

Instruction Manual

SUNJE
Electrostatics

SPN-21C

(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.
- * 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.
- * This device uses compressed air(CDA). Do not use the device if the CDA cannot be allowed to use. In some cases, the product malfunction or danger of accident might happen.

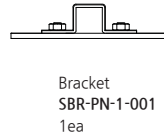
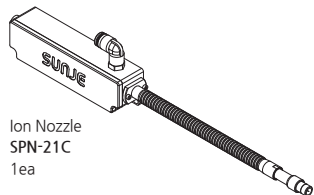
⚠ CAUTION

- * Do not disconnect the SPN-21C cable and controller with power applied. There is a possibility of electric shock or malfunction.
- * Connect wires referring to the product manual. Wrong connection can cause failures.
- * To connect a cable properly, take a look at the manual 'Installation & Connection' for references. Any disordered connection is detected, the malfunction might arise.
- * 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.

2 Check the package contents

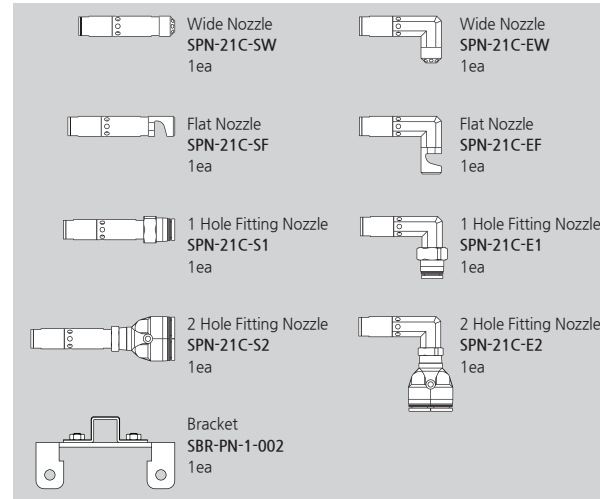
▶ Product compositions

The package includes the following products composition.



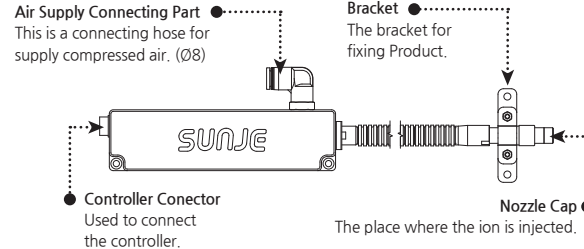
▶ Option

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



3 Nomenclatures of parts

▶ SPN-21C (Ion Nozzle)



4 Installation and Connection

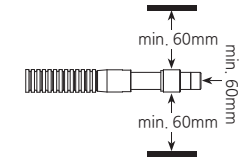
⚠ WARNING

- * Be careful to bend(Radius of Curvature) the cable. If you bend the cable forcefully, it will cause product malfunction, electric shock, or fire.
- * Do not install the cable in the place where it might get continuous stress. It can cause malfunction, electric shock, or fire if the cable gets broken.
- * Do not exceed a maximum 0.5MPa that pressure of the compressed air supplied to SPN-21C.
- * Always ground the product in order to protect yourself from electric shock or for proper product operation.

▶ Caution for installation

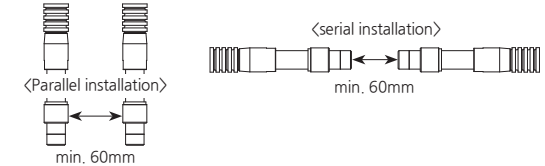
If a conductive material is located nearby

If a conductive material is located nearby, the product won't perform optimally. Refer to the figure below to install the product.



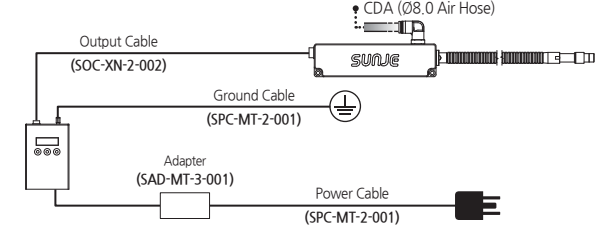
If multiple nozzle installations are required

keep the each nozzle distance in every 60mm at least in order to secure the interference of multiple operation.



▶ How to connect

Refer to the figure below to connect the product.



▶ Installation order

- Select installing area : Please select the space where AC power(100~240V) and the air is provided.
- Fixing nozzle : Point the nozzle tip facing the area where you want to ionize and fix it properly.
- Use hose : Please use an air hose which is designed to handle certain internal pressure resistant. (External Diameter : Ø8[mm])
- Use air : Connect a compressed air hose to an air inlet part of the device. Allowable air pressure is 0.05~0.5MPa. Please remove any impurities or moisture by a mist separator(0.3μm) or an air dryer. Please supply the air temperature of 0~40℃.
- Grounding & Power supply : Please use an outlet that contains a ground terminal to prevent electric shock.
- Check point before use : Please check whether the product or related parts (e.g. hose, power supply) are in good condition.

5 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. SPN-21C needs a routine maintenance and cleaning in case of bad circumstance.(high humidity or dust) Therefore, the discharge needle is recommended to be cleaned regularly.(At least once a month)

⚠ CAUTION

- * 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.
- * The discharge needle is very sharp at the edge. Do not phsically(directly) touch the discharge needle.

► 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.
- Soak the cotton swab with alcohol. (do not use acetone)
- Put the swab on the discharge needle and wipe it turning the swab right and left. (take precautions not to apply severe force to the discharge needle)
- Replace the damaged discharge needle.
- After the cleaning, let the alcohol applied to the discharge needle surface evaporate completely and then operate the SPN-21C.
- Please record the cleaning process as a reference in the file.

► The cycle of replacing the electricity removal discharge needle

Check during the discharge needle cleaning and take action.

- Replace the broken or severely damaged discharge needle.
- The general cycle of needle replacement is one year, however, it can vary depending on the environment of use.

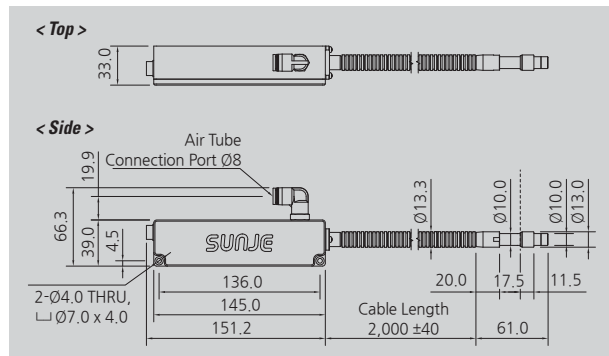
6 Problem solving

► Checklist before called

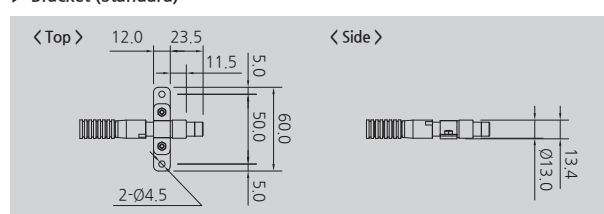
Problem	Identifying Problem	Solution
The product does not work.	Is your power cable still plugged in?	Please re-plug the power cable and then turn the device on again.
	Was the proper voltage level applied for this set-up?	Please use the proper level of power input for the device. (AC 100~240V, 50/60Hz)
There is no ionization.	Is there any conductive material around the device?	Please refer to 'Installation&Connection' for setting the proper target distance from the 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.	Can't possibly ground the device?	Please refer to 'Installation&Connection' for (proper) grounding the device.
	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.

7 Dimensions

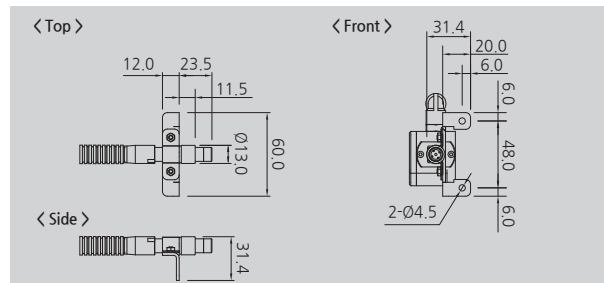
► SPN-21C (Ion Nozzle)



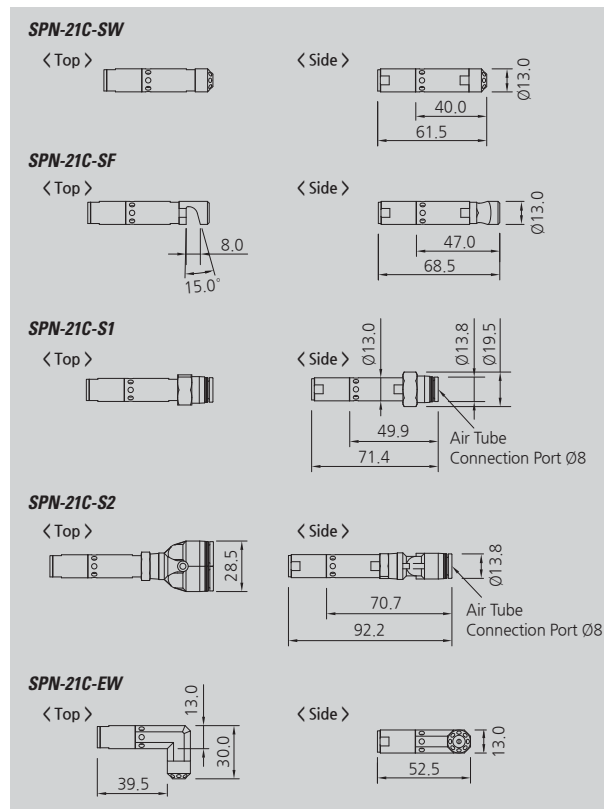
► Bracket (Standard)



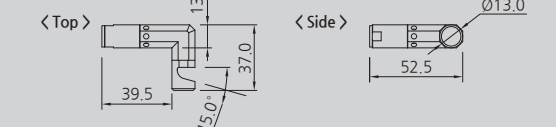
► Bracket (Options)



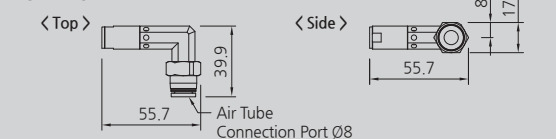
► Nozzle (Options)



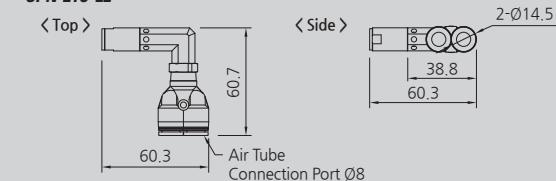
SPN-21C-EF



SPN-21C-E1



SPN-21C-E2



8 Specification

Parameter	Description / Value
Ion-Generation Method	Corona discharge
Operating Distance	50 ~ 1,000mm
Air Purge Supply Pressure	0°C ~ +50°C (32°F ~ 122°F), 35% ~ 85% RH
Operation Circumstance	0.1 ~ 0.5MPa (CDA, N2_Need to be no dew condensation)
Ozone(O3) Concentration	≤0.05ppm
Electrode Material	Standard : Tungsten / Option : Silicon
Electrode Replacement	Cartridge type
Warranty	1 year

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

SUNJE Electrostatics

www.sunstat.com

Head Office & Factory (Busan)
8 Cheongwang-gil, Ilgwang-Myeon,
Gijang-Gun, Busan, Korea
T) +82-51-720-7500 F) +82-51-720-7501

Sunje Japan Co., Ltd.
Dai 7 Matsuya Bldg 10F 1005 2-23, Honmachibashi,
Chuo-ku, Osaka, Japan
T) +81-6-6949-5001 F) +81-6-6949-5011

Sales Headquarter (Osan)
795 Naesammi-dong, Osan-si, Gyeonggi-do,
Korea
T) +82-31-203-9034 F) +82-31-202-9034

Sunje (SHANGHAI) Trading Co., Ltd.
Block C, 4F, No.482, Hongxu Road, Minhang District,
Shanghai, China
T) +86-21-5433-9761 F) +86-21-5433-9762

Customer Center +82-70-7714-9033
Sales Contact +82-31-203-9034

Sunje Technology Co., Ltd.
2F, No.6, Lane.102, Sinhe Rd, Sinfong Township,
Hsinchu County, Taiwan 30472
T) +886-3-568-7891 F) +886-3-568-7950

Instruction Manual

SUNJE
Electrostatics

SNC-21

(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.
- * 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.
- * This device uses compressed air(CDA). Do not use the device if the CDA cannot be allowed to use. In some cases, the product malfunction or danger of accident might happen.

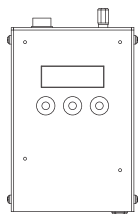
⚠ CAUTION

- * Do not disconnect the SPN-21C cable and controller with power applied. There is a possibility of electric shock or malfunction.
- * Connect wires referring to the product manual. Wrong connection can cause failures.
- * To connect a cable properly, take a look at the manual 「Installation & Connection」 for references. Any disordered connection is detected, the malfunction might arise.
- * 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.

2 Check the package contents

► Product compositions

The package includes the following products composition.

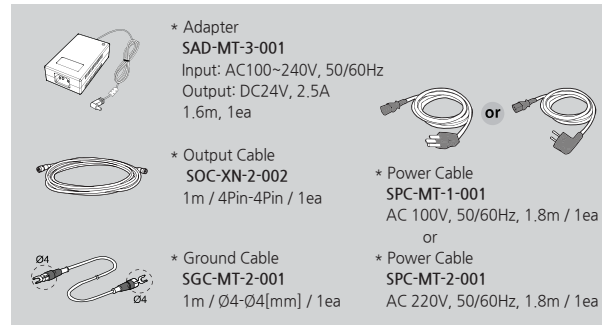


* Controller
SNC-21
1ea



* H/V Pack
SBP-21C
1ea

※ Components for
SIB(N) high-frequency models only



► Option

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

<Controller Fixing Bracket & Bolt>



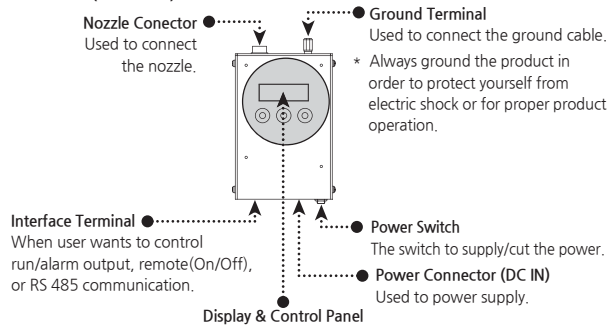
* SXC-104N Bracket
SBR-XN-5-001



* SXC-104N Fixing Bolt
SFB-XN-3-001

3 Nomenclatures of parts

► SNC-21 (Controller)



No	Name	function
1	RX / TX (LED)	Light on when using RS-485.
2	Alarm (LED)	Light on when Alarm occurs.
3	FND Display	<A-01 ~ 16> : Address <AL-1> : When high voltage error, display and operation stop. <AL-2> : When over-discharge of electrode or leakage occurs, display and operation stop. <AL-3> : When tip cleaning setting time is over.

4	Tip Cleaning (LED)	Light on when tip cleaning setting time is over.
5	RUN (LED)	Ion Bar Lights up during normal operation.
6	SET Button	It is for changing the address, frequency Setting.
7	Up / Down Button	

※ If operation stops when AL-1 or AL-2 or AL-3 occurs, turn the product off and then on again.

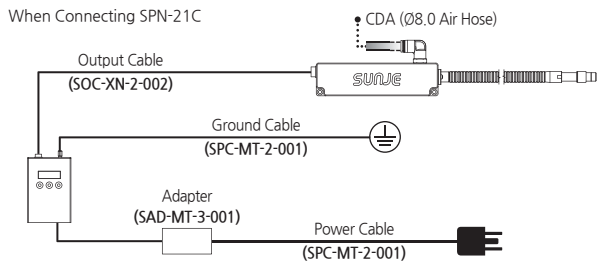
4 Installation and Connection

► How to connect

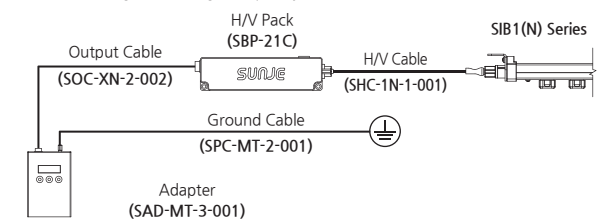
Refer to the figure below to connect the product.

Connectable Products	SPN-21C	SIB1(N)
----------------------	---------	---------

* When Connecting SPN-21C



* When Connecting SIB1(N) High Frequency Models



► How to connect the Interface

For the specification of the Interface to be used, refer to the table below.

INTERFACE	RMS
6 5 4 3 2 1	2 1

			INTERFACE		RMS	
			Alarm	Normal	Alarm	Normal
Interface	Output	1	High Voltage Abnormal Alarm	Alarm	Normal	-
		2	Tip Cleaning Alarm	Alarm	Normal	-
		3	Signal Ground	-	-	-
		4	Run / Stop State	Run	Stop	-
	Input	5	Remote Input	Stop	Run	-
		6	Remote Com	Stop	Run	-
RMS		1	RS485+	-	-	-
		2	RS485-	-	-	-

5 How to set

⚠ WARNING

* Do not tamper with the set value. The malfunction might arise.

Setting order

A-01

Address Set Up

- Communication addresses are from 1 to 16.
- The address can be changed by pushing up/down button.

↓ SET

d50.0

Duty Set Up

- Duty are from 30 to 70. (Daily change possible)
- The Duty can be changed by pushing up/down button.

↓ SET

P201

Pulse Set Up

- Pulse are from 1 to 10.
- The Pulse can be changed by pushing up/down button.

↓ SET

Pa 10

Positive Pulse Width Set

- Positive Pulse Width are from 1 to 10.
- The Positive Pulse Width can be changed by pushing up/down button.

↓ SET

nE 10

Negative Pulse Width Set

- Negative Pulse Width are from 1 to 10.
- The Negative Pulse Width can be changed by pushing up/down button.

↓ SET

tCoF

Tip Clean Mode on / off

- On : Tip cleaning alarm function is activated.
- Off : Do not used tip cleaning mode.
- The Tip Cleaning Alarm can be changed by pushing up/down button.

↓ SET

It shows when tCon

C-01

Tip Cleaning Time Set Up

- It is available to set time from 1 day to 60 days.
- The time can be changed by pushing up/down button.

↓ SET

I-no

Interface Set

- no : Normal
- rE : Reverse

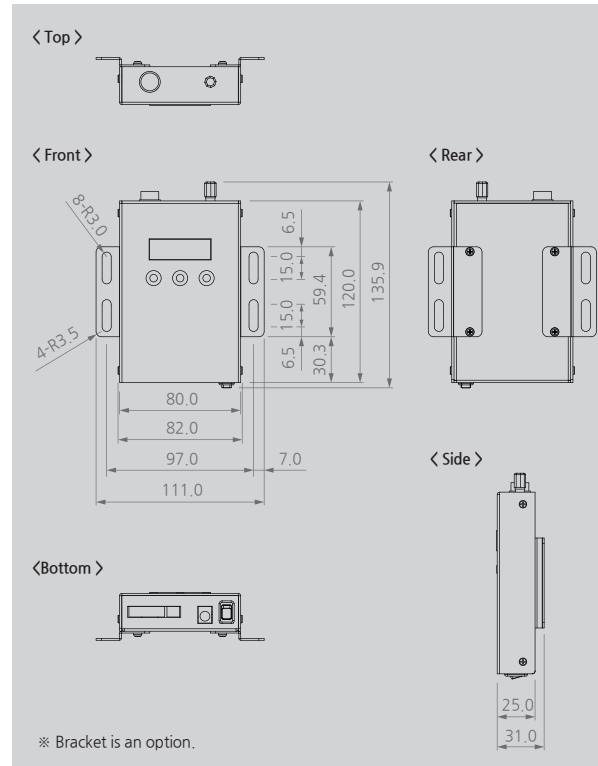
6 Problem solving

▶ 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 the 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.	Can't possibly ground the device?	Please refer to 'Installation&Connection' for (proper) grounding the device.
	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.

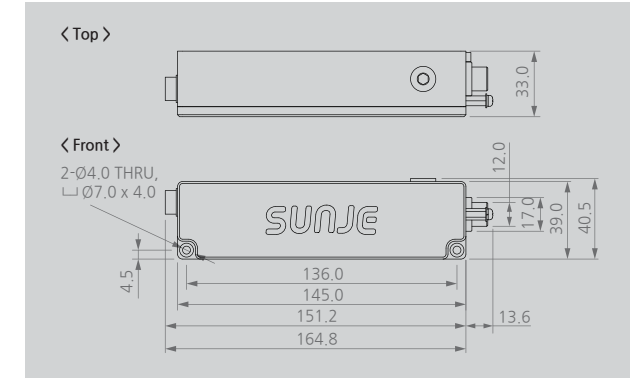
7 Dimensions

▶ SNC-21 (Controller)



※ Bracket is an option.

▶ SBP-21C (H/V Pack)



8 Specification

Parameter	Description / Value	
Input Power	DC 24V (±5%)	
Power Consumption	Max. 4.8W	
High Voltage	Pulse AC 6.4 ~ 15kVpp	
Ion-Generation Method	Corona discharge	
Connector	Power (DC24V) : DC JACK RS-485 & Interface : Terminal Block 3.81mm Pitch	
Operating Distance	50 ~ 1,000mm	
Operation Circumstance	0℃ ~ +50℃(32℉ ~ 122℉), 35% ~ 85% RH	
Function	Alarm	High Voltage Alarm, Tip Cleaning Timer Warning
	Interface	- Run/Stop State : Run-Closed / Stop-Open - High Voltage Alarm : Normal-Open / Alarm-Closed - Tip Cleaning Timer Warning : Normal-Open / Alarm-Closed - Remote Input
	RMS	Real Monitoring System (RS485)
Warranty	1 year	

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

SUNJE Electrostatics

www.sunstat.com

Head Office & Factory (Busan)

8 Cheongwang-gil, Ilgwang-Myeon,
Gijang-Gun, Busan, Korea
T) +82-51-720-7500 F) +82-51-720-7501

Sunje Japan Co., Ltd.

Dai 7 Matsuya Bldg 10F 1005 2-23, Honmachi-bashi,
Chuo-ku, Osaka, Japan
T) +81-6-6949-5001 F) +81-6-6949-5011

Sales Headquarter (Osan)

795 Naesammi-dong, Osan-si, Gyeonggi-do,
Korea
T) +82-31-203-9034 F) +82-31-202-9034

Sunje (SHANGHAI) Trading Co., Ltd.

Block C, 4F, No.482, Hongxu Road, Minhang District,
Shanghai, China
T) +86-21-5433-9761 F) +86-21-5433-9762

Customer Center +82-70-7714-9033

Sales Contact +82-31-203-9034

Sunje Technology Co., Ltd.

2F, No.6, Lane.102, Sinhe Rd., Sinfong Township,
Hsinchu County, Taiwan 30472
T) +886-3-568-7891 F) +886-3-568-7950