SWDC SERIES

SWDC-F010-DNN-U1930

Harvatek's UVC LED based modules are mercury and free offer the best solution for water sterilization with no resurrection and no side effects.

SWDC-F010-DNN-U1930

SWDC series are UVC LED based modules using high-power ultraviolet light emission between 265nm and 280 nm (UVC region).

UV emission is an invisible light source subdivided in 3 regions: UVA, UVB and UVC (see graph below). A Wavelength between 230 & 285nm (UVC & UVB) is recommended for maximum efficiency of sterilization and disinfection. UVC & UVB are absorbed by the DNA and RNA of bacterial microorganisms, which can effectively sterilize our environment (water, air, surfaces). UVC sterilization has the highest efficiency in sterilization with no resurrection and no side effects.

When the water flows through the SWDC modules, UVC light will initiate sterilization immediately. The SWDC modules totally solve the problems of bacterial contamination levels in drinking water, exceeding standards, achieving instant effect during usage. It has and will continue to vastly improve the quality of everyone's daily life and has made the public's drinking experience safer.
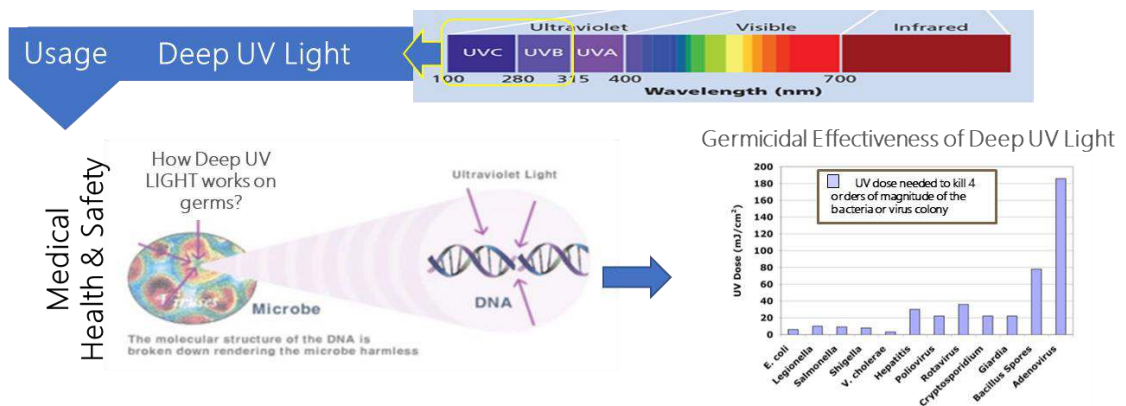
● **SWDC-F010-DNN-U1930, Products Features:**

1. Sterilization efficiency above 99.99% [①]
2. Mercury Free
3. Fast sterilization, high performance, no heat, pure physical sterilization, unaltered physical and chemical characteristics of water after sterilization, colorless, odorless, with no by-products produced
4. Aesthetic module structure and appearance, quality material, and sterilization efficiency certified by several renowned third-party entities.
5. The parts of the module that are in contact with the water are made of food grade quartz glass and food grade PC plastic. The module housing is made of high-quality aluminum alloy. It is light in weight, very pressure resistant, has long life cycle and aesthetic appearance.
6. Module structure with multiple design aspects optimized can offer 4 different water flows, are easy to install and to use, safe and simple to manage
7. Water diverter: high purity quartz glass + food grade PC material
8. Housing: aluminum alloy that has gone through anodizing process
9. Outlet/Inlet diameter: 3/8" pull-in water connector
10. Maximum influent water pressure: 1 MPa. It is strictly prohibited to exceed the operating pressure
11. Operating life[②]:
    a) Continuous mode regime: Above 1,000 hours.
    b) Pulsed mode regime: 10,000 hours (using a standard household water usage estimation)
       It is highly recommended to use the modules in a pulsed regime (using a controller, not included): when water flows through, the module is turned on (the sterilization starts); when water flow stops, it turns off the module (it will prolong its lifetime).

Note: The module is designed to be placed vertically. Please consult with us before using the modules in other configurations.

[①] _The standard Escherichia coli ATCC25922 were used in a ISO100-grade laboratory to calculate the sterilization rate by measuring the number of colonies before and after irradiation. Please contact us for detailed test methods and bacteria strains used._

[②] _IESNA (Illuminating Engineering Society of North America) LM80 experimental method, 70% Lumens depreciation evaluation standard_

- **SWDC-F010-DNN-U1930, Products Specifications:**

  Module Spec (1.0 L/min):

Spec		Symbol	SWDC-F010-DNN-U1930
Water Flow Rate		L/min	1.0 *(If the water flow rate exceeds this flow, the sterilization efficiency will be diminished)*
Wavelength		nm	265-280
Radiant	Typ.	mW	60
Voltage		VCC	24
Power Consumption③	Min.	W	3.0
	Max		5.0
Hosing Type			Pitch2.5/3pin
Signal Detection			LED board open or short circuit
Weight		g	110g ± 10%

③Power consumption can be changed by surrounding temperature and current with ±10% tolerance, recommend use a power capacity above 15W

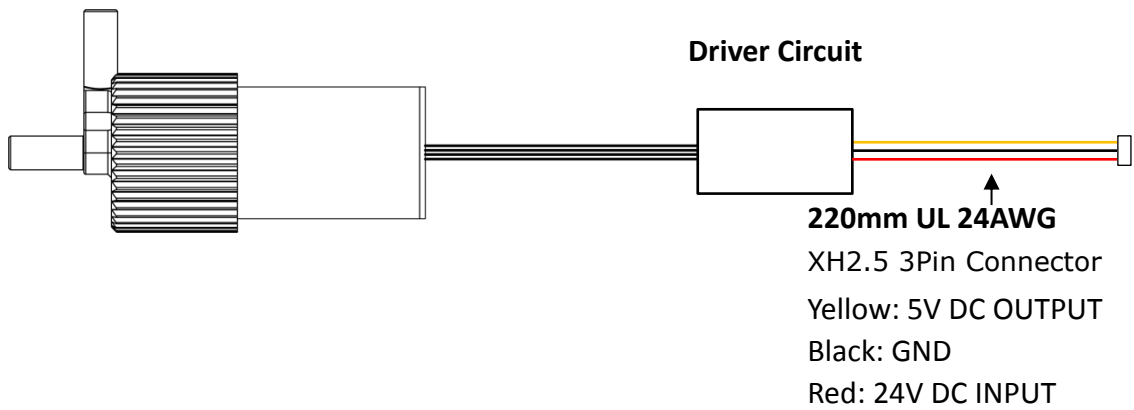- **SWDC-F010-DNN-U1930 , Mechanical Specifications:**

Driver Circuit

220mm UL 24AWG
XH2.5 3Pin Connector
Yellow: 5V DC OUTPUT
Black: GND
Red: 24V DC INPUT

Fig. 1 Wire Schematic

Module dimension: Ø44mm x 138mm

62. 5

Ø44. 6

Unit: mm
Tolerance: +/- 1mm

Ø9. 5
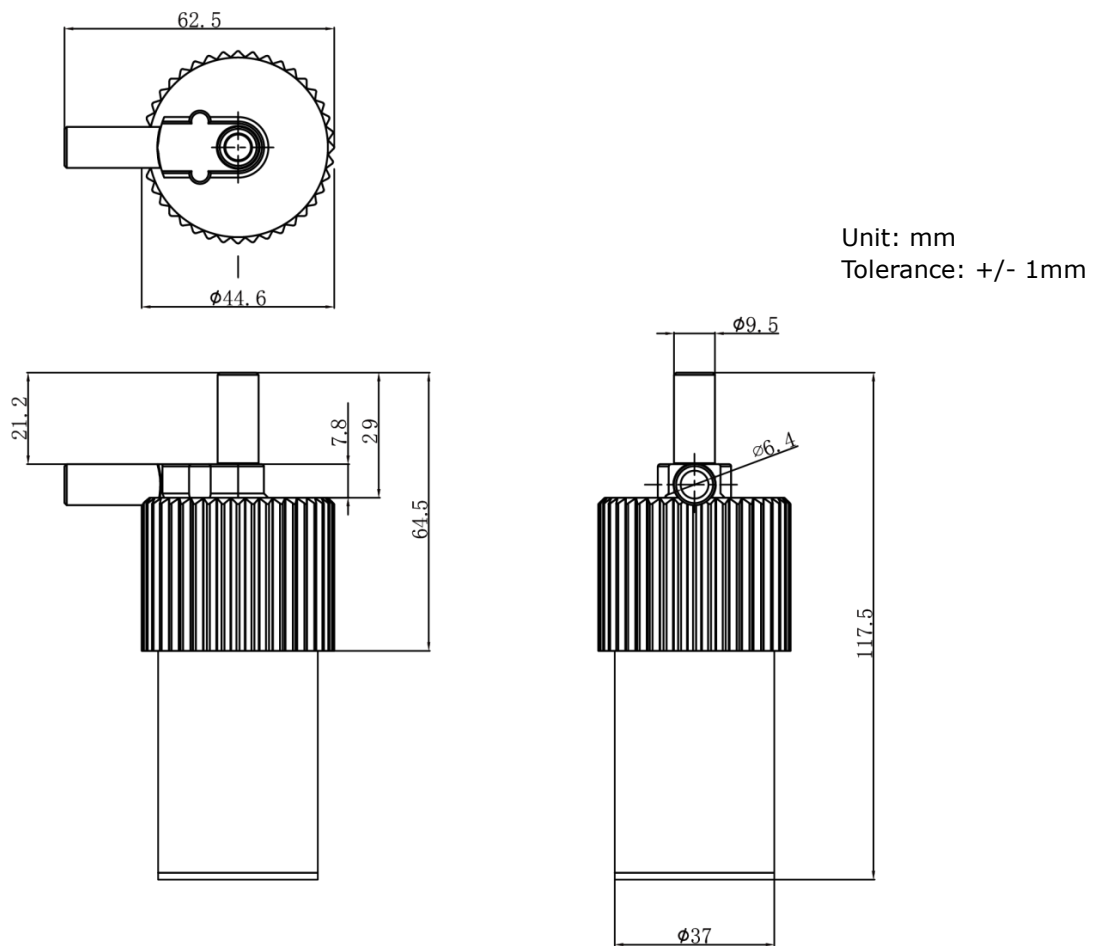
21.2

7.8

2.9

64.5

Ø6.4

117.5

Ø37

Fig.2 Outline Dimensions

● **SWDC-F010-DNN-U1930 , Installation instructions:**

1. It is recommended to fix the module vertically on a support. Connect to the water network through the quick-connect connector provided along with the module. _Ensure to connect the inlet and outlet to the appropriate port locations as shown in Figure 3._

2. Turn on the power and the LEDs will start by themselves while the system will enter sterilization mode. By using external water flow to trigger the control switch, LED sterilization will work in pulse modes of "water flows and the module switches on" and "water stops and module switches off". This will help extend the life cycle of the module.

3. Module SWDC-F010-DNN-U1930 with 2 warning functions, provide instant feedback of low voltage(under 1V) for normal working status (sterilization is effective) and high voltage (4.5~ 5V) for the following failure modes (sterilization compromised): LED short circuit or LED open circuit

4. Module SWDC-F010-DNN-U1930 with 3 warning functions, provide feedback a High voltage (4.5~5V) for normal working status (sterilization is effective) and Low voltage (under 1V) for the following failure modes (sterilization compromised): LED short circuit, open circuit, or low disinfection removal rate.

5. Installation is complete if the hydraulic pressure test can be carried out without water leakage at 4 Kg/cm^2. This module is designed to be splash proof, thus the module can withstand ordinary water spray and still be in working order.
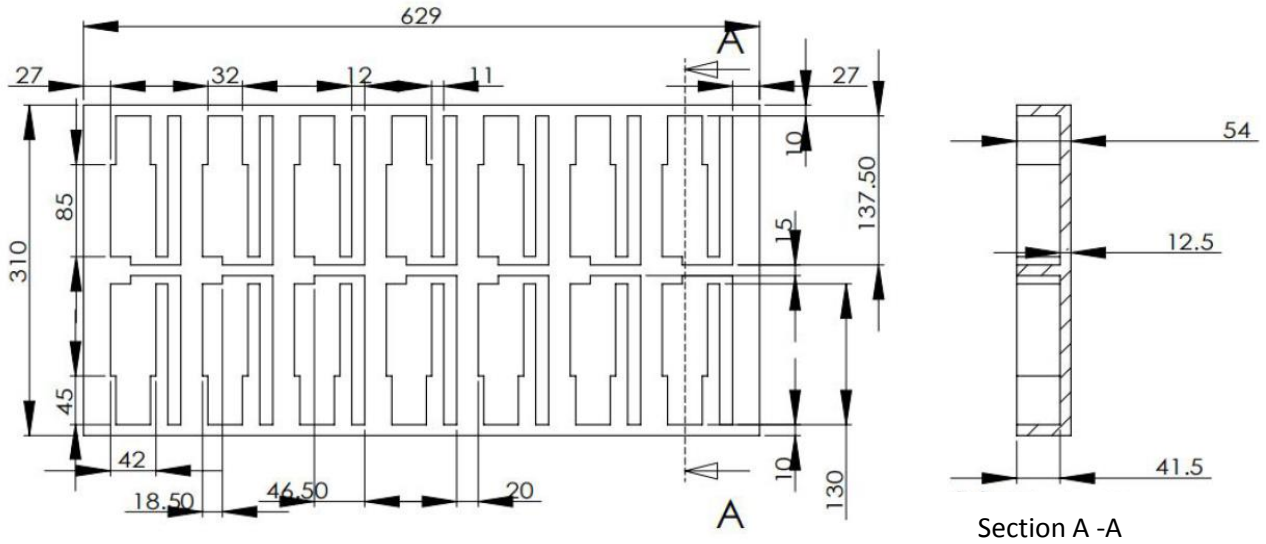
Inlet

Outlet

Fig.3 Schematic diagram of the inlet and outlet of the UV sterilization module

● **Packing information:**

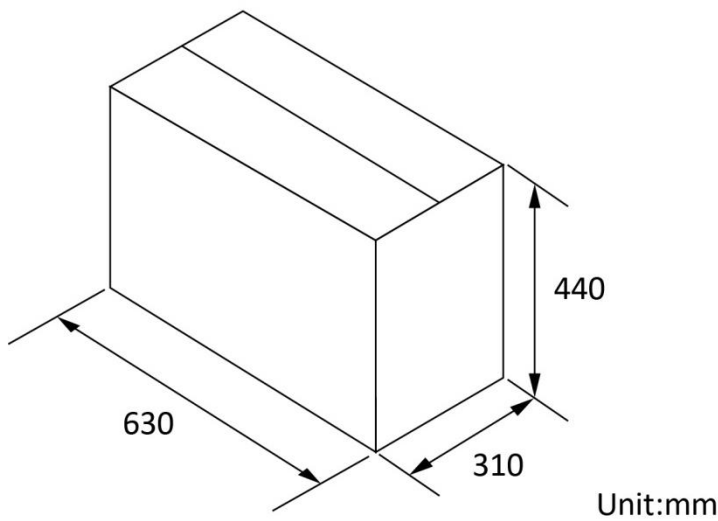1. Protective Foam Dimension: 629 x310 x54 mm

   Quantity: 14 pieces/ layer

Section A -A

2. Outer Carton Box Dimension: 630 x310 x440 mm

   Quantity: 8 layers/ box

   Weight: 14.5 kg

Unit:mm

*Tolerance: +/- 10mm

- **Test Report: Independent Laboratory**

SGS

Test Report

Report No: ASH18-049555-01   Issue Date: Oct 17 2018

TEST METHOD(S):

Total coliforms removal rate: Refer to MOH Sanitary Standard for Hygienic Safety and Function Evaluation on Treatment Devices of Drinking Water – General Devices & GB/T 5750.12-2006 Standard Examination Methods for Drinking Water – Microbiological Parameters

TEST RESULT(S):

Test item(s)	Unit(s)	Test method(s)	Test result(s)		Removal rate(s)(%)**
			Influent spiked water	Effluent filtrated water	
Total coliforms*	cfu/100mL	GB/T 5750.12-2006	8.0×10^4	<1	>99.99

Remark: 1. Testing condition: Flow rate 2.0L/min
2. *Challenge test organism: E.coli ATCC 25922.
3. ** Removal rate (%) = (Influent spiked water test result - Effluent filtrated water test result) / Influent spiked water test result × 100%.

SAMPLE DESCRIPTION: SWDC-2L01

''' End '''

Note:

Each type of microbial killing requires specific ultraviolet radiation energy. The radiation of SWDC-F010-DNN-U1930 ultraviolet sterilization module, in strict accordance with national standards, is 30mJ/cm^2, which can kill more than 99.99% of bacteria and viruses. When the to-be sterilized water is turbid, high in water hardness, calcium, or magnesium, bacteria extermination may be weakened. Therefore, it is recommended to set a filter device at the front end of the module inlet to reduce the influence of water quality on bacteria eradication.

Ultraviolet rays also cause damages to the human body. For safety reasons, this module is designed for all components to be assembled within an enclosed case without any exchangeable repair parts inside. Therefore, it is not recommended to disassemble the module by oneself unless necessary. Please be sure to open the module under the professional guidance of our company.

Specifications are subject to change without notice.

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● **History of Version:**

Revision	Date	Contents of Revision Change	Remark
Rev 1.0	Feb 1, 2019	New Establishment	
Rev 2.0	Apr 29, 2019	Add SWDC-F0xx-DNN specifications	
Rev 2.1	Jun 3, 2019	Add Packing information	
Rev 3.0	Jul 12, 2019	Add SWDC-F006 specification	
Rev 3.1	Jul 23, 2019	Add SWDC-F0xx specification	
Rev 3.2	Dec 5, 2019	Modify SWDC-F0xx drawing	
Rev 4.1	Jul 30, 2020	Update Power consumption	

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