GLACIERUVLED
By LUMINOR

FULLY INTEGRATED LED BASED UV DISINFECTION SYSTEM

Operation & Installation Instructions

GUV-4S / GUV-5S modules

Table of Contents

1.0 Safety Considerations 1

2.0 Before You Begin 2

2.1 Tools & Materials 2

2.2 Water Quality Parameters 2

2.3 Location 2

3.0 Installation 3

4.0 Operation 4

4.1 Glacier GUV-4S Controller 4

4.2 Glacier GUV-5S Controller 5

4.3 Glacier GUV-5S Operational Screens 6

5.0 System Troubleshooting 7-8

6.0 System Specifications 9

7.0 Expansion Modules 10

8.0 Warranty 11

GUV-4S module

GUV-5S module

1.0 Safety Considerations

Although your UV system has been manufactured to the highest safety standards, care must be followed when operating and/or maintaining your system.

1. Before servicing this equipment, disconnect the power cord from the electrical outlet.

2. **Energy given off by the UV LED is harmful to your eyes and skin**. NEVER look directly at an illuminated UV LED without adequate eye protection and always protect your skin from direct exposure to the UV light.

3. Do not look into the inlet or outlet openings while the system is plugged into electrical power.

4. Do not operate the unit if it has any damaged or missing components.

5. Do not open or attempt to open the GLACIER UV LED system or power adaptor.

6. There are no user-replaceable components inside the GLACIER UV LED system. Contact the manufacturer for service instructions if required.

7. Do not use this system for any purpose other than what it was intended for. Misuse of this system could potentially cause harm to the user or others. Use of this system does not guarantee any particular amount of reduction of microorganisms.

8. Your system is intended to be installed indoors and away from leaking plumbing. DO NOT plug the unit in if the system or any of the components are wet.

9. To avoid electric shock, ensure that the 12VDC power supply adaptor complies with local electrical safety codes. The 12VDC power adaptor should be plugged into a ground fault circuit interrupter (GFCI) type of electric AC outlet. Also ensure that the electric AC outlet complies with local electrical safety codes.

10. We recommend that a licensed plumber or certified technician install the system.

Any attempt to open the GLACIER UV LED system will void the warranty.

2.0 Before You Begin

2.1 Tools & Materials:

- Screwdriver
- Drill
- Screws (x2)
- ⅜” Tube Fittings for Inlet and Outlet connections
- Mounting Hardware (if required for install)

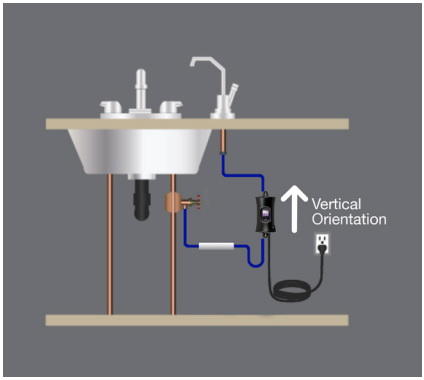
2.2 Water Quality Parameters

UV disinfection is extremely effective against microorganisms but only if the UV light can pass through the water it needs to treat. This means that the quality of your water is very important in order to ensure complete disinfection. Treated water should be tested for at least the parameters listed below. If the water exceeds the listed parameters LUMINOR strongly recommends that appropriate pretreatment equipment be installed (equipment required will depend on parameters being treated):

UV Transmittance above 90%.
Hardness: <1 gpm (17 mg/L)
Iron (Fe): <0.05 ppm (0.05 mg/L)
Manganese (Mn): <0.05 ppm (0.05 mg/L)
Turbidity: <0.1 NTU
Tannins: <0.1 ppm (0.1 mg/L)

2.3 Location

For Point of Use (POU) systems, install the unit just before the faucet. The unit must be installed vertically for correct operation. Ensure there’s enough space to facilitate the plumbing fittings as well as any required pre-treatment filters. Water flow must flow from the bottom of the unit upward towards the faucet. Make sure you have the required plumbing connections and parts before installation as well as a secure location to firmly secure the unit.



[GUV-5S] A solenoid can be installed as well along with the solenoid module (**MOD-SOL**) as an accessory module.

PLEASE NOTE: All LUMINOR UV disinfection systems are intended for indoor use only as they should not be exposed to the elements.

3.0 Installation

1. Make sure the unit is secured firmly using two screws in place. Mounting Hardware may be needed depending on install

2. Connect plumbing to the Bottom Inlet using a Push-to-Connect ⅜” Tube Fitting

3. Connect plumbing to the Top Outlet using a Push-to-Connect ⅜” Tube Fitting

4. Fill and pressurize the system to check for leaks in the plumbing. If a leak is found, re-check your plumbing.

5. Plug the 12VDC power adaptor into an appropriate AC electrical outlet. To prevent risk of shock, ensure that the AC outlet and power adaptor comply with local electrical safety codes.

6. Plug in the 12VDC Adaptor to the Bottom Power Port. The system should power on.

DO NOT OPERATE PRODUCT WITHOUT CONNECTING TO WATER SUPPLY.

4.0 Operation

When powered on with no water flow, the unit will be in Standby Mode with the UV LEDs turned off awaiting flow to be activated. Once flow is detected the UV LEDs are immediately activated to provide proper disinfection. The unit will automatically log the cumulative amount of time that the UV LEDs are turned on, and track the amount of operational life remaining. Once flow has stopped the unit will remain on for 10 seconds longer before shutting off the UV LEDs. When the maximum operational life of the UV LED is reached, the unit will no longer provide proper disinfection and has to be replaced. If at any point during operation the UV LEDs overheat and exceed the Overtemperature Alarm Threshold, the system enters a cool down period during which the UV LEDs are disabled until the temperature drops below the Overtemperature Alarm Release Threshold. During the cool down period the system no longer provides disinfection. Refer to Operation and Specifications for details.

4.1 GLACIER GUV-4S Controller

Multi-State Status LED indicating power, flow, LED life and overtemp./fail alarms. Automatic detection of water flow provides on-demand disinfection, low energy use & prevents heat build-up.

Status LED	Description	Audible Alarm	Water Safe for Consumption?
Solid Green	Unit is in Standby Mode waiting for flow, UV LEDs are not active.	NO	YES
Flashing Green	System detects flow and has activated the UV LEDs for proper disinfection.	NO	YES
Solid Red	End of System life, replace unit.	YES	NO
Flashing Red	UV LEDs have failed and no longer can provide disinfection.	YES	NO
Flashing Red & Green	UV LEDs are overheating; the system enters a cool down period and no longer provides disinfection until UV LED temperature drops below 50°C.	YES	NO

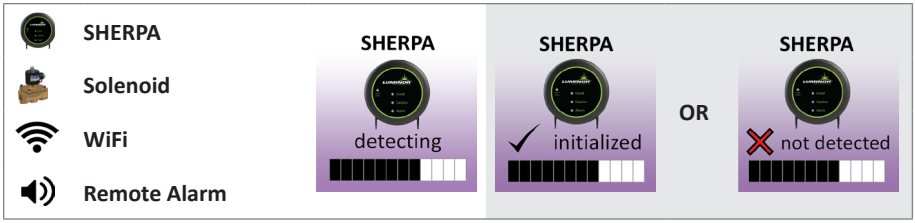
4.2 GLACIER GUV-5S Controller

A full colour LCD screen provides the user with a detailed description of the system's performance in addition to providing any applicable fault messages and system diagnostics.

Power-On Sequence

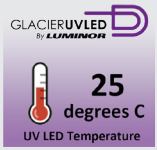
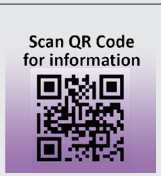
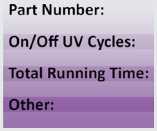
On Start-up, the system will run through a diagnostic check and initialize any optional module that may be attached to the system.

Optional Modules: Solenoid, WiFi, Remote Alarm, Sherpa

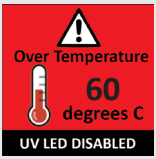


A final module screen is displayed showing which specific modules were initialized and then proceed to normal system operation. The total length of the start-up procedure is less than 30 seconds.

4.3 Operational Screens (GUV-5S only)

Screen		Condition
HOME/ UV LED STATUS		**STANDBY MODE** No flow present, UV LEDs are off.
		UV LED ACTIVE Flow detected, UV LEDS are active and disinfecting water.
LED LIFE REMAINING		The system tracks the operational lifetime of the UV LEDs. This displayed as LED Life (Hours) remaining Each Systems UV LEDs have up to 5000 Hours Lifetime.
TEMPERATURE SCREEN		Displays the temperature of the UV LEDs
CONTACT SCREEN		Displays company information
QR CODE		A QR code (Quick Response code) is a matrix barcode first designed for the automotive industry. LUMINOR uses the QR code to store a link to a specific page on our website.
INFO SCREEN		Displays Part Number, On/Off Cycles and the System Running Time.

5.0 System Troubleshooting

System Display	Problem	Resolution	Water Safe?	Alarm
	A major alarm has occurred which prevents proper disinfection of the water. This screen toggles every 4 seconds to alert the user water is not safe for consumption.	Perform action to fix active major alarm. Refer to Alarms Below.	NO	N/A
	The system has detected a problem with the UV LEDs.	Power off the system for 10 seconds, and power on again, if alarm is still present, replace unit with the part indicated on the back or on the Info Screen.	NO	Constant Beeps
	Although the UV LEDs are powered and visibly illuminated, due to the LEDs age its UV output is no longer sufficient for proper disinfection.	Replace unit with the part indicated on the silver label on the back or on the Info Screen.	NO	Constant Beeps
	The UV LEDs are overheating, the system enters a cool down period, disabling the UV LEDs until the temperature reaches a safe operational level to enable to LEDs. Refer to specifications for more details.	Make sure the water and ambient temperature is within the rated specifications. Verify system is installed vertically; horizontal installation results in air bubbles being trapped in the unit.	NO	Constant Beeps

System Display	Problem	Resolution	Water Safe?	Alarm
	A bad connection has been detected in the IEP port.	Ensure all modules are connected properly to the system and to each other. Modules can be tested individually by plugging in one at a time and cycling power to the system. Replace any module that is not detected when plugged directly into the controller	YES	2 beeps every 30 seconds
     	The module indicated is no longer communicating to with the system		YES	2 beeps every 30 seconds
	The UV LED remaining hours is less than 8 but has yet to expire.	User needs to start consider replacing unit soon. The part number is indicated on the silver label on the back or on the Info Screen	YES	2 beeps every 30 seconds

6.0 Specifications

MODEL	GUV-4S	GUV-5S
Flow Rate @ (10 mJ/cm² at 95% UVT)	1.5 GPM 5.6 lpm	
Flow Rate @ (16 mJ/cm² at 95% UVT)	1.3 GPM 4.9 lpm	
Flow Rate @ (30 mJ/cm² at 95% UVT)	0.6 GPM 2.4 lpm	
Flow Rate @ (40 mJ/cm² at 95% UVT)	0.4 GPM 1.3 lpm	
UVT (%)	Recommended above 90%	
Headloss at Max Flow	166 mBar (2.4 psi)	
Max Pressure	6.9 bar (100psi)	
Max Ambient Temperature	50° C (122° F)	
Operating Water Temperature	0-45° C (32-113° F)	
Water Connections	3/8" OD Tube (fits John Guest® style quick connect fittings)	
Input Voltage	12VDC	
Input Power	15W	16W
Electrical Connection	Standard 12VDC barrel connector, 2.1 x 5.5 mm	
UV Intensity Monitoring	NA	Coming soon
LED Status Monitoring	YES	
LED Life Monitoring	YES	
LED Life	5,000 hours	
Solenoid Output	NA	YES (optional module (**MOD-SOL**) sold separately)
Dry Contacts (solenoid ready)	NA	YES (optional module (**MOD-RAM**) sold separately)
4-20 mA Output	NA	YES (optional module (**MOD-420**) sold separately)
IoT	NA	YES (optional module (**MOD-APP**) sold separately)
Display	Dual colour LED	Full customizable colour screen
Overall Dimensions (with mounting brackets)	241mm x 104mm x 107mm (9.5in x 4.1in x 4.2in)	
Shipping Weight	400 g (14 oz)	

* Bioassy tested / 97% UVT / EOLL = 70%

7.0 Expansion Modules

GLACIER GUV-5S [ONLY] systems incorporate an “Infinite Expandability Port” (IEP) which allows for expansion to all accessory modules. Each module comes with both a male and female connection. Connect any device to the system and all subsequent devices are then connected into the female end of last device added in a “daisy chain” configuration.

The following optional expansion modules are available for use on GLACIER GUV-5S systems. Contact your authorized distributor for purchasing information.

Remote Alarm connection module

Allows for a connection to a remote device such as a buzzer, light, alarm system, PLC, etc., via a set of relay contacts. In normal operation the OK and COM contacts will be connected, and in a fault condition (UV LED fail, LED Life expired, etc.), the Fault and COM contacts will be connected. Maximum Contact Rating is 1A-42V (use 16-22 AWG).
Order PN **MOD-RAM**.

Solenoid connection module

Connects a NORMALLY CLOSED line voltage solenoid valve to the system. With a GUV-5S system, the solenoid will only close in event of: UV LED failure alarm, system life expired alarm, overtemperature alarm. The solenoid closes during an alarm that cause Unsafe Water Conditions. Also note that in cases where emergency use of untreated water is required, the controller can be placed into a manual override mode allowing for the flow of water in an alarm condition. Maximum voltage and load on the MOD-SOL is 240V/2A. Order PN **MOD-SOL**.

WiFi module and accompanying IoT application

Allows you to connect your UV system to a smart phone, tablet, computer or other connected platform. View system status, receive SMS or email messages of alarm conditions and monitor the health of your UV from anywhere via this connected platform. Connect the device via the APP found on Google Play or the APP Store and connect your UV device to your router, then download the software for your connected device and have peace of mind that your UV system is providing safe, reliable disinfection.

UVCONCIERGE by LUMINOR

SHERPA

Allows you to monitor your UV LED system remotely, from anywhere in your home. Remote monitors for all major and minor alarms that take place on the UV LED system. Simply install the module and place the small and stylish display in a convenient location that works for you. Check your remote display for feedback on how your system is performing and if any action is required. Easy to use and requires no maintenance or ongoing costs.

SHERPA by LUMINOR

8.0 Warranty

Products manufactured by LUMINOR Environmental Inc., (LUMINOR) are warranted to the original user only to be free of defects in material and workmanship for a period as specified below. This warranty only applies to the original purchaser and is not transferable.

GLACIER UV LED modules are covered by a One (1) year Limited Warranty.

LUMINOR warrants that it will repair, replace or refund, at LUMINOR's sole option, any ultraviolet system or component that is defective in materials or workmanship for the period as outlined above, subject to the "Limitations of Warranty" as outlined below. LUMINOR's liability under this warranty shall be limited to repairing or replacing at LUMINOR's option, without charge, F.O.B. LUMINOR's factory or authorized service depot, any product that LUMINOR manufactures. LUMINOR will not be liable for any costs of removal, installation, transportation, or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by LUMINOR are subject to the warranty provided by the manufacturer of said products and not by LUMINOR's warranty. LUMINOR will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair, or if the product was not installed in accordance with LUMINOR's printed installation and operating instructions.

LIMITATIONS OF WARRANTY
This warranty does not apply to any of the following:

Water Quality Parameters lie outside of the following ranges
UV Transmittance above 90%.
Hardness: <1 gpm (17 mg/L)
Iron (Fe): <0.05 ppm (0.05 mg/L)
Manganese (Mn): <0.05 ppm (0.05 mg/L)
Turbidity: <0.1 NTU
Tannins: <0.1 ppm (0.1 mg/L)

- A product that has been incorrectly installed according to the technical installation manual.
- A product that has been modified in any manner, unless approved by the manufacturer.
- A product where the serial number has been altered defaced or removed.
- Damage caused by the use of parts that are not compatible, suitable and/or authorized by LUMINOR for use with the product.
- Damage caused during shipment of the product.
- Water damage is found inside ballast housing or controllers.
- Product is installed outdoors in direct contact with the environment (rain).
- Product is installed in freezing temperatures.
- Product is used in conditions that exceed LUMINOR's specifications.

See website for LUMINOR's complete warranty document including conditions and exclusions.

LUMINOR™
ENVIRONMENTAL

80 Southgate Drive, Unit 4
Guelph, Ontario, Canada N1G 4P5
P: 519-837-3800
TF: 855-837-3801
E: info@luminoruv.com
www.luminoruv.com

MEMBER Water Quality

Carbon Neutral

EPA Establishment
#088776-CAN-001

Rev. 05-2020