KEYENCE

Anti-Static and Clean-Room Equipment

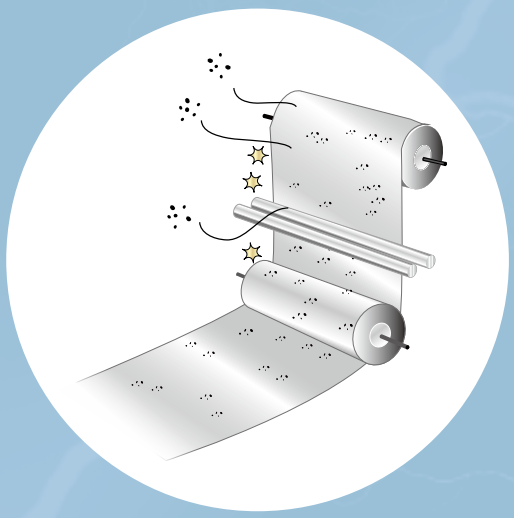
Is your factory experiencing problems like these?

All these mishaps are actually due to static electricity.

Wherever there is movement, static electricity is invariably generated.
It causes all types of problems.
It may also be negatively impacting your productivity and quality.

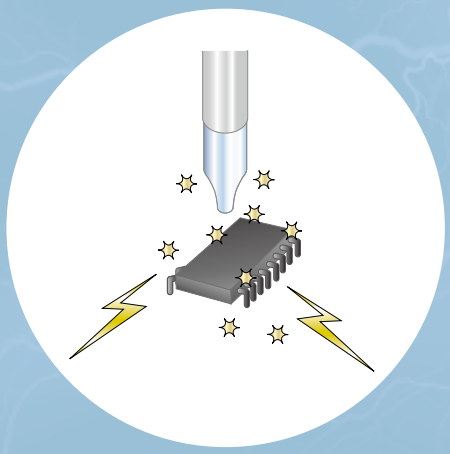
Adhesion of foreign particles

Static electricity attracts dust and dirt, leading to cosmetic defects



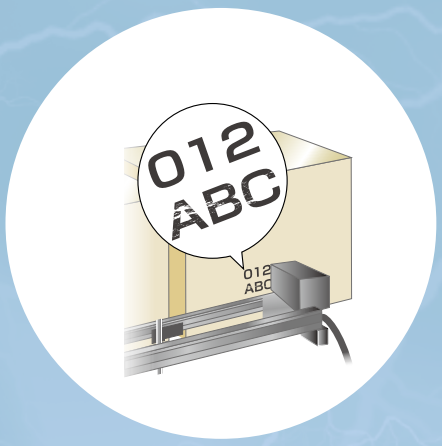
Device destruction

Static electricity discharge damages the internal circuits of ICs and electronic components, leading to defective workpieces



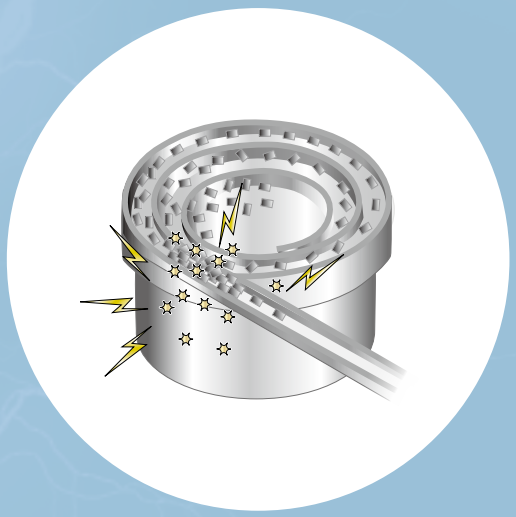
Printing defects

Ink smudges, bleeds, and misaligns, leading to printing defects



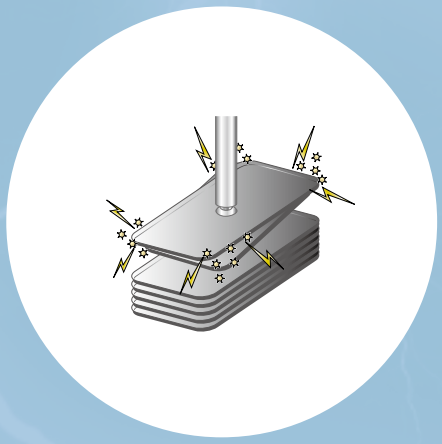
Conveyance failures

Products stick together, or stick to the equipment, leading to conveyance failures



Misalignment

Products are misaligned, leading to transfer failures and packing failures



Operators receiving shocks

Buildup of static electricity leads to operators receiving painful electric shocks

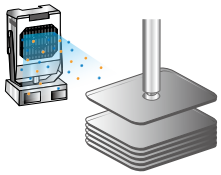
Eliminating static electricity is the key.

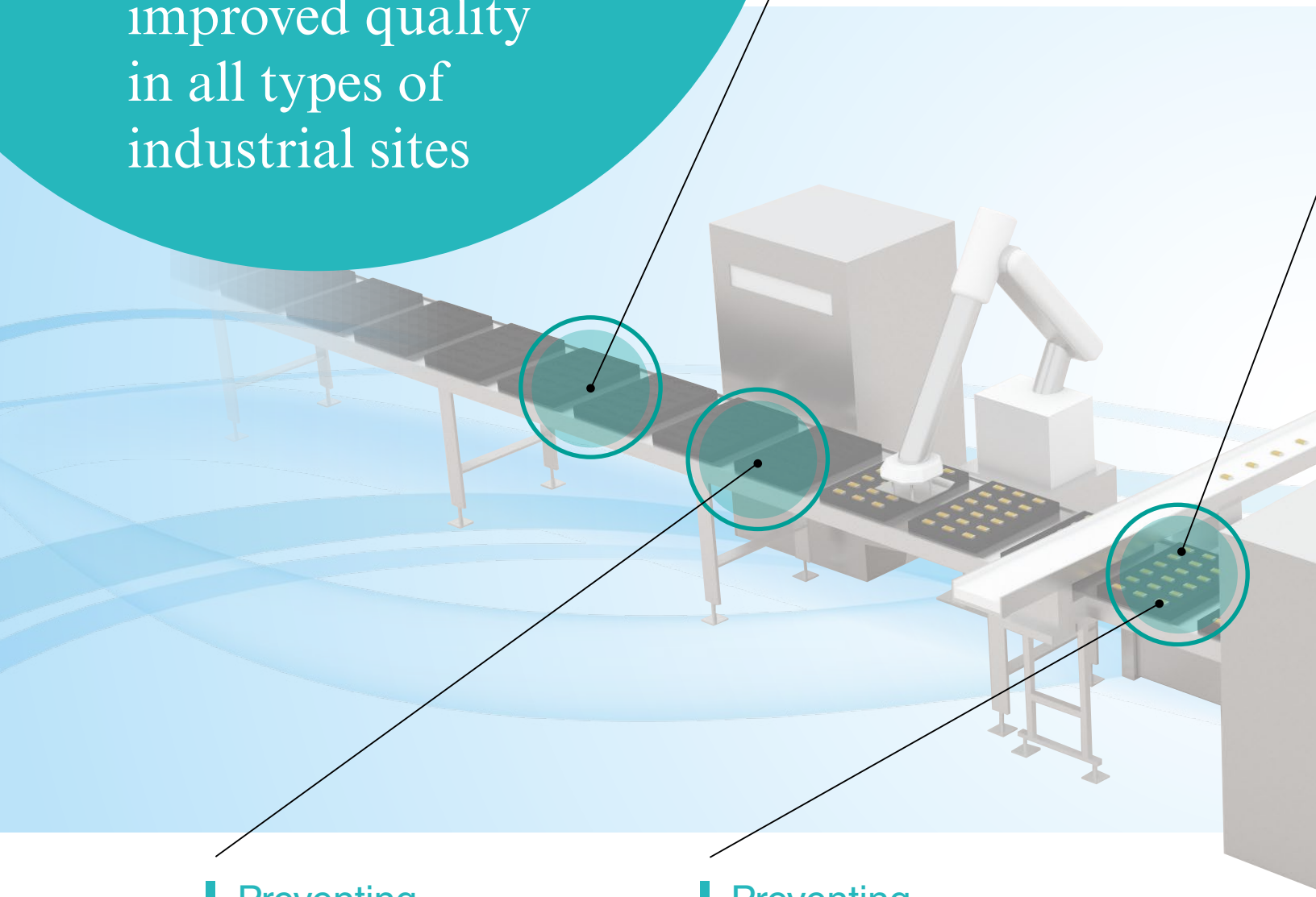
KEYENCE solutions deliver higher productivity and improved quality in all types of industrial sites

Preventing misalignment

Preventing double feeding of trays

KEYENCE solutions prevent workpiece misalignment caused by static electricity.

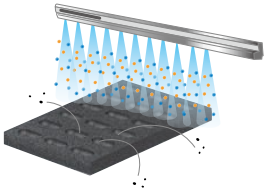




Preventing adhesion of dust

Preventing foreign particles from adhering to trays

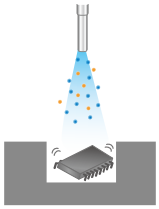
KEYENCE solutions prevent dust adhesion caused by static electricity.



Preventing electrostatic destruction

Preventing electrostatic destruction

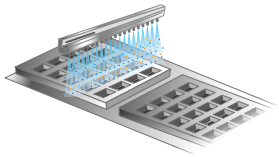
KEYENCE solutions prevent parts from being destroyed by static electricity discharges.



Preventing spillage

Preventing parts spillage

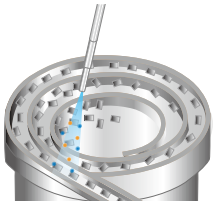
KEYENCE solutions prevent parts from spilling out of a container due to static electricity.



Preventing jamming

Preventing conveyance failures

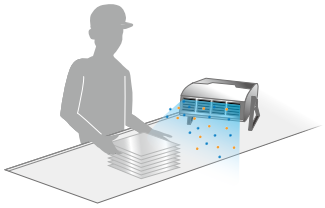
KEYENCE solutions eliminate jamming of parts due to static electricity generated by friction.



Preventing abnormal discharges

Preventing operator injury

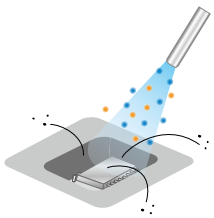
KEYENCE solutions prevent operators from receiving shocks due to static electricity discharges.



Preventing cosmetic defects

Eliminating contamination

KEYENCE solutions remove dust clinging to surfaces because of static electricity.



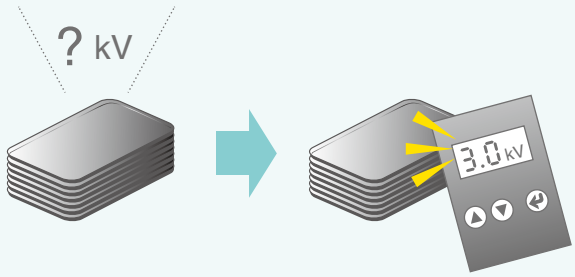
Three Steps to Solving the Problem of Static Electricity

Follow the steps below

Step 1

Measure the static

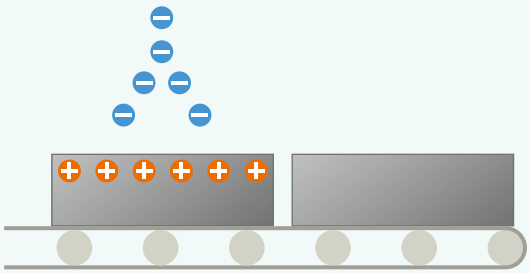
Start by measuring the amount of invisible static electricity.



Step 2

Static elimination

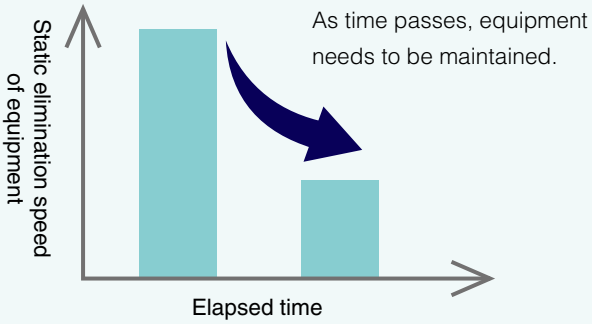
Eliminate the static. Select the equipment and method for removal according to the amount of static electricity present.



Step 3

Maintenance

Sustain the benefits of static electricity elimination by carrying out maintenance on the equipment.



KEYENCE solutions

Devices enabling anyone to measure static in 3 seconds

KEYENCE electrostatic sensors enable you to measure the amount of static electricity though a non-contact method and without impacting the target. You can also measure humidity and temperature which influence static electricity.

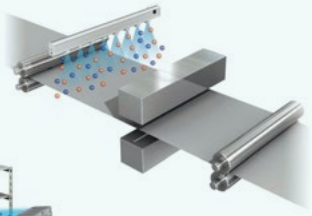
Hand-held static sensor

In-line static sensor

Diverse lineup, with options to suit any equipment or environment

Our extensive product lineup lets you choose a solution according to the amount of static electricity present and the size of the charged area. You can also consult our highly experienced sales engineers, free of charge.

Bar type



Blower type

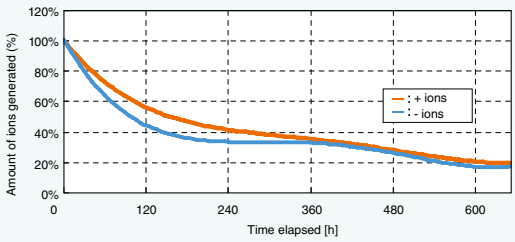
Spot type

Extremely low maintenance

Besides requiring time and labor, maintenance work is difficult to standardize. KEYENCE can help you reduce the number of man-hours your company spends on maintenance.

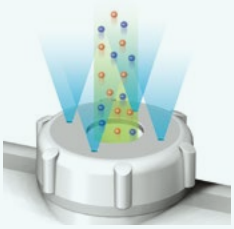
Even if the electrode probes get dirty, the ion balance is corrected automatically

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.

The electrode probe structure makes maintenance extremely easy



Note: Different models have different functions and structures. For details, see the page for the model in question.

KEYENCE Sensing Static Eliminators

Electrostatic charge is detected

"Visualizing" the charge status and the ion amount

The charge status and the ion amount are sensed automatically and displayed. This makes the static elimination status obvious at a glance.

During normal operation

Example: When the target is positively charged

Optimal static elimination is achieved

KEYENCE's proprietary Ion Current Control (I.C.C.) method

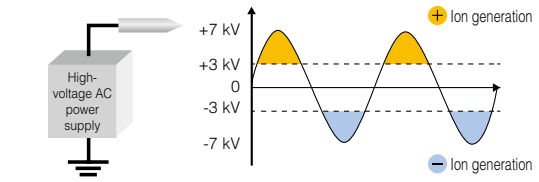
The ion current generated is calculated by sensing the difference in electric potential between the static eliminator electrode and the charge amount on the target. The control system ensures that ions are then supplied according to the electrostatic charge, so that static electricity can be eliminated rapidly and with high precision. This new proprietary method was developed by KEYENCE to deliver the highest possible static elimination speed.

High-speed static elimination

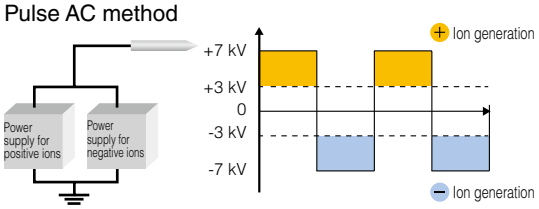
Pulse AC is combined with I.C.C. to deliver faster static electricity elimination

In the pulse AC method, positive and negative voltage is applied alternately to a single electrode probe, generating ions of both polarities. 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.

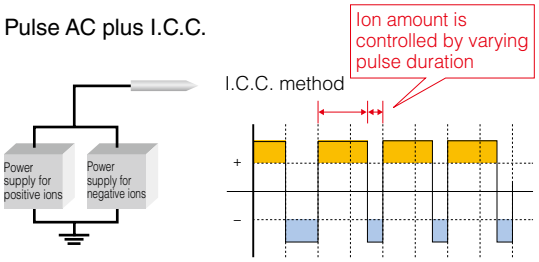
AC method



Pulse AC method



Pulse AC plus I.C.C.

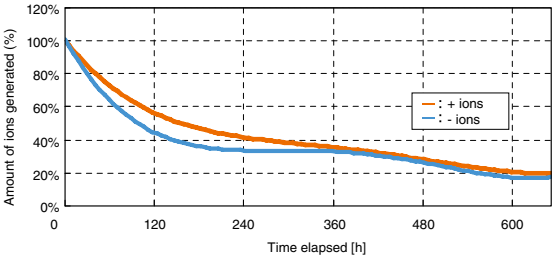


Optimal ion balance is maintained

Optimization of conditions is controlled automatically

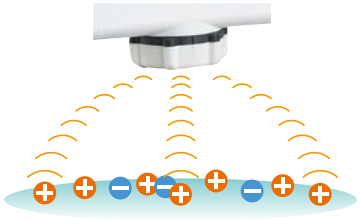
The I.C.C. method optimizes operating conditions, so effective static elimination is maintained without the need for manual adjustment.

Data for change over time in ion amount (example)

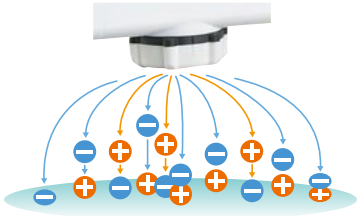


As shown above, the amount of positive (+) and negative (-) ions generated decreases as the electrode probes get dirty, and static elimination speed decreases accordingly. In addition, the ion balance deteriorates as the positive and negative ions decrease by different amounts.

Target charge is detected by sensing



Amount of ions supplied is optimized according to target's charge



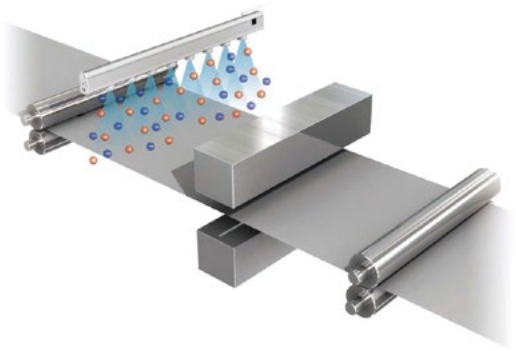
Static Eliminators are Available in Three Types—Choose the Type That's Right for Your Application

Bar type

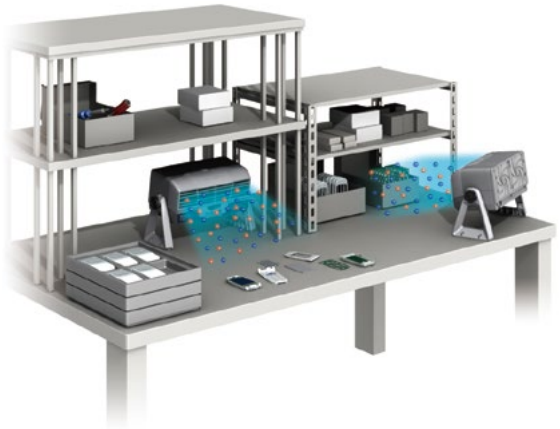
Target static elimination area (guideline): 300 mm 11.81" and greater

Bar-type static eliminators are suitable for use on wide workpieces such as films and sheets and in wide work areas.

- Preventing adhesion of foreign particles while conveying films
- Preventing adhesion of foreign particles while painting car bodies
- Preventing adhesion of foreign particles while conveying FPD glass



Preventing foreign particles from adhering to sheets



Eliminating static in cell production processes

Blower type

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

Blower-type static eliminators are suitable for use on wide workpieces such as films and sheets and in wide work areas.

- Static elimination in cell production processes
- Preventing jamming of parts feeder
- Preventing adhesion of foreign particles to electronic PCBs

Spot type

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

Spot-type static eliminators are suitable for localized static elimination and high-pressure air purging (dust removal).

- Static elimination during chip conveyance
- Preventing adhesion of shavings during processing of plastic parts
- Preventing contamination during packaging of pills

Preventing foreign particles from adhering to containers

Selection Guide

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

Suitable For High-Speed Static Elimination in Wide Areas, Including Clean Room Environments

SJ-H

ULTRA-HIGH SPEED SENSING STATIC ELIMINATOR

Highest static elimination capacity in the industry

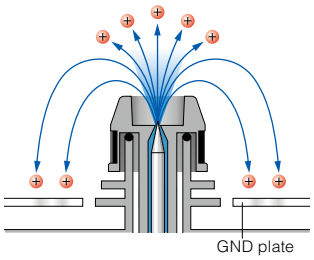
Features and functions

The I.R.G. (Insert Ring Ground) structure provides the world's highest static elimination speed

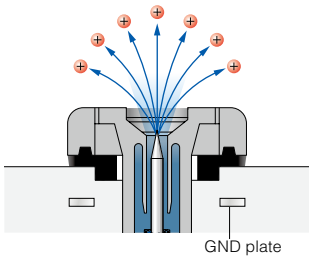
[5 times faster than conventional models]

The SJ-H Series adopts the I.R.G. structure which incorporates the GND plate, which is essential for ion generation, into the ionizer body. The GND plate is externally mounted on conventional models.
The I.R.G. structure directs the flow of generated ions toward the target object, instead of toward the GND plate. This structure increases the quantity of ions applied to the target, providing static elimination speed five times faster than conventional models.

Conventional model



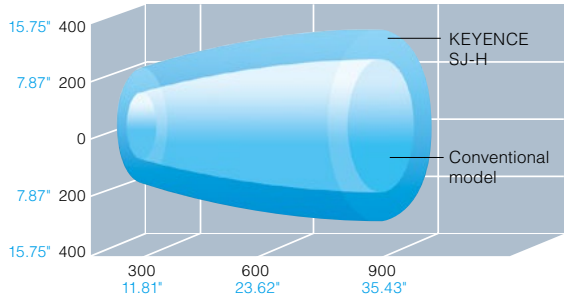
I.R.G. structure



The I.R.G. structure expands the static elimination area (two times larger than that of conventional models)

With the ring-shaped design of the built-in GND plate, the SJ-H Series can radiate a uniform electric field in a ring pattern. Since the ions spread along the electric field, a circular, wide static elimination area can be provided. This feature is effective for applications that require wide area static elimination.

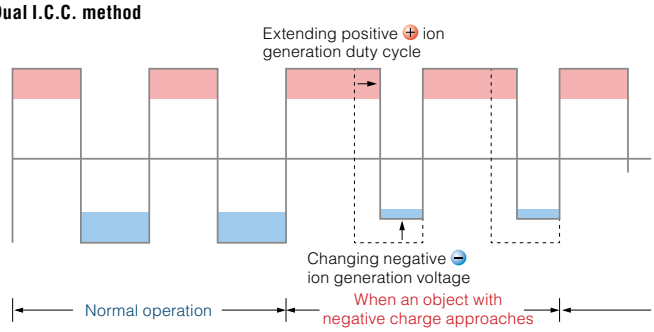
Static elimination area comparison chart



Dual I.C.C. (Dual Ion Current Control) system enables optimum static elimination.

The dual I.C.C. system is further advanced from the conventionally proven I.C.C. system found in other KEYENCE models. The SJ-H Series adopts a dual I.C.C. system that can change the applied voltage in addition to the variable pulse width, thus providing more flexible control of ion generation level per unit time.
This system enables optimum static elimination relative to a change in the ambient environment (temperature, humidity, etc.) and the electrode probe condition.

Dual I.C.C. method



The Best Maintenance-Saving Performance in the Industry

Features and functions

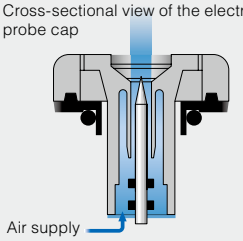
The sheath air guide structure reduces maintenance downtime

[5 times less maintenance than conventional models]

The supplied air is conveyed through a three-stage port in the probe cap, fully contained within the air chamber. The air contained in the chamber passes through the channel around the probe to generate a laminar flow. The concave structure at the air outlet blocks external disturbance, resulting in excellent protection. This structure can remarkably reduce adhesion of foreign objects on the electrode probe tip. This results in five times less maintenance than conventional models.

Sheath air guide structure

Cross-sectional view of the electrode probe cap



3-way alarm output

The SJ Series provides a self diagnosis function that monitors three types of abnormalities. If an abnormality is detected, the LED indicators identify the error condition and an external output is activated. Centralized control of the ionizers is enabled by monitoring the external output.

Cleaning warning

Monitors reduction in ion generation level due to dirt or wear of the electrode probe.

Condition warning

Monitors for installation conditions that would prevent optimal static elimination.

Alarm warning

Monitors for abnormal discharge or damage to the ionizer.

Maintenance indicators

The SJ-H Series includes a self-diagnosis function that monitors the ion generation level. With the bar LED and alarm outputs, the ionizer alerts you when maintenance is required.

Normal ion level

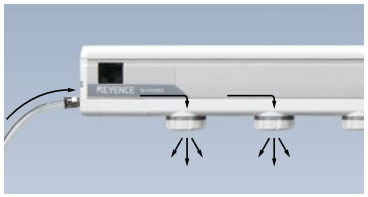
Ion level is low.
(Example: Ion level reduction)

Easy electrode probe replacement

Since the electrode probe is attached with a PIN connector or cassette, users can easily replace the electrode probe.

Air purge function

The clean air supply function blows air from the area surrounding the electrode probe. This function helps to prevent dust adhesion to the electrode.



N_2 (nitrogen) purging static elimination

As a standard feature, N_2 purge systems used in semiconductor and liquid crystal manufacturing processes are compatible with the SJ-H Series static eliminators.

The Highest Static Elimination Capacity in the Industry

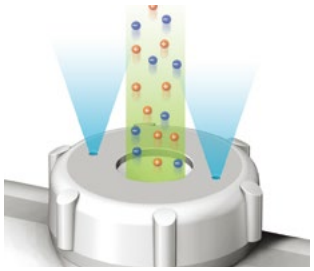
LOW-VOLTAGE 24V WIRING

Low voltage 24V wiring eliminates the adverse effect of discharge on cabling and surrounding equipment, allowing for a highly reliable installation.

Features and functions

Double port electrode probe

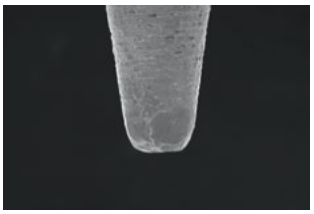
In addition to the sheath air guide structure that minimizes dust adhesion, a double port electrode port cap is used to ensure high-speed static elimination while maintaining laminar flow.



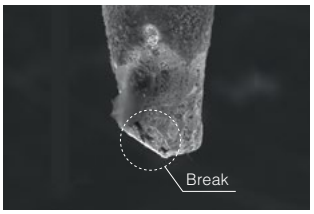
High-density tungsten probe prevents wear

Because of the intergranular density of its tungsten probe, the SJ-H Series can maximize the ion generation level and reduce probe damage during maintenance. Use of the high-density tungsten probe results in an improved static elimination effect and less maintenance.

* Condition: Energized for 2 months, After cleaning with alcohol



Intergranular density: High



Intergranular density: Low

Static elimination stop function

This function stops the applied voltage, while the main power supply remains ON, ensuring safe operation during maintenance.

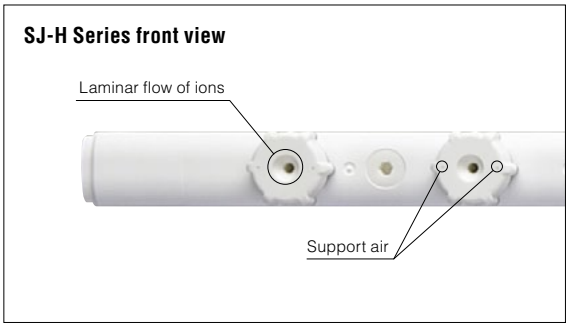
Built-in controller

The SJ-H Series incorporates a controller and high-voltage power supply within the eliminator, enabling a space-saving installation.

SJ-H Models

*Elective length indicates the static elimination range at 50 mm 1.97" operating distance.

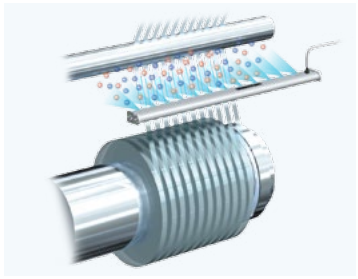
Static elimination length (Effective length)		Model
380 mm 14.96" (360 mm 14.17")		SJ-H036A
600 mm 23.62" (600 mm 23.62")		SJ-H060A
840 mm 33.07" (840 mm 33.07")		SJ-H084A
1080 mm 42.52" (1080 mm 42.52")		SJ-H108A
1320 mm 51.97" (1320 mm 51.97")		SJ-H132A
1560 mm 61.42" (1560 mm 61.42")		SJ-H156A
1800 mm 70.87" (1800 mm 70.87")		SJ-H180A
2040 mm 80.31" (2040 mm 80.31")		SJ-H204A
2280 mm 89.76" (2280 mm 89.76")		SJ-H228A
2520 mm 99.21" (2520 mm 99.21")		SJ-H252A
3000 mm 118.11" (3000 mm 118.11")		SJ-H300A

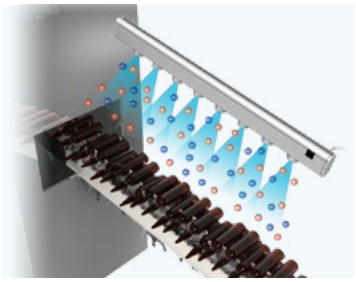


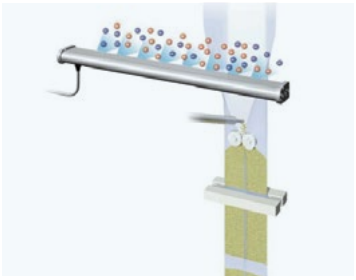
INDICATORS AND OUTPUTS

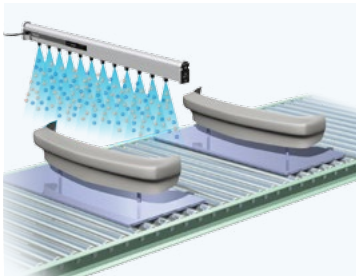
Safety functions, abnormal discharge detection output, electrostatic charge monitor, and ion level alarm are standard features.

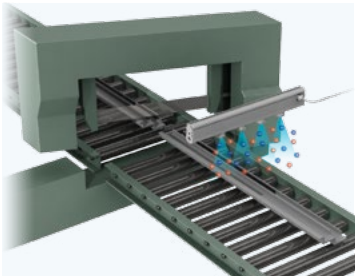
Applications

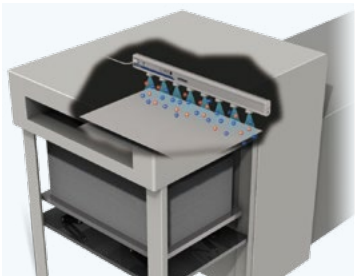

Static elimination of slitters

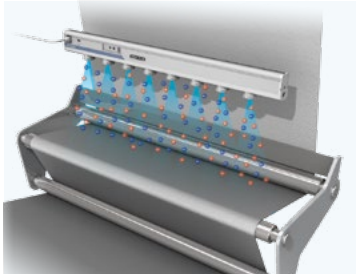

Prevent dust adhesion to ampoules after heat treatment

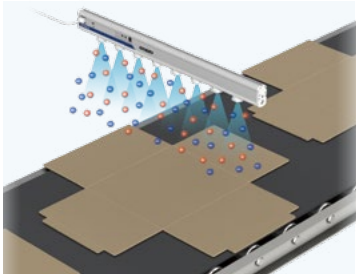

Prevent foreign material adhesion between heat seal layers

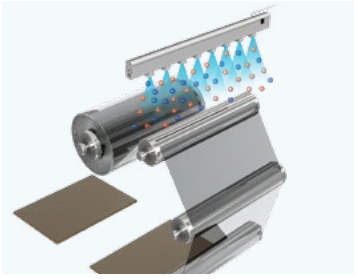

Static elimination in the coating process of bumpers


Chip removal during cutting sashes


Defect prevention in the offset printing process


Static elimination of unwoven cloth


Defect prevention of adhesive painting on cardboard


Static elimination when attaching copper plates/films

Suitable for Continuous Static Elimination Over Wide Areas at Long Distances

SJ-F

WIDE-AREA SENSING IONIZER

Reduce electrostatic problems by eliminating static in the entire work area.

Highest Static Elimination Speed in Its Class

300 mm 11.81" type

SJ-F2500

STATIC ELIMINATION AREA

2× LARGER

than conventional models

STATIC ELIMINATION SPEED

2× FASTER

than conventional models

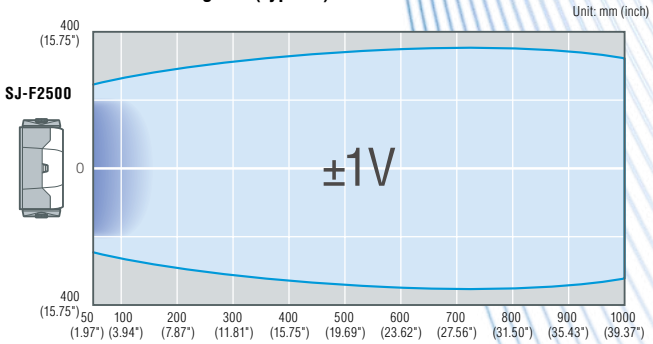
Conventional static elimination area

FULL SPECTRUM

High-precision Ion Balance

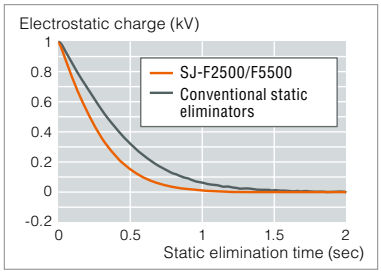
±5V

Ion balance area diagram (typical)



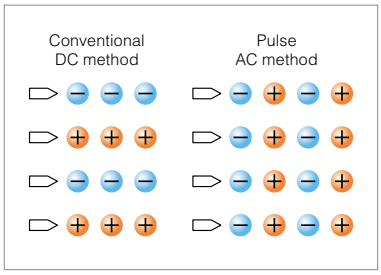
Highest static elimination speed in its class

By combining the pulse AC method and I.C.C., the SJ-F Series has achieved the best ion production per electrode in its class. In addition, by inserting a high-power fan into the louver structure, the SJ-F Series has also achieved the fastest wide-area static elimination in its class.



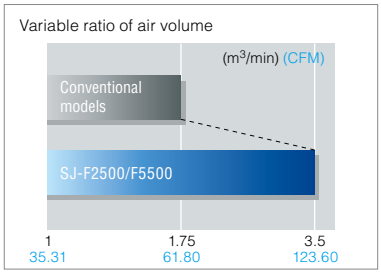
High-precision ion balance of the entire area

The SJ-F Series has adopted the pulse AC method that applies alternating high voltage to the electrode probe, producing ions of both polarities. By improving the close-range ion balance that is an issue with conventional methods, high-precision ion balance has been achieved over the entire area.



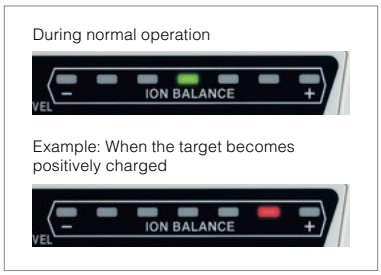
Wide-range air volume adjustment

With a compact, large air volume fan and independent PWM control, wide-range adjustments become possible from ultra-low air volumes all the way to large air volumes. Any application is possible, including applying film where close range, moderate air volume is necessary, or where long-distance, high-speed static elimination is required.

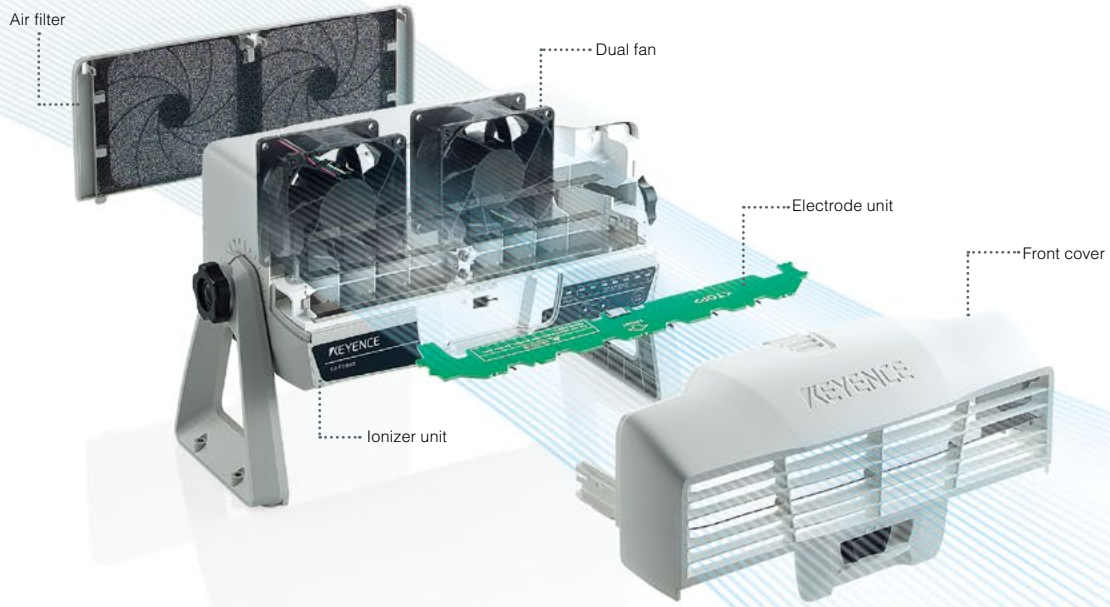


Sensing ionizer

Auto-sensing and feedback functions of the I.C.C. method come installed in the eliminator. By supplying ions at the optimal balance to the electrostatic charge, complicated initial settings and maintenance become obsolete, thus allowing increasingly effective static elimination.



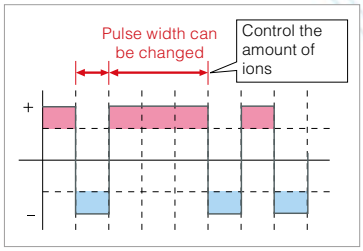
600 mm 23.62" type
SJ-F5500

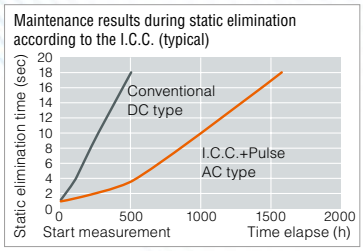


Low Maintenance with Continuous Static Elimination

Low maintenance

By incorporating KEYENCE's unique I.C.C. method, the degradation of static elimination resulting from wear or build on the probes is reduced, a saving on maintenance costs of up to 3 times compared to conventional models.





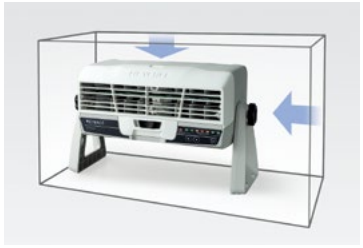
Straightforward maintenance structure*

The front cover connected to the electrode unit can be removed with one hand. Cleaning of the electrode probes is also quick and easy. Furthermore, no tools are required to exchange the electrode unit, allowing a safe and rapid changeover.

*SJ-F2000 Series

Compact installation

A compact body has become a reality by adopting specially designed louvers. While being a space-saving, compact device, the SJ-F Series is still capable of a wide static elimination range.

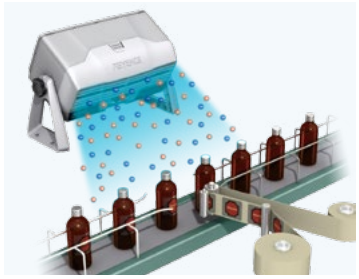


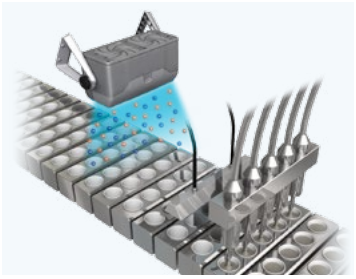
Arm-mounting option

KEYENCE has prepared a specialized mounting bracket that directly attaches to “VESA standard” mounting arms, such as those used for liquid crystal displays. By mounting the device using a workbench pole, the static eliminator can be used in limited spaces.

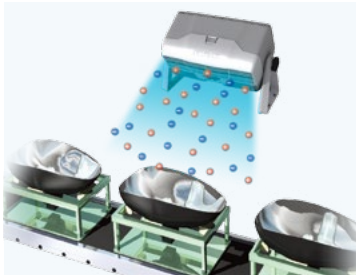
(SJ-F2000 Series : OP-87149, SJ-F5000 Series : OP-87150)

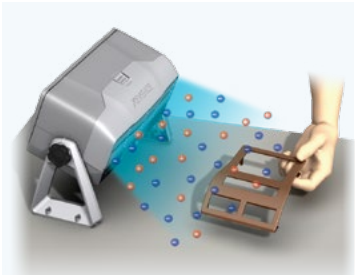
Applications

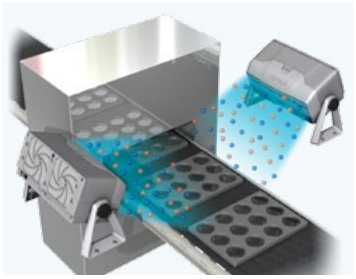

Static elimination of labelers

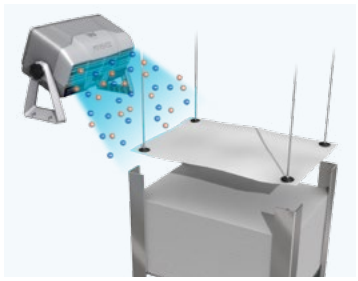

Prevent adhesion of foreign materials during food/medical/ pharmaceutical filling applications

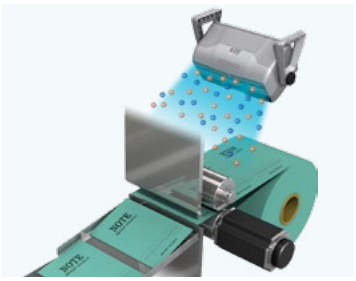

Prevent pellets from sticking to a hopper's internal surface

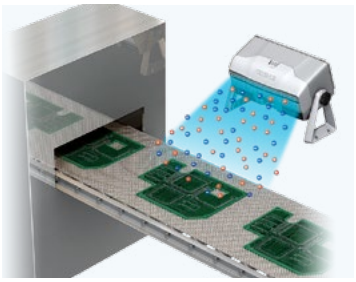

Static elimination of headlights

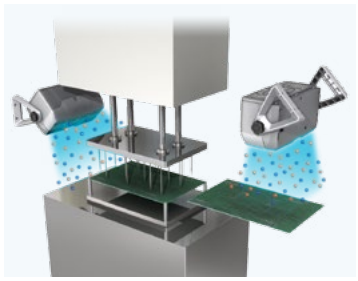

Static elimination during shipping inspections

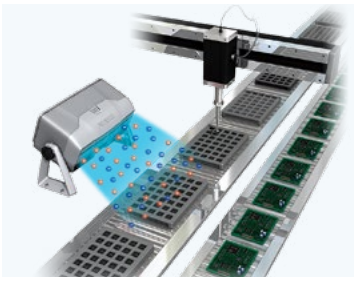

Static elimination of lenses after cleaning


Prevent double feeding of workpieces

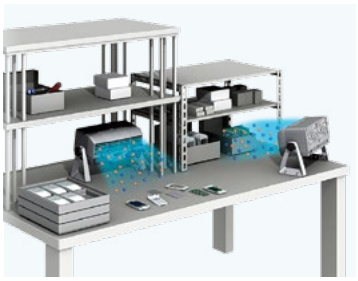

Prevent workpieces from sticking to the cutting machine during the cutting process


Static elimination of substrates after burning

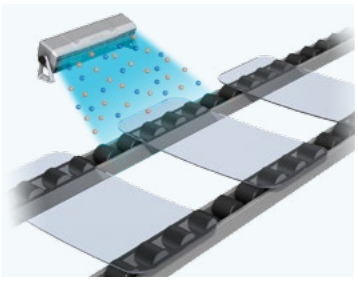

Static elimination of in-circuit testers


Static elimination on chip and PCB products


Prevention of electrostatic discharge failures in the testing process of semiconductors


Static elimination during electronics production processes


Static elimination of automotive doors before coating


Static elimination of windshields after cleaning

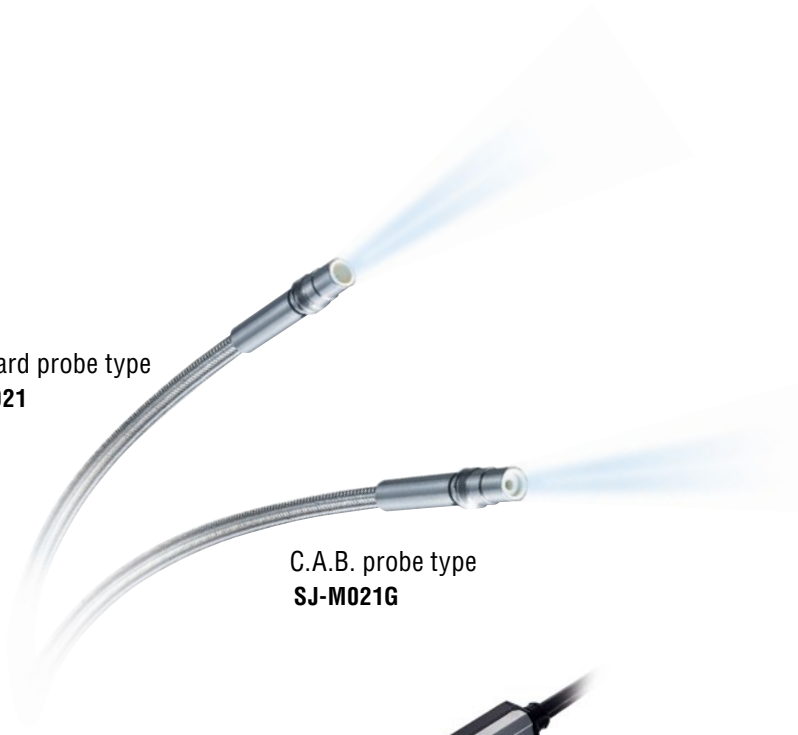
Suitable for Pinpoint, High-Pressure Air Purging Static Elimination

SJ-M Series

ULTRA-SMALL INTEGRATED SENSING IONIZER

HIGH-PERFORMANCE
MICRO IONIZER HEADS

ULTRA-FINE NOZZLE



Standard probe type
SJ-M021

C.A.B. probe type
SJ-M021G

HIGH-PERFORMANCE
MICRO IONIZER HEADS

ULTRA-SMALL BAR

7 probe bar type
SJ-M071G/M071C

3 probe bar type
SJ-M031G/M031C

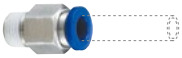
HIGH-PERFORMANCE
MICRO STATIC ELIMINATOR

CONTROLLER

Controller
SJ-M201/M301

CONTACT YOUR NEAREST OFFICE FOR RELEASE STATUS

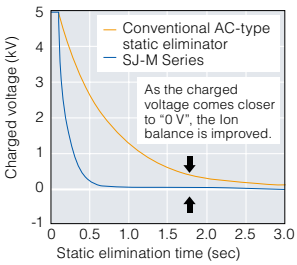
Options for a Flexible Design

SELECTABLE NOZZLES	ADAPTER (STRAIGHT)	ADAPTER (L-TYPE)	APPLICATION
Flat nozzle 	**SJ-MS1** 	**SJ-ML1** 	Suitable for wide-angle, wide-area static elimination
Flat diffusion nozzle 	**SJ-MS2** 	**SJ-ML2** 	Suitable for wide-angle, wide-area static elimination by changing the angle and direction
Threaded tube nozzle 	**SJ-MS3** 	**SJ-ML3** 	Suitable for pin-point static elimination in limited space
Two-way branch threaded tube nozzle 	**SJ-MS4** 	**SJ-ML4** 	Suitable for pin-point static elimination over multiple locations
L-type nozzle 		**SJ-ML** 	Suitable for static elimination by changing static elimination angle and direction

High-precision ion balance control: I.C.C. method

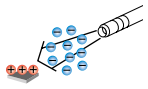
The I.C.C. method conducts high-precision sensing of electrostatic charges on the target object and automatically controls ion generation quantities for the optimum level.

Comparison of ion balance

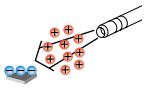


Conceptual image of the I.C.C. method

When an object with a positive charge approaches:

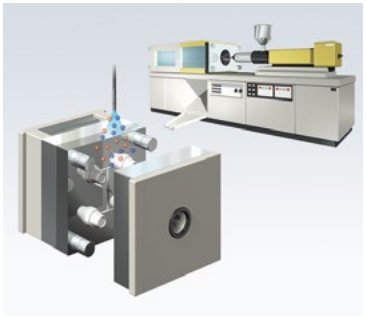


When an object with a negative charge approaches:



The heat-resistant design allows for use in high temperature environments

The SJ-M Series provides heat resistance of up to 80°C 176°F, enabling use for applications in high-temperature environments.



Static elimination in the die of a molding machine

Silicon probe bar type: SJ-M031C/M071C

Silicon probes are suitable for environments in which metal contamination must be avoided.

Silicon probe

Ultra-small static elimination head has no limitation on installation space.

Since the SJ-M Series provides a direct static elimination structure that directs the ion generation point at the tip of the head, it allows for high-speed and high-precision static elimination where it is needed most.

- ø12 mm 0.47" head
- 0.5 MPa max.
- Heat resistance: 80°C 176°F max.
- Static elimination speed: 0.5 s
- Ion balance: ±15 V

Spot Type

SJ-M201/M301

Highly Functional Controller with Built-in Static Elimination Indicators

Electrostatic charge monitor

The SJ-M Series is equipped with an electrostatic charge monitor that allows the quantity and polarity of electrostatic charges on a target to be easily monitored at a glance.

Ion level monitor

The ion level monitor performs self-diagnosis of the ion emission quantity and displays the ion balance with the bar LEDs. Also, it activates the alarm output when the ion emission quantity falls below a specific level. This function allows you to monitor dust adhesion to the electrode probe.

Condition monitor

When the electrostatic charge level is extremely high, or when there is insufficient static elimination, the condition monitor activates the LED indicator and outputs an alarm signal to external equipment.

Safe operation

Low-voltage 24 V wiring

Using low voltage 24V wiring, the SJ-M Series prevents cable deterioration caused by electrostatic discharge and eliminates risk to surrounding equipment. Because of this, the SJ-M Series allows for a stable operating environment.

Abnormal discharge detection circuit

When abnormal electrostatic discharge is detected, the SJ-M Series outputs an alarm signal and simultaneously turns off the high-voltage power supply to prevent potential problems.

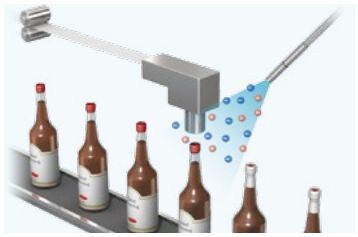
Static elimination stop input

With the static elimination stop input, the SJ-M Series can stop applying voltage to the electrode while the main power supply remains active, ensuring safe operation during maintenance.

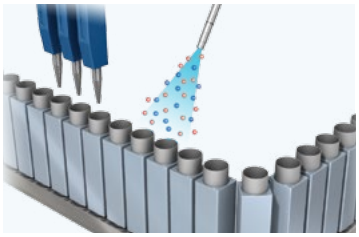
Compliance with CE Marking

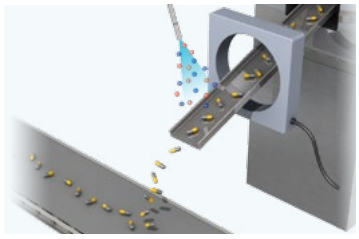
The SJ-M Series static eliminator ensures a high safety level in compliance with the requirements of the CE Marking standard.

Applications

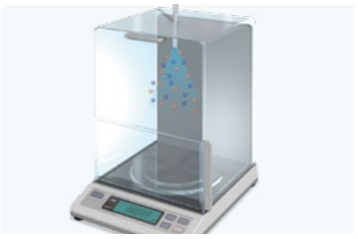

Prevent contamination in shrink packaging

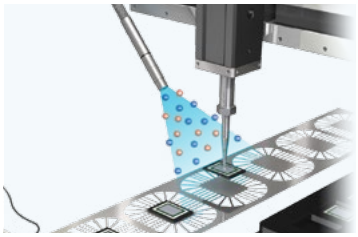

Static elimination in capping applications

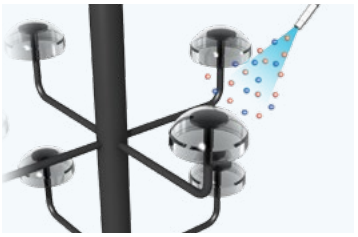

Static elimination of tubes in filling processes


Static elimination of tablets after the forming process

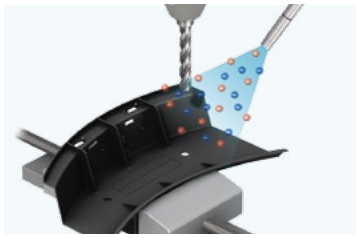
Static elimination of containers before inkjet printing

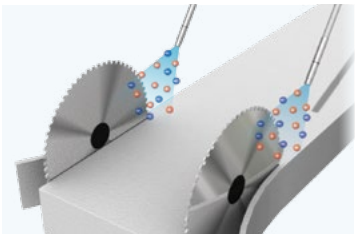

Prevent differences in measurement values of an electronic balance

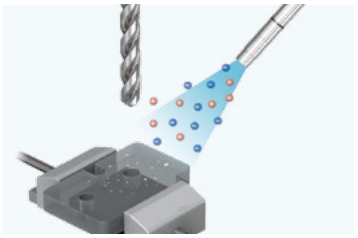

Prevent electrostatic discharge failures on bonding machines

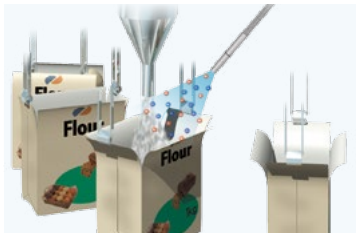

Static elimination during shot blasting


Static elimination of chips on embossed reels

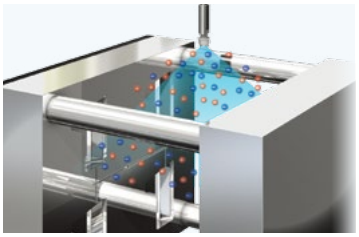

Prevent swarf adhesion to resin parts

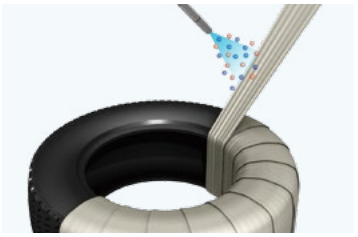

Static elimination in the slitting process

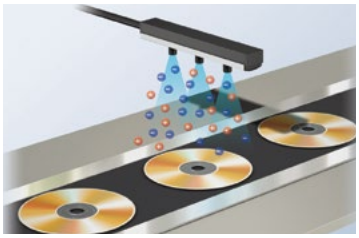

Prevent film adhesion in the cutting process

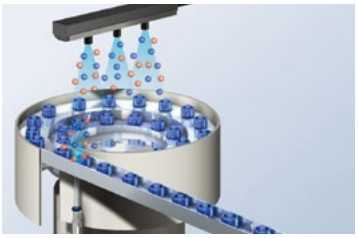


Prevent clogged nozzles in the filling process of powders


Static elimination of metal molds


Prevent separation discharge in tire packaging


Static elimination of DVDs


Removing static electricity in a part feeder

Hand-held Static Sensor

SK-H050

180 degree rotating head for flexible measurement

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

Easy handling and operation

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

Laser pointer to find 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.

Features and functions

STATIC ELECTRICITY HUMIDITY

Simultaneous measurement

By measuring the static charge and humidity at the same time, you can more accurately identify whether a particular area is likely to have static-related problems.

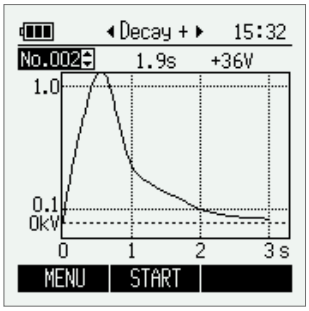
High-precision and wide-range measurements

KEYENCE can accommodate your needs from high-precision measurements with one-volt unit display resolution to measurements of highly charged objects, up to ±50 kV.

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 capability.

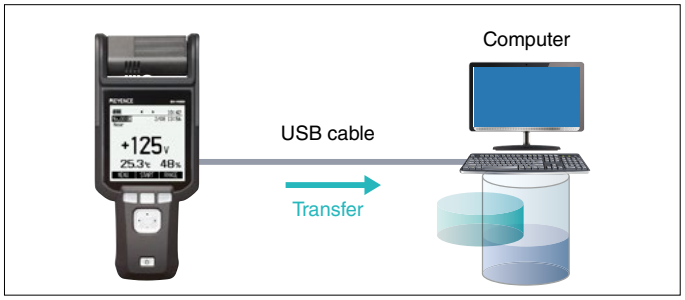
* An ionizer monitoring unit SK-H055, sold separately, is required.



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.



In-line Static Sensor

SK-050/1000

Compact sensor head

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

Clearly visible indicator

Large LED clearly indicates the status even when the sensor head and amplifier are separated.

Connectable main unit and expansion units

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

Features and functions

STATIC ELECTRICITY HUMIDITY

Simultaneous measurement

By measuring the static charge and humidity at the same time, you can more accurately identify whether a particular area is likely to have static-related problems.

High-precision and wide-range measurements

KEYENCE can accommodate your needs from high-precision measurements with one-volt unit display resolution to measurements of highly charged objects, up to ±50 kV.

Installation distance correction

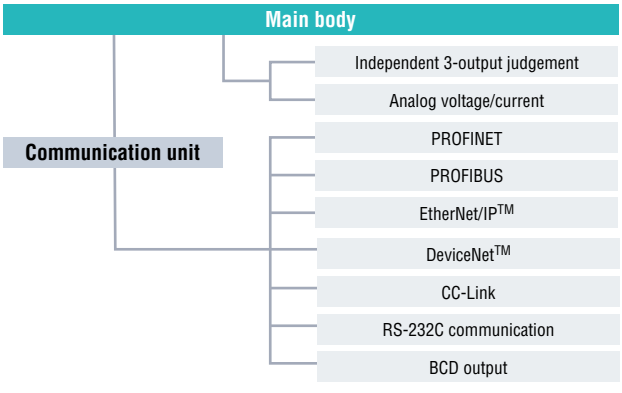
Measurement of static charges relies on the distance between the sensor head and the target workpiece. Measurement error can be corrected by entering the installation distance into the amplifier.

Enter installation distance

Measurement value corrected

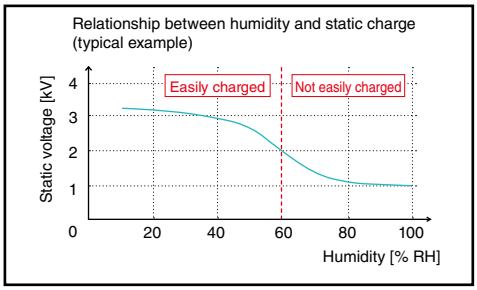
Multiple output options

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



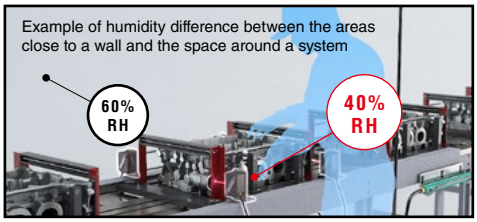
Relationship between static electricity and humidity

Static electricity and humidity are correlated: when humidity exceeds 60% RH, static charge is less likely to accumulate. Even during wintertime, when static charges can build up easily due to colder, drier air, static-related problems can be prevented by maintaining a constant level of humidity around target workpieces.



Humidity can vary in the same room depending on the location

Since humidity changes with temperature, humidity can vary in a room depending on the location. Temperature is relatively high around manufacturing systems, which tends to produce lower humidity.



Lineup/Options

Hand-held type

Main unit
SK-H050

Options for hand-held type

Ionizer monitoring unit
SK-H055

Storage case
OP-87931

Carrying case
OP-87928

Hand strap
OP-87929

Neck strap
OP-87930

Ground wire for hand-held type
OP-87926

Ground wire for ion monitoring unit
OP-87927

The ground wires are supplied with the main unit.
They may also be purchased separately if lost or damaged.

In-line type

Sensor head
SK-050

Amplifier unit (main)
SK-1000

Amplifier unit (expansion)
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 and 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-87663**

Specification

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
	Measuring accuracy *1		±10 V	±100 V *2
	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 to 104°F	
	Measuring accuracy *3		±1°C ±33.8°F	
	Display resolution		0.1°C 32.18°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 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, SK-H055: Approx. 220 g	

*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 No. 50. *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
	Measuring accuracy *2	±10 V	±100 V *3
	Sampling cycle	Approx. 1.4 ms	
Temperature measurement	Measuring range	0 to 50°C 32 to 122°F	
	Measuring accuracy *4	±1°C ±33.8°F	
	Display resolution	0.1°C 32.18°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 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 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	Judgement 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 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	Approx. 140 g

*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.

Specifications

Model		SJ-H036A	SJ-H060A	SJ-H084A	SJ-H108A	SJ-H132A	SJ-H156A	SJ-H180A	SJ-H204A	SJ-H228A	SJ-H252A	SJ-H300A
Ion generation method		Corona discharge method										
Structure		Shock-proof, resistance-coupled type										
Voltage application method/applied voltage		Pulse AC method/±7000 V										
Ion balance control method		Dual I.C.C. method										
Ion balance [1]		±30 V										
Operating distance		50 to 2000 mm 1.97" to 78.74"										
Control input		NPN open collector or non-voltage contact signal										
Control output		NPN type photo-relay, 100 mA max. (40 V max.)										
Ratings	Power supply voltage	24 VDC-36 V±10%										
	Current consumption	500 mA (at 24 VDC)/350 mA (at 36 VDC)										
	Overvoltage category	I										
	Pollution degree	2										
Primary features		Condition alarm, ion level alarm, alarm output										
Air purge connection port		Rc 1/8										
Air purge air supply pressure		0.5 MPa or less										
Materials	Electrode probe	Tungsten										
	Body	ABS resin/PC										
Environmental resistance	Ambient temperature	0 to +40°C 32 to +104°F										
	Relative humidity	35 to 85%RH (no condensation)										
Effective length [2]		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"
Total length (A) [3]		380 mm 14.96"										
Weight	Controller	150 g	—	—	—	—	—	—	—	—	—	—
	Static elimination bar	500 g	780 g	980 g	1200 g	1400 g	1550 g	1750 g	2000 g	2350 g	2700 g	3150 g

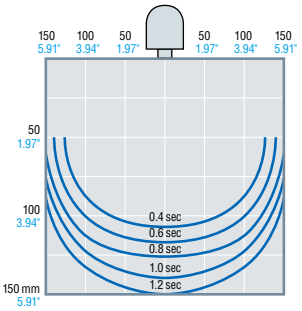
1. The value is measured under the following condition.

Operating 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 0.98 ft/s downflow		

2. The effective length is determined based on the static elimination range at a distance of 50 mm 1.97".
3. The total length includes the end units.

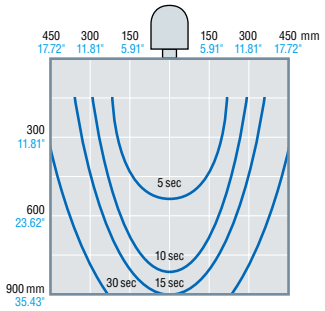
Characteristics

Static elimination range vs. static elimination time (33 Hz)



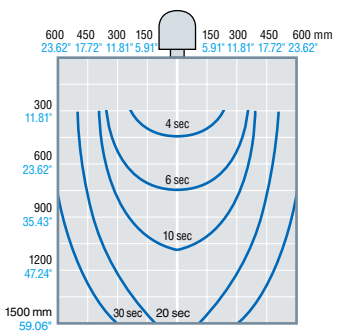
Measurement conditions:
Static elimination time from ±1000 V to ±100 V
Using a 150 × 150 mm 5.91" × 5.91" plate monitor (20 pF).
Model: SJ-H108A, No downflow

Static elimination range vs. static elimination time (10 Hz)



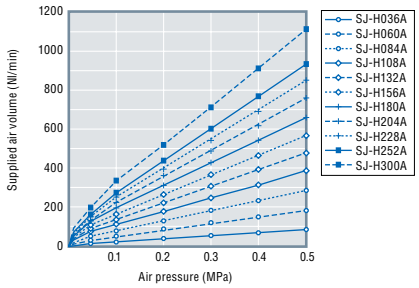
Measurement conditions:
Static elimination time from ±1000 V to ±100 V
Using 150 × 150 mm 5.91" × 5.91" plate monitor (20 pF).
Model: SJ-H108A, under a 0.3 m/s 0.98 ft/s downflow

Static elimination range vs. static elimination time (1 Hz)

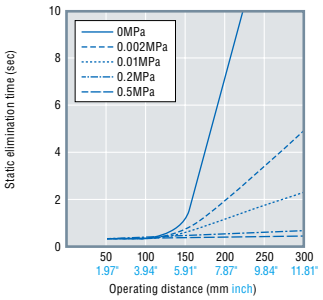


Measurement conditions:
Static elimination time from ±1000 V to ±100 V
Using 150 × 150 mm 5.91" × 5.91" plate monitor (20 pF).
Model: SJ-H108A, under a 0.3 m/s 0.98 ft/s downflow

Relationship between air pressure and air volume according to static elimination bar length (with air supply at both sides)

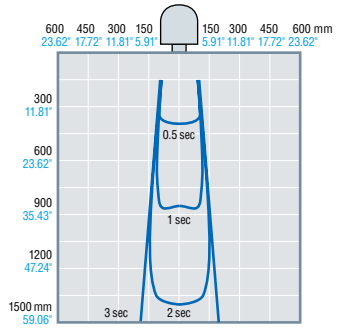


Relationship between static elimination speed and operating distance according to air pressure



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

Static elimination range vs. static elimination time (maximum air supply)



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

Table of dimensions by model

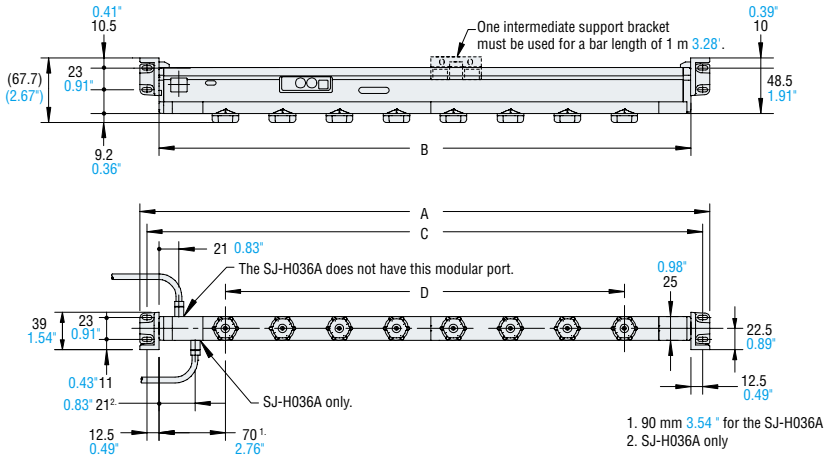
Unit: mm inch

Model		SJ-H036A	SJ-H060A	SJ-H084A	SJ-H108A	SJ-H132A	SJ-H156A	SJ-H180A	SJ-H204A	SJ-H228A	SJ-H252A	SJ-H300A
A	Total length	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"
B	Static elimination bar length	340 13.39"	560 22.05"	800 31.5"	1040 40.94"	1280 50.39"	1520 59.84"	1760 69.29"	2000 78.74"	2240 88.19"	2480 97.64"	2960 116.54"
C	Mounting pitch	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"
D	Electrode pitch and length	P60 x 3=180 P2.36"x3=7.09"	P60 x 7=420 P2.36"x7=16.54"	P60 x 11=660 P2.36"x11=25.98"	P60 x 15=900 P2.36"x15=35.43"	P60 x 19=1140 P2.36"x19=44.88"	P60 x 23=1380 P2.36"x23=54.33"	P60 x 27=1620 P2.36"x27=63.78"	P60 x 31=1860 P2.36"x31=73.23"	P60 x 35=2100 P2.36"x35=82.68"	P60 x 39=2340 P2.36"x39=92.13"	P60 x 47=2820 P2.36"x47=111.02"

Dimensions

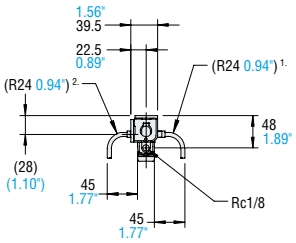
Unit: mm inch

When the end units are attached



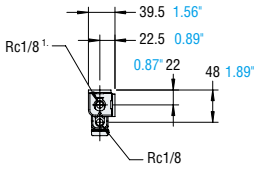
1. 90 mm 3.54 " for the SJ-H036A
2. SJ-H036A only

Left side of the bar (common to all models)



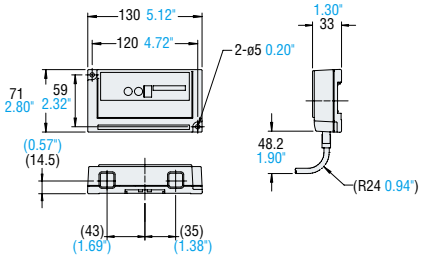
1. The SJ-H036A does not have this modular port.
2. SJ-H036A only.

Right side of the bar (common to all models longer than and including the SJ-H228A model)



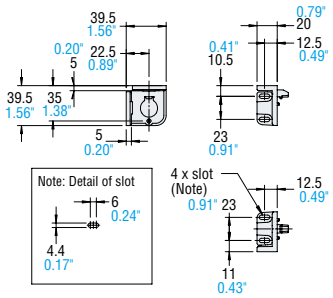
1. Not provided for the SJ-H204A or shorter models.

SJ-H036A (controller)

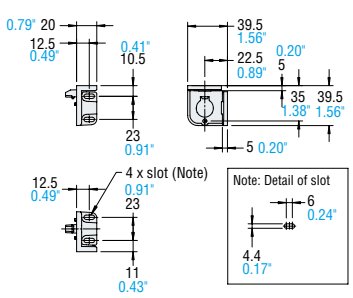


End unit (OP-84301)

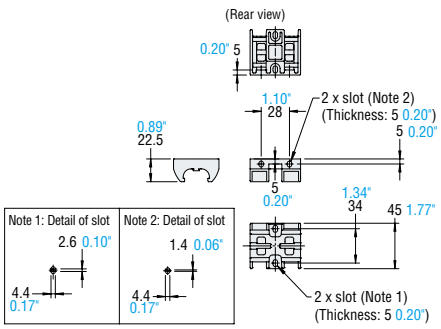
End unit L



End unit R

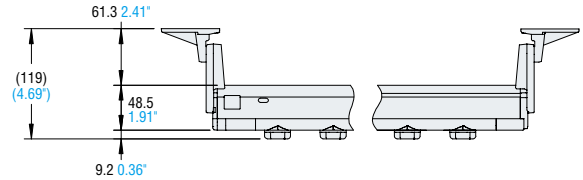


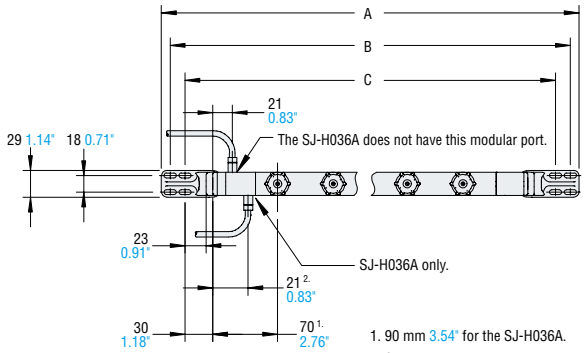
Intermediate support bracket (OP-84300)



Unit: mm inch

When a rotating mounting bracket is attached

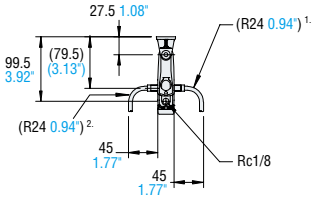




1. 90 mm 3.54" for the SJ-H036A.
2. SJ-H036A only.

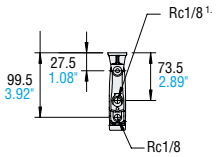
	Total length (A)		Mounting pitch (B)		Mounting pitch (C)	
SJ-H036A	451	17.76"	432	17.01"	400	15.75"
SJ-H060A	671	26.42"	652	25.67"	620	24.41"
SJ-H084A	911	35.87"	892	35.12"	860	33.86"
SJ-H108A	1151	45.31"	1132	44.57"	1100	43.31"
SJ-H132A	1391	54.76"	1372	54.02"	1340	52.76"
SJ-H156A	1631	64.21"	1612	63.46"	1580	62.20"
SJ-H180A	1871	73.66"	1852	72.91"	1820	71.65"
SJ-H204A	2111	83.11"	2092	82.36"	2060	81.10"
SJ-H228A	2351	92.56"	2332	91.81"	2300	90.55"
SJ-H252A	2591	102.01"	2572	101.26"	2540	100.00"
SJ-H300A	3071	120.91"	3052	120.16"	3020	118.90"

Left side of the bar (common to all models)



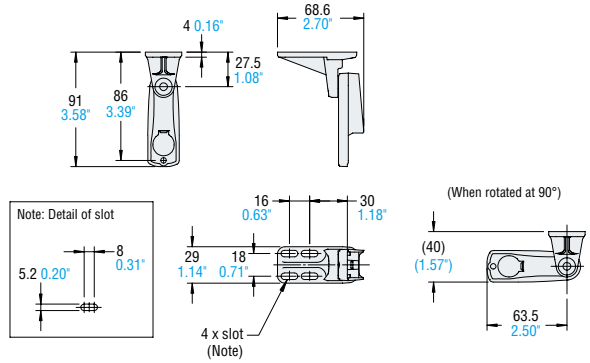
1. The SJ-H036A does not have this modular port.
2. SJ-H036A only.

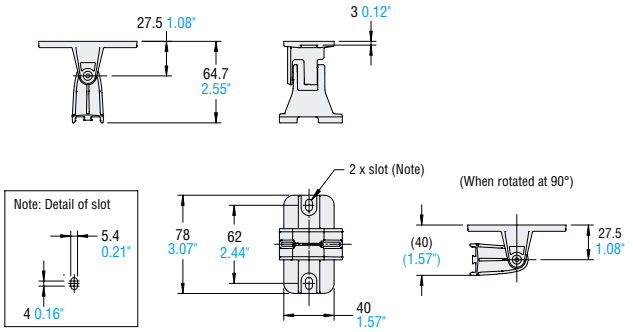
Right side of the bar (common to all models longer than and including the SJ-H228A model)



1. Not provided for the SJ-H204A or shorter models.

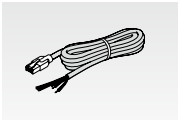
Rotating mounting bracket (side) OP-84297





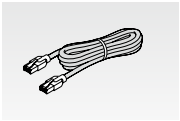
OPTIONS

SJ-C2U/C5U/C10U



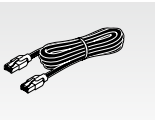
10-pin I/O cable
(2 m 6.6', 5 m 16.40',
10 m 32.81')

OP-42210/OP-42211/ OP-42212



10-pin/10-pin cable
(For OP-84296)
(2 m 6.6', 5 m 16.40',
10 m 32.81')

SJ-C2H/C5H/C10H



10-pin/10-pin cable
(for SJ-H036A)
(2 m 6.6', 5 m 16.40',
10 m 32.81')

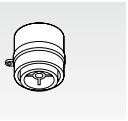
OP-84454

Electrode port cleaning kit
2 for SJ-H Series

OP-84455

Replacement filter for
electrode cleaning kit 2
(10 pieces)

OP-84299

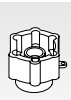


Electrode tip cleaning kit
for SJ-H Series

OP-42218

Replacement filter for
electrode cleaning kit
(10 pieces)

OP-84363 (Spare)



Electrode probe
replacement kit for
SJ-H Series

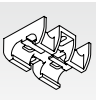
OP-84293

Tungsten electrode probe
for SJ-HA
(4 pieces)

OP-84296

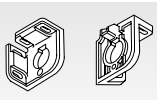
Junction relay box for
SJ-H Series

OP-84300 (Spare)



Intermediate support
bracket for SJ-H Series

OP-84301 (Spare)



End unit for SJ-H Series

OP-84297

Rotating mounting
bracket pair
(right and left sides)

OP-84298

Rotating mounting
bracket (intermediate)

SJ-F Series

Specifications

Main unit

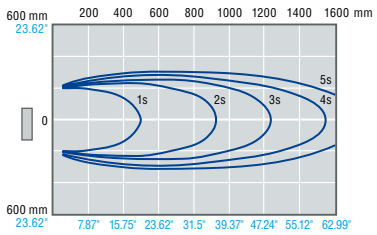
Type			300 mm 11.81" type	600 mm 23.62" type	300 mm 11.81" type	600 mm 23.62" type	300 mm 11.81" type	600 mm 23.62" type
Model			**SJ-F2500**	**SJ-F5500**	**SJ-F2000**	**SJ-F5000**	**SJ-F2010**	**SJ-F5010**
Voltage application method			Pulse AC method					
Applied voltage			±7000V					
Ion balance control method			I.C.C.					
Ion balance [1]			±5V					
Static elimination time [2]			Approx. 0.6 sec		Approx. 1.0 sec			
Operating distance			50 mm 1.97" min.					
Maximum wind speed [1]			5.7 m/s 18.70 ft/s		3.5 m/s 11.48 ft/s			
Maximum air volume			4.0 m^3/min 141.26 CFM	10.0 m^3/min 353.15 CFM	2.5 m^3/min 88.29 CFM	6.2 m^3/min 218.95 CFM	2.5 m^3/min 88.29 CFM	6.2 m^3/min 218.95 CFM
Ozone density			0.005 ppm max.					
Control input	Static elimination interruption input		—				24 VDC input	
Control output	Alarm/ Ion level alert/ Condition alert	NPN open-collector	—				100 mA (40 V max.) (Residual voltage 1 V or less)	
		PNP open-collector	—				100 mA (24 V ±10%) (Residual voltage 3 V or less)	
Rating	Power supply voltage		24VDC±10%	100 to 240VAC (50/60Hz)	24VDC±10%	100 to 240VAC (50/60Hz)	24VDC±10%	
	Current consumption		1.2 A	90 VA	0.9 A	65 VA	1.0 A	1.9 A
Environment resistance	Operating ambient temperature		0 to +50°C 32 to +122°F					
	Operating relative humidity		35 to 65%					
	Overvoltage category		II					
	Pollution degree		2					
Power source input type			KEYENCE AC adapter or DC option	AC cord input	KEYENCE AC adapter or DC option	AC cord input	Terminal block DC input	
Weight			Approx. 2 kg	Approx. 5 kg	Approx. 2 kg	Approx. 5 kg	Approx. 2 kg	Approx. 4 kg

1. Measured at a distance of 300 mm 11.81" from the front of the fan
2. Measured at a distance of 300 mm 11.81" from the front of the fan and at maximum air volume

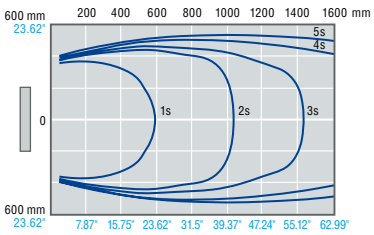
Characteristics

Static elimination range and time (typical)

SJ-F2500



SJ-F5500

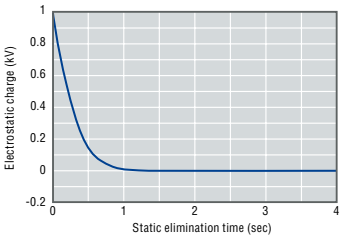


Measuring conditions:
Time required for static elimination from ±1000 V to ±100 V (Air volume: MAX)

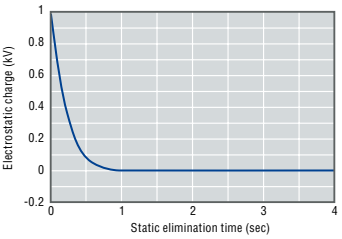
Plate monitor:
150 mm × 150 mm
5.91" × 5.91"
(20pF)

Static elimination speed (typical)

SJ-F2500



SJ-F5500

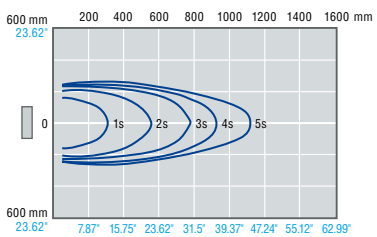


Measuring conditions:
Time required for static elimination from ±1000 V to ±100 V (Air volume: MAX)

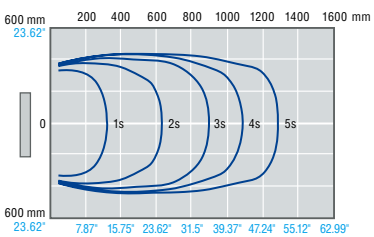
Operating distance:300 mm 11.81"
Plate monitor:
150 mm×150 mm
5.91" × 5.91"
(20pF)

Static elimination range and time (typical)

SJ-F2000



SJ-F5000

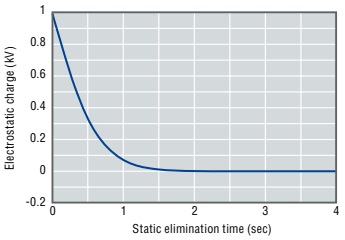


Measuring conditions:
Time required for static elimination from ±1000 V to ±100 V (Air volume: MAX)

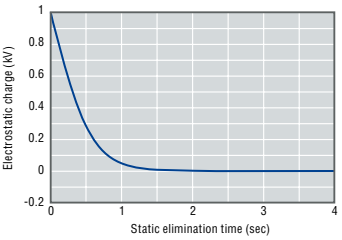
Plate monitor:
150 mm × 150 mm
5.91" × 5.91"
(20pF)

Static elimination speed (typical)

SJ-F2000



SJ-F5000

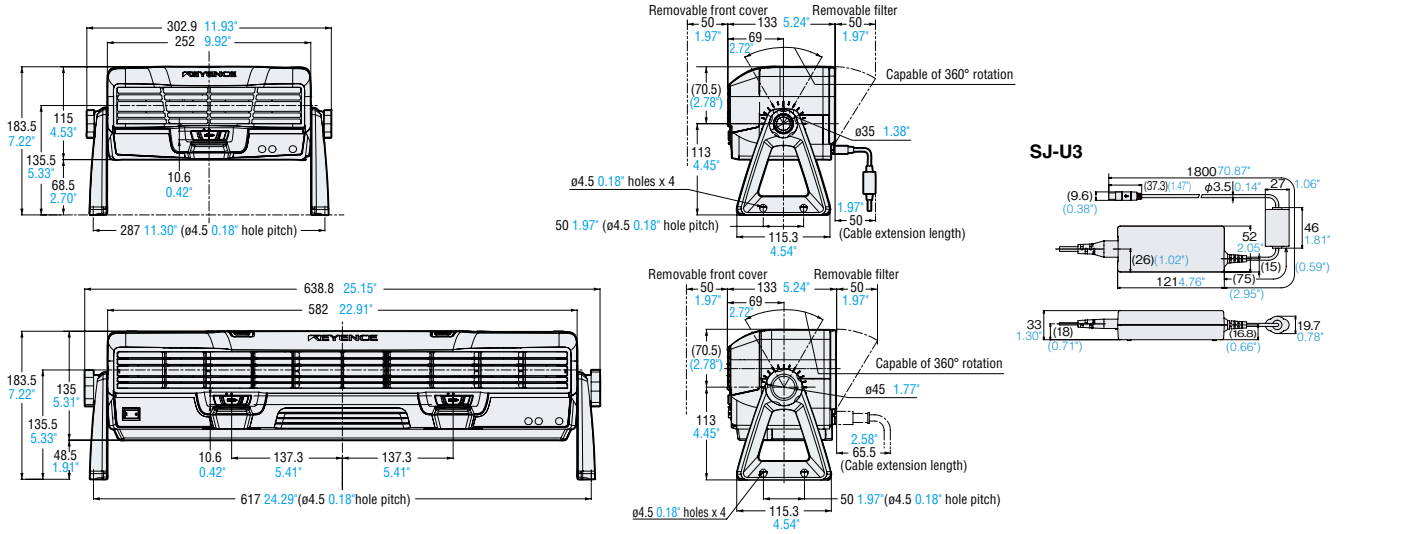


Measuring conditions:
Time required for static elimination from ±1000 V to ±100 V (Air volume: MAX)

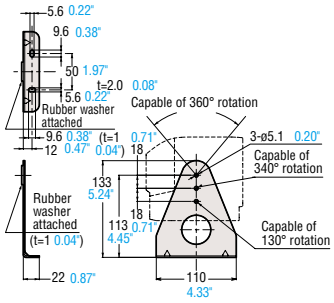
Operating distance:300 mm 11.81"
Plate monitor:
150 mm×150 mm
5.91" × 5.91"
(20pF)

Dimensions

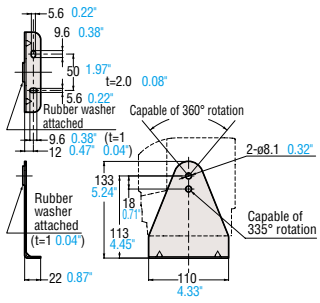
Unit: mm inch



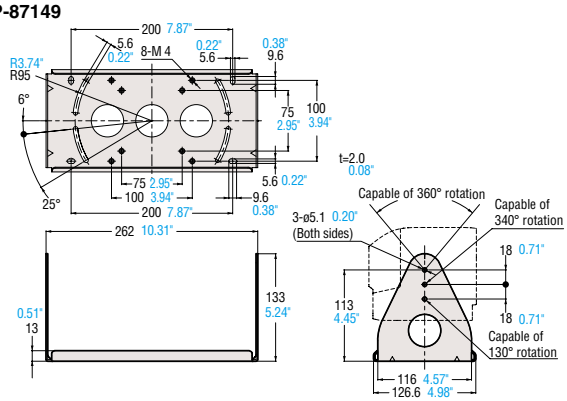
OP-87147



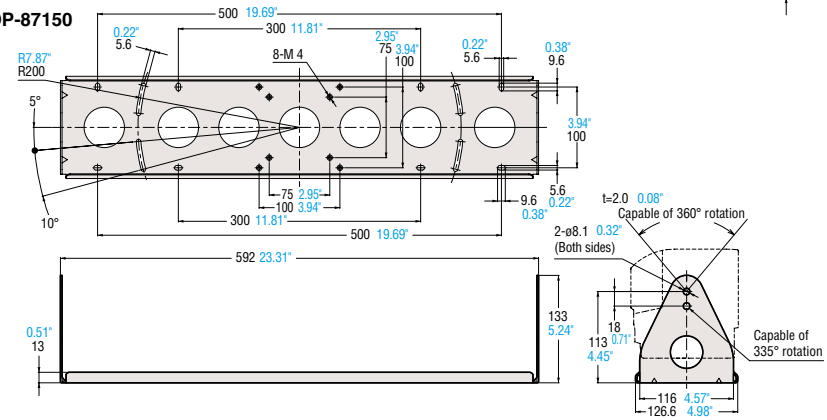
OP-87148



OP-87149



OP-87150

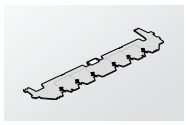


AC adapter

Type		SJ-U3
Rating	Rated input	100 to 240 VAC (50/60Hz)
	Rated output	24VDC 2.7A
Environmental resistance	Operating ambient temperature	0 to +35°C 32 to +95°F
	Operating relative humidity	20 to 80% (no condensation)
Weight		Approx. 260g

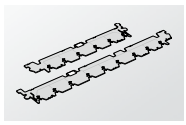
OPTIONS

OP-87153



Replacement electrode unit for SJ-F2000 Series

OP-87154



Replacement electrode unit for SJ-F5000 Series

SJ-U3

AC adapter for SJ-F2500/F2000 Series*

OP-87147

L-shaped mounting bracket for SJ-F2000 Series

OP-87148

L-shaped mounting bracket for SJ-F5000 Series

OP-87149

U-shaped mounting bracket for SJ-F2000 Series

OP-87150

U-shaped mounting bracket for SJ-F5000 Series

OP-87151

Rubber stoppers for SJ-F2000/F5000 Series

OP-87152

DC input cable for SJ-F2500/F2000 Series

* For details on the AC cable, contact your local KEYENCE sales office.

SJ-M Series

Specifications

Model	Controller	SJ-M201
	Head	SJ-M021/M021G
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. max. *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, 100 mA max. (40 V max.)
	Ion level alert	
	Condition alert	
Ratings	Power supply voltage	24 VDC ±10%
	Current consumption	450 mA max.
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 relative humidity	35 to 65%RH (no condensation) *3
Weight	Head	Approx. 600 g
	Controller	Approx. 300 g

*1. Operating distance: 50 mm 1.97", Air volume: 60 NL/min,
(Ambient temperature: 20 to 30°C 68 to 86°F, Ambient humidity: 40 to 60%RH)
*2. Operating distance: 50 mm 1.97", Air volume: 20 NL/min,
(Ambient temperature: 20 to 30°C 68 to 86°F, Ambient humidity: 40 to 60%RH)
*3. For derating of humidity and pressure during use at an ambient temperature higher than 35°C 95°F, contact KEYENCE. For air supply, use clean dry air with -20°C -4°F or lower dew point. The minimum air volume varies depending on the nozzle type. Contact KEYENCE for more information.
*4. The supplied air temperature should be 40°C 104°F or less.
*5. For high-pressure cable only. For other parts, operating ambient temperature is 0 to +40°C 32 to +104°F.

Model	Controller	SJ-M301	
	Head	SJ-M031G/M031C	SJ-M071G/M071C
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 max.	
Control input	Static elimination stop input	Non-voltage input	
Control output	Alarm	NPN open-collector, 100 mA max. (40 V max.)	
	Ion level alert		
	Condition alert		
Ratings	Power supply voltage	24 VDC ±10%	
	Current consumption	450 mA max.	
Environmental resistance	Operating ambient temperature	0 to +40°C 32 to +104°F	
	Operating relative humidity	35 to 65%RH (no condensation)	
Effective length *2		164 mm 6.46"	324 mm 12.76"
Overall length *3		220 mm 8.66"	380 mm 14.96"
Weight	Head	Approx. 600 g	Approx. 720 g
	Controller	Approx. 300 g	

*1. Measured under the following conditions:

Head type	SJ-M031G/M071G	SJ-M031C/M071C
Air purge	3 NL/min per electrode	None
Down flow	0.3 m/s 0.98 ft/s	
Operating distance	50 mm 1.97"(50 Hz), 600 mm 23.62" (8 Hz), 1500 mm 59.06"(1 Hz)	

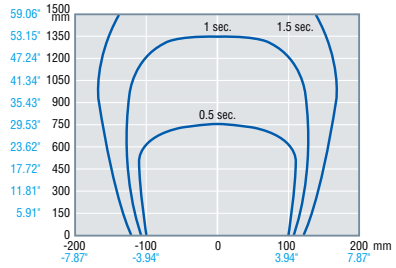
*2. Effective length indicates static elimination range at 50 mm 1.97" operating distance.
*3. Overall length includes mounting brackets.

Characteristics

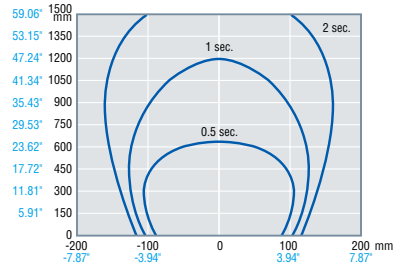
Measuring Conditions: Applied voltage: 1000 V, Plate monitor:150 mm × 150 mm 5.91" × 5.91" (20pF), Installation distance: 300 mm 11.81"

Static elimination range and time (typical)

SJ-M021G **(Applied pressure of 0.5 MPa)**

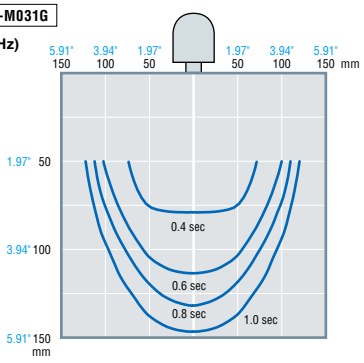


SJ-M021 **(Applied pressure of 0.5 MPa)**



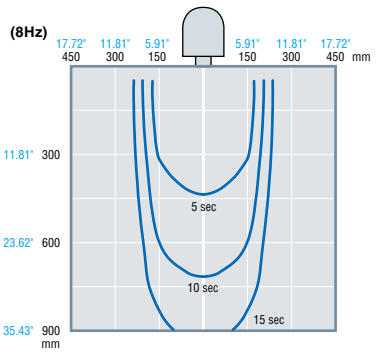
SJ-M031G

(50Hz)



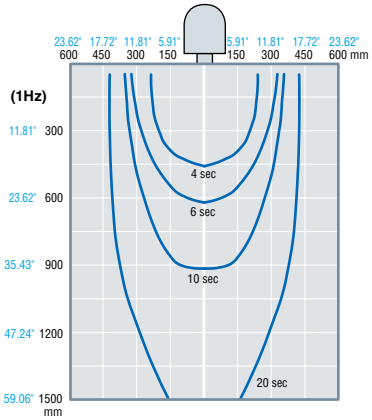
Measurement condition:Static elimination time from ±3,000 V to ±300 V.
Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
Using SJ-M031G. No downflow. 3 NL/min (1 electrode) air purge

(8Hz)



Measurement condition: Static elimination time from ±5,000 V to ±500 V.
Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
Using SJ-M031G. Under a 0.3 m/s 0.98 ft/s downflow. 3 NL/min (1 electrode) air purge

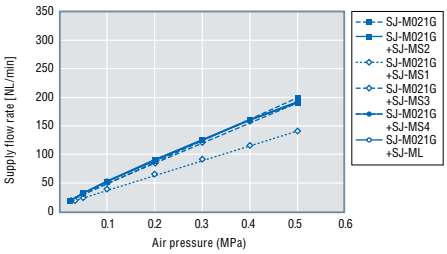
(1Hz)



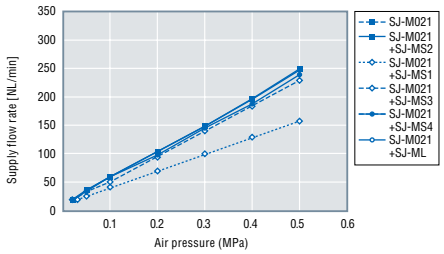
Measurement condition: Static elimination time from ±5,000 V to ±500 V.
Using 150 mm × 150 mm 5.91" × 5.91" plate monitor (20 pF)
Using SJ-M031G. Under a 0.3 m/s 0.98 ft/s downflow. 3 NL/min (1 electrode) air purge

Relationship between air pressure and air volume

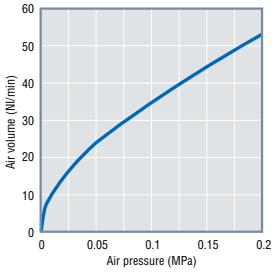
SJ-M021G (by nozzle type)



SJ-M021 (by nozzle type)



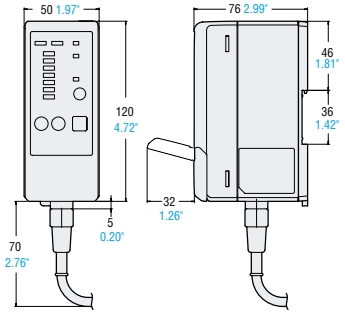
SJ-M031G



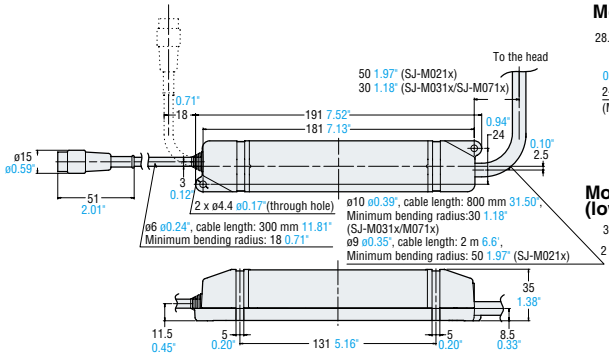
Dimensions

Unit: mm inch

SJ-M201/M301

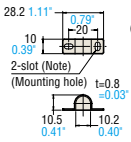


Drive unit for SJ-M021x/M031x/M071x



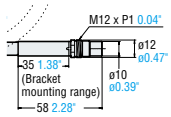
SJ-M021/M021G

Mounting bracket (upper)

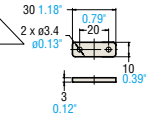


(Note) Slot dimensions

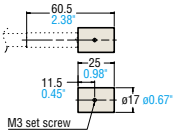
Sensor head



Mounting bracket (lower)

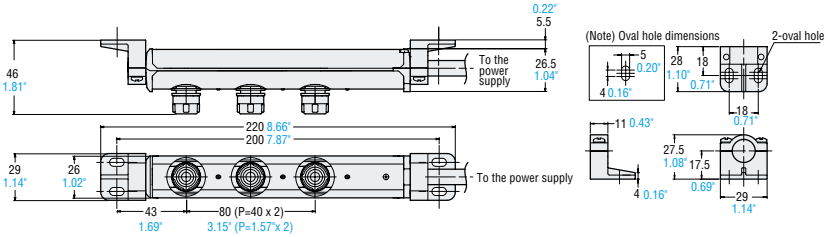


Discharge prevention cap



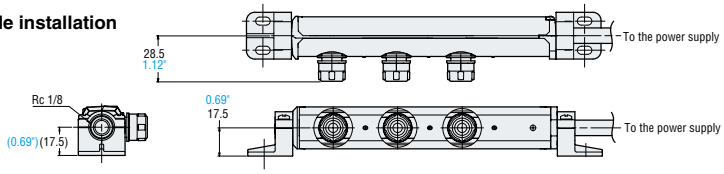
SJ-M031G/M031C

Front installation



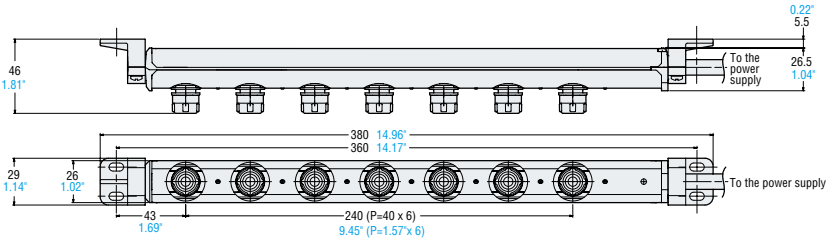
(Note) Oval hole dimensions

Side installation

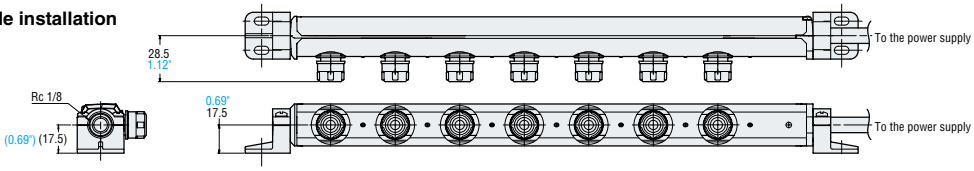


SJ-M071G/M071C

Front installation

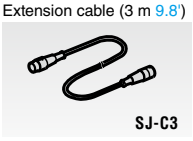


Side installation



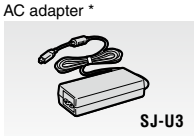
OPTIONS

Extension cable (3 m 9.8')



(Between the controller unit and the high-voltage power supply)

AC adapter *



* For details of the AC cable, contact the KEYENCE sales office in your district.

Discharge prevention cap **OP-75354**

Fluorine tube **OP-75350**

Electrode probe for SJ-M021G **OP-75351**

Electrode probe for SJ-M021 **OP-51607**

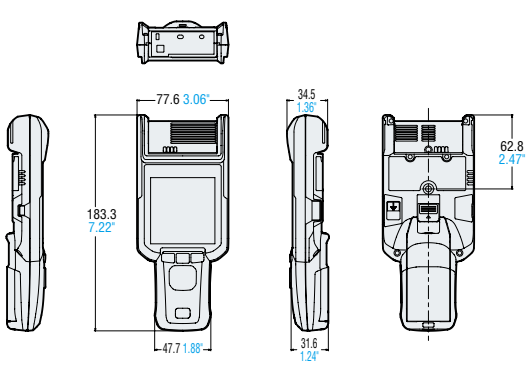
Electrode probe for SJ-M031C/M071C **OP-42214**

Electrode probe for SJ-M031G/M071G **OP-51644**

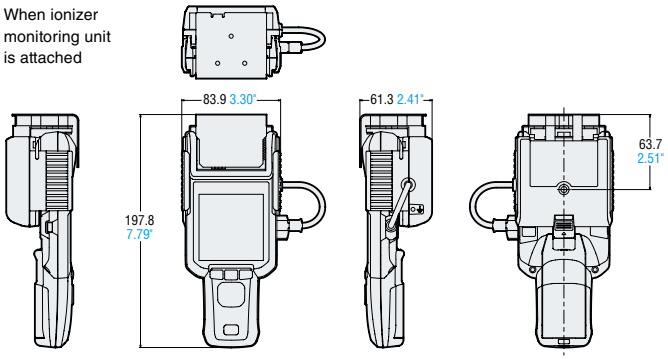
SK-H050

SK-H050

Unit: mm inch

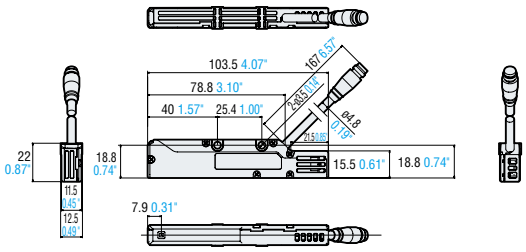


When ionizer monitoring unit is attached

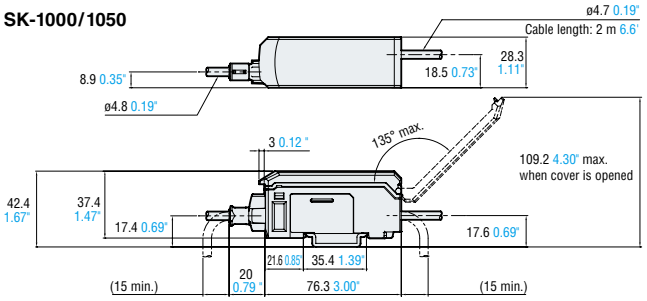


SK-050/1000/1050

SK-050



SK-1000/1050



Options for SK-H050

Ionizer monitoring unit

SK-H055

Storage case

OP-87931

Carrying case

OP-87928

Hand strap

OP-87929

Neck strap

OP-87930

Ground wire for handheld type
OP-87926

Ground wire for ion monitoring unit
OP-87927

The ground wires are supplied with the main unit.
They may also be purchased separately if lost or damaged.

Options for SK-050/1000/1050

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 and 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-87663**

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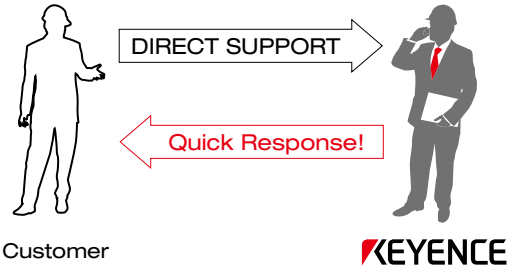
Direct Sales Network



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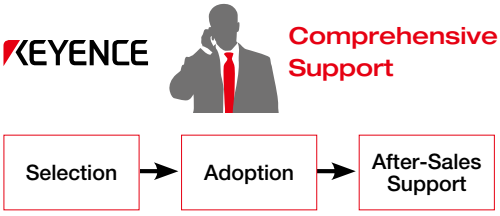

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SAFETY INFORMATION
Please read the instruction manual carefully in order to safely operate any KEYENCE product.

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