



# 992X BAR IONIZER

## INSTRUCTION MANUAL

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Thank you for purchasing the SCS 992X Bar Ionizer.

Before installing and using the product, please read this instruction manual carefully and be sure you fully understand all safety information and operating procedures. Please store the manual in a secure location for convenient reference. If you need further help on the instructions and precautions given here, please contact a Desco Japan sales representative or authorized dealer.

## SAFETY INFORMATION

Please read, understand, and follow all safety information contained in these instructions prior to the use of this device. Retain these instructions for future reference.

### Explanation of Signal Word Consequences



**DANGER:** Indicates a hazardous situation which, if not avoided, will result in death or serious injury



**WARNING:** Indicates a hazardous situation which, if not avoided, could result in death or serious injury



**CAUTION:** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and/or property damage.

**NOTICE:** Indicates a situation which, if not avoided, could result in property damage.

### Explanation of Safety and Related Symbols



Warning: Hazardous Voltage



CAUTION

## **WARNING**

- To reduce the risks associated with hazardous voltage:
  - Do not use this product with any AC adapter other than the provided SCS AC adapter or power supply unit (LPS type) certified by UL60950-1.
  - Be sure to connect to 24VDC output.
  - Do not touch high voltage emitting needle while this product is powered on. Unplug power source before maintenance and/or service is performed.
  - Keep fingers and other body parts, as well as screws, tools, jewelry, and other electrically conductive objects away from device.
  - Unplug power cord during maintenance and/or service.
  - Do not use this device outdoors or in a wet environment.
  - Never attempt to open the device or service it yourself; no user serviceable components are inside.
  - Be sure to turn OFF (disconnect) the power before performing wiring, installation, or inspection work.
  
- This equipment should be inspected and cleaned frequently. This will prevent excessive accumulation of dirt which may result in flashover or risk of fire.
  
- To reduce the risks associated with static charge:
  - Use of this AIR IONIZER device is not intended to replace proper grounding of personnel.
  
- To reduce the risks associated with fire or explosion:
  - Do not install or use this product in a location or environment where flammable or combustible gasses, oil or solvents are present. This product is not designed to be intrinsically safe. Arcing between emitter points can occur.

## **CAUTION**

- To reduce the risks associated with environmental contamination:
  - Product disposal must be in accordance with all applicable regulations.
- To reduce the risks associated with sharp needle points:
  - Use caution when handling the unit and when working around the sharp electrode needle.
- To reduce the risks associated with impact :
  - Ensure the ionizer is installed onto a frame or similar structure with adequate strength.
- To reduce the risks associated with the hazardous air pressure:
  - Always wear protection for eyes when working with pneumatic components
- To reduce the risks associated with ozone exposure:
  - Only use product and/or equipment in an adequately ventilated workspace.

## **NOTICE**

- Ensure that proper pneumatic pressure is fed to this product. Read instruction manual before the installation.
- Do not use this product with intermittent air flow. If you want to use this product with intermittent air flow, contact Desco Japan beforehand.
- Ensure the installation location is stable and surface is level before installation is performed.

### Other precautions

Complete the necessary information on the enclosed warranty card (postcard), and be sure to return it to Desco Japan. Failure to do so may prevent you from receiving services such as repair, replacement, and inspection.

Do not disassemble the product or subject it to strong impact. The warranty does not cover, even within the warranty period, malfunctions resulting from i) these causes, ii) repair or alteration not performed by us or our authorized agents, iii) natural disasters, or iv) causes not attributable to us.

## 1. Product Overview

This product is an air bar ionizer (static electricity eliminating device) used to neutralize electrostatic buildup in locations where it is a frequent problem. It contains an ionized air emitter, and can be set up easily by supplying 24 VDC. It must be grounded to work properly. It generates ionized air quickly and efficiently. It also includes functions to detect operating malfunctions and a cleaning timer that counts electrified time, ensuring that it can be used safely and reliably.

## 2. Specifications

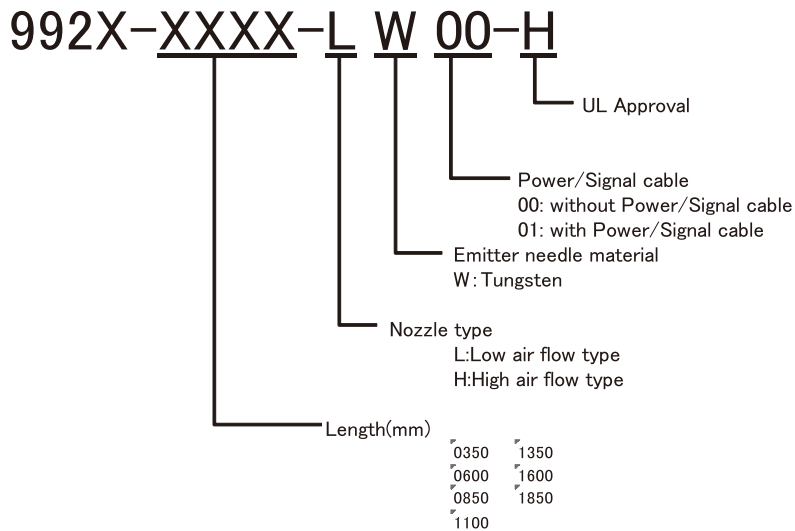
Ion generation method	Corona discharge
Structure	Capacitive-couple type
Ion balance	$\pm 30V$ or less * <sup>1</sup>
Effective elimination distance	50mm ~ 1500mm * <sup>2</sup>
Rating Power voltage	DC24V $\pm 5\%$ * <sup>3</sup>
Power consumption	150mA
Air Tube Connection Size:	For Bar Lengths 300-1650 OD 6mm For Bar Lengths 1850 and greater OD 8mm (Use nylon, soft nylon, or polyurethane tube)
Material Body	ABS
Emitter Connector	Stainless steel
Emitter	Tungsten
Service Temperature	5~40°C
Environment Humidity	15~85%(No condensation)
Altitude up to 2000m	

\*<sup>1</sup>At the time of shipment from the factory, the product is set for a measurement distance of 300mm and air pressure of 0.3MPa

\*<sup>2</sup>Elimination effect is due to the distance between the ionizer and the object, so please fix it with careful consideration.

\*<sup>3</sup>Use the LPS (Limited Power Source) certified with IEC/EN60950-1. Use proper type due to your usage.

3. Model No.



4. Package Contents

When this Product has been delivered to your site, check the package for any missing part or for any abnormality or damages that may have occurred during delivery before using the Unit. In case any damage should be found or any abnormal operation should be observed, please contact the distributor from which you bought this unit or Desco Japan directly.

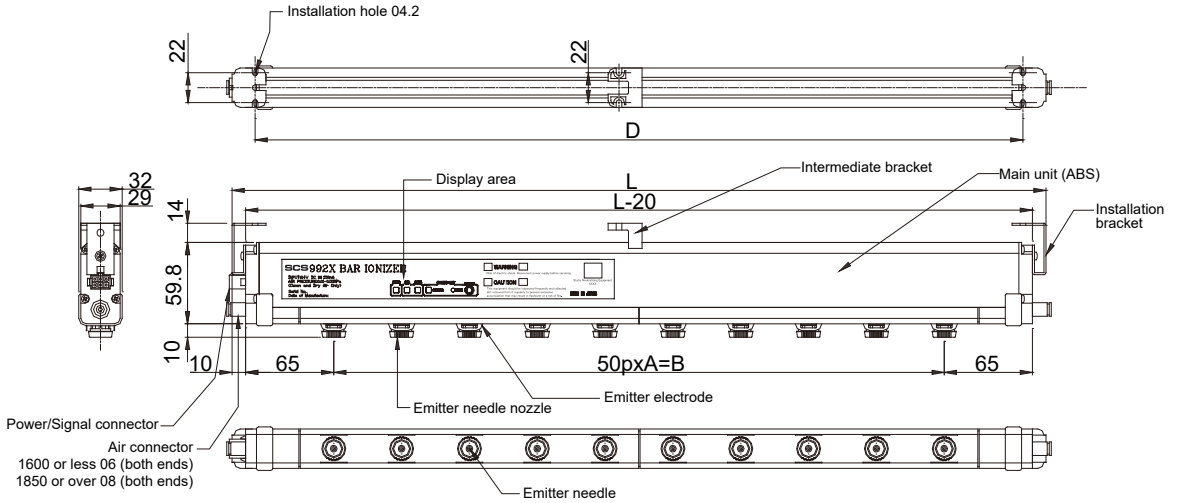
- ① Main unit..... 1unit
- ② Instruction manual..... This document
- ③ Installation brackets..... 2units(with 2 installation screws)
- ④ Warranty card..... 1each
- ⑤ Certificate of compliance..... 1each
- ⑥ Intermediate brackets..... listed in the table below

(Installed on product at the time of shipment)

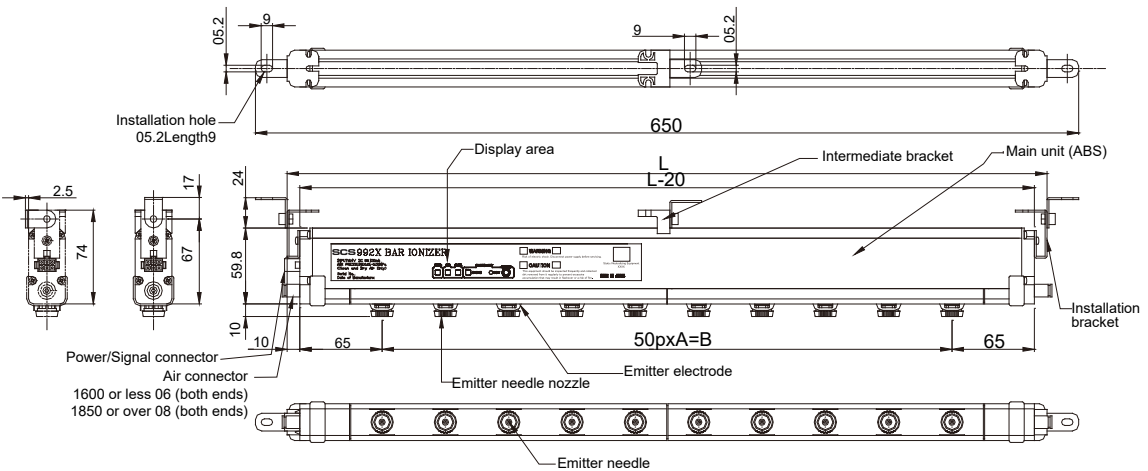
Length (mm)	350 600 850	1100 1350	1600 1850
Qty.	0	1	2

## 5. Appearance and Names/Functions of Parts

### Figures with brackets to fix in vertical direction



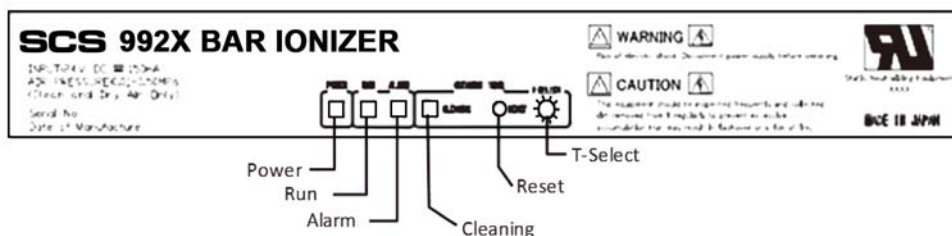
### Figures with brackets to install angle





Model No.	L(mm) Length	50pXeach=B(mm)	weight(kg)
992X-0350	350	50pX9=450	0.5
992X-0600	600	50pX9=450	0.7
992X-0850	850	50pX14=700	0.9
992X-1100	1100	50pX19=950	1.1
992X-1350	1350	50pX24=1200	1.3
992X-1600	1600	50pX29=1450	1.5
992X-1850	1850	50pX34=1700	1.7

## Display area

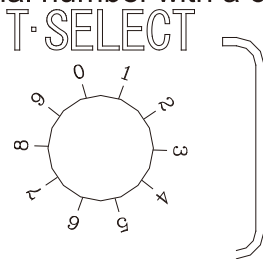


Indication		Explanation
POWER		The green LED illuminates when the power is ON and normal.
RUN		The green LED illuminates when the system is operating normally.
ALARM		The red alarm LED will illuminate during the following conditions: <ul style="list-style-type: none"> <li>- Discharge occurs at the emitter needles or other high-voltage part</li> <li>- Over-current is applied to the ionizer's circuits</li> </ul>
CLEANING TIMER	CLEANING	Yellow LED illuminates when you have exceeded the running hours limit chosen by using T-Select.
	RESET	Resets hour counter and turns off Yellow LED.
	T-SELECT	Selector to set-up the number of hours between cleaning reminders.

## 6. Installation and wiring

### 6-1) Configuration

This product has CLEANING TIMER function that enables you to inform proper time for cleaning. By setting up the accumulative running time, when it reaches the time, CLEANING LED illuminates. If you use this function, please set up the configuration of T-SELECT to optional number with a cabinet screwdriver.



- \* Its number is set up to No.0 when shipping
- \* With this function, running time is added up by every one hour, so within one hour, this function does not work.
- \* When CLEANING LED illuminates, that does not indicate ALARM. Please note that when T· SELECT No CLEANING LED illuminates, this product does not work as ALARM mode
- \* As amount of attached substances to discharge needles differs by atmosphere and air flow, please set up the cleaning period with your considering those elements.

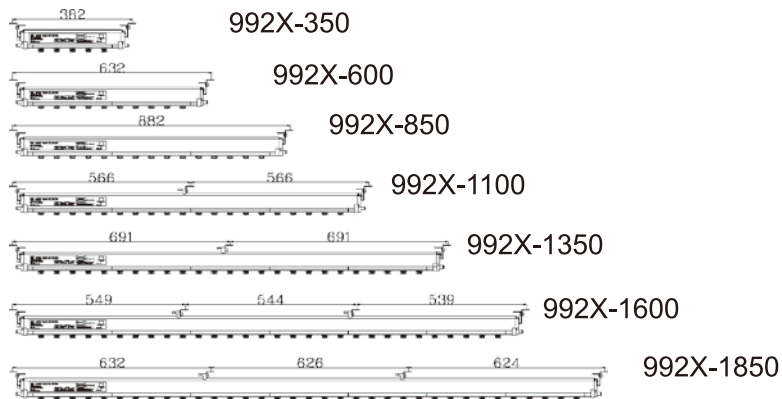
T·SELECT No.	Accumulative running time (h)
0	This function will not work. (Default setting when shipping)
1	100
2	300
3	500
4	800
5	1000
6	3000
7	5000
8	8000
9	10000

## 6-2) Installation

### **Before Installation**

\*Install so that the main unit does not contact any grounded object. Such contact may result in unit malfunction. In particular, if the emitter electrode contacts the ground, a safety circuit operation failure may occur.

\*Be sure to fasten the brackets securely. Failure to do so may cause the unit (particularly longer units) to bend or twist, resulting in malfunction.



\*Install the unit onto a frame or similar structure of adequate strength. If the strength is insufficient, the unit may become unstable and fall or may cause bending of the body.

\*Be sure to check the installation location and other conditions before installing the unit. In particular, if there are problems such as vibration or level differences at the installation location, bending of the unit may occur, resulting in malfunction.

\*Be sure to turn the power OFF before installing the unit. High voltage is applied to the emitter needle. If fingers, tools, jewelry, or other conductive objects are brought close to the needle, electrical shock or, malfunction may occur.

\*Before installing the unit, verify that there is no looseness of the emitter needle nozzle. If the nozzle is loose, it may fall off during installation or during operation when the power is turned ON.

\*If there are any structural objects between the unit installation position and target for electrostatic elimination, the ions in the emitted air may be depleted, preventing the full electrostatic elimination effects from being achieved. Select a unit installation position so that no objects can interfere with the operation. Please be careful not to omit some structural objects moving nearby, when installing.

\*The distance of the ground point from the target for electrostatic elimination is 50mm-1500mm. The electrostatic elimination effects are optimum at a distance of 50mm. As the distance increases, the effects decrease and a longer amount of time may be required for electrostatic elimination. Please confirm the elimination effect beforehand.

### **6-3.Installation Method when using vertical-direction-installation bracket**

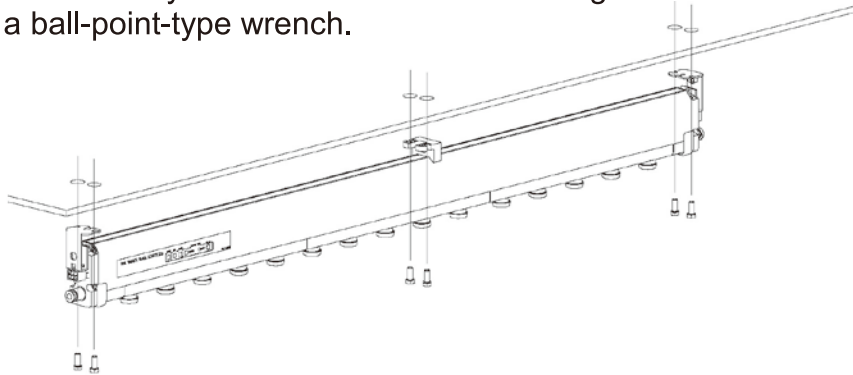
- ① Remove M5 Screw of unit installation bracket and intermediate installation bracket, and remove L metal fittings.
- ② Position the unit in its proper place with M4 screws in 4.2mm OD holes

\*Fix the unit to proper place with M4 tapping, or with nuts from the backside.

\*Fix with plane washers and spring washers.

\*Use two nuts per one bracket.

\*Distance between nut hole for installation and the body is narrow, we recommend you to use bolt nuts with hexagonal holes and fix with a ball-point-type wrench.



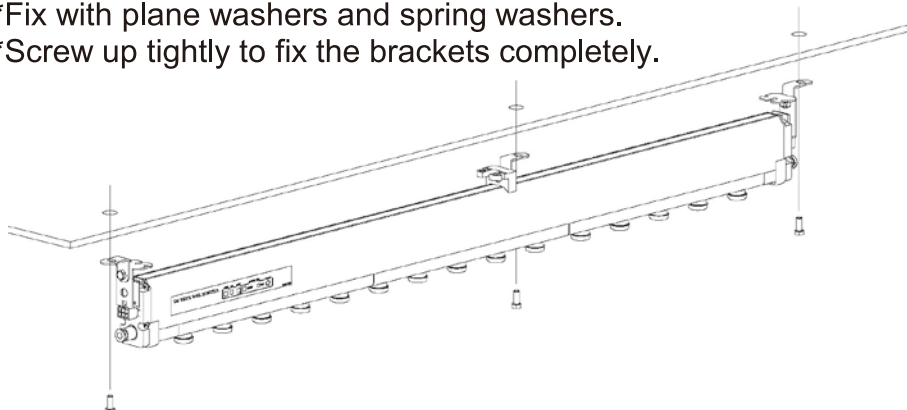
#### **6-4 Installation method when using angle-installation brackets**

① Please fix to the hole of  $\phi 5.2$  of the bracket with the M5 screw in the place where it wants to installation bracket and intermediate bracket.

\*Fix the body to proper place with M5 tapping, or with nuts from the backside.

\*Fix with plane washers and spring washers.

\*Screw up tightly to fix the brackets completely.

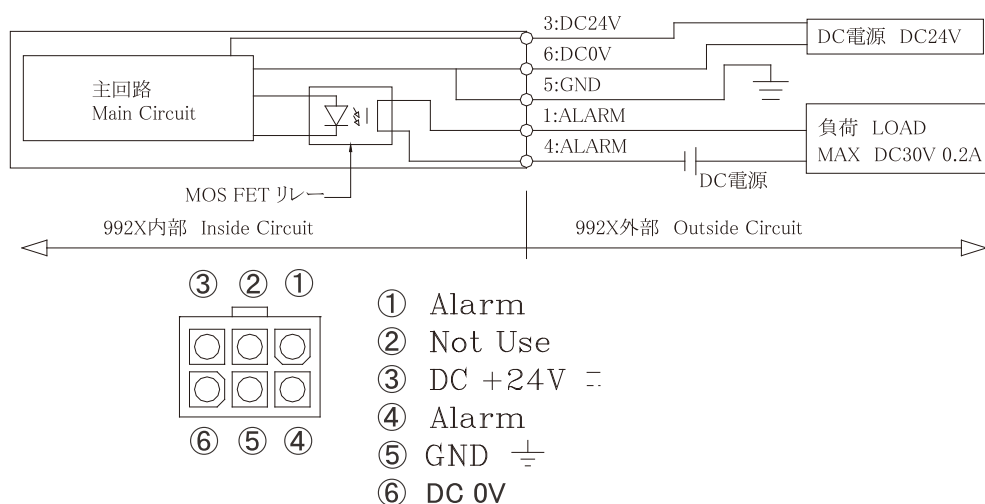


② Set up angle, screw up M5 screws tightly.

\*If tightening of M5 screws is loose, the installed angle may be changed, and may make elimination effect lower.

## 7. Wiring and Tubing

Connect the cable as shown in the figure below.



\*Securely connect the ground wire to the ground. (type a or type b).

\*Use the LPS(Limited Power Source) certified with IEC/EN60950-1.

\*Securely insert the connector.

\*Use the wire diameter 18-24 AWG.

Connector : AMP 172168-1

Pin : AMP 170365-1

\*The alarm signal is a maximum of DC30V 0.2A

Status	Power OFF	RUN LED ON	ALARM LED ON
Contact signal	OPEN	CLOSE	OPEN

\* Connect a  $\phi 6$  air tube (nylon, soft nylon, or polyurethane) to both sides of the unit.

\*There are air connection ports on both sides of the unit. However, if sufficient air can be supplied from just one side, it is possible to supply air from one side for this product to work efficiently. In this case, be sure to use a plug for the  $\phi 6$  (or  $\phi 8$ ) air connection port on the unused side.

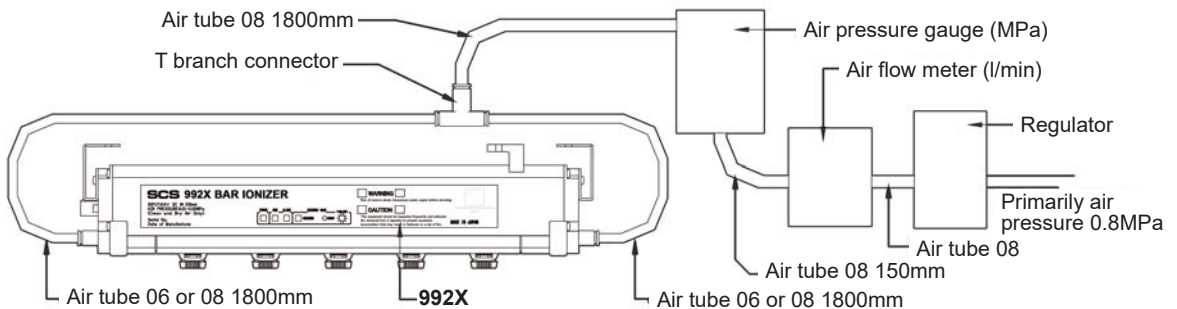
\*The compressed air supplied must be clean, dry air. If an air filter

is necessary for the air supply equipment you are using, use an in-line filter system or similar item.

\*The maximum air pressure that can be supplied to the unit is 0.5MPa. Because this unit does not include a regulator speed controller or similar function, an air pressure regulator must be provided by the user.

\*As the amount of compressed air consumed varies depending on the unit length of your model, the air pressure level, the diameter and the length of piping, use devices that are suitable for the conditions of use.

### Piping of measurement of flowing quantity of air



### Air flow with L-type (low air consumption type) nozzle.

Length (mm)	Air pressure				
	0.1MPa	0.2MPa	0.3MPa	0.4MPa	0.5MPa
350	11	15	17	19	21
600	23	28	32	37	40
850	34	41	48	54	59
1100	43	43	62	71	77
1350	51	62	75	85	96
1600	58	74	87	100	113
1850	80	103	121	138	154

Air flow(l/min)

## H-type (high speed type) nozzle

Length (mm)	Air pressure				
	0.1MPa	0.2MPa	0.3MPa	0.4MPa	0.5MPa
350	23	28	31	35	39
600	42	52	59	67	73
850	58	71	83	94	105
1100	68	88	101	117	133
1350	75	98	116	132	149
1600	80	105	125	145	162
1850	138	171	192	225	256

Air flow(l/min)



## **8. Operating the Product**

### **8-1 Setup before Starting Operation**

① Check the ionizer wiring and air tubing.

② Supply air to the unit from the air equipment that is used.

\* Use air pressure off 0.5MPa or less.

③ Supply DC24V power to the unit. The POWER LED and RUN LED on the unit illuminate and electrostatic elimination starts.

\* If the optional power adapter is used, supply AC100-240V, 50/60Hz

### **8-2 Steps when Stopping Operation**

① Remove power source.

② Remove air supply.

### **8-3 Canceling the Alarm**

\* Because this device utilizes high voltage, if a safety or operating problem is detected, the high voltage is shut off. At this time the RUN LED turns OFF and the ALARM LED illuminates. The system is configured so that the system cannot be restarted until the alarm has been reset.

\* When the ALARM LED is illuminated, refer to “9.

Troubleshooting” in this manual and correct the problem before restarting operation.

Remove power source, correct problem per troubleshooting guide in Section 9 and then restore power supply.

### **Remove power source.**

Correct problem per troubleshooting guide in Section 9 and then restore power supply.

## 9. Maintenance

\* This device should be installed and used in a location where it will not contact water, oil, or similar substances. However if water, oil, or another substance contacts the product, immediately turn OFF the power and wipe away the substance with a cloth or other item. Use particular caution at the high voltage sections and surrounding area.

\* If the emitter needle and surrounding area become fouled, the electrostatic elimination effects will be reduced. If the electrostatic elimination effects diminish, clean the emitter needle and the surrounding area periodically ( in particular, the emitter needle nozzle ) for preventing drop of elimination effect. Be sure to turn the power OFF beforehand.

### **9-1 Cleaning the Emitter Needle nozzle**

\* Be sure to turn the power OFF before cleaning the emitter needle nozzle. Failure to do so may result in electric shock or malfunction of this unit.

\* The emitter needle nozzle is removable. When dust or other substances become noticeable at the location where the product is used, remove the emitter needle nozzle and take it to another location for cleaning.

\* The tip of the emitter needle is extremely sharp. Use sufficient care when handling it. The needle tip can cause injury.

\* If the emitter needle tip accidentally becomes bent or chipped, or resin part of needle is damaged during cleaning, replace the emitter needle nozzle. If the emitter needle nozzle is not replaced, the full product performance will not be achieved or it may cause some accidents.

1. Verify that the power is turned OFF (disconnected).

2. Verify that the supply of air is stopped.

\* To perform cleaning without removing the emitter needle nozzle, proceed to 4.

3. Twist the emitter needle nozzle counterclockwise in order to remove it from the unit.

\* It is possible that the O-ring may become stuck to the unit when the emitter needle nozzle is removed. If this occurs, remove the

O-ring, taking care not to lose or damage it. If the O-ring is not reinstalled after cleaning, it will cause air leakage, preventing full performance from being achieved.

4. Use cotton swabs or a similar thing moistened with alcohol to wipe away the oiling from inside the emitter nozzle, the emitter needle area, and other areas that are dirty.

\* If only performing cleaning without removing the emitter needle nozzle, then cleaning is now finished. Verify that the tip of the emitter needle is not bent or chipped, and that resin part of discharge needle is damaged.

\* Be sure to allow the alcohol to fully evaporate (dry) after cleaning.

\* When you clean discharge needles taken off from the body, do not clean needles soaked in alcohol. If you do so, it may cause residual of alcohol inside discharge needles and because of its structure, it cannot be easily dried, so it may lead to damage of the body when you apply high voltage again.

5. Securely reinstall the emitter needle nozzle by placing it in its original position and turning it clockwise until it stops.

\* When reinstalling the emitter needle nozzle, be sure to verify that the O-ring is correctly positioned on the nozzle before installing.

6. Verify that the tip of the emitter needle nozzle is not bent or chipped, and that resin part of discharge needle is damaged, and that the emitter needle unit is securely installed.

## **9-2 Replacing the Emitter Needle Nozzle**

\* Because the emitter needle nozzle is consumable part, it eventually becomes necessary to replace it. In addition, the emitter needle or the emitter needle nozzle may become bent or chipped during maintenance or due to accidents. If the tip of the emitter needle becomes worn through use or damaged, it may become impossible to achieve this product's full performance. In this case, replace with a new emitter needle. ( Refer to "Optional Parts." )

1. Verify that the power is turned OFF (disconnected).
2. Verify that the supply of air is stopped.
3. Twist the old emitter needle nozzle counterclockwise in order to remove it from the unit.

\* It is possible that the O-ring may become stuck to the unit when the emitter needle nozzle is removed. If this occurs, remove the O-ring carefully.

4. Securely install the new emitter needle nozzle by placing it in the position and turning it clockwise until it stops.

\* When installing the new emitter needle nozzle, be sure to verify that the O-ring is in the designated location on the nozzle before installing.

5. Verify that the tip of the emitter needle is not bent or chipped , and that resin part of discharge needle is damaged, and that the emitter needle unit is securely installed.

- Contact a Desco Japan sales representative or authorized dealer if you have any questions about the contents of this manual or find any errors in this manual.
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- The technical information given in this manual is based on reliable information. However, 3M does not guarantee that the information is correct or perfect in its entirety.
- Before using this product, evaluate the product and determine if it is in fact suitable for your intended use. You will be responsible for all risks associated with the use of this product. Matters related to the product that are not described in our latest publications and matters indicated on your purchase orders that differ from the contents of our latest publications will be effective only if they are approved by our authorized officers in writing.
- The product characteristics or design may be changed without advance notice for improvements or other reasons.

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