

Installation recommendation pitch

*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.

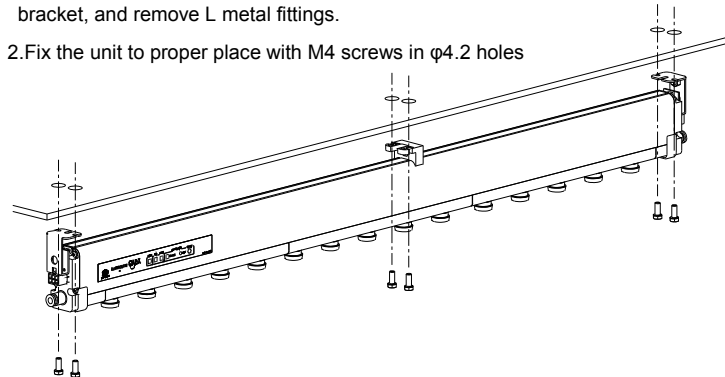
*Before installing the unit, verify that there is no looseness of the emitter needle nozzle. If the nozzle is loose, it may fall off during installation or during operation when the power is turned ON.

*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.

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. Fix the unit to proper place with M4 screws in $\phi 4.2$ 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.

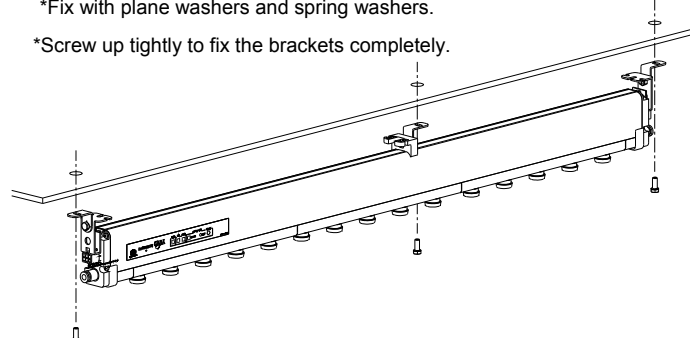
Installation method when using angle-installation brackets

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.

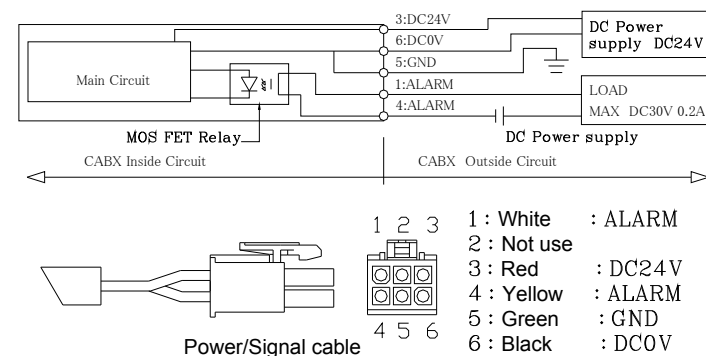


2. Set up angle, screw up M5 screws tightly.

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

6.3Wiring and Tubing

Connect the provided power/signal 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.

*The alarm wire insulation is not pre-stripped, when using the wire, strip away an appropriate amount of the insulation. The wire diameter is 22 AWG.

*The alarm signal is a maximum of DC20V 0.2A

Status	Power OFF	RUN LED ON	ALARM LED ON
Contact signal	Open	Close	Open

*The optional AC adapter does not come with an alarm wire connected. When using the AC adapter, verify the connector number, and then securely insert this wire into the connector in order to use it.

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

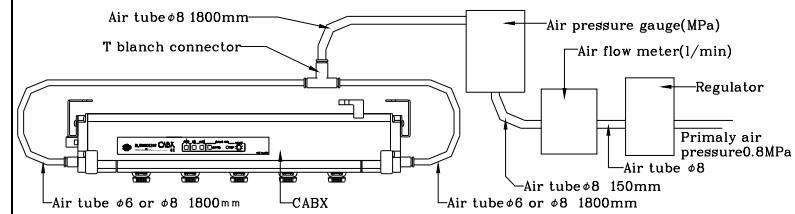
*There are air connection ports on both sides of the unit. However, if sufficient air can be supplied from just one side, it is possible to supply air from one side for this product to work efficiently. In this case, be sure to use a plug for the $\Phi 6$ (or $\Phi 8$) air connection port on the unused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

*This data is experimental

Length	Air pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5
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
2100	93	117	139	159	175
2350	104	132	153	175	194
2600	113	143	168	191	212
2850	122	157	183	208	229
3100	131	168	195	222	246

Air flow(l/min)

H-type (high speed type)nozzle

*This data is experimental

Length	Air pressure (MPa)				
	0.1	0.2	0.3	0.4	0.5
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
2100	159	191	215	252	283
2350	163	200	235	277	308
2600	174	211	250	295	332
2850	178	218	260	306	349
3100	185	223	268	315	363

Air flow(l/min)

7.Operating the Product

Setup before Starting Operation

Check the ionizer wiring and air tubing.

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

*Use air pressure off 0.5MPa or less.

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

Steps when Stopping Operation

Stop supplying of power to the unit.

Stop supplying of air.

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 unit 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.

Stop supplying of power to the unit.

Remove problems referring "9.Trouble shooting" in this manual.

Start supplying of power to the unit again.

Cancelling operation of CLEANING

Push the CLEANING TIMER RESET button more over 2 seconds while RUN status. Timer will be reset.

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.

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 discharge 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 fouling 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.

5. 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.

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.

9. Troubleshooting

*The POWER LED does not illuminate.

→Verify that the wiring and power source are connected correctly.

*The POWER LED illuminates, but the RUN LED does not illuminate.

→Verify that the ground wire is securely connected to the ground.

→Check whether the ALARM LED is illuminated.

*The ALARM LED is illuminated.

→Check whether the emitter needle or surrounding area has become fouled.

→Verify that no grounded objects are in contact with the unit.

→Verify that there is no looseness in the screws at the part that connects the emitter counter electrode.

→Verify that the unit securely grounded.

→Verify that the emitter needle nozzle is not loose.

→Please confirm if some generation sources of electromagnetic noise are not around the product.

10. Optional Parts

Low consumption air nozzle (Tungsten) : OCABX-NDL-LW

Low consumption air nozzle (Silicon) : OCABX-NDL-LS

Low consumption air nozzle (Glass) : OCABX-NDL-LG

High speed air nozzle (Tungsten) : OCABX-NDL-HW

High speed air nozzle (Silicon) : OCABX-NDL-HS

High speed air nozzle (Glass) : OCABX-NDL-HG

Intermediate bracket : OCABX-SUSP-A

AC adapter : OCABX-DA

Extension Cable : OCABX-ENC3M

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