

Ionizer Nozzle type

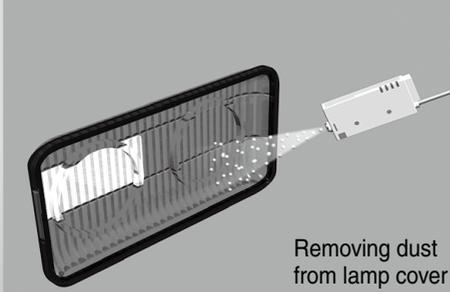
I_{ZN}10 Series



RoHS

Dust removal and static neutralization by air blow

- Eliminates dust clinging to lamp cover.



Removing dust from lamp cover

Spot type static neutralization

- Prevents electrostatic breakdown of electric parts. • Prevents detachment failure.



Neutralizing static electricity from IC chip

I_{ZS}

I_{ZN}

I_{ZF}

Z_{VB}

I_{ZD}

I_{ZE}

I_{ZH}

Offset voltage ± 10 v (In case of energy saving static neutralization nozzle)

Slim design: Thickness dimension **16 mm**

RoHS compliant

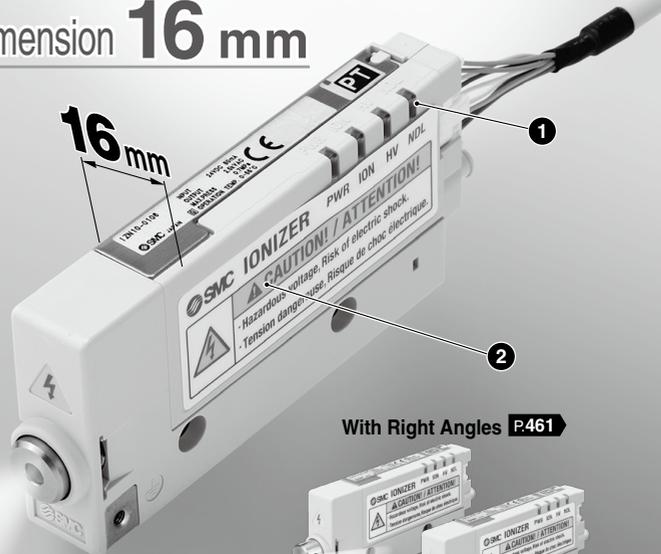
① Maintenance detector

Always outputs LED display and signal when contamination or wear of the emitter is detected.

Detects optimal maintenance time, reduced labor for maintenance.

② Built-in high-voltage power supply

Installation of external high-voltage power supply and high-voltage power supply cable are unnecessary.



With Right Angles **P461**



Energy saving static neutralization nozzle

High flow rate nozzle

Nozzle type can be selected according to applications.

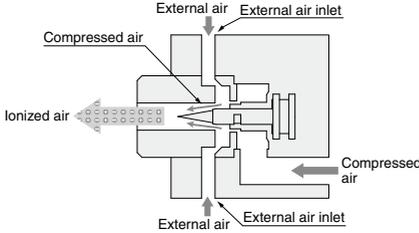
Energy saving static neutralization nozzle

**Short range static neutralization,
Design focuses on offset voltage.**

Offset voltage: $\pm 10\text{ V}$

Increases flow volume by external air intake

Static neutralization is possible with minimal air consumption.



**In the case of the same air consumption,
the discharge time is reduced to half.**

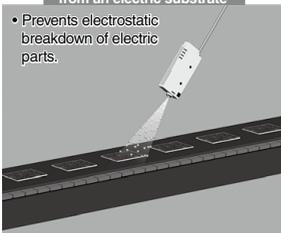
(Supply pressure 0.3 MPa)

External air inlet	None	Yes
Air consumption flow rate L/min (ANR)	10	10
Discharge time* sec	5	2.5
Ionized air flow velocity* m/s	0.4	2.5

* At 300 mm distance

Reduced by **50%**
Improved **6 times**

Neutralizing static electricity from an electric substrate



- Prevents electrostatic breakdown of electric parts.

Neutralizing static electricity from lens



- Removes dust from lens.
- Prevents adhesion of dust.

Neutralizing static electricity from packing films



- Prevents static electricity charging when opening bags.
- Prevents static electricity cling on the inside of candy bags.

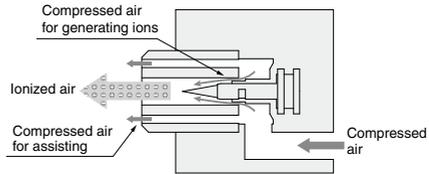
High flow static neutralization nozzle

Long range static neutralization and dust removal

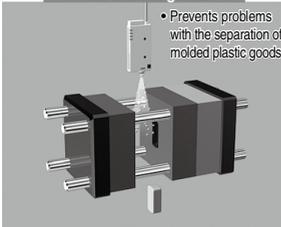
**Ionized air assisted
by the compressed air**

- Improved dust removal performance by the energy of compressed air.
- Suitable for static neutralization at a long distance (max. 500 mm).

Offset voltage: $\pm 15\text{ V}$



Neutralizing static electricity from molded goods



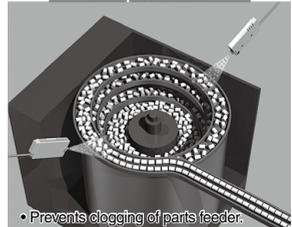
- Prevents problems with the separation of molded plastic goods.

Neutralizing static electricity from plastic cups



- Removes dust clinging to cup interiors.

Neutralizing static electricity from parts feeder

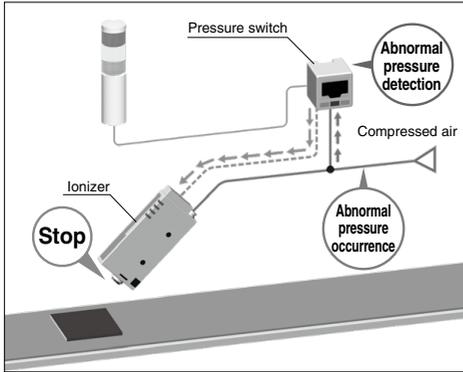


- Prevents clogging of parts feeder.

External switch input function (2 inputs)

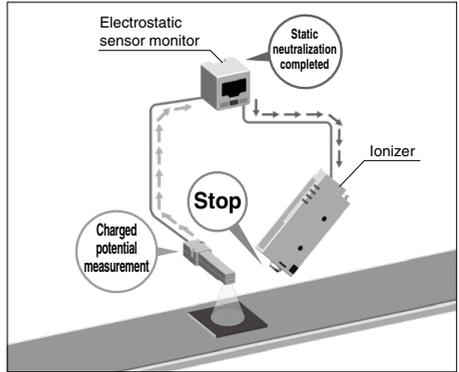
Prevents static neutralization trouble due to pressure drop of compressed air.

Emission of static electricity is suspended when abnormal purge air pressure is detected by pressure switch.



Energy saving with electrostatic sensor

Emission of static electricity is suspended when an electrostatic sensor detects that static neutralization is completed.



IZS

IZN

IZF

ZVB

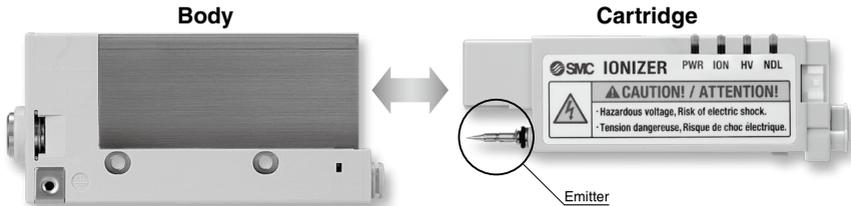
IZD

IZE

IZH

Easy maintenance

Possible to conduct maintenance on the emitter without removal of body. No need to readjust the nozzle angle when the ionizer is restarted.



- Possible to conduct maintenance without removal of body.

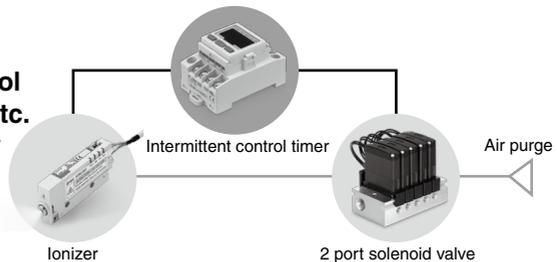
- Tools unnecessary for the installation or removal of the cartridge!

Intermittent control timer Made to Order

IZE110-X238

A digital timer that can control ON/OFF switches of valves etc.

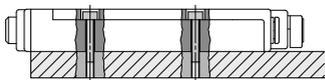
Improved dust removal effect under low air consumption by intermittent ion blowing



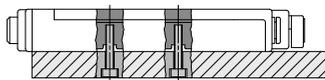
Mounting variations

Direct mount

▶ Top through-hole mounting

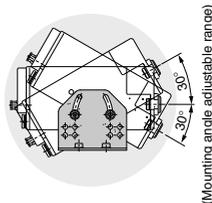
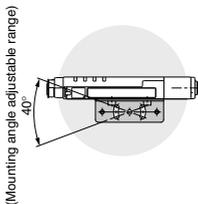


▶ Bottom tapped mounting

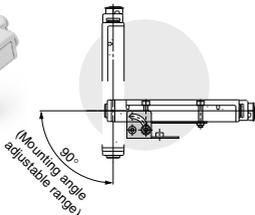


Bracket mount

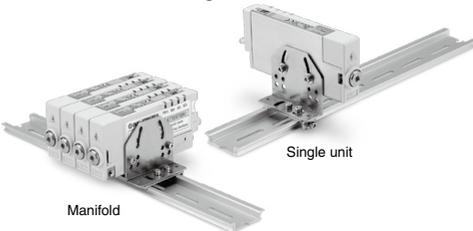
▶ L-bracket



▶ Pivoting bracket



▶ DIN rail mounting bracket



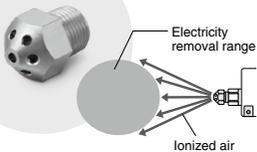
* The L-bracket and the DIN rail mounting bracket can be used with the manifold.

Nozzle variations

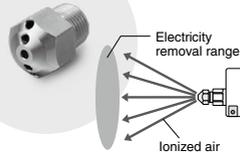
Made to Order

For the ionizer, please select a female thread type (RC1/8) for the piping.

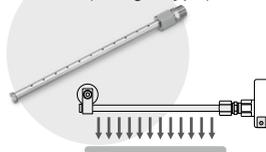
Circular diffusion nozzle



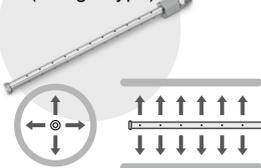
Flat diffusion nozzle



Bar nozzle (straight type)



Circumferential jet bar nozzle (straight type)



Bender tube nozzle



Long nozzle



○ Nozzle Variations Made to Order

Ionizer/Nozzle Type With Right Angles P.461

● Slim design



IZS
IZN
IZF
ZVB
IZD
IZE
IZH

● 2 types of nozzles

* Installation distance: 100 mm

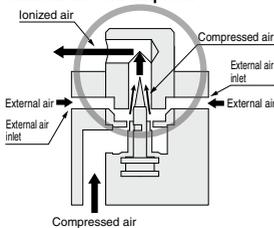
Energy saving static neutralization nozzle with right angles

Short range static neutralization, Design focuses on offset voltage.

Offset voltage: Within $\pm 10\text{ V}^*$

Increases air blow flow rate by external air intake

Static neutralization is possible with minimal air consumption.



High flow rate nozzle with right angles

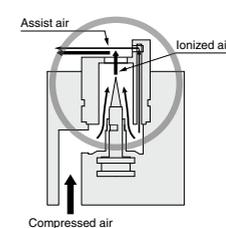
Long range static neutralization and dust removal

Ionized air assisted by the compressed air

• Improved dust removal performance by the energy of compressed air.

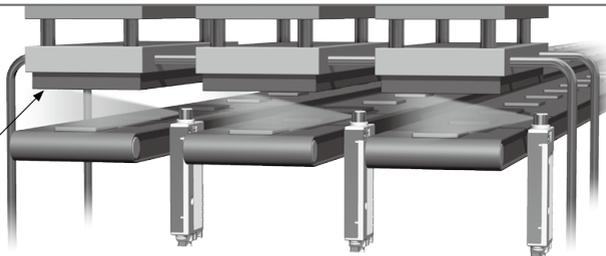
• Suitable for static neutralization at a long distance (max. 500 mm).

Offset voltage: Within $\pm 30\text{ V}^*$



Static neutralization from narrow conveyor space

Obstacle at upper portion of equipment



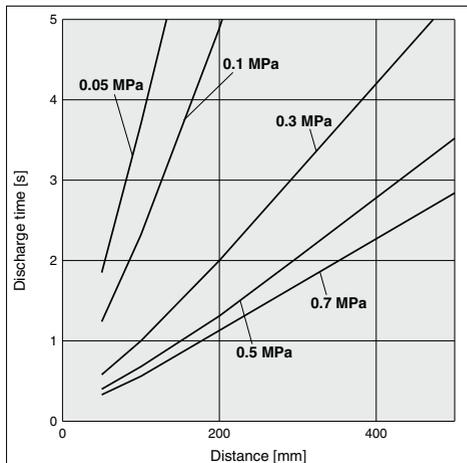
I_ZN10 Series

Technical Data

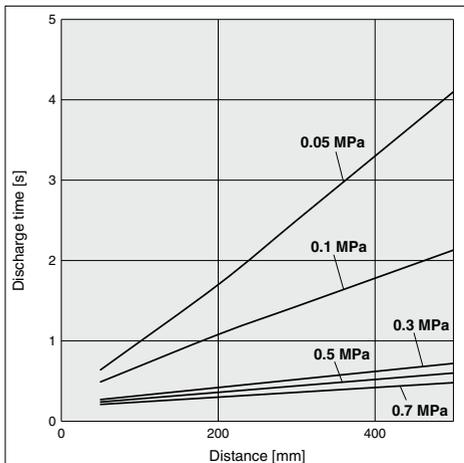
Note) Static neutralization features are based on the data using the charged plate (size: 150 mm x 150 mm, capacitance: 20 pF) as defined in the U.S. ANSI standards (ANSI/ESD, STM3, 1-2006). Use this as a guideline purpose only for model selection because the value varies depending on the material and/or size of a subject.

Static Neutralization Characteristics (Discharge Time from 1000 V to 100 V)

(1) Energy saving static neutralization nozzle/I_ZN10-01



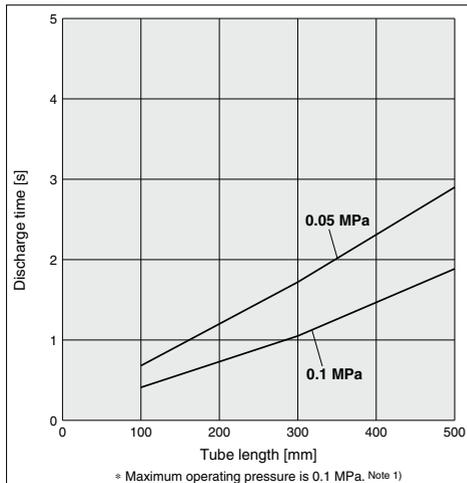
(2) High flow rate nozzle/I_ZN10-02



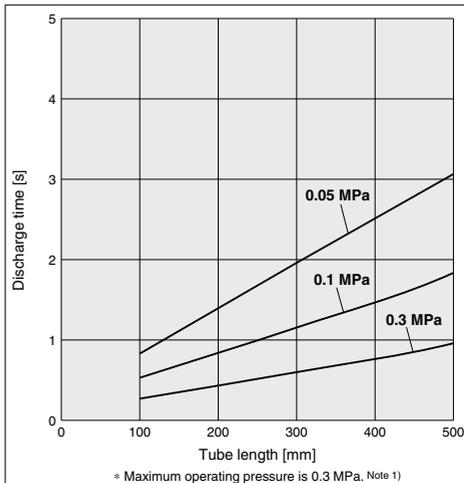
(3) Female threads for piping/I_ZN10-11 With Stainless steel 316 One-touch fitting + Anti-static tubing

* Discharge time at a distance of 50 mm from the end of tube.

Tube I.D.: 4 mm



Tube I.D.: 5 mm

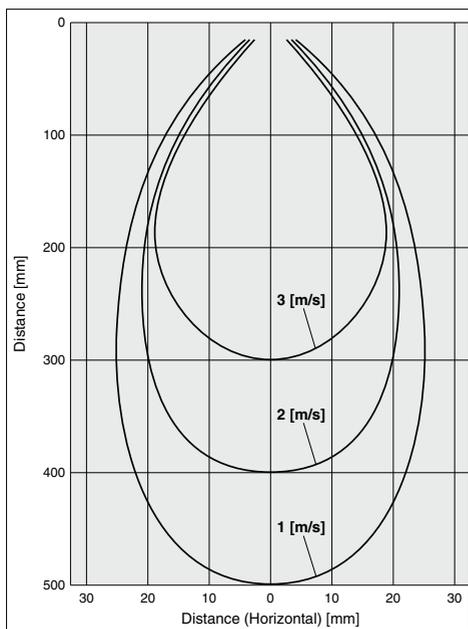
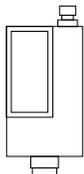


Note 1) Refer to "Cautions when using the I_ZN10-11□□□□ (female threads for piping)" on page 448.

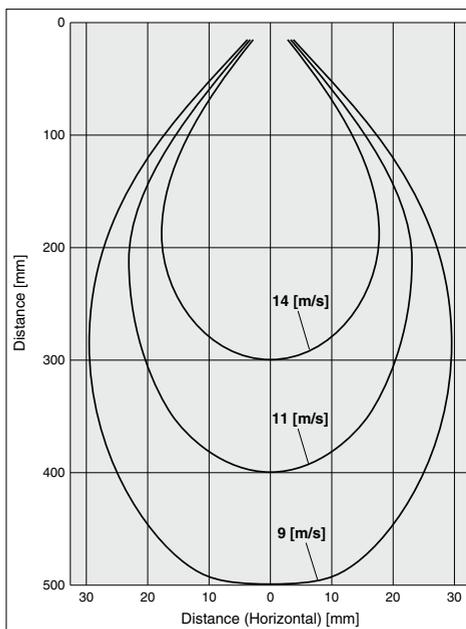
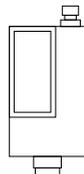
Note 2) The ionizer generates a small amount of ozone. Select ozone-resistant fittings for the female threads for piping. Also, regularly check there is no deterioration due to ozone.

Blow Velocity Distribution (Supply Pressure: 0.3 MPa)

(1) Energy saving static neutralization nozzle/IZN10-01



(2) High flow rate nozzle/IZN10-02



IZS

IZN

IZF

ZVB

IZD

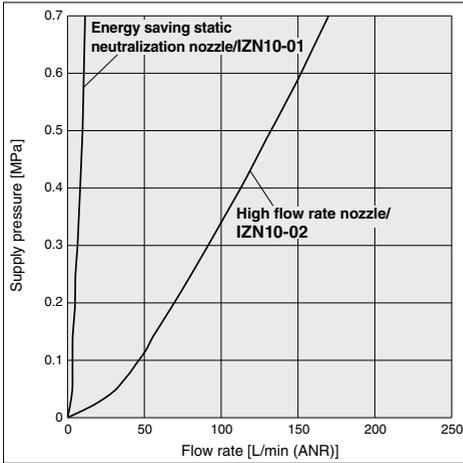
IZE

IZH

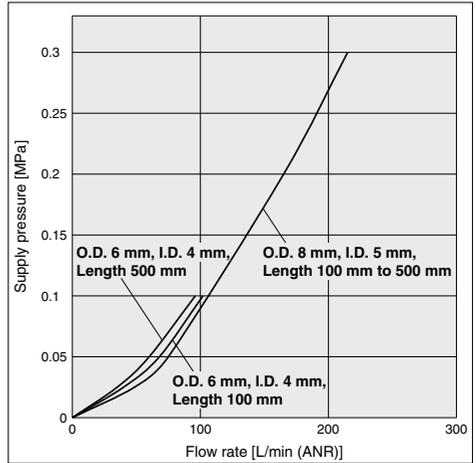
IZN10 Series

Flow Rate Characteristics

- (1) Energy saving static neutralization nozzle/IZN10-01
- (2) High flow rate nozzle/IZN10-02



- (3) Female threads for piping/IZN10-11
With Stainless steel 316 One-touch fitting
+ Anti-static tubing



Note) When a pressure above each line is used, the maintenance detector may work and turn on the LED. Refer to "Cautions when using the IZN10-11□□□□ (female threads for piping)" on page 448.

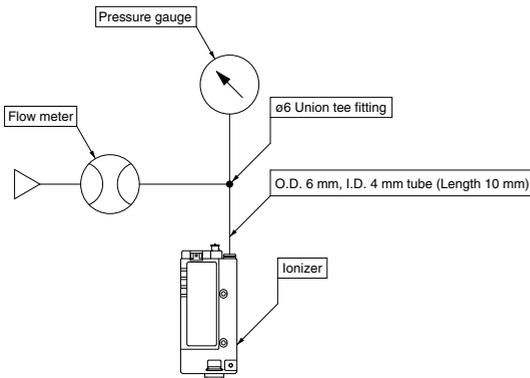
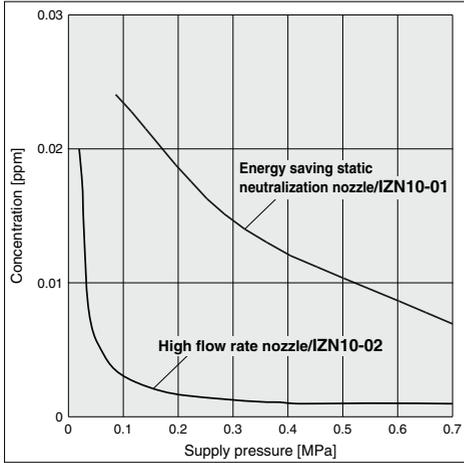


Fig. 1: Flow rate characteristics measuring circuit

Ozone Concentration

- (1) Energy saving static neutralization nozzle/IZN10-01
- (2) High flow rate nozzle/IZN10-02



Note) Ozone condensation can increase in an enclosed space.
Check the ozone condensation of the operating environment before using.

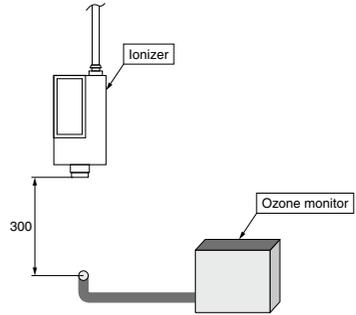


Fig. 2: Ozone condensation measuring circuit

IZS
IZN
IZF
ZVB
IZD
IZE
IZH

Ionizer IZN10 Series



How to Order



IZN10-01 P 06 □ □ □ □

High frequency AC nozzle type • Nozzle type •

Symbol	Type
01	Energy saving static neutralization nozzle
02	High flow rate nozzle
11	Female threads for piping ^{Note)}

Note) Nozzle shape: When using the female thread for the piping, connect the fitting and the tube or nozzle to the female thread.

Output specification •

NII	NPN output
P	PNP output

Port size •

06	ø6: Metric size
07	ø6.35 (1/4"): Inch size
16	ø6: Metric size (Elbow)
17	ø6.35 (1/4"): Inch size (Elbow)

• Made to Order

X194 Without maintenance detector

* Refer to page 449.

• Bracket

NII	Without bracket
B1	With L-bracket
B2	With pivoting bracket
B3	With DIN rail mounting bracket

* Refer to page 450.

• Power supply cable

NII	With power supply cable (3 m)
Z	With power supply cable (10 m)
N	Without power supply cable

⊙ Cautions when using the IZN10-11□□□□ (female threads for piping)

- Connect the various Made-to-Order nozzles or fittings & tubing to the female threads.
- When connecting, pay attention to the supply pressure and the activation of the maintenance detector.
- In the ionizer which uses the high-frequency AC voltage application method, when the pressure around the emitter (Refer to the figure.) in the ionizer which generates ions is increased during the generation of ions, the ion generation efficiency deteriorates and activates the maintenance detector (outputs signal and turns ON maintenance detection LED).
- If a nozzle with a discharge port diameter of less than 4 mm, or a tube with less than a 4 mm inner diameter is connected to the nozzle with female threads for the piping to supply pressure exceeding 0.1 MPa, the ionized air cannot be discharged efficiently, and the pressure around the emitter increases which deteriorates the efficiency of the ion generation.
- The following shows a guide of the upper limit of the supply pressure when various Made-to-Order nozzles and tubes are connected. It is recommend that the ionizer be used within the specified values.

Made-to-Order nozzle product names/Piping examples	Made-to-Order nozzle part no.	Supply pressure specifications
Circular diffusion nozzle	IZN10-G-X198	0.05 to 0.1 MPa
Flat diffusion nozzle	IZN10-G-X199	0.05 to 0.1 MPa
Bar nozzle (straight type)	IZN10-G-□-X216	0.05 to 0.1 MPa
Circumferential jet bar nozzle (straight type)	IZN10-G-X278	0.05 to 0.15 MPa
Bender tube nozzle	IZN10-G-□-X205	0.05 to 0.15 MPa
Long nozzle	IZN10-G-□-X226	0.05 to 0.15 MPa
Fitting (Applicable tube O.D. 6 mm) + Tube (O.D. 6 mm, I.D. 4 mm) ^{Note 1)}	—	0.05 to 0.1 MPa
Fitting (Applicable tube O.D. 8 mm) + Tube (O.D. 8 mm, I.D. 5 mm) ^{Note 1)}	—	0.05 to 0.3 MPa

Note 1) When connecting the tubing, use a length of tubing less than 500 mm for the connection, regardless of the inside diameter size.

- Ion continues to generate even in the range beyond the above supply pressure specification where the maintenance detector activates, therefore the customer may be able to use the ionizer depending on the usage conditions. If the maintenance detector is not required, consider using the "Without maintenance detector". (Refer to "Made to Order" on page 449.)
- When using piping materials prepared by the customer, secure a sectional area of a 4 mm inside diameter (approx. 13 mm³ or more) for the air passage of the piping, and if using tubing, ensure a minimum bending radius.
- Similarly, if the maintenance alarm detection function is not required depending on the usage conditions of the customer, please consider the use of the "Without maintenance detector".
- Also confirm the static neutralization performance, when connecting the tubing and using piping materials prepared by the customer.

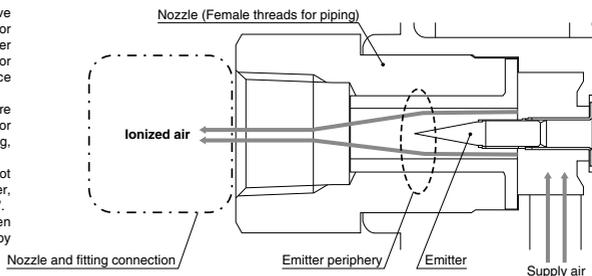
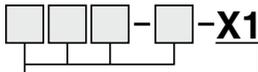


Fig. Sectional view of the nozzle

Made to Order

■ Without maintenance detector

How to Order	Contents/Specifications
<p>IZN10-11  -X194</p> <p>● Fill in the standard model type shown above.</p> <p>Without maintenance alarm function ●</p>	<p>With this specification, the maintenance detector is not activated when the pressure around the emitter increases due to the connection of the tubing, etc. This specification is recommended when the tube needs to be extended.</p>

■ Nozzle Variations (P.459)

Various nozzles are available according to the installation conditions or applications.

- Circular diffusion nozzle
- Flat diffusion nozzle
- Bar nozzle (straight type)
- Bender tube nozzle
- Circumferential jet bar nozzle (straight type)
- Long nozzle

■ Intermittent control timer (P.460)

It is possible to perform the intermittent ion blow through the ON/OFF control of the valve, etc.

IZS

IZN

IZF

ZVB

IZD

IZE

IZH

IZN10 Series

Accessories

Bracket

• L-bracket/IZN10-B1



Fixed mounting

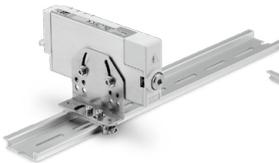


Pivot mounting

• Pivoting bracket/IZN10-B2



• DIN rail mounting bracket/IZN10-B3



Single unit



Manifold*

* The L-bracket and the DIN rail mounting bracket can be used with the manifold.

Power supply cable

[Standard length]

- IZN10-CP (3 m)
- IZN10-CPZ (10 m)

[Non-standard length]

- IZN10-CP **01**-X13

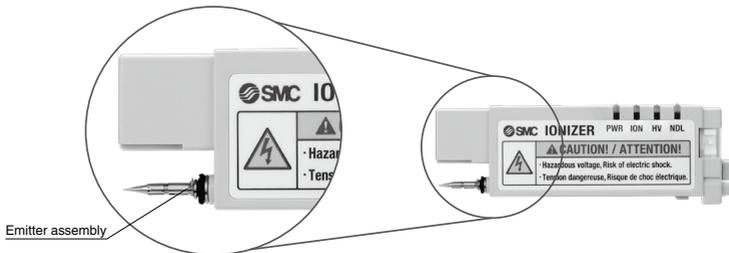
Cable length

01	1 m
02	2 m
⋮	⋮
20	20 m



Repair Parts

Emitter assembly/IZN10-NT



Emitter assembly

Body assembly: IZN10-A002-**01****06**

Nozzle type

Symbol	Type
01	Energy saving static neutralization nozzle
02	High flow rate nozzle
11	Female threads for piping Rc1/8

Port size

06	ø6: Metric size
07	ø6.35 (1/4"): Inch size
16	ø6: Metric size (Elbow)
17	ø6.35 (1/4"): Inch size (Elbow)



Cartridge assembly: IZN10-A003-□

Output Type

Nil	NPN output
P	PNP output



Options

Manifold mounting parts set

This set consists of a hexagon socket head cap screw, spacer, hexagon nut and shield sheet.

Note 1) The ionizer, L-bracket and DIN rail mounting bracket need to be prepared separately.

Note 2) Be sure to attach the provided shield sheet, as there is a possibility of malfunctions of the output (signal and LED) due to high-voltage generation substrate noise of adjacent ionizers.

How to Order

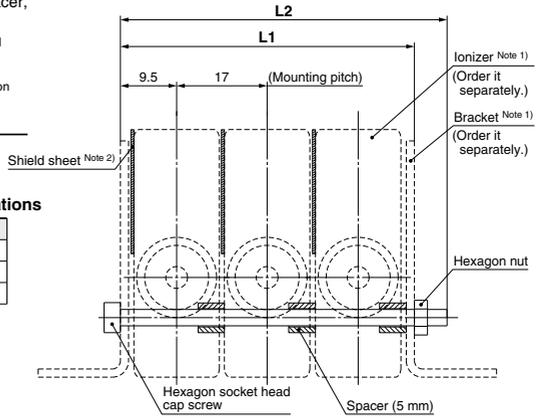
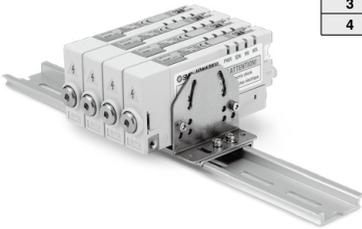
IZN10-ES

Mounting pitch

Symbol	Pitch
ES	17 mm

Mounting stations

Symbol	Stations
2	2
3	3
4	4



IZS

IZN

IZF

ZVB

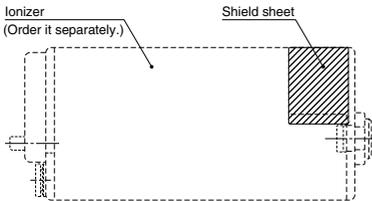
IZD

IZE

IZH

Shield sheet/IZN10-A004

This is an individual shield sheet for the manifold mounting parts set/IZN10-ES□.



Part no.	L1	L2	Number of spacers
IZN10-ES2	37	40	4
IZN10-ES3	54	60	6
IZN10-ES4	71	75	8

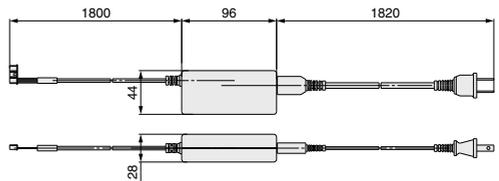
AC adapter

How to Order

IZN10-F **-X196**

Output signal specifications

NII	For NPN output
P	For PNP output



Cleaning kit/IZS30-M2



IZN10 Series

Specifications

Ionizer model		IZN10-□□ (NPN specification)	IZN10-□□P (PNP specification)
Ion generation method		Corona discharge type	
Method of applying voltage		High frequency AC type	
Discharge output <small>Note 1)</small>		2.5 kVAC	
Offset voltage <small>Note 2)</small>	Energy saving static neutralization nozzle	Within ±10 V	
	High flow rate nozzle	Within ±15 V	
Ozone generation <small>Note 3)</small>		0.03 ppm (0.05 ppm for energy saving static neutralization nozzle)	
Air purge	Fluid	Air (Clean dry air)	
	Operating pressure <small>Note 4)</small> <small>Note 5)</small>	0.05 MPa to 0.7 MPa	
	Connecting tube size	ø6, ø1/4 inch	
Power supply voltage		24 VDC ±10%	
Current consumption		80 mA or less	
Input signal	Discharge stop signal	Connected to 0 V (ON voltage: 0.1 V or less, OFF voltage: 19 V or more) Current consumption: 5 mA or less	Connected to +24 VDC (ON voltage: Between +19 V and power supply voltage, OFF voltage: 0.6 V or less) Current consumption: 5 mA or less
	Reset signal		
	External switch signal		
Output signal	Discharge signal	Max. load current: 40 mA Residual voltage: 1 V or less (load current at 40 mA) Max. applied voltage: 28 VDC	Max. load current: 40 mA Residual voltage: 1 V or less (load current at 40 mA)
	Error signal		
	Maintenance detection signal		
Effective static neutralization distance		20 mm to 500 mm	
Ambient and fluid temperature		0 to 55°C	
Ambient humidity		35 to 65%Rh	
Material		Housing: ABS, Stainless steel Nozzle: Stainless steel Emitter: Tungsten	
Vibration resistance		Durability: 50 Hz, Amplitude: 1 mm, XYZ each 2 hours	
Impact resistance		10 G	
Weight		120 g	
Standards/Directive		CE (EMC Directive: 2004/108/EC)	

Note 1) Measured with a probe of 1000 MΩ and 5 pF.

Note 2) Measured with a distance of 100 mm between the charged object and ionizer at an air purge pressure of 0.3 MPa.

For the discharge time, refer to technical data on page 444.

Note 3) Value above background level, measured with a distance of 300 mm from the front of the nozzle at an air purge pressure of 0.3 MPa.

Note 4) Static electricity cannot be neutralized without air purge.

Also, failure of air purge can increase internal ozone condensation, adversely affecting the ionizer and peripheral equipment. Be sure to perform air purge while energizing the ionizer.

When the air purge is stopped temporarily during operation of the ionizer, the discharge is stopped with the discharge stop signal input turned OFF to avoid increase in internal ion concentration.

Note 5) Refer to the cautions on page 448 when using the IZN10-11 (female threads for piping).

Functions

1. Maintenance detection output

Detects lowered static neutralization performance due to contamination or wear of the emitter. The maintenance detection LED lights up and maintenance signal is generated.

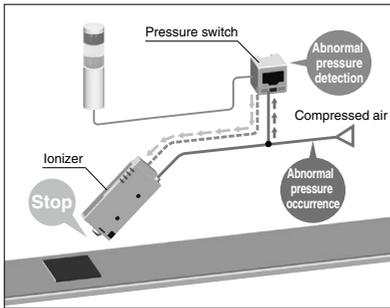
2. Signal inputs by external switch

There are 2 ports for external switch signal inputs.

Example

Emission of static electricity is suspended when abnormal purge air pressure is detected by pressure switch.

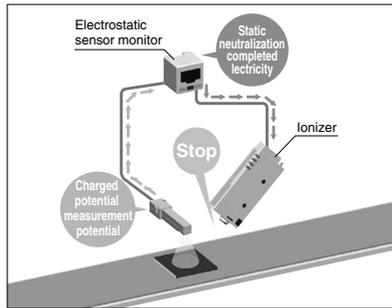
- Prevents static neutralization trouble due to pressure drop of compressed air.



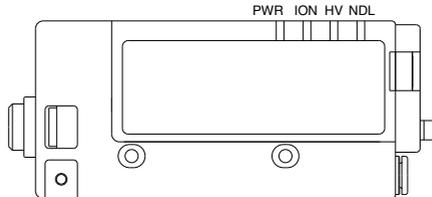
Example

An electrostatic meter is connected to stop discharge when static neutralization is completed.

- Energy can be saved by stopping discharge when static neutralization is completed.



3. Description of LEDs



Description	Symbol	Color	Contents
Power supply display	PWR	Green	Lights up when the power supply is turned on.
Discharge	ION	Green	Lights up when static electricity is discharged.
Irregular high voltage display	HV	Red	Lights up when an irregular current flows on an emitter.
Maintenance detection display	NDL	Orange	Lights up when emitter contamination is detected.

Behavior of LEDs

Items	PWR	ION	HV	NDL	Note
Normal operation (with discharge stop signal on)	○	○			Ions are being generated.
Normal operation (with discharge stop signal off)	○				Discharge stops.
Abnormal high voltage detected	○		○		Discharge stops when error is detected.
External switch signal 1	○				Discharge stops when the signal is turned on.
External switch signal 2	○				
Maintenance detection activated	○	○		○	Ions keep being generated even after the contamination is detected.

4. Alarm

Alarm item	Description	Corrective actions
High voltage error	Gives notification of the occurrence of an irregular current, such as high-voltage leakage. The ionizer stops discharging, turns on the HV LED. When error occurred, the signal output is turned off.	Turn off the power, solve the problem, then turn the power on again. If the error is solved during operation, turn the reset signal off and then on.
Maintenance detection	Gives notification that emitter maintenance is necessary. The NDL LED turns on and a maintenance output signal is turned on.	Turn off the power, clean the emitters, and turn the power on again.

IZN10 Series

Wiring

No.	Cable color	Description	I/O	Wiring requirement ^(Note)	I/O	Specifications
1	Brown	+24 VDC	–	○	–	–
2	Blue	0 V	–	○	–	–
3	Orange	Discharge stop signal	Input	○	Input	When the signal is turned off, discharge stops.
4	Pink	Reset signal	Input		Input	When the signal is turned on and then off, the error signal is reset. When the signal is turned off, normal operation continues.
5	White	Discharge signal	Output		Output	The signal stays on during discharge
6	Purple	Error signal	Output		Output	The signal is turned off when an error occurs
7	Yellow	Maintenance detection signal	Output		Output	The signal is turned on when maintenance is due.
8	Gray	External switch signal 1	Input		Input	When the signal is turned on, discharge stops.
9	Light blue	External switch signal 2	Input		Input	When the signal is turned on, discharge stops.

Note) **Wiring requirement**

○: Minimum wiring requirement for ionizer operation.

• Input signal

NPN: The signal is turned on when the power supply 0 V is connected, and turned off when disconnected.

PNP: The signal is turned on when the power supply +24 VDC is connected, and turned off when disconnected.

• Output signal

NPN: The signal is turned on when the output transistor is energized (by the power supply GND inside the ionizer), and turned off when de-energized.

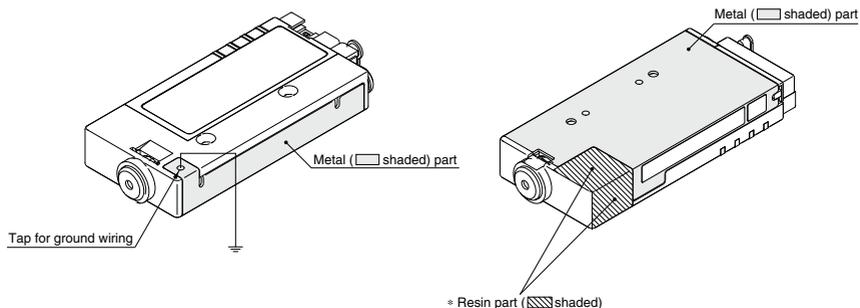
PNP: The signal is turned on when the output transistor is energized (by the 24 V power supply inside the ionizer), and turned off when de-energized.

Provide Grounding.

1. Ground the tap for ground wiring or metal (□shaded) parts around the external face of the ionizer with a ground resistance of 100 Ω or less.

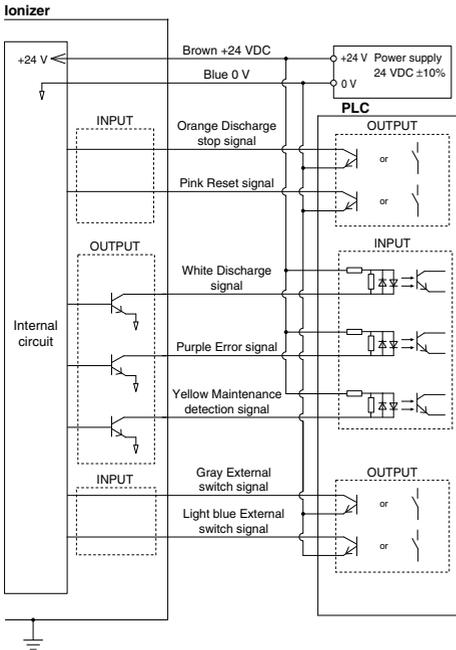
If grounding is not provided or is incomplete, the ionizer will not be able to achieve its specified static neutralization performance. Also, as the generated amount of ions decreases, the maintenance detector may be activated.

2. If the product is used under the conditions that the pressure around the emitter becomes 0.1 MPa or more depending on the piping conditions as stated on page 448, avoid to mount the grounded base or workpiece on the resin part (▨shaded) at locations marked with an asterisk in the Fig. below. If the grounded base or workpiece is mounted on the resin part (▨shaded) under these operating conditions, the ozone concentration around the high-voltage generation substrate inside the ionizer chassis increases, causing the substrate to break. For details about the dimensions of the resin part (▨shaded), refer to the dimensions on page 456.



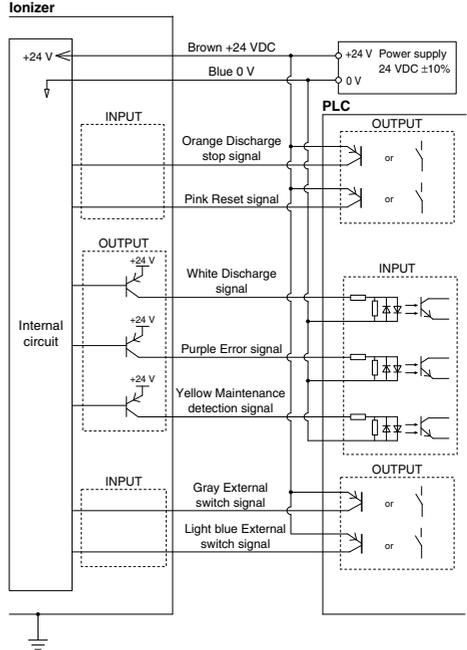
Power Supply Cable Connection Circuit

■ **NPN**



Ground the external metal parts with a ground resistance of 100 Ω or less. (no electrical connection to internal circuit)

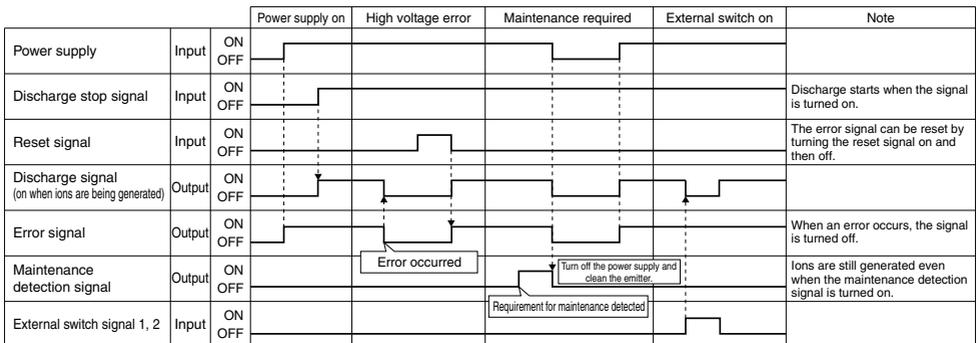
■ **PNP**



Ground the external metal parts with a ground resistance of 100 Ω or less. (no electrical connection to internal circuit)

- IZS
- IZN
- IZF
- ZVB
- IZD
- IZE
- IZH

Timing Chart

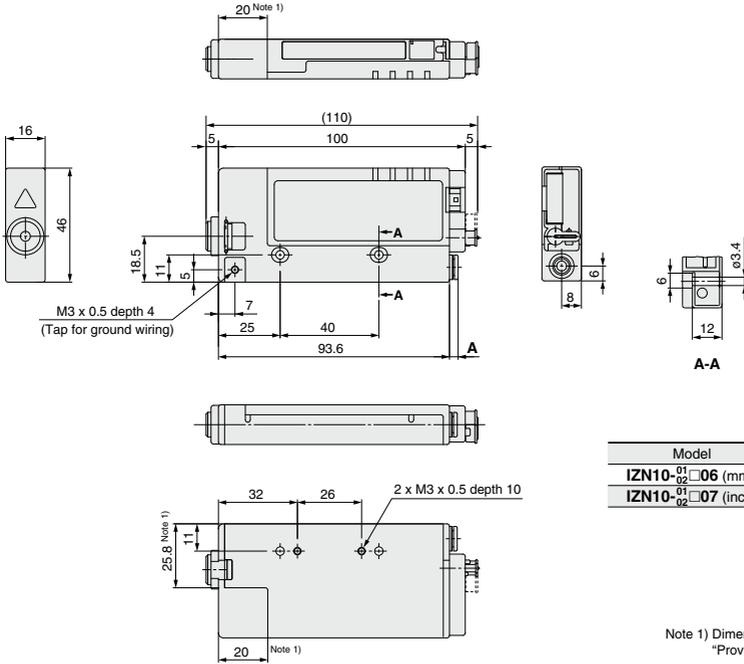


IZN10 Series

Dimensions

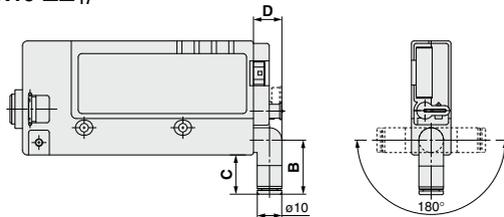
Energy saving static neutralization nozzle/IZN10-01 $\square \begin{smallmatrix} 06 \\ 07 \end{smallmatrix}$

High flow rate nozzle/IZN10-02 $\square \begin{smallmatrix} 06 \\ 07 \end{smallmatrix}$



Note 1) Dimensions of the resin part stated in "Provide Grounding" on page 454.

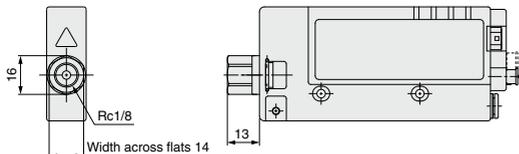
Elbow for piping port/IZN10- $\square \begin{smallmatrix} 16 \\ 17 \end{smallmatrix}$



(mm)

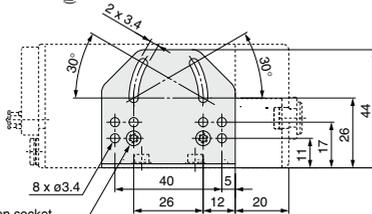
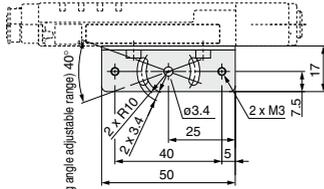
Model	B	C	D
IZN10- $\square \begin{smallmatrix} 16 \\ 17 \end{smallmatrix}$ (mm)	22	16	11.5
IZN10- $\square \begin{smallmatrix} 16 \\ 17 \end{smallmatrix}$ (inch)	24.5	18.5	12

Female threads for piping (Rc1/8)/IZN10-11 $\square \square$

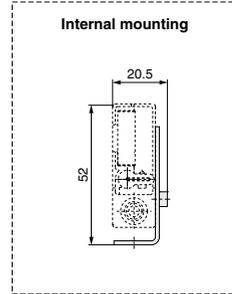
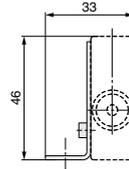


Dimensions

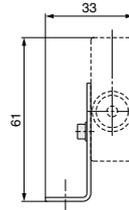
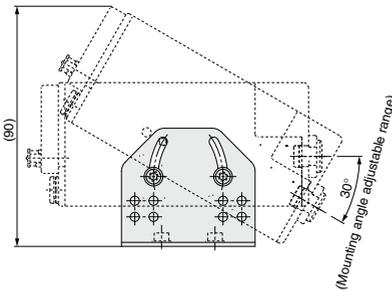
L-bracket/IZN10-B1



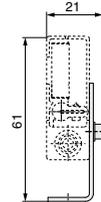
2 x Hexagon socket head cap screw M3 x 6 (Accessory)



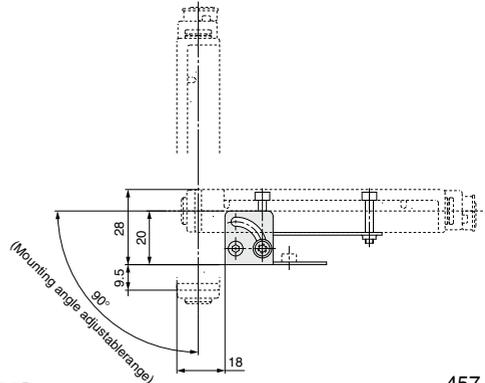
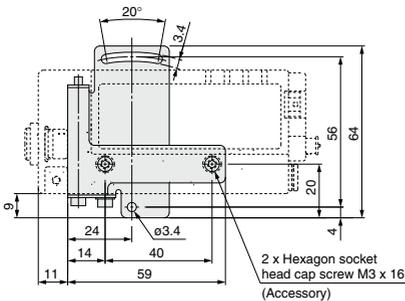
Pivot mounting



Internal mounting



Pivoting bracket/IZN10-B2

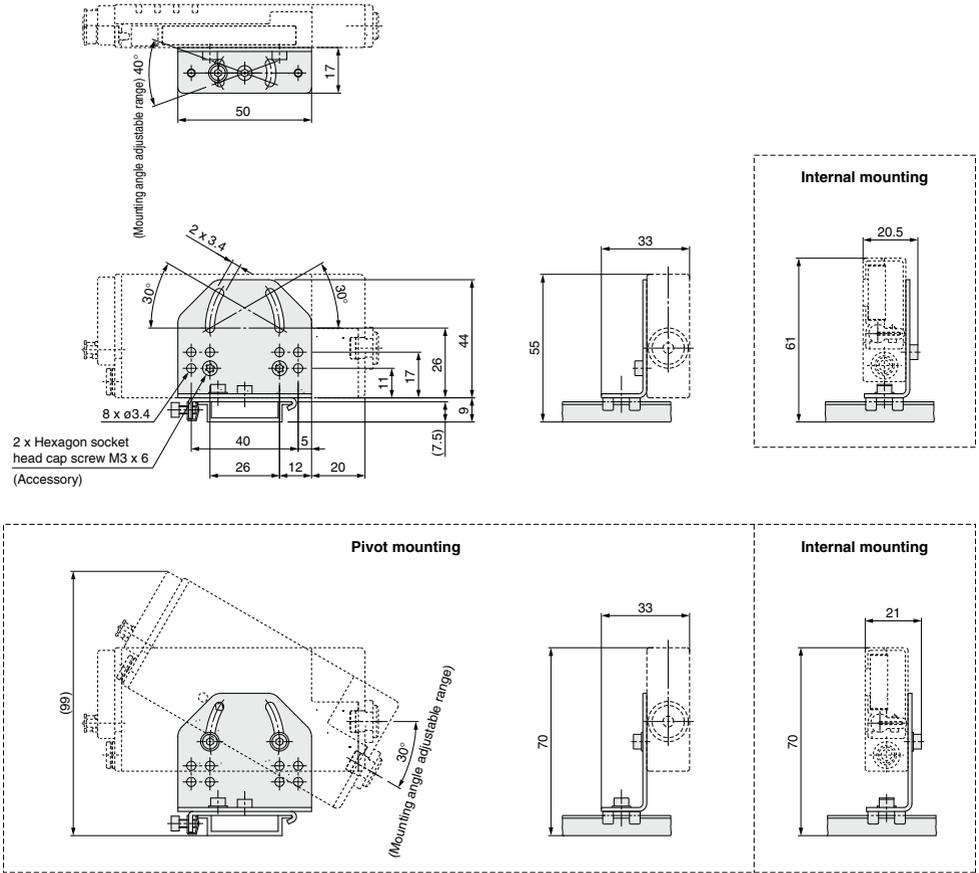


- IZS
- IZN**
- IZF
- ZVB
- IZD
- IZE
- IZH

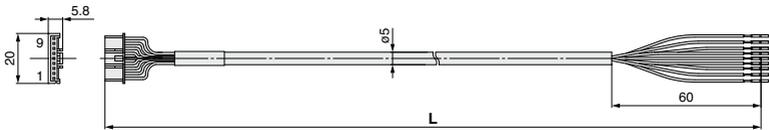
IZN10 Series

Dimensions

DIN rail mounting bracket/IZN10-B3



Power supply cable/IZN10-CP□



Model	L [mm]
IZN10-CP	3000
IZN10-CPZ	9800

Cable Specifications

No. of cable wire/Size	9 cores/AWG26		
Conductor	Nominal cross section	0.15 mm ²	
	Outside diameter	0.5 mm	
Insulator	Outside diameter	0.95 mm Brown, Blue, Orange, Pink, White, Purple, Yellow, Gray, Light blue	
	Material	Lead-free PVC	
Sheath	Material	Lead-free PVC	
	Outside diameter	5 mm	

IZN10 Series Made to Order 1

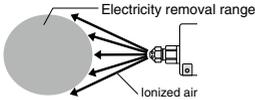
This product is an individually applicable product. For details about the delivery time and price, please consult with SMC representative.



Nozzle Variations

For details, refer to the product catalog available on SMC website.

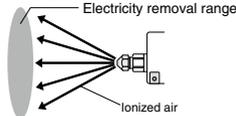
Circular diffusion nozzle



Part no.
IZN10-G-X198

Recommended supply pressure:
0.05 to 0.1 MPa

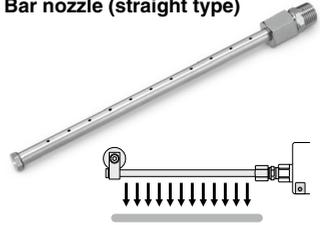
Flat diffusion nozzle



Part no.
IZN10-G-X199

Recommended supply pressure:
0.05 to 0.1 MPa

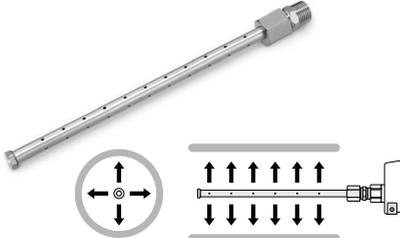
Bar nozzle (straight type)



Part no.	Bar length (mm)
IZN10-G-100-X216	100
IZN10-G-200-X216	200
IZN10-G-300-X216	300
IZN10-G-400-X216	400
IZN10-G-500-X216	500
IZN10-G-600-X216	600

Recommended supply pressure: 0.05 to 0.1 MPa

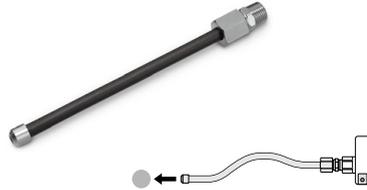
Circumferential jet bar nozzle (straight type)



Part no.	Bar length (mm)
IZN10-G-X278	150

Recommended supply pressure: 0.05 to 0.15 MPa

Bender tube nozzle



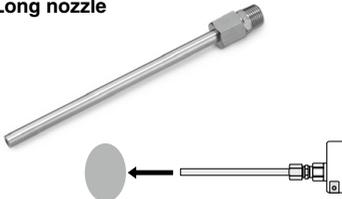
Part no.	Bar length (mm)
IZN10-G-100-X205	100
IZN10-G-200-X205	200
IZN10-G-300-X205	300
IZN10-G-400-X205	400
IZN10-G-500-X205	500
IZN10-G-600-X205	600

If the tubing is bent for use,
maintain a minimum bending radius of 20 mm.
Recommended supply pressure: 0.05 to 0.15 MPa

For the ionizer, please select a female thread type
(Rc1/8) for the piping.

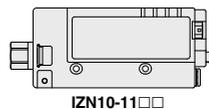
(Refer to "How to Order" on page 448.)

Long nozzle



Part no.	Bar length (mm)
IZN10-G-100-X226	100
IZN10-G-200-X226	200
IZN10-G-300-X226	300
IZN10-G-400-X226	400
IZN10-G-500-X226	500
IZN10-G-600-X226	600

Recommended supply pressure: 0.05 to 0.15 MPa



IZS

IZN

IZF

ZVB

IZD

IZE

IZH

IZN10 Series

Made to Order 2

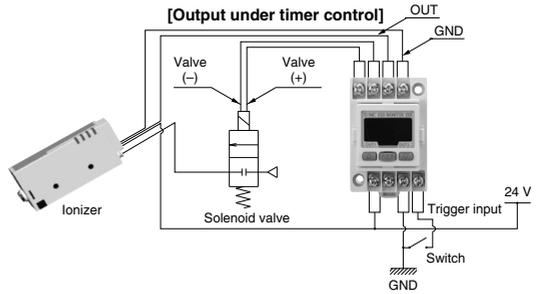
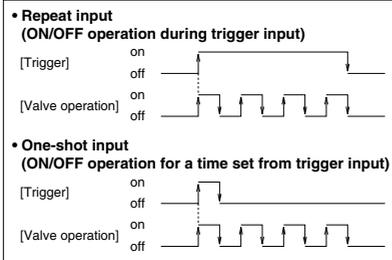
This product is an individually applicable product. For details about the delivery time and price, please consult with SMC representative.



Intermittent control timer

A digital timer that can control ON/OFF switches of valves etc.
Application: Improved dust removal effect under low air consumption by intermittent ion blowing

- Changeable frequency 0.1 to 50.0 Hz
- Set individual ON and OFF times 0.1 to 99.9 seconds
- Display of accumulated number of changes
It can be used for maintaining valve or cylinder operation.
- Switch output (Output under timer control)
- 2 types of trigger input



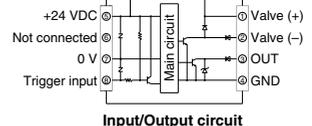
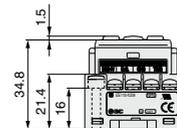
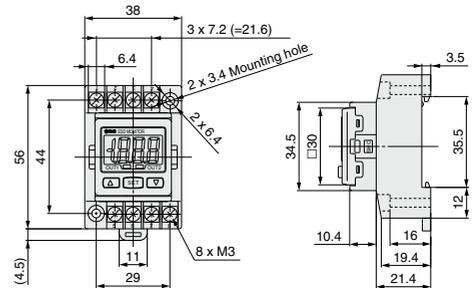
- Solenoid valves up to 24 VDC (4W) etc. are controllable.

Specifications

Model		IZE110-X238
Power supply voltage		24 VDC±10% (with power supply polarity protection)
Current consumption		50 mA or less (Single unit only)
Connection valve		24 VDC 4 W or less
OUT^(NO)	Max. load current	80 mA
	Max. applied voltage	30 VDC
	Residual voltage	1 V or less (At load current 80 mA)
	Short circuit protection	With short circuit protection
Trigger input		No-voltage input, Low level input 10 ms or more, Low level 0.4 V or less
Indicator light		(Green/Red)
Environmental resistance	Enclosure	IP40
	Operating temperature range	Operating: 0 to 50°C, Stored: -10 to 60°C (with no freezing or condensation)
	Operating humidity range	Operating/Stored: 35 to 85% RH (with no condensation)
	Withstand voltage	1000 VAC for 1 minute between terminals and housing
	Insulation resistance	50 MΩ or more (500 VDC measured via megohmmeter), between terminals and housing
	Vibration resistance	10 to 150 Hz at whichever is smaller of 1.5 mm amplitude or 20 m/s ² acceleration, in X, Y, Z direction for 2 hrs. each (De-energized)
	Impact resistance	100 m/s ² in X, Y, Z directions 3 times each (De-energized)
Material		Front case: PBT, Rear case: Denaturated PPE
Weight		50 g

Note) Do not use a load that generates surge voltage.

Dimensions/Input/Output circuit



IZN10 Series

Made to Order 3

This product is an individually applicable product. For details about the delivery time and price, please consult with SMC representative.



How to Order



IZN10 - **01** **06** - - **X367**

Nozzle type	
Symbol	Type
01	Energy saving static neutralization nozzle
02	High flow rate nozzle

Output specification	
Nil	NPN output
P	PNP output

Port size	
06	ø6: Metric size
07	ø6.35 (1/4"): Inch size
16	ø6: Metric size (Elbow)
17	ø6.35 (1/4"): Inch size (Elbow)

• With right angles

Bracket	
Nil	Without bracket
B1	With L-bracket
B2	With pivoting bracket
B3	With DIN rail mounting bracket

Power supply cable	
Nil	With power supply cable (3 m)
Z	With power supply cable (10 m)
N	Without power supply cable

IZS

IZN

IZF

ZVB

IZD

IZE

IZH

Specifications

Ionizer model	IZN10-□□□□-□-X367 (NPN specification)	IZN10-□P□□-□-X367 (PNP specification)
Ion generation method	Corona discharge type	
Method of applying voltage	High frequency AC type	
Applied voltage <small>Note 1)</small>	2.5 kVAC	
Offset voltage <small>Note 2)</small>	Energy saving static neutralization nozzle	Within ±10 V
	High flow rate nozzle	Within ±30 V
Ozone generation <small>Note 3)</small>	0.03 ppm (0.05 ppm for energy saving static neutralization nozzle)	
Air purge	Fluid	Air (Clean dry air)
	Operating pressure range <small>Note 4)</small>	0.05 MPa to 0.7 MPa
	Connecting tube size	ø6, ø1/4 inch
Power supply voltage	24 VDC ±10%	
Current consumption	80 mA or less	
Input signal	Discharge stop signal	Connected to GND (ON voltage: 0.6 V or less) Current consumption: 5 mA or less
	Reset signal	Connected to +24 V (ON voltage: Between +19 V and power supply voltage) Current consumption: 5 mA or less (OFF voltage: 0.6 V or less)
	External switch signal	
Output signal	Discharge signal	Max. load current: 40 mA Residual voltage: 1 V or less (load current at 40 mA)
	Error signal	
	Maintenance signal	Max. load current: 40 mA Residual voltage: 1 V or less (load current at 40 mA)
Effective static neutralization distance	20 mm to 500 mm	
Ambient and fluid temperature	0 to 55°C	
Ambient humidity	35 to 65%Rh	
Material	Housing: ABS, Stainless steel Nozzle: Stainless steel Electrode needle: Tungsten	
Impact resistance	10 G	
Weight	120 g	
Standards/Directive	CE (EMC Directive: 2004/108/EC)	

Note 1) Measured with a probe of 1000 MΩ and 5 pF.

Note 2) Measured with a distance of 100 mm between the charged object and an ionizer at an air purge pressure of 0.3 MPa.

For the discharge time, refer to technical data on back cover.

Note 3) Value above background level, measured with a distance of 300 mm from the air blow port at an air purge pressure of 0.3 MPa.

Note 4) Static electricity cannot be neutralized without air purge.

Also, failure of air purge can increase internal ozone condensation, adversely affecting the ionizer and peripheral equipment. Be sure to perform air purge while energizing the ionizer.

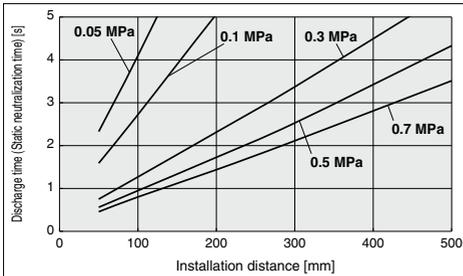
When the air purge is stopped temporarily during operation of the ionizer, the discharge is stopped with the discharge stop signal input turned OFF to avoid increase in internal ion concentration.

IZN10-X367

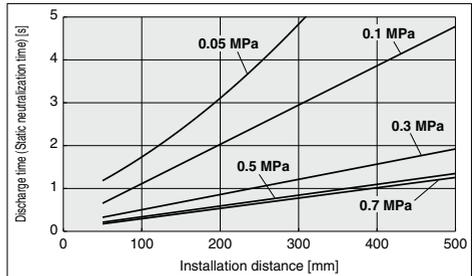
Static Neutralization Characteristics (Discharge Time from 1000 V to 100 V)

Note) Static neutralization features are based on the data using the charged plate (size: 150 mm x 150 mm, capacitance: 20 pF) as defined in the U.S. ANSI standards (ANSI/ESD STM3.1-2006). Use this as a guideline purpose only for model selection because the value varies depending on the material and/or size of a subject.

① Energy saving static neutralization nozzle with right angles: IZN10-01-X367



② High flow rate nozzle with right angles: IZN10-02-X367



Flow Rate Characteristics

① Energy saving static neutralization nozzle with right angles: IZN10-01-X367

② High flow rate nozzle with right angles: IZN10-02-X367

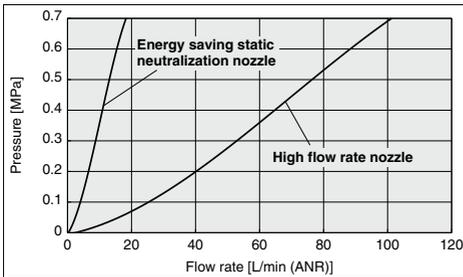
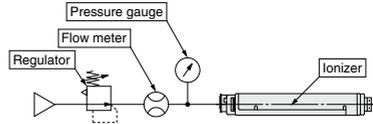


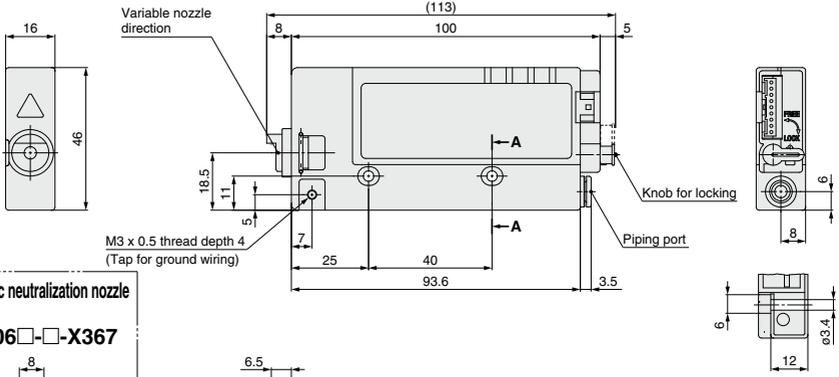
Fig. 1: Flow rate characteristics measuring circuit



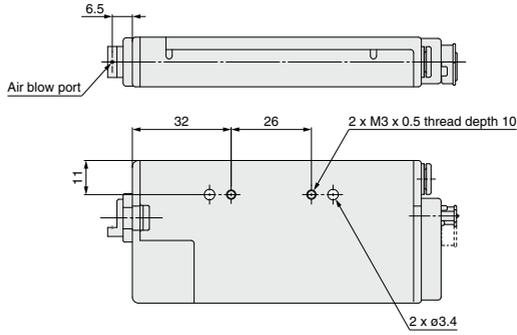
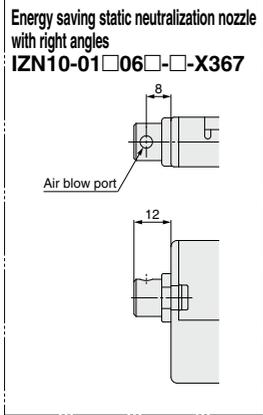
Other specifications are the same as the standard type.

Dimensions

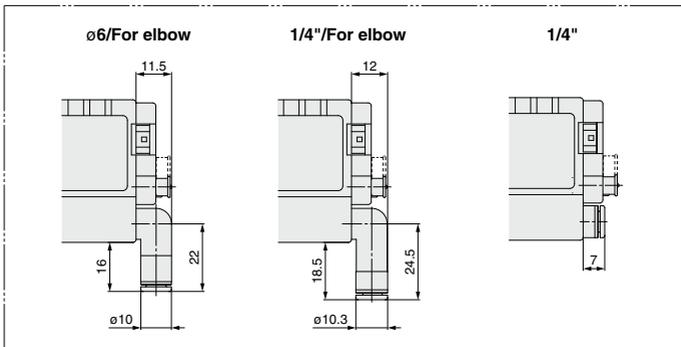
High flow rate nozzle with right angles
IZN10-02□06□-□-X367



- IZS**
- IZN**
- IZF**
- ZVB**
- IZD**
- IZE**
- IZH**



Section A-A



Refer to page 457 for dimensions of the model with bracket.



IZN10 Series Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions.

Selection

⚠ Warning

- This product is intended to be used with general factory automation (FA) equipment.**
If considering using the product for other applications (especially those stipulated in 4 on back page 50), please consult with SMC beforehand.
- Use this product within the specified voltage and temperature range.**
Using outside of the specified voltage can cause a malfunction, damage, electrical shock, or fire.
- Use clean compressed air for fluid.**
This product is not explosion proof. Never use a 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 are used.
- This product is not explosion-protected.**
Never use this product in locations where the explosion of dust is likely to occur or flammable or explosive gases are used.
This can cause fire.

⚠ Caution

- This product is not washed. When bringing into a clean room, flush for several minutes and confirm the required cleanliness before using.**

Mounting

⚠ Warning

- 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 excessive stress on the connector and One-touch fitting, please take into consideration the air tubings minimum bending radius and avoid bending at acute angles.
Wiring with excessive twisting, bending, etc. can cause a malfunction, wire breakage, fire or air leakage.
Minimum bending radius: Power supply cable.....35 mm
(Note: Shown above is wiring with the fixed minimum allowable bending radius and at a temperature of 20 °C. If used under this temperature, the connector can receive excessive stress even though the minimum bending radius is allowable.)
Regarding the minimum bending radius of the air tubing, refer to the Operation Manual or catalog for tubing.
- If the ionizer is to be mounted directly, mount it on a flat face.**
If the mounting face is curved, distorted and/or uneven, excessive force will be applied to the ionizer, which may cause damage and failure of the ionizer. Also, dropping or exposing the ionizer to other strong impact may cause failure or accident.

Mounting

⚠ Warning

- Do not use this product in an area where noise (electric magnetic field or surge voltage, etc.) are generated.**

Using the ionizer under such conditions may cause it to malfunction or internal devices to deteriorate or break down. Take noise countermeasures and prevent the lines from mixing or coming into contact with each other.

- Observe the tightening torque requirements when installing the ionizer. Refer to the following table for tightening torques for screws, etc.**

If overtightened with a high torque, the mounting screws or mounting brackets may break. Also, if under tightened with a low torque, the connection may loosen.

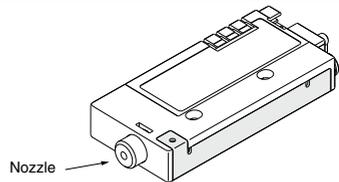
Thread size	Recommended tightening torque
M3	0.61 to 0.63 N·m

- Do not allow foreign matter or tools to enter the nozzle.**

The inside of the nozzle contains emitters. If a metal tool makes contact with the emitters, it can cause electric shock, resulting in a sudden movement by the operator that can cause further injuries such as hitting the body on peripheral equipment. Also, if the tool damages the emitter, the ionizer may fail or cause an accident.

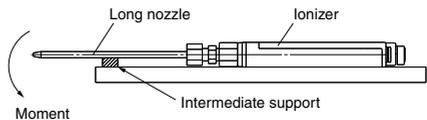
⚠ Danger High Voltage!

Emitters are under high voltage. Never touch them as there is a danger of electric shock or injury due to an evasive action against a momentary electrical shock caused by inserting foreign matter in the electrode cartridge or touching the emitter.



- Do not apply moment to the nozzle.**

If a long nozzle is mounted horizontally, moment will be applied to the nozzle. Then if vibration occurs, the nozzle can be damaged. If a moment of 0.05 N·m or more will be applied, mount a support to the middle part of the nozzle so that the moment is not applied to the nozzle.



- Do not affix any tape or seals to the main unit.**

If the tape or seal 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.

- Installation and adjustment should be conducted after turning off the power supply.**



IZN10 Series

Specific Product Precautions 2

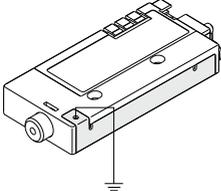
Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions.

Wiring/Piping

Warning

1. Before wiring confirm if the power supply voltage is enough and that it is within the specifications before wiring.
2. To maintain product performance, a DC power supply shall be connected per UL listed Class 2 certified by National Electric Code (NEC) or evaluated as a limited power source provided by UL60950.
3. Be sure to ground with a ground resistance of 100 Ω or less to maintain the product performance.

If such grounding is not provided, not only may static electricity removal capability be disrupted but electric shocks may also result and the ionizer or power supply may break down.



4. Be sure to turn off the power supply before wiring (including attachment/detachment of the connector).
5. When applying the power supply, pay special attention to the wiring and/or surrounding environment until the safety is confirmed.
6. Do not connect or remove any connectors including the power supply, while power is being supplied. Otherwise, the ionizer may malfunction.
7. If the power line and high pressure line are routed together, this product may malfunction due to noise. Therefore, use a separate wiring route for this product.
8. Be sure to confirm there are no wiring errors before starting this product.
9. Flush the piping before using.

Before using this product, exercise caution to prevent particles, water drop, or oil from entering the piping.

Operating Environment/Storage Environment

Warning

1. Do not use this product in an enclosed space.

This product utilizes a corona discharge phenomenon. Do not use the product in an enclosed space as ozone and nitrogen oxides exist in such places, even though in marginal quantities.

Also, ozone condensation can increase if used in an enclosed space, which can affect the human body, so ventilation is necessary. Even if ventilation is secured, the use of two more ionizers in a narrow space can increase ozone condensation. Therefore, check that ozone condensation is not more than a standard value of 0.1 ppm in the operating environment while the ionizer is in operation.

Operating Environment/Storage Environment

Warning

2. Take preventative measures against ozone.
Equipment used around the ionizer should have ozone-prevention measures.
Also, regularly check that there is no deterioration due to ozone.
3. Be sure to supply air.
If air is not supplied, not only is the static neutralization effected, but also the ozone and NOx generated in the ion generator accumulates, which causes an adverse effect on the inside of the product, or peripheral equipment. Be sure to supply air during a discharge.
When an intermittent ion blow is used, a stable corona discharge cannot be acquired easily in the ion generating portion due to the fluctuation of the supply fluid pressure, which will not only cause difficulty in maintaining the offset voltage specification, but also cause damage to the insulating material which controls the discharge. Please consult with SMC when using an intermittent ion blow with an intermittent control timer (IZE110-X238), or frequently turning ON/OFF the supply fluid.
4. Observe the fluid and ambient temperature range.
Fluid and ambient temperature ranges are 0 to 55°C for the ionizer. Do not use the ionizer in locations subject to sudden temperature changes even if the ambient temperature range is within the specified limits, as condensation may result.

5. Environments to avoid

Avoid using and storing this product in the following environments since they may cause damage to this product.

- a) Avoid using in a place that exceeds an ambient temperature range of 0 to 55°C.
- b) Avoid using in a place that exceeds an ambient humidity range of 35 to 65% Rh.
- c) Avoid using in a place where condensation occurs due to a drastic temperature change.
- d) Avoid using in a place in the presence of corrosive or explosive gas or where there is a volatile combustible.
- e) Avoid using in an atmosphere where there are particles, conductive iron powders, oil mist, salt, solvent, blown dust, cutting oil (water, liquid), etc.
- f) Avoid using in a place where ventilated air from an air conditioner is directly applied to the product.
- g) Avoid using in a closed place without ventilation.
- h) Avoid using in direct sunlight or radiated heat.
- i) Avoid using in a place where there is a strong magnetic noise (strong electric field, strong magnetic field, or surge).
- j) Avoid using in a place where the main body is electro-statically discharged.
- k) Avoid using in a place where a strong high frequency occurs.
- l) Avoid using in a place where this product is likely to be damaged by lightning.
- m) Avoid using in a place where direct vibration or shock is applied to the main body.
- n) Avoid using in a place where there is a force large enough to deform this product or weight is applied to the product.

6. Do not use an air containing mist or dust.

The air containing mist or dust will cause the performance to decrease and shorten the maintenance cycle.

Supply clean compressed air by using an air dryer (IDF series), air filter (AF/AFF series), and mist separator (AFM/AM series)

7. This product is not designed to withstand lightning.

IZS

IZN

IZF

ZVB

IZD

IZE

IZH



IZN10 Series

Specific Product Precautions 3

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions.

Maintenance

Warning

1. Periodically (for example, every two weeks) inspect the ionizer and clean the emitters.

Conduct a regular maintenance to see if the product is run having a disorder. Maintenance should be conducted by a fully knowledgeable and experienced person about the equipment. Using for long periods of time will lower the static neutralization performance, if particles attach to the emitter. Since the energy saving nozzle type is equipped with an ambient air introduction mechanism, it is easier to be affected by the ambient air compared with the high flow type or the female thread type for piping, and dust tends to adhere to the emitter more quickly. Clean the emitter when the maintenance detection LED turns ON.

Replace the emitter, if it is worn and the static neutralization performance does not return even after being cleaned.

Danger High Voltage!

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 ionizer, as this may not only impair the product's functionality but could cause an electric shock or electric leakage.

2. The tube and fitting must be treated as consumable parts.

The tube and fitting that are connected to the female piping ports of the ionizer can deteriorate due to ozone and need to be replaced regularly or use an ozone-resistant type.

3. When cleaning the emitter or replacing the cartridge assembly, be sure to turn off the power supply to the main body.

Touching an emitter when it is electrified may result in electric shock or other accidents.

4. Do not disassemble or modify this product.

Otherwise, an electrical shock, damage and/or a fire may occur. Also, the disassembled or modified products may not achieve the performances guaranteed in the specifications, and exercise caution because the product will not be warranted.

5. Do not operate this product with wet hands.

Otherwise, an electrical shock or accident may occur.

Handling

Warning

1. Do not drop, bump or apply excessive impact (10 G or more) while handling.

Even though it does not appear to be damaged, the internal parts may be damaged and cause a malfunction.

2. When mounting/dismounting the cable, use your finger to pinch the claw of the connector, then attach/detach it correctly. Otherwise, connector mounting section may be damaged and cause a disorder.