US Water systems.com™

Installation & Maintenance Guide

MODEL: 405-C-UV200P

It combines the safety, reliability, and long life of an LED with a reactor design that allows for the highest disinfection performance at water flow rates never reached with an LED device before.

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Trademarks and copyrighs

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PRODUCT FEATURES & BENEFITS

- Safe and reliable high intensity UV-C LED to inactivate most harmful bacteria, viruses and parasites including; Cryptosporidium, Giardia, and E.Coli with no compromise.
- NO chemicals, NO mercury.
- NO high voltage, and all materials are RoHS compliant.
- Innovative reaction chamber to provide the highest possible validated by an independent and industry recognized laboratory.
- Long life with low cost of ownership: NO yearly lamp replacement and NO fans.
- Compact design for installation in tight spaces.
- Instant ON/OFF capability.
- Bluetooth enabled for ease of use and monitoring.
- Stable operation and independent temperature profile.

APPLICATIONS

Point of Entry (POE) and Point of Use (POU) for residential applications: drinking water, pools, and irrigation. Suitable for medical, pharmaceutical, and biotechnology sectors, as well as semiconductor, ballast water, and wastewater treatment.

Specifications

405-C-UV200P
ULTRAVIOLET LED

Maximum Flow Rate
2 GPM (8 lpm)

Mechanical (H)X (W) X (D)
Dimensions: 3.5" X 2" X 3.65"
Inlet/Outlet Ports: Push-fit 1/4" QC
Shipping Weight: 2 lbs

Operating Pressure
10PSI - 100PSI

Environmental
Max water Temp: 40° C
Cooling: Natural convection, no fans or auxiliary cooling required

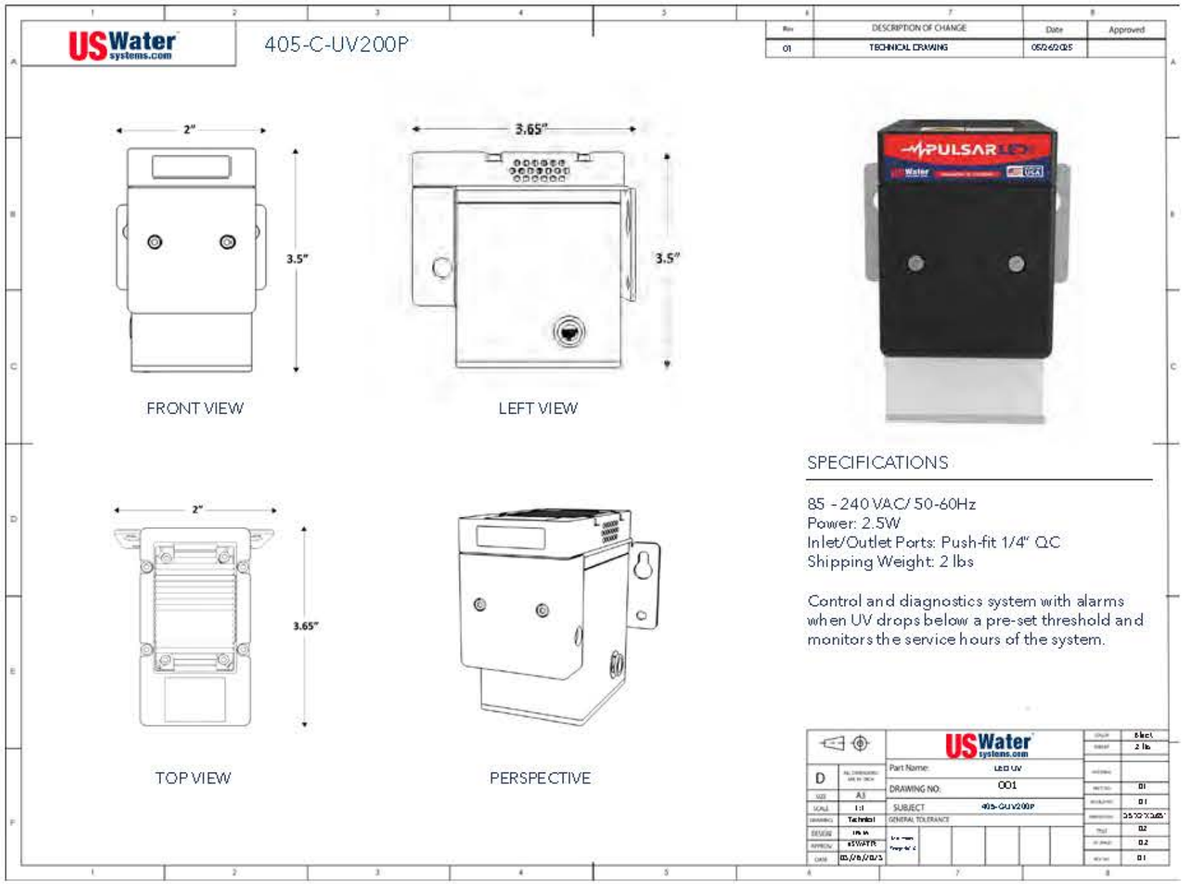
UV Dose
Greater than 20 mj/cm2

Options
Control and diagnostics system with alarms when UV drops below a pre-set threshold and monitors the service hours of the system

Electrical
2 GPM (8 lpm)

Scan for
Augmented reality

Product dimension



Safety information

WARNING

• To prevent injury, basic safety precautions should be observed, including the following:

READ & FOLLOW ALL SAFETY INSTRUCTIONS.

• To avoid possible electric shock, special care should be taken since water is present near electrical equipment. Unless a situation is encountered that is explicitly addressed by the provided maintenance and troubleshooting sections, do not attempt repairs yourself, refer to an authorized service facility.

SAVE THESE INSTRUCTIONS.

WARNING: This Disinfection System uses UV light in the germicidal range to inactivate microbiological contaminants, this UV light can cause serious damage to your eyes and skin.

Never operate this unit without the cover and the LED assembly attached. When performing any service on the unit, always unplug the power jack.

WARNING: The UV LEDs contained in this disinfection system is rated at an effective life of 9,000 hours.
To ensure uncompromised and effective w ater sanitation, replace the UV LED assembly after 9000 hours or annually if operating in continuous mode with an approved US WATER Water LED assembly.

	Do not discard wasted electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.
	Do not store any combustible or flammable material close to the system.
Hg	This symbol indicates there is Mercury present
	The contents of the transport package are fragile and the package should be handled with care.
	This is the safety alert symbol.
	This symbol indicates safety glasses with side protection is required for protection against UV exposure
	This symbol indicates gloves must be worn
	Marked equipment may contain a component that can eject forcibly. Obey all procedures to safely depressurize
	This symbol indicates safety boots must be worn
	This symbol indicates the system is under pressure
	This symbol indicates the operator must read all available documentation to perform required procedures.
	Marked item could be hot and should not be touched without care
	This symbol indicates the plumber must use copper piping
	This symbol indicates there is a potential UV hazard. Proper protection must be worn.
	Ground Electrical Equipment
	A potential for very hot water when flow is started

Installation

INSTALLING UV SYSTEM
The disinfection system is designed to be mounted either horizontally or vertically at the point-of-use or point-of-entry depending on the specific flow rate of the unit.

PRE REQUISITES
Determine appropriate indoor location for the device. Refer to Figure 3.
• Ensure adequate clearance around the device for mounting and maintenance.
• Turn off the water supply.
• Mount the system to the wall through the four mounting holes.
• Make all necessary plumbing connections. Refer to Figure 2.
• Attach the power jack and plug to a wall power outlet

CAUTION – Do not use wire extensions, always use wall power outlets to prevent the potential for electric hazard if leaks are present

Connect Optional adaptor

Make all necessary plumbing connections.

• Connect power cord to the unit.
• Connect power.
• Open all faucets and turn onwater supply.
• Inspect for any leaks.

From shut-off (wall) to the unit and from unit to your faucet Mount the unit to the wall use only the recommended orientation

Operation

• Operation of this device is extremely simple.
• The 405-C-UV200P is designed to operate as a plug and play device.
• Simply install per section 5, when power plug is connected the system is in operation.
• Power ON indicator confirms 12 VDC is in the system and the appropriate current and voltage is delivered to the LED.
• If power ON does not come up, for troubleshooting instructions in Page 8.

WATER CHEMISTRY

Water quality is extremely important for the optimum performance of your UV system. The following levels are recommended for installation:

WATER QUALITY AND MINERALS	LEVEL
Iron	< 0.3 ppm (0.3 mg/L)
Hardness*	< 7 gpg (120 mg/L)
Turbidity	< 1 NTU
Manganese	< 0.05 ppm (0.05 mg/L)
Tannins	< 0.1 ppm (0.1 mg/L)
UV Transmittance, Standard Models	5% (Call factory for recommendations on applications where UVT < 95%)

Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve is cleaned periodically. If total hardness exceeds 7 gpg, the water should be softened. If your water chemistry contains levels in excess of those mentioned above, proper pre-treatment is recommended to correct these water problems prior to the installation of your UV disinfection system. These water quality parameters can be tested by your local dealer, or by most private analytical laboratories. Proper pre-treatment is essential for the UV disinfection system to operate as intended.

Maintenance

Always disconnect power before performing any work on the disinfection system.
• Unlike Mercury vapor UV sterilizers, the 405-C-UV200P does NOT require a shut-off water flow and depressurizing the line.
• Replace the LED light engine by removing the top screws.
• Replace the UV lamp annually (or biennially if seasonal home use) to ensure maximum disinfection.
• Always drain the chamber when closing a seasonal home or leaving the unit in an area subject to freezing temperatures.

REPLACING UV LAMP

• Lamp replacement is a quick and simple procedure requiring no special tools.
• The UV lamp must be replaced after 9000 hours of continuous operation (approximately one year) in order to ensure adequate disinfection.
• Because this is an LED system and not Mercury Vapor lamp, fouling is very limited due to the uniform temperature, therefore, minerals are not attracted to the quartz surface.

Remove the LED Assembly using a size 0.05" Allen wrench

Pull out the assembly and disconnect the wire

Replace the LED assembly.
Handle with care, ESD sensitive.
Do not touch the LED

Replace the screws

Troubleshooting

Symptom	Possible Cause	Possible Solution
No power	GFCI and/or breaker tripped	Reset GFCI and/or breaker
	Power plug not inserted properly	Push the power plug in and verify if the power light comes on
Leak at inlet or outlet	Push fittings are leaking	Ensure the pipe is pushed all the way
Leak detected from LED light	Broken quartz window in shipping or during installation	Contact factory or approved service center
System is operating but water tests reveal bacterial contamination	Equipment downstream of UV system is acting as a breeding ground for pathogens	Ensure UV is the last piece of treatment equipment
	Pathogens are residing in the distribution lines post-UV	Ensure all distribution lines have been disinfected with chlorine. Refer to Section 3.2.
	Recontamination from pipe dead-ends	Remove any pipe dead-ends and flush with chlorine. Refer to Section 3.2.

Warranty & terms of use

Warranty Coverage
Warranty coverage is specific to the US WATER products.
Warranty coverage is subject to the conditions and limitations outlined under "General Conditions and Limitations".

One-Year Limited Warranty on all other Components
US WATER warrants all other components to be free from defects in material and workmanship for a period of one (1) years from the date of purchase. During this time, US WATER will repair or replace, at its option, any defective parts covered by the warranty.

Note: Use only genuine US WATER replacement lamps and sleeves in your system. Failure to do so may seriously compromise disinfection performance and affect warranty coverage.
General Conditions and Limitations
None of the above warranties cover damage caused by improper use or maintenance, accidents, acts of God or minor scratches or imperfections that do not materially impair the operation of the product. The warranties also do not cover products that are not installed as outlined in the applicable Owner's Manual.

Parts repaired or replaced under these warranties will be covered under warranty up to the end of the warranty period applicable to the original part.

The above warranties do not include the cost of shipping and handling of returned items.

The limited warranties described above are the only warranties applicable to US WATER range of products. These limited warranties outline the exclusive remedy for all claims based on a failure of or defect in any of these products, whether the claim is based on contract, tort (including negligence), strict liability or otherwise. These warranties are in lieu of all other warranties whether written, oral, implied or statutory. Without limitation, no warranty of merchantability or of fitness for a particular purpose shall apply to any of these products.

US WATER does not assume any liability for personal injury or property damage caused by the use or misuse of any of the above products. US WATER shall not in any event be liable for special, incidental, indirect or consequential damages. US WATER' liability shall, in all instances, be limited to repair or replacement of the defective product or part and this liability will terminate upon expiration of the applicable warranty period.

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