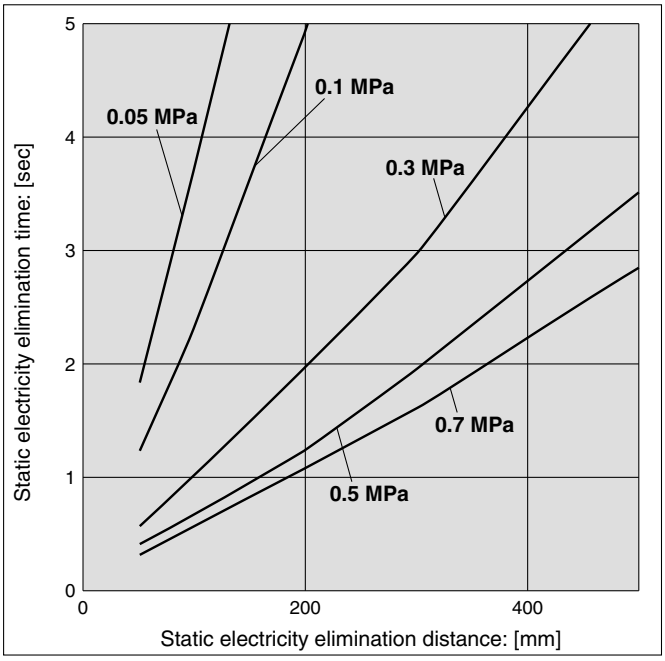
Series IZN10
Technical Data 1

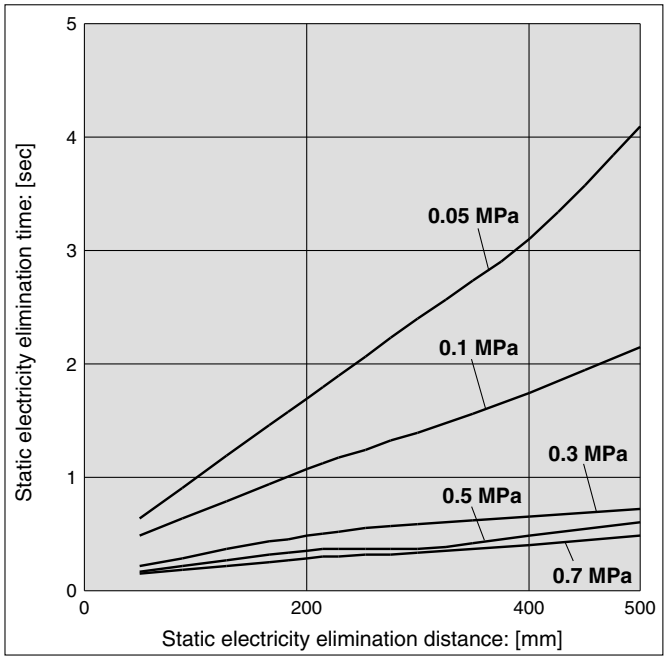
Static Electricity Elimination Characteristics (Static Electricity Elimination Time from 1000 V to 100 V)

Note) Static electricity elimination 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, 1-2000). 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 electricity elimination nozzle / IZN10-01



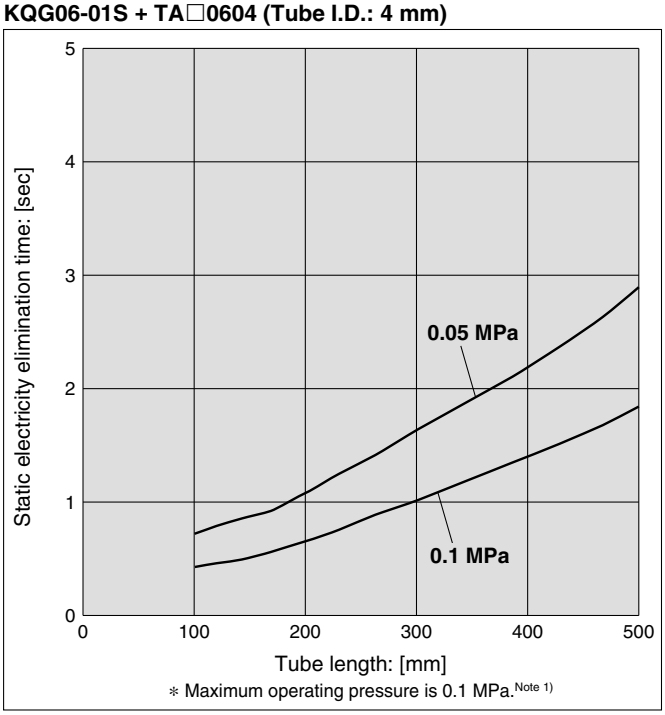
(2) High flow rate nozzle / IZN10-02



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

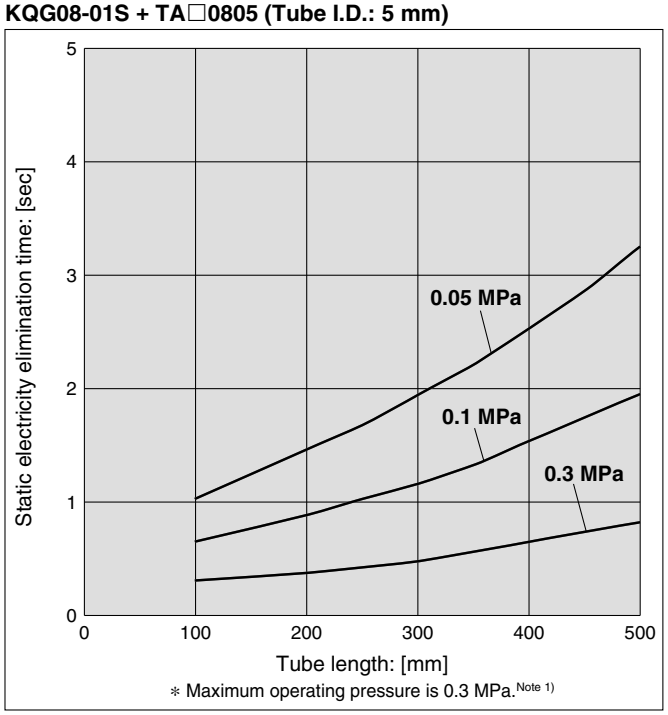
∗ Static electricity elimination time at a distance of 50 mm from the end of tube.

KQG06-01S + TA□0604 (Tube I.D.: 4 mm)



∗ Maximum operating pressure is 0.1 MPa.[Note 1)]

KQG08-01S + TA□0805 (Tube I.D.: 5 mm)



∗ Maximum operating pressure is 0.3 MPa.[Note 1)]

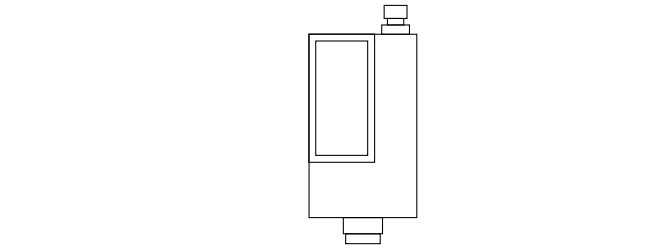
Note 1) If a pressure over the maximum operating pressure is applied, the electrode needle contamination detector will work and turn on the LED.
- The ion generating efficiency of the high frequency AC type ionizer will decrease when the pressure around the electrode needle reaches 0.1 MPa or more, due to its ion generating mechanism. This means that even when the electrode needle is not contaminated, the electrode needle contamination detector may work depending on the condition of the connected tube and other reasons.
- In the range where the contamination detection signal is generated, a small amount of ions are still generated, so it can be used in some operating conditions. In this case, please consider using a type without the contamination detector. (Page 5)
- When the tube is connected using the female threads for piping / IZN10-11, be sure to check static electricity elimination performance beforehand.

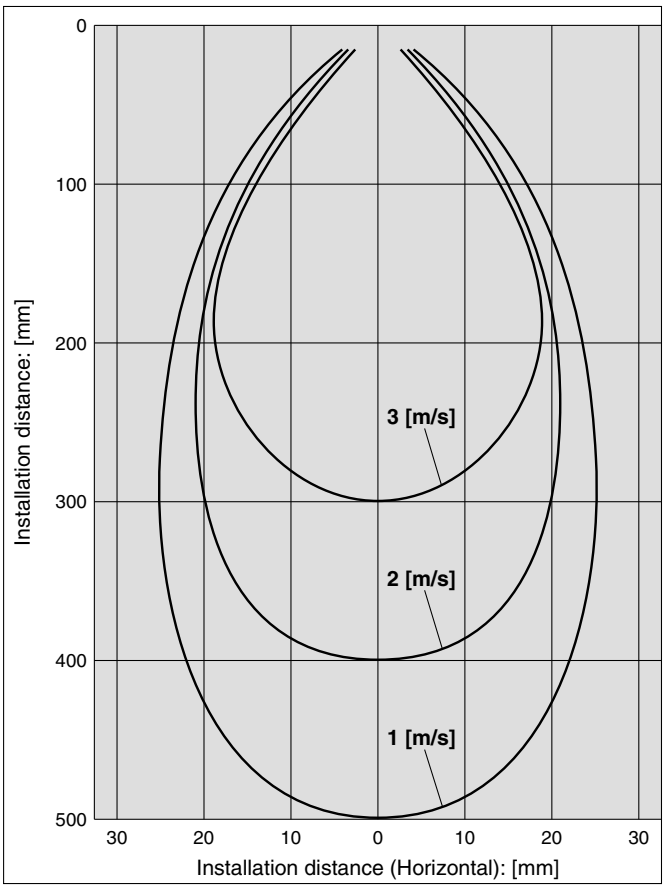
Note 2) The ionizer generates a small amount of ozone. Select ozone-resistant fittings for the female threads for piping. Also, regularly check there is no deterioration due to ozone.

Technical Data 1

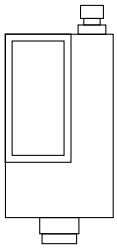
Blow Velocity Distribution (Supply Pressure: 0.3 MPa)

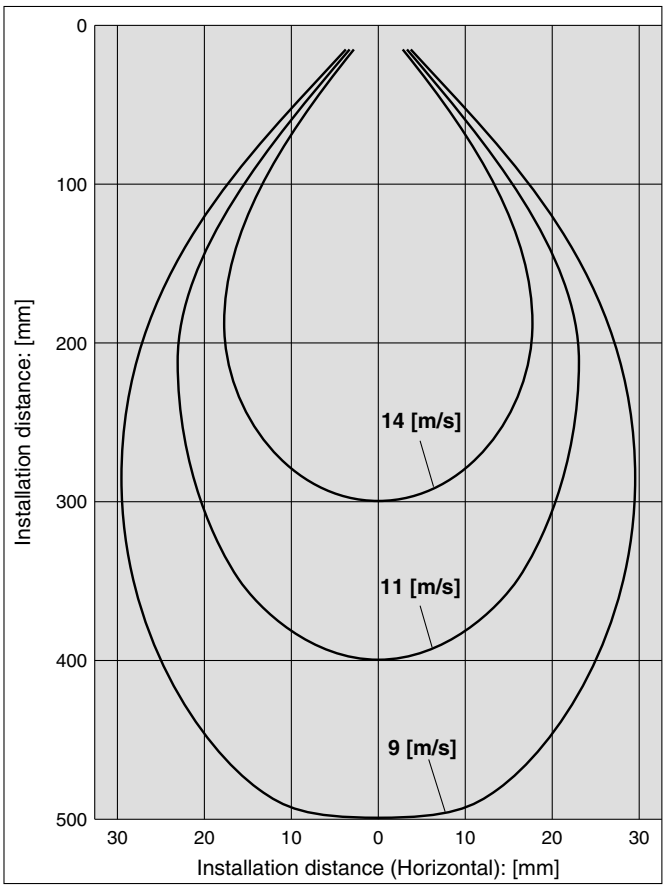
(1) Energy saving static electricity elimination nozzle / IZN10-01





(2) High flow rate nozzle / IZN10-02

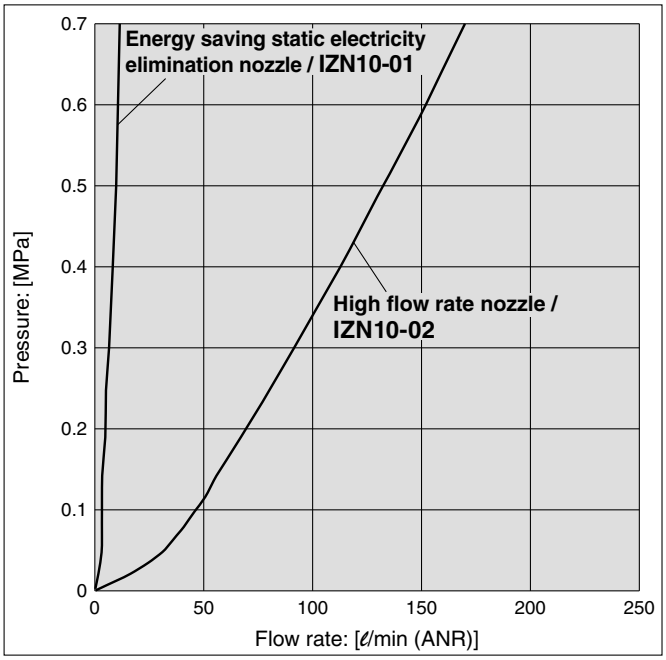




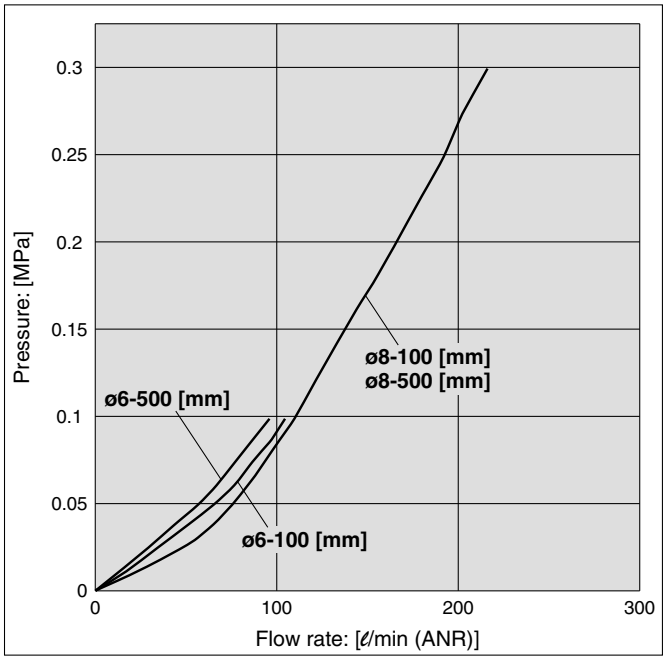
Technical Data 2

Flow Characteristics

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



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



Note) When a pressure above each line is used, the electrode needle contamination detector will work and turn on the LED.
(Refer to the bottom note on page 1.)

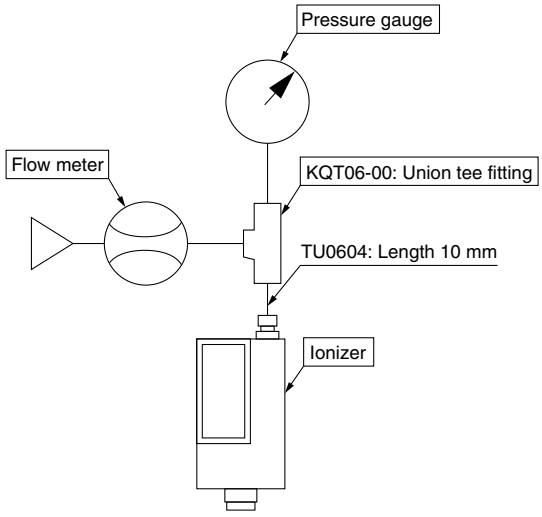
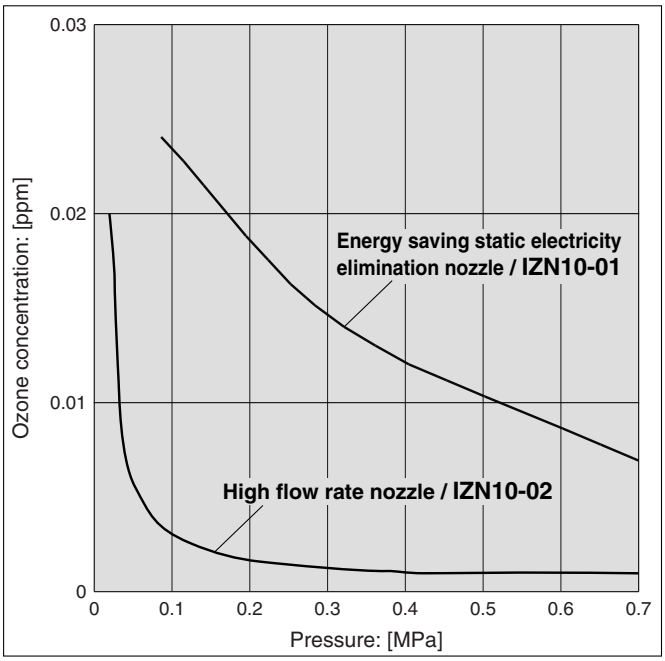


Fig. 1: Flow characteristics measuring circuit

Technical Data 3

Ozone Concentration

(1) Energy saving static electricity elimination 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.

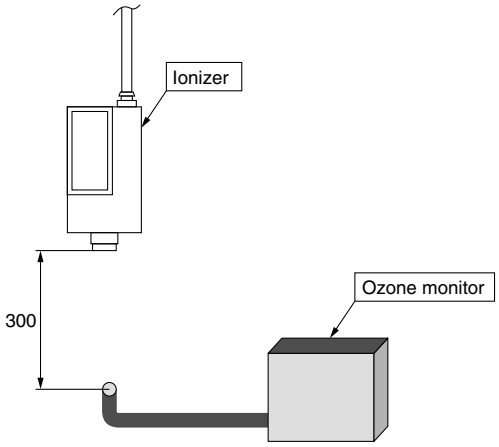


Fig. 2: Ozone condensation measuring circuit

Ionizer
Series IZN10

How to Order

IZN10 – 01 P 06 □ – □

High frequency AC nozzle type

Nozzle type

Symbol	Type	
01	Energy saving static electricity elimination nozzle	
02	High flow rate nozzle	
11	Female threads for piping Note)	Rc1/8

Note) Used with a fitting and a tube on the end

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)

Power supply cable

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

Bracket

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

∗ Refer to page 6.

Made to Order

Non-standard power supply cable length

How to Order	Contents/Specifications
IZN10-CP 01 -X13 Symbol / Cable length **01** 1 m **02** 2 m ⋮ ⋮ **19** 19 m **20** 20 m	Model with made-to-order power supply cable Available in 1 m increments from 1 m to 20 m. Note) Use standard power supply cables for 3 m and 10 m lengths.

Without electrode needle contamination detector

How to Order	Contents/Specifications
IZN10-11 □□□-□-X194 Fill in the standard model type shown above. **Without electrode needle contamination detector**	With this specification, contamination detection signal is not generated when the pressure around the electrode needle increases due to tube piping etc. This specification is recommended when the tube needs to be extended. • The ion generating efficiency of the high frequency AC type ionizer will decrease when the pressure around the electrode needle reaches 0.1 MPa or more, due to its ion generating mechanism, and the contamination detection signal will be generated. However, in the range where the contamination detection signal is generated, a small amount of ions are still generated, so it can be used in some operating conditions.

Accessories

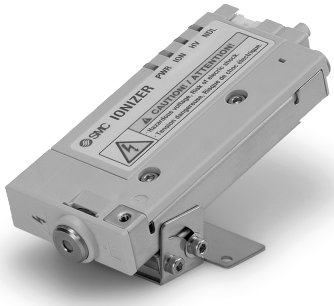
Bracket

• L-bracket / IZN10-B1

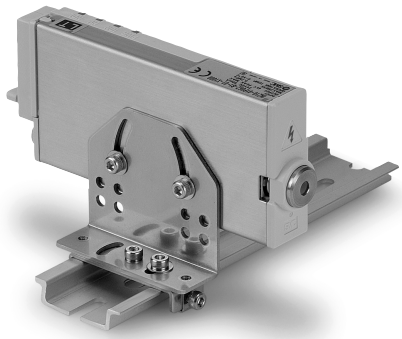
Fixed mounting

Pivot mounting

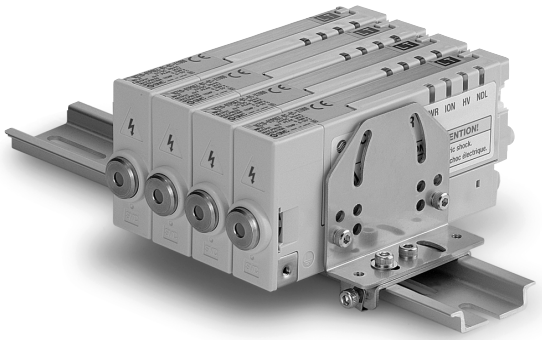
• Pivoting bracket / IZN10-B2



• DIN rail mounting bracket / IZN10-B3



Single unit



Manifold*

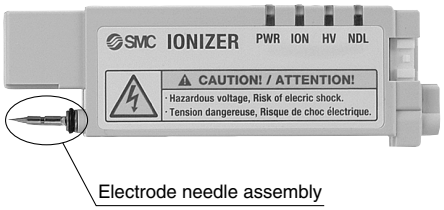
* The L-bracket and the DIN rail mounting bracket can be used with the manifold.

Power supply cable

• IZN10-CP (3 m)
• IZN10-CPZ (10 m)

Repair Parts

Electrode needle assembly / IZN10-NT



Options

Manifold mounting parts set

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

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

How to Order

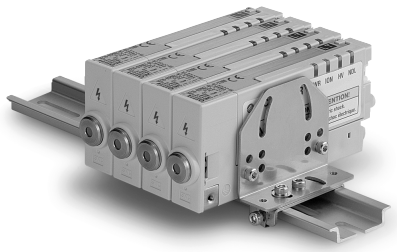
IZN10 – ES □

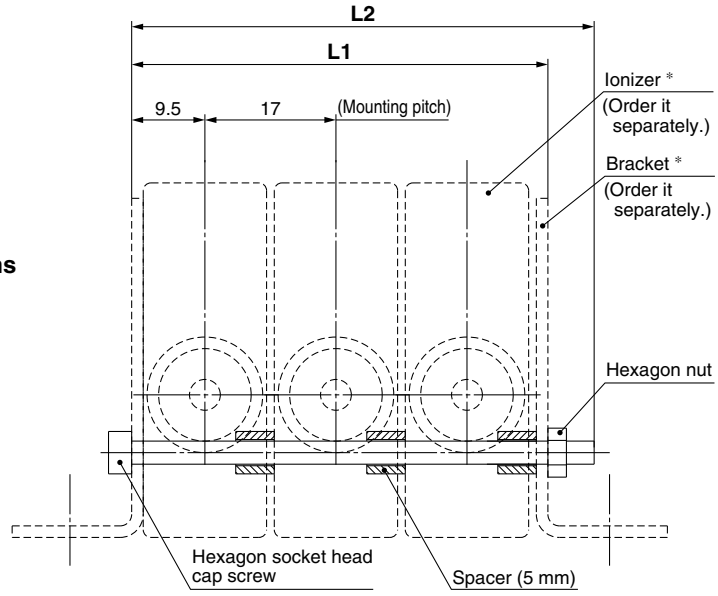
Mounting pitch

Symbol	Pitch
ES	17 mm

Mounting stations

Symbol	Stations
2	2
3	3
4	4

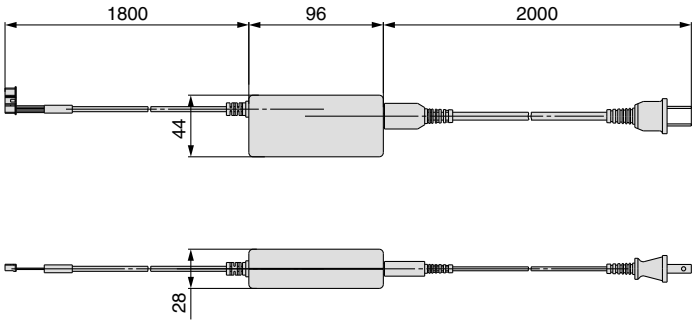




* Prepare two brackets and ionizer separately.

Part no.	L1	L2	Number of spacers
IZN10-ES2	37	40	2
IZN10-ES3	54	60	3
IZN10-ES4	71	75	4

AC adapter / IZN10-F-X196



Note) Not applicable to PNP.

Electrode needle cleaning kit / IZS30-M2

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 Note 1)		2,500 V	
Ion balance Note 2)	**Energy saving static electricity elimination nozzle**	Within ±10 V	
	High flow rate nozzle	Within ±15 V	
Ozone generation Note 3)		0.03 ppm (0.05 ppm for energy saving static electricity elimination nozzle)	
Air purge	**Fluid**	Air (Clean dry air)	
	Operating pressure Note 4)	0.05 MPa to 0.7 MPa	
	Connecting tube size	ø6 / ø1/4 inch	
Power supply voltage		24 VDC ±10%	
Current consumption		80 mA	
Input signal	**Discharge stop signal**	Connected to GND (ON voltage: 0.6 V or less) Current consumption: 5 mA or less	Connected to +24 V (ON voltage: Between +19 V and power supply voltage) 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 signal		
Effective static electricity elimination 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	
Vibration resistance		Durability: 50 Hz, Amplitude: 1 mm, XYZ each 2 hours	
Shock resistance		10 G	
Mass		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 static electricity elimination time, refer to technical data on page 1.
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 eliminated 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.

Functions

1. Electrode needle contamination detection

Detects lowered static electricity elimination performance due to contamination or wear of the electrode needle. The maintenance LED lights up and maintenance signal is generated.

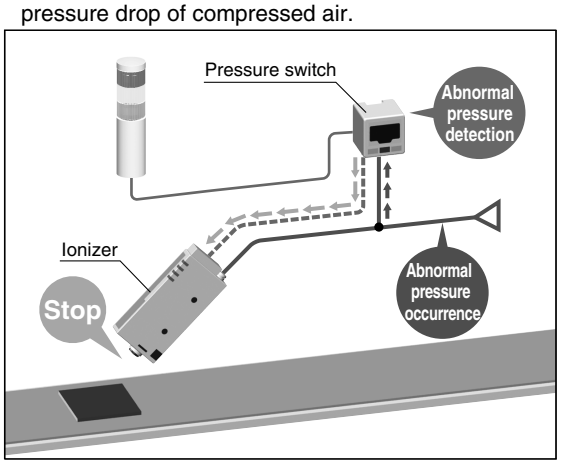
2. Signal inputs by external switch

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.

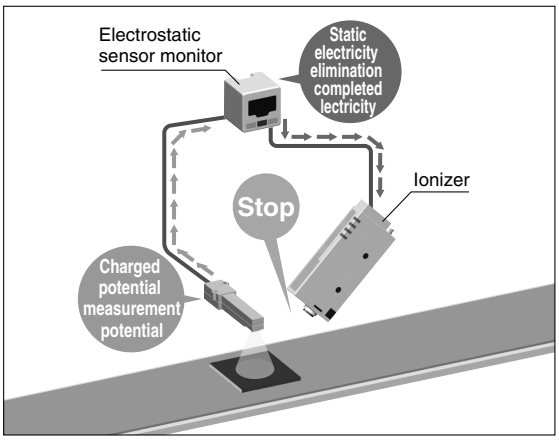
• Prevents static electricity elimination trouble due to pressure drop of compressed air.



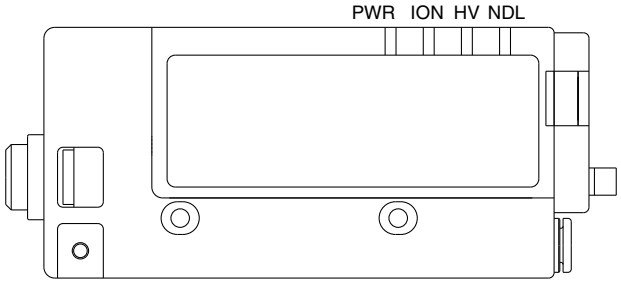
Example

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

• Energy can be saved by stopping discharge when static electricity elimination 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 electrode needle.
Maintenance display	NDL	Orange	Lights up when electrode needle contamination is detected.

(b) 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	○				
Electrode needle contamination detected	○	○		○	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 electrode needle	Gives notification that electrode needle maintenance is necessary. The NDL LED turns on and a maintenance output signal is turned on.	Turn off the power, clean the electrode needles, and turn the power on again.

Wiring

No.	Cable color	Description	I/O	Wiring requirement Note)	I/O	Specifications
1	Brown	Power supply +24 V	–	○	–	–
2	Blue	Power supply GND	–	○	–	–
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 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 GND is connected, and turned off when disconnected.
PNP: The signal is turned on when the power supply 24 V is connected, and turned off when disconnected.

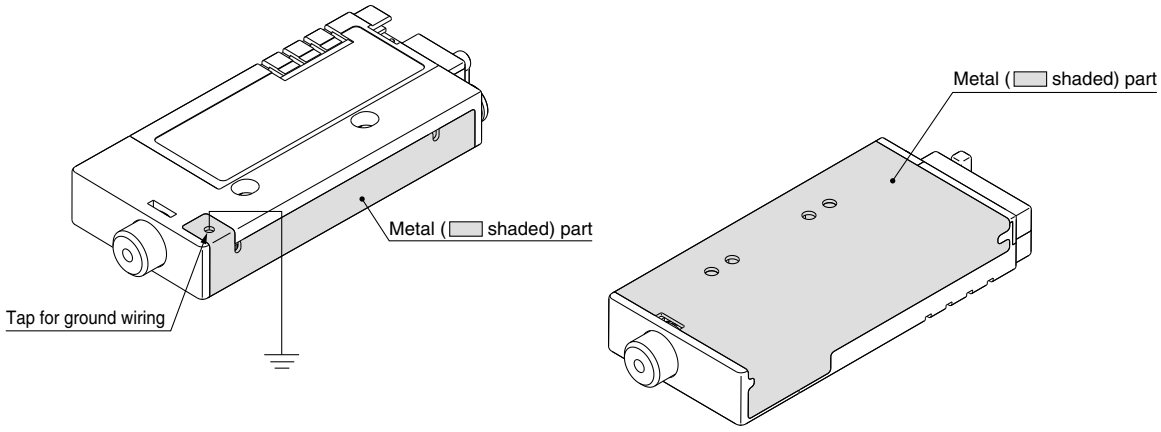
• Output signal

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.

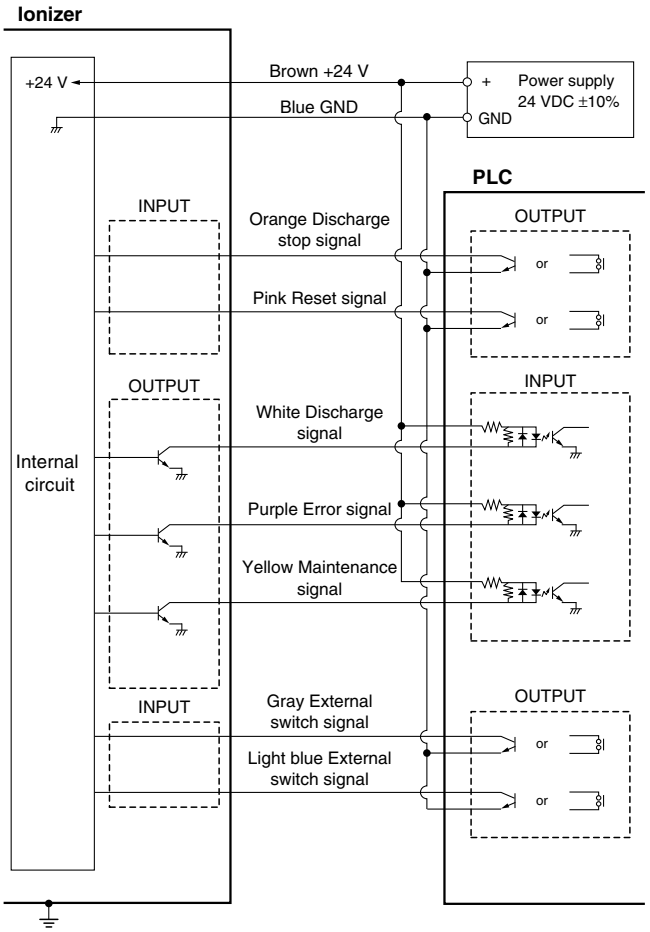
Provide Grounding.

• Provide class D ground to the tap for ground wiring or metal (▭ shaded) parts around the external face of the ionzier.
If grounding is not provided or is incomplete, the ionizer will not be able to achieve its specified static electricity elimination performance.
Also, the maintenance signal will be generated.



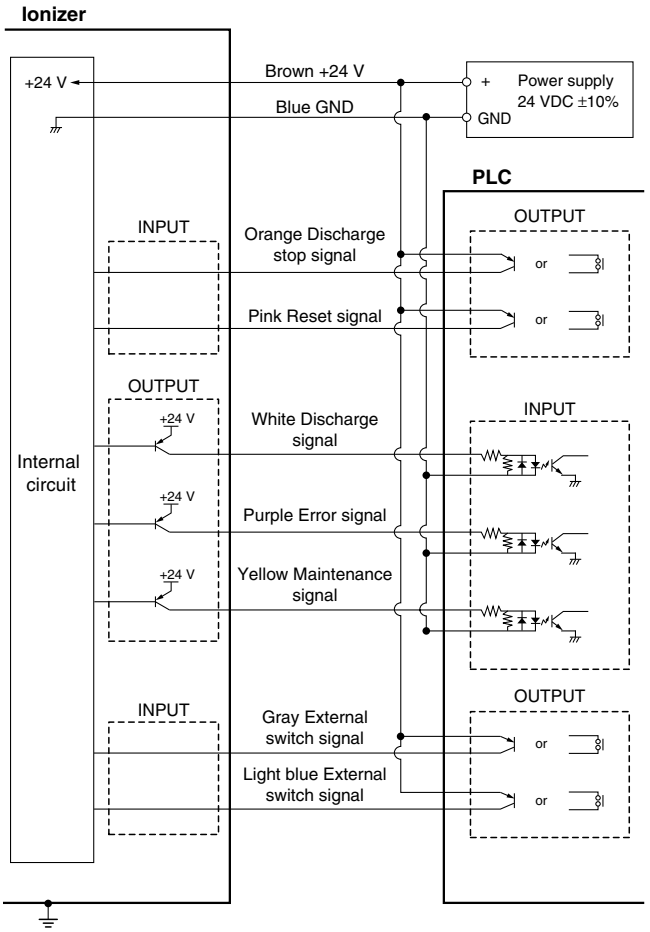
Power Supply Cable Connection Circuit

■ **NPN**



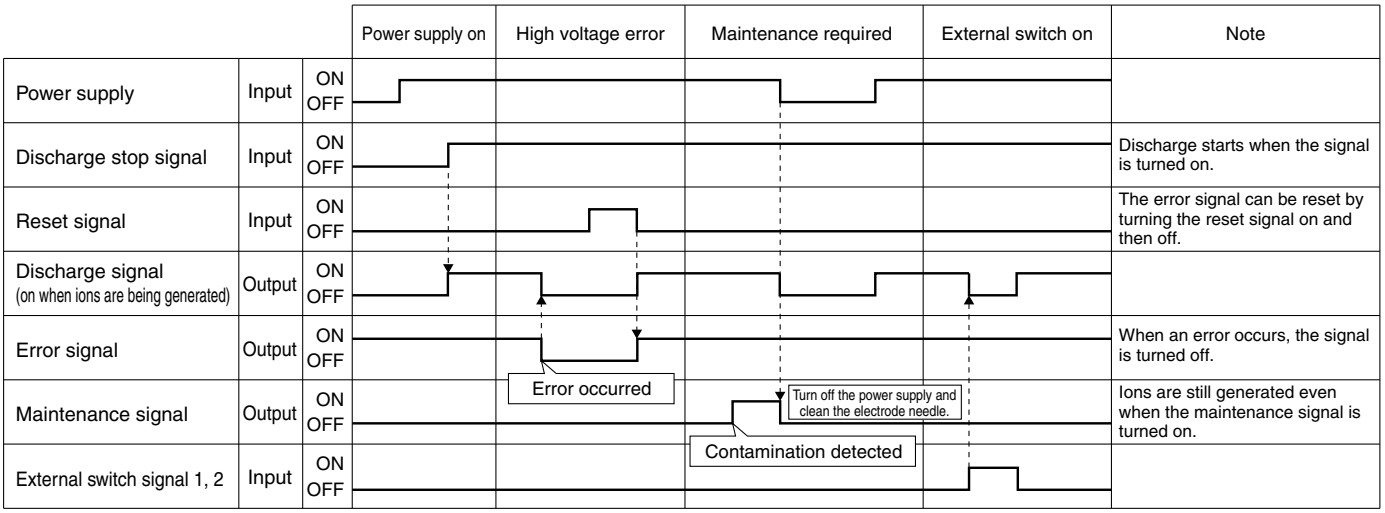
Class D grounding to external metal parts
(no electrical connection to internal circuit)

■ **PNP**



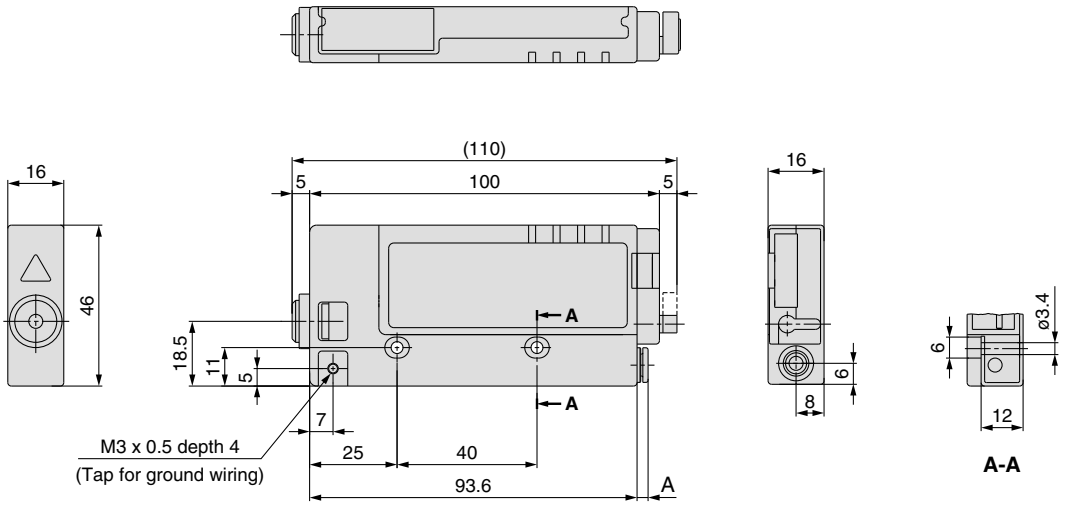
Class D grounding to external metal parts
(no electrical connection to internal circuit)

Timing Chart



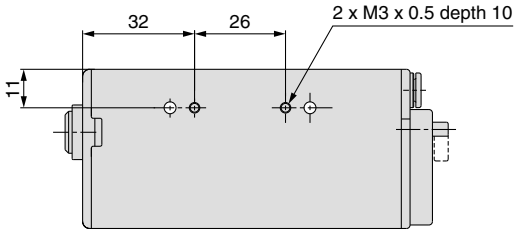
Dimensions

Energy saving static electricity elimination nozzle / IZN10-01□ 06 07
High flow rate nozzle / IZN10-02□ 06 07

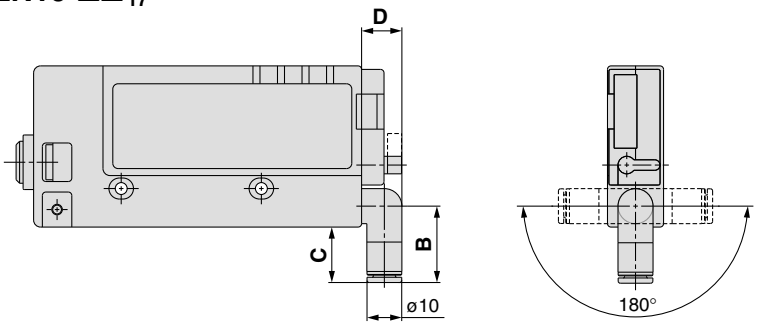


(mm)

Model	A
IZN10-$^{01}_{02}$□06 (mm)	3.5
IZN10-$^{01}_{02}$□07 (inch)	7



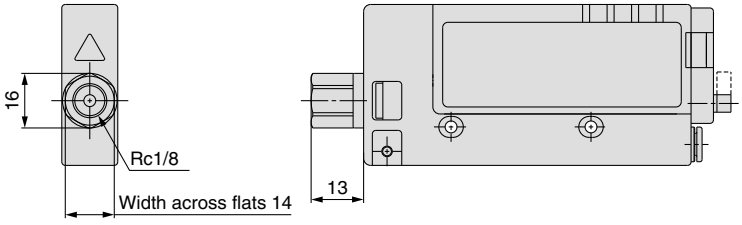
Elbow for piping port / IZN10-□□ 16 17



(mm)

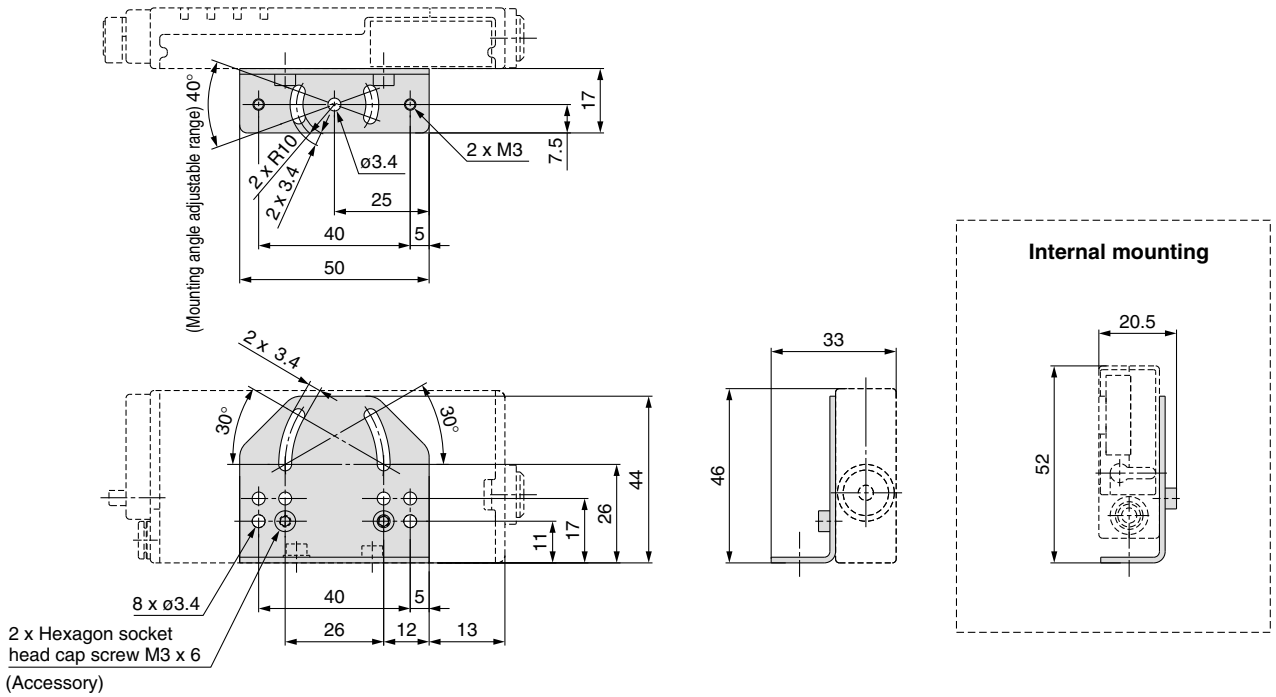
Model	B	C	D
IZN10-□□16 (mm)	22	16	11.5
IZN10-□□17 (inch)	24.5	18.5	12

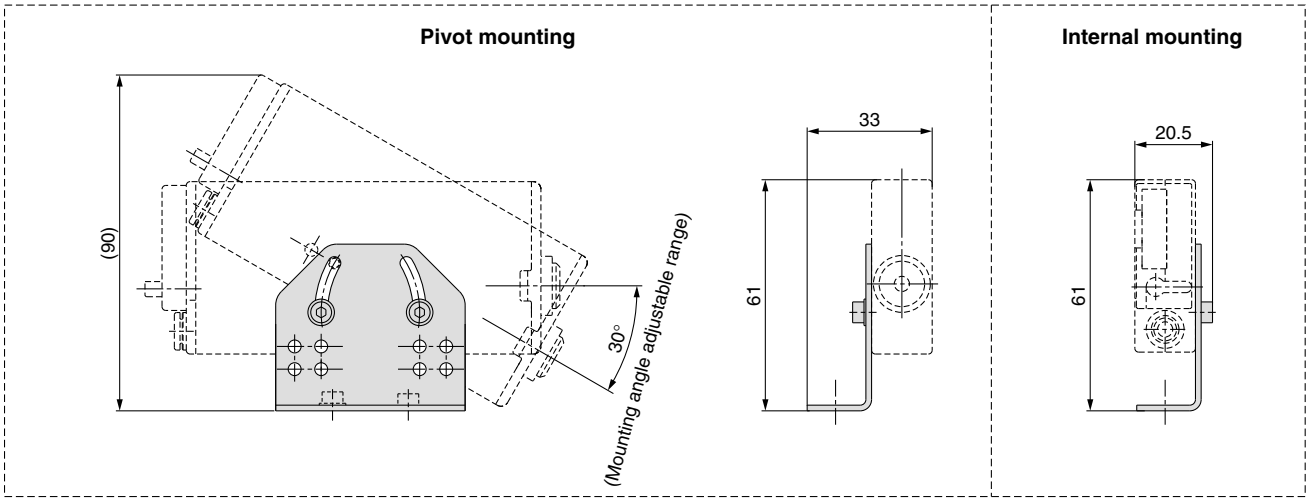
IZN10-11
Female threads for piping (Rc1/8)



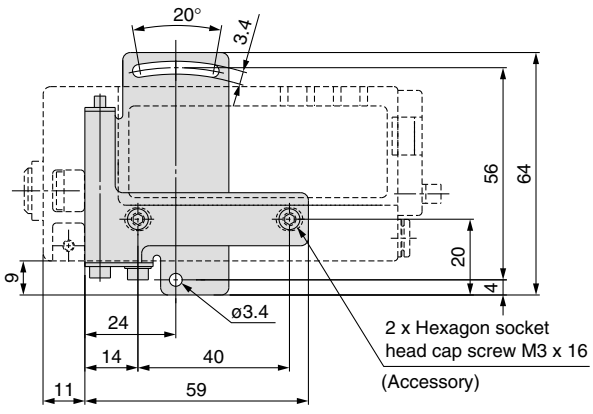
Dimensions

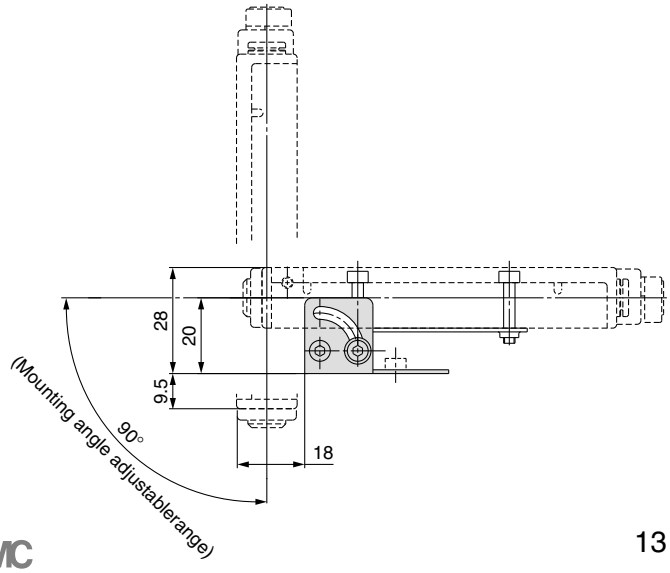
L-bracket / IZN10-B1





Pivoting bracket / IZN10-B2





Dimensions

DIN rail mounting bracket / IZN10-B3