



# Operation Manual

PRODUCT NAME

Ionizer

MODEL / Series

IZT43 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: Manipulating industrial robots -Safety.  
etc.

	<b>Caution</b>	<b>Caution</b> indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
	<b>Warning</b>	<b>Warning</b> indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	<b>Danger</b>	<b>Danger</b> 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.**

## Caution

**SMC products are not intended for use as instruments for legal metrology.**

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

## Selection

### Warning

- 1) **This product is intended for use in general factory automation equipment.**
  - If considering using the product for other applications (especially those indicated in (4) on page 3), please consult SMC beforehand.
- 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) **Use clean compressed air as fluid. (Air quality Class 2.6.3 specified in ISO 8573-1: 2012 is recommended.)**
  - Never use flammable gas or an explosive gas as a fluid and never use this product in the presence of such gases.
  - Please contact us when fluids other than compressed air used.
- 4) **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) **Reserve an enough space for maintenance, piping and wiring.**
  - Please take into consideration that the one-touch fittings for supplying air, need enough space for the air tubing to be easily attached/detached.
  - To avoid unreasonable stress applied to the connector and one-touch fitting mounting parts, bending of the cable or air tubing should be more than the minimum bending radius.
  - If the cable is bent in an acute angle or load is applied to the cable repeatedly, it may cause malfunction, wire damage or fire.
    - Minimum bending radius: Power supply cable: 40 mm
    - Separate cable (optional): 40mm
    - High voltage cable: 30mm

NOTE: This is an allowable bend radius at 20°C. Bend radius should be larger at lower than 20°C. Regarding the minimum bending radius of the air tubing, refer to the operation manual or catalog for tubing.
- 2) **Wiring high voltage cable**
  - Use specified cable holder (IZT40-E1 or IZT40-E2) for installing high voltage cables.
  - Follow the items below when installing high voltage cables. If items below are not followed, insulation performance of high voltage cable decreases, causing the failure of this product, leading to electrical shock or fire.
    - a. Do not cut the cable.
    - b. Keep the minimum bend radius of the cable.
    - c. Do not tighten the cable too much by tying band. Do not deform the cable by placing object on the cable.
    - d. Avoid the factor of cable runaway such as cable duct.
    - e. Do not twist or damage to the cable. If the cable is damaged, it should be replaced.
- 3) **Fix the high voltage cable connector using 2 screws included in accessory.**
  - Fix the connector using 2 cross recessed round head screws (M4 x10L) referring to Table 1. Reference of tightening torque.

**4) Mount to the flat surface and do not apply impact load or excessive external force.**

- Mounting on an uneven surface will apply excessive force to the housing and bracket, which may lead to damage or failure.
- Do not drop or apply excessive shock. Otherwise, damage or an accident may occur.

**5) Be sure to fix the High voltage cable plug with the cable clip and the cross recessed round head screw (M3 x5L).**

**6) 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 malfunction or deterioration or damage of the internal elements.
- When the presence of noise is suspected, take preventive measures against noise and avoid the crossing wires such as power line and high voltage line.

**7) Tighten the screws to the specified torque.**

- If the screws are tightened in excess of the specified torque range, it may damage the mounting screws or mounted areas.
- If the tightening torque is insufficient, the mounting screws and brackets may become loose.

Table 1. Reference of tightening torque

Parts		Product No.	Connection	Screw (Accessory)	Tightening torque	Note
Nozzle	L-type bracket	IZT43-BL1	Nozzle	M3x4L	0.6 to 0.65Nm	Installation of bracket for nozzle
	Angle adjustment bracket	IZT43-BL2	Nozzle	M3x4L	0.61 to 0.65Nm	Installation of bracket for nozzle
			Bracket (For angle adjustment)	M3x4L 2pcs.	0.61to 0.65Nm	Mounting angle adjustment
	Nozzle (High voltage cable)	IZTN43-□□□□-□	High voltage power supply module	M4x10L 2pcs.	0.49 to 0.53Nm	Installation of bracket for high voltage cable connector
Nozzle			M3x5L	0.10 to 0.15Nm	Installation of bracket for high voltage cable plug	
Controller	IZTC41	High voltage power supply module	M4x30L 2pcs.	0.22 to 0.24Nm	Direct connection	
Separate cable	IZT40-CF□	Controller	2pcs.	0.25 to 0.35Nm	Separate connection	
Spacer for separate cable		D-sub connector(plug)	2pcs.	0.40 to 0.60Nm		
DIN rail mounting bracket	IZT40-B□	Controller	M4x6L 2pcs.	1.30 to 1.50Nm	DIN rail mounting bracket	
		High voltage power supply module	M4x6L IZT40-B2: 4pcs. IZT42-B3: 8pcs.	1.30 to 1.50Nm		
		DIN rail	M4x6L 2pcs.	1.30 to 1.50Nm	Install to DIN rail	

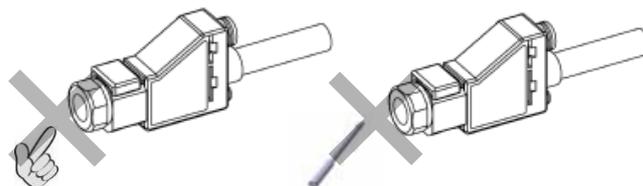
**8) Do not directly touch the emitters.**

- Do not directly touch the emitter with your finger. If the needle sticks to your finger, or electrical shock makes an instantaneous rapid body motion to escape from the shock, causing injury.
- If emitter or cartridge is damaged by tools, etc., it may interfere with the specified function and performance, and may also cause operation failure and accident.



**High voltage caution**

The emitter carries high voltage. If foreign matter is inserted or human body touches the emitter, electrical shock or instantaneous reaction of body to escape from the shock, causing injury.



**9) Do not affix any tape or labels to the controller, high voltage power supply module or nozzle.**

- If the tape or label contains any conductive adhesive or reflective paint, a dielectric phenomenon may occur due to ions arising from such substances, resulting in electrostatic charging or electric leakage, causing malfunction, breakage, electric shock or fire.

10) Be sure to remove power supply and air supply to the controller, high voltage power supply module and nozzle before starting the product installation.

- If installation or adjustment is performed being supplied with power or air, electric shock, failure or injury can result.

11) High voltage power supply module uses a fan. 20mm or more space from the exhaust port is necessary for ventilation.

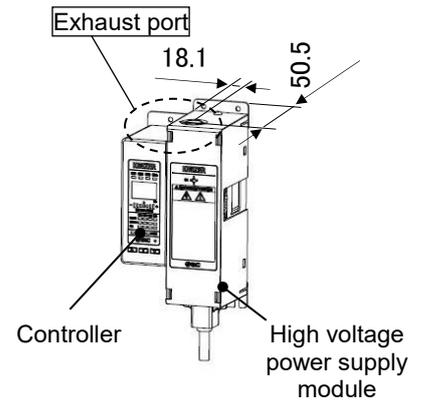
- Or install the product in a ventilated location so peripheral device are not affected.

12) Do not damage the cable or apply a heavy object or pinch the cable. Avoid repeatedly bending or stretching the cable.

- It may cause an electric shock, fire, or breaking of wire.

13) Do not carry this product by holding its cables.

- It may cause an injury or damage to the product.

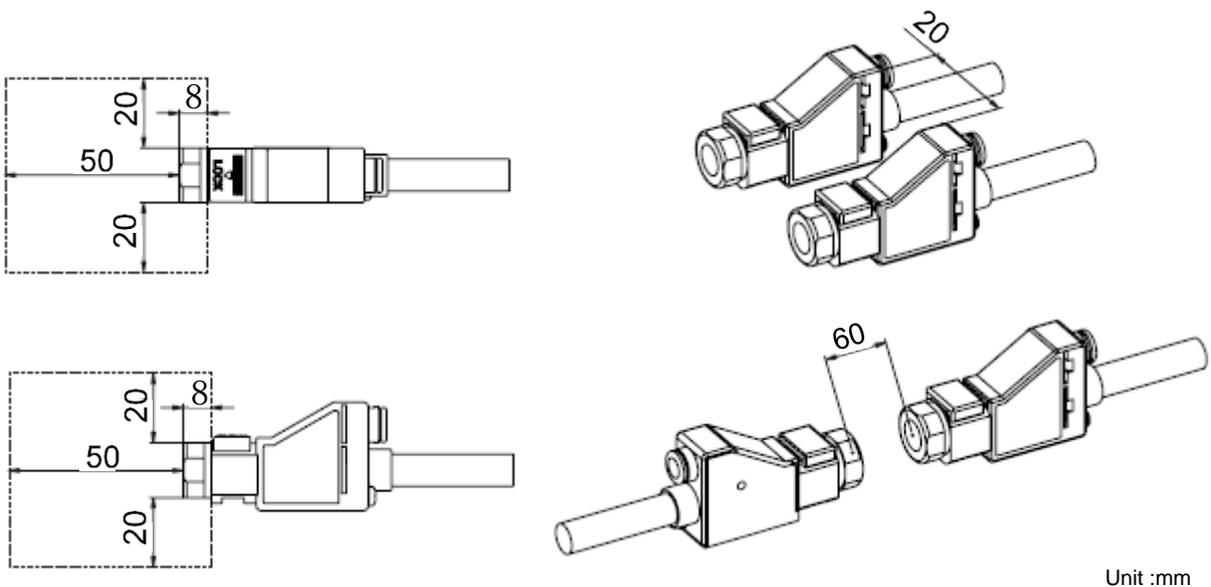


IZT43

## Caution

1) When IZT43 series is installed, keep space below from structures or components.

- If there are electrically conductive objects such as walls or structures close to the nozzle, generated ions may not reach the target object effectively or product failure or electric shock can result due to dielectric or short-circuit.



2) After installation, verify the performance of this product.

- The performance of the product varies depending on the surrounding installation and operating conditions. After installation, verify the performance of this product.

3) When installing ionizers which operate in DC mode (one polarity, positive or negative) with IZT43 close together, they should be positioned at least two meters away from each other.

When IZT43 which operates in AC close to the ionizer which operates in DC mode, separate them by at least two meters. The offset voltage (ion balance) may not be adjusted by the built-in sensor due to the ions discharged from the ionizer which operates in DC mode.

4) Use specified bracket.

## Wiring and Piping

### Warning

- 1) Before wiring, ensure that the power supply capacity meets the specification and that the voltage is within the specification. Product damage or malfunction can result.
- 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. Otherwise, an electrical shock or accident may occur.
- 5) Use specified cable for connecting the ionizer controller, high voltage power supply module and nozzle. Do not disassemble or retrofit them. Disassembling or modifying the product may cause product, electric shock or fire. The product will not be guaranteed if it is disassembled and/or modified.
- 6) Ensure the safety of wiring and surrounding conditions before supplying power.
- 7) Do not connect or disconnect the connectors (including power source) while the power is supplied. Failure to follow this procedure may cause product malfunction.
- 8) If the power and high voltage cables are routed together, the product may malfunction due to noise. Route the ionizer wires separately.
- 9) Confirm that the wiring is correct before operation. Incorrect wiring will lead to product damage or malfunction.
- 10) Flush the piping before connecting. Before piping this product, exercise caution to prevent particles, water drops, or oil contents from entering the piping.

## Operating / Storage Environment

### Warning

- 1) Operate the product in the specified fluid temperature range and ambient temperature range.
  - Operating fluid temp. and ambient temp. range: 0 to 40°C.
  - Do not use the product in locations where the temperature may change suddenly even if the ambient temperature range is within the specified limits, resulting in 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. Use in the environment which ambient temperature is out of the product specification.
    - b. Use in the environment which ambient humidity is out of the product specification.
    - c. Environment where abrupt temperature changes may cause condensation.
    - d. Environment where corrosive gas, flammable gas or other volatile flammable substances are stored.
    - e. Environment 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 environment
    - 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. Environment where static electricity is generated to the product.
    - 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) Do not use air containing mist and/or dust.
  - Air containing mist and/or dust may cause performance deterioration, and reduce the maintenance cycle.
  - Install a dryer (IDF series), air filter (AF/AFF series), and/or mist separator (AFM/AM series) to obtain clean compressed air (air quality of Class 2.4.3, 2.5.3, 2.6.3 or higher according to ISO 8573-1: 2010 (JIS B8392-1:2012) is recommended for operation.

5) Controller, high voltage power supply module, nozzle and AC adapter are not resistant to lightning surge.

6. Effects on implantable medical devices.

- The electromagnetic waves emitted from this product may interfere with implantable medical devices such as cardiac pacemakers and cardioverter defibrillators, resulting in the malfunction of the medical device or other adverse effects.
- Please use extreme caution when operating equipment which may have an adverse effect on your implantable medical device. Be sure to thoroughly read the precautions stated in the catalog, operation manual, etc., of your implantable medical device, or contact the manufacturer directly for further details on what types of equipment need to be avoided.

## Maintenance / Check

### Warning

1) Perform maintenance regularly and clean the emitters.

- Check regularly that the product is not operating with undetected failures.
- The maintenance must be carried out by an operator who has sufficient knowledge and experience.
- If the product is used for an extended period with dust present on the emitters, the product performance will be reduced.
- Maintenance detection function is installed to IZT43. When the emitter contamination is detected, clean the emitter.
- In cases where the maintenance detection function is not used on the IZT43 is used, perform neutralizing performance test and set maintenance cycle for periodic cleaning.
- Emitter contamination level is different depending on the installation environment and supply pressure. Refer to section "9. Maintenance" for details.
- If the performance is not recovered after cleaning, it is possible that emitters are worn. Replace the emitter cartridge.

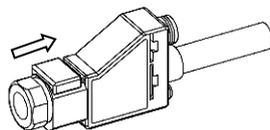


### High voltage caution

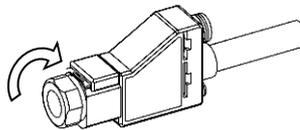
- This product contains a high voltage generation circuit. When performing maintenance inspection, be sure to confirm that the power supply to the ionizer is turned off.
- Never disassemble or modify the product, as this can cause loss of product functionality, and there is also a risk of electric shock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

2) Be sure to remove power supply and air supply to the controller, high voltage power supply module and nozzle before cleaning the emitter or replacing the emitter cartridge.

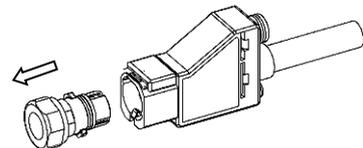
- Never touch the emitter with the power supplied to the controller, high voltage power supply module or nozzle. Electric shock may cause injury.
- If the emitter cartridge is removed while air is supplied, the emitter cartridge jumps out by compressed air. Replace the emitter cartridge after discharging the supply air.
- If emitter cartridges are not securely mounted to the body, they may eject or release when air is supplied to the product.
- Securely mount or remove the emitter cartridges referencing the instructions shown below.
- Securely mount or remove the emitter cartridges with hands and do not use tools.  
(Tightening torque: 0.1 to 0.2 Nm)



(1) Slide to unlock

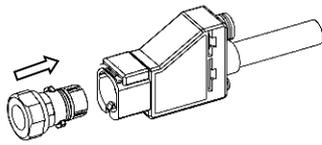


(2) Rotate the cartridge in the counter-clockwise direction.

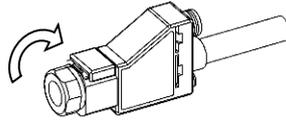


(3) Pull to remove.

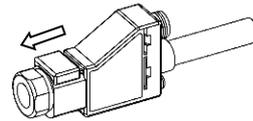
Removal of the emitter



(1) Insert the cartridge.



(2) Rotate the emitter cartridge for in the clockwise direction.



(3) Slide to lock.

Mounting of the emitter

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

- Disassembling or modifying the product may cause product, 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.

**5) Be sure to remove power supply and air supply to the controller, high voltage power supply module and nozzle before replacing the high voltage cable.**

**Handling**

**! Caution**

**1) Do not apply excessive external force or shock (100m/s<sup>2</sup> or more) to the product**

- Even if there are no problems with the appearance of the controller, high voltage power supply module or nozzle, the damage of the internal components may cause malfunction.

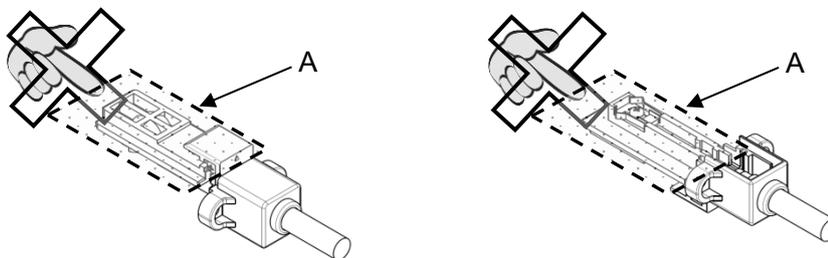
**2) Power cable must be connected and disconnected by hand.**

- Open and close too much may damage the drain cock.
- Hold the connector by hand and straightly pull it out.
- If the connector has lock mechanism, release the lock and then pull out the connector.

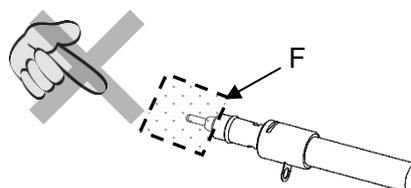
**3) If smoking, fire or smell occurs in the product, immediately shut off the power supply.**

**4) Do not touch the A part and the F part of the high voltage cable by hand. Be careful so that moisture or foreign matter does not adhere to the connector.**

- Do not touch the A part and the F part of the high voltage connector by hand while handling.
- Keep the high voltage connector free from contamination. Adhesion of oil or foreign matter on the A part and the F part may cause high voltage electric leakage.
- If moisture, oil, or foreign matter adheres to the A part, clean it with ethanol.



High voltage connector



High voltage plug

# 1. How to Order

## 1-1. System construction

- IZT43 series consists of the nozzle/bar (ion generator), high voltage power supply module, and controller. It is necessary to combine each equipment.
- Refer to IZT4□ Table of combination below for combining equipment. Combinations other than those in the Table are not possible.
- The controller and high voltage power supply module can be directly connected or installed separately .
- When multiple products are installed, up to 4 high voltage power supply modules can be connected to one controller.

Table2. IZT4□ Table of combination (Representative model that can be connected)

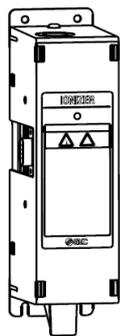
Series	Controller	High voltage power supply module	Bar
IZT40	IZTC40	IZTP40	IZTB40
IZT41	IZTC41	IZTP41	
IZT42		IZTP42	IZTB42
IZT43		IZTP43	IZTN43

### Controller



IZTC41-□□-□

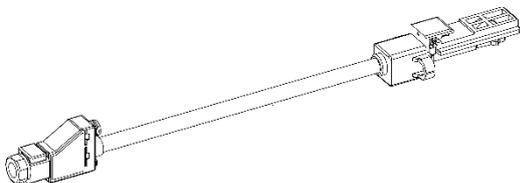
### High voltage power supply module



IZTP43-□

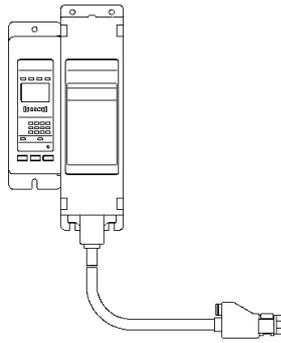
(High voltage power supply module for IZT43)

### Nozzle (ion generating part)

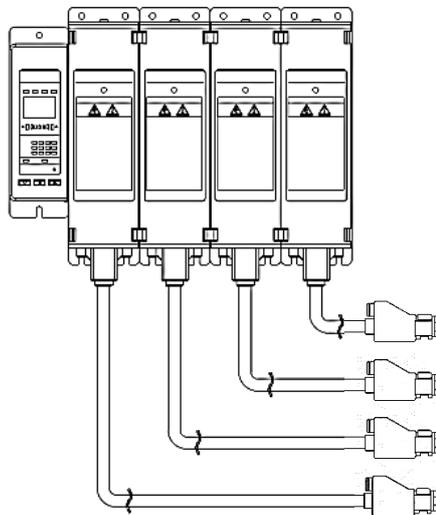


IZTN43-□□□-□  
(Nozzle for IZT43)

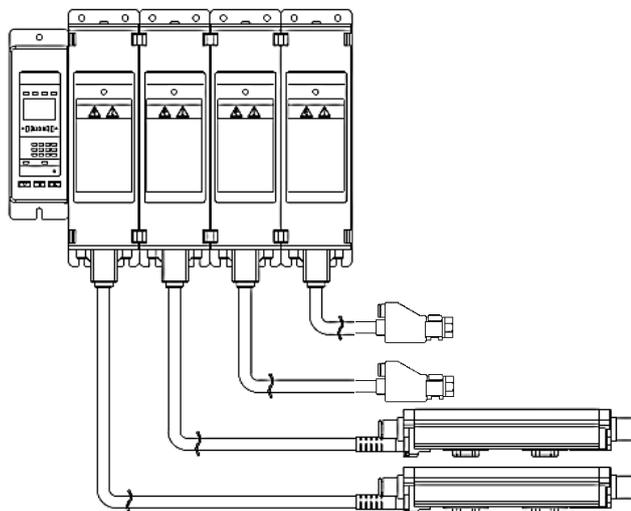
**Direct connection**



Example of connecting IZTC41, IZTP43 and IZTN43

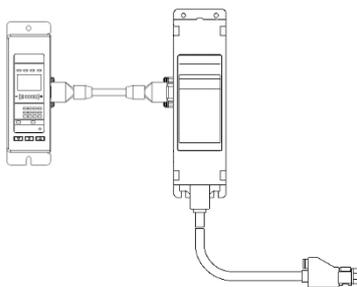


Example of connecting IZTC41, IZTP43 and IZTN43 (4pcs.)

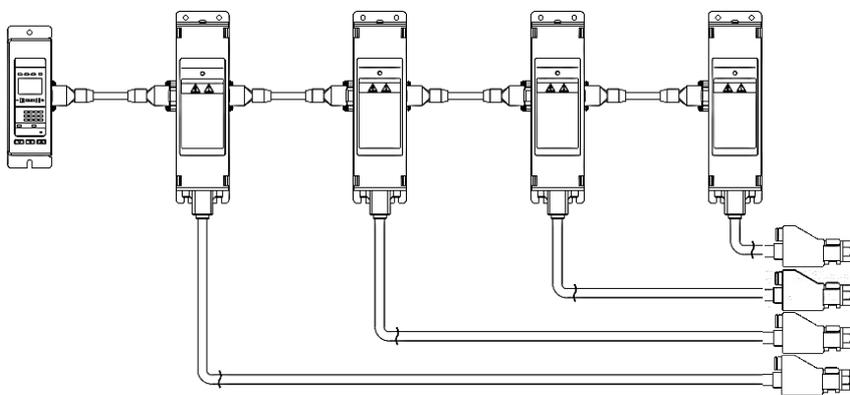


Example of connecting IZTC41, IZTP43 and IZTN43 (2pcs.),  
IZTP41 and IZTB40 (2pcs.)

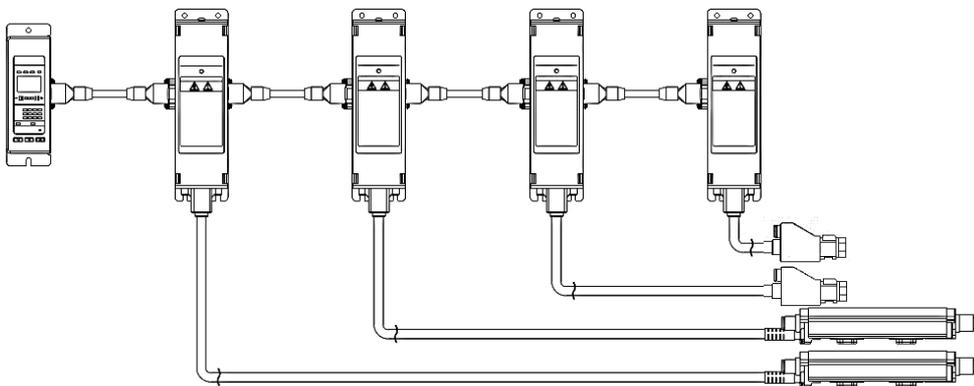
**Separate connection**



Example of connecting IZTC41, IZTP43 and IZTN43 (IZT43)



Example of connecting IZTC41, IZTP43 and IZTN43 (4pcs.)

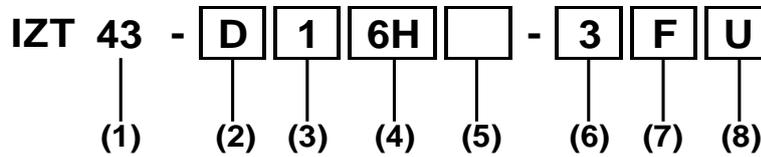


Example of connecting IZTC41, IZTP43 and IZTN43 (2pcs.)  
, IZTP41 and IZTB40 (2pcs.)

## 1-2. How to Order

- The product number consists of the controller, high voltage power supply module and nozzle (1 of each).
- When multiple high voltage power supply modules and nozzles are added to one controller, choose the equipment according to the product number for a single unit.

### Nozzle + High voltage power supply module + Controller



#### (1) Model

Symbol	Model
43	AC type

#### (4) One-touch Fitting

Symbol	Metric size
6H	ø6 straight
6L	ø6 elbow

Symbol	Inch size
7H	ø1/4" straight
7L	ø1/4" elbow

#### (6) Power Supply Cable Length

Symbol	Length (m)
3	3
5	5
10	10
15	15
N	None

※To use AC adapter, specify "N", and select AC adapter with the option number.

#### (2) Emitter Cartridge Type/ Materials

Symbol	Type	Material
D	High speed static neutralization cartridge	Tungsten
L	Energy saving static neutralization cartridge	Tungsten

#### (5) Input/ Output Specifications

Symbol	Input/ Output
Nil	NPN
P	PNP

※None of the Input/Output functions can be used when the AC adapter is being used.

#### (7) Bracket for nozzle

Symbol	Type
Nil	Without Bracket
B	With L-type bracket
F	With angle adjustment bracket

#### (3) High voltage cable length

Symbol	High voltage cable length (m)
1	1
2	2
3	3

※Number of included cable holder is different depending on the high voltage cable length (Table below).

#### Number of High Voltage Cable Holder

Symbol	IZT43	
	Straight	Elbow
1	1	1
2	2	1
3	3	1

#### (8) DIN rail bracket for controller, high voltage power supply module

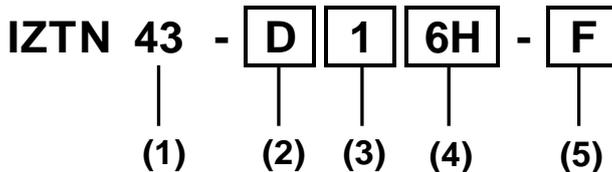
Symbol	For controller	For high voltage power supply module
Nil	None	None
U	Included	Included
W	Included	None
Y	None	Included

1-2-1. Product number for single unit (to order separately)

Table for combination

	Ion generating part			High voltage power supply module / IZTP				Controller / IZTC	
	Bar / IZTB		Nozzle / IZTN	40	41	42	43	40	41
	40	42	43						
IZT40	●			●				●	
IZT41	●				●				●
IZT42		●				●			●
IZT43			●				●		●

**Nozzle**



**(1) Model**

Symbol	Model
43	AC type

**(2) Emitter Cartridge Type/ Materials**

Symbol	Type	Material
D	High speed static neutralization cartridge	Tungsten
L	Energy saving static neutralization cartridge	Tungsten

**(3) High voltage cable length**

Symbol	High voltage cable length (m)
1	1
2	2
3	3

※Number of included cable holder is different depending on the high voltage cable length (Table below).

**(4) One-touch Fitting**

Symbol	Metric size
6H	ø6 straight
6L	ø6 elbow

**(5) Bracket for nozzle**

Symbol	Type
Nil	Without Bracket
B	With L-type bracket
F	With angle adjustment bracket

**Number of High Voltage Cable Holder**

Symbol	IZT43	
	Straight	Elbow
1	1	1
2	2	1
3	3	1

Symbol	Inch size
7H	ø1/4" straight
7L	ø1/4" elbow

**High voltage power supply module**



Model ●

Symbol	Model
43	AC type

DIN rail bracket ●

Symbol	For high voltage power supply module
Nil	None
Y	Included

**Controller**



Controller type ●

Symbol	Model
43	AC type

DIN rail bracket for controller ●

Symbol	For controller
Nil	None
W	Included

Input / output specifications ●

Symbol	Input/ Output
Nil	NPN
P	PNP

Power supply cable length ●

Symbol	Length (m)	Symbol	Length (m)
3	3	15	15
5	5	N	None
10	10		

※To use AC adapter, specify "N", and select AC adapter with the option number.

1-2-2. Accessories (ordered separately)

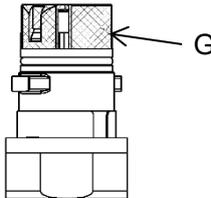
**Emitter Cartridge**

**IZT43 - N** D

● **Emitter Cartridge Type/ Materials**

Symbol	Type	Material
D	High speed static neutralization cartridge	Tungsten
L	Energy saving static neutralization cartridge	Tungsten





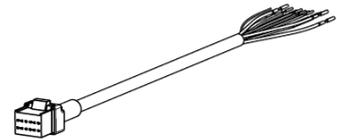
G part color	Type
White	High speed static neutralization cartridge
Gray	Energy saving static neutralization cartridge

**Power supply cable**

**IZT40 - CP** 3

● **Power supply cable length**

Symbol	Length (m)
3	3
5	5
10	10
15	15



**Bracket for nozzle**

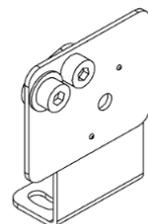
**IZT43 - B** L1

● **Bracket for nozzle**

Symbol	Type
Nil	Without Bracket
B	With L-type bracket
F	With angle adjustment bracket



IZT43-BL1  
L-type bracket



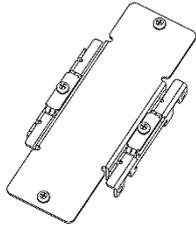
IZT43-BL2  
Angle adjustment bracket

**DIN rail mounting bracket for controller and high voltage power supply module**

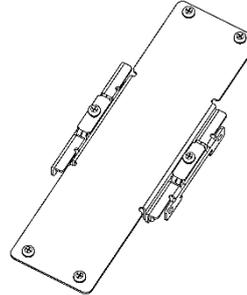
**IZT40 - B** 1

● **DIN rail mounting bracket**

Symbol	Type
1	For controller
2	High voltage power supply module



IZT40-B1  
Controller DIN rail bracket



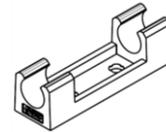
IZT40-B2  
High voltage power supply module  
DIN rail mounting bracket

**High voltage cable holder**

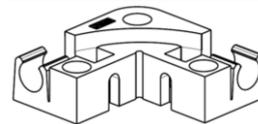
**IZT40 - E** 1

● **High voltage cable holder**

Symbol	Type
1	Straight
2	Elbow



IZT40-E1  
High voltage cable holder (straight)



IZT40-E2  
High voltage cable holder (elbow)

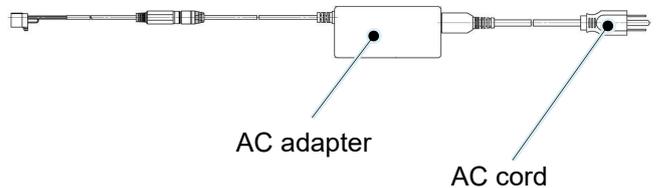
1-2-3. Sold separately

**AC adapter**

**IZT40 - CG** 1

● **AC adapter**

Symbol	Type
1	with AC cord
2	without AC cord

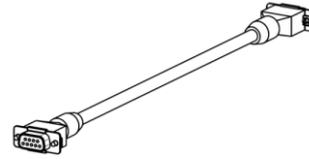


**Separate cable**

**IZT40 - CF** 1

● **Separate cable length**

Symbol	Length (m)
1	1
2	2
3	3



**Emitter cleaning kit**

**IZT43 - M2**

(Provided together with 1 felt pad  
grindstone, 1 rubber grindstone,  
and 2 replacement felt pads)



**IZT43 - A003**

(Provided together with  
10 replacement felt pads)



**IZT43 - A004**

(Provided together with 1  
replacement rubber grindstone)



**Body assembly**

**IZT 43 - A001 -** D 6H

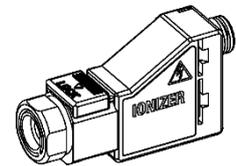
● **Emitter Cartridge Type/ Materials**

Symbol	Type	Material
D	High speed static neutralization cartridge	Tungsten
L	Energy saving static neutralization cartridge	Tungsten

● **One-touch Fitting**

Symbol	Metric size
6H	ø6 straight
6L	ø6 elbow

Symbol	Inch size
7H	ø1/4" straight
7L	ø1/4" elbow

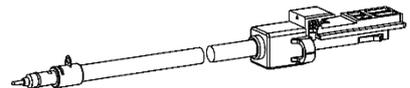


**High voltage cable assembly**

**IZT 43 - A002 -** 1

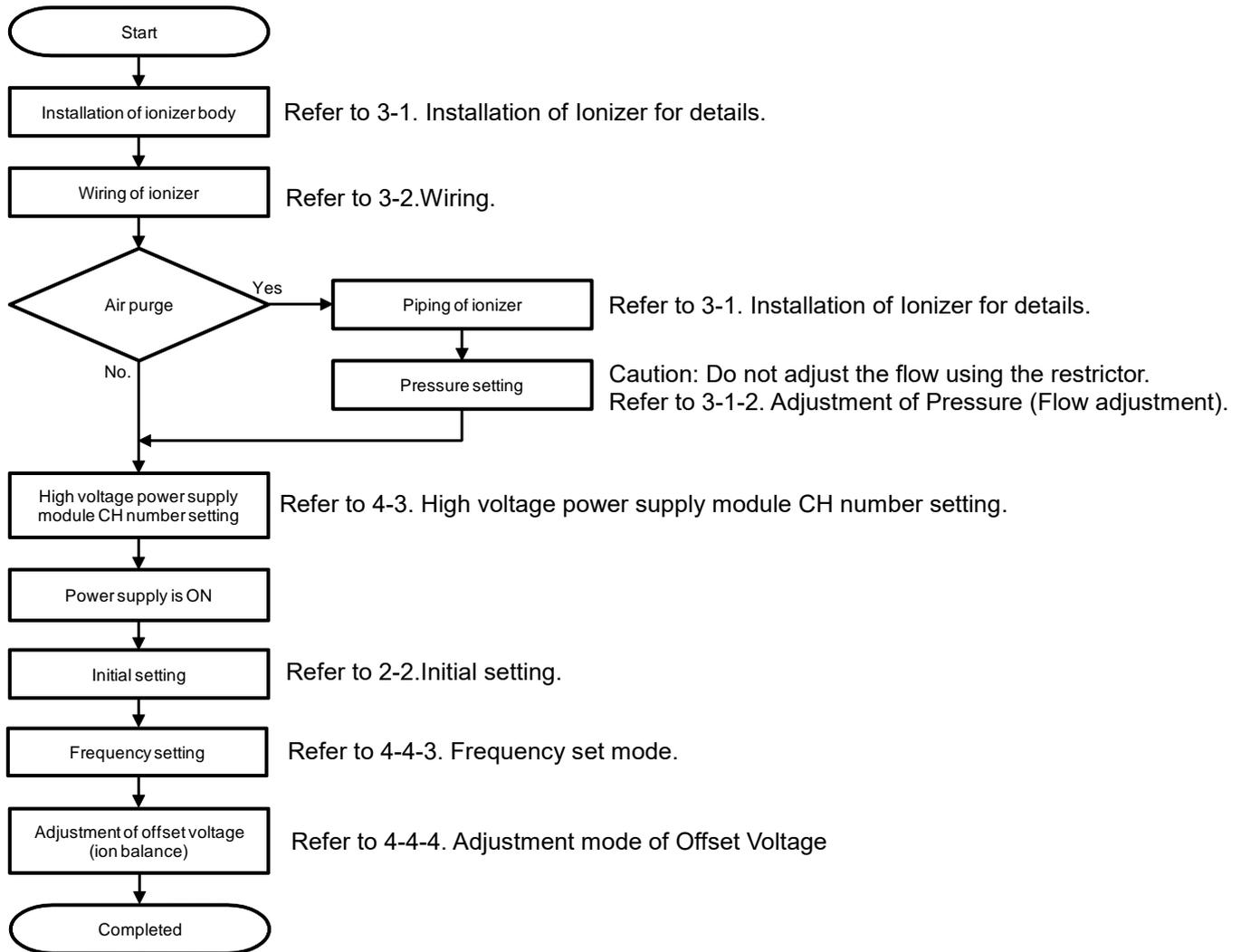
● **High voltage cable length**

Symbol	High voltage cable length (m)
1	1
2	2
3	3



## 2. Procedures to Operation

### 2-1. Flow chart to operation



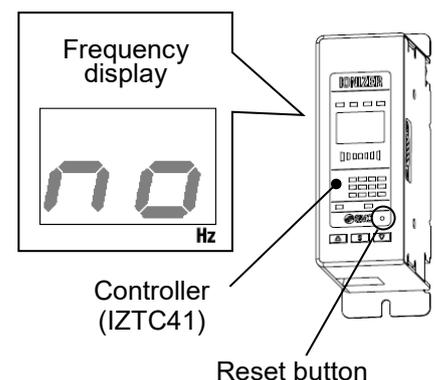
### 2-2. Initial setting

- This product has a function which constantly monitors the emitter contamination. When emitter contamination is detected, it is indicated by a signal output and LED. Initial setting is necessary for maintenance detection.
- In the default setting "70" is displayed for the frequency display.
- The Initial setting is started by pressing the S button for 3 seconds or longer while "70" is displayed. To revert to the default setting press the reset button during use.
- Connect and install the ionizer nozzle/bar to be used before setting.
- When multiple nozzles/bars are connected, assign the channel for which initial setting is necessary. Refer to 4-4-2. Channel selection mode for channel setting.
- Do not disconnect the power supply during setting. (Initial setting is completed within 60 seconds.)

[Initial setting is necessary in following cases]

- ① When "70" is displayed in the frequency display.
- ② Nozzle/bar, emitter cartridge, body assembly or high voltage cable assembly is replaced.
- ③ Installation environment is changed.

※For ②③, perform initial setting after pressing the reset button and make sure that "70" is displayed in the frequency display. It is recommended to start the initial setting for ③ after replacing the emitter cartridge. If initial setting is performed while the emitter cartridge is not clean or is worn out, maintenance detection may not work properly.



### 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 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 performance of this product.

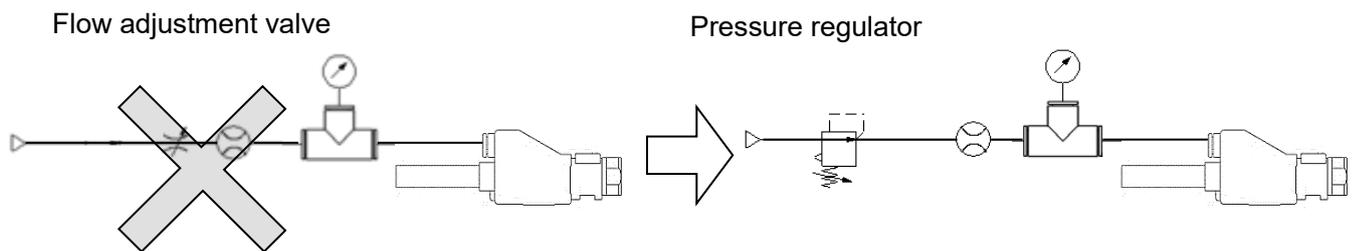
#### 3-1. Installation of Ionizer

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

- Be sure to stop power supply and air supply to the product before starting the product installation.
- Do not affix any tape or labels to the nozzle. Dielectric phenomenon may occur due to ions arising from such substances, resulting in electrostatic charging or electric leakage.

##### 3-1-2. Adjustment of Pressure (Flow adjustment)

- When air is supplied to the nozzle, adjust the flow using a regulator which should be connected immediately before the nozzle. If a flow adjustment valve is used between the nozzle and regulator, the speed of the flow from the nozzle decreases due to the pressure decrease, decreasing the neutralizing performance.
- Check the pressure around the nozzle air supply port. A pressure difference may be generated between the regulator pressure and the pressure at the nozzle air supply port due to the supply piping length and piping diameter. If a pressure gauge with regulator is used for checking the pressure, use a large capacity regulator, keep the piping as short as possible or make the piping diameter larger.
- When installing a flow meter to the air circuit, refer to "5-4. Flow - Pressure characteristics" to choose the product type so that the flow of the nozzle does not exceed the flow meter rated flow range. If the nozzle's flow consumption is larger than the rated flow of the selected flow meter, the flow supplied to the nozzle is limited, thus deteriorating neutralization performance.



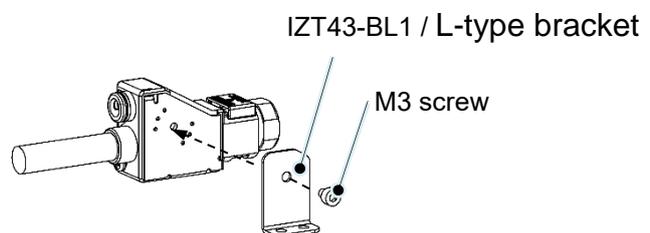
##### 3-1-3. Installation of bracket for nozzle

- Use specifies bracket.

###### 1) L-type bracket

- For mounting, fix the bracket using M3x4 screws with the specified tightening torque.

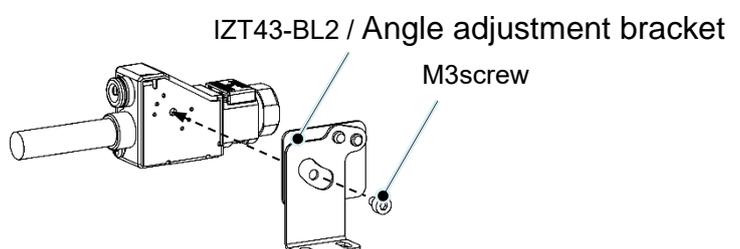
Tightening torque: 0.61 to 0.65 Nm



###### 2) Angle adjustment bracket

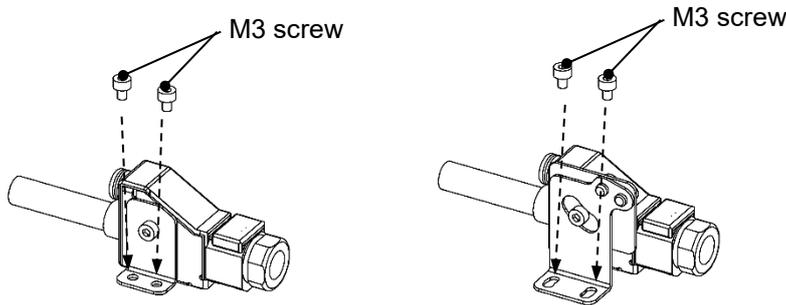
- For mounting, fix the bracket using M3x4 screws with the specified tightening torque.

Tightening torque: 0.61 to 0.65 Nm



### 3) Installation of the nozzle

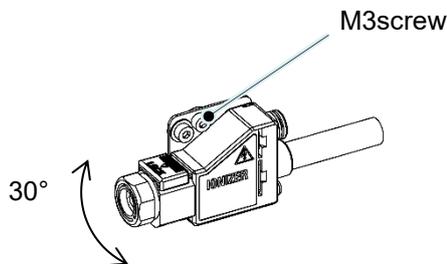
- Fix the bracket to the specified position using M3 screws.
  - Refer to "6. Dimensions" section for details.
- (The screws should be prepared by the user. Fixed part thickness 1mm, Recommended mounting screw is M3x5)



### 4) Mounting angle adjustment

- Adjust the mounting angle of the nozzle for effective neutralization, and fix the product.

Tightening torque: 0.61 to 0.65 Nm



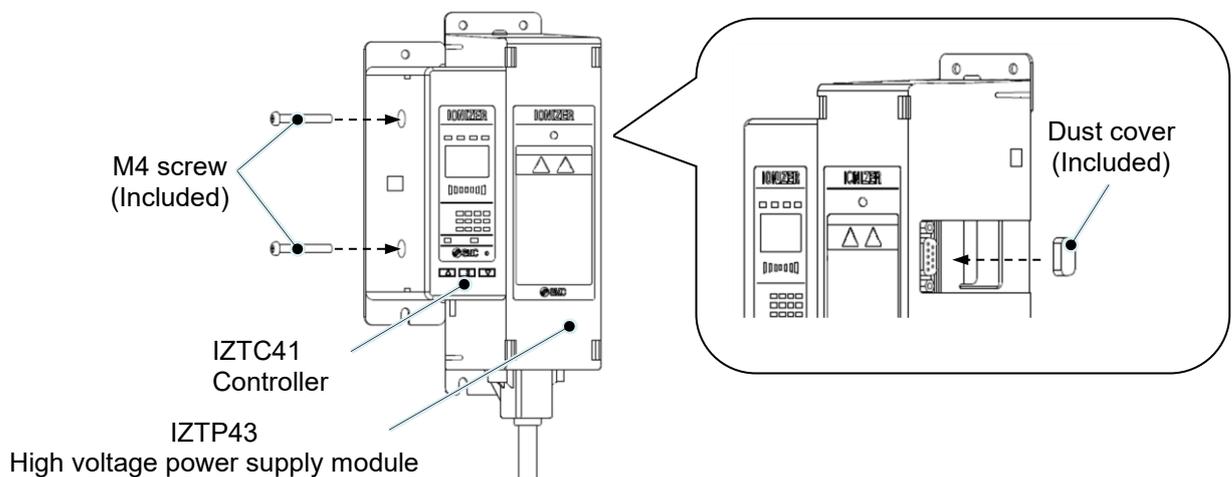
### 3-1-4. Connecting the controller and high voltage power supply module

- Remove the protection film on the controller before use.
- The product is used by connecting the controller and high voltage power supply module. They can be connected either directly or separately. For separate connection, an optional separate cable is required.
- Mount a dust cover on the D-sub connector when not using the directly mounted high voltage power supply module.

#### 1) Direct connection

- Fix the controller and high voltage power supply module using cross recessed round head screw (M4x30).

Tightening Torque: 0.22 to 0.24Nm

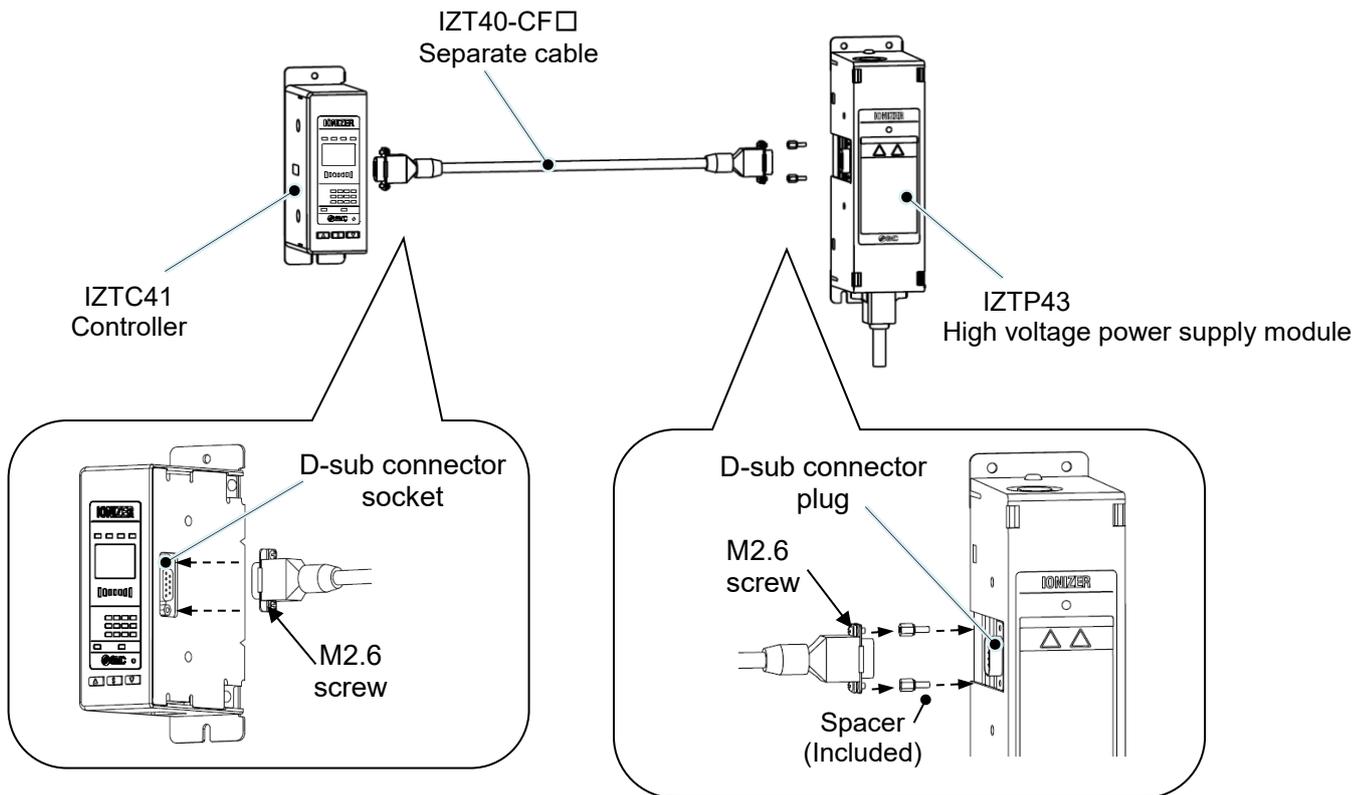


## 2) Separate connection

- For separate connection, an optional separate cable is required.
- Mount the spacers (included) to fix the separate cable to the high voltage power supply module. Fix the spacers (2 pcs.) to the plug (male side) of the D-sub connector on the high voltage power supply module.
- Connect the controller and high voltage power supply module after mounting the spacers and fix them using 2 attached screws (M2.6).

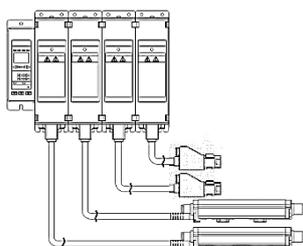
Spacer tightening torque: 0.4 to 0.6 Nm

Separate cable tightening torque: 0.25 to 0.35 Nm

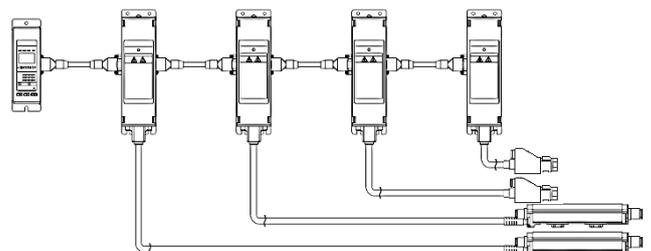


## 3) Connecting multiple units.

- Up to 4 controllers and high voltage power supply modules can be connected together.
- Controller IZTC41 can be connected when IZTP43, IZTP41 and IZTP42 are used together, but IZTP40 cannot be connected.
- When multiple controllers are connected, make sure that the displayed content and the number of connected controller is consistent after power is supplied.  
(Connected CH turns on or flashes)



Direct connection



Separate connection

### 3-1-5. Installing the controller and high voltage power supply module

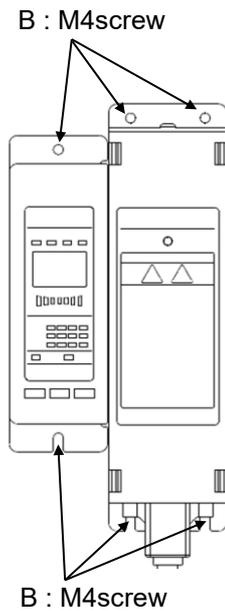
- Install the controller and high voltage power supply module to DIN rail using screws or DIN rail mounting brackets.

#### 1) Mounting with screws. (The screws should be prepared by the user. Fixed part thickness 1.5mm, Recommended mounting screw is M4x6)

- Fix the controller (IZTC41) using 2x M4 screws.
- Fix the high voltage power supply module controller (IZTP43) using 4x M4 screws.
- The number of screws to connect multiple high voltage power supply modules = Number of connected modules x screws necessary for fixing a module.

#### I . When the controller and high voltage power supply module are directly connected

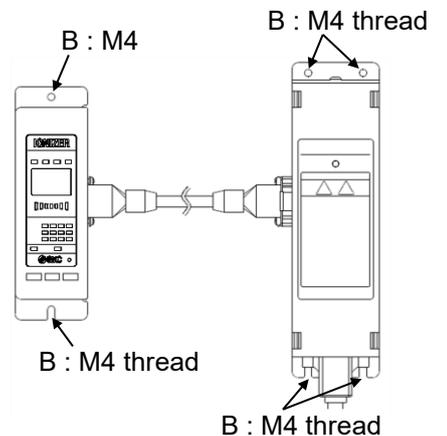
- Install the directly connected controller and high voltage power supply module at location B using M4 screws.
- Refer to 6. Dimensions for details.



When IZTC41 and IZTP43 are directly connected.

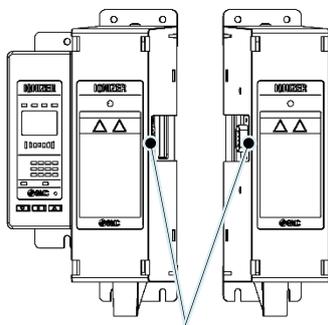
#### II . When the controller and high voltage power supply module are connected separately

- Mount the spacers to the high voltage power supply module. Refer to 3-1-4 Connect the controller and high voltage power supply Module.
- Install the separately connected controller and high voltage power supply module by at location B using M4 screw (x 6).
- Refer to 6. Dimensions for details.

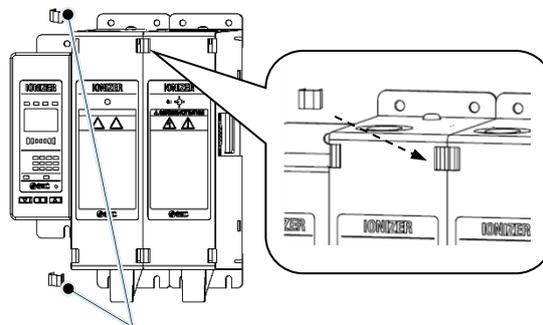


### III. Adding a high voltage power supply module

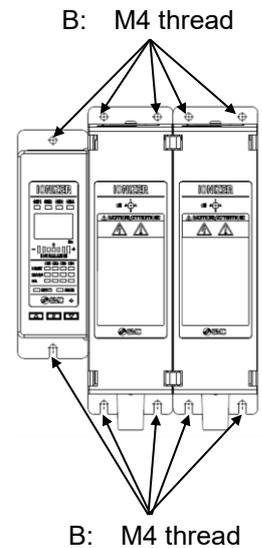
- a. High voltage power supply module to be added should be
  - Connected by D-sub connector at location C.
  - Controller IZTC41 can be connected when IZTP43, IZTP41 and IZTP42 are used together, but IZTP40 cannot be connected.
- b. Mounting bracket
  - Mount the brackets to location D.
- c. Install the controller and high voltage power supply module
  - Fix the controller and high voltage power supply module at location B using M4 screw.
  - Refer to "6. Dimensions" section for details.
- d. High voltage power supply module CH number setting
  - Set the CH number so that it does not duplicate the set number of other channels.Refer to 4-3. High voltage power supply module CH number setting.  
If duplicated, it will be verified as an error.  
Refer to "4-5. Alarms" for further details.



C : D-sub connector



D : Brackets(accessories)



B: M4 thread

### 2) Installation of DIN rail

- Use an optional DIN rail mounting bracket.
- DIN rail mounting brackets are required for mounting the controller and high voltage power supply module.
- Tighten the fixing brackets that are installed and shipping with specified torque before installation.

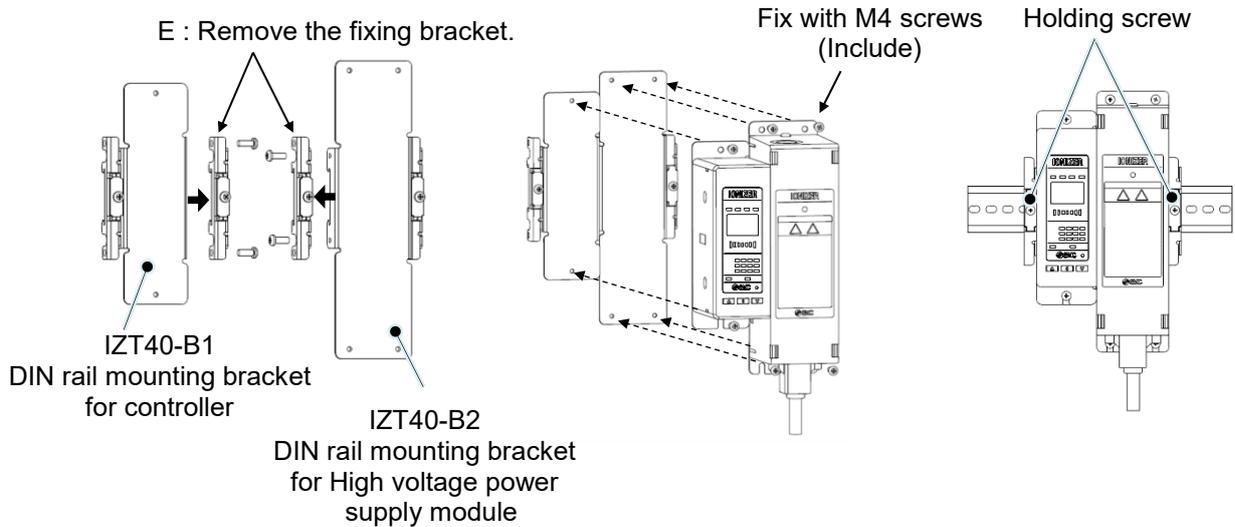
#### I . When the controller and high voltage power supply module are directly connected

- a. Removal of the fixing bracket
  - Remove the fixing bracket from the DIN rail mounting bracket at the adjoining faces indicated at location E.
- b. DIN rail mounting bracket
  - Fix the controller and high voltage power supply module to the DIN rail mounting bracket using M4 screws.Tightening Torque: 1.30 to 1.50 Nm

c. Install to the DIN rail.

- After installing the DIN rail mounting bracket, fix the controller and high voltage power supply module to the DIN rail using M4 screws.

Tightening Torque: 1.30 to 1.50 Nm



II . When the controller and high voltage power supply module are connected by separate cable

- Mount the spacers to the high voltage power supply module connector. Refer to 3-1-4. Connect the controller and high voltage power supply module.

a. DIN rail mounting bracket

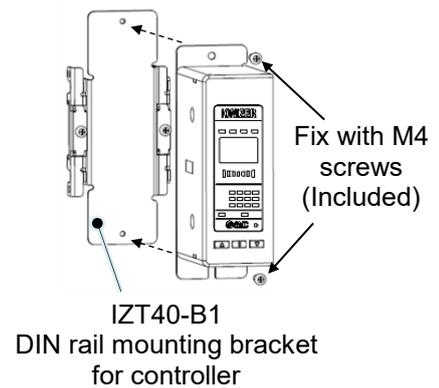
- Fix the DIN rail mounting bracket to the controller and high voltage power supply module using M4 screws.

Tightening Torque: 1.30 to 1.50 Nm

b. Install to the DIN rail.

- After installing the DIN rail mounting bracket, fix the controller and high voltage power supply module to the DIN rail using M4 screws.

Tightening Torque: 1.30 to 1.50 Nm

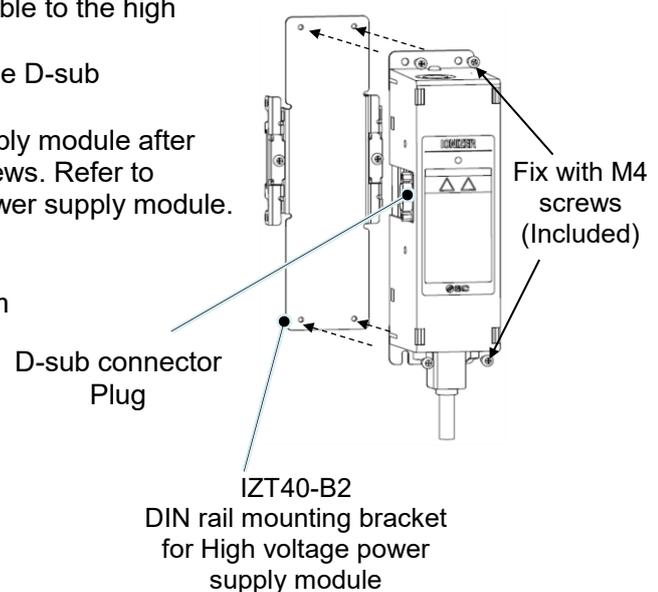
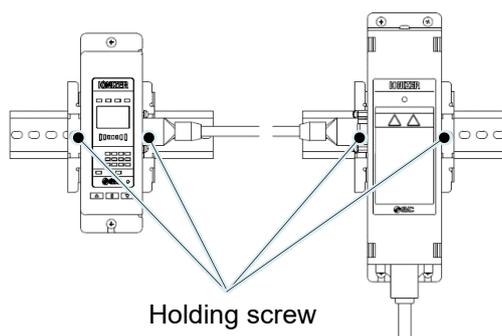


c. Connection of separate cable

- Mount the spacers (included) to fix the separate cable to the high voltage power supply module.
- Fix the spacers (2pcs.) to the plug (male side) of the D-sub connector with high voltage power supply module.
- Connect the controller and high voltage power supply module after mounting the spacers and fix them using M2.6 screws. Refer to 3-1-4. Connect the controller and high voltage power supply module.

Spacer tightening torque: 0.4 to 0.6 Nm

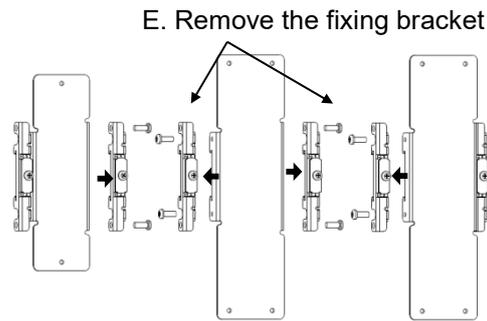
Separate cable tightening torque: 0.25~0.35 Nm



### III. When the high voltage power supply module is added directly

#### a. Removal of the fixing bracket

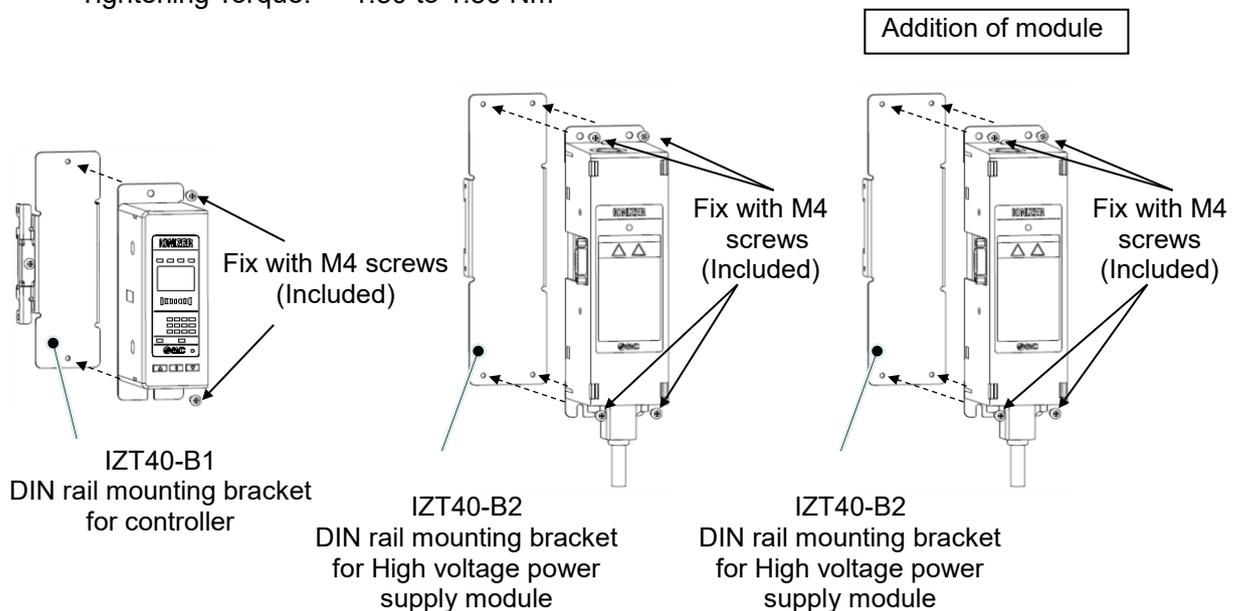
- Remove the fixing bracket from the DIN rail mounting bracket at the adjoining faces indicated at location E.



#### b. Mounting of DIN rail mounting bracket

- Fix the controller and high voltage power supply module to the DIN rail mounting bracket using M4 screws.

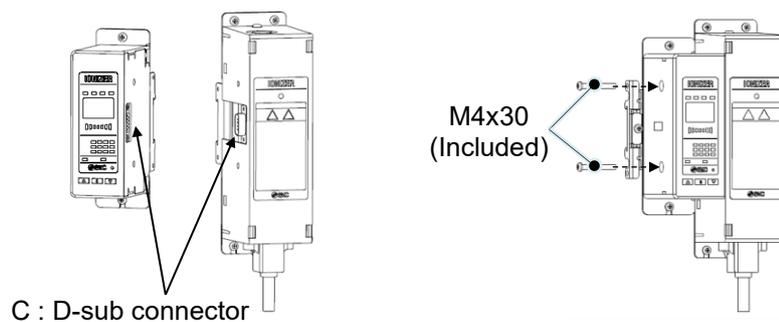
Tightening Torque: 1.30 to 1.50 Nm



#### c. Connect the controller and high voltage power supply module

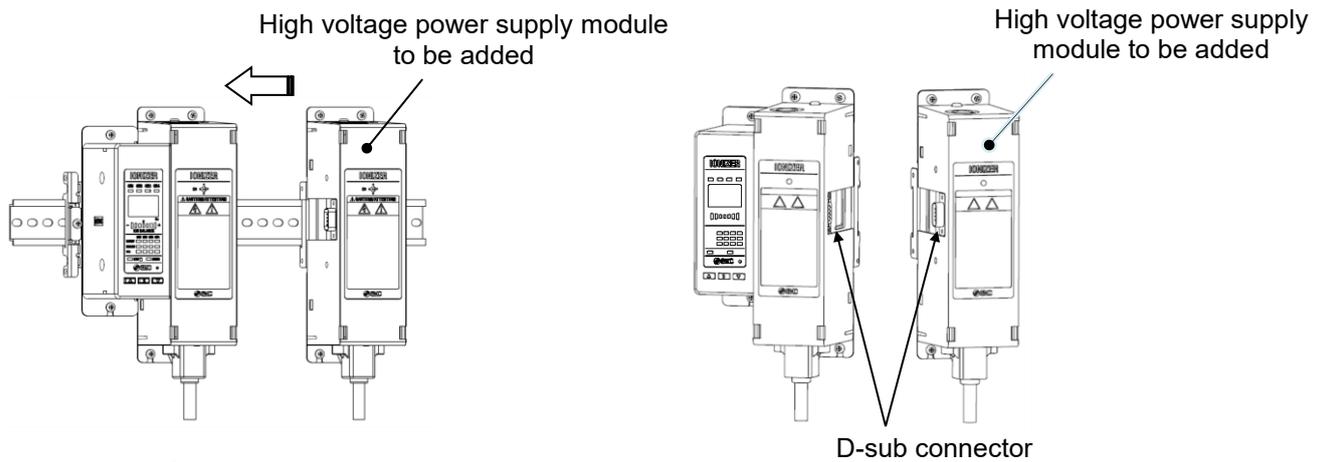
- Connect the D-sub connector in location C and fix the controller and high voltage module together using M4x30 screws (2 pcs. included as an accessory).

Tightening Torque: 0.22 to 0.24 Nm



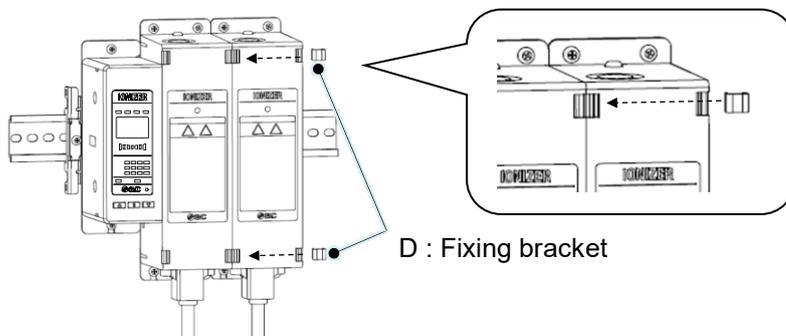
d. Install to DIN rail

- Mount them on to the DIN rail and connect the additional high voltage power supply module D-sub connector.



e. Mount the fixing bracket

- Mount the fixing brackets (included as an accessory) in location D.



f. Fix to DIN rail

- After installing to the DIN rail, fix the controller and high voltage power supply module using set screws.

Tightening Torque: 1.30 to 1.50 Nm

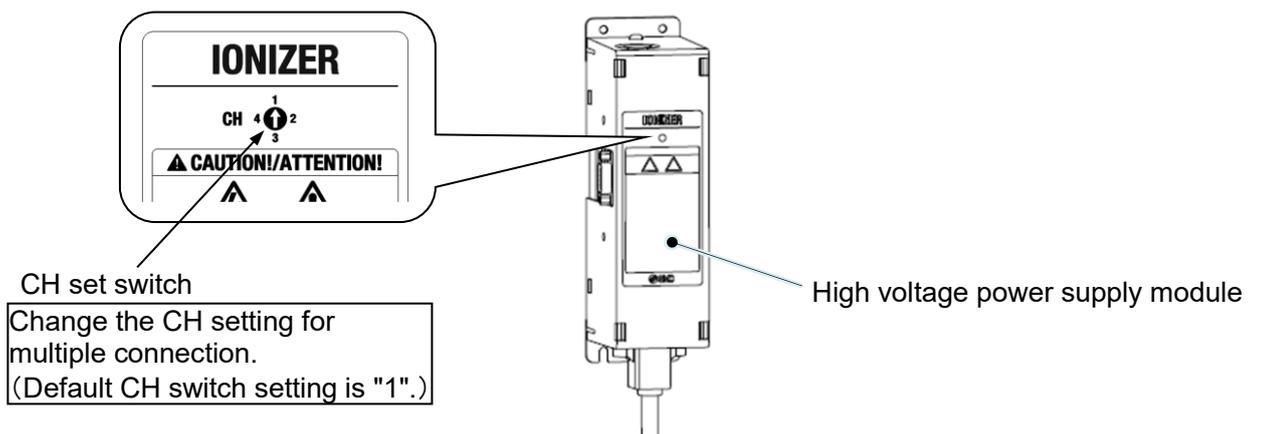
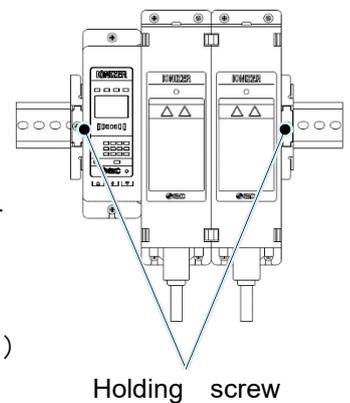
g. High voltage power supply module CH number setting

- Set the CH number setting switch for all connected high voltage power supply modules.
- Set the CH number so that it does not duplicate the set number of other channels.

(Refer to 4-3. High voltage power supply module CH number setting.)

If duplicated, it will be verified as an error.

(Refer to 4-5. Alarms for details.)



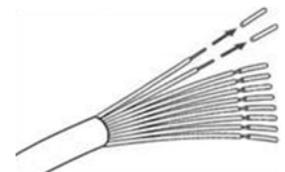
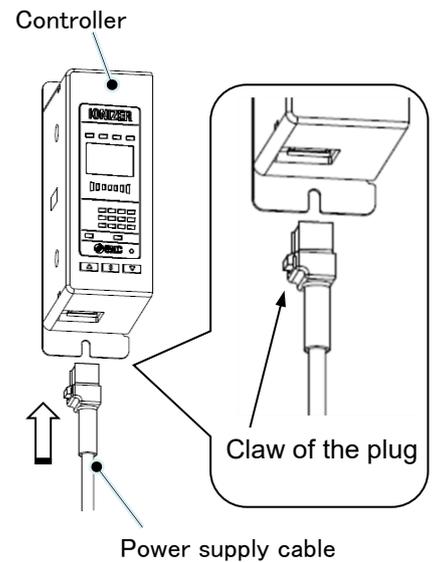
### 3-1-6. Routing of cables

- Do not apply excess stress to the mounting part of the connector.
- When the cable is bent, maintain the minimum bend radius.

Minimum bending radius: Power supply cable: 40 mm  
Separate cable: 40 mm  
High voltage cable: 30 mm  
 ※ Separate cable is optional.

#### 1) Power supply cable

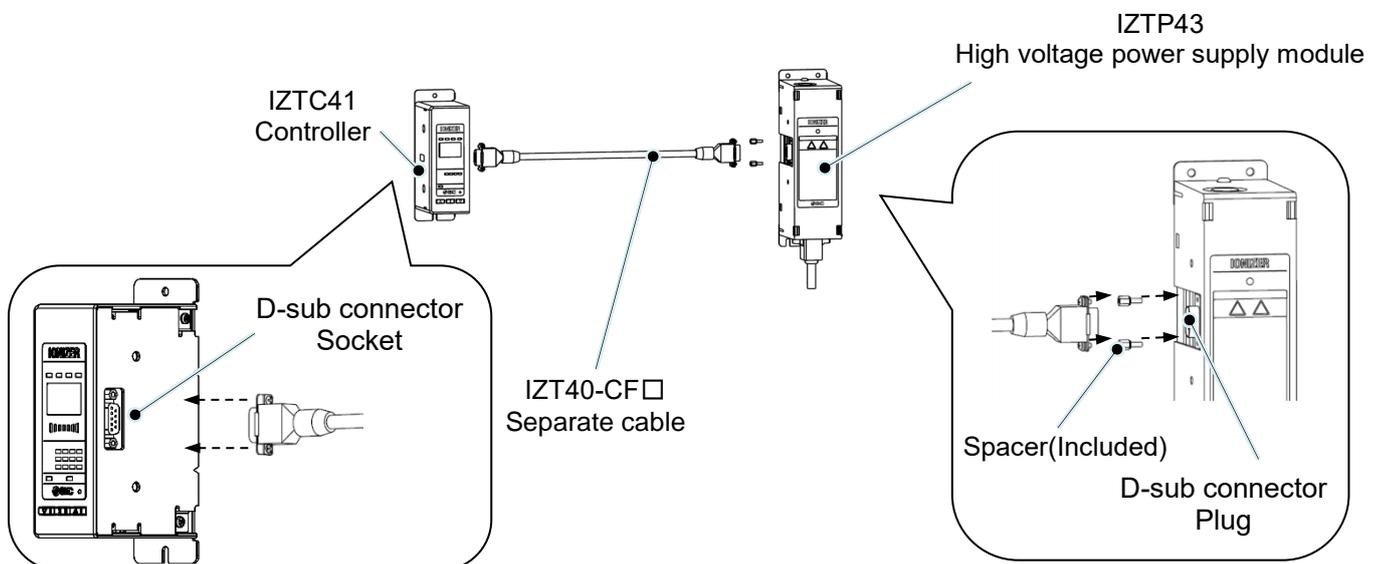
- This cable supplies power to this product and external equipment used to control this product.
- When connecting the controller to the power supply cable, insert it until it makes a click sound.
- When removing the power supply cable, press the plug claw to release the lock and pull it out straight. If mounted or removed in an inappropriate direction, the connector may be damaged and cause operation failure.
- Fix the cable around the connecting part so that stress is not applied to the plug.
- Connect the lead wires according to the wiring diagram. Unused wires should be cut short, or insulated using insulation tape.
- To satisfy the current capacity, make sure to wire 2 brown cables in which a voltage of 24 VDC is supplied and 2 blue cables in which 0V is connected.



#### 2) Separate cable (optional)

- Cable for connecting the controller and high voltage power supply module and connecting extension modules separately. This cable is not necessary when the modules are directly connected.
- Before connecting the cable, mount the spacers (included) in the male side of the D-sub connector plug on the high voltage power supply module. Refer to 3-1-4. Connect the controller and high voltage power supply module.
- It is not necessary to mount spacers to the controller D-sub connector and the D-sub connector (socket) of the high voltage power supply module because spacers are already mounted to them.
- When the separate cable is mounted or removed, pinch the connector with fingers and insert or take out the plug vertically. If mounted or removed in an inappropriate direction, the connector may be damaged and cause operation failure.
- After connecting the separate cable, fix screws of the connector. Mount the dust cover to any D-sub connector which is not used.

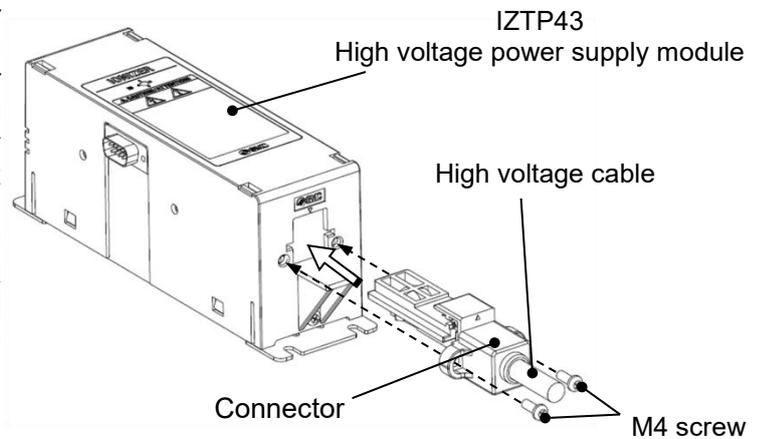
Spacer tightening torque: 0.4 to 0.6 Nm  
 Separate cable tightening torque: 0.25 to 0.35 Nm



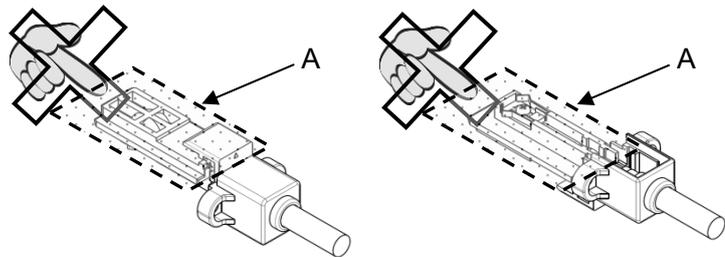
### 3) High voltage cable

#### I . High voltage cable connection

- Connect the high voltage cable at the nozzle end to the high voltage power supply module.
- When connecting and disconnecting the high voltage cable, hold the plugs together with the plug bodies, and insert or pull out straight. If mounted or removed in an inappropriate direction, the mounting part of the modular jack may be damaged and cause operation failure.
- Do not touch part A when handling the connector. Be careful so that moisture oil or foreign matter does not adhere to the connector. Adhesion of moisture, oil or foreign matter on part A may cause high voltage electric leakage. If moisture, oil, or foreign matter adheres to part A, clean it with ethanol.
- After connecting the high voltage cable to the high voltage power supply module, fix the cable using 2 cross recessed round head screws (M4x10) included with the product.



Tightening Torque: 0.49 to 0.53 Nm



High voltage connector

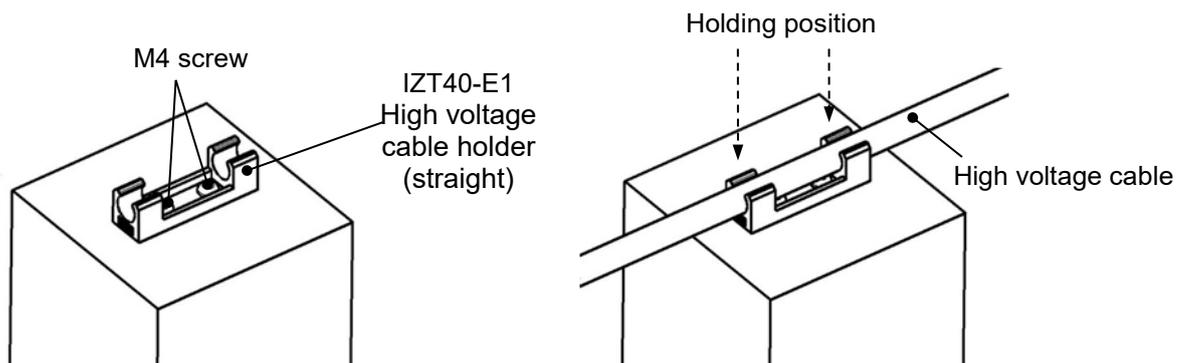
#### II . Wiring high voltage cable

- When installing the high voltage cable, use the specified high voltage cable holder.
- Refer to "6. Dimensions" section for details.

##### a. High voltage cable holder (straight)

- Use 2 cross recessed round head screws for installing the high voltage cable holder. (The screws should be prepared by the user. Fixed part thickness 1.6mm, Recommended mounting screw is cross recessed pan head screw M4x6.)
- Press the cable positioning it into the holding position and install it.

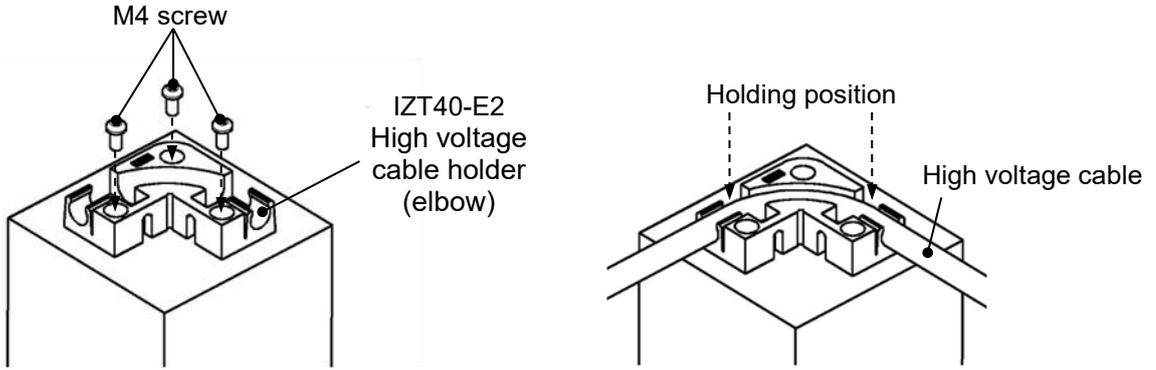
Tightening torque: 0.19 to 0.21 Nm



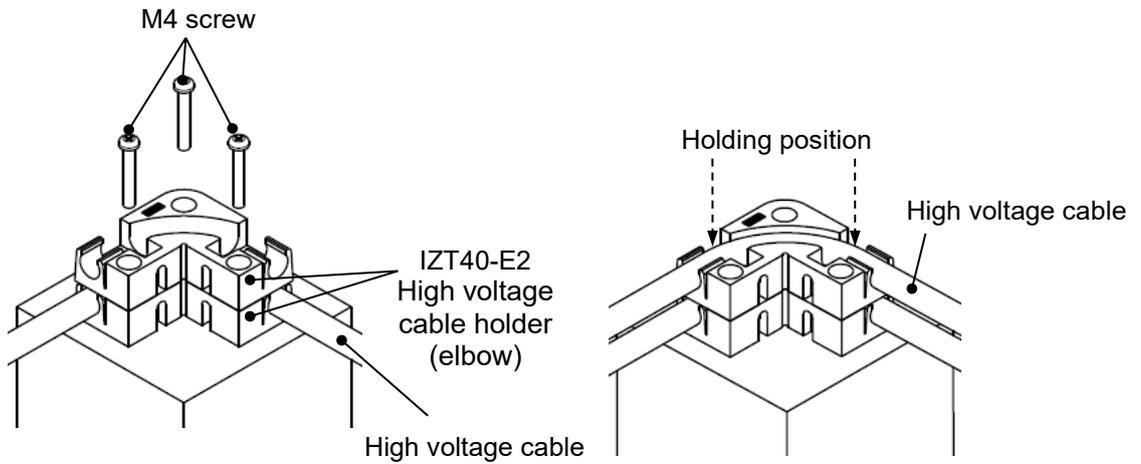
b. High voltage cable holder (elbow)

- Use the cable holder when bending the high voltage cable through 90 degree.
- Use cross recessed round head screws for fixing the high voltage cable holder. (The screws should be prepared by the user. Fixed part thickness 3.8mm, Recommended mounting screw is cross recessed pan head screw M4x8.)
- When they are used in layers, select the screw length considering the thickness of the high voltage cable holder (14.8 mm/holder).
- When holding the high voltage cable to the cable holder, align the cable in the holding position and mount it by pressing the cable.

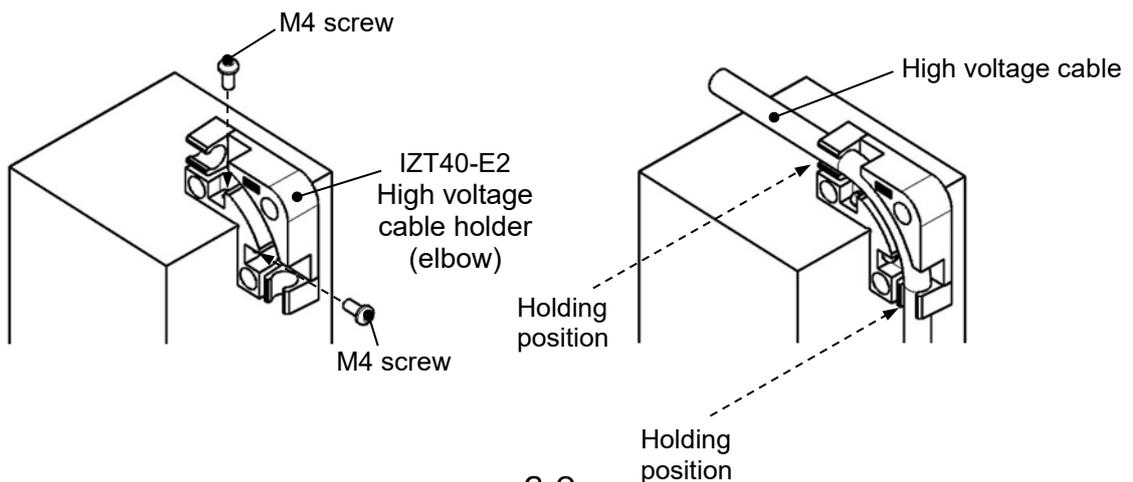
Installation example 1



Installation example 2



Installation example 3



### 3-2. Wiring

- Wire power cables according to the connection circuit and wiring chart.

#### 3-2-1. Ground the F.G. cable

- Make sure to ground the F.G. cable with a ground resistance of 100Ω or less.
- The F.G. cable is used as a reference electric potential for static neutralization. If the F.G. cable is not grounded, an optimal offset voltage (ion balance) cannot be obtained, and it may damage this product and power supply.

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

- Do not apply excess stress to the mounting part of the controller connector.
- When the power supply cable is bent, maintain the minimum bend radius.

[Minimum bend radius] : 40 mm

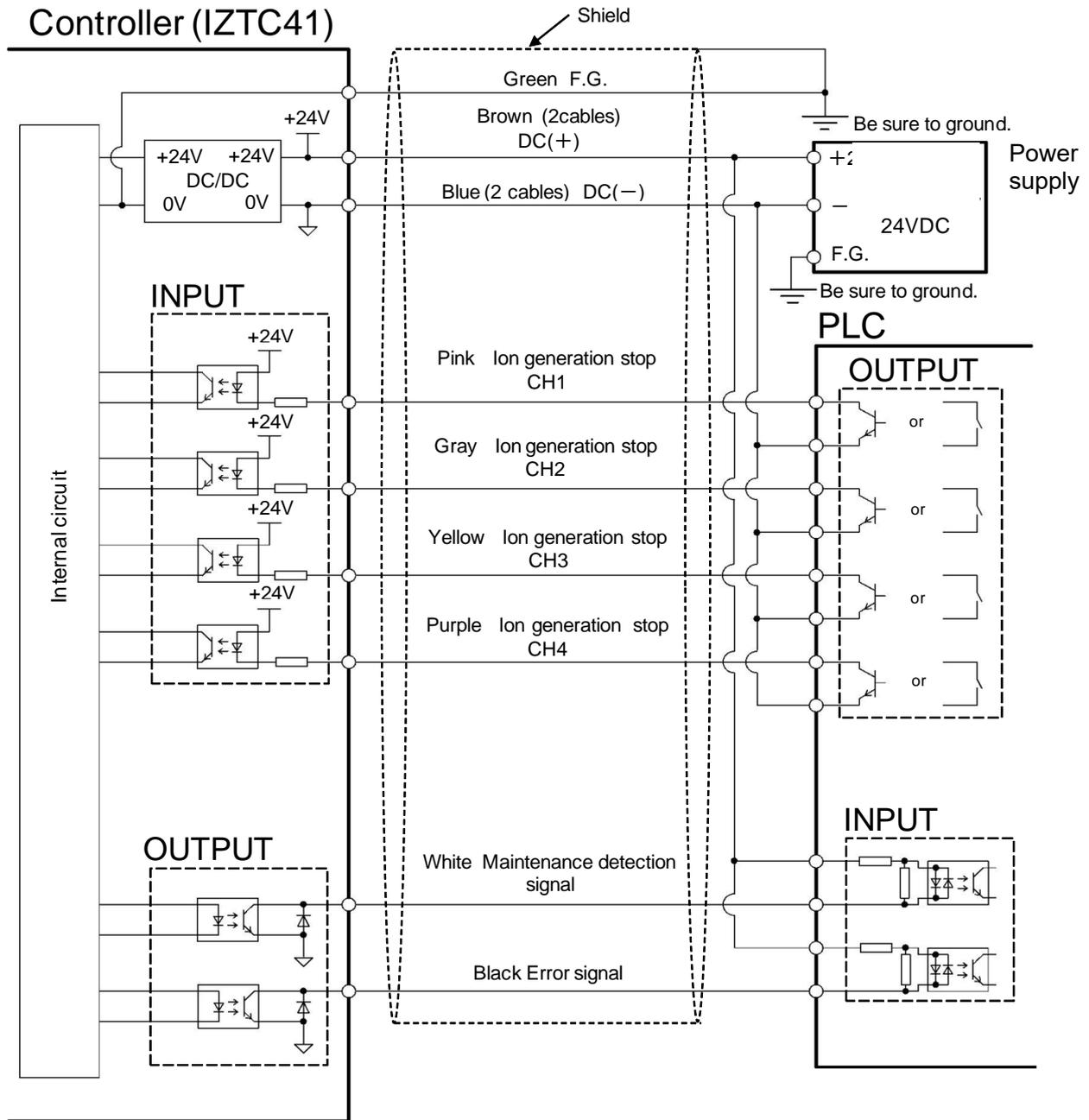
- Connect the lead wires according to the wiring diagram.
- Unused wires should be cut short, or insulated using insulation tape.
- To satisfy the current capacity, make sure to wire 2 brown cables in which a voltage of 24 VDC is supplied and 2 blue cables in which 0V is connected.

#### 1)wiring of IZTC41

Table3. Wiring (IZTC41)

Cable color	Signal name	Signal direction	Description
Brown	DC(+)	IN	Connect power supply to operate the Ionizer.
Blue	DC (-)	IN	
Green	F.G.	-	Make sure to ground with a resistance of 100Ω or less to use it as a reference electric potential for Ionizer.
Pink	Ion discharge stop signal CH1	IN	Signal input to turn ON/OFF ion generation of each bar (CH1 to 4) . NPN specification: Ion generation is stopped by connecting to 0 V. ( Ion generation starts by disconnecting) PNP specification: Ion generation is stopped by connecting to 24 VDC . ( Ion generation starts by disconnecting)
Gray	Ion discharge stop signal CH2	IN	
Yellow	Ion discharge stop signal CH3	IN	
Purple	Ion discharge stop signal CH4	IN	
White	Maintenance detection signal	OUT (Contact point A)	Turns ON when emitter needs cleaning.
Black	Error signal	OUT (Contact point B)	Turns off in case of CPU failure, power supply failure, high voltage failure, communication failure, cooling fan motor failure, inconsistent module, duplication of CH, output signal over current, or high voltage power supply module is not connected. (The signal is ON when there is no problem.)
Orange	Unused	-	-

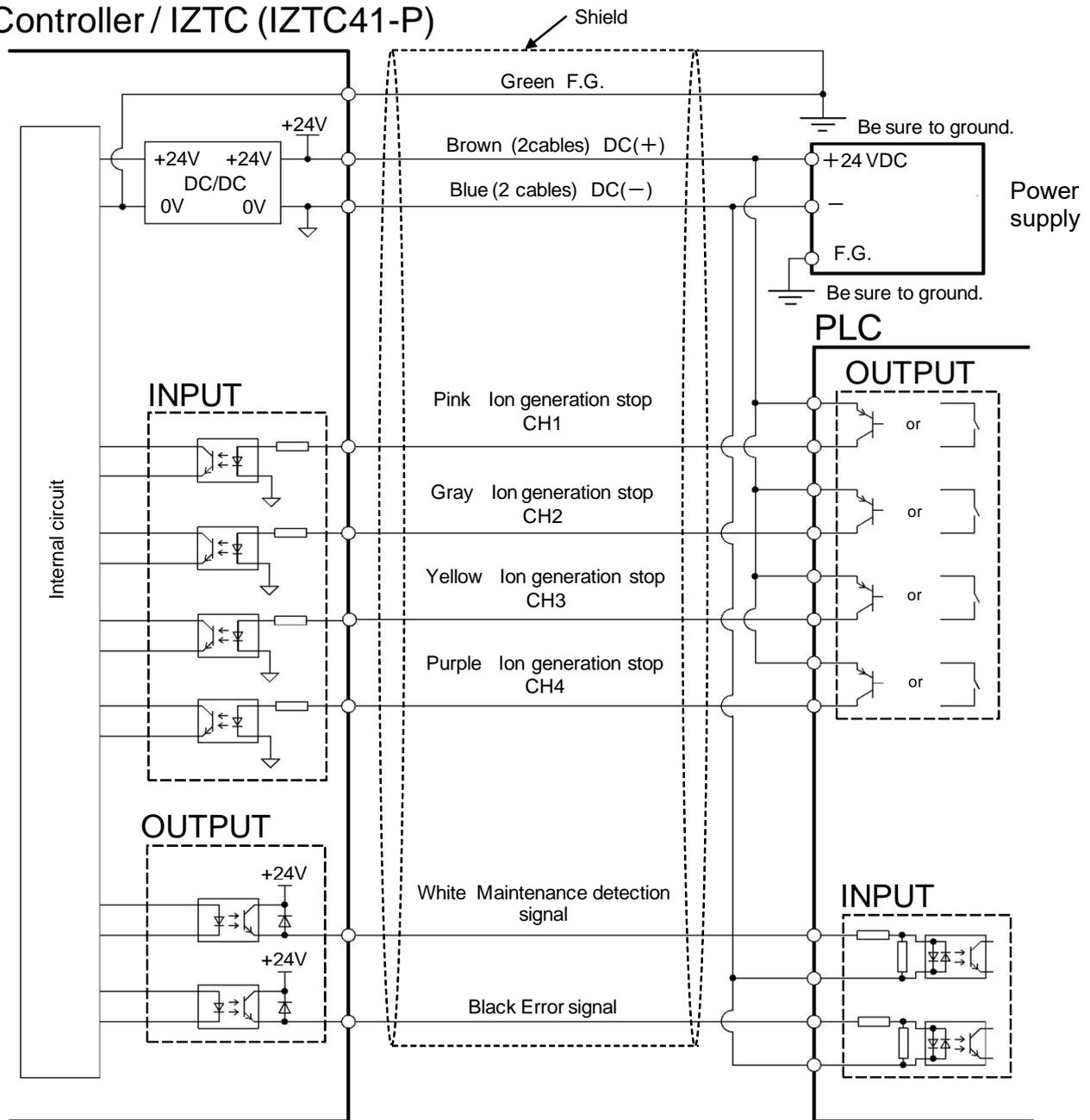
NPN type



When an ionizer (IZT43) is used in DC mode, make sure to ground the F.G. cable (green) and DC(-) cable (blue) of the input power supply **with a resistance of 100 ohms or less**. Without grounding the DC(-) cable, this product and/or power supply may be damaged.

PNP type

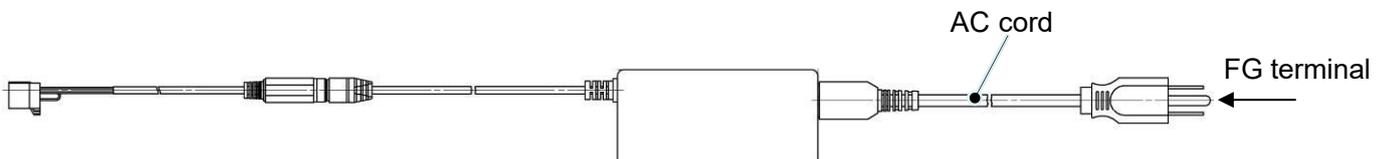
## Controller / IZTC (IZTC41-P)



When an ionizer (IZT43) is used in DC mode, make sure to ground the F.G. cable (green) and DC(-) cable (blue) of the input power supply **with a resistance of 100 ohms or less**. Without grounding the DC(-) cable, this product and/or power supply may be damaged.

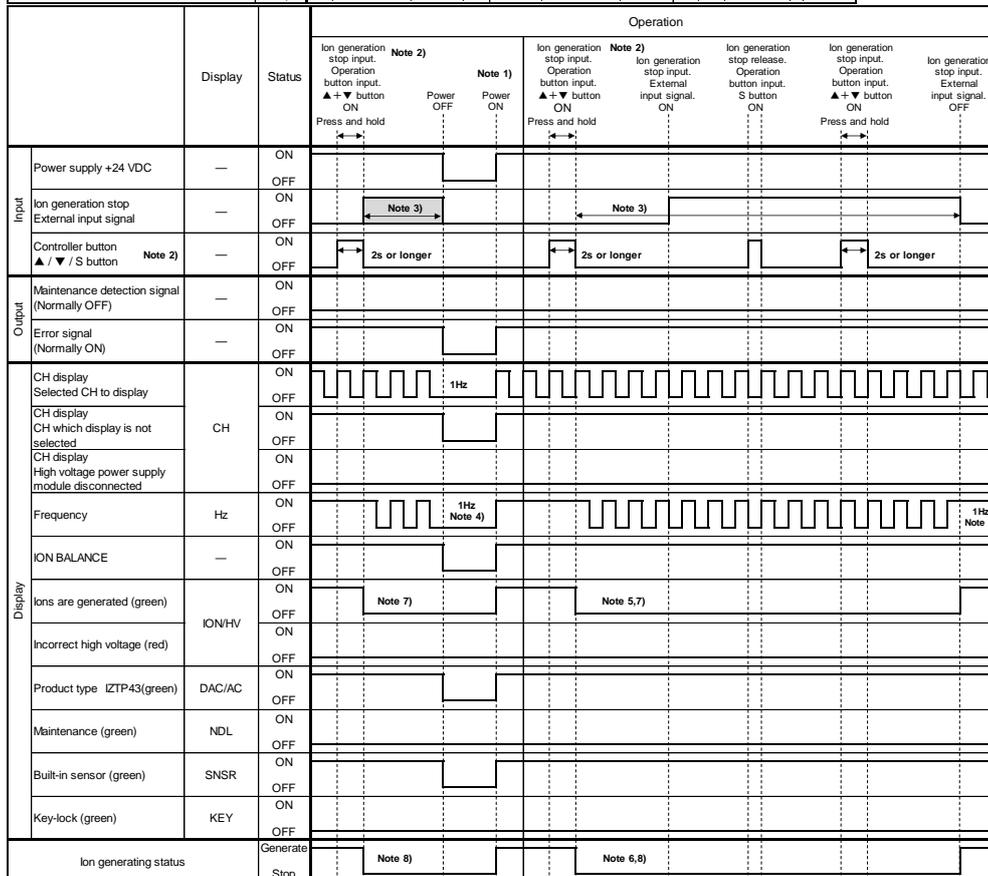
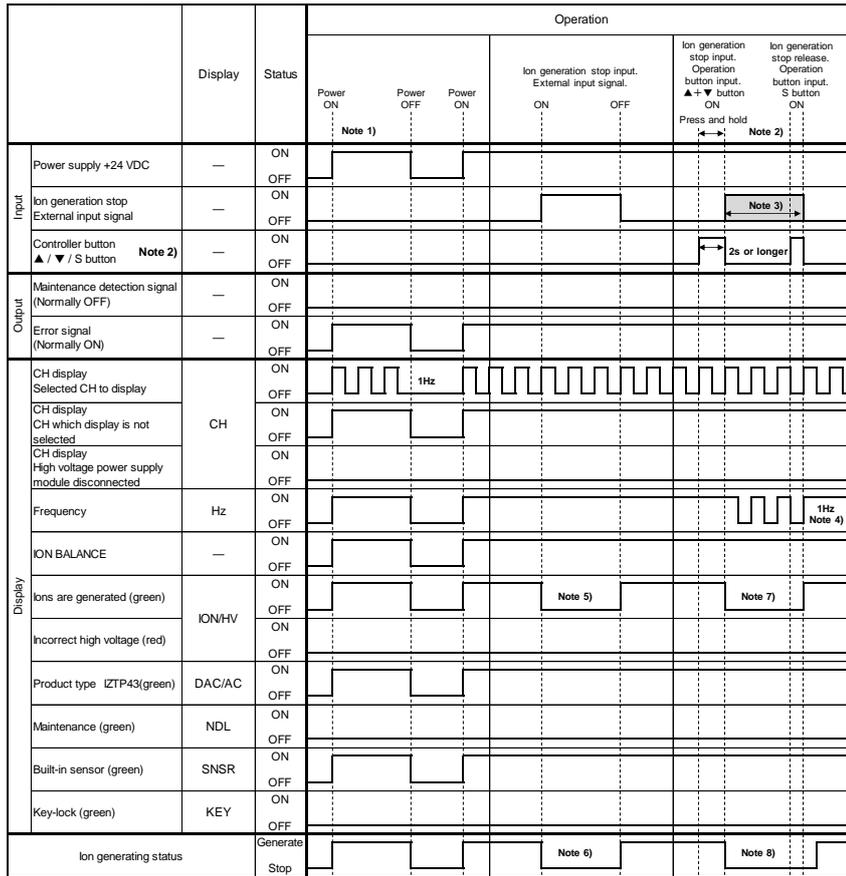
### 3-2-3. Wiring of the AC adapter

- Perform F.G. connecting with the ground terminal (F.G.) of the AC cord when AC adapter is used. If the AC cord is plugged in, plug it into a grounded outlet. Use an AC cord with ground terminal if it is prepared by the user.
- The ground terminal (F.G.) is used as a reference electric potential for static neutralization. If the ground terminal is not grounded, the Ionizer will not be able to achieve the optimal offset voltage (ion balance).
- When an AC adapter is used, the external input/output function cannot be used (Model: IZTC41, IZTC41-P).



### 3-3. Timing chart

#### 1) During operation



Note 1) It takes 3 seconds to operate after the power is on.

Note 2) Press the controller button for 2 seconds or longer to stop the ion generation. To release, press the S button once or turn the power off and on again.

Note 3) When the ion generation is stopped by the controller button, the signals input from the outside are disabled.

After the release of the button, externally input signal becomes effective. To release, press the S button once or turn the power off and on again.

Note 4) flashes.

Note 5) ION/HV of the nozzle (high voltage power supply module) corresponding to the externally input signals turns off.

Note 6) The nozzle corresponding to externally input signals (high voltage power supply module) stops ion generation.

Note 7) Selected nozzle (high voltage power supply module) ION/HV to display is turned off.

Note 8) Selected nozzle (high voltage power supply module) stops the ion generation.

## 2) Changing to the setting mode

			Changing the setting mode			
Input	Display	Status	Channel selection mode		Frequency set mode	
			Frequency set mode	Offset voltage adjustment mode	Frequency set mode	Offset voltage adjustment mode
			Operation button input. S button ON	Frequency selection. Operation button input. ▲ or ▼ button Setting change	Ion generation stop input. Operation button input. ▲+▼ button ON Press and hold	Ion generation stop release. Operation button input. S button Release
			Operation button input. S button ON	Adjustment of the offset voltage. Operation button input. ▲ or ▼ button Setting change	Ion generation stop input. Operation button input. ▲+▼ button ON Press and hold	Ion generation stop release. Operation button input. S button Release
Power supply +24 VDC	—	ON				
Ion generation stop External input signal	—	OFF				
Controller button ▲ / ▼ / S button <small>Note 10)</small>	—	ON				
		OFF				
Maintenance detection signal (Normally OFF)	—	ON				
Error signal (Normally ON)	—	OFF				
CH display Selected CH to display	CH	ON				
CH display CH which display is not selected		OFF				
CH display CH display High voltage power supply module disconnected		ON				
		OFF				
Frequency	Hz	ON				
		OFF				
ION BALANCE	—	ON				
		OFF				
Ions are generated (green)	ION/HV	ON				
		OFF				
Incorrect high voltage (red)		ON				
		OFF				
Product type IZTP43(green)	DAC/AC	ON				
		OFF				
Maintenance (green)	NDL	ON				
		OFF				
Built-in sensor (green)	SNSR	ON				
		OFF				
Key-lock (green)	KEY	ON				
		OFF				
Ion generating status	Generate	ON				
	Stop	OFF				

			Changing the setting mode			
Input	Display	Status	Offset voltage adjustment mode		Channel selection mode	
			Channel selection mode	Balance control selection mode	Channel selection mode	Balance control selection mode
			Operation button input. S button ON	CH selection. Operation button input. ▲ or ▼ button Setting change	Ion generation stop input. Operation button input. ▲+▼ button ON Press and hold	Ion generation stop release. Operation button input. S button Release
			Operation button input. S button ON	Balance control selection. Operation button input. ▲ or ▼ button Release	Ion generation stop input. Operation button input. ▲+▼ button ON Press and hold	Ion generation stop release. Operation button input. S button Release
Power supply +24 VDC	—	ON				
Ion generation stop External input signal	—	OFF				
Controller button ▲ / ▼ / S button <small>Note 10)</small>	—	ON				
		OFF				
Maintenance detection signal (Normally OFF)	—	ON				
Error signal (Normally ON)	—	OFF				
CH display Selected CH to display	CH	ON				
CH display CH which display is not selected		OFF				
CH display CH display High voltage power supply module disconnected		ON				
		OFF				
Frequency	Hz	ON				
		OFF				
ION BALANCE	—	ON				
		OFF				
Ions are generated (green)	ION/HV	ON				
		OFF				
Incorrect high voltage (red)		ON				
		OFF				
Product type IZTP43(green)	DAC/AC	ON				
		OFF				
Maintenance (green)	NDL	ON				
		OFF				
Built-in sensor (green)	SNSR	ON				
		OFF				
Key-lock (green)	KEY	ON				
		OFF				
Ion generating status	Generate	ON				
	Stop	OFF				

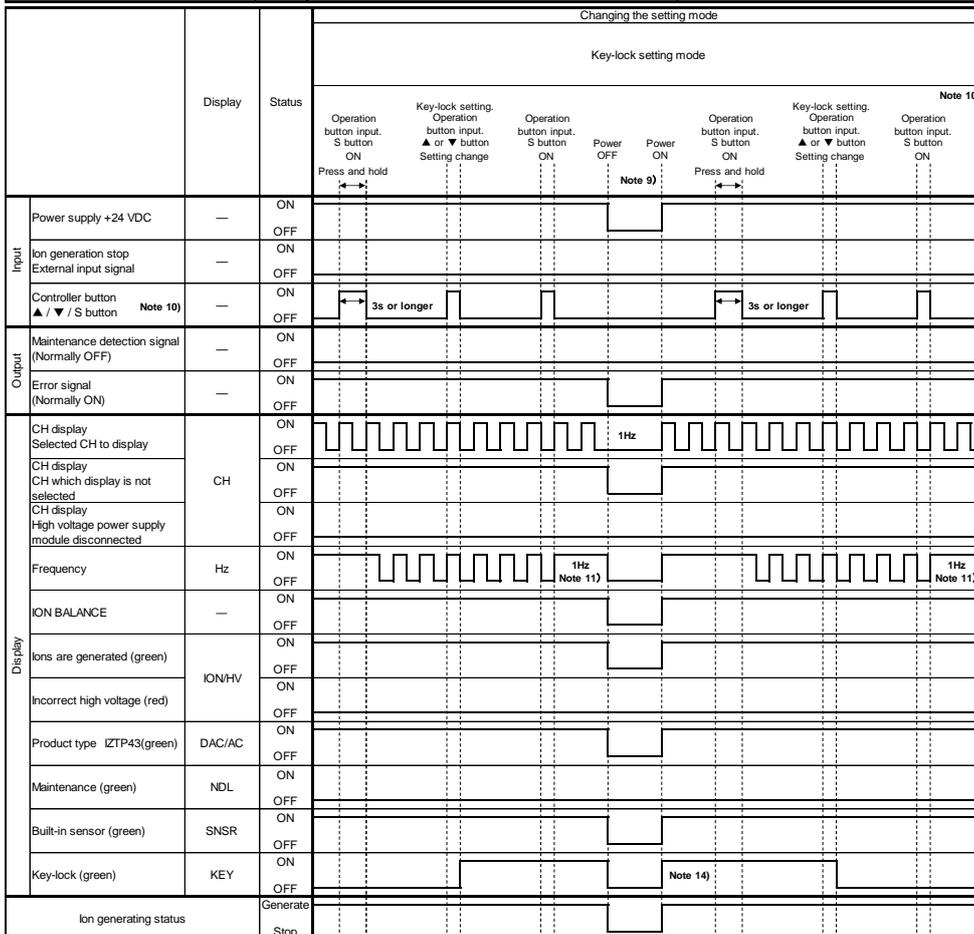
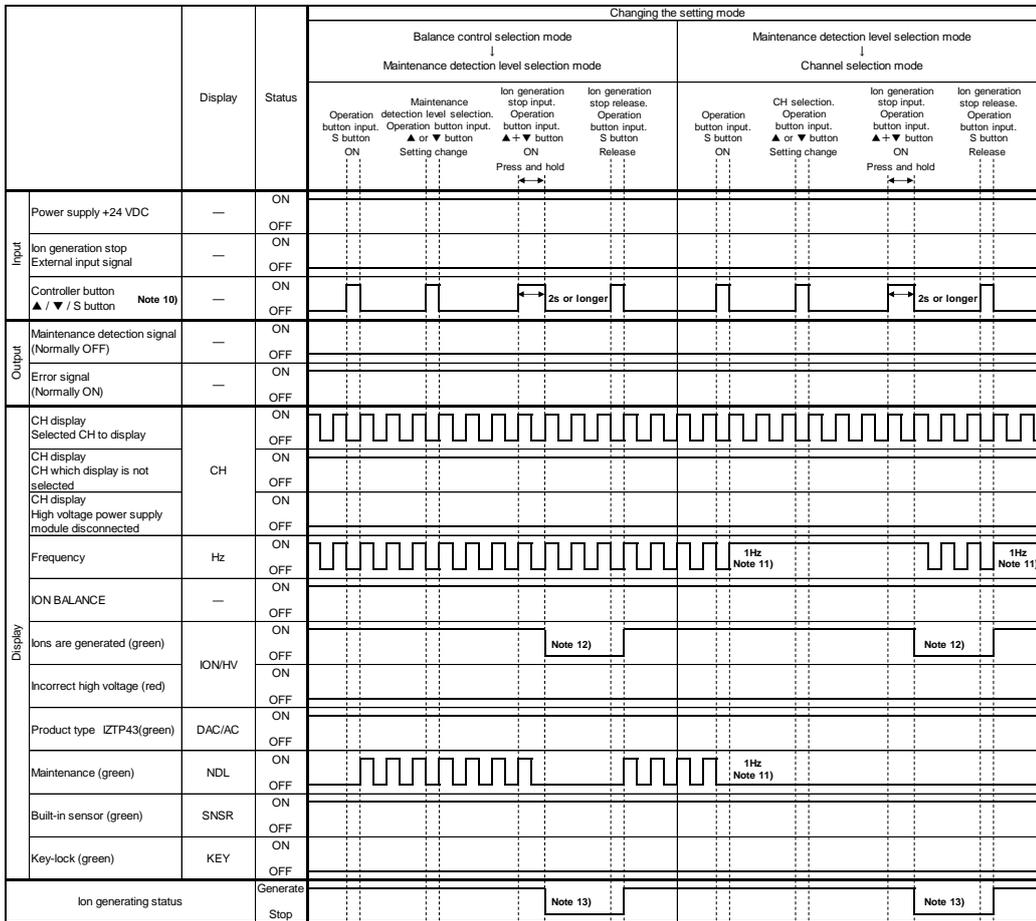
Note 10) Press the controller button once or for 2 seconds or longer to change/set of the setting mode and stop/release the ion generation.

To release ion generation stop, press the S button once or turn the power off and on again.

Note 11) Content of each setting mode is displayed by flashing. Refer to [4-4. Controller setting].

Note 12) Nozzle (high voltage power supply module) ION/HV which is selected to display is turned off.

Note 13) Selected nozzle (high voltage power supply module) stops the ion generation.



Note 9) It takes 3 seconds to operate after the power is on.

Note 10) Press the controller button once or for 2 seconds or longer to change/set of the setting mode and stop/release the ion generation.

To release ion generation stop, press the S button once or turn the power off and on again.

Note 11) Content of each setting mode is displayed by flashing. Refer to [4-4. Controller setting].

Note 12) Nozzle (high voltage power supply module) ION/HV which is selected to display is turned off.

Note 13) Selected nozzle (high voltage power supply module) stops the ion generation.

Note 14) If ON is selected for key lock setting, the setting is held even if the power is turned off and on again.

### 3)Error, and maintenance warning

	Display	Status	CPU failure (controller) Error code: E0	Power supply failure Error code: E1	CPU failure (High voltage power supply module) Error code: E2	Incorrect high voltage Error code: E3	Communication error Error code: E4	Fan motor failure Error code: E5
			Note 15) Error → Power OFF → Power ON		Note 15) Error → Power OFF → Power ON		Note 15) Error → Power OFF → Power ON	
Power supply +24 VDC	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Ion generation stop External input signal	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Controller button ▲ / ▼ / S button	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Maintenance detection signal (Normally OFF)	—	OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Error signal (Normally ON)	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
CH display Selected CH to display	CH	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
CH display CH which display is not selected		OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
CH display High voltage power supply module disconnected		ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
CH display High voltage power supply module disconnected		OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Frequency	Hz	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
ION BALANCE	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Ions are generated (green)	ION/HV	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Incorrect high voltage (red)		OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Product type IZTP43(green)	DAC/AC	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Maintenance (green)	NDL	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Built-in sensor (green)	SNSR	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Key-lock (green)	KEY	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
Ion generating status	Generate	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	
	Stop	OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Error → Power OFF → Power ON	

	Display	Status	Inconsistent module Error code: E6	Duplication of CH Error code: E7	Output signal over current Error code: E8 (Error signal) Error code: E9 (Maintenance signal)	High voltage power supply module not connected Error code: - -	Maintenance warning	
			Note 15) Error → Power OFF → Power ON		Note 15) Error → Power OFF → Power ON		Note 15) Warning → Power OFF → Power ON	
Power supply +24 VDC	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Ion generation stop External input signal	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Controller button ▲ / ▼ / S button	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Maintenance detection signal (Normally OFF)	—	OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Error signal (Normally ON)	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
CH display Selected CH to display	CH	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
CH display CH which display is not selected		OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
CH display High voltage power supply module disconnected		ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
CH display High voltage power supply module disconnected		OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Frequency	Hz	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
ION BALANCE	—	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Ions are generated (green)	ION/HV	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Incorrect high voltage (red)		OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Product type IZTP43(green)	DAC/AC	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Maintenance (green)	NDL	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Built-in sensor (green)	SNSR	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Key-lock (green)	KEY	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
Ion generating status	Generate	ON	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	
	Stop	OFF	Error → Power OFF → Power ON		Error → Power OFF → Power ON		Warning → Power OFF → Power ON	

Note 15) It takes 3 seconds to operate after the power is on.

Note 16) Abnormality can be released by the ion generation stop signal.

Release the error after recovery.

Note 17) Frequency with problem is displayed by flashing error code.

Refer to [4-5-1. Alarms for IZT43].

Note 18) Frequency of the high voltage power supply module with a problem is displayed by flashing error code. Refer to [4-5-1. Alarms for IZT43].

High voltage power supply module without problem indicates normal status.

Note 19) Ion balance of the high voltage power supply module with problem turns off.

Refer to [4-5-1. Alarms for IZT43].

High voltage power supply module without problem indicates normal status.

Note 20) All connected high voltage power supply module ION/HV flash (green).

Note 21) All ION/ HV of CH1 to 4 flash (red).

Note 22) All connected high voltage power supply module ION/HV flash (red).

Note 23) High voltage power supply module ION/HV with problem flashes (red).

Note 24) High voltage power supply module ION/HV with problem turns on (red).

Note 25) High voltage power supply module DAC/AC with problem turns off.

Note 26) High voltage power supply module NDL with problem turns off.

Note 27) The screen at the time of problem holds the status before the problem.

Note 28) All the selected nozzles (high voltage power supply module) stop the ion generation.

Note 29) Nozzle with a problem (high voltage power supply module) stops the ion generation.

## 4. Function

### 4-1. Name of Parts

#### 4-1-1. Controller

##### 1) IZTC41

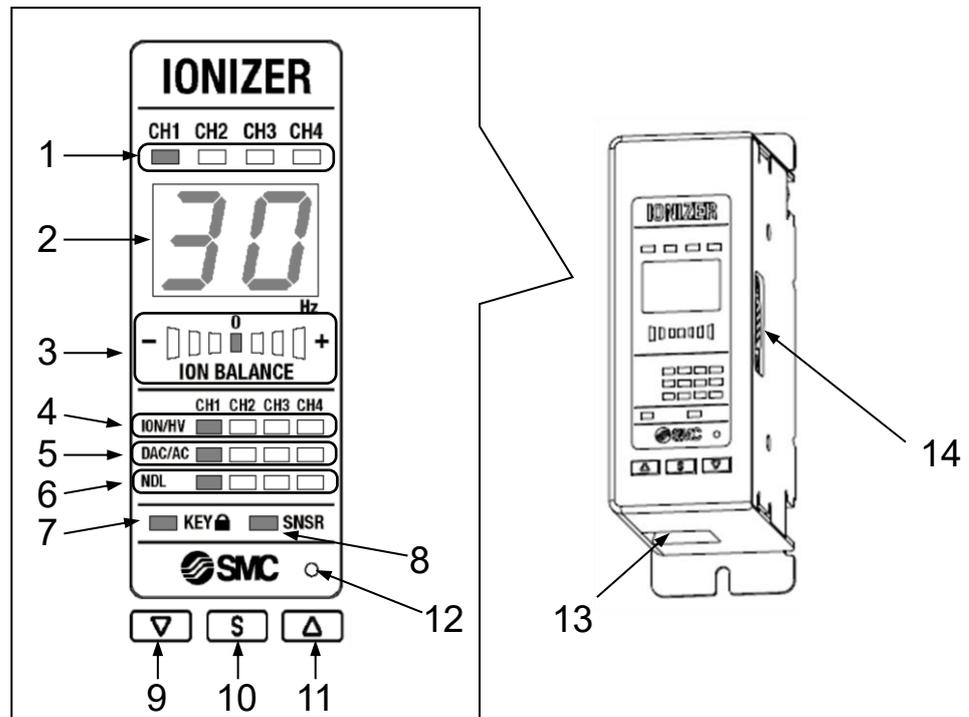


Table4. Name of parts

No.	Name	Panel indication	Type	Description
1	CH display	CH□	LED (Green)	LED of high voltage power supply module connected to the controller is ON (green), LED flashes (green) during frequency selection, offset voltage adjustment, balance control selection, maintenance detection level selection, Turned off when the high voltage power supply module is not connected.
2	Frequency display	Hz	LED (Green)	ON during operation, LED flashes (green) during frequency selection, offset voltage adjustment, balance control selection, maintenance detection level selection, key lock setting and each abnormality. Note 30)
3	Ion balance display	ION BALANCE	LED (Green/ Orange)	LED (green) is ON during operation or output signal over current. LED (green) flashes during offset voltage adjustment. LED is OFF flashes (red) when CPU abnormality (controller/ high voltage power supply module), power supply abnormality, communication error, cooling fan motor failure, module inconsistency, or CH duplication exists. LED (orange) flashes when ion balance is maximum or minimum during offset adjustment. Turned off when the high voltage power supply module is not connected
4	Ion emission/ high voltage error display	ION/HV	LED (Green / Red)	Green LED is ON during static neutralization. Red LED is ON when high voltage abnormality exists. LED flashes (red) when CPU abnormality (controller/ high voltage power supply module), power supply abnormality, communication error, cooling fan motor failure, module inconsistency, or CH duplication exists. Turned off when the high voltage power supply module is not connected
5	Indication of connected mode	DAC/AC	LED (Green /Blue)	LED is ON (green) when the high voltage power supply module IZTP41 is connected. LED is ON (blue) when the high voltage power supply module IZTP42 is connected. OFF when CPU abnormality (controller) or CH duplication exists, or high voltage power supply module is not connected.
6	Maintenance display	NDL	LED (Green)	LED (green) is ON when emitter contamination is detected. LED (green) flashes when the maintenance detection level is set. Turned off when the high voltage power supply module is not connected
7	Key-lock display	KEY	LED (Green)	Key lock ON : ON (green) Key lock OFF : OFF Turned off when the high voltage power supply module is not connected.
8	Sensor LED	SNSR	LED (Green)	Auto balance function ON : ON (green) Auto balance function OFF : OFF OFF when CPU abnormality (controller) exists or high voltage power supply module is not connected.
9	▼ button	—	Press button	Decrease the set value.
10	S button	—	Press button	Change the mode and set a set value.
11	▲ button	—	Press button	Increase the set value.
12	Reset button	—	Press button	Return the setting values of each mode to the default condition.
13	Power supply connector	—	Connector	Equipped with ionizer power supply and grounding.
14	High voltage power supply module connector	—	D-sub connector (socket)	Connect high voltage power supply module or separate cable.

Note 30) Refer to [4-4. Controller setting] or [4-5-1. Alarms for IZT43] for details of frequency.

## 4-1-2. High voltage power supply module

### 1) IZTP43

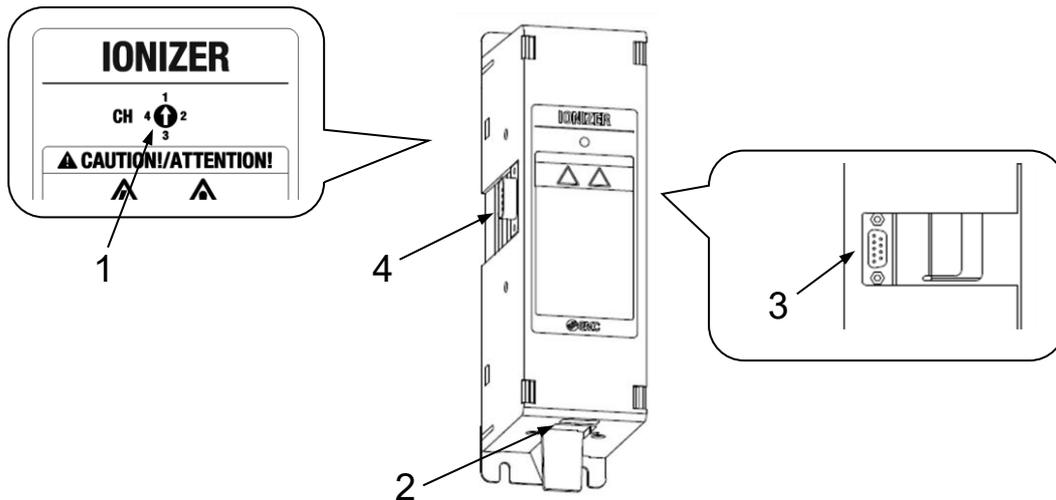


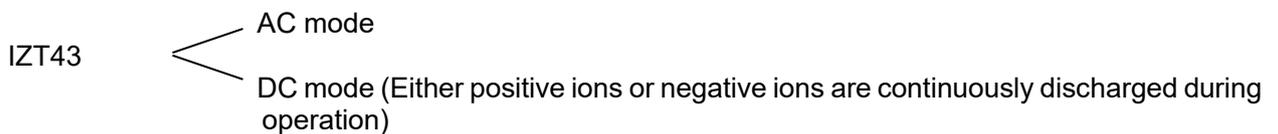
Table5. Name of parts

No.	Name	Panel indication	Type	Description
1	CH number set switch	CH	Rotary switch	High voltage power supply module CH number setting.
2	High voltage cable connector	-	Connector	Connect with the high voltage cable of the bar IZTN43
3	High voltage power supply module connector	-	D-sub connector (socket)	Connect high voltage power supply module or separate cable.
4	Controller/ high voltage power supply module connector	-	D-sub connector (plug)	Connect the controller, high voltage power supply module or separate cable.

## 4-2. Operation modes

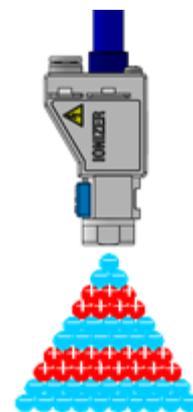
- The product has 3 operation modes. AC mode and DC mode.

### Ionizer operation modes



#### 1) AC mode

- Ions of different polarity are generated alternately according to the frequency set by the frequency set mode.
- If the offset voltage (ion balance) is displaced by the installation environment, adjust the offset voltage.
- Refer to [4-4-3. Frequency set mode] for frequency setting and [4-4-4. Offset voltage adjustment mode] for the adjustment of the offset voltage (ion balance).



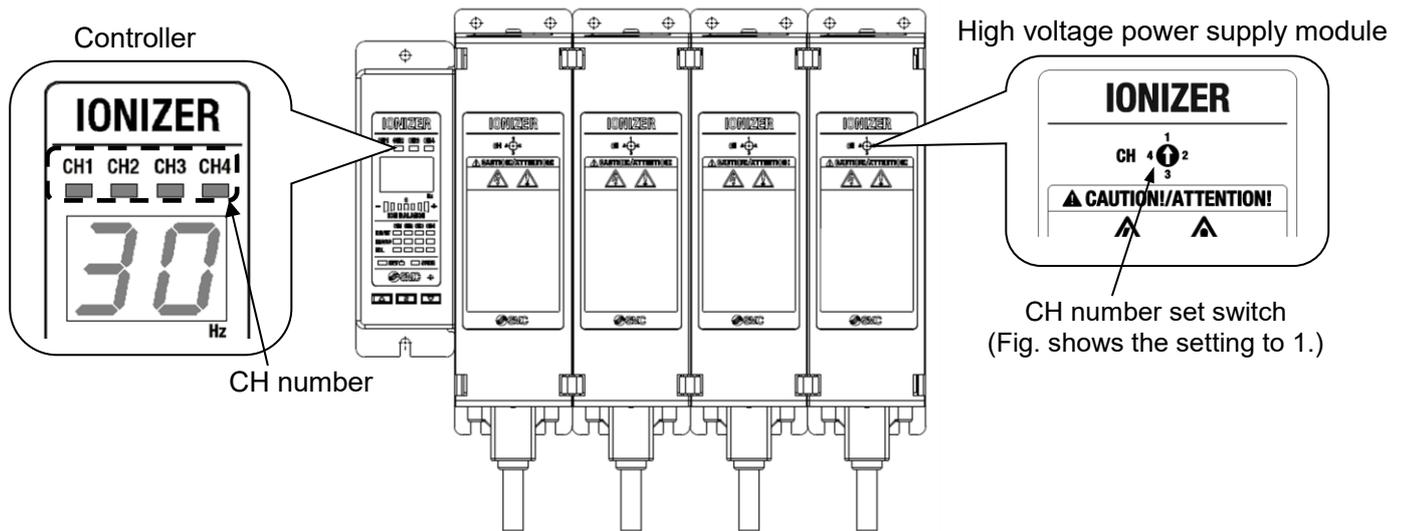
Ion generation image in AC mode

## 2) DC mode

- Positive ions are generated when "☺" is set for the frequency mode. Negative ions are generated by setting "☹".
- Refer to 4-4-3. Frequency set mode for further details.

### 4-3. High voltage power supply module CH number setting

- When multiple high voltage power supply modules are connected to one controller, the CH number must be set for each high voltage power supply module to identify the information and set time.
- The CH number can be assigned from 1 to 4. (Up to 4 modules can be connected). Set the CH number using the rotary switch on the high voltage power supply module.



- The CH number set for the high voltage power supply module corresponds with the CH number displayed on the controller.
- When multiple high voltage power supply modules are used (max 4 pcs.), the CH number must not be duplicated. Duplication of the CH number will generate an error (error code: E1).

## 4-4. Controller setting

### 4-4-1. Operation overview

#### 1) Setting IZT43

(Default condition)

Frequency setting : 30Hz  
Key lock : OFF  
Built-in sensor : ON  
Maintenance detection level : MIDDLE

Power is supplied.



### [Channel selection mode]

Select the CH number for setting and display. When multiple nozzles (high voltage power supply modules) are connected, switch the CH for setting and display. Refer to 4-4-2. Channel selection mode for details.

Note 31)



Press S button once

### [Frequency set mode]

Set the ion generation frequency of the nozzle selected by "Channel selection mode". Refer to 4-4-3. Frequency set mode for details.

Note 31)



Press S button once

### [Offset voltage adjustment mode]

Adjust the offset voltage of the nozzle selected by "CH selection mode". Refer to "4-4-4. Adjustment of Offset Voltage" for details.

Note 31)



Press S button once



Press S button for 3 sec. or longer

### [ Key-lock setting mode]

Perform a key-lock setting. Refer to 4-4-7. Key-lock set mode for details.



Press the ▲ button and S button at the same time for 2 seconds or longer.

### [ Balance control selection mode ]

Select ON/ OFF of the balance control by the sensor built in the high voltage power supply module selected in "Channel selection mode" Refer to 4-4-5. Balance control selection mode for details. Note 31)



Press S button once

### [ Emitter contamination detection level selection mode]

Set the contamination detection level of the high voltage power supply module emitter selected by "Channel selection mode". Refer to 4-4-6. Emitter contamination detection level selection mode for details. Note 31)



Press S button once

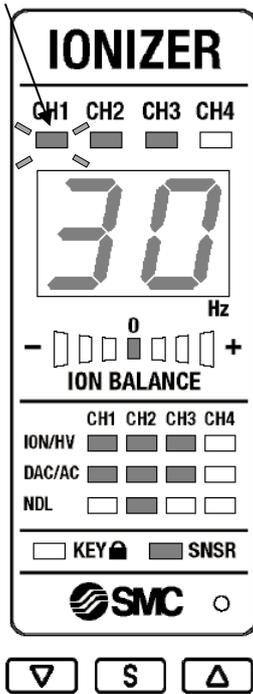
### [Channel selection mode]

Note 31) In Channel selection mode, frequency set mode, offset voltage adjustment mode, balance control selection mode or maintenance detection level selection mode, the selected nozzle (high voltage power supply module) moves on to the ion generation stop mode by pressing ▼ and ▲ button simultaneously for 2 s or longer and stops the ion generation (Operation is not possible while the key lock is ON or externally input signal is ON). To release, press the S button once or turn the power off and on again. Refer to [ 4-4-8. ion generation stop mode] for further details.

#### 4-4-2. Channel selection mode

- When power is supplied to the controller, the CH LED (green) of the connected nozzle (high voltage power supply module) turns on or flashes. A flashing CH LED indicates the selected CH.
- The LED for frequency, ION BALANCE and SNSR display the information of the selected CH.
- The LED for ION/HV, DAC/AC and NDL display all the information of the connected nozzle (high voltage power supply module).
- The controller CH1 to CH4 LED's correspond to CH no. 1 to 4 set for the high voltage power supply modules.
- The maximum number of nozzles (high voltage power supply modules) for one controller is 4 pcs.
- Duplication of CH setting will be recognized as an error.

Flash  
(green)



Display example of IZTC41

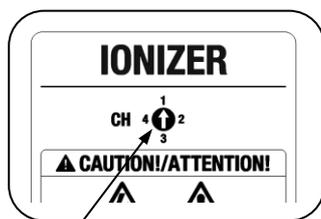
Example shows CH1 is selected.

#### [ Selection of the channel ]

- The selected CH will flash.
- Press the ▼ or ▲ button while the CH LED flashes to select the nozzle (high voltage power supply module) to display or set.
- When the number of nozzles is zero, the CH LED does not change even by pressing the ▼ or ▲ button.

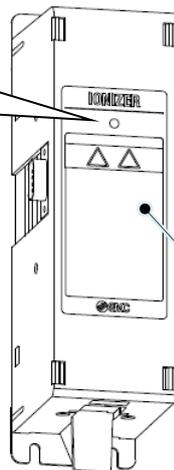
#### [Change to the next mode]

- To change to the next mode and store the selected CH setting press the **S** button once, the ▲ and **S** button simultaneously for 2 s or longer, or the **S** button for 3 s or longer.
- The selected nozzle (high voltage power supply module) moves on to the ion generation stop mode by pressing ▼ and ▲ button simultaneously for 2 s or longer and stops the ion generation. To release, press the **S** button once or turn the power off and on again. Refer to [ 4-4-8. Ion generation stop mode].



CH set switch

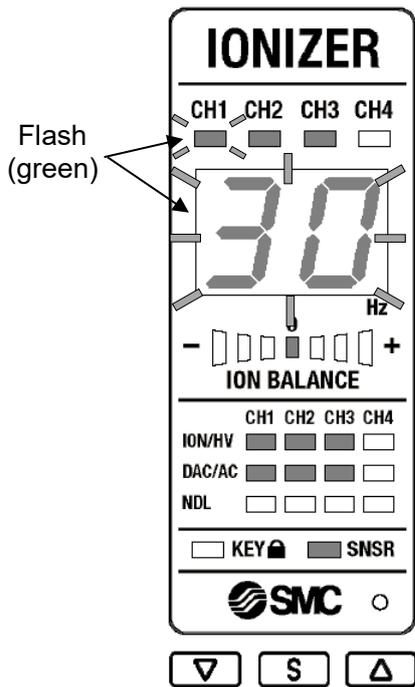
Change the CH setting for multiple modules.  
(Default CH switch setting is "1".)



High voltage power supply module

#### 4-4-3. Frequency set mode

- Set the ion generation frequency of the nozzle (high voltage power supply module) selected by "Channel selection mode".



Display example of IZTC41

Example of frequency setting mode for CH1.  
Frequency 30 Hz.

#### [Ion generating frequency setting]

- Select the CH in the selection mode and press the S button once. The frequency will flash and the setting of the ion generation frequency of the selected nozzle becomes possible.
- The Ion generation frequency is set by pressing the ▼ or ▲ button.
- The Frequency display is different depending on the model. Refer to the display of frequency example below.

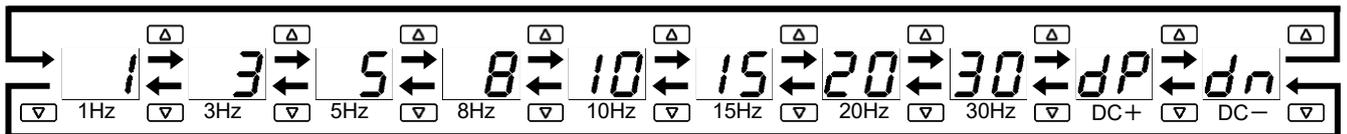
#### [Change to the next mode]

- Press the S button once to change to the next mode and store the frequency setting.
- When the power is supplied the saved setting will be displayed.
- The selected nozzle (high voltage power supply module) moves on to the ion generation stop mode by pressing ▼ and ▲ button simultaneously for 2 s or longer and stops the ion generation. To release, press the S button once or turn the power off and on again. Refer to [ 4-4-8. Ion generation stop mode].

#### ※Caution

If the mode is changed to ion generation stop mode during the frequency setting or the ion generation is stopped by turning off the power supply, the setting during change is not stored. Change the setting again.

#### Display of frequency



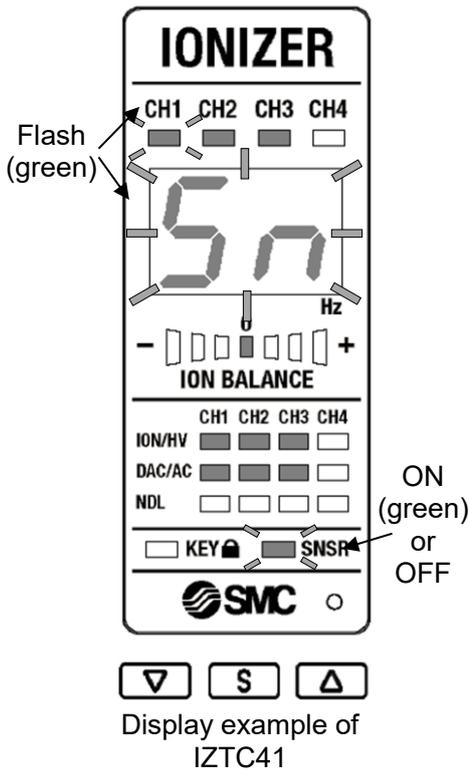
Default frequency setting is "30 Hz".

Set the optimum frequency depending on the operating environment and installed distance.



4-4-5. Balance control selection mode

- IZT43 have a built in sensor to balance the ions generated.
- Balance control selection mode turns the balance control by the built-in sensor on and off.



Example shows the ON status of CH1 balance control.

[Selection of balance control]

- Select the CH to be set in CH selection mode and press the S button and ▲ button simultaneously for 2 s or longer. The frequency display indicates "5.0" flashing, and the switching of ON and OFF of balance control is now possible.
- The Sensor display (SNSR) LED (green) alternates ON and OFF each time the ▼ or ▲ button is pressed.
  - Balance control ON: Sensor display (SNSR) LED is ON
  - Balance control OFF: Sensor display (SNSR) LED is OFF

[Change to the next mode]

- Press the S button once to change to the next mode and store the balance control selection setting.
- When power is supplied the saved setting will be displayed.
- The selected nozzle (high voltage power supply module) moves on to the ion generation stop mode by pressing ▼ and ▲ button simultaneously for 2 s or longer and stops ion generation. To release, press the S button once or turn the power off and on again. Refer to [ 4-4-8. ion generation stop mode].

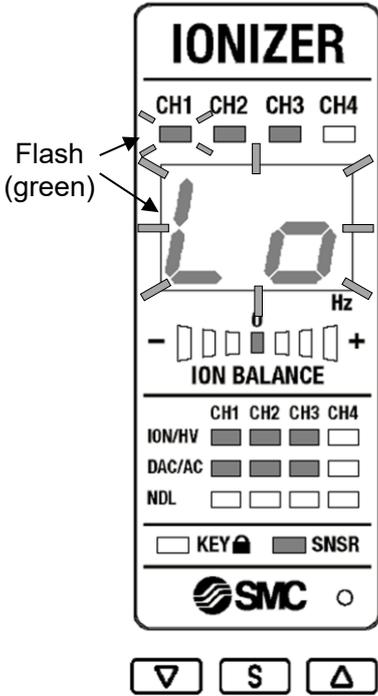
※Caution

If the mode is changed to ion generation stop mode during balance control selection or if the power supply is turned off, the change to the setting will not be stored. Change the setting again.

Default balance control setting is ON.

4-4-6. Maintenance detection level selection mode

- If this product is used for an extended period of time, contamination such as dust will stick to the emitters, reducing the static neutralization performance.
- It is recommended to clean the emitters when the maintenance alarm is generated.
- The cleaning frequency varies depending on the environment where this product is installed.
- This product has a function which monitors the emitter contamination all the time. When the emitter contamination is detected, it is indicated by the maintenance signal and LED.
- In maintenance detection level selection mode, the detection level of the emitter contamination can be set.

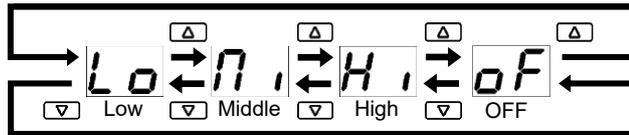


Display example of IZTC41

Example shows the emitter contamination detection level of CH1.

[Maintenance detection level selection method]

- In CH selection mode, press the S and ▲ buttons simultaneously for 2 s or longer to move to balance control selection mode.
- By pressing the S button once, “Lo” or “M” or “H” or “OFF” will flash in the frequency display. The maintenance detection level can now be selected.
- It can be set by pressing the ▼ or ▲ button.



- Lo (Low).....Static neutralization time is slower than the initial state
- M (Middle)....Before the static neutralization time becomes slow
- H (High).....No influence to the static neutralization time
- OFF (OFF).....Maintenance detection is OFF

[Change to the next mode]

- Press the S button once to change to the next mode and store the maintenance detection level selection setting.
- When power is supplied, the saved setting will be displayed.
- The selected nozzle (high voltage power supply module) moves on to the ion generation stop mode by pressing ▼ and ▲ button simultaneously for 2 s or longer and stops ion generation. To release, press the S button once or turn the power off and on again. Refer to [ 4-4-8. ion generation stop mode].

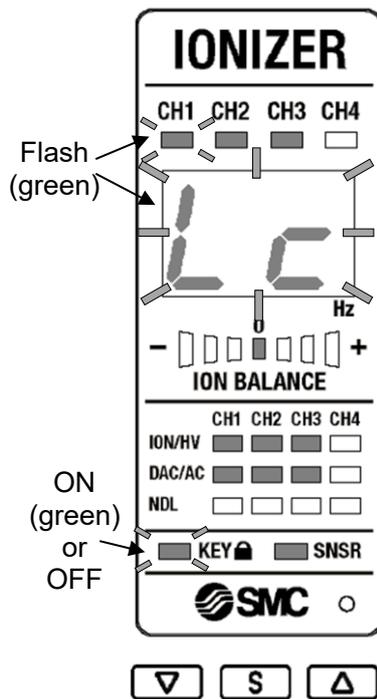
※Caution

If the mode is changed to ion generation stop mode during maintenance detection level selection or the power supply is turned off, the change to the setting will not be stored. Change the setting again.

Default maintenance detection level setting is "Middle".  
Change the setting to change the maintenance detection level.

#### 4-4-7. Key-lock setting mode

- This product has a key lock function which disables any button operation.



Display example of IZTC41

#### 【Key-lock setting】

- Press the S button for 3 s or longer in CH selection mode, "LC" or "LLL" will flash in the frequency display and the ON/OFF setting of the key lock function is now possible.
- The key lock condition is indicated by "LC" in the frequency display and by the key lock LED (green).

#### Key lock function ON :

Frequency display : "LC" flashes / KEY LED is ON

#### Key lock function OFF :

Frequency display : "LLL" flashes / KEY LED is OFF

#### [Change to the next mode]

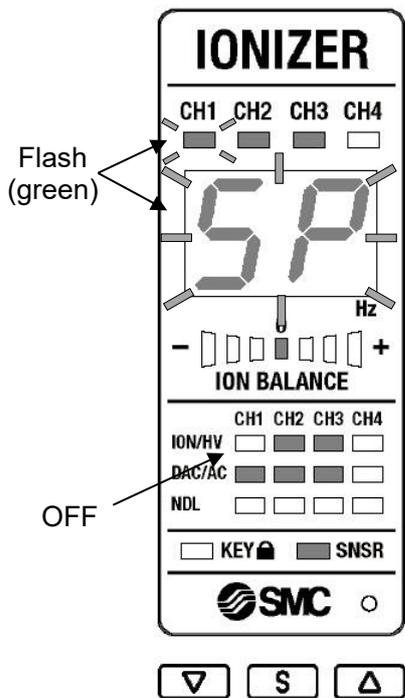
- Press the S button once to change to CH selection mode and store the key lock setting.
- When power is supplied, the saved setting will be displayed.

Example shows Key lock ON.

Default key lock setting is OFF.

#### 4-4-8. Ion generation stop mode

- In addition to the external input signal, the product will stop ion generation temporarily by pressing a button.
- When the ion generation is stopped by the controller button, the external input signals are disabled. To release the mode, press the **S** button once to return to the previous setting mode. After the release of the button, the external input signal becomes effective.
- When the ion generation stop is disabled, ions will continue to be generated. Be careful when handling the high voltage power supply module and nozzle.
- Although the ion generation stop mode can be released by turning the power supply off and on again, the changes set in the previous mode will not be stored. It is necessary to change the setting again.



Display example of IZTC41

#### [Ion generating stop setting]

- In Channel selection mode, frequency set mode, offset voltage adjustment mode, balance control selection mode or maintenance detection level selection mode, ion generation is stopped by pressing the **▼ and ▲** button simultaneously for 2 s or longer.
- At that time, "5.9" is displayed in the frequency display and the ION/HV LED of the selected CH is turned off.

#### [Ion generation stop release]

- To release the mode, press the **S** button once to return to the previous setting mode.
- Although the ion generation stop mode can be released by turning the power supply off and on again, the changes set in the previous mode will not be stored. It is necessary to change the setting again.

※When the ion discharge stop signal is ON, the mode will not move on to ion generation stop mode.

## 4-5. Alarm function

- When a problem occurs, an output signal or LED notification is generated.
- Depending on the content of abnormality, this product either continues or stops operation.

### 4-5-1. Alarms for IZT43

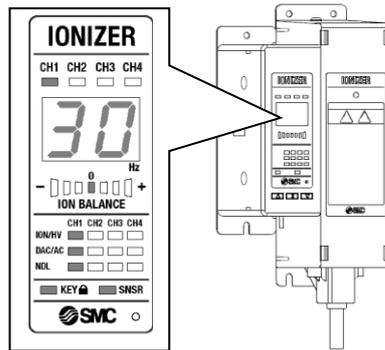


Table6. Alarm function

Alarm name	Output signal	Ionizer operation after generating alarm	LED								Description	How to release error after recovery	
			CH	Frequency	ION BALANCE	ION/HV	DAC/AC	NDL	SNSR	KEY			
CPU failure (controller)	Error signal OFF (B contact)	Stop	Green (ON) Note32	Green (flash) error code E0	OFF	Red (flash) Note37	OFF	OFF	OFF	OFF	OFF or Note45 Green (ON)	·When CPU operates abnormally due to noise etc. ·When the CH is switched during operation.	·Turn the power off and on again.
Power supply failure	Error signal OFF (B contact)	Stop	Green (ON) Note33	Green (flash) error code E1	OFF	Red (flash) Note38	Green (ON) or Note42 Blue (ON)	OFF	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·When the connected power supply voltage is outside of the specification.	·To be reset automatically.
CPU failure (High voltage power supply module)	Error signal OFF (B contact)	Stop	Green (flash) Note34	Green (flash) error code E2	OFF Note36	Red (flash) Note39	Green (ON) or Note42 Blue (ON)	OFF Note44	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·When CPU operates abnormally due to noise etc. ·High voltage cable to be connected to the high voltage power supply module is not connected.	·Turn the power off and on again.
Incorrect high voltage	Error signal OFF (B contact)	Stop	Green (flash) Note34	Green (flash) error code E3	OFF Note36	Red (ON) Note40	Green (ON) or Note42 Blue (ON)	OFF Note44	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·When abnormal high voltage is discharged.	·Ion generation stop signal OFF and ON again. ·Turn the power off and on again.
Communication error	Error signal OFF (B contact)	Stop	Green (flash) Note34	Green (flash) error code E4	OFF Note36	Red (flash) Note39	Green (ON) or Note42 Blue (ON)	OFF Note44	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·When communication failure occurs due to noise, etc.	·Ion generation stop signal OFF and ON again. ·Turn the power off and on again.
Fan motor failure	Error signal OFF (B contact)	Stop	Green (flash) Note34	Green (flash) error code E5	OFF Note36	Red (flash) Note39	Green (ON) or Note42 Blue (ON)	OFF Note44	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·When ionizer does not operate properly due to foreign matter caught in the fan motor.	·Ion generation stop signal OFF and ON again. ·Turn the power off and on again.
Inconsistent module	Error signal OFF (B contact)	Stop	Green (flash) Note34	Green (flash) error code E6	OFF Note36	Red (flash) Note39	OFF Note43	OFF Note44	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·High voltage power supply module which is not correct combination was connected to the controller.	·Turn the power off and on again.
Duplication of CH	Error signal OFF (B contact)	Stop	Green (flash) Note34	Green (flash) error code E7	OFF Note36	Red (flash) Note39	OFF Note43	OFF Note44	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·Duplication of the CH setting of the high voltage power supply module connected to the controller exists.	·To be reset automatically.
Output signal over current	Maintenance detection signal OFF (A contact) Error signal OFF (B contact)	Continue	Green (flash) Note34	Green (flash) error code E8 E9	Green (ON)	Green (flash) Note41	Green (ON) or Note42 Blue (ON)	OFF or Note45 Green (ON)	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·When over current is applied to the output circuit and protective circuit is activated.	·To be reset automatically.
Maintenance warning	Maintenance detection signal ON (A contact)	Continue	Green (flash) Note34	Green (ON) frequency Note35	Green (ON)	Green (ON)	Green (ON) or Note42 Blue (ON)	Green (ON)	OFF	OFF or Note45 Green (ON)	OFF or Note45 Green (ON)	·When static neutralization performance is reduced due to contamination, wearing or breakage of emitters.	·Ion generation stop signal OFF and ON again. ·Turn the power off and on again.
High voltage power supply module not connected	Error signal OFF (B contact)	Stop	OFF	Green (flash) Error code --	OFF	OFF	OFF	OFF	OFF	OFF	OFF or Note45 Green (ON)	·High voltage power supply module to be connected to the controller is not connected.	·Turn the power off and on again.

Note32) All CH LEDs in the CH table are ON (green).

Note33) LED for all connected high voltage power supply modules CH flash (green).

Note34) LED for CHs selected to display flashing (green).

Note35) Displays the frequency setting status of the selected CH.

Note36) Ion balance of the high voltage power supply module with problem turns off.

Note37) All ION/ HV LEDs for CH1 to 4 flash (red).

Note38) LED for all connected high voltage power supply modules ION/HV flash (green).

Note39) LED for high voltage power supply module ION/HV with problem flashes (red).

Note40) LED for high voltage power supply module ION/HV with problem turns on (red).

Note41) LED for all connected high voltage power supply modules ION/HV flash (green).

Note42) Displays the type of connected high voltage power supply module.

IZT43: DAC/AC LED (green) is ON, IZT41: DAC/AC LED (green) is ON, IZT42: DAC/AC LED (blue) is ON

Note43) LED for high voltage power supply module DAC/AC with problem turns off.

Note44) LED for high voltage power supply module NDL with problem turns off.

Note45) The screen at the time of the problem holds the status before the problem.

#### 4-5-2. Details of the alarms

##### 1) Controller CPU problem

- If the controller CPU operation is abnormal due to electrical noise, or when the CH is switched during operation, the abnormal signal is OFF (ON when normal.), and all CH LEDs (green) are ON and all ION/HV LEDs are flashing (red) and the error code "E 0" is displayed in frequency display flashing red.
- When failure occurs, the ion generation will be stopped.
- To prevent noise, perform the following actions and take countermeasures.
  - I . If the source of noise is nearby, move this product away from the source.
  - II . Route the power line and this product cables separately.
  - III . If noise may enter the product from the power supply, install a noise filter to this product power supply.
- To resolve the error, supply power again after fixing the cause of the error.

##### 2) Power supply failure

- When the power supply connected to this product is not within the specified range of 24 V +/-10%, the abnormal signal is OFF (ON when normal.), and all CH LEDs connected to the nozzle (high voltage power supply module) are ON (green), ION/HV LEDs of connected CH are flashing (red) and the error code "E 1" is displayed flashing in the frequency display.
- When the failure occurs, the ion generation will be stopped.
- The problem is automatically released by changing the power supply voltage to 24V+/-10%.

##### 3) High voltage power supply module CPU problem

- If the high voltage power supply module CPU operation is abnormal due to electrical noise, or the high voltage power supply cable is not connected to the high voltage power supply module, the abnormal signal is OFF (ON when normal.), and ION/HV LED for the CH with abnormality is flashing (red) and the error code "E 2" is displayed flashing in the frequency display.
- When the problem occurs, only the nozzle with a problem (high voltage power supply module) will stop ion generation.
- To prevent noise, perform the following actions and take countermeasures.
  - I . If the source of noise is nearby, move this product away from the source.
  - II . Route the power line and this product cables separately.
  - III . If noise may enter the product from the power supply, install a noise filter to this product power supply.
- To resolve the error, supply power again after fixing the cause of the error.

##### 4) Incorrect high voltage

- When abnormal discharge occurs during this product operation, the abnormal signal is OFF (ON when normal.), and the ION/HV LED for the CH with abnormality is ON (red) and the error code "E 3" is flashing in the frequency display.
- When the problem occurs, only the nozzle with a problem (high voltage power supply module) will stop ion generation.
- To resolve the error, input the ionizer stop signal or supply power again after remedying the cause of the incorrect electric discharge.

##### 5) Communication error

- When abnormality occurs in the communication between the controller and high voltage power supply module due to electrical noise, the abnormal signal is OFF (ON when normal.), and the ION/HV LED of CH with abnormality is flashing (red) and the error code "E 4" is flashing in the frequency display.
- When the problem occurs, only the nozzle with a problem (high voltage power supply module) will stop ion generation.
- To prevent noise, perform the following actions and take countermeasures.
  - I . If the source of noise is nearby, move this product away from the source.
  - II . Route the power line and this product cables separately.
  - III . If noise may enter the product from the power supply, install a noise filter to this product power supply.
- To resolve the error, input the ion generation stop signal or supply power again after remedying the cause of the error.

#### 6) Fan motor failure

- When fan motor operation non-conformance occurs during the operation of this product, the abnormal signal is OFF (ON when normal.), and the ION/HV LED for the CH with abnormality is flashing (red) and the error code "E5" is flashing in the frequency display.
- When the problem occurs, only the nozzle with a problem (high voltage power supply module) will stop ion generation.
- To prevent noise, perform the following actions and take countermeasures.
  - I . If the source of noise is nearby, move this product away from the source.
  - II . Route the power line and this product cables separately.
  - III . If noise may enter the product from the power supply, install a noise filter to this product power supply.
- To resolve the error, input the ion discharge stop signal or supply power again after remedying the cause of the error.

#### 7) Incompatible module

- When the high voltage power supply module IZTP40 is connected to the controller IZTC41, the abnormal signal is OFF (ON when normal.), and the ION/HV LED of CH with abnormality is flashing (red) and the error code "E6" is flashing in the frequency display.
- To release the abnormality, connect the correct high voltage power supply module corresponding to the controller and turn on the power supply again.

#### 8) Duplication of CH number

- When multiple nozzles (high voltage power supply modules) are connected to the controller and the settings of the CH switch on the high voltage power supply module are duplicated, the abnormal signal is OFF (ON when normal.), and the ION/HV LED for the CH of the nozzles (high voltage power supply module) which are duplicated are flashing (red) and the error code "E7" is flashing in the frequency display.
- The abnormality is automatically released when the setting of the CH switch on the high voltage power supply module is not duplicated.

#### 9) Output over current

- When current exceeding the specification value is applied to the maintenance output or abnormal output, the output is shut off to protect the output circuit, and the LEDs for all ION/HV connected to the nozzle (high voltage power supply module) flash (green) and the error code "E8" or "E9" is flashing in the frequency display.
- E8 indicates excess current for the abnormal signal. E9 indicates excess current for the maintenance signal.
- This product operates even when excessive current is generated in the output circuit.
- To resolve the error, reset the product automatically by reducing the current to the output circuit down to 100 mA or less.

#### 10) Maintenance

- The maintenance signal is ON when contamination, wear or damage to the emitters is detected. The NDL LED (green) for the nozzle with the problem (high voltage power supply module) is ON to indicate that cleaning or replacement of the emitters needs to be performed.
- This product operates even when the maintenance warning is generated.
- When emitters are contaminated, the error can be solved by cleaning them. However, when they are worn out or damaged, it is necessary to replace the emitter cartridge with a new one.
- To resolve the error, input the ion discharge stop signal or supply power again after remedying the cause of the error.

#### 11) High voltage power supply module disconnected

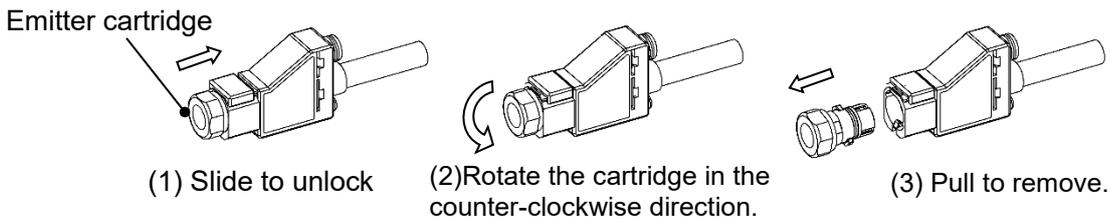
- When the controller and high voltage power supply module are not connected, the abnormal signal is OFF (ON when normal.), and error code "- -" is flashing in the frequency display.
- To release the abnormality, connect the high voltage power supply module to the controller and turn on the power supply.

## 4-6.Replacement of the assembly

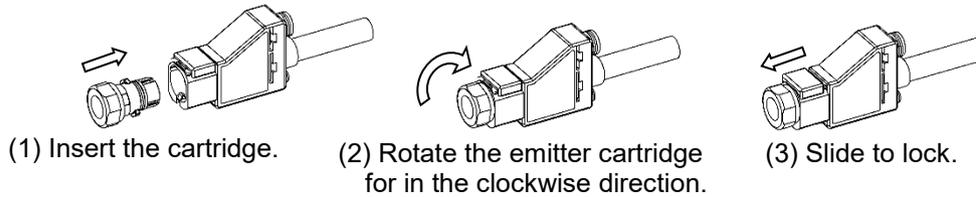
- Be sure to remove power supply and air supply to the controller, high voltage power supply module and nozzle before cleaning the emitter or replacing the emitter cartridge.
- Never touch the emitter with the power supplied to the controller, high voltage power supply module or nozzle. Electric shock may cause injury.
- If the emitter cartridge is removed while air is supplied, the emitter cartridge jumps out by compressed air. Replace the emitter cartridge after discharging the supply air.
- If emitter cartridges are not securely mounted to the body, they may eject or release when air is supplied to the product.

### 4-6-1. Replacement of the emitter cartridge

- Securely mount or remove the emitter cartridges referencing the instructions shown below.
- Securely mount or remove the emitter cartridges with hands and do not use tools.  
(Tightening torque: 0.1 to 0.2 Nm)



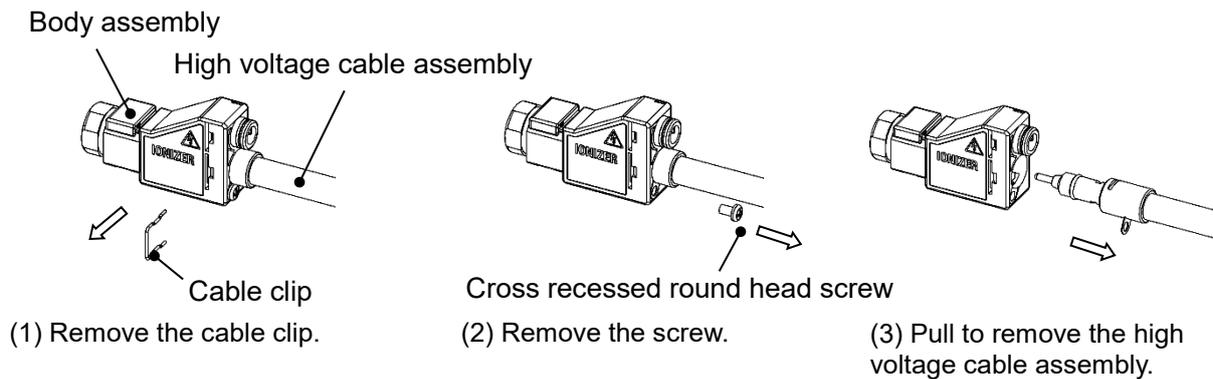
Removal of the emitter cartridge



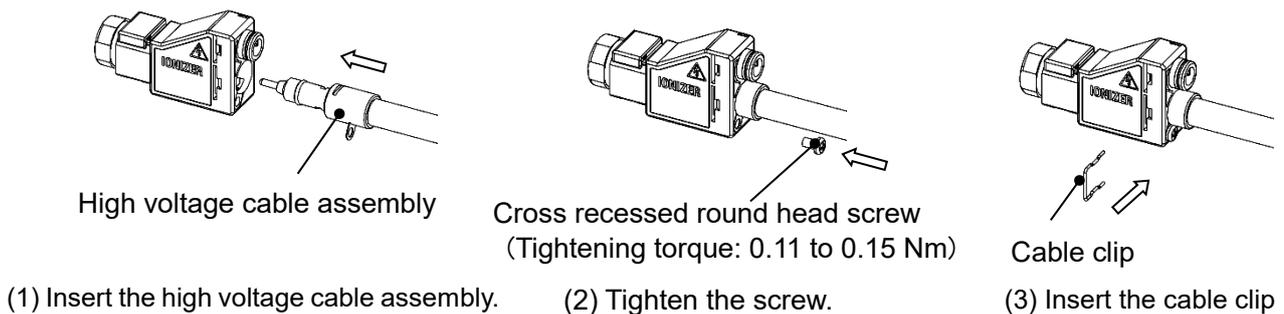
Mounting of the emitter cartridge

### 4-6-2. Replacement of the high voltage cable assembly or the body assembly

- Securely mount or remove the high voltage cable assembly or body assembly referencing the instructions shown below.



Removal



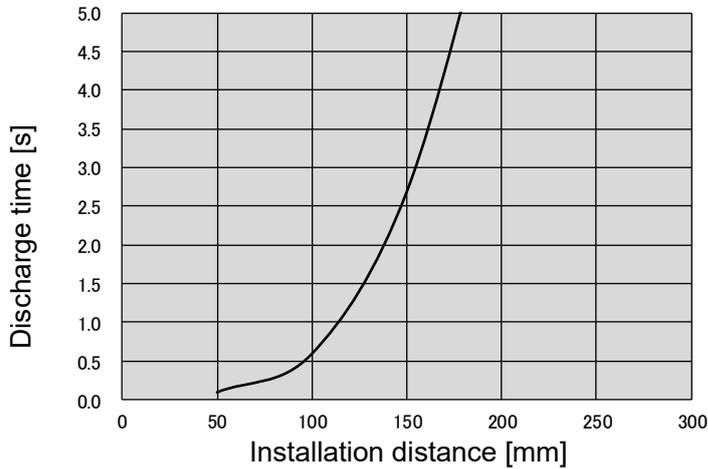
Mounting

## 5. Performance

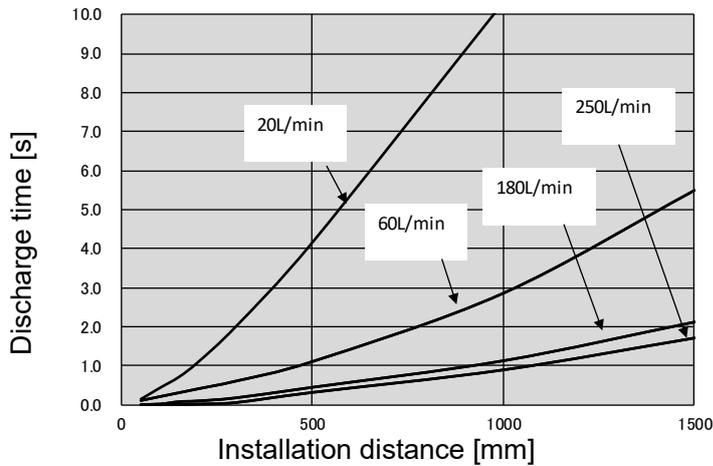
- Performance data shown in this chapter is based on an electrified plate (dimensions: 150 x 150 mm, electrostatic capacity: 20pF) defined by ANSI standard (ANSI/ESD STM3.1-2015). Use this data as a guideline for selection, as the performance data may vary depending on the material and size of the workpiece.

### 5-1. Installation distance and Discharge time (Discharge time of 1000V→100V)

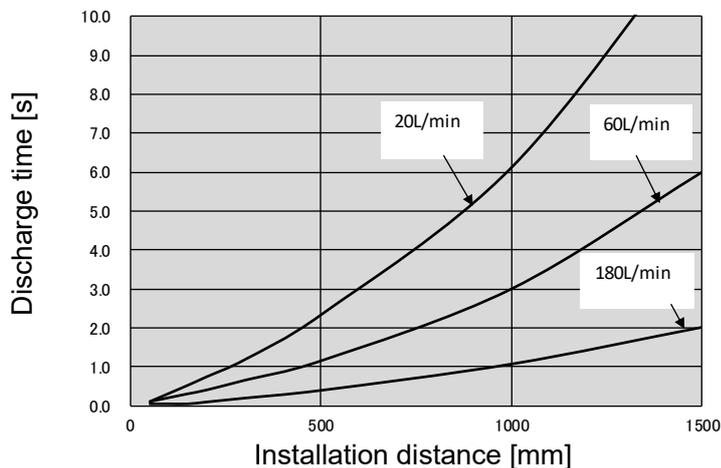
#### 1) Without air purge



#### 2) High speed static neutralization cartridge with air purge

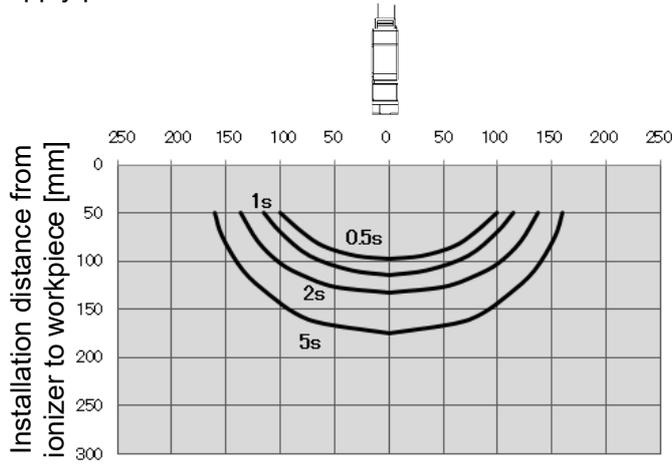


#### 3) Energy saving static neutralization cartridge with air purge

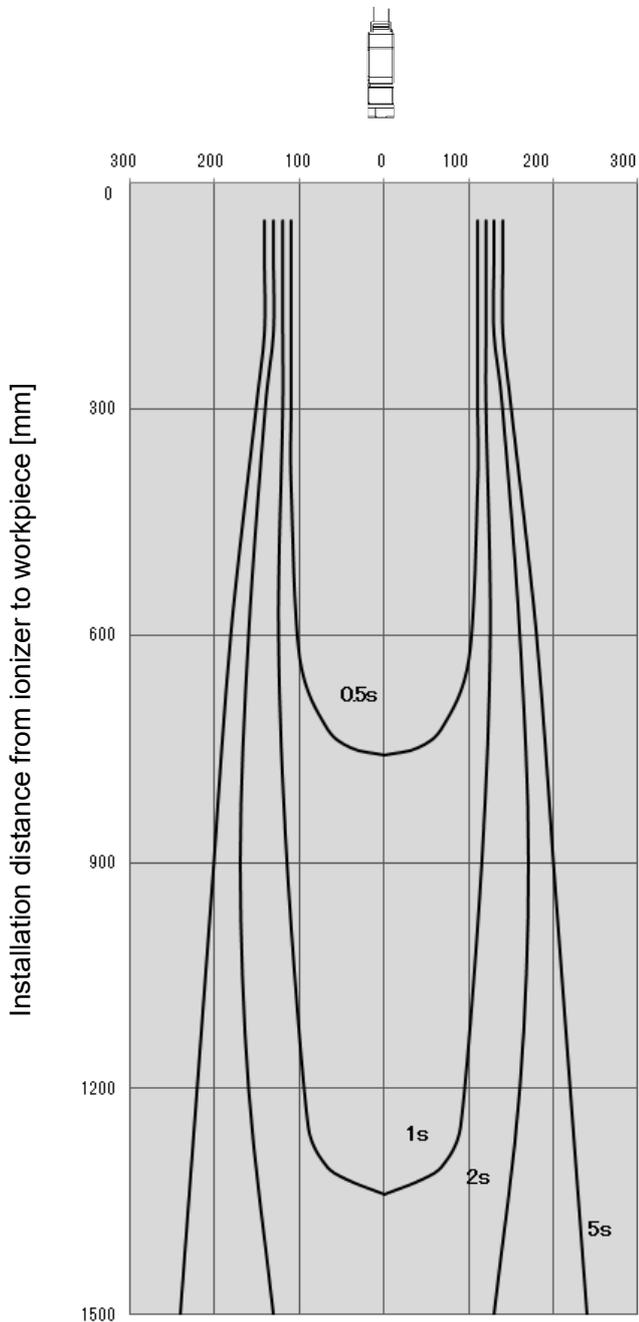


## 5-2. Static neutralization range

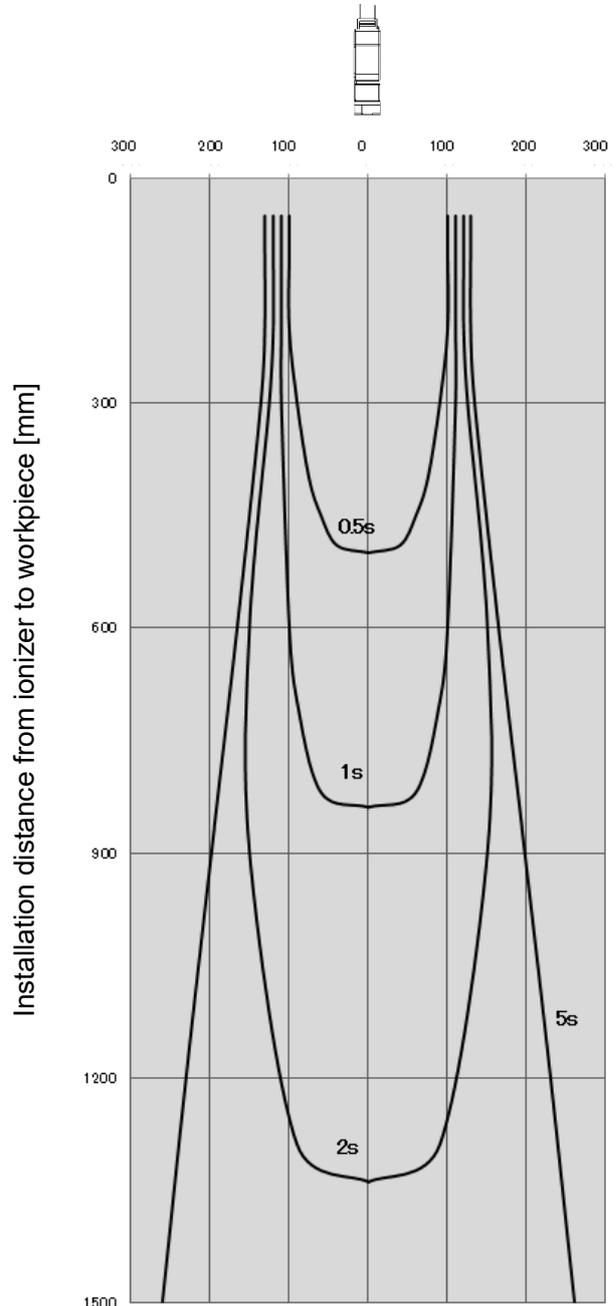
1) Supply pressure: 0 MPa



2) With High speed static neutralization cartridge,  
Supply pressure: 0.5 MPa



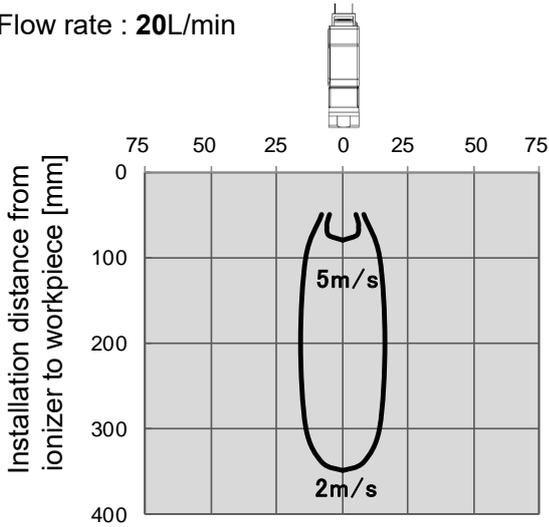
3) With Energy saving static neutralization cartridge,  
Supply pressure: 0.5 MPa



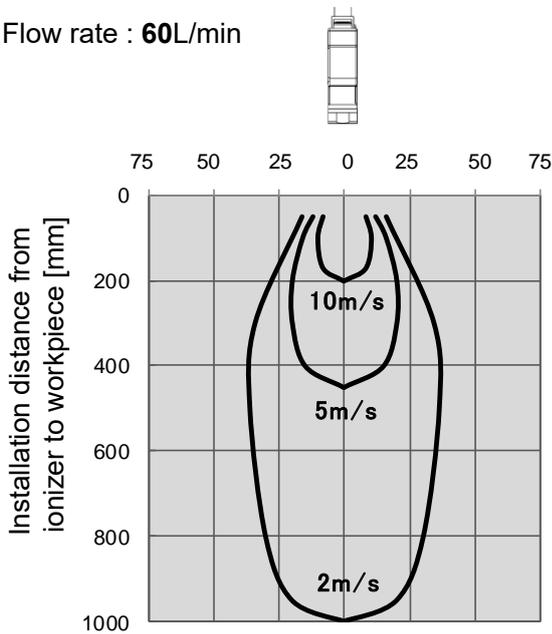
### 5-3. Blow velocity distribution

#### High speed static neutralization cartridge

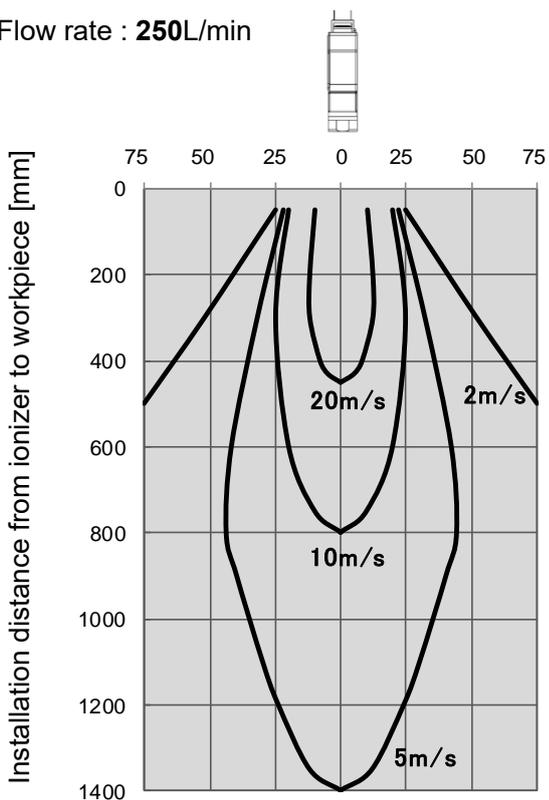
1) Flow rate : 20L/min



2) Flow rate : 60L/min

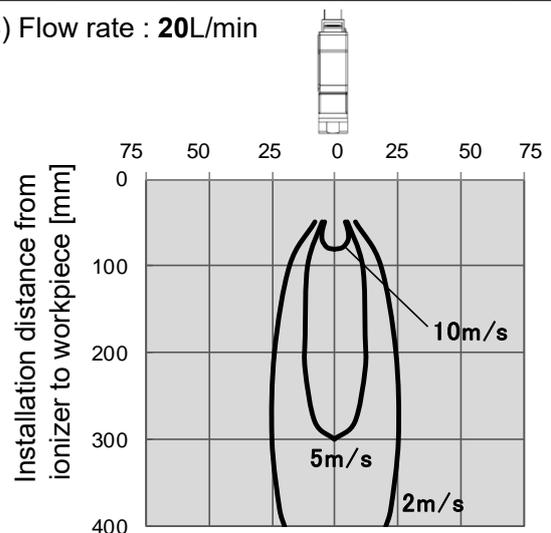


3) Flow rate : 250L/min

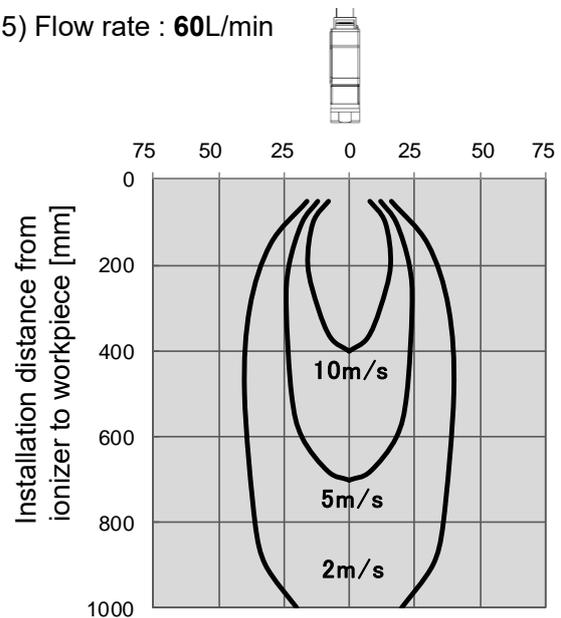


#### Energy saving static neutralization cartridge

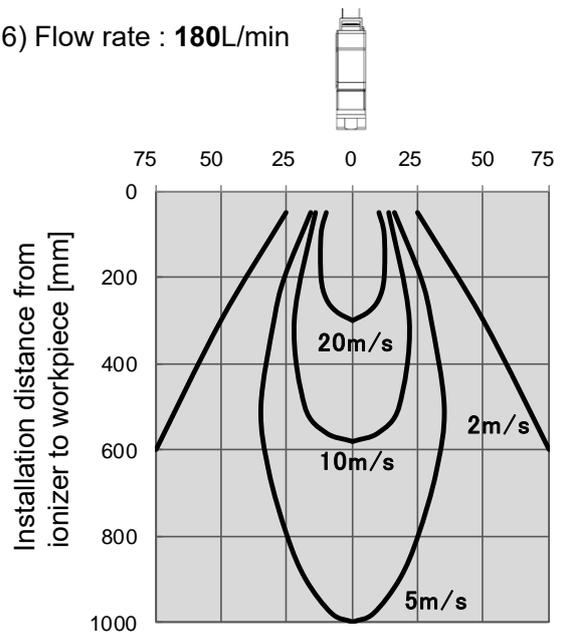
4) Flow rate : 20L/min



5) Flow rate : 60L/min

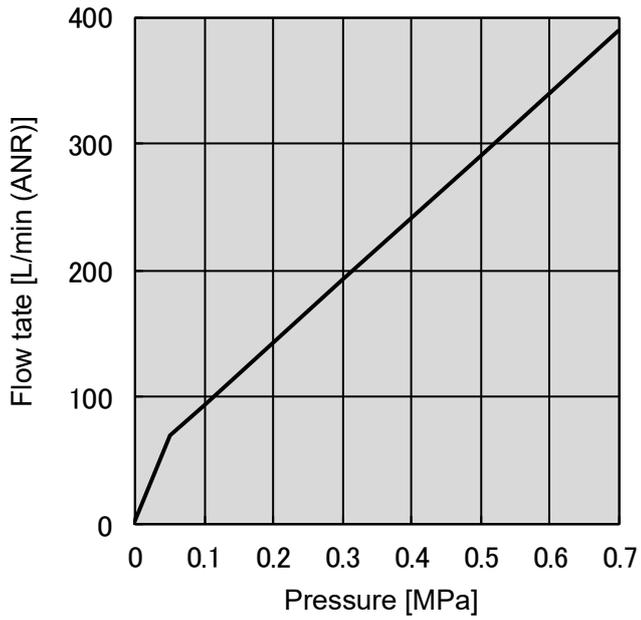


6) Flow rate : 180L/min

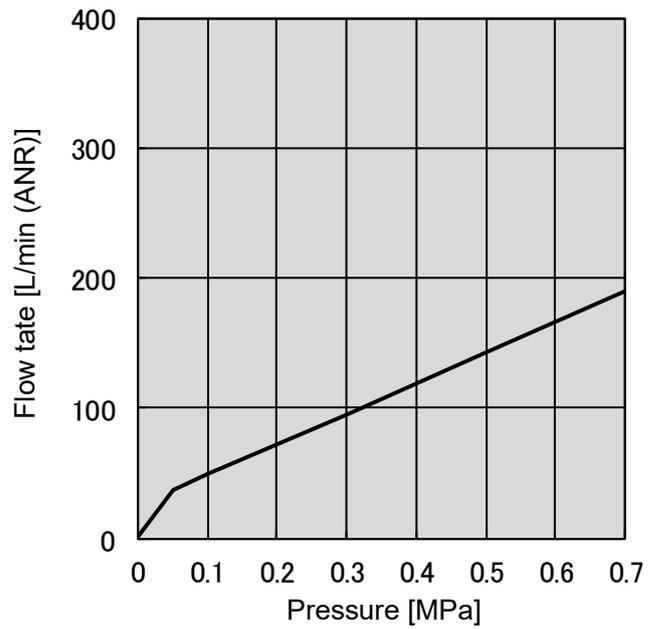


## 5-4. Flow - Pressure characteristics

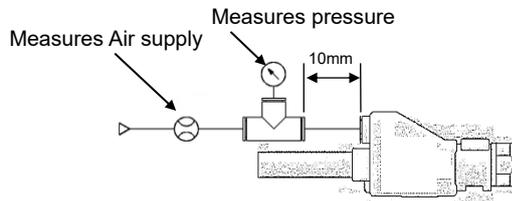
1) With High speed Static neutralization cartridge



2) With Energy saving Static neutralization cartridge

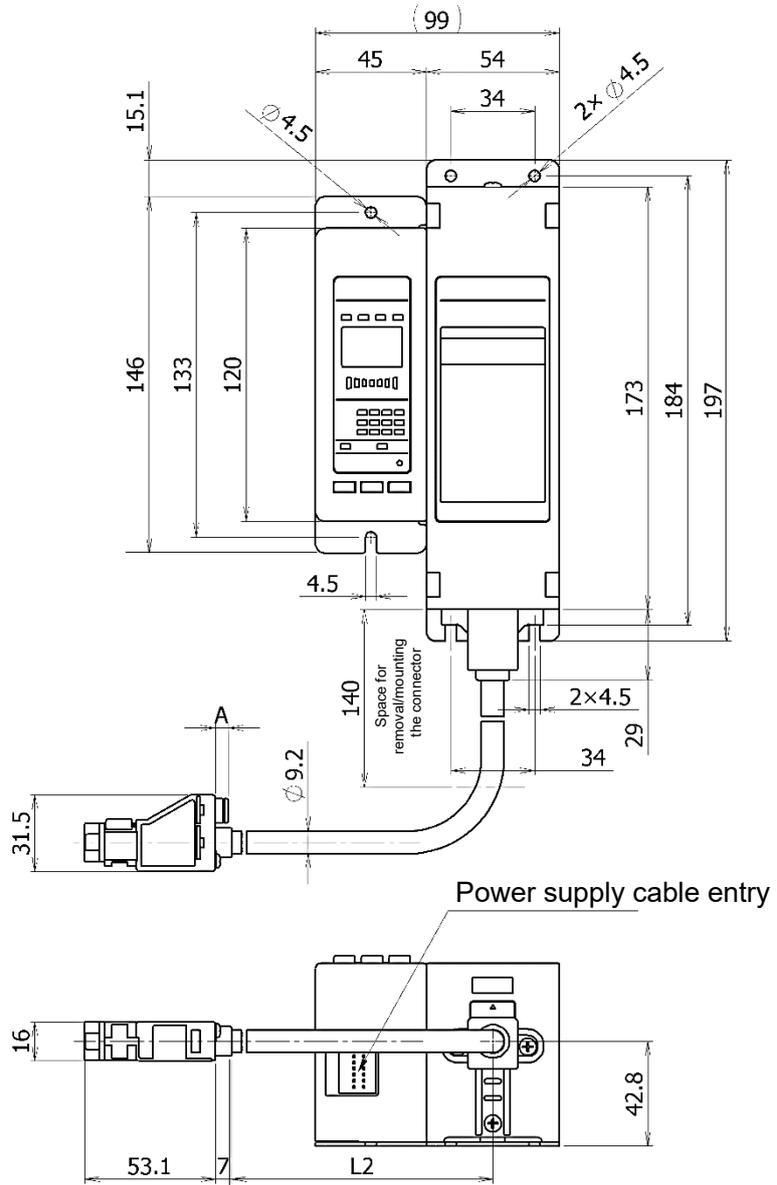
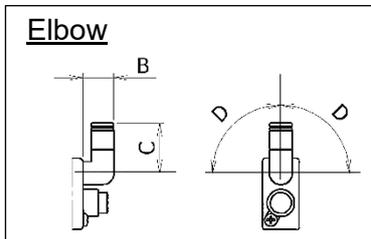


### Measuring method schematic



# 6. Dimensions

## Ionizer IZT43



### High voltage cable length L2

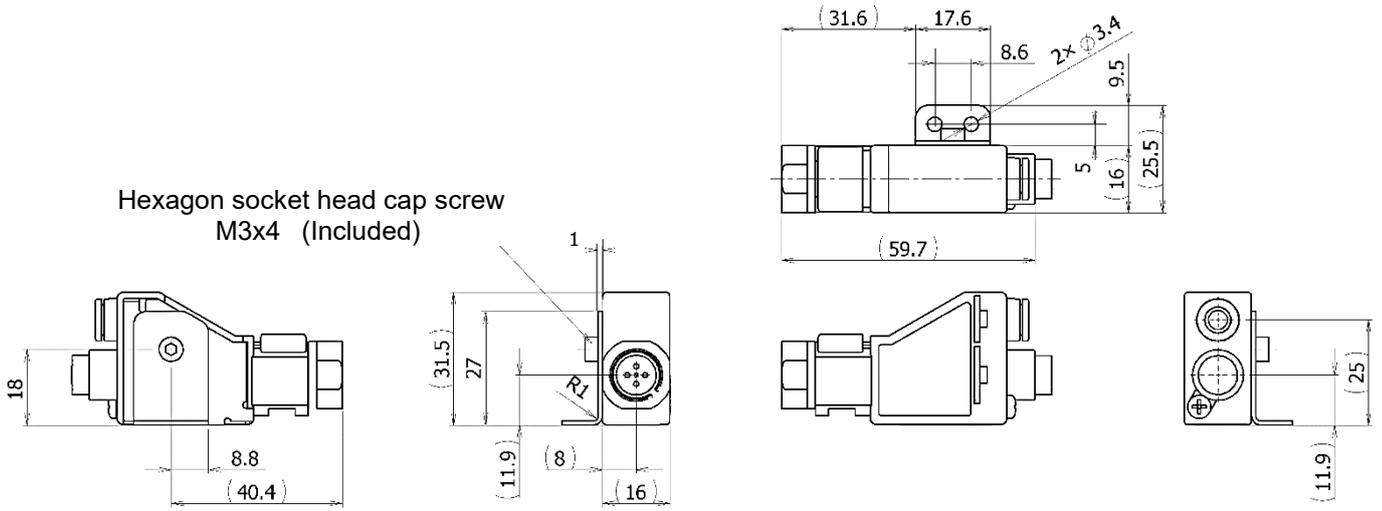
Symbol	L2(mm)
1	1000
2	2000
3	3000

### One-touch fitting

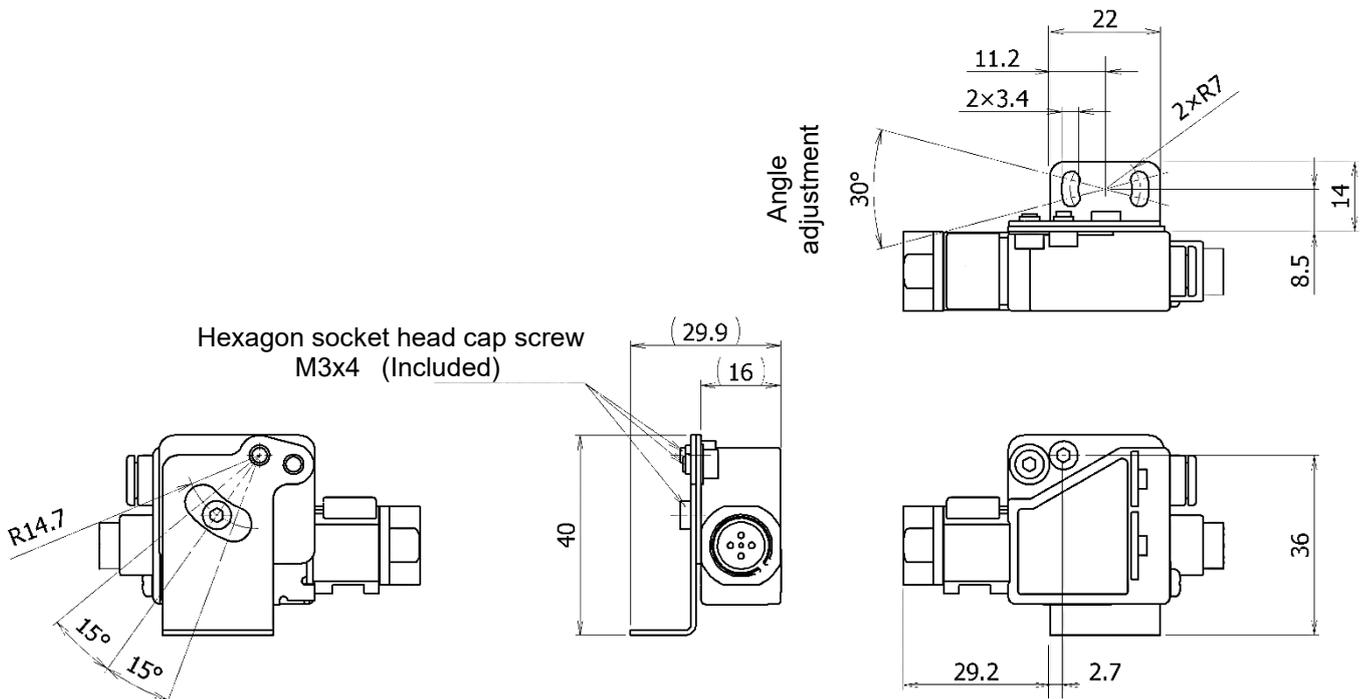
Straight		(mm)
Applicable tube O.D.		A
Metric	ø6	7
Inch	ø1/4"	10

Elbow		(mm)		
Applicable tube O.D.		B	C	D
Metric	ø6	14	23	105°
Inch	ø1/4"	14	26	105°

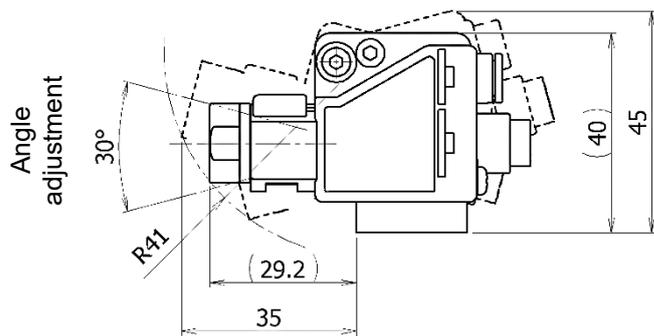
L-type bracket / IZT43-BL1



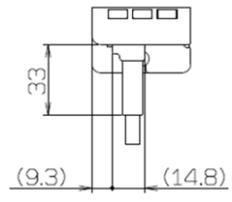
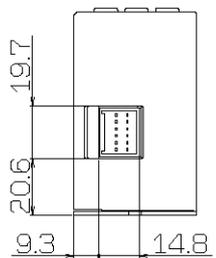
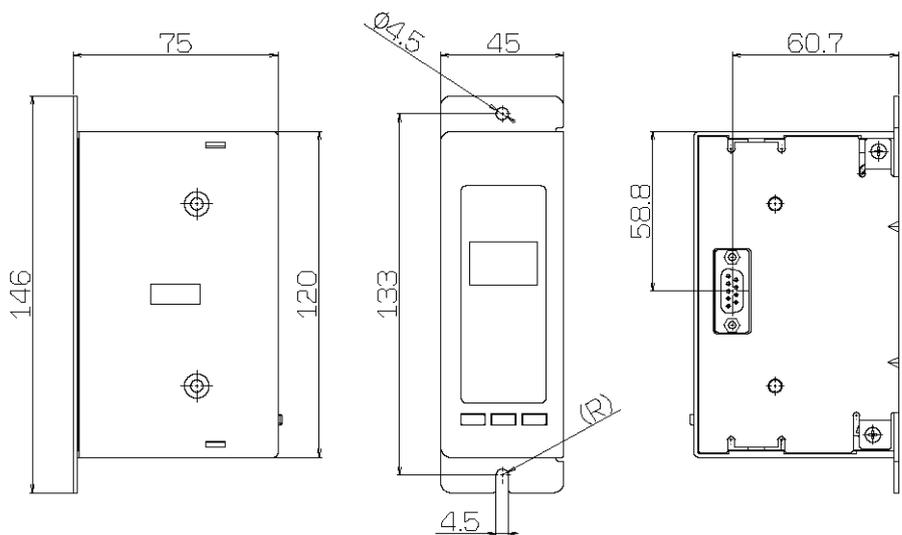
Angle adjustment bracket / IZT43-BL2



When adjusting the angle

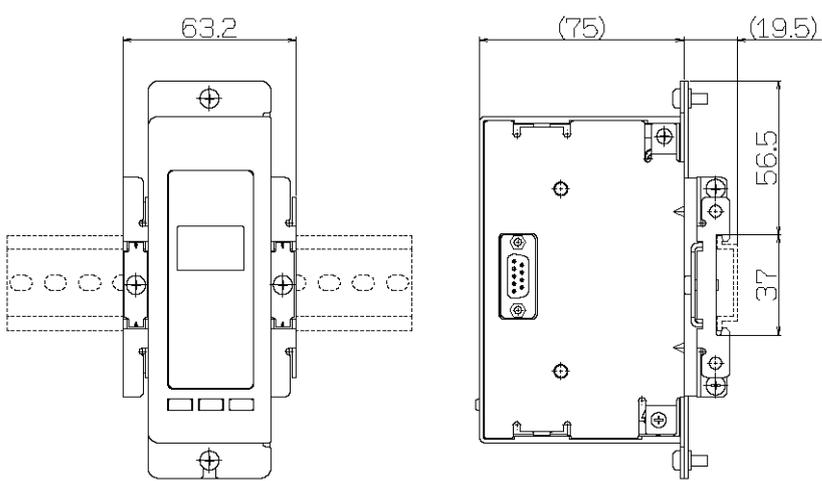


**Controller IZTC41, IZTC41-P**

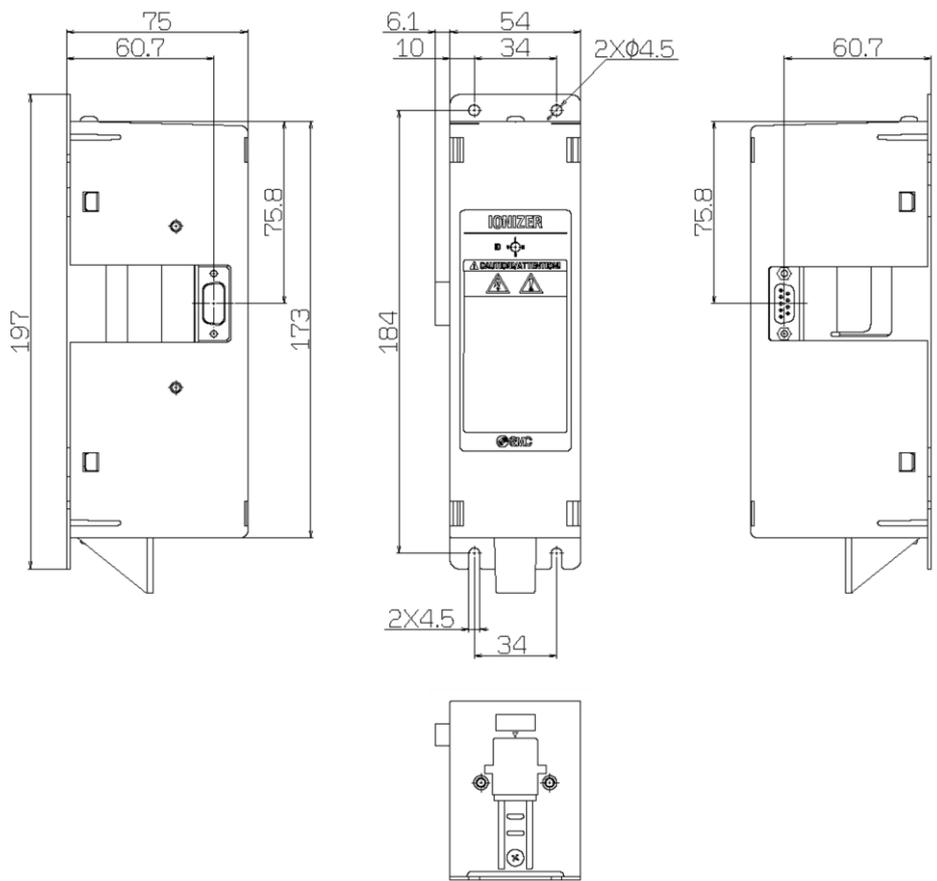


When power supply cable is inserted

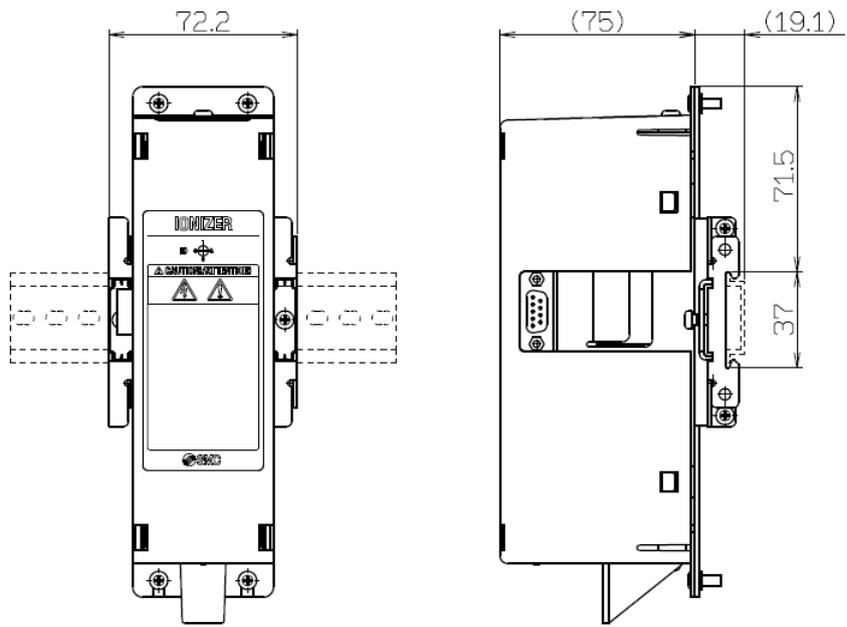
**When DIN rail mounting bracket (IZT40-B1) is used**



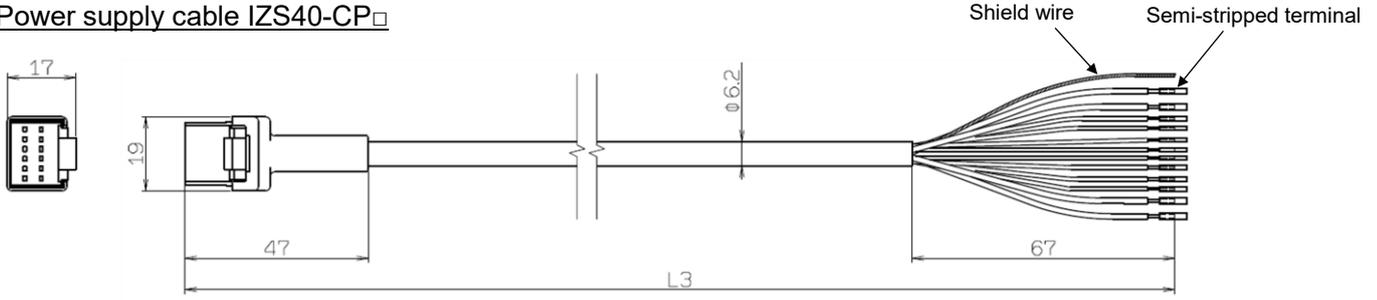
High voltage power supply module (IZTP43)



When DIN rail mounting bracket (IZT40-B2) is used



**Power supply cable IZS40-CP□**



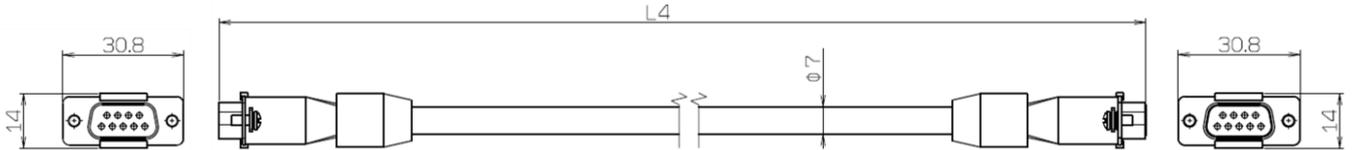
**Cable length L3**

Product No.	L3(mm)
IZT40-CP3	2950
IZT40-CP5	5000
IZT40-CP10	9800
IZT40-CP15	15000

**Cable specification**

Number of wire /size		12 cables/AWG20(4pcs. ), AWG(8pcs.)
Conductor	Nominal cross section	0.54mm <sup>2</sup> (4pcs.), 0.09mm <sup>2</sup> (8 pcs.)
	O.D.	0.96mm (4pcs. ), 0.38mm (8pcs. )
Insulator	O.D.	1.4mm, brown, blue
		0.7mm, white, green, pink, purple, gray, yellow, orange, black
Sheath	Material	Lead free PVC
	O.D.	6.2mm

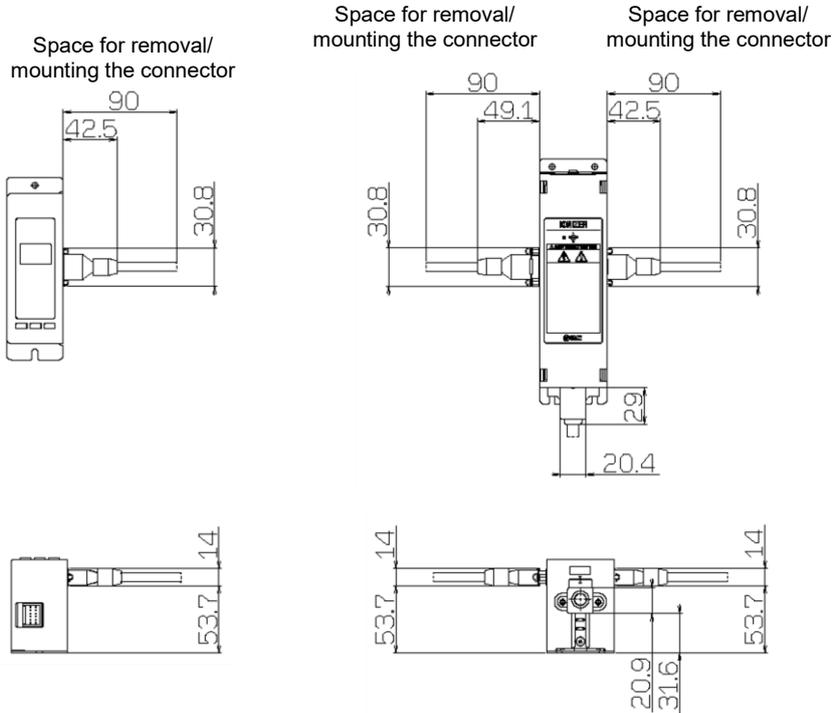
**Separate cable IZT40-CF□**



**Cable length L4**

Product No.	L4(mm)
IZT40-CF1	1000
IZT40-CF2	2000
IZT40-CF3	3000

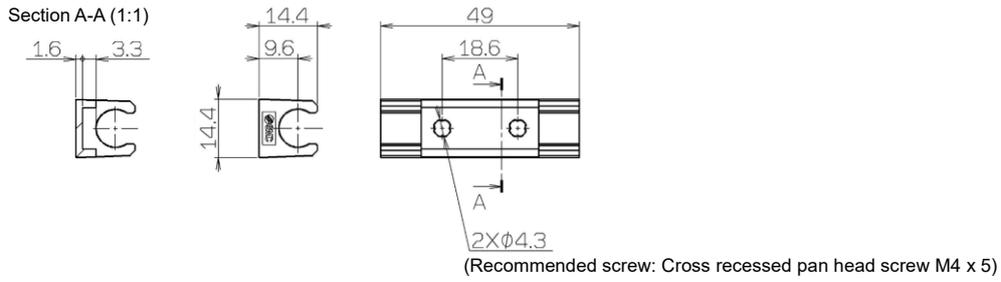
**Space for mounting/removal of the separate cable and high voltage connector**



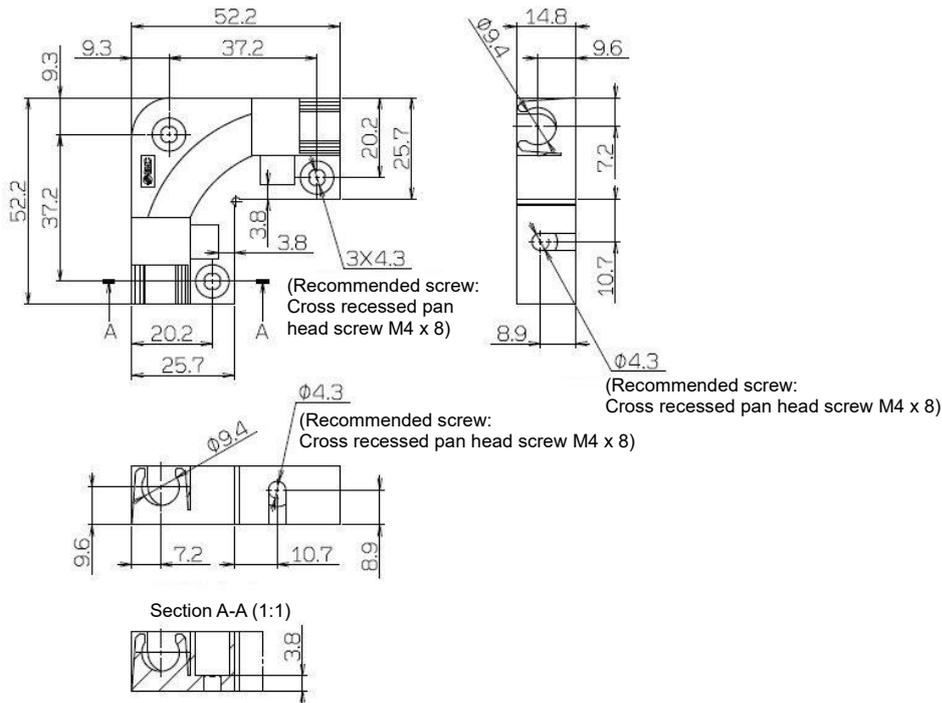
IZTC41

IZTP43

**Cable holder (straight) IZT40-E1**

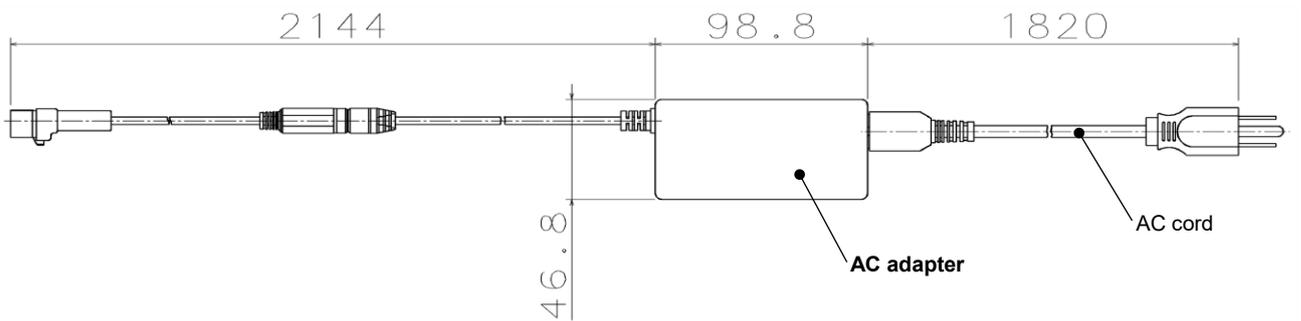


**Cable holder (elbow) IZT40-E2**

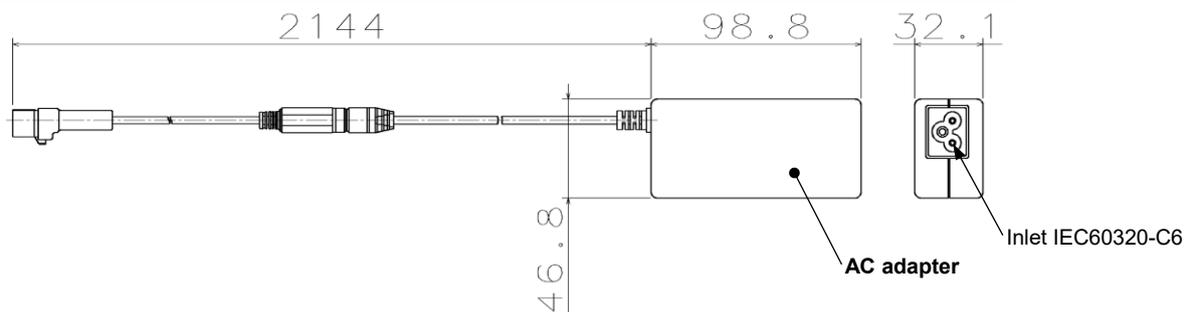


**AC adapter**

IZT40-CG1( with AC cord)



IZT40-CG2 (without AC cord)



## 7. Specifications

### Ionizer

Model		IZT43(NPN type)	IZT43(PNP type)
Ion generating method		Corona discharging method	
Voltage application method		AC, DC <sup>Note46)</sup>	
Applied voltage		+/- 6,000V	
Offset voltage <sup>Note47)</sup>		Within +/-30V	
Air purge	Fluid	Air (Clean and dry)	
	Max. operating pressure	0.7 MPa or less	
	Proof pressure	1.05MPa	
	Connected tube O.D. (One side can be plugged)	In mm: ø6 In inch : ø1/4	
Current consumption		0.4A or less (+0.4A or less per ionizer when connected)	
Power supply voltage		DC24V±10% (AC100-240V: AC adapter option Applicable when only one bar is used)	
Input signal	Ion generation stop signal	Connected with DC(-) Voltage range : 5 VDC or less Current consumption: 5mA or less	Connected with DC(+) Voltage range: 19 VDC to supply voltage Current consumption: 5mA or less
Output signal	Maintenance detection signal	Max. load current : 100mA Residual voltage : 1V or less (at : 100mA of load current) Max. supply voltage: 26.4 VDC	Max. load current : 100mA Residual voltage : 1V or less (at 100mA of load current)
	Error signal		
Function		Auto balance, maintenance detection, high voltage abnormality detection (ion generation stops when abnormality is detected), ion generation stop input.	
Effective static neutralizing distance		50 to 2000mm	
Ambient and fluid temperature	Controller	0 to 40°C	
	High voltage power supply module		
	Nozzle		
Ambient humidity		35 to 65%Rh (no condensation)	
Material	Controller	Cover : ABS, Aluminium, switch : Silicone rubber	
	High voltage power supply module	Cover : ABS, aluminium	
	Nozzle	Cover : ABS Emitter cartridge: PBT Emitter: Tungsten High Voltage cable: Silicone rubber, PVC, Stainless	
Applicable standard		CE(EMC directive)	

Note46) Apply cathode or anode to DC.

Note47) With air purge at a distance of 300mm between the workpiece and the nozzle

### Weight

(g)

	Nozzle		High voltage power supply module	Controller
IZT43	High voltage cable 1m	200	680	210
	High voltage cable 2m	310		
	High voltage cable 3m	440		

### AC adapter(Sold separately)

Models	IZT40-CG1, IZT40-CG2
Input voltage	AC100-240V, 50/60Hz
Output current	1.9A
Ambient temperature	0 to 40°C
Ambient humidity	35 to 65%Rh (no condensation)
Weight	375g
Applicable standard/directive	CE, cUL

# 8. Troubleshooting

Problem	Status	Possible causes	Investigation method and possible causes	Countermeasures	
Does not operate	The product does not turn ON. (LED is OFF)	Power supply incorrectly wired.	Check the power supply wiring. Check the connection of 2 brown wires DC(+) and 2 blue wires DC(-).	Ensure all connections are in accordance with the operation manual.	
	Error code "no" is displayed. (Initial setting is not done)	Initial setting is not done.	Initial setting is required.	Perform initial settings in accordance with the operation manual.	
	Error code "E1" is displayed. (Controller CPU abnormality)	High voltage cable is not connected to the high voltage power supply module. CPU malfunction caused by noise.	Check if high voltage cable is connected to the high voltage power supply module. 1) Check if there is any high current equipment installed near the ionizer. 2) Check if the power supply cable or the separate cable is routed together with any high power cable.	Connect high voltage cable to the high voltage power supply module. 1) If any high current equipment is nearby, either move it away or consider an alternative location for the ionizer. 2) Route the ionizer wiring separately to high power cables. 3) Install a noise filter to the controller power supply.	
	Error code "E2" is displayed. (Power supply failure)	Power supply voltage is out of range.	Check the power supply input is within the range of 24 VDC $\pm$ 10%.	Ensure the power supply is in the range of 24 VDC $\pm$ 10%.	
	Error code "E3" is displayed. (High voltage power supply module CPU abnormality)	CPU malfunction caused by noise.	1) Check if there is any high current equipment installed near the ionizer. 2) Check if the power supply cable or the separate cable is routed together with any high power cable.	1) If any high current equipment is nearby, either move it away or consider an alternative location for the ionizer. 2) Route the ionizer wiring separately to high power cables. 3) Install a noise filter to the controller power supply.	
	Error code "E4" is displayed. (Incorrect high voltage)	Abnormal high voltage discharge.	1) Check the emitter for contamination. 2) Check whether there is arcing between the bar and workpiece to be neutralized. 3) Check whether the ionizer is used in an environment subject to condensation or moisture. 4) Check the High voltage connector for contamination.	1) If dust or dirt is found on the emitter, clean the emitter referring to the operation manual. 2) If there is arcing between the workpiece to be neutralized and the bar, increase the distance between them until arcing no longer occurs. 3) The ionizer should be used in environments subject to condensation or moisture. 4) If dust or dirt is found on the connector, clean the connector.	
	Error code "E5" is displayed. (Communication error)	Malfunction caused by noise.	1) Check if there is any high current equipment installed near the ionizer. 2) Check if the power supply cable or the separate cable is routed together with any high power cable.	1) If any high current equipment is nearby, either move it away or consider an alternative location for the ionizer. 2) Route the ionizer wiring separately to high power cables. 3) Install a noise filter to the controller power supply.	
	Error code "E6" is displayed. (Fan motor failure)	The fan motor was clogged up with foreign matter.	Check the fan motor is rotating for cooling which is installed in the high voltage power supply module.	If foreign matter is clogged with the fan motor, remove the foreign matter.	
	Error code "E7" is displayed. (High voltage power supply module inconsistent)	High voltage power supply module which cannot be connected to the controller.	Check the model number of the controller and high voltage power supply module.	Select applicable controller and high voltage power supply module referring to the operation manual.	
	Error code "E8" is displayed. (Duplication of CH)	CH setting is duplicated when multiple high voltage power supply modules are connected to the controller.	When multiple high voltage power supply modules are connected to the controller, make sure that the CH number set in the controller is not duplicated.	Make sure that the set numbers of the CH number set in each of the high voltage power supply module are not duplicated.	
No output signal	Error code "E9" is displayed. (High voltage power supply module not connected)	High voltage power supply module is not connected to the controller.	Check if the high voltage power supply module is connected to the controller.	Connect the high voltage power supply module to the controller.	
	When multiple high voltage power supply modules are connected, the number of them and the number of the controller display are not consistent.	High voltage power supply modules are not connected.	Check if the high voltage power supply modules are connected each other.	Connect the high voltage power supply modules each other.	
	Error code "E10" is displayed. (Error signal output over current)	Error signal output circuit wired incorrectly. (Abnormal signal over current generated)	Check the output specifications (NPN/PNP) and wiring of black wire.		
	Error code "E11" is displayed. (Maintenance signal output over current)	Incorrect wiring of the maintenance signal output circuit. (Maintenance signal over current generated)	Check the output specifications (NPN/PNP) and wiring of white wire.		
	No output signal.	Output circuit wired incorrectly.	Check the output specifications (NPN/PNP) and wiring of black and white wires.	Ensure all connections are in accordance with the operation manual.	
	Unable to turn ON/OFF ion discharge stop signal.	Input circuit wired incorrectly.	Check the input specifications (NPN/PNP) and wiring of pink, gray, yellow and purple wires.		
	Unable to input a signal	IONHV LED is OFF.	Ion generation stop signal is input.	Check whether the ion generation stop signal (pink line, gray line, yellow line, purple line) are being input.	When performing neutralization, do not input the ion generation stop signal.
		Ion balance (offset voltage) is unstable.	F.G. is not connected.	Check whether F.G. (green wire) is connected.	The ionizer neutralizes static electricity relative to ground, ensure the green wire always has a ground connection of less than 100Ω.
		Poor ion balance. (offset voltage)	Adjustment failure of the offset voltage.	Check the offset voltage by the measurement equipment such as the charged plate.	Adjust offset voltage referring to the operation manual. Adjustment mode of Offset Voltage.
		Reduction of ion generation	There are electrically conductive objects installed near the ionizer.	1) Make sure there are no electrically conductive objects around the ionizer and check the performance. 2) Turn off the built-in sensor function and the performance.	If conductive objects are installed in the vicinity of ionized air may be absorbed or the sensor may malfunction. Refer to the instruction manual and install the ionizer.
NDL LED is ON.		1) Dust or dirt on the emitter. 2) Wearing or breakage of the emitter.	Examine the emitter tip with a magnifier.	1) If dust or dirt is found on the emitter, clean the emitter referring to the operation manual. 2) If the emitters are worn out or damaged, replace the emitter cartridge.	
Reduction of ion generation		1) Dust or dirt on the emitter. 2) Wearing or breakage of the emitter.	Examine the emitter tip with a magnifier.	1) If dust or dirt is found on the emitter, clean the emitter referring to the operation manual. 2) If the emitters are worn out or damaged, replace the emitter cartridge.	
Ionized air is not reaching the workpiece to be neutralized.		1) Compressed airflow insufficient. 2) Interference with airflow.	1) Check that the supply pressure and flow rate are sufficient. 2) Check if an external airflow could interfere with the flow of ionized air from the ionizer.	1) If flow rate is insufficient, check the supply pressure or improve the supply circuit such as air piping. 2) If an external airflow is having an effect, consider shutting off the air flow or otherwise changing the installation so that ionized air is not interfered with.	
		Ionized air is blocked or absorbed by obstacles.	Check that there are no obstacles which could absorb ions on the path used for supplying ionized air to the workpiece to be neutralized.	Objects between the ionizer and workpiece to be neutralized will block off or absorb the ionized air. Ensure there are no objects between, or near to, the ionizer and workpiece to be neutralized.	
		Two or more ionizers are installed close to each other.	Check if ionized air from nearby ionizers is interfering with that of the main ionizer, by starting and stopping the nearby ionizers and seeing if the performance of the main ionizer is affected.	If ionizers are installed close together, they may interfere with each other, and cause a decrease in performance. Install referring to the operation manual.	

## 9. Maintenance



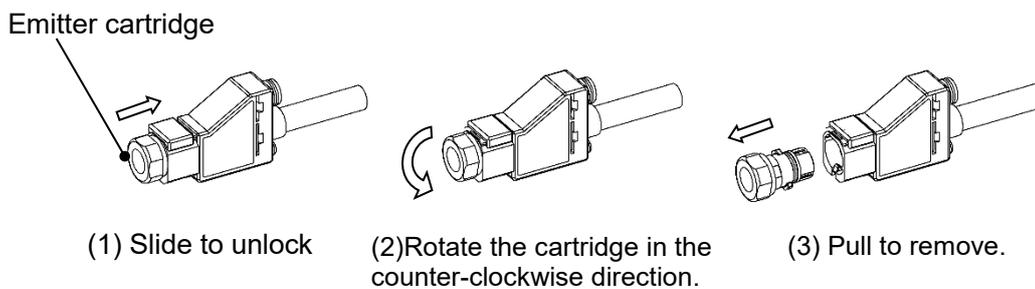
### Warning

- A high voltage generating circuit is mounted onto this product. Verify that the power supply is OFF when performing maintenance.
  - When compressed air is supplied to the product, shutoff the supply before performing any maintenance operation.
  - Never disassemble or modify the product, as this can cause loss of product functionality and a risk of electric shock and earth leakage.
  - Do not touch the end of the emitters. They have a sharp end and touching them directly with your fingers may cause injury.
  - Only people who have sufficient knowledge and experience are allowed to clean the emitters.
- If this product is used for an extended period of time, contamination such as dust will stick to the emitters, reducing the static neutralization performance.
  - The maintenance detection function is available for the IZT43. When the emitter contamination is detected, clean the emitter.
  - In cases where the maintenance detection function is not used on the IZT43 is used, perform neutralizing performance test and set a maintenance cycle for periodic cleaning.
  - Emitter contamination level is different depending on the installation environment and supply pressure.
  - If the maintenance signal is output upon completion of cleaning the emitter, it may not have been cleaned sufficiently or it may be worn or damaged. If the emitters are worn out or damaged, replace the emitter cartridge.
  - If the emitter is worn out or damaged, the static electricity elimination performance will decrease.

#### Cleaning procedure of emitter

- It is highly recommended that the emitter cleaning kit (IZT43-M2) is used to clean the emitter needles.
- a. Before cleaning the emitters, shutoff the power and air supply.
  - b. The emitters may be cleaned with the emitter cartridges mounted to the body or with the cartridges removed from the body.

Refer to "Removal procedure of emitter cartridge" shown below for instructions on how to remove the cartridges.



#### Removal procedure of the emitter cartridge

- c. The emitter cleaning kit (IZT43-M2) has felt at one end of the tool and rubber-bounded whetstone at the other end of the tool.



Emitter cleaning kit  
(IZT43-M2)

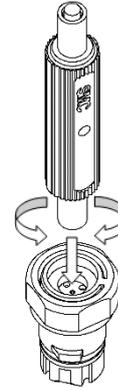


Felt

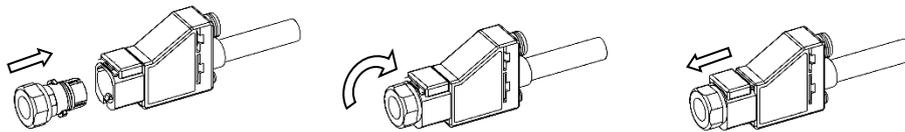


Rubber-bounded whetstone

- Saturate the felt end of the emitter cleaning tool with alcohol and insert it into the back of the emitter cartridge. Turn the tool for several rotations to thoroughly remove dirt.
- If it is not possible to thoroughly remove the dirt using the felt end of the cleaning tool, the rubber-bonded whetstone should be used in the same procedure as described for that of the felt end.
- If you do not have a cleaning kit, an alcohol saturated cotton ball can be used for cleaning the electrodes. Use caution to prevent damage to the electrode needles.
- The alcohol used should be reagent ethanol class 1 99.5vol% or more.



d. When the emitter cartridges are removed for cleaning, remount them to the body according to the "Mounting procedure of emitter cartridge" shown below. Make sure that the cartridges are securely mounted. If not, the cartridges may become dislodged when compressed air is supplied to the ionizer.



- (1) Insert the cartridge.      (2) Rotate the emitter cartridge for in the clockwise direction.      (3) Slide to lock.

Mounting procedure of the emitter cartridge

e. Confirm that the static neutralization performance is maintained after cleaning and remounting of the cartridges are completed.

**Replacement of the felt or rubber-bonded whetstone tips of the emitter cleaning kit**

· The felt or rubber-bonded whetstone tips of the emitter cleaning kit should be replaced referring to the procedure below when it becomes dirty, as it will not sufficiently clean the emitter.

- Remove the felt or the rubber-bonded whetstone tip at the end of the emitter cleaning kit.
- Insert a new felt or rubber-bonded whetstone tip into the emitter cleaning kit using the reverse procedure as the removal. The felt is rectangular, and the inserting orientation is specified. The end of the rubber-bonded whetstone tip will stick out of the emitter cleaning kit end for 1mm. Do not push it in too much.



Cleaning kit with felt



Cleaning kit with rubber-bonded whetstone

Part number for spare felt/ rubber-bonded whetstone tips

Description	Part No.	Qty.
Replacement felt pad	IZT43-A003	10
Replacement rubber-bonded whetstone	IZT43-A004	1

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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