

# Nozzle Type Ionizer

## IZN10E Series

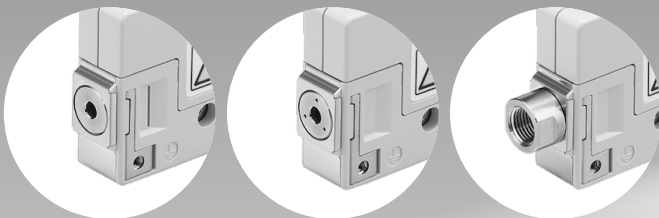
Slim

16 mm Thickness x 100 mm Width x 46 mm Height

Lightweight

33% reduction  
120 g → 80 g

Offset voltage:  $\pm 10$  v  
(For the energy saving nozzle)



Energy saving nozzle

High flow rate nozzle

Female threads for piping



### Nozzle Variations Made to order

With right angles -X367

pp. 122, 139

Energy saving nozzle



High flow rate nozzle



pp. 123, 141

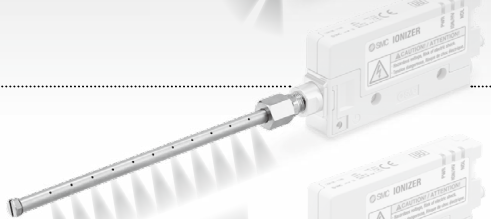
Circular diffusion nozzle



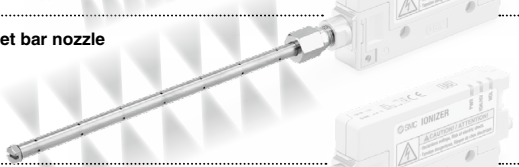
Flat diffusion nozzle



Bar nozzle (Straight type)



Circumferential jet bar nozzle (Straight type)



Bender tube nozzle



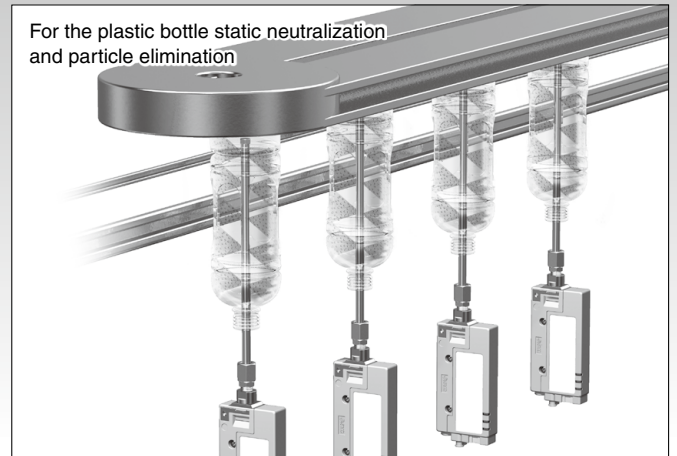
Long nozzle



### Application Examples

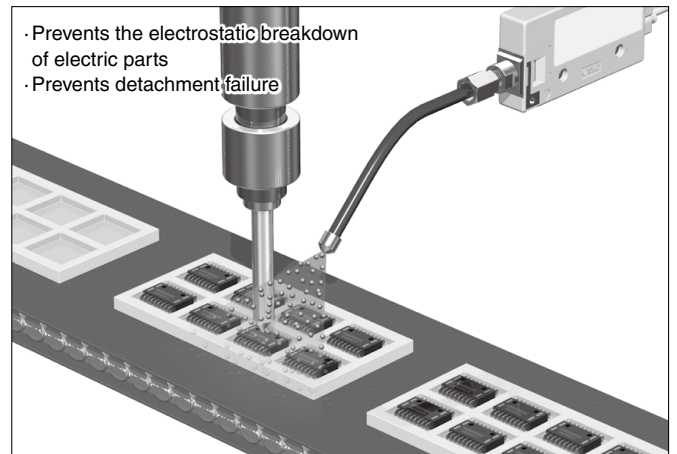
For the dust removal and static neutralization by air blow

For the plastic bottle static neutralization and particle elimination



For the spot type static neutralization

- Prevents the electrostatic breakdown of electric parts
- Prevents detachment failure



IZS40/41/42

IZT40/41(-L)/42(-L)/43(-L)

IZN10E

IZF

IZG10

ZVB

IZD10/IZE11

IZH10

Antistatic Equipment

# The nozzle type can be selected according to the application.

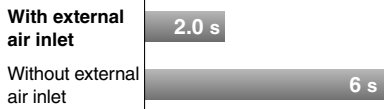
## Short range static neutralization

### Energy saving nozzle

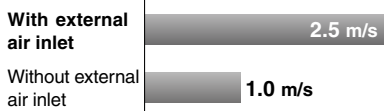
**Designed with a focus on the offset voltage**

Offset voltage:  $\pm 10$  V

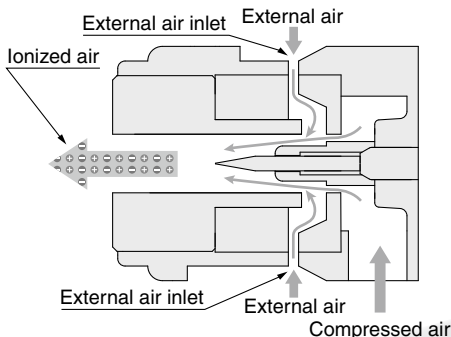
**Discharge time reduced by 65%**



**Ionized air flow velocity improved by 2.5 times or more**

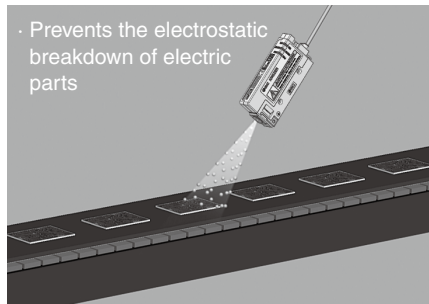


<Static neutralization is possible with minimal air consumption.>

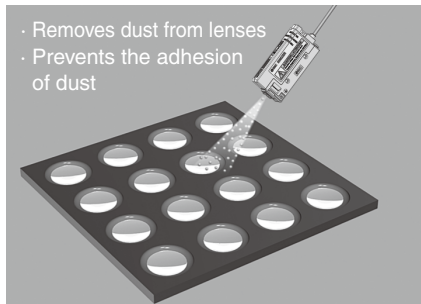


Conditions Supply pressure: 0.3 MPa, Distance: 300 mm, Air consumption flow rate: 10 L/min (ANR)

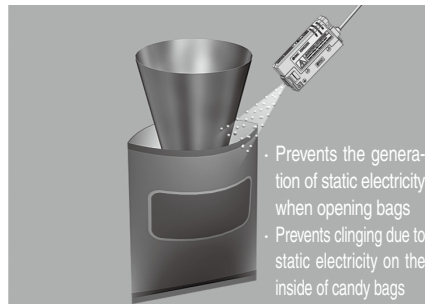
■ For the static neutralization of electric substrates



■ For the static neutralization of lenses



■ For the static neutralization of packing films

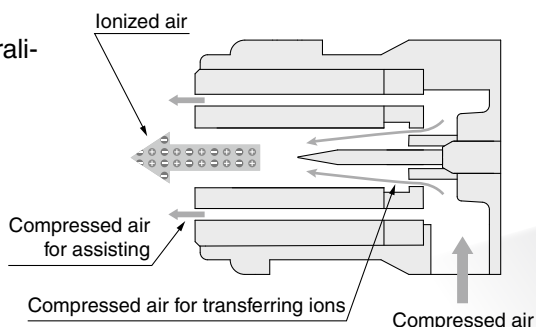


## Long range static neutralization

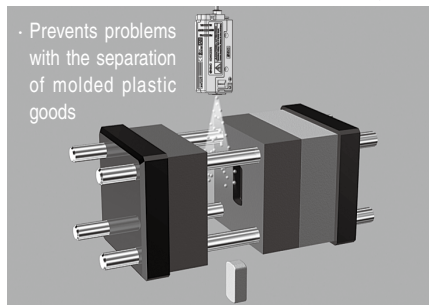
### High flow rate nozzle

- Improved dust removal performance
- Long range static neutralization: Max. 500 mm
- Offset voltage:  $\pm 15$  V

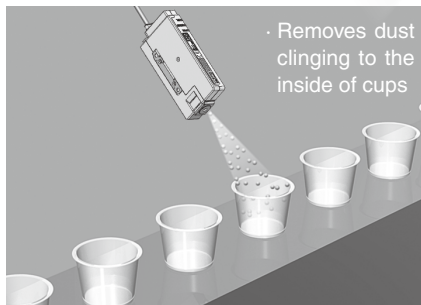
<The ionized air is assisted by the compressed air.>



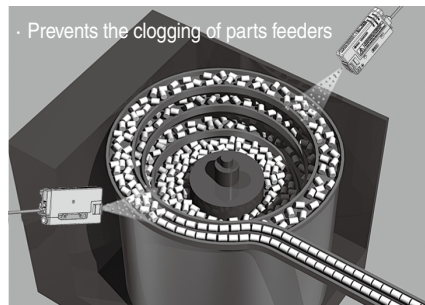
■ For the static neutralization of molded goods



■ For the static neutralization of plastic cups



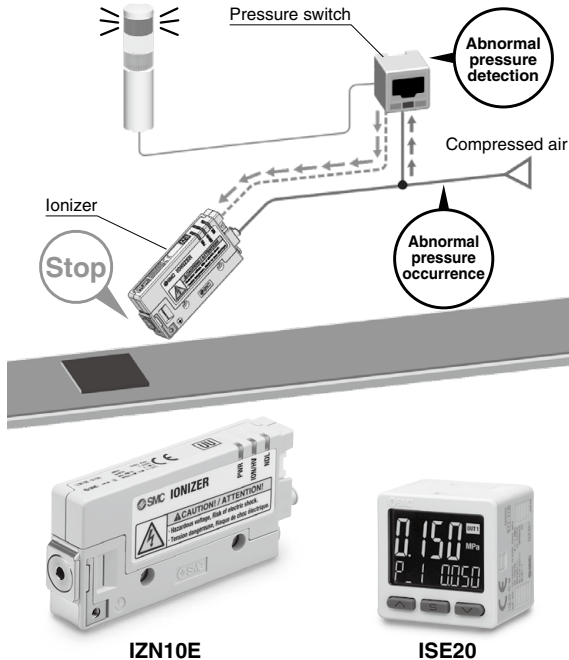
■ For the static neutralization of parts feeders



## With external switch input function (2 inputs)

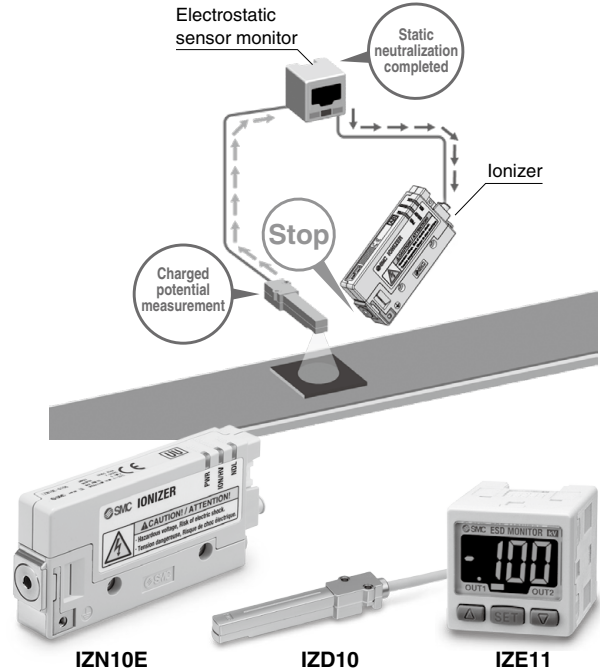
### Prevents static neutralization problems

Discharge stops when abnormal purge air pressure is detected by the pressure switch.



### Energy saving

Discharge stops when the electrostatic sensor detects that static neutralization has been completed.

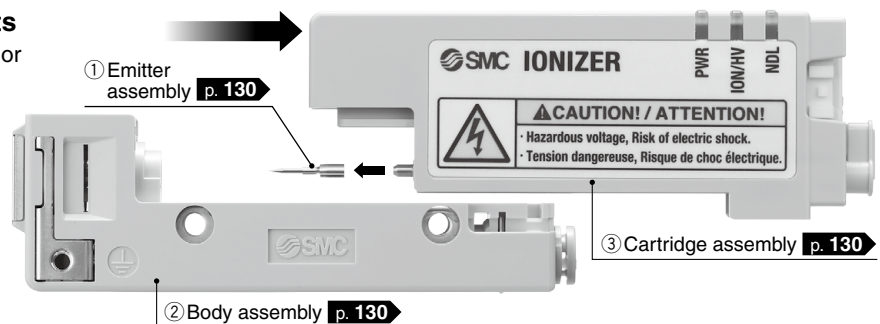


## A high voltage power supply cable is not required.

A high voltage power supply is built into the product; therefore, an external high voltage power supply or high voltage power supply cable is not required.

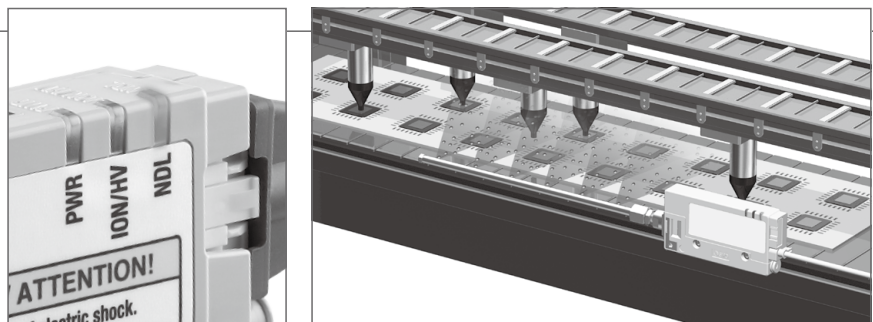
## Easy maintenance

- **Can be disassembled into 3 parts**  
Tools are not required for the installation or removal of the assembly.
- **It is possible to conduct maintenance on the emitter without removing the body.**
- **There is no need to readjust the nozzle angle when the ionizer is restarted.**



### Maintenance warning function

- Monitors emitter contamination and wear continuously
- Notification of abnormalities via LED and output signal
- Detects optimal maintenance time
- Reduced maintenance labor

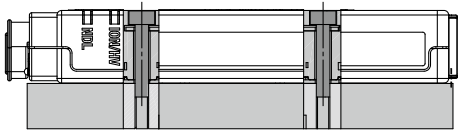




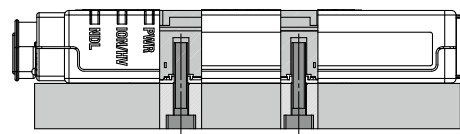
# Mounting variations

● **Direct mounting**

Top through-hole mounting



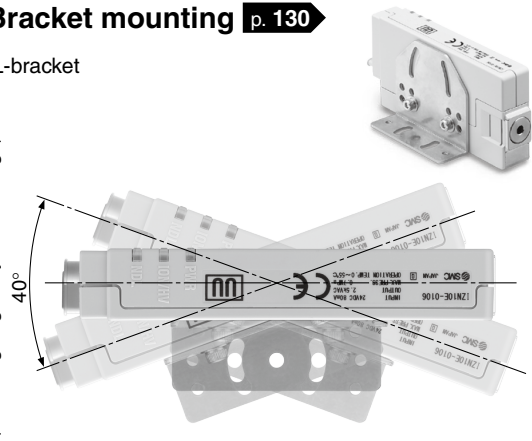
Bottom tapped mounting



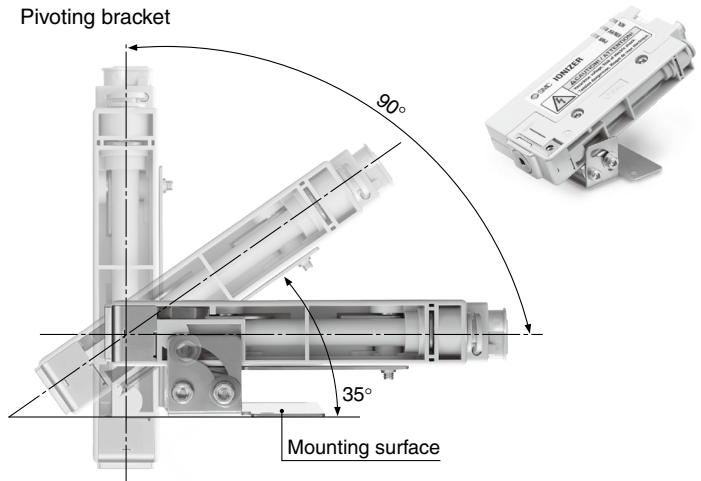
● **Bracket mounting** p. 130

L-bracket

(Mounting angle adjustable range)

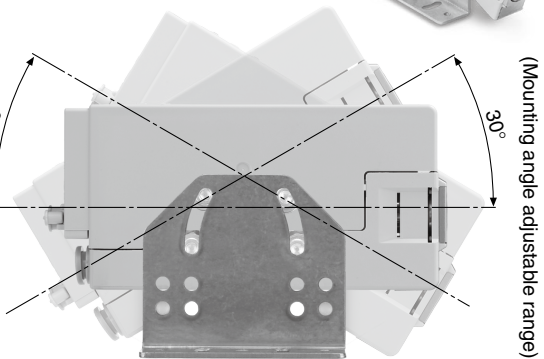


Pivoting bracket

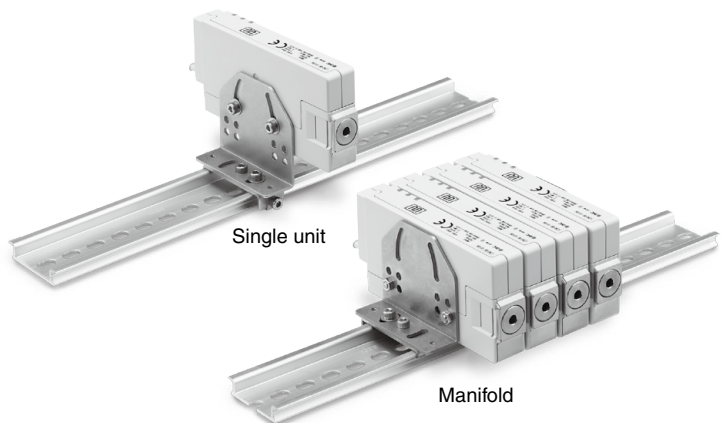


DIN rail mounting bracket

30°



(Mounting angle adjustable range)



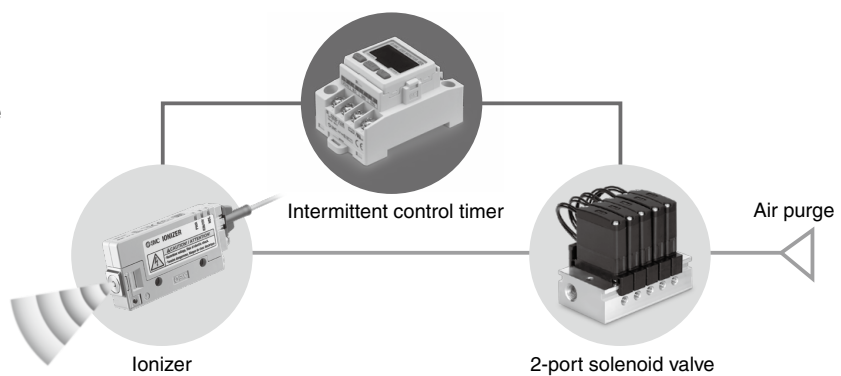
· The L-bracket and the DIN rail mounting bracket can be used with the manifold.

# Intermittent control timer Related product p. 138

**Air saving**  
**IZE110-X238**

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

**Intermittent ion discharge reduces air consumption.**





Nozzle variations **Made to order** p. 139

**With right angles -X367**



**2 types of nozzles**

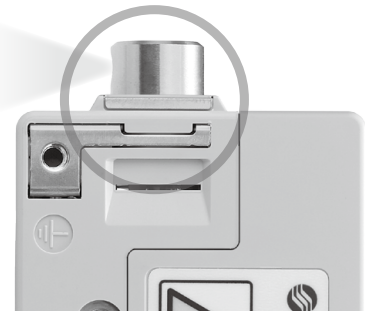
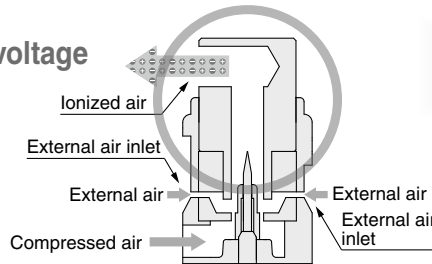
\*1 Installation distance: 100 mm

**Energy saving nozzle**

Short range static neutralization  
Designed with a focus on the offset voltage

Offset voltage: Within  $\pm 10\text{ V}^{*1}$   
Increases air blow flow rate by external air intake

Static neutralization is possible with minimal air consumption.



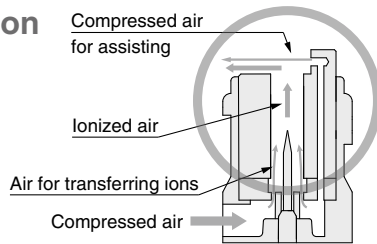
**High flow rate nozzle**

Long range static neutralization and dust removal

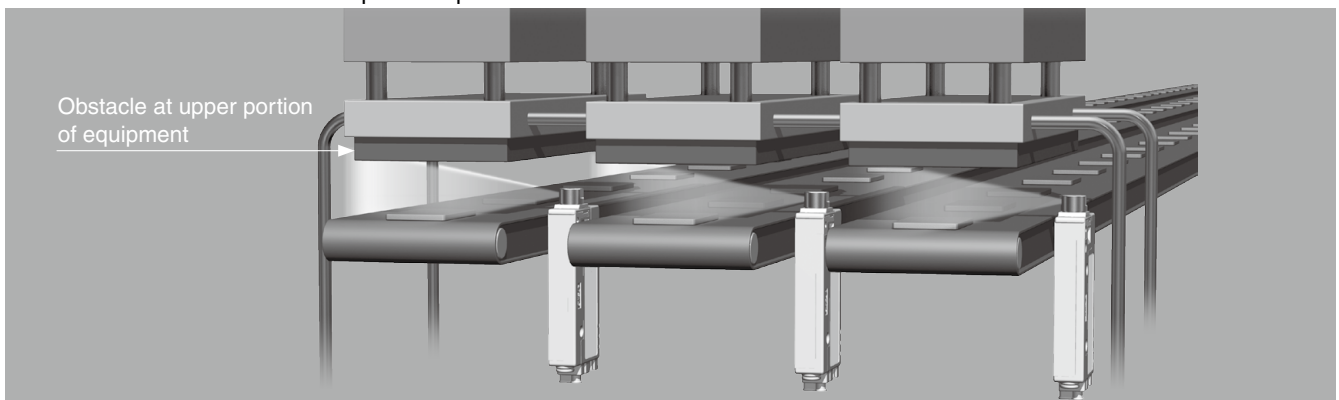
The ionized air is assisted by the compressed air.

- Dust removal performance can be improved by using the energy of the compressed air.
- Suitable for static neutralization at a long distance (max. 500 mm)

Offset voltage: Within  $\pm 30\text{ V}^{*1}$



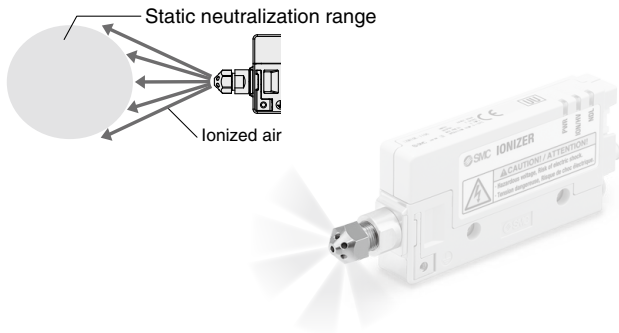
■ Static neutralization in narrow spaces is possible.



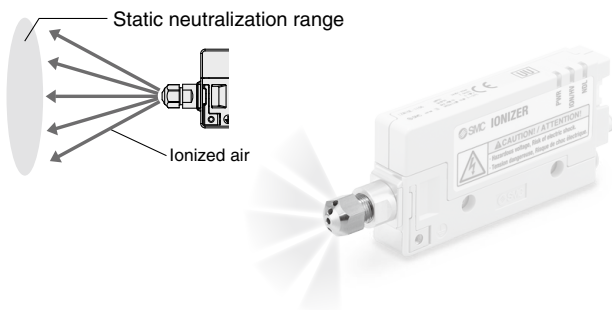
IZS40/41/42  
IZT40/41(-L)/42(-L)/43(-L)  
IZN10E  
IZF  
IZG10  
ZVB  
IZD10/IZE11  
IZH10  
Antistatic Equipment

# Nozzle variations Made to order p. 141

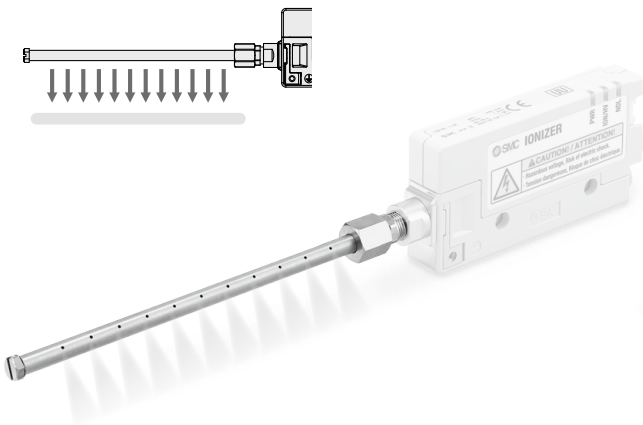
## Circular diffusion nozzle



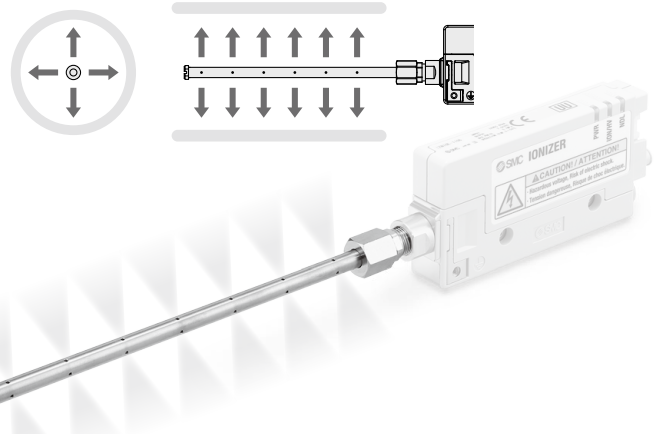
## Flat diffusion nozzle



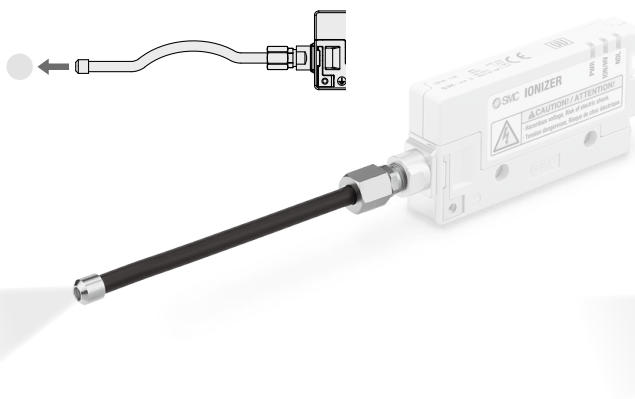
## Bar nozzle (Straight type)



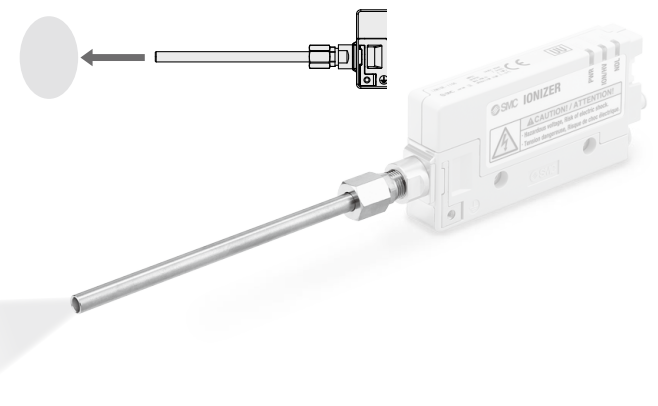
## Circumferential jet bar nozzle (Straight type)



## Bender tube nozzle







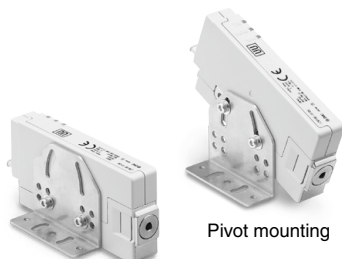

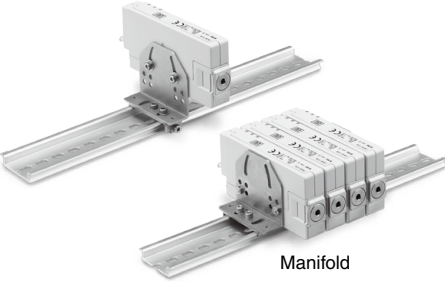
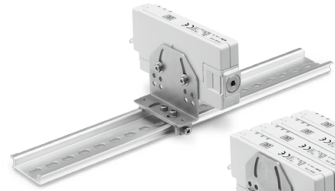
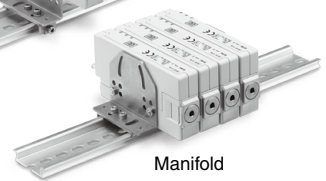

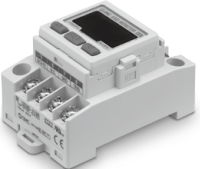

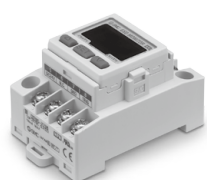










## Long nozzle



For the ionizer, please select the female threads for piping (Rc1/8).

Series Variations

	<b>IZN10E-01</b> 	<b>IZN10E-02</b> 	<b>IZN10E-11</b> 	
Nozzle type	Energy saving nozzle 	High flow rate nozzle 	Female threads for piping 	
Ion generation method	Corona discharge type			
Input/Output specifications	NPN, PNP			
Bracket p. 130	L-bracket  Fixed mounting  Pivot mounting	Pivoting bracket 	DIN rail mounting bracket  Manifold 	
Options p. 131	Manifold mounting parts set 	AC adapter 	Cleaning kit 	
Related product Made to order p. 138	Related product Intermittent control timer 	Made to order Nozzle variations <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;">                     Energy saving nozzle with right angles                        Bar nozzle (Straight type)   </div> <div style="width: 50%;">                     High flow rate nozzle with right angles                        Circumferential jet bar nozzle (Straight type)   </div> <div style="width: 50%;">                     Circular diffusion nozzle                        Bender tube nozzle   </div> <div style="width: 50%;">                     Flat diffusion nozzle                        Long nozzle   </div> </div>		

IZS40/41/42

IZT40/41(-L)/42(-L)/43(-L)

IZN10E

IZF

IZG10

ZVB

IZD10/IZE11

IZH10

Antistatic Equipment



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## Nozzle Type Ionizer *IZN10E Series*



Energy saving nozzle



High flow rate nozzle



Female threads for piping

### Technical Data

#### Static Neutralization Characteristics

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- ② Static Neutralization Range ..... p. 126
- ③ Pressure — Flow Rate Characteristics ..... p. 127

Ozone Concentration ..... p. 127

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Specific Product Precautions ..... p. 142

# IZN10E Series

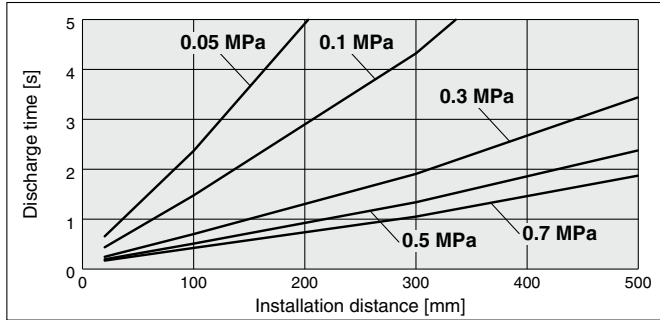
## Technical Data

\* Static neutralization characteristics are based on data using a charged plate (Dimensions: 150 mm x 150 mm, Capacitance: 20 pF) as defined in the U.S. ANSI standards (ANSI/ESD STM3.1-2015). Use this data only as a guideline for model selection because the values vary depending on the material and/or size of the subject.

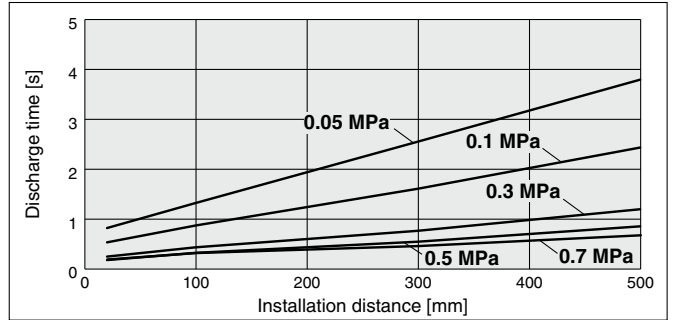
### Static Neutralization Characteristics

#### ① Installation Distance and Discharge Time (Discharge Time from 1000 V to 100 V)

##### Energy saving nozzle / IZN10E-01



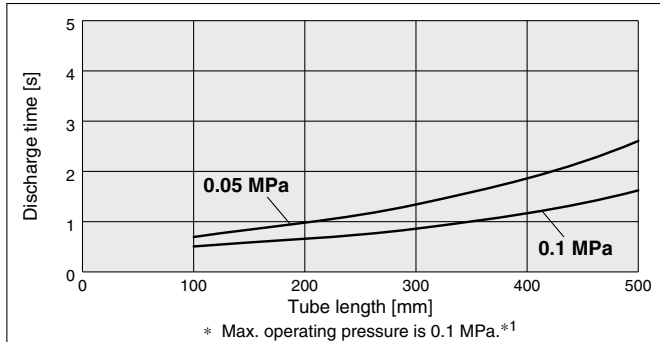
##### High flow rate nozzle / IZN10E-02



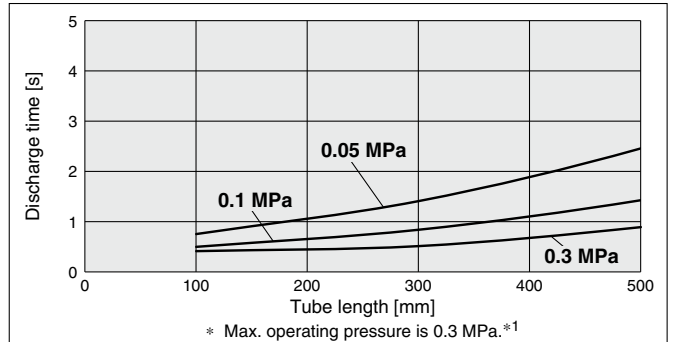
#### Female threads for piping / IZN10E-11 With Stainless steel 316 One-touch fitting\*2 + Anti-static tubing

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

##### Tube I.D.: 4 mm



##### Tube I.D.: 5 mm



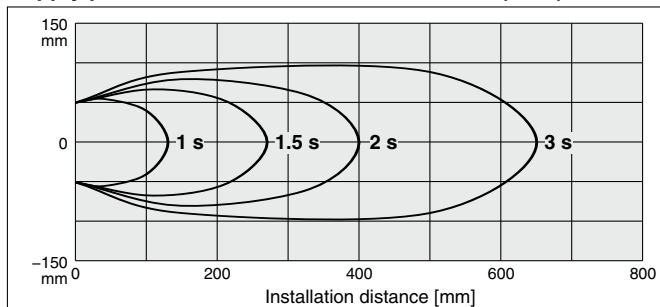
\*1 Refer to "Cautions when using the IZN10E-11 female threads for piping" on page 128.

\*2 The ionizer generates a small amount of ozone. Please use ozone resistant tubing and fittings for piping the female threads. Check periodically for ozone deterioration, and replace if necessary.

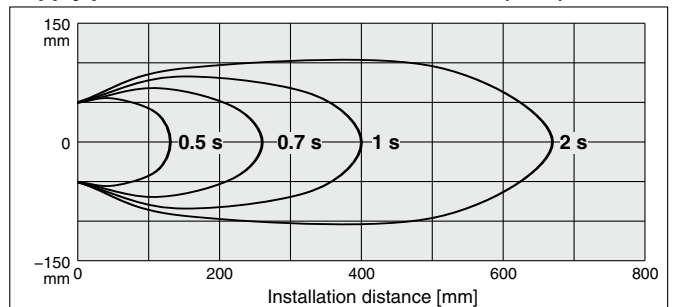
#### ② Static Neutralization Range (Discharge Time from 1000 V to 100 V)

##### High flow rate nozzle / IZN10E-02

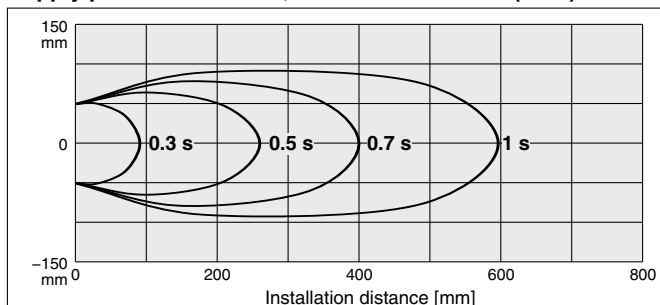
Supply pressure: 0.1 MPa, Flow rate 39 L/min (ANR)



Supply pressure: 0.3 MPa, Flow rate 80 L/min (ANR)



Supply pressure: 0.5 MPa, Flow rate 121 L/min (ANR)



IZS40/41/42

IZT40/41(-L)/  
42(-L)/43(-L)

IZN10E

IZF

IZG10

ZVB

IZD10/IZE11

IZH10

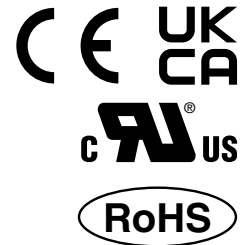
Antistatic  
Equipment



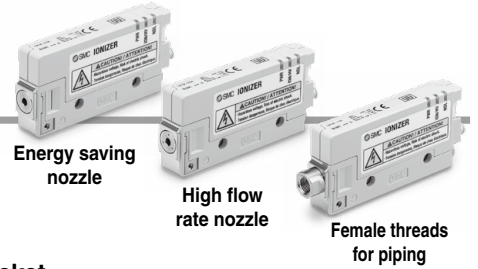


# Nozzle Type Ionizer

# IZN10E Series



## How to Order



**IZN10E - 01 P 06 Z - B1**

High frequency AC nozzle model

### Nozzle type

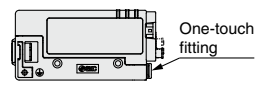
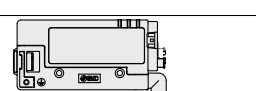
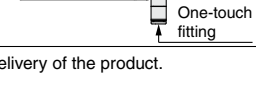
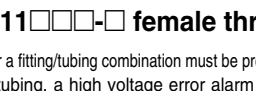
Symbol	Type
01	Energy saving nozzle
02	High flow rate nozzle
11	Female threads for piping*1

\*1 Refer to the cautions listed below when using the female threads for piping.

### Input/Output specifications

Symbol	Type
Nil	NPN input/output
P	PNP input/output

### One-touch fitting

Symbol	Type										
06	<table border="1"> <thead> <tr> <th>Symbol</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>06</td> <td>ø6: Metric size</td> </tr> <tr> <td>07</td> <td>ø6.35 (1/4"): Inch size</td> </tr> <tr> <td>16</td> <td>ø6: Metric size (Elbow)</td> </tr> <tr> <td>17</td> <td>ø6.35 (1/4"): Inch size (Elbow)</td> </tr> </tbody> </table> 	Symbol	Type	06	ø6: Metric size	07	ø6.35 (1/4"): Inch size	16	ø6: Metric size (Elbow)	17	ø6.35 (1/4"): Inch size (Elbow)
Symbol	Type										
06	ø6: Metric size										
07	ø6.35 (1/4"): Inch size										
16	ø6: Metric size (Elbow)										
17	ø6.35 (1/4"): Inch size (Elbow)										
07											
16											
17											

\* The One-touch fitting cannot be changed after the delivery of the product.

### Bracket

Symbol	Type	Part no.
Nil	Without bracket	—
B1	L-bracket	IZN10-B1
B2	Pivoting bracket	IZN10-B2
B3	DIN rail mounting bracket	IZN10-B3

\* Refer to page 130. Brackets are the same as those for the previous model (IZN10). Mounting is interchangeable.

### Power supply cable

Symbol	Type	Part no.
Nil	With power supply cable (3 m)	IZN10E-CP
Z	With power supply cable (10 m)	IZN10E-CPZ
N	Without power supply cable	—

\* Mounting is interchangeable with the previous model (IZN10).

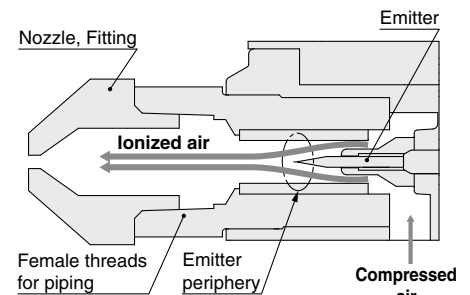


**Made to Order**  
(For details, refer to page 139.)

Symbol	Specifications
-X367	Nozzle with right angles

## Cautions when using the IZN10E-11 female threads for piping

- For the female thread (Rc1/8) type, a made-to-order nozzle or a fitting/tubing combination must be prepared and connected by the user.
- If used without connecting a nozzle or a fitting and tubing, a high voltage error alarm may be generated depending on the pressure of the supplied air.
- If the discharge is started immediately after the air supply is started, the pressure around the emitter (refer to the figure on the right) may fluctuate rapidly, causing an abnormal discharge and generating a high voltage error alarm. If alarms occur frequently after starting discharge, start the air supply first, and then start discharge after the pressure around the emitter (refer to the figure on the right) has stabilized.
- Depending on the connected nozzle or tubing, the maintenance warning function (maintenance LED lights up) may be activated. The maintenance warning function is normally activated when a decrease in ion generation efficiency caused by emitter contamination is detected. However, if the supply pressure is high, the nozzle discharge port will be restricted, the pressure around the emitter will increase, the ion generation efficiency will decrease, and the maintenance warning function will be activated even if the emitter is not contaminated.
- When the maintenance alarm is generated, the static neutralization performance decreases.
- The table below shows the supply pressure specifications when made-to-order nozzles and fitting/tubing combinations are connected.



Sectional view of the female threads for piping

Made-to-order nozzle product names / Piping examples	Made-to-order nozzle part no. (Page 141)	Supply pressure specifications
<b>Circular diffusion nozzle</b>	IZN10-G-X198	0.05 to 0.1 MPa
<b>Flat diffusion nozzle</b>	IZN10-G-X199	0.05 to 0.1 MPa
<b>Bar nozzle (Straight type)</b>	IZN10-G-□-X216	0.05 to 0.1 MPa
<b>Circumferential jet bar nozzle (Straight type)</b>	IZN10-G-X278	0.05 to 0.15 MPa
<b>Bender tube nozzle</b>	IZN10-G-□-X205	0.05 to 0.15 MPa
<b>Long nozzle</b>	IZN10-G-□-X226	0.05 to 0.15 MPa
<b>Fitting (Applicable tubing O.D. 6 mm) + Tube (O.D. 6 mm, I.D. 4 mm)*1</b>	—	0.05 to 0.1 MPa
<b>Fitting (Applicable tubing O.D. 8 mm) + Tube (O.D. 8 mm, I.D. 5 mm)*1</b>	—	0.05 to 0.3 MPa

\*1 When connecting the tubing, use a tubing length of 500 mm or less for the connection, regardless of the inside diameter size.

- When using piping materials prepared by the user, secure an air passage with an inside diameter of 4 mm or more. If using tubing, ensure the min. bending radius is used and keep the tube length to 500 mm or less.
- Be sure to install so that the nozzle doesn't receive any moment force. (Refer to page 143.)

# IZN10E Series

## Specifications

Model		IZN10E-□ (NPN specification)	IZN10E-□P (PNP specification)
Ion generation method		Corona discharge type	
Method of applying voltage		High frequency AC type	
Applied voltage*1		2.5 kVAC	
Offset voltage (Ion balance)*2	Energy saving nozzle	±10 V	
	High flow rate nozzle	±15 V	
	Female threads for piping	—*6	
Air purge	Fluid	Air (Clean, dry air)	
	Operating pressure*3*4	0.05 MPa to 0.7 MPa	
	Connecting tube size	ø6, ø1/4"	
Power supply voltage		24 VDC ±10%	
Current consumption		80 mA or less	
Input signal	Discharge stop signal	Connected to 0 V Voltage range: 5 VDC or less Current consumption: 5 mA or less	Connected to +24 V Voltage range: 19 VDC to power supply voltage Current consumption: 5 mA or less
	Reset signal		
	External switch signal 1		
	External switch signal 2		
Output signal	Discharge signal	Max. load current: 40 mA Residual voltage: 1 V or less (Load current at 40 mA) Max. applied voltage: 26.4 VDC	Max. load current: 40 mA Residual voltage: 1 V or less (Load current at 40 mA)
	Error signal		
	Maintenance signal		
Effective static neutralization range*5		20 to 500 mm	
Ambient temperature (Operating/Stored)		0 to 55°C	
Ambient humidity (Operating/Stored)		35 to 65%RH (No condensation)	
Material	Housing	ABS, Stainless steel	
	Nozzle	Stainless steel	
	Emitter	Tungsten	
Impact resistance		100 m/s <sup>2</sup>	
Body weight	Energy saving nozzle	70 g	
	High flow rate nozzle	70 g	
	Female threads for piping	75 g	
Bracket weight	L-bracket	30 g	
	Pivoting bracket	40 g	
	DIN rail mounting bracket (Single unit)	40 g	
Standards/Directive		CE (EMC directive, RoHS directive), UKCA, cUL (UL 867, C22.2 No. 187)	

\*1 Measured with a probe of 1000 MΩ and 5 pF

\*2 Measurement values based on a charged plate (Dimensions: 150 mm x 150 mm, Capacitance: 20 pF) defined by ANSI standards (ANSI/ESD STM3.1-2015)  
When the distance between the charged plate and the ionizer is 100 mm, and the air purge is 0.3 MPa (energy saving nozzle) / 0.1 MPa (high flow rate nozzle)

\*3 Static electricity cannot be neutralized without air purge. If the ozone concentration inside the nozzle increases, there is a possibility that the product and surrounding equipment may be adversely affected, so air has to be purged during ion generation.

\*4 To stop the air purge temporarily during operation, turn the discharge stop signal input OFF to prevent the increase of ozone concentration inside the nozzle.

\*5 Excludes the female threads for piping

\*6 The specification value changes depending on the nozzle or the fitting/tubing to be connected.

\* Refer to the cautions on page 128 when using the IZN10E-11 (female threads for piping).

Model		IZN10E-C□□□
Input voltage*1		100 to 240 VAC, 50/60 Hz
Output voltage		24 VDC
Output current		1 A max
Ambient temperature	Operating	0 to 40°C
	Stored	-20 to 60°C
Ambient humidity	Operating/Stored	10 to 90%RH
Safety standards		IEC 62368-1

\*1 For the AC cord type, please be careful that the rated voltage of the AC cord included as an accessory is 125 V. (Refer to page 131.)

## Accessories

### Bracket

**IZN10 - B1**

• **Bracket**

Symbol	Type
<b>B1</b>	L-bracket
<b>B2</b>	Pivoting bracket
<b>B3</b>	DIN rail mounting bracket

### L-bracket

**IZN10-B1**



Fixed mounting



Pivot mounting

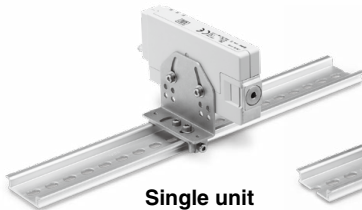
### Pivoting bracket

**IZN10-B2**



### DIN rail mounting bracket

**IZN10-B3**



Single unit



Manifold\*1

\*1 The L-bracket and the DIN rail mounting bracket can be used with the manifold.

### Power supply cable

**IZN10E - CP**

• **Power supply cable**

Symbol	Type
<b>Nil</b>	3 m
<b>Z</b>	10 m

### Power supply cable: Made to order

**IZN10E - CP 01 - X13**

• **Power supply cable length**

Symbol	Type
<b>01</b>	1 m
⋮	⋮
<b>20</b>	20 m

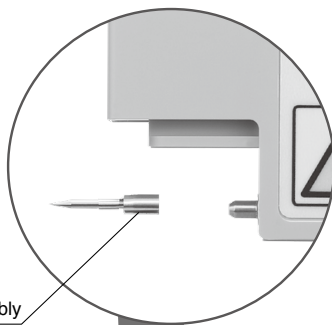
\* Available in 1 m increments from 1 m to 20 m. Use standard power supply cables for 3 m and 10 m lengths.



## Repair Parts

### Emitter assembly

**IZN10E-NT**



Emitter assembly



### Body assembly

**IZN10E - A002 - 01 06**

• **Nozzle type**

Symbol	Type
<b>01</b>	Energy saving nozzle
<b>02</b>	High flow rate nozzle
<b>11</b>	Female threads for piping

• **One-touch fitting**

Symbol	Type
<b>06</b>	ø6: Metric size
<b>07</b>	ø6.35 (1/4"): Inch size
<b>16</b>	ø6: Metric size (Elbow)
<b>17</b>	ø6.35 (1/4"): Inch size (Elbow)



### Cartridge assembly

**IZN10E - A003 -**

• **Input/Output specifications**

Symbol	Type
<b>Nil</b>	NPN input/output
<b>P</b>	PNP input/output





# IZN10E Series

## Options

### Manifold mounting parts set

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

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

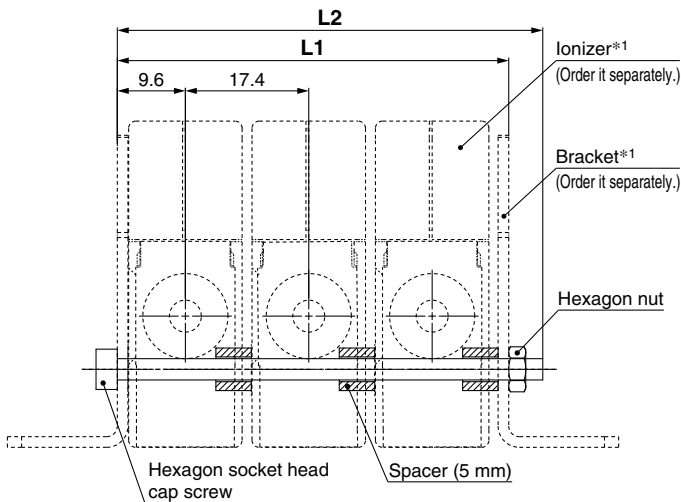
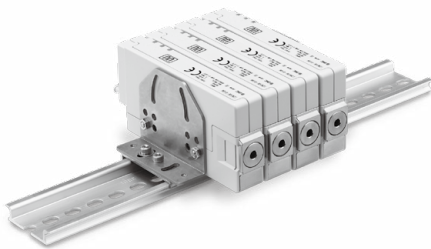
### IZN10E-ES 4

#### Mounting pitch

Symbol	Pitch
ES	17.4 mm

#### Mounting stations

Symbol	Stations
2	2
3	3
4	4



Part no.	L1	L2	Number of spacers
IZN10E-ES2	37.8	45	4
IZN10E-ES3	55.2	60	6
IZN10E-ES4	72.6	76	8

### AC adapter

### IZN10E-C G1

Symbol	Type
G1	With AC cord*1
G2	Without AC cord

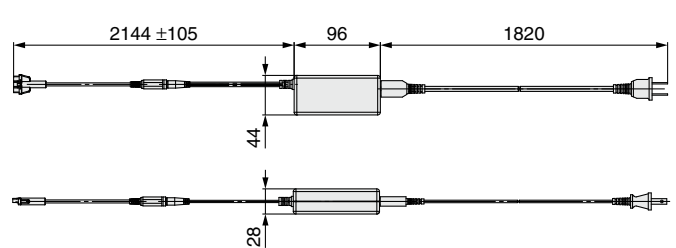
#### Input/Output specifications\*2

Symbol	Type
Nil	NPN input/output
P	PNP input/output

\*1 The AC cord has a rated voltage of 125 V. If using an input voltage exceeding 125 VAC, select "G2" (Without AC cord) and prepare a suitable AC cord separately.

\*2 Select the same input/output specification as the ionizer.

\* The external input/output signal function of the ionizer cannot be used.



### Cleaning kit IZS30-M2



## Functions

### 1. Maintenance warning

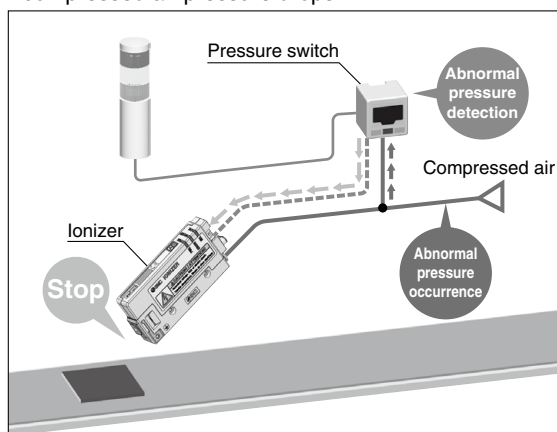
Constantly monitors the emitter for lowered static neutralization performance due to the contamination or wear of the emitter. The maintenance LED lights up and the maintenance signal is generated when abnormalities are detected.

### 2. Signal inputs by external switch

There are 2 ports for external switch signal inputs.

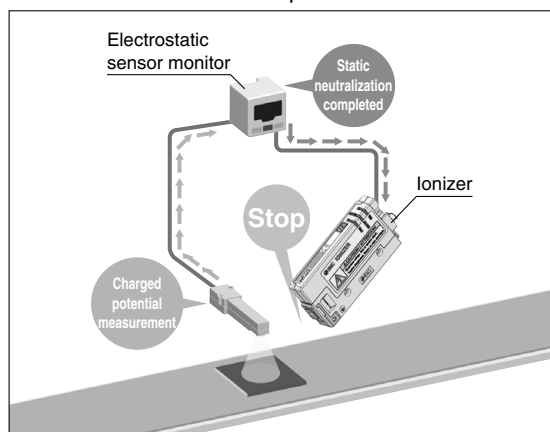
**Example** Discharge stops when abnormal purge air pressure is detected by the pressure switch.

- Prevents static neutralization problems due to compressed air pressure drops

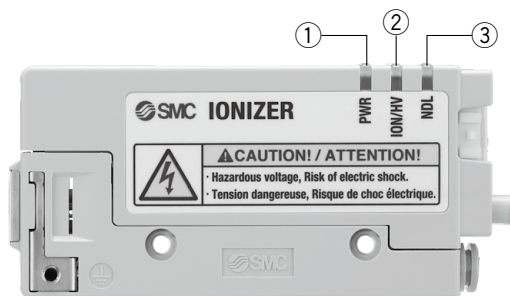


**Example** Discharge stops when the electrostatic sensor detects that static neutralization has been completed.

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



### 3. Description of LEDs



No.	Description	LED	Color	Contents
①	<b>Power supply display</b>	PWR	Green	Lights up when the power supply is turned ON
②	<b>Discharge/irregular high voltage display</b>	ION/HV	Green/Red	(Green) Lights up during discharge / (Red) Lights up if an abnormal high voltage discharge occurs
③	<b>Maintenance display</b>	NDL	Green	Lights up when lowered static neutralization performance due to the contamination, wear, etc., of the emitter is detected

#### LED Color Indication

Item	PWR	ION/HV	NDL	Note
Normal operation (with discharge stop signal ON)	Green	Green	—	Ions are being discharged.
Normal operation (with discharge stop signal OFF)	Green	—	—	Discharge stops.
High voltage error occurred	Green	Red	—	Discharge stops.
External switch signal 1 (with signal ON)	Green	—	—	Discharge stops when the signal is turned ON.
External switch signal 2 (with signal ON)	Green	—	—	
Maintenance warning occurred	Green	Green	Green	Discharge continues.

\* The LED is OFF where — is displayed.

### 4. Alarm

Alarm item	Description	Corrective actions
High voltage error	Gives notification of the occurrence of an abnormal high voltage discharge. The ionizer stops discharging ions, and the ION/HV LED (Red) turns ON. When an error occurs, 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 ON and then OFF.
Maintenance warning	Gives notification that emitter maintenance is necessary. The NDL LED turns ON, and the maintenance output signal is turned ON.	Turn OFF the power, clean the emitters, and turn the power ON again.

# IZN10E Series

## Wiring

No.	Cable color	Description	Signal direction	Wiring requirement*1	Specifications
1	Brown	+24 VDC	IN	○	–
2	Blue	0 V	IN	○	–
3	Orange	Discharge stop signal	IN	○	When the signal is turned OFF, discharge stops.
4	Pink	Reset signal	IN		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	OUT (A contact)		The signal stays ON during discharge.
6	Purple	Error signal	OUT (B contact)		The signal is turned OFF when an error occurs.
7	Yellow	Maintenance signal	OUT (A contact)		The signal is turned ON when maintenance is due.
8	Gray	External switch signal 1	IN		When the signal is turned ON, discharge stops.
9	Light blue	External switch signal 2	IN		When the signal is turned ON, discharge stops.

\*1 **Wiring requirement**

○: Min. wiring requirement for ionizer operation

### • Input signal

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

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

### • Output signal

NPN: The output transistor is energized (by the 0 V power supply inside the ionizer) when the signal is turned ON, and de-energized when turned OFF.

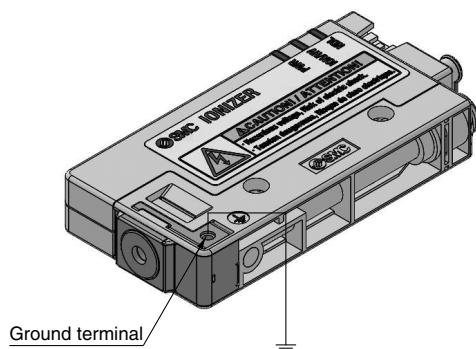
PNP: The output transistor is energized (by the +24 VDC power supply inside the ionizer) when the signal is turned ON, and de-energized when turned OFF.

## Provide Grounding

Make sure to ground the ground terminal with a resistance value of 100  $\Omega$  or less.

The ground terminal 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).





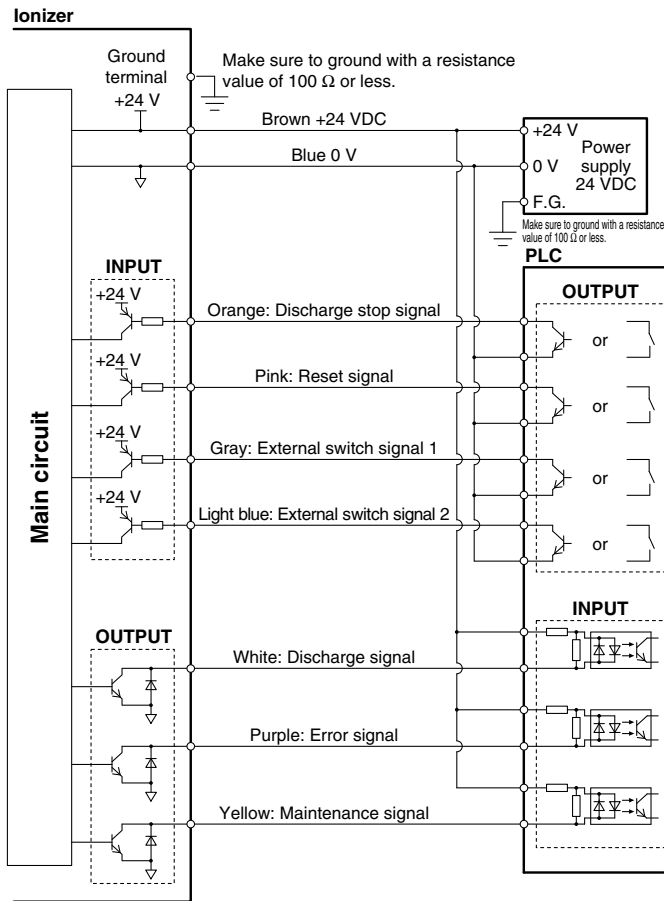
## Power Supply Cable Connection Circuit

Make sure to ground the ground terminal with a resistance value of 100 Ω or less.

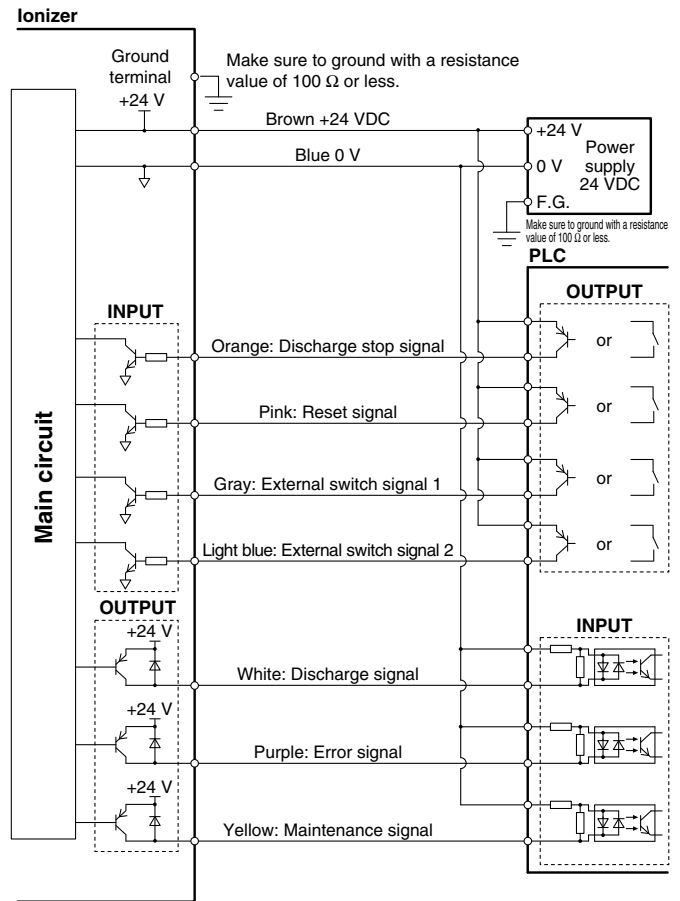
The ground terminal is used as a reference electric potential for static neutralization.

If the ground terminal is not grounded, the ionizer will not be able to achieve the optimal offset voltage (ion balance).

### ■ NPN input/output



### ■ PNP input/output



## Timing Chart

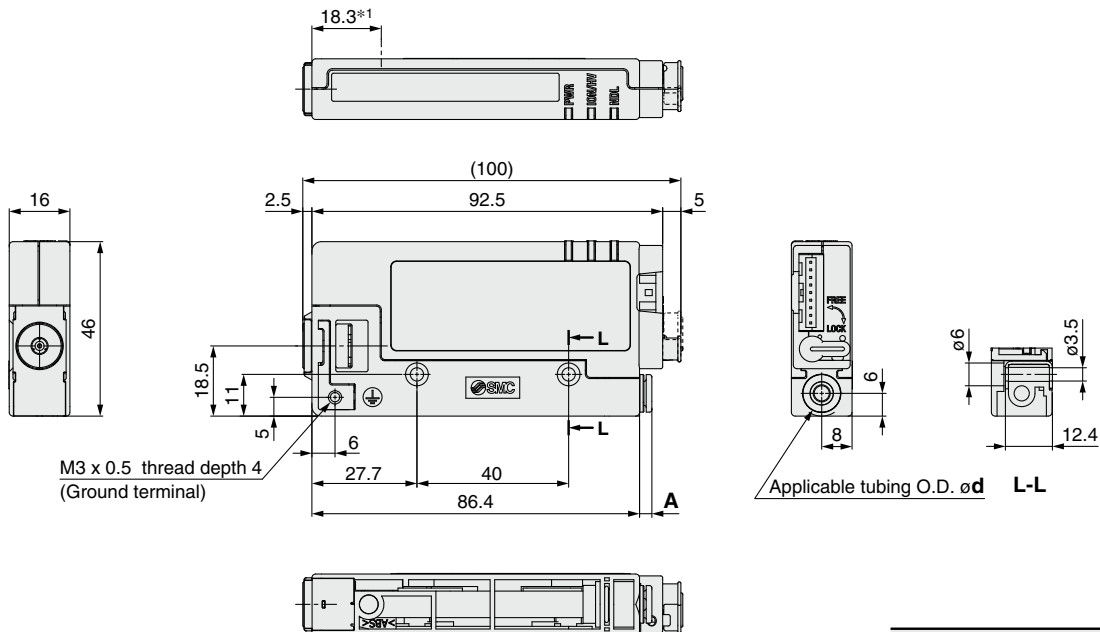
			Power supply ON	High voltage error	Maintenance required	External switch ON	Note
Power supply	Input	ON OFF	[ON]	[OFF]	[OFF]	[OFF]	
Discharge stop signal	Input	ON OFF	[OFF]	[ON]	[OFF]	[OFF]	Discharge starts when the signal is turned ON.
Reset signal	Input	ON OFF	[OFF]	[ON]	[OFF]	[OFF]	The error signal can be reset by turning the reset signal ON and then OFF.
Discharge signal (ON when ions are being discharged)	Output	ON OFF	[ON]	[OFF]	[OFF]	[OFF]	
Error signal	Output	ON OFF	[OFF]	[ON]	[OFF]	[OFF]	When an error occurs, the signal is turned OFF.
Maintenance signal	Output	ON OFF	[OFF]	[ON]	[OFF]	[OFF]	Ions are still discharged even when the maintenance signal is turned ON.
External switch signal 1, 2	Input	ON OFF	[OFF]	[OFF]	[ON]	[ON]	

# IZN10E Series

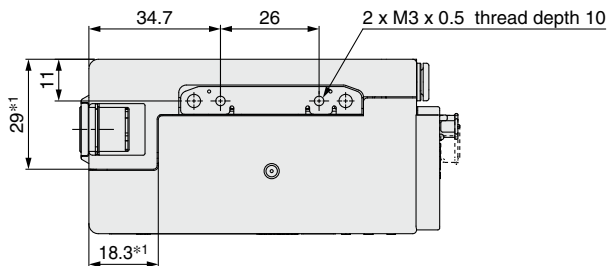
## Dimensions

Energy saving nozzle IZN10E-01 □<sup>06</sup><sub>07</sub>

High flow rate nozzle IZN10E-02 □<sup>06</sup><sub>07</sub>

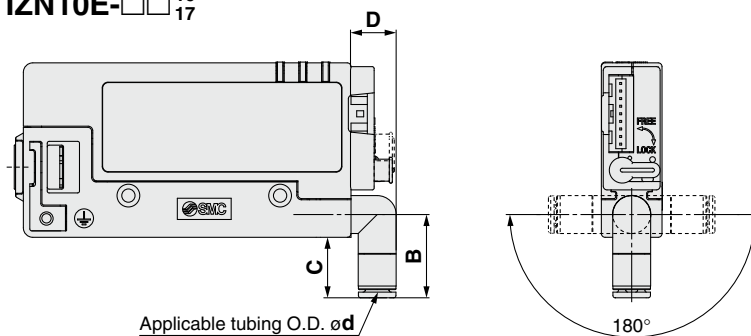


Model	d	A
IZN10E- <sup>01</sup> <sub>02</sub> □ <sup>06</sup>	6	3.5
IZN10E- <sup>01</sup> <sub>02</sub> □ <sup>07</sup>	1/4"	7



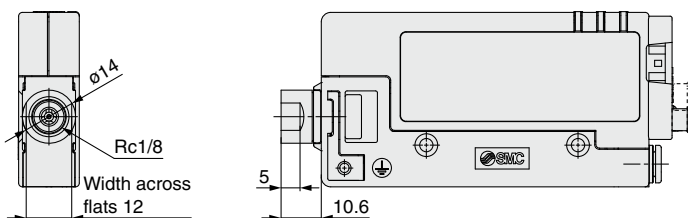
\*1 Dimension of the resin part is described in the Mounting Warning note 3 (page 142).

One-touch fitting (Elbow) IZN10E-□□<sup>16</sup><sub>17</sub>



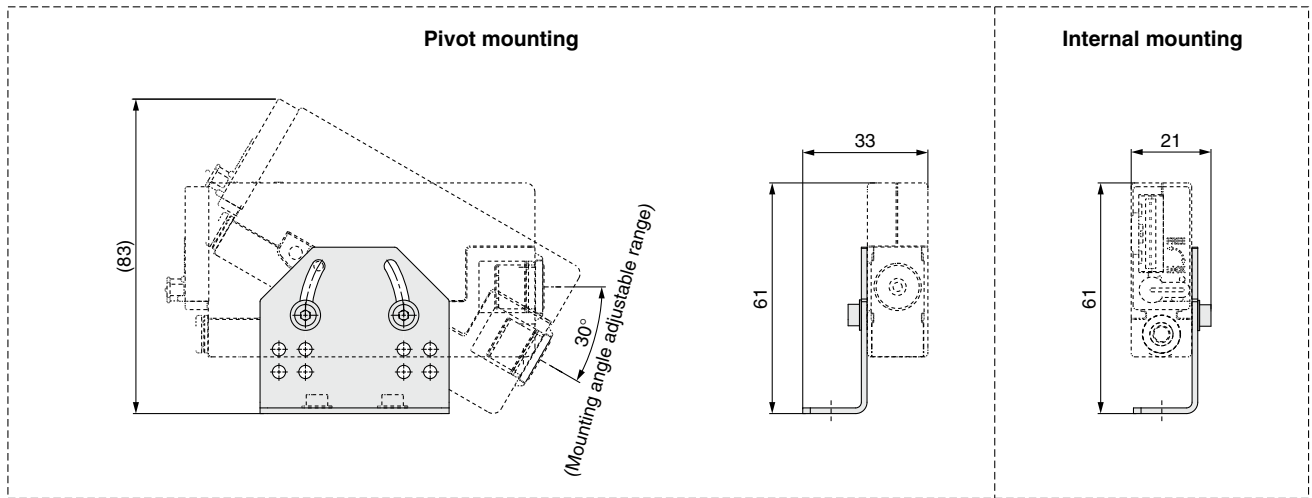
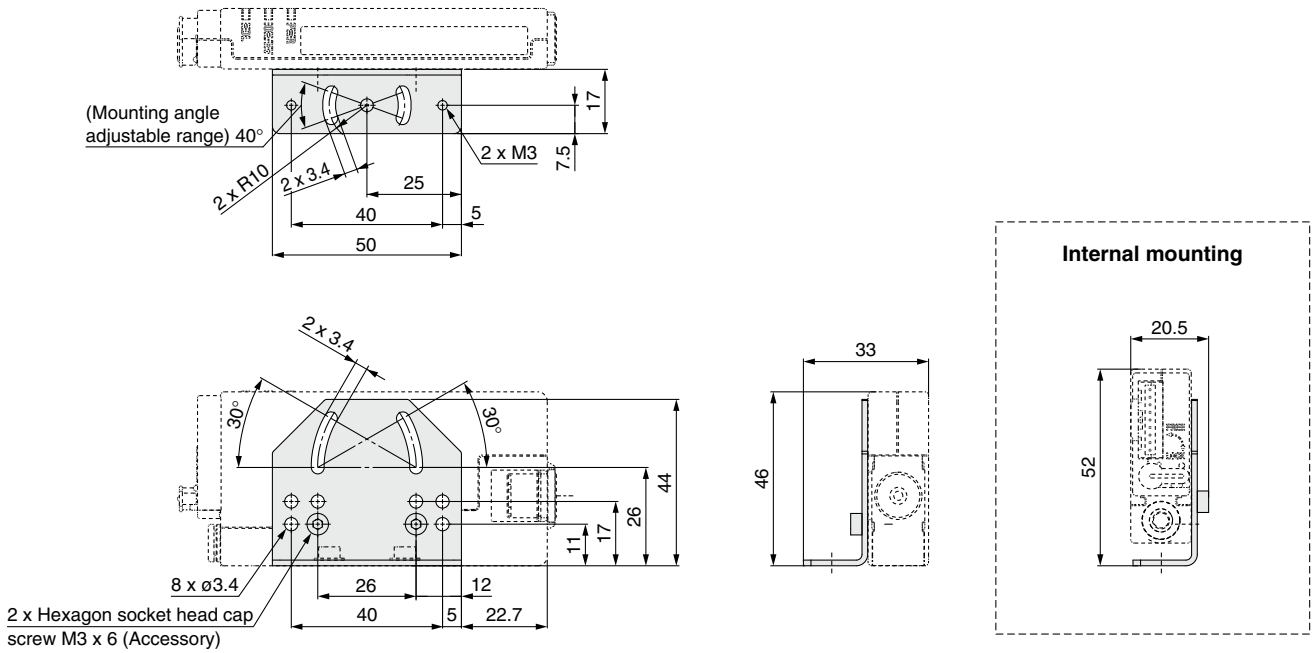
Model	d	B	C	D
IZN10E-□□ <sup>16</sup>	6	22	16	11.5
IZN10E-□□ <sup>17</sup>	1/4"	24.5	18.5	12

Female threads for piping (Rc1/8) IZN10E-11 □□

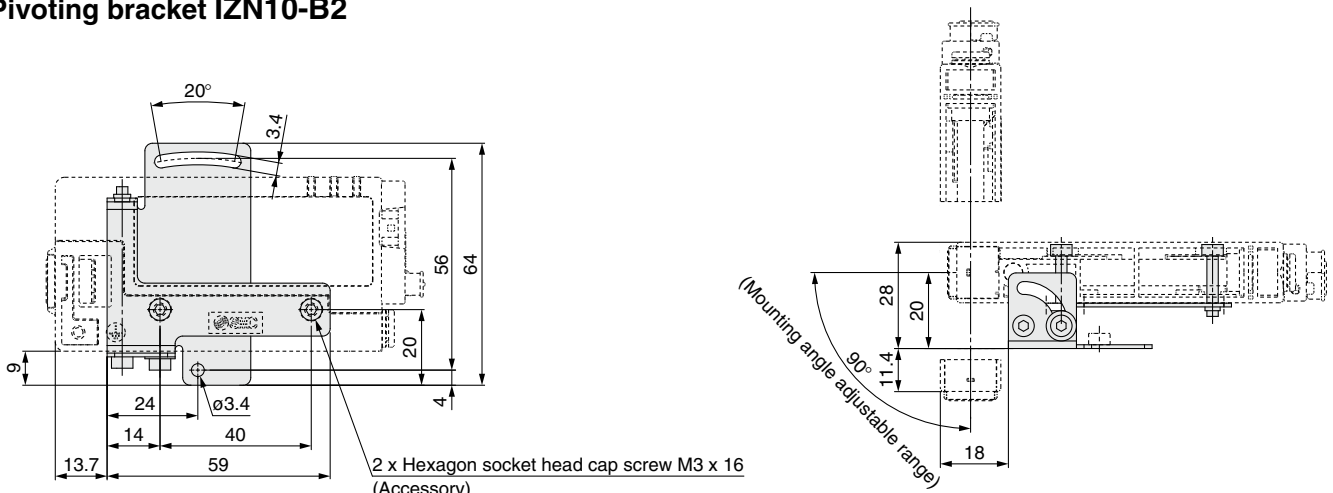


**Dimensions**

**L-bracket IZN10-B1**



**Pivoting bracket IZN10-B2**



IZS40/41/42

IZT40/41(-L)/  
42(-L)/43(-L)

IZN10E

IZF

IZG10

ZVB

IZD10/IZE11

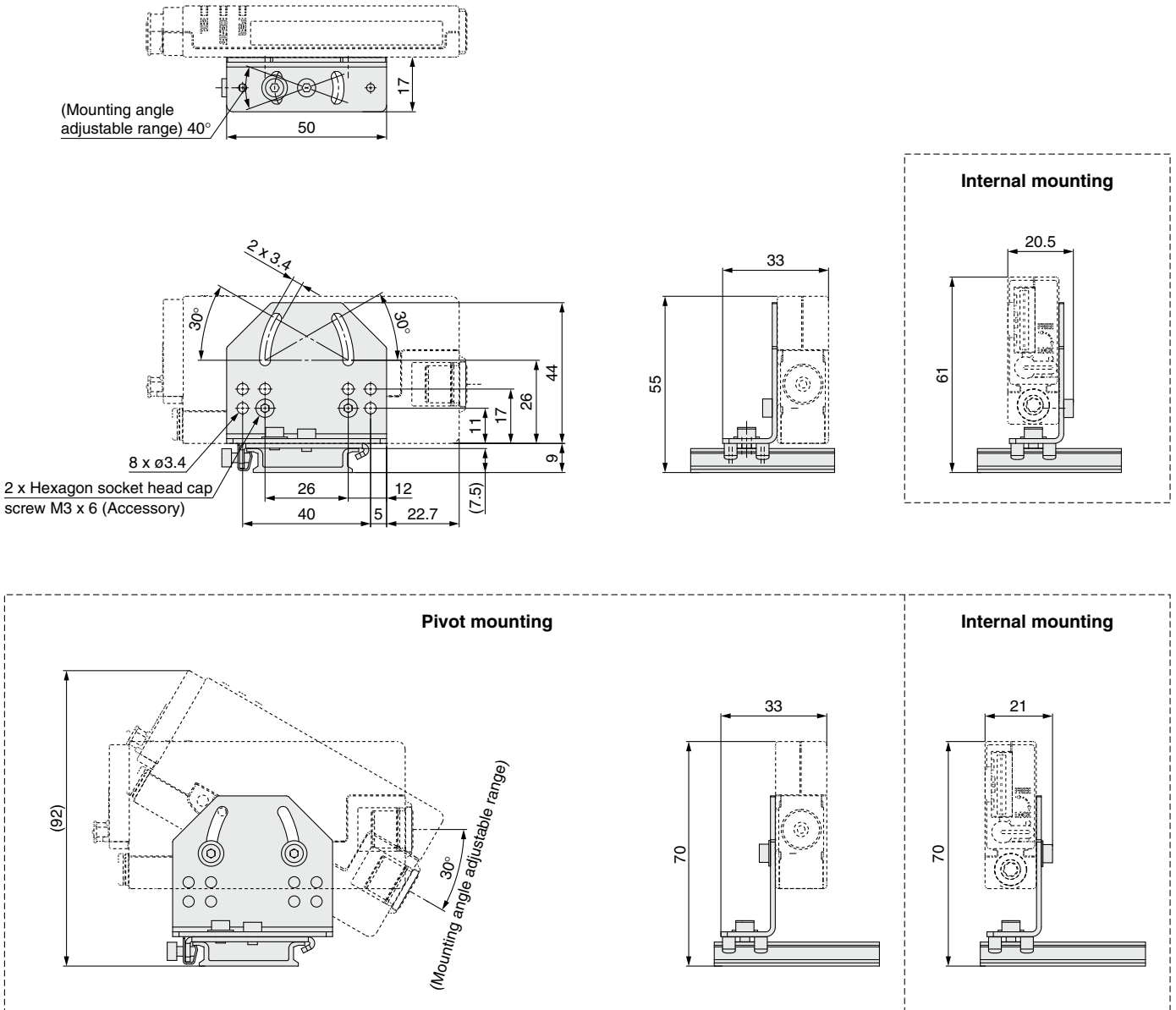
IZH10

Antistatic  
Equipment

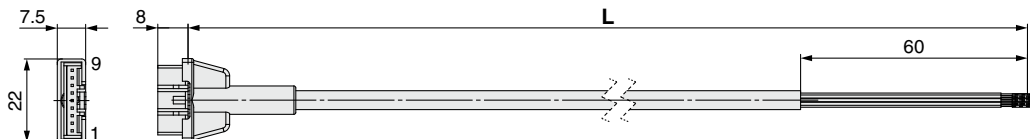
# IZN10E Series

## Dimensions

### DIN rail mounting bracket IZN10-B3



### Power supply cable IZN10E-CP□



Model	L [mm]
IZN10E-CP	3000
IZN10E-CPZ	9800

### Cable Specifications

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

# IZN10E Series Related Product

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



RoHS

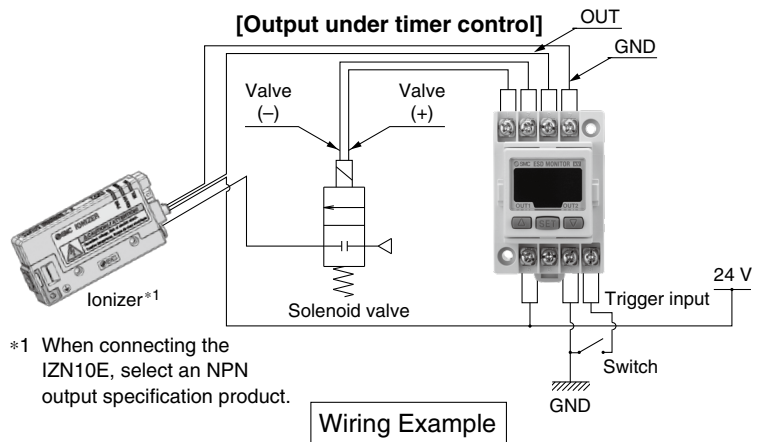
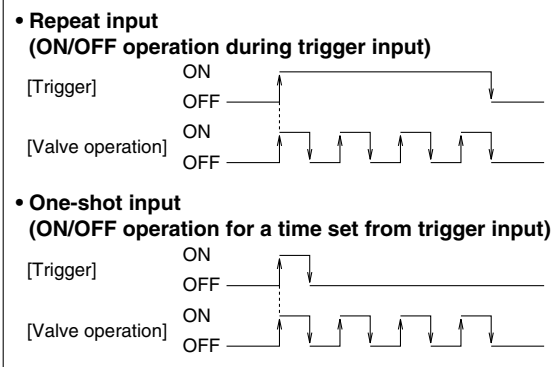
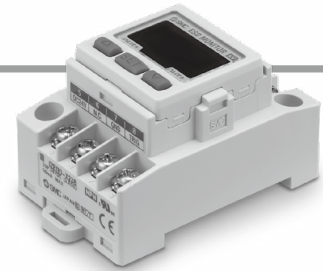
Made to Order

## Intermittent Control Timer (Made to Order)

### Air saving

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

- Adjustable frequency: 0.1 to 50.0 Hz
- Set individual ON and OFF times from 0.1 to 99.9 s
- Display of accumulated number of pulses  
It can be used for maintaining valve or cylinder operations.
- Switch output (Output under timer control)
- 2 types of trigger inputs



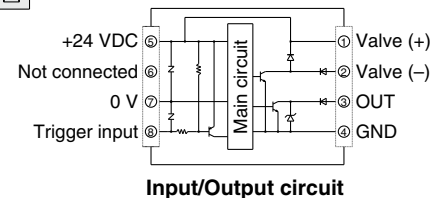
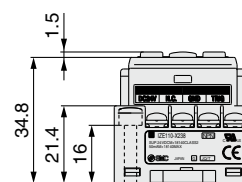
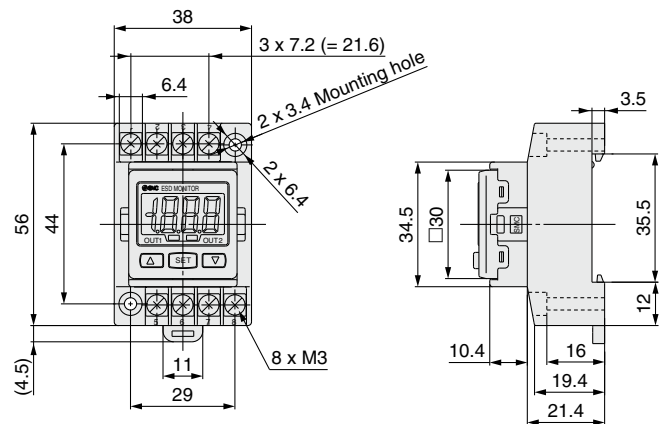
- Solenoid valves up to 24 VDC (4 W) etc. are controllable.

## 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*1	Max. load current	80 mA
	Max. load voltage	30 VDC
	Residual voltage	1 V or less (at load current of 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 <sup>2</sup> acceleration, in X, Y, Z direction for 2 hours each (De-energized)
Impact resistance	100 m/s <sup>2</sup> in X, Y, Z directions 3 times each (De-energized)	
Material		Front case: PBT, Rear case: Modified PPE
Weight		50 g
Standards/Directive		CE (EMC directive, RoHS directive), UKCA, cUL (UL 508, C22.2 No. 14)

\*1 Do not use a load that generates surge voltage.

## Dimensions / Input/Output Circuit



IZS40/41/42

IZT40/41(-L)/42(-L)/43(-L)

IZN10E

IZF

IZG10

ZVB

IZD10/IZE11

IZH10

Antistatic Equipment



# IZN10E 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.



RoHS

Made to Order



## How to Order

With right angles

IZN10E - 01 [ ] [ ] [ ] - [ ] - X367

Nozzle type

Symbol	Type
01	Energy saving nozzle
02	High flow rate nozzle

Refer to the standard product number on page 128.

Nozzle with right angles

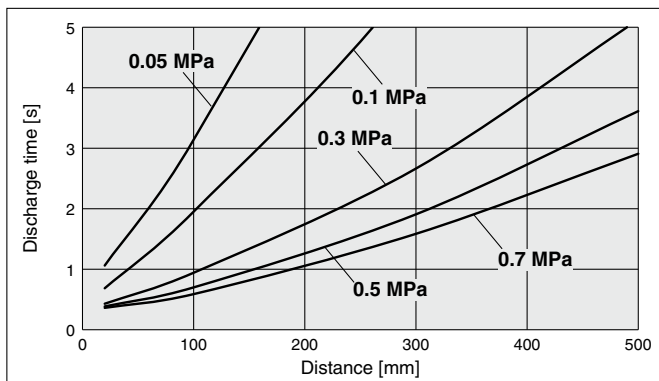
## Specifications (Specifications other than those shown below are the same as the standard product. Refer to page 129.)

Ionizer model		IZN10E-□-X367 (NPN specification)	IZN10E-□P-X367 (PNP specification)
Offset voltage*1	Energy saving nozzle	Within ±10 V	
	High flow rate nozzle	Within ±30 V	

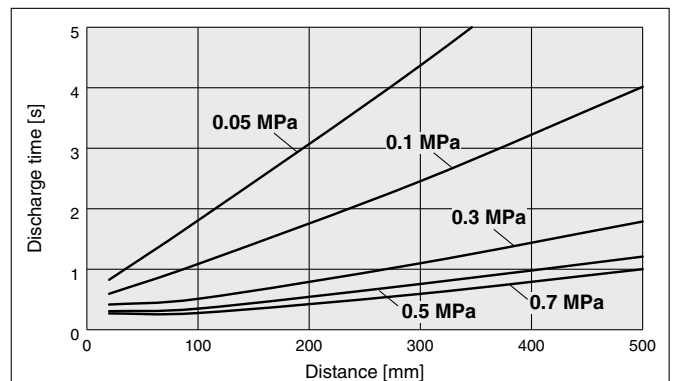
\*1 Measurement values based on a charged plate (Dimensions: 150 mm x 150 mm, Capacitance: 20 pF) defined by ANSI standards (ANSI/ESD STM3.1-2015). When the distance between the charged plate and the ionizer is 100 mm, and the air purge is 0.3 MPa (energy saving nozzle) / 0.1 MPa (high flow rate nozzle)

## Installation Distance — Discharge Time Characteristics (Discharge Time from +1000 V to +100 V)

### ① Energy saving nozzle / IZN10E-01-X367



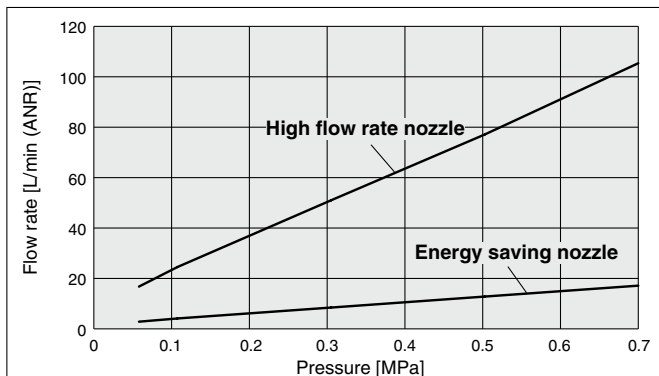
### ② High flow rate nozzle / IZN10E-02-X367



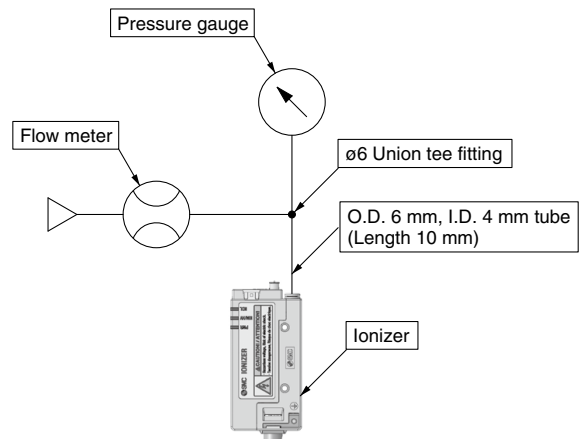
## Pressure — Flow Rate Characteristics

### ① Energy saving nozzle / IZN10E-01-X367

### ② High flow rate nozzle / IZN10E-02-X367

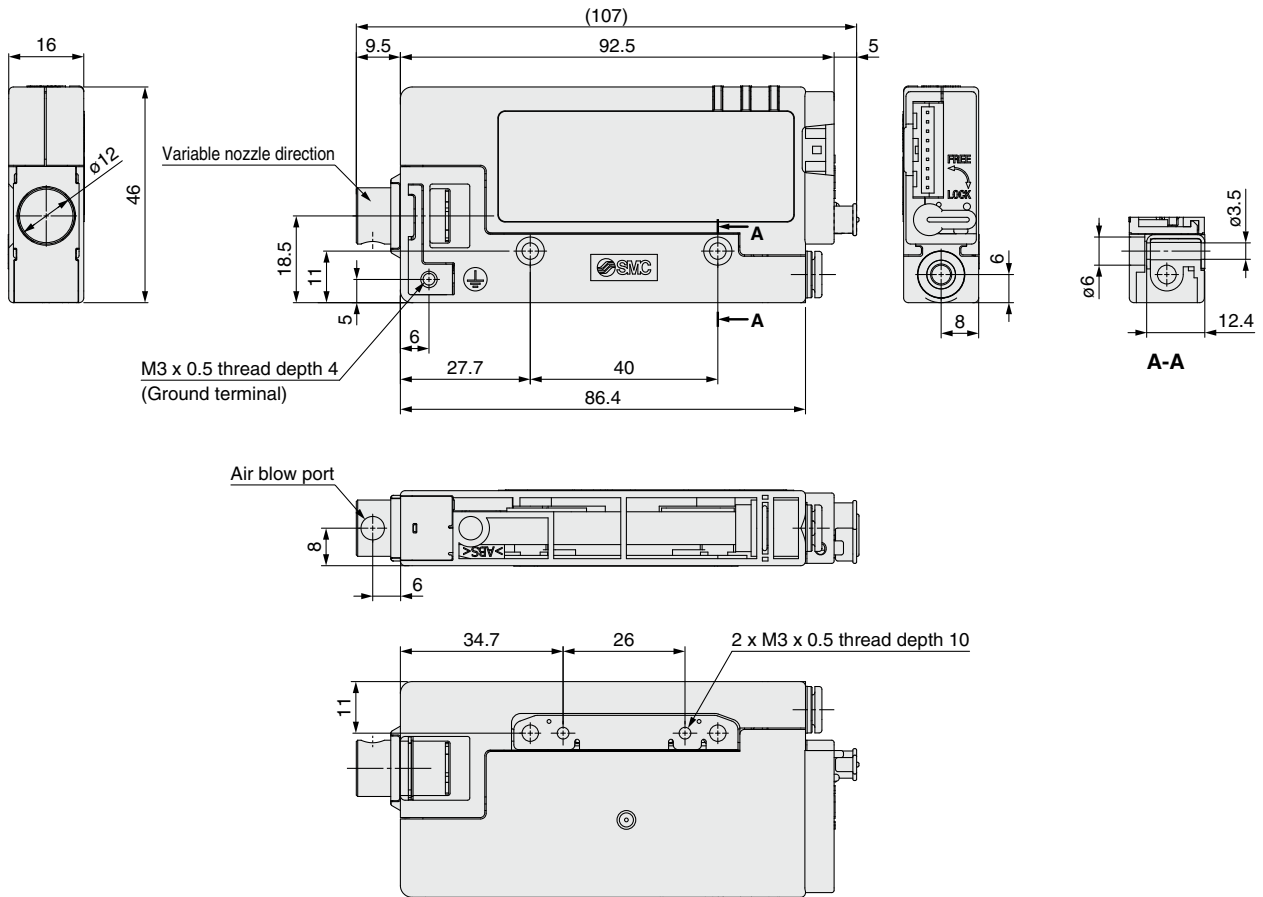


\* Static neutralization characteristics are based on data using a charged plate (Dimensions: 150 mm x 150 mm, Capacitance: 20 pF) as defined in the U.S. ANSI standards (ANSI/ESD STM3.1-2015). Use this data only as a guideline for model selection because the values vary depending on the material and/or size of the subject.

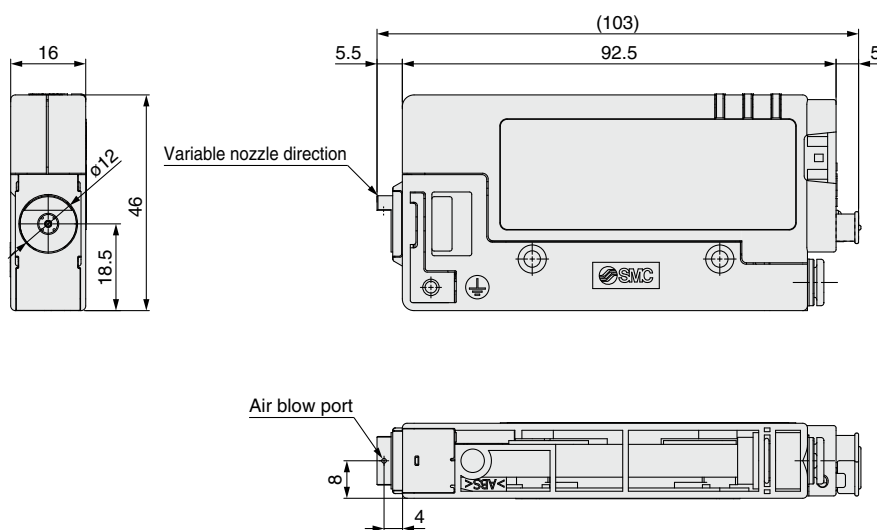


**Dimensions**

**Energy saving nozzle  
IZN10E-01-X367**



**High flow rate nozzle  
IZN10E-02-X367**



- IZS40/41/42
- IZT40/41(-L)/42(-L)/43(-L)
- IZN10E**
- IZF
- IZG10
- ZVB
- IZD10/IZE11
- IZH10
- Antistatic Equipment

# IZN10E Series

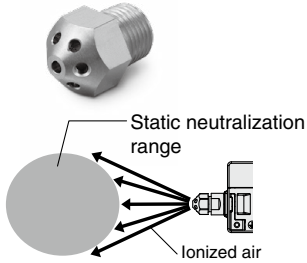
## Made to Order 2

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



### Nozzle Variations

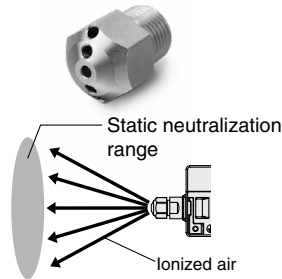
#### Circular diffusion nozzle



Part no.  
**IZN10-G-X198**

Supply pressure specifications:  
0.05 to 0.1 MPa

#### Flat diffusion nozzle



Part no.  
**IZN10-G-X199**

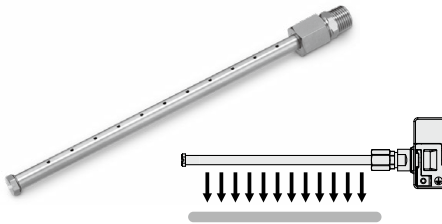
Supply pressure specifications:  
0.05 to 0.1 MPa

For the ionizer, please select the female threads for piping (Rc1/8). (Refer to "How to Order" on page 128.)



**IZN10E-11**

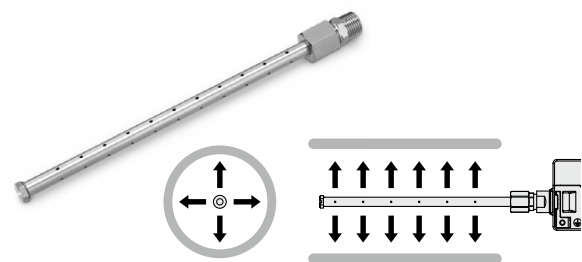
#### Bar nozzle (Straight type)



Part no.	Bar length [mm]
<b>IZN10-G-100-X216</b>	100
<b>IZN10-G-200-X216</b>	200
<b>IZN10-G-300-X216</b>	300
<b>IZN10-G-400-X216</b>	400
<b>IZN10-G-500-X216</b>	500
<b>IZN10-G-600-X216</b>	600

Supply pressure specifications:  
0.05 to 0.1 MPa

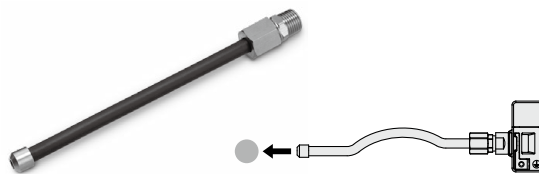
#### Circumferential jet bar nozzle (Straight type)



Part no.	Bar length [mm]
<b>IZN10-G-X278</b>	150

Supply pressure specifications:  
0.05 to 0.15 MPa

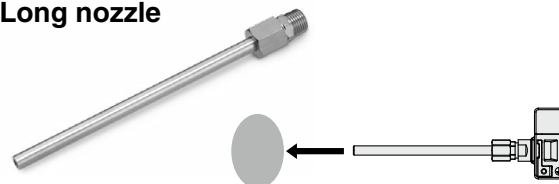
#### Bender tube nozzle



Part no.	Bar length [mm]
<b>IZN10-G-100-X205</b>	100
<b>IZN10-G-200-X205</b>	200
<b>IZN10-G-300-X205</b>	300
<b>IZN10-G-400-X205</b>	400
<b>IZN10-G-500-X205</b>	500
<b>IZN10-G-600-X205</b>	600

If the tubing is bent for use, maintain a min. bending radius of 20 mm.  
Supply pressure specifications:  
0.05 to 0.15 MPa

#### Long nozzle



Part no.	Bar length [mm]
<b>IZN10-G-100-X226</b>	100
<b>IZN10-G-200-X226</b>	200
<b>IZN10-G-300-X226</b>	300
<b>IZN10-G-400-X226</b>	400
<b>IZN10-G-500-X226</b>	500
<b>IZN10-G-600-X226</b>	600

Supply pressure specifications:  
0.05 to 0.15 MPa



# IZN10E Series

## Specific Product Precautions 1

Be sure to read this before handling the products. Refer to page 227 for safety instructions.

### Selection

#### Warning

- 1. This product is intended to be used with general factory automation (FA) equipment.**

If considering using the product for other applications (especially those indicated in warning (4) on page 227), please consult with SMC beforehand.

- 2. Use within the specified voltage and temperature ranges.**

Using outside of the specified voltage, temperature, or humidity range can cause a malfunction, damage, electric shock, or fire.

- 3. Use clean compressed air as fluid.**

This product is not explosion proof. Never use flammable gases or explosive gases 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.

- 4. 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 a fire.

#### Caution

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

### Mounting

#### Warning

- 1. Reserve 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 cable and air tube min. bending radius and avoid bending at acute angles.

Wiring with excessive twisting, bending, etc. can cause a malfunction, wire breakage, fire, or air leakage.

Min. bending radius: Power supply cable.....30 mm

(Note: Shown above is wiring with the fixed min. allowable bending radius and at a temperature of 20°C. If used under this temperature, the connector can receive excessive stress even though the min. bending radius is allowable.)

Regarding the min. bending radius of the air tubing, refer to the operation manual or catalog for tubing.

- 2. When installing the product directly on a mounting surface, mount it on a flat surface.**

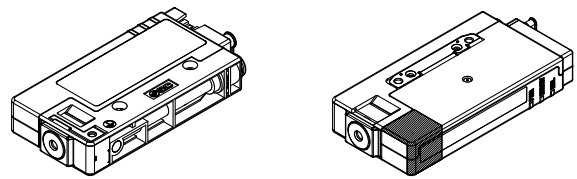
Mounting on an uneven surface will apply excess force to the ionizer body, which leads to damage or failure. Do not drop the product or subject it to a strong impact. This may cause an injury or accident.

### Mounting

#### Warning

- 3. Keep the area specified clear when the product is mounted directly on to a mounting surface or workpiece which is connected to ground.**

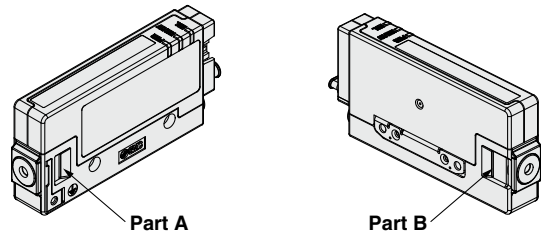
Install the product with the mounting surface or workpiece avoiding the shaded area in the drawing below. If the grounded mounting surface or workpiece is too close to the shaded area, the ozone concentration inside the product may increase, causing failure of the product, depending on the operating conditions.



\* Refer to the Dimensions (page 135) for dimensions of the shaded area.

- 4. Do not cover the external air intake port of the energy saving nozzle.**

The energy saving nozzle uses external air. The external air intake port is located in part A and part B. When installing an energy saving nozzle, do not cover the 2 external air intake ports. If the external air flow is blocked, product performance will be reduced.



- 5. 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 a malfunction and deterioration or damage of the internal elements. Take measures to prevent noise at its source and avoid power and signal lines from coming into close contact.

- 6. Use the correct tightening torque. Refer to the table below for tightening torque for screws.**

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

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

IZS40/41/42

IZT40/41(-L)/42(-L)/43(-L)

IZN10E

IZF

IZG10

ZVB

IZD10/IZE11

IZH10

Antistatic Equipment



## IZN10E Series

# Specific Product Precautions 2

Be sure to read this before handling the products. Refer to page 227 for safety instructions.

### Mounting

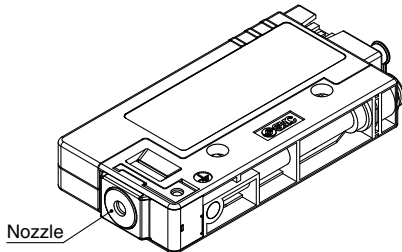
#### Warning

##### 7. 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 an electric shock, resulting in a sudden movement by the operator that can cause further injuries such as hitting the body on peripheral equipment. In addition, if the tool damages the emitter, the ionizer may fail or cause an accident.

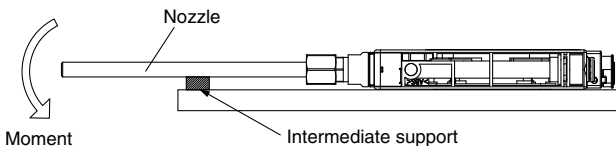
#### Danger: High Voltage

Caution: High voltage is being supplied to the emitters. Please do not touch the emitters as there is an electric shock danger with the insertion of contamination into the cartridge. In addition, one can be injured with evasive actions taken when suddenly removing oneself from the electrical shock danger.



##### 8. Do not apply moment to the nozzle.

A moment force may be applied to the nozzle depending on the shape of the nozzle attached to the female piping thread. It is possible that the nozzle or ionizer body will be damaged if vibration occurs. 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.



##### 9. Do not apply tape or stickers to the product body.

If a tape or seal contains any conductive adhesive or reflective paint, a dielectric phenomenon may occur due to the generated ions, resulting in electrostatic charge or electric leakage.

##### 10. Ensure the power supply is removed before installing and adjusting the product.

### Wiring / Piping

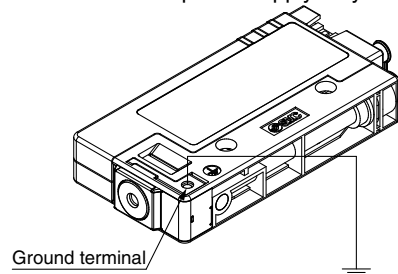
#### Warning

##### 1. Before wiring, ensure that the power supply capacity is enough and that the voltage is within the specification.

##### 2. To maintain product performance, the power supply shall be UL listed Class 2 certified by National Electric Code (NEC) or evaluated as a limited power source provided by UL60950.

##### 3. Make sure to ground with a resistance value 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. Wiring (including insertion and removal of the connector) should never be performed while the power is being supplied to the product.

##### 5. Ensure the safety of wiring and surrounding conditions before supplying power.

##### 6. Do not connect or disconnect the connectors (including power source) while the power is being supplied. Failure to follow this procedure may cause product malfunction.

##### 7. If the ionizer wiring and high-power lines are routed together, this product may malfunction due to noise. Therefore, use a separate wiring route for this product.

##### 8. Confirm that the wiring is correct before operation.

Incorrect wiring will lead to product damage or malfunction.

##### 9. Flush the piping before use.

Before using this product, please exercise caution to prevent particles, water drop, or oil contents 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. In addition, the 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 multiple ionizers in a narrow space can increase the ozone condensation. Therefore, check that the ozone condensation is not more than a standard value of 0.1 ppm in the operating environment while the ionizer is in operation.





# IZN10E Series

## Specific Product Precautions 3

Be sure to read this before handling the products. Refer to page 227 for safety instructions.

### Operating Environment / Storage Environment

#### Warning

##### 2. Take preventative measures against ozone.

Equipment used around this product should have ozone-prevention measures in place. In addition, regularly check that there is no deterioration due to ozone present.

##### 3. Be sure to supply air.

If air is not supplied, not only is the static neutralization effected but the ozone and nitrogen oxides generated in the ion generator also accumulate, which can cause adverse effects on the inside of the product and the peripheral equipment. Be sure to supply air during discharge.

When the product is used for intermittent ion blow, pressure fluctuations in the air supply can cause instability in the corona discharge ion generation process, resulting in difficulty maintaining the offset voltage. Depending on the blow frequency and piping length, abnormal discharge may occur in the ion generator, causing a high voltage error alarm to be generated. Therefore, when using intermittent ion blow, be sure to confirm that there are no problems with operation and static neutralization performance before use.

##### 4. Use within the ambient temperature range.

The ambient temperature range is 0 to 55°C for the ionizer. Do not use the product in locations where the ambient temperature changes suddenly, even if it stays within the specification range, or if there is a large temperature difference between the fluid and the ambient temperature as condensation may occur as a result.

##### 5. Environments to avoid

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

- a) Areas where the ambient temperature exceeds the range of 0 to 55°C
- b) Areas where the ambient humidity exceeds the range of 35 to 65%RH
- c) Areas where abrupt temperature changes may cause condensation
- d) Areas where corrosive gases, flammable gases, or other volatile flammable substances are stored
- e) Areas where the product may be exposed to conductive powder such as iron powder or dust, oil mist, salt, organic solvent, machining chips, particles, cutting oil (including water and any liquids), etc.
- f) Areas where ventilated air from an air conditioner is directly applied to the product
- g) Enclosed or poorly ventilated areas
- h) Locations which are exposed to direct sunlight or heat radiation
- i) Areas where strong electromagnetic noise is generated, such as strong electrical and magnetic fields or supply voltage spikes
- j) Areas where the product is exposed to static electricity discharge
- k) Locations where strong, high frequencies are generated
- l) Locations that are subject to potential lightning strikes
- m) Areas 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

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

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

Use clean compressed air (A compressed air quality of Class 2.4.3, 2.5.3, 2.6.3, or higher according to ISO 8573-1:2010 (JIS B 8392-1:2012) is recommended for operation.) by using an air dryer (IDF series), air filter (AF/AFF series), and mist separator (AFM/AM series).

##### 7. This product does not incorporate protection against lightning surges.

##### 8. Effects on implantable medical devices

This product may cause interference with implantable medical devices such as cardiac pacemakers and cardioverter defibrillators, resulting in the malfunction of the medical device or other adverse effects.

Please exercise 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

#### Warning

##### 1. Periodically inspect the ionizer and clean the emitters.

Check the product regularly to make sure it is not operating with undetected failures. Maintenance must be performed 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 static neutralization performance will be reduced. Since the energy saving nozzle is equipped with an ambient air introduction mechanism, it is more easily affected by the ambient air compared with the high flow rate nozzle or the female threads for piping, and dust tends to adhere to the emitters more quickly. Clean the emitters when the maintenance LED turns ON.

If the emitters become worn and the static neutralization performance is not restored after cleaning, replace the emitters.

#### Danger: High Voltage

This product contains a high voltage generation circuit. When performing maintenance or 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 also 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 will deteriorate due to the ozone and will need to be replaced regularly. Another option is to use an ozone resistant type.

##### 3. Cleaning of the emitters and replacement of the cartridge assemblies should never be performed while the power and compressed air are being supplied to the product.

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

If the cartridge assembly is removed while compressed air is being supplied, the cartridge assembly will shoot out.

If cartridge assemblies are not securely installed, they may shoot out or fall when compressed air is supplied.

##### 4. Do not disassemble or modify the product.

Otherwise, an electric shock, damage, and/or a fire may occur. In addition, disassembled or modified products may not achieve the performance guaranteed in the specifications, and the products will no longer be warranted.

##### 5. Do not operate the product with wet hands.

Otherwise, an electric shock or accident may occur.

### Handling

#### Warning

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

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

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

IZS40/41/42

IZT40/41(-L)/42(-L)/43(-L)

IZN10E

IZF

IZG10

ZVB

IZD10/IZE11

IZH10

Antistatic Equipment