



# Klaran WR Series

In-line UVC LED-based reactor for point-of-use  
WR2-24V-2U-B1

## 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 Number

Model	Description
WR2-24V-2U-B1	WR unit assembled, 24VDC power input



WR2-24V-2U-B1

## Specifications

### Product Characteristics

	Customary	Metric
<b>Size</b>	4.09 in x 2.25 in	104 mm x 57 mm
<b>Weight</b>	4.4 oz	125 g
<b>Inner Volume</b>	1.28 fl oz	38 cm <sup>3</sup>
<b>Flow Rate</b>	0.13 – 1 GPM	0.5 – 3.8 LPM
<b>Inlet and outlet fittings</b>	3/8 in push fittings	0.953 cm push fittings
<b>Power Options</b>	24V DC input	

## Electrical Characteristics

	Unit	Value	Note
<b>Power Adapter</b>			
<b>Input Voltage</b>	VDC	Min. 22.8   Typical 24   Max. 25.2	Constant DC
<b>Wattage</b>	W	Typical 8	
<b>WR Unit Electrical Characteristics</b>			
<b>Electrical Connections</b>	in   cm	0.25   0.635	Fasten Male Terminal
<b>Unit Voltage</b>	VDC	24	
<b>Power consumption (Operation)<sup>1</sup></b>	W	Min. 4.5   Typical 8   Max: 12.5	
<b>Power consumption (Standby)</b>	mW	Typical 3	

**Notes**

1. It is recommended to check that the power consumption is within the specified range after installation of the system

## Mechanical Characteristics

Characteristic	Customary	Metric
<b>Major Dimensions</b>	4.11 in x 2.24 in	104.4 mm x 57 mm
<b>Inlet water fitting (Tube OD)</b>	3/8 in Female NPT Threading	0.953 cm
<b>Outlet water fitting (Tube OD)</b>	3/8 in Female NPT Threading	0.953 cm
<b>Pressure drop</b>	0.58 PSI at 0.528 GPM with 3/8" connectors	4 kPa at 2 LPM with 0.953 cm connectors
<b>Total internal water volume</b>	1.285 fl oz	38 cm <sup>3</sup>
<b>Maximum Ambient Temperature</b>	104 °F	40 °C

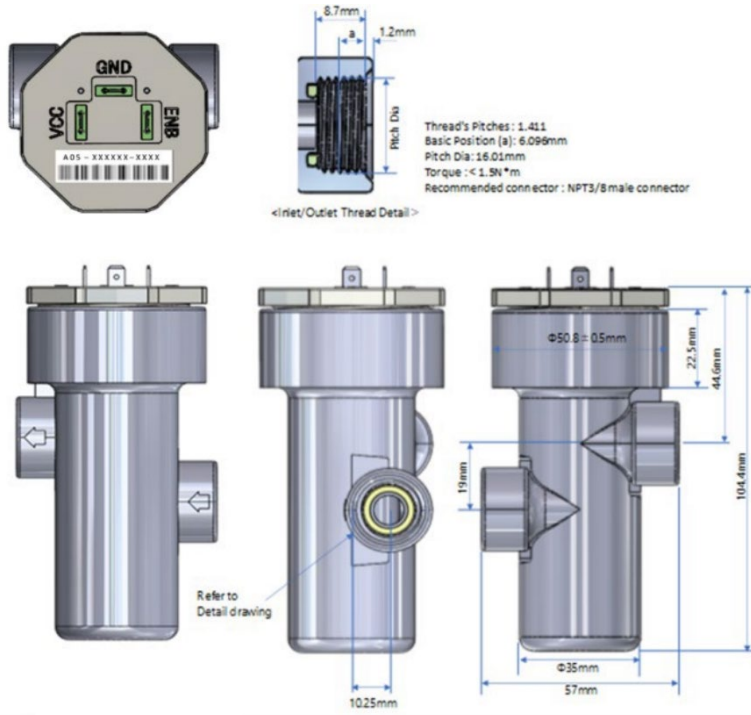
## Inlet Water Specifications

Characteristic	Value
Flow rate range	0.13 – 1 GPM   0.5 – 3.8 LPM
Maximum pressure rating	100 PSI   689.476 kPa
Minimum flow to trigger Disinfection On	0.13 GPM   0.5 LPM
UV (265 nm) Transmittance <sup>1</sup>	Min. 95%   Typical: 97%
pH range <sup>2</sup>	6.0 – 8.5
Water Temperature Range <sup>3</sup>	>41 - 104 °F   >5 – 40 °C
Relative Humidity <sup>4</sup>	Min. 40%   Typical 55%   Max.75%

### Notes

1. Inlet water should be filtered by a filtration cartridge at least 5 micron or equivalent before entering the system
2. Carbonated water can be treated at a pH under 6.0
3. Freezing of water must be prevented
4. Non-condensing environment

## Mechanical Dimensions

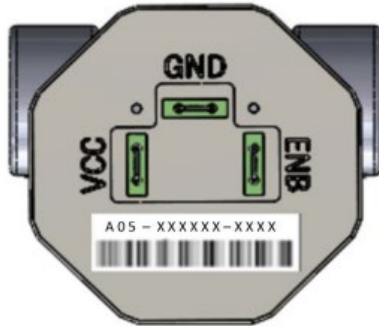


## Installation Orientation

The disinfection performance was confirmed with the reactor head up. To ensure the air bleeding inside the module, it is recommended to install the module with the head up for vertical installation or the head tilted up at least 5 degrees for horizontal installation. If the module is installed with the head down, the air inside the module will not escape and the disinfection performance will decrease.



## Electrical Connection Diagram



Head caps have rotating tolerance  $\pm 30$  degrees

### Input Terminal Names and Functions

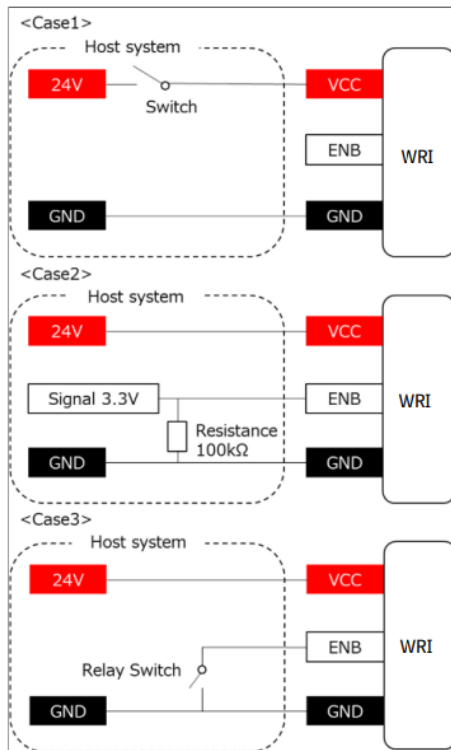
Terminal	Symbol	Value	Note
<b>Voltage Common Collector</b>	VCC	Min. 22.8 DC V / Typical 24 DC V / Max. 25.2 DC V	
<b>Ground</b>	GND	Typical 0 DC V	GND: 0 V (Reference Potential)
<b>Enable</b>	ENB	Min. 2.5 DC V / Typical 3.3 DC V / Max. 5.0 DC V	H= 3.3 V (Typ), L= GND = 0V (Typ) , H: LED ON, L: LED OFF

## Operating Cases

Case	Connection	VCC	ENB	LED
Case 1	VCC / GND (ENB is not used)	24 V	OPEN	ON
		0 V	OPEN	OFF
Case 2	VCC / ENB / GND	24 V	3.3 V	ON
		0 V	0 V	OFF
			3.3 V	
			0 V	
	OPEN (relay switch: Open)	ON		
Case 3	VCC / GND (ENB is connected to GND via relay switch)	24 V	GND (relay switch: Closed)	OFF
		0 V	OPEN (relay switch: Open)	
			GND (relay switch: Closed)	

### Notes

1. Values are typical recommended values.
2. It is recommended to install a 100kΩ pull down resistor between ENB and GND.



## 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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