaking annually.
2. Replace the inline 5-micron carbon filter every 2 years.

Winterizing

 **WARNING**

Failure to properly winterize the device before it is exposed to freezing temperatures can lead to damage and water leakage.

To prevent freezing, pump a non-toxic antifreeze into the water system. Open the point of use faucet connected to the Acuva device and continue to pump non-toxic antifreeze until you see the antifreeze coming out of the faucet. In the spring, remember to flush with fresh water to clear the antifreeze before drinking.

Trouble Shooting

Symptom	Cause	Solution
Grayish/bubbly water	At low flow rates (1 lpm), dissolved air may be released into bubbles to give a greyish color to the water.	This is absolutely no issue with the water quality. The bubbles will burst quickly and water becomes clear after about 1-2 minutes.
Flashing Red light + beeping alarm sound	The system is over-heated due to the high ambient/ water temperature or excessive operation.	Turn-off the faucet and allow time for the system to cool. Alarm sound will stop. The flashing red light will continue until the system cools down.
Solid Red light + continuous alarm sound	UV LED malfunction detected.	<p>Do not use the system.</p> <p>Turn-off the faucet. Alarm sound will stop. The steady red light will stay on.</p> <p>Disconnect the power and reconnect to try and clear the fault. Make sure the power plug is properly attached to the system.</p> <p>If the red light persists, unplug the system and contact customer service.</p>
No Blue light while the faucet is open	<p>No DC power</p> <p>The minimum pressure/ flow rate required for activating the UV system (mentioned in section 2.2.) is not provided.</p>	<p>Check DC power.</p> <p>Use a more powerful pump.</p> <p>Check if the connection polarity is correct.</p>
Very low flow rate of water	<p>The pressure in the system is not high enough.</p> <p>The inlet and outlet ports are connected backwards.</p> <p>A possible clog in the water line or faucet.</p>	<p>Check if the pressure in the system meets the requirements indicated in this manual.</p> <p>Check if the water inlet and outlet are properly connected to the line.</p> <p>Disconnect the faucet and check for and clear the clog.</p>
Drips from the device	Condensation, leakage	In case of extreme dripping, close the shut-off valve in the line.
Flow rate more than the system capacity	The flow regulator within the system could be damaged	Please, use a container (1-2 liters) and a timer to measure the system's water output. In case, the flow rate is much more than the system nominal capacity, please contact the customer service.



Standard Terms and Conditions

The sale and use of all Acuva products is governed by the Acuva Technologies Inc. Standard Terms and Conditions of Sale and Use (the "Agreement"), a copy of which is available at www.acuvatech.com.

The Agreement contains important terms that, among other things, affect Acuva's liability and your legal remedies against Acuva. Please read the Agreement carefully as, by purchasing the Acuva product, you have agreed to be bound by the entire Agreement including the limited warranty, limitations of liability and methods of resolving disputes. In the event of any inconsistency between this manual and the Agreement, the Agreement shall prevail.

Warranty

As set out in the Agreement, Acuva products come with the following limited warranty.

Limited Warranty

SCOPE AND PERIOD

Acuva warrants to you that the Product will be free from defects in materials and workmanship under normal use for 1 year from the original date of purchase by you (the "Warranty Period"). The limited warranty in this Agreement (the "Limited Warranty") is not transferable by you. All subsequent purchasers acquire the Product "as is" without benefit of the Limited Warranty. Where you purchased the Product from Acuva's Site or other online vendors the date of purchase is the date of the purchase invoice issued to you by Acuva or such online vendors by email. Where you purchased the Product from an authorized reseller at a physical location, the date of purchase is the date of the invoice issued to you at the physical location.

DEFECTS

In the event Acuva determines that the Product is defective, Acuva may in its discretion: (i) replace the defective Product with a new Product; or (ii) refund to you the purchase price you paid for the Product. SECTION 6(b) IS NOT APPLICABLE TO RESIDENTS OF QUEBEC.



Warranty Cont'd

REPLACEMENT

Acuva warrants to you that the Product will be free from defects in materials and workmanship under normal use for 1 year from the original date of purchase by you (the "Warranty Period"). The limited warranty in this Agreement (the "Limited Warranty") is not transferable by you. All subsequent purchasers acquire the Product "as is" without benefit of the Limited Warranty. Where you purchased the Product from Acuva's Site or other online vendors the date of purchase is the date of the purchase invoice issued to you by Acuva or such online vendors by email. Where you purchased the Product from an authorized reseller at a physical location, the date of purchase is the date of the invoice issued to you at the physical location.

DEFECTS

Where the Product is replaced during the Warranty Period, except as otherwise prohibited by applicable laws, the warranty for the replaced Product, as applicable, will expire upon the expiration of the original Warranty Period. Any warranty service or support under this Limited Warranty is conditioned upon your return of the Product to Acuva. Where there has been a replacement of the Product, the Product, as provided pursuant to this limited warranty, becomes your property and the Product being replaced becomes Acuva's property. Where there is a refund, you will return the Product to Acuva and such Product becomes Acuva's property. Acuva may condition a refund or replacement on you returning the product or require you to provide a credit card number, which will be charged only if you fail to return the Product. SECTION 6(c) IS NOT APPLICABLE TO RESIDENTS OF QUEBEC.

EXCLUSIONS

The limited warranty does not apply:

1. To normal wear and tear;
2. If the Product was not purchased from Acuva or its authorized retailers;
3. To damage caused by misuse, corrosion, moisture or liquids, proximity or exposure to heat or external environment, accident, abuse, misuse, neglect, improper installation or misapplication;
4. To physical damage to the Product;
5. To any software, whether or not supplied by Acuva.