SMC Automation Controls Process

Ionizer / Bar Type

Applicable fluid | Dry air, N2

High speed static neutralization **Fastest time 0.1 s*1**

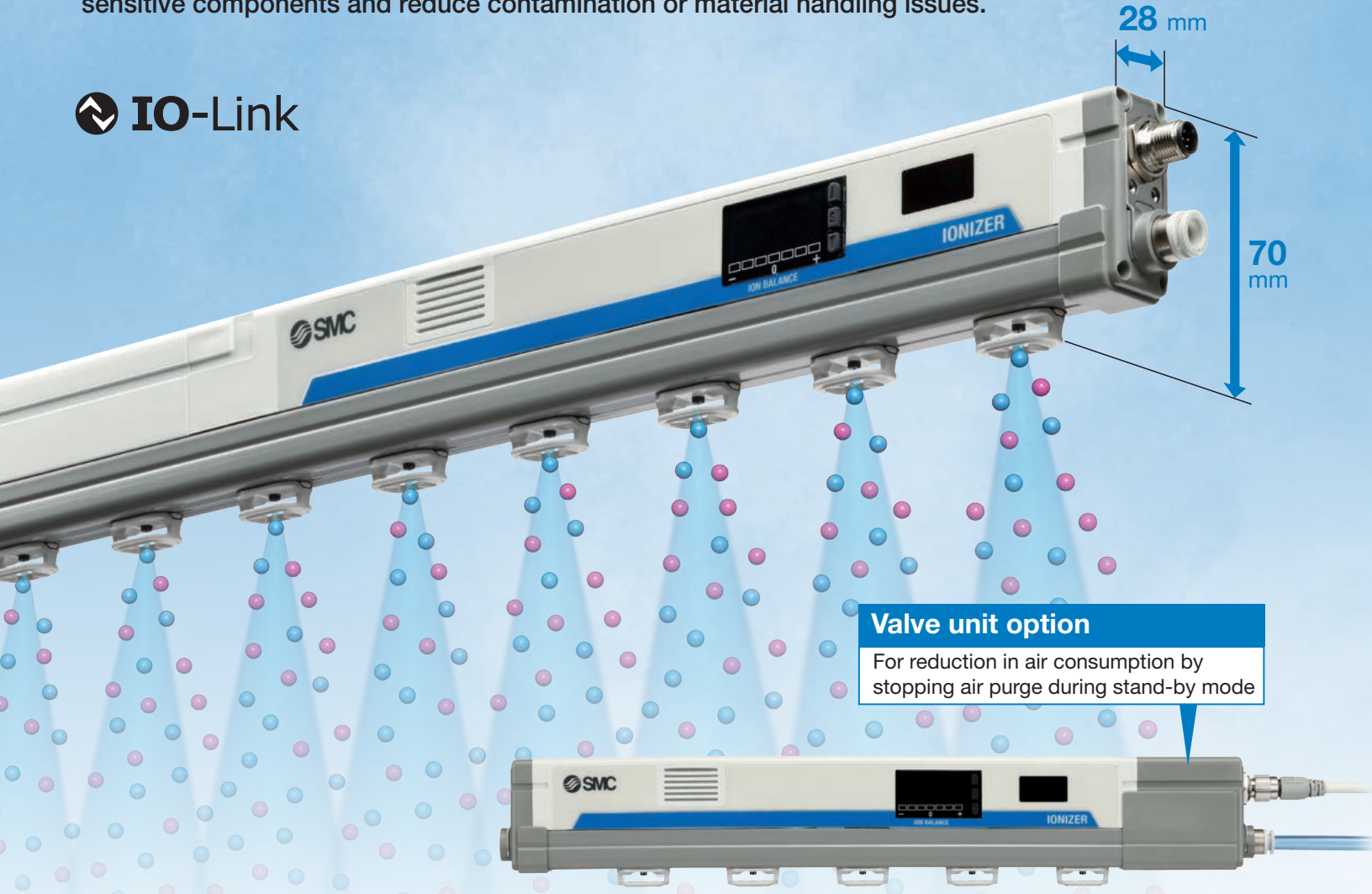
New

CE UKCA RoHS

Space saving **Height 70 mm x Width 28 mm**

SMC's static control products are designed to eliminate or neutralize static electricity in manufacturing environments, enhancing product quality, safety, and operational efficiency. These solutions include ionizers and electrostatic sensors that are ideal for applications in electronics, packaging, medical, and semiconductor industries. By reducing electrostatic discharge (ESD), they help prevent damage to sensitive components and reduce contamination or material handling issues.

IO-Link



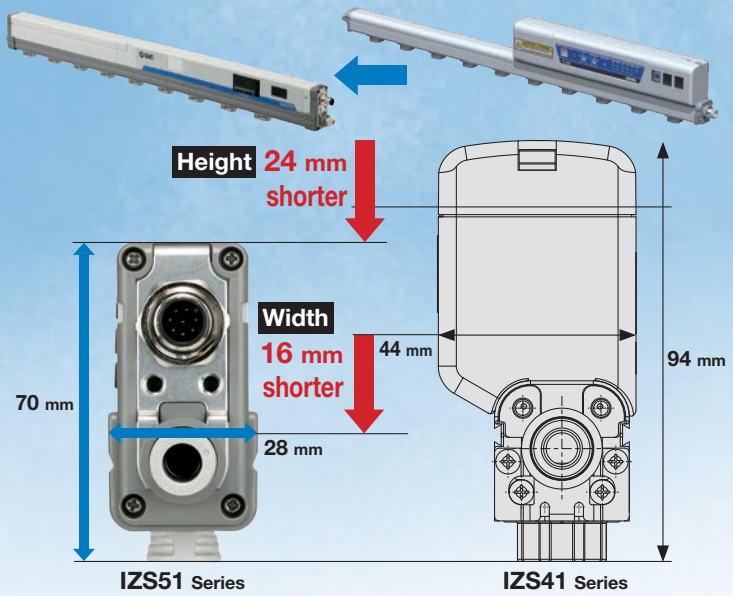
Valve unit option

For reduction in air consumption by stopping air purge during stand-by mode

*1 Conditions: Discharge time from 1000 V to 100 V
Object to be neutralized: Charged plate (Dimensions: 150 mm x 150 mm, Capacitance: 20 pF)
Installation distance: 100 mm (Tungsten emitter, Air purge: 0.3 MPa)

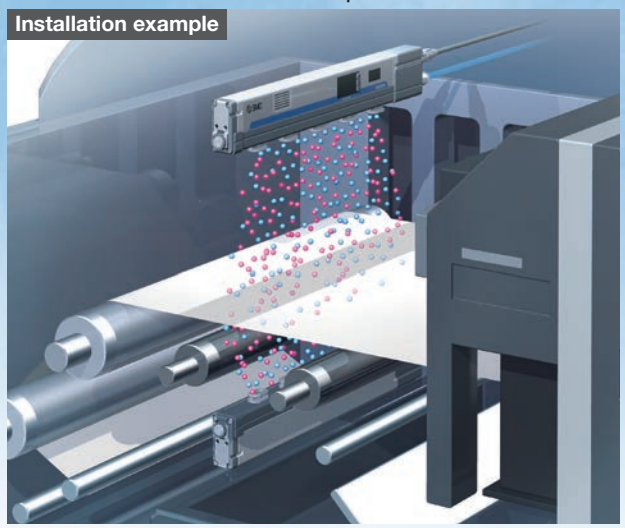
IZS51 *Series*

Compact and flat body



Compact body with piping on one side

Can be mounted in narrow spaces

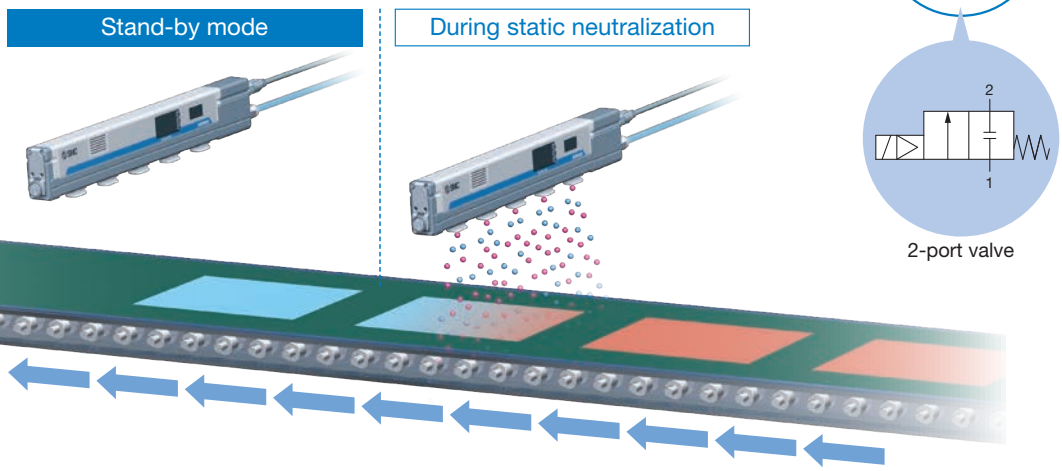


Valve unit option

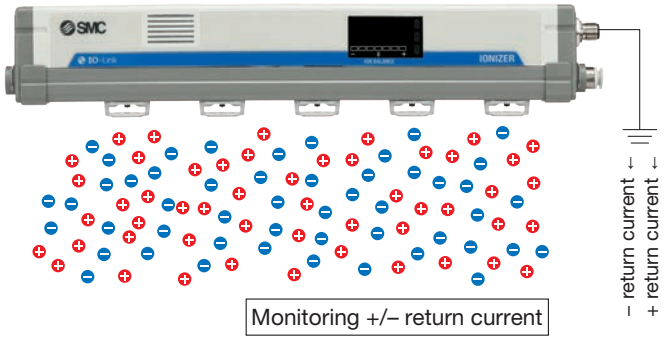
- A 2-port valve is integrated into the ionizer, achieving space saving and reduced wiring.
- Air purge can be stopped using a stop signal for the ion generation.
- Zero flow consumption during stand-by mode

Zero flow consumption during stand-by mode

Stand by using a 25% electrical current compared with eliminating static electricity

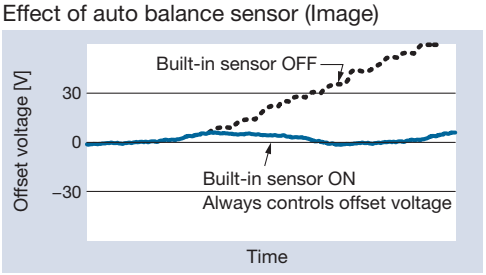


With auto balance function



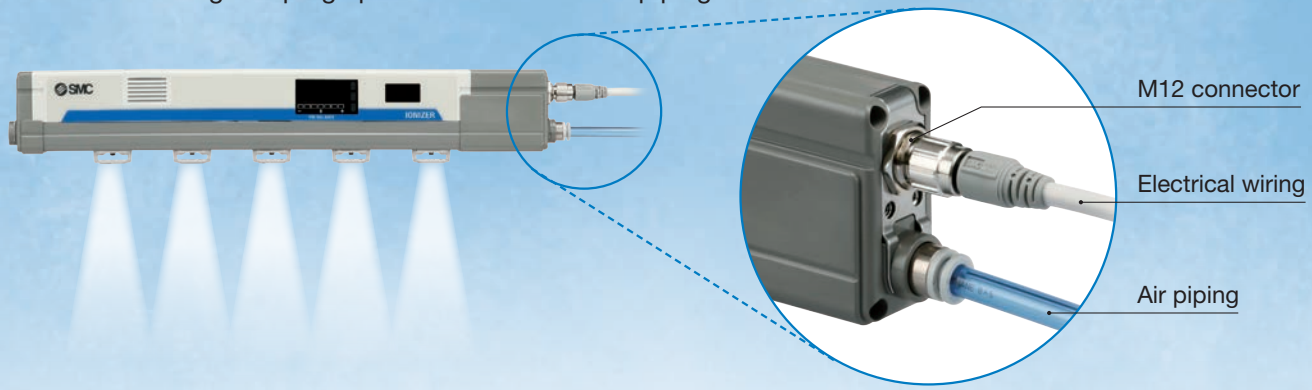
The offset voltage (ion balance) in the static neutralization area is controlled so that the voltage is maintained at a constant value by monitoring the ions emitted from the ionizer using the ground line.

Effect of auto balance sensor (Image)



Piping on one side possible

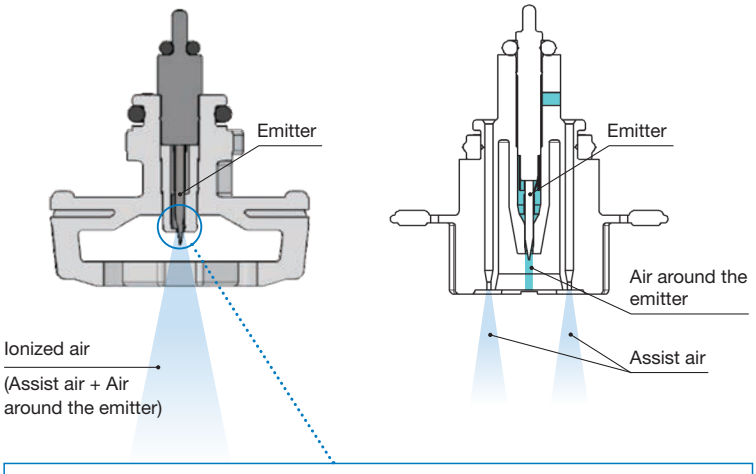
- The electrical wiring and air piping are positioned in the end of the product.
- Maintains enough air purge performance even with piping on one side.



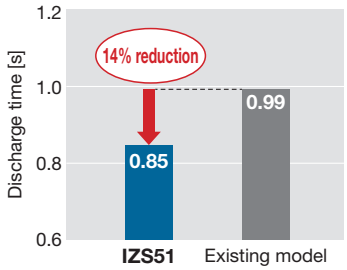
Low maintenance cartridge

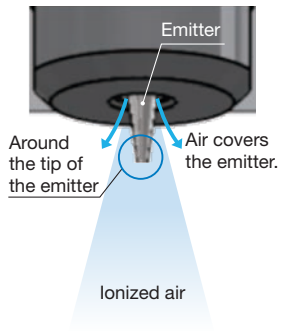
- Concentrating the air (for reducing emitter contamination) around the emitter and the assisting air (for ion transfer)
- Reduces dirt on the emitter, compared with the existing model

IZS51 | Existing model



- **Low maintenance**
  Reduces emitter contamination by increasing the air flow around the emitter, compared with previous models.
- **High speed static neutralization**
  The air flow around the emitter tip has been optimized to improve ion transfer efficiency.
  Reduced discharge time (–14%)





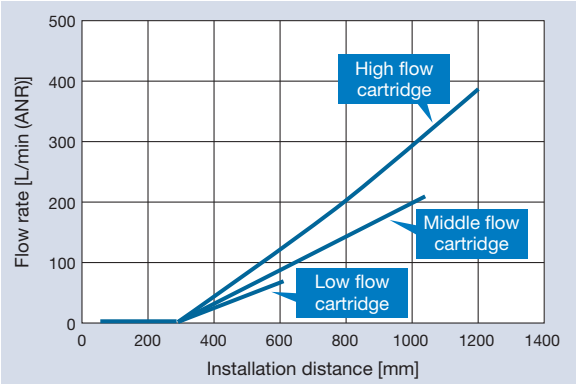
Existing model (High speed static neutralization cartridge)
IZS51 (High flow cartridge)
· Number of cartridges: 10 pcs.
· Flow rate per cartridge 11.1 L/min (ANR)
· Comparison at an installation distance of 600 mm

Cartridge variations

Choice of a cartridge type suitable for an application such as a high-speed static neutralization with a high flow or static neutralization with a low flow

High flow cartridge	Middle flow cartridge	Low flow cartridge

Required consumed flow until the static elimination time reaches 1 second by each installation distance.
Conditions: IZS51-1100□ (Number of cartridges: 18 pcs.), Discharge time 1 s



Emitter material type

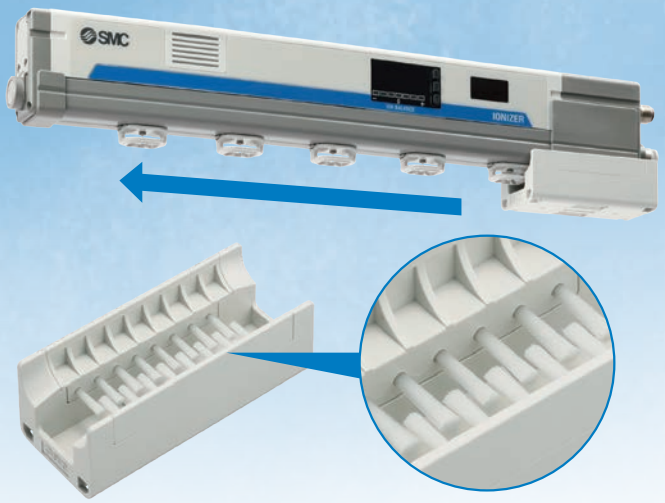
Tungsten/Single crystal silicon (for silicon wafers)

Tungsten
Emitter cartridge color: White

Silicon
Emitter cartridge color: Gray

Improved maintainability

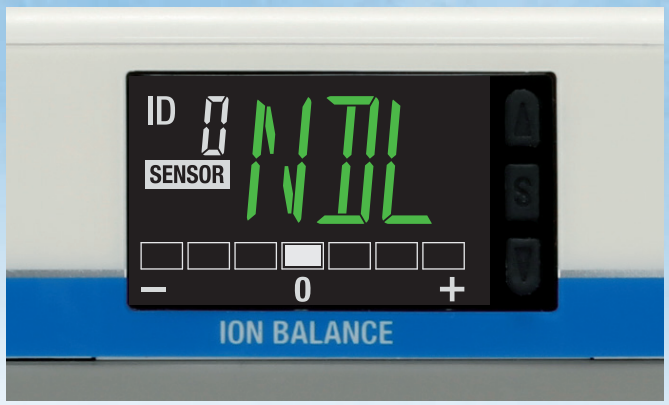
- Clean all the emitters with a dedicated cleaning kit.



8 brushes x 2

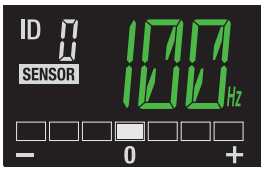
Maintenance detection function

- Constantly monitors for dirt on an emitter.
  Choice of 3 detection levels



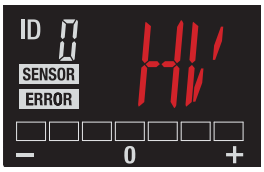
Operation status can be checked at a glance.

Normal operation

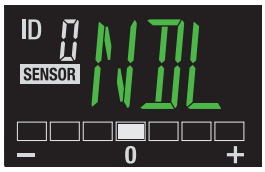


Frequency display
Built-in sensor ON/OFF display

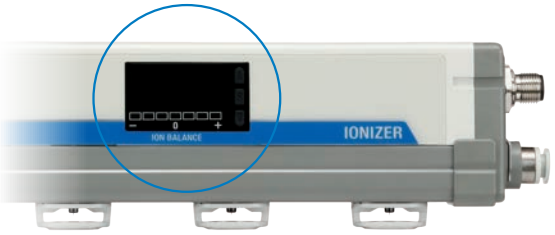
When an alarm is output



CPU failure
Power supply failure
Incorrect high voltage
Output signal overcurrent

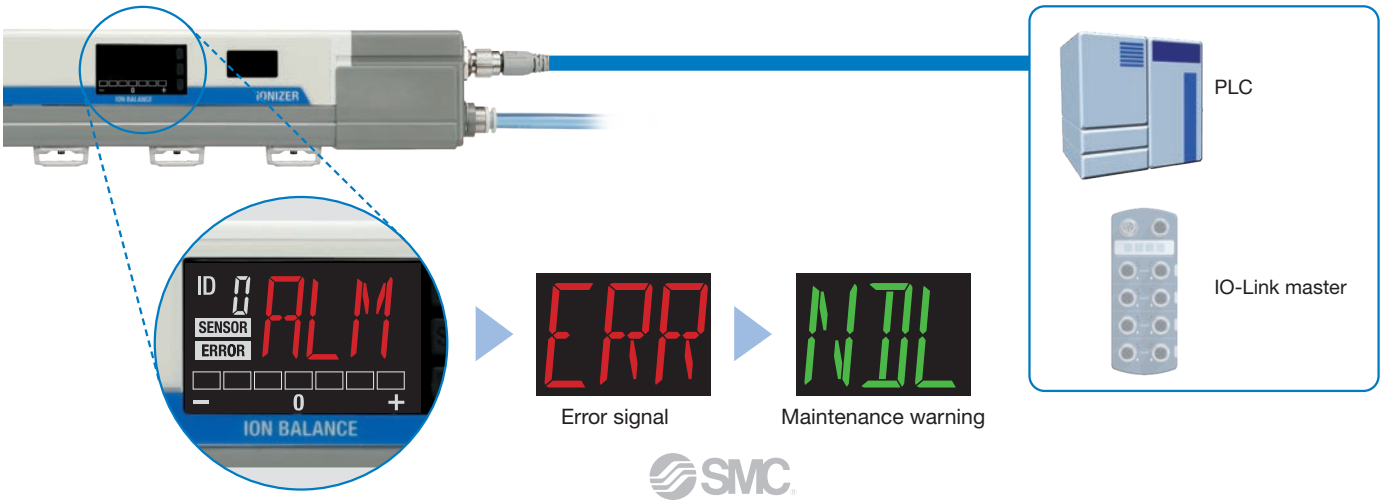


Maintenance warning



Output signals check function

Capable of checking for the connection to a PLC or an IO-Link master or status errors in the upper system equipment

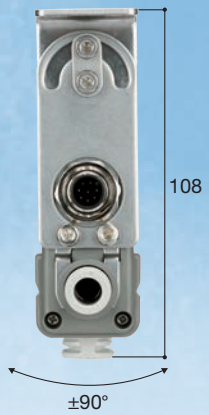


Error signal

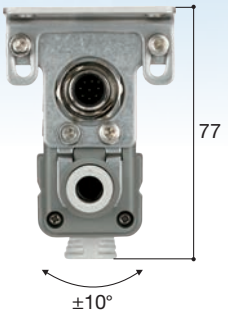
Maintenance warning

2 types of brackets are available.

When an adjustable mounting angle is required / Bracket 1



When space reduction is required / Bracket 2



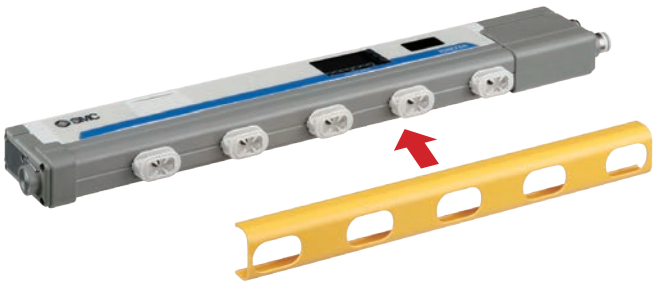
The ionizers can be set with a remote controller.

- The ionizer can be adjusted and set remotely.
- Up to 16 ionizers can be identified by address setting.
- Frequency setting
- Offset voltage adjustment
- The built-in sensor can be switched ON and OFF.
- Maintenance detection level selection: 3 levels
- Switching ON/OFF for the simultaneous operations of the ion generation and air supply stop[*1]

*1 Only when the valve unit is installed

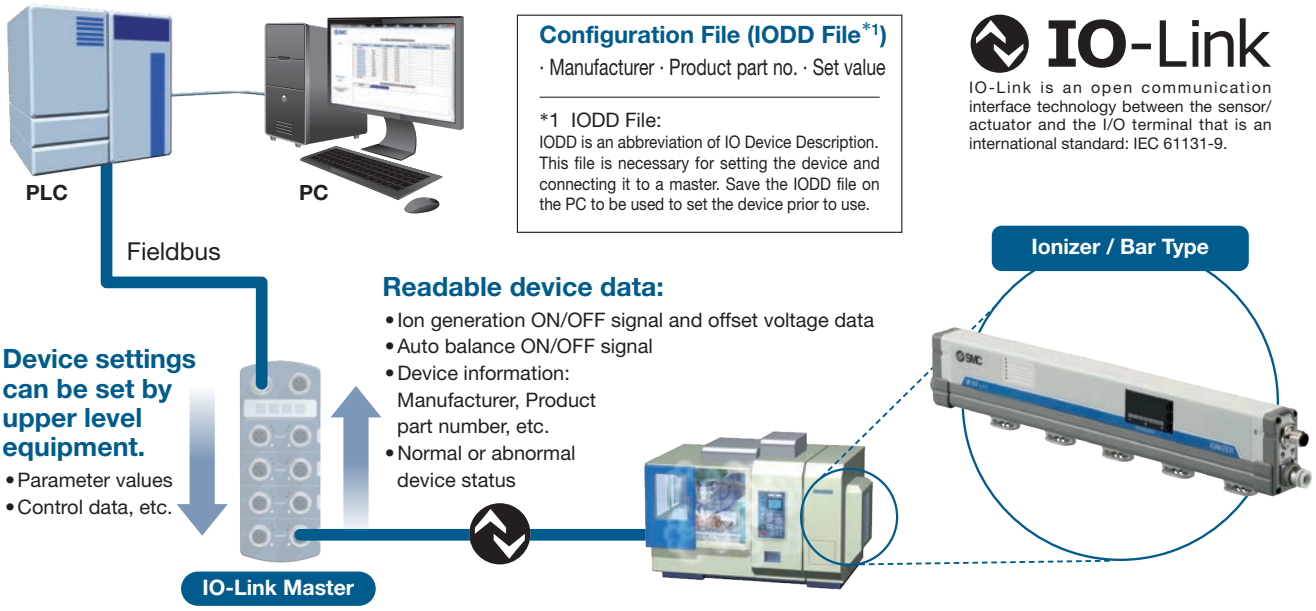
Safety function

Drop prevention cover: For increased cartridge drop prevention



Supports the IO-Link communication protocol

Visualization of operation and equipment status/Remote monitoring and control by communication



Configuration File (IODD File*1)

· Manufacturer · Product part no. · Set value

*1 IODD File:
IODD is an abbreviation of IO Device Description. This file is necessary for setting the device and connecting it to a master. Save the IODD file on the PC to be used to set the device prior to use.

IO-Link

IO-Link is an open communication interface technology between the sensor/actuator and the I/O terminal that is an international standard: IEC 61131-9.

Automatic setting function [Data storage function]

When replacing the controller with another of the same type (the same device ID), the parameters (set values) stored in the IO-Link master are automatically copied (set) to the new controller.

Process Data

PD_IN

Bit offset	23	22	21	20	19	18	17	16
Item	Ion generation	Air supply	Output signals check mode	Reserved			Ion balance	

Bit offset	15	14	13	12	11	10	9	8
Item	Ion balance							

It is possible to monitor the ion balance with the cyclic (periodic) data.

Bit offset	7	6	5	4	3	2	1	0
Item	Error diagnosis	CPU failure	IOL power supply failure	CTL power supply failure	Incorrect high voltage	Maintenance notification	Reserved	

It is possible to find problems with the equipment in detail with the cyclic (periodic) data.

PD_OUT

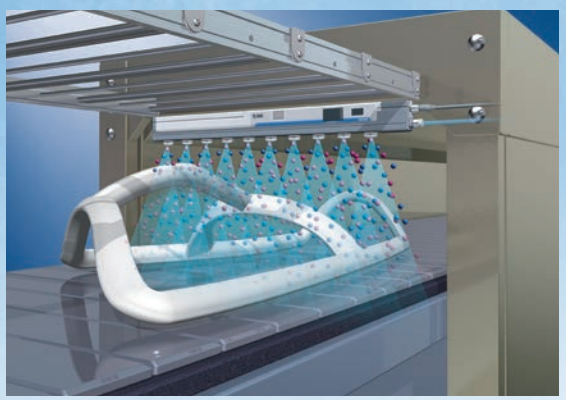
Bit offset	15	14	13	12	11	10	9	8
Item	Process data output valid	Ion generation	Air supply	Reserved			Offset voltage adjustment	

Bit offset	7	6	5	4	3	2	1	0
Item	Offset voltage adjustment							

It is possible to adjust the offset voltage with the cyclic (periodic) data.

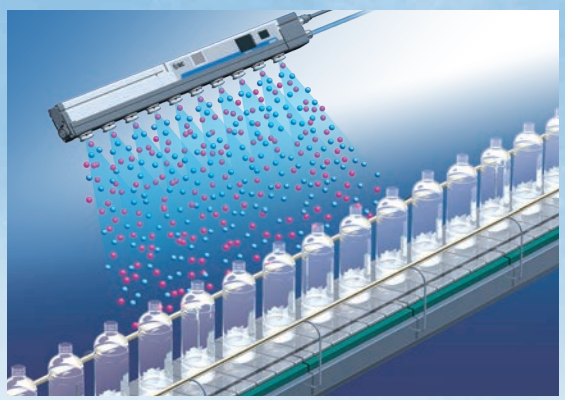
Application examples

For the static neutralization of resin frames



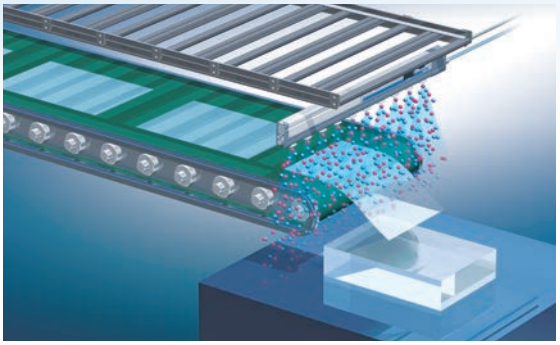
For the static neutralization of PET bottles

- Prevents bottles from falling over on conveyor belts
- Prevents the adhesion of dust



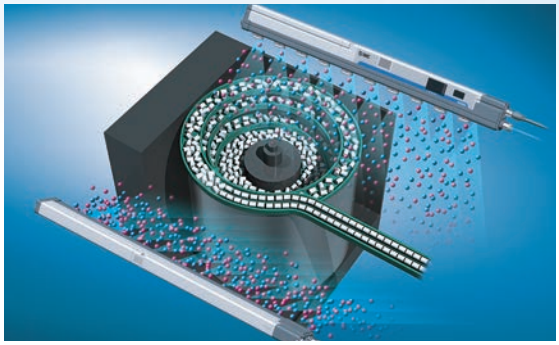
For the static neutralization of film-molded goods

- Prevents goods from adhering to the conveyer
- Prevents the dispersion of finished goods



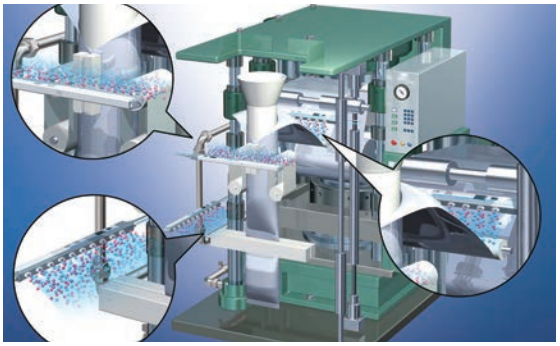
For the static neutralization of parts feeders

- Prevents the clogging of parts feeders



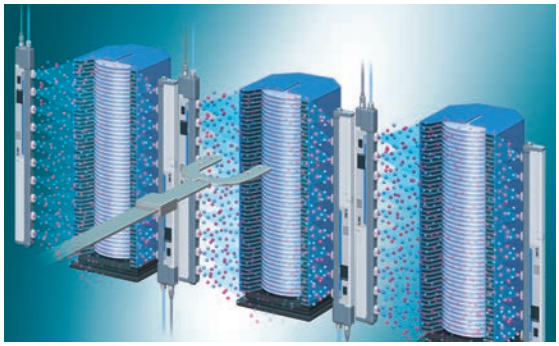
For the static neutralization of packing films

- Prevents the filled substances from adhering to packing films
- Reduces packing mistakes



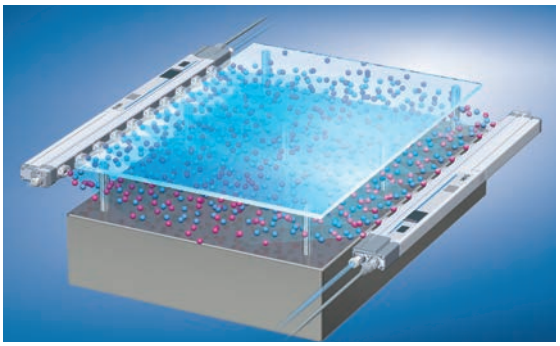
For the static neutralization during wafer transfer

- Prevents breakage due to discharge between wafers and hands



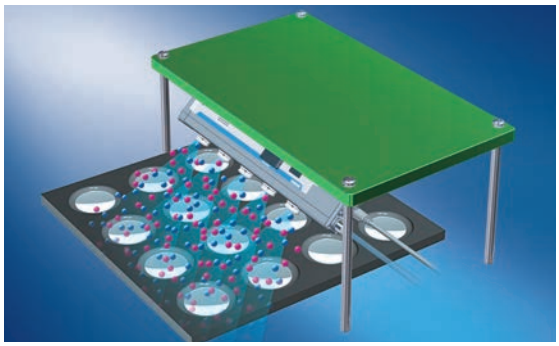
For the static neutralization of glass substrates

- Prevents the breakage of glass substrates by the static electricity generated when the substrate is lifted from the surface plate



For the static neutralization of lenses

- Removes dust from lenses
- Prevents the adhesion of dust



IZS Series

BAR IONIZERS

IZN Series

NOZZLE IONIZERS

IZG Series

GUN TYPE IONIZERS

IZF Series

FAN IONIZERS

KA Series

FITTING

ZVB Series

Micro Mist Separator
Regulator

TAS Series

TUBING

IZH Series

HANDHELD TESTER

ZPT Series

VACUUM