



Klaran WR Series

UVC LED-based reactors for point-of-use
WR2-24V-2U-A1

Key Benefits

- Disinfection from first glass, no effect on water temperature
- Small footprint allows easy integration close to point-of-dispense
- Vertical or Horizontal installation
- Third-party tested and industry-approved

<i>Version</i>	<i>Date</i>
1.0	February 9, 2024

Model Numbers

Model	Description
WR2-24V-2U-A1	WR unit assembled, 24VDC power input



WR2-24V-2U-A1

Specifications

Product Characteristics

	Customary	Metric
Size	3.56 in x 2.24 in	90.3 mm x 55 mm
Weight	9.88 oz	280 g
Inner Volume	1.22 fl oz	36.08 cm ³
Flow Rate	0.13 – 0.79 GPM	0.5 – 3 LPM
Power Options	24V DC input	

Electrical Characteristics

Characteristic	Unit	Value	Note
Power input voltage (VCC)	V	Min. 22.8 Typical 24 Max. 25.2	Constant DC
Power Consumption (LED ON)¹	W	Typical 8	
Power Consumption (Standby)¹	mW	Typical 80	
ENABLE Input Voltage	V	Typical 3.3 Max. 3.5	CMOS
Alert Indicator Output Voltage	V	Typical 3.3	CMOS
Maximum operation time without water flow	Minutes	2	
Maximum recommended standby time	Years	7	

Notes

1. Service life of LED ON and standby states are dependent on installation use case and performance needs for the Klaran WR. Please consult with Crystal IS for specific project needs.

Physical Characteristics

Characteristic	Unit	Value
Weight	Grams	280
Internal water volume	mL	36
Ambient temperature range (LED ON)	°C	Min. 5 Max. 50
Ambient Temperature Range (LED OFF)	°C	Min. 5 Max. 85
Relative Humidity¹	%	Min. 40 Max. 75
Pressure Loss	kPa	Max. 15 @ 2LPM
Pressure Resistance	MPa	Max. 0.7
Pull Strength of Cable	gf	Min. 350
Torque Strength of Water Inlet / Outlet	N*m	Max. 1.5

Notes

1. Klaran WR should be operated in a non-condensing environment

Inlet Water Specifications

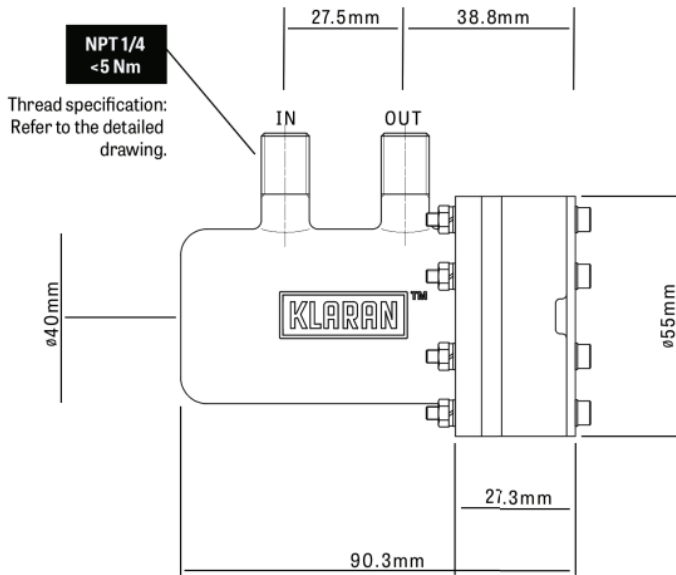
Characteristic	Unit	Value
Flow Rate	LPM	Min. 0.5 Max. 3
UV (265 nm) Transmittance	%/cm	Min. 95 Typical 97
Water Temperature Range (LED ON) ¹	°C	Min. 5 Max. 45
Water Temperature Range (LED OFF) ¹	°C	Min. 5 Max. 85
pH	pH	Min. 5.8 Max. 8.6

Notes

1. Freezing of water must be prevented

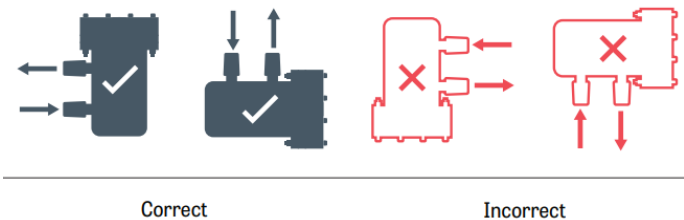
WR2-24V-2U-A1 Specifications

Mechanical Dimensions

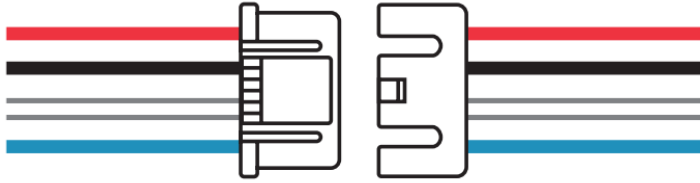


Installation Orientations

Designs incorporating this product should use the reactor in one of the two acceptable orientations to ensure performance meets specifications. Failure to do so may result in inadequate disinfection performance or damage to the product.



Wiring Diagram



Wire Length: 30 cm

Klaran WR: #XHB-4Y (comparable to Molex Female #0355720400) External Connection: Molex Male #0353120460

Wiring Specifications

Terminal	Direction	Note
VCC (Red)	Input	DC 24V required
Ground (Black)	Ground	
Enable (White)	Input	3.3 V CMOS High to enable LED output
Indicator (Blue)	Output	3.3 V CMOS LOW Alert signal for LED OPEN / SHORT or PCB over temperature. LED output disabled during Alert Scenario

Note: Ground reference for VCC and ENABLE must be common to avoid signaling errors

Indicator Logic Table

Scenario	ENABLE = High	ENABLE = Low
LED OPEN Alert ¹	LOW	LOW
LED SHORT Alert ¹	LOW	LOW
HIGH TEMPERATURE Alert ¹	LOW	LOW
No Alert	HIGH	LOW

Note:

- LED Operation is prevented during LED OPEN, LED SHORT and HIGH TEMPERATURE Alert scenarios. Alerts may be reset by power cycling the Klaran WR and assuring water and temperature characteristics are within specifications. Continued Alert Signals may require a cool down of up to 30 minutes - contact Crystal IS if the Alert Signal persists after cool down.

Packaging Contents

1x Klaran WR Unit

Packaging Dimensions

Contact Crystal IS for package, case and pallet specifications

Important Usage Notes

The Klaran WR is available for purchase, installation and service by professional providers of water conditioning and plumbing systems and services. Klaran WR is not for consumer or stand-alone use and must be installed in a properly installed and operating water conditioning or plumbing system.

Handling

- The Klaran WR contains microelectronic components sensitive to shock, moisture, and operation in conditions beyond stated maximums. Care should be taken in handling the Klaran WR during shipping, handling, installation and operation.
- Ensure that tools, jigs and machines do not exert excessive force upon the Klaran WR.
- Do not use WR if dropped.
- The Klaran WR should not be modified or disassembled in any way. Doing so may result in damage, hazardous operation conditions, and Ultraviolet (UV) light exposure hazards.

ESD Sensitivity

- The Klaran WR is ESD (electrostatic discharge) sensitive; static electricity and surge voltages seriously damage internal components and can result in product failure.
- Use proper ESD protection, including grounded wrist straps, ESD footwear and clothes when handling the Klaran WR.
- Ensure that tools, jigs and machines being used are properly grounded

Operation

- Pre-filtration should be used before the Klaran WR that can assure inlet water is of sufficient quality to meet required specifications.
- Operating without pre-filtration may lead to a reduction of disinfection performance or damage to the Klaran WR .
- The Klaran WR should be filled with water during LED ON operation.
- Operating the Klaran WR dry for extended periods may cause permanent damage.
- The Klaran WR should be flushed with flowing water for a minimum of two minutes before use after initial installation or for any occurrences of electrical power loss longer than 12 hours.

Certifications

ROHS COMPLIANCE

The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2015/863 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

REACH

This product and associated materials, packing materials and associated production processes are in compliance with Regulation (EC) No 1907/2006 - Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and its latest revised version, Commission Regulation (EU) 2022/586.

EPA Compliance

All Crystal IS Modules & Systems are in compliance with the EPA proposed National Primary Drinking Water Regulation (NPDWR) for six PFAS – PFOA, PFOS, PFNA, HFPO-DA, PFHxS, PFBS. The materials and products provided do not contain these substances listed in concentrations greater than the proposed enforceable values.

To access the compliance declarations associated with this product, please visit:

<https://www.cisuvc.com/company/quality-documents/>

Disclaimer

The specifications, characteristics, and technical data presented in this datasheet are subject to change without prior notice. It is recommended that the most updated specifications, characteristics, and technical data be used in your application.

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