Ioniser
Nozzle type

Dust removal and static electricity elimination by air blow
- Eliminates dust clinging to lamp covers.

Spot type static electricity elimination
- Prevents electrostatic breakdown of electric parts.
- Prevents detachment failure.

Removing dust from lamp a cover

Eliminating static electricity from an IC chip

Ion balance $\pm 10 \text{ v}$ (In case of energy saving static electricity elimination nozzle)

Slim design: Thickness dimension 16 mm

RoHS compliant

1. Electrode needle contamination detector
   Outputs maintenance signal when detects stain or wear of an electrode needle.
   Detects optimal maintenance time, reduced labour for maintenance.

2. With built-in power supply substrate
   High-voltage power supply cable and external high-voltage power supply are unnecessary.
The Nozzle type can be selected according to the application.

**Energy saving static electricity elimination nozzle**

**Short range static electricity elimination.**
Design focuses on ion balance.

**Ion balance:** ±10 V

Increases flow volume by external air intake

Static electricity elimination is possible with minimal air consumption.

In cases of same air consumption, static electricity is eliminated in half the time.
(Supply pressure 0.3 MPa)

<table>
<thead>
<tr>
<th>External air inlet</th>
<th>None</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air consumption flow rate (l/min (ANR))</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Static electricity elimination time* sec</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>Ionised air flow velocity m/s</td>
<td>0.4</td>
<td>2.5</td>
</tr>
</tbody>
</table>

* At 300 mm distance

**Improved 6 times**

**Reduced by 50%**

- **Eliminating static electricity from an electric substrate**
  - Prevents electrostatic breakdown of electric parts.

- **Eliminating static electricity from lenses**
  - Removes dust from lenses.
  - Prevents adhesion of dust.

- **Eliminating 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 electricity elimination nozzle**

**Long range static electricity elimination and dust removal**

**Ionised air assisted by compressed air**

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

**Ion balance:** ±15 V

- **Eliminating static electricity from molded goods**
  - Prevents problems with the separation of molded plastic goods.

- **Eliminating static electricity from plastic cups**
  - Removes dust clinging to cup interiors.

- **Eliminating static electricity from parts feeders**
  - Prevents clogging of a parts feeder.
External switch input function (2 inputs)

Prevents static electricity elimination trouble due to pressure drop of compressed air.
The emission of static electricity is suspended when abnormal purge air pressure is detected by the pressure switch.

Energy saving with electrostatic sensor
Emission of static electricity is suspended when an electrostatic sensor detects that static electricity elimination is completed.

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

- Possible to conduct maintenance without removal of the body.
- Tools are unnecessary for the installation or removal of the cartridge!
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.
**Static Electricity Elimination Characteristics**

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

**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 ioniser 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 female threads for piping / IZN10-11, be sure to check static electricity elimination performance beforehand.

**Note 2)** The ioniser 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.

---

**Series IZN10**

**Technical Data 1**

**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 the tube.

**KQG06-01S + TA0604 (Tube I.D.: 4 mm)**

**KQG08-01S + TA0805 (Tube I.D.: 5 mm)**
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

![Diagram of blow velocity distribution for energy saving nozzle and high flow rate nozzle. The graphs show the velocity distribution at different installation distances.]
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

Fig. 1: Flow characteristics measuring circuit

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.)
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
How to Order

**IZN10** - **01** **P** **06** -

**High frequency AC nozzle type**

**Nozzle type**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Energy saving static electricity elimination nozzle</td>
</tr>
<tr>
<td>02</td>
<td>High flow rate nozzle</td>
</tr>
<tr>
<td>11</td>
<td>Female threads for piping <em>Note</em> Rc1/8</td>
</tr>
</tbody>
</table>

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

**Output specification**

- NPN output
- PNP output

**Port size**

- Ø6: Metric size
- Ø6.35 (1/4): Inch size
- Ø6: Metric size (Elbow)
- Ø6.35 (1/4): Inch size (Elbow)

**Bracket**

- Without bracket
- With L-bracket
- With pivoting bracket
- With DIN rail mounting bracket

*Refer to page 6.

**Power supply cable**

- With power supply cable (3 m)
- With power supply cable (10 m)
- Without power supply cable

Made to Order

**Non-standard power supply cable length**

<table>
<thead>
<tr>
<th>How to Order</th>
<th>Contents/Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>IZN10-CP <strong>01</strong> -X13</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Cable length</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>1 m</td>
</tr>
<tr>
<td>02</td>
<td>2 m</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>19</td>
<td>19 m</td>
</tr>
<tr>
<td>20</td>
<td>20 m</td>
</tr>
</tbody>
</table>

**Without electrode needle contamination detector**

<table>
<thead>
<tr>
<th>How to Order</th>
<th>Contents/Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>IZN10-11 <strong>11</strong> -X194</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Without electrode needle contamination detector**

- Fill in the standard model type shown above.

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 ioniser 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 within the contamination detection signal is generated, a small amount of ions are still generated, so it can be used under some operating conditions.
Series IZN10

Accessories

Bracket
- L-bracket / IZN10-B1
- Pivoting bracket / IZN10-B2

• Fixed mounting
• Pivot mounting

• DIN rail mounting bracket / IZN10-B3

• Single unit

Power supply cable
- IZN10-CP (3 m)
- IZN10-CPZ (10 m)

Repair Parts

Electrode needle assembly / IZN10-NT

Electrode needle assembly

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

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

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

How to Order

IZN10-ES

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES</td>
<td>17 mm</td>
</tr>
</tbody>
</table>

Mounting stations

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Electrode needle cleaning kit / IZS30-M2
### Specifications

#### Ioniser model

<table>
<thead>
<tr>
<th>Ion generation method</th>
<th>Corona discharge type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of applying voltage</td>
<td>High frequency AC type</td>
</tr>
<tr>
<td>Discharge output (Note 1)</td>
<td>2,500 V</td>
</tr>
<tr>
<td>Ion balance (Note 2)</td>
<td>Energy saving static electricity elimination nozzle: Within ±10 V</td>
</tr>
<tr>
<td></td>
<td>High flow rate nozzle: Within ±15 V</td>
</tr>
<tr>
<td>Ozone generation (Note 3)</td>
<td>0.03 ppm (0.05 ppm for energy saving static electricity elimination nozzle)</td>
</tr>
<tr>
<td>Air purge</td>
<td>Fluid: Air (Clean dry air)</td>
</tr>
<tr>
<td></td>
<td>Operating pressure (Note 4): 0.05 MPa to 0.7 MPa</td>
</tr>
<tr>
<td></td>
<td>Connecting tube size: ø6 / ø1/4 inch</td>
</tr>
<tr>
<td>Power supply voltage</td>
<td>24 VDC ±10%</td>
</tr>
<tr>
<td>Current consumption</td>
<td>80 mA</td>
</tr>
<tr>
<td>Input signal</td>
<td>Discharge stop signal: Connected to GND (ON voltage: 0.6 V or less)</td>
</tr>
<tr>
<td></td>
<td>Current consumption: 5 mA or less</td>
</tr>
<tr>
<td></td>
<td>Reset signal: Connected to +24 V (ON voltage: Between +19 V and power supply voltage)</td>
</tr>
<tr>
<td></td>
<td>Current consumption: 5 mA or less</td>
</tr>
<tr>
<td>Output signal</td>
<td>Discharge signal: Max. load current: 40 mA</td>
</tr>
<tr>
<td></td>
<td>Residual voltage: 1 V or less (load current at 40 mA)</td>
</tr>
<tr>
<td></td>
<td>Error signal: Max. applied voltage: 28 VDC</td>
</tr>
<tr>
<td></td>
<td>Maintenance signal:</td>
</tr>
<tr>
<td>Effective static electricity elimination distance</td>
<td>20 mm to 500 mm</td>
</tr>
<tr>
<td>Ambient and fluid temperature</td>
<td>0 to 55°C</td>
</tr>
<tr>
<td>Ambient humidity</td>
<td>35 to 65%RH</td>
</tr>
<tr>
<td>Material</td>
<td>Housing: ABS, Stainless steel</td>
</tr>
<tr>
<td></td>
<td>Nozzle: Stainless steel</td>
</tr>
<tr>
<td></td>
<td>Electrode needle: Tungsten</td>
</tr>
<tr>
<td>Vibration resistance</td>
<td>Durability: 50 Hz, Amplitude: 1 mm, XYZ each 2 hours</td>
</tr>
<tr>
<td>Shock resistance</td>
<td>10 G</td>
</tr>
<tr>
<td>Weight</td>
<td>120 g</td>
</tr>
</tbody>
</table>

**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 the ioniser at an air purge pressure of 0.3 MPa.

**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 an air purge. Also, failure of the air purge can increase internal ozone condensation, adversely affecting the ioniser and peripheral equipment. Be sure to perform an air purge while energising the ioniser.
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 a maintenance signal is generated.

2. Signal inputs by external switch
There are 2 ports for external switch signal inputs.

3. Description of LEDs

<table>
<thead>
<tr>
<th>Description</th>
<th>Symbol</th>
<th>Colour</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply display</td>
<td>PWR</td>
<td>Green</td>
<td>Lights up when the power supply is turned on.</td>
</tr>
<tr>
<td>Discharge</td>
<td>ION</td>
<td>Green</td>
<td>Lights up when static electricity is discharged.</td>
</tr>
<tr>
<td>Irregular high voltage display</td>
<td>HV</td>
<td>Red</td>
<td>Lights up when an irregular current flows on an electrode needle.</td>
</tr>
<tr>
<td>Maintenance display</td>
<td>NDL</td>
<td>Orange</td>
<td>Lights up when electrode needle contamination is detected.</td>
</tr>
</tbody>
</table>

(b) Behaviour of LEDs

<table>
<thead>
<tr>
<th>Items</th>
<th>PWR</th>
<th>ION</th>
<th>HV</th>
<th>NDL</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal operation (with discharge stop signal on)</td>
<td>☒</td>
<td>☒</td>
<td></td>
<td></td>
<td>Ions are being generated.</td>
</tr>
<tr>
<td>Normal operation (with discharge stop signal off)</td>
<td>☒</td>
<td></td>
<td></td>
<td></td>
<td>Discharge stops.</td>
</tr>
<tr>
<td>Abnormal high voltage detected</td>
<td>☒</td>
<td>☒</td>
<td></td>
<td></td>
<td>Discharge stops when an error is detected.</td>
</tr>
<tr>
<td>External switch signal 1</td>
<td>☒</td>
<td></td>
<td></td>
<td></td>
<td>Discharge stops when the signal is turned on.</td>
</tr>
<tr>
<td>External switch signal 2</td>
<td>☒</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrode needle contamination detected</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td></td>
<td>Ions keep being generated even after the contamination is detected.</td>
</tr>
</tbody>
</table>

4. Alarm

<table>
<thead>
<tr>
<th>Alarm item</th>
<th>Description</th>
<th>Corrective actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>High voltage error</td>
<td>Gives notification of the occurrence of an irregular current, such as high-voltage leakage. The ioniser stops discharging, turns on the HV LED. When an error occurs, the signal output is turned off.</td>
<td>Turn the power off, solve the problem, then turn the power on again. If the error is solved during operation, turn the reset signal off and then on.</td>
</tr>
<tr>
<td>Maintenance electrode needle</td>
<td>Gives notification that electrode needle maintenance is necessary. The NDL LED turns on and a maintenance output signal is turned on.</td>
<td>Turn the power off, clean the electrode needles, and turn the power on again.</td>
</tr>
</tbody>
</table>
## Wiring

<table>
<thead>
<tr>
<th>No.</th>
<th>Cable colour</th>
<th>Description</th>
<th>I/O</th>
<th>Wiring requirement</th>
<th>I/O</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>Power supply +24 V</td>
<td>–</td>
<td>⊗</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>Power supply GND</td>
<td>–</td>
<td>⊗</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Orange</td>
<td>Discharge stop signal</td>
<td>Input</td>
<td>⊗</td>
<td>Input</td>
<td>When the signal is turned off, discharge stops.</td>
</tr>
<tr>
<td>4</td>
<td>Pink</td>
<td>Reset signal</td>
<td>Input</td>
<td>⊗</td>
<td>Input</td>
<td>When the signal is turned on and then off, the error signal is reset.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>When the signal is turned off, normal operation continues.</td>
</tr>
<tr>
<td>5</td>
<td>White</td>
<td>Discharge signal</td>
<td>Output</td>
<td>⊗</td>
<td>Output</td>
<td>The signal stays on during discharge</td>
</tr>
<tr>
<td>6</td>
<td>Purple</td>
<td>Error signal</td>
<td>Output</td>
<td></td>
<td>Output</td>
<td>The signal is turned off when an error occurs</td>
</tr>
<tr>
<td>7</td>
<td>Yellow</td>
<td>Maintenance signal</td>
<td>Output</td>
<td></td>
<td>Output</td>
<td>The signal is turned on when maintenance is due.</td>
</tr>
<tr>
<td>8</td>
<td>Grey</td>
<td>External switch signal 1</td>
<td>Input</td>
<td></td>
<td>Input</td>
<td>When the signal is turned on, discharge stops.</td>
</tr>
<tr>
<td>9</td>
<td>Light blue</td>
<td>External switch signal 2</td>
<td>Input</td>
<td></td>
<td>Input</td>
<td>When the signal is turned on, discharge stops.</td>
</tr>
</tbody>
</table>

**Note:**

- **Wiring requirement**
  ⊗: Minimum wiring requirement for ioniser 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 energised (by the power supply GND inside the ioniser), and turned off when de-energised.
- PNP: The signal is turned on when the output transistor is energised (by the 24 V power supply inside the ioniser), and turned off when de-energised.

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

![Diagram of wiring connections]
Power Supply Cable Connection Circuit

NPN

controls connected to external metal parts
(no electrical connection to internal circuit)

Timing Chart

<table>
<thead>
<tr>
<th>Input</th>
<th>Power supply on</th>
<th>High voltage error</th>
<th>Maintenance required</th>
<th>External switch on</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown +24 V</td>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
<td>OFF</td>
<td>Discharge starts when the signal is turned on.</td>
</tr>
<tr>
<td>Blue GND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 VDC ±10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange discharge stop signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pink reset signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White discharge signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purple error signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow maintenance signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey external switch signal</td>
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<td></td>
</tr>
<tr>
<td>Light blue external switch signal</td>
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</tr>
<tr>
<td>INPUT</td>
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<tr>
<td>OUTPUT</td>
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<td></td>
</tr>
<tr>
<td>PLC</td>
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<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown +24 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue GND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ Power supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 VDC ±10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey external switch signal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light blue external switch signal</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
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<tr>
<td>Output</td>
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<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class D grounding to external metal parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(no electrical connection to internal circuit)</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Discharge signal (on when ions are being generated)

Error signal

Maintenance signal

External switch signal 1, 2

Ioniser

Series IZN10

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

Ions are still generated even when the maintenance signal is turned on.

Ioniser

Series IZN10

Discharge starts when the signal is turned on.

Ions are still generated even when the maintenance signal is turned on.

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

Termination Manual

11
**Series IZN10**

**Dimensions**

Energy saving static electricity elimination nozzle / IZN10-01

High flow rate nozzle / IZN10-02

Elbow for piping port / IZN10-11

Female threads for piping (Rc1/8)

<table>
<thead>
<tr>
<th>Model</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
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<tbody>
<tr>
<td>IZN10-01-06</td>
<td>3.5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>IZN10-01-07 (inch)</td>
<td>7</td>
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</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<td>IZN10-16-16</td>
<td>22</td>
<td>16</td>
<td>11.5</td>
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<tr>
<td>IZN10-17-17 (inch)</td>
<td>24.5</td>
<td>18.5</td>
<td>12</td>
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Width across flats 14
Ioniser Series IZN10

Dimensions

L-bracket / IZN10-B1

<table>
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<tr>
<th>Dimension</th>
<th>Value</th>
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<tr>
<td>Width</td>
<td>46</td>
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<tr>
<td>Height</td>
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Pivoting bracket / IZN10-B2

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<tbody>
<tr>
<td>Width</td>
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<tr>
<td>Height</td>
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Internal mounting

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<th>Dimension</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Width</td>
<td>20.5</td>
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</tbody>
</table>

Pivot mounting

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>33</td>
</tr>
<tr>
<td>Height</td>
<td>61</td>
</tr>
</tbody>
</table>

2 x Hexagon socket head cap screw M3 (Accessory)

Approved
Series IZN10

Dimensions

DIN rail mounting bracket / IZN10-B3
Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC), Japan Industrial Standards (JIS)[Note 1] and other safety regulations[Note 2].

Note 1) ISO 4414: Pneumatic fluid power -- General rules relating to systems.
ISO 4413: Hydraulic fluid power -- General rules relating to systems.
IEC 60204-1: Safety of machinery -- Electrical equipment of machines. (Part 1: General requirements)
JIS B 8370: General rules for pneumatic equipment.
JIS B 8361: General rules for hydraulic equipment.
JIS B 9960-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)
e tc.

Note 2) Labour Safety and Sanitation Law, etc.

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
   Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
   The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.
   1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
   2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
   3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
   1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
   2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalogue.
   3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
   4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.
Specific Product Precautions 1
Be sure to read this before handling.

### 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 stipulated in 4 on back page 1), please consult with SMC beforehand.

2. 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.

3. 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.

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.

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

### Mounting

**Warning**
3. Do not use this product in areas where noise (electric magnetic field or surge voltage, etc.) is generated.
   Using the ioniser 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.

4. Observe the tightening torque requirements when installing the ioniser. 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.

<table>
<thead>
<tr>
<th>Thread size</th>
<th>Recommended tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>M3</td>
<td>0.61 to 0.63 N·m</td>
</tr>
</tbody>
</table>

5. Do not allow foreign matter or tools to enter the nozzle.
   The inside of the nozzle contains electrode needles. If a metal tool makes contact with the electrode needles, 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 electrode needle, the ioniser may fail or cause an accident.

**Danger High Voltage!**
Electrode needles 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 electrode needle.

6. Do not apply moment to the nozzle.
   If a copper 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 is applied, mount a support to the middle part of the nozzle so that the moment is not applied to the nozzle.

7. 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.

8. Installation and adjustment should be conducted after turning the power supply off.
Specific Product Precautions 2

Be sure to read this before handling.

### Wiring / Piping

**Warning**

1. Before wiring, confirm if the power supply voltage is enough and that it is within the specifications.
2. Always use a UL listed Class 2 output 24 VDC power supply.
3. Be sure to provide Class D grounding in order to maintain 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 ioniser or power supply may break down.

4. Be sure to turn the power supply off 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 ioniser 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 powering this product.
   
   Incorrect wiring will lead to damage or malfunction to the product.
9. Flush the piping before using.
   
   Before using this product, exercise caution to prevent incorrect piping.

### Operating Environment / Storage Environment

**Warning**

2. Take preventative measures against ozone.
   
   Equipment used around the ioniser should have ozone-prevention measures. Also, regularly check that there is no deterioration due to ozone.

3. The ioniser cannot be used without air purge.
   
   Without air purge, not only will the ioniser be unable to eliminate charge, but also the internal ozone condensation will increase and adversely affect the ioniser and peripheral equipment. Therefore, be sure to perform air purge when energising the ioniser.

4. Observe the fluid and ambient temperature range.
   
   Fluid and ambient temperature ranges are 0 to 55°C for the ioniser. Do not use the ioniser 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 with a temperature out of the range of 0 to 55°C.
   b) Avoid using in a place with an ambient humidity out of the 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 under direct sunlight or heated heat.
   i) Avoid using in a place where there is a strong magnetic field, strong magnetic field, or surge.
   j) Avoid using in a place where static electricity is discharged to the main body.
   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 if 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. The ioniser is not designed to withstand lightning.
Series IZN10
Specific Product Precautions 3
Be sure to read this before handling.

### Maintenance

⚠️ **Warning**

1. Periodically (for example, every two weeks) inspect the ioniser and clean the electrode needles. Conduct a regular maintenance to check 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 electricity eliminating performance, if particles are attached to the electrode pin. When the maintenance signal LED lights up, clean the electrode needle. Replace the electrode cartridge, if the pins are worn and the static electricity eliminating 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 ioniser is turned off. Never disassemble or modify the ioniser, 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 electrode pin or replacing the electrode cartridge, be sure to turn the power supply off to the main body. Touching an electrode needle 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 malfunction.

2. When mounting/dismounting the cable, use your finger to pinch the claw of the modular plug, then attach/detach it correctly. Otherwise, modular plug mounting section may be damaged and cause a disorder.
The importance of the static electric control is put on confirming the “actual status”.

**Electrostatic Sensor** Series IZD10
- Potential measurement: ±20 kV (detected at a 50 mm distance), ±0.4 kV (detected at a 25 mm distance)
- Detects the electrostatic potential and outputs in an analogue voltage
  - Output voltage: 1 to 5 V (Output impedance: Approx. 100 Ω)
- Possible to measure electrostatic potential

**Electrostatic Sensor Monitor** Series IZE11
- Output: Switch output x 2 + Analogue output (1 to 5 V, 4 to 20 mA)
- Minimum unit setting: 0.001 kV (at ±0.4 kV), 0.1 kV (at ±20 kV)
- Display accuracy: ±0.5% F.S. ±1 digit or less
- Detection distance correction function (adjustable in 1 mm increments)
- Range switching supports two sensors. (±0.4 kV, ±20 kV)

**Handheld Electrostatic Meter** Series IZH10
- Measuring range: ±20.0 kV
- Minimum display unit: 0.1 kV (±1.0 to ±20.0 kV), 0.01 kV (0 to ±0.99 kV)
- Compact & Lightweight: 85 g (excluding dry cell batteries)
- Backlight for reading in the dark
- LOW battery indicator
- Peak/Bottom display function
- Zero-out function
- Auto power-off function
SMC can provide all the equipment required to supply air to the ioniser. Consider the equipment below not only for providing an “opportunity to decrease maintenance” and “preventing damage” but also for an “energy-saving countermeasure”.

**Recommended pneumatic circuit diagram**

<p>| | | | | | | |</p>
<table>
<thead>
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<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

### 1: Air Dryer / Series IDF
Decreases the dew point of compressed air. Limits moisture generation which can lead to damage.

![Image of Air Dryer / Series IDF](image1)

### 2: Air Filter / Series AF
Eliminates solid foreign matters such as powder particles in the compressed air.

![Image of Air Filter / Series AF](image2)

### 3: Mist Separator / Series AFM
Eliminates oil mist which is difficult to eliminate with an air filter.

![Image of Mist Separator / Series AFM](image3)

### 4: Digital Flow Switch / Series PF2A
Decreases the air consumption by flow control.

![Image of Digital Flow Switch / Series PF2A](image4)

### 5: 2-Colour Display Digital Flow Switch / Series PFM

![Image of 2-Colour Display Digital Flow Switch / Series PFM](image5)

### 6: Regulator / Series AR
Decreases the air consumption by setting to an appropriate pressure.

![Image of Regulator / Series AR](image6)

### 7: 2 Port Solenoid Valve / Series VX
Regulates to the appropriate air volume depending upon the installation condition. Decreases the air consumption.

![Image of 2 Port Solenoid Valve / Series VX](image7)

### 8: Clean Air Filter / Series SFD
Built-in capillary element
Nominal filtration rating: 0.01 µm
Adopted hollow fiber elements (with over 99.99% filtering efficiency) do not contaminate workpieces.

![Image of Clean Air Filter / Series SFD](image8)
SMC Static Electricity Prevention Equipment

For details of this equipment, refer to the “Static Electricity Prevention Equipment” pamphlet.

**Publishing contents**

- Examples of static electricity-related problems
- Antistatic equipment
- Static electricity elimination equipment
- Measurement equipment
- Technical data
EUROPEAN SUBSIDIARIES:

Austria
SMC Pneumatik GmbH (Austria),
Girakstrasse 8, A-2100, Korneuburg
Phone: +43 2262-622800, Fax: +43 2262-62285
E-mail: office@smc.at
http://www.smc.at

Belgium
SMC Pneumatics N.V., S.A.
Nijverheidstraat 26, B-2160, Wommelgem
Phone: +32 (0)3-355-1464, Fax: +32 (0)3-355-1466
E-mail: info@smc-pneumatik.be
http://www.smc-pneumatik.be

Bulgaria
SMC Industrial Automation Bulgaria ECOD
Business Park Sofia, Building 8, 8th floor, BG-1715 Sofia
Phone: +359 2 9744452, Fax: +359 2 9744451
E-mail: office@smc.bg
http://www.smc.bg

Croatia
SMC Industrijska automatska d.o.o.
Crnomerec 12, HR-10000, Zagreb
Phone: +385 1 377 66 74, Fax: +385 1 37766 74
E-mail: office@smc.hr
http://www.smc.hr

Czech Republic
SMC Pneumatic (Czech Republic)
Hlavova 78a, CZ-62000, Brno
Phone: +420 5 412 18034, Fax: +420 5 412 18034
E-mail: sales@smchlas.cz
http://www.smc.cz

Denmark
SMC Pneumatics A/S
Egeskovvej 1, DK-8700, Horsens
Phone: +45 70252900, Fax: +45 70252901
E-mail: smc@smcpneumatik.dk
http://www.smcpneumatik.dk

Estonia
SMC Pneumatics Estonia OÜ
Laki 12, 106 21, Tallinn
Phone: +372 6510370, Fax: +372 6511037
E-mail: office@smc.ee
http://www.smc.ee

Finland
SMC Pneumatics Finland Oy
PL72, Tinterninhti 4, SF-22231 ESPOO
Phone: +358 207 513513, Fax: +358 207 513595
E-mail: smcmt@smc.fi
http://www.smc.fi

France
SMC Pneumatics France S.A.
1, Boulevard de Strasbourg, Parc Gustave Eiffel
Bussy Saint Georges F-77607, Marie La Vallee Cedex 3
Phone: +33 (0)1-6478-1000, Fax: +33 (0)1-6478-1019
E-mail: contact@smc-france.fr

Germany
SMC Pneumatics GmbH
Boilsching 13-15, D-83329, Egelsbach
Phone: +49 (0)6103-4020, Fax: +49 (0)6103-402139
E-mail: info@smc-pneumatik.de
http://www.smc-pneumatik.de

Greece
SMC Hellas E.P.E.
Arangiro 7-9, P.C. 14324, N. Philadelphea, Athens
Phone: +30 210-2717762, Fax: +30 210-2717766
E-mail: sales@smchellas.gr
http://www.smchellas.gr

Hungary
SMC Hungary Ipari Automatizalas Kft.
Torbagy u. 19, H-2045, Tokokkalaza
Phone: +36 23 511 391, Fax: +36 23 511 391
E-mail: office@smc.hu
http://www.smc.hu

Ireland
SMC Pneumatics (Ireland) Ltd.
2002 Dryer Business Campus, Naas Road, Saggart, Co. Dublin
Phone: +353 (0)1-403 9000, Fax: +353 (0)1-464 0500
E-mail: office@smc.ie
http://www.smc.ie

Italy
SMC Italia S.p.A.
Via Garibaldi 62, I-20061, Carugate (Milano)
Phone: +39 (0)2-92711-40, Fax: +39 (0)2-9271386
E-mail: sales@smcitalia.it
http://www.smcitalia.it

Latvia
SMC Pneumatics Latvia SIA
Smerla 1-705, Riga LV-1006
Phone: +371 781-77-00, Fax: +371 781-77-01
E-mail: info@smc.lv
http://www.smc.lv

Lithuania
SMC Pneumatics Lithuania UAB
Osto g.1, LT-34123 Vilnius
Phone: +370 5 264 81 26, Fax: +370 5 264 81 26
E-mail: office@smc.lt
http://www.smc.lt

Netherlands
SMC Pneumatics BV
De Ruiterkade 120, NL-1011 AB, Amsterdam
Phone: +31 (0)20-531888, Fax: +31 (0)20-5318860
E-mail: info@smc-pneumatic.nl
http://www.smcpneumatic.nl

Norway
SMC Pneumatics Norway A/S
Vollvagen 13, Gravas Næringpark N-1366, Lysaker
Phone: +47 67 12 90 20, Fax: +47 67 12 90 21
E-mail: post@smc-norge.no
http://www.smc-norge.no

Poland
SMC Industrial Automation Polska Sp.z.o.o.
Piotrowo 89, PL-02-826, Warszawa
Phone: +48 22 211 9600, Fax: +48 22 211 9617
E-mail: office@smc.pl
http://www.smc.pl

Portugal
SMC Pneumatics Portugal, S.A.
Rua de Engº Ferreira Dias 452, 4100-246, Porto
Phone: +351 226 166 570, Fax: +351 226 166 589
E-mail: postpt@smc.portugal
http://www.smc.pt

Romania
SMC Romania srl
Str. Frunzei 29, Sector 2, Bucharest
Phone: +40 213205111, Fax: +40 213205189
E-mail: smcromania@smcromania.ro
http://www.smcromania.ro

Russia
SMC Pneumatic LLC
4B Sverdlovskaja nab, St. Petersberg 195009
Phone: +7 812 718 5445, Fax: +7 812 718 5449
E-mail: info@smc-pneumatic.ru
http://www.smc-pneumatic.ru

Slovakia
SMC Pneumatic Slovakia, s.r.o.
Skalnska 1233, 13010, Teplicka Nad Vahom
Phone: +421 42 312 520, Fax: +421 42 312 5210
E-mail: office@smc.sk
http://www.smc.sk

Slovenia
SMC industrijska Avtomatika d.o.o.
Mirnska cesta 7, SI-8210, Trebnje
Phone: +386 1 377 66 74, Fax: +386 1 377 66 74
E-mail: office@smc.si
http://www.smc.si

Spain
SMC España S.A.
Zubalbidéa 14, 01015, Vitoria
Phone: +34 945-184 100, Fax: +34 945-184 124
E-mail: post@smc.smces.es
http://www.smc.eu

Sweden
SMC Pneumatics Sweden AB
Edshuvägen 25-31, S-141 71, Huddinge
Phone: +46 (0)8-603 12 90, Fax: +46 (0)8-603 12 90
E-mail: post@smc-pneumatica.se
http://www.smc.eu

Switzerland
SMC Pneumatics AG
Dorfstrasse 7, CH-6848, Weisslingen
Phone: +41 (0)22-396-3131, Fax: +41 (0)22-396-3139
E-mail: info@smc.ch
http://www.smc.ch

Turkey
Entek Prömatik San. ve Tic. A”
Pepi Tuzel Avenue 8 Blo Kit 11 No: 105, 34368, Döneri, İstanbul
Phone: +90 (0)212-444-0762, Fax: +90 (0)212-421-519
E-mail: smc@entek.com.tr
http://www.entek.com.tr

UK
SMC Pneumatics (UK) Ltd
Vincent Avenue, Crowhill, Milton Keynes, MK8 0AN
Phone: +44 (0)1908-655884, Fax: +44 (0)1908-655884
E-mail: sales@smc-pneumatic.co.uk
http://www.smcpneumatic.co.uk

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