

Sterilization Module Solution

### Preliminary specification



## Product Brief

### Description

- Sterilizer module is for Sterilization Module with DUV LED mounted on the Metal PCB. It can be easily connected electrically by putting in the connector.
- Sterilizer module is suitably designed for water and surface sterilization.

### Features and Benefits

- Deep ultraviolet LED
- Low thermal resistance
- Simple BOM
- Miniaturization
- Lead Free Product

### Key Applications

- Disinfection

**Table 1. Product**

| Product type | Vin [Vdc] | P [W] | Wp [nm] |     | Remark |
|--------------|-----------|-------|---------|-----|--------|
|              |           |       | Min     | Max |        |
| CMW-PS-C01   | 12        | 0.24  | 265     | 280 |        |

\* Above data base on DC Power Supply  
Refer to the below test condition.

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### Performance Characteristics

**Table 2. Electro Optical Characteristics, T<sub>a</sub>=25 °C**

| Parameter                    | Symbol            | Value |       |      | Unit |
|------------------------------|-------------------|-------|-------|------|------|
|                              |                   | Min.  | Typ.  | Max. |      |
| Input Voltage <sup>[2]</sup> | V <sub>in</sub>   |       | 12    |      | Vdc  |
| Power Consumption            | P                 | 0.22  | 0.24  | 0.25 | W    |
| Viewing Angle                | 2Θ <sub>1/2</sub> |       | 135   |      | Deg. |
| Spectrum Half Width          | Δλ                |       | 10    |      | nm   |
| IP grade                     | -                 |       | X4    |      |      |
| Weight                       | g                 |       | 10±10 |      |      |

**Notes :**

- (1) Test voltage is 12Vdc at T<sub>a</sub>=25°C.
- (2) Operating Voltage doesn't indicate the maximum voltage which customers use but means tolerable voltage according to each country's voltage variation rate. It is recommended that the solder pad temperature should be below 70°C.
- (3) All measurements were made under the standardized environment of Seoul viosys

**Table 3. Absolute Maximum Ratings, T<sub>a</sub>=25 °C**

| Parameter                            | Symbol           | Unit | Value      |
|--------------------------------------|------------------|------|------------|
| Maximum Input Voltage <sup>[1]</sup> | V <sub>in</sub>  | Vdc  | 12         |
| Power Consumption                    | P                | W    | 0.24       |
| Operating Temperature                | T <sub>opr</sub> | °C   | -30 ~ +60  |
| Storage Temperature <sup>[2]</sup>   | T <sub>stg</sub> | °C   | -40 ~ +100 |

**Notes :**

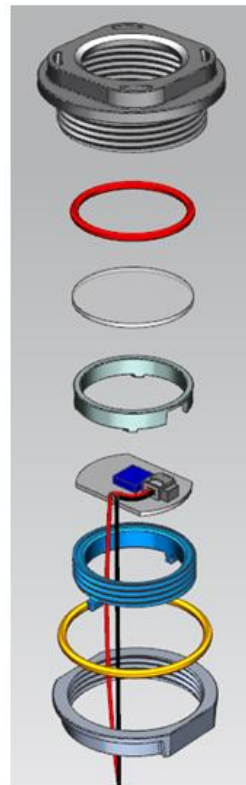
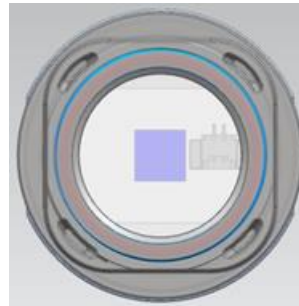
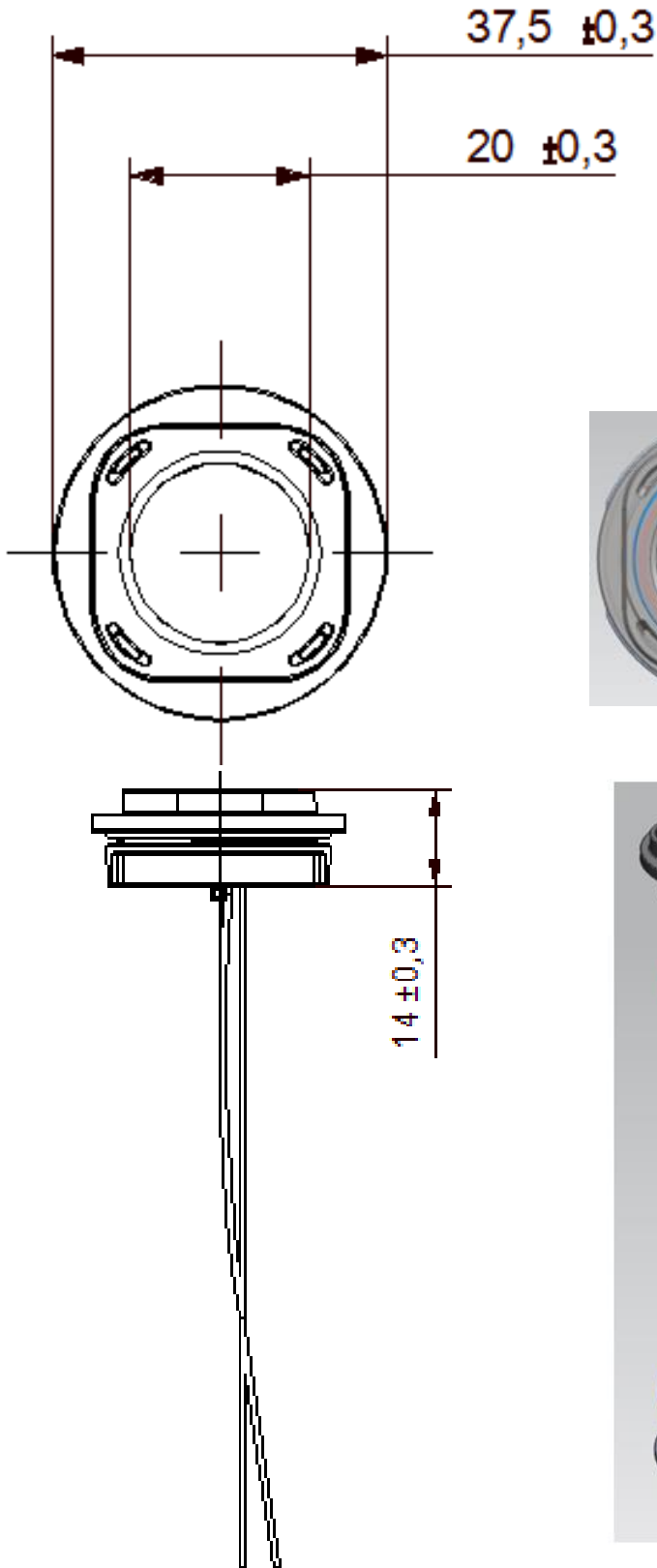
- (1) Maximum Voltage doesn't indicate the operating voltage which customers use but means tolerable voltage according to each country's voltage variation rate.
- (2) Ambient temperature without operation.

### Part list

Table 3. Part List – CMW-PS-C01

| No | Part       | Specification  | Quantity |
|----|------------|--|----------|
| 1  | CMW-PS-C01 | MODULE GUARD (Material : PP)                                   | 1        |
|    |            | QUARTZ GLASS (OD:25 , Thickness : 1t)                          | 1        |
|    |            | SILICON ORING_1 (AN-020_21.95x1.78)                            | 1        |
|    |            | SILICON ORING_2 (S-30_29.5x2)                                  | 1        |
|    |            | INNER HOLDER (Material : PP)                                   | 1        |
|    |            | OUTER HOLDER (Material : PP)                                   | 1        |
|    |            | LED GUARD (Material : PP)                                      | 1        |
|    |            | LED PCB ASSY' (Metal 1.0T 24.5x16.5 (mm) 275nm AAP PKG )       | 1        |
|    |            | Wire (양단 Housing 12505HS-02 / Terminal 12505TS , AWG28, 500mm) | 1        |

**Mechanical Dimensions**



1. MODULE GUARD
2. SILICON ORING\_1
3. QUARTZ
4. LED GUARD
5. LED PCB
6. INNER HOLDER
7. SILICON ORING\_2
8. OUTER HOLDER

### Precaution for Use

#### 1) Storage

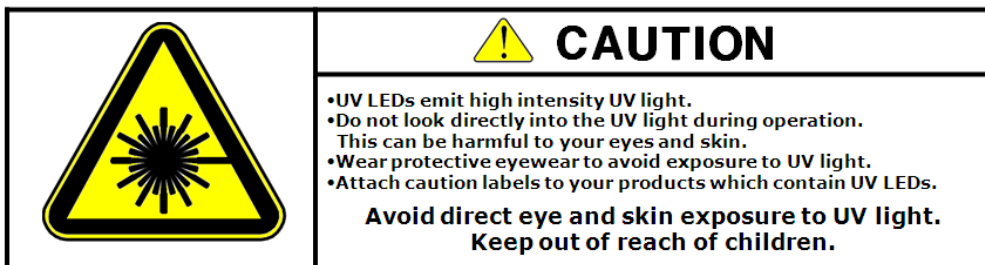
- To avoid moisture penetration, we recommend storing LED ASSY in a dry box with a desiccant. The recommended temperature and Relative humidity are between 5°C and 30°C and below 50% respectively.
- LED ASSY must be stored properly to maintain the device. If the LED ASSY is stored for 3 months or more after being shipped from SVC, a sealed container with a nitrogen atmosphere should be used for storage.
- Replace the remained LED ASSY into the moisture-proof bag and reseal the bag after work to avoid those LED ASSY being exposed to moisture. Prolonged exposure to moisture can adversely affect the proper functioning of the LED ASSY.
- If the package has been opened more than 4 week(MSL\_2a) or the color of the desiccant changes, components should be dried for 10-12hr at 60±5°C
- The conditions of resealing are as follows
  - Temperature ranges between 5 to 40°C and relative humidity is less than 30%

#### 2) Handling Precautions

- VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures can penetrate silicone encapsulants of LED ASSY and discolor them when exposed to heat and photonic energy. The result can be a significant loss of light output from the fixture. Knowledge of the properties of the materials selected to be used in the construction of fixtures can help prevent these issues.
- In case of attaching LED ASSY, do not use adhesives that outgas organic vapor.
- Soldering should be done as soon as possible after opening the moisture-proof bag.
- Do not rapidly cool device after soldering.
- Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering.
- Components should not be mounted on warped (non coplanar) portion of PCB.
- The UV LED is encapsulated with a silicone resin for the highest flux efficiency. So it needs to be handled carefully as below
  - Avoid touching silicone resin parts especially with sharp tools such as pincettes(Tweezers)
  - Avoid leaving fingerprints on silicone resin parts.
  - Silicone resin will attract dust so use covered containers for storage.
  - When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that excessive mechanical pressure on the surface of the resin must be prevented.
  - It is not recommended to cover the silicone resin of the LEDs with other resin (epoxy, urethane, etc).

### Precaution for Use

- 3) Safety for eyes and skin
  - The Products emit high intensity ultraviolet light which can make your eyes and skin harmful, So do not look directly into the UV light and wear protective equipment during operation.
- 4) Cleaning
  - This device is not allowed to be used in any type of fluid such as water, oil, organic solvent , etc.
- 5) Others
  - The appearance and specifications of the product may be modified for improvement without notice.
  - When the LEDs are in operation, the maximum current should be decided after measuring the package temperature.
  - The driving circuit must be designed to allow forward voltage only when it is ON or OFF. If the reverse voltage is applied to LED, migration can be generated resulting in LED damage.
  - Do not handle this product with acid or sulfur material in sealed space.



### Revision History

| Revision | Date              | Page | Remarks           |
|----------|-------------------|------|-------------------|
| 00       | 20. Octoberl.2016 | all  | The first edition |