Instruction Manual
Steady-Flow Fan-type Ionizer
[DTRY-ELF03]

Thank you very much for your purchase of DTRY-ELF03 (hereinafter referred to as ELF03). Although this Product is not classified as a high-voltage device under any electrical equipment standard, it uses a high voltage of 2000 V. Please read this manual diligently to carefully and correctly handle this unit. Keep this manual on hand for your reference and consult it repeatedly as required.

1. Safety Precautions

This Product has been designed, tested, and shipped out in accordance with the Safety Requirements for Electrical Equipment under IEC61010-1. Because a high voltage is use inside the Unit, improper use of this unit may cause an accident resulting in injury or death, or may lead to a malfunction of the Product. Our company shall not be held liable for any usage outside the Product Specifications or any accident caused by noncompliance with the Safety Precaution.

1.1 ⚠ Warning

This Product is not specified as an Explosion-proof Type. Do not use this unit at a location or an atmosphere, in which combustible gas or solvent is handled, 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, wire or any tool to get 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.
Do not use this unit outside the scope of the specifications, or else an accident or a malfunction of the Unit may be caused, or the service life of the Product may be extremely reduced.
Never disassemble, repair, or remodel this unit, or else an accident or a malfunction of the Unit may occur.
This Product will cause ozone to be generated in the atmosphere. If you perceive any smell of ozone, make sure to clear the air in the room and keep good ventilation in the room. If ozone should remain in the air for long, it may cause metal parts to be oxidized.
When any wiring, installation, or inspection work 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.
To ensure that the Unit should maintain its performance, be sure to regularly clean the surrounding area of the discharge area. If the area is not maintained in a clean condition, not only the Unit will not be able to work up to the optimum performance but the equipment and work pieces may get damaged.
For any other Items of Warning, please refer to the Safety Precaution in the Static Electricity Elimination Unit; Ionizer Catalog (Catalog No. C2167).

1.2 ⚠ 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 oil, high temperatures, or excessive humidity. Make sure the Unit is protected from condensation.
Make sure that the Unit is protected from being exposed to any transitional condition of the power supply. Make sure that the input power supply will stay within the specified rating.
Make sure that any unserviceable unit or any unnecessary unit should be properly disposed of as an industrial waste material.
For any other Items of Precaution, please refer to the Safety Precaution in the Static Electricity Elimination Unit; Ionizer Catalog (Catalog No. C2167).

2. Contents of the Product Set

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 shop where you purchased the Product (the agency), or the nearest service station of our company.

2.1 Contents of the Package

- Main unit 1unit ・Instruction Manual (this booklet) 1booklet
- Direct air advance Louver* 1piece
- Wide angle Louver 1piece・Discharge unit* 1unit
- Filter cover * 1piece
- Mounting Bracket* 1set・Power supply signal cable (2 m) 1line
- Grounding Lead Wire (2 m) 1line ・Backside Filter 1sheet
- Discharge needle Cleaning Brush 1piece
- Contact selector switch protection seal 1sheet

*Attached to the Main Unit before shipment.

2.2 Consumable Items

To maintain the optimum performance of this unit, it is recommended that consumable items should be regularly replaced.

- Discharge needle unit: DTRY-ZEM-F03
- Backside Filter (a set of 5 sheets) : DTRY-ZFR-F03

3. Product Overview

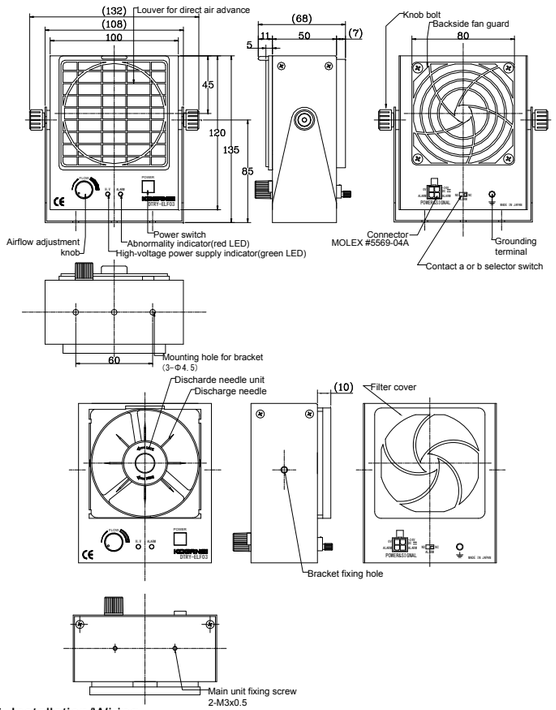
This Product is a fan-type ionizer (static electricity eliminating device) capable of immediately solving any problems that occur in connection with static electricity. By using ionized air it generates, the Unit can promptly and efficiently eliminate the static electricity charged on electrified bodies.

4. Specifications

4.1 List of Specifications

Type	DTRY-ELF03
Input Power Source	DC24V±5%
Current Consumption mA	230
Output Voltage ｋV	2 (High-frequency type)
Displays	High voltage LED (green); Discharge abnormality indication LED (red); Power switch LED (Illumination push-button switch: green)
Abnormal Output	Contact output at a time of abnormality of discharge (setting of contact A or B possible) DC24V 50mAMAX
Outside Dimensions mm	62(L)×100(W)×120(H) (with Bracket and Filter not attached; not including protruding parts)
Mass g	Approx. 650 (with Bracket and Filter not attached)
Ion Balance V	±10 (at 300 mm from the center of the blow-out opening; at maximum airflow)
Generated Ozone Volume ppm	0.04 or less (at 300 mm from the center of the blow-out opening; at maximum airflow)
Airflow m³/min	0.5 Max. (step-less adjustment possible)
Environmental Temperatures ℃	0～40 (no condensation allowed in the room)

4.2 Appearance



5. Installation/Wiring

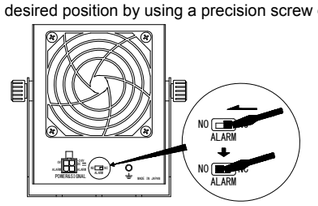
5.1 Setting of Contacts for Abnormal Output

This Product permits selecting of the Contact for the abnormal signal output (contact A or B: contact A specified before shipment). Refer to the setting procedure to make the correct setting.

・Setting Procedure

① Confirm that the Cable is not connected to the Connector on the Backside of the Main Unit. If connected, disconnect the Cable.

② Shift the NO (contact A)/NC (contact B) Selector Switch on the backside of the Main Unit to the desired position by using a precision screw driver, etc.



⚠ Caution

Do not apply excessive force when making adjustments to the Switch, or else you may damage the Product.
Make sure that the Switch position is positively shifted. The device will not operate normally if the Contact is not correctly connected.

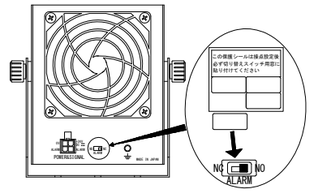
③ Connect the Cable to the connector on the backside of the Main Unit. Supply the power to the Product to confirm that the Contact operates normally. See the table below for the outputs when setting the Contacts.

SETTING MODE	POWER OFF	POWER ON
NO (Contact A)	OPEN	OPEN
NC (Contact B)	OPEN	CLOSE

⚠ Caution

Be sure to confirm the operations of the Contacts. If the confirmation is not properly carried out, any unexpected operation of the Device may cause an accident resulting in physical injury or a malfunction of the Product.
Refer to Section 5.5 “Wiring” for confirmation of operation to ensure that the Product operates normally. Incorrect polarity setting of the power supply may cause a malfunction of the Product.

④After the Contact setting is completed, be sure to seal the window for NO (Contact A) / NC (Contact B) Contact Selector Switch, using the Contact Switch Protection Seal supplied with the Product.



⚠ Caution

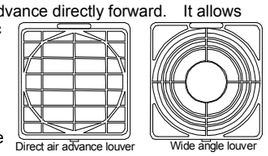
Be sure to carry out the sealing, or else erroneous operation or a malfunction of the Unit may occur.

5.2 Selection of Louver

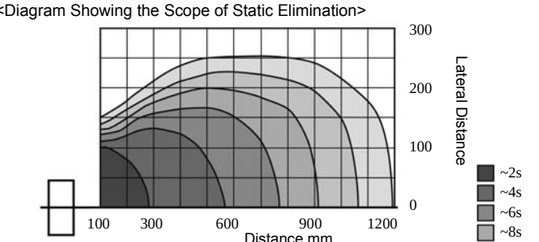
As accessory items, this Product is shipped out with 2 types of Louvers: Direct Air Advance (attached as standard before shipment) and Wide Angle Louver types. Select the type most appropriate and efficient for the area from which you are intending to eliminate the static electricity.

<Feature of the Direct Air Advance Louver>
This Louver is designed to allow the air to advance directly forward. It allows the Product to powerfully eliminate the static electricity immediately in front of Product.

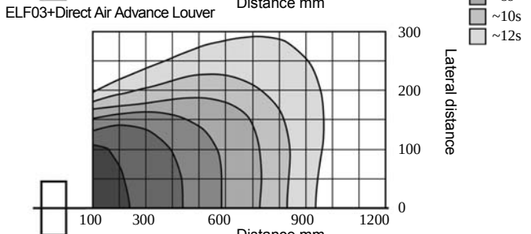
<Feature of the Wide Angle Louver>
This Louver permits the air to spread over a wide area to eliminate the static electricity there. Because the air spreads over a wide area, however, this Louver somewhat reduces the overall static elimination effect of the Product.



<Diagram Showing the Scope of Static Elimination>



ELF03+Direct Air Advance Louver



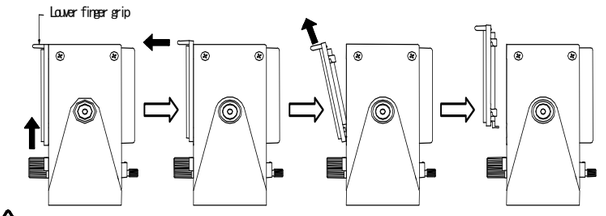
ELF03+Wide Angle Louver

*Time required for static elimination under maximum airflow from ±1000 V to ±100 V (according to the measuring condition specified by our company).
The scope of static elimination is only for reference.
The scope of static elimination is shown for one side

・Procedure for Exchanging the Louver

①Confirm that the Cable is not connected to the Connector on the Backside of the Main Unit. If connected, disconnect the Cable.

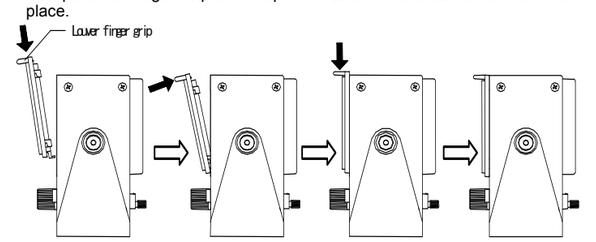
②While firmly pressing down the Main Unit to hold it in position, push the bottom of the Louver upward. The Louver will slide upward. While pulling the Finger Grip at the top of the Louver, pull and remove the Louver from the Main Unit.



⚠ Caution

If the Louver is removed, the Discharge Needle will be exposed. Be especially careful not to touch the Needle, or else you may get injured. Also, if the Needle should be bent or be broken, the optimum performance of the Unit cannot be expected. In case the Needle is bent or damaged, replace it with a new set of Discharge Needle DTRY-ZEM-F03 (consumable item: separately available).

③ Prepare the new Louver to replace the old one. While firmly holding the Main Unit in position, insert the new Louver from the lower side of the Main Unit and push it upward until the 4 claws on the Main Unit engage with the receptacles on the Louver. Confirm that they are mutually engaged, and then push the Finger Grip at the top of the Louver downward until it clicks in place.



⚠ Caution

If no Louver is attached to the Main Unit, the power will not be supplied to the Main Unit even when the Switch is turned on.
Make sure that the Louver is correctly installed. Otherwise, it is possible that the power is not supplied to the Main Unit, or the optimum performance of the Product cannot be achieved.

5.3 How to Attach a Filter on the Backside of the Main Unit

Depending on the environment you use this Product; it may be required for you to attach a Filter on the backside of the Main Unit. It should be noted, however, that the performance of the Product for eliminating the static electricity would be slightly reduced in comparison to the time when the Filter is not used.

①Confirm that the Cable is not connected to the connector on the backside of the Main Unit. If it is connected, disconnect the Cable.

②While securely holding down the Main Unit in position, remove the Filter Cover. The Filter Cover may be easily removed by gripping the side of the Filter Cover and pulling it toward you.

③Place the Backside Filter (an accessory item) in place in the Filter Cover, and attach them onto the Main Unit.

⚠ Caution

Make sure that the Filter Cover with the Filter is securely engaged in the Main Unit. If it is not securely installed in place, the Filter Cover may be disengaged and become detached from the Main Unit while the Product is in operation.

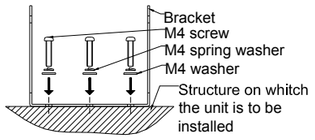
5.4 Installation

⚠ Caution

Do not install or use the Product on the surface of any device that contains on moving part, where it may be subjected to violation or shocks. The Product may possibly be damaged.
The Product is not specified to be installed in any specific orientation. Make sure, however, that the surface on which the Product should be installed is perfectly level and not inclined in any direction.
Provide a space of 100 mm or more in front of the Air Inlet of the Product, whether Product is to be installed. If any obstacle for air intake exists near the Air Inlet, the sufficient amount of air will not be supplied to the Unit, preventing the Product from operating up to its full performance. This may also lead to a malfunction of the Fan.
Do not install the Product at the location where dew condensation may occur or where it may be exposed to extremes of temperatures and/or humidity. It is possible that the Product should get damaged.

・How to Install the Product using the Mounting Bracket

①The Product may be used by placing it on a horizontal surface such as a tabletop. It may also be used as a component of a system, being installed on a piece of equipment. Use the Mounting Bracket in this case by fastening it to the equipment with M4 Set Screws (including spring washers and washers) (See the diagram).



②The angle of the Main Unit may be freely adjusted by loosening the Knob Bolt. After the adjustment is completed, be sure to tighten the Knob Bolt again to ensure that the angle of the Main Unit will stay unchanged.

⚠ Caution

Make sure that the height of Screws (including washers) from the surface of the Bracket is 8 mm or less. Otherwise the Screws may interfere with the Main Unit when its angle adjustment is performed.

・How to Install the Product Using Other Methods

①If the Product is to be installed directly on a piece of equipment, remove the Bracket, and fasten the Unit to the equipment by screwing 2 M3×0.5 Screws into Mounting Holes on the bottom of the Main Unit.

⚠ Caution

Make sure that the Screws to be used will not enter the Main Unit by 5 mm or deeper. Otherwise the Main Unit may be damaged.

5.5 Wiring

⚠ Caution

When performing any wiring work, be sure to confirm the Colors of Wires to be used, and carry out the wiring in the secure and correct manner. Wrong wiring may cause damages to the Main Unit.
Make sure that the rated Power Supply Voltage is supplied to the Product. Do not use any power supply that may be subject to voltage variations. If used, such power supply may degrade the performance of the Product.

・How to Connect to Wiring for Power Supply and Abnormal Output Contracts

①Connect the supplied the Power Supply Signal Cable to the connector on the backside of the Main Unit.

②Connect the + 24 V line of the DC Power Supply to the "red" line, and 0 V line to the "green" line of the Power Supply Signal Cable, respectively.

③If the Abnormal Output Contacts are to be used, connect the Contacts to the “white” and “black” lines of the Power Signal Cable. No polarity is involved with the connections in this case.

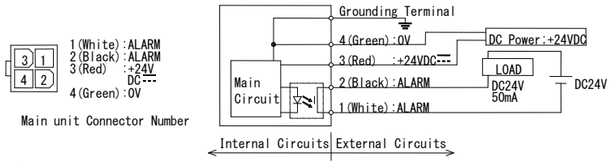
⚠ Caution

Make sure that the connections are carried out in a secure manner by using a Terminal Block or Crimp- Style Terminals, etc. Otherwise, there is a danger that the Main Unit may get damaged.
If the Abnormal Output Circuits are to be used, make sure the Circuits are used within the rated specification range (24 VDC; 50 mA, max.).
See the diagram below for the Abnormal Output Circuits.
The Abnormal Output Circuits will start working about 2 seconds after the power is turned on. Pay special attention when designing the Abnormal Detection Circuits when this Product is to be built into a system.
If no Abnormal Output Circuits are to be used, be sure to carry out some appropriate measures for insulating the "white" and "black" tail ends of the supplied Power Supply Signal Cable. Otherwise, there is a possibility that the Main Unit get damaged.

・How to Ground the Wiring

①Connect the round terminal of the supplied Grounding Lead Wire to the grounding terminal located on the backside of the Main Unit.

②Connect the terminal at the opposite end of the Grounding Lead Wire to the Grounding Point.



⚠ Caution

0V line and grounding terminal are connected common line in main unit.

⚠ Warning

Confirm that the Grounding Point is properly grounded. If it is not, be sure to carry out the Grounding Procedure (according to the 3rd class procedure).
The Product must be properly grounded. The Product may not be able to work up to the fullest performance.

6. Operation

6.1 Operations When Turning ON the Power

①Check the Product to confirm that the setting and wiring have been carried out in accordance with the instructions given under Section 5 "Installation/Wiring" in this manual.

②Turn ON the Switch on the DC power supply.

③Press once the Power Switch (push-button type) located on the front of the Product. The power will be supplied to the Product. If the Unit is operating normally, both the Power Switch and High-voltage Power Supply LED (green) located on the front side of the Product will light up.

④In accordance with the distance to the charged object and the amount of static electricity charged on the object, adjust the Airflow Adjustment Knob to provide the appropriate amount of airflow.

⚠ Caution

If the Power Switch of the Unit or the High-voltage LED does not light up, or if the Alarm Display on the front of the Unit lights up, immediately turn off the power from the Unit. Then, check the installation and wiring against the instructions given under Section 5 "Installation/Wiring". In case you cannot solve the problem even then, please refer to Section 7 "Maintenance" and Section 8 "Troubleshooting".

6.2 Operations When Turning OFF the Power

①Press once the Power Switch (push-but the type) located on the front of the Product. Both the Power Switch and their high-voltage LED on the front of the Product will go off.

7. Maintenance

⚠ Warning

Maintenance is an extremely important factor for achieving the optimum performance of the Device. Be sure to carry out the maintenance work on a regular basis.
Before you perform the maintenance work, make sure that the Power Supply Cable has been disconnected.
When you are using solvent such as alcohol, make sure that the room is well ventilated. And if you have used alcohol for cleaning, make sure that all alcohol has evaporated and no part on the Main Unit is wet with alcohol.
The tip of the Discharge Needle is pointed. When removing or cleaning the Discharge Needle Unit, pay special attention to the Needle Unit, or else you may injure yourself. Be careful not to cause the Discharge Needle to be bent or broken, otherwise the performance of the Unit may be greatly degraded.

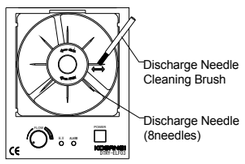
7.1 How to Clean the Discharge Needle

①Confirm that the Cable is not connected to the Connector on the Backside of the Main Unit. If connected, disconnect the Cable.

②Remove the Louver by referring to Section 5.2 where the procedure for exchanging Louvers is explained.

③Soak the supplied Discharge Needle Cleaning Brush in anhydrous alcohol such as isopropyl alcohol. Use the Brush to remove the foreign articles attached to the tip of the Discharge Needle.

④ If the plastic part of the Discharge Needle Unit or the surrounding plastic part is soiled, moisten a piece of waste cloth with anhydrous alcohol such as isopropyl alcohol and wipe off the soiled surfaces with the cloth.



⑤Attach the Louver to the Main Unit by referring to the procedure for exchanging the Louver described under Section 5.2 of this manual.

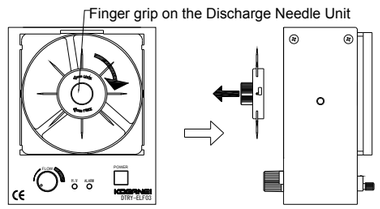
7.2 How to Replace the Discharge Needle Unit (DTRY-ZEM-F03)

The material used for the Discharge Needle of this Product is tungsten. Tungsten as the material for Discharge Needles is very durable and will not wear off easily. If the Product is regularly maintained in a normal manner, almost no degradation of the performance will be observed. In case, however, contamination cannot be removed due to negligence of maintenance or the Needle is bent or damaged due to an accident, etc., replace the entire Discharge Needle Unit with a new one.

①Confirm that the Cable is not connected to the Connector on the Backside of the Main Unit. If connected, disconnect the Cable.

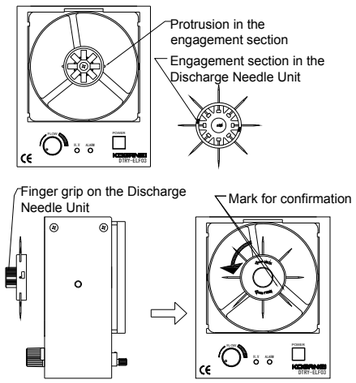
②Remove the Louver by referring to Section 5.2 where the procedure for exchanging Louvers is explained.

③While securely holding down the Main Unit in place, remove the Discharge Needle Unit by gripping the Finger Grip at the center of the Discharge Needle Unit and turning it in the direction of FREE (clockwise), and releasing the Unit.



④Prepare a new set of Discharge Needle Unit

⑤While securely holding down the Main Unit, grip the Finger Grip of the Discharge Needle Unit with your fingers. Align the protrusion on the Main Unit in the section to be engaged with the Discharge Needle Unit with the engaging section on the Discharge Needle Unit. Press the Discharge Needle Unit into the Main Unit, so that both units will be engaged with each other. Turn the Discharge Needle Unit in the LOCK direction (counterclockwise) until the Discharge Needle Unit is securely locked with the Main Unit.



⚠ Caution

Turn the Discharge Needle Unit until the Confirmation Mark ▲ on the Unit is aligned with the Mark on the rib section of the Fan. The correct installation of the Discharge Needle Unit on the Main Unit is essential for the optimum operation of the Product.
When you are removing the old Discharge Needle Unit and installing a new one, pay special attention to the FREE and LOCK turning directions.
When you are turning the Discharge Needle Unit, be sure not to apply an excessive force. Otherwise, you may cause damage to the Main Unit.
Do not disassemble the Discharge Needle Unit. The tip of the Discharge Needle is sharply pointed. It is possible that you may injure yourself.

⑥Install the Louver by referring to "the Procedure for Exchanging the Louver" under Section 5.2 in this manual.

7.3 How to Clean the Filter Cover and to Exchange the Backside Filter (DTRY-ZFR-F03)

⚠ Caution

The Backside Filter is a consumable item. When deterioration of the Backside Filter is observed, replace it with a new one.
When the Filter Cover is soiled or the Backside Filter is clogged, the Product cannot achieve its full performance. Be sure to carry out regular maintenance.

①Confirm that the Cable is not connected to the Connector on the Backside or the Main Unit. If connected, disconnect the Cable.

②Remove the Filter Cover by following the procedure described under Section 5.3 “How to Attach a Filter on the Backside of the Main Unit”.

③Wash and clean the soiled or clogged Filter Cover and the Filter using neutral detergent. After cleaning, be sure to completely dry the Filter Cover and the Filter.

⚠ Caution

Incomplete drying of the Filter or the Filter Cover may lead to degrade the performance of the Main Unit. Be sure to use the Product after the Filter and the Filter Cover a completely dried.

④Insert the newly prepared Backside Filter into the Filter Cover, and install the Filter Cover with the Filter on the Main Unit.

⚠ Caution

Make sure that the Filter Cover with the Filter is securely engaged in the Main Unit. If it is not securely installed in place, the Filter Cover may be disengaged and become detached from the Main Unit while the Product is in operation.

7.4 Inspection

①Check the Power Supply Signal Cable to confirm that there is no deterioration or breaking in the installation.

②Check the power supply voltage and the width of its variation to ensure that they are within the specified range.

③Check the Main Unit to confirm that there is no unknown low noise generated from the Unit.

8. Troubleshooting

In case any abnormal condition is observed in this Product, immediately turn of the power from the Main Unit. Disconnect the Cable from the Connector on the Backside or the Main Unit. Then, read this Section carefully and follow the instructions. If the abnormality cannot be solved even after that, please contact the shop where you purchased the Product (the agency), or the nearest service station of our company.

○Symptom

・The power cannot be supplied to the Unit. (All indicators do not light up at all, and the Fan does not turn.)

●Contents to be Confirmed

Check the DC power supply unit to confirm that the power is turned ON. In case you are using an AC adapter, check to see if the AC plug is securely inserted into the wall outlet.

・Check the input voltage to confirm that it is within the specified range.

・Check the Power Signal Cable to confirm that the wire is not broken.

・Check the Power Signal Cable to confirm that the wiring has been correctly performed.

・Check the Louver to confirm that it is correctly installed.

○Symptom

・The abnormality indications LED lights up.

●Contents to be Confirmed

・The Discharge Needle may be soiled or damaged. Carry out the maintenance work for the Discharge Needle Unit in accordance with the instructions given under Section 7 “Maintenance”.

・Check the Discharge Needle Unit to confirm that the Discharge Needle Unit has been securely installed.

○Symptom

・No elimination of the static electricity is performed.

●Contents to be Confirmed

・The Discharge Needle may be soiled or damaged. Carry out the maintenance work for the Discharge Needle Unit or replace the Unit with a new one in accordance with the instructions given under Section 7 “Maintenance”.

○Symptom

・The Abnormal Output Circuit is not workable.

●Contents to be Confirmed

・Carry out the setting of the NO (contact A)/NC (contact B) Contact Selector Switch once again in accordance with 5.1 “Setting of Contacts for Abnormal Output” in this manual.

⚠ Caution

The Abnormal Output Circuits will start working about 2 seconds after the power is turned on. Pay special attention when designing the Abnormal Detection Circuits when this Product is to be built into a system.

○ Symptom

・The Power Switch LED lights up but the High-voltage Power Supply LED and the abnormal indicator LED do not light up.

・The Power Switch LED lights up but the Fan does not turn.

●Contents to be Confirmed

・It is possible that the Product is broken down. Please contact the shop where you purchased the Product (the agency), or the nearest service station of our company.

○Any other abnormal condition

・If any other abnormal condition than above has been observed, immediately turn OFF the power from the Product, and please contact the shop where you purchased the Product (the agency), or the nearest service station of our company.

KOGANEI CORPORATION

JUST CONSULT US
KOGANEI CORPORATION

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*Please understand that the appearance and the specifications of this Product may be altered without advance notice for improvements.