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KEYENCE



SENSING IONIZER / CLEAN SYSTEM

Ionizer General Catalog

INDEX

P. 2-3 Contents / Product Lineup

P. 4-5 Examples of Static Issues

P. 6-7 The 4 Important Requirements to Static Eliminators (Ionizers)

P. 8-11 Four Features of KEYENCE's Static Eliminators (Ionizers)

P. 12-13 Applications

P. 14-73 Product Introduction

P. 14-39 Bar Type

High-Accuracy High-Speed Sensing Ionizer	SJ-Q Series …….. P. 14
Energy-Saving High-Speed Sensing Ionizer	SJ-E Series …….. P. 28
Air-Free High Speed Sensing Ionizer	SJ-H Series …….. P. 32
High-performance Micro Static Eliminator	SJ-M300 Series …….. P. 36

P. 40-51 Fan Type

Multi-Sensor Ionizer	SJ-F700 Series …….. P. 40
Compact Fan Static Eliminator	SJ-LF Series …….. P. 48

P. 52-59 Nozzle/Spot Type

Compact Nozzle Static Eliminator	SJ-LM Series …….. P. 52
High-Performance Micro Static Eliminator	SJ-M200 Series …….. P. 56

P. 60-63 Gun Type

Ultra-durable, High-power Static Elimination Gun	SJ-LG Series …….. P. 60

P. 64-73 Static Sensor

Handheld Static Sensor	SK-H Series …….. P. 64
Inline Static Sensor	SK-I Series …….. P. 66

Product Lineup

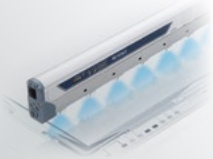
Bar Type

High-Accuracy
High-Speed
Sensing Ionizer
SJ-Q Series



▶P. 14

Energy-Saving High-Speed Sensing Ionizer
SJ-E Series



▶P. 28

Air-Free High Speed Sensing Ionizer
SJ-H Series



▶P. 32

High-performance
Micro Static Eliminator
SJ-M300 Series



▶P. 36

Fan Type

Multi-Sensor Ionizer
SJ-F700 Series



▶P. 40

Compact Fan Static Eliminator
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▶P. 48

Nozzle/Spot Type

Compact Nozzle Static Eliminator
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▶P. 52

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Gun Type

Ultra-durable, High-power
Static Elimination Gun
SJ-LG Series



▶P. 60

Static Sensor

Handheld Static Sensor
SK-H Series



▶P. 64

Inline Static Sensor
SK-I Series



▶P. 66

Examples of Static Issues

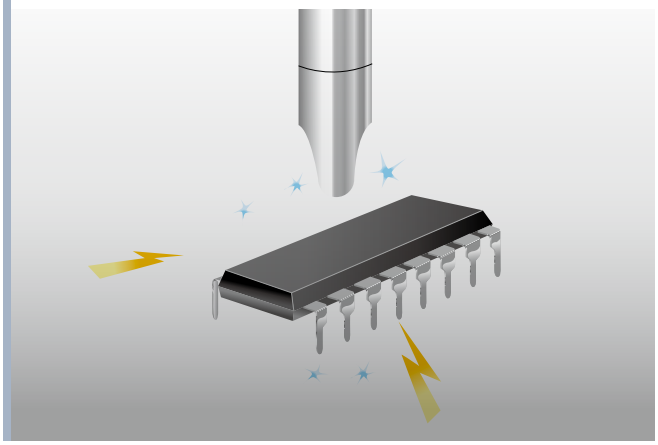
Static electricity occurs when there is friction or peeling.
This static electricity can cause a number of different problems in manufacturing environments.

Defective products

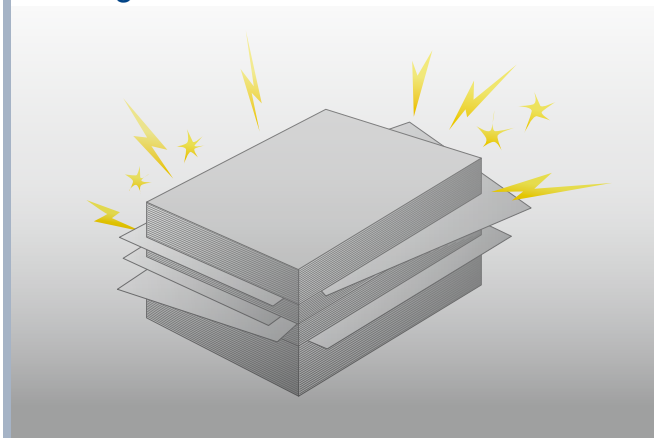
Adhesion of foreign particles



Electrostatic destruction



Misalignment



Painting and printing defects



Static eliminators (ionizers) are the solution to static electricity problems

What is a static eliminator (ionizer)?

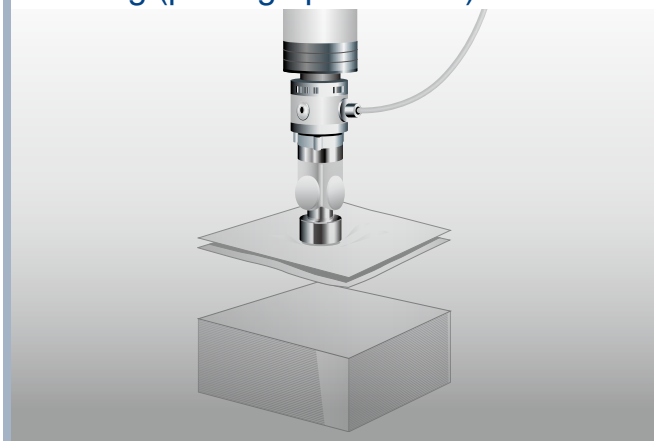
A static eliminator (ionizer) applies voltage (±3 kV or more) to an electrode probe, producing a corona discharge on the tip of the electrode probe. When a corona discharge is produced, ions are generated.
These ions neutralize the static electricity, thereby eliminating it.

What are the advantages of a static eliminator (ionizer)?

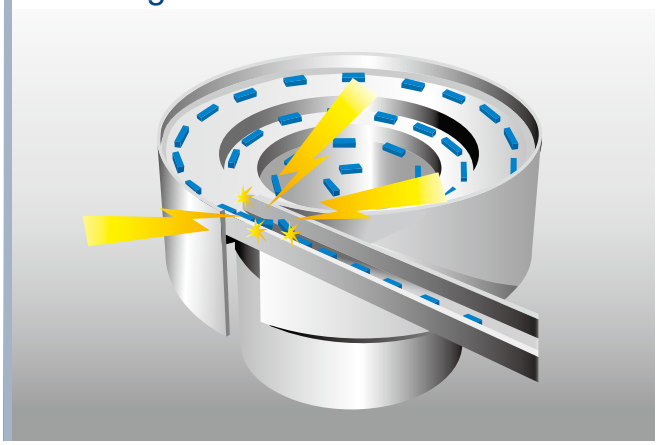
There are various methods of dealing with static electricity. These include creating an environment with grounding, conductivity, and high humidity, but none of these are perfect solutions. A static eliminator (ionizer) solves the above problems and various problems related to static electricity, and it is useful as a central tool for static elimination.

Machine/process problems

Sticking (picking up 2 sheets)



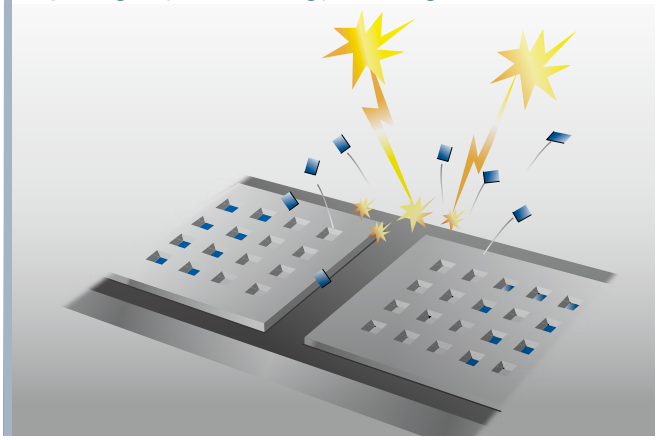
Jamming



Malfunction of electronics



Spillage (scattering) of target



Methods of eliminating static electricity

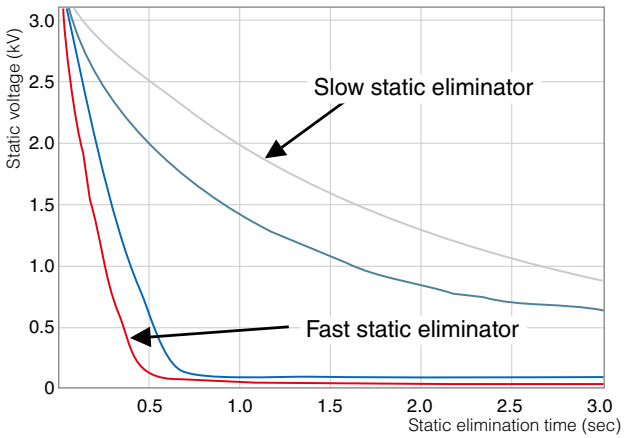
Static elimination method	Grounding (including bands and mats)	Conductivity		Humidity measures	Static elimination brush/ribbon	Static eliminator (ionizer)
		Spray	Incorporating conductors			
Advantages	Easy measure	Easy measure	Grounding possible	Prevents electrostatic charge	Cost	Easy measure Use for any target
Disadvantages	Does not affect insulator	Effect does not last Effect on target	Cannot be retrofitted Increased cost	High cost Effect on target	Complete elimination not possible Depends on target	—

The 4 Important Requirements to Static Eliminators (Ionizers)

1 Static elimination performance

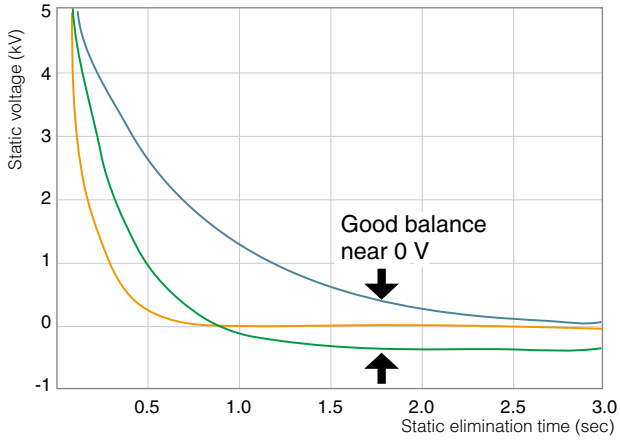
The static elimination performance is evaluated by static elimination speed and ion balance. A slow static elimination speed can lead to a longer static elimination time per target and lower yield. Also, as the ion balance worsens, it becomes impossible to eliminate static to the desired level, and static electricity problems such as adhesion of foreign particles and ESD damage cannot be completely prevented.

Static elimination speed



Static elimination speed indicates how fast static electricity can be eliminated from an electrostatically charged target to a specified voltage. Generally, it is expressed by the time it takes to go from ±1000 V to ±100 V.

Ion balance



Ion balance indicates how close to 0 V static elimination can be performed and how close to 0 V it can be maintained. The closer to 0 V, the better the ion balance is of the static eliminator.

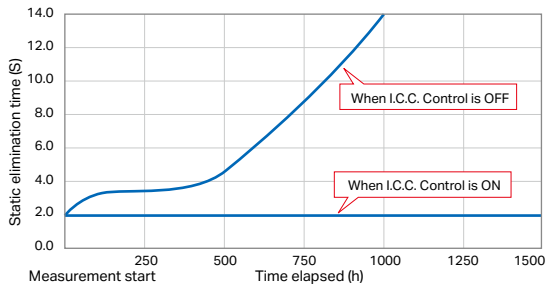
Selection point

Select a static eliminator (ionizer) with a fast static elimination speed and the ability to uniformly generate positive and negative ions.

2 Maintainability

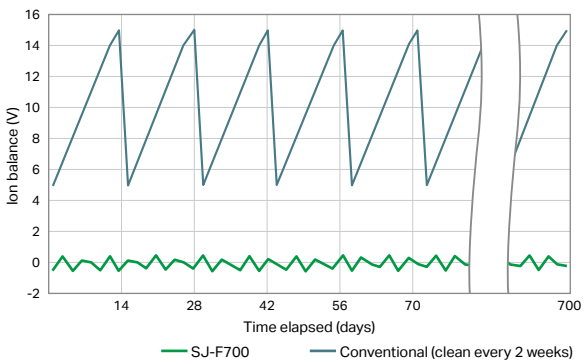
The static elimination capacity of the corona discharge static eliminators deteriorates when used over time. Specifically static elimination speed will decrease and the ion balance will deviate from 0 V. There are two causes for this: (1) wear on the electrode probe, and (2) dirt on the electrode probe. These symptoms can be reduced by selecting a suitable static eliminator.

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



* Measurement conditions as per internal comparison test
Static voltage: +1 kV → 100 V Plate monitor: 150 mm × 150 mm 5.91" × 5.91" (20 pF)
Installation distance: 300 mm 11.81"

Change over time in ion balance (typical example)



If used without maintenance for 500 hours (approximately 20 days), it is said that static elimination speed will be approx. twice as slow, ion balance will have a greater impact and there will be a misalignment of approximately 2 V per day.

Selection point

Select a static eliminator (ionizer) with excellent electrode probe maintainability.

3 Usability and safety

Depending on the installation location of the static eliminator, it may be difficult to change the settings or clean the electrode probe. Easy remote operations and cleaning are very important for regular maintenance. Enhanced output functions are also important. If the static eliminator cannot deal with malfunctions and abnormal discharges, not only will static electricity not be eliminated but there is a risk of a fire.





Selection point

Select a static eliminator (ionizer) with abundant output functions and excellent usability.

4 Energy-Saving Performance

Bar type static eliminators (ionizers) have great static elimination capabilities, but their running costs are high. Static elimination speed and air volume are correlated, so air volume must be increased in order to eliminate static at a high speed. This means it is extremely important to select a static eliminator (ionizer) that can eliminate static at a high speed while keeping the power consumption of the compressor low to reduce running costs. The type of blower that does not use factory air also tends to come under the spotlight.

Power Consumption vs Static Elimination Speed

	SJ-F700 (ECO)	SJ-F700 (max.)	Reduced Flow Rate Model	High Speed Static Eliminator Model
Electricity bill*	$ 7	$ 49	$ 579	$ 1,411
Power consumption total	4.3 W	31.3 W	367 W	895 W
Main unit power consumption	4.3 W	31.3 W	16.8 W	12 W
Air usage power	—	—	350 W	883 W
Air usage volume	—	—	37 L/min	92 L/min
Air pressure	—	—	0.38 MPa	0.07 MPa
300 mm 11.81" static elimination speed	—	0.9 s	0.9 s	0.9 s
600 mm 23.62" static elimination speed	—	2.0 s	2.0 s	2.0 s
900 mm 35.43" static elimination speed	—	4.2 s	3.6 s	3.7 s

* Annual electricity bill calculated at $ 0.18/kWh

Selection point

Select a static eliminator (ionizer) with excellent energy-saving performance.

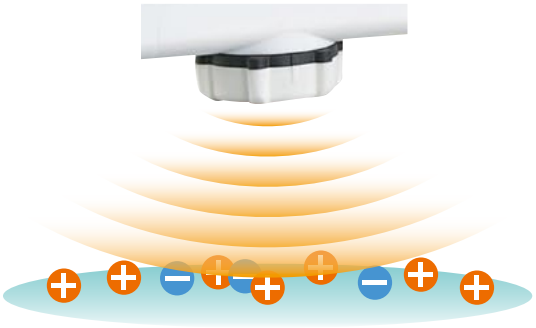
Four Features of KEYENCE's Static Eliminators (Ionizers)

Industry-leading level static eliminators (ionizers) with great static elimination capacity, maintainability, usability and safety.

1 High static elimination performance

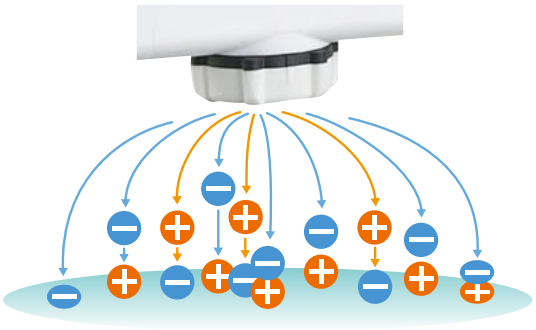
KEYENCE products use pulse AC plus I.C.C. method to ensure high-speed static elimination and a high ion balance. This method performs well under all conditions as more ions are generated than in the conventional method and the ratio of positive to negative ions can be changed.

Senses the electrostatic charge of the target



Senses the target

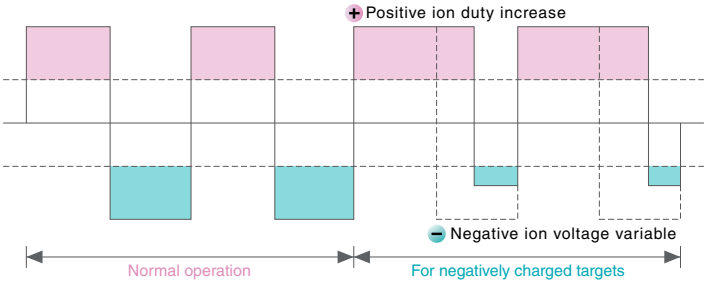
Supplies an optimized amount of ions according to each target's charge

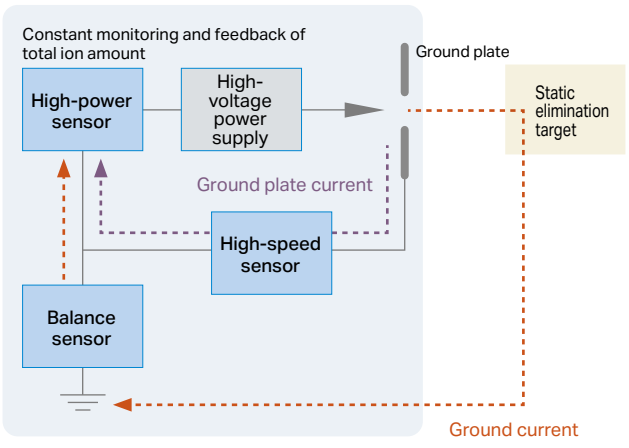


Targets are neutralized by supplying negative ions to positively charged targets and positive ions to negatively charged targets.

I.C.C. system

I.C.C. determines the charge status by capturing the intensity of the electric field radiated from the charged object. If the charge is negative, it provides more positive ions. If the positive voltage applied to the electrode probe is increased or the time extended, the amount of positive ions increases. Optimal ion generation, which approximates to static elimination, is performed automatically by controlling this in real time while monitoring the electric field. The latest I.C.C. (Multi I.C.C.) maintains higher static electricity elimination performance through real-time control using three sensors built into the unit that detect things like the voltage value of the ionizer itself. By installing an external sensor in the position subject to static elimination, it is possible to detect temperatures and humidities that have a high correlation to ion balance and static electricity in that location and perform advanced optimization of static elimination.

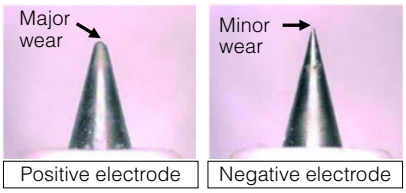




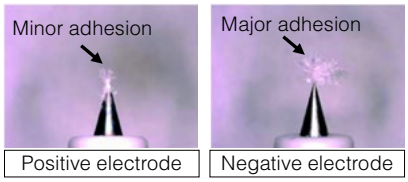
2 Maintenance-free

The performance of static eliminators greatly decreases as the electrode probe becomes dirty and worn over time. KEYENCE has created a probe with a unique structure to prevent it from becoming dirty. In addition, the automatic ion balance adjustment constantly controls the amount of positive and negative ions generated. Therefore, deviation of the ion balance can be eliminated even if the probe becomes dirty.

Wear



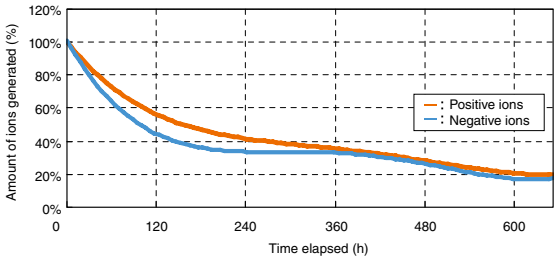
Adhesion



Optimization of conditions is controlled automatically

The I.C.C. method optimizes operating conditions, so effective static elimination is maintained without the need for manual adjustment.

Data for change over time in ion amount (example)



As shown above, the amount of positive (+) and negative (–) ions generated decreases as the electrode probes get dirty, and static elimination speed decreases accordingly. In addition, the ion balance deteriorates as the positive and negative ions decrease by different amounts.

Maintenance-free

Electrode probe cleaning

Not needed for 1 year*

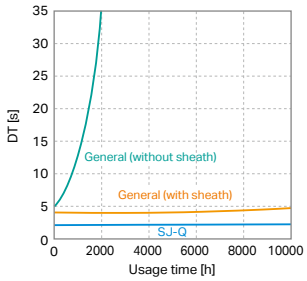
General: Once every 2 to 4 weeks

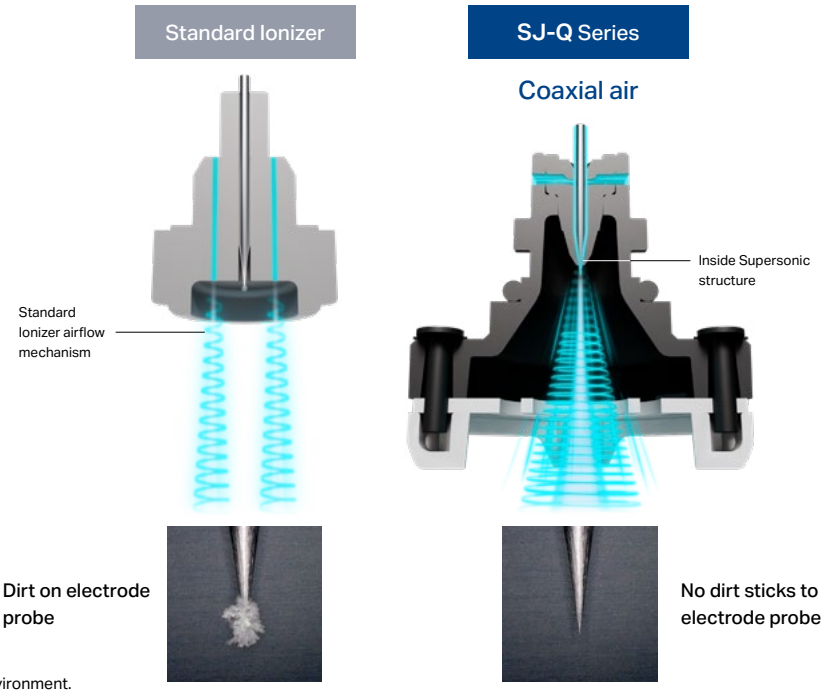
Dirt-resistant Electrode Probes

The Inside Supersonic structure envelops the electrode probe with coaxial air

If an electrode probe that generates ions is not protected, tiny particles will adhere to it as it discharges. Therefore, it was necessary to clean the electrode probe every few weeks or months. With the SJ-Q Series, supersonic air is sprayed coaxially onto the electric probe, enveloping it and repelling dirt from outside air.

Probe contamination comparison





* The cleaning frequency may be higher depending on the usage environment.

Four Features of KEYENCE's Static Eliminators (Ionizers)

3 High usability and safety

A highly functional remote control that allows the user to check the static eliminator's status at a glance and a cleaning kit for easy maintenance are available. Three alarms capable of external output in the event of an error are also included as standard, assuring safety and reliability.

Enhanced usability

The dedicated mounting bracket makes installation simple

Mounting brackets are available as optional parts of an ultra-compact static eliminator that can be installed anywhere. Installation time can be greatly reduced, and the flexibility of installation is greatly improved.



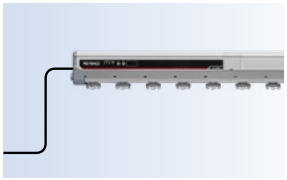
Tabletop securing bracket



Adjustable bracket

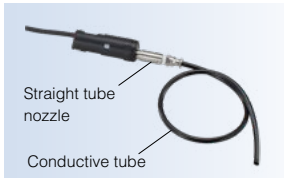
Built-in amplifier for a small footprint

By integrating the controller and high-voltage power supply unit, it is possible to save space and simplify wiring.



Tube compatibility

Two types of tube nozzles for spot static elimination are available. The tubes make pin-point static elimination possible even in localized spaces with installation restrictions.



Replacement probes and cleaning kit for easy maintenance

Easy replacement electrode probe
Electrode probes use pin connectors and have a cassette format for easy replacement.

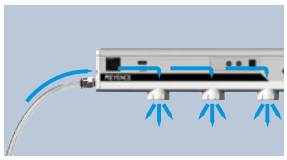


Two types of cleaning kits
In addition to the conventional rotating type, there is also a sliding cleaning kit that enables easy cleaning simply by sliding.



Air purge function

This function supplies clean air. Blows air around the electrode probe to prevent dirt from adhering to the electrode.



N_2 (nitrogen) purging
N_2 purging, which is used in semiconductor and liquid crystal manufacturing, is provided as standard.
* Available models: SJ-E/SJ-H/SJ-M200 Series

Connection with air gun
Available with an optional dedicated air gun. By performing static elimination in the same way as an air purge, dust can be effectively removed and re-adhesion can be prevented.

Highly functional remote control makes optimization easy

A highly functional remote control was developed for two-way communication with the ionizer (SJ-E Series). The static elimination status and alarm information can be checked locally, and various operations can be performed easily such as fine-tuning the ion balance and setting the electrostatic charge monitor sensitivity.

Remote control functions

Acquisition of ionizer status
Electrostatic charge, ion amount, frequency, alarm status, alarm setting level

Ionizer operation settings
Frequency setting, ion balance adjustment, alarm level adjustment, electrostatic charge monitor sensitivity setting, static elimination ON/OFF, I.C.C. ON/OFF, L.P.C. adjustment, main unit display setting, static eliminator initialization

Remote control added functions
Setup copy/write function, remaining battery charge display



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.



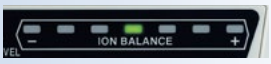
Alarm
Interrupts high voltage power supplies when there is internal circuit damage or abnormal discharge.

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

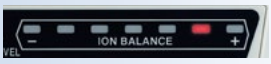
Condition alarm
Monitors the impact of installation environment instability on static elimination.

Electrostatic charge monitor

An ion balance monitor is equipped as standard, 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 elimination status.



During normal operation



Example: When the target is positively charged

Ion amount monitor

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



Ion level reduction (positive ion reduction)

Static 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.

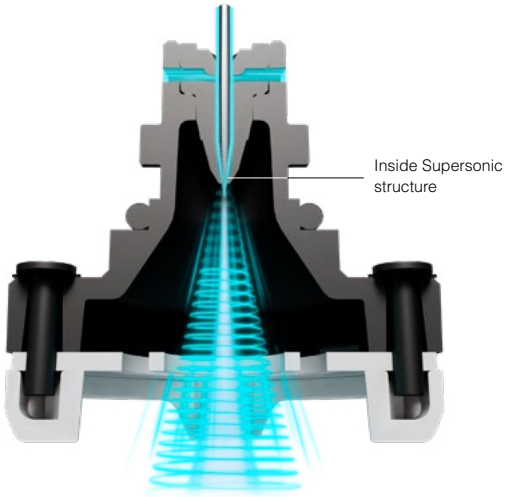
CE

4 Energy-Saving Structure

Static elimination speed and air volume are correlated, so air volume must be increased in order to eliminate static at a high speed. By adopting an inside supersonic structure, SJ-Q is now able to perform high-spec static elimination while reducing the air usage rate by 60% compared to conventional models.

Running costs are significantly reduced compared to conventional models by achieving high static elimination performance with an extremely small flow rate

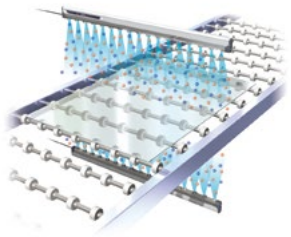
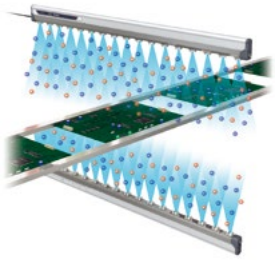
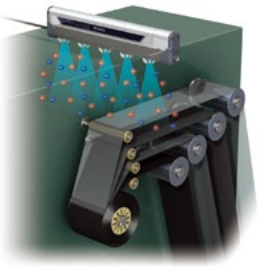
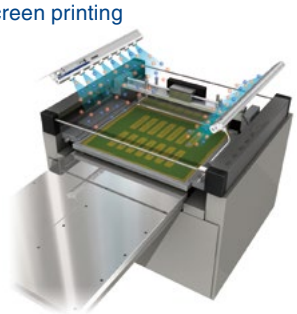
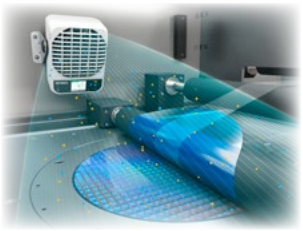
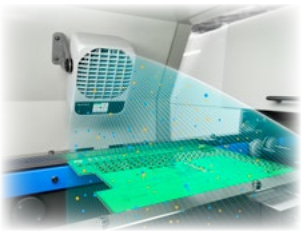
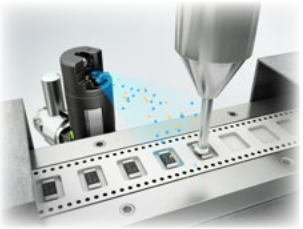
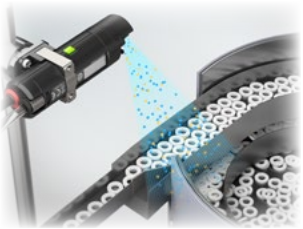
Inside supersonic structure

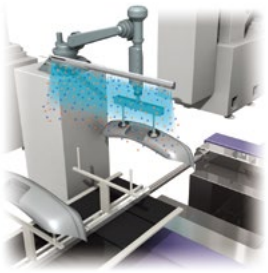
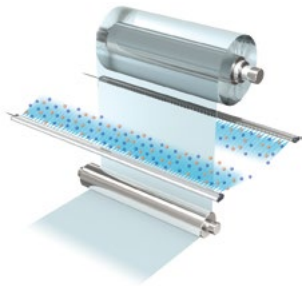
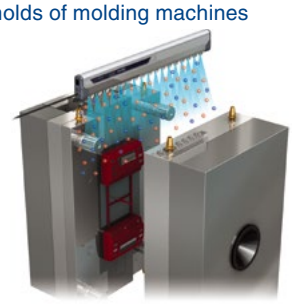
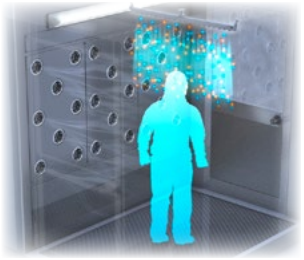
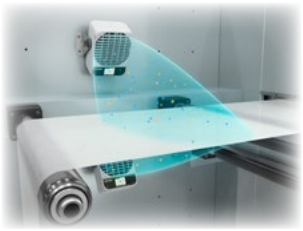
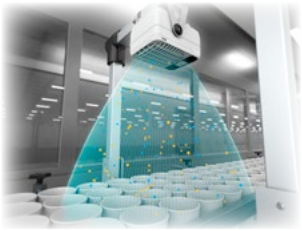
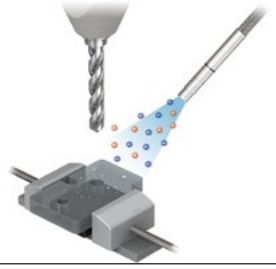


An inside supersonic structure is achieved by using de Laval nozzles, which are used in supersonic jet engine technologies, to the electrode probes. The air flow velocity exceeds the speed of sound, significantly improving the speed at which ions reach the target. Also, the shape of the electrode probe utilizes fluid dynamics to draw in air from the surroundings and increase air flow. These two technologies have enabled high-speed, wide-range static elimination at the world's lowest flow rate.

Wide Variety of Proven Applications

Meeting static-elimination needs at various sites

	LCD and semiconductor	Electronic and electrical	
Bar type	Eliminating static electricity while conveying liquid crystal glass 	Eliminating static electricity while conveying PCBs 	Eliminating static electricity from winding machines 
	Eliminating static electricity while inspection wafers 	Eliminating static electricity during screen printing 	Eliminating static electricity during reel unwinding before mounter 
Fan type	Wafer protective film peeling static elimination 	Static elimination of work space 	Measures to address static electricity destruction during PCB inspection and warranty 
Nozzle/Spot/Gun type	Preventing spillage during taping 	Preventing electrostatic discharge damage during chip conveyance 	Preventing conveyance failures in parts feeders 

	Automotive	Resin plastics/film	Food and pharmaceutical
Bar type	Eliminating static electricity while conveying bumpers  Eliminating static electricity before painting automobile bodies 	Eliminating static electricity while conveying film  Eliminating static electricity inside molds of molding machines 	Preventing splatter in cups by eliminating static electricity before filling  Static elimination during air shower 
Fan type	Preventing defective LED assembly in keyless entry remote controllers 	Contaminant removal before coating 	Measures to prevent foreign particles and contaminants from adhering to food containers 
Nozzle/Spot/Gun type	Dust removal before painting of car bodies/preventing coating defects 	Preventing plastic chips from re-adhering to products after machining 	Preventing seal failures due to trapped product 

NEW High-Accuracy High-Speed Sensing Ionizer

SJ-Q Series

Inside supersonic structure

Pulse AC + I.C.C. | Sheath air guiding structure

Air not required | Multiple output options

Remote control

ISO Clean Class 3



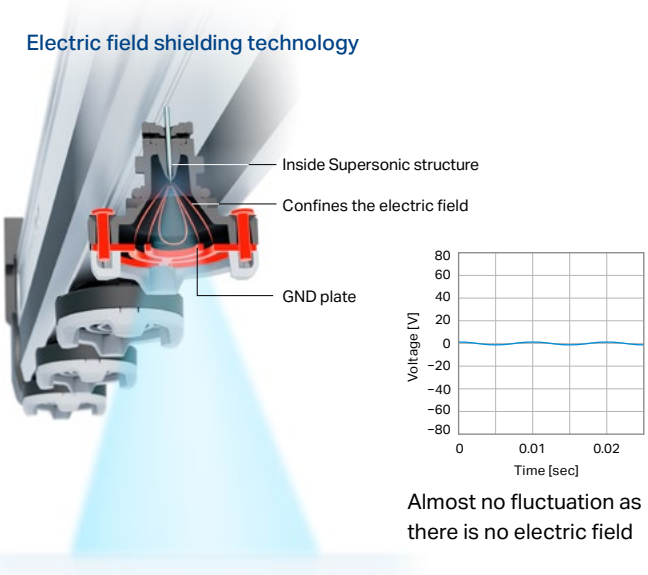
[10 Times Greater Static Elimination Performance]
&
[Maintenance-Free]

Reliable Static Elimination

Inside supersonic structure

Conventional bar-type ionizers not only emit ions, but also cause voltage fluctuations in the target due to the electric field from the electrode probe. For the SJ-Q Series, we have developed a new electric field shielding technology that eliminates electric fields using GND plates at the tip of each electrode. Allows delivering only ions to the target, improving ion balance by ten-fold.

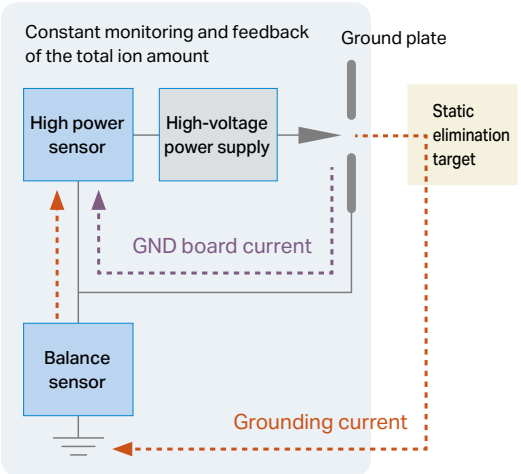
Electric field shielding technology



Almost no fluctuation as there is no electric field

Hi-Power I.C.C.

This mode eliminates the conventional need for a charge monitor to adjust ion balance, and automatically adjusts ion balance with high accuracy. The earth current only indicates the amount of ions heading toward the target and can therefore be adjusted with high accuracy.



High-powered elimination for the most difficult problems
Maintenance-free, high-performance antistatic bar

10 times* the accuracy

Ion balance

±3 V

- Brings ion balance as close to zero as possible
- Automatically adjusts high-accuracy ion balance
- No voltage swing

* Compared with ion balance specifications ±30 V of conventional models

10 times* the static elimination speed

Static elimination speed

High-speed **0.1 sec**

- Delivers stable ions at high speed
- High-speed static elimination as close as 10 mm 0.39" away from the target
- Controls the amount of ions generated

* Comparison of the fastest static elimination speeds for installation distances that meet the ion balance specifications

Maintenance-free

Electrode probe replacement

Not needed for 10 years

Electrode probe cleaning

Not needed for 1 year*

- Dirt-resistant Electrode Probes
- Eliminates static electricity even when probe is worn out
- Controls ion generation

* The cleaning frequency may be higher depending on the usage environment.

A dramatic increase in production efficiency

High static elimination | **Accuracy**

Reduces risks on any production line

Ion balance

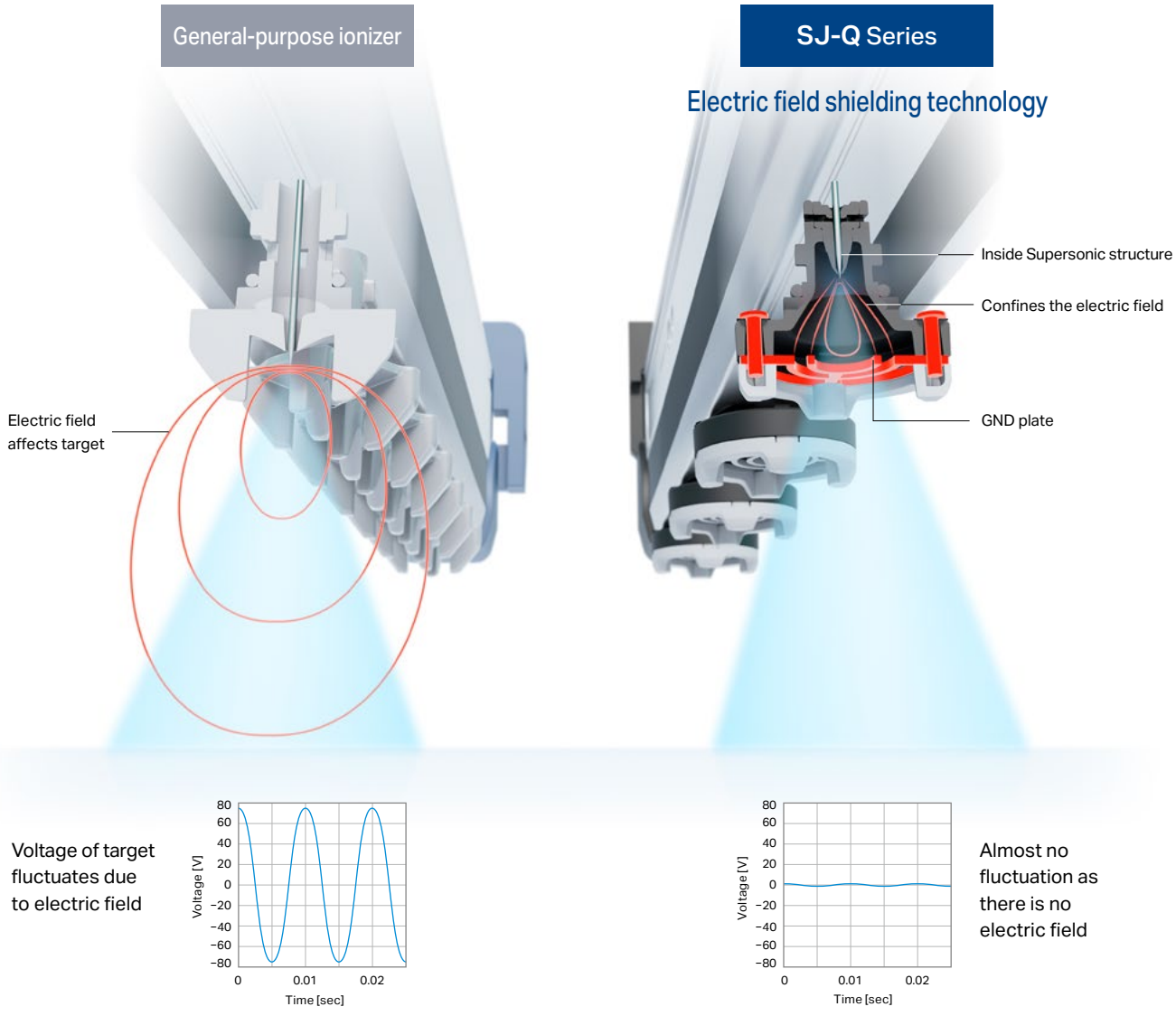
±3V

A world first	**10** times conventional models

Brings ion balance as close to zero as possible

New Inside Supersonic structure “reduces electric field to zero”

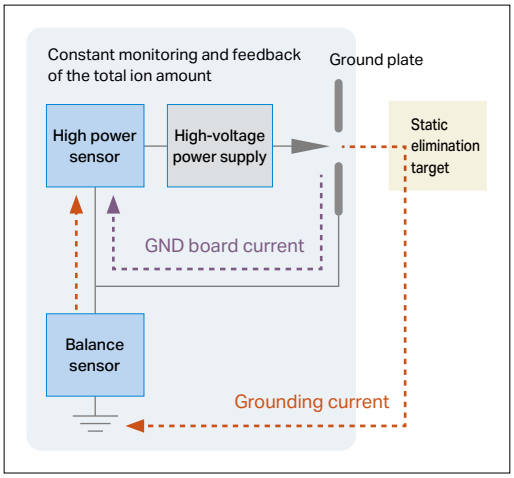
Conventional bar-type ionizers not only emit ions, but also cause voltage fluctuations in the target due to the electric field from the electrode probe. For the SJ-Q Series, we have developed a new electric field shielding technology that eliminates electric fields using GND plates at the tip of each electrode.
Allows delivering only ions to the target, improving ion balance by ten-fold.



High accuracy ion balance is automatically adjusted

Hi-Power I.C.C., an industry-first control mode

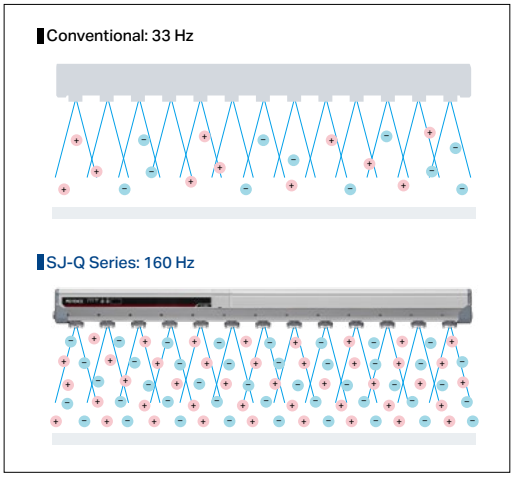
This mode eliminates the conventional need for a charge monitor to adjust ion balance, and automatically adjusts ion balance with high accuracy. The earth current only indicates the amount of ions heading toward the target and can therefore be adjusted with high accuracy.



No voltage swing

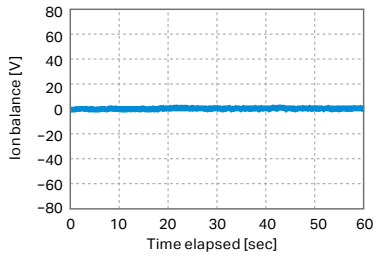
High-speed ion frequency

In addition to electric field shielding, the frequency of positive and negative ions has been increased to 160 Hz. The time taken for ions to reach the target has been reduced to minimize voltage swings.



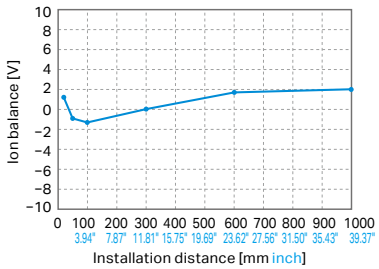
Ion balance (typical example)

By time



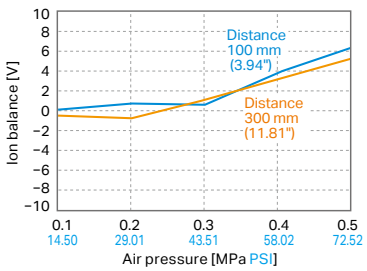
[Measurement Conditions]
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Distance: 100 mm 3.94"
- 0.2 MPa 29.01 PSI of pressure

By distance



[Measurement Conditions]
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- 0.2 MPa 29.01 PSI of pressure

By pressure



[Measurement Conditions]
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Distances: 100 mm 3.94", 300 mm 11.81"

High static elimination | **Speed**

Reduce takt times on production lines

Static elimination speed

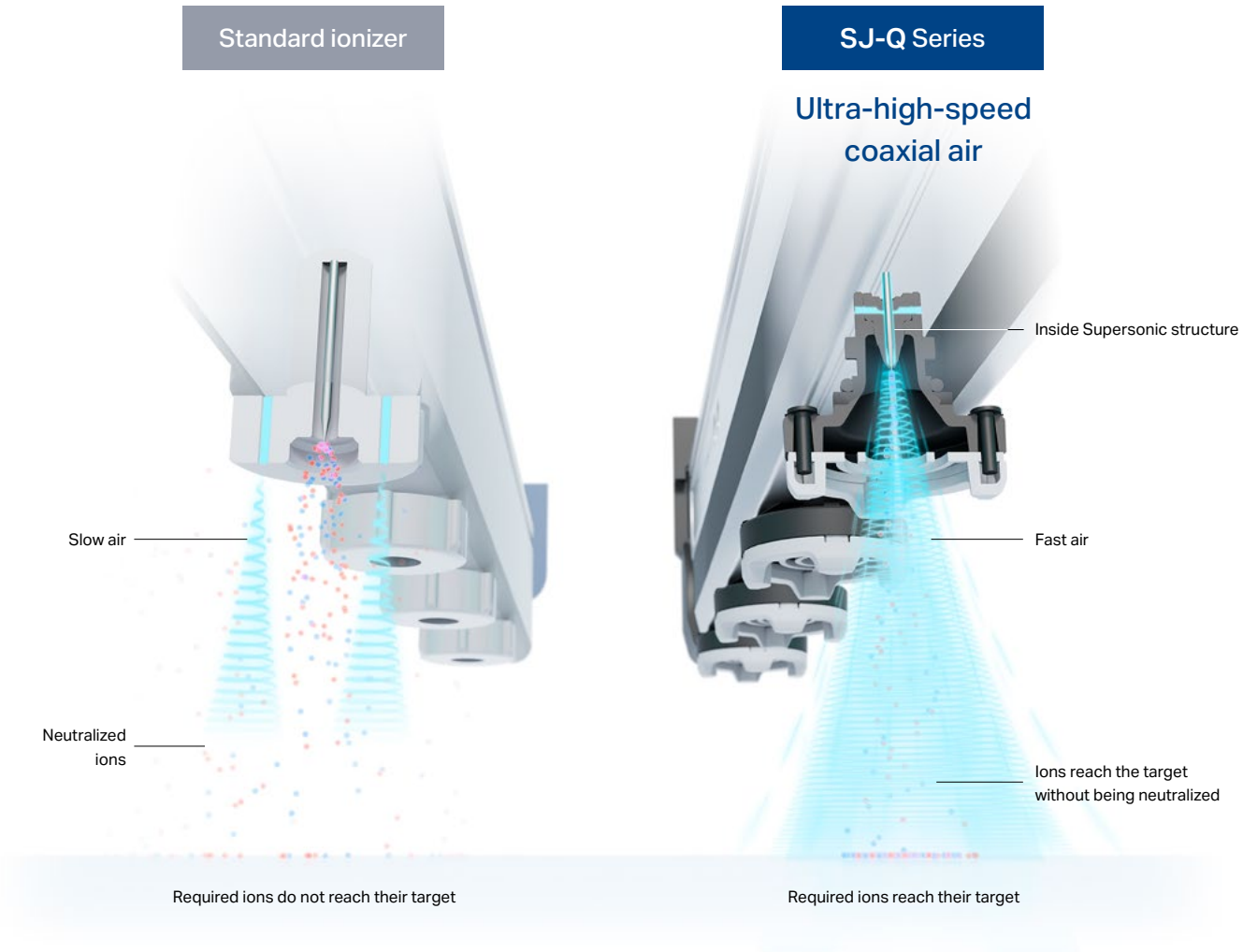
Fastest **0.1** sec

A world first	**10** times conventional models

Delivers stable ions at high speed

Inside Supersonic structure delivers ions with ultra-high speed coaxial air

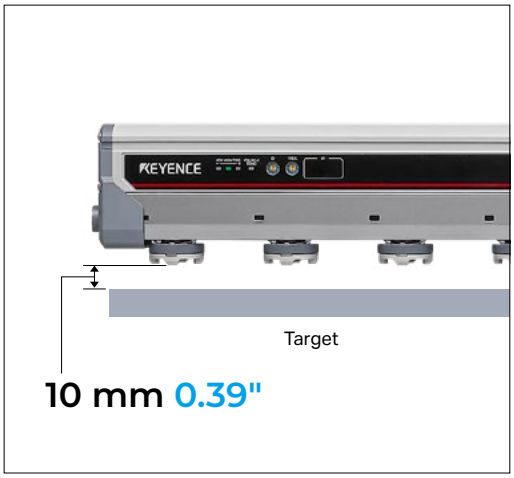
Air ions neutralize each other over time and disappear. Conventional ionizers have slow air speeds, which means it takes more time for ions to reach their target, resulting in slower static elimination. With the SJ-Q Series' Inside Supersonic structure, air flows coaxially with the electrode probe, making it possible to emit ions more powerfully than conventionally possible.
This means that the ions generated can reach the target without being neutralized by ions in the air.



High-speed static elimination at close (10 mm 0.39") mounting distances

Inside Supersonic structure "reduces electric field to zero"

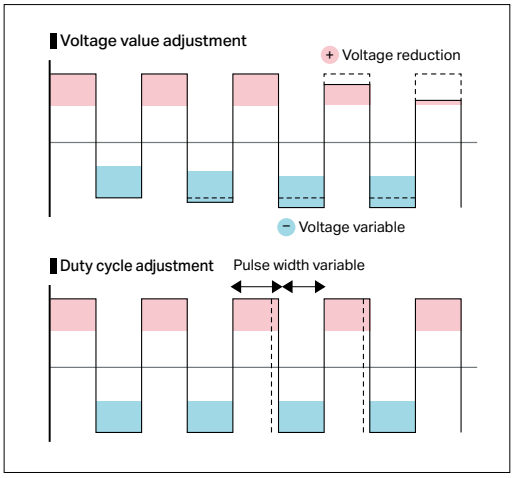
Conventional ionizers need to be installed 50 to 300 mm 1.97" to 11.81" away from the target. However, the SJ-Q Series can be installed as close as 10 mm 0.39" as the reverse charge caused by the electric field is negated. Neutralization of ions is minimized, allowing for high-speed static elimination.



Strong ion generation control

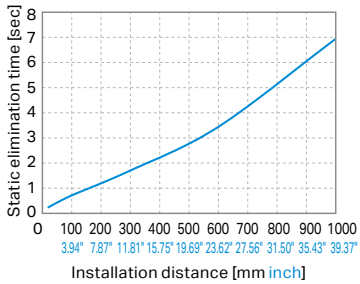
Hi-Power I.C.C., an industry-first control mode

The pulse duration and voltage value of the applied voltage are adjusted according to the charged state of the target. This enables high-speed static elimination. Variable pulse duration to match frequency allows you to control the quantity of ions generated, as well as enabling 2.5× greater voltage variation than conventional models.



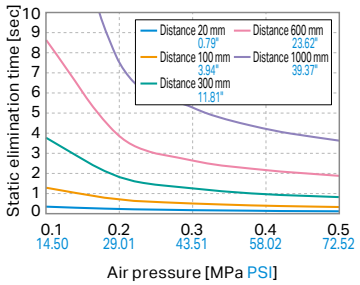
Static elimination speed (typical example)

Static elimination times by installation distance



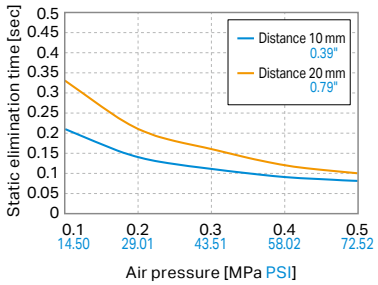
[Measurement Conditions]
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Distance 20 to 1000 mm 0.79" to 39.37"
- Frequency 160 Hz • Pressure 0.2 MPa 29.01 PSI

Static elimination time by pressure



[Measurement Conditions]
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Distance 20 to 1000 mm 0.79" to 39.37"
- Frequency 160 Hz • Air 0.1 to 0.5 MPa 14.50 to 72.52 PSI

Static elimination times with shorter installation distance



[Measurement Conditions]
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Distance 10 mm 0.39", 20 mm 0.79"
- Frequency 160 Hz • Pressure 0.1 to 0.5 MPa 14.50 to 72.52 PSI

High static elimination | **Stability**

Significant reduction in work required for operation

Maintenance-free

Electrode probe cleaning

Not needed for 1 year*

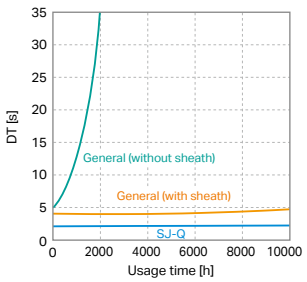
General: Once every 2 to 4 weeks

Dirt-resistant Electrode Probes

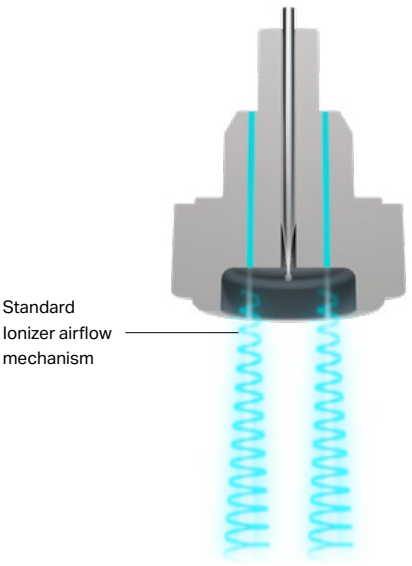
The Inside Supersonic structure envelops the electrode probe with coaxial air

If an electrode probe that generates ions is not protected, tiny particles will adhere to it as it discharges. Therefore, it was necessary to clean the electrode probe every few weeks or months. With the SJ-Q Series, supersonic air is sprayed coaxially onto the electric probe, enveloping it and repelling dirt from outside air.

Probe contamination comparison



Standard Ionizer

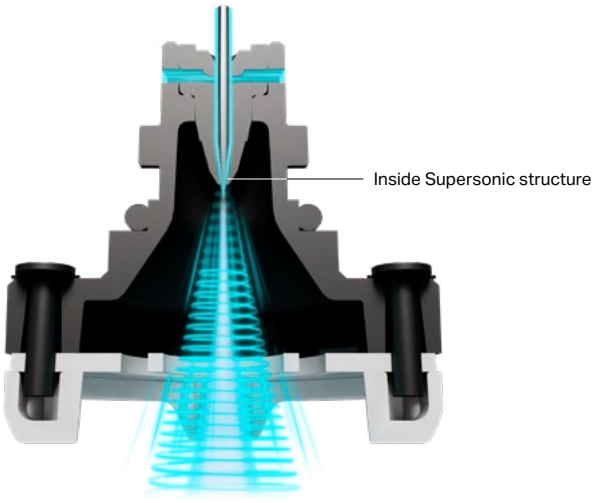


Dirt on electrode probe



SJ-Q Series

Coaxial air





No dirt sticks to electrode probe

* The cleaning frequency may be higher depending on the usage environment.

Electrode probe replacement

Not needed for 10 years

Lasts 5x longer than conventional models

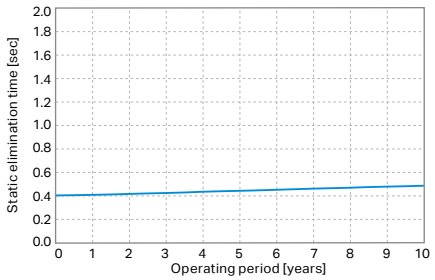
Conventional:
Once every 2 years

Eliminates static electricity even when probe is worn out

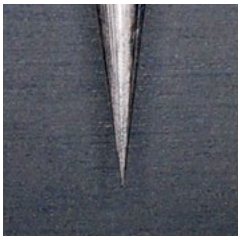
Hi-Power I.C.C. maintains generation efficiency

The SJ-Q Series constantly monitors ion generation status using Hi-Power I.C.C. Applied voltage is automatically increased depending on wear.

Operating period and static elimination time



New electrode probe



Worn electrode probe

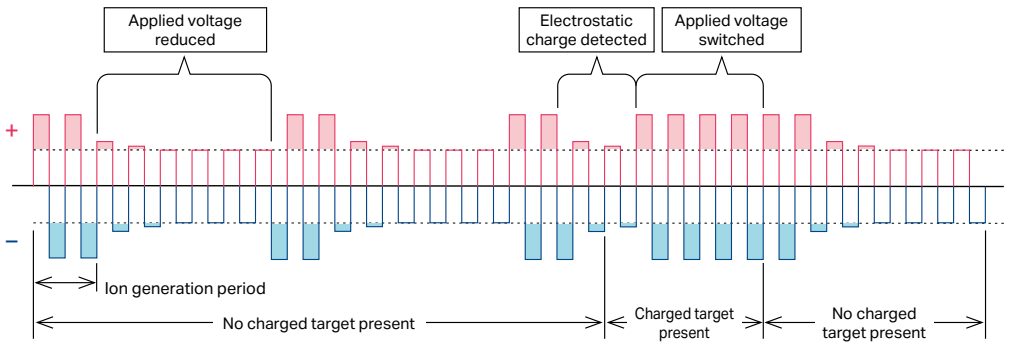


Controls ion generation

L.P.C. feature

Equipped with an L.P.C. feature that optimally controls the generation of positive (+) and negative (-) ions. Extends the oscillation cycle while continuing static elimination and reducing maintenance.

* The L.P.C. feature must be set using the remote control.



Specific cost reduction examples

Reduced Factory Air Consumption

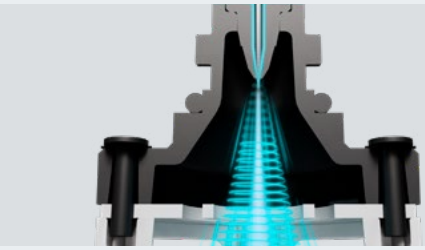
	Conventional: **SJ-H108**	**SJ-Q108**
Electricity bill*1	$ 11,910 per bar	$ 1,284 per bar
Air usage	66,169 kWh	7,135 kWh
Air volume	784 L/min	85 L/min
Air pressure	0.5 MPa 72.52 PSI	0.5 MPa 72.52 PSI

Reduction of $ 10,626 per year

*1 Annual electricity bill calculated at $ 0.18/kWh

Inside Supersonic structure

With the Inside Supersonic structure, ions exceed the speed of sound, enabling high-speed static elimination even with a minimal flow rate.



This world-first supersonic structure is achieved by using Laval nozzles, which are used in supersonic jet engine technologies, for the electrode probes.

Reduced Main Unit Power Consumption

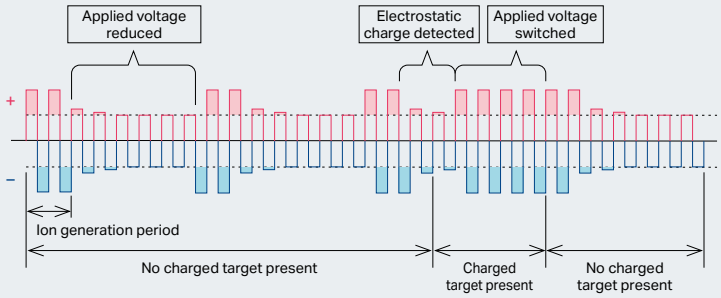
	Conventional: **SJ-H108**	**SJ-Q108**
Electricity bill*1	$ 19 per bar	$ 6 per bar
Main unit power	105 kWh	36 kWh*2

Approx. 1/3 reduction

*1 Annual electricity bill calculated at $ 0.18/kWh, *2 Minimum specifications

L.P.C. feature

Equipped with an L.P.C. feature that optimally controls the generation of positive (+) and negative (-) ions. Extends the oscillation cycle while continuing static elimination and reducing maintenance.



Reduced Probe Unit Replacement Costs

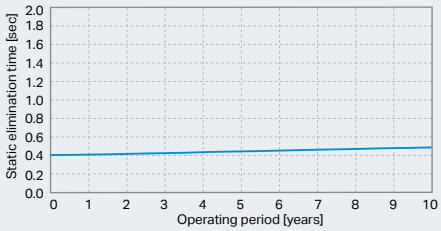
	Conventional: **SJ-H108**	**SJ-Q108**
Costs	$ 1,664 per bar	$ 0 per bar
No. of replacements	4	0
Replacement frequency	2 years	10 years
Probe model/No. of probes required	OP-84292 × Set of 4	OP-89051 × Set of 4
Probe unit cost	$ 104	$ 75

10 year reduction of $ 1,664

Hi-Power I.C.C. eliminates static electricity even if probes are worn out

The SJ-Q Series constantly monitors ion generation using Hi-Power I.C.C. Applied voltage is automatically increased according to the decrease in the amount of ions caused by wear.

Operating period and static elimination time



New electrode probe



Worn electrode probe



Reduced Probe Cleaning Labor

	Conventional: **SJ-H108**[*3]	**SJ-Q108**
Total labor hours	239 hours/per bar	9 hours/per bar
Hours per bar	0.5 H	0.5 H
Workers required	2	2
Cleaning frequency	Twice per month	Once per year
Hours spent cleaning over 10 years	239	9

*3 With airless

230 hours saved over 10 years

Inside Supersonic structure

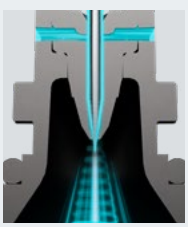
Peripheral foreign particles cannot get close to the electrode probe tip because it is cut off from the peripheral space.

Conventional





SJ-Q Series





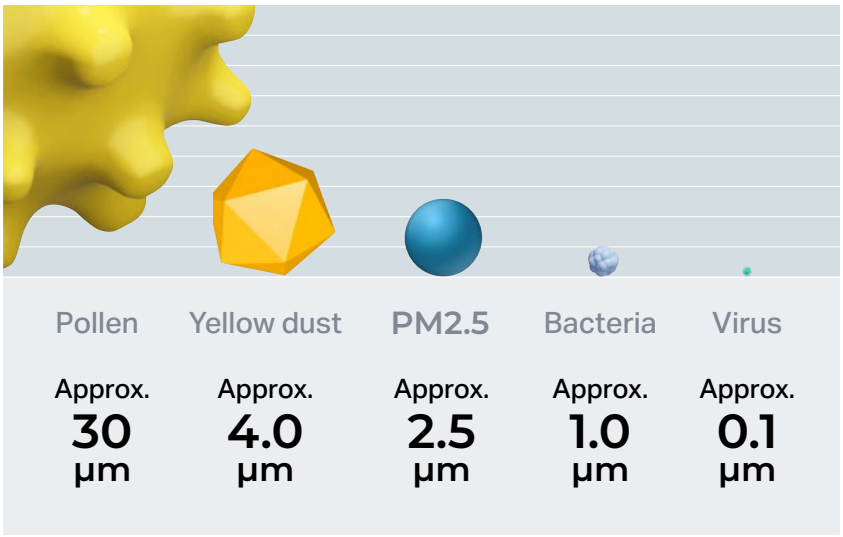
Usable globally as it complies with international standards

Clean Class 3

Cleanliness Class		Maximum Density (units/m^3)					
ISO 14644-1	US Federal Standard Fed.Std.209D (Target particle size 0.5 µm)	Measurement Particle Size					
		0.1 µm	0.2 µm	0.3 µm	0.5 µm	1.0 µm	5.0 µm
Class 1		10					
Class 2		100	24	10			
Class 3	1	1,000	237	102	35		
Class 4	10	10,000	2,370	1,020	352	83	
Class 5	100	100,000	23,700	10,200	3,520	832	
Class 6	1,000	1,000,000	237,000	102,000	35,200	8,320	293
Class 7	10,000				352,000	83,200	2,930
Class 8	100,000				3,520,000	832,000	29,300
Class 9					35,200,000	8,320,000	293,000

Clean Class (cleanliness) is a standard that quantifies the number of particles in the air. The scale of the class is shown by the number of particles contained in a unit volume. The ISO standard is based on the number of particles 0.1 µm or larger in 1 m^3 35.32 ft^3 of air, with classes ranging from ISO class 1 to 9. The US federal standard classifies cleanrooms according to the number of particles 0.5 µm or larger contained in 1 cubic foot of air (approximately 30.5 cm^3 1.86 in^3). For example, if there are 100 or fewer 0.5 µm particles in 1 cubic foot, it is class 100, and if there are 10,000 or fewer 0.5 µm particles, it is class 10,000. An increasing number of industries are requiring ionizers, which are used to prevent particle adhesion and remove dust, to be Clean Class compliant. The SJ-Q Series undergoes clean washing and clean packing before shipping. It can be used safely even in environments where particles are a problem, such as clean rooms.

Size comparison



Packing image



Process image



ANSI/ESD S20.20 IEC61340

ESD Control Item	Product Qualification		Compliance Verification	
	Test Method	Required Limit(s)[8]	Test Method	Required Limit(s)
Ionization	ANSI/ESD STM3.1	Discharge Time User defined	ESD TR53(11) Ionization Section	Discharge Time User defined
		Offset Voltage (Peak) -35 volts < Voffset< 35 volts		Offset Voltage (Peak) -35 volts < Voffset< 35 volts

In 2021, the content of ANSI/ESD S20.20 was revised for the first time in seven years. In the future, it will be necessary to check ion balance at peak values. ANSI/ESD is cited in RCJS-TR-5-4, JIS C 61340-4-7, IEC61340-4-7ED.2, etc. The SJ-Q Series has ion balance performance that fully meets standard requirements, enabling it to be used with confidence.

* The content of the IEC was revised to reflect the same requirements in IEC61340-5-1:2024.

CSA certification

The US Nationally Recognized Testing Laboratories (NRTLs) and Canadian Accredited Certification Organizations (ACOs) are third-party private organizations certified by OSHA (Occupational Safety and Health Administration) and the SCC (Standards Council of Canada) respectively. They perform safety evaluation and certification of products to be used in North America.

Products are required to conform to the UL standards for the US and the CSA standards for Canada, and the certified products are eligible to bear the mark of the certification body. Those that are compliant with both UL and CSA standards are marked with adjacent indicators “C” and “US” on either side. UL and CSA are given as the representative certification bodies, but whichever certification body grants the certification, the certification itself is considered to be equivalent.

Products must pass factory audits by the relevant agency at least once every six months in order to obtain these certifications, so they are also considered effective as a criterion for whether a product maintains consistent quality, and they are increasingly being checked outside North America as well.

CE Marking

This standard conformity mark is given to products that meet the standards of all EU (European Union) member states. The displaying of this mark is called “CE marking.” Evaluation of CE marking compliance is achieved either through evaluation by a Notified body, or declaration of conformity by the manufacturer, and some products are not required regular audits by a Notified body.

Safety Bar Type Ionizer



Conventional products

Accidental discharges may occur when performing maintenance or equipment inspections.



SJ-Q Series

The tip of the electrode probe will not give off a discharge, even if touched.

A safe bar-type ionizer that does not give off a discharge even if touched

Increased safety with the Inside Supersonic mechanism

The tip of the electrode probe is covered by a GND plate, so it won’t give off a discharge even if touched. You can use this device with safely and with confidence of reduced risk of any discharge occurring when contact is made with the ionizer during maintenance or equipment inspections.

Specifications

SJ-Q Series Specifications

Item		Specifications
Ion generation method		Corona discharge method
Structure		Shockless resistive coupling type
Voltage application method/applied voltage		Pulse AC method/±8000 Vmax
Ion balance control method		Hi-Power I.C.C. method
Ion balance*1		±3 V
Clean rating*2		ISO14644-1 Class 3
Installation distance		10 mm 0.39" or more
Control input	Static elimination stop input	NPN open collector or non-voltage contact signal
Control output	Ion level alarm	NPN open collector Maximum 100 mA (40 VDC or less)
	Condition alarm	
	Alarm output	
Communication functions		Remote control
Ratings	Power voltage	24 to 36 VDC±10%
	Current consumption*3	Normal operation: 700 mA or less, LPC mode: 170 mA (typical)
	Overvoltage category	I
	Pollution degree	2
Average power consumption*3		Normal operation: 8.4 W, LPC mode: 4.1 W
Main functions		Condition alarm, ion level alarm, alarm output
Air connection port		Rc1/8
Air supply pressure		0.1 to 0.5 MPa 14.50 to 72.52 PSI (recommended air pressure: 0.2 MPa 29.01 PSI)*4
Material	Electrode probe	Tungsten
	Main body	ABS/PBT/PP/LCP/PPS/SPS/SUS
Environmental resistance	Operating ambient temperature	0 to +40°C 32 to 104°F
	Operating ambient humidity	85% RH or less (no condensation)

*1 Measured under the following conditions.

Installation distance	300 mm 11.81"
Air supply pressure	0.2 MPa 29.01 PSI
Frequency	Highest device driving frequency
Operating ambient temperature	0 to +40°C 32 to 104°F
Operating ambient humidity	35 to 65% RH
Measurement position	Bar Center

*2 Contact us for detailed conditions. *3 24 VDC
*4 If you wish to use the air purge function with intermittent air supply, contact us.

Operating frequency

Frequency	**SJ-Q** Series			
	036 to 084	108 to 132	156 to 204	228 to 300
160 Hz	✓			
130 Hz		✓		
100 Hz			✓	
68 Hz	✓	✓	✓	✓
33 Hz	✓	✓	✓	✓
10 Hz	✓	✓	✓	✓
5 Hz	✓	✓	✓	✓
1 Hz	✓	✓	✓	✓
P only	✓	✓	✓	✓
N only	✓	✓	✓	✓

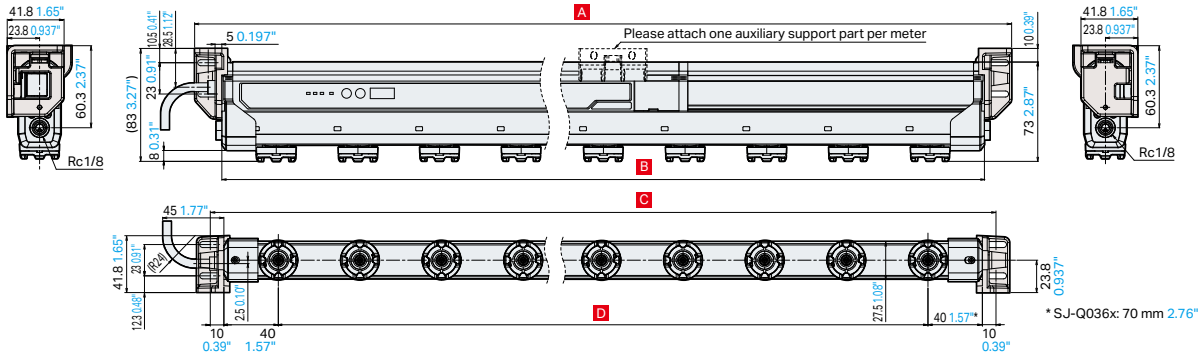
Effective length/total length/weight

Item	Specifications										
Model	**SJ-Q036**	**SJ-Q060**	**SJ-Q084**	**SJ-Q108**	**SJ-Q132**	**SJ-Q156**	**SJ-Q180**	**SJ-Q204**	**SJ-Q228**	**SJ-Q252**	**SJ-Q300**
Effective length* (Unit: mm inch)	440 17.32"	680 26.77"	920 36.22"	1160 45.67"	1400 55.12"	1640 64.57"	1880 74.02"	2120 83.46"	2360 92.91"	2600 102.36"	3080 121.26"
Total length (Unit: mm inch)	350 13.78"	560 22.05"	800 31.50"	1040 40.94"	1280 50.39"	1520 59.84"	1760 69.29"	2000 78.74"	2240 88.19"	2480 97.64"	2960 116.54"
Number of electrodes	5	9	13	17	21	25	29	33	37	41	49
Weight (Unit: g oz)	690 24.35 oz	890 31.41 oz	1120 39.53 oz	1340 47.30 oz	1580 55.77 oz	1800 63.54 oz	2010 70.95 oz	2230 78.71 oz	2440 86.13 oz	2660 93.89 oz	3090 109.07 oz

*Effective length is for static elimination range when installation distance is 100 mm 3.94".

Dimensions

■ With standard mounting bracket attached

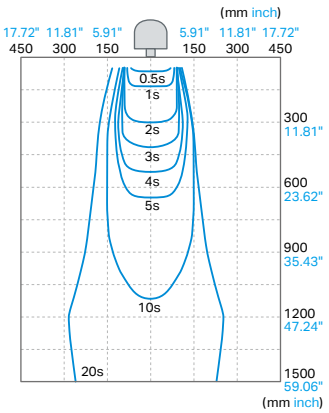


Units: mm inch

Model	Total length A	Static elimination bar length B	Mounting pitch C	Electrode pitch and length D
SJ-Q036	390 15.35"	350 13.78"	370 14.57"	P60 × 4 = 240 P2.36" × 4 = 9.45"
SJ-Q060	600 23.62"	560 22.05"	580 22.83"	P60 × 8 = 480 P2.36" × 8 = 18.90"
SJ-Q084	840 33.07"	800 31.50"	820 32.28"	P60 × 12 = 720 P2.36" × 12 = 28.35"
SJ-Q108	1080 42.52"	1040 40.94"	1060 41.73"	P60 × 16 = 960 P2.36" × 16 = 37.80"
SJ-Q132	1320 51.97"	1280 50.39"	1300 51.18"	P60 × 20 = 1200 P2.36" × 20 = 47.24"
SJ-Q156	1560 61.42"	1520 59.84"	1540 60.63"	P60 × 24 = 1440 P2.36" × 24 = 56.69"
SJ-Q180	1800 70.87"	1760 69.29"	1780 70.08"	P60 × 28 = 1680 P2.36" × 28 = 66.14"
SJ-Q204	2040 80.31"	2000 78.74"	2020 79.53"	P60 × 32 = 1920 P2.36" × 32 = 75.59"
SJ-Q228	2280 89.76"	2240 88.19"	2260 88.98"	P60 × 36 = 2160 P2.36" × 36 = 85.04"
SJ-Q252	2520 99.21"	2480 97.64"	2500 98.43"	P60 × 40 = 2400 P2.36" × 40 = 94.49"
SJ-Q300	3000 118.11"	2960 116.54"	2980 117.32"	P60 × 48 = 2880 P2.36" × 48 = 113.39"

Static elimination area and static elimination time

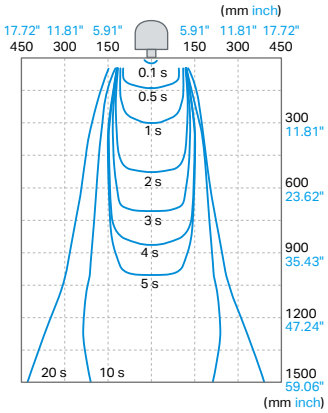
Static elimination area and time (0.2 MPa 29.01 PSI)



[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-Q108 • Air pressure 0.2 MPa 29.01 PSI
- No downflow

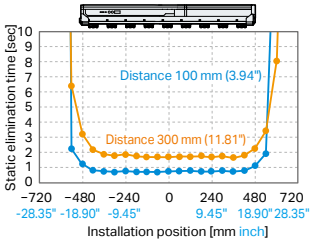
Static elimination area and time (0.5 MPa 72.52 PSI)



[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-Q108 • Air pressure 0.5 MPa 72.52 PSI
- No downflow

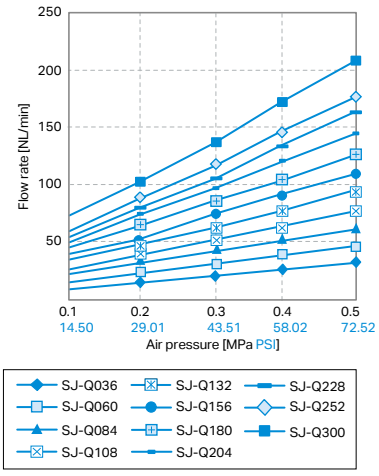
Longitudinal static elimination area



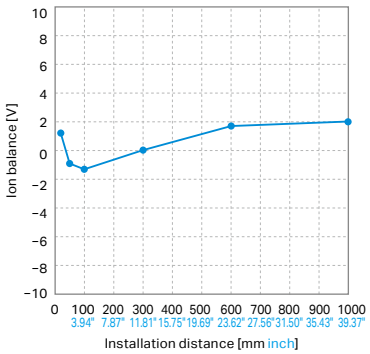
[Measurement Conditions]

- Static elimination time from ±1000 V to ±100 V
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Using SJ-Q108
- Air pressure 0.2 MPa 29.01 PSI
- No downflow
- Installation distances: 100 mm 3.94", 300 mm 11.81"

Characteristic of air supply volume versus air pressure



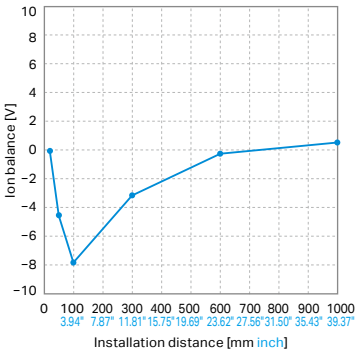
Ion balance by distance (160 Hz)



[Measurement Conditions]

- Static elimination time from ±1000 V to ±100 V
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Air pressure 0.2 MPa 29.01 PSI • No downflow

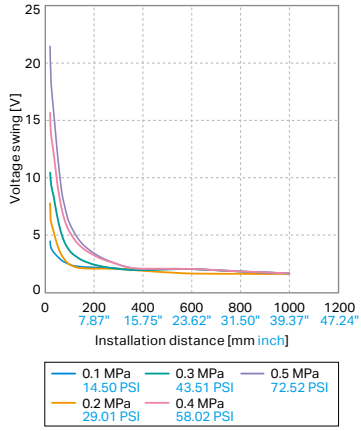
Ion balance by distance (10 Hz)



[Measurement Conditions]

- Static elimination time from ±1000 V to ±100 V
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Air pressure 0.2 MPa 29.01 PSI • No downflow

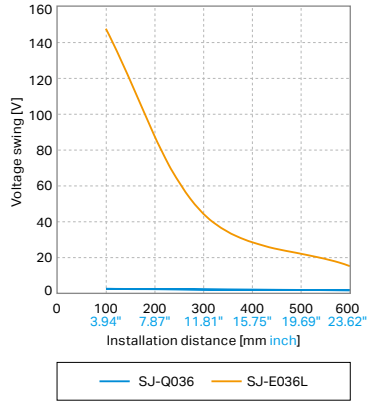
Voltage swing by distance/pressure



[Measurement Conditions]

- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Using SJ-Q036 • Frequency 160 Hz
- No downflow

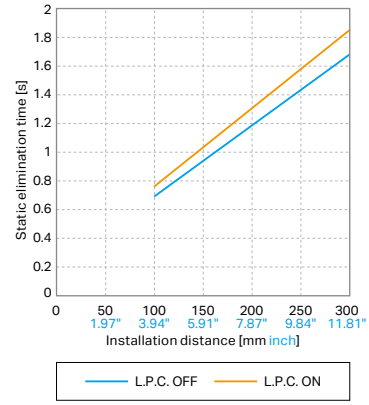
Voltage swing conventional comparison



[Measurement Conditions]

- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Using SJ-Q036, SJ-E036L
- Highest frequency
- Air pressure 0.2 MPa 29.01 PSI • No downflow

Static elimination time during L.P.C. use



[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-Q060 • Air pressure 0.2 MPa 29.01 PSI
- No downflow

Energy-Saving High-Speed
Sensing Ionizer

SJ-E Series

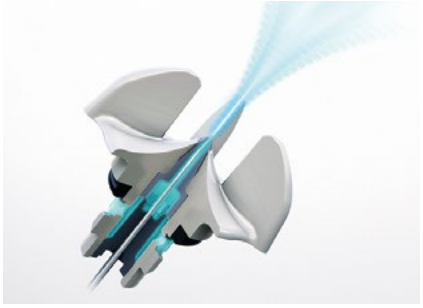
Pulse AC + I.C.C.
Supersonic probe
Energy saving
Multiple output options
Remote control

The latest ionizing technology, built for optimum static elimination and energy savings



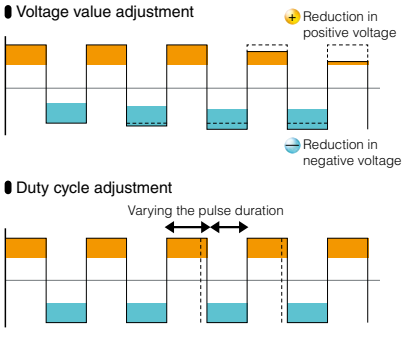
Electrode probe with supersonic structure

This model uses a supersonic structure developed by KEYENCE for the first time in an ionizer, and because the ions travel faster than the speed of sound, it boasts the world's fastest static elimination performance with minimal air flow.



Hi-Power I.C.C. system

In addition to the ion generation control with a variable pulse duration, this model enables a voltage change of approximately 2.5 times the conventional system. Optimal static elimination can be achieved.



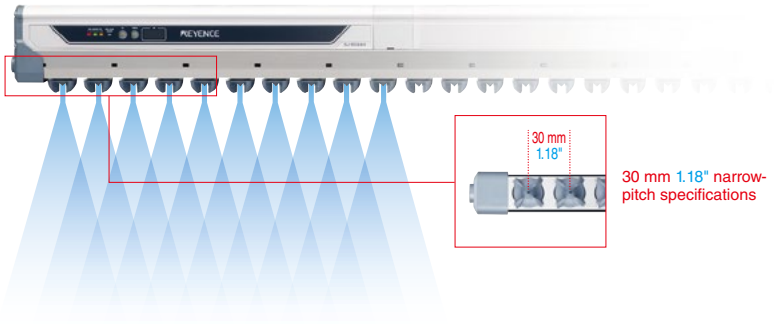
High-performance ion generation system

A high-speed frequency of a maximum of 100 Hz and a 15% increase in ion generation over conventional models are achieved. Effectively removes static electricity for objects moving at high speed and highly charged objects, which are conventionally difficult targets for static elimination.



SJ-EH Optimum static elimination with 30 mm 1.18" fine pitch specifications

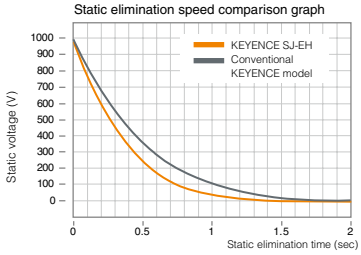
High-end model



Optimum static elimination with 30 mm 1.18" narrow pitch specifications

In addition to the supersonic velocity of flow via a supersonic structure, the 30 mm 1.18" narrow pitch specification enables the ions generated from the probe to repel each other to achieve a 30% faster elimination of static electricity over conventional models.

Static elimination speed comparison graph

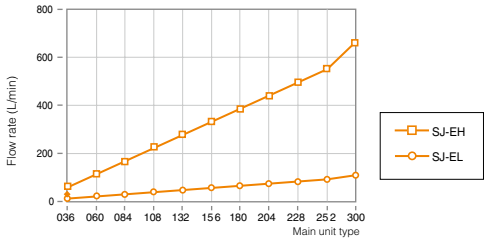


Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Air supply of 400 L/min (1080 mm 42.52" bar length)
- No downflow

Support for wide air volume areas

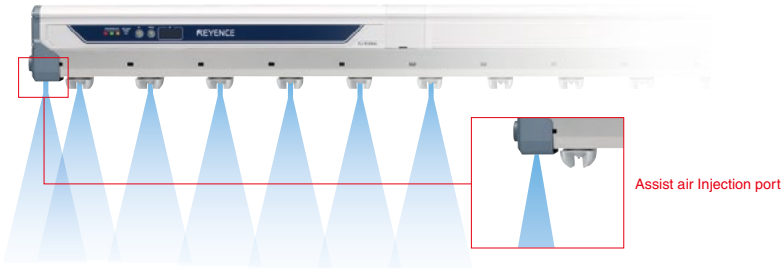
High power model that enables an air supply of 150 to 400 L/min (when using 1080 mm 42.52" type).

Comparison of flow rate when using 0.2 MPa air pressure



SJ-EL Optimum static elimination performance with minimal air volume

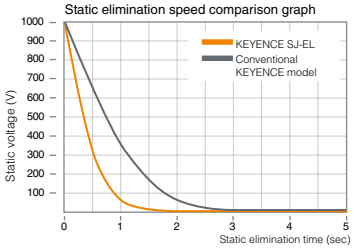
Small flow model



Minimal air flow for high-speed static elimination (2× faster than conventional models)

This model achieves the world's fastest static elimination with an extremely low flow rate.

Static elimination speed comparison graph

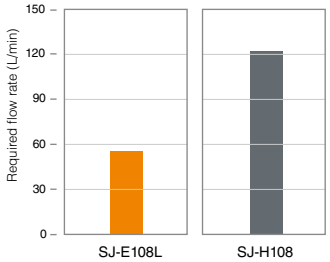


Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Air supply of 50 L/min (1080 mm 42.52" bar length)
- No downflow

The world's smallest flow rate (up to 60% less than conventional models)

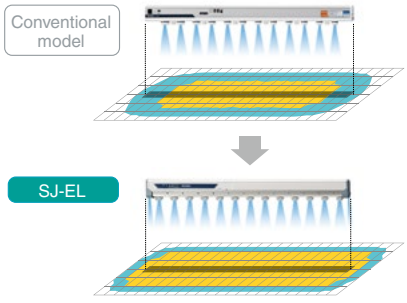
The supersonic electrode probe with newly developed low flow specifications enables the world's smallest flow rate while still maintaining the static elimination speed of conventional models.

Required flow rate comparison graph
Distance: 300 mm 11.81", Static elimination time: 1 sec



Wide range neutralization (2× larger than conventional models)

This model utilizes the assist air to achieve wide range neutralization that is two times the range as conventional models.



List of models

Series		SJ-EH Series	SJ-EL Series	SJ-EA Series
Model		High-end model	Small flow model	Standard model
Performance	Hi-Power I.C.C. system	✓	✓	✓
	Pulse AC method	✓	✓	✓
Structure	Probe type	Higher-power supersonic electrode probe	Low-flow supersonic electrode probe	Higher-power supersonic electrode probe
	Probe pitch	30 mm 1.18"	60 mm 2.36"	60 mm 2.36"
	Assist air	-	✓	-
Static elimination performance by air volume	50 L/min	✓ (20% greater than conventional model)	✓ (100% greater than conventional model)	✓ (40% greater than conventional model)
	400 L/min	✓ (30% greater than conventional model)	-	-
Functions	Frequency setting	0.1 to 100 Hz	0.1 to 100 Hz	0.1 to 68 Hz
	Control I/O	✓	✓	✓
	Network	-	-	-
	Low voltage 24 V wiring	✓	✓	✓
	Alarm function	✓	✓	✓
	Ion level alarm	✓	✓	✓
	Condition alarm	✓	✓	✓
	Static elimination stop input	✓	✓	✓
	Highly functional remote control	✓	✓	-
	Electrostatic charge monitor	✓	✓	✓
	Nitrogen purging	✓	✓	✓
Safety standards	CE standards	✓	✓	✓
	CSA certification	✓	✓	✓

Effective length/Total length/Weight

Model		SJ-E036x	SJ-E060x	SJ-E084x	SJ-E108x	SJ-E132x	SJ-E156x	SJ-E180x	SJ-E204x	SJ-E228x	SJ-E252x	SJ-E300x
Effective length*1 (mm inch)	SJ-EH/SJ-EA	420 16.54"	660 25.98"	900 35.43"	1140 44.88"	1380 54.33"	1620 63.78"	1860 73.23"	2100 82.68"	2340 92.13"	2580 101.57"	3060 120.47"
	SJ-EL	440 17.32"	680 26.77"	920 36.22"	1160 45.67"	1400 55.12"	1640 64.57"	1880 74.02"	2120 83.46"	2360 92.91"	2600 102.36"	3080 121.26"
Total length (mm inch)		350 13.78"	560 22.05"	800 31.50"	1040 40.94"	1280 50.39"	1520 59.84"	1760 69.29"	2000 78.74"	2240 88.19"	2480 97.64"	2960 116.54"
Number of electrodes	SJ-EL/SJ-EA	5	9	13	17	21	25	29	33	37	41	49
	SJ-EH	9	17	25	33	41	49	57	65	73	81	97
Weight (g)	SJ-EL/SJ-EA	670 23.63oz	850 29.98oz	1070 37.74oz	1270 44.80oz	1500 52.91oz	1700 59.97oz	1900 67.02oz	2100 74.08oz	2300 81.13oz	2500 88.19oz	2900 102.29oz
	SJ-EH	680 23.99oz	870 30.69oz	1100 38.80oz	1300 45.86oz	1550 54.67oz	1750 61.73oz	1950 68.78oz	2150 75.84oz	2350 82.89oz	2600 91.71oz	3000 105.82oz

*1 Effective length is for static elimination range when installation distance is 50 mm 1.97".

Specifications

Model		SJ-EH Series	SJ-EL Series	SJ-EA Series
Ion generation method		Corona discharge method		
Structure		Shockless resistive coupling type		
Voltage application method/Applied voltage		Pulse AC method/±8000 V		
Ion balance control method		Hi-Power I.C.C. method		
Ion balance*1		±30 V		
Installation distance		50 to 2000 mm 1.97" to 78.74"		
Control input	Static elimination stop input	NPN open collector or contact point signal without voltage		
Control output	Ion level alarm	NPN open collector, Maximum 100 mA (40 VDC or less)		
	Condition alarm			
	Alarm output			
Communication functions		Remote control communication		-
Rating	Power voltage	24 VDC to 36 VDC ±10%		
	Current consumption	700 mA (at 24 V), 500 mA (at 36 V)		
	Overvoltage category	I		
	Pollution degree	2		
Major functions		Condition alarm, ion level alarm, alarm output		
Air connection port		Rc 1/8		
Air supply pressure		0.1 MPa to 0.5 MPa*2 (recommended air pressure of 0.2 MPa)		
Materials	Electrode probe	Tungsten		
	Main unit	ABS/PBT/PP/LCP/PPS/SPS/SUS		
Environmental resistance	Operating ambient temperature	0 to +40°C 32 to 104°F		
	Operating ambient humidity	35 to 85% RH (no condensation)		

*1 Measured under the following conditions.

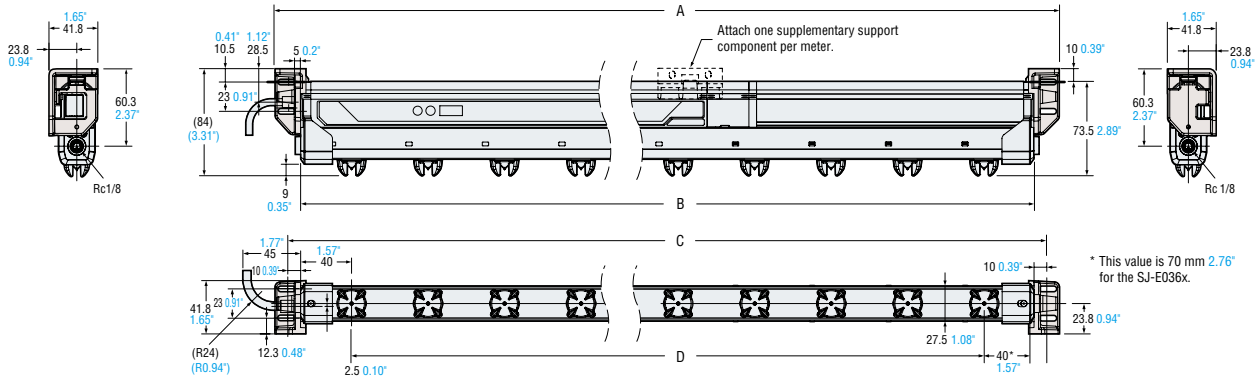
Installation distance	300 mm 11.81" or more
Air supply pressure	0.2 MPa
Frequency	The highest device driving frequency
Operating ambient temperature	0 to +40°C 32 to 104°F
Operating ambient humidity	35 to 65% RH

*2 Contact KEYENCE when using the air purge function with intermittent air supply.

Dimensions Unit: mm inch

SJ-E Series

Main unit (standard mounting brackets)

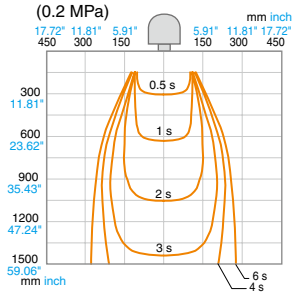


Model	Total length A	Static elimination bar length B	Mounting pitch C	Electrode pitch and length D	
				SJ-EL/SJ-EA	SJ-EH
SJ-E036x	390	350	370	P60 × 4 = 240	P30 × 8 = 240
SJ-E060x	600	560	580	P60 × 8 = 480	P30 × 16 = 480
SJ-E084x	840	800	820	P60 × 12 = 720	P30 × 24 = 720
SJ-E108x	1080	1040	1060	P60 × 16 = 960	P30 × 32 = 960
SJ-E132x	1320	1280	1300	P60 × 20 = 1200	P30 × 40 = 1200
SJ-E156x	1560	1520	1540	P60 × 24 = 1440	P30 × 48 = 1440
SJ-E180x	1800	1760	1780	P60 × 28 = 1680	P30 × 56 = 1680
SJ-E204x	2040	2000	2020	P60 × 32 = 1920	P30 × 64 = 1920
SJ-E228x	2280	2240	2260	P60 × 36 = 2160	P30 × 72 = 2160
SJ-E252x	2520	2480	2500	P60 × 40 = 2400	P30 × 80 = 2400
SJ-E300x	3000	2960	2980	P60 × 48 = 2880	P30 × 96 = 2880

Data

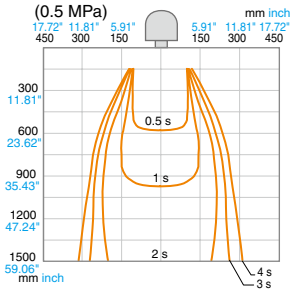
SJ-EH Series

Static elimination area and time (0.2 MPa)



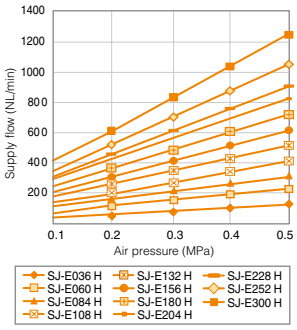
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Using SJ-E108H • Air pressure at 0.2 MPa
- No downflow

Static elimination area and time (0.5 MPa)



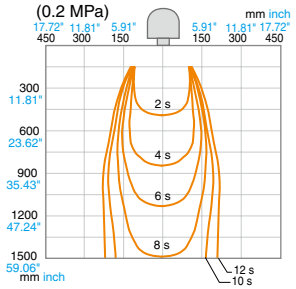
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Using SJ-E108H • Air pressure at 0.5 MPa
- No downflow

Characteristic of air supply volume versus air pressure



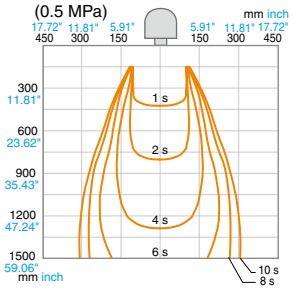
SJ-EL Series

Static elimination area and time (0.2 MPa)



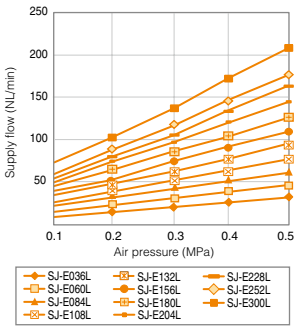
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
- Using SJ-E108L
- Air pressure at 0.2 MPa • No downflow

Static elimination area and time (0.5 MPa)



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-E108L
- Air pressure at 0.5 MPa • No downflow

Characteristic of air supply volume versus air pressure



SJ-H Series

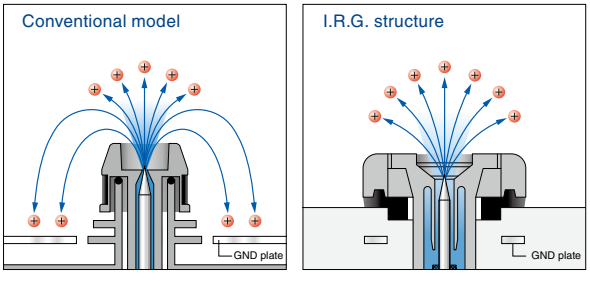
Pulse AC + I.C.C.
Sheath air guiding structure
Air not required
Multiple output options
Remote control

Ultra-high speed sensing static eliminators



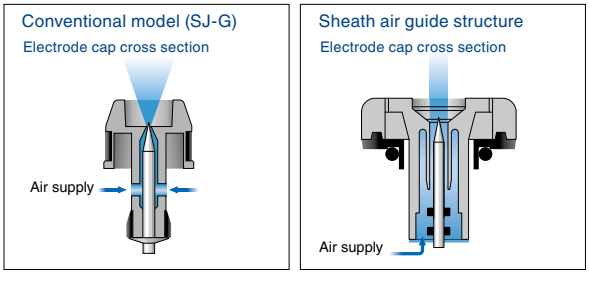
Insert Ring Ground (I.R.G.) structure

This KEYENCE static eliminator is the first to use an I.R.G. structure in which the GND plate, which is vital to the generation of ions, is incorporated into the ionizer unit. The generated ions flow toward the target (not the GND plate) in a loss-free manner, thereby increasing the amount of ions applied to the target.



Sheath air guide structure

Air is supplied in a laminar flow inside the probe cap, passing through the flow channel next to the probe. The concave structure of the air outlet prevents disturbances and provides an outstanding sheath effect, thereby greatly reducing foreign particles adhering to the electrode probe tip.



SJ-H Series

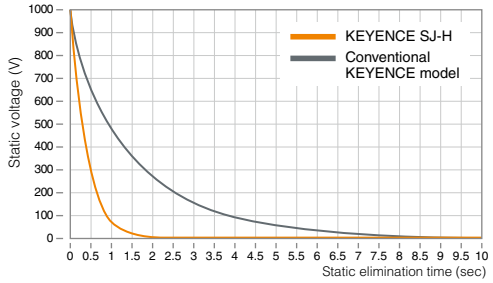
Standard model

World's fastest static elimination

5× faster than conventional models

The newly developed I.R.G. structure increases the number of ions reaching the target workpiece and boosts the static elimination speed to five times that of conventional models.
* No air purge. Compared to SJ-G

Static elimination speed comparison graph



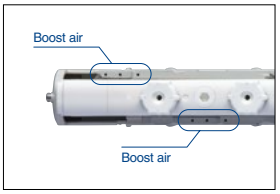
Measurement conditions: • Static elimination time from ±1000 V to ±100 V
• Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
• No air purge • No downflow

Newly developed booster achieves wide angle and ultra high-speed static elimination

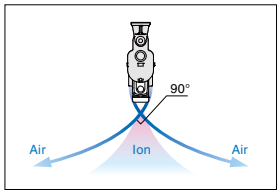
Wide angle booster

The new aero body was developed with thorough fluid analysis to minimize air resistance. With the world's first wide angle booster, the SJ-H Series achieves a 90-degree wide static elimination angle by utilizing the Coanda effect with the air flowing from the booster.

When the SJ-H wide angle booster is attached (Front)



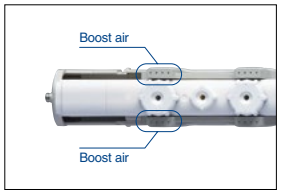
When the SJ-H straight air booster is attached (Front)



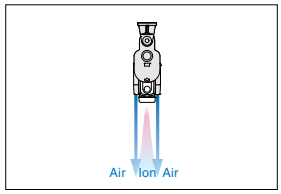
Straight air booster

By attaching the straight air booster with extraordinary ion transport capabilities, an unparalleled static elimination speed is achieved. This function can ensure excellent static elimination capacities at an ultra-long operating distance for highly-charged objects.

When the wide angle booster is attached (Side)



When the straight air booster is attached (Side)



SJ-HC Series

ISO Clean Class 2

Silicon model

Flat cut silicon probe

This model uses single crystal silicon in the electrode probe material. This type can be used with peace of mind even in environments where metal contamination is undesirable.

Clean pack specifications

Cleaning and clean pack are performed prior to shipping. This model can be used in an environment such as a cleanroom where contamination can be a problem.

Clean Class 2

Cleanliness Class		Maximum Density (units/m³)					
ISO 14644-1	US Federal Standard Fed.Std.209D (Target particle size 0.5 µm)	Measurement Particle Size					
		0.1 µm	0.2 µm	0.3 µm	0.5 µm	1.0 µm	5.0 µm
Class 1		10					
Class 2		100	24	10			
Class 3	1	1,000	237	102	35		
Class 4	10	10,000	2,370	1,020	352	83	
Class 5	100	100,000	23,700	10,200	3,520	832	
Class 6	1,000	1,000,000	237,000	102,000	35,200	8,320	293
Class 7	10,000				352,000	83,200	2,930
Class 8	100,000				3,520,000	832,000	29,300
Class 9					35,200,000	8,320,000	293,000

Comparison of functions/features

Appearance					
Series name		**SJ-H**	**SJ-HV**	**SJ-HC**	**SJ-HA**
Static elimination performance	I.R.G. structure	✓	✓	✓	✓
	Dual I.C.C. system	✓	✓	✓	✓
	Pulse AC method	✓	✓	✓	✓
	Quad electrode probe	✓			
	Acceleration electrode probe	✓			
	Wide angle booster	✓			
	Straight air booster	✓			
	Assist air		✓		
Clean	Flat cut pin		✓	✓	
	Clean pack		✓	✓	
	Low metal contamination (silicon electrode probe)			✓	
	Laminar flow assist part		✓		
Low maintenance	High-density tungsten	✓	✓		✓
	Sheath air guide structure	✓	✓		✓
Energy saving	L.P.C. feature	✓	✓	✓	
	0.5 L/min sheath effect				
Usability	Size	✓	✓	✓	✓
	Nitrogen purging	✓	✓	✓	✓
	Electrostatic charge monitor	✓	✓	✓	✓
	Cleaning alarm	✓	✓	✓	✓
	Equipment of conversion support bracket	✓	✓	✓	✓
	Multiple stitching functions	✓	✓	✓	
	Remote control adjustment function	✓	✓	✓	
Safety	Abnormal discharge detection function	✓	✓	✓	✓
	Low voltage 24 V wiring	✓	✓	✓	✓
	Static elimination stop input	✓	✓	✓	✓
	Front screw-free structure	✓	✓	✓	✓
	CE standards	✓	✓	✓	✓
Communication	Serial communication	*1	—	—	—
	SJ-W100 communication	*1	—	—	—
	Synchronization function	*1	—	—	—

*1 For more details, contact our team of sales representatives.

Effective length and weight

Model	H		**SJ-H036**	**SJ-H060**	**SJ-H084**	**SJ-H108**	**SJ-H132**	**SJ-H156**	**SJ-H180**	**SJ-H204**	**SJ-H228**	**SJ-H252**	**SJ-H300**
	HV		**SJ-H036V**	**SJ-H060V**	**SJ-H084V**	**SJ-H108V**	**SJ-H132V**	**SJ-H156V**	**SJ-H180V**	**SJ-H204V**	**SJ-H228V**	**SJ-H252V**	**SJ-H300V**
	HC		**SJ-H036C**	**SJ-H060C**	**SJ-H084C**	**SJ-H108C**	**SJ-H132C**	**SJ-H156C**	**SJ-H180C**	**SJ-H204C**	**SJ-H228C**	**SJ-H252C**	**SJ-H300C**
	HA		**SJ-H036A**	**SJ-H060A**	**SJ-H084A**	**SJ-H108A**	**SJ-H132A**	**SJ-H156A**	**SJ-H180A**	**SJ-H204A**	**SJ-H228A**	**SJ-H252A**	**SJ-H300A**
Effective length*1			360 mm 14.17"	600 mm 23.62"	840 mm 33.07"	1080 mm 42.52"	1320 mm 51.97"	1560 mm 61.42"	1800 mm 70.87"	2040 mm 80.31"	2280 mm 89.76"	2520 mm 99.21"	3000 mm 118.11"
Number of electrodes	H		6	12	18	24	30	36	42	48	54	60	72
	HV · HC · HA		4	8	12	16	20	24	28	32	36	40	48
Weight	Controller		150 g 5.29 oz	—	—	—	—	—	—	—	—	—	—
	Static elimination bar	H	510 g 17.99 oz	800 g 28.22 oz	1000 g 35.27 oz	1250 g 44.09 oz	1450 g 51.15 oz	1600 g 56.44 oz	1850 g 65.26 oz	2100 g 74.08 oz	2400 g 84.66 oz	2800 g 98.77 oz	3250 g 114.64 oz
		HV · HC · HA	500 g 17.64 oz	780 g 27.51 oz	980 g 34.57 oz	1200 g 42.33 oz	1400 g 49.38 oz	1550 g 54.67 oz	1750 g 61.73 oz	2000 g 70.55 oz	2350 g 82.89 oz	2700 g 95.24 oz	3150 g 111.11 oz

*1 Effective length is for static elimination range when installation distance is 50 mm 1.97".

Specifications

Item		Specifications
Model		All models
Ion generation method		Corona discharge method
Structure		Shockless resistive coupling type
Voltage application method/Applied voltage		Pulse AC method, ±7000 V
Ion balance control method		Dual I.C.C. method
Ion balance *1 *2		±30 V
Installation distance		50 to 2000 mm 1.97" to 78.74"
Control input		NPN open collector or contact point signal without voltage
Control output		NPN photo relay, Maximum 100 mA max. (40 V or less)
Rating	Power voltage	24 VDC to 36 VDC ±10%
	Current consumption	500 mA (at 24 V), 350 mA (at 36 V)
	Overvoltage category	I
	Pollution degree	2
Major functions		Condition alarm, ion level alarm, alarm output
Air purge connection		Rc 1/8
Air purge supply pressure		0.5 MPa or less*3
Material	Electrode probe	Tungsten (silicon)
	Main unit	ABS/PC
Environmental resistance	Operating ambient temperature	0 to +40°C 32 to 104°F
	Operating ambient humidity	35 to 65% RH (no condensation)

*1 Measured under the following conditions.

Installation distance	300 mm 11.81" (22 Hz)	600 mm 23.62" (10 Hz)	1500 mm 59.06" (1 Hz)
Operating ambient temperature	0 to +40°C 32 to 104°F		
Operating ambient humidity	35 to 65% RH		

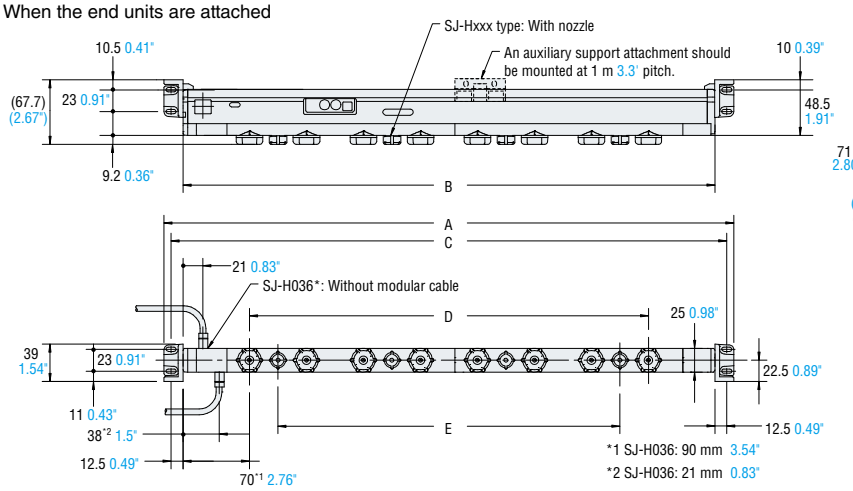
* 0.3 m/s 1.3'/s downflow

*2 Contact KEYENCE for SJ-HC type.
*3 Contact KEYENCE when using the air purge function with intermittent air supply.

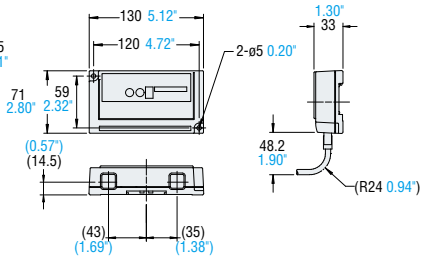
Dimensions Unit: mm inch

SJ-H Series

When the end units are attached



Controller
SJ-H036x



* SJ-H036: Without modular cable

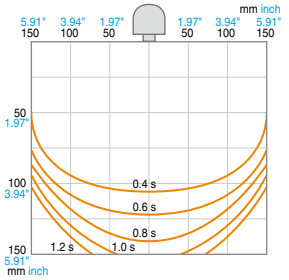
			SJ-H036	SJ-H060	SJ-H084	SJ-H108	SJ-H132	SJ-H156	SJ-H180	SJ-H204	SJ-H228	SJ-H252	SJ-H300
Model	H		SJ-H036V	SJ-H060V	SJ-H084V	SJ-H108V	SJ-H132V	SJ-H156V	SJ-H180V	SJ-H204V	SJ-H228V	SJ-H252V	SJ-H300V
	HV		SJ-H036C	SJ-H060C	SJ-H084C	SJ-H108C	SJ-H132C	SJ-H156C	SJ-H180C	SJ-H204C	SJ-H228C	SJ-H252C	SJ-H300C
	HC		SJ-H036A	SJ-H060A	SJ-H084A	SJ-H108A	SJ-H132A	SJ-H156A	SJ-H180A	SJ-H204A	SJ-H228A	SJ-H252A	SJ-H300A
Effective length*1			360 mm 14.17"	600 mm 23.62"	840 mm 33.07"	1080 mm 42.52"	1320 mm 51.97"	1560 mm 61.42"	1800 mm 70.87"	2040 mm 80.31"	2280 mm 89.76"	2520 mm 99.21"	3000 mm 118.11"
Number of electrodes	H		6	12	18	24	30	36	42	48	54	60	72
	HV·HC · HA		4	8	12	16	20	24	28	32	36	40	48
Weight	Controller		150 g 5.29 oz	—	—	—	—	—	—	—	—	—	—
	Static elimination bar	H	510 g 17.99 oz	800 g 28.22 oz	1000 g 35.27 oz	1250 g 44.09 oz	1450 g 51.15 oz	1600 g 56.44 oz	1850 g 65.26 oz	2100 g 74.08 oz	2400 g 84.66 oz	2800 g 98.77 oz	3250 g 114.64 oz
		HV·HC	500 g 17.64 oz	780 g 27.51 oz	980 g 34.57 oz	1200 g 42.33 oz	1400 g 49.38 oz	1550 g 54.67 oz	1750 g 61.73 oz	2000 g 70.55 oz	2350 g 82.89 oz	2700 g 95.24 oz	3150 g 111.11 oz
Dimensions	Total length A*2		380 14.96"	600 23.62"	840 33.07"	1080 42.52"	1320 51.97"	1560 61.42"	1800 70.87"	2040 80.31"	2280 89.76"	2520 99.21"	3000 118.11"
	Static elimination bar length B		340 13.39"	560 22.05"	800 31.50"	1040 40.94"	1280 50.39"	1520 59.84"	1760 69.29"	2000 78.74"	2240 88.19"	2480 97.64"	2960 116.54"
	Mounting pitch C		365 14.37"	585 23.03"	825 32.48"	1065 41.93"	1305 51.38"	1545 60.83"	1785 70.28"	2025 79.72"	2265 89.17"	2505 98.62"	2985 117.52"
	Electrode pitch and length D		P60 x 3 = 180 P2.36" x 3 = 7.09"	P60 x 7 = 420 P2.36" x 7 = 16.54"	P60 x 11 = 660 P2.36" x 11 = 25.98"	P60 x 15 = 900 P2.36" x 15 = 35.43"	P60 x 19 = 1140 P2.36" x 19 = 44.88"	P60 x 23 = 1380 P2.36" x 23 = 54.33"	P60 x 27 = 1620 P2.36" x 27 = 63.78"	P60 x 31 = 1860 P2.36" x 31 = 73.23"	P60 x 35 = 2100 P2.36" x 35 = 82.68"	P60 x 39 = 2340 P2.36" x 39 = 92.13"	P60 x 47 = 2820 P2.36" x 47 = 111.02"
	Nozzle pitch and length E		P120 x 1 = 120 P4.72" x 1 = 4.72"	P120 x 3 = 360 P4.72" x 3 = 14.17"	P120 x 5 = 600 P4.72" x 5 = 23.62"	P120 x 7 = 840 P4.72" x 7 = 33.07"	P120 x 9 = 1080 P4.72" x 9 = 42.52"	P120 x 11 = 1320 P4.72" x 11 = 51.97"	P120 x 13 = 1560 P4.72" x 13 = 61.42"	P120 x 15 = 1800 P4.72" x 15 = 70.87"	P120 x 17 = 2040 P4.72" x 17 = 80.31"	P120 x 19 = 2280 P4.72" x 19 = 89.76"	P120 x 23 = 2760 P4.72" x 23 = 108.66"

*1 Effective length is for static elimination range when installation distance is 50 mm 1.97". *2 Total length includes end unit.

Data

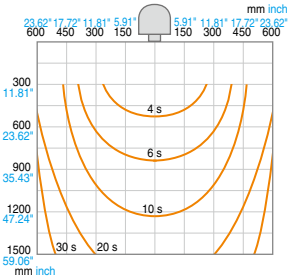
SJ-H Series

Static elimination area and time (33 Hz)



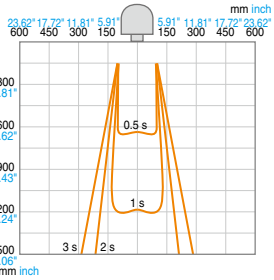
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- Using 150 mm x 150 mm 5.91" x 5.91" plate monitor (20 pF)
- Using SJ-H108, no downflow

Static elimination area and time (1 Hz)



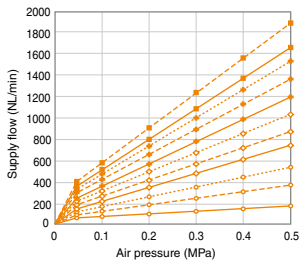
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- Using 150 mm x 150 mm 5.91" x 5.91" plate monitor (20 pF)
- Using SJ-H108, 0.3 m/s 1.3'/s downflow

Static elimination area and time (at maximum air flow)



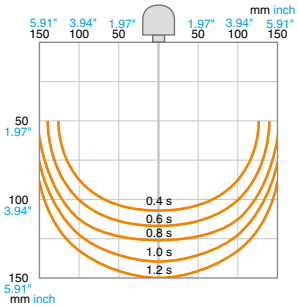
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- Using 150 mm x 150 mm 5.91" x 5.91" plate monitor (20 pF)
- Using SJ-H108, no downflow

Relationship between air pressure and flow rate by length of static elimination bar (when air is supplied to both sides)



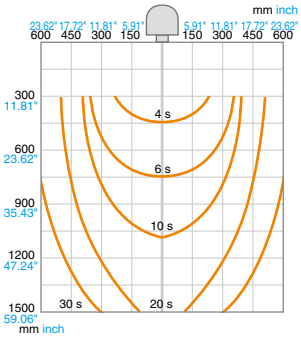
SJ-HC Series

Static elimination area and time (33 Hz)



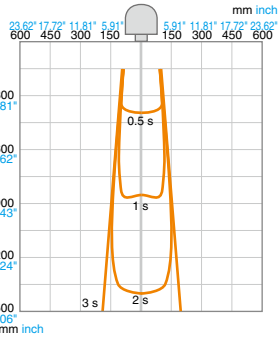
Measurement conditions:
- Static elimination from ±1000 V to ±100 V
- Using 150 x 150 mm 5.91" x 5.91" plate monitor (20 pF).
- Model: SJ-H108C, No downflow

Static elimination area and time (1 Hz)



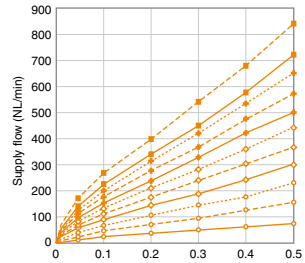
Measurement conditions:
- Static elimination from ±1000 V to ±100 V
- Using 150 x 150 mm 5.91" x 5.91" plate monitor (20 pF).
- Model: SJ-H108C, Under a 0.3 m/s 1.3'/s downflow.

Static elimination area and time (at maximum air flow)



Measurement conditions:
- Static elimination from ±1000 V to ±100 V
- Using 150 x 150 mm 5.91" x 5.91" plate monitor (20 pF).
- Model: SJ-H108C, No downflow

Relationship between air pressure and flow rate by length of static elimination bar (when air is supplied to both sides)



SJ-M300 Series

Pulse AC + I.C.C. | Multiple probe options
Thin type | Multiple output options

Small, wide-range type for tight mounting situations



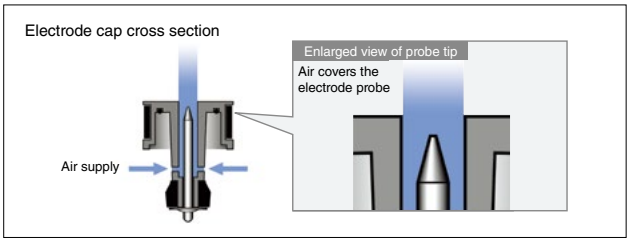
Available electrode probe	With electrode probe attached	Type
Standard type 	**SJ-M030** **SJ-M070** 	Tungsten electrode type
Silicon type 	**SJ-M030C** **SJ-M070C** 	Silicon electrode type
CAB type 	**SJ-M030G** **SJ-M070G** 	Tungsten electrode type with CAB structure
Sheath type 	**SJ-M030V** **SJ-M070V** 	Tungsten electrode type with ACAB structure
Sheath clean type 	**SJ-M030VC** **SJ-M070VC** 	Silicon electrode type with ACAB structure

High performance and usability beyond its class

Its high performance and usability unique to KEYENCE, which knows the ins and outs of static electricity, sets it apart from conventional compact static eliminators.

ACAB system maintains static elimination performance for long periods

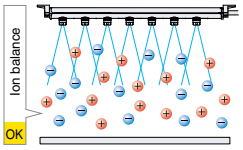
This series uses the advanced clean air barrier (ACAB) system, an evolution in the clean air barrier system. By controlling the flow of supplied clean dry air to create a laminar flow in the area of the electrode probe, the adhesion of foreign particles on the tip of the electrode probe is significantly reduced, minimizing the deterioration of static elimination performance.



Outstanding spatial uniformity and high ion balance

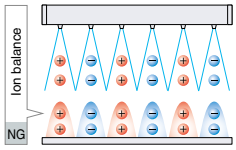
The pulse AC method enables static elimination while maintaining spatial uniformity. In addition, the I.C.C. method provides constant support to maintain a highly accurate ion balance.

KEYENCE SJ-M



The pulse AC method generates positive and negative ions alternately from the electrodes. The local ion balance constantly remains uniform without deviation.

DC type static eliminator

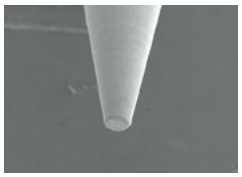


A general DC method generates either positive or negative ions from each electrode, thereby creating a deviation in the ion balance along the longitudinal direction of the bar.

Flat cut probe for low dust generation

The newly developed flat cut probe greatly reduces wear of the electrode probe tip and generated dust. Optimal for clean-room environments.

(A flat cut probe is denoted with "V" at the end of the model name. Example: SJ-M030V)



Lineup of silicon probe types

In addition, a type that uses single crystal silicon in the electrode probe material is also available. This type can be used with peace of mind even in environments where metal contamination is undesirable.

(A silicon electrode probe type is denoted with "C" at the end of the model name. Example: SJ-M030VC)



Specifications

Model	Controller	SJ-M300	
	Head	SJ-M030/M030C/M030G/M030V/M030VC	SJ-M070/M070C/M070G/M070V/M070VC
Voltage application method		Pulse AC method	
Applied voltage		±5.5 kV	
Rated output voltage		±6 kV	
Ion balance control method		I.C.C. method	
Ion balance*1		±30 V	
Air purge supply pressure		0.2 MPa or less	
Control input	Static elimination stop input	Non-voltage input	
Control output	Alarm	NPN open collector 100 mA (40 V or less)	
	Ion level alarm		
	Condition alarm		
Ratings	Power voltage	24 VDC ±10%	
	Current consumption	450 mA or less	
Environmental resistance	Operating ambient temperature	0 to +40°C 32 to 104°F	
	Operating ambient humidity	35 to 65% RH (no condensation)	
Effective length*2		164 mm 6.46"	324 mm 12.76"
Total length*3		220 mm 8.66"	380 mm 14.96"
Weight	Static elimination head	Approx. 600 g 21.16 oz	Approx. 720 g 25.40 oz
	Controller	Approx. 300 g 10.58 oz	

*1 Measured under the following conditions.

Head model	SJ-M030/M070	SJ-M030C/M070C	SJ-M030G/M070G	SJ-M030V/M070V	SJ-M030VC/M070VC
Air purge	Not available	Not available	3 NL/min (per electrode)	1 NL/min (per electrode)	1 NL/min (per electrode)
Downflow	0.3 ms/ 1.3'/s				
Installation distance	50 mm 1.97" (50 Hz), 600 mm 23.62" (8 Hz), 1500 mm 59.06" (1 Hz)				

Contact KEYENCE for more information regarding ion balance for an installation distance of 50 mm 1.97" (50 Hz) with the V/VC type.

*2 Effective length is for static elimination range when installation distance is 50 mm 1.97".

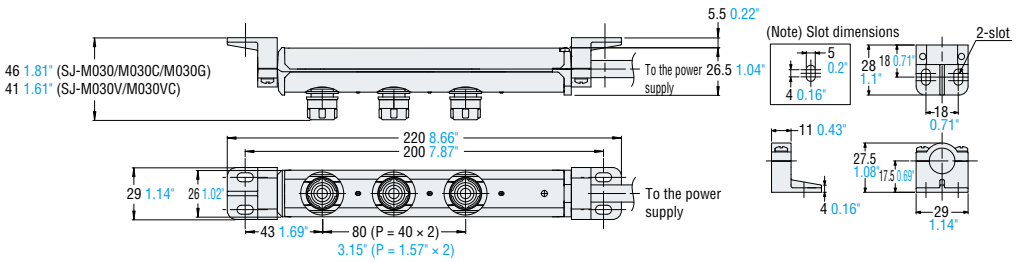
*3 Total length includes mounting brackets.

Dimensions Unit: mm inch

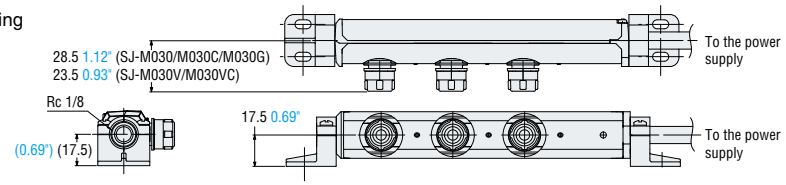
SJ-M300 Series

SJ-M030/M030C/M030G/M030V/M030VC

Front mounting

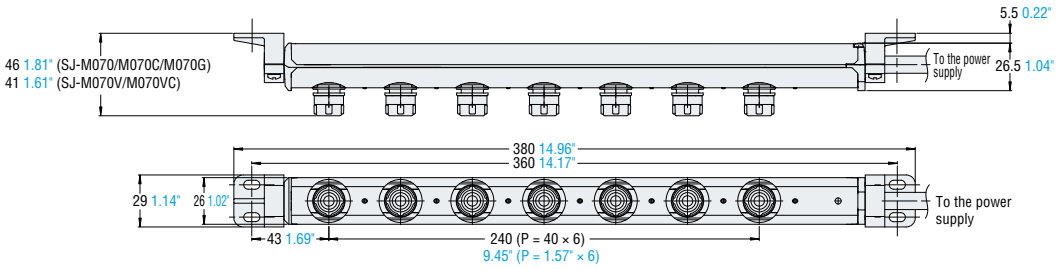


Side mounting

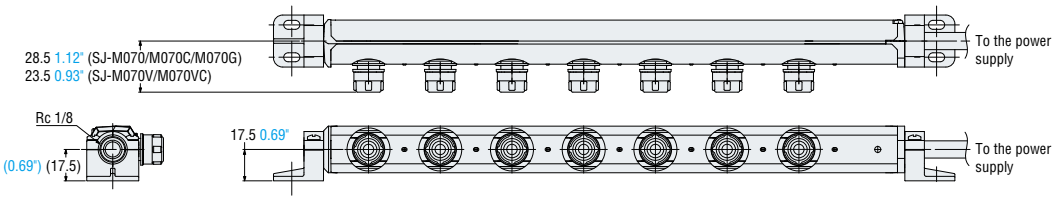


SJ-M070/M070C/M070G/M070V/M070VC

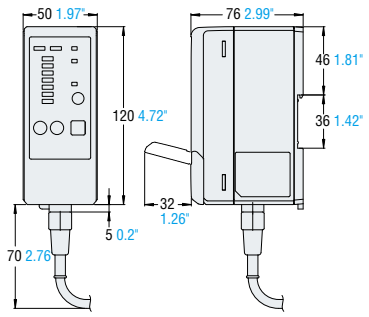
Front mounting



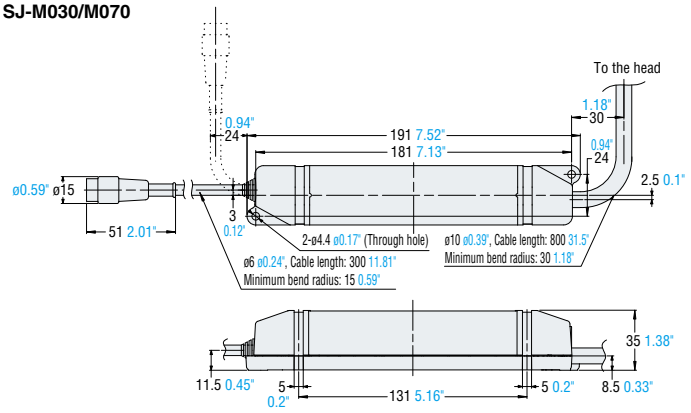
Side mounting



SJ-M300



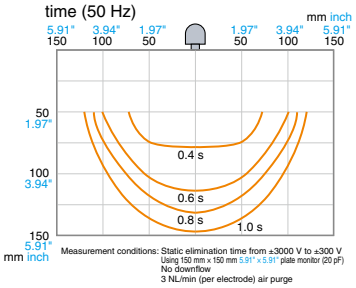
SJ-M030/M070



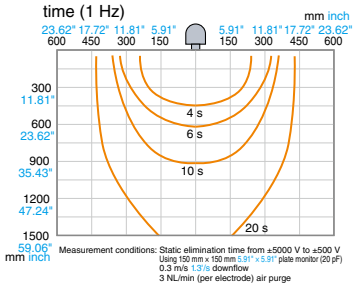
Data

SJ-M030 Series

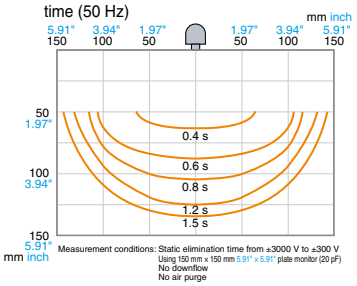
SJ-M030G Static elimination area and time (50 Hz)



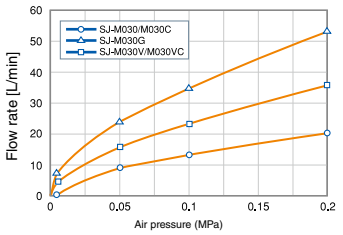
SJ-M030G Static elimination area and time (1 Hz)



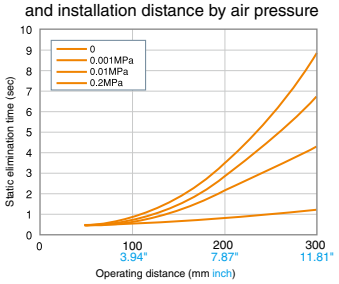
SJ-M030/030C Static elimination area and time (50 Hz)



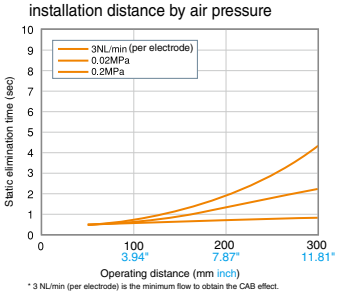
Relationship between air pressure and flow



SJ-M030/030C Static elimination speed and installation distance by air pressure



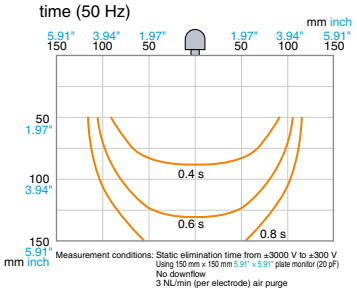
SJ-M030G Static elimination speed and installation distance by air pressure



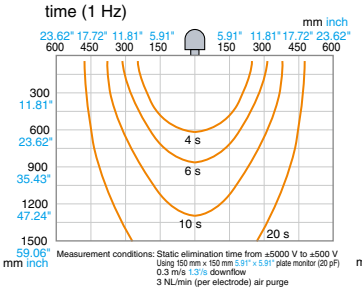
* 3 NL/min (per electrode) is the minimum flow to obtain the CAB effect.

SJ-M070G Series

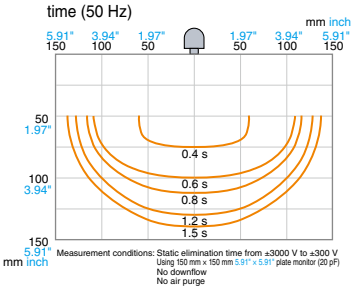
SJ-M070G Static elimination area and time (50 Hz)



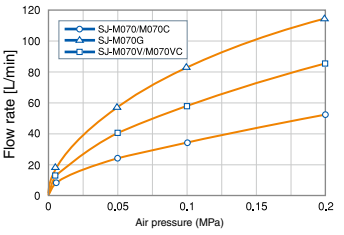
SJ-M070G Static elimination area and time (1 Hz)



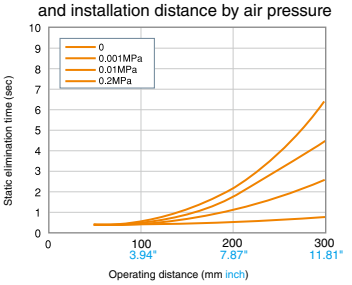
SJ-M070/070C Static elimination area and time (50 Hz)



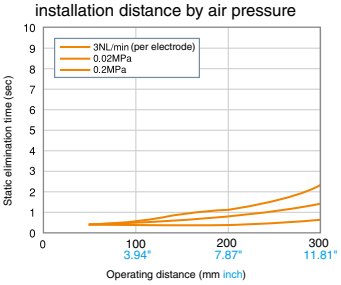
Relationship between air pressure and flow



SJ-M070/070C Static elimination speed and installation distance by air pressure



SJ-M070G Static elimination speed and installation distance by air pressure

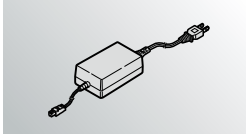


Options

SJ-M030G Series

Cable

AC adapter



SJ-U3

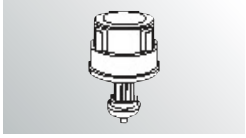
Extension cable (3 m 9.8')



SJ-C3

Electrode probe

Tungsten electrode probe for SJ-M030/M070 (4 pieces)



OP-42213

Electrode probe for replacement

Silicon electrode probe for SJ-M030C/M070C (4 pieces)



OP-42214

Tungsten electrode probe for SJ-M030G/M070G (4 pieces)



OP-51644

Tungsten electrode probe for SJ-M030V/M070V (4 pieces)



OP-75352

Silicon electrode probe for SJ-M030VC/M070VC (4 pieces)



OP-75353

Multi-Sensor Ionizer

SJ-F700 Series

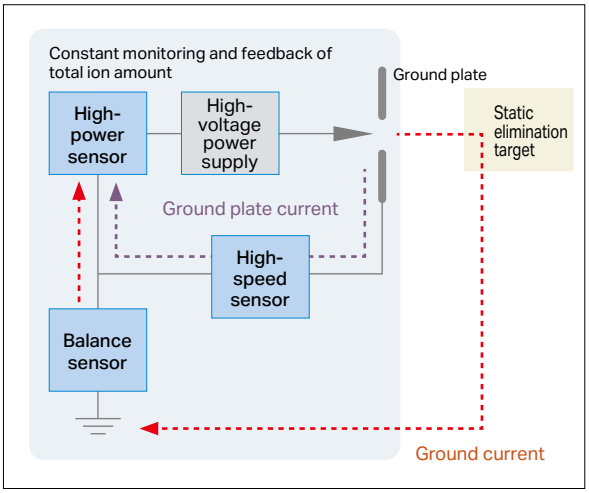
Variable DC method | High-voltage double electrode unit
Multi I.C.C. | Auto-cleaning with diagnosis
LCD display | Built-in memory
Management support software | PLC communication functions

High-Precision Static Elimination



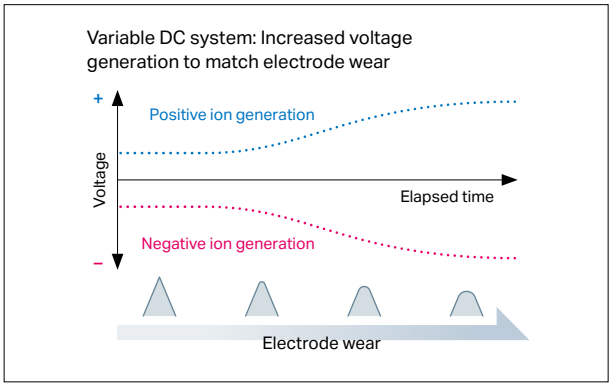
Multi-I.C.C.

Ion Current Control (I.C.C.)—which uses sensing technology to ensure an optimal ion supply—is performed using three different sensors. This detailed control allows for an ion balance of ±3 V using only the main unit. When used with a KEYENCE feedback sensor (SJ-FB01), detection of the ion balance in addition to the temperature and humidity of the target area—two factors that significantly affect static electricity—is also possible, allowing for an ion balance of ±1 V.



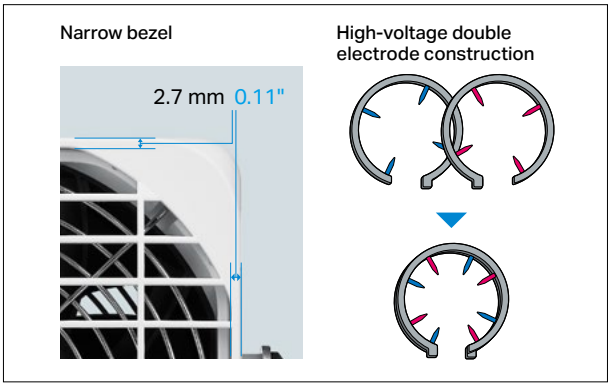
Variable DC system

If the ion generation amount drops, the variable DC system automatically increases the applied voltage. This eliminates the need to replace the electrodes to maintain static elimination performance.



High-voltage double electrode construction

To accommodate a larger fan with the same product size as conventional models, the bezel was designed to be as narrow as possible to create the highest air flow in this class of product.
This allows for greater air flow with less noise. Moreover, the compact, high-voltage circuit with two 4-electrode units stacked on top of each other generates up to ±8.2 kV to produce a large amount of ions.

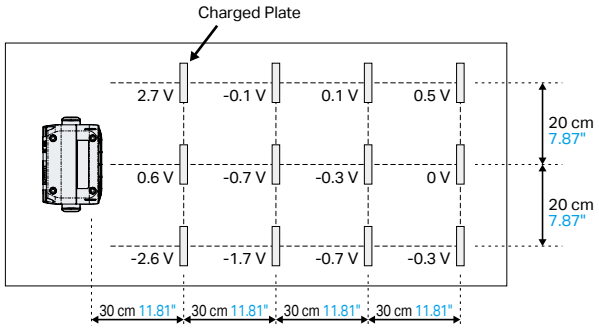


Strongest Static Elimination

Ion Balance ±1 V

5× conventional models

When a 100 V environment is generally required, the ion balance required of the ionizer is said to be 1/10 of that. The main unit alone is ±3 V to enable recently increasing requirements to be met with confidence. An ion balance of ±1 V is achieved by using a feedback sensor (SJ-FB01). A reliable static elimination environment is provided by automatically performing electrode probe maintenance.



2.5× conventional models

Fastest Static Elimination Speed of 0.5 secs

The blower type is said to have a slower static elimination speed than the bar type. The SJ-F700 is able to perform static elimination equivalent to a bar using the effect of the applied voltage method and the multi I.C.C. Even at an installation distance of around 300 mm 11.81", it can remove static electricity within 0.9 seconds without using factory air.

Static elimination speed	SJ-F700	SJ-H	Difference
Electricity bill*	$ 49	$ 1,411	$ 1,362 less
Total power consumption	31.3 W	895 W	863.7 W less
Installation distance 300 mm 11.81"	0.9 secs	0.9 secs	0.0 secs
Installation distance 600 mm 23.62"	2.0 secs	2.0 secs	0.0 secs
Installation distance 900 mm 35.43"	4.2 secs	3.7 secs	0.5 secs slower

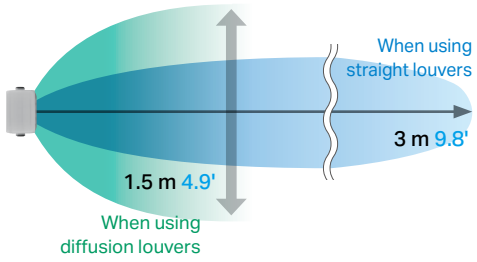
* The SJ-H is calculated based on CDA input conditions of 0.07 MPa with the 600 mm 23.62" type.
* Annual electricity bill calculated at $ 0.18/kWh

2× conventional models

Static Elimination Area of Up to 3 m 9.8'

Using the large volume of air from the fan, static electricity measures can be taken at a distance of up to 3 meters 9.8'. The width can be expanded to 1.5 meters 4.9' by attaching a diffusion louver. Static elimination from 1000 V to 100 V can be performed in these wide areas within 10 seconds without using factory air. The strength of air flow can also be used for applications such as contaminant removal and cooling.

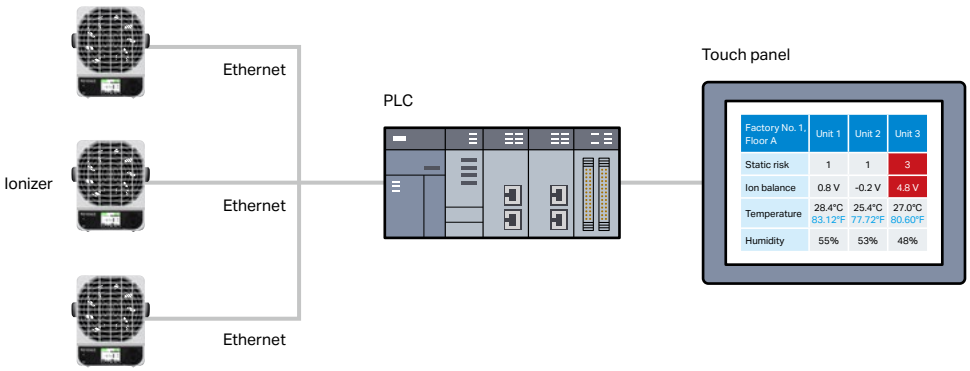
Static elimination area diagram



Control Specifications

PLC communication function

Conventional ionizers only have an ON/OFF contact output, making it impossible to obtain numerical data such as ion amount, fan speed, and ion balance—all of which affect static elimination performance—while also making wiring difficult. With the SJ-F700, communication with a PLC is easy via Ethernet.



Maintenance Free

No electrode cleaning required

Automatic cleaning with self-diagnosis function

Eliminating the need to clean electrodes every 2 weeks



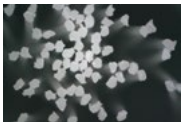
When it comes to ionizers, regular maintenance has long been considered a necessary task. In addition to automatic electrode cleaning, the SJ-F700 Series performs self-diagnosis to ensure reliable static elimination performance. This also makes it possible to quickly identify any problems that might arise. The brushes are also automatically cleaned to ensure the device remains clean at all times.

High-density brushes

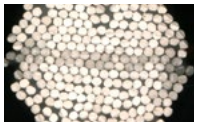
Build-up on the electrode probes is thoroughly removed automatically.



Conventional models

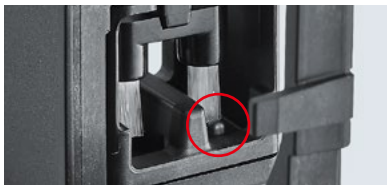


High-density brushes



Brush cleaner

A cleaner is also included to remove any build-up on the brushes. This prevents unwanted objects from collecting in the brushes.

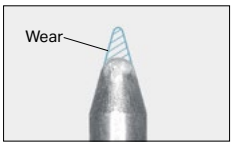




No electrode replacement required

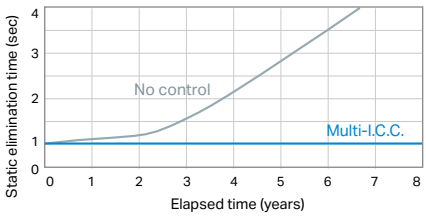
Variable DC system

Eliminating the need to replace electrodes every 2 years



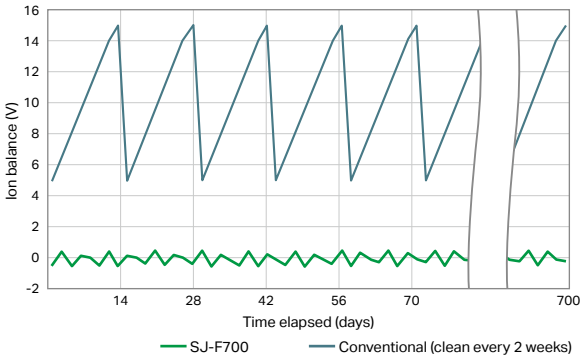
Because electrode probes wear out over time, they usually need to be replaced every two years. The SJ-F700 Series' Multi-I.C.C. function constantly monitors ion generation amounts to ensure static elimination speed is maintained. If the ion generation amount drops, the variable DC system automatically increases the applied voltage. This eliminates the need to replace the electrodes to maintain static elimination performance.

Effect of maintaining static elimination speed with the Multi-I.C.C. function



[Measurement conditions]
Static voltage: ±1 kV → ±100 V,
Charge plate monitor: 150 × 150 mm 5.91" × 5.91" (20 pF),
Measuring distance: 300 mm 11.81"

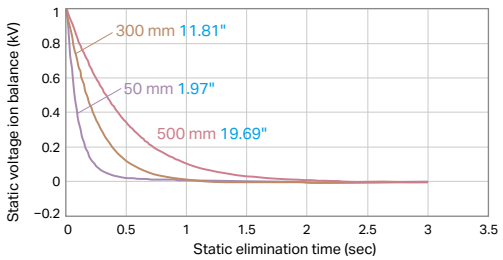
Change over time in ion balance (typical example)



High-speed static elimination even after 10 years of electrode use

Electrode probes gradually wear out due to corona discharging. With this product, however, high-speed static elimination is possible at any installation distance even with electrodes that have been used for 10 years and have become rounded.

Electrode probe wear and static elimination speed (typical)



[Measurement conditions]
150 × 150 mm 5.91" × 5.91" square charge plate monitor (20 pF), Max. air flow

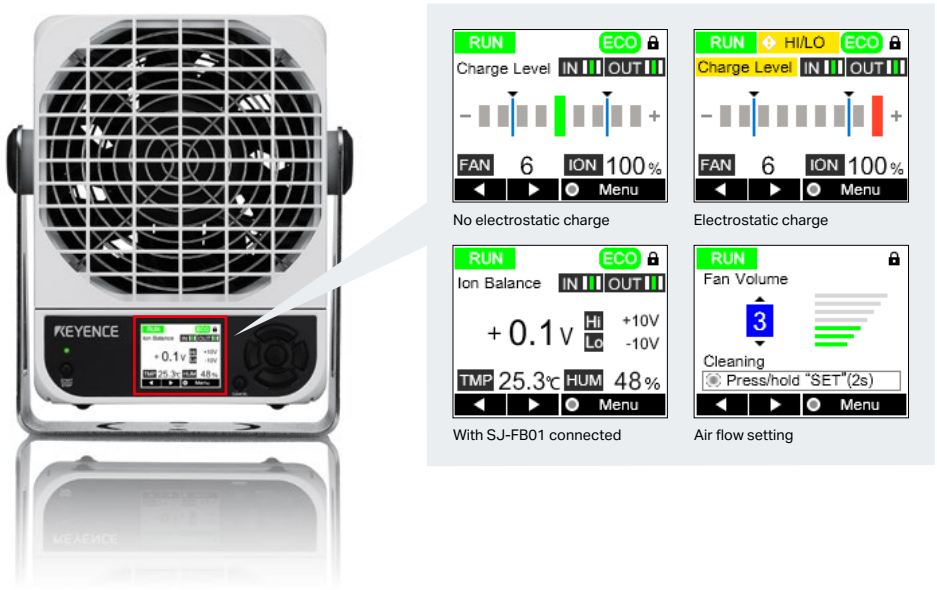
Ionizer Traceability

Providing an accurate understanding of the ionizer situation

Built-in LCD screen

Visually check the operating status without connecting to a PC or PLC using just the main unit.

The main unit is equipped with an LCD screen that can be used to check the operating status, static electricity data, and other information. This eliminates the need for specialized equipment required for periodic inspections with conventional models.



Built-in memory

Check past data whenever necessary even when operating without a constant connection.

Data for parameters related to static elimination—including the ion level, ion balance, air flow, temperature, humidity, and error occurrence status—are automatically recorded and saved in the main unit's built-in non-volatile memory. The memory offers sufficient capacity to allow data to be reviewed later even without a constant connection to a PC or PLC.

Saved data

Blower unit	Electrostatic charge level	When connected to sensors	Ion balance
	Max. electrostatic charge level		Max. ion balance
	Min. electrostatic charge level		Min. ion balance
	Air flow level		Temperature (℃ °F)
	Ion amount (instantaneous)		Humidity (%)

Measurement time

	Standard mode	Event mode*
Sampling cycle	1 hour	0.1 sec
No. of samples	8,760	600
Memory capacity	1 year	1 min × 100 events

* The date and time of up to 3,000 events can be stored.

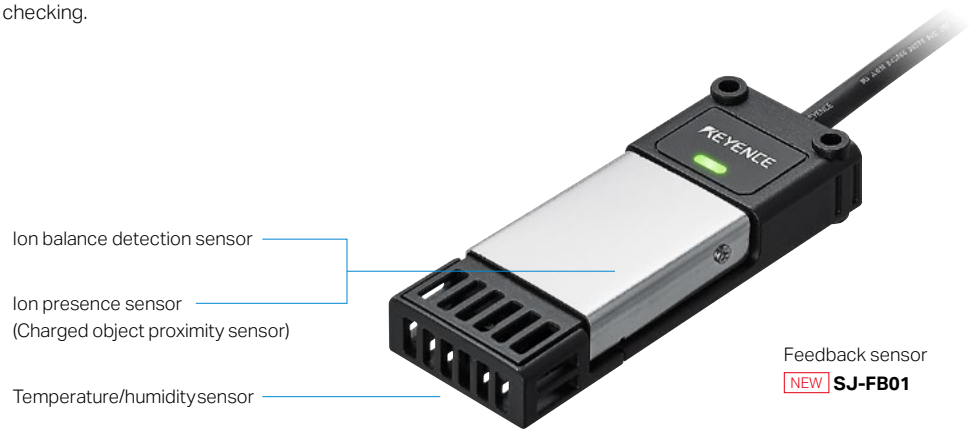


PC data review example

Feedback sensor Optional

Improved static elimination performance and constant target area monitoring.

Using a feedback sensor makes it possible to utilize various new electrostatic discharge countermeasures including an ion balance of ±1 V, ionizer misalignment detection, power-saving static elimination that only enables operation when a charged object is near, and constant temperature and humidity checking.



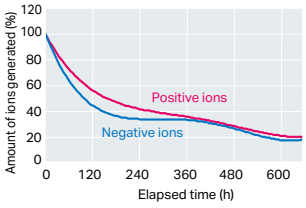
Ion balance

Despite the recent increase in ion balance requirements, it is important to note that positive and negative ions decrease over time at different ratios, possibly resulting in a situation where a device becomes +100 V charged without the user even realizing it. A feedback sensor eliminates such risks all together.

Electrostatic charge at which ESD occurs

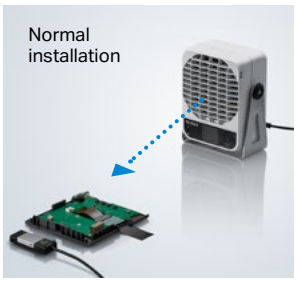
	Standard (reference)
Communication CPM	1 V
HDD	5 V
Laser diode	10 V
Micro LED	10 V
Home appliance memory	100 V

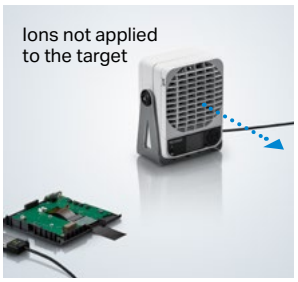
Data for change over time in ion amount (typical)



Ion presence

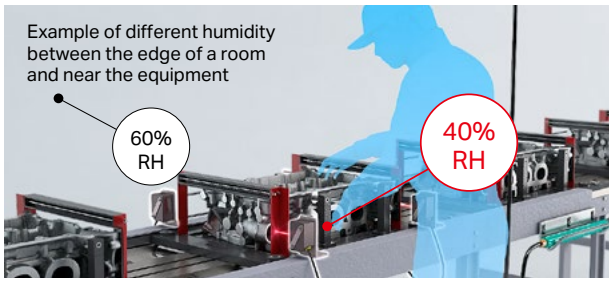
The ability to check for the presence of ions at all times prevents problems caused by the ionizer being misaligned or if obstacles come between the ionizer and the target area. The device immediately notifies users of any problems.





Temperature and humidity

Temperature and humidity have a significant relationship with static electricity. In general, static electricity is more likely to occur at lower humidity levels. The ability to detect temperature and humidity makes it possible to check for conditions where drops in humidity may increase the risk of static electricity.



Configuration

Ionizer
SJ-F700



Straight louvers
OP-88772
(attached to main unit)



AC adapter
OP-88766*



Diffusion louvers
OP-88771



Mounting bracket
OP-88767



Filter
OP-88773



L-shaped mounting bracket
OP-88768



Electrode unit (spare)
OP-88774



Sensor cable
OP-87056 (2 m 6.6')
OP-87057 (5 m 16.4')



Feedback sensor
SJ-FB01



Sensor mounting bracket
OP-88769



Adjustable sensor bracket
OP-88770



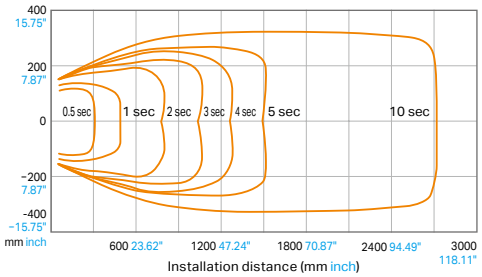
LAN cable
OP-87951 (3 m 9.8')
OP-87952 (5 m 16.4')
OP-87953 (10 m 32.8')



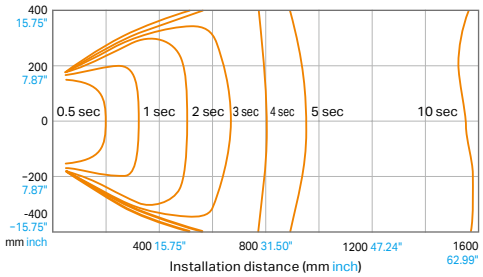
* An AC power cord is required separately. Contact a KEYENCE sales office for details.

Static elimination area and time (typical)

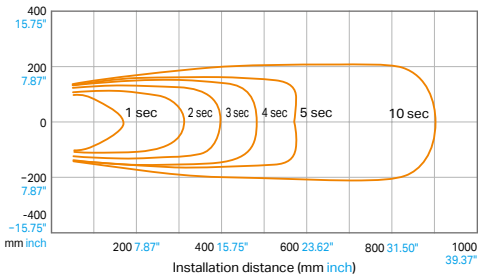
Max. air flow (with straight louvers attached)



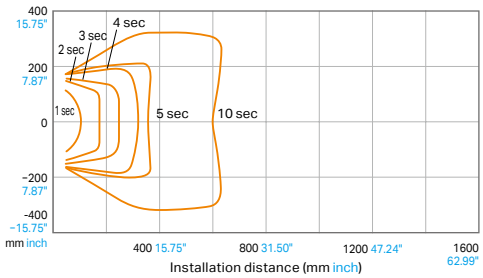
Max. air flow (with diffusion louvers attached)



Min. air flow (with straight louvers attached)



Min. air flow (with diffusion louvers attached)



[Measurement conditions] • Static elimination time from ±1000 V to ±100 V • Using 150 × 150 mm 5.91" × 5.91" charge plate monitor (20 pF)

Specifications

SJ-F700

Model			SJ-F700
Voltage application method			Variable DC
Applied voltage			±8200 V max.
Ion balance control method			Multi-I.C.C
Ion balance*1 *3		When using SJ-FB01	±1 V
		When not using SJ-FB01	±3 V
Static elimination time*2 *3			Approx. 0.5 s
Installation distance			50 mm 1.97" or more
Maximum air flow			4.8 m³/min 169.51 ft³/min
Ozone density			0.005 ppm or less
Saved data	Items*4		Date/time, Ion level, Electrostatic charge level, Air flow, Unit status, Various threshold values, Ion balance, Temperature, Humidity
	Sampling cycle		0.1 s
	Data history		Data saved every hour
	Event log		Saved events: Errors, Warnings, Charge level threshold exceeded, Ion balance threshold exceeded, Static elimination start/stop, Power ON/OFF, Clean operation Charge level/ion balance outside threshold/event triggered when: Data stored for 30 seconds before and 30 seconds after an event
Other functions			Auto-clean, Sensor feedback
Input	IN1	Static elimination stop input	Bidirectional voltage input Maximum input rating: 26.4 V, ON voltage: 18 V or higher, OFF current: 0.1 mA or lower, ON current: 3 mA or lower (for 24 V)
	IN2	Clean input	
	IN3	Event trigger input	
Output			Photo MOS relay output, N.O./N.C. switchable, Maximum rating: 26.4 V (50 mA), Residual voltage when ON: 1 V or less
	Number of outputs		3 (OUT1 to OUT3)
	Functions*5		Assignable functions: Static elimination status, Ion level alarm, Condition alarm, Fan rotation speed alarm, Charge level threshold exceeded, System error, Other error, Installation error alarm, Ion balance threshold exceeded, Charged object detection, Feedback sensor error
Ethernet	Standard		100BASE-TX
	Connector		RJ-45 8-pin connector
Ratings	Power voltage		24 VDC ±10% or dedicated AC adapter (OP-88766)
	Current consumption	Normal (including input/output load)	1.6 A or less
		Normal (excluding input/output load)	1.45 A or less
		ECO mode*6	0.18 A (typical)
Environmental resistance	Operating ambient temperature		0 to +40°C 32 to +104°F (0 to +45°C 32 to +113°F when using OP-88767 or OP-88768)
	Operating ambient humidity		35 to 85% RH (no condensation)
	Overvoltage category		I
	Pollution degree		2
Material			Case: PC / ABS*7, Front ventilation guard: SUS, Rear suction guard: SUS, Louvers: PC / ABS*7, Display sheet: PC, Operation buttons: PC, Mounting adapter insulation rubber: Silicone rubber, Bottom insulation rubber: Polyurethane, Mounting fixture: PBT, Terminal block: LCP, Ethernet connector: Brass (tin plated), AC adapter connector: PBT, Attached screws: Iron (trivalent chromate)
Weight			Approx. 1.2 kg 2.65 lb

*1 At a distance of 300 mm 11.81" with minimum air flow, straight louvers, and relative humidity of 65% *2 At a distance of 300 mm 11.81" with maximum air flow and straight louvers *3 Conducted in accordance with the following standards: ANSI-ESD-STM3.1, RCJS-TR-5-4, JIS C 61340-4-7, IEC61340-4-7ED.2 *4 Ion balance, temperature, and humidity available only when using the SJ-FB01 *5 Installation error alarm, ion balance threshold exceeded, charged object detection, and feedback sensor error available only when using the SJ-FB01 *6 Input/output not used; 24 VDC input *7 Sustained electrostatic charge prevention grade

SJ-FB01

Model		SJ-FB01
Ion balance measurement	Measurement range	±50 V
	Measurement accuracy*1	±0.5 V
	Minimum display unit	0.1 V
	Sampling cycle	0.1 s
	Installation distance	50 mm 1.97" or more from SJ-F700
Temperature measurement	Measurement range	0 to +50°C 32 to +122°F
	Measurement accuracy*2	±2°C ±3.6°F
	Minimum display unit	0.1°C 32.18°F
	Sampling cycle	0.5 s
Humidity measurement	Measurement range	10 to 85% RH
	Measurement accuracy*2	±5% RH
	Minimum display unit	1% RH
	Sampling cycle	0.5 s
Environmental resistance	Operating ambient temperature	0 to +50°C 32 to +122°F
	Operating ambient humidity	10 to 85% RH (no condensation)
Material		Case: PBT, Ion-sensing plate: SUS, Display sheet: PET, Cable jacket: PVC, Connector resin: Polyester elastomer, Connector metal: Brass (nickel plated)
Weight		Approx. 30 g 1.05 oz

*1 At ±15 V or less; ±10% (indicated) for other ranges
*2 At 25°C 77°F with a relative humidity of 50%

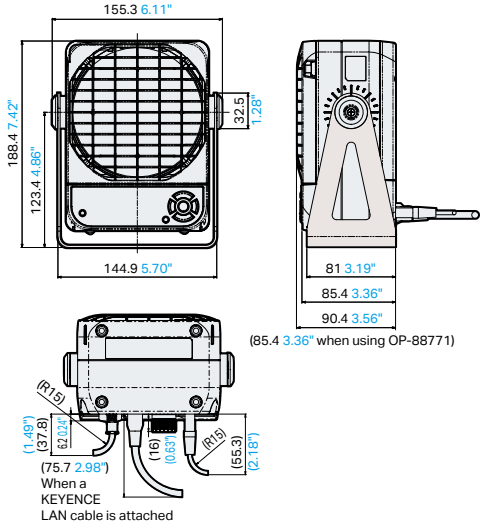
AC adapter

Model		OP-88766
Ratings	Rated input	100 to 240 VAC (50/60 Hz)
	Rated output	24 VDC, 2.7 A
Environmental resistance	Operating ambient temperature	0 to +40°C 32 to +104°F
	Operating ambient humidity	20 to 80% RH (no condensation)
Weight		Approx. 260 g 9.17 oz

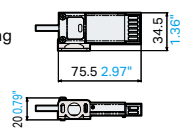
Dimensions Unit: mm inch

SJ-F700 Series

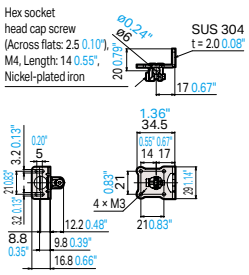
SJ-F700 + Mounting bracket



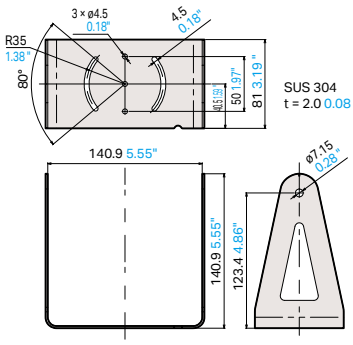
SJ-FB01 + Sensor mounting bracket



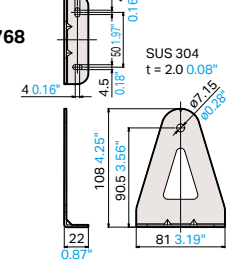
Adjustable sensor bracket



Mounting bracket **OP-88767**



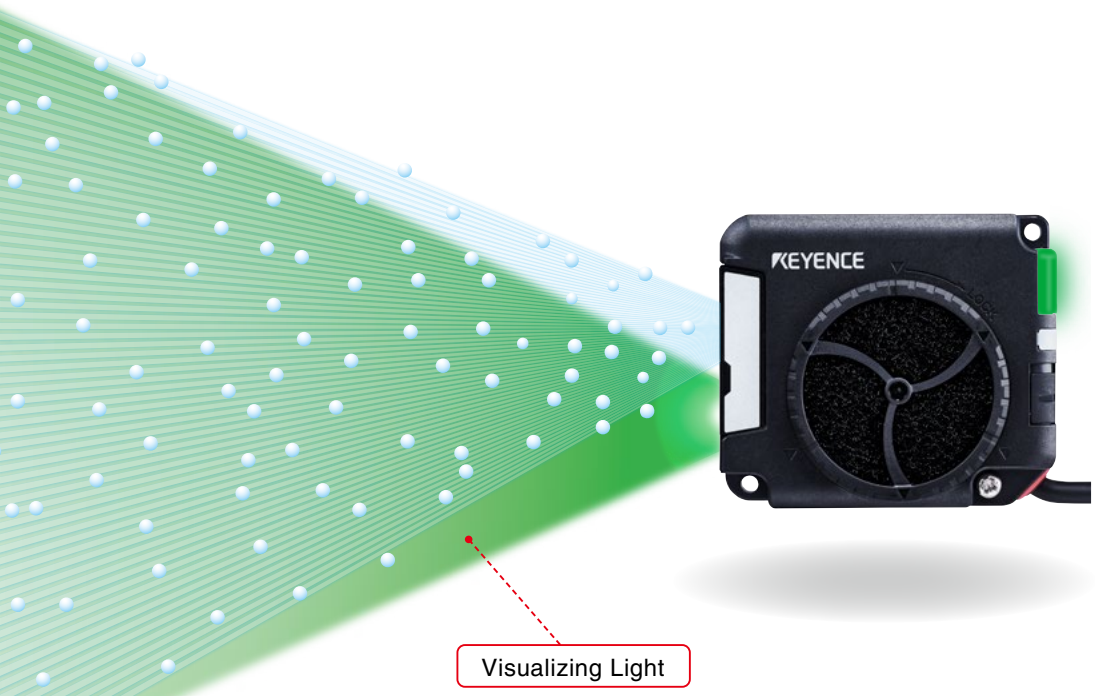
L-shaped mounting bracket **OP-88768**



SJ-LF Series

Ultra compact type | Visualizing light | Multiple mounting bracket options | Multiple output options

Ultra compact fan type static eliminator with visualizing light



Highly visible indicator


Orange


Green

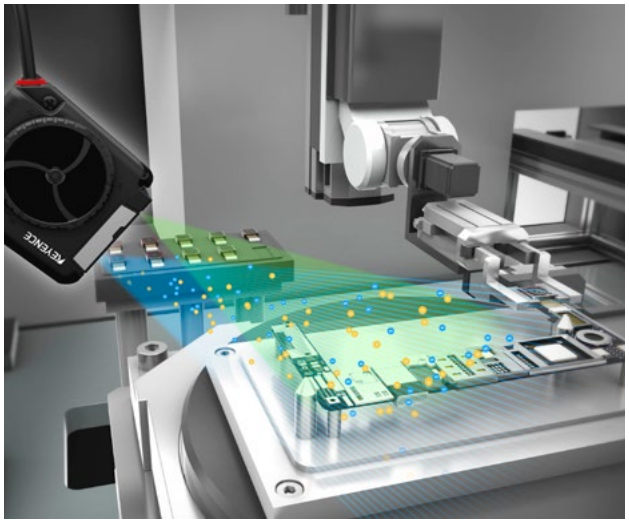
Static electricity present

Static electricity absent

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.

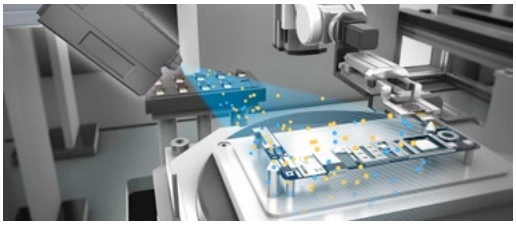


When replacing a nozzle type with the SJ-LF Series

GREEN due to not using factory air

Conventionally, space-saving static elimination has required a nozzle type that uses compressed air, but this consumes a lot of electricity. The SJ-LF Series achieves airless static elimination while being the same size as nozzle types. It easily replaces existing equipment without major changes to facility design layouts.

Image of using conventional nozzle type



	SJLF (max.)	Nozzle Type	
Electricity bill*	$ 12	$ 984	$ 3,603
Power consumption total	7.5 W	624 W	2285 W
Main unit power consumption	7.5 W	9.7 W	9.7 W
Air usage power	---	614 W	2275 W
Air usage volume	---	64 L/min	237 L/min
Air pressure	---	0.1 MPa	0.7 MPa
100 mm 3.94" static elimination speed	1.2 s	Within 0.5 s	Within 0.5 s

* Annual electricity bill calculated at $ 0.18/kWh

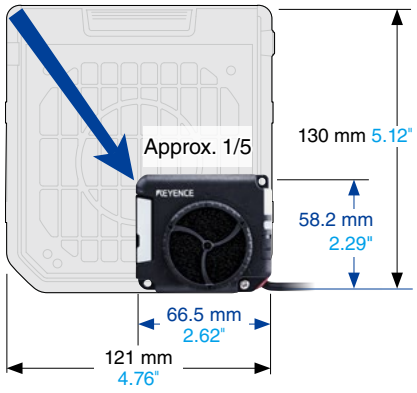
Finding Solutions to Work Site Needs

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.

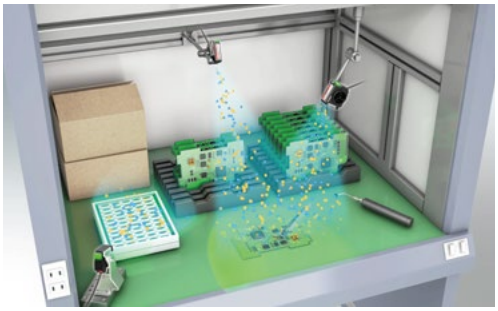
Tabletop Securing Bracket



Adjustable Bracket

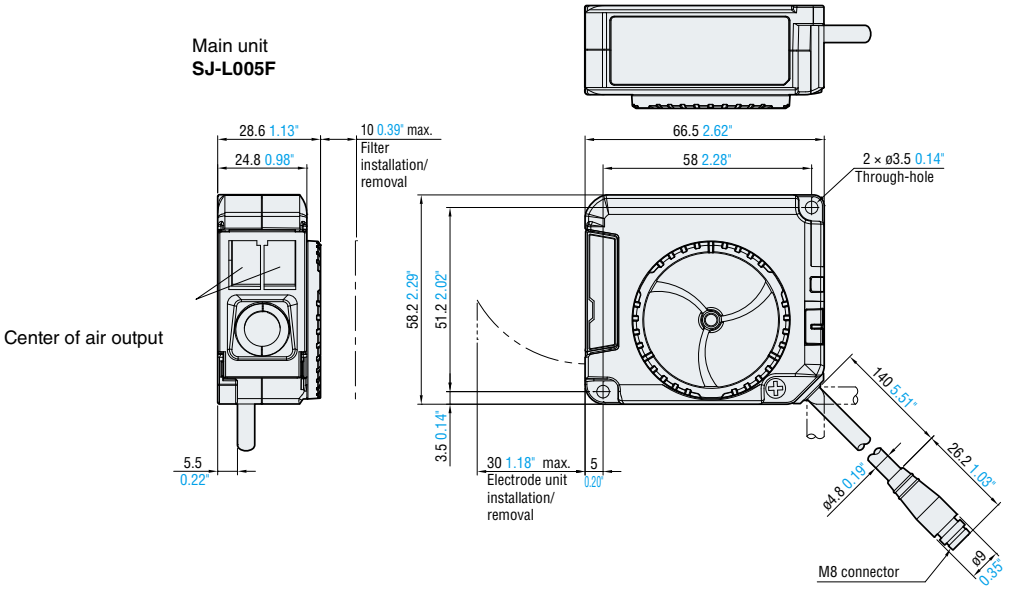


Set up example



Dimensions Unit: mm inch

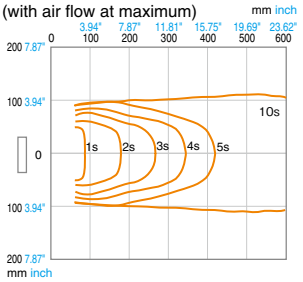
SJ-LF Series



Data

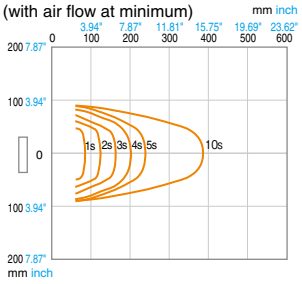
SJ-LF Series

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



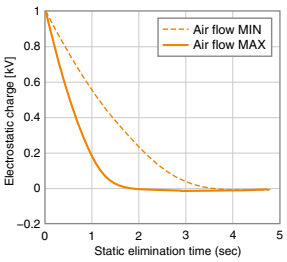
Measurement conditions
· Static elimination time from ±1000 V to ±100 V
· Plate monitor: 150 mm × 150 mm 5.91" × 5.91" (20 pF)

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)

Options

SJ-LF Series

Mounting brackets

Tabletop securing bracket



OP-88318

Adjustable bracket



OP-88319

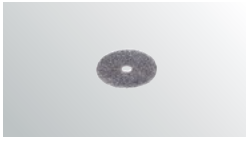
Options

Electrode unit



OP-88315

Air filter (×5)



OP-88316

Cable

M8 wiring harness (2 m 6.6')



OP-88095

M8 wiring harness (10 m 32.8')



OP-88096

AC adapter cable



OP-88317

AC adapter*1



OP-87722*3

AC adapter*2



OP-88020

*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.
*3 A separate OP-99012 (AC cord) will be required.

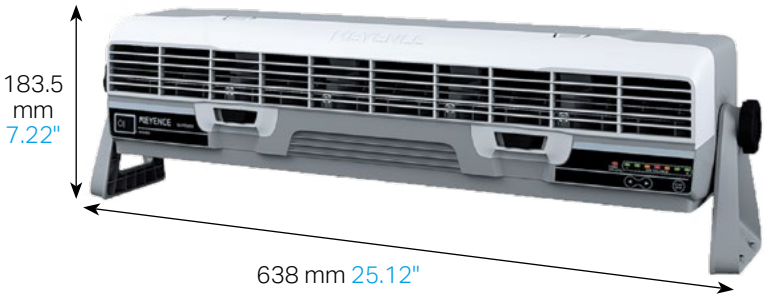
Specifications

Model		SJ-L005F
Main unit appearance		
Voltage application method		High frequency AC method
Applied voltage		3 kVAC
Ion balance		±10 V
Installation distance		50 mm 1.97" or more
Maximum air speed*1		7 m/s 23'/s
Maximum air flow		0.16 m³/min 5.65'/min
Ozone concentration*1		0.05 ppm or less
Control input*2 *3	Static elimination stop input	Switchable between non-voltage input and voltage input For non-voltage input: ON voltage 2 V or less, OFF current 0.1 mA or less, ON current 2 mA or less (short circuit) For voltage input: Maximum input rating 30 V, ON voltage 18 V or more, OFF current 0.1 mA or less, ON current 1 mA or less (at 30 V)
Control output*2 *3	Alarm (N.C.)/ Ion level alarm (N.O.)	Open collector output: 30 VDC or less, 50 mA or less, residual voltage 1 V or less, switchable between NPN/PNP settings
Ratings	Power voltage	24 VDC ±10% (including ripple) or 12 VDC (dedicated AC adapter OP-88020/87722*4)
	Current consumption	310 mA or less (for 24 VDC), 600 mA or less (for 12 VDC)
Environmental resistance	Operating ambient temperature	0 to +50°C 32 to 122°F (0 to +40°C 32 to 104°F when OP-87722 is used)
	Operating ambient humidity	35 to 65% RH (no condensation)
	Overvoltage category	I
	Pollution degree	2
Weight		Approx. 100 g 3.53 oz (main unit weight)

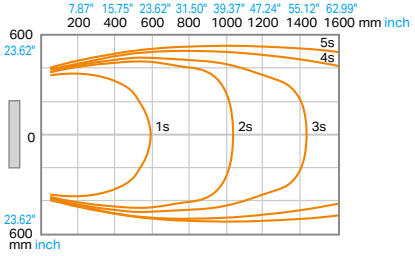
*1 Measurement results taken with an installation distance of 100 mm 3.94", a maximum air flow, and no air filter (Representative values).
*2 Cannot be used when the power supply is an AC adapter.
*3 Static elimination stop input and Ion level alarm output are allocated to the white line using the setting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

Eliminating static over an ultra-wide area

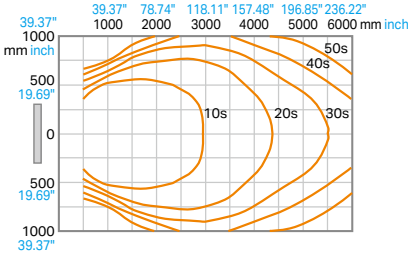
Wide-area Static Elimination Blower
SJ-F5500



Static elimination range and time (Typical)



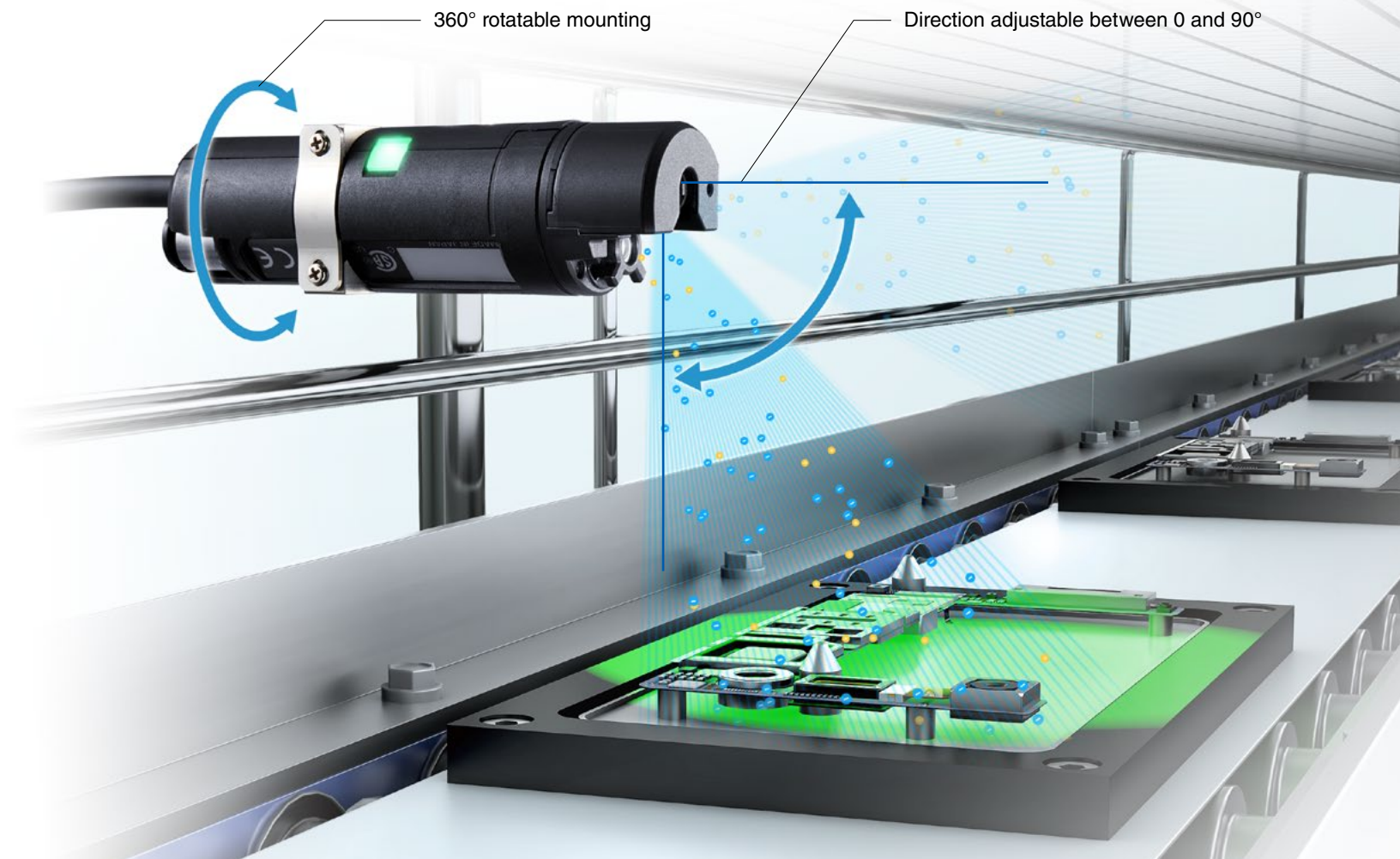
Long-distance static elimination range diagram (Typical)



Measuring conditions
Time required for static elimination from ±1000 V to ±100 V (Air volume : MAX)
Plate monitor : 150 mm × 150 mm 5.91" × 5.91" (20pF)

SJ-LM Series

Easy mounting, even in tight spaces
Rotate 360° for static elimination at any angle





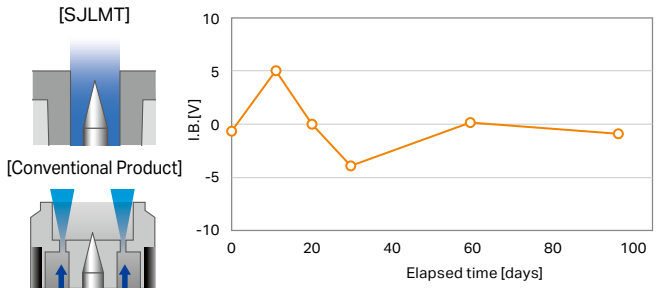
Ultra-compact body for use everywhere

A cylindrical design with a total length of 93 mm 3.66" and a diameter of 27 mm 1.06" also offers two axes of rotation. This allows for control of the static elimination direction without modification of the installation position. This static eliminator can also be mounted in tight spaces without layout modifications, making it ideal for equipment retrofits.

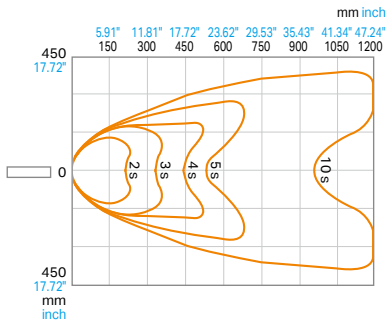
Achieving both ease-of-use and high performance

S.C.A.B.

Uses Super Clean Air Barrier, an even more advanced version of Clean Air Barrier. When material and debris sticks to the tip of the electrodes, static elimination performance will be lowered. The S.C.A.B. feature will control the flow of supplied CDA to create laminar flow around the electrodes. This drastically reduces the material sticking to the electrode tips thereby reducing the amount of maintenance required.

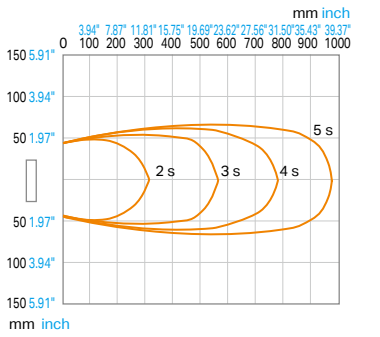


SJ-L005MT + SJ-MS1
Static Elimination Area and Time
(Air Pressure 0.5 MPa)



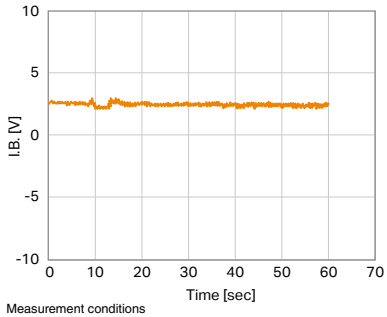
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF) is used

SJ-L005MT + SJ-LM1
Static Elimination Area and Time
(Air pressure 0.5 MPa, air volume 278 L/min)



Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF) is used
- SJ-LM1 is used
- Tube length: 500 mm 19.69"

SJ-L005MT + SJ-LM1
Ion balance
(Air pressure 0.05 MPa, air volume 55 L/min)



Measurement conditions
- 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF) is used
- SJ-LM1 is used
- Tube length: 500 mm 19.69"

Flexible options make integration easy

Tube type available

Even for applications within tight spaces with installation limitations, spot operation is possible with a tube.

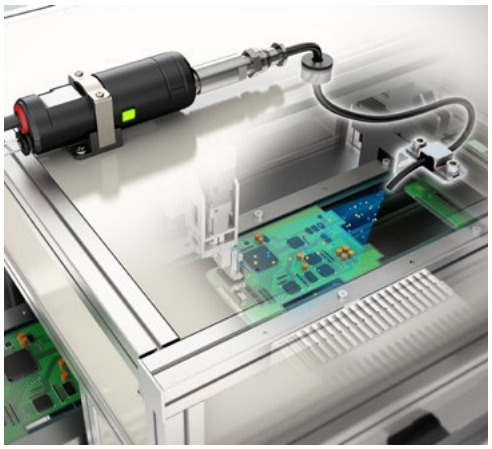


Hi-flex robotic cable

The Hi-flex robotic cable prevents problems caused by cable breakage.

Alarm output/Ion level alarm

An alarm output can be issued based on detected abnormalities or malfunctions. Moreover, the timing for cleaning or replacement, such as dirty or worn probes, is determined by self-diagnosis and indicated by the output of an ion level alarm.



Specifications

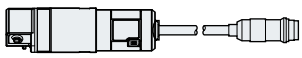
Model		SJ-L005M	SJ-L005MT
Type		Nozzle type	Tube type
Voltage application method		High frequency AC method	
Applied voltage		2.2 kVAC	2.5 kVAC
Ion balance *1		±10 V	
Static elimination time		0.4 sec. *1	See Data. (P. 55)
Air supply pressure		0.05 to 0.5 MPa	
Air supply temperature		0 to +50°C 32 to 122°F	
Connection tube		Outer diameter: ø6 ø0.24", inner diameter: ø4 ø0.16"	
Ozone concentration *2		0.05 ppm or less	
Control input *3	Static elimination stop input	Switchable between non-voltage input and voltage input Non-voltage input: ON voltage 2 V or lower, OFF current 0.1 mA or lower, ON current 2 mA or lower (short circuit) Voltage input: Maximum input rating 30 V, ON voltage 7 V or higher, OFF current 0.1 mA or lower, ON current 1.5 mA or lower (at 30 V)	
	Reset input		
	LPC mode input		
Control output *3	Alarm (N.C.) Ion level alarm (N.O.) *4	Open-collector output 30 VDC or less 50 mA max., residual voltage 1.5 V or less NPN/PNP settings switchable	
Rating	Power supply voltage	24 VDC ±10% (including ripple) or 12 VDC (dedicated AC adapter OP-88020/87722 *5)	
	Current consumption	0.2 A or less (24 VDC) 0.3 A or less (12 VDC)	
Material		Main unit case: PBT / Charge indicator: TPU / Securing bracket: SUS303, PBT Cable: PVC, TPE, copper alloy Connector: PBT, brass + gold plating, phosphor bronze + gold plating, coper alloy + gold plating Fitting: Brass + electroless Ni plating, POM, NBR	
Environmental resistance	Operating ambient temperature	0 to +50°C 32 to 122°F (0 to +40°C 32 to 104°F when OP-87722 is used)	
	Operating ambient humidity	35 to 65% RH (no condensation)	
	Overvoltage category	I	
	Pollution degree	2	
Weight		Approx. 60 g 2.11 oz	Approx. 65 g 2.29 oz

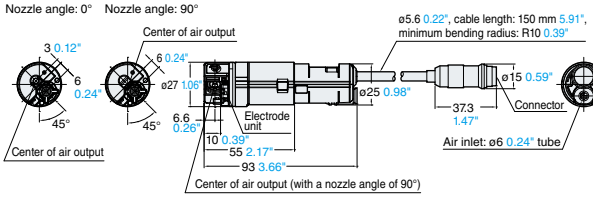
*1 SJ-L005M: Measurement results taken with an installation distance of 150 mm 5.91", air supply pressure of 0.2 MPa, and a nozzle angle of 90° (typical values); SJ-L005MT: Measurement results taken with tube length of 500 mm 19.69", an installation distance of 50 mm 1.97", and air supply pressure of 0.2 MPa (typical values)
*2 SJ-L005M: Measurement results taken with an installation distance of 100 mm 3.94", air supply pressure of 0.1 MPa, and a nozzle angle of 90° (typical values); SJ-L005MT: Measurement results taken with tube length of 500 mm 19.69", an installation distance of 300 mm 11.81", and air supply pressure of 0.1 MPa (typical values)
*3 Cannot be used when the power supply is the AC adapter.
*4 To use the ion level alarm with the tube type, use it with air supply pressure of 0.3 MPa or less.
*5 Rated input of 100 to 240 VAC, 50/60 Hz

Dimensions Unit: mm inch

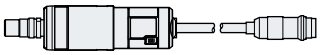
SJ-LM Series

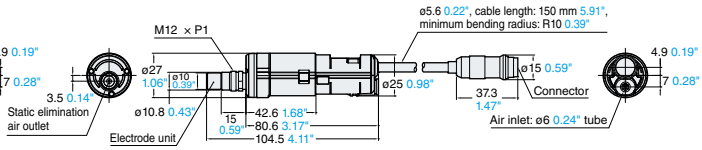
Nozzle type main unit
SJ-L005M



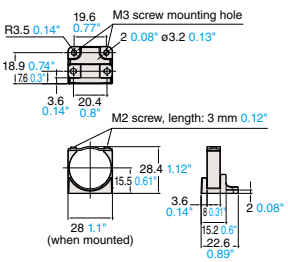


Tube type main unit
SJ-L005MT

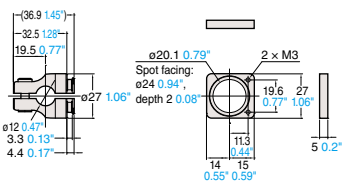




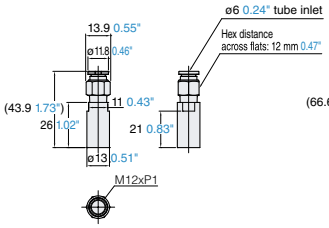
Securing bracket
OP-88414



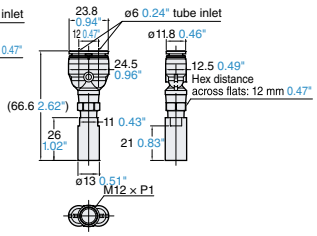
Adjustable bracket for nozzle/tube type
OP-88447



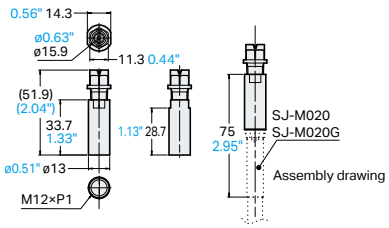
Straight tube nozzle
SJ-LM1



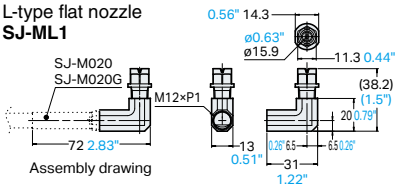
Straight, two-way branch tube nozzle
SJ-LM2



Straight flat nozzle
SJ-MS1



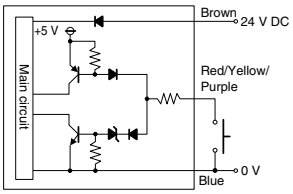
L-type flat nozzle
SJ-ML1



I/O circuit diagram (when OP-88411/OP-88412 is used)

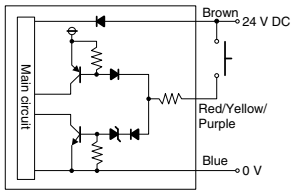
Input circuit diagram (NPN)

ON voltage: 2 V or lower
OFF current: 0.1 mA or lower
ON current: 2 mA or lower (short circuit)



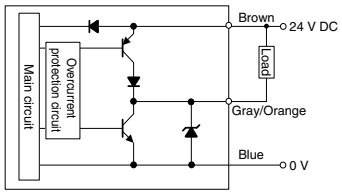
Input circuit diagram (PNP)

Maximum input rating: 30 V
ON voltage: 7 V or higher
OFF current: 0.1 mA or lower
ON current: 1.5 mA or lower (at 30 V)



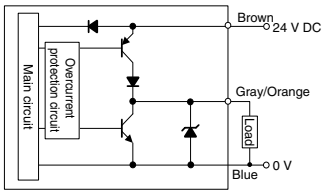
Output circuit diagram (NPN)

Maximum rating: 30 V 50 mA
Residual voltage: 1.5 V



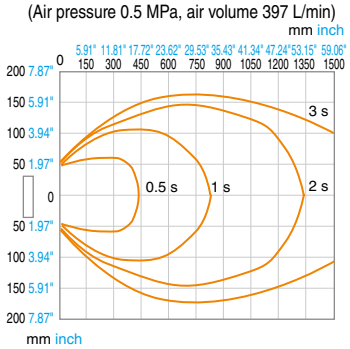
Output circuit diagram (PNP)

Maximum rating: 30 V 50 mA
Residual voltage: 1.5 V



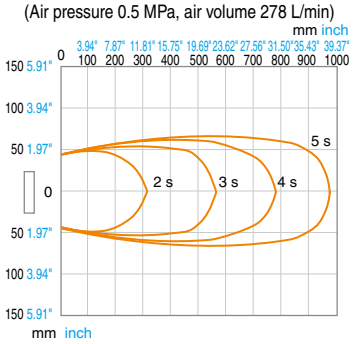
Data

SJ-L005M
Static elimination area and time
(Air pressure 0.5 MPa, air volume 397 L/min)



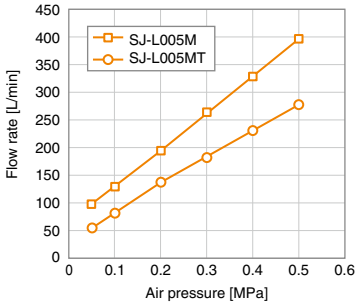
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- 150 mm × 150 mm 5.91"× 5.91" plate monitor (20 pF) is used

SJ-L005MT
Static elimination area and time
(Air pressure 0.5 MPa, air volume 278 L/min)



Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- 150 mm × 150 mm 5.91"× 5.91" plate monitor (20 pF) is used
- SJ-LM1 is used
- Tube length: 500 mm 19.69"

Relationship between air pressure and flow



SJ-L005MT
- SJ-LM1 is used
- Tube length 500 mm 19.69"

Options

SJ-LM Series

Mounting brackets

Securing bracket *4



OP-88414

Adjustable bracket for nozzle/tube type



OP-88447

Nozzle

Flat nozzle, straight



SJ-MS1

Flat nozzle, L type



SJ-ML1

Option

Straight tube nozzle



SJ-LM1

Straight, two-way branch tube nozzle



SJ-LM2

Replacement electrode unit (for nozzle type)



OP-88410

Replacement electrode unit (for tube type)



OP-75351

Conductive tube (0.5 m 1.6')



OP-88415

Cable

Power supply cable for nozzle/tube type (2 m 6.6')



OP-88411

Power supply cable for nozzle/tube type (10 m 32.8')



OP-88412

AC adapter cable for nozzle/tube type (2 m 6.6') *3



OP-88413

AC adapter *1



OP-87722

AC adapter *2



OP-88020

*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.
*3 The separate AC adapter (3 m 9.8') is required.
*4 OP-88414 is included with the main unit. Order this option if the included one is lost.

High-Performance Micro Static Eliminator

SJ-M200 Series

Pulse AC + I.C.C. | Multiple nozzle options | Micro type | Multiple output options

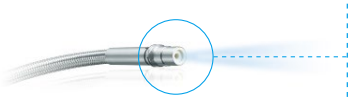
Ultra-small static elimination head



Extensive product line-up meets all static-elimination needs

Super-fine tip

SJ-M200 Series



Standard probe type

SJ-M020G

Requires five times less maintenance than conventional models.

Wide range of attachments to choose from

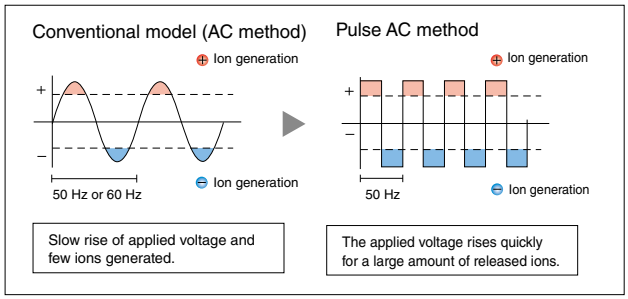
Spot	Relay adapter straight	Relay adapter L-type	Applications
Flat nozzle 	**SJ-MS1** 	**SJ-ML1** 	Optimal for wide-angle, wide-range static elimination
Flat diffusion nozzle 	**SJ-MS2** 	**SJ-ML2** 	Optimal for wide-angle, wide-range static elimination when changing angle and direction
L-type nozzle 		**SJ-ML** 	Optimal for static elimination when changing the angle and direction of the static elimination area

High performance and usability

Its high performance and usability unique to KEYENCE,
which knows the ins and outs of static electricity, sets it apart from conventional compact static eliminators.

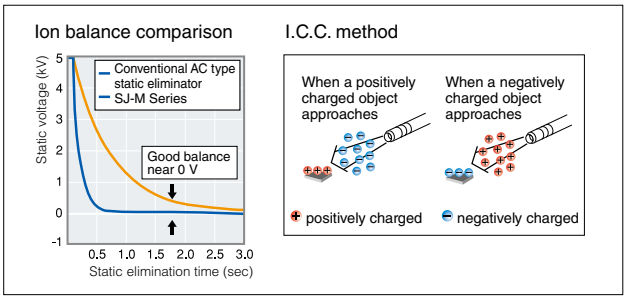
Fastest-in-class static elimination with pulse AC method

Unlike the conventional AC method, the applied voltage rises quickly to the electrode probe, so the amount of released ions is large and static electricity can be eliminated quickly.



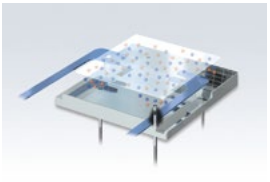
High-precision ion balance with I.C.C. method

Senses the electrostatic charge of the target and provides feedback so the SJ-M can provide automatic control of the amount of ions generated to the optimal level.



ø12 mm ø0.47" head for flexible installation layout

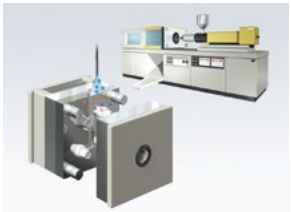
Can be embedded in or nearby a metal object, making it optimal for installing in compact equipment without the need for space.



Preventing electrostatic peeling of glass PCBs

Wider application areas, heat-resistant design

With a maximum resistance of 80°C 176°F, these models can be even be used in high-temperature environments. Ideal for processes featuring residual heat processes, eliminating static electricity inside molds, etc.



Eliminating static electricity inside molds of molding machines

Specifications

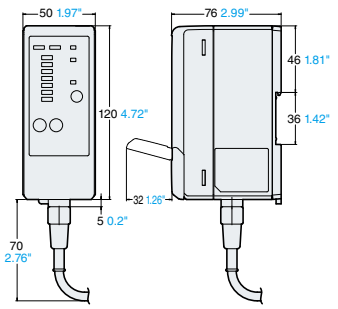
Model	Controller	SJ-M200					
	Head	SJ-M020	SJ-M020 (1.2M)	SJ-M020 (0.6M)	SJ-M020G	SJ-M020G (1.2M)	SJ-M020G (0.6M)
Voltage application method		Pulse AC method					
Applied voltage		±5.5 kV					
Rated output voltage		±6 kV					
Ion balance control method		I.C.C. method					
Static elimination time		0.5 sec. or less*1					
Ion balance		±15 V*2					
Supply pressure range		0.001 to 0.5 MPa*3					
Control input	Static elimination stop input	Non-voltage input					
Control output	Alarm	NPN open collector Ion level alarm 100 mA (40 V or less)					
	Ion level alarm						
	Condition alarm						
Ratings	Power voltage	24 VDC ±10%					
	Current consumption	450 mA or less					
Environmental resistance	Operating ambient temperature (Head)	0 to +80°C 32 to 176°F*4, *5					
	Operating ambient temperature (Controller)	0 to +40°C 32 to 104°F					
	Operating ambient humidity	35 to 65% RH (no condensation)*3					
Weight	Static elimination head	Approx. 600 g 21.16 oz	Approx. 540 g 19.04 oz	Approx. 480 g 16.93 oz	Approx. 600 g 21.16 oz	Approx. 540 g 19.04 oz	Approx. 480 g 16.93 oz
	Controller	Approx. 300 g 10.58 oz					

*1 Installation distance 50 mm 1.97", air volume 60 NL/min (ambient operating temperature 20 to 30°C 68 to 86°F, ambient humidity 40 to 60% RH)
*2 Installation distance 50 mm 1.97", air volume 20 NL/min (ambient operating temperature 20 to 30°C 68 to 86°F, ambient humidity 40 to 60% RH)
*3 Contact KEYENCE for information about derating for humidity and pressure when the ambient operating temperature exceeds 35°C 95°F.
For the supply fluid, use clean dry air with a dew point of -20°C -4°F or less. The minimum air volume varies according to the nozzle type. Contact KEYENCE for more information.
*4 The supply fluid temperature should be 40°C 104°F or less.
*5 For high-pressure cable only. For other parts, the ambient operating temperature is 0 to 40°C 32 to 104°F.

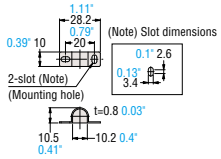
Dimensions Unit: mm inch

SJ-M200 Series

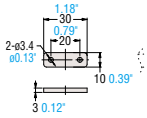
SJ-M200



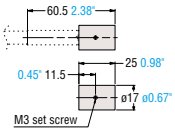
Mounting bracket
(for SJ-M020: Upper)



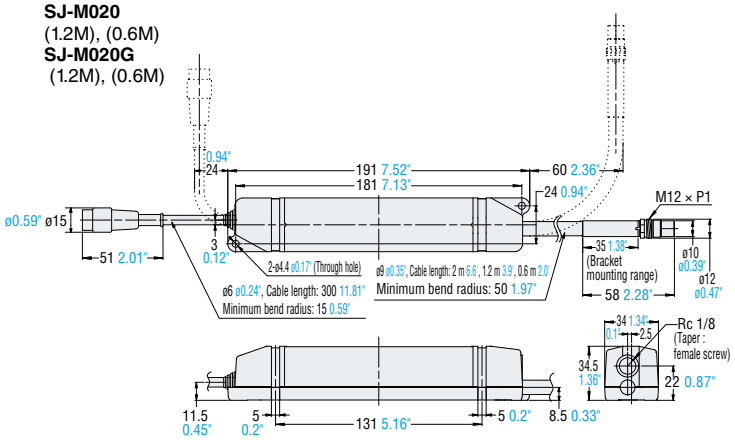
Mounting bracket
(for SJ-M020: Lower)



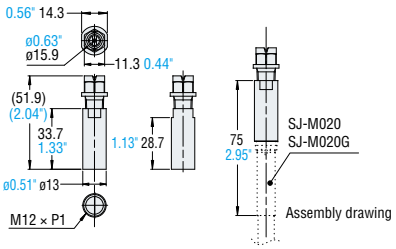
Electric shock
preventive cap



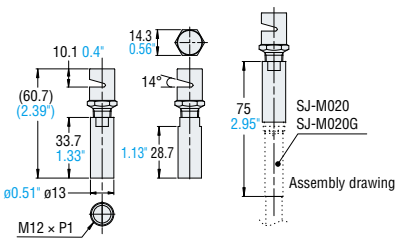
SJ-M020
(1.2M), (0.6M)
SJ-M020G
(1.2M), (0.6M)



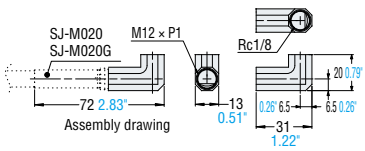
Straight flat nozzle
SJ-MS1



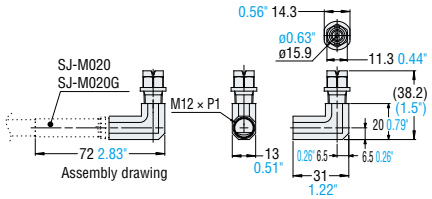
Straight flat diffusion nozzle
SJ-MS2



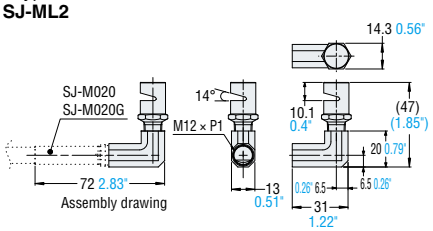
L-type nozzle
SJ-ML



L-type flat nozzle
SJ-ML1



L-type flat diffusion nozzle
SJ-ML2

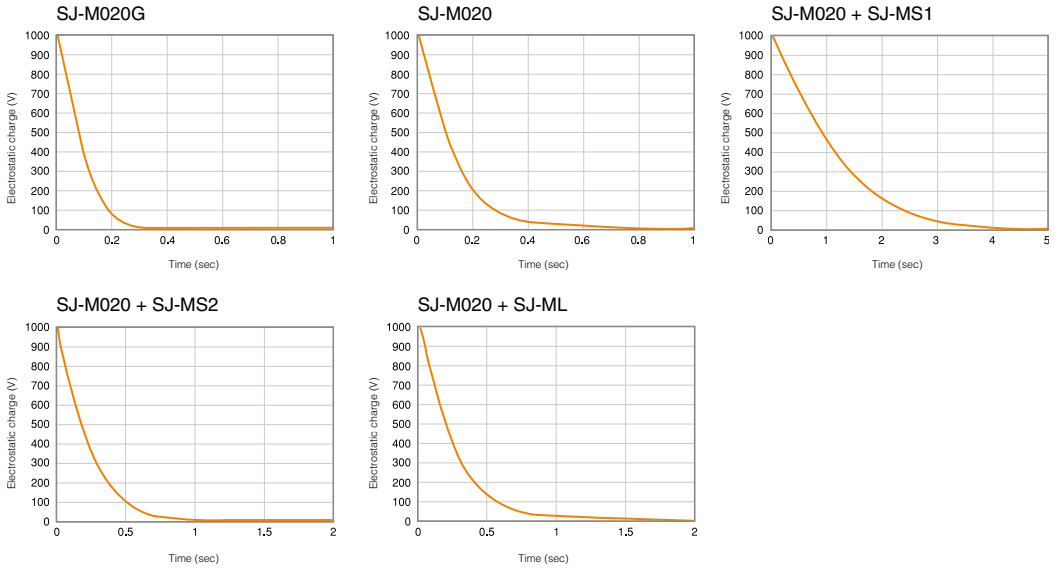


Data

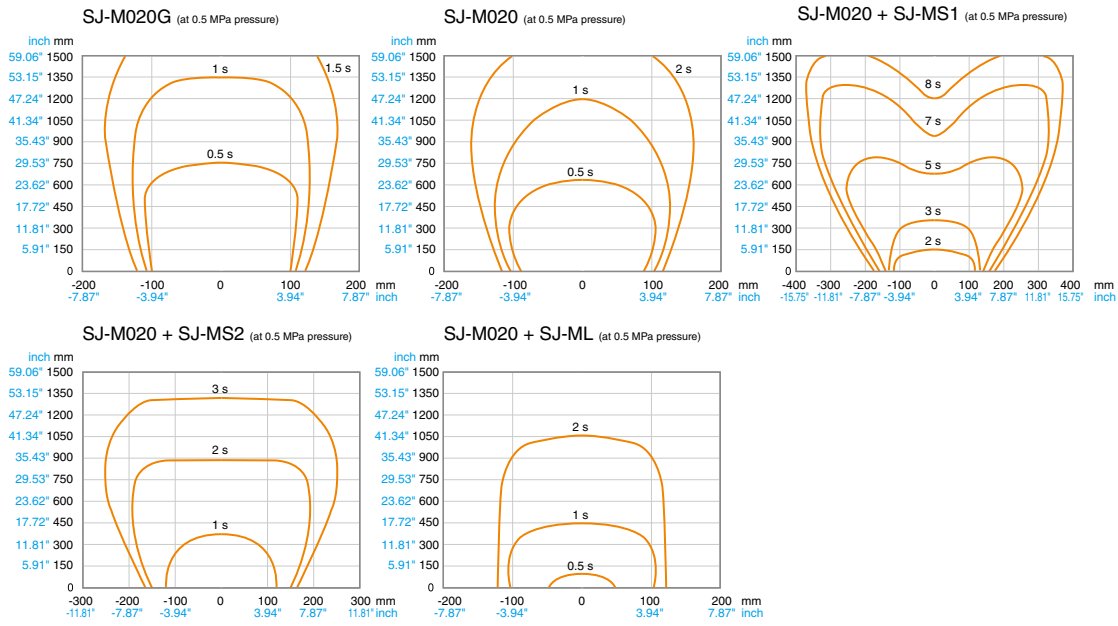
SJ-M020 Series

Static elimination speed (Typical example)

[Measurement conditions] Model: SJ-M020/SJ-M020G, Applied voltage: 1000 V, using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF), Installation distance: 300 mm 11.81", Air pressure: 0.5 MPa



Static elimination area and time (typical)

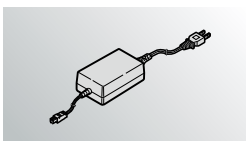


Options

SJ-M200 Series

Cable

AC adapter



SJ-U3

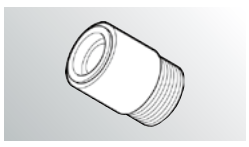
Extension cable (3 m 9.8')



SJ-C3

Electrode probe

Tungsten electrode probe for SJ-M020G



OP-75351

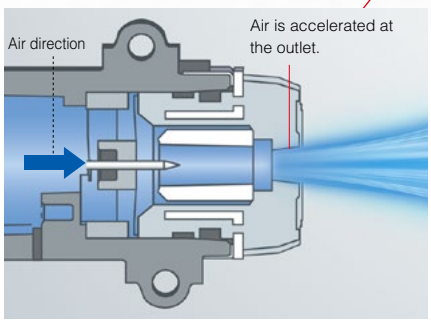
SJ-LG Series

Impressive dust removal performance
3× more powerful*

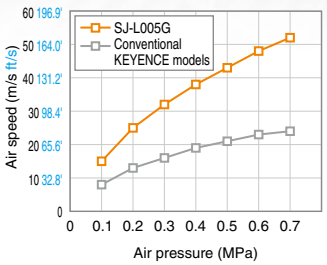
* Compared with conventional KEYENCE models



Probe structure



Air speed comparison graph



Measurement conditions
- Measuring distance: 300 mm 11.81"
- Measured with anemometer

Overwhelmingly powerful dust removal performance

By incorporating a high flow, low pressure-loss solenoid valve, the inner structure is designed to minimize air pressure loss. The use of a Laval nozzle structure, also used in jet engines, allows the air to exceed the speed of sound*, significantly improving colliding force against foreign particles.

* Initial speed immediately after the air outlet

Powerful dust removal paired with super robustness, designed to meet your worksite needs

Durable design with drop resistance of 2.0 m 6.6'*

The main unit case is made of polycarbonate resin for high shock resistance. The nozzle and connector are covered with shock-absorbing rubber protectors and the unit incorporates a high-rigidity hook made of stainless steel. The resulting structure is resistant to damage from external shock.

* Typical value measured under KEYENCE measurement conditions.



Extremely easy to use and operate

All-in-one structure with built-in solenoid valve and amplifier

You can start operation by just preparing a power supply and clean dry air. This model can also be used to replace a regular air gun.

Outstanding operability with less fatigue

The light trigger resistance reduces work burden. The handle feels natural and the center-of-gravity design provides worker comfort.

Alarm function provided

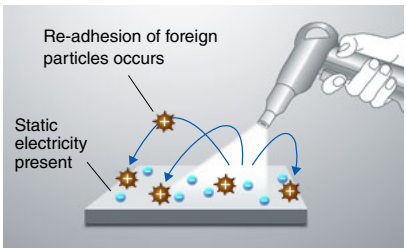
The dirtiness of the probe can be checked with an indicator. This saves periodic cleaning and time-consuming maintenance.



Ionized air to prevent re-adhesion

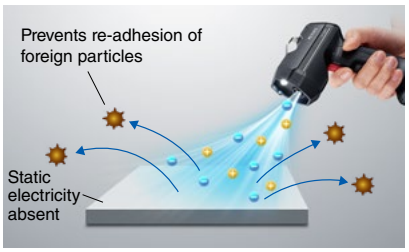
Incorporating positively and negatively charged ions in the air purge not only removes foreign particles but also prevents the re-adhesion of foreign particles due to static electricity. Efficient dust removal is possible without the need for blowing air again and again.

Normal air purging

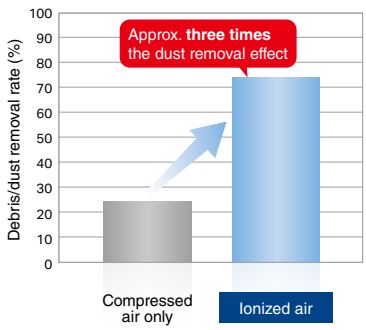


Static electricity present:
Foreign particles charged with static electricity re-adhere

Ionized air with the SJ-LG Series



Static electricity elimination:
Static electricity is removed, preventing re-adhesion of foreign particles



Specifications

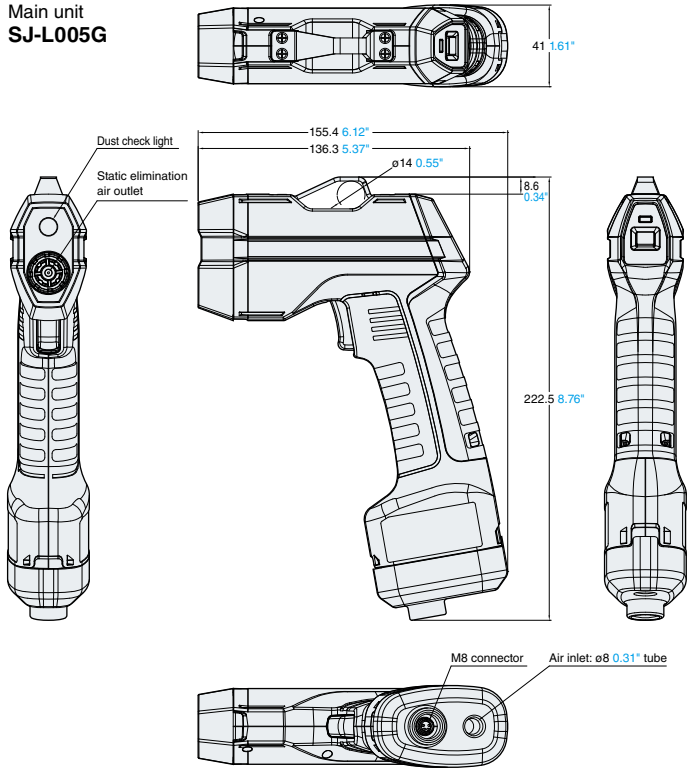
Model		SJ-L005G
Voltage application method		High frequency AC method
Applied voltage		3.2 kVAC
Ion balance *1		±10 V
Static elimination time *1		0.4 sec.
Operating distance		50 mm 1.97" or more
Air supply pressure		0.05 to 0.7 MPa
Air supply temperature		0 to +50°C 32 to 122°F
Connection tube		Outer diameter: ø8 ø0.31", inner diameter: ø6 ø0.24"
Ozone concentration *2		0.05 ppm or less
Rating	Power supply voltage	12 VDC (dedicated AC adapter OP-88020/87722 *3)
	Current consumption	0.3 A max.
Material		Main unit case: PC / Status indicator: TPU / Cable: PVC, copper alloy Main unit connector: PBT, brass + Ni plating, brass + gold plating Protection rubber: HNBR (tip side), NBR (connector side)
Environmental resistance	Operating ambient temperature	0 to +50°C 32 to 122°F (0 to +40°C 32 to 104°F when OP-87722 is used)
	Operating ambient humidity	35 to 65% RH (no condensation)
	Overvoltage category	I
	Pollution degree	2
Drop resistance		Onto concrete from a height of 2.0 m 6.6' *4
Weight		Approx. 320 g 11.29 oz

*1 Measurement results taken with an installation distance of 150 mm 5.91" and air supply pressure of 0.2 MPa (typical values)
*2 Measurement results taken with an installation distance of 100 mm 3.94" and air supply pressure of 0.1 MPa (typical values)
*3 Rated input of 100 to 240 VAC, 50/60 Hz
*4 This is a typical value under KEYENCE measurement conditions and not a guaranteed value.

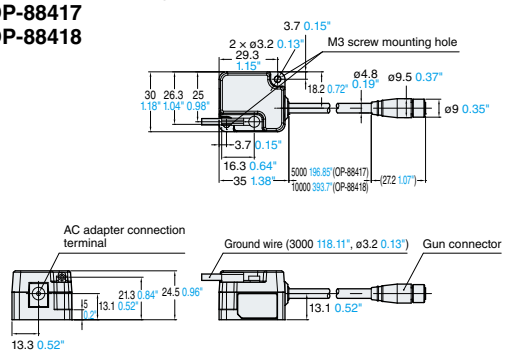
Dimensions Unit: mm inch

SJ-LG Series

Main unit
SJ-L005G

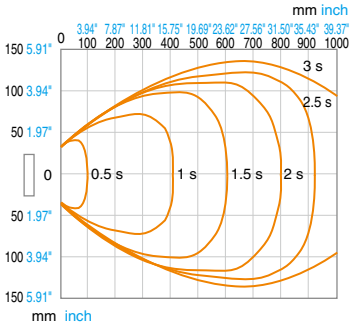


AC adapter cable for gun type
OP-88417
OP-88418



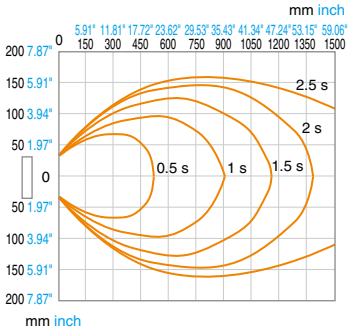
Data

Static elimination area and time
(Air pressure 0.05 MPa, air volume 119 L/min)



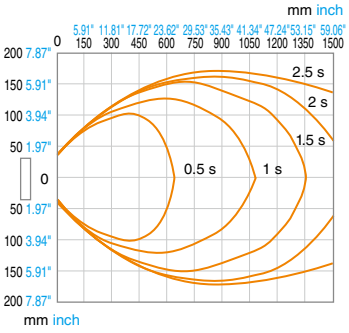
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- 150 mm × 150 mm 5.91"× 5.91" plate monitor (20 pF) is used

Static elimination area and time
(Air pressure 0.2 MPa, air volume 240 L/min)



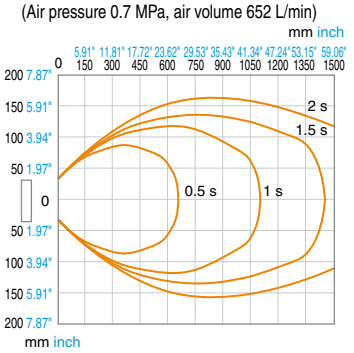
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- 150 mm × 150 mm 5.91"× 5.91" plate monitor (20 pF) is used

Static elimination area and time
(Air pressure 0.5 MPa, air volume 486 L/min)



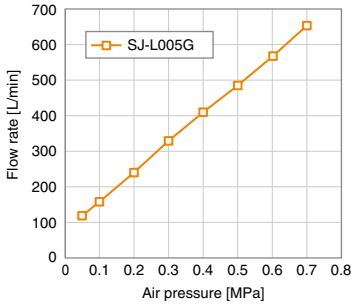
Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- 150 mm × 150 mm 5.91"× 5.91" plate monitor (20 pF) is used

Static elimination area and time
(Air pressure 0.7 MPa, air volume 652 L/min)



Measurement conditions
- Static elimination time from ±1000 V to ±100 V
- 150 mm × 150 mm 5.91"× 5.91" plate monitor (20 pF) is used

Relationship between air pressure and flow



Options

SJ-LG Series

Cable

AC adapter cable for gun type
(5 m 16.4')



OP-88417

AC adapter cable for gun type
(10 m 32.8')



OP-88418

AC adapter*1



OP-87722

AC adapter*2



OP-88020

Option

Replacement electrode unit for gun type



OP-88416

*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.

SK-H Series

Ideal for handheld measurement

180 degree rotating head for flexible measurement

The sensor head features a floating structure that rotates 180 degrees. Not only does this allow for easy measurement in narrow spaces, it offers improved shock resistance, as shock resulting from a drop will not transmit directly to the sensor.

Easy handling and operation

The body features an ergonomic design with a comfortable, easy-to-hold shape.



Laser pointer to identify the reference distance

Dual laser pointers make it simple to identify the optimal measuring distance for high precision measurement.

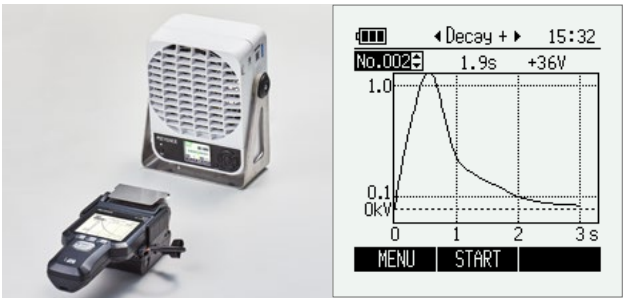
Large, easy-to-read liquid crystal display

A large, highly visible liquid crystal display makes it easy for users to read measurement results on the spot.

Charge monitor function

The SK-H050 features a charge monitor function that measures static elimination speed and ion balance, both of which indicate an ionizer's static elimination capability.
This allows users to conveniently measure their ionizer's static elimination ability.

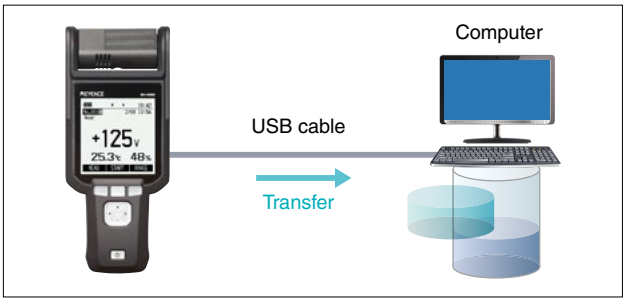
* An ionizer monitoring unit **SK-H055**, sold separately, is required.



Data storage function

Up to 100 sets of measurement data can be stored in the SK-H050's internal memory. The stored data can be transferred to a computer via a USB cable and saved as CSV data.

* PC software can be downloaded free of charge from our website.



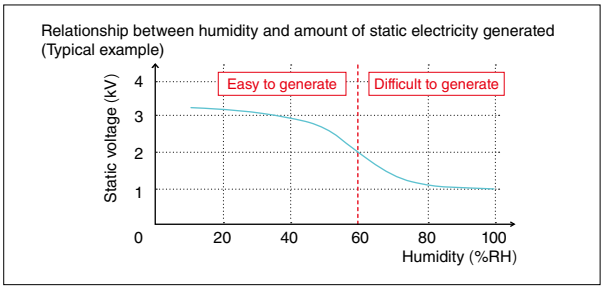
High-accuracy and wide range measurement

This one unit can accommodate your needs from high precision measurements with a 1 V minimum display unit to measurement of highly charged objects up to ±50 kV.

	High-precision mode	Wide-range mode
Measurement range	±2 kV	±50 kV
Measurement accuracy	10 V	100 V
Display resolution	1 V	1 V

Static electricity + humidity simultaneous measurement

By measuring static electricity and humidity at the same time, it is possible to determine points where static electricity issues can occur so ideal measures can be studied.



Specifications

Hand-held type

Model			SK-H050	
Charge potential measurement	Measurement mode		High-precision mode	Wide-range mode
	Measuring distance		25 mm 0.98"	100 mm 3.94"
	Measuring range		±2 kV	±50 kV *2
	Measuring accuracy *1		±10 V	±100 V
	Display resolution		0 to 999 V: 1 V, 1.00 to 9.99 kV: 0.01 kV. 10.0 kV and higher: 0.1 kV	
	Sampling cycle		Approx. 1.4 ms	
Temperature measurement	Measuring range		0 to 40°C 32°F to 104°F	
	Measuring accuracy *3		±1°C ±1.8°F	
	Display resolution		0.1°C 0.18°F	
	Sampling cycle		1 s	
Humidity measurement	Measuring range		10 to 85% RH	
	Measuring accuracy *3		±5% RH	
	Display resolution		1% RH	
	Sampling cycle		1 s	
Charge monitor function *4	Ion balance measuring mode	Ion balance measuring range	±1 kV	
		Measuring accuracy *5	±10 V	
		Measured voltage display resolution	1 V	
	Static elimination time measuring mode	Charge voltage	±1400 V	
		Static elimination time display resolution	0.1 s	
		Measuring time	0 to 99 s	
Laser class			Class 1 Laser Product (IEC60825-1, FDA (CDRH) Part 1040.10 *6)	
PC interface			USB 2.0 Full Speed	
Power supply	Power supply		2 AA alkaline dry-cell batteries	
	Operating time		8 hours (in charge potential measuring mode)	
Environmental resistance	Operating ambient temperature		0 to 40°C 32°F to 104°F (no freezing or condensation)	
	Operating relative humidity *7		10 to 85% RH (no condensation)	
Material			SK-H050: PC-ABS, PC, SUS/SK-H055: PC, SUS, PTFE, PVC	
Weight			SK-H050: Approx. 240 g 8.47 oz, SK-H055: Approx. 220 g 7.76 oz	

*1 Within ±100 V when using high-precision mode; within ±1 kV when using wide-range mode. In other ranges, display value has an accuracy of ±10% (display value). Values are obtained from measurements with a response time of 0.8 seconds. *2 Measuring accuracy is satisfied in the range of ±30 kV. *3 25°C 77°F, 50% RH. *4 SK-H055 is required. *5 Within ±100 V. In other ranges, display value has an accuracy of ±10% (display value). *6 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice. *7 10 to 60% RH when using SK-H055.

SK-I Series

Ideal for continuous measurement

Compact sensor head

The ultra-small design of the sensor head allows it to be installed almost anywhere, even in limited spaces within a machine.

Clearly visible indicator

Large LED clearly indicates the status even when the amplifier is not visible.



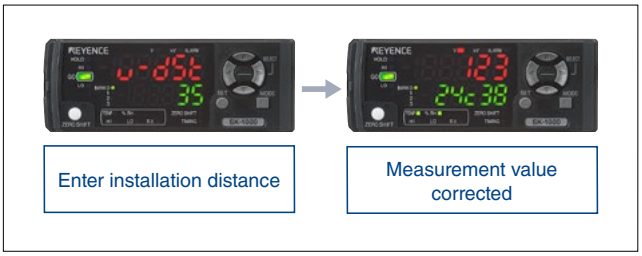
Connectable main unit and expansion units

Up to eight amplifiers can be connected with the combination of a main unit and expansion units. This reduces wiring in applications that require multi-point measurements.



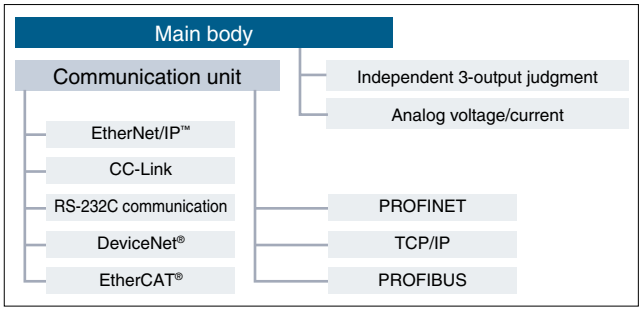
Installation distance correction

Measurement of static charges relies on the distance between the sensor head and the target workpiece. Measurement error can be corrected by entering the installation distance into the amplifier.



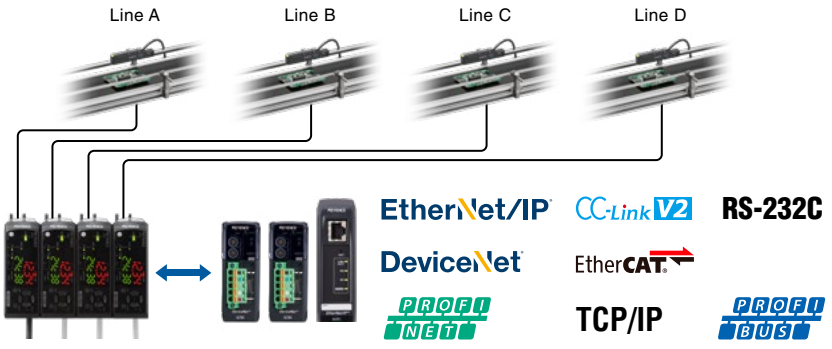
Multiple output options

Standard specifications include an independent 3-output judgment system and analog voltage/current output. By using a communication unit, data from up to 8 connected units can be transmitted simultaneously. The ability to read data and re-write settings from PCs and PLCs significantly reduces man-hours required for setup and operation.



Connected network

By monitoring the on-site static electricity volume, temperature, and humidity, it is possible to prevent accidents and defects in advance.
In addition, by using this with a static eliminator, static elimination effects can be centrally managed.

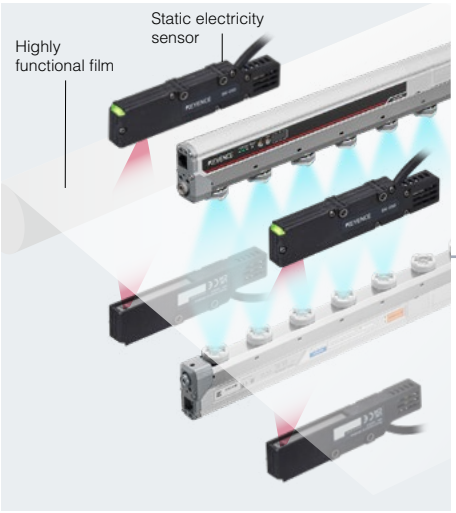


* EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Static Eliminator Traceability

The necessary room can be provided by constantly monitoring the electrostatic charge of the workpiece and static elimination performance. If the predetermined standard is exceeded during a regular inspection such as that conducted once a month, there was risk of loss of products during that period. We can offer greater improvement of quality by constantly managing the static electricity figures for each product.

Workpiece electrostatic charge management package



Static electricity sensor **SK-I** amplifier



PLC



Touch panel



PC



Ion balance management package

When management of ion balance within 100 V is necessary



Static electricity sensor **SK-I** amplifier



PLC



Touch panel



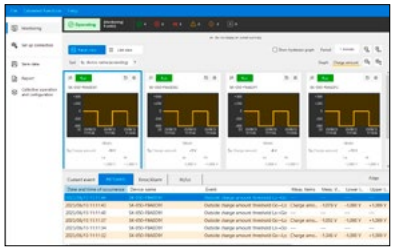
PC



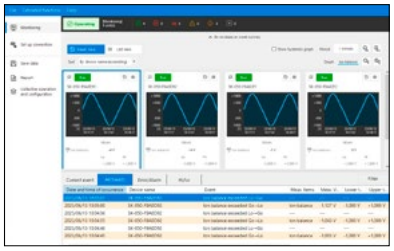
SJ Manager Able to perform constant measurement for up to 8 hours

Simply connect the SK Series electrostatic sensor to also monitor the amount of electrostatic charge on the workpiece surface and the ion balance of the ionizer. Install the SK-050 Sensor in front of and behind the ionizer to save the effects of static elimination—which can vary depending on workpiece and environment—in chronological order to a PC. This is useful for verification during installation, changeover and periodic inspections.

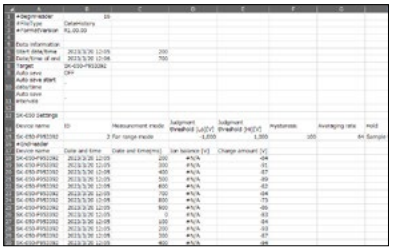
Checking the electrostatic charge of the workpiece



Checking the ion balance of the ionizer

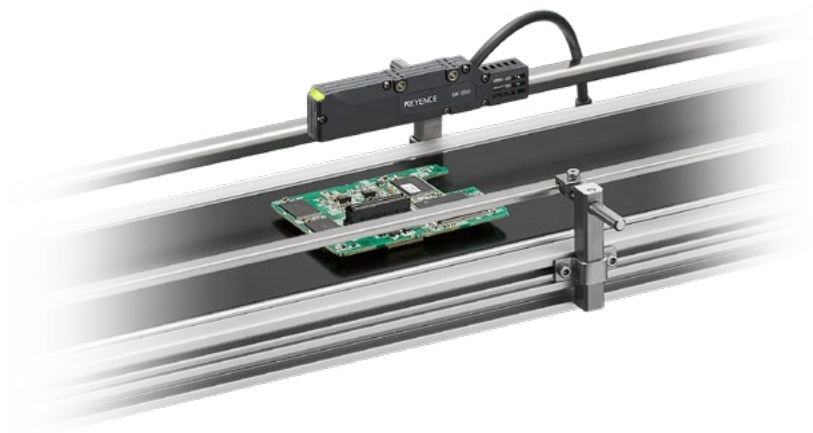


Data is output to CSV



Configuration





NR Series When measurement for 8 hours or more is required



Data logger



Multi-input data logger
NR Series

Lineup/Options

Hand-held Type



Main body
SK-H050

Options for Hand-held Type



Ionizer monitoring unit
SK-H055



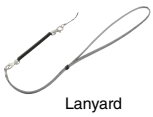
Storage case
OP-87931



Carrying case
OP-87928



Wrist strap
OP-87929



Lanyard
OP-87930

Ground wire for hand-held type
OP-87926

Ground wire for ionizer monitoring unit
OP-87927

The above ground wire is included with the main unit. Please purchase a replacement if you lose it.

In-line Type



Sensor Head
SK-050



Amplifier unit
(main unit)
SK-1000



Amplifier unit
(expansion unit)
SK-1050

Options for In-line Type



Ion balance monitoring unit
OP-87934

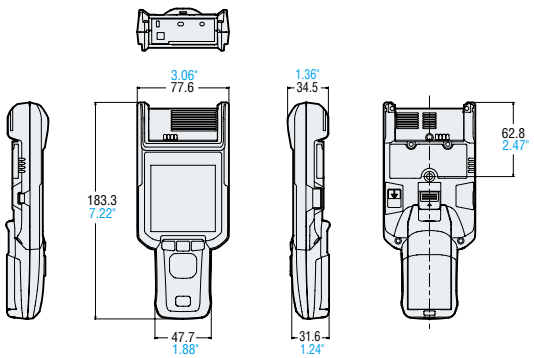
Cable for connecting the sensor head with the controller
2 m 6.6' cable **OP-87056**
5 m 16.4' cable **OP-87057**
10 m 32.8' cable **OP-87058**
20 m 65.6' cable **OP-87059**

L-shaped cable for connecting the sensor head with the controller
2 m 6.6' cable **OP-87660**
5 m 16.4' cable **OP-87661**
10 m 32.8' cable **OP-87662**
20 m 65.6' cable **OP-87063**

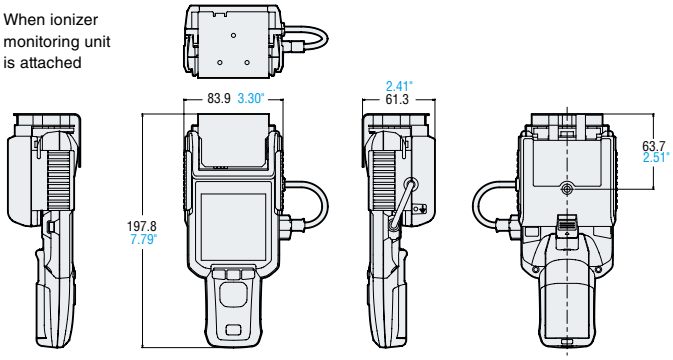
Dimensions Unit: mm inch

SK Series

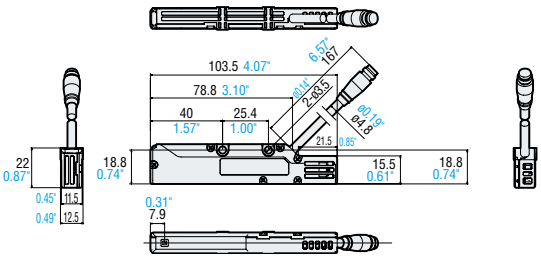
SK-H050



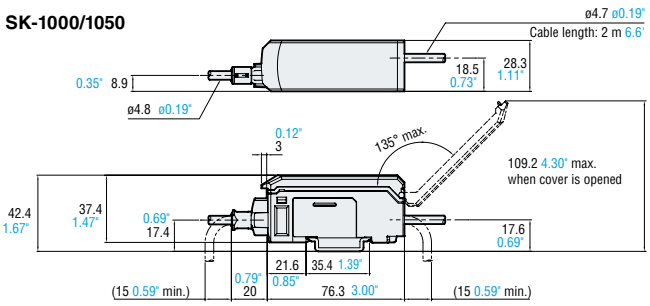
When ionizer monitoring unit is attached



SK-050



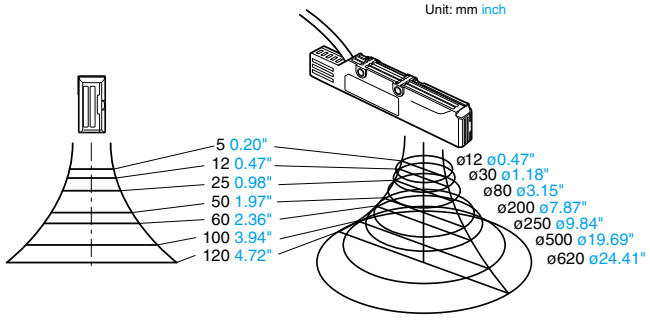
SK-1000/1050



SK-1000 Series

SK-1000 Series installation distance and measuring areas

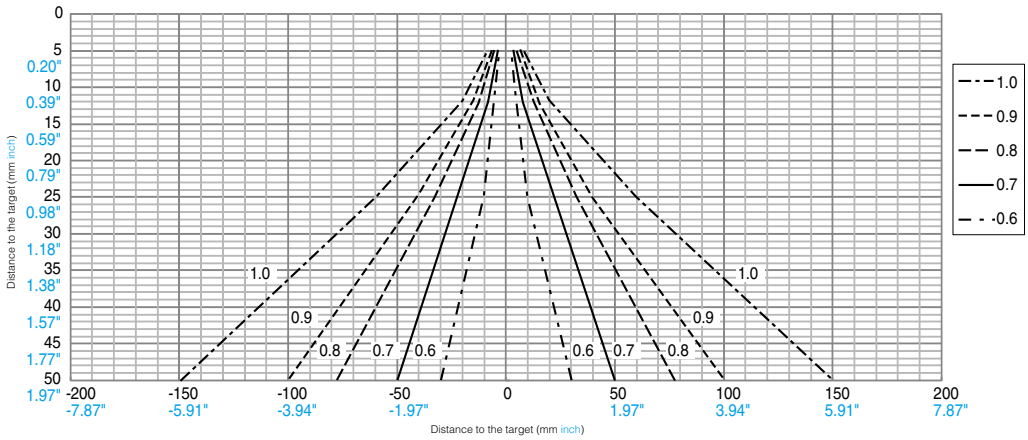
■ SK-050 measuring area (Typical example)



The reference distance in high-precision mode is 25 mm 0.98", and that in wide range mode is 100 mm 3.94".
When the sensor head cannot be installed at the reference distance, correct the measured value by using the [Distance setting] function.

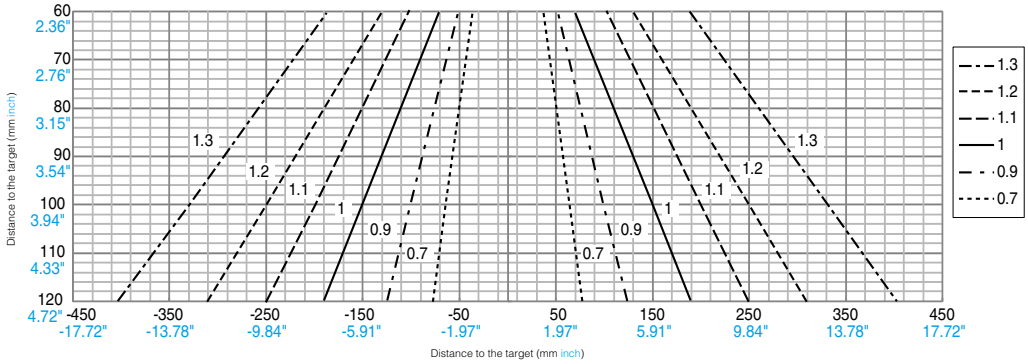
SK-050 area scaling correction table

■ High-precision mode



Using the correction table
Select the closest correction value (0.6 to 1.0) to the intersection point of [Measurement area (mm inch)] and [Distance to the target] in [Area scaling] function.

■ Wide-range mode



Using the correction table
Select the closest correction value (0.7 to 1.3) to the intersection point of [Measurement area (mm inch)] and [Distance to the target] in [Area scaling] function.

Specifications

Hand-held type

Model			SK-H050	
Charge potential measurement	Measurement mode		High-precision mode	Wide-range mode
	Measuring distance		25 mm 0.98"	100 mm 3.94"
	Measuring range		±2 kV	±50 kV *2
	Measuring accuracy *1		±10 V	±100 V
	Display resolution		0 to 999 V: 1 V, 1.00 to 9.99 kV: 0.01 kV. 10.0 kV and higher: 0.1 kV	
	Sampling cycle		Approx. 1.4 ms	
Temperature measurement	Measuring range		0 to 40°C 32°F to 104°F	
	Measuring accuracy *3		±1°C ±1.8°F	
	Display resolution		0.1°C 0.18°F	
	Sampling cycle		1 s	
Humidity measurement	Measuring range		10 to 85% RH	
	Measuring accuracy *3		±5% RH	
	Display resolution		1% RH	
	Sampling cycle		1 s	
Charge monitor function *4	Ion balance measuring mode	Ion balance measuring range	±1 kV	
		Measuring accuracy *5	±10 V	
		Measured voltage display resolution	1 V	
	Static elimination time measuring mode	Charge voltage	±1400 V	
		Static elimination time display resolution	0.1 s	
		Measuring time	0 to 99 s	
Laser class			Class 1 Laser Product (IEC60825-1, FDA (CDRH) Part 1040.10 *6)	
PC interface			USB 2.0 Full Speed	
Power supply	Power supply		2 AA alkaline dry-cell batteries	
	Operating time		8 hours (in charge potential measuring mode)	
Environmental resistance	Operating ambient temperature		0 to 40°C 32°F to 104°F (no freezing or condensation)	
	Operating relative humidity *7		10 to 85% RH (no condensation)	
Material			SK-H050: PC-ABS, PC, SUS/SK-H055: PC, SUS, PTFE, PVC	
Weight			SK-H050: Approx. 240 g 8.47 oz, SK-H055: Approx. 220 g 7.76 oz	

*1 Within ±100 V when using high-precision mode; within ±1 kV when using wide-range mode. In other ranges, display value has an accuracy of ±10% (display value). Values are obtained from measurements with a response time of 0.8 seconds. *2 Measuring accuracy is satisfied in the range of ±30 kV. *3 25°C 77°F, 50% RH. *4 SK-H055 is required. *5 Within ±100 V. In other ranges, display value has an accuracy of ±10% (display value). *6 The laser classification for FDA (CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice. *7 10 to 60% RH when using SK-H055.

In-line type sensor head

Model		SK-050	
Charge potential measurement	Measurement mode	High-precision mode	Wide-range mode
	Reference distance	25 mm 0.98"	100 mm 3.94"
	Measuring distance	5 to 50 mm 0.20" to 1.97"	60 to 120 mm 2.36" to 4.72"
	Measuring range *1	±2 kV	±50 kV *3
	Measuring accuracy *2	±10 V	±100 V
	Sampling cycle	Approx. 1.4 ms	
Temperature measurement	Measuring range	0 to 50°C 32°F to 122°F	
	Measuring accuracy *4	±1°C ±1.8°F	
	Display resolution	0.1°C 0.18°F	
	Sampling cycle	1 s	
Humidity measurement	Measuring range	10 to 85% RH	
	Measuring accuracy *4	±5% RH	
	Display resolution	0.1% RH	
	Sampling cycle	1 s	
Ion balance measuring mode *5	Ion balance measuring range	±1 kV	
	Measuring accuracy *6	±10 V	
	Display resolution	1 V	
Environmental resistance	Operating ambient temperature	0 to 50°C 32°F to 122°F (no freezing or condensation)	
	Operating relative humidity	10 to 85% RH (no condensation)	
Material		Body case: PC, Metal parts: SUS, Cable: PVC	
Weight		Approx. 35 g 1.23 oz	

*1 If the distance to the sensing target is shorter than the reference distance, even if the conditions are within the measurable range, measurement cannot be performed up to the upper limit of the measuring range. *2 Within ±100 V when using high-precision mode; within ±1 kV when using wide-range mode. In other ranges, display value has an accuracy of ±10% (display value). Values are obtained from a mean of 256 measurements. *3 Measuring accuracy is satisfied in the range of ±30 kV. *4 25°C 77°F, 50% RH. *5 OP-87934 is required. *6 Within ±100 V. In other ranges, display value has an accuracy of ±10% (display value).

In-line type amplifier unit

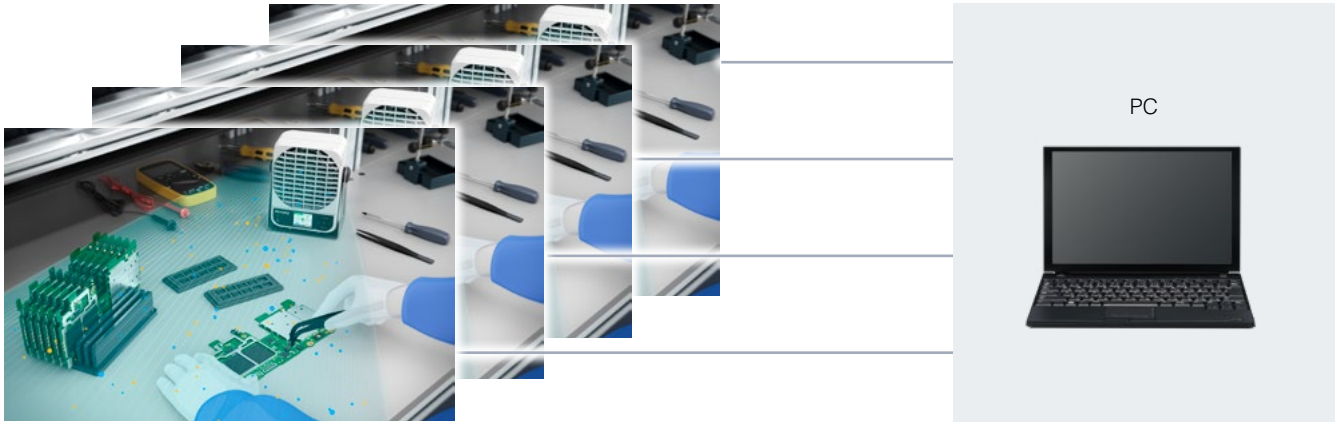
Model		SK-1000	SK-1050
Type		DIN rail mounting	
Main unit/expansion unit		Main unit	Expansion Unit
Display	Display resolution	0.001 kV	
	Display range	±99.999 kV to 99 kV (4-level selection available)	
Analog voltage output *1		±5 V, 1 to 5 V, 0 to 5 V, output impedance 100 Ω	N/A
Analog current output *1		4 to 20 mA, maximum load resistance 350 Ω	
Control input *2	Zero-shift input	Non-voltage input	
	Timing input		
	Reset input		
	Bank input		
Control output *3	Judgment output	Open collector output (NPN/PNP switching, N.O./N.C. switching)	
	Alarm output	Open collector output (NPN/PNP switching, N.C.)	
Power supply	Power supply voltage *4	10 to 30 VDC, including 10% ripple (P-P)	Supplied from main unit
	Power consumption (excluding load current of each output) *5	1650 mW or below (55 mA or below with 30 V)	1170 mW or below (39 mA or below with 30 V)
Environmental resistance	Operating ambient temperature	0 to 50°C 32°F to 122°F (no freezing or condensation)	
	Operating relative humidity	10 to 85% RH (no condensation)	
Material		Body case and front cover: PC, Key top: POM, Cable: PVC	
Weight (including accessories)		Approx. 150 g 5.29 oz	Approx. 140 g 4.94 oz

*1 ±5 V, 1 to 5 V, 0 to 5 V, or 4 to 20 mA selected for use. *2 Inputs are assigned to the four external input lines. Non-voltage input rating: ON voltage 2 V or lower, OFF current 0.02 mA or lower. Voltage input rating: maximum input rating is 30 V, ON voltage 7.5 V or higher, OFF current 0.05 mA or below. *3 NPN open collector output rating: maximum 50 mA/ch (20 mA/ch when expansion units are added) 30 V or below, residual voltage 1 V or below (1.5 V or below when adding 6 or more expansion units, including main unit). PNP open collector output rating: maximum 50 mA/ch (20 mA/ch when expansion units are added) below power supply voltage, residual voltage 2 V or below (2.5 V or below when adding 6 or more expansion units, including main unit). *4 Use 20 to 30 V as power supply voltage when 6 or more expansion units, including main unit, are to be used. *5 When connecting 8 units for DL connection, maximum power is consumption 11.3 W.

Examples of Introducing the Static Elimination Traceability System

Example 1

Remote management of anti-static measures on multiple workbenches in overseas factories from the head office



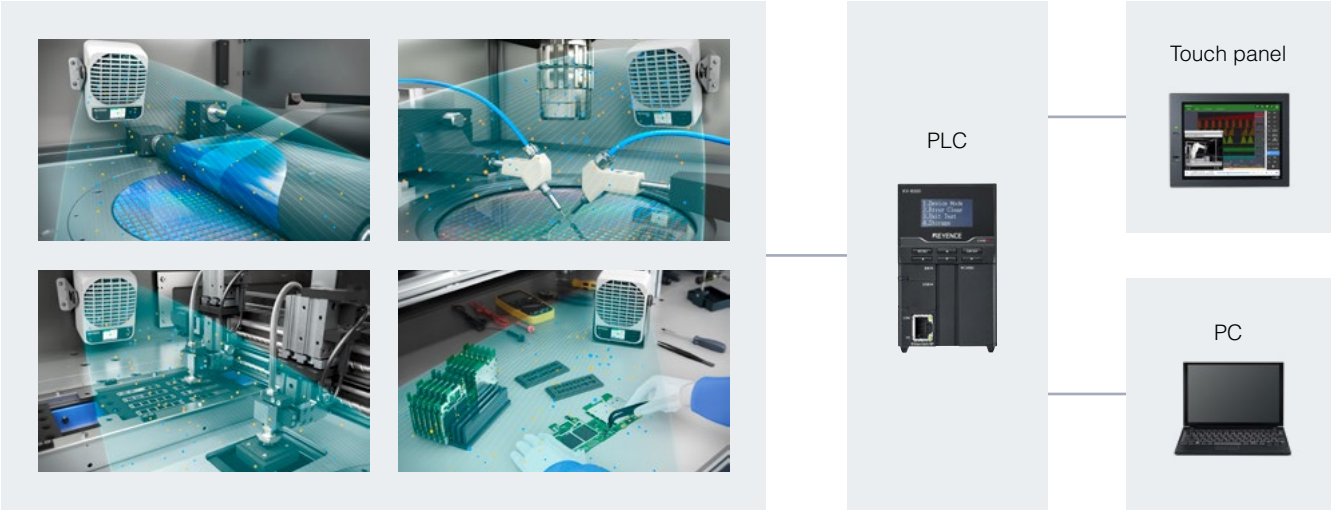
[Examples of Products]

- 1 to 100 SJ-F700 Multi Sensing Ionizers - SJ-Manager Management Support Software (downloaded from website for free)
- 1 to 100 SJ-FB01 Feedback Sensors

100 SJ-F700 Multi Sensing Ionizers can be managed with a single PC using the management support software that can be downloaded from the website for free. This enables remote monitoring of anti-static measures not only in head office factories but also overseas and affiliate factories, enabling the detection of risks in advance and predictive maintenance. Data is not lost when communication conditions are poor because the main unit has in-built memory.

Example 2

Management of bulk control of ionizers in facilities for processes with demanding requirements



[Examples of Products]

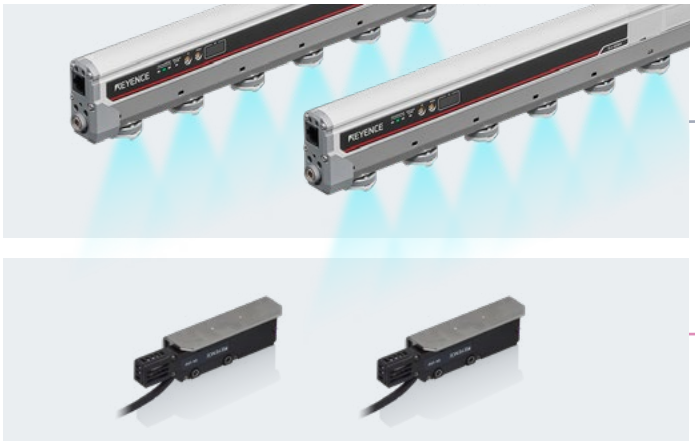
- 4 SJ-F700 Multi Sensing Ionizers - KV-8000

Enables control with automatic notifications of starting and stopping static elimination, as well as the ability to control changes in air flow level affecting performance and instructions for cleaning the static elimination probe. In addition to advanced control that could not be performed with an ON/OFF contact, it is also easy to obtain numerical data such as ion amount, ion balance, temperature and humidity.

Example 3

Bulk status management of installed ionizers

SJ-Q



SJ-LF SJ-LM SJ-LMT



SK



SK-I amplifier



PLC



Touch panel



PC



[Examples of Products]

- 2 SJ-Q108 units - 1 SJ-L005F unit - 1 SJ-L005M unit - 1 SJ-L005MT+SJ-LM1+OP-88415 set
- 5 SK-050+SK-1000+OP-87934 sets - 1 SK-050+SK-1000+DL-EP1 set - 1 KV-8000 unit

All models in the SJ Series are equipped with alarms and ion level alarm functions. By wiring these signals to the PLC, it is possible to perform centralized monitoring of unforeseen issues and ionizer performance deterioration. In quality-related applications such as contamination by foreign matter and ESD, it will be necessary in many industries to perform management by constantly checking numbers such as the electrostatic charge of the work surface and the ion balance to avoid risks.

Free On-site Static Electricity Diagnosis

KEYENCE can dispatch staff with specialized knowledge to your company to perform an on-site static electricity diagnosis at no charge.

1. Measure the performance of the ionizer being used



Easy measuring of the static elimination performance of the ionizer

Advantages of using static elimination diagnosis

- ☑ Determine if the ionizer is functioning
- ☑ Determine the time required to complete static elimination
- ☑ Check the deterioration status of the ionizer and whether maintenance is required

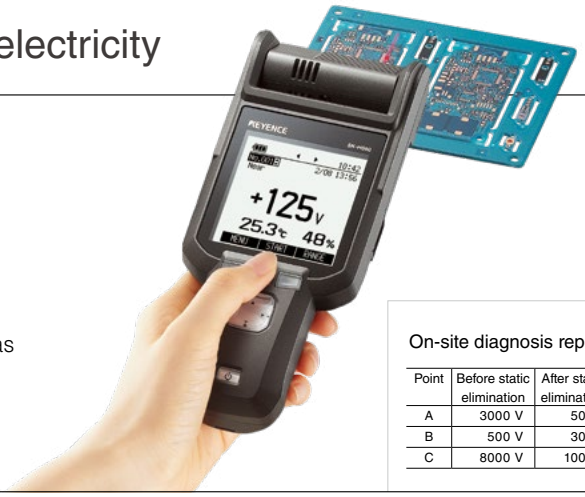


2. Measure product and on-site static electricity

Check the effect of static elimination

Advantages of using on-site diagnosis

- ☑ Determine whether there are static electricity issues
- ☑ Determine what antistatic measures are appropriate at what areas
- ☑ Determine how much static electricity should be decreased to avoid problems



On-site diagnosis report

Point	Before static elimination	After static elimination
A	3000 V	50 V
B	500 V	30 V
C	8000 V	100 V

We can propose ideal measures according to the location where static electricity occurs and the amount. Please contact us for details.

Free Rental of Static Eliminators (Ionizers)

KEYENCE offers rental service of various test models at no charge with same-day shipping so you can experience on site the performance of our static eliminators (ionizers) that embody proprietary technology and know-how.



Helping customers with our extensive experience and expertise

Free Static Electricity Seminar

The static electricity seminar is easy to understand and will provide an explanation from the basics of static electricity to effective static eliminator installation methods. It can be used as a training program for new personnel or a learning opportunity for your improvement/defect countermeasure team.



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Direct sales and support at 250 locations in 46 countries

Utilizing our global network, we help to improve our customers' productivity by providing high-quality service and speedy support.

For overseas support, go to

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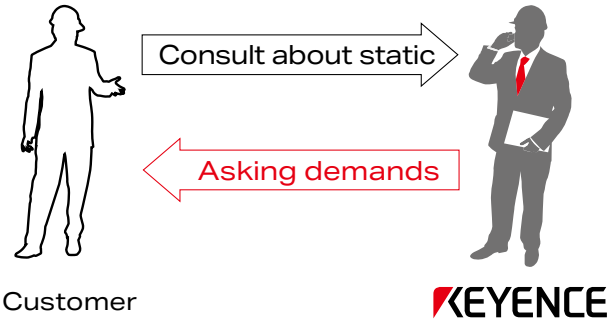
Let us help you

For more information on the type of static eliminator (ionizer) to meet your needs, please contact us with details of your installation location and conditions.
We will help find the perfect static eliminator (ionizer) for you and let you test drive a model.

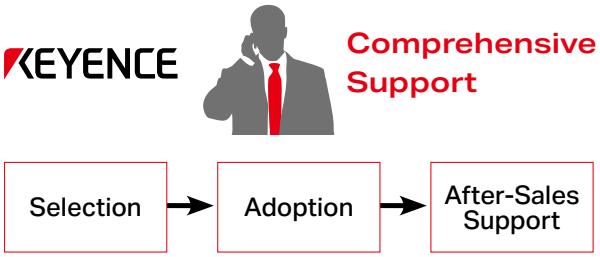
Free Static Consultant Service

KEYENCE provides free static consulting services, to help customers understand and solve static problems in manufacturing facilities.

1. Discovery and discussion about static issues



2. Providing solutions, feedback and making action



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