







# Protect 222

PURO  
PROTECT 222

Discover the safe and easy way to disinfect high-traffic, high-touch areas continually in occupied spaces.

## How Protect 222 Works

Powered by patented Care222<sup>®</sup> filtered Far UV-C technology, PURO Protect 222 utilizes a short pass filter to block UV wavelengths that can penetrate the living tissue in skin or beyond the tear layer of the eyes to create a safe, narrow band of 222 UV light emission. In fact, PURO Protect 222 is one of only a few Far UV-C products to be UL listed, achieving the highest level of safety as approved by Underwriters Laboratories (UL).

-  **Safe for Occupants: Filtered 222nm Far UV-C light can be used while people are present in the space**
-  **Inactivates Pathogens: Proven to inactivate viruses, bacteria and fungal pathogens**
-  **Autonomous Disinfection: Designed to continually disinfect surfaces and air**
-  **Test and Certified by Underwriters Laboratories (UL) as safe and effective in occupied spaces**

## DIMENSIONS & WEIGHT

Fixture: 11.41" L x 4.75" W x 3.06" H  
Fixture Weight: 3.85 lbs.

## HOUSING

Front Plate: 14-gauge 6061 aluminum, powder coated

Back Plate: 16-gauge galvanized steel, powder coated

## FINISH

Painted in durable polyester powder coat paint.

## MOUNTING

For new or existing ceiling construction types. Designed for installation to 4" [101.6mm] recessed or surface octagon or square junction box. Can be installed to conduit or suspended from ceiling. For 9 ft. to 12 ft. mounting height.

## SOURCE

Care222<sup>®</sup> mercury-free Far UV-C excimer lamp. Emits a soft violet glow from 1.75" x 2.38" [44.5mm x 60.3mm] opening when powered.

## FILTER

Patented short pass filter for narrow band 222nm emission that removes longer wavelengths that can penetrate the living tissue in skin or beyond the tear layer in the eyes. Enables operation that can meet ACGIH<sup>®</sup> guidelines for occupied space.

## WAVELENGTH

Emitted wavelength range is 200nm ~ 230nm with peak wavelength at 222nm Far UV-C.

## CIRCUITING

Single circuit; not intended for use with wall switches. Connect to an unswitched circuit intended for 24/7/365 continuous operation.

## POWER USAGE

3.1W standby,  
17W when emitter is active  
0.14 A @ 120V, 0.06A @ 277V

## VOLTAGE

120 thru 277V at 50-60 Hz

## POWER FACTOR

At 120V = 99%  
At 277V = 91%

## CONTROLS AND SYSTEM NETWORKING OPTIONS

Requires no external controls or startup commissioning.

## DOSING DURATION

UV lamp module will operate on 12-minute cycles for a duration of between 10 and 50 seconds each cycle. The duration will depend on the specific dose chosen to meet the application design requirements.

## UV LAMP MODULE LIFE

Rated for approximately 5 years of life of continual operation.

## AMBIENT TEMPERATURE RANGE

+68° to +104°F [+20° to +40°C]

## AMBIENT OPERATING HUMIDITY

90% relative humidity noncondensing maximum.

## ENVIRONMENT

Suitable for damp location.

## CERTIFICATION

UL Certified to meet U.S. and Canadian standards for germicidal equipment for use in occupied spaces.

## REGISTRATION INFORMATION

EPA Est. No.: 98414-CO-1

Meets California ozone emissions limit. CARB certified.

## OZONE EMISSIONS

Tested to and meets ozone emissions standards in UL 867 Section 40 (Standard for Safety - Electrostatic Air Cleaners)

## BUY AMERICAN

This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS, and DOT.

## WARRANTY

2-year limited warranty.

## NOTES

Actual performance may differ due to end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25°C. Specifications subject to change without notice.

## DISCLAIMER

All references to “disinfection” are referring generally to the reduction of pathogenic bioburden and are not intended to refer to any specific definition of the term as may be used for other purposes by the U.S. Food and Drug Administration or the U.S. Environmental Protection Agency. Reduction of pathogenic bioburden is a function of fixture run time and the distance to the UV light source, airflow, room size, shadow areas and/or other factors, and the level of reduction will vary within a specific space. This fixture is not intended for use in the cure, mitigation or prevention of disease and is not certified or approved for use as a medical device by the FDA. It is the obligation of the end-user to consult with appropriately qualified Professional Engineer(s), a Certified Infection Control Professional and a Certified Industrial Hygienist, as applicable, to determine whether this fixture meets the applicable requirements for system performance, code compliance, safety (including safety and hazard alerting signs), suitability and effectiveness for use in a particular application design. In no event will PURO Lighting be responsible for any loss resulting from any use of this fixture in an application design.

Antimicrobial properties are built in to inhibit the growth of bacteria that may affect this product. The antimicrobial properties do not protect users or others against bacteria, viruses, germs, or other pathogens.

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

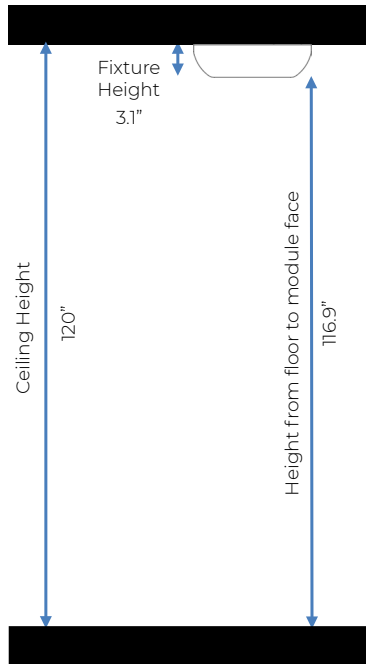


## CAUTION UV EXPOSURE RISKS / OZONE EXPOSURE RISK

- ✓ Disconnect or turn off power to equipment before performing maintenance or servicing other elements in the ceiling or space that require closer proximity than normal standing height away from the equipment.
- ✓ Skin or eye injury may result from overexposure to the light produced by the lamp in this equipment at distances less than 24 in. from the emitter.
- ✓ Emitters used in this product are in the EXEMPT RISK GROUP for actinic UV (200-400nm), near UV (315-400nm), and blue light (300-700nm) hazards, as describe in IEC 62471, when installed and used according to written instructions.
- ✓ This fixture emits UV radiation which can cause degradation of many materials. Remove or protect these materials prior to operation of the unit.
- ✓ This fixture emits UV radiation at wavelengths less than 250nm which can generate ozone.
- ✓ Take precautions to ensure that ozone concentration stays within applicable permissible exposure limits, as described in the installation instructions.

## PROGRAMMING

The programming option changes the duty cycle of UV emitter activation to keep UV exposure levels in the occupied space (i.e., the portion that is 7 ft. or less above the finished floor (AFF)) below IEC published exposure limits. The correct programming option to specify depends on the height of the UV emitter module face above the floor.



**Ceiling Height - Fixture Height = Height from Floor to Module Face**

### Example

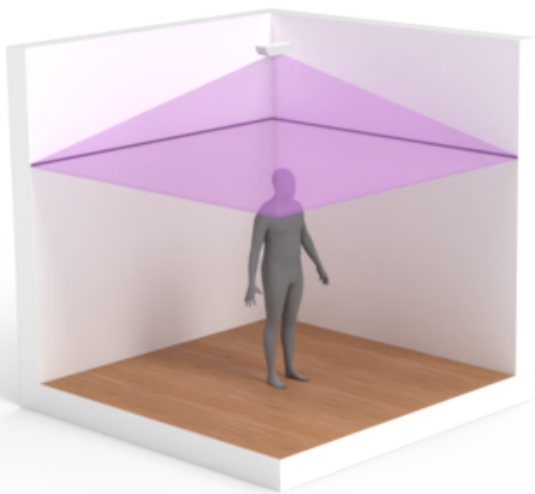
$$120 - 3.1 = 116.9$$

\* For this example, choose "B" 114"-116" option

### Programming Options

- A = 108"-113" (9'-9"5")
- B = 114"-119" (9'6"-9'11")
- C = 120"-125" (10'-10"5")
- D = 126"-131" (10'6"-10'11")
- E = 132" + (11'+)

## PROJECTED UV EXPOSURE AND EXPOSURE LIMITS



Exposure dose is determined for maximum level received at any location at 7' AFF to verify exposure is within IEC TLV-TWA exposure limits.

The PURO Protect 222 system has been evaluated and certified to UL 8802, which uses the IEC 62471 standard (1st Ed, 2006-07) for determining the maximum exposure a typical worker can be exposed to without adverse health effects. For the UV exposure dose to meet the current UL safety requirements, the PURO Protect 222 system is designed to not exceed a maximum exposure dose of 22.87 mJ/cm<sup>2</sup> (millijoules per square centimeter) for an 8-hour period of time. Per the UL 8802 standard, the upper limit of occupied space is defined to be a test plane 7' AFF. This calculated maximum exposure dose represents the dose an individual would receive over an 8-hour period at 7' AFF even if stationary in the location of maximum dose. The exposure limits established and published by the American Conference of Governmental Industrial Hygienist (ACGIH<sup>®</sup>, 9th Ed., 2021 TLVs and BEIs) for Far UV-C sources are greater than the exposure limits published in the IEC 62471 standard (1st Ed, 2006-07), meaning this product does meet existing ACGIH guidelines. The specifications and exposure limits as defined by IEC and ACGIH are subject to change without notice.

PHYSICAL SPECIFICATIONS

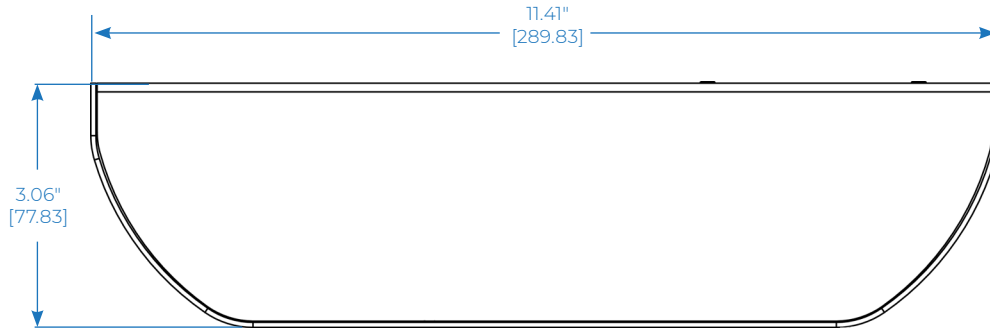
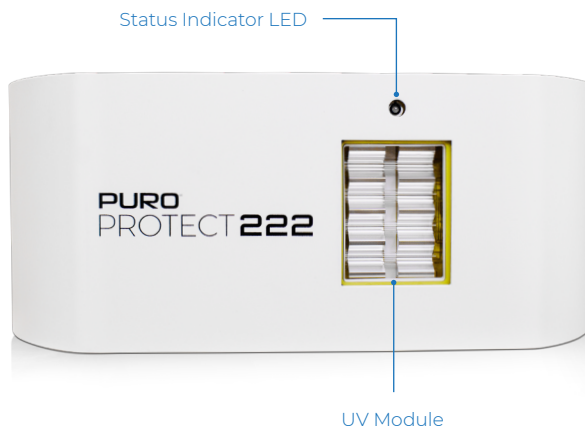


Figure 1: Side View Dimensions



Figure 2: Front View Dimensions

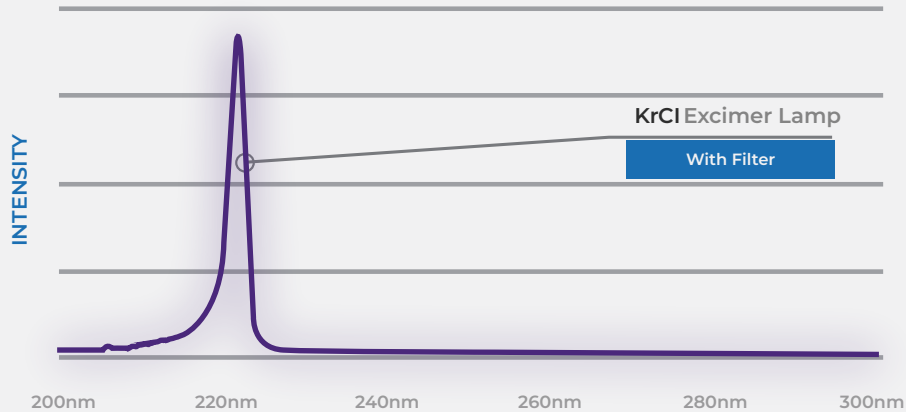
\*Dimensions in inches [millimeters]



**Status Indicator LED States**

- Normal Operation
- Approximately 6 months left in lamp Life
- Cycle power to clear error
- Replace lamp module immediately, module will no longer activate

WAVELENGTH SPECTRUM



Care222<sup>®</sup> delivers a narrow band of 222nm UV at energy levels that do not penetrate living tissues in skin or beyond the tear layer in the eyes

HOW TO ORDER

Please specify components below using the letter code in bold to select the desired options.

Series	Wavelength	Programming	Voltage	Mounting	Cord/Plug	Finish
<b>PPCM</b> = PURO Protect Commercial	<b>222</b> = 222nm	<b>A</b> = 9.0' Min. Floor-Face Distance (108" – 113")(9'-9'5") <b>B</b> = 9.5' Min. Floor-Face Distance (114" – 119")(9'6"-9'11") <b>C</b> = 10.0' Min. Floor-Face Distance (120" – 125")(10'-10'5") <b>D</b> = 10.5' Min. Floor-Face Distance (126" – 131")(10'6"-10'11") <b>E</b> = 11.0' Min. Floor-Face Distance (132"+) (11'+)	<b>U</b> = Universal Voltage 120-277V	<b>ST</b> = Standard Mount (Surface, J-Box, & Conduit)  <b>SS</b> = Suspended Mount	<b>N</b> = None/ Hard Wire	<b>MW</b> = Matte White  <b>MK</b> = Matte Black  <b>RL</b> = Custom Color Option
Example order: <b>PPCM-222-A-U-ST-N-MW</b>						