

# Instruction Manual

## FAN TYPE IONIZER [DTY-ELF14HC]

Thank you very much for your purchase of DTY-ELF14HC. 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.

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 middle frequency corona discharge system enables a balanced amount of positive 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 and fan locked output (red indicator). When abnormal high voltage occurs in this product, it stops the high voltage output.

• This product also includes a safe circuit design that ensures that the high voltage output and fan stop when the louver is removed.

• This unit has the balance indicator which can always confirm the balance of positive and negative ions, and the maintenance efficiency and the removing efficiency were raised on leaps and bounds.

• This unit has the automatic discharge needle cleaning function which cleans a discharge needle automatically (once per 24 hours).

It provides functionality for switching automatic or manual maintenance for the electrode, carried out by the built-in brush for cleaning. In case of automatic mode, most maintenances are unnecessary. In the case of manual operation, the operator can carry out cleaning any time by simply pressing the switch.

### 3. Specifications

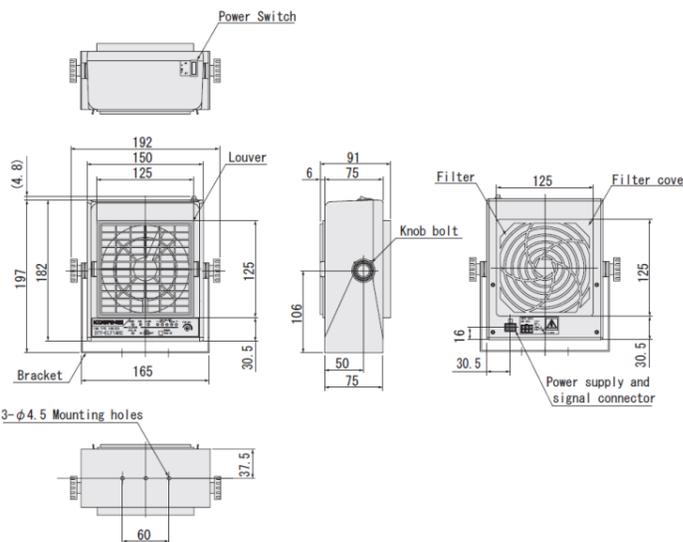
#### List of Specifications

model	DTY-ELF14HC
Power-supply voltage	Accessory AC adapter input: 100 V to 240V AC, 50/60Hz (OUTPUT: 24V DC)
Input voltage	DC24 V ± 5%
Consumption current	750 mA
Output voltage	±7.5kV
Ion balance (Note1)	±5 V or less
Static charge removal time (Note1)	1 sec or less
Abnormal output (ALARM)	Contact output when ALARM LED illuminates. (Contact B :24VDC 50mA MAX)
Ion balance Output (ION BALANCE)	Contact output when red LED illuminates. (Contact B :24VDC 50mA MAX)
Air flow (MAX)	3.2 m <sup>3</sup> /min (adjustment possible)
Air flow out angle	Vertically 360° variable (per 10 degrees)
Ozone generation amount	0.004 ppm or less (at 150 mm from the center of the blow-out opening; at minimum airflow)

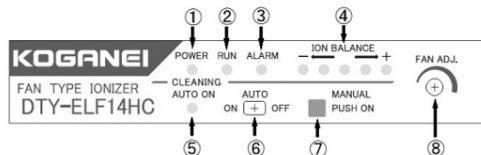
Operating environment	Indoor, Altitude up to 2000m, Pollution degree 2 (IEC61010-1)
Ambient temperature	0 to 40°C
Ambient humidity	15 to 85% RH (No condensation allowed)
Dimensions: (mm)	150W×182H×75D (Main unit only)
Mass	1240 g approx. (including stand)
Materials	Enclosure: ABS, Discharge needles: Tungsten, Bracket: SECC
Accessories	Instruction manual, AC adapter, Wide-angle louver, Signal output connection wire

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/ 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	Alarm indicator	ALARM	red LED	Lights up when an electrical discharge or a spark has occurred, Lights up when an over-current has occurred, and High-voltage output is halted. Lights up when the fan or cleaning brush is not in the normal operating status.
④	Ion balance indicator	ION BALANCE	green, yellow and red LED	Displaying ion balance.
⑤	Automatic cleaning mode indicator	AUTO ON	yellow LED	Lights up when Automatic cleaning.
⑥	Automatic cleaning switch	AUTO ON/OFF	slide switch	Changeover switch of automatic cleaning or manual cleaning.
⑦	Manual cleaning switch	MANUAL PUSH ON	Push button switch	When a button is pressed, a cleaning brush operates. (It's also possible by the time of automatic cleaning on.)
⑧	Fan speed adjustment screw	FAN ADJ.	screw	To enable change of airflow at step-less adjustment possible

#### • Ion balance indicator and Ion balance output

Ion balance indicator	Ion balance	Ion balance output
ION BALANCE		ION BALANCE [4pin-5pin]
green LED lights up	-40 to 40V	CLOSE
yellow LED lights up	-60 to -40V and 40 to 60V	CLOSE
red LED lights up	Less than -60 V and more than 60 V	OPEN
	POWER OFF	OPEN

Note1: The ion balance value above-mentioned is a reference value. The ion balance indicator should be used only as approximate indications.

#### • Indication/ Output signals

	LED state			Alarm output
	POWER [green]	RUN [green]	ALARM [red]	ALARM [1pin-4pin]
Normally	○	○		CLOSE
Discharge abnormality	○			OPEN
Over current	○			OPEN
Fan or Cleaning brush abnormality	○	○	○	OPEN
Power OFF				OPEN

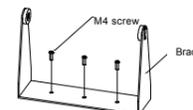
Note1: When ALARM. detection indicator is lights up, press the Power switch to cancel abnormal status. But if the abnormal condition has not been removed, the abnormal status will occur again.

### 4. Installation

#### ⚠ Warning

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

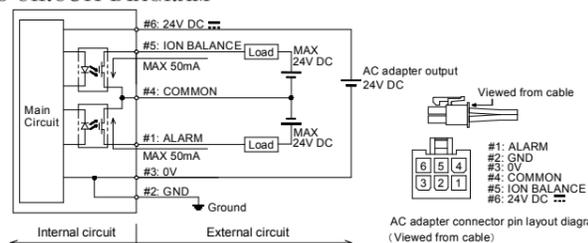
• Place the product on a level surface. If you want to fix the product to the surface, use the screws already inside the holes, and make sure the product is secured firmly before using it.



• 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 0V.

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 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

(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) 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.

(3) 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 or a high voltage abnormal, output irregularity, the ALARM LED lights up.

(4) If the automatic cleaning mode is selected for the electrode (for cleaning to be carried out automatically at an interval of 24 hours), turn the AUTO ON. This will cause the AUTO ON LED to light up. To clean the electrode manually, press the MANUAL pushbutton switch. The cleaning is enabled even when the AUTO is turned ON. There is no need for removing the front louver to clean the electrode.

(5) This unit has functional capabilities for detecting and displaying ion balance.

When the green LED of the sensor lights up, the balance is less than ±40V; when the yellow LED lights up, it is between ±40 and 60V; and when the red LED lights up, it is over ±60V. As the unit is not a measuring instrument, however, these ion balance values are not guaranteed but should be used only as approximate indications.

The ion balance indicator LED will turn to yellow or red in the presence of the charged object, but this is not an error. The LED will return to green light when static electricity is eliminated or the object is removed from the unit.

(6) Press the Power switch OFF to stop the product.

### 7. Maintenance

#### ⚠ Warning

• Before care and maintenance of the product, make sure to turn OFF the power. Otherwise damage or operating problems may occur.

• 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.

• If the discharge needle is cleaned directly, the discharge needle will be bent. The bent discharge needle is not touched from cleaning brush, so the discharge needle cannot be cleaned. Clean the discharge needle using the automatic discharge needle cleaning function when you clean the discharge needle.

• Discharge needle is not required for replacement due to natural abrasion. Please replace the discharge needle unit only if discharge needle was broken or bent, or stain was not removed by cleaning.

• If you use the fan filter for replacement mentioned, please purchase below.  
• DTY-ZFR-F4A : 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 main unit. 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.

#### ⚠ Caution

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

#### Cleaning the Filter

(1) Check that the power is turned off.

(2) 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.

(3) 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.

(4) 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.
ALARM LED (red LED) lights up.	Abnormal discharge	Turn off the power, and Operate the cleaning brush manually. Check that the discharge needle is free from conductive materials. If the ionizer still is not recovered, inform to a nearby sales office.
	Internal circuit is broken	Turn off the power, and then turn the power back on. If the ionizer still is not recovered, inform to a nearby sales office.
	Foreign objects	Check no foreign objects inside the product.
ION BALANCE red or yellow LED lights up.	Defect of the cleaning brush	Check that the orbit of a cleaning brush is free from foreign objects. When a cleaning brush keeps going around without stopping at the original location, inform to a nearby sales office.
	Abnormal ion balance	Turn off the power, and Operate the cleaning brush manually. Turn off the power, and then turn the power back on. If the ionizer still is not recovered, inform to a nearby sales office.

\* 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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