



## 966-II Air Ionizer User Guide




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 **Warning**

- This Product is not specified as an Explosion-proof Type. 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 tip of the discharge needle is sharp, be careful not to touch the discharge needle.

## 1. Safety Precautions:

Read this instruction manual before installation, wiring, operation, or maintenance of the product in order to achieve maximum performance. Improper use of this product may cause an accident resulting in injury or death, or may lead to a malfunction of this product. Our company will not be held liable for any usage outside this product Specifications or any accident caused by noncompliance with the Safety Precautions.

 <b>Danger</b>	Failure to follow instructions may lead to death or serious injury.
 <b>Warning</b>	Failure to follow instructions may lead to injury.
 <b>Caution</b>	Failure to follow instructions may lead to product damage (product malfunctions, etc.).

## 2. Precautions for CE Marking:

**This product complies with the following EU Directives and EN standards:**

- EMC Directives: EN61000-6-2 / EN61000-6-4
- Low-voltage Directive: EN61010-1
- Overvoltage Category (Installation Category): I
- Pollution Degree: 2
- When selecting a power supply for use with this product, always use a power supply that has been certified by an EU Notified Body (as a Limited Power Source as defined in IEC/EN60950-1 or IEC/EN61010-1) or optional AC adapter.
- Use only the power supply and signal cable included with the product to connect this product to the power supply.
- Install this product in accordance with the installation and wiring instructions described in this instruction manual.

## 3. Operation:

This IONIZER consists of the following parts: The 966-II, optional nozzles, an electrode, and a high-voltage transformer. The ionizer displays a warning when there are abnormal conditions. It applies high-frequency-high-voltage from the high-voltage transformer to the discharge needle inside, giving off alternating current corona discharges toward the optional nozzle, and produces positive and negative air ions. It transfers the air ions through the air. The ionized air neutralizes the static of charged objects located nearby, and removes dust that is on charged objects. One benefit of this ionizer is that it can transfer ionized air by using the optional air tube, in addition to air blowing directly through the air nozzle. The nozzle can fit the main unit.

### Appearance:



#### 4. Specifications:

##### List of Specifications:

Model No.	966-II Air Ionizer
Ionization Type	High frequency AC corona ionization type
Power-supply voltage	24 V DC $\pm$ 10%
Capacity	2.4VA
High voltage output	2,500V approx. (3pF, 100M $\Omega$ )
Required Air	Air (dried clean air)
Air pressure range	0.05 to 0.60 MPa *1
Supplied air flow	40 to 220 $\ell$ /min
Dimensions: (mm)	86.5L x 18W x 50H (Main Unit only)
Weight	78 g approx. (Main Unit only)
Environment	Indoor, Altitude up to 2000m
Ambient temperature	0 to 40°C
Ambient humidity	65% or less (No condensation allowed)
High voltage abnormality (ALARM) Output	NPN and photo relay output Maximum allowed current: 100 mA Applied voltage: 30 V DC or less
Cleaning check (C.C) output	NPN and photo relay output Maximum allowed current: 100 mA Applied voltage: 30 V DC or less
Discharge stop signal (HV-OFF) input	Discharge OFF: Short-circuited to 0V Discharge ON: Open (Residual voltage : 0.5V or less)
Ozone	0.05 ppm or less (Measured Distance 300mm)
Ion balance	$\pm$ 15 V or less
Material	Enclosure: ABS, Cover: Stainless, Discharge needle: Tungsten
Accessories	Instruction manual, Power supply and signal cable, Caution label (English) *2

\*1. The applicable pressure range depends on the nozzle to be used. Check the table below.

\*2. Use as necessary

Range of air pressure (gauge pressure) when combining 966-II and the following nozzles are as below:

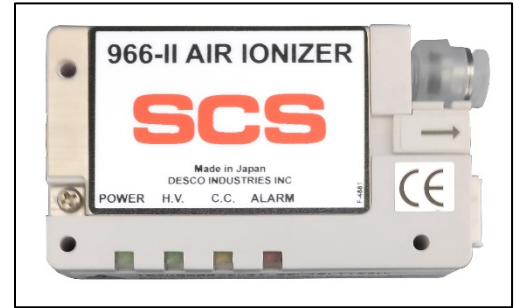
<b>966S</b>	0.05 to 0.60MPa
<b>966T</b>	0.05 to 0.50MPa

#### 5. Installation and Wiring:

<b>⚠ Warning</b>
<ul style="list-style-type: none"> <li>Be sure to turn OFF the power and air before installing the product.</li> </ul>

<b>⚠ Caution</b>
<ul style="list-style-type: none"> <li>This product cannot be used by itself. Be sure to choose one of the optional nozzles when using this product.</li> <li>For optimum performance, be sure to use clean, dry air. Dirty air will cause the electrodes to deteriorate.</li> <li>Always check this manual to ensure that the product wiring is done correctly. Errors in wiring could lead to problems or abnormal operation of the product.</li> </ul>

- There is a protective tube on the emitter. Be sure to remove it before attaching the optional nozzle.
- Prior to installation of the product, be aware of potential contamination by oil or water, and check for high temperatures or high humidity. Avoid a place subject to dew condensation.
- This product emits ozone into the atmosphere. Do not use this product in an enclosed space.
- Equipment used around the product should have ozone-prevention measures. In addition, check regularly that nearby equipment will not be affected by exposure to ozone.



**Installation:**

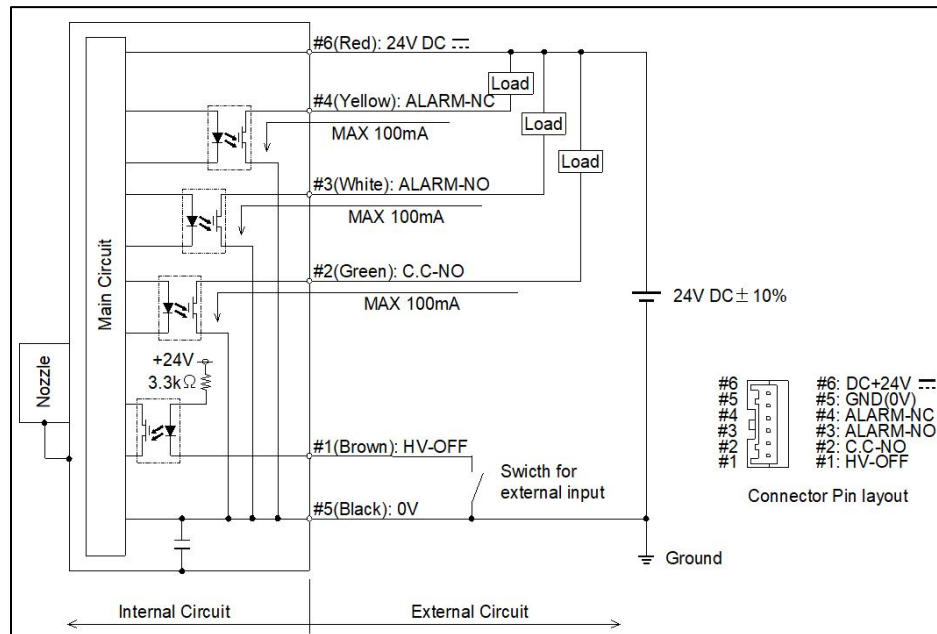
- Install it at a designated place by using fixing holes (3 -  $\phi 3.4$ ). The 966-II does not work well in a vertical position. Please always mount it horizontal or pointing down.
- Tightening torque on housing to the main body should be 20 N·cm or less.

**Wiring:**

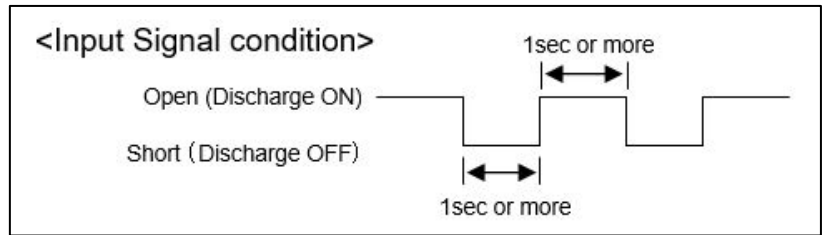
- Attach wire to power supply and signal cable as follows:

Color	Signal Name	I/O	Description
Red	DC+24V	--	Power supply +24V
Black	0V	--	Power supply 0V
Yellow	ALARM-NC	Output	The signal is turned off when error happens. (NC)
White	ALARM-NO	Output	The signal is turned on when error happens. (NO)
Green	C.C-NO	Output	The signal is turned on, lights up when a dirt or wear of the discharge needle is detected. (NO)
Brown	HV-OFF	Input	When the signal is short circuited to 0V, discharge stops.

**I/O Circuit Diagram:**



Note 1: Use mechanical switch or photo coupler or relay for external input. If the grounding potential of external device to use for external input and the grounding potential of this product use are different, the external device used for external input should have an insulated on/off procedure for the 0V line.



- Be sure to carry out the grounding procedure (according to the class D procedure).
- Check that the Frame of the Machine is grounded. If it is not grounded, be sure to follow the grounding class D procedure. When you contact it with this product, connect 0V (black) and the grounding point of the power supply and signal cable to being common. But when 0V and the grounding point are not connected to be common, do not connect 0V line to the grounding point. And when you use an optional AC adapter, this product does not need to be properly grounded.

#### Air Piping:

- Use clean dry compressed air to deliver the ionized air.
- Attach an air tube (with an outside diameter of  $\Phi 6$  mm) to the air inlet of the Ionizer.
- Connect the air tube via the regulator to the air supply (Air compressor).
- Supply cleaned air (not containing water or oil) to the Ionizer.

## 6. Operation:

### **⚠ Caution**

- Always use air when supplying power to the ionizer. Otherwise, the ozone concentrations inside the Ionizer will increase due to electric discharge, which may cause detrimental effect on the main body and its surroundings.

1. Install the equipment at a designated place, and perform power supply wiring, grounding wiring, and air piping.
2. Supply DC24V through the power source connector of the equipment. The power source of high voltage starts and corona discharge is generated at the discharge electrode, producing air ions. When the power source is activated, the green LED (in the normal condition) is on.
3. Open the main valve of the air equipment (installed by your company), and supply air to the nozzle with designated pressure after adjusting the Air pressure. Ionized air is blown out from the nozzle and static electricity of the charged objects placed in the air-flow is neutralized and removed. Pay attention to excessive air pressure, which will lower the effect of removing electricity. (See the table under "Air Pressure Working Range" under "4. Specifications" for the working range of air pressure.
4. When you attach the tube to the nozzle, move the tip of the tube closer to the charged object and blow ion air.

## 7. LED State and Output:

	LED State				Output			High-Voltage Output
	POWER	H.V.	C.C.	ALARM	ALARM-NC	ALARM-NO	C.C. – NO	Discharge Needle
<b>Normal</b>	○	○			ON	OFF	OFF	ON
<b>H.V. Abnormality</b>	○			○	OFF	ON	OFF	OFF
<b>Cleaning Check</b>	○	○	○		ON	OFF	ON	ON
<b>HV-OFF</b>	○				ON	OFF	OFF	OFF
<b>Power OFF</b>					OFF	OFF	OFF	OFF

Note1: When ALARM (red LED) lights up, turn the power back on or turn on and off Discharge stop signal (HV-OFF) input. But If the abnormal factor is not removed, ALARM (red LED) will light up once more.

## 8. Maintenance:

<b>⚠ Warning</b>
<ul style="list-style-type: none"> <li>Before care and maintenance of the product, be sure to turn OFF the power and air. Otherwise damage or operating problems may occur.</li> <li>The tip of the discharge needle is sharp; be careful not to touch the discharge needle.</li> </ul>

<b>⚠ Caution</b>
<ul style="list-style-type: none"> <li>Clean the discharge needle periodically even if the Cleaning Check signal is not displayed. (Recommended once every 2 weeks)</li> </ul>

- The electrodes gradually become deteriorated with exposure to alternating high-voltage electric fields. They must be replaced periodically. The expected life span is thought to be 20,000 hours even if sufficient maintenance is conducted, and replacement is recommended after 20,000 hours. If regular maintenance is not performed, the life span of the 966-II will decrease. The maintenance is very important. Position the unit at a place where it is free from water and oil, etc, It gets wet, dry it with a clean cloth.
- Attachment of contamination to the tip of the discharge needle will deteriorate the static and elimination effect. If deterioration of the static elimination effect is observed, clean the needle and its surrounding area using a nylon brush etc. (Never use a wire brush for cleaning the needle.)
- The discharge needle must be replaced periodically.

### Replacing the discharge needle unit:

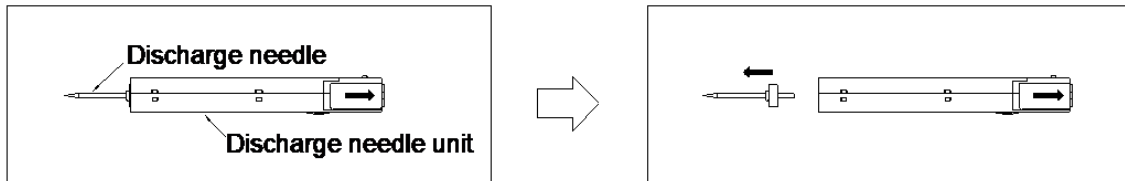
- Use a screwdriver to rotate the knob at the rear of the discharge needle unit in a FREE (counterclockwise) direction.
- Pull down the discharge needle unit to the rear.
- After cleaning the discharge needle, and installing the discharge needle to the main unit, rotate the locked knob of the discharge needle unit in the LOCK direction (clockwise) until the locked knob is securely locked with the main unit. Tightening torque is 8 to 10N · cm.

**⚠ Caution**

- When you install the discharge needle unit to the main unit, rotate the locked knob to the LOCK direction, and lock it surely. Otherwise high voltage abnormality lighting up, and dying out of removing electricity.
- Do not drop the unit on the floor, etc. This may cause damage to the ionizer.

**Removing the discharge needle:**

1. Remove the discharge needle unit from the main unit.
  2. Remove the discharge needle from the discharge needle unit by pulling it forward.
- Optional Parts for replacement: (Discharge needle including O-ring) DZ-W25



**9. Troubleshooting:**

Problem	Main case	Remedy
The power cannot be supplied to the product.	Input power supplied off	Check the input power supply of 24V DC to confirm that it is correctly supplied.
	The power and signal cable is not connected correctly.	Check that the power and signal cable is connected correctly.
High Voltage Abnormality Indicator (ALARM) Lights Up.	Discharge needle unit is not installed	Check the housing of the discharge needle to confirm that it is correctly installed and securely locked
	Short circuited	Check that the discharge needle is free from conductive materials.
	Internal circuit is broken	Turn off the power, and then turn the power back on.
Cleaning Check indicator (C.C.) Lights up.	Dirt on discharge needle	C.C indicator remains lit even after the discharge needle has been cleaned. Clean the area around the needle if it is dirty.
	Wear on discharge needle	Replace the entire discharge needle unit with a new one.
	Abnormal discharge	Check that the discharge needle is free from conductive materials.

## 10. General Precautions for Use:

- This product was designed and manufactured for use in industrial applications.
- Do not use this product for any purpose other than charge removal.
- Do not disassemble or remodel the product.
- This product emits ozone into the atmosphere. Do not use this product in an enclosed space.
- Do not insert any foreign objects into the product. Doing so may result in a short circuit or current leakage, and cause fire or electrocution.
- If the product emits any abnormal odors or sounds, smoke, or heat, turn OFF the main power immediately, remove the power cord, and contact Desco Asia. Failure to do so may result in fire or a short circuit.
- Do not directly touch the discharge needle with your hands.
- Make sure the polarity of DC power is + (Positive) and - (Negative).
- Do not turn the Ionizer ON immediately after you have turned it OFF, or else an abnormal output is supplied. After turning the Ionizer OFF, wait 1 second or more before turning it ON again.
- Do not use power supply and signal cable provided with the products, for a moving section. Otherwise, they may break down.
- Avoid scratching the cords of the sensor switch lead wires, etc. Letting the cords 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.
- Do not pull out the connectors while the power is ON. Also, do not apply unnecessary stress on the connector. It could result in erratic equipment operation that could lead to personal injury, equipment breakdown, or electrical shocks, etc.
- For safety purposes, power OFF if you plan on not using the product for an extended period of time.

### Limited Warranty, Warranty Exclusions, Limit of Liability and RMA Request Instructions

See the Desco Asia Warranty –  
[DescoAsia.com/Limited-Warranty.aspx](http://DescoAsia.com/Limited-Warranty.aspx)

**DESCO ASIA**  
DESCO JAPAN KABUSHIKI KAISHA  
661-1 Yachimata-ho, Yachimata-shi  
Chiba-ken, 289-1115 JAPAN  
Tel: +81 43 309-4470, Fax: +81 43 332-8741  
DescoAsia.com