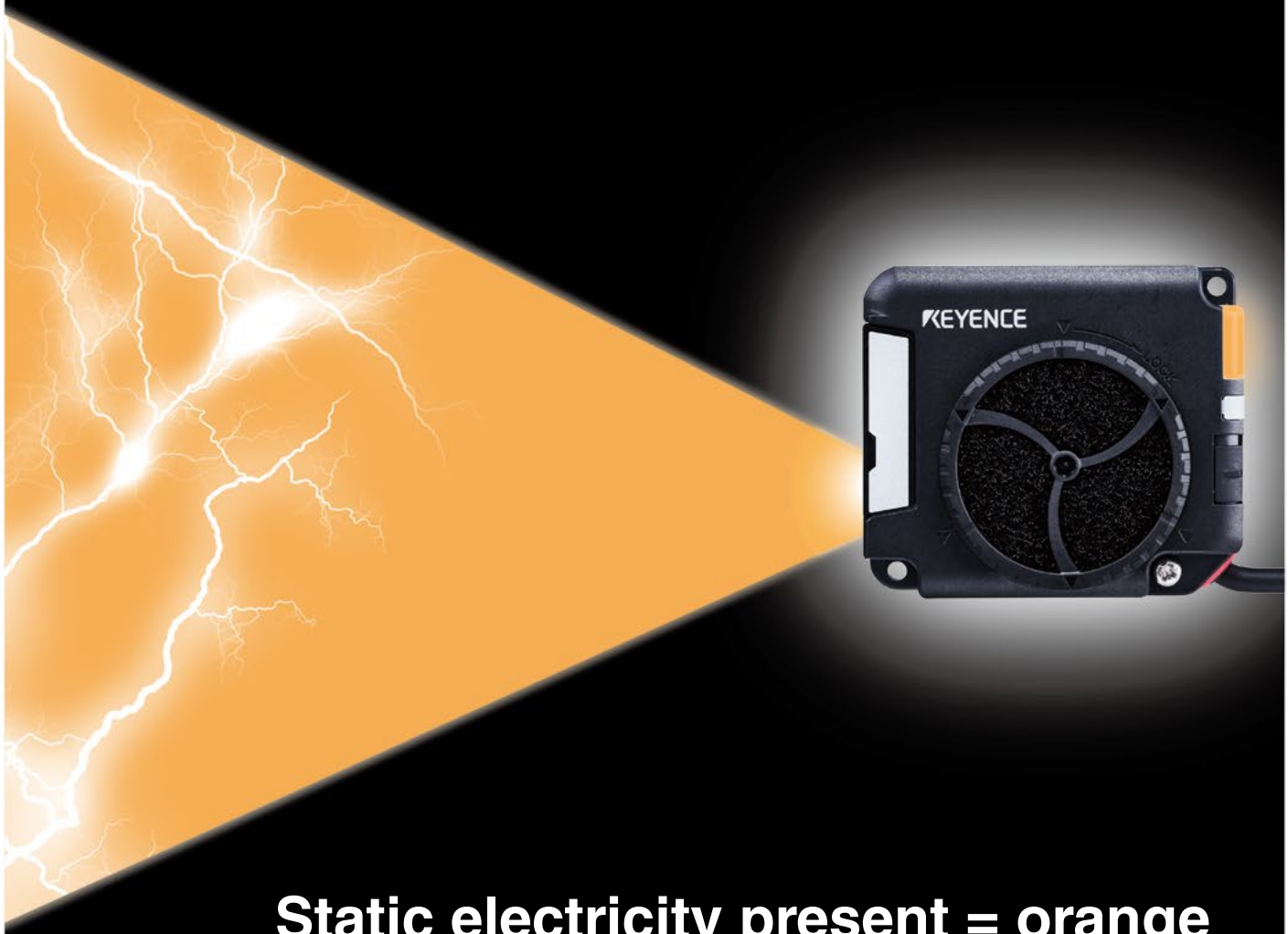
KEYENCE

NEW **Compact Fan Static Eliminator**
SJ-LF Series

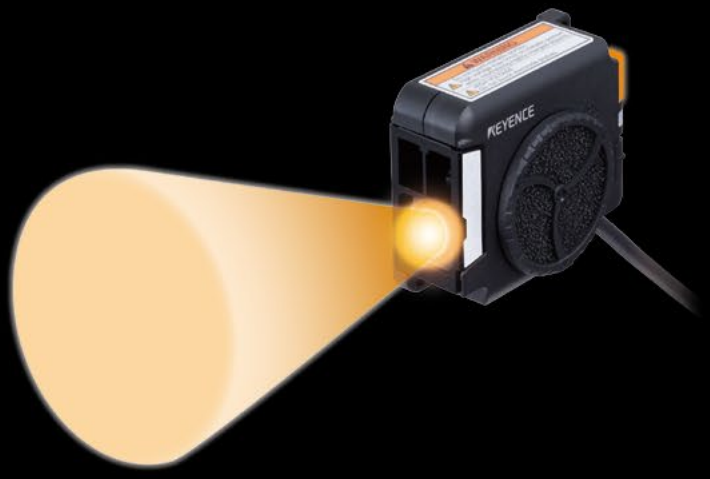
A new ultra-compact static elimination blower that can be set up anywhere

SJ-LF Series

Easily Check for Static Electricity

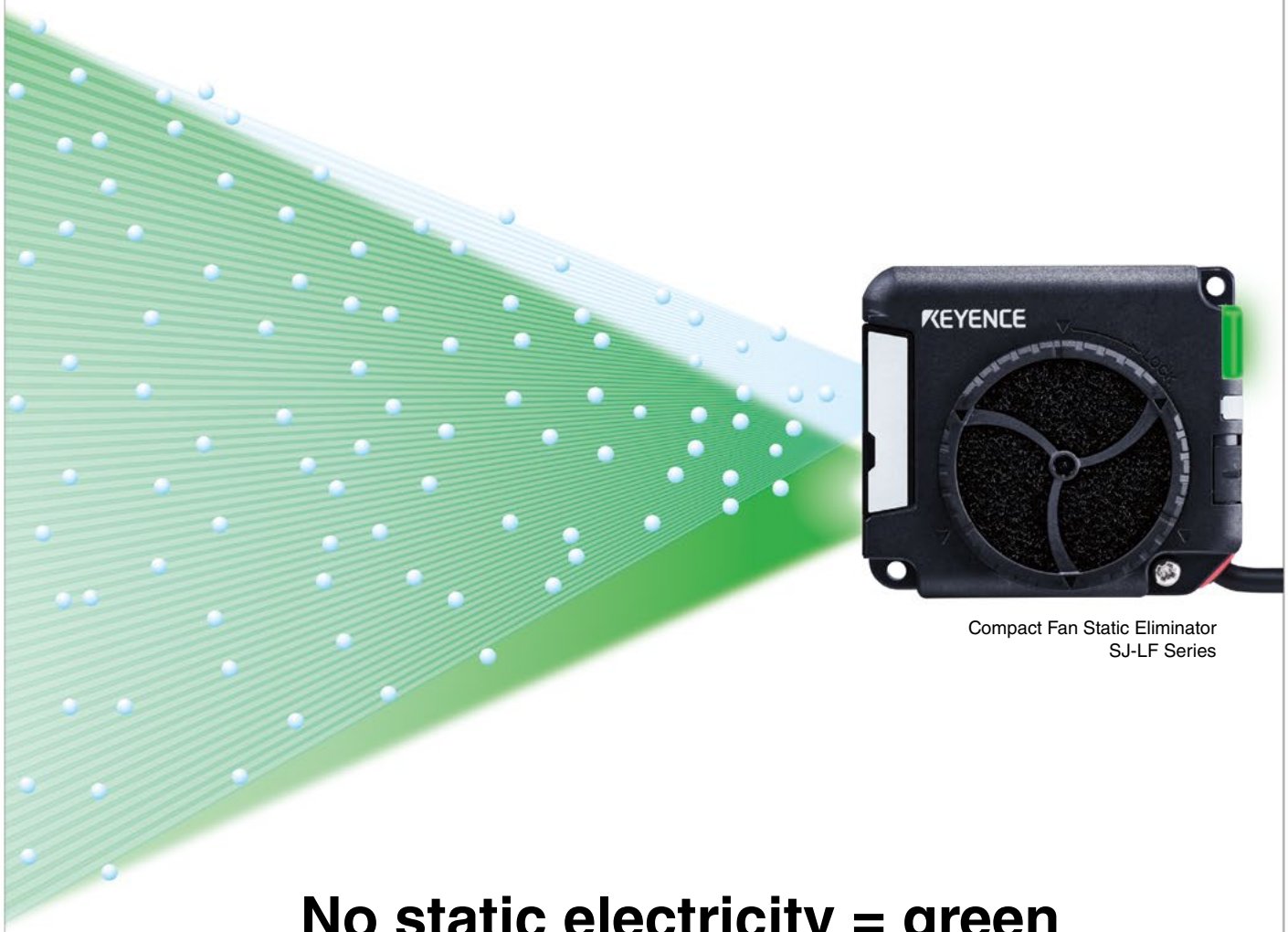


Static electricity present = orange



Features KEYENCE's own
"Visualization Light."
Allows the user to visually check for the presence of static electricity, something which was previously not possible.

Allows the User to See the Effects of the Static Elimination



Compact Fan Static Eliminator
SJ-LF Series

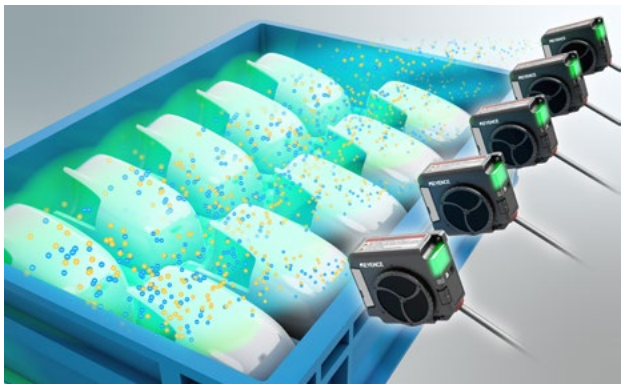
No static electricity = green

Allows the user to visually check whether the static elimination process is complete. The ability to know that there is no remaining static electricity in or on the target helps alleviate any concerns regarding issues caused by static.

Applications

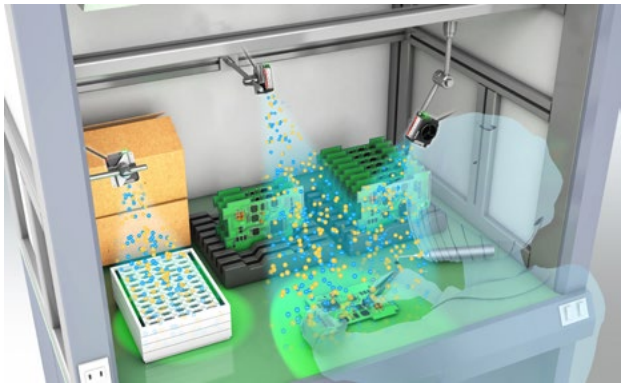
Automotive Industry

Preventing foreign particles and contaminants from adhering to molded products on pallets



Preventing electrostatic peeling of TFT displays/laminators

Eliminating static electricity in electronic product assembly hoods

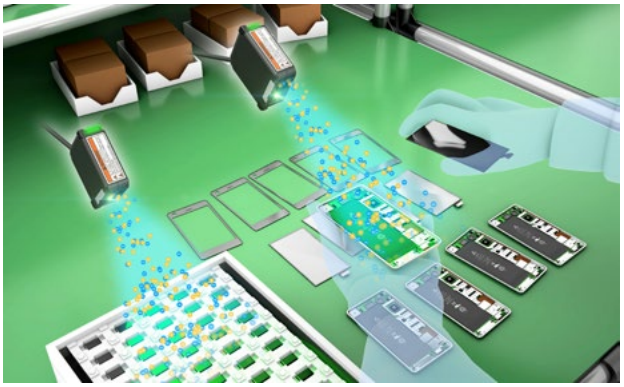


Preventing defective LED assembly in keyless entry remote controllers

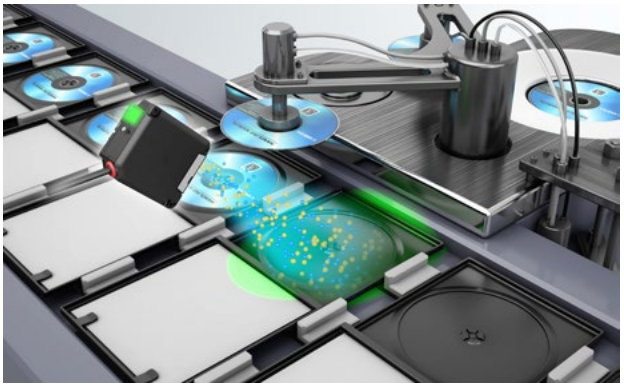
Electronic / Electrical Industries

Preventing electrostatic discharge (destruction) when mounting PCBs in a case

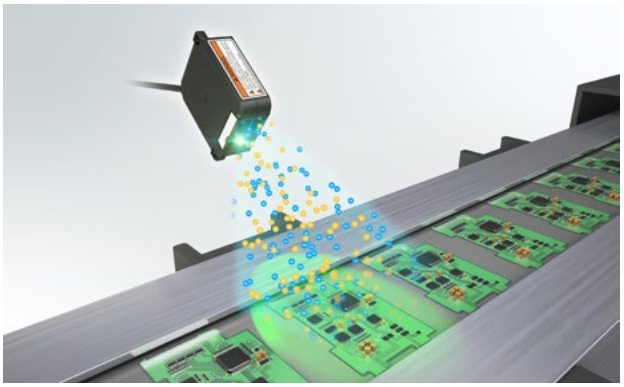
Eliminating static electricity on cell production table work areas/ product placement areas



Eliminating static electricity when printing/packaging discs

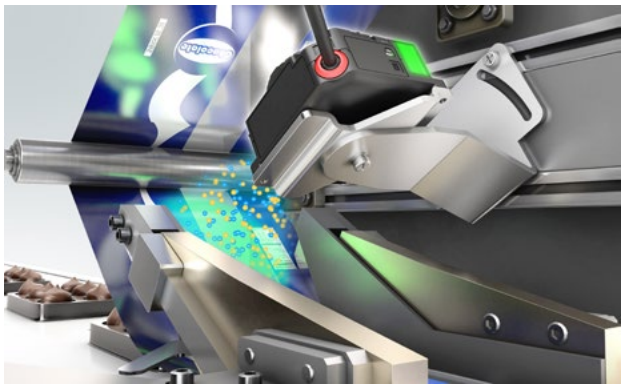


Preventing electrostatic discharge (destruction) when conveying ECU PCBs

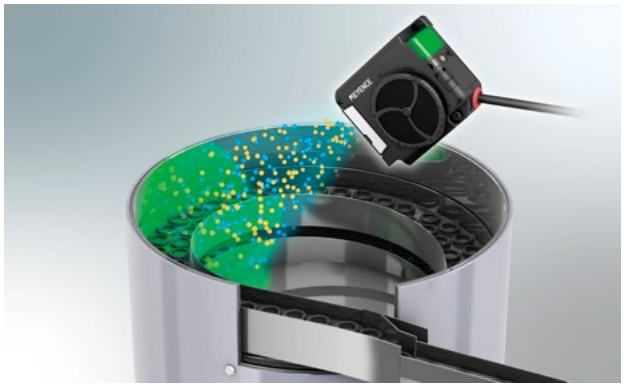


Resin Plastics / Film Industries

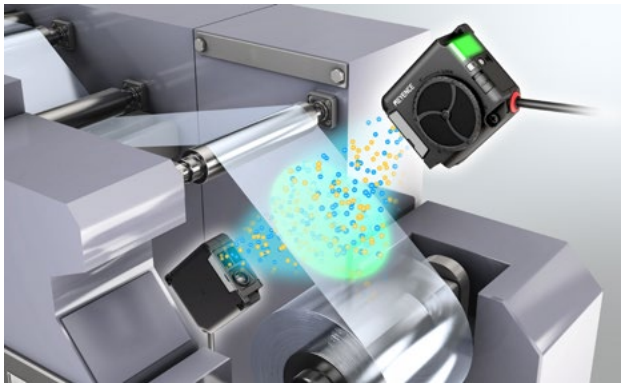
Preventing printing defects when transferring cap text



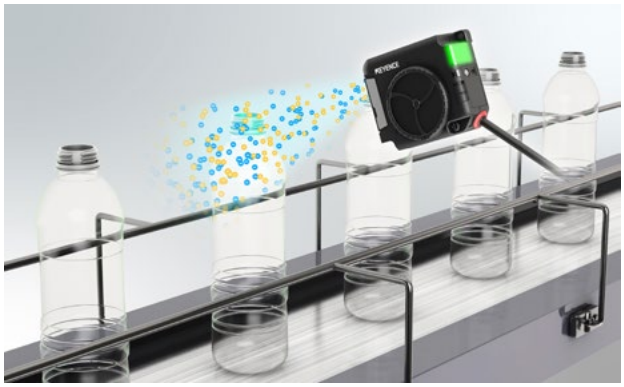
Preventing jams in part feeders



Preventing pinholes when conveying film



Eliminating static electricity when conveying bottles

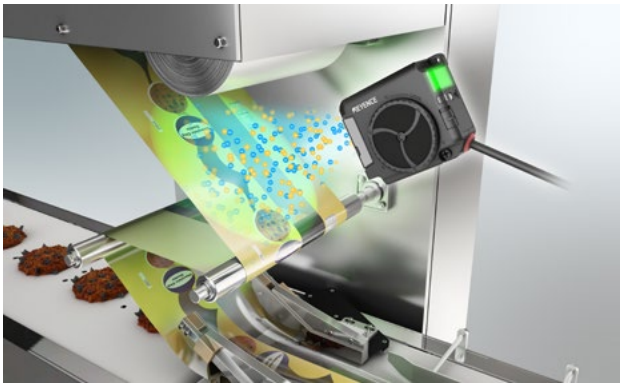


Food / Pharmaceutical Industries

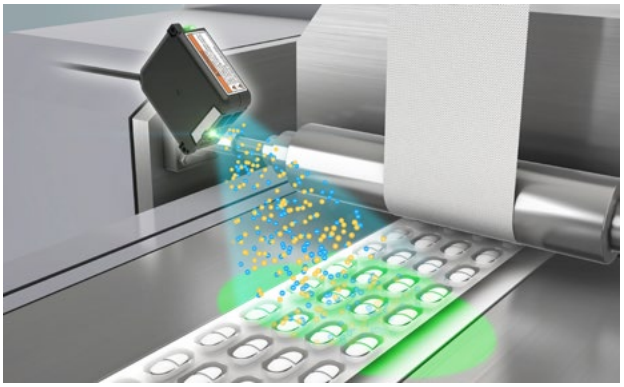
Preventing foreign particles from getting trapped in front of the capper

Preventing splatter in cups by eliminating static electricity before filling

Preventing pinching during horizontal form fill sealing



Eliminating static electricity during blister packaging



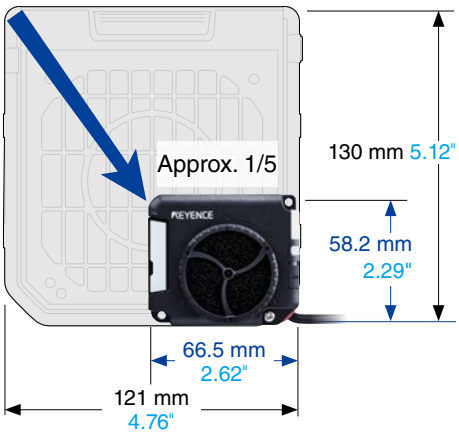
Finding Actual Solutions to Work Site Needs

Ultra-compact at 1/5 the size of conventional types

Its small size also allows it to be installed anywhere

KEYENCE's proprietary technology delivers both in terms of an ultra-compact size and high-speed static elimination. The SJ-LF Series does not require any special setup conditions, allowing it to be installed in tight spaces or retrofit into existing equipment.

Conventional Small Blower Type



Easy installation

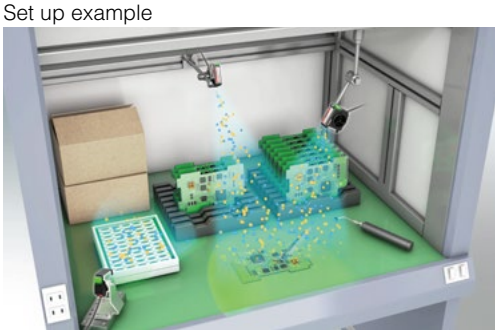
Dedicated mounting brackets make installation simple and quick

Two types of dedicated mounting brackets are available for single-action adjustment of the ion blowing direction. Use these brackets for easy installation with no need to manufacture a jig.

Tabletop Securing Bracket

Adjustable Bracket

Set up example

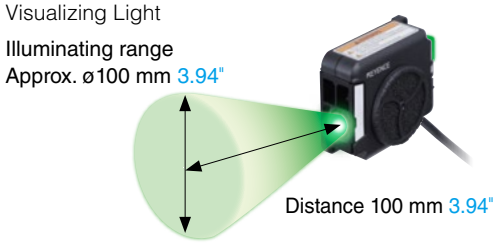


Visualization of static electricity

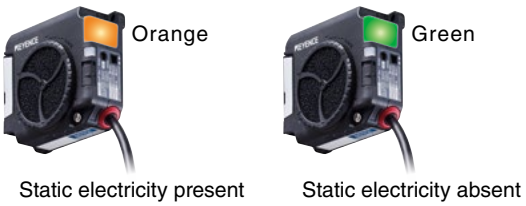
The effects of the static eliminator can be seen via the visualizing light and highly visible indicator, helping further increase peace of mind

Includes a function which visualizes the static situation on a given target object by monitoring the ratio of positive and negative ions generated by the static eliminator. This means that it is possible to instantly determine whether the target object has been properly destaticized, making operations checks during startup easy.

Visualizing Light



Highly visible indicator



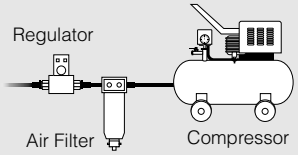
Air supply not required

No need to set up tubing/piping, helping to reduce cost

Includes an ultra-compact custom fan that fits into the eliminator's small body. The eliminator itself can generate airflow so there is no need to supply air from a compressor.

Ultra-Compact Custom Fan

Air supply not required



The air flow amount can be adjusted

Easily adjust to match the requirements of the application

The optimal air flow could vary based on the target's charge and distance to the eliminator. The air flow can easily be adjusted by turning a dial with a screwdriver.

Designed with workplace safety and maintainability in mind

Alarm output

Outputs an alarm if an abnormal discharge is detected. The power supply is also simultaneously cut to prevent problems from arising before they occur.

Ion level alarm

Self-diagnoses and outputs and an alarm when cleaning is required, for example when the electrodes are contaminated.

Single action electrode replacement

The electrodes can be easily replaced, significantly reducing the amount of maintenance man-hours.

Can be removed in a single action

Specifications

Main Unit

Model		SJ-L005F
Main unit appearance		
Voltage application method		High frequency AC method
Applied voltage		3 kVAC
Ion balance *1		±10 V
Installation distance		50 mm 1.97" or greater
Maximum air speed *1		7 m/s
Maximum air flow		0.16 m^3/min
Ozone concentration *1		0.05 ppm or less
Control input *2 *3	Static elimination stop input	Can switch between "non-voltage input" and "voltage input" For non-voltage input: ON voltage 2 V or lower, OFF current 0.1 mA or lower, ON current 2 mA or lower (short circuit) For voltage input: Maximum input rating 30 V, ON voltage 18 V or higher, OFF current 0.1 mA or lower, ON current 1 mA or lower (at 30 V)
Control output *2 *3	Alarm (N.C.) / Ion level alarm (N.O.)	Open collector output: 30 V DC or less Maximum 50 mA or lower, Residual voltage 1 V or lower Switchable between NPN/PNP settings
Ratings	Power voltage	24 V DC ± 10% (including ripple) or 12 V DC (dedicated AC adapter OP-88020/87722 *4)
	Current consumption	310 mA or less (for 24 V DC) 600 mA or less (for 12 V DC)
Environmental resistance	Operating ambient temperature	0 to +50°C 32 to +122 °F (When using OP-87722, 0 to +40°C 32 to +104 °F)
	Operating ambient humidity	35 to 65% RH (assuming no condensation)
	Overvoltage category	I
	Pollution degree	2
Weight		Approx. 100 g (main unit weight)

*1 Measurement results taken with an installation distance of 100 mm 3.94", maximum air flow and no air filter. (Representative values)
*2 Cannot be used when the power supply is an AC adapter
*3 "Static elimination stop input" and "ion level alarm output" are allocated to the white line using the setting switch.
*4 Rated input of 100 to 240 V AC, 50/60 Hz

Power supply cables

Specifications	Appearance	Model	Length	Details	Weight
24 V DC		OP-88095	2 m 6.6'	M8 wiring harness	Approx. 55 g
		OP-88096	10 m 32.8'	M8 wiring harness	Approx. 250 g
100 to 240 V AC		OP-88317	2 m 6.6'	AC adapter cable	Approx. 60 g
		OP-87722	3 m 9.8'	AC adapter *1	Approx. 150 g
		OP-88020	3 m 9.8'	AC adapter *2	Approx. 125 g

Mounting brackets

Appearance	Model	Name	Weight
	OP-88318	Tabletop securing bracket	Approx. 230 g
	OP-88319	Adjustable bracket	Approx. 130 g

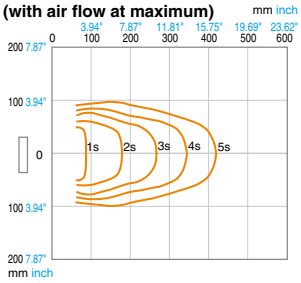
Options

Appearance	Model	Name	Weight
	OP-88315	Electrode unit	Approx. 10 g
	OP-88316	Air filter (×5)	Approx. 1 g

*1 For Japan, South Korea, Taiwan, and Singapore
*2 Nations other than those listed in *1. Contact the closest KEYENCE sales office regarding details for supported nations.

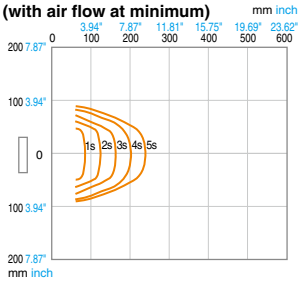
Data sheet

Static elimination area and time (with air flow at maximum)



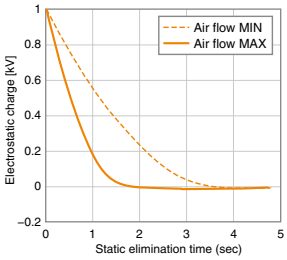
Measurement conditions
· Static elimination time from ±1000 V to ±100 V
· Plate monitor: 150 mm × 150 mm
5.91" × 5.91" (20 pF)

Static elimination area and time (with air flow at minimum)



Measurement conditions
· Static elimination time from ±1000 V to ±100 V
· Plate monitor: 150 mm × 150 mm
5.91" × 5.91" (20 pF)

Static elimination speed

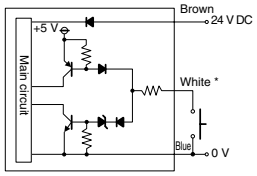


Measurement conditions
· Installation distance: 100 mm 3.94"
· Plate monitor: 150 mm × 150 mm
5.91" × 5.91" (20 pF)

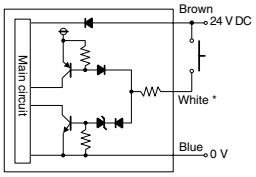
Specifications

I/O circuit diagram (when using OP-88095/OP-88096)

Input circuit (NPN)

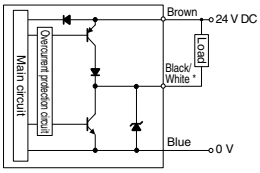


Input circuit (PNP)

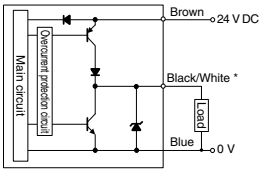


*When “static elimination stop input” is selected with the setting switch

Output circuit (NPN)



Output circuit (PNP)

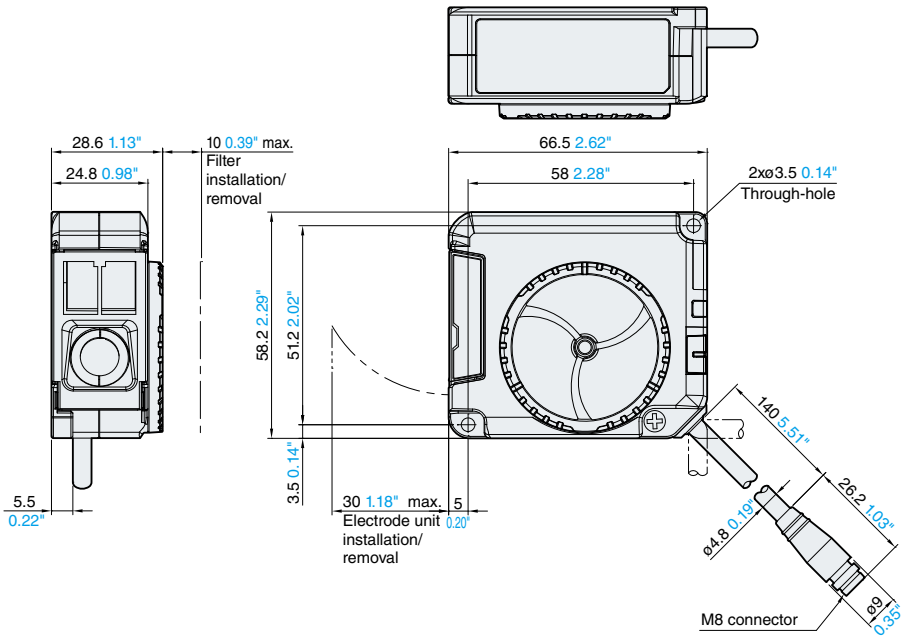


*When “ion level alarm output” is selected with the setting switch

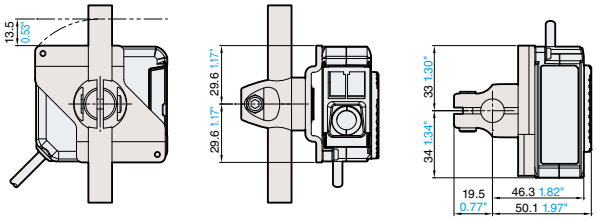
Dimensions

Units: mm inch

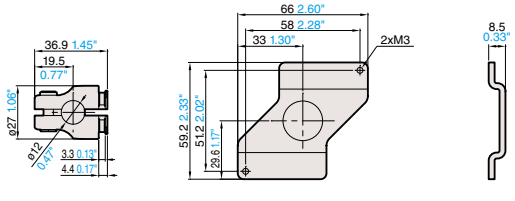
Main unit
SJ-L005F



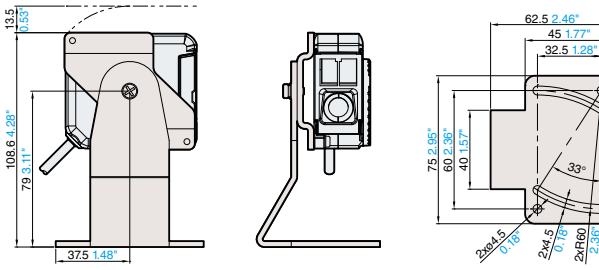
Adjustable Bracket (Mounted)
OP-88319



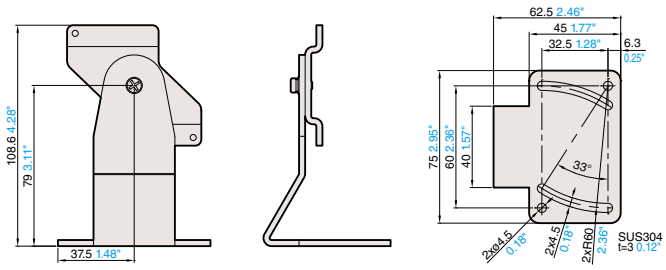
Adjustable Bracket
OP-88319



Tabletop Securing Bracket (Mounted)
OP-88318



Tabletop Securing Bracket
OP-88318



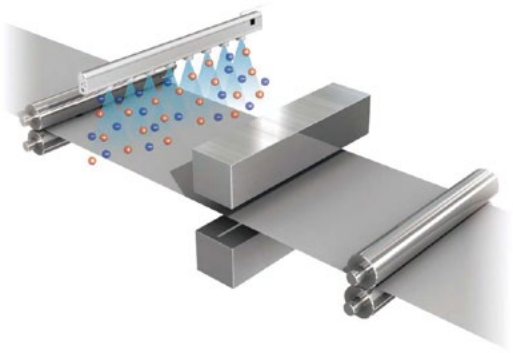
Three types of static eliminators for use in various applications

Bar Type

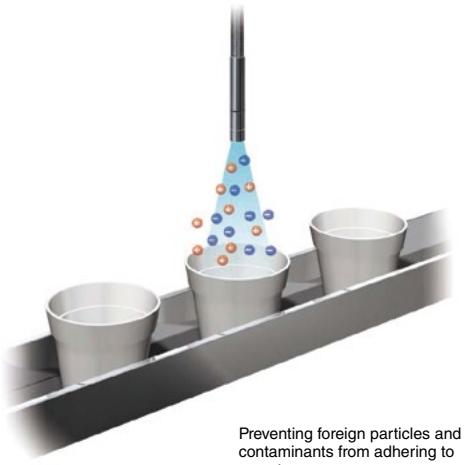
Target's static elimination area (guideline): 300 mm 11.81" or greater

Suitable for eliminating static electricity from wide work pieces such as films and sheets, and for a wide range of work space static eliminating tasks.

- Preventing the adhesion of foreign particles and contaminants while conveying films
- Preventing the adhesion of foreign particles and contaminants when painting car bodies
- Preventing the adhesion of foreign particles and contaminants while conveying FPD



Preventing foreign particles and contaminants from adhering to sheets



Preventing foreign particles and contaminants from adhering to containers

Focused Spot Type

Target's static elimination area (guideline): up to 200 mm 7.87"

Suitable for localized static elimination and for concurrent high-pressure air purging (dust removal).

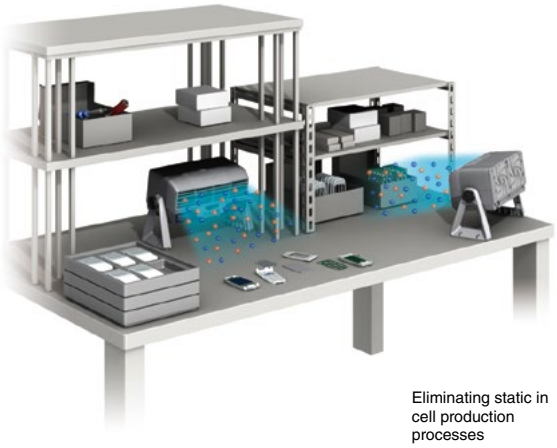
- Static elimination while conveying chip parts
- Preventing the adhesion of cut shavings while machining resin plastic parts
- Preventing foreign particle and contaminants from getting in when packaging tablets

Blower Type

Target's static elimination area (guideline): 200 mm to 1000 mm 7.87" to 39.37"

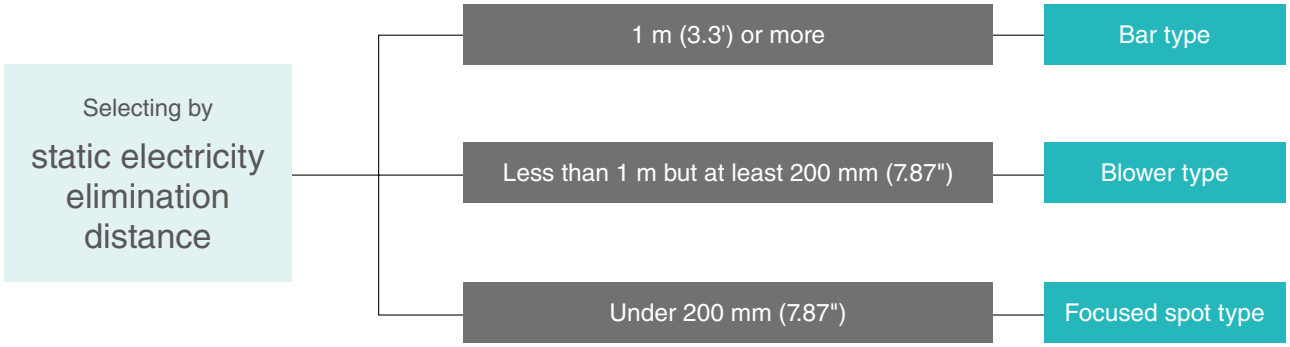
Suitable for eliminating static electricity without an air supply, whether in a device or on a tabletop.

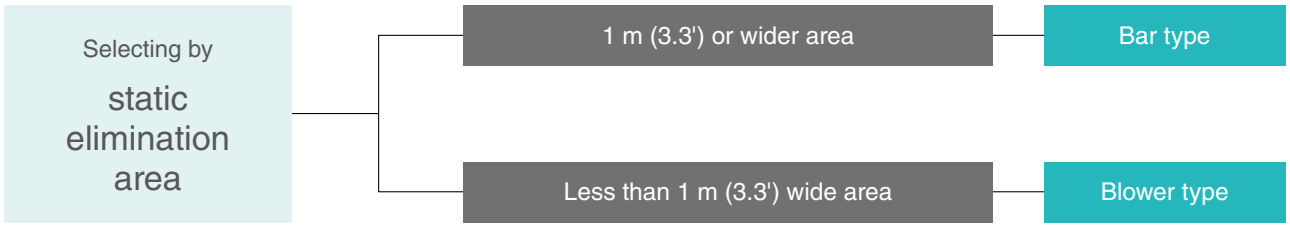
- Eliminating static in cell production processes
- Preventing jams in part feeders
- Preventing the adhesion of foreign particles and contaminants on electronic PCBs

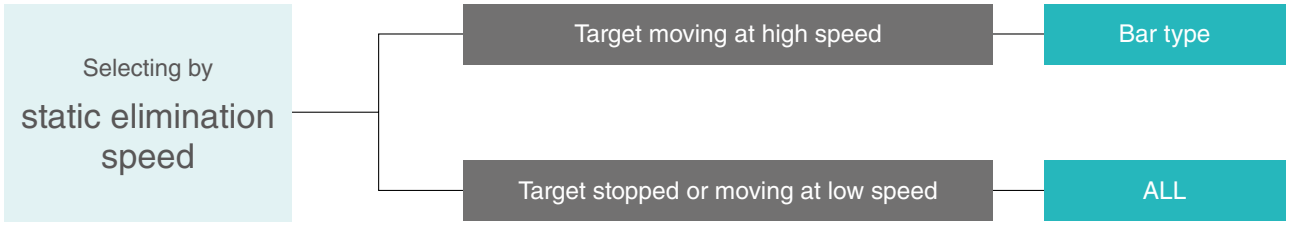


Eliminating static in cell production processes

Selecting a Static Eliminator





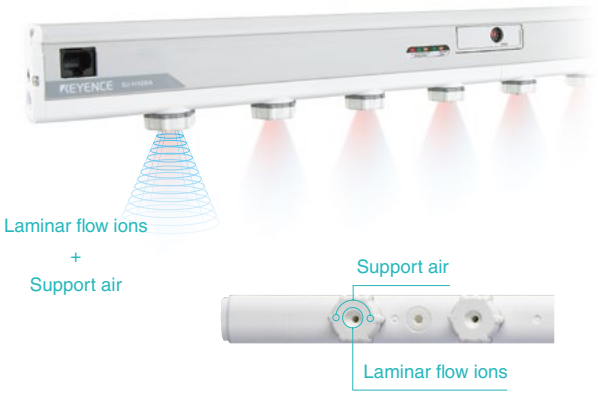


For advice on selecting a solution based on other criteria, contact KEYENCE.

Large Product Lineup Allows Solutions Which Fulfill a Variety of Customer Needs

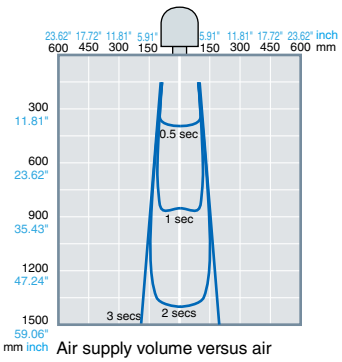
Bar Type

Ultra High Speed / Sheath Sensing Ionizer
SJ-H Series

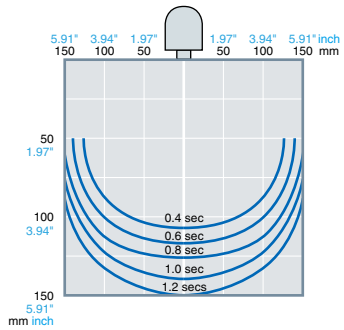


Static electricity elimination distance:
High speed static electricity elimination within 2 seconds even at 1 m 3.3'
Static electricity elimination width:
can cover up to a maximum of 3 m 9.8'
I.C.C. function: incorporated
Other: Features 11 length variations, allowing it to accommodate a variety of target workpieces

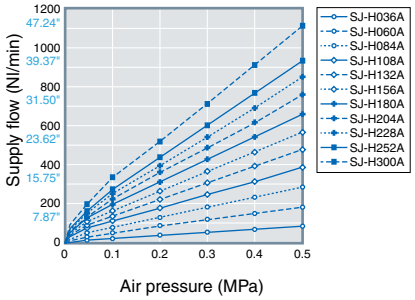
SJ-H Series Static elimination area and time (with air at maximum setting)



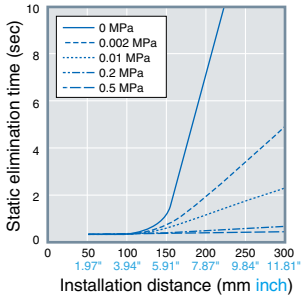
Static elimination area and time (33 Hz)



Air supply volume versus air pressure



Relationship between air pressure based static elimination speed and installation distance



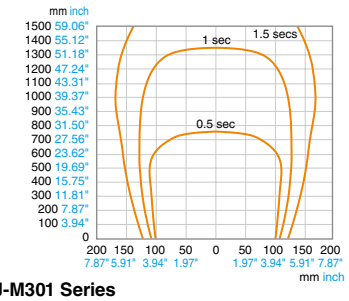
Measurement conditions
· Static elimination time from ±1000 V to ±100 V
· Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
· Using SJ-H108A · No downflow

Focused Spot Type

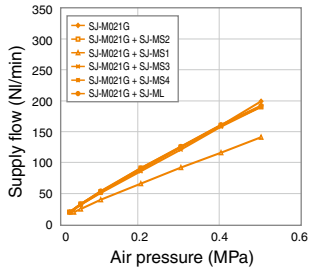
High-Performance Micro Static Eliminators
SJ-M201 Series

Static electricity elimination distance: High speed static electricity elimination within 1.5 seconds even at 1.5 m 4.92'
Static elimination width: covers 300 mm with a ø10 mm 0.39" head
I.C.C. function: incorporated
Other: Heat resistance up to 80°C 176°F. Can be embedded in a metal object in any installation location (SJ-M201 Series)

SJ-M201 Series

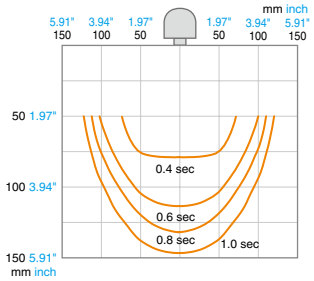


Relationship between air pressure and flow

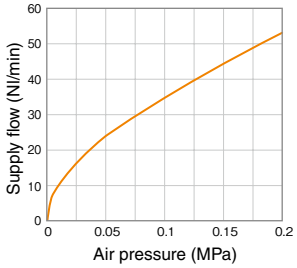


SJ-M301 Series

Static elimination area and time (50 Hz)



Relationship between air pressure and flow



Measurement conditions
· Static elimination time from ±3000 V to ±300 V
· Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
· Using SJ-M030G · No downflow
· 3 NL/min (1 electrode) air purge

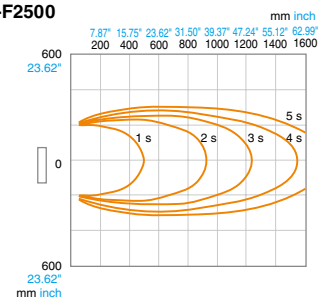
Blower Type

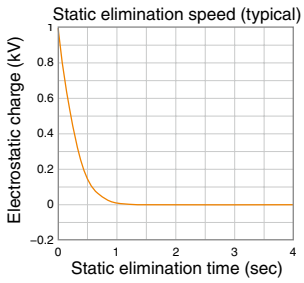
High Speed / High Accuracy
Wide Static Elimination Blower
SJ-F2500 Series

High Speed / High Accuracy
Wide Static Elimination Blower
SJ-F5500 Series

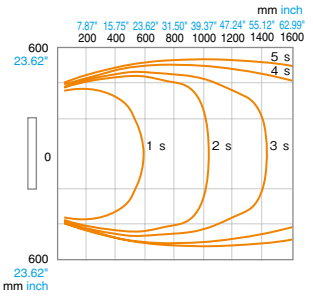
Static electricity elimination distance: High speed static electricity elimination within 1 second even at 500 mm 19.69"
Static electricity elimination width: can cover up to a maximum of 1 m 3.3'
I.C.C. function: incorporated
Other: No need to set up air tubing/piping (no air supply)
Simply place on a tabletop or similar to use

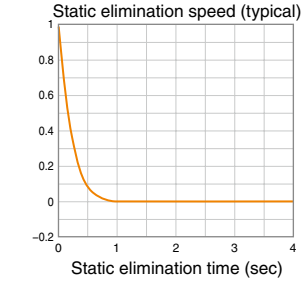
SJ-F2500





SJ-F5500





Measurement conditions

- Static elimination time from ±1000 V to ±100 V (at maximum air flow)
- Plate monitor: 150 mm × 150 mm 5.91" × 5.91" (20 pF)
- Installation distance: 300 mm 11.81" (Static elimination speed data conditions)

Electrostatic Sensors

Handheld type

SK-H050

Laser pointer indicating the reference distance

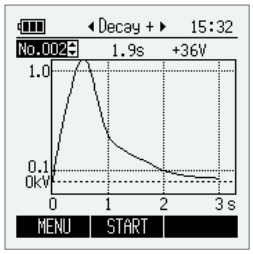
The optimum measuring distance is indicated by the 2 laser pointers, enabling even more accurate measurement.

Free measurement with the 180° rotating head

The measurement position uses a floating structure with 180° rotation. As well as making it easier to take measurements, even in tight spaces, this design also boasts an improved shock resistance due to the sensing element being protected upon impact.

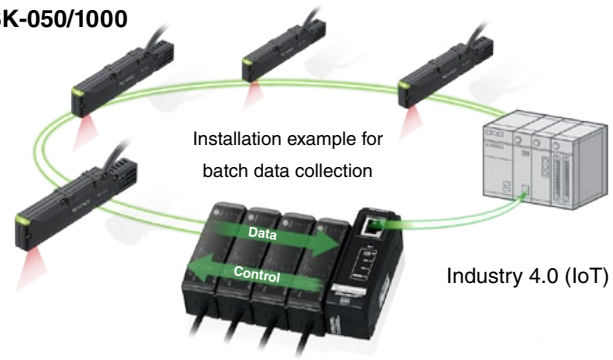
Charge monitor function

Includes a charge monitor function which is used to measure static elimination speeds and ion balances, and indicate the static electricity elimination speed (capacity) of the static eliminator. This enables the easy measuring of the static elimination speed of the ionizer being used.
*Requires the separately sold SK-H055 monitor unit

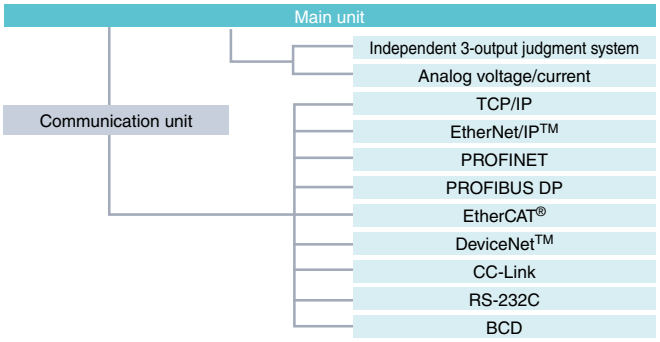


Inline type

SK-050/1000



Various output specifications

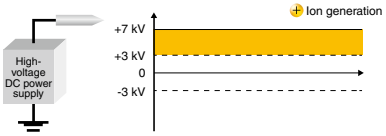


KEYENCE's Original Ion Generation Method

*Excluding some products

Conventional load application method

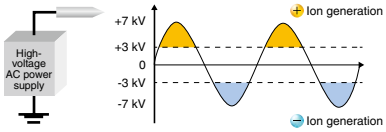
DC method



The ion generation area is large, so this method has a high static elimination speed. However, the polarity of the generated ions is limited, resulting in a poor ion balance.

Short range		Long range	
Static elimination speed	Ion balance	Static elimination speed	Ion balance
○	△	○	○

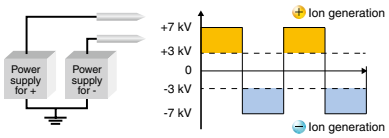
AC method



Positive and negative ions are generated alternately, making this method good for ion balance. However, the ion generation area is narrow, resulting in a slow static elimination speed.

Short range		Long range	
Static elimination speed	Ion balance	Static elimination speed	Ion balance
○	◎	△	○

Pulse DC method

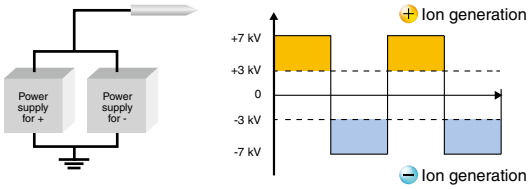


The ion generation area is large, so this method has a fast static elimination speed. However, there are areas where only positive ions or only negative ions are generated, resulting in a poor ion balance at short ranges.

Short range		Long range	
Static elimination speed	Ion balance	Static elimination speed	Ion balance
○	△	◎	○

KEYENCE Proprietary Voltage Application Method

Pulse AC method



The ion generation area is large, resulting in a fast static elimination speed. Positive and negative ions are emitted from a single electrode probe, so this method has a good ion balance. Also, because the oscillation frequency is variable, it is effective in a variety of conditions; from workpieces moving at high speeds to static electricity elimination of an entire environment.

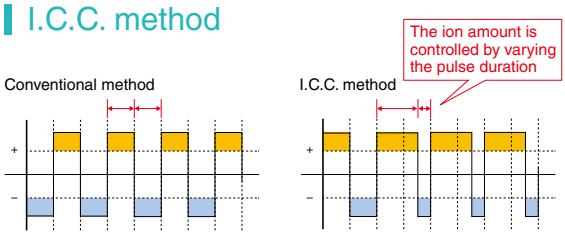
Short range		Long range	
Static elimination speed	Ion balance	Static elimination speed	Ion balance
◎	◎	◎	◎

Point

The pulse AC method has a high static elimination speed and an excellent ion balance. It also demonstrates a static elimination capacity regardless of whether it is at short range or long range.

KEYENCE Proprietary Ion Control Method

I.C.C. method



The electrostatic charge of the target workpiece is calculated by the electrode probe sensing the ion current generated by the potential difference.This method allows for rapid static electricity elimination by supply ions according to the electrostatic charge. This delivers both highly accurate ion balance control and rapid and effective static electricity elimination.

Point

The I.C.C. Method varies the pulse duration when the target workpiece has an electrostatic charge, adjusting the amount of ions generated. This enables even faster static electricity elimination. When the target workpiece has no electrostatic charge, it controls the ion balance with a high degree of accuracy.

Automatic Sensing and Feedback via I.C.C. Functionality

*Excluding some products

Because ions are supplied at the optimal balance and match the electrostatic change, no cumbersome initial settings are required during implementation or maintenance, delivering even more effective static electricity elimination.

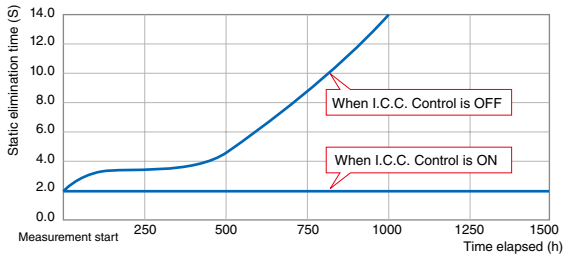
Point

No cumbersome sensor settings required

1 **No need for initial adjustment of the ion balance**
The ion generation amount is automatically controlled, so there is no need to adjust the ion balance

2 **Continuous monitoring of the ion balance for long term stability**
Automatic correction of poor ion balances caused by the electrode probe becoming contaminated, etc.

Static elimination time sustained effect via I.C.C. (SJ-F300 typical example)



Measurement conditions
· Static elimination time from ±1000 V to ±100 V
· Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
· Installation distance 300 mm 11.81"

High Safety and Reliability

Equipped with three alarm outputs

The main static eliminator unit performs self-diagnosis, continuously monitoring for three types of error. If an error is detected, it will output externally and provide an error display via the LEDs on the main unit. Allows for the centralized management of ionizers by monitoring the external output.

Alarm

Interrupts high voltage power supplies when there is internal circuit damage or abnormal discharge.

Cleaning alarm

Monitors drops in the amount of ions generated caused by the electrode probe becoming contaminated or suffering from abrasion.

Condition alarm

Monitors the impact of installation environment instability on static electricity elimination.

Electrostatic charge monitor

An ion balance monitor is standard equipment, allowing the user to quickly and easily see how much electrostatic charge the target workpiece has and whether it is positive or negative. Enables the visualization of the static electricity elimination status.

During normal operation

Example: When the target is positively charged

Ion amount monitor

Equipped with a self-diagnosis function which consistently monitors the ion generation level. The bar LED display and alarm output notifies that maintenance is required.

Ion level reduction (● ion reduction)

Static electricity elimination stop function

Applied voltages across the electrode can be stopped with the main power supply still activated, ensuring safety during work and maintenance.

Low voltage 24 V wiring

The 24 V low voltage wiring eliminates discharge-induced cable deterioration and any effects on surrounding devices, enabling the construction of highly reliable systems.

CE marking

Supports CE marking as standard. Highly safe and reliable static eliminators.

CE

On-site static electricity diagnosis performed by KEYENCE direct sales representatives

Do you have any static electricity problems, or any concerns with the static eliminators in use?

- ☑ Foreign particles adhering
- ☑ Damage caused by electrostatic discharge
- ☑ Uncomfortable workers
- ☑ Target workpiece clogging/sticking
- ☑ Not knowing the current capacity of static eliminators
- ☑ Unclear what is the optimal installation location for the static eliminators

Same-Day Shipping

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SAFETY INFORMATION
Please read the instruction manual carefully in order to safely operate any KEYENCE product.

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