

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.
- \* 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.
- \* 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.

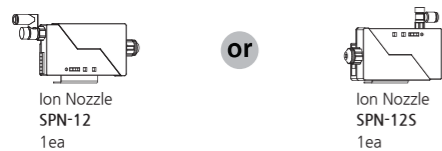
**CAUTION**

- \* 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.
- \* 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.
- \* The ionizer generates ozone(below 0.05ppm). If you sense the smell of ozone when you use more than two units, ventilate the air.
- \* 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**

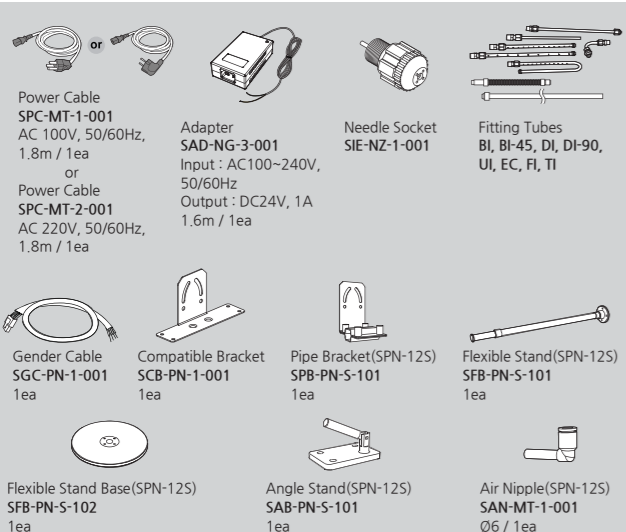
**Product compositions**

The package includes the following products composition.



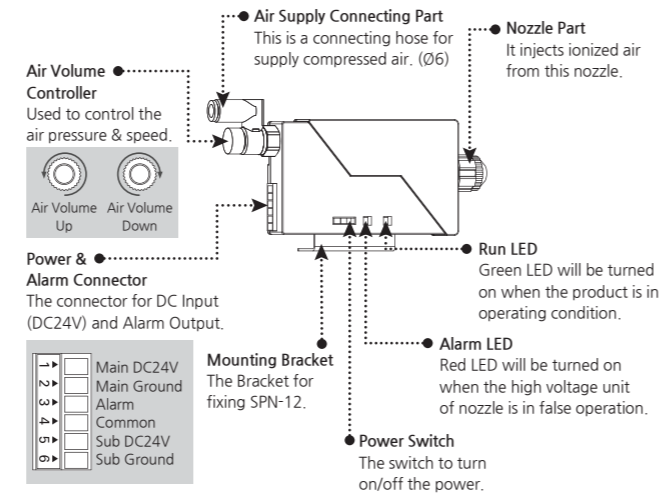
**Option**

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

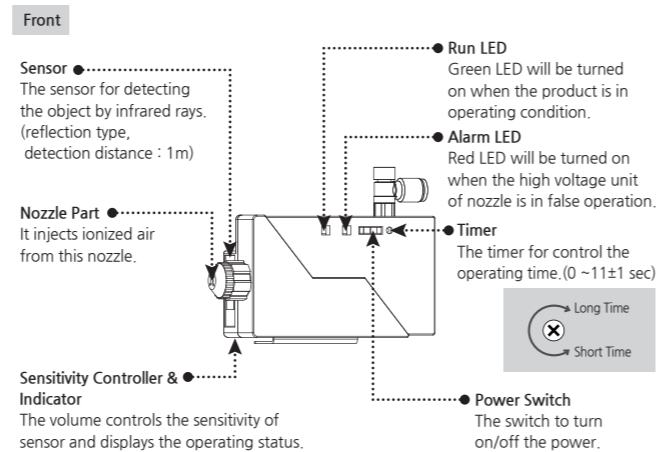


**3 Nomenclatures of parts**

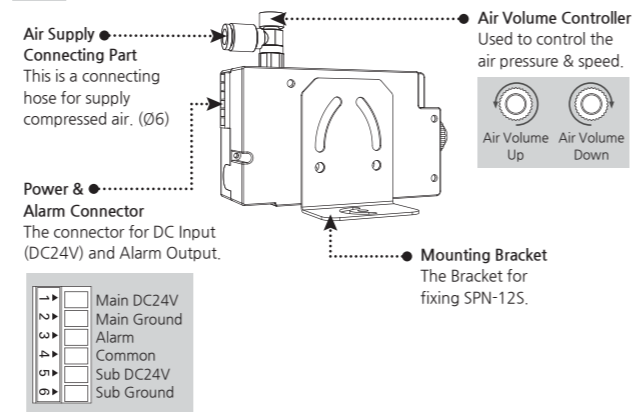
**▶ SPN-12**



**▶ SPN-12S**



**Rear**



**4 Installation and Connection**

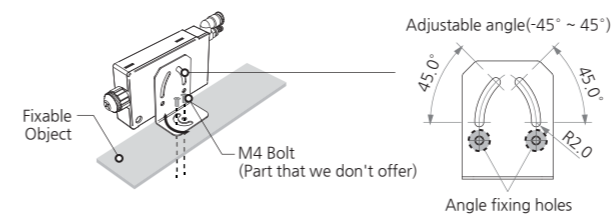
**WARNING**

- \* When operating the product, inject and use CDA or N2. When operating without injecting CDA or N2, Ozone may stagnate inside the product, causing product failure. Free repair guarantees are not possible in the event of a failure due to this problem.
- \* Install and use oil and moisture filters on the injected CDA or N2. If oil and moisture enter the product, product failure may occur. Free repair guarantees are not possible in the event of a failure due to this problem.
- \* Do not exceed a maximum 0.6MPa that pressure of the compressed air supplied to SPN-12/12S.(0.1~0.6MPa)
- \* Always ground the product in order to protect yourself from electric shock or for proper product operation.

**▶ Mounting method**

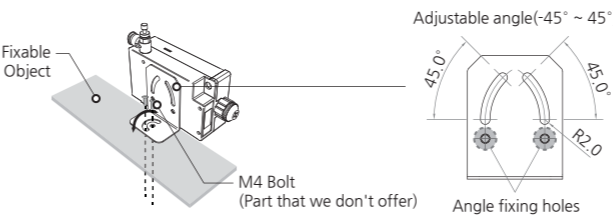
**SPN-12**

Fix the mount at the place where you want the SPN-12 to be fixed using M4 bolt.(2ea).

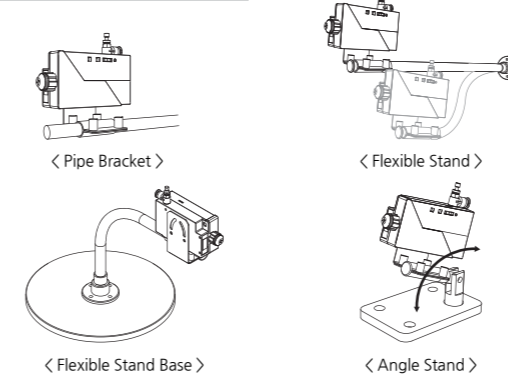


**SPN-12S**

Fix the mount at the place where you want the SPN-12S to be fixed using M4 bolt.(2ea)

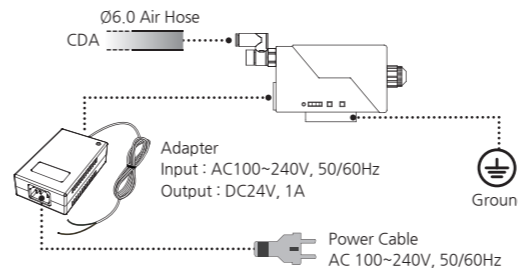


**Option Bracket & Stand (SPN-12S)**



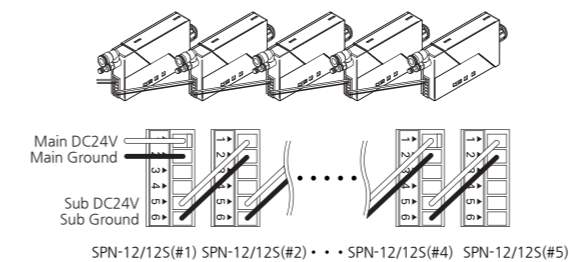
**▶ How to connect**

Refer to the figure below to connect the product.



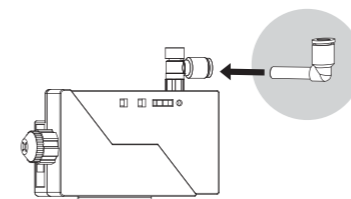
**▶ Daisy Chain (Power Jumping)**

Can be connect the power max 5 units via 6 pole terminal.



**▶ Air Nipple (SPN-12S)**

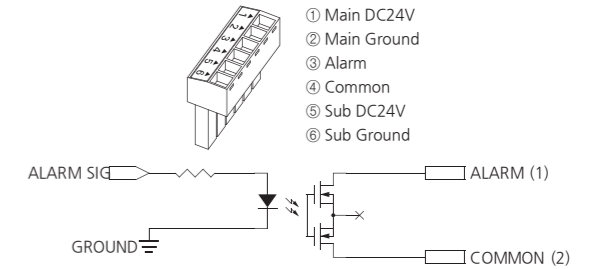
Please use to insert it at air inlet under installation circumstance that air hose is frequently detached. (Air Pressure 0.1~0.6MPa / Air Hose Ø6)



**▶ Installation order**

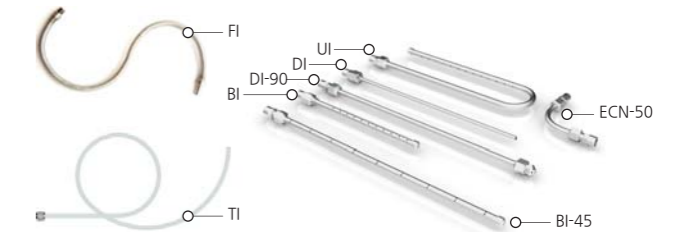
- Select installing area : Please select the space where AC power(100~240V) and the air is provided.
- Fixing nozzle : Point the nozzle tip facing the area where you want to ionize and fix it properly.
- Use air : Place your compressed air hose into the main body's air inlet. Allowable air pressure is 0.1~0.6MPa.
- Air volume adjustment : Air volume can be controlled by air volume controller.
- 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.

**▶ Connector (Power and Alarm)**

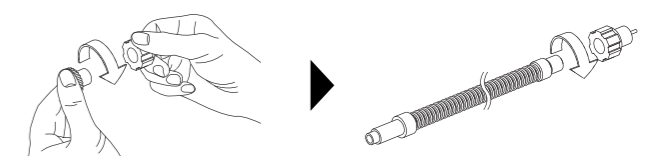


**▶ Fitting Tube (Option)**

The fitting tubes have for various shapes and are used after removing the nozzle part of SPN-12/12S. The special fitting tube is the customized type and hole's angle range can be made in order.(30°~90°)



**How to combine the Fitting Tube**



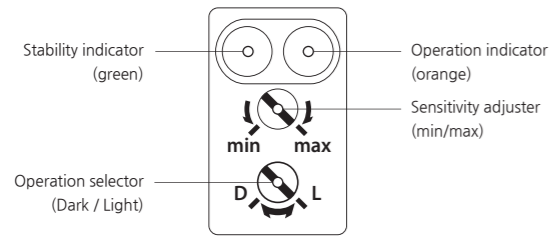
Turn the Needle Socket counterclockwise and separate the nozzle.

Turn the Fitting Tube clockwise and combine the Needle Socket.

**▶ Fitting Tube Spec.**

	Model	Full-Length Cases [mm]	Air Hole [EA]	Remarks
Bar Type Injector (BI)	BI-N100	167.5	11	Pitch-10mm
	BI-N130	197.5	14	Pitch-10mm
	BI-N150-P5	217.5	31	Pitch-5mm
	BI-N150-P10	217.5	16	Pitch-10mm
	BI-N200	267.5	21	Pitch-10mm
	BI-N200-P5	267.5	41	Pitch-5mm
	BI-N300	367.5	31	Pitch-10mm
	BI-N400	467.5	41	Pitch-10mm
Bar Type Injector (BI-45)	BI-N500	567.5	51	Pitch-10mm
	BI-N600	667.5	61	Pitch-10mm
	BI-45-N150-P10	217.5	32	Pitch-10mm
	BI-45-N200-P10	267.5	42	Pitch-10mm
	BI-45-N200-P25	267.5	18	Pitch-25mm
Direct Injector-Ø4 (DI)	BI-45-N300-P10	367.5	18	Pitch-30mm
	BI-45-N400	467.5	18	Pitch-50mm
	DI-N100	129	1(Direct)	-
	DI-N200	229	1(Direct)	-
	DI-N300	329	1(Direct)	-
Direct Injector-90° (DI-90)	DI-N400	429	1(Direct)	-
	DI-N500	529	1(Direct)	-
	DI-90-N100	123	7(Direct)	-
	DI-90-N200	223	7(Direct)	-
	DI-90-N300	323	7(Direct)	-
U Type Injector (UI)	DI-90-N400	423	7(Direct)	-
	DI-90-N500	523	7(Direct)	-
	UI-N160	169	22	Pitch-10mm
Elbow Coupler (EC)	EC-N50	58	-	-
<b>Warranty</b>			1 year	

## 5 How to set (SPN-11S)



### ▶ Adjust IR sensor sensitivity (Sensitivity value)



Please control it when you need to adjust IR sensitivity for distance set up, reflexivity rate and etc.

### ▶ Switching light on/ Dark on mode(Operation mode switch)

Default set up is light on mode but it can be changed to Dark on mode by necessity.



Light on: Use when objects exist (IR light reflection by objects for sensing)



Dark on: Nothing in front of the device (IR light cannot be reflected due to no object)

## 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. SPN-11/11S 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)

### 1 CAUTION

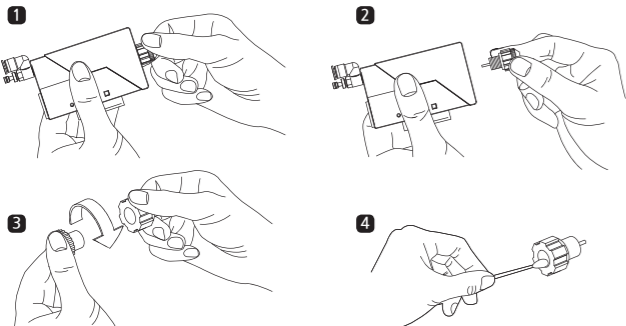
- \* This device uses the high level of voltage. When operating maintenance, please power off and unplug the device.
- Otherwise, there might be in case of electric shock or fire damage.
- \* The discharge needle is very sharp at the edge.
- Do not physically (directly) touch the discharge needle.

### ▶ 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

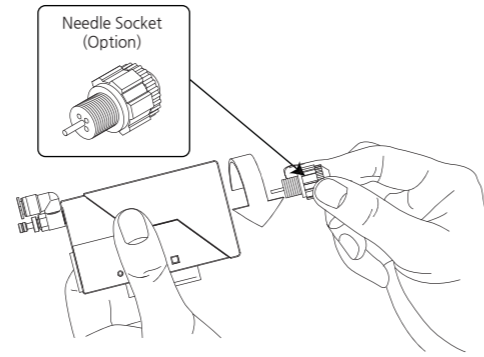
- Please turn off main power of SPN-12/12S.
  - Turn counterclockwise nozzle to unscrew.
  - Turn the needle socket counterclockwise to isolate the nozzle.
  - Wipe the tip by an applicator swab with alcohol drops. Do not use acetone.
  - After the cleaning, let the alcohol applied to the discharge needle surface evaporate completely and then operate the lonizer.
  - Please record the cleaning process as a reference in the file.
- ※ If the performance of static elimination is out of specifications after you clean a discharging tip, please replace a new tip socket immediately.



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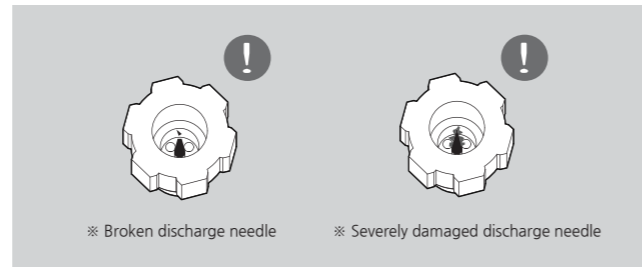
## ▶ How to replace the needle socket

Handle the discharge needle with care as its tip is very sharp.



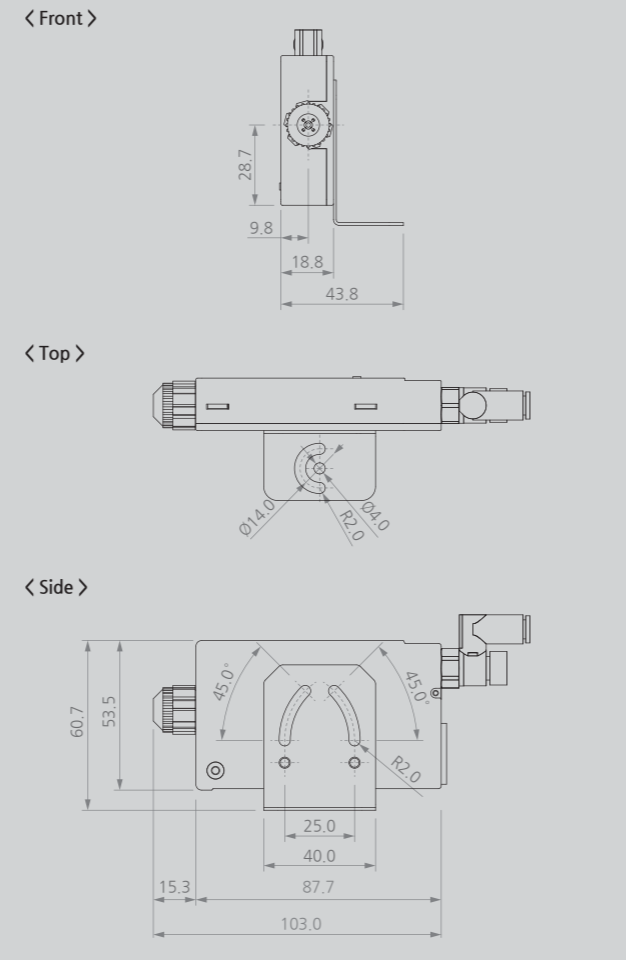
## ▶ The cycle of replacing the electricity removal discharge needle

- 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.



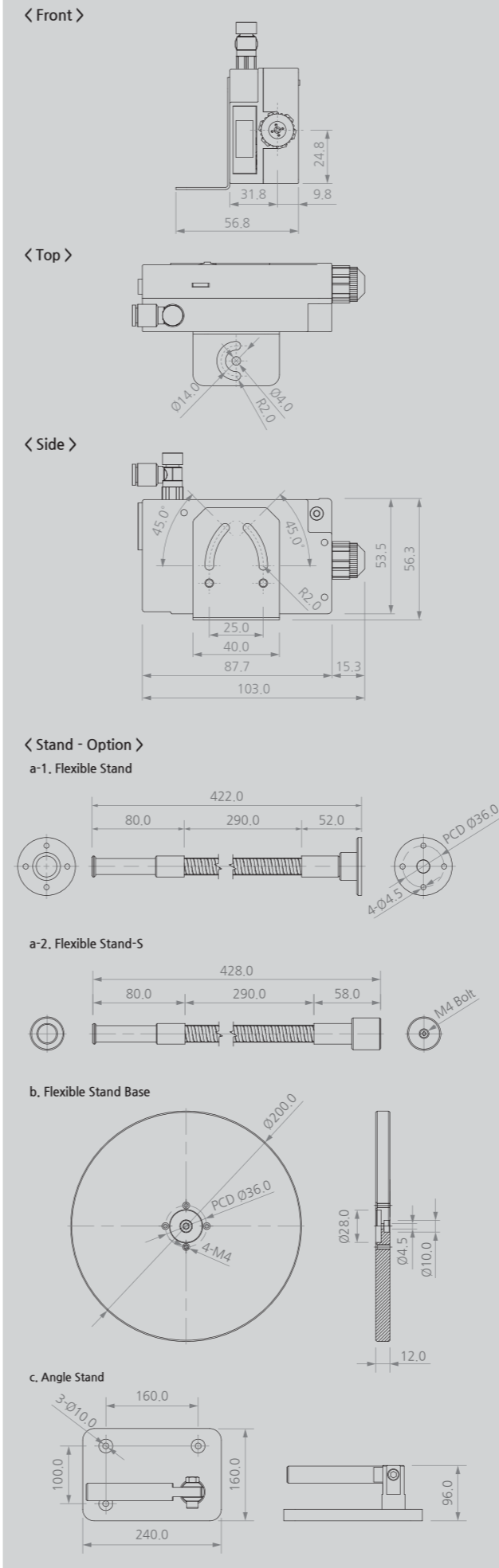
## 7 Dimensions

### ▶ SPN-12



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## ▶ SPN-12S



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## 8 Specification

### ▶ SPN-12

Parameter	Description / Value
Input Power	DC 24V (Adaptor Input : AC 100~240V, 50/60Hz Output : DC 24V, 1A)
Power Consumption	1.2W
Current Consumption	50mA (AC 220V)
Ion Generation Method	High Frequency AC (Piezo)
Ion Balance	Within ±15V (300mm)
Air Purge Supply Pressure	0.1~0.6MPa (CDA(Clean Dry Air), N2)
Air Tube Diameter	Ø6
Operation Circumstance	0°C ~ +130°C(32 F ~ 266 F), 35% ~ 85% RH
Ozone(O3) Concentration	≤0.05ppm (50mm)
Nozzle Material	Teflon
Electrode Material	Tungsten / Titanium
Main Body Material	Non-Flammable ABS
Weight	80g
Alarm Function	H/V Abnormal
Interface	Alarm(H/V Abnormal)
Warranty	1 year

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

### ▶ SPN-12S

Parameter	Description / Value
Input Power	DC 24V (Adaptor Input : AC 100~240V, 50/60Hz Output : DC 24V, 1A)
Power Consumption	3.6W
Current Consumption	150mA (AC 220V)
Ion Generation Method	High Frequency AC (Piezo)
Ion Balance	Within ±15V (300mm)
Air Purge Supply Pressure	0.1~0.6MPa (CDA(Clean Dry Air), N2)
Air Tube Diameter	Ø6
Operation Circumstance	0°C ~ +130°C(32 F ~ 266 F), 35% ~ 85% RH
Ozone(O3) Concentration	≤0.05ppm (50mm)
Nozzle Material	Teflon
Electrode Material	Tungsten / Titanium
Main Body Material	Non-Flammable ABS
Sensor	Photoelectric Sensor
Weight	130g
Alarm Function	H/V Abnormal
Interface	Alarm(H/V Abnormal)
Warranty	1 year

### Photoelectric Sensor(E3Z-D62)

Detection System	Diffuse-scan
Scanning Distance	1m
Operation Mode	Light-ON / Dark-ON
Emitter	Infrared LED(850nm)
Ambient Light Immunity	Incandescent Lamp : Max. 3,000 lux Sunlight : Max. 10,000 lux

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

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