

# Instruction Manual

## AIR GUN TYPE IONIZER 【DTY-ELG21】

Thank you very much for your purchase of DTY-ELG21. Although this product is not classified as a high-voltage device under any electrical equipment standard, it uses a high voltage of 2500V. 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

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.

<b>Danger</b>	Expresses situations that can be clearly predicted as dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
<b>Warning</b>	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
<b>Caution</b>	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in light or semi-serious injury. It could also result in damage or destruction of assets.
<b>Attention</b>	While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product.

#### 1.1 Danger

Do not use in locations with or near dangerous substances such as flammable or ignitable substances. This product is not explosion-proof. It could ignite or burst into flames.
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.
Never remodel the product, otherwise you could be injured by such as abnormal operations.
Do not splash water on the product. Spraying it with water, washing it, or using it underwater could result in malfunction of the product leading to injury, electric shock, fire, etc.
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.

#### 1.2 Warning

Do not use this product in excess of its specification range. Such use could result in product breakdowns, cessation of function, shutdown or damage. It could as well result in a significant reduction of its service life.
Handle the discharging needle with caution, since it has a sharp-pointed tip. Wrong handling of it could result in body injury.
Always supply the power of the blow type Ionizer with applying air. Otherwise, bad effects on the main unit and its surroundings may occur.
Do not operate the unit by turning the nozzle to human body, especially to the face or to the eye of a person. This may cause serious injury to the person.
Avoid scratching the cable, etc. Letting the cable be subject to scratching, excessive bending, pulling, rolling up, or being placed under heavy objects or squeezed between two objects, may result in current leaks or defective continuity that lead to fires, electric shocks, or abnormal operation.

#### 1.3 Caution

The Ionizer emits ozone into an atmosphere. If a single unit is operated, ozone will reach the saturation point and will not increase beyond the certain level. However, if several units are operated simultaneously and if you smell ozone, pay attention to the ventilation of the ambient. Do not attempt to check the smell of ozone by directly bringing your face close to the outlet of ionized air flow, since you might get your nose and throat hurt.
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#### 1.4 Attention

When the product can no longer be used, or is no longer necessary, dispose of it appropriately as industrial waste.
Do not turn ON the Ionizer immediately after you have turn it OFF, or else and alarm LED lights up. After turning OFF this product, wait 1 second or more before turning it ON again
Do not run the wires together with high-voltage lines or power lines or put them in the same raceway. This can cause malfunction due to induction.

※For any other items of danger, warning, or caution, please refer to the “Safety Precautions” in the Catalog for the “Static Electricity Removing Unit IONIZER”.  
(Be sure to refer to the Latest Version of the Catalog.)

### 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.

- Main unit...1 unit
- Nozzle\*...1 piece
- discharge needle\*...1 piece
- AC adapter ...1 unit
- Instruction Manual (this booklet)...1 booklet

\* Attached to the Main Unit before shipment.

### 3. Static Removing Characteristics

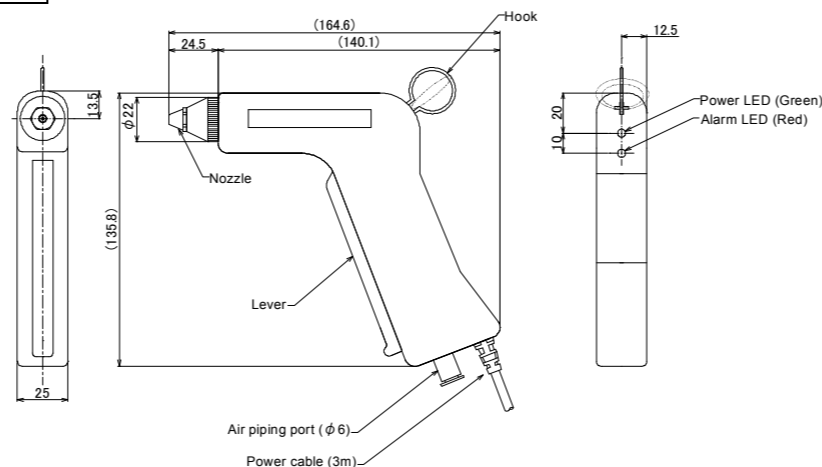
Static Removing Characteristics							
Air pressure	[MPa]	0.1	0.2	0.3	0.4	0.5	0.6
+ Static charge removal time	[sec.]	0.5	0.3	0.3	0.2	0.2	0.2
- Static charge removal time	[sec.]	0.5	0.3	0.3	0.2	0.2	0.2
Ionbalance	[V]	-15V~+15V					
Supplied air flow	[l/min(ANR)]	96	154	207	264	317	370

※Measured according to the measuring conditions of our company

- \* Measured distance : 50mm
- \* Measuring instrument : Charged plate monitor (Plate size 150mm x 150mm, Electric capacity 20pF)
- \* Static charge removal time : Decay time from ±1000V to ±100V

### 4. Specifications

#### Appearance



#### List of Specifications

Type	DTY-ELG21
Discharge method	High frequency AC corona discharge method
Power supply voltage	Accessory AC adapter input: 100 V to 240V AC, 50/60Hz (Output: 24V DC)
Input power voltage	DC24 V ± 5%
Current consumption	Approx. 100 mA
High voltage output	AC 2,500V approx
Ion balance	± 15 V or less ※
Applicable fluid	Air (vapor- and oil- removed clean air)
Air pressure range	0.05 - 0.6MPa
Supplied air flow	370 l/min(ANR) or less
Dimensions: (mm)	164.6(L) x 25(W) x 135.8(H) (mm) (Not including protruding parts)
Weight	200g approx. (Not including cable)
Operating environment	Indoor, Altitude up to 2000m, Pollution degree 2 (IEC61010-1)
Ambient temperature	0 to 40°C
Ambient humidity	65% or less (No condensation allowed)
Indicator LED	Green: Normal high voltage output / Red: Abnormal high voltage output
Quantity of produced ozone	0.04 ppm or less (by air pressure 0.02MPa and 150mm apart from the nozzle)
Material	Main body: PBT, Nozzle: PPS

※Measured according to the measuring conditions of our company

### 5. Wiring and piping

#### Warning

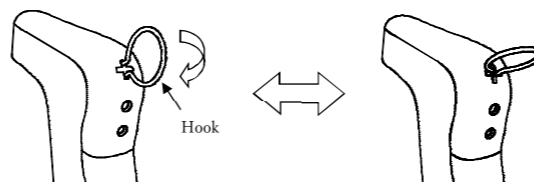
- Make sure that the air is supplied to the Unit before turning on the power to this Unit. The flow rate of the air in service should be adjusted to 65 (l/min. (A.N.R.)) or higher.
- Do not replace the air fitting. This may cause failure to the main unit.

#### Caution

- For installation or using of this product, pay attention to the contamination by oil/water, high temperatures or high humidity. Especially, avoid a place subject to dew condensation.
- Always use the dedicated AC adaptor. Such use or conversion could result in cessation of function, shutdown, or damage.
- If the air includes water and oil, inside of the main unit or the nozzle gets dirty, the ability to remove electricity is lowered, or causing deterioration of the main unit.

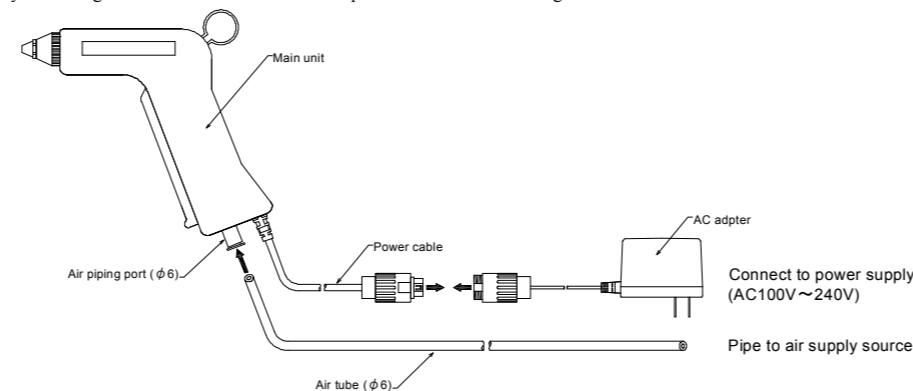
#### Installation

Use this product by holding main unit with your hand. It is possible to suspend main unit by using a piece of hook. Hook can be rotated by every 90 degrees. Use main unit by changing its direction freely.



#### Wiring

Carry out wiring for the main unit and the AC adapter in accordance with diagram below.



- Connect the power cable of a main unit to the AC adapter.
- Connect an AC adapter to a power supply (AC100V~240V 50/60Hz).

Note1: The grounding wiring of this product is unnecessary.

#### Air Piping

- Use clean air. No vapor and oil are allowed.
- Attach an air tube (with an outer diameter of φ 6 mm) to the air fitting of main unit. (Recommended tube: Urethane tube or nylon tube)
- Connect the air tube to the air supply source via a regulator.

### 6. Operation

#### Warning

- Do not operate the unit by turning the nozzle to human body, especially to the face or to the eye of a person. This may cause serious injury to the person.
- Wear protective goggles and earplugs as air blow may cause scattered matter to enter your eyes or cause noise-induced hearing loss.

#### Caution

- Since piezoelectric ceramics is built in the inside of the main unit, do not give fall or shock.
- Do not let the nozzle of the main unit touch conductive or live parts, because it is connected to the inside circuit.
- Do not use other nozzles than the dedicated nozzle, and not remodel nozzle. Such use or conversion could result in cessation of function, shutdown, or damage.
- If the power indication LED does not turn on or the abnormality indicating LED is turn on, immediately turn off the power to the unit. Read “5. Installation, Wiring, and Piping” of this manual. If the trouble cannot be solved, refer to “7. Maintenance” and “8. Troubleshooting” of this manual.

#### Operation

- ① Check to confirm that the power supply wiring and the air piping are correctly connected.
- ② Supply the main unit with air adjusted to the correct pressure by the regulator. Make sure that the setting of the pressure applied always remains within the specified pressure range of service.
- ③ Supply the AC adapter with the power (100~240 V AC; 50/60 Hz).
- ④ Hold the main unit firmly with your hand and turn the tip of the nozzle toward the workpiece. Pull the lever of the main unit. The power indication LED (green) will turn on and the ionized air will blow out from the tip of the nozzle.
- ⑤ To shut down the ionized air, release the lever of the main unit that you have pulled. The lever will return to the initial position, the power indication LED will go off, and the ionized air will stop.

### 7. Maintenance

#### Warning

- Before care and maintenance of the product, make sure to turn OFF the power and air. Otherwise accidents or problems may occur.
- The tip of the discharge needle is sharp, be careful not to touch the discharge needle.

#### Caution

- Make sure the room is thoroughly ventilated when alcohol or the like is used for cleaning. In addition, allow the unit to be fully dried after cleaning it with alcohol. Be sure to confirm that the unit is not wet with alcohol before using it.
- Never use a wire brush for cleaning. This may cause serious damage to the unit.
- When attaching the nozzle, close it by hand until it is no longer loose. Do not use tools to close it.

If the tip of the discharge needle is contaminated, the static electricity elimination effect will deteriorate. When the static electricity elimination effect is observed to have been deteriorated, use a cotton swab etc to clean the needle.

#### Cleaning Method

Rotate the nozzle to remove it from the main unit. Clean the discharge needle inside the main unit and the surrounding area by using a cotton swab soaked with alcohol (IPA). Contamination of the tip of the discharge needle will cause the static electricity elimination effect to be deteriorated. After cleaning the needle, restore the nozzle to the original condition and confirm that it is securely attached.

#### Replacement of the discharge needle

The discharge needle is a consumable item and needs to be replaced in time. When replacing a discharge needle (DTRY-ZEM-G11), be sure to use the dedicated tool (DTRY-ELB21) in combination with a torque driver. Set the tightening torque to 15~20N·cm. Tightening with incorrect torque may damage the screw on the main unit.

### 8. Troubleshooting

Problem	Main case	Remedy
The power cannot be supplied to the product.	The input power is not supplied	Check the AC adapter to confirm that it is connected to the power source and main unit.
No ionized air is supplied even when you pull the lever	The compressed air is not supplied.	Check that compressed air is supplied to the main unit.
Alarm LED (red) lights up	Discharge needle is dirty.	Clean the discharge needle and its outskirts on main unit
	Discharge needle has short-circuited.	Check that there is not a conductive object near the discharge needle
	The nozzle touches to the grounded object.	Check the nozzle to confirm that it is not touching any grounded object.
No static electricity elimination is performed	The nozzle is loosening	Tighten the nozzle firmly to the main unit.
	Discharge needle is dirty	Carry out the maintenance work or replacement of the discharge needle in accordance with “7. Maintenance” of this manual.

\* 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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