

# Instruction Manual

SUNJE

## SIB7 Series

(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

- \* If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- \* 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.
- \* Secure the product firmly when you want to secure it.
- \* There is a possibility of accident due to fall-over or malfunction, etc.
- \* Secure working space when you install the product. If working space is not secured, the checking or maintenance of the product is made impossible leading to failure of the product.
- \* Always use either one of the following materials for air supply: CDA(Celan Dry Air) or N2. If there are any water or oil contamination in the air supply, it will cause malfunction or cause of accident.
- \* 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 contact the discharge needle or terminal with power applied.
- \* There is a possibility of electric shock or malfunction.
- \* Handle the discharge needle with care as its tip is very sharp.
- \* Connect wires referring to the product manual. Wrong connection can cause failures.
- \* Take precautions as cables of the adaptor, the power line and communication line of each product may disconnect. If the cable is damaged, replace it immediately.
- \* 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 product for the purpose outside of the range of the product use.
- \* If the product is used for the purpose outside of the range of the use, it can result in the trouble or the shortened service life. Or an unexpected problem may occur.
- \* The ionizer generates ozone(below 0.05ppm) if you sense the smell of ozone when you use more than two units, ventilate the air.
- \* When installing or transporting the ion bar, be prepare not to bend the item during the process.

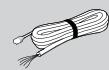
### 2 Check the package contents

#### Product compositions

The package includes the following products composition.



Ion Bar  
SIB7 Series / 1ea



\* Power Cable  
SUC-3R-3-001  
10m / 1ea



\* Signal Cable  
SUC-MT-2-001  
10m / 1ea

#### Option

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



\* Power Supply  
SBP-RD



\* UTP Cable  
SUC-B3-1-001  
10m



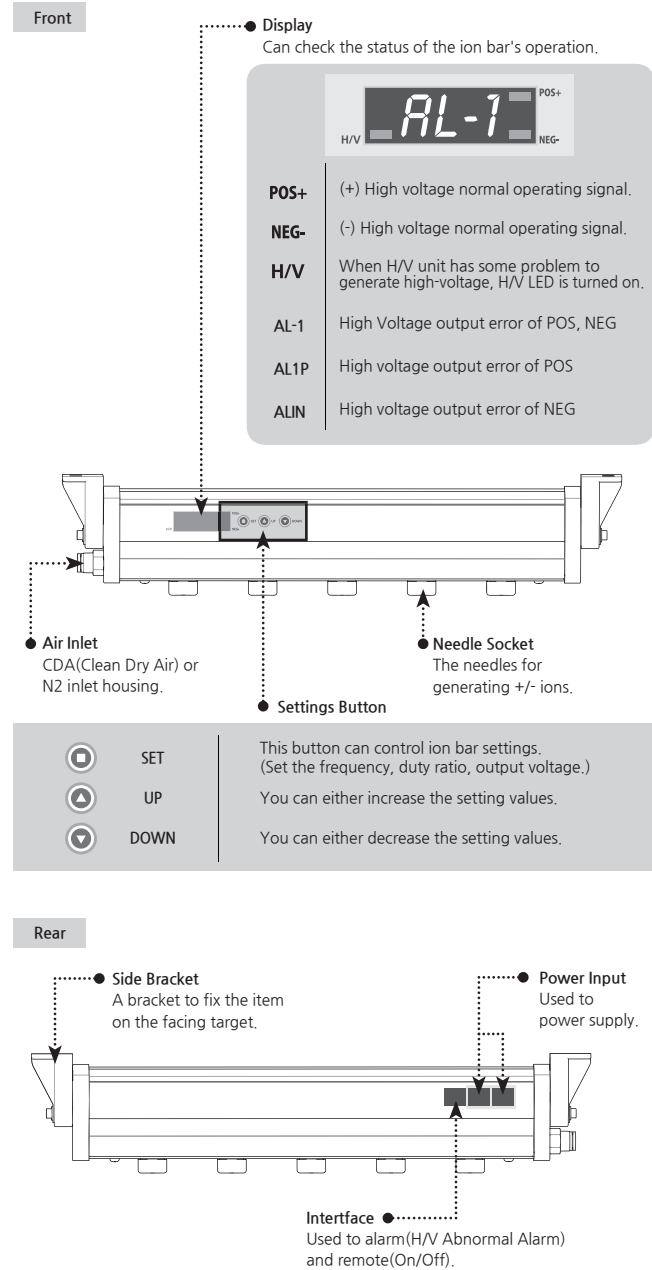
\* UTP Cover  
SUC-MT-1-001



\* Air Nipple  
SNP-MT-1-001  
Ø6(R1/8)

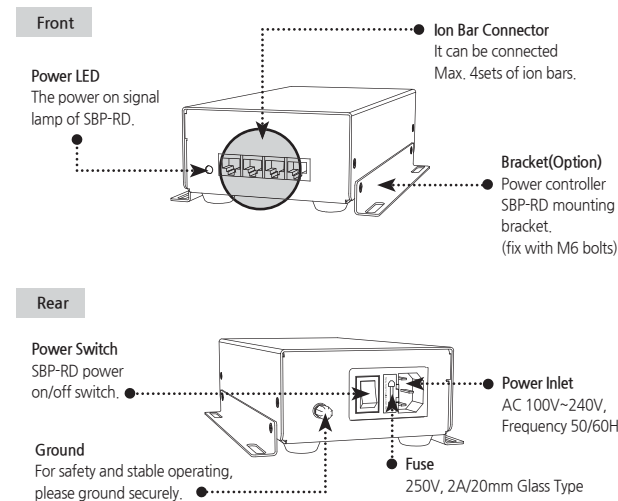
### 3 Nomenclatures of parts

#### Ion Bar (SIB7 Series)



#### DC Power Supply (SBP-RD)\_Option

The SBP-RD is a DC 24V power supply for ion bar. When there is not a power source for DC 24V on an installation point or equipment, it can supply DC 24V to ion bar and be connected up to Max. 4sets.



### 4 Installation and connection

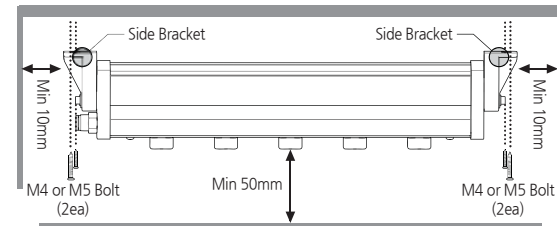
#### Ion bar installation

When you install the ion bar, please check the distance between ion bar and object.  
※ Please, handle with care when you carry or install not to break or bend an ion bar.

**CAUTION** \* The radius of curvature of the air hose is install with R10mm or more for operation. (Due to excessive bending of the air hose The product may be damaged.)

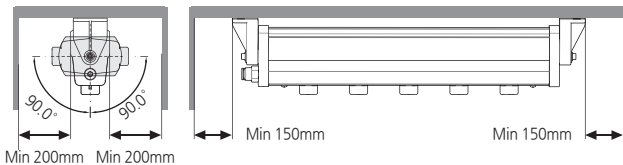
#### Basic Installation

Please, firmly fix to wall or rack and brackets and middle bracket which are provided as accessories by M4 or M5 bolts.



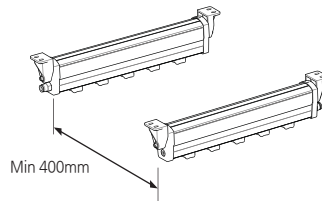
#### Interference by Grounding Matters

If there is any conductive object close to ion bar, SIB7 Series may not operate properly. Please install it with reference to figure below.



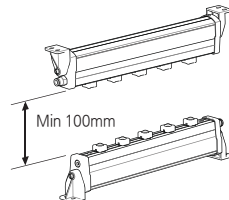
#### Side to Side Installation

When the more than two ion bars are installed, to avoid interference, the range between two ion bars should be more than 400mm.



#### Face to Face Installation

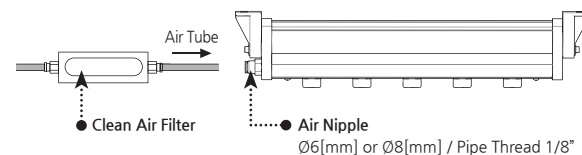
When two ion bars are installed face to face, to avoid interference, the range between two ion bars should be more than 100mm. (Air Pressure Under 0.1MPa)



#### Air supply method

**CAUTION**

- \* Air supply is one of the key factors. Please read the followings carefully in advance.
- \* Please contact us directly if you periodically switch to use air in/out time after time.
- \* If many ion bars are connected to one air line, with air lack of pressure, it may have difficulty to provide proper performance.
- \* If you pass the limit of pneumatic pressure for the unit, it causes the failure of the operation. Please, lower your air pressure of the air supply than the expected level.



※ Please use the proper air filter for your working environment.  
[We suggest you to use a clean air filter (Filteration:0.01μm) for clean environment.]

#### Types of Air Use

Please supply air into an ion bar either one of CDA(Clean Dry Air) or N2 if possible. In the clean environment, we suggest you to use a clean air filter(Filteration:0.01μm) in order to pass impurities in the compressed air through the filter when using the ion bar.

#### Allowed Air Pressure

Allowable air pressure determination is strongly required when installing since the air pressure is relevant to ionizer performance. The maximum allowable working pressure is 0.5MPa. Please, lower your air pressure of the air supply than the expected level.

#### Air Nipple

Use a nipple gender for the air supply. Please use to connect Ø6[mm] or Ø8[mm] nipple for air inlet, but the standard is Ø8[mm]. (Air nipple is not provided as a part)

#### CAUTION

- \* This Nipple Gender is a clean fitting and should not be used under conditions where the fitting area is rocked or impacted. This may cause damage to the fitting body, tube pullout, or air leakage.
- \* Plastic may be degraded by direct sunlight and ultraviolet rays.

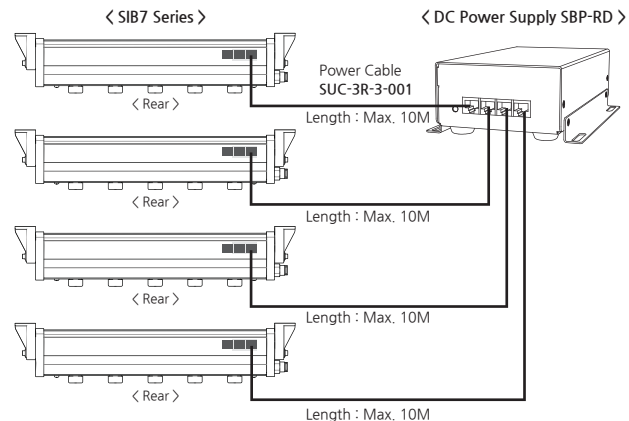
#### Recommended Model (for clean nipple)

Material	Shape	Tube Size	Screw Size
Polypropylene (PP)	Straight or Elbow	Ø6 or Ø8[mm]	Taper Screw 01(R1/8)

#### The installation with DC Power Supply SBP-RD (Option)

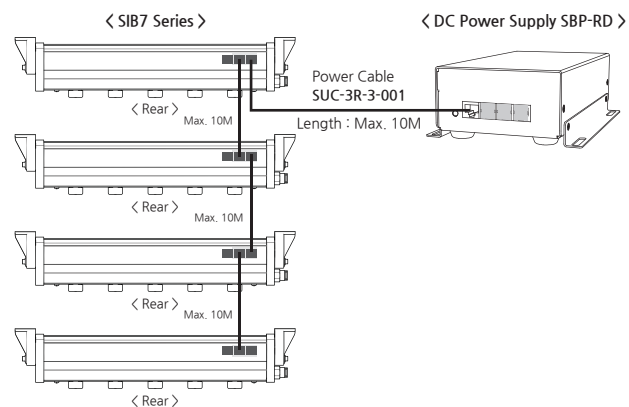
##### The Installation with SBP-RD

The SBP-RD can supply DC 24V to SIB7 series and be connected up to Max. 4sets. The power cable length is max. 10m. It is not able to have normal performance if longer than 10m.

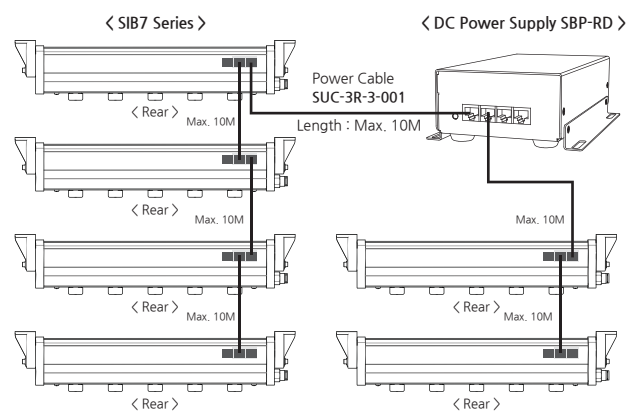


#### Parallel Power Connection Function

SIB7 Series can be connected up to Max. 4 ion bars by parallel power connection function. It can be connected up to Max. 10m. If it is not, it might have not normal performance. (When supplied power by SBP-RD, regardless of the power connection methods, the total number of ion bars with one SBP-RD should not exceed 4 sets and remainder sockets should be plugged up a cap.)

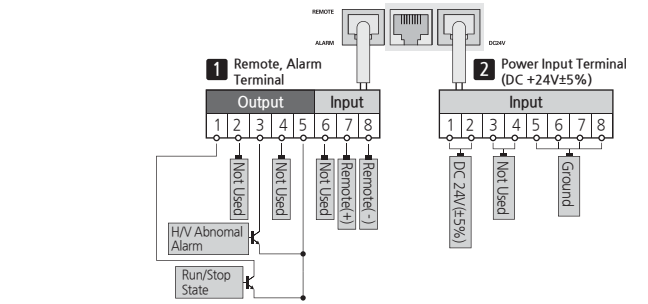


#### Abnormal Setting



## ► Interface

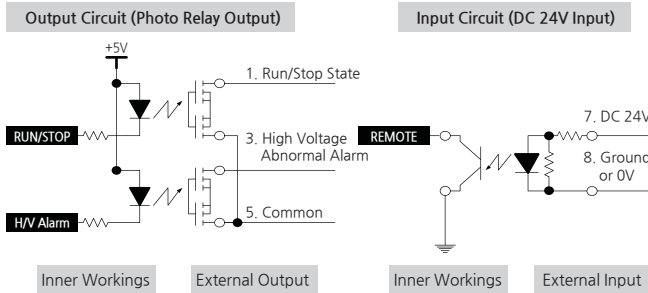
<b>CAUTION</b>	<ul style="list-style-type: none"> <li>If you connect the power to the Interface, it it may be damaged.</li> <li>Power cable cap is yellow.</li> </ul>
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No	Color	Function	Output	Picture
1	Brown	Run/Stop State	Photo Relay Output (Run-Close, Stop-Open)	
2	White & Brown	Not Used	-	-
3	Orange	High Voltage Abnormal	Photo Relay Output (Normal-Open, Alarm-Close)	
4	White & Orange	Not Used	-	-
5	Green	Common	-	-
6	White & Green	Not Used	-	-
No	Color	Function	Input	Picture
7	Blue	Remote(+)	DC 24V	-
8	White & Blue	Remote(-)	Ground	-

※ The device must be grounded to prevent electric shock in order to function well.

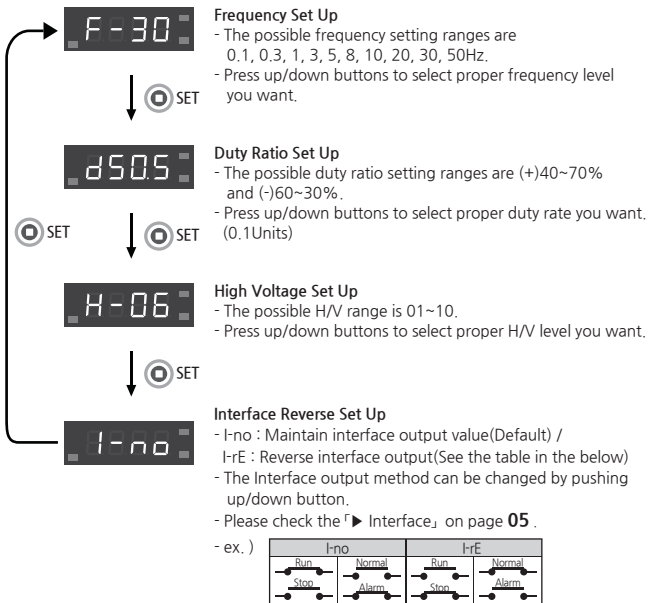
## ► Circuit



## 5 How to set


## Setting Sequence

You can set duty ratio, and high voltage level, frequency and interface reverse at the main body of ion bar.



※ Once your setup is done, the device will automatically save your current setup value immediately(within 1 second).

## Frequency Control

Object Speed	Frequency[Hz]	Installation Distance[mm]	Expected Area
<div><div>Fast</div><div></div><div>Slow</div></div>	50	50	Film Process
	30	50	
	20	300	
	10	600	Clean Bench
	8	750	
	5	900	Clean Room
	3	1,000	
	1	1,500	
	0.3	2,000	
0.1	2,500		

## High Voltage Control

- In case of increase
  - High speed objects with static charge
  - When fast decay time is needed.
  - When ion current of high density is needed.

\* It may be exposed high electrostatic induction by high voltage, but it is difficult to charge the object because of fast speed of object.

- In case of decrease
  - When you handle sensitive device of electrostatic.
  - Static removing of long stayed objects.
  - Low capacitance objects
  - Low static voltage objects
  - Low speed objects

## ■ High Voltage Level

Please refer to this table for setting up out-put voltage level setting.

Level	1	2	3	4	5	6	7	8	9	10
High Voltage Vpp	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5

## 6 Maintenance

Maintenance is an essential item for maintaining its capacity. Please conduct a routine maintenance according to the below description. The life time of a discharge needle can be a difference depending on using circumstance. SIB7/7A Series needs a routine maintenance and cleaning in case of bad circumstance. (high humidity or dust)

<b>CAUTION</b>	<ul style="list-style-type: none"> <li>This device uses the high level of voltage. When operating maintenance, please power off and unplug the device. Otherwise, there might be in case of electric shock or fire damage.</li> <li>The discharge needle is very sharp at the edge. Do not phsically(directly) touch the discharge needle.</li> <li>When cleaning the discharge needle using an organic solvent, do not use the organic solvent to clean the socket around the discharge needle.</li> </ul>
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## ► Discharge needle cleaning

The contamination level of discharge needle is different among the areas where the user installs, please maintain own cleaning period that suits your environment.

## ► Discharge needle cleaning order

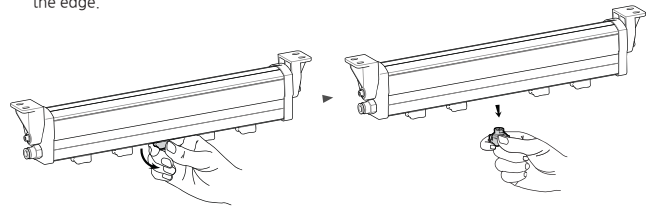
- Be sure to power off before cleaning the ionizer.
- Please clean it as the table below.

※ Cleaning with a cotton swab
After moistening a cotton swab with alcohol, wipe the discharge needle from side to side with the swab. (do not use acetone)

- Replace the damaged discharge needle.
- After the cleaning, let the alcohol applied to the discharge needle surface evaporate completely and then operate the Ion Bar.
- Please record the cleaning process as a reference in the file.

## ► How to replace the needle socket

When replacing, please be careful not to touch the discharge needle. It is very sharp at the edge.



## ► Discharge needle maintenance

If the discharge needle broken or severely damaged, please replace the needle socket immediately.

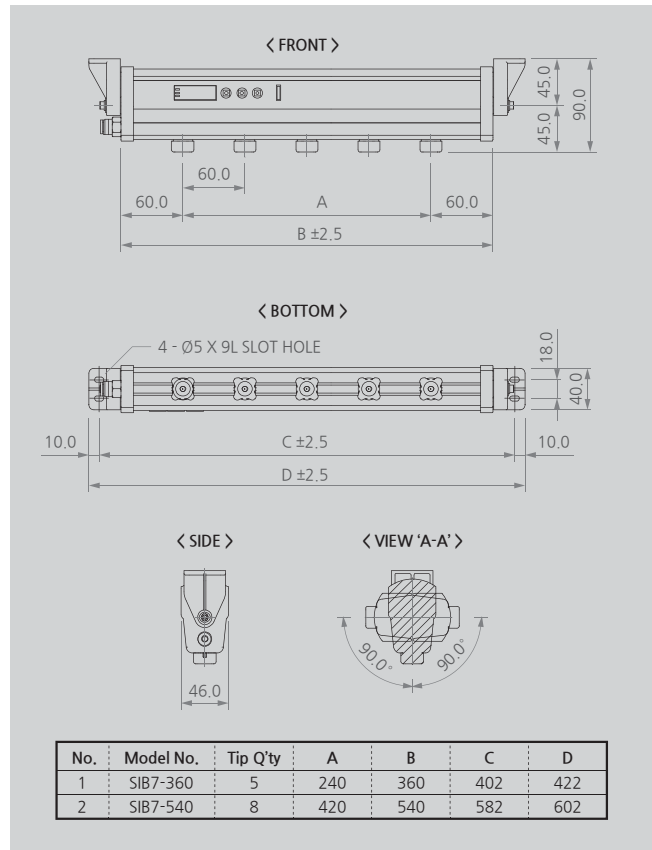
## 7 Problem solving

## ► Checklist before called

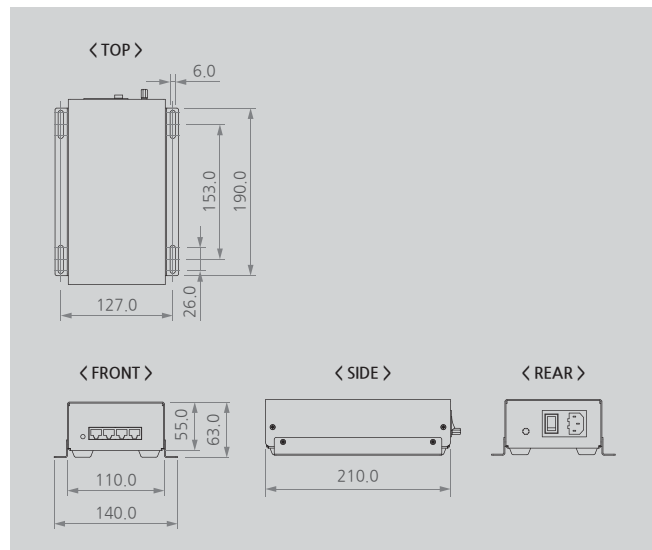
Problem	Identifying Problem	Solution
The product does not work	Is your power cable still plugged in?	Please re-plug the power cable and then turn the device on again.
	Was the proper voltage level applied for this set-up?	Please use the proper level of power input for the device. (AC 100~240V, 50/60Hz)
There is no ionization	Is there any conductive material around the device?	Please refer to 'Installation & Connection', for setting the proper target distance from device.
	Does the installed environment have too high/low level of humidity or temperature?	Please install the device upon the proper working specification.
The ionizing performance has been decreased.	Any damages or cut on the cables?	You need to replace the cables if it gets cut or damaged.
	Any contamination on the discharge needle?	Please refer to 'Maintenance', for cleaning the discharge needle.

## 8 Dimensions

## ► Ion Bar (SIB7 Series)



## ► DC Power Supply (SBP-RD)\_Option



## 9 Specification

## ► Ion Bar (SIB7 Series)

Parameter	Description / Value
Input Power	DC 24V (±5%)
Power Consumption	Max. 8W
Current Consumption	Max. 0.33A (DC 24V)
Ion-Generation Method	Corona Discharge Pulse AC
Air Purge Supply Pressure	0.1 ~ 0.5MPa (CDA[Clean Dry Air], N2)
Air Purge Connection Port	Pipe Thread 1/8"
Ion Balance	Within ±30V (1,000mm)
Ozone(O3) Concentration	≤0.05ppm
Main Body Material	Non-Flammable ABS (Level V0)
Electrode Material	Standard Tungsten Option Silicon / Titanium
Electrode Replacement	Cartridge type
Operation Circumstance	0℃ ~ +50℃(32°F ~ 122°F), 35% ~ 85% RH
Mounting Method	Bolt Mounting with Bracket
Adjust Function	Frequency [Hz] 0.1, 0.3, 1, 3, 5, 8, 10, 20, 30, 50 Duty Ratio [%] 40 ~ 70 Voltage [Level] Level 1 ~ 10
Alarm Function	High Voltage Abnormal Alarm
Operating Distance	50 ~ 2,000mm
Interface	Input Remote Output Run State, Alarm State
Degree of ingress protection	IP2X
Option	SBP-RD (DC Power Supply)
Warranty	1 year

※ Product model number will be differ as the discharge needle specifications.

ex. Tungsten : SIB7-\*\*\* / Silicon : SIB7-\*\*\*-SI / Titanium : SIB7-\*\*\*-TI

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

<b>CAUTION</b>	* Handle with care. Warranty doesn't cover mishandling damage.
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## ► DC Power Supply (SBP-RD)\_Option

Parameter	Description / Value
Input Power	AC 100~240V, 50/60Hz
Power Consumption	Max. 80W
Weight	1.85kg
Main Body Material	EGI
Operation Circumstance	0℃ ~ +50℃(32°F ~ 122°F), 35% ~ 85% RH
Output Voltage	DC 24V Max. 3A
Output Port	4 Ports
Warranty	1 Year

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

## SUNJE Hi-Tek Co., Ltd.

www.sunstat.com

<b>Head Office &amp; Factory (Busan)</b> 8 Cheonggwang-gil, Ilgwang-eup, Gijang-Gun, Busan, Korea T) +82-51-720-7500 F) +82-51-720-7501	<b>Sunje Japan Co., Ltd.</b> Dai 7 Matsuya Bldg 10F 1005 2-23, Honmachibashi, Chuo-ku, Osaka, Japan T) +81-6-6949-5001 F) +81-6-6949-5011
<b>Sales Headquarter (Osan)</b> 3rd floor, 129-20, Gyeonggi-daero 632 beon-gil, Osan-si, Gyeonggi-do, Korea T) +82-31-203-9034 F) +82-31-202-9034	<b>Sunje (SHANGHAI) Trading Co.,Ltd.</b> Block C, 4F, No.482, Hongxu Road, Minhang District, Shanghai, China T) +86-21-5433-9761 F) +86-21-5433-9762
<b>Customer Center</b> +82-70-7714-9033 <b>Sales Contact</b> +82-31-203-9034	<b>Sunje Technology Co., Ltd.</b> 2F, No.6, Lane.102, Sinhe Rd., Sinfong Township, Hsinchu County, Taiwan 30472 T) +886-3-568-7891 F) +886-3-568-7950