



# Operation Manual

PRODUCT NAME

Fan Type Ionizer

MODEL / Series / Product Number

IZF10R Series

**SMC Corporation**

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# Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger." They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1), and other safety regulations.

\*1) ISO 4414: Pneumatic fluid power -- General rules relating to systems.

ISO 4413: Hydraulic fluid power -- General rules relating to systems.

IEC 60204-1: Safety of machinery -- Electrical equipment of machines .(Part 1: General requirements)

ISO 10218-1992: Manipulating industrial robots -Safety.

etc.



## Caution

**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.



## Warning

**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



## Danger

**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

## Warning

### 1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results.

The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product.

This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

### 2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly.

The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

### 3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.

2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

### 4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3. An application which could have negative effects on people, property, or animals requiring special safety analysis.

4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.



# Safety Instructions

## Caution

### **1. The product is provided for use in manufacturing industries.**

The product herein described is basically provided for peaceful use in manufacturing industries. If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.  
If anything is unclear, contact your nearest sales branch.

## Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements". Read and accept them before using the product.

### Limited warranty and Disclaimer

#### **1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\*2)**

Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

#### **2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.**

This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

#### **3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.**

#### **\*2) Vacuum pads are excluded from this 1 year warranty.**

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

### Compliance Requirements

#### **1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction(WMD) or any other weapon is strictly prohibited.**

#### **2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulation of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.**

## Selection

### **Warning**

- 1) **This product is intended for use in general factory automation equipment.**  
Consult SMC before using this product for other intentions. (See Warning No. 4 on page 3)
- 2) **Use within the specified voltage and temperature range.**  
Operation with a voltage other than that specified can cause malfunction, damage to the product, electric shock or fire.
- 3) **This product is not designed to be explosion proof.**  
Never use in an atmosphere of potentially explosive dust, flammable gas or explosive gas. Fire or an explosion can result.

### **Caution**

- 1) **Clean room specification is not available.**  
When using in a clean room environment, confirm the required cleanliness before use. Fine particles are generated due to wear of emitters and motor sliding during operation.

## Mounting

### **Warning**

- 1) **Provide space for maintenance, inspection and wiring.**  
Install the product and cables while taking into consideration the removal of the power supply connector and cartridge case mounting/detachment during emitter maintenance.  
The cable bending should not be less than the minimum bending radius so that stress is not applied to the power supply connector. If the cable is bent in an acute angle or load is applied to the cable repeatedly, it may cause malfunction, wire damage.  
  
Minimum bending radius: 10 mm  
Note: The ambient temperature should be 20°C for fixed wiring.
- 2) **Mount the product on a flat surface.**  
If there are irregularities in the mounting surface, excessive stress will be applied to the frame or case, resulting in product damage or failure. Do not drop or apply excessive shock. Otherwise, damage or an accident may occur.
- 3) **Avoid using in a place where noise (electromagnetic wave and surge) is generated.**  
If the product is used in an environment where noise is generated, it may lead to deterioration or damage of the internal elements. Take measures to prevent noise at its source and avoid power and signal lines from coming into close contact.
- 4) **Apply the correct tightening torque.**  
If the screws are tightened in excess of the specified torque range, it may damage the mounting screws, mounting brackets, etc. If the tightening torque is insufficient, the mounting screws and brackets may become loose.
- 5) **Do not affix any tape or labels to the product.**  
If the tape or label contains conductive adhesive or reflective paint, it is possible that due to the dielectric effect, an electro-static charge could build up causing electrical leakage.
- 6) **Be sure to disconnect the power supply before installing and adjusting the product.**

### **Caution**

- 1) **Provide sufficient space on the air intake side of this product.**  
This product ventilates using a fan motor. If there is an obstruction on the air intake side of this product, ventilation will be restricted, which may reduce the product performance. When installing this product, ensure the air intake side of the fan is at least 20 mm away from any obstruction.

**2) Make sure to confirm the effect of static neutralization after installation.**

The effects vary depending on the ambient conditions, operating conditions, etc. After installation, verify the effects of static neutralization.

**3) Do not apply an excessive force to the finger guard.**

If an excessive external force is applied to the finger guard on the air intake side, it may be damaged.

## Wiring

### **Warning**

- 1) **Before wiring, ensure that the power supply capacity meets the specification and that the voltage is within the specification.**
- 2) **To maintain product performance, the power supply should be UL Class 2 certified by National Electric Code (NEC) or evaluated as a limited power source according to UL60950.**
- 3) **To maintain the product performance, ground the product with an earth ground cable with a resistance of 100  $\Omega$  or less. If the product is not grounded, it is not possible to secure the performance and may lead to product failure or malfunction.**
- 4) **Wiring (including insertion and removal of the power supply connector) should never be carried out with the power supply ON.**
- 5) **Ensure the safety of wiring and surrounding conditions before supplying power.**
- 6) **Do not connect or disconnect the connectors (including power source) while the power is supplied. Failure to follow this procedure may cause product malfunction.**  
**If the power and high-voltage cables are routed together, the product may malfunction due to noise. Route this product wires separately.**
- 8) **Confirm that the wiring is correct before operation. Incorrect wiring will lead to product damage or malfunction.**

## Operating / Storage Environment

### **Warning**

- 1) **Keep within the specified ambient temperature range.**  
 The specified ambient temperature range for this product is 0 to 50°C, and for the AC adapter is 0 to 40°C. Avoid sudden temperature changes even within the specified ambient temperature range, as it may cause condensation.
- 2) **Do not use this product in an enclosed space.**  
 This product utilizes the corona discharge phenomenon. Do not use the product in an enclosed space as ozone and nitrogen oxides exist, even though in marginal quantities.
- 3) **Environments to avoid**  
 Never use or store under the following conditions. These may cause an electric shock, fire, etc.
  - a. Where the ambient temperature exceeds the operating temperature range.
  - b. Where the ambient humidity exceeds the operating humidity range.
  - c. Areas where abrupt temperature changes may cause condensation.
  - d. Areas where corrosive gas, flammable gas or other volatile flammable substances are stored.
  - e. Areas where the product may be exposed to conductive powder such as iron powder or dust, oil mist, salt, organic solvent, machining chips, particles or cutting oil (including water and any liquids), etc.
  - f. Paths of direct air flow, such as air conditioners.
  - g. Enclosed or poorly ventilated areas.
  - h. Locations which are exposed to direct sunlight or heat radiation.
  - i. Areas where strong electromagnetic noise is generated, such as strong electrical and magnetic fields or supply voltage spikes.
  - j. Areas where the product is exposed to static electricity discharge.
  - k. Locations where strong high frequency is generated.
  - l. Locations which are subject to potential lightning strikes.
  - m. In an area where the product may receive direct impact or vibration.
  - n. Areas where the product may be subjected to forces or weight that could cause physical deformation.
- 4) **The product does not incorporate a protection to lightning surges.**

## Maintenance

### **Warning**

#### 1) **Perform maintenance regularly and clean the emitters.**

It is recommended to perform maintenance every week or when the maintenance warning function turns ON.

Periodically inspect the electrostatic sensor to check if it is operated under faulty conditions. Only a person having an adequate knowledge and experience of the system should inspect the sensor. If the product is used for an extended period with dust present on the emitters, the product performance will be reduced.

If the emitter becomes worn and the product performance is not restored after cleaning, replace the cartridge case.



#### **Danger High voltage**

This product contains a high voltage generation circuit. When performing maintenance inspection, be sure to confirm that the power supply to this product is turned off. Never disassemble or modify the product, as this can cause loss of product functionality, and there is also a risk of electric shock and earth leakage.

#### 2) **Cleaning or replacing the emitters or replacing cartridge case should never be performed with the power supply ON.**

The fan will rotate due to inertial force even when the power supply is OFF. Confirm that the fan does not move before performing cleaning or replacing the emitters. Never perform cleaning or replacing the emitters when the fan motor is rotating. The fan rotation may cause injury.

Never touch the electrodes with the power supplied to this product. Electric shock may cause injury.

#### 3) **Do not disassemble or modify the product.**

Disassembling or modifying the product may cause product failure, electric shock or fire. The product will not be guaranteed if it is disassembled and/or modified.

#### 4) **Do not operate the product with wet hands.**

Never operate the product with wet hands. It may cause electric shock or other accidents.

### **Caution**

#### 1) **Do not drop, hit or apply excessive shock (100m/s<sup>2</sup> or more) to the product during handling.**

Even if the body appears undamaged, the internal components may be damaged, leading to a malfunction.

# 1. How to Order

## 1-1. Product

**IZF10R** -  -

Fan type

Max. air flow: 0.80m<sup>3</sup>/s

**Bracket**

Nil	None
B	With Bracket

**Output specification**

Nil	NPN output
P	PNP output

**Power supply cable, AC adapter**

Nil	With power supply cable (3 m)
Z	With power supply cable (10 m)
Q	With AC adapter (with AC cord)
R	With AC adapter (without AC cord)
N	None



## 1-2. Accessories

### Power supply cable

**IZF10R - C**

**Power supply cable, AC adapter**

P	With power supply cable (3 m)
PZ	With power supply cable (10 m)
G1	With AC adapter (with AC cord)
G2	With AC adapter (without AC cord)

Note) The AC cord is only for use in Japan. (Rated voltage 125 V, plug JIS C8303, Inlet IEC60320-C8)  
External output cannot be used when the AC adapter is being used.



Power supply cable



AC adapter



AC cord

### Bracket

## IZF10-B1

Note) 4 retaining bolts are included.



**1-3. Maintenance parts**

**Cartridge case**

**IZF10R-A1**



**1-4. Option**

**Cleaning kit**

**IZS30- M2**

(With 1 felt pad, 1 rubber grindstone, and 2 replacement felt pads)



**IZS30-A0201**

(10 replacement felt pads)



**IZS30-A0202**

(1 replacement rubber grindstone)

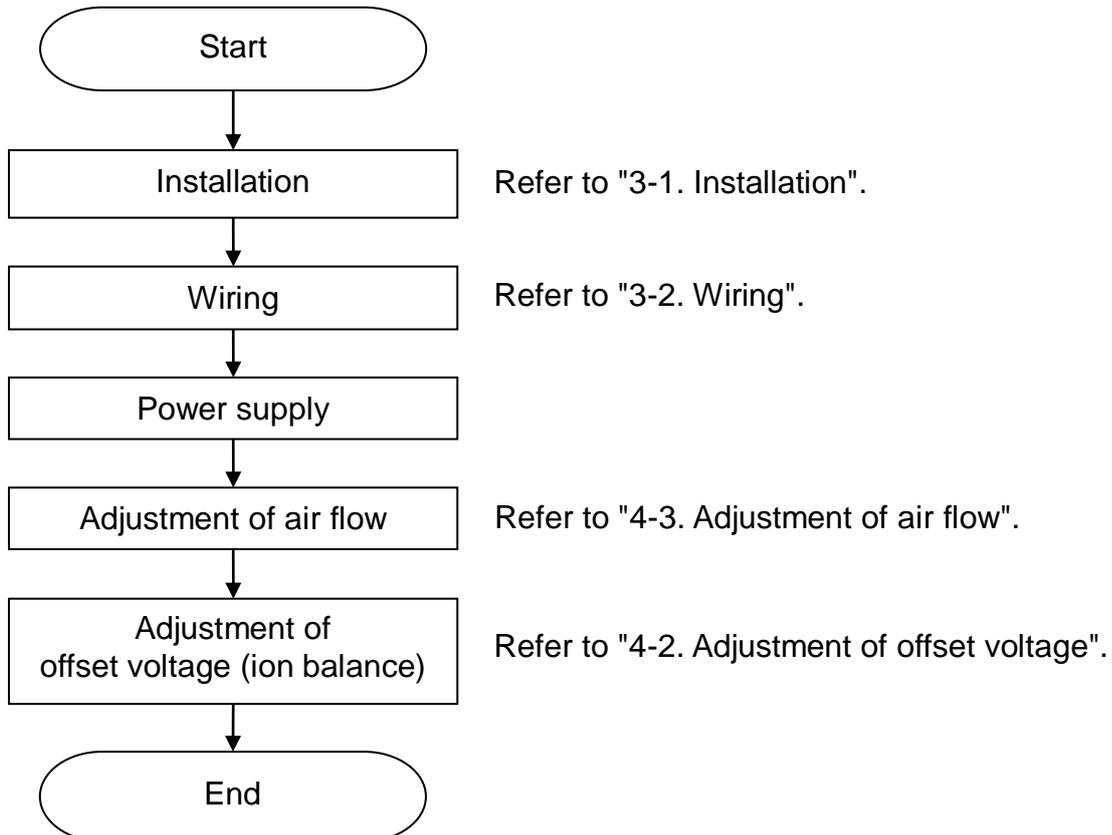


**Adjustment screwdriver**

**IZS30- M1**



**2. Procedures for Operation**



### 3. Installation and wiring

The performance of the product varies depending on the surrounding installation and operating conditions. It is recommended to investigate in advance any environment where static electricity is generated, as well as processes and parts where static electricity disturbances occur. Verify that the required conditions have been met in order to effectively remove static electricity before installation. After installation, verify the effects of this product.

#### 3-1. Installation

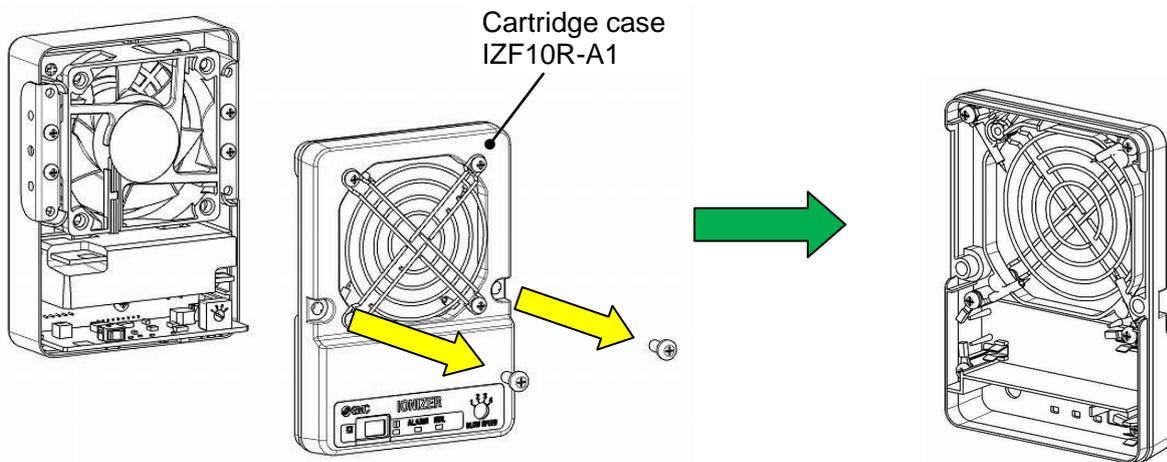
##### 3-1-1. Precautions for Installation

Be sure to disconnect the power supply before installing the product.

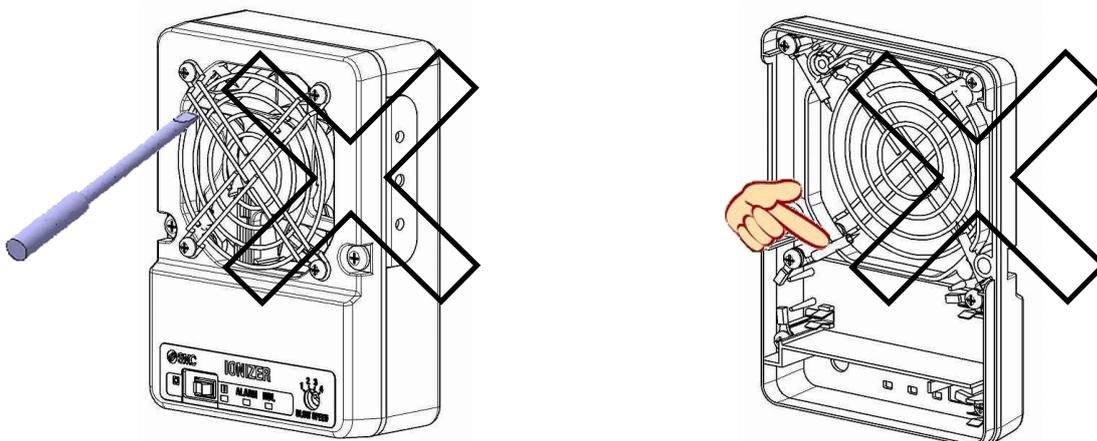
Do not affix any tape or labels to the product. If the tape or label contains conductive adhesive or reflective paint, it is possible that due to the dielectric effect, an electro-static charge could build up causing electrical leakage.

When installing this product, ensure the air intake side of the fan is at least 20 mm away from any obstruction. If there is an obstruction on the air intake side of this product, the ventilation will be restricted, which may reduce the product performance.

Install the product and cables taking into consideration the removal of the power supply connector and cartridge case mounting/detachment during emitter maintenance. The cartridge case is mounted and removed using 2 screws.



Do not directly touch the emitters. This may result in injury. Also, if a tool damages the emitters, it may interfere with the specified function and performance, and may also cause operation failure.



 Danger High voltage

High voltage is applied to the emitters. Never touch the electrodes. Electrical shock will cause injury.

### 3-1-2. Product Body Installation

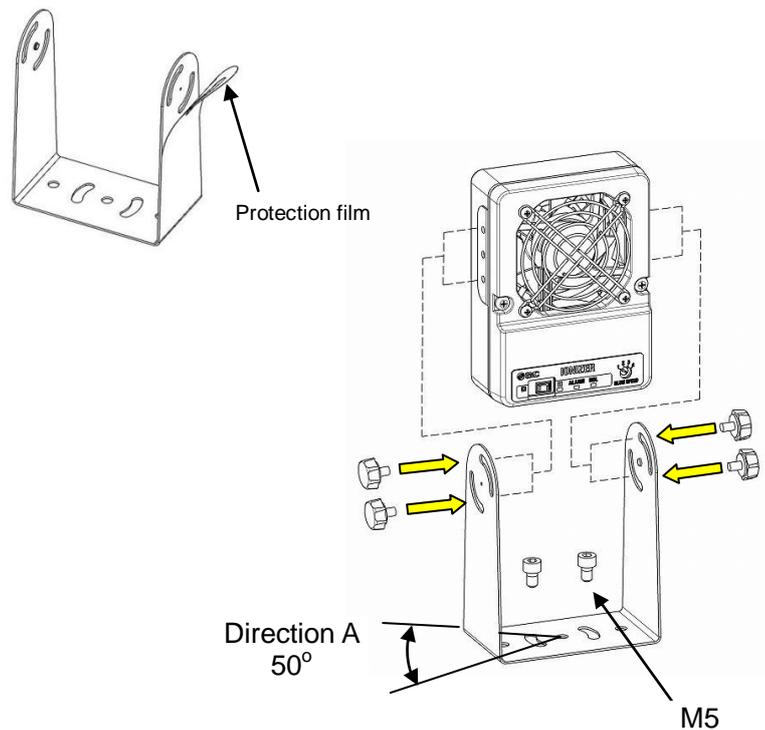
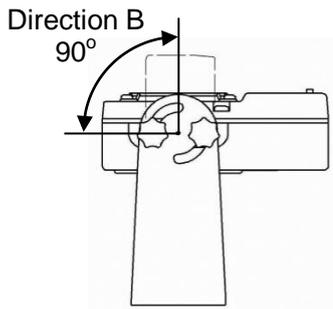
#### 1) Installation with bracket

A protective seal is affixed to the bracket, so remove it before use.

When installing this product with a bracket, secure it with M5 screws using the mounting holes on the bottom of the bracket. (The screws should be prepared by the user).

Refer to "6. Dimensions" for details.

The angle adjustment range of the bracket is 50 degrees in direction A, and 90 degrees in direction B.

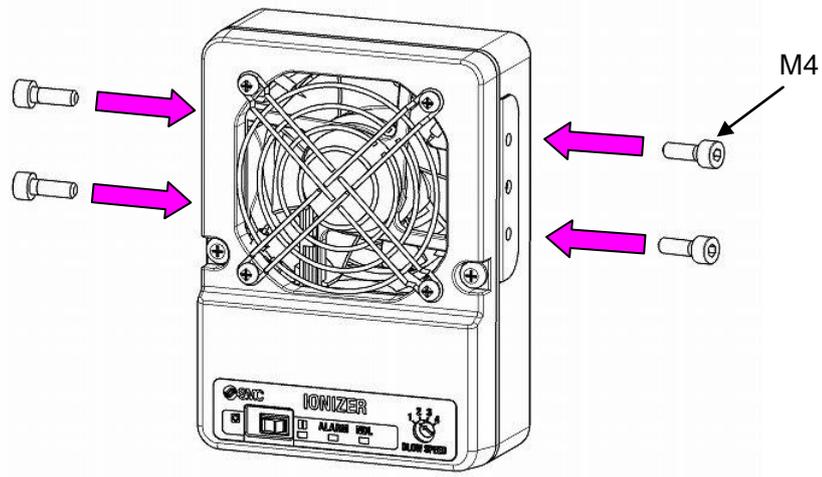


#### 2) Installation without bracket

If a bracket is not used, install the product using the M4 screw holes (depth: 6 mm) on both sides of the body. Be sure to secure both sides of the body when fixing this product. (If the product is fixed on one side only, the product body may be damaged. (The screws should be prepared by the user).

Refer to "Dimensions" section for details.

Recommended tightening torque: 1.3 to 1.5 Nm



### 3-2. Wiring

Wire cables according to the circuitry and wiring chart.

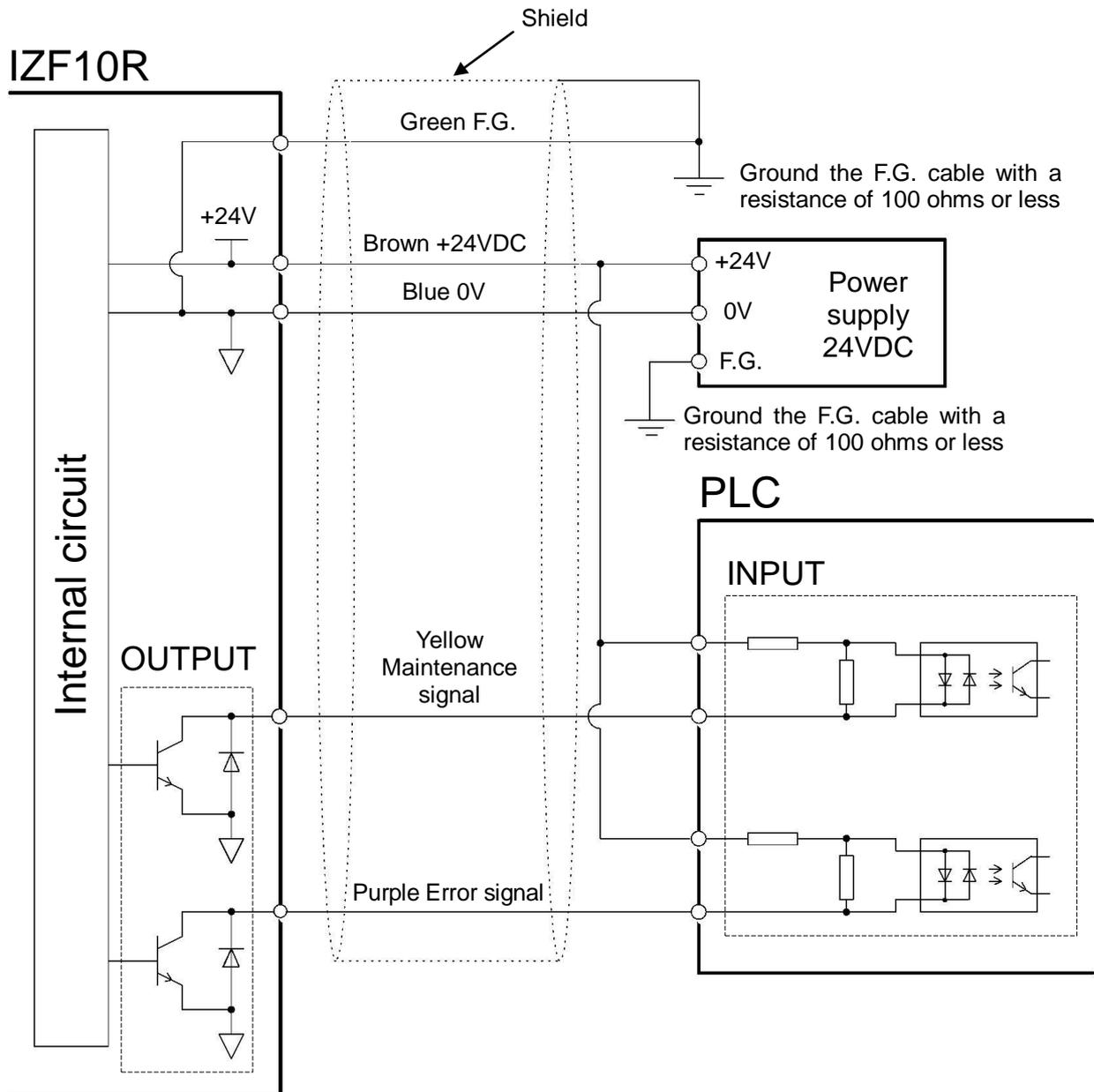
#### 3-2-1. Connection Circuit

Make sure to ground the F.G. cable (green) with a resistance of 100 ohms or less.

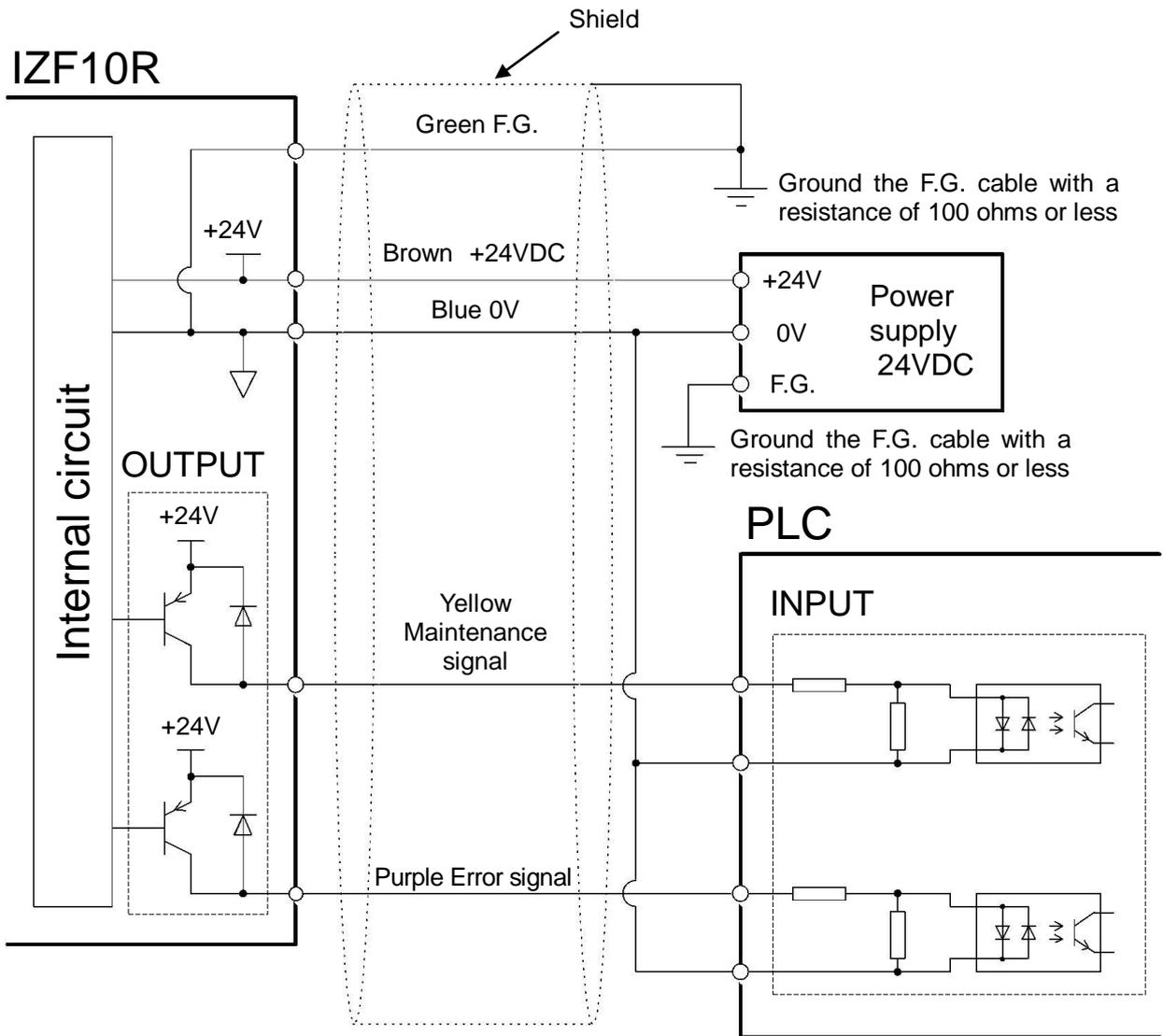
F.G. cable is the standard electric potential for static electricity neutralization. If the F.G. cable is not grounded properly, an optimal offset voltage (ion balance) cannot be obtained, and it may damage this product and connected power supply.

#### Connection circuit

NPN output



PNP output



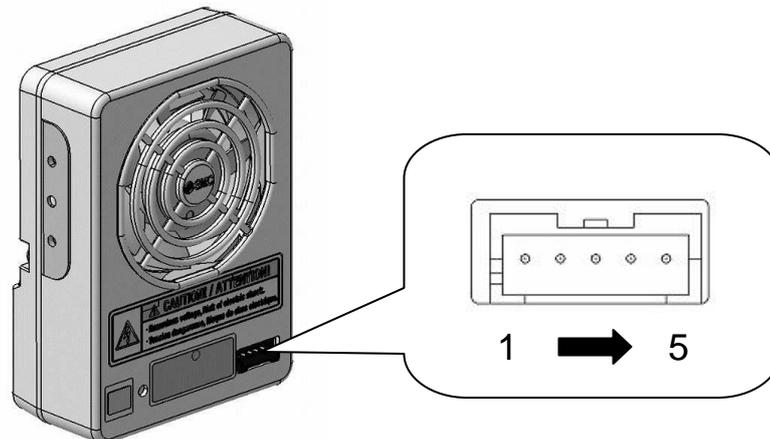
### 3-2-2. Wiring of the power supply cable

The cable bending radius should be at least the minimum bending radius so that stress is not applied to the mounting part of the power supply connector.

Minimum bending radius: 10 mm

Note: The ambient temperature should be 20°C for fixed wiring.

Unused wires should be cut short and insulated to avoid contacting with other wires.



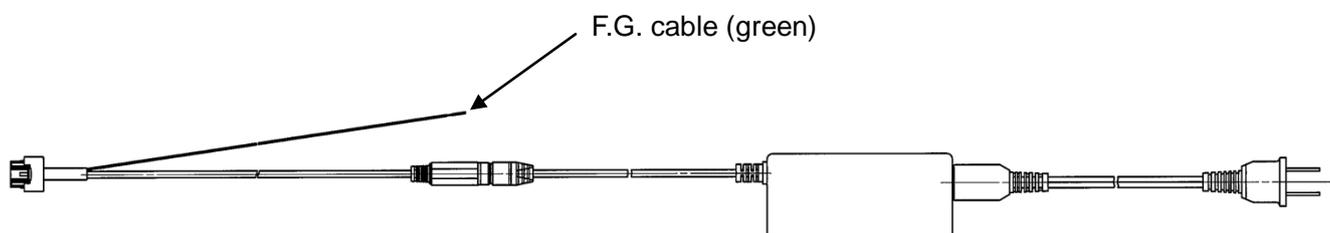
### Wiring

Pin No.	Cable color	Signal name	Conductor size (AWG)	Signal direction	Description
1	Brown	+24 VDC	26	IN	Power supply connection to operate this product.
2	Blue	0V	26	IN	
3	Green	F.G.	26	-	Ground connection (resistance 100Ω or less) for use as a reference potential for this product.
4	Yellow	Maintenance signal	26	OUT (A contact)	The maintenance signal turns ON when the emitter is contaminated or worn.
5	Purple	Error signal	26	OUT (B contact)	The error signal turns OFF when a high voltage alarm or output signal over current is generated (Turns ON green during normal operation).

### 3-2-3. Wiring of the AC adapter

Make sure to ground the F.G. cable (green) with a resistance of 100 ohms or less.

F.G. cable is the standard electric potential for static electricity neutralization. If the F.G. cable is not grounded properly, an optimal offset voltage (ion balance) cannot be obtained, and it may damage this product and connected power supply.



Note) The AC cord is only for use in Japan. (Rated voltage 125 V, plug JIS C8303, Inlet IEC60320-C8)  
External output cannot be used when the AC adapter is being used.

### 3-3. Timing chart

	Display	Status	Operation			Incorrect high voltage		Excess current on output circuit		Maintenance warning	
			Power ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON
Input	Power supply switch	-	ON	OFF	ON	Error		Error		Warning	
Output	Error signal (ON during normal operation)	-	ON	OFF	ON	Note2)		Note3)		Note2)	
	Maintenance signal (OFF during normal operation)	-	ON	OFF	ON	Note2)		Note3)		Note2)	
LED indicators	Power supply indicator (Green)	-	ON	OFF	ON	Note2)		Note3)		Note2)	
	Power supply indicator (Orange)	-	ON	OFF	ON	Note2)		Note3)		Note2)	
	Error indicator (Red)	ALARM	ON	OFF	ON	Note2)		Note3)		Note2)	
	Maintenance indicator (Green)	NDL	ON	OFF	ON	Note2)		Note3)		Note2)	
Ion		-	ON	OFF	ON	Note2)		Note3)		Note2)	
Fan motor <sup>Note 1)</sup>		-	ON	OFF	ON	Note2)		Note3)		Note2)	

Note 1) Fan motor rotation does not stop immediately due to inertial force even when the power supply is OFF.

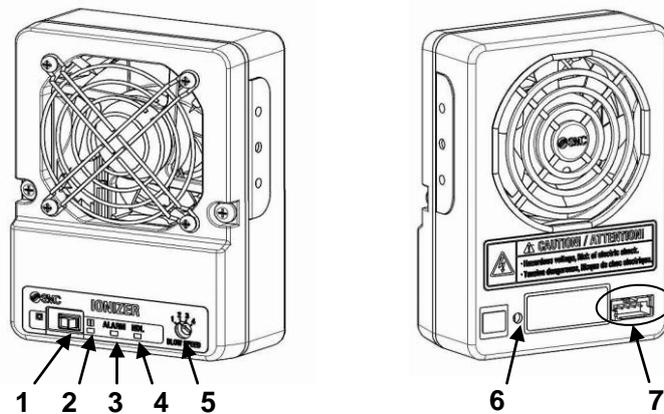
Note 2) Cleaning or replacing the emitters should never be performed with the power supply ON.

If an alarm continues to be generated even after cleaning, the emitters may be worn-out or damaged. If wear or damage of the emitters is detected, replace the cartridge case with a new one.

Note 3: When excessive current flows to the output signal, the signal will be turned OFF to protect the output circuit.

## 4. Function

### 4-1. Name of Parts



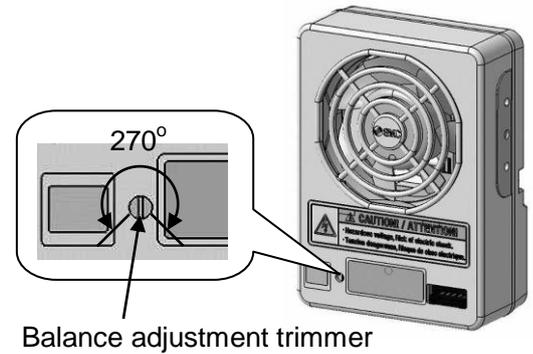
No.	Name	Panel display	Type	Description
1	Power supply switch	-	Switch	Switch to turn this product ON and OFF.
2	Power supply indicator	-	LED (Green, Orange)	The LED is ON green when power is supplied to this product, and is ON orange during an incorrect high voltage alarm or output signal over current alarm.
3	Error indicator	ALARM	LED (Red)	The LED turns ON when an incorrect voltage alarm is generated for 100 ms or more.
4	Maintenance indicator	NDL	LED (Green)	The LED is ON green when the emitter is contaminated or worn.
5	Air flow adjustment	BLOW SPEED	Rotary switch	Switch for adjustment of air flow of fan motor. Refer to "4-3. Adjustment of air flow" for details.
6	Balance adjustment	-	Trimmer	Trimer for offset voltage (ion balance) adjustment. Refer to "4-2. Adjustment of offset voltage" for details.
7	Power supply connector	-	Connectors	Connect the power supply cable or AC adapter.

#### 4-2. Adjustment of offset voltage (ion balance)

Although the offset voltage (ion balance) of this product has been factory adjusted, readjustment may be required depending on the installation environment.

The offset voltage can be adjusted by a balance adjustment trimmer. When adjusting the offset voltage (ion balance), use a measuring instrument such as a charge plate monitor. Rotating the balance adjusting trimmer in a clockwise direction will increase the positive ions, and rotating it in a counter-clockwise direction will increase the negative ions.

The angle adjustment range of the balance adjustment trimmer is 270 degrees as shown in the figure. If the adjustment trimmer is rotated out of the angle adjustment range, it may damage the trimmer.



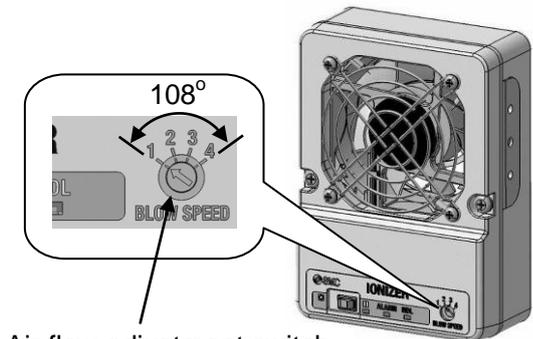
Balance adjustment trimmer

#### 4-3. Adjustment of air flow

The air flow can be adjusted using the air flow adjustment dial displayed as BLOW SPEED. Adjust the air flow adjustment switch with a flat head screw driver.

The angle adjustment range of the balance adjustment trimmer is 108 degrees as shown in the figure. If the adjustment trimmer is rotated out of the angle adjustment range, it may damage the trimmer. If the air flow adjustment switch is placed between the scales, the fan motor may stop.

The details of the scales of the air flow adjustment switch and the air flow rate are shown in the table below.



Air flow adjustment switch

Scale	Air flow [m <sup>3</sup> /min]
1	0.19
2	0.46
3	0.66
4	0.80

#### 4-4. Maintenance Warning Function and Cleaning

If the product is used for an extended period with dust present on the emitters, the product performance will be reduced.

This product incorporates a maintenance warning function which constantly monitors the emitters and warns of a reduction of the performance in the static electricity neutralization.

It is recommended to perform maintenance every week or when the maintenance warning function turns ON. (The maintenance frequency varies depending on the environment where this product is installed. The maintenance frequency indicated is only a guide.)

Clean the emitters with the cleaning kit [IZS30-M2] or a cotton bud soaked in alcohol.

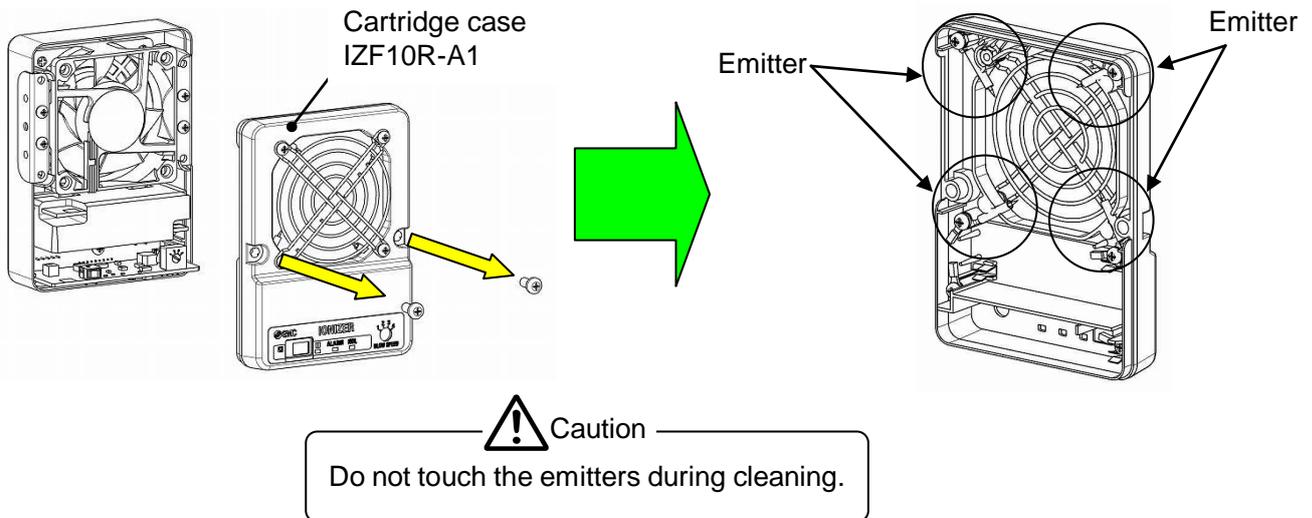
Before cleaning the emitters, make sure that the power supply is OFF and confirm that the fan motor has stopped. Never perform cleaning or replace the emitters when the fan motor is rotating. The fan rotation may cause injury.

In addition, if the emitters are touched while energized, it may cause electrical shock or injury. As the emitter ends are sharp, be careful not to touch them by hand. Otherwise, it may cause injury.

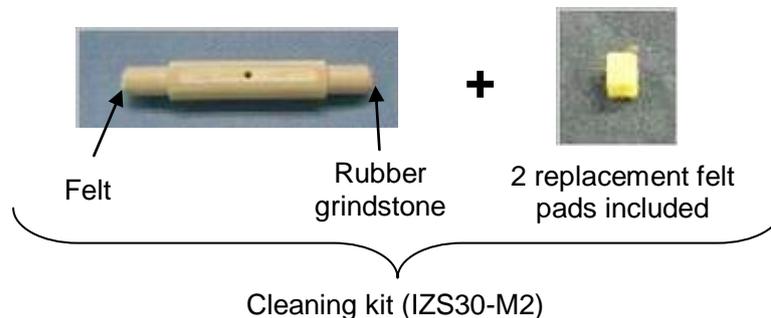
If the emitter becomes worn and the product performance is not restored after cleaning, replace the cartridge case.

- Replacement and cleaning of cartridge case -

- 1) Be sure to disconnect the power supply before installation and cleaning. The fan motor rotation will not stop immediately due to inertial force even when the power is OFF. Confirm that it stops before moving to the next step.
- 2) Remove the two screws shown in the figure below to remove the cartridge case.



- 3) Four emitters are fixed in the cartridge case enclosure, so clean the end of each of the emitters. Make sure that all four emitters are cleaned.  
 Using the cleaning kit, saturate the felt with industrial alcohol, insert it into the emitters and rotate several times to clean. If the dirt does not come off, use the rubber grindstone to clean the emitters in the same way. After that, again use the felt saturated with industrial alcohol to finish the cleaning.  
 If a cleaning kit is not available, saturate a cotton swab with alcohol to clean the emitters.  
 The industrial alcohol used should be reagent ethanol class 1 99.5vol% or greater.



The cleaning kit has a felt pad on one end and a rubber grindstone on the other end. Choose the felt or rubber grindstone depending on the level of contamination to effectively clean the emitters.

Felt: Use for normal cleaning

Rubber grindstone: Use if dirt is hard and stuck to the emitters and it is not possible to remove it with felt.



- 4) Put the cartridge case back in its original position by following the removal procedure in reverse.  
 (Tightening torque: 0.7 to 0.8 Nm)  
 Take care not to get the cable caught in the enclosure when remounting.

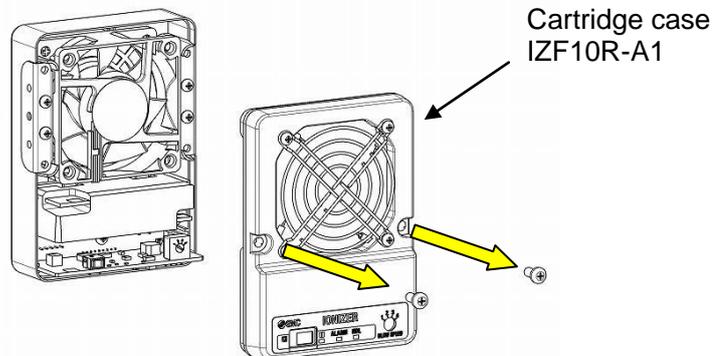
#### 4-5. Replacement of Cartridge Case

If the emitters are worn out or damaged, replace the cartridge case.

Before replacing the cartridge case, make sure that the power supply is OFF and confirm that the fan motor has stopped. Never perform cleaning or replace the emitters when the fan motor is rotating. The fan rotation may cause injury.

Remove the two screws shown in the figure below to remove the cartridge case. (Tightening torque: 0.7 to 0.8 Nm)

Ensure that the cables in this product are not caught when mounting the cartridge case on replacement.



#### 4-6. Alarm function

If abnormal operation of this product occurs, the user will be alerted by the external output signal or the LED operation.

Alarm name	Output signal <sup>Note1)</sup> at the time of alarm	LED ON	This product operation after alarm generated	Description	Action to reset alarm
Incorrect high voltage	Error signal OFF (B Contact)	Power supply indicator (Orange) Error indicator (Red)	Stop	Incorrect function of the high voltage circuit for more than 100 ms.	Supply power again
Excess current on output circuit	Signal due to excess current OFF	Power supply indicator (Orange)	Continue	Excess current is present on the output circuit.	Reset automatically.
Maintenance warning	Maintenance signal ON (A Contact)	Maintenance indicator (Green)	Continue	Static electricity neutralization function is reduced due to dirt, wear or damage to the emitters.	Supply power again.

Note 1) NPN/PNP open collector output

##### 1) Incorrect high voltage

When an incorrect high voltage electric discharge is generated for 100 ms or more during this product operation, the abnormal signal will be turned OFF (it is ON when operation is normal), and the power supply LED (Orange) and error indicating LED (Red) will turn ON to indicate the error.

When the error occurs, the fan motor rotation and ion generation will stop.

The incorrect electric discharge could be caused by condensation or dust on the emitters.

In order to clear the alarm, remedy the cause of the abnormal discharge and supply the power again.

##### 2) Excess current on output circuit

When excessive current flows to the output circuit, the output signal will be turned off to protect the circuit and the power supply indicator LED (Orange) will turn ON to indicate the error.

When this alarm is generated, this product will continue the operation.

To resolve the error, reset the product automatically by reducing the current to the output circuit to 150 mA or less.

##### 3) Maintenance warning

The maintenance signal is ON (OFF for normal operation) when static electricity neutralization performance is reduced due to contamination, wear or damage of the emitters. The maintenance indicator LED (green) will turn ON to indicate that cleaning of the emitters or replacement of the cartridge case needs to be performed.

When this alarm is generated, this product will continue the operation.

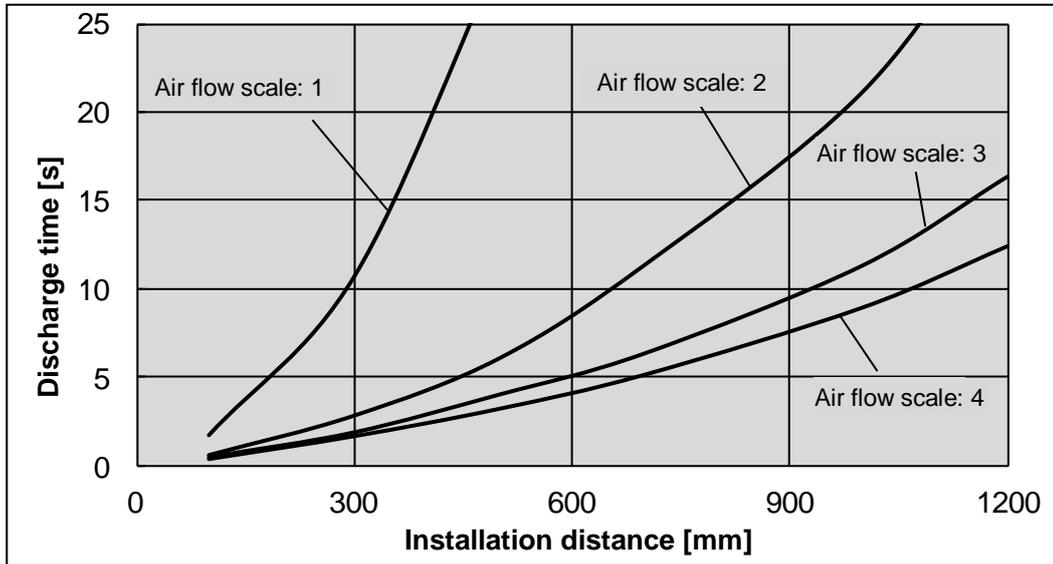
If the emitter becomes worn and the static electricity neutralization performance is not restored after cleaning, replace the cartridge case.

In order to clear the alarm, remedy the cause of the abnormality, and supply power again.

## 5. Performance

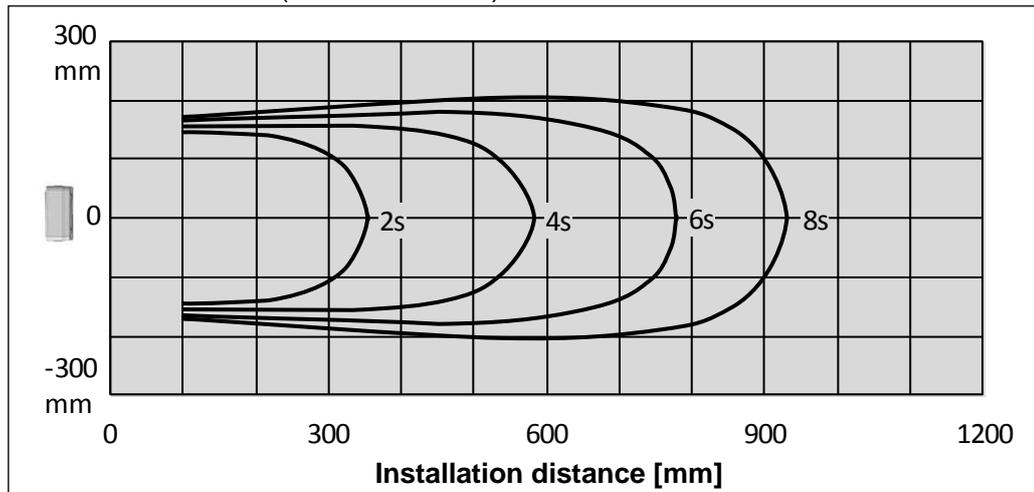
Performance data given in this chapter is based on an electrified plate (dimensions: 150 x 150 mm, electrostatic capacity: 20 pF) defined by ANSI standard (ANSI/ESD STM3.1-2006). Use this data as a guideline for selection, as the performance data may vary depending on the material and size of the work piece.

### 1) Discharge characteristics (Discharge time from 1000 V to 100 V)

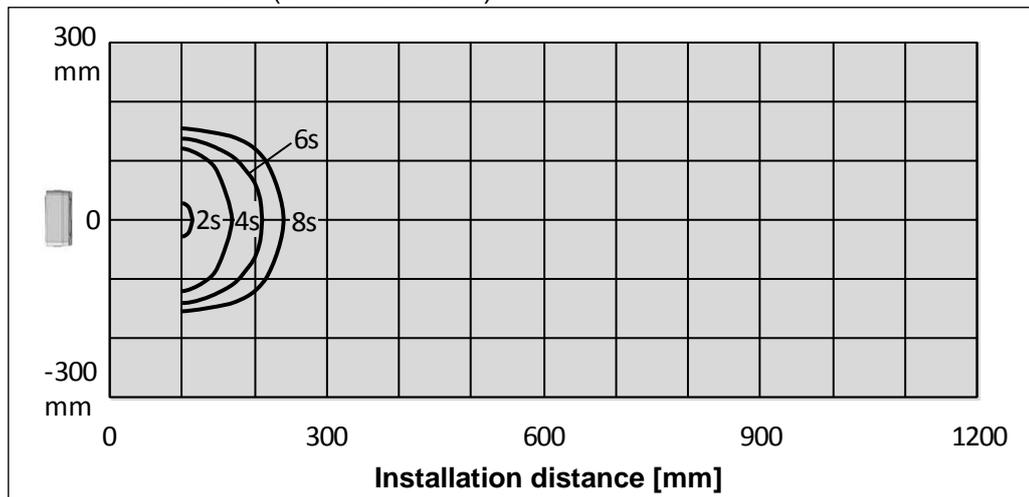


### 2) Discharge characteristics range (Discharge time from 1000 V to 100 V)

At maximum air flow (air flow scale: 4)

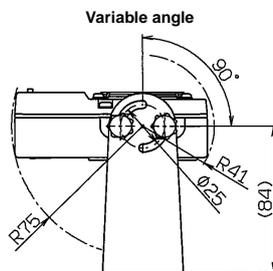
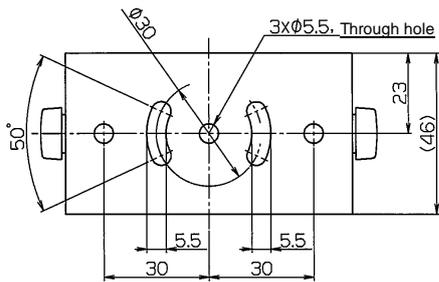
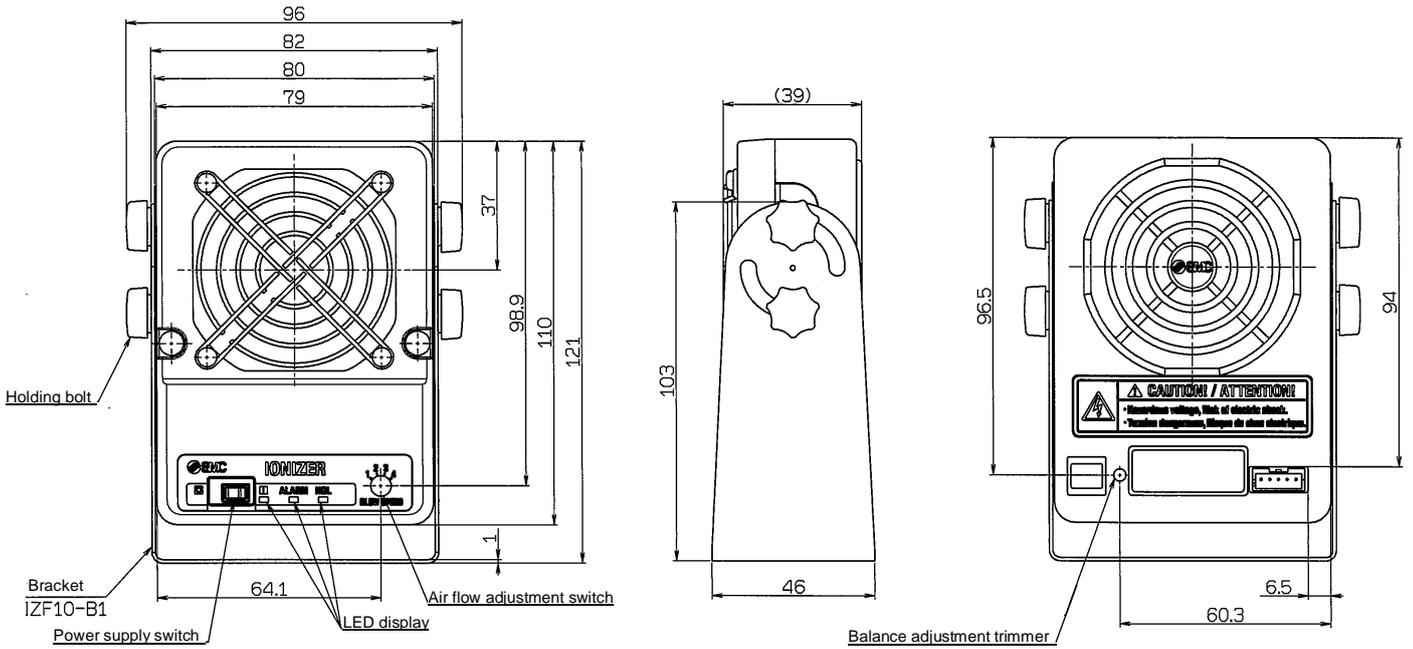


At minimum air flow (air flow scale: 1)

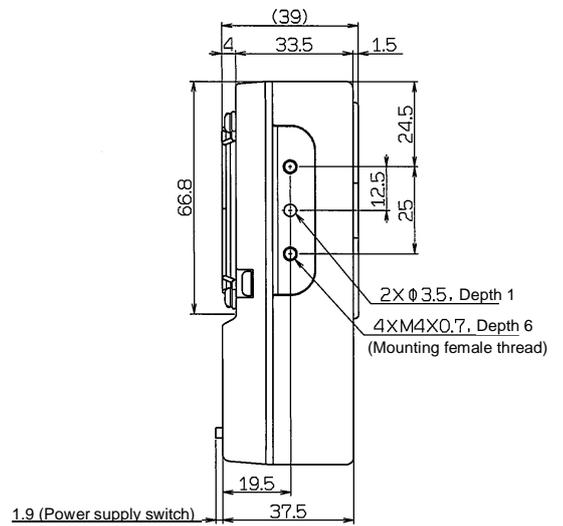


## 6. Dimensions

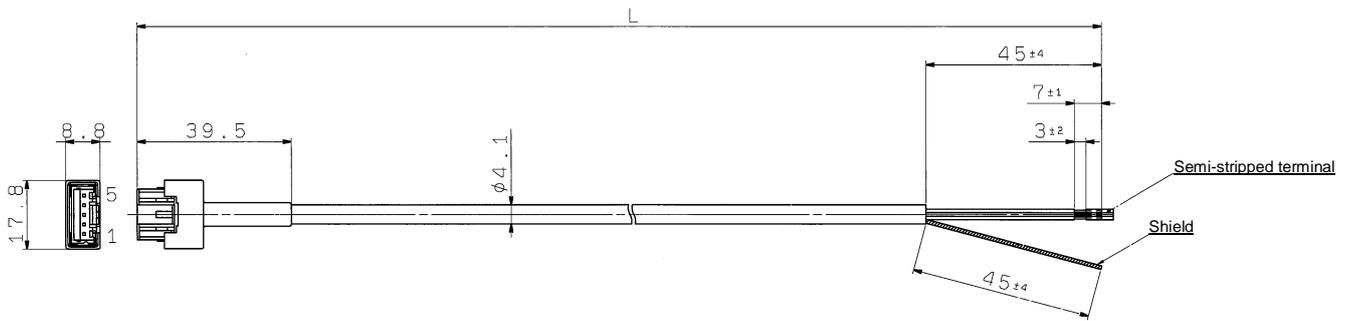
### Bracket mounting



### Side view of the body



Power supply cable



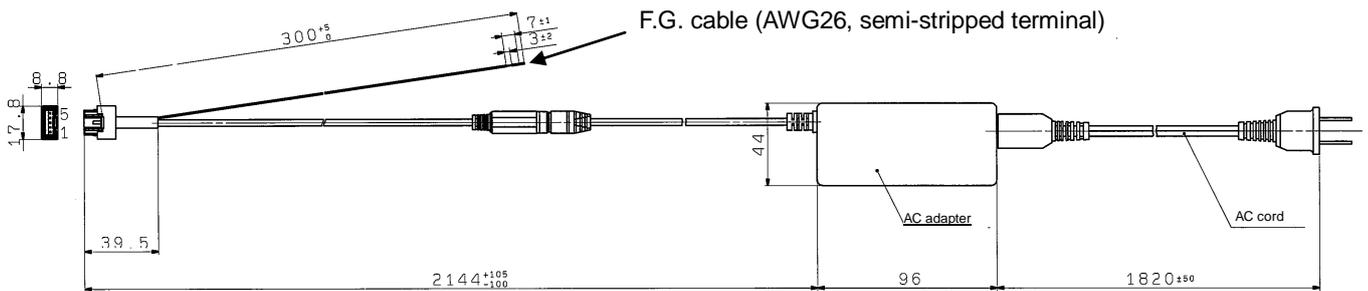
Wiring

Part no.	L
IZF10R-CP	$3000^{+60}_0$
IZF10R-CPZ	$9850^{+100}_0$

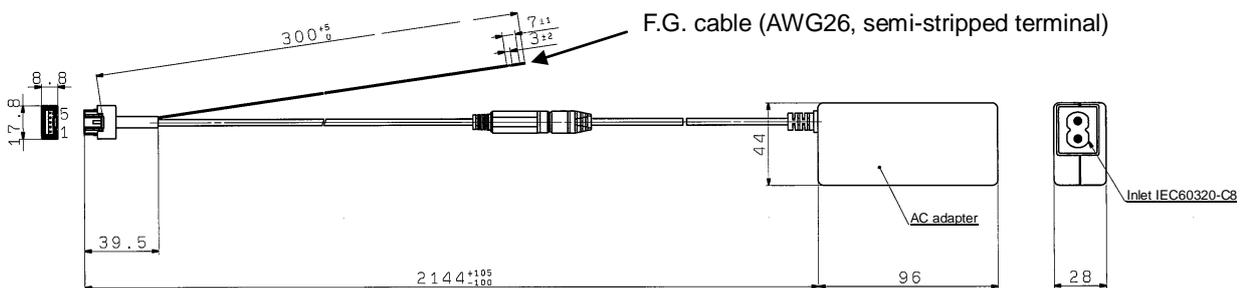
Pin No.	Cable color	Signal name	Conductor size(AWG)
1	Brown	+24 VDC	26
2	Blue	0V	26
3	Green	F.G.	26
4	Yellow	Maintenance signal	26
5	Purple	Error signal	26

AC adapter

IZF10R-CG1 (With AC cord)



IZF10R-CG2 (Without AC cord)



Note) The AC cord is only for use in Japan. (Rated voltage 125 V, Plug JIS C8303, Inlet IEC60320-C8)  
External output cannot be used when the AC adapter is being used.

## 7. Specifications

Model	IZF10R (NPN output)	IZF10R (PNP output)
Maximum air flow	0.80 m <sup>3</sup> /min	
Ion generation method	Corona discharge type	
Method of applying voltage	DC type	
Applied voltage	+/-5 kV	
Offset voltage (ion balance) <sup>Note)</sup>	+/-13 V	
Power supply voltage	24 VDC +/- 10%	
Current consumption	270 mA or less	
Maintenance signal output Error signal output	NPN open collector output Maximum load current: 150 mA Residual voltage: 1 V or less (Load current: 150 mA) Maximum applied voltage: 26.4 VDC	PNP open collector output Maximum load current: 150 mA Residual voltage: 1 V or less (Load current: 150 mA)
Ambient temperature	Operating: 0 to 50°C, Stored: -10 to 60°C	
Ambient humidity	Operating, Stored: 35 to 80% RH (no condensation)	
Material	Case: ABS/Stainless steel, Emitter: Tungsten	
Weight	260 g (With bracket: 340 g)	
Applicable standard/directive	CE (EMC directive 2014/30/EU)	

Note) Based on ANSI/ESD, STM3.1-2006 standard

### AC adapter (IZF10R-CG1 / IZF10R-CG2)

Input voltage	100 to 240 VAC, 50/60 Hz
Output voltage	24 VDC
Output current	1A max
Ambient temperature	Operating: 0 to 40°C, Stored: -20 to 65°C
Ambient humidity	Operating, Stored: 10 to 90% RH (no condensation)
Applicable standard/directive	CE, cUL

Revision history
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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

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