Shihoro Electrotech. LTD. Rev.03

Thank you very much for your purchase of CABX series. Although this product is not classified as a high-voltage device under any electrical equipment standard, it uses a high voltage. Please read this manual diligently to carefully and consistently handle this unit. Keep this manual on hand for your reference and consult it repeatedly as required.

### Safety Precautions

There is a possibility of leading to the breakdown of the accident resulting in injury or death and the product because this product uses a high voltage in the main body when improper use. Our company shall not be held liable for any usage outside the Product Specifications or any accident caused by noncompliance with the Safety Precaution. Please appropriately install in semiconductor-fabrication equipment and other production lines, etc. and use it. An appropriate place is a place in which a suitable cover exists in the place where the temperature and humidity, etc. were managed.

#### Warning

This product is not specified as an Explosion-proof Type. Do not use this unit at a location on an atmosphere, in which combustible gas or solvent is present, or else ignition or explosion may occur.

A high voltage is applied to the Discharge Needle. Do not allow any conductive material, including your finger, any part of your body, or any tool to come close to the Needle, or an electrical shock accident or a malfunction of the Unit may occur.

The Discharge Needle has a sharp edge. Pay special attention to handling of the Needle, or you may injure yourself.

Never dismantle, repair, or remold this unit, or else an accident or a malfunction of the Unit may occur.

When any wiring, installation, or inspection works is to be carried out, make sure that the Unit is disconnected from the power supply, or else an accident, an electrical shock or a malfunction may be caused.

#### Caution

This product contains a high-voltage generating device inside the Unit. Do not install the Unit at a location where it may be exposed to splashing of water or high temperatures, or excessive humidity.

Make sure that the ground terminal of this Product is properly grounded to prevent any electric shock accident from occurring and to ensure that the static electricity is completely eliminated.

Make sure that the discharge nozzle of any unit or unnecessary unit should be properly disposed of as an industrial waste material.

Be sure to connect the wiring correctly. Failure to do so may result in malfunction.

Do not use with intermittent air. If you need to use intermittent air, please consult us beforehand.

This product generates a high voltage. Please do the installation, the operation, and the maintenance of this product if you have enough knowledge and the experience.

1. **Product Overview**

This product is an air barretier (static electricity eliminating device) geared to neutralize electrostatic buildup in locations where it is a frequent problem. It consists of an ionized air emitter, and can be set up easily by supplying DC24V from the provided cable, or by using AC100V/240V (with the optional AC adapter). It must be grounded to work correctly. The ionized air generates quickly and efficiently. It also includes functions to detect operating troubles, ensuring that it can be used safely and reliably. It also includes functions to detect operating troubles and to provide the cleaning timer that counts electricity time, ensuring that it can be used safely and reliably.

2. **System Configuration**

To use this product, apply DC24V to the supplied power/signal cable. If the DC24V power is unavailable, use the optional AC adapter. An optional extension cable is available if the power/signal cable or AC adapter cable is too short to reach the installation location.

### 3. Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ion generation method</td>
<td>Corona discharge</td>
</tr>
<tr>
<td>Structure</td>
<td>Capacitive-couple type</td>
</tr>
<tr>
<td>Applied voltage</td>
<td>±15kV (up)</td>
</tr>
<tr>
<td>Ion balance</td>
<td>±30% or less</td>
</tr>
<tr>
<td>Effective elimination distance</td>
<td>50mm ~ 150mm</td>
</tr>
<tr>
<td>Rating</td>
<td>Power voltage DC24Vx5%</td>
</tr>
<tr>
<td></td>
<td>Power consumption 150mA or less</td>
</tr>
<tr>
<td>Air tube connection diameter</td>
<td>1600 or less (Outer diameter) 1800 or over (Inner diameter) (Use nylon, soft nylon, or polyethylene tube)</td>
</tr>
<tr>
<td>Air supply pressure</td>
<td>0.05 ~ 0.5MPa</td>
</tr>
<tr>
<td>Material</td>
<td>Emitter electrode: Stainless steel, Emitter nozzle: Tungsten Silicon Glass</td>
</tr>
<tr>
<td>Service environment</td>
<td>Temperature: 15 ~ 40°C, Humidity: 5 ~ 85% (No condensation)</td>
</tr>
<tr>
<td>Installation location</td>
<td>Only the indoor use</td>
</tr>
</tbody>
</table>

### 5. Appearance and Names/Functions of Parts

#### Figures with brackets to fix in vertical direction

- **CLEANING TIMER**
  - When running time passed the accumulative running time that was set up by TwSELECT, the yellow LED turn on.
  - This green LED illuminates when the system is operating normally.
  - This red LED illuminates when a plus-discharge is occurring at the emitter needle or other high-voltage part of the unit, or when over-current has occurred in the unit circuits.

#### Indication Explanation

<table>
<thead>
<tr>
<th>Indication</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>This green LED illuminates when the power is ON and normal.</td>
</tr>
<tr>
<td>RUN</td>
<td>This green LED illuminates when the system is operating normally.</td>
</tr>
<tr>
<td>ALARM</td>
<td>When running time passed the accumulative running time that was set up by T-SELECT, the yellow LED turn on.</td>
</tr>
<tr>
<td>CLEANING</td>
<td>When running time passed the accumulative running time that was set up by T-SELECT, the yellow LED turn on.</td>
</tr>
<tr>
<td>CLEANING LID</td>
<td>When running time passed the accumulative running time that was set up by T-SELECT, the yellow LED turn on.</td>
</tr>
<tr>
<td>T-SELECT</td>
<td>Selector that set up the accumulative running time to illuminates CLEANING LED.</td>
</tr>
</tbody>
</table>

### 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 hour, so within an hour, this function does not work.
  - When CLEANING LED illuminates, that does not indicates 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 program with your considering those elements.

#### 6.2 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 turn the power OFF before installing the unit. High voltage is connected to the unit installation position 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 run 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 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 will 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 to omit some structural objects moving nearby, when installing.

The distance of the ground point from the target for electrostatic elimination is 50mm-150mm. 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.
1. Verify that the power is turned OFF (disconnected).
2. Verify that the supply of air is stopped.
3. Perform cleaning without removing the emitter needle nozzle, proceed to ①
4. Securely install the new emitter needle nozzle by placing it in the position and turning it clockwise until it stops.
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.

Troubleshooting
- *The POWER LED does not illuminate.*
  - Verify that the wiring and power source are connected correctly.
  - Verify that the ground wire is securely connected to the ground.
- *Check whether 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

Local consumption air nozzle (Tungsten) : OCABX-NDL-LW  
Local consumption air nozzle (Silicon) : OCABX-NDL-S  
Local consumption air nozzle (Glass) : OCABX-NDL-LG  
High speed air nozzle (Tungsten) : OCABX-NDL-HYW  
High speed air nozzle (Silicon) : OCABX-NDL-HS  
High speed air nozzle (Glass) : OCABX-NDL-GH  
Intermediate bracket : OCABX-SUFP-A  
AC adapter : OCABX-DA2  
Extension Cable : OCABX-ENC3M

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