

# Instruction Manual

## Wide Area Fan Type Ionizer 【DTY-FA01】

Thank you very much for your purchase of DTY-FA01. 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 correctly handle this unit. Keep this manual on hand for your reference and consult it repeatedly as required.

### 1. Safety Precautions

#### ⚠ WARNING

This product is not designed to be explosion proof. Do not locate it or use it in any location or environment where flammable gas or solvents are used. Doing so creates the risk of fire and explosion.

High voltage is applied to the discharge needle. Keep your fingers and other body parts, as well as wires, tools, and other conductive objects away from it. Such conditions can cause electric shock and malfunction.

The tip of the discharge needle is a sharp point. Exercise sufficient care when handling the needle.

Careless handling creates the risk of personal injury.

Never attempt to disassemble, repair, or modify the product in any way. Doing so can cause accident or malfunction.

Be sure to turn off power before performing wiring, installation, or inspection work. Failure to do so can cause accident, electric shock, or malfunction.

For information about other warnings, refer to the “Safety Precautions” section in the Static Electricity Removing Unit Ionizer catalog (Catalog No. R0003-②).

#### ⚠ CAUTION

This product has a high-voltage generating device built in. Keep it away from areas where water or oil can get on it, and do not locate it in areas that are subjected to high temperatures and humidity. In particular, do not use this product in areas subjected to high humidity and condensation.

Always be sure to ground the ionizer. Failure to do so can cause poor static electricity removal and malfunction.

When the product is no longer usable or is no longer needed, dispose of it appropriately as industrial waste.

Make sure to grasp the plug when removing the power cord. Pulling the power cord by the cord may cause it to break, or become damaged and have its core be exposed, which may cause a short circuit, or current leakage and electrocution.

Be sure to perform wiring correctly. Incorrect or improper wiring can cause malfunction.

For information about other precautions, refer to the “Safety Precautions” section in the Static Electricity Removing Unit Ionizer catalog (Catalog No. R0003-②).

### 2. Outline

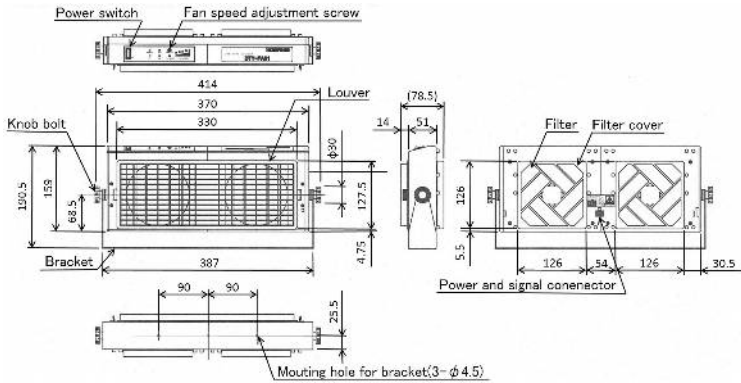
- This product uses two fans to blow air ionized with the corona discharge of an electrode to eliminate the static electricity in electrically charged materials that are located at a distance. The horizontal configuration of the product enables the elimination of static over a wide range area.
- Includes output signals for abnormal high voltage or fan locked output (red indicator). When abnormal high voltage occurs in this product, it stops the high voltage output.
- The front louver can be easily removed/attached for easy electrode maintenance. This product also includes a safe circuit design that ensures that the high voltage output and fans stop when the louver is removed.
- The amount and angle of the air blowing from the fan is adjustable.

### 3. Specifications

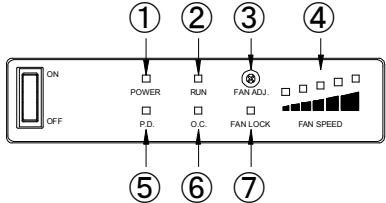
List of Specifications	
Model No.	DTY-FA01
Power-supply voltage	Accessory AC adapter input: 100 V to 240V AC, 50/60Hz (Output: 24V DC 2.1A)
Input voltage	24 V DC ± 5%
Consumption current	1A
Output voltage	± 7,500 V ○ approx.
Ion balance (NOTE1)	± 5 V or less
Static charge removal time (NOTE1)	1.0 sec. or less
Output signals	OFF if abnormal high voltage output or fan locked (red LED is lights up) normally ON MOS FET relay output maximum allowed current: 50 mA Applied voltage: 24 V DC or less
Airflow	1.4 to 3.2 m³/min × 2 fan
Air flow out angle	Vertically 360° variable (per 10 degree)
Quantity of produced ozone	0.006 ppm or less (at the center of the fan outlet [150 mm], at minimum flow rate)
Ambient temperature	0 to 40°C
Ambient humidity	15 to 85% ( No condensation allowed )
Dimensions: (mm)	370W×159H×78.5D (Main unit only)
Weight	1.7 kg approx. (including bracket)
Accessories	Instruction manual (this document), AC adapter (NOTE2), Alarm output connection wire, Cleaning brush

Note1: Typical value at a distance of 300 mm from the center of the fan outlet, at maximum flow rate.  
Note2: The power cable supplied with AC adapter is 125V rated power voltage.

#### Appearance



#### ● Indication/ Function part name

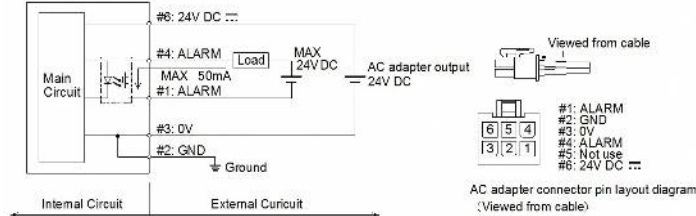


#### ● Indication/ Function part description

No.	Name	Indication	type	description
①	Power supply indicator	POWER	green LED	Lights up when the power supply is turned ON.
②	Run indicator	RUN	green LED	Lights up when the product is operated.
③	Fan speed adjustment screw	FAN ADJ.	screw	To enable change of airflow at step-less adjustment possible
④	Fan speed indicator	FAN SPEED	green LED	The airflow can be indicated with the LED. [1 (weak) to 5 (strong)]
⑤	Pulse discharge detection indicator	P.D.	red LED	Lights up when an electrical discharge or a spark has occurred, and High-voltage output is halted.
⑥	Over Current detection indicator	O.C.	red LED	Lights up when an over-current has occurred, and High-voltage output is halted.
⑦	Fan lock indicator	FAN LOCK	red LED	Lights up when the fan is not in the normal operating status.

Note1: When P.D. or O.C. detection indicator is lights up, press the Power switch to cancel abnormal status. But if the abnormal condition has not been removed, the abnormal status will occur again.

### 4. I/O Circuit Diagram



Note1: GND(#2) is connected internally to 0V(#3).  
Note2: The 24VDC, 0V and GND wire are connected to the connector of the AC adapter before shipment.

### 5. Installation

- Be sure to turn OFF the power before installing the product.
- Place the product on a level surface. If you want to fix the product to the surface, use the screws already inside the holes, and make sure the product is secured firmly before using it.
- The angle of the main unit may be adjusted per 10 degrees 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.

### 6. Wiring

#### ⚠ Caution

- When connecting to a grounded power outlet, use the 3-pin plug. When connecting to an ungrounded (2-pin) power outlet using the adapter, be sure to ground the lead “green” wire attached from the output connector of the AC adapter. Otherwise, an electric shock accident or a malfunction of the unit may occur. In addition, this product may not be able to work up to the full performance.

#### Connection the Power Supply and the Output Signals

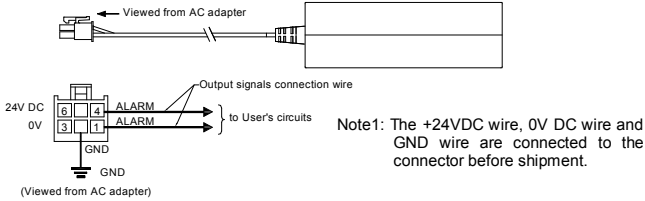
- Connect the Grounding Lead “green” wire attached from the output connector of the AC adapter to the Grounding Point. If it is not securely grounded, the Product may not be able to work up to the fullest performance.
- If the Alarm Output Signals are to be used, connect the “white” and “yellow” wires (Accessories) to the output connector of the AC adapter. No polarity is involved with the connections in this case. If no Alarm Output Signals are to be used, these wires do not have to be connected to the connector of the AC adapter.

- Insert the 24VDC output connector of the AC adapter into the power supply signal connector on the backside of the main unit.
- The internal relay contacts will generate output signals as follows. The output signals are rated for a maximum current of 50 mA and 24 V DC.

	POWER OFF		
	ALARM OFF (no red LED lighting)	ALARM ON *Note1 (red LED light)	
Output signal relay contact	OPEN	CLOSE	OPEN

Note1: The relay contacts will generate output signals when ‘P.D.’ or ‘O.C.’ indicator (red LED) light up.  
● Insert the 24VDC output connector of the AC adapter into the power and signal connector on the backside of the Main Unit.

#### <Wiring for AC adapter>



#### Connection the AC adapter

- Insert the power plug of the AC adapter to an AC (100 to 240V) power outlet (Connect to a grounded power outlet possibility).
- Make sure to use the AC adapter included with the product. (INPUT: 100 V to 240 V 50/60 Hz, OUTPUT: 24 V DC)

### 7. Operation

- It takes approximately 5 seconds after the power is turned on before the fan rotation stabilizes. To ensure proper static charge removal performance, do not use the product until sufficient time has elapsed.
- (1) Turn the power switch of the product ON, and green POWER LED becomes light up. The electrode becomes charged with high voltage, releases corona discharge, and generates neutralizing ions. At the same time, the fans spin, and blow neutralizing air from the front of the main unit. Charged materials placed in the neutralizing air will be immediately neutralized.
  - (2) The operating status is displayed on the front monitor panel. In a normal operating state, only the green RUN LED lights up. If the fan stops, the red FAN LOCK LED lights up, and if there is a high voltage output irregularity, the red P.D. LED or O.C. LED lights up.
  - (3) In accordance with the distance to the charged object, adjust the Fan speed adjustment screw to provide the appropriate amount of airflow. Turn the Fan speed adjustment screw gradually with phillips screwdriver.
  - (4) Press the Power switch OFF to stop the product.

### 8. Indicator and Alarm output

	LED state					Alarm output
	POWER [green]	RUN [green]	P.D [red]	O.C [red]	FAN LOCK [red]	ALARM [1pin-4pin]
Normally	○	○				ON
Pulse discharge	○		○			OFF
Over current	○			○		OFF
Fan lock	○	○			○	OFF
Power OFF						OFF

### 9. Maintenance

#### ⚠ Warning

- Before care and maintenance of the product, make sure to turn OFF the power. Otherwise damage or operating problems may occur.
  - The tip of the discharge needle is sharp, be careful not to touch the Discharge Needle.
- When the product is used for long periods of time, the discharge needle and the air inlet/ outlet section will get dirty. Clean the discharge needle and the air inlet/ outlet section regularly, otherwise you could not get the desired effect, and operating errors and accidents may occur.
  - The maintenance required depends on the environment of use. As a reference, cleaning both the discharge needle unit and fan filter should be done once 3,000 hours.
  - The discharge needle is a part having a product life time. If the charge removal performance is not restored after cleaning the discharge needle, it is recommended to replace the entire discharge needle unit with a new one. The expected life span is seemed to be 20,000 hours In case of natural wear and use.
  - If you use the discharge needle unit or fan filter for replacement mentioned, please purchase below.
    - DTY-ZEM-FA : Discharge needle unit
    - DTY-ZFR-FA : Fan filter (6 pcs.)

#### Cleaning the Front Louver

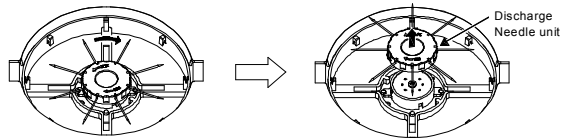
- (1) Push in the tabs on both sides of the front louver, and pull it towards yourself to remove it from the product. Clean the louver using the included cleaning brush. If the louver is extremely dirty, wash it with water (or a neutral detergent).
- (2) Re-attach the front louver to the main unit after drying it thoroughly.

#### Cleaning the Discharge needles

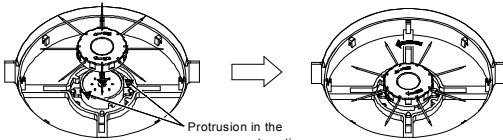
- (1) Remove the front louver.
- (2) Clean the discharge needles using the included cleaning brush. If the discharge needles are extremely dirty, it is recommended you add IPA (isopropyl alcohol) to the cleaning brush.

#### Replacing the Discharge needle unit

- (1) Remove the front louver.
- (2) While securely holding down the product 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.



- (3) Prepare a new set of discharge needle unit.
- (4) Align the protrusion on the product 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 product, 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 product.



Note1: Turn the discharge needle unit until securely locked. The correct installation of the discharge needle unit on the product is essential for the optimum operation of the product.

#### Cleaning the Filter

- (1) Check that the power is turned off.
- (2) While securely holding down the product 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.
- (3) Clean the soiled and clogged the filter. If the filter is extremely dirty, wash it with water (or a neutral detergent), and drying it thoroughly.
- (4) Re-attach the filter to the product.

### 10. Troubleshooting

Problem	Main case	Remedy
The power cannot be supplied to the product.	AC adapter not connected Louver not installed	Check to see if the AC plug is securely inserted into the wall outlet. Check the Louver to confirm that it is correctly installed.
P.D. LED (red LED) lights up.	Abnormal discharge	Check that the discharge needle is free from conductive materials. P.D. LED remains light even after the discharge needle has been cleaned, clean the area around the needle is dirty. Check that the discharge needle unit to confirm that it is correctly installed.
O.C. LED (red LED) lights up.	Internal circuit is broken	Turn off the power, and then turn the power back on.
FAN LOCK LED (red LED) lights up	Fan in broken Foreign objects	Check the filter is not dirty or blocked. Check no foreign objects inside the product.

※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.



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The specifications or the appearance of this product are subject to change any time without prior notice.



# Instruction Manual

## Wide Area Fan Type Ionizer 【DTY-FA02】

Thank you very much for your purchase of DTY-FA02. 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 correctly handle this unit. Keep this manual on hand for your reference and consult it repeatedly as required.

### 1. Safety Precautions

#### ⚠ WARNING

This product is not designed to be explosion proof. Do not locate it or use it in any location or environment where flammable gas or solvents are used. Doing so creates the risk of fire and explosion.

High voltage is applied to the discharge needle. Keep your fingers and other body parts, as well as wires, tools, and other conductive objects away from it. Such conditions can cause electric shock and malfunction.

The tip of the discharge needle is a sharp point. Exercise sufficient care when handling the needle.

Careless handling creates the risk of personal injury.

Never attempt to disassemble, repair, or modify the product in any way. Doing so can cause accident or malfunction.

Be sure to turn off power before performing wiring, installation, or inspection work. Failure to do so can cause accident, electric shock, or malfunction.

For information about other warnings, refer to the "Safety Precautions" section in the Static Electricity Removing Unit Ionizer catalog (Catalog No. R0003-②).

#### ⚠ CAUTION

This product has a high-voltage generating device built in. Keep it away from areas where water or oil can get on it, and do not locate it in areas that are subjected to high temperatures and humidity. In particular, do not use this product in areas subjected to high humidity and condensation.

Always be sure to ground the ionizer. Failure to do so can cause poor static electricity removal and malfunction.

When the product is no longer usable or is no longer needed, dispose of it appropriately as industrial waste.

Make sure to grasp the plug when removing the power cord. Pulling the power cord by the cord may cause it to break, or become damaged and have its core be exposed, which may cause a short circuit, or current leakage and electrocution.

Be sure to perform wiring correctly. Incorrect or improper wiring can cause malfunction.

For information about other precautions, refer to the "Safety Precautions" section in the Static Electricity Removing Unit Ionizer catalog (Catalog No. R0003-②).

### 2. Outline

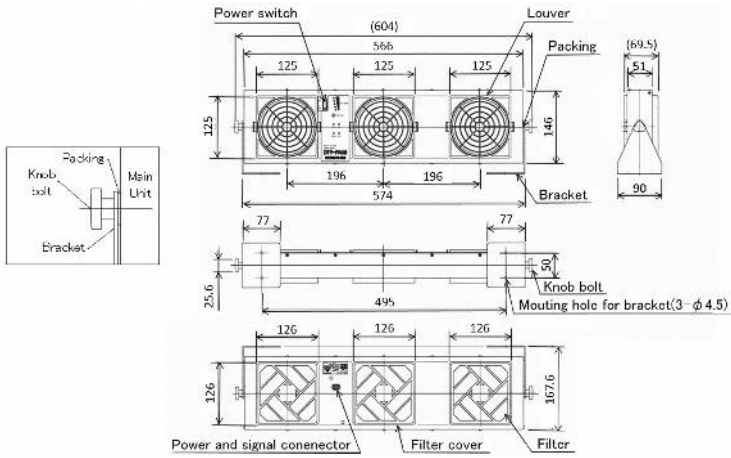
- This product uses three fans to blow air ionized with the corona discharge of an electrode to eliminate the static electricity in electrically charged materials that are located at a distance. The horizontal configuration of the product enables the elimination of static over a wide range area.
- Includes output signals for abnormal high voltage output (red indicator). When abnormal high voltage occurs in this product, it stops the high voltage output.
- The front louver can be easily removed/attached for easy electrode maintenance. this product also includes a safe circuit design that ensures that the high voltage output and fans stop when the louver is removed.
- The amount and angle of the air blowing from the fan is adjustable.

### 3. Specifications

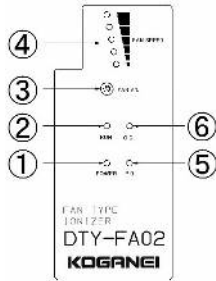
List of Specifications	
Model No.	DTY-FA02
Power-supply voltage	Accessory AC adapter input: 100 V to 240V AC, 50/60Hz (Output: 24V DC 2.1 A)
Input voltage	24 V DC $\pm$ 5%
Consumption current	1.25 A
Output voltage	$\pm$ 7,500 V $\approx$ approx.
Ion balance (NOTE1)	$\pm$ 5 V or less
Static charge removal time (NOTE1)	1.5 sec. or less
Output signals	OFF if abnormal high voltage output (red LED is lights up) normally ON MOS FET relay output maximum allowed current: 50 mA Applied voltage: 24 V DC or less
Airflow	1.4 to 3.2 m <sup>3</sup> /min $\times$ 3 fan
Air flow out angle	Vertically 360° variable
Quantity of produced ozone	0.006 ppm or less (at the center of the fan outlet [150 mm], at minimum flow rate)
Ambient temperature	0 to 40°C
Ambient humidity	15 to 85% ( No condensation allowed )
Dimensions: (mm)	566W $\times$ 146H $\times$ 69.5D (Main unit only)
Weight	3.1 kg approx. (including bracket)
Accessories	Instruction manual (this document), Bracket (2 pcs), Knob bolt (2 pcs), Packing (2 pcs), AC adapter (NOTE2), Alarm output connection wire (2 pcs), Cleaning brush

Note1: Typical value at a distance of 300 mm from the center of the fan outlet, at maximum flow rate.  
Note2: The power cable supplied with AC adapter is 125V rated power voltage.

#### Appearance



#### ● Indication/ Function part name

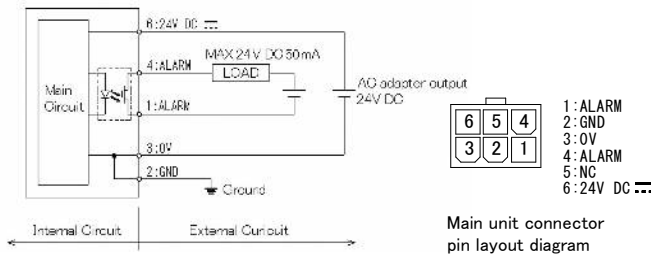


#### ● Indication/ Function part description

No.	Name	Indication	type	description
①	Power supply indicator	POWER	green LED	Lights up when the power supply is turned ON.
②	Run indicator	RUN	green LED	Lights up when the product is operated.
③	Fan speed adjustment screw	FAN ADJ.	screw	To enable change of airflow at step-less adjustment possible
④	Fan speed indicator	FAN SPEED	green LED	The airflow can be indicated with the LED. [1 (weak) to 5 (strong)]
⑤	Pulse discharge detection indicator	P.D.	red LED	Lights up when an electrical discharge or a spark has occurred, and High-voltage output is halted.
⑥	Over Current detection indicator	O.C.	red LED	Lights up when an over-current has occurred, and High-voltage output is halted.

Note1: When P.D. or O.C. detection indicator is lights up, press the Power switch to cancel abnormal status. But if the abnormal condition has not been removed, the abnormal status will occur again.

### 4. I/O Circuit Diagram



Note1: The grounding wire (2pin) and enclosure are connected internally to 0VDC

### 5. Installation

- Be sure to turn OFF the power before installing the product.
- Install the bracket before using this product.
- Put packing between the bracket and the main unit, and fix firmly with the knob bolt.
- Place the product on a level surface. If you want to fix the product to the surface, use the screws already inside the holes, and make sure the product is secured firmly before using it.
- The 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.

### 6. Wiring

#### ⚠ Caution

- When connecting to a grounded power outlet, use the 3-pin plug. When connecting to an ungrounded (2-pin) power outlet using the adapter, be sure to ground the lead "green" wire attached from the output connector of the AC adapter. Otherwise, an electric shock accident or a malfunction of the unit may occur. In addition, this product may not be able to work up to the full performance.

#### Connection the Power Supply and the Output Signals

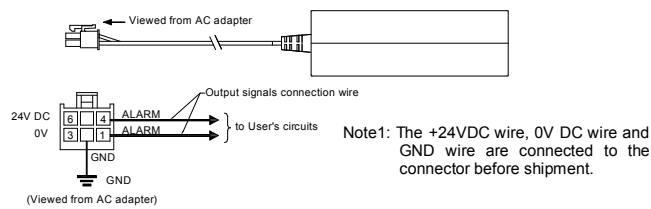
- If the Output signals are to be used, connect the "white" and "yellow" wires (included with the product) to the output connector of the AC adapter. No polarity is involved with the connections in this case. If no output signals are to be used, these wires do not have to be connected to the connector of the AC adapter.
- The internal relay contacts will generate output signals as follows. The output signals are rated for a maximum current of 50 mA and 24 V DC.

	POWER OFF	ALARM OFF (no red LED lighting)	ALARM ON * Note1 (red LED light)
Output signal relay contact	OPEN	CLOSE	OPEN

Note1: The relay contacts will generate output signals when 'P.D.' or 'O.C.' indicator (red LED) light up.

- Insert the 24VDC output connector of the AC adapter into the power and signal connector on the backside of the Main Unit.

#### <Wiring for AC adapter>



#### Connection the AC adapter

- Insert the power plug of the AC adapter to an AC (100 to 240V) power outlet (Connect to a grounded power outlet possibility).
- Make sure to use the AC adapter included with the product.  
(INPUT: 100 V to 240 V 50/60 Hz, OUTPUT: 24 V DC)

### 7. Operation

- It takes approximately 5 seconds after the power is turned on before the fan rotation stabilizes. To ensure proper static charge removal performance, do not use the product until sufficient time has elapsed.
- (1) Turn the power switch of the product ON, and green POWER LED becomes light up. The electrode becomes charged with high voltage, releases corona discharge, and generates neutralizing ions. At the same time, the fans spin, and blow neutralizing air from the front of the main unit. Charged materials placed in the neutralizing air will be immediately neutralized.
  - (2) The operating status is displayed on the front monitor panel. In a normal operating state, only the green RUN LED lights up. If there is a high voltage output irregularly, the red P.D. LED or O.C. LED lights up.
  - (3) In accordance with the distance to the charged object, adjust the Fan speed adjustment screw to provide the appropriate amount of airflow. Turn the Fan speed adjustment screw gradually with phillips screwdriver.
  - (4) Press the Power switch OFF to stop the product.

### 8. Maintenance

#### ⚠ Warning

- Before care and maintenance of the product, make sure to turn OFF the power. Otherwise damage or operating problems may occur.
  - The tip of the discharge needle is sharp, be careful not to touch the Discharge Needle.
- When the product is used for long periods of time, the discharge needle and the air inlet/ outlet section will get dirty. Clean the discharge needle and the air inlet/ outlet section regularly, otherwise you could not get the desired effect, and operating errors and accidents may occur.
  - The maintenance required depends on the environment of use. As a reference, cleaning both the discharge needle unit and fan filter should be done once 3,000 hours.
  - The discharge needle is a part having a product life time. If the charge removal performance is not restored after cleaning the discharge needle, it is recommended to replace the entire discharge needle unit with a new one. The expected life span is seemed to be 20,000 hours in case of natural wear and use.
  - If you use the discharge needle unit or fan filter for replacement mentioned, please purchase below.
    - DTY-ZEM-FA : Discharge needle unit
    - DTY-ZFR-FA : Fan filter (6 pcs.)

#### Cleaning the Front Louver

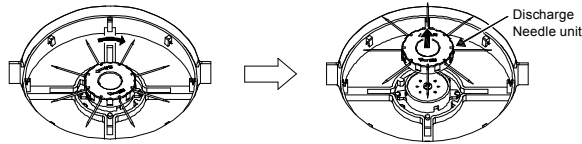
- (1) Push in the tabs on both sides of the front louver, and pull it towards yourself to remove it from the product. Clean the louver using the included cleaning brush. If the louver is extremely dirty, wash it with water (or a neutral detergent).
- (2) Re-attach the front louver to the Main Unit after drying it thoroughly.

#### Cleaning the Discharge needles

- (1) Remove the front louver.
- (2) Clean the discharge needles using the included cleaning brush. If the discharge needles are extremely dirty, it is recommended you add IPA (isopropyl alcohol) to the cleaning brush.

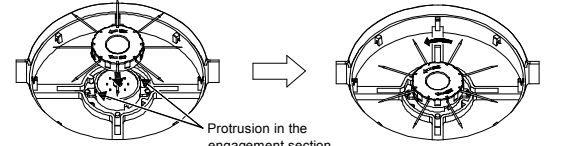
#### Replacing the Discharge needle unit

- (1) Remove the front louver.
- (2) While securely holding down the product 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.



- (3) Prepare a new set of discharge needle unit.

- (4) Align the protrusion on the product 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 product, 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 product.



Note1: Turn the discharge needle unit until securely locked. The correct installation of the discharge needle unit on the product is essential for the optimum operation of the product.

#### Cleaning the Filter

- (1) Check that the power is turned off.
- (2) While securely holding down the product 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.
- (3) Clean the soiled and clogged the filter. If the filter is extremely dirty, wash it with water (or a neutral detergent), and drying it thoroughly.
- (4) Re-attach the filter to the product.

### 9. Troubleshooting

Problem	Main case	Remedy
The power cannot be supplied to the product.	AC adapter not connected	Check to see if the AC adapter is securely inserted into the wall outlet and Main Unit.
	Louver not installed	Check the Louver to confirm that it is correctly installed.
P.D. LED (red LED) lights up.	Abnormal discharge	Check that the discharge needle is free from conductive materials. P.D. LED remains light even after the discharge needle has been cleaned, clean the area around the needle is dirty.
O.C. LED (red LED) lights up.		Check that the discharge needle unit to confirm that it is correctly installed.
	Internal circuit is broken	Turn off the power, and then turn the power back on.

※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.



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JUST CONSULT US:  
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The specifications or the appearance of this product are subject to change any time without prior notice.