

# Instruction Manual

## FAN TYPE IONIZER (DTY-ELF14)

Thank you very much for your purchase of DTY-ELF14. 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.

#### ⚠ 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.

An ionizer emits ozone into the atmosphere. If you notice the odor of ozone, ventilate the area.

Do not try to check for ozone odor by bringing your face close to the ion outlet. Doing so may injure your nose and throat.

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.

Make sure to use AC adapter included with the product.

Do not use supplied or separately sold AC adapter for any other equipment

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

For information about other cautions, refer to the "Safety Precautions" section in the Static Electricity Removing Unit Ionizer catalog.

### 2. OUTLINE

- This product uses a fan 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 compact and lightweight vertical design enables it to be used anywhere, from a table tops to manufacturing lines.
- The high frequency corona discharge system enables a balanced amount of positive and negative ions to be released for high neutralization performance. The performance of the product also deteriorates little with age, making it low maintenance.
- 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 fan stop when the louver is removed.
- The amount and angle of the air blowing from the fan is adjustable.

### 3. Specifications

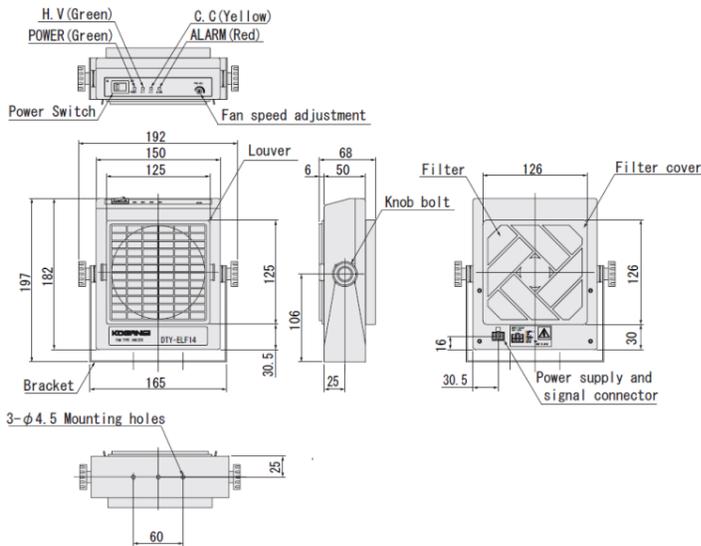
#### List of Specifications

model	DTY-ELF14
Power-supply voltage	Accessory AC adapter input: 100 V to 240V AC, 50/60Hz (OUTPUT: 24V DC)
Input voltage	DC24 V ± 5%
Consumption current	410 mA
Output voltage	3kV (high-frequency AC type)
Ion balance (Note1)	±10 V or less
Static charge removal time (Note1)	1.5 sec or less
Abnormal output (ALARM)	Contact output when ALARM LED illuminates. (Contact A,B :24VDC 50mA MAX)
Cleaning check (C.C) output	Contact output when C.C LED illuminates. (Contact A :24VDC 50mA MAX)
Air flow(MAX)	3.3 m <sup>3</sup> /min(adjustment possible)
Air flow out angle	Vertically 360° variable(per 10 degrees)
Ozone generation amount	0.04 ppm or less (at 150 mm from the center of the blow-out opening; at minimum airflow)
Operating environment	Indoor, Altitude up to 2000m, Pollution degree 2 (IEC61010-1)

Ambient temperature	0 to 40°C
Ambient humidity	15 to 65% RH (No condensation allowed)
Dimensions: (mm)	150W×182H×50D (Main unit only)
Mass	810 g approx. (including stand)
Materials	Enclosure: ABS, Discharge needles: Tungsten, Stand: SECC
Accessories	Instruction manual, AC adapter, Wide-angle louver, Signal output connection wire, Cleaning brush

Note1: Typical value at a distance of 300 mm from the center of the fan outlet, mounted straight louver at maximum flow rate.

#### Appearance



#### •Indication

Name	Indication	Color	description
Power supply	POWER	Green	Lights up when the power supply is turned ON.
High voltage output	H.V	Green	Lights up when a high voltage output is in a normal operating state.
Cleaning Check	C.C	Yellow	Lights up when a dirt or wear of the discharge needle is detected
High voltage abnormality	ALARM	Red	Lights up when abnormal high voltage output occurred, and high voltage output is halted.

#### •Indication/ Output signals

	LED state				Output		
	POWER	H.V	C.C	ALARM	ALARM-NC	ALARM-NO	C.C-NO
Normal	○	○			CLOSE	OPEN	OPEN
H.V abnormality	○			○	OPEN	CLOSE	OPEN
Cleaning Check	○	○	○		CLOSE	OPEN	CLOSE
Power OFF					OPEN	OPEN	OPEN

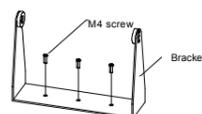
Note1: When ALARM indicator is lights up, Turn power switch OFF to cancel abnormal status. But if the abnormal condition has not been removed, the abnormal status will occur again.

### 4. Installation

#### ⚠ Warning

- Be sure to turn OFF the power before installing the product.

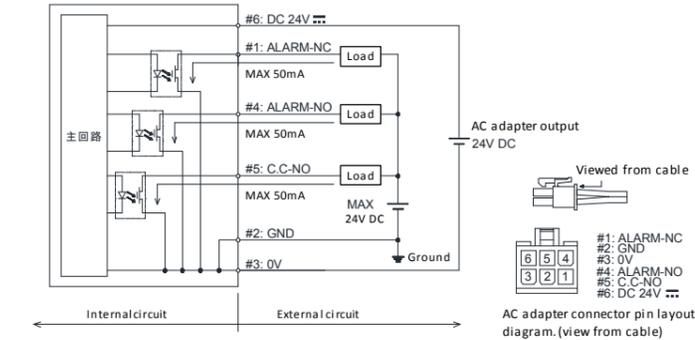
- Place the product on a level surface. If you want to fix the product to the surface, use the screws already inside the holes, and make sure the product is secured firmly before using it.



- The angle of the Main Unit may be 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

### 5. Wiring

#### •I/O CIRCUIT DIAGRAM



Note1: GND is connected internally to 0VDC and signal GND.

Note2: The DC24V, 0V and GND wire are connected to the connector of the AC adapter before shipment.

Note3: If the Output Signals are to be used, connect the wires (Accessories) to the connector of the AC adapter.

#### ⚠ Caution

- Be sure to carry out the grounding procedure (according to the class D procedure). 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.
- Output signals do not incorporate a short-circuit protection circuit. Do not connect the power supply or capacity load directly. Otherwise internal circuit is damaged, and accidents or problems with operation may occur.

#### Connection the Power Supply and Alarm Output

- Connect the he supplied Grounding Lead Wire to the grounding terminal located on the backside of the Main Unit. If it is not securely grounded, the Product may not be able to work up to the fullest performance.
- If the Output Signals are to be used, connect the Signal output connection wire (Accessories) to the connector of the AC adapter. If no Output Signals are to be used, these wires do not have to be connected to the connector of the AC adapter.
- Insert the DC24V output connector of the AC adapter into the power supply and signal connector on the backside of the Main Unit.

#### Connection the AC adapter

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

### 6. Operation

- 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.
- 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.
- Press the 'Power switch' OFF to stop the product.

#### ⚠ Caution

- When turning on the power switch, please confirm that the "HV LED" lights up and the fan is operating.

### 7. 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.

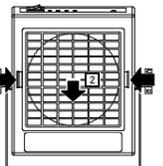
#### ⚠ Caution

- Be careful not to cause the Discharge Needle to be bent or broken, otherwise the performance of the Unit may be greatly degraded.
- Clean the discharge needles periodically even if no cleaning check signal is output. (Once per 2 weeks.)

- 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 per 2 weeks.
- 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

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

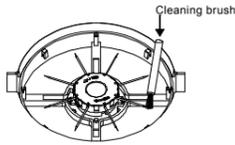


#### ⚠ Caution

- Please attach the front louver to the main body after thoroughly drying it.

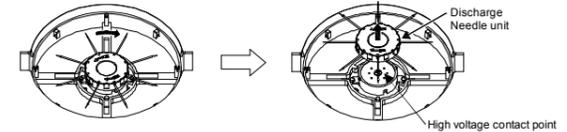
#### Cleaning the Discharge needles

- Remove the front louver.
- 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.



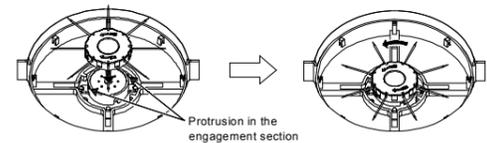
#### Replacing the Discharge needle unit

- Remove the front louver.
- While 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.



- Prepare a new set of discharge needle unit.

- 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

- Do not touch the high voltage contact point. Performance may not be exhibited due to contact failure etc.
- Turn the discharge needle unit until securely locked. The correct installation of the discharge needle unit on the main unit is essential for the optimum operation of the product.

#### Cleaning the Filter

- Check that the power is turned off.
- While 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.
- Clean the soiled or clogged the filter. If the filter is extremely dirty, wash it with water (or a neutral detergent), and drying it thoroughly.
- Re-attach the filter to the main unit.

### 8. Troubleshooting

Problem	Main case	Remedy
The power cannot be supplied to the product.	AC adapter not connected	Check to see if the AC plug is securely inserted into the wall outlet.
	Louver not installed	Check the Louver to confirm that it is correctly installed.
High voltage Abnormality indicator (ALARM) lights up.	Discharge needle is shorted.	Check that the discharge needle is free from conductive materials.
	Grounding wire not connected	Check that the Grounding wire is securely grounded.
	Internal circuit is broken	Turn off the power, and then turn the power back on.
Cleaning Check indicator (C.C) lights up.	Discharge needle not installed	Check that the discharge needle unit to confirm that it is correctly installed.
	Dirt on discharge needles	C.C indicator remains light even after the discharge needle has been cleaned, clean the area around the needle is dirty.
	Wear on discharge needles	Replace the entire discharge needle unit with a new one.
	Abnormal discharge	Check that the discharge needle is free from conductive materials.
	high humidity or dew condensation	Use it in environment without high humidity or the dew condensation.
Grounding wire not connected	Check that the Grounding wire is securely grounded.	

\* For other details about specifications and precautions, see the catalog.

\* For inquiries about the product, contact the Koganei overseas department at the number below.



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