

# Instruction Manual

## Wide-Flow Fan-type Ionizer

### [DTRY-ELW23]

Thank you very much for your purchase of DTRY-ELW23 (hereinafter referred to as ELW23). Although this product is not classified as a high-voltage device under any electrical equipment standard, it uses a high voltage at 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 used inside this product, 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 will not be held liable for any usage outside the product Specifications or any accident caused by noncompliance with the Safety Precautions.

##### 1.1 ⚠ Warning

This product is not specified as an explosion-proof type unit. 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.
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.
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, the unit will not only be able to demonstrate the optimum performance but the equipment and or 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. R0001).

##### 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 range.
Make sure that any unserviceable or unnecessary unit and consumable items are properly disposed of as industrial waste materials.
For any other items of precaution, please refer to the Safety Precaution in the Static Electricity Elimination Unit; Ionizer Catalog (Catalog No. R0001).

#### 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\*.....1 unit
- Instruction Manual (this booklet)..... 1 booklet
- Discharge needle unit.....1 unit
- Bracket\*.....1 set
- Power supply signal cable (2 m).....1 line
- Grounding lead wire (2 m) .....1 line
- Filter\*.....1 sheet
- Contact selector switch protection seal.....1 sheet
- Knurl screws.....2 pcs
- Drop-out protection washer.....2 pcs
- Discharge needle cleaning brush.....1 pcs
- \* 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-W23
- Filter (a set of 5 sheets).....DTRY-ZFU-W23

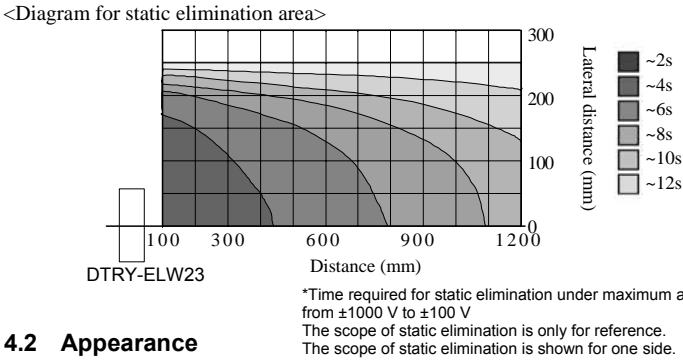
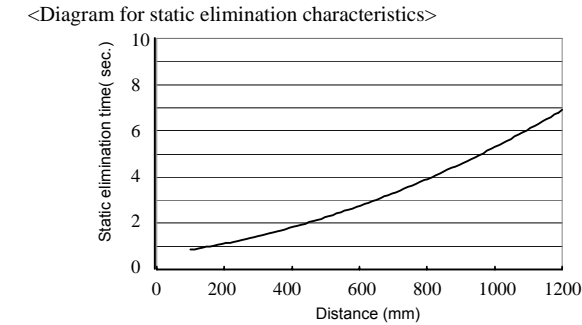
#### 3. Product Overview

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.

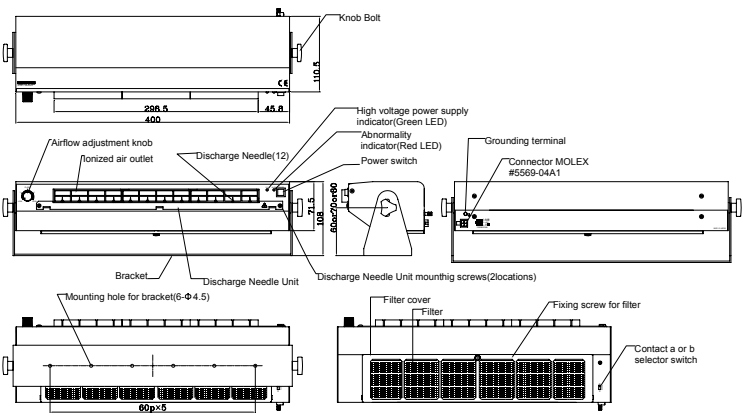
#### 4. Specifications

Type	DTRY-ELW23
Input Power Source	DC24 V ±5%
Current Consumption: mA	400
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); 24 VDC; 50 mA Max.
Outside Dimensions: mm	120.5 (L) × 408 (W) × 118 (H) (Not including protruding parts, a hole on the Bracket with the highest mounting hole for the Bracket on the main unit)
Mass: kg	Approx. 2.6
Ion Balance: V	±15 * (at 300 mm from the center of the blow-out opening; at maximum airflow)
Static elimination time: sec.	2* (at 300 mm from the center of the blow-out opening; at maximum airflow)
Generated Ozone Volume: ppm	0.03 or less (at 300 mm from the center of the blow-out opening; at maximum airflow)
Airflow: m <sup>3</sup> /min	2.2 Max. (step-less adjustment possible)
Environmental Temperatures: °C	0 ~ 40 indoors ( Max 65%RH ;no condensation allow)
Safety Approvals	IEC61010-1: Overvoltage category I, Pollution degree 2. Altitude up to 2000m

\*Measured under the measuring conditions specified by our company



##### 4.2 Appearance



#### 5. Installation/Wiring

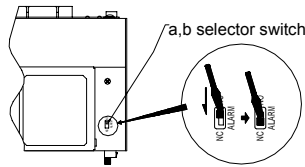
##### 5.1 Setting of Contacts for Abnormal Output

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 bottom 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 with a precision screw driver, 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 Contact.

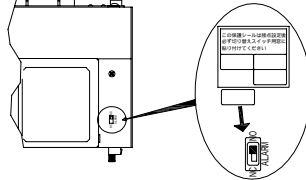
SETTING MODE	POWER OFF	POWER ON
NO (Contact A)	OPEN	OPEN
NC (Contact B)	OPEN	CLOSE

##### ⚠ 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 5.6 "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.

- (4) After 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.



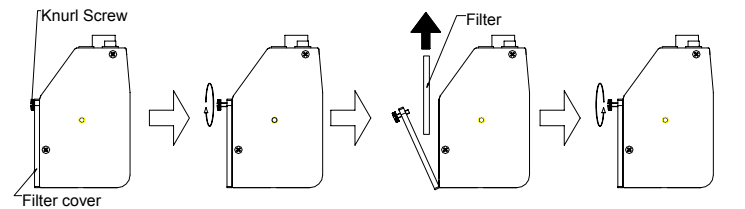
##### ⚠ Caution

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

##### 5.2 How to Remove a Filter

This product is attached with the Filter at the bottom of the main unit. Depending on the environment in which you use this unit, you may use the product with the Filter removed.

- (1) Confirm that the Cable is not connected to the connector on the backside of the main unit. If connected, disconnect the cable.
- (2) Unscrew the Knurl Screw of the filter cover on the bottom of the main unit.
- (3) Open the Filter Cover, and remove the Filter.
- (4) Close the Filter Cover and tighten the Knurl Screw.



##### ⚠ Caution

When you're using the unit with the Filter removed, be sure to keep the Filter at a safe place for your future use.

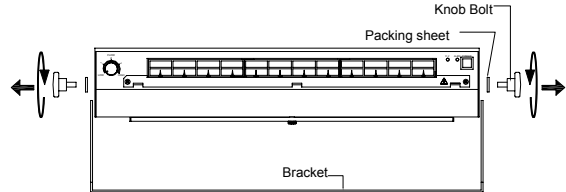
Do not apply excessive force to the Filter Cover, or else you may damage the product.

##### 5.3 Adjusting the Bracket Height

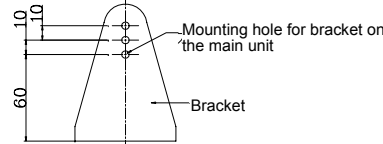
The bracket of this product is designed to allow you to adjust the height of the main unit by 3 steps. Depending on the conditions how you use this unit, please adjust the height of the main unit.

- (1) Confirm that the cable is not connected to the connector on the backside of the main unit. If connected, disconnect the cable.
- (2) While firmly pressing down the main unit to hold it in position, remove the Knob Bolts at both ends.

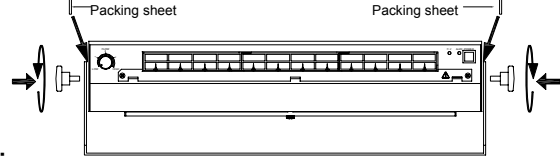
There are Packing Sheets inserted between the main unit and Bracket. Make sure you do not misplace any Packing Sheet when removing the Knob Bolts.



- (3) Select the height from three positions of mounting hole at both ends of the Bracket.



- (4) Align a hole on the Bracket with the corresponding mounting hole for the Bracket on the main unit, insert a Packing Sheet between the main unit and the Bracket, and then tighten both ends with the Knob Bolts.



##### ⚠ Caution

When adjusting the bracket height, verify that the positions of the bracket mounting holes are correct.

Make sure that the packing sheets are correctly and securely inserted. If not, the anchorage of the angle may become unreliable while you are using the unit.

Please note that an adjustment of the bracket height to a lower position will reduce the adjustable range of angles for the main unit.

If the mounting hole for the bracket at the lowest position is used, it is possible that the static elimination time might be prolonged.

##### 5.4 Installation

##### ⚠ Caution

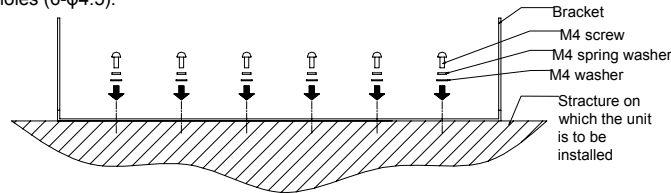
Do not install or use the product on the surface of any device that contains on moving part, where it may be subjected to violation or shocks. The product may possibly be damaged.

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 30 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.

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.

- (1) The product may be used by placing it on a horizontal surface such as a tabletop. When installing the unit as a component etc. inside a system, fasten the unit on the system by using M4 screws (including spring washers and washers) on the mounting holes (6-φ4.5).



- (2) The angle of the main unit may be freely adjusted by loosening the Knob Bolts. After the adjustment is completed, be sure to tighten the Knob Bolts again to ensure that the adjusted angle will stay unchanged.

##### ⚠ Caution

Make sure that the height of screws (including washers) is set to 8 mm or less. If the Bracket height is adjusted too low, interference between the main unit and screws may occur. Make sure that no such interference would occur when making the angle adjustment of the main unit.

##### 5.5 Others

This product is supplied with 2 Knurl Screws as a set of accessory. By replacing the set screws (M3 binding screws) for fastening the Discharge Needle Unit on the main unit with the 2 Knurl Screws, removal of the Discharge Needle Unit when cleaning the Discharge Needle will become easier. A cleaning method of the Discharge Needle is reference with 7.1. "How to Clean the Discharge Needle."

##### ⚠ Caution

By replacing the set screws for fastening the Discharge Needle Unit with the supplied Knurl Screws, attachment and removal of the Discharge Needle Unit will become easier, improving the maintenance characteristics of the system. Note, however, that easier removal and attachment will make hazards of injuries by the Discharge Needle or of its damages more liable to occur.

##### 5.6 Wiring

##### ⚠ Caution

When installing wiring, be sure to confirm the colors of the cables to be used and carry out the wiring work in a secure and correct manner. Wrong wiring may cause damages to the main unit.

Make sure that the rated power supply voltage is applied to the product. Do not apply any power supply subject to variation, or else a malfunction of the unit may occur, and the product may not be able to work up to the full performance.

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

- (1) Connect the supplied the Power Supply Signal Cable to the connector on the backside of the main unit.
- (2) Connect 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.
- (3) If the Abnormal Output Contacts are to be used, connect the Contact to the "White" and "Black" lines of the Power Signal Cable. No polarity is involved with the connections in this case.

### Caution

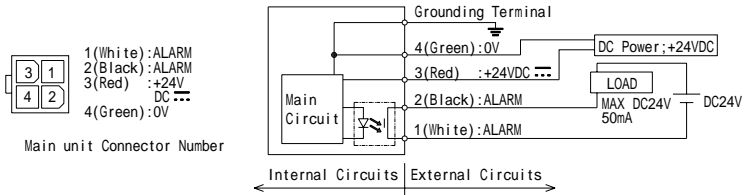
Make sure that the connections are carried out in a secure manner by using a terminal block or crimp-style terminals, etc. Otherwise, main unit gets damaged.

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.). Otherwise, the main unit may possibly be damaged.

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 to be incorporated in the 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, main unit gets damaged.



- How to Ground the Wiring

- (1) Connect the round terminal of the supplied Grounding Lead Wire to the grounding terminal located on the backside of the main unit.
- (2) Connect 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. Otherwise, an electric shock accident or a malfunction of the unit may occur. In addition, the product may not be able to work up to the full performance.

## 6. Operation

### 6.1 Operations When Turning ON the Power

- (1) Check 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.
- (2) Turn ON the switch on the DC power supply.
- (3) Press 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.
- (4) In 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

- (1) Press 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 Signal 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.

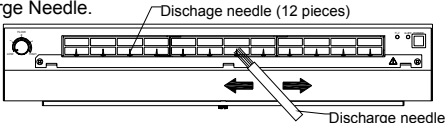
The tip of the Discharge Needle is pointed. When removing or cleaning the Discharge Needle Unit, pay special attention to the Discharge Needle Unit, or else you may injure yourself. Be careful not to cause the Discharge Needle to be bent or broken, otherwise, the performance of the unit may be greatly degraded.

### 7.1 How to Clean the Discharge Needle

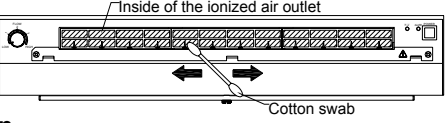
The material used for the Discharge Needle of this product is tungsten. Tungsten as the material for Discharge Needles is very durable and will not wear off easily. If the product is regularly maintained in a normal manner, almost no degradation of the performance will be observed.

- If the Discharge Needle Unit is not to be removed:

- (1) Confirm that the cable is not connected to the connector on the Backside of the main unit. If connected, disconnect the cable.
- (2) Soak the supplied Discharge Needle Cleaning Brush in anhydrous alcohol such as isopropyl alcohol. Use the brush to remove the foreign particles attached to the tip of the Discharge Needle.



- (3) If the inside of the ionized air outlet is soiled, moisten a cotton swab with anhydrous alcohol such as isopropyl alcohol and wipe off the soiled surfaces with the swab. Note that cotton swabs are not supplied with a main unit as an accessory item. Please prepare them by yourself when using them.

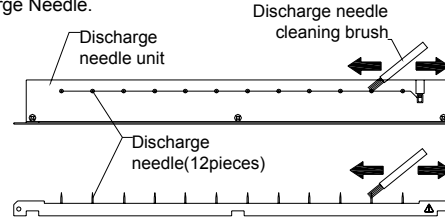


### Caution

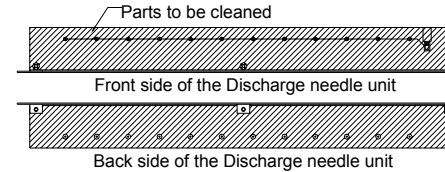
If cleaning of the Discharge Needle is to be carried out without removing the Discharge Needle Unit, it is possible that dust may be splashed when the unit is operated after the cleaning work is completed due to the lack of cleaning of the backside of the Discharge Needle and to falling of dust into the internal part of the main unit. It is recommended, therefore, that you perform the cleaning work by removing the Discharge Needle Unit.

- If the Discharge Needle Unit is to be removed:

- (1) Confirm that the cable is not connected to the connector on the Backside of the main unit. If connected, disconnect the cable.
- (2) In accordance with 7.2 "How to Replace the Discharge Needle Unit," remove the Discharge Needle Unit.
- (3) Soak 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 board of the Discharge Needle Unit is soiled, moisten a piece of waste cloth with anhydrous alcohol such as isopropyl alcohol and wipe off the soiled surfaces with the cloth.



- (5) In accordance with 7.2 "How to Replace the Discharge Needle Unit," install the Discharge Needle Unit.

### Caution

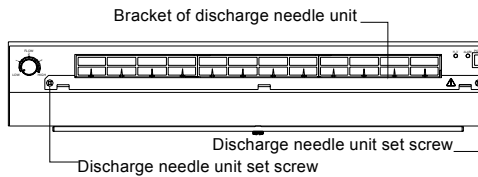
The tip of the Discharge Needle is sharply pointed. Pay special attention to handling of the Discharge Needle Unit after it is removed from the unit.

If the soil on the tip of the Discharge Needle cannot be removed by cleaning, or if the Discharge Needle is bent or broken by an accident, etc., replace the Discharge Needle Unit with new one in accordance with 7.2 "How to Replace the Discharge Needle Unit." If you continue to use the unit without replacing the defective needle, the performance may be degraded or insufficient static elimination may occur.

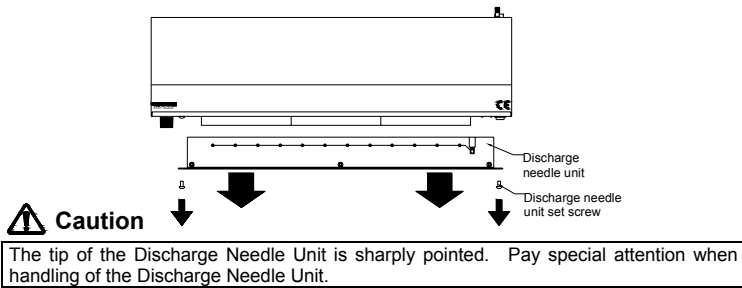
### 7.2 How to Replace the Discharge Needle Unit (DTRY-ZEM-W23)

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 Discharge Needle is bent or damaged due to an accident, etc., replace the entire Discharge Needle Unit with a new one.

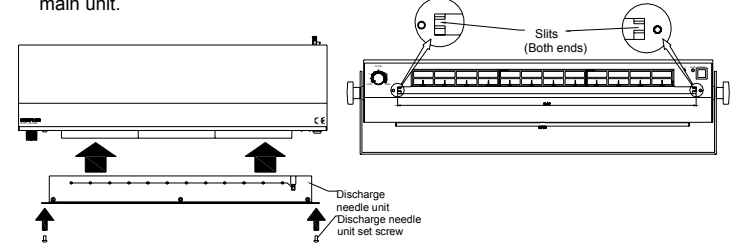
- (1) Confirm that the cable is not connected to the connector on the backside of the main unit. If connected, disconnect the cable.
- (2) Unscrew the set screws (or the Knurl Screws) of the Discharge Needle Unit.



- (3) While securely holding the Bracket section of the Discharge Needle Unit, pull it out in a straight line.



- (4) Prepare a new Discharge Needle Unit.
- (5) While securely holding down the main unit, insert the Discharge Needle Unit into the plug-in inlet of the main unit until the Discharge Needle unit is securely locked in the main unit.



### Caution

When inserting the Discharge Needle Unit into the main unit, insert it through the slits (black) provided at both ends of the plug-in inlet of the main unit.

Insert the Discharge Needle Unit into the main unit in a straight line without applying excessive force, or else a malfunction of the unit may occur.

When inserting the Discharge Needle Unit into the main unit, be careful not to touch the air outlet of the main unit at Discharge Needle.

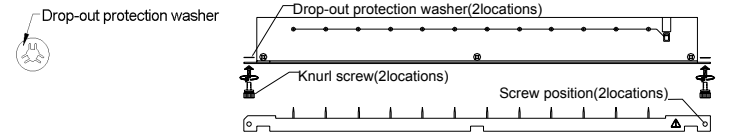
- (6) Tighten the set screws (or the Knurl Screws) of the Discharge Needle Unit to lock the unit at the specified position.

### Caution

Make sure that screws are fully tightened. A piece not fully tightened may cause defective operations of the unit or may prevent the unit from operating up to the full performance.

### 7.3 Discharge Needle Unit: How to Attach Knurl Screws

- (1) Check the connectors on the back side of the main unit to confirm that no cable is connected. If any cable is connected, disconnect it.
- (2) Dismantle the Discharge Unit (DTRY-ZEM-W23) in accordance with the specified method of replacement.
- (3) Align a drop-out protection washer with each of the screwing positions for the Discharge Unit and screw in a knurl screw on each of the 2 positions.



- (4) Install the Discharge Unit (DTRY-ZEM-W23) in accordance with the specified method of replacement.

### Caution

The tip of the Discharge Needle is extremely sharp and pointed. Pay special attention in working with the Discharge Needle Unit while it is being dismantled.

A Drop-out Protection Washer is a very small item. Be especially careful not to misplace it.

When dismantling the Discharge Unit from the Main Unit, do not give a Knurl Screw a strong pull, or else the Drop-out Protection Washer may come off.

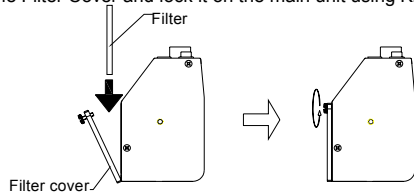
### 7.4 How to Exchange the Filter (DTRY-ZFU-W23)

### Caution

The Filter is a consumable item. When deterioration of the Filter is observed, replace it with a new one.

When the Filter Cover is soiled or the Filter is clogged, the product cannot achieve its full performance. Be sure to carry out regular maintenance.

- (1) Confirm that the cable is not connected to the connector on the backside of the main unit. If connected, disconnect the cable.
- (2) In accordance with "How to Remove a Filter," remove the Filter.
- (3) Wipe off the soil from the Filter Cover using a piece of waste cloth soaked with anhydrous alcohol such as isopropyl alcohol.
- (4) Mount the newly prepared Filter in the Filter Cover.
- (5) Close the Filter Cover and lock it on the main unit using Knurl Screws.



### Caution

Make sure that the Knurl Screws are fully tightened. Any Knurl Screws not fully tightened may cause the Filter Cover to be disengaged while the unit is used, or may cause some noise to be generated.

### 7.5 Inspection

- (1) Check the Power Supply Signal Cable to confirm that there is no deterioration or breaking in the insulation.
- (2) Check the power supply voltage and the width of its variation to ensure that they are within the specified range.
- (3) Check the main unit to confirm that there is no unknown noise generated from the unit.

## 8. Troubleshooting

In case any abnormal condition is observed in this product, immediately turn off the power from the main unit. Disconnect the cable from the connector on the backside of 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. If 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 Discharge Needle Unit is installed in the correct manner.

- 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 unit has been securely installed.

- Symptom:
  - No static elimination 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 working.

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