

Instruction Manual

SUNJE

SXN-10UL

Eng

It is recommended that only persons who have sufficient knowledge and experience such as system designers and responsible persons deal with this product after carefully reading the product manual.

1 The matters of safety

WARNING

- * Do not fabricate or do maintenance by yourself. Malfunction, Electric shock, and fire danger are considered. Contact us directly if you need the item to be repaired.
- * Do not let the water touch the product. It may cause electric shock or fire due to malfunction.
- * When you check or maintain the product, make it sure you turn off the power. It may cause electric shock or fire due to malfunction.
- * The item should be fixed to the target tightly. Electric discharging or breakage might happen.
- * Please shield your installing circumstances first since the item releases the soft X-ray. Direct X-ray exposure is not recommended owing to cause health problem.
- * It includes a beryllium window on the X-ray tube unit in order to release soft X-ray for ionization. This beryllium material can cause respiratory disorder only if the person gets exposed to forms of either beryllium powder or smoke. However, our device doesn't creat beryllium in neither of the mentioned forms. Please be careful not to break the device since there might be a slight chance that the device could partially degrade into the powder form, then it can cause harm defects. If the user touches the beryllium material on the device, clean oneself on the running water or rinse it off with soap directly.
- If the beryllium window gets dirty or damaged, call us directly for assistance.
- * Do not use the product at the place where dangerous material such as inflammable or ignitable material exists. This product is not the product of anti-explosive type.
- * This device is made only for industrial uses. You need to ground the device beforehand. Otherwise, there are in case of malfunction, electric shock, or fire damage.

CAUTION

- * Do not disconnect the head cable with power applied. There is a possibility of electric shock or malfunction.
- * Connect wires referring to the product manual. Wrong connection can cause failures.
- * For your proper cable connection, take a look at the manual "Installation & Connection" for references. Any disordered connection is detected, the malfunction might arise.
- * All cables should be connected all the time. Please careful of cable disconnections. If power or communication cables got damaged, replace them immediately. Malfunction and fire danger may happen.
- * Do not install the device where the vibration can be detected. Any minor impact or vibration on the device, the malfunction or danger of accident might happen.
- * Do not use the item off the range of usage(Electrostatic elimination).
- Malfunction or danger of accident may occur.
- * If you wish to discard the head unit of X-ray device, you need to report for disuse declaration to the institution(s) where they ask to. A proper declaration procedure is necessary in order to disuse X-ray device.
- * Please contact to either Korea Institute of Nuclear Safety(KINS) or a safety supervisor of Sunje directly.

2 Check the package contents

Product compositions

The package includes the following products composition.



Soft X-Ray Ionizer
SXN-10UL
1ea

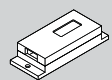
- * Fixing Bolt
SFB-XN-1-001
1/4"-20unc x 15L/ 1ea
1/4"-20unc x 8L/ 1ea
M4 x 0.7Pitch x 10L/ 2ea



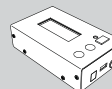
* In/Out Cable
SOC-UL-1-001
Head Cable(10Pin), 5m / 1ea

Option

If you require extra functions with the basic accessories we provided, you need to purchase optional items in below for further assistant.



* Time Reader
SXN-U Time Reader / 1ea



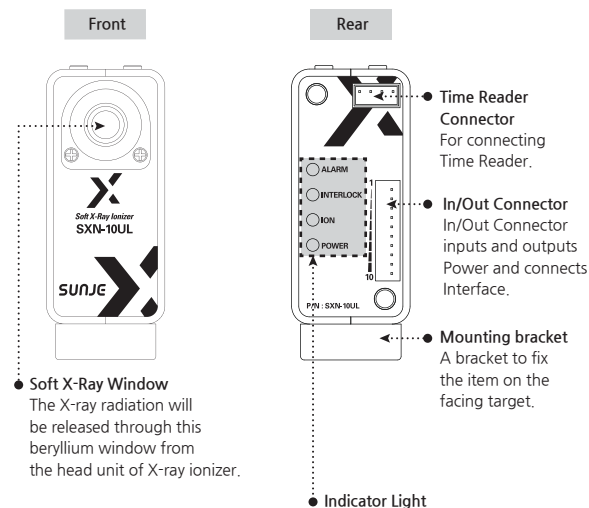
* Time Reader
SXN Time Reader / 1ea



* Time Reader Cable
STR-UL-2-001
(4Pin), 5m / 1ea

3 Nomenclatures of parts

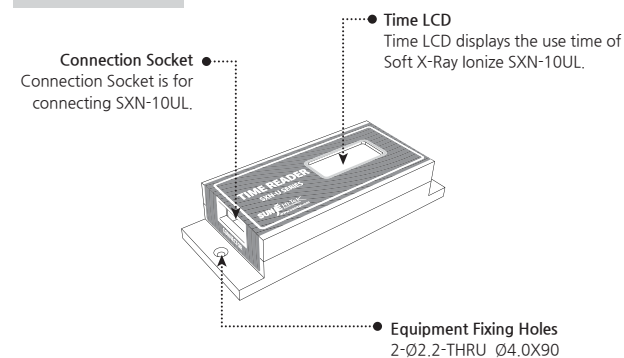
SXN-10UL



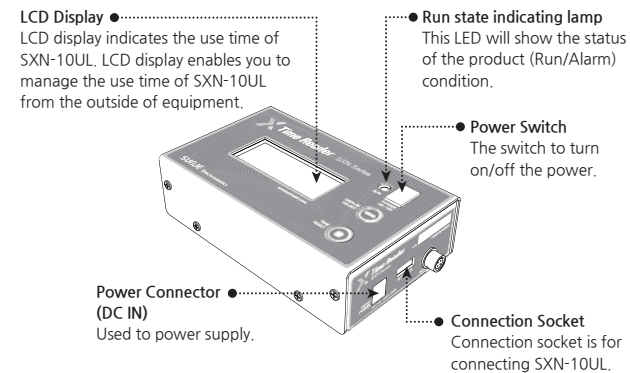
ALARM (Red LED)	When these cases, red LED will be on. a. Soft X-ray tube life time end. b. Some troubles with soft X-ray tube.
INTERLOCK (Orange LED)	As safety device, orange LED is turned on indicating preparing operation state. (Unless LED is turned on, product does not work.)
ION (Blue LED)	Displaying the state of soft X-ray irradiation (during ionizing), blue LED is turned on.
POWER (Green LED)	When inputting main power, green LED is turned on.

Time Reader (Option)

SXN-U Time Reader



SXN Time Reader



4 Installation and connection

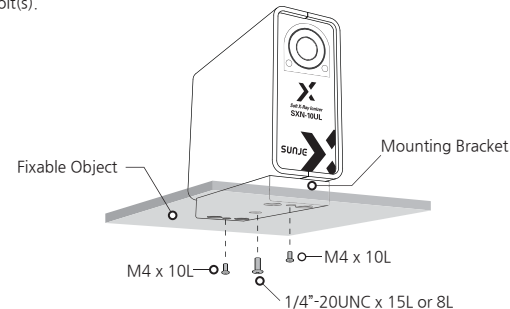
Check the installation conditions SXN-10UL

Please check the installation condition whether it meets proper specification.

- Shielded room
- There must be no objects between the target area and X-ray device.
- No vibration on the fixed device.
- Be aware of any flammable or ignitable materials around the working area.
- Secure to have enough working space for quick maintenance of the device.

SXN-10UL fixing

Fix the target product on the fixed area where you install by using supported fixing bolt(s).

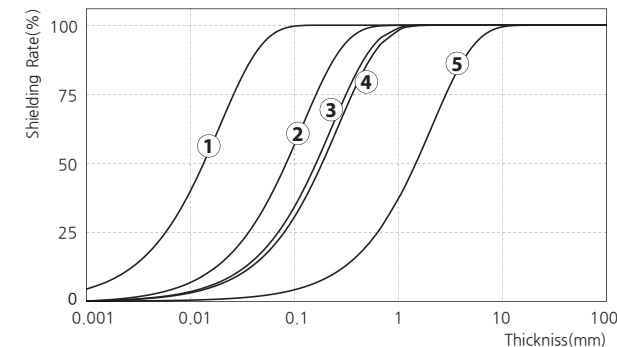


Shielding methods

Shielding Material Selection

See the following graph for references.

Select the ideal tickness and quality of shielding material.



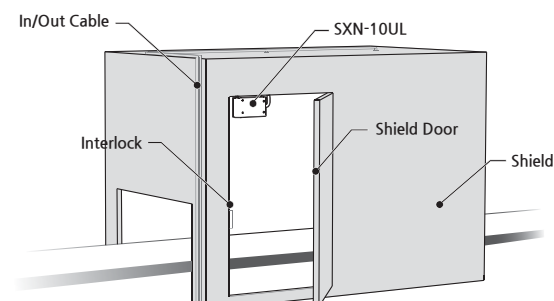
No.	Shield Material	Thickness [mm]
①	SUS	Over 0.3
②	Aluminium	Over 2.0
③	Glass	Over 4.0
④	PVC	Over 4.5
⑤	Acrylic	Over 40.0

WARNING

- * Please shield the area where the customer is willing to install the soft X-ray device for safety issue.
- * After shielding process, please connection to your own interlock system to operate the X-ray device On/Off when the door is opened/closed.

Shield installation compositions

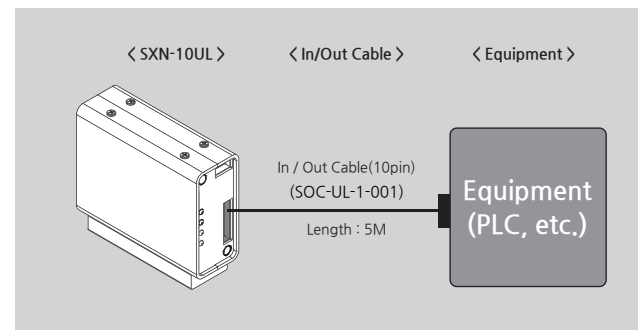
Please refer to the "Installation Compositions" for your references. Please keep your working environment of the leakage radiation level within the range of 10µSv/hr all the time.



In/Out Cable

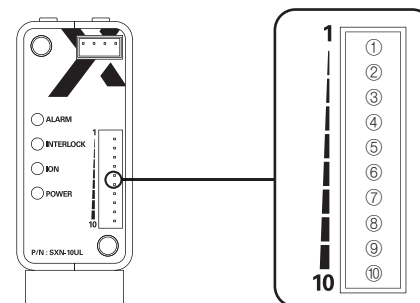
Connecting to the Soft X-Ray Ionizer

Please connect the SXN-10UL and equipment with supported "In/Out Cable".



In/Out Cable No.

10Pin



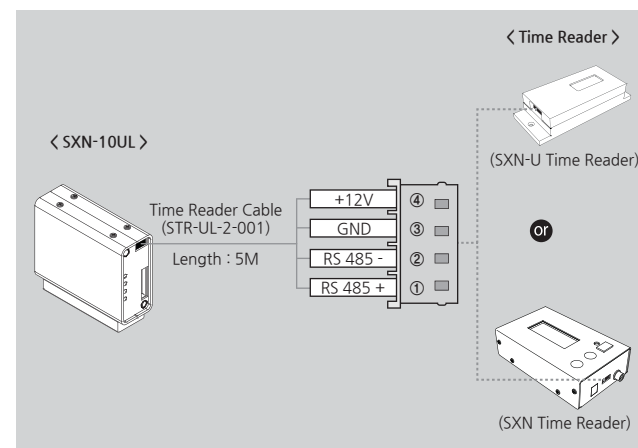
In/Out Cable Specifications

No.	Pin Name	Function
1	Interlock-com	As safety device, it indicates readiness of preparing operation. (Close : Interlock on)
2	Interlock	
3	Remote-com	The socket is for on/off of product. (Ionizer on : DC24V In, Ionizer off : Open)
4	Remote	
5	Alarm State-com	When alarm occurs, it is closed with common socket.
6	Alarm State	
7	Run State-com	In run state, it is closed with common socket.
8	Run State	
9	GND	Main power DC 24V input
10	Main Power	

Time Reader (Option)

Connecting to the Time Reader

It enables you to check the hours of use outside the equipment connecting Time Reader(SXN-U or SXN Time Reader) sold separately. Use In/Out cable to connect SXN-10UL with Time Reader.



5 How to set

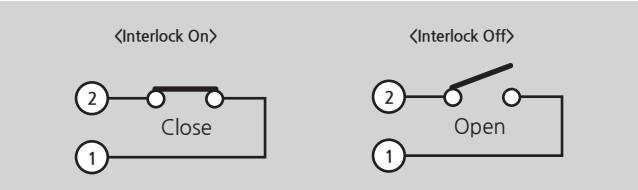
► Set the interlock

Interlock On

When the contact of In/Out cable No.1 and No.2 is closed, it changes to interlock on. Interlock on means the state of preparing operation and generating ion, and orange LED is turned on.

Interlock Off

When the contact of In/Out cable No.1 and No.2 is opened, it changes to interlock off. When orange LED is off, it shows that the door is securely unlocked and not shielded well.



Article	Interlock On	Interlock Off
In/Out Cable No.	1 - 2 Close	1 - 2 Open
State	The shield door is closed	The shield door is open
Meaning	Ready for ionization	Still in process for ionization
LED	Orange	Off

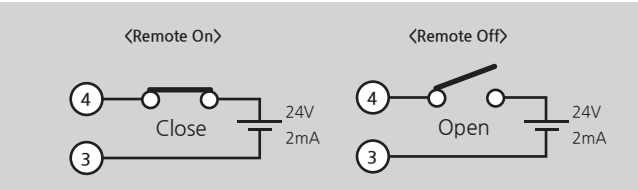
► Remote set

Remote On

When the contact of In/Out cable No.3 and No.4 is closed, it changes to remote on. Remote on means operation state of product, and blue LED is turned on.

Remote Off

When the contact of In/Out Cable No.3 and No.4 is opened, it changes to remote off. Remote off means stop state, and blue LED is turned off.



Article	Remote On	Remote Off
In/Out Cable No.	3 - 4 Close	3 - 4 Open
State	Generating ion	Stop
LED	Blue	Off

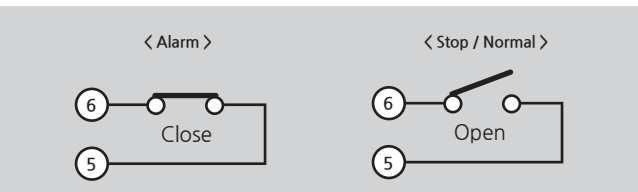
► Alarm state signal output

Alarm

When alarm occurred, the contact of In/Out cable No.5 and No.6 is closed. Alarm means abnormal state of product, and red LED is turned on.

Stop / Normal

When alarm Stop / Normal state, the contact of In/Out cable No.5 and No.6 is opened. Alarm Stop / Normal means operation state of product, and red LED is turned off.



Article	Alarm	Alarm Stop
In/Out Cable No.	5 - 6 Close	5 - 6 Open
State	Product abnormal state	Product normal state
LED	Red	Off

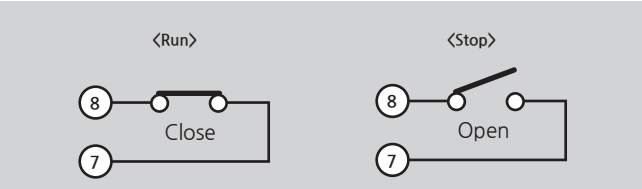
► Run state signal output

Run

When run state, the contact of In/Out cable No.7 and No.8 is closed. Run means operation state of product, and blue LED is turned on.

Stop

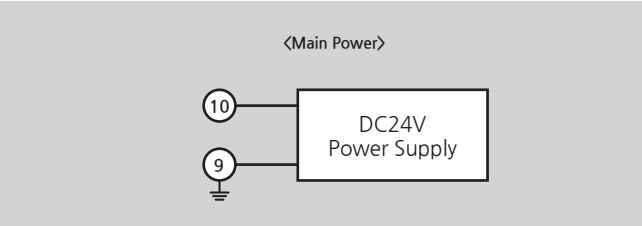
When stop, the contact of In/Out cable No.7 and No.8 is opened. Stop means stop state of product, and blue LED is turned off.



Article	Run	Stop
In/Out Cable No.	7 - 8 Close	7 - 8 Open
State	Product operation state	Product stop state
LED	Blue	Off

► Main power

When inputting main power, green LED is turned on.



Article	Main Power
In/Out Cable No.	9 - 10
State	Power input
LED	Green

6 Problem solving

► LED check

When power is turned on, normal state is that all LEDs are turned on and kept turned on for about 1.5 sec for checking defective LED.
※ It runs only once when turning on power.

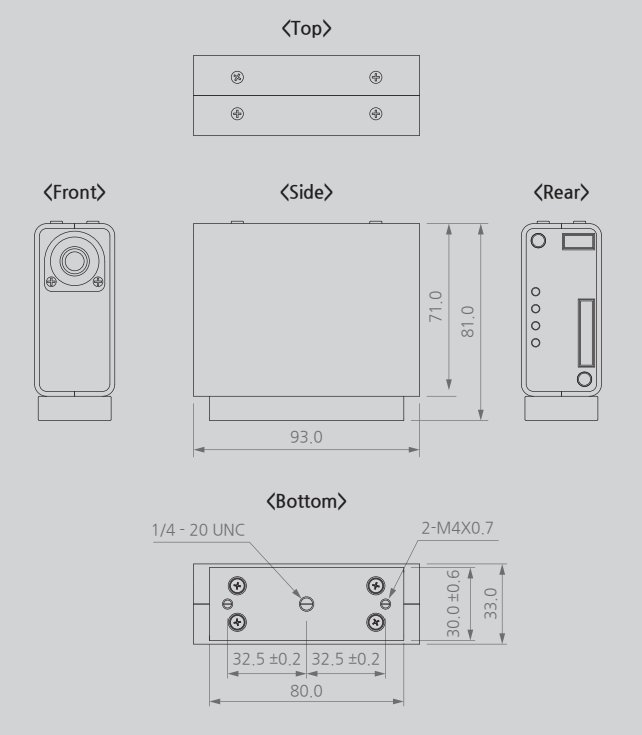
► Checklist before called

Before requesting A/S, please check the followings.
Product may not work properly not because of failure of product but minor cause.
Please check the followings.

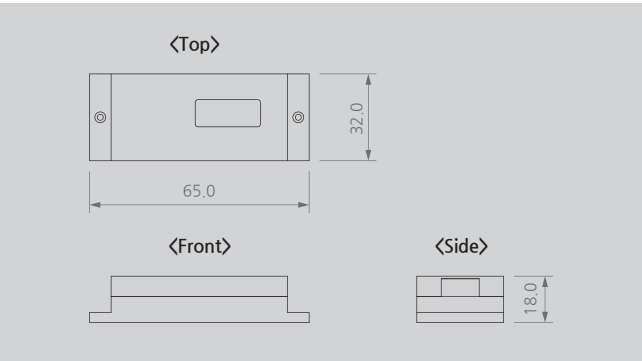
Problem	Identifying Problem	Solution
Not Operating	Is your power cable still plugged in?	Please re-plug the power cable and then turn the device on again.
	Was the proper voltage level applied for this set-up?	Please use the proper level of power input for the device. (DC 24V)
	Is remote off?	Clear the remote off corresponding to 「Remote Setup」 manual.
	Is remote on?	Place interlock on corresponding to 「Interlock setup」 manual.
Decreased Performance	Can't possibly ground the device?	Please refer to 「Installation & Connection」(proper) grounding the device.
	Is proper signal applied to remote / interlock socket?	Check if the proper signal is applied to remote / interlock socket.
The output of signal is not correct.	Any damages or cut on the cables?	You need to replace the cables if it gets cut or damaged.

7 Dimensions

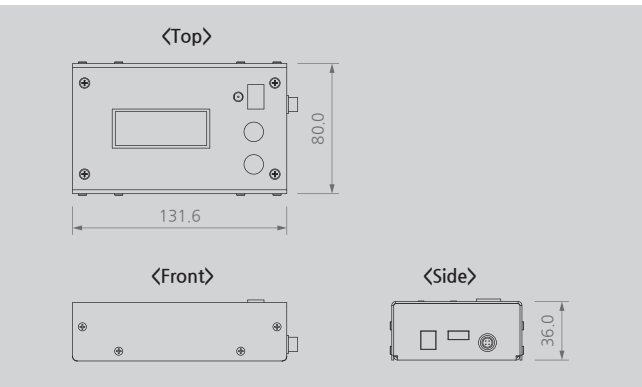
► SXN-10UL



► SXN-U Time Reader (Option)



► SXN Time Reader (Option)



8 Specification

► SXH-10UL

Parameter	Description / Value
Ion Generation Method	Soft X-ray
Source	Soft X-ray Tube
Tube Voltage	11 kV
Beam Angle	150 °
Cooling Method	Natural Air Cooling
Mounting Method	Bolt Mounting with Bracket
Power Consumption	8 W (DC 24 V)
Operation Circumstance	0 ~ 50 ℃(32 ~ 122 ℉), 35 % ~ 85 % RH
Weight	0.36 kg
Alarm	Head Fail
Warning	Life Time Over
Warranty	1 Year

※ The appearance and specification of the product may be changed without prior notice for the improvement of the product.

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