



SHISHIDO ELECTROSTATIC, LTD.

Real ESD Solutions & New Technology
SHISHIDO ELECTROSTATIC, LTD.

GENERAL CATALOG

Vol. R-4

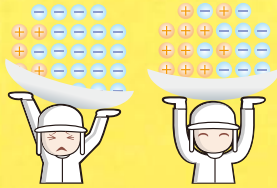


THREE COMMITMENT FROM SHISHIDO

Commitment 1

Develop "AC" + "Shock-less" ionizer.

- Superior ion balance
- Long-term stability
- Shock-free



Commitment 2

Long-term Stability in Ionizing

- Minimize the impact from the dust on the emitter needle
- Minimize the impact from the abrasions of emitter needle

Commitment 3

Long-term Maintenance-Free

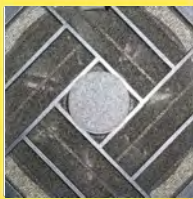
- Prolong cleaning intervals for the filter and emitter needle

Ordinary ones...

Require constant cleaning and maintenance. In general, the emitter needle requires cleaning every few weeks to several months



Filter: New



Filter: After 3 months

Magnified photo on emitter needle

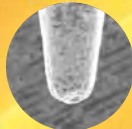
After 4000H



Quick Cleaning



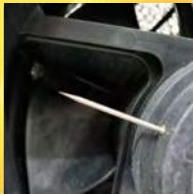
Cleaned by IPA



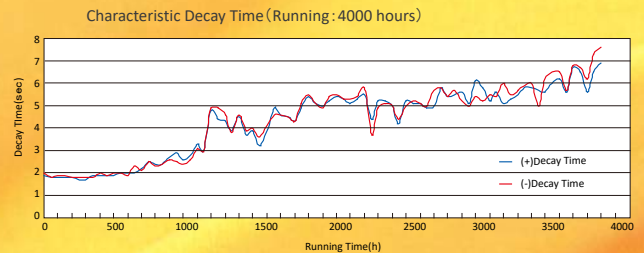
Magnified x 300



Emitter Needle: After 3months



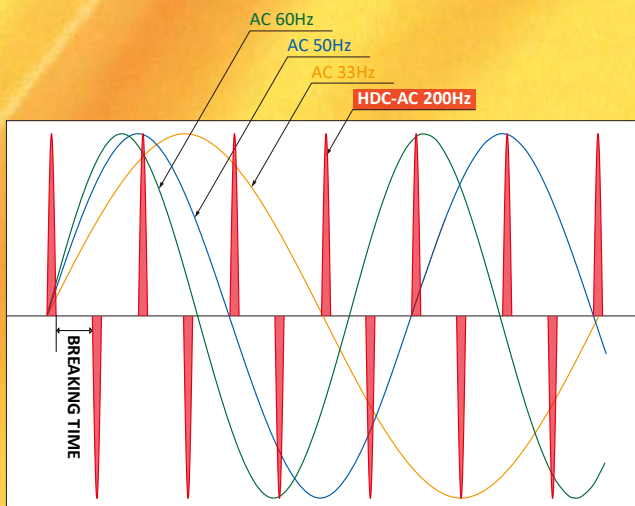
Emitter Needle: After cleaning



The white crystals such as silica (SiO_2) and ammonium nitrate (NH_4NO_3) adheres to the tip of the emitter needle even being used in the clean room (shown on the right). Reluctant in maintenance could cause contamination due to the fall off of accumulated particles.



With SSD HDC-AC technology, the new ionizer does not require cleaning over the long-time. HDC-AC ionizer have "Breaking-time" as non discharging time. It makes less damage onto the discharge emitter.



- * Prolong cleaning intervals
- * Substantially decreased on the abrasions of emitter needle
- * Minimum ozone production



High Voltage Static Eliminator Types and Characters

AC TYPE

HDC-AC (200Hz)

Device: Compact and lightweight with Digital controlled. High power the output of static elimination

Advanced ionizing capability by eliminating static electricity evenly from high-speed moving objects

Long-term stability in performance

Require less maintenance

(50/60Hz)

Device: Heavy and large due to winding transformer

High voltage of 4-7KV is required

Minor uncleanness and abrasion of emitter needle does not impact the result of static elimination

Unclean emitter needle may cause the current to leak out and damage the insulator

Speed of static elimination is slightly inferior to DC type

Use sine wave, less noise generated compares to pulse type device (DC/AC)

Frequency (kHz)

Device: extremely compact and small due to HV power

Low voltage of 2KV is required

Damage to the insulator due to current leakage is small

Abrasion of emitter needle is minimum, replacement of emitter needle may not be required depends on the material used

Ion generated near the emitter needle can be carried away by metal pipes and vinyl tubes, etc.

Minimum change in the ion balance

DC TYPE

Steady Type

Positive ion charged emitter needle and Negative ion charged emitter needle generate large amount of ions which increase static elimination speed. Require additional device to monitor the ion balance as the abrasions of emitter needle may differ between Positive ion charged emitter needle and Negative ion charged emitter needle

PULSE TYPE

(FewHz ~ 30Hz)

Speedy in static elimination due to various frequencies

Big Electrical noise

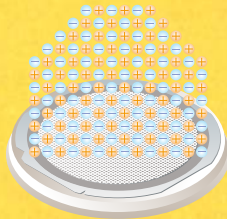
Applied voltage 6-10KV

Unclean emitter needle may cause the current to leak out and damage the insulator

Method and Features

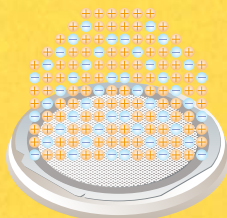
AC TYPE

(With ion adjustment)
Stable and well-balanced static elimination by SSD unique technology



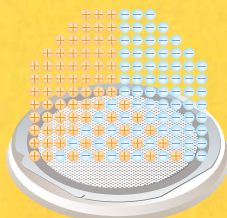
AC TYPE

(Without ion adjustment)
Ion controller is required as the Positive and Negative ions emitted are not even



DC TYPE

Uneven static elimination over the entire area as ions ejected are separated by different emitter needles



Real ESD Solutions & New Technology

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About Icons

	HDC-AC SSD unique technology Hybrid Digitally controlled AC		Tungsten Emitter Needle SSD's Original Long life Emitter Needle
	Air Speed Adjustment Controllable Air speed		Safety Louver Operation stops when removing louver as easy Maintenance
	HV Alarm LED signals when HV transformer is abnormal		Fan Alarm LED displays when abnormal fan activity happens
	HV Alarm Output LED/OUTPUT signals when HV transformer is abnormal		Buzzer Alarm Buzzer rings when ion alarm or fan alarm is activated
	Fan Alarm Output LED/OUTPUT signals when FAN is abnormal		Built-in Ion Balancer Built-in tuned ion balancer
	DC corona discharge system The ionizer uses a DC corona discharge system		Emitter Needle Automatic Cleaning Automatic emitter needle cleaning (24H/Time)
	Ion Balance Monitor Shows Ion Balance		Emitter Needle Replaceable Emitter needle set and needle can be replaced by customer
	Abnormal Discharge Alarm LED signals when emitter needle is discharging abnormally		Over Current LED signals when there is a over current for Safety control
	Cleaning Check Signals when emitter needle is dirty or low ion generation		Over Current Alarm (Value Setting) Prevent over current with self value-setting
	Charged Object Sensor Detect any approach of charged objects		Over Current Alarm (3 steps) Prevent over current with 3 stages of setting
	Emitter Needle Missing Sensor Remind any missing emitter needle during replacement		Over Current Alarm (FIXED) Prevent over current with a fixed value
	Serial Connection Multiple serial connection available inside the device		



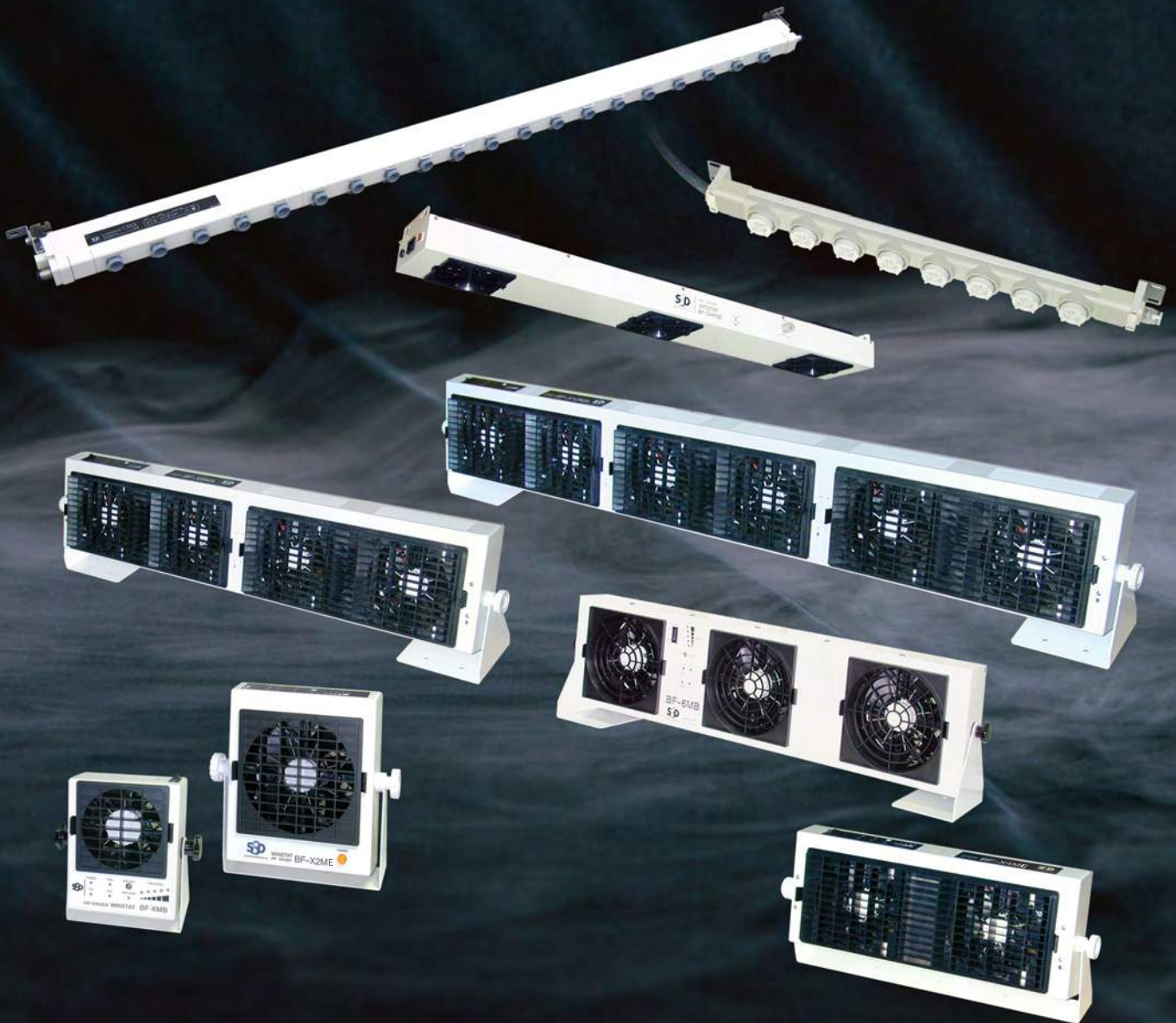
REVOLUTION OF STATIC ELIMINATION

Long-term stability in static elimination

— SSD developed a unique and unparalleled standard for ionizer —

HDC-AC

Hybrid Digital Controlled AC





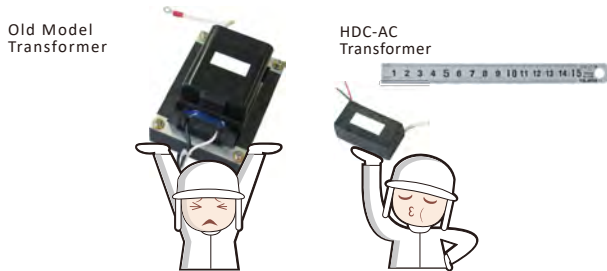
Digital Control AC
(Hybrid Digital Controlled AC)

HDC-AC

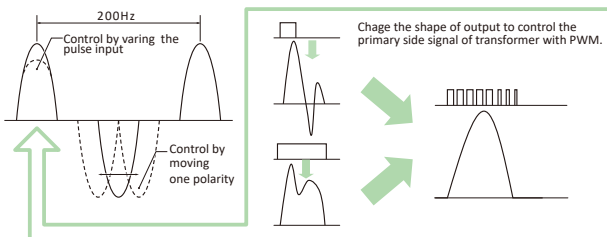
The unique AC-type high voltage power supply (patented) developed by SSD is a compact and stable power supply unit.

The winding transformer can be digitally controlled to deliver the following features.

- ① Generate high-voltage with minimum compact size (10 times smaller in size and 15 times lighter in weight than old models)



- ② Easy to control the output of high voltage by the digital input of transformer (PWM = pulse with modulation).

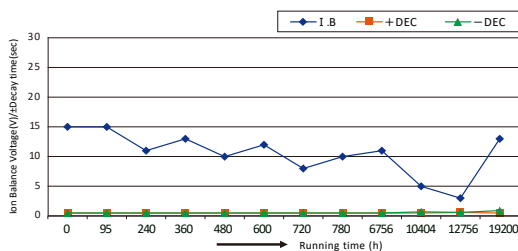


HDC-AC Features

HDC-AC ionizer enables excellent stability over a long period of time in static elimination.

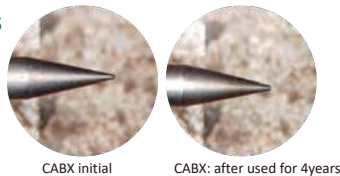
Long-term stability in static capabilities

Running Data (HDC-AC Ionizer)



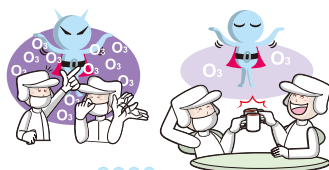
Decrease in emitter needle abrasions

Less dirt generation and maintain a long-term stability by the pulse of high-voltage power supply



Ultra low ozone

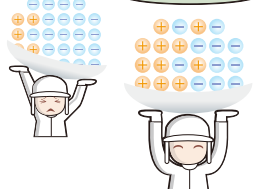
Same as background level



Unique ion balance adjustment function

Amplitude modulation:
Controls the amount of ions generated

Position modulation:
Emitter needle absorbs excess ions

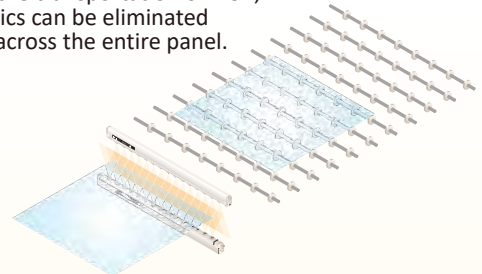


Sustainable Static Elimination

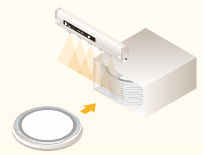
SSD ionizer can safely and steadily remove statics from all electronic products.

APPLICATION

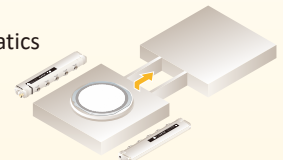
During the transportation of LCD, the statics can be eliminated evenly across the entire panel.



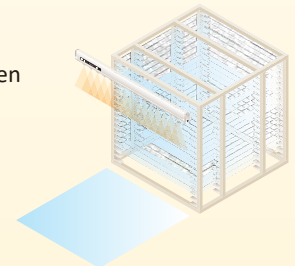
Eliminate statics all over the entire area when moving wafer to the cassette.



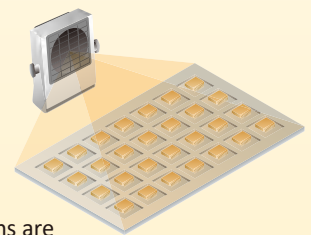
When the wafer stage is detached, a quick rise of statics can be removed.



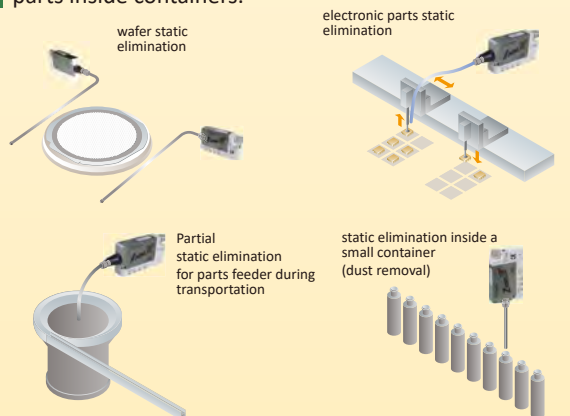
Eliminate static evenly when moving LCD into cassette.



Maintain low voltage in the IC tray.



A variety of nozzle options are available, such as for wafer mounting process, electronic parts, static elimination and dust removal for parts feeders and parts inside containers.



Bar type Ionizer

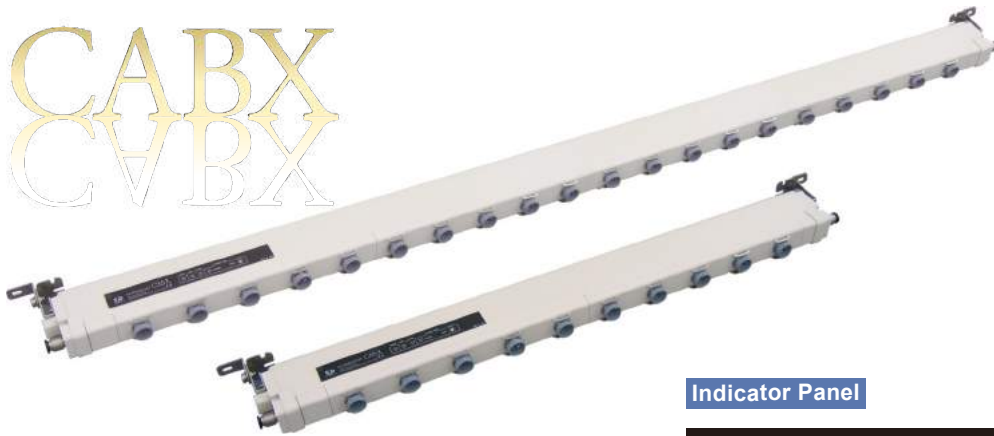
HDC-AC with build-in high-voltage power supply



Bar type Ionizer ELIMINOSTAT CABX

HDC-AC technology ensures the long-term stability of static elimination while reducing the cleaning frequencies. Achieves 30% improvement in static elimination time and product size compared to our conventional products!

CABX
CABX

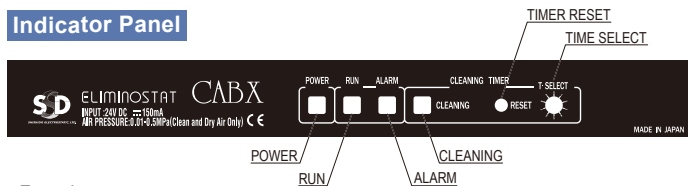


Main Features

HDC-AC technology provides a stable static elimination capability with the feature of unrequiring cleaning over a long period of time.

- 1 Increase in capacities
 - 2 Long-term stability of static elimination
 - 3 Reduce the abrasions in emitter needle
 - 4 Ultra low ozone
 - 5 Superior ion balance
 - 6 Minimum flow type nozzle
 - 7 Cleaning timer
 - 8 Emitter needle variation
 - 9 Safe features
- **30% improved in both static elimination time and size** (compare to conventional products)
Improved static elimination time and miniaturized product size both in 30% and more.
 - **Small flow type discharge needle nozzle with low air consumption is also available**
Two types of discharge needle nozzles are available, normal flow nozzles and small flow nozzles (used for reduced compressor air consumption). Easy to replace nozzles. Please see our website for air flow data.
 - **Pre-set cleaning schedule on timer**
The LED lights up to notify the cleaning time of the discharged needle based on the preset light up schedule. The schedule can be preset by the timer. There are 9 patterns can be set between 100 to 10000 hours. It is also possible to preset as light off.
 - **Variation of the discharge needle**
The silicon discharge needle can be used for an environment where it does not allow small amount of dust.
 - **Safety features**
Slight discharge detection with low voltage of DC 24V input ensure safety during operation.

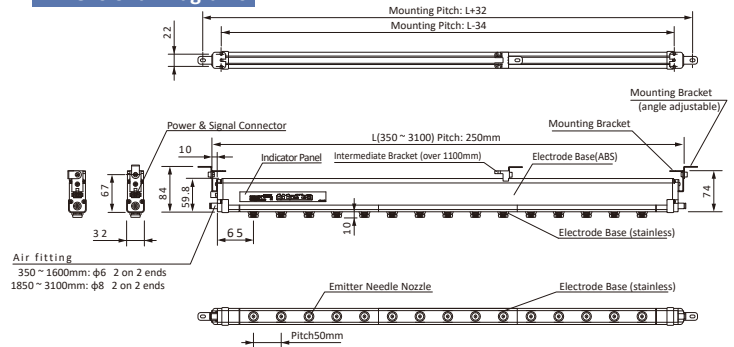
Indicator Panel



Function

- POWER** : When power turns on, Green LED lights up.
- RUN** : Under normal operation, Green LED lights up.
- ALARM** : When an overcurrent occurs in the main circuit or slight discharge occurs at the high voltage, RED LED lights up.
- CLEANING** : When the accumulated operation time set by T-SELECT is over, Yellow LED lights up. To release, press the RESET button.
- TIMER RESET** : The button to turn off CLEANING LED
- T-SELECT** : To preset the accumulated operation time for CLEANING LED to light up.

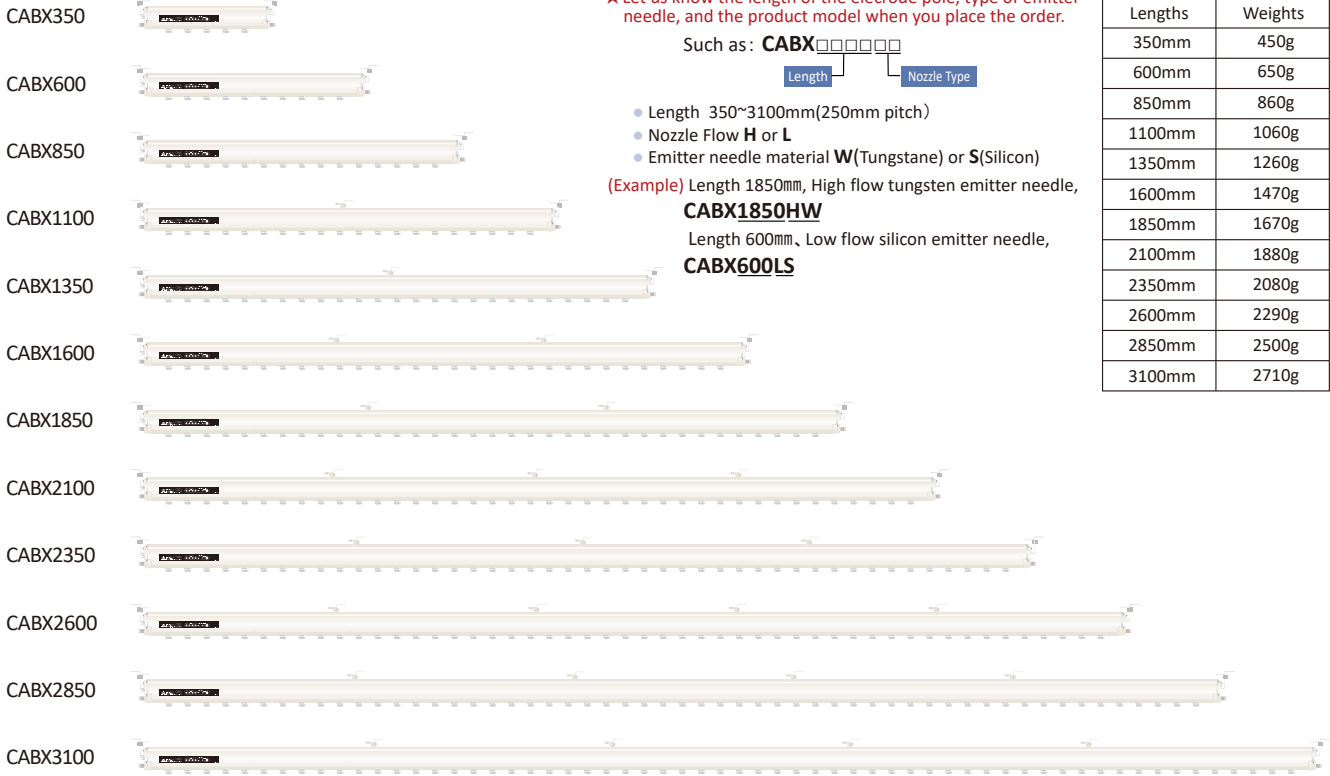
Dimensional Diagrams



Model	ELIMINOSTAT CABX
Ion Generation Method	Corona Discharge Method (HDC-AC)
Input Voltage	DC24V± 5%
Electricity Consumption	3.6VA
Output Voltage	±10kVo-p
Abnormal Output	Non-Voltage Contact (Normal Close / MOS FET Relay)
Dimensions	29×92×350~3100mm (DxHxW)
Available Air Supply	0.01MPa~ 0.5MPa
Ion Balance	Within ±30V (Distance 300mm, Air Pressure 0.3MPa initial setting)
Environment	Temperature: 5~40°C, Humidity: 15%~85% (Without Condensation)
	Air Supply: Clean Dry Air
Accessories	Manual, Mounting Bracket, Power & Signal Cable(3m) Intermediate Bracket(over 1100mm), Emitter Needle Removal Kit

ELIMINOSTAT

Length



★ Let us know the length of the electrode pole, type of emitter needle, and the product model when you place the order.

Such as: CABX□□□□□□



- Length 350~3100mm(250mm pitch)
- Nozzle Flow H or L
- Emitter needle material W(Tungstane) or S(Silicon)

(Example) Length 1850mm, High flow tungsten emitter needle,

CABX1850HW

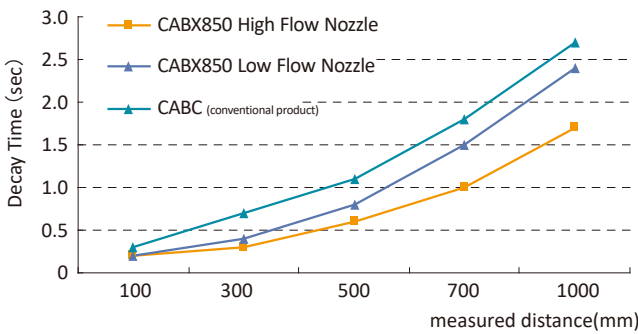
Length 600mm, Low flow silicon emitter needle,

CABX600LS

Lengths	Weights
350mm	450g
600mm	650g
850mm	860g
1100mm	1060g
1350mm	1260g
1600mm	1470g
1850mm	1670g
2100mm	1880g
2350mm	2080g
2600mm	2290g
2850mm	2500g
3100mm	2710g

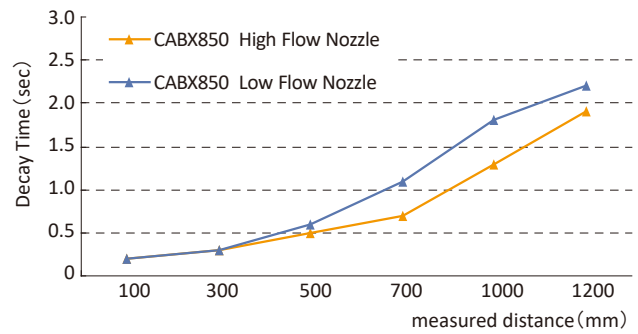
Features

CABX850mm, Air Pressure : 0.3MPa



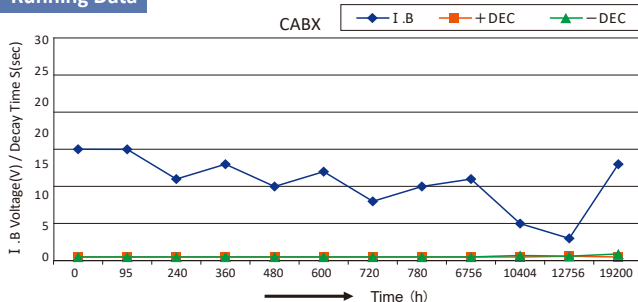
Measured Distance (mm)	100	300	500	700	1000
CABX high flow nozzle	0.2	0.3	0.6	1.0	1.7
CABX low flow nozzle	0.2	0.4	0.8	1.5	2.4
CABX (conventional product)	0.3	0.7	1.1	1.8	2.7

CABX850mm, Air Pressure : 0.5MPa



Measure Distance (mm)	100	300	500	700	1000	1200
CABX high flow nozzle	0.2	0.3	0.5	0.7	1.3	1.9
CABX low flow nozzle	0.2	0.3	0.6	1.1	1.8	2.2

Running Data



Bar type Ionizer

HDC-AC

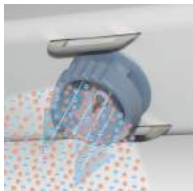
Built-in high-voltage power supply
Seperated high-voltage power supply

ELIMINOSTAT

CABX
CABS

Bar type ionizer ELIMINOSTAT CABX

Stable static elimination over the entire area



Our product can supply large amount of positive and negative ions evenly throughout the static elimination area, it is most suitable to use for electronic devices that needs delicate static elimination.

<image>

Detection on abnormal discharge and spark



The safety feature automatically shuts off the high voltage input when a short-circuit and abnormal high voltage discharge is detected from the emitter needle.

<image>

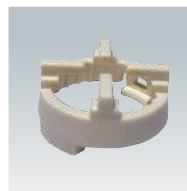
Improvement in Air Consumption

Small flow type nozzle reduces the air consumption by 60% comparing with other SSD products. It supports powerful and stable static elimination. The nozzle is replaceable and easy to install and detach from the device.

Optional Components

By using glass emitter needle and silicon emitter needle to operate in an environment where slight dust is not allowed.

- AC Adaptor : OCAB-DA2 (voltage AC100V ~ 240V)
- Intermediate Bracket : OCABX-SUSP-A (over 1100mm as a standard spec)
- Power/Signal Cable : OCABX-ENC3M (length : 3m)
- Emitter Needle Guard : KA13232
- Low Flow Type Nozzle L Nozzle
 - Tungsten type : OCABX-NDL-LW01
 - Silicon type : OCABX-NDL-LS01
- High Flow Type Nozzle H Nozzle
 - Tungsten type : OCABX-NDL-HW01
 - Silicon type : OCABX-NDL-HS01

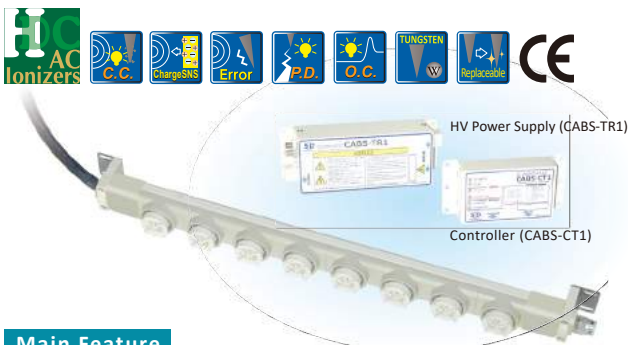


Emitter Nozzle Guard



Image of replacing emitter needle

Bar type Ionizer ELIMINOSTAT CABS

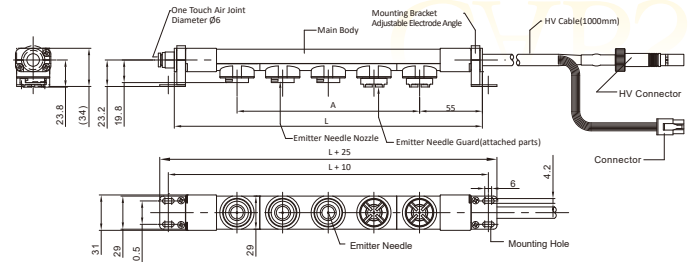


Main Feature

ELIMINOSTAT CABS can be used in a narrow area as the controller and HV power supply are separated.

- Equipped with new features of
 - emitter needle removal detection sensor (Needle Error)
 - signals out when emitter needle is detached during the exchange process.
 - detection of charged object detection sensor (Charge SNS)
- ION detection (Cleaning) notifies the decrease of static elimination performance.
- Electrodes can be manufactured in 110mm. increments and up to 1030mm in 40mm increments.
- More varieties available for products less than 1m.
- Optimized structure increased the static elimination performance by 30% (vs CABX) for the short-distance ionization.

Dimension Diagram



Specifications

Model	CABS-AW-y-z-**** y: CT-TR connection cable L 2:2m, 5:5m z: Power+Signal cable L 2:2m, 5:5m ****: Length of Bar L 110 ~ 1030mm (40mm/pitch)
System	Electrode CABS-D BW -xxxx < * 1 >
	Controller CABS-CT1 -xxxx < * 1 >
	HV Power Supply CABS-TR1
Ion Generation	Corona Discharge
Electrical Specification	Input Voltage DC24V±5%
	Electric Consumption 12VA
	Output Voltage ± 8kV _{0-p}
Air Tube Size	Diameter φ 6 Air Tube
Maximum Air Pressure	0.5MPa
Supplied Air	Clean Dry Air
Ion Balance	Within ±30V
Decay Time Performance	Within 1.0sec (Distance 300mm, Air Pressure 0.3MPa, Electrode Length 350mm)

<*1> Bar length included, and it is available for same length model controller.

Specifications

Sensor	Details
HV Error	minor electrical discharge or over current detected
Needle Error	emitter nozzle or needle detached
Cleaning	decrease of ion generation detected
ChargeSNS	detection of charged object

system configuration
controller dimension diagram
ionizing area

check our website
for details



Blower Type Static Eliminator

HDC-AC

WINSTAT

WINSTAT BF-X2ME



Main Features

WINSTAT BF-X2ME is a compact air ionizer with a slim and light-weight design. It has a long-term stable static elimination capabilities and prolonged duration for maintenance cycle.

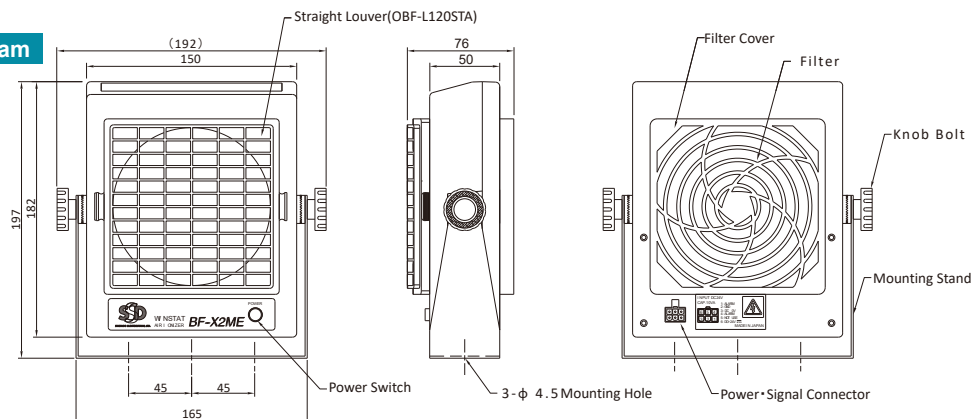
- Without feedback control, the ion balance is suppressed to $\pm 3V$ or less.
- Increased long-term and stable performance by reduced abrasions and dust on the emitter needle.
- Handy maintenance as it is easy to detach the louver and the emitter needle.
- LED display and error output send out alarm signals on abnormal power or fan output.
- Adjustable angle with lock function to prevent change of angle due to vibration.

*Front Louver is not same for BF-X2MB.

Specification

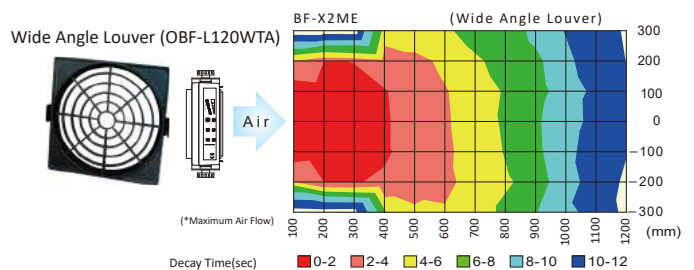
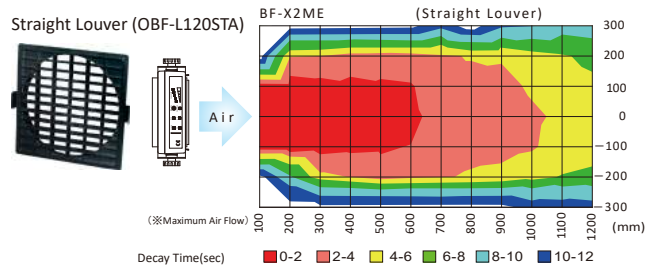
Model	BF-X2ME
Input Voltage	DC24V (AC Adaptor AC100 ~ 240V)
Capacity	12VA
Output Voltage	$\pm 7500V_0-p$
Ion Balance	Under $\pm 3V$ (Distance 300mm)
Ionizing Time	Below 1 sec (Distance 300 mm center, Max Air: initial setting)
Air Speed	1.4 ~ 3.5m ³ /min
Air Volume	1.5 ~ 2.9m ³ /sec (Straight Louver at 300mm from center) 0.1 ~ 0.3m ³ /sec (Wide Angle Louver at 300mm from center)
Ozone Level	Below 0.004ppm (at 150mm)
Environment	Temperature: 0~40°C/Humidity: 15~85%RH (No Condensation)
Filter	Pre-filter level
Abnormal Output	MOS FET Relay, Non-voltage B contact (Abnormal HV or Fan outout)
Dimensions	150x182x76mm(WxHxD), not including stand
Weight	1000g (With Stand)
Material	Main Unit: ABS, Emitter Needle: Tungsten, Stand: SECC, Louver: PC/ASA
Noise	63dB(A) (Distance at 1m)
Accessories	Manual, AC Adaptor, Signal Output Cable (2/set), Straight Louver (OBF-L120STA), Wide Angle Louver (OBF-L120WTA)
Option	Emitter Needle Set (DNU-W 85), Filter(10/set)(OBF-F2M A-1-10)

Dimension Diagram

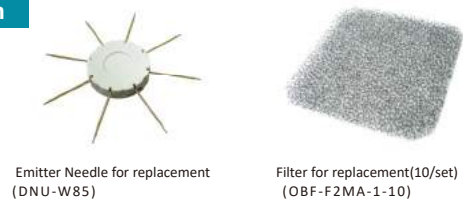


BF-X2ME

Static Elimination Area



Option



Blower Type Ionizer HDC-AC

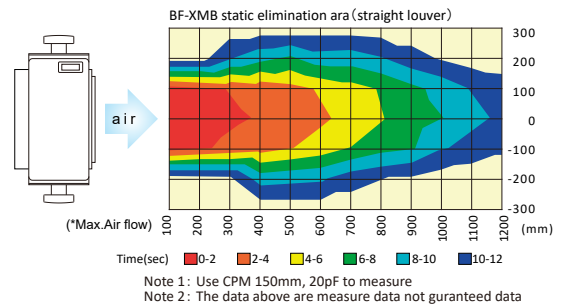
WINSTAT

Winstat BF-XMB Slim and light weight Air ionizer

BF-XMB



Static Elimination Area

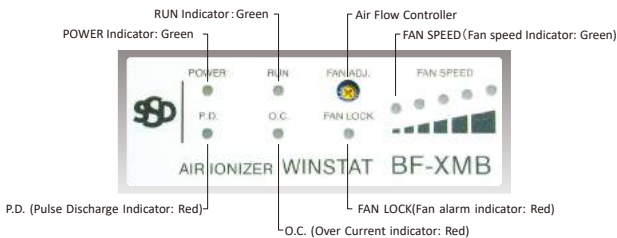


Straight Louver
OBF-L80S

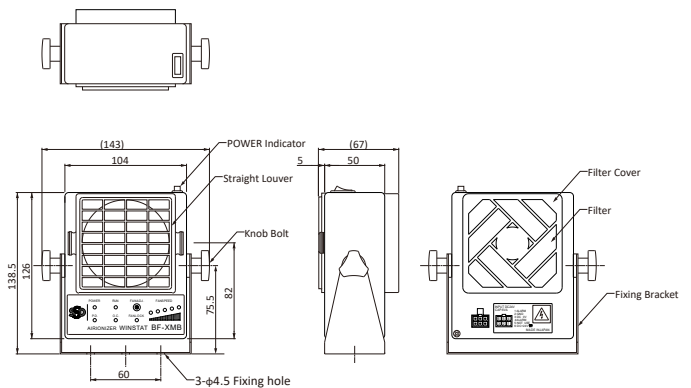


Wide angle Louver
OBF-L80W

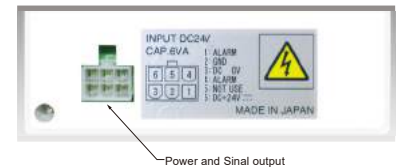
Indicator Panel



Dimension Diagram



Option



Main Features

Winstat BF-XMB is a small and light-weight type of static eliminator blower. HDC-AC technology ensures excellent performance for long term stable static elimination.

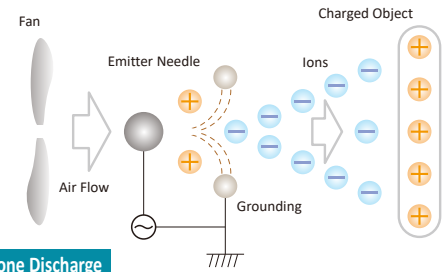
- With two types of louver, long distance or wide area of static elimination can be applied.
- Resin-made casing reduced the weight by 30% and plus.
- Air flow can be adjusted continuously by Air Flow Controller.
- Abnormal HV or Fan output can be detected by Abnormal Output.
- HDC-AC technology reduced Ozone level than high frequency AC models.
- Emitter needle can be replaced.

Specifications

Model	BF-XMB
Input Power	DC24V(AC Adaptor AC100~240V available)
Capacity	6VA
Output Voltage	±7000V _{0-p}
Ion Balance	Below ± 5V(Distance 300mm, Initial Setting)
Air Volume	0.7 ~ 1.2m ³ /min
Air Speed	1.2 ~ 1.9m/s (With straight louver, Distance 300mm center) 0.7 ~ 1.2m/s(With wide angle louver, Distance 300mm center)
Ozone Level	0.004ppm below (Distance 150mm)
Environment	Temperature: 0 ~ 40°C, Humidity: 15 ~ 85% (no condensation)
Filter	Pre-filter level
Alarm Output	MOS FET Relay Non-voltage contact (HV or Fan abnormal)
Dimensions	104×126×67mm(W×H× D) without stand frame
Weight	Approx 560g (with stand frame)
Noise	51dB(A) (Distance 1m)
Accessories	Operation Manual, AC adaptor, Straight Louver (OBF-L80S), Wide angle louver (OBF-L80W), Signal output cable, Cleaning Brush
Option	Emitter needle unit (DNU-W60), Filter 10 pcs (OBF-FZA-1-10)

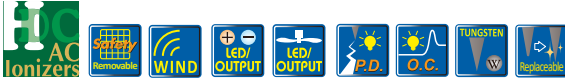
Ionized air carried by fans

WINSTAT is the air ionizer product series providing solutions for ESD problems and electrostatic problems of plastic films. Three types of products, HDC-AC type, high frequency type and DC type, can be used on the equipment, in production line and on the table for long distance and wide range static elimination.

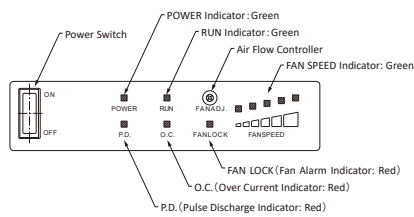


Theory of Ionizing by Corone Discharge

WINSTAT BF-X4ME



Indicator Panel



Option



Emitter needle unit (DNU-W85)



Filter for replacement (10/package) (OBF-F2ZA-1-10)

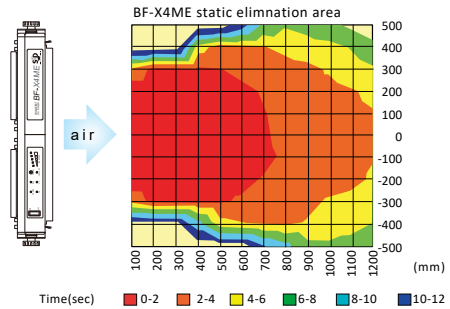
Main Features

BF-X4ME is an updated model of BF-X4MB and thin and light-weighted air ionizer product, which can eliminate a wide range of statics up to 400mm. HDC-AC ionizer ensures the long-term stability of static elimination performance and extends the longevity of maintenance duration.

- Wide range static elimination upto 400mm.
- HDC-AC transformer gives long-term stable static elimination performance.
- Resin-made casing reduced weight.
- Use two 120mm fan motors (continuously changeable) to produce large amount of airflows with high-speed static elimination.
- Easy to detach parts for maintenance as louver and emitter needles only need a finger press to detach from the unit, no extra tools needed.
- Safety design
 - power off for louver removal.
 - micro-discharge and over-current detection
- Adjustable angle with lock function to prevent change of angle due to vibration.

BF-X4ME

Static Elimination Area



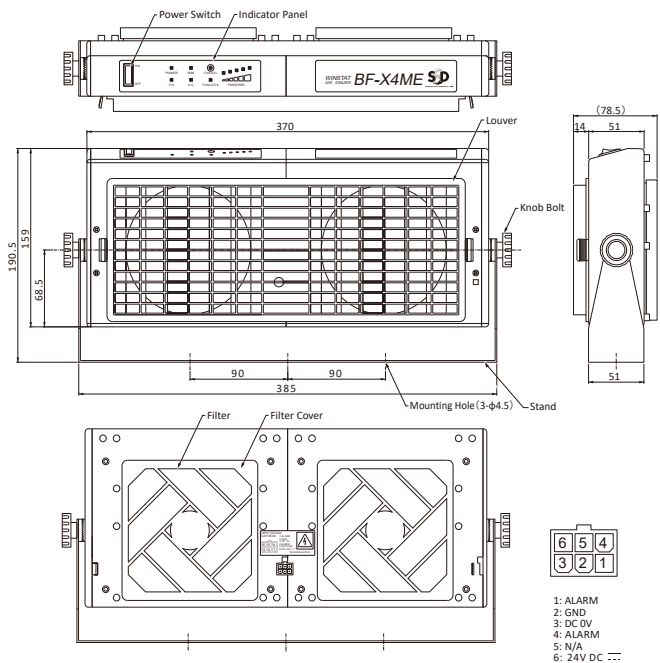
Time(sec) 0-2 2-4 4-6 6-8 8-10 10-12

(Note 1): Use CPM, 150mm, 20pF to measure

(Note 2): Static elimination time is the decay time from $\pm 1000V$ to $\pm 100V$

(Note 3): data above are measured data not a guaranteed data

Dimension Diagram



Specifications

Model	BF-X4ME
Input Power	DC24V(AC Adaptor AC100 ~ 240V)
Capacity	25VA(Maximum Fan speed)
Output Voltage	$\pm 7500V_0-p$
Ion Balance	Below $\pm 5V$ (Distance 300mm: initial setting)
Air Volume	1.4 ~ 3.2m ³ /min \times 2 fans
Air Speed	1.6 ~ 3.3m/sec (Distance at 300mm from center)
Ozone Level	Below 0.006ppm (Distance at 150mm)
Environment	Temperature: 0 ~ 40°C/Humidity: 15 ~ 85%RH (No Condensation)
Filter	Pre-filter level
Alarm Output	MOS FET Relay no-voltage b contact output (Abnormal H.V. or Fan)
Dimension	370 \times 190 \times 78.5mm (W \times H \times D) Without Stand
Weight	around 1600g (With Stand)
Material	Main unit: ABS, Emitter Needle: Tungsten, Stand: SECC
Noise	68dB(A) (Distance at 1m)
Accessories	Manual, AC Adaptor, Signal output cable(2), Cleansing Brush
Option	Emitter Needle Unit: DNU-W85, Filter(10/Package): OBF-F2ZA-1-10, Front Louver: OBF-L300TA4

Blower Type Static Eliminator HDC-AC

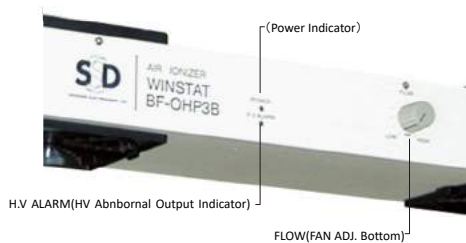
WINSTAT BF-OHP3B



BF-OHP3B



Indicator Panel

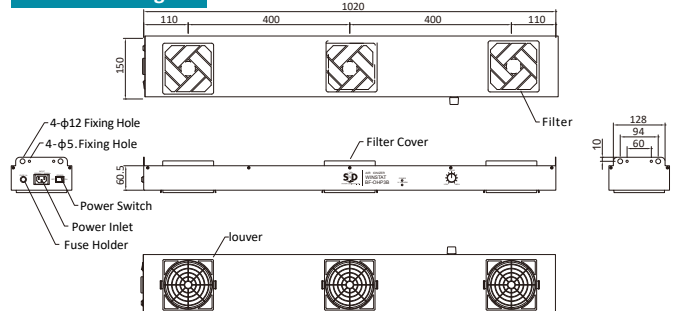


Main Features

BF-OHP3B is a low-cost overhead air ionizer. SSD HDC-AC Corona Discharge technology ensures the quality of static elimination and extends the longevity of maintenance duration.

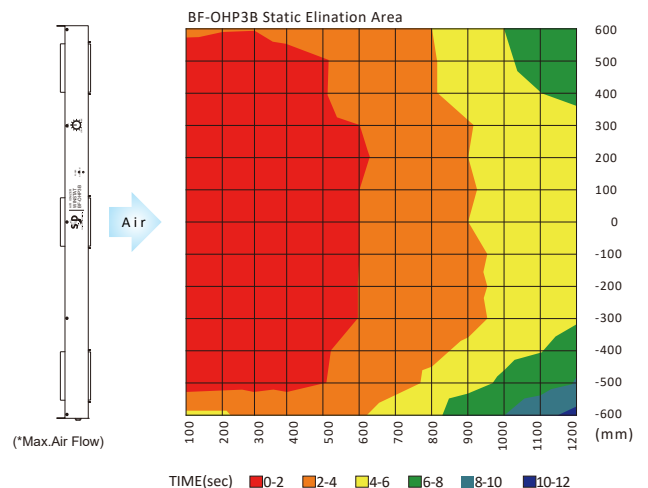
- Overhead air ionizer equipped with SSD HDC-AC technology
- High stable and long term performance
- Easy to detach parts for maintenance as louver and emitter needles only need a finger press to detach from the main unit.
- Safety control: detection of pulse charge and current control.
- Meets the standards of RoHS (2002/95/ EC)

Dimension Diagram



Model	BF-OHP3B
Input Voltage	AC100V ~ 240V 50/60Hz
Capacity	42VA
Output Voltage	±7500V _{0-p}
Ion Balance	Below ±10V (Initial Setting)
Ai Volume	2.2 ~ 3.3m ³ /min×3fan
Ozone level	Below 0.005ppm (Distance 150mm)
Environment	Temperature: 0 ~ 40°C / Humidity: 15 ~ 85%RH(without condensation)
Filter	Pre-filter level
Abnormal Output	None
Dimensions	1020× 60.5×150mm (W×H×D)
Weight	Approx 5.0kg
Noise	65dB (A) (Distance 1m)
Accessories	Manual, AC power cable, Wide angle louver (OBF-L120W), Cleaning Brush
Options	Emitter Needle Unit: DNU-W85, Filter(10pcs): OBF-F2ZA-1-10

Static Elimination Area



Option



WINSTAT BF-X2MC

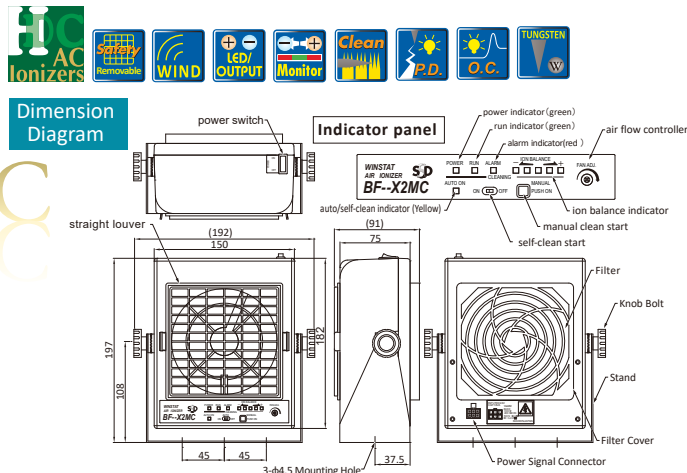


BF-X2MC

Main Features

BF-X2MC is the new version of BF-2ZC, which has the automatic electrodes switch and manual electrodes switch function. Pre-set to operate auto-cleaning makes maintenance effortlessly.

- Pre-set automatic self-cleaning mode on cleaning emitter needle (24hour/time), also available manually.
- Constantly check the ion balance for better efficiency
- HDC-AC method ensures the emitter needle is dust resistant in order to maintain stable static elimination performance for a long time.
- Micro-discharge and over-current detection
- Long distance or wide area of static elimination can be applied.
- Easy to detach louver and emitter needle
- Adjustable angle with lock function to avoid angle change due to vibration.
- Signals alarm for abnormal high-pressure and fan stopping



Model	BF-X2MC
Input Power	DC24V(ACAdaptor AC100 ~ 240V available)
Capacity	18VA
Output Voltage	±7500V _{0-p}
Ion Balance	Below ±5V (Distance 300mm: initial setting)
Air Volume	1.4 ~ 3.2m ³ /min
Air Speed	1.8 ~ 3.6m/sec (With straight louver Distance 300mm center) 0.4 ~ 0.6m/sec (With wide angle louver Distance 300mm center)
Ozone Level	Below 0.004ppm (Distance150mm)
Environment	0 ~ 40°C / 15 ~ 85%RH (No Condensation)
Filter	Pre-filter level
Alarm Output	MOS FET Relay no-voltage b contact output (H.V., Fan, Cleaning Brush and Abnormal Ion Balance)
Dimensions	150×182×91mm(W×H×D) Without Stand
Weight	around 1.2kg (With Stand)
Noise	59dB(A) (Distance 1m)
Accessories	Manual, AC Adaptor, Straight Louver (OBF-L120S), Wide angle louver(OBF-L120W), Signal output cable
Option	Filter(10 pcs): OBF-F2M A-1-10

WINSTAT BF-6MB

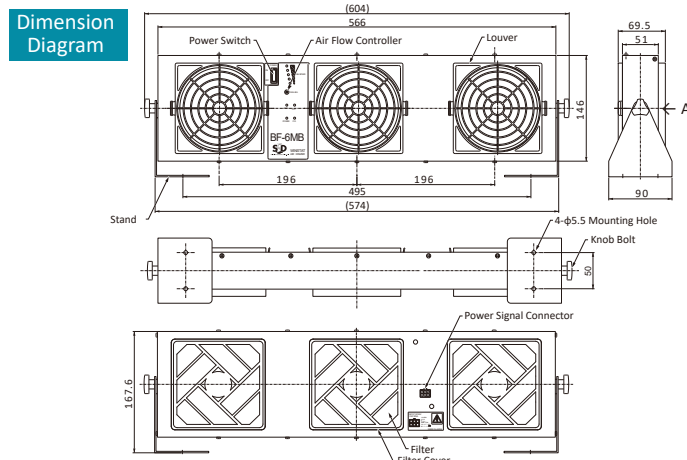


Main Features

BF-6MB is a thin and light-weighted wide type HDC-AC air ionizer, with long-lasting static elimination performance. Easy to maintain with longevity of maintenance duration.

- HDC-AC corona discharge provides a long-term stable static elimination performance.
- Cover wide area of static elimination by three 120mm fan motors with large airflows (continuously changeable)
- Lighter and thinner compares to BF-60, the older version.
- Easy to detach parts for maintenance, only need a finger press to detach from the main unit.
- Detection for micro-discharge and over current output

Model	BF-6MB
Input Power	DC24V (AC Adaptor AC100 ~ 240V available)
Capacity	30VA (Max.Fan)
Output Power	±7500V _{0-p}
Ion Balance	Below ±5V (Distance 300mm: initial setting)
Decay Time	Below 1.5 (Distance 300mm,Max.Fan: initial setting)
Air Volume	1.4 ~ 3.2m ³ /min × 3 fans
Air Speed	0.8 ~ 1.0m/sec (Distance 300mm center)
Ozone Level	Below 0.006ppm (Distance 150mm)
Environment	0 ~ 40°C / 15 ~ 85%RH (No Condensation)
Filter	Pre-filter level
Alarm Output	MOS FET Relay no-voltage b contact output (H.V. abnormal)
Dimensions	566×146×69.5mm (W×H×D) Without Stand
Weight	around 3100g (With stand)
Material	Main Unit: SECC, Emitter Needle: Tungsten, Stand: SECC
Noise	61dB(A) (Distance 1m)
Accessories	Manual, AC Adaptor, Stand(2), Knob Bolt(2), Wide angle Louver (OBF-L120W) Rubber(2), Signal output cable(2), Cleaning Brush
Option	Emitter Needle Unit: DNU-W85, Filter(10pcs/package): OBF-F2ZA-1-10



Blower Type Static Eliminator HDC-AC Type Wide area

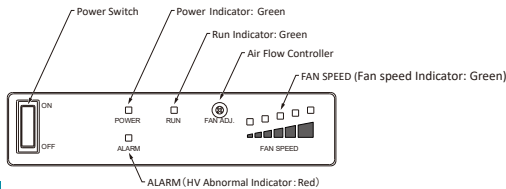
WINSTAT

WINSTAT BF-X8MA/BF-X12MA



WINSTAT BF-X8MA

Indicator Panel



Main Features

BF-X8MA / X12MA is a slim, light-weighted and wide type HDC-AC air ionizer, with long-lasting static elimination performance. Easy to maintain with longevity of maintenance duration.

- HDC-AC transformer gives long-term stable static elimination performance.
- Resin-made casing reduced the size and weight compared to previous model BF-80 conventional product.
- BF-X8MA use 4pcs 120mm fan motors (6pcs X12MA) can produce large amount of airflows (continuously changeable) with high-speed static elimination.
- Easy to detach parts for maintenance as louver and emitter needles only need a finger press to detach from the unit, no extra tools needed.
- LED indicator and abnormal output signals when abnormal HV output occurs.
- Adjustable angle with lock function to avoid angle changedue to vibration.

Option



Model	BF-X8MA	BF-X12MA
Input Voltage	DC24V(AC adaptor AC100 ~ 240V available)	
Capacity	38VA(max. fan speed)	60VA(max. fan speed)
Output Voltage	±7500V _{o-p}	
Ion Balance	Below ±5V (Distance 300mm: initial setting)	
Static Elimination Time	Below 1.0 sec (Distance 300mm, max fan speed: initial setting)	
Air Volume	1.4 ~ 3.6m ³ /min × 4 fans	1.4 ~ 3.6m ³ /min × 6fan
Air Speed (distance: 300mm center)	1.7 ~ 3.3m/sec	1.8 ~ 3.4m/ sec
Ozone Level	Below 0.003ppm (Distance 150mm)	
Indicator	POWER indicator: Green, RUN indicator: Green, ALARM indicator: Red	
Environment	0 ~ 40°C / 15 ~ 85%RH(without condensation)	
Filter	Pre-filter level	
Alarm Output	MOS FET Relay Non-voltage contact(HV abnormal)	
Dimensions (W×H×D)	730x159x78.5 mm without stand frame	1090x159x 78.5mm without stand frame
Weight	around 3300g (includ. stand)	around 4800g (includ. stand)
Materials	main unit: ABS, emitter needle: Tungsten, Stand: SECC	
Noise	68dB(A) (Distance 1m)	69dB(A) (Distance 1m)
Accessories	operational manual, AC adaptor, Stand (2), Knob Bolt(2) Straight Louver (OBF-L300TA), Signal output cable(2)	
Option	Emitter needle unit: DNU-W85, Filter(10/package): OBF-F2ZA-1-10	

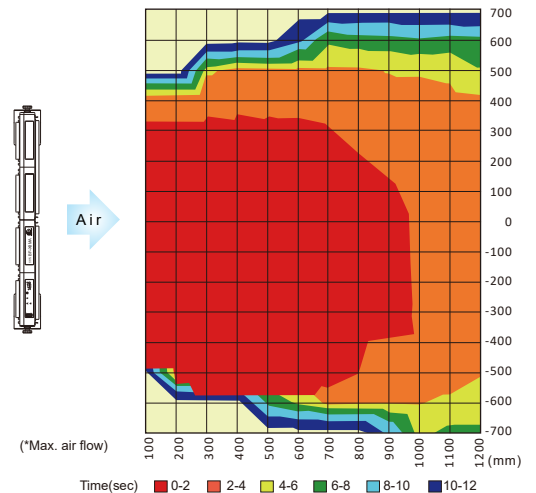
BF-X12MA



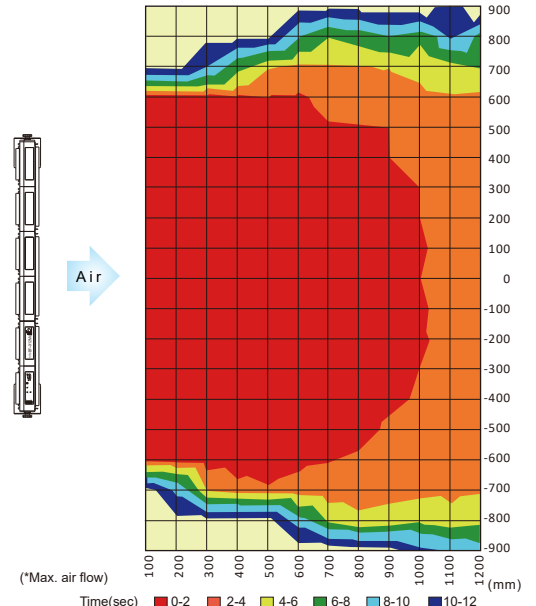
WINSTAT BF-X12MA

Static Elimination Area

BF-X8MA static elimination area



BF-X12MA static elimination area



Blower Type Static Eliminator High Frequency

- Sustain a good performance on static elimination performance by high-frequency corona discharge method. (stand-alone type)
- Best product to use for installation inside the equipment or small assembly line. (BF-SZAI) is suitable to use in the no-air allowed environment.
- Model (BF-SZAI): Alarm signals when H.V. output and fan output stopped (LED and output).
- Model (BF-XZB-V2, BF-XZB): Alarm signals when H.V. output stopped (LED and output).

WINSTAT BF-SZAI



AC adaptor is not included in BF-SZAI package, its an optional purchase for AC adaptor "OBF-AD24V100-6P".



Main Features

WINSTAT BF-SZAI is a small and light-weighted high frequency air ionizer, which can be installed into small space, equipment and production lines.

- This mini size type of fan is the best choice for eliminating static electricity in no-air environment.
- SZAI is made of stainless steel casing.
- Widely used in various locations such as assembly production lines and inside the devices.
- Easy to detach parts for maintenance, only need a finger press to detach louver and emitter needles.
- LED indicator and alarm signals when abnormal H.V. output or abnormal fan output is detected.
- Adjustable non-stop air volume.

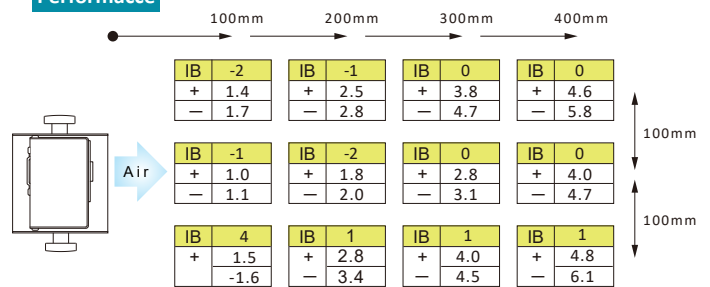
Option



Model	BF-SZAI
Input Voltage	DC24V± 5%
Capacity	5VA
Output Voltage	AC2500V
Ion Balance	Under ±10Volts
Air Volume	0.20 ~ 0.30m ³ /min
Ozone Level	Below 0.04ppm (at 150mm center)
Environment	Temperature: 0 ~ 40°C, Humidity: 15 ~ 65%RH(No Condensation)
Filter	Not Available
Dimensions	70×81×45mm (W×H×D) Without Stand
Weight	around 370g
Noise	48dB(A) (Distance 1m)
Alarm	OutputMOS FET relay no voltage B contact output (H.V. or fan abnormality)
Accessories	Manual, Signal output cable (2m) Cleaning Brush
Options	Emitter needle unit: DNU-W29, AC Adaptor: OBF-AD24V100-6P

BF-SZAI II

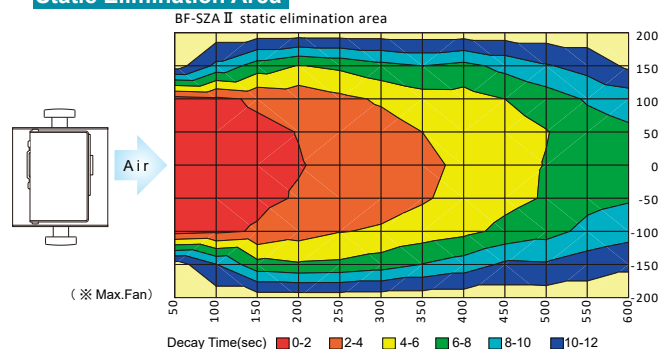
Performance



Data above are measured values, not guaranteed values.

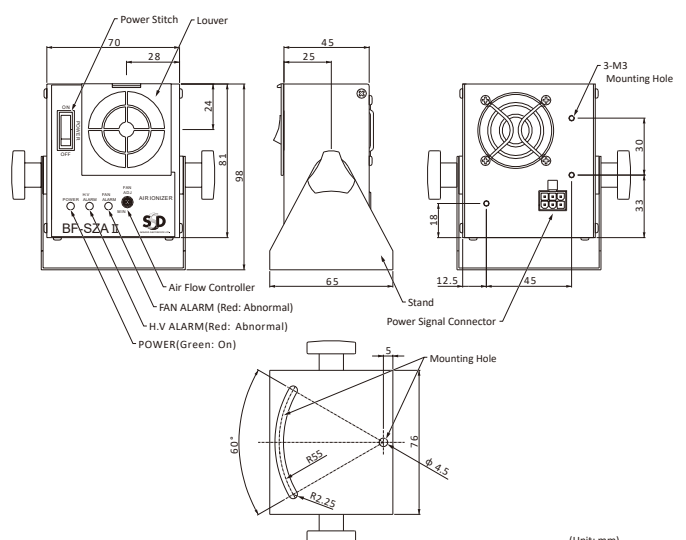
Measured Condition: Max. Fan Speed, □150mm, 20pF CPM Tested
IB: Ion Balance (V)
+: +1000→+100V Decay Time(sec)
-: -1000→-100V Decay Time(sec)

Static Elimination Area



- (Note 1): For measurement use 150mm, 20pF CPM
(Note 2): Static elimination decay time ±1000V→±100V
(Note 3): Ionizing from the center of front louver
(Note 4): Reference data only

Dimension Diagram



Blower Type Static Eliminator High Frequency Type

WINSTAT BF-XZB

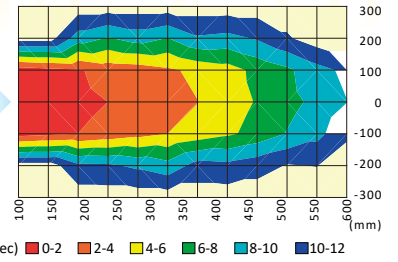
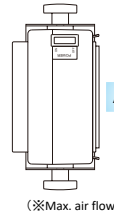


Main Features

- High frequency corona discharged type thin and light-weighted ionizer.
- Easy to detach parts for maintenance, louver and emitter needles only need a finger press to detach from the unit.
- With two types of louver, long distance or wide area of static elimination can be applied.
- Air flow can be adjusted continuously by Air Flow Controller.
- LED and abnormal output signals when abnormal power outputs.



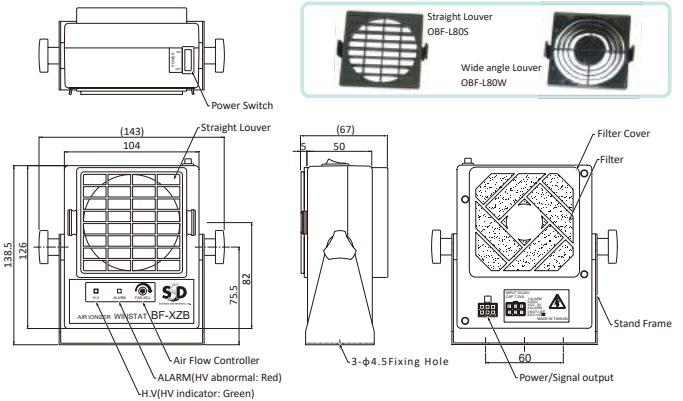
Static Elimination Area With straight louver



Specifications

Model	BF-XZB
Input Power	DC24V (AC adaptor AC100 ~ 240 V available)
Capacity	7.2VA
Output Voltage	AC2500V
Ion Balance	Below $\pm 10V$ (Distance 300mm, Initial setting)
Air Volume	1.0 ~ 1.7m ³ /min
Air Speed	1.6 ~ 2.4m/sec (With straight louver at Distance 300mm center) 0.7 ~ 1.3m/sec (With wide angle louver at Distance 300mm center)
Ozone Level	Below 0.04ppm (Distance 150mm)
Environment	Temperature: 0 ~ 40°C, Humidity: 15 ~ 65% (without condensation)
Filter	Pre-filter level
Indicator	Green: H.V Indicator, Red: Alarm for abnormal HV (ALARM)
Alarm Output	MOS FET Relay Non-voltage contact (HV abnormal)
Dimensions	104x126x67mm(WxHxD) without stand frame
Weight	460g (with stand frame)
Noise	60dB (A) (Distance 1m)
Accessories	Manual, AC adaptor, Straight louver(OBF-L80S), Wide angle louver(OBF-L80W), Signal output cable(2), Cleaning Brush
Option	Emitter Needle unit: DNU-W60, Filter(10/package): OBF-FZA-1-10

Dimensions Diagram



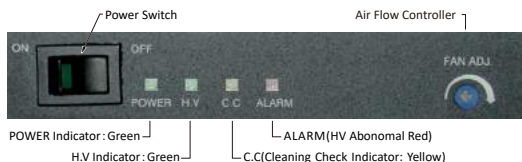
WINSTAT BF-X2ZB-V2



Detach louver and emitter needle unit



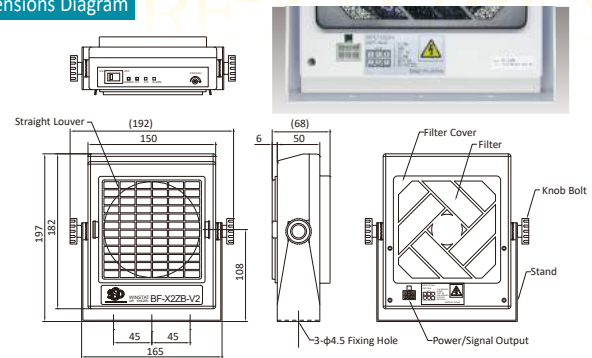
Indicator Panel



Main Features

- WINSTAT BF-X2ZB-V2 is a high frequency corona discharged type thin and light-weighted blower ionizer.
- Easy to detach parts for maintenance as louver and emitter needles only need a finger press to detach from the unit.
- LED indicator and alarm signals the uncleanness and abrasions of the emitter needle.
- With two types of louver, long distance or wide area of static elimination can be applied.
- Adjustable angle with lock function to prevent change of angle due to vibration.

Dimensions Diagram



Mode	BF-X2ZB-V2
Input Power	DC24V (AC Adaptor AC100~240V available)
Capacity	10VA
Output Voltage	AC 3000V
Ion Balance	Below $\pm 10V$ (Distance 300mm: initial setting)
Air Volume	1.6 ~ 3.3m ³ /min
Air Speed	1.9 ~ 3.2m/sec (With straight louver Distance at 300mm center) 0.7 ~ 0.9m/sec (With wide angle louver Distance at 300mm center)
Ozone Level	under 0.04ppm (Distance 150mm)
Environment	0 ~ 40°C / 15 ~ 65%RH (No Condensation)
Filter	Pre-filter level
Indicator	Green: POWER Green: (H.V) Yellow: Cleaning Check (C.C) Red: H.V abnormal (ALARM)
Alarm Output	NPN type photo relay output (Cleaning Check and H.V abnormal)
Dimensions	150x182x68mm(WxHxD) Without Stand
Weight	around 820g (With Stand)
Noise	57dB (A) (Distance at 1m)
Accessories	Manual, AC Adaptor, Straight Louver (OBF-L120S), Wide angle louver(OBF-L80W) Signal output cable(3), Cleaning Brush
Option	Emitter Needle (DNU-W85), Filter 10 (pcs/package) (OBF-F2ZA-1-10)

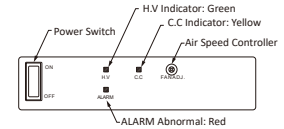
WINSTAT BF-X4ZB



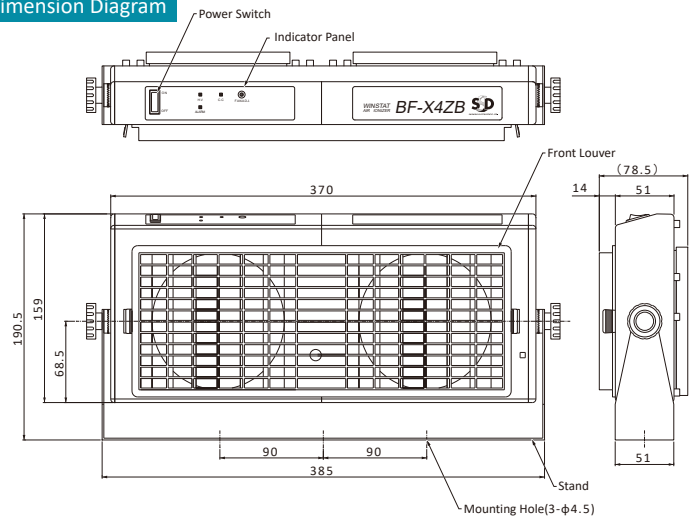
BF-X4ZB



Indicator Panel



Dimension Diagram

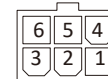


Main Features

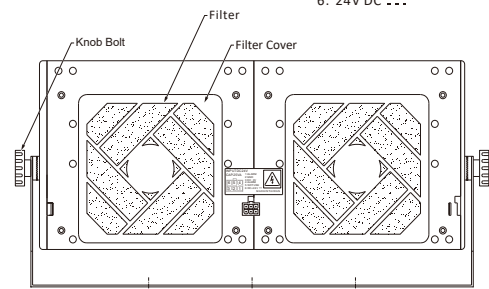
BF-X4ZB is a thin and light-weighted wide-range static eliminator and high-frequency corona discharge air ionizer, which can remove static electricity in a range of 400m. Easy to maintain with longevity of maintenance duration.

- Wide-area horizontal type static elimination blower upto 400mm.
- Light-weighted by using resin casing and small type high-frequency AC transformer.
- Provide large airflows (continuously changeable) by two 120mm fans to eliminate static electricity.
- LED indicator and alarm signals when abrasion or uncleanness of the emitter needle is detected.
- Easy to detach parts for maintenance, only need a finger press to detach louver and emitter needles.
- Power turns off during the removal of louver.
- Adjustable angle with lock function to avoid angle change due to vibration.

Connector Pin Layout



- 1: ALARM-NC
- 2: GND
- 3: OV
- 4: ALARM-NO
- 5: CC-NO
- 6: 24V DC



Emitter needle unit (DNU-W85)

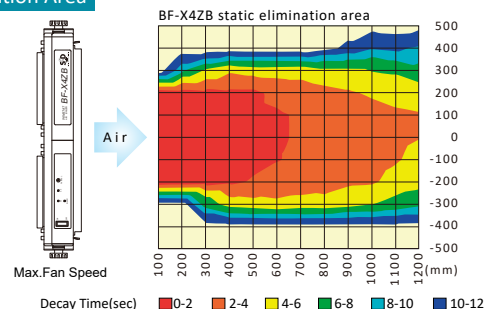


Filter for replacement (10pcs/package) (OBF-F2ZA-1-10)

Specifications

Model	BF-X4ZB
Input Power	DC24V (AC Adaptor AC100 ~ 240V available)
Capacity	25VA (Max. Fan)
Output Voltage	AC3000V
Ion Balance	Below ±10V (Distance 300mm: initial setting)
Air Volume	1.9 ~ 3.0m ³ /min × 2 fans
Air Speed	1.8 ~ 2.8m/sec (Distance 300mm center)
Ozone Level	Below 0.04ppm (Distance 150mm)
Environment	0 ~ 40°C / 15 ~ 65%RH (No Condensation)
Filter	Pre-filter level
Alarm Output	NPN photorelay output (detection on abnormal cleaning or abnormal H.V.)
Dimensions	370×159×78.5mm(W×H×D) Without Stand
Weight	1650g (With Stand)
Noise	63dB(A) (Distance: 1m)
Accessories	Manual, AC Adaptor, Straight louver(OBF-L300), Signal output cable(3/set), Cleaning Brush
Option	Emitter Needle Unit: DNU-W85, Filter (10 pcs/package): OBF-F2ZA-1-10

Static Elimination Area



- (Note 1) Measurement, Use 150mm x 150mm size plate, (20pF) CPM
- (Note 2) Decay time: ±1000V → ±100V
- (Note 3) Data above are measured values, not guaranteed values.

Blower Type Static Eliminator DC Type



WINSTAT BF-XDD



Accessories:
AC Adaptor,
Abnormal Output
Connection Wire
(2/Set)



Option

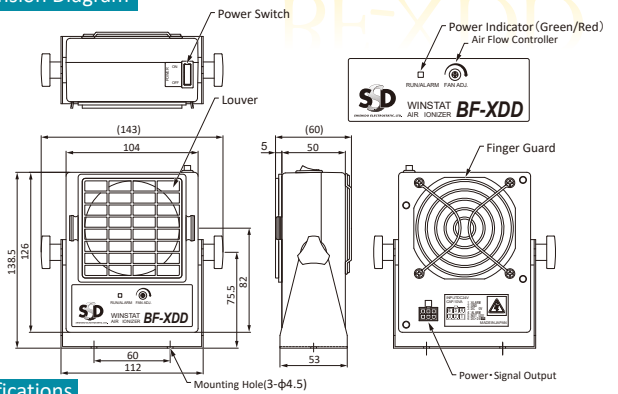


Main Feature

WINSTAT BF-XDD is a compact and light-weighted DC type corona discharge air ionizer, which generates large amount of positive and negative ions to eliminate statics at a high-speed.

- High-speed static elimination
- Easy to detach louver for maintenance
- Power turns off during the removal of louver as a safety design.
- Air volume can be adjusted continuously
- Easy to replace emitter needle by piler
- LED indicator and alarm signals when abnormal H.V. is detected.

Dimension Diagram



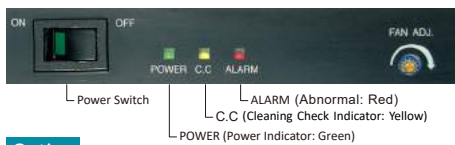
Specifications

Model	BF-XDD
Input Voltage	DC24V (AC Adaptor AC100 ~ 240V Available)
Capacity	10VA
Output Voltage	DC±7500V
Ion Balance	Below ±15V (Initial setting)
Decay Time	Below 1.3 second (Distance 300mm: Max.Fan speed : Initial setting)
Air Volume	0.7 ~ 1.8m ³ /min
Air Speed	1.2 ~ 2.9m/sec (Distance 300mm center)
Ozon Level	Below 0.007ppm (Distance 4150mm)
Display	RUN (Normal: Green), ALARM (Abnormal: Red)
Environment	Temperature: 0 ~ 40°C, Humidity: 1 ~ 85%RH (No Condensation)
Filter	Not Available
Abnormal Output	MOS FET Relay no-voltage B contact output (abnormal power)
Dimension	104x126x60mm(W×H×D) Without Stand
Weight	Around500g (With Stand)
Material	Main Unit: ABS, Emitter Needle: Tungsten, Stand: SECC
Noise	61dB(A) (Distance 1m)
Accessories	Manual, AC Adaptor, Straight Louver (OBF-L80SD), Signal ouput cable(2/set)
Option	Emitter Needle (4/set): DN-W16

WINSTAT BF-X2DD-V2

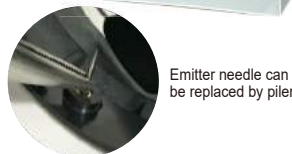


Indicator Panel



Option

• Emitter needle for replacement
(4pcs/set): DN-W16

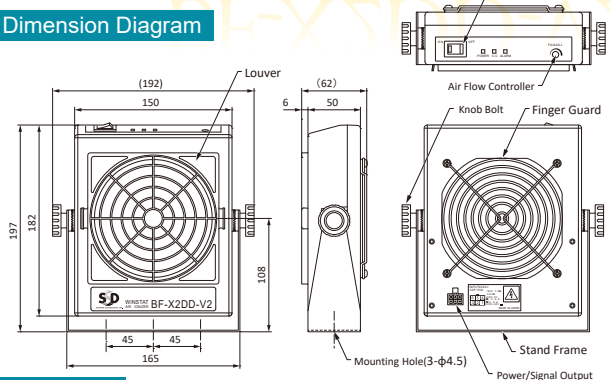


Main Features

WINSTAT BF-X2DD is a thin and light-weighted DC type ionizer, which generates large amount of positive and negative ions to eliminate statics at a high-speed.

- New features: cleaning detection and high-voltage abnormal alarm functions
- Easy to detach louver for maintenance
- Easy to replace emitter needle by piler
- Adjustable angle with lock function to avoid angle change due to vibration.

Dimension Diagram



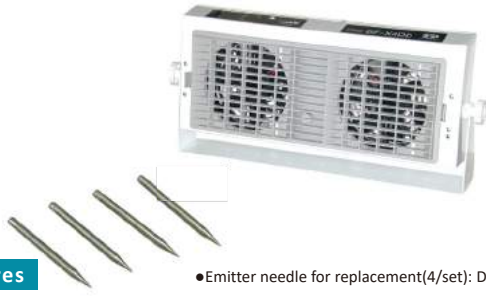
Specification

Model	BF-X2DD
Input Voltage	DC24V (AC Adaptor AC100 ~ 240V Available)
Capacity	10VA
Output Voltage	DC±7500V
Ion Balance	Below ±15V (Initial setting)
Decay Time	Below 0.6 second (Distance 300mm: Max.Fan speed : Initial setting)
Air Speed	1.0 ~ 2.2m/sec (Distance 300mm center)
Ozon Level	Below 0.007ppm (Distance 4150mm)
Environment	Temperature: 0 ~ 40°C, Humidity: 1 ~ 85%RH (No Condensation)
Filter	Not Available
Display	Green: Power Indicator(POWER), Yellow: Cleaning Check(C.C.) Red: Power Abnormal(ALARM)
Abnormal Output	NPN Photo Relay output (Power Abnormal or Cleaning Check)
Dimension	150x182x62mm(W×H×D) Without Stand
Weight	Around 900g (With Stand)
Noise	62dB(A) (Distance 1m)
Accessories	Manual, AC Adaptor, Wide Angle Louver (OBF-LD120W), Signal ouput cable(2/set), Cleaning Brush
Option	Emitter Needle (4/set) : DN-W16

WINSTAT BF-X4DD



Option



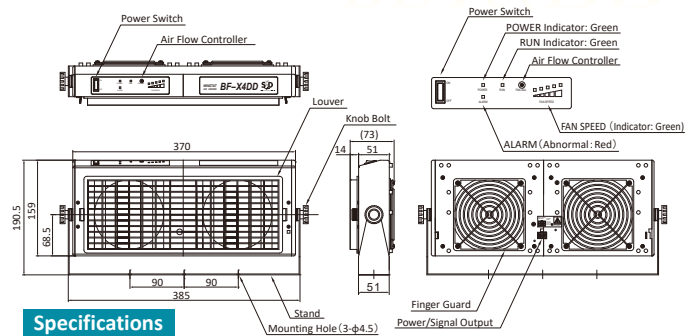
Main Features

- Emitter needle for replacement(4/set): DN-W16

BF-X4DD is a thin and light-weighted high-speed and wide DC type corona discharge air ionizer. Easy to detach and install louvers for maintenance.

- High-speed static electricity elimination.
- Provide large airflows (continuously changeable) by using two 120mm fans to eliminate static electricity.
- Replace emitter needle easily by pliers.
- Power turns off during the removal of louver.
- LED indicator and alarm signals when abnormal H.V. output is detected.
- Adjustable angle with lock function to avoid angle change due to vibration.

Dimension Diagram



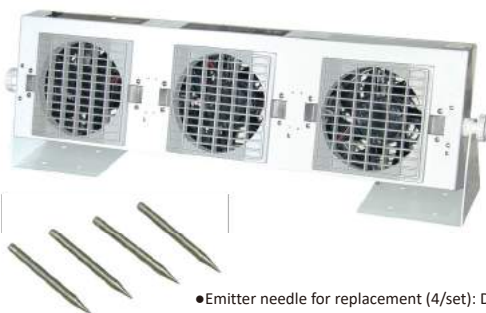
Specifications

Model	BF-X4DD
Input Power	DC24V(AC Adaptor AC100~240V Available)
Capacity	25VA(Max. Fan Speed)
Output Voltage	DC±7500V
Ion Balance	Below ±15V(Distance 300mm: initial setting)
Decay Time	Below 0.6 sec(Distance 300mm, Max.Fan speed: initial setting)
Air Volume	1.4~3.6m ³ /min × 2 fans
Air Speed	2.2~4.5m/sec(Distance 300mm center)
Ozone Level	Below 0.007ppm (Distance150mm)
Display	POWER Indicator: Green, RUN(Indicator: Green), ALARM(Abnormal: Red)
Environment	Temperature: 0~40°C, Humidity: 15~85%RH(No Condensation)
Filter	N/A
Abnormal Output	MOS FET Relay no-voltage B contact output (abnormal output)
Dimensions	370×159×73mm(W×H×D) Without Stand
Weight	Around 1700g (With Stand)
Material	Main Unit: ABS, Emitter Needle: Tungsten, Stand: SECC
Noise	65dB(A) (Distance 1m)
Accessories	Manual, AC Adaptor, Signal output cable(2/set)
Option	Emitter Needle Set(4/set): DN-W16

WINSTAT BF-X6DD



Option

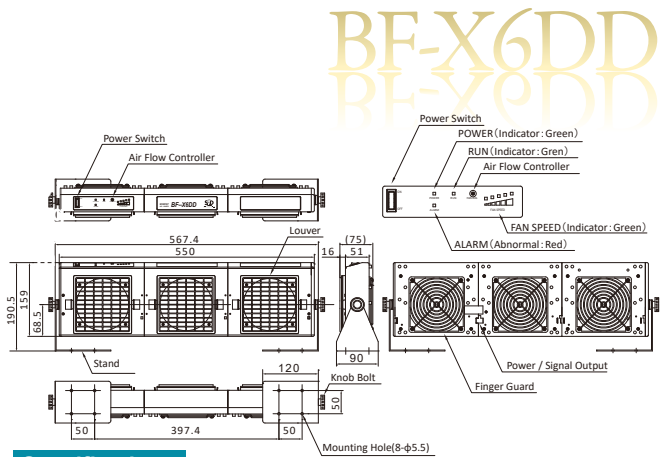


Main Features

- Emitter needle for replacement (4/set): DN-W16

BF-X6DD is a wide type high-speed DC type corona discharge air ionizer. Easy to detach and install louvers for maintenance.

- High-speed static electricity elimination.
- Provide large airflows (continuously changeable) by using three 120mm fans to eliminate wide-area of static electricity.
- Lighter than old model products by resin-made casing.
- LED indicator and alarm signals when abnormal HV output is detected.
- Power turns off during the removal of louver.
- Replace emitter needle easily by pliers.
- Adjustable angle with lock function to avoid angle change due to vibration.



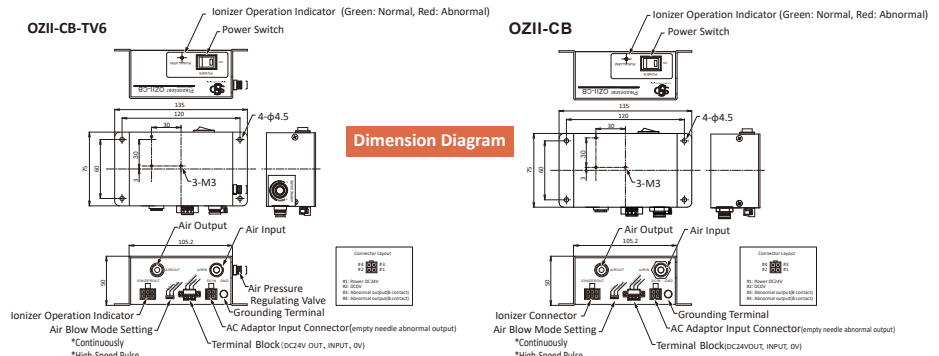
Specifications

Model	BF-X6DD
Input Power	DC24V (AC Adaptor AC100~240V available)
Capacity	33VA(Max. Fan Speed)
Output Voltage	DC±7500V
Ion Balance	Below ±15V (Distance 300mm; initial setting)
Decay Time	Below 0.6 sec (Distance 300mm, Max.Fan: initial setting)
Air Volume	1.4~3.6m ³ /min×3 fan
Air Speed	2.4~5.1m/sec (Distance 300mm center)
Ozone Level	Below 0.007ppm (Distance 150mm)
Display	POWER(Indicator: Green), RUN(Indicator: Green), ALARM(Abnormal: Red)
Environment	Temperature: 0~40°C, Humidity: 15~85%RH(No Condensation)
Filter	NA
Abnormal Output	MOS FET Relay no-voltage B contact output (power abnormal)
Dimensions	550×159×75mm(W×H×D) Without Stand
Weight	around 2500g (With Stand)
Materials	Main Unit: ABS, Emitter Needle: Tungsten, Stand: SECC
Noise	66dB(A) (Distance 1m)
Accessories	Manual, AC Adaptor, Stand(2/set), Knob Bolt(2), Signal output cable(2/set)
Option	Emitter Needle Unit (4/set): DN-W16

Nozzle-Type High Frequency Model

Controller / Option

ZappIII Controller OZII-CB



Main Features

Zapp II-CB controls the power supply of ZappIII and air supply with continuous or pulsed method of air output.

- Control ZappIII power supply and air supply
- Available to set ion pulsed air supply
- Available to use switch and sensor to control
- Abnormality displays through LED and abnormal alarm signal
- Available with adjustable air pressure model (OZII-CB-TV6)

Model	OZII-CB	OZII-CB-TV6
Available Model	ZappIII, ZappIII-H, ZappIII-C	ZappIII, ZappIII-H, ZappIII-C (H type: Air flow decrease slightly)
Input Power	DC24V with AC Adaptor AC100 ~ 240V	
Current Consumption	0.3A (use ZappII)	
Display	Green: Normal, Red: Abnormal	
Abnormal Output	MOS FET Relay Non-Voltage B contact Output(ZappII Abnormal)	
External Input	Input Terminal (DC24V OUT, INPUT, 0V)	
	ZappII operation ON: Short INPUT and 0V or supply 0 ~ 3V to INPUT ZappII operation OFF: Open INPUT and 0V or supply 5 ~ 24V to INPUT	
Air Supply	Clean Air	
Available Air Pressure	0.05MPa ~ 0.6MPa	
Air Pressure Adjustment	None Available	Available(ANR)
Maximum Air Flow	450ℓ/min(ANR) ^{*1} (only controller)	240 ℓ /min ^{*1} (only controller)
Air Output Control	CONT: Continuity, PULSE Hi: High-Speed Pulse(10Hz), PULSE Lo: Low-Speed Pulse(5Hz)	
Environment	0 ~ 40°C / Below 85% RH(No Condensation)	
Dimensions	135W×50H×75D(mm)	
Weight	530g (only main unit)	
Accessories	Controller, AC Adaptor, ZappII Connection Cable(2m), Grounding Cable, Air Tube(2m), Manual, Contact Pin(5 pcs)	

*1: The life time of valve in the controller is 50million times(ON/OFF)

Compact AC Ionizer

PIEZONIER ZappIII-L

Ultra Low Air Flow



Power & Signal Cable
(included with main unit)



Main Features

- **High Performance**
High efficiency in ionizing capability compares to the old models by SSD'S newly developed electrode structure
- **One Piece Nozzle Structure**
Integrated air and high-pressure cable seamlessly into one piece inside of the pipe. ZAPPIII-L can be installed into a device in any location. Pipe nozzle is available to purchase as an option for 100mm or 200 mm.
- **Alarm for High Pressure**
When high-pressure stops, alarm signals as well as the two connection points of Normal Open and Normal Close display the output.
- **Cleaning Check "C.C"**
LED signals and Normal Open connecting point displays when abnormal output from the discharge needle is detected.

Option

OZII-LC200



OZII-LC100



Model	ZappIII-L
Input Power	DC+24V±10%
Capacity	2.4VA
Output Voltage	AC 2000 V
Discharge Method	High Frequency AC Corona Discharge Method
Ion Balance	Below ±10V (Distance 50mm, initial setting)
Alarm Output (ALARM)	NPN Photoelectric Relay Output (NO/NC) Max. Current: 100 mA Voltage: Below 30VDC
Cleaning Check (C.C)	NPN Photoelectric Relay Output (NO) Max. Current: 100mA, Voltage: Below 30VDC
Discharge Input Stop(HV-OFF)	Discharge Off: Short circuit to 0V, Discharge On: Open Circuit (keep voltage below 0.5V)
Ozon Level	Below 0.03ppm (Supply Air: 30ℓ/min(ANR) from exhaust at 300mm) ^{*2}
Supplied Air	Clean Air
Air Pressure	0.005 ~ 0.1MPa
Air Consumption	Maximum 50ℓ/min (ANR)
Environment	Temperature: 10 ~ 40°C, Humidity: Below 65% no condensation
Dimension	87×18× 50mm (W×H×D)
Weight	78g
Accessories	Manual, Power Cable(2.5m)(Nozzle is optional.)

*2: The Ozone level increases under some environment condition. we recommend to use ozone resistance material around the tip of nozzle.

PIEZONIZER

Nozzle Type Ionizer

PIEZONIZER **ZappII-LS**



ZappII-LS



OZII-LS-03 Connection cable

OZII-LS-01 Controller



OZII-LS-02 Electrode

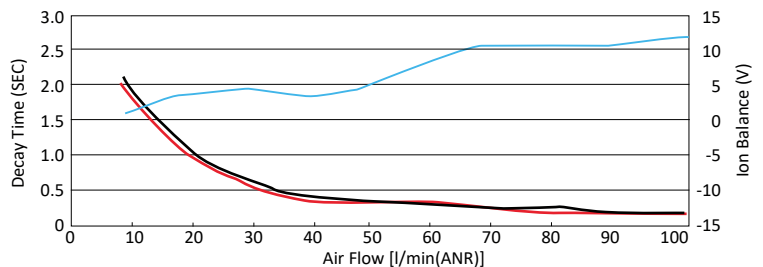
Main Features

ZappII-LS is a low-flow nozzle type ionizer. The cable inside the air tube gives maximum flexibility for installation inside the device.

- Our unique electrode structure enables the maximum flexibility to install the cable inside the device by locating high voltage transformer at the tip of the device and inserting cable into the air tube.
- Built-in electrode of the transformer has an ultra-fine structure with a maximum diameter of $\Phi 16\text{mm}$, which can be installed in any position.
- By using low-voltage, it can be used in a short distance (10mm or less) without worrying about reverse charging or causing damage.
- The nozzle can be removed easily for the maintenance of discharge needle.
- The length of the air tube with built-in cable can be selected from 1m, 2m and 3m
- This product is a specially made for low-flow. It eliminates statics within a shorter period of time compared to ZappII and provides a stable low ion-balance (within 5V).

Decay Characteristic

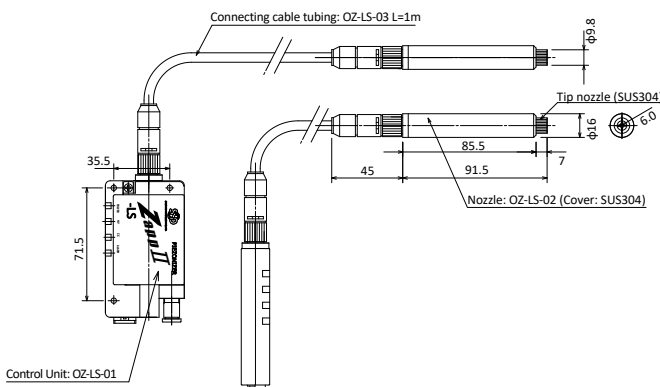
ZappII-LS Decay Time and Ion Balance



- +decay time
- -decay time
- ion balance

(Note 1): CPM tested, 150mm, 20pF
 (Note 2): static elimination $\pm 1000\text{V} \rightarrow \pm 100\text{V}$ decay time
 (Note 3): measured at 50mm distance away from flat panel
 (Note 4): data above are measured data not guaranteed data
 (Note 5): data above 50l/min is for reference only not guaranteed

Dimension Diagram



Model	Zapp II -LS
Input Voltage	DC24V $\pm 10\%$
Capacity	2.4VA
Discharge Methodology	High Frequency AC Corona Discharge Type
Output Voltage	About AC2,000V
Ion Balance	Below $\pm 5\text{V}$ (Below 50mm, Initial setting)
Alarm Output (ALARM)	NPN type photoelectric relay output Maximum Current: 100 mA Voltage: Below 30V DC
Cleaning Check Output	NPN type photoelectric relay output Maximum Current: 100 mA (C.C) Voltage: Below 30V DC
Discharge Input Off (HV-OFF)	Discharge Off: Short Circuit to 0V Discharge On: Open Circuit (remained voltage below 0.5V)
Ozone Level	Below 0.03ppm*1 (Air Input 10 ℓ /min, 300mm from tuyere)
Available Air	Clean Dry Air
Air Pressure Range	0.005~0.2MPa
Air Consumption	Maximum 50 ℓ /min(ANR)
Environment	Temperature: 10 ~ 40°C / Humidity: Below 65%RH (No Condensation)
Dimension	Electrode: $\phi 16 \times 100.5$ Controller: 86.5L \times 18W \times 50H (No stand)
Weight	About 145g (3/set, with 1m cable)
Material	Controller: ABS, Stainless
Accessories	Controller, Electrode, Connection cable (1 m) Power supply cable

*1: Ozone level may increase under certain working conditions. Please use ozone-resistant material components.

Gun Type

High Frequency

The ionized air gun type series is a noise-free, ultra small built-in high-voltage transformer ionizer without high-voltage wiring. Wiring process is simplified due to DC type power supply. The detection system, standard safety circuit for high-voltage abnormal detection, sends an alarm when abnormal activities occur.

Air Gun

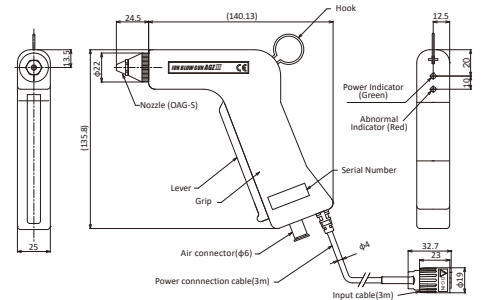
Ion Blow Gun AGZIII(-OV)



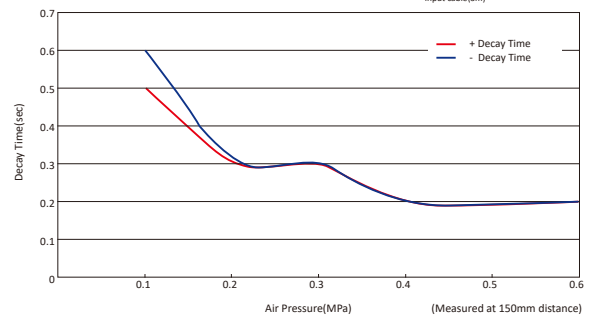
AC Adaptor
Connection Cable
(0.3m, Accessories)
EU/UK Plug available

AGZ III

Dimension Diagram



Decay Characteristic



Main Features

AGZIII is a handy grip small and lightweight ionized air gun with built-in electrode to eliminate statics and blow away adhering dust.

- The 200g light-weighted plastic air gun with handy grip improves the work efficiency.
- AGZIII is a safe design product, built-in piezo electric transformer without high voltage exposure and high-voltage cable.
- Energy-saving, low-voltage corona discharge.
- Air Pressure: 0.05 ~ 0.6MPa
- Maximum air consumption 370ℓ/min(0.6MPa)
- A flat nozzle (OAG-F) as an option.
- Optional nozzles with special request is available, please contact us for details.

Option

AGZ III Flat Nozzle
OAG-F

optional



AGZIII Air Controller
OAGIII-CB

optional



Main Features

By connecting air controller with AGZIII ionized air gun, the air supply (ON/OFF) can be controlled by foot-pedal switch. Pulse mode with highly dust removal effect can be set-up.

check our website for details 

- Controls AGZIII's power and air supply ON/OFF.
- Ionized air supply can be set to pulse (10Hz or 5Hz) or continuous mode air blow. The pulse mode ionized air enhances the dust removal effect.
- Reduce the pressure from holding the grip by connecting to the external controlled foot-pedal switch.

Model	AGZIII-OV (as overseas model)
Input Voltage	DC24V(AC Adaptor Input AC100 ~ 240V available)
Current	100mA
High-voltage output	High frequency high-voltage power supply
Output voltage	AC 2500V
Display	Green: Normal Power Supply, Red: Abnormal Power Supply
Ion Balance	±10V(Distance 100mm, Initial setting)
Ozone Level	Below 0.04ppm (Distance 200mm)
Air Supply	Clean and Dry Air
Air Pressure Range	0.05 ~ 0.6MPa
Air Consumption	Maximum 370ℓ/min(ANR) (0.6MPa)
Environment	Temperature: Below 0 ~ 40°C/ Humidity: Below 65% RH(No Condensation)
Dimension	164.6×25×135.8mm (L×W×H)
Weight	About 200g(Cable weight not included)
Accessories	AC Adaptor, Manual
Option	Flat Nozzle(OAG-F), Emitter Needle 5/set (DN-W17), Extended Cable(OAGIII-ECAB-L) (length available: 2m or 4m or 6m)

Model "AGZIII-OV" is overseas model (handling by official agent).

OAG III-CB

Model	OAGIII-CB
Connection product	AGZIII
Power Supply	DC24V AGZIII AC Adaptor (AC100 ~ 240V available)
Current	200mA (Use with AGZIII)
Display	Green light: when power / air supply is on
Air Supply	Clean and Dry air
Air Pressure Range	0.05 ~ 0.7MPa
Air Consumption	Max. 500ℓ/min (ANR) (Air consumption by air controller)
Air output setting	1: CONT: continuously blow 2: PULSE Hi: high pulse blow (10Hz) 3: PULSE Lo: low pulse blow (5Hz)
External Output (INPUT)	Contact input WORK: short circuit the two INPUT ports STOP: open the two INPUT ports
Environment	Temperature: Below 0~40°C, Humidity: Below 85%RH(No Condensation)
Dimension	135 × 55 × 75mm (W × H × D) (No Stand)
Weight	Around 490g (Main Unit Controller only)
Accessories	Controller Unit, AC Adaptor conversion cable (2m), Air-gun conversion cable (0.3m), Ground wiring, Air tube (3m), Manual

*The life span of the solenoid valve inside the controller is 50 million times ON/OFF.

Gun Type - Pencil Type

High Frequency

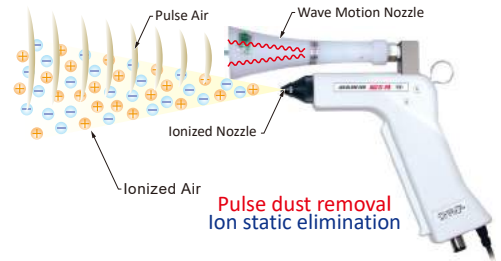
PIEZONIZER

Statics and Dust Removal on Plastic parts

The air pressure can be supplied upto 0.6MPa to remove the particles attached on the resin surface due to electrification. The best choice product for assembling lenses, transparent substrates and cover etc.

Gun Type Ionized Air Gun AGZIII-PA

AGZIII-PA



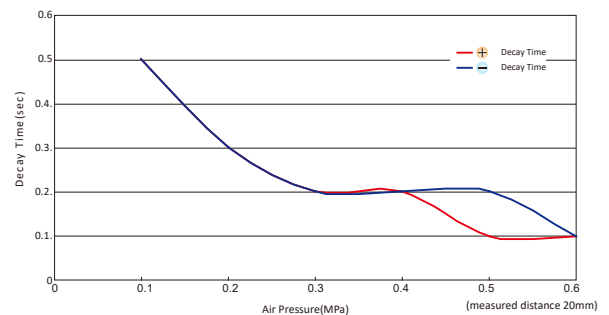
Main Features

PIEZONIZER AGZIII-PA is a compact and lightweight ionized air gun. The dust can be blown away by the powerful high pulse generated by the wave motion type of nozzle to eliminate statics attached on the charged objects.

- The lightweight (290g, cable not included) handy-grip type of air gun improves the work efficiency.
- Powerful dust remover by wave motion nozzle
- High frequency AC enables good static elimination performances and ion balance.
- Highly flexible cable (accessory).
- No need for extra controller as high voltage power and air valve is equipped in the main unit.

Model	AGZIII-PA
Input Power	DC24V(AC Adaptor AC100 ~ 240V available)
Current	About 100mA
Output Voltage	AC2000V (High Frequency AC)
Display	Green: Power Normal, Red: Power Abnormal
Weight	290g (with nozzle and main unit, without cable)
Dimension	210×25×180mm (L×W×H)(with nozzle)
Ion Balance	Below ±30V
Ozon Level	0.04ppm(from tyuree 200mm)
Air Supply	Clean and Dry Air
Air Pressure	0.3 ~ 0.6MPa
Enviornment	0 ~ 40°C (No Condensation)
Accessories	Manual, AC Adaptor, Wave Motion Nozzle

Decay Characteristic



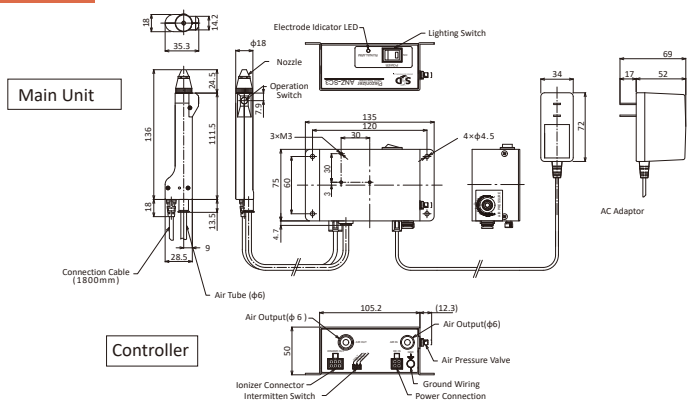
Dimension



Main Features

The pen-type air ionizer with a built-in high-voltage power supply is compact and lightweight with a diameter of $\phi 18$ mm and a weight of 95g. It is suitable for long-term static elimination and dust removal operations.

- The compact and lightweight design helps to reduce the pressure for long working hours.
- The high frequency AC corona discharge enables a better static elimination performance and provides the best ionizing effect.
- The high voltage power supply and air supply ON/OFF switch can be controlled through main unit by using the controller.
- Ionized air (10Hz or 5Hz) can be blown out intermittently through the controller to enhance the dust removal effect.
- The buzzer and output signal sends out a warning when a high voltage abnormality occurs.
- Meets RoHS standard (2002/95/EC)



Model	ANZ-SC3
Input Power	DC 24V (AC Adaptor AC100 ~ 240V available)
Current	400mA
Discharge Method	High Frequency AC Corona Discharge
Output Voltage	About AC2500V (High Pressure Probe: 3pF, 100M Ω measurement)
Display	Green: Power Normal, Red: Power Abnormal
Buzzer	Discharge Abnormal ON
Abnormal Output	MOS FET Relay on-voltage B contact output (power abnormal)
Ion Balance	Within ± 15 V (Initial setting)
Ozon Level	Below 0.04ppm (Distance 150mm)
Air Supply	Clean and Dry Air
Air Pressure	0.05 ~ 0.6MPa
Air Flow	Maximum 190 ℓ (ANR)/min
Air Output Control	CONT: contineous, PULSE Hi: High Pulse (10Hz), PULSE Lo: Low Pulse(5Hz)
Environment	Temperature: Below 0 ~ 40°C/ Humidity: Below 65% RH (No Condensation)
Dimension	Main Unit: $\phi 18 \times 154$ L(mm), Controller: 135 \times 50 \times 75mm(W \times H \times D) No Stand
Weight	Main Unit: 95g, Controller: 570g
Accessories	Controller, AC Adaptor, Ground Wiring, Cable Clip(4), Contact Pin(5), Air Tube, Manual

*The life time of the solenoid valve inside the controller is 50 million times ON/OFF.

TESTER

Static Measuring Device Decay Measuring Device

STATIRON DZ4



DZ4 Plate(Optional)
Model: ODZ4-PLT
Check the ion balance of Ionizer

head rotation 180 degree
(hold each 45 degree)



Human Body Static Measurement
(Optional)
Model: ODZ4-HPLT2

NEW

Main Features

DZ4 is an indispensable device for managing static electricity. It is easy to use at a fairly reasonable price.

- SSD self-developed rotational head makes the measurement easy to operate at a narrow space
- Easy to read with bright and wide screen display
- Easy to measure with only few buttons
- Display the MODE for measurement
- Optional balance plate can check the ion balance of ionizer
- In the case of fluctuated static electricity, use the max.mode to measure the maximum voltage
- Sensor displays detected error

In-Line Static Measurement

DSF601/W



Model Display

- Power Selection
"1": Adapter included
"2": Power supply and signal cable 3m included
- Selection of Measurement Range
"A": ±1.999kV "B": ±19.99kV
- DSF601-□-□-□-□
- Wi-Fi Selection
"W": With Wi-Fi
"N": Without Wi-Fi
- Sensor Cable Length
"1500": 1500mm(included)
"3000": 3000mm(included)
"5000": 5000mm(included)
"10000": 10000mm(included)

Example:
DSF601-A-W-2-5000
DSF601-B-N-1-1500



Main Features

Real-time static electricity measurement can be performed directly on the production line.

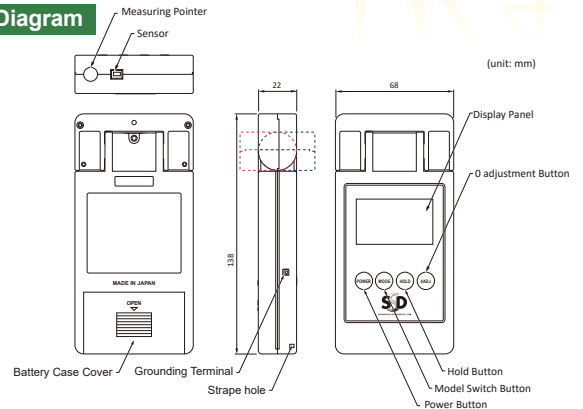
- Able to be installed on the production line to measure the electrostatic potential
- Able to be installed at any location as the sensor head is compact
- Measurement data can be managed through analog output, RS232C output and Wi-Fi output.

Static electricity is the cause of problems in the production process. To properly remove static electricity, it is required to know the location of static electricity and the amount of statics generated. The model can be selected according to the measurement range and accuracy to measure the surface of a charged object.

- Application
- Check the charged condition of film, resin, etc.
 - Check the assembling process line
 - Check the ion balance of the ionizer

STATIRON DZ4

Dimension Diagram

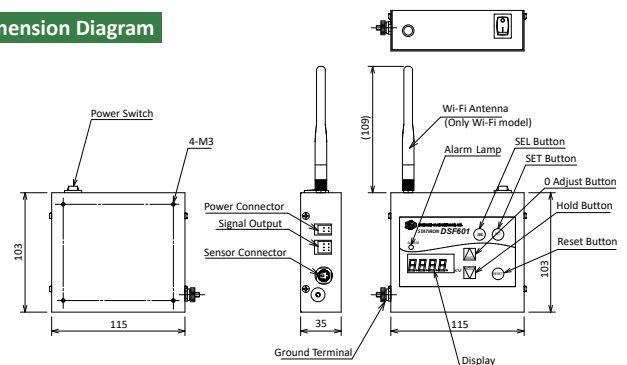


Model	DZ4
Single Detection Method	Oscillating Chopper *1
Data Update Frequency	0.5 second
Measurement Range	Normal Mode: 0.00 ~ 19.99kV(resolution: 0.01kV) I.B Mode: 0.000 ~ 1.999kV(resolution: 0.001kV)
Measurement Accuracy	±10%rdg±2digits
Measurement Distance	30mm(between measured objects and device)
Measured Distance Adjustment	RED LED Focus (light marked focus distance: 30mm)
Head Rotation Angle	180 degree(Hold each 45 degree)
Display	Built-in backlight LED display
Polarity Indication	+(Positive) or -(Negative) Polarity
Mode Switch	Switch by Mode Switch Button
Battery Check	Display Battery Consumption
Power	DC9V square alkaline battery 006P
Environment	Temperature: 0 ~ 40°C, Humidity: 20 ~ 70%RH (No Condensation)
Dimensions	68×22×138mm (W×D×H)
Weight	60 g(include Battery)
Accessories	9V Battery, Soft case, Grounding Wire, Strape

*1: The oscillation chopper is weak in shock specially being dropped. Please use it with care to avoid strong shock.

DSF601/W












Dimension Diagram



Measured Range	Type A ±1.999kV (Measured Distance 5mm) Type B ±19.99kV (Measured Distance 30mm) Please select during purchasing
Voltage	DC24V
Sensor Cable Length	1.5m / 3m / 5m / 10m
Data Output	RS232C(data output interval 0.1sec), Data output, Wi-Fi (only DSF601W)
Data Output	+19.99kV (+1.999kV) → DC4.5V, 0V → DC2.5V - 19.99kV (-1.999kV) → DC0.5V
Main Unit Size	35mm×115mm×113mm

TESTER

Icon Details

-  DC Power Battery
-  DC Power (Rechargeable) Rechargeable Internal Battery
-  AC Power
-  Simulation Output Output to Recording Device
-  Display Measurement Range
-  PC Output
-  Alarm Output NO/NC Alarm Output Available
-  Buzzer Buzzer rings when the mearement exceeds reference value
-  Optional
-  DC24V Power Use External 24V Power Output
-  WiFi Output WiFi output function can skip numbers

Handy Type CPM(charged plate Monitor) STATIRON DP

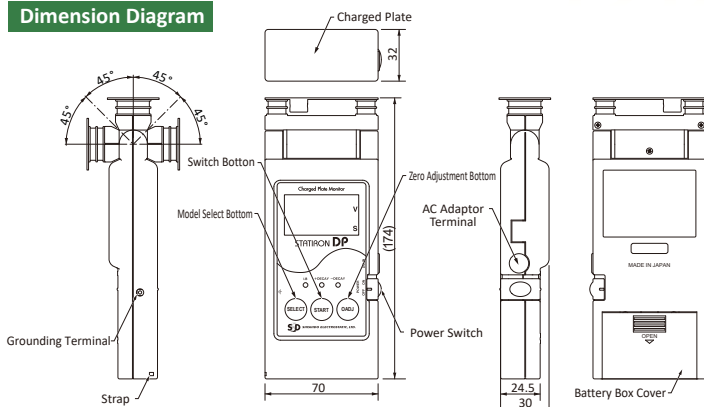
-  Battery
-  Range
-  Optional



Head rotation 180 degree (Holds each 45 degree)



Dimension Diagram



Main Features

- The best ionizer to measure ions at the operating environment.
- This device measures the decay time and ion balance by applying voltage to the metal plate, which is used as a CPM to test the discharge performance.
 - * Two types of decay measurement $\pm 1000V \rightarrow \pm 100V, \pm 1000V \rightarrow \pm 50V$
 - * The measured data does not equivalent to IEC standard data.
- The compact design is easy to check the ion status on site.
- The head rotation is very flexible to change the angle of the metal plate for operation, which makes the detection of ion status on a device very easy.
- Simple to operate by press the operation button to get a quick and accurate measurement.
- Easy to read with large and bright display monitor

Model	DP
Signal Detection Methodology	Oscillation Chopper*1
Measurement Accuracy	0 ~ ± 1999 V(Resolution: 1V)
Measurement Time Range	0.0 ~ 99.9 seconds
Non-Stop Operation Time	6 Hours(Use alkaine battery for I.B mode)
Head Rotation Angle	180°(Holds each 45°)
Display	LED Display
Polarity Indication	+ (Positive) / - (Negative)
Mode Switch	Use SELECT bottom to switch
Battery Check	Display on the LCD monitor for the remaining battery level
Power Supply	AA battery(2), AC Adaptor(Optional)
Environment	Temperature: 10~40°C, Moisture: Below 60%RH (No Condensation)
Measurement of voltage accuracy	$\pm 10\%$ rdg ± 2 digits
Main unit Size	70x174x 30mm (Wx Hx D)
Metal Plate Size	70x 32mm
Metal Pate Capacity	12pF \pm 1pF
Weight	240g (include battery)
Accessories	AA Batery (2), Storage box, Strap
Option	Grounding Wire, AC Adaptor(ODP-ADP), AC100~240V Available

*1: The oscillation chopper is very sensitive to shock such as being dropped. Please be very careful to avoid strong shock.

Charged Plate Monitor 301

-  AC Power
-  Rechargeable
-  Optional



Options



• Alluminum Case(L) (Optional)



• Carring Case with casters(S) (Optional)



• Optional Plate (1x1 inch) OCPM301-PLT (Optional)



• Software Application (Optional)

Main Features

- Evaluate the ionization performance accurately!
- Perform +/- decay test and ion balance measurement test to evaluate the static elimination performance.
- Applies to all ionizers that comply with ESD ANSI/ESD STM3.1 standards.
- Optional software application is available for testing.
- Optional purchase of alluminum case and box with casters are available for easy transportaion and storage.

Model	CPM301
CPM Capacity	20pF \pm 10%
Standard CPM Size	150x150mm
Optional Mini CPM Size	1x1 inch (Optional)
Power Voltage	AC90 ~ 250V(50/60Hz)
Measured Voltage	Accuracy 0.1% \pm 3 digits
Measurement range	Temperature 0 ~ 50°C, Humidity 10 ~ 80%RH (25°C)
Environment	Temperature: 5 ~ 35°C, Humidity: 10 ~ 80% (No Condensation)
Battery Duration	6 hours
Battery Charging Time	8 hours (90%)
Dimension	280x229x152mm (WxDxH)
Weight	5.8kg
Options	Option Mini Plate: (OCPM301-PLT), Software Application Alluminum Case(L): (520Wx390Dx300H), Carring case with casters(S): (420Wx370Dx295H) <Tires and Handles not included>

Decay Tester, Resistivity meter

Half Decay Tester Applied for ISO 18080-1: 2015 STATIC HONESTMETER H-0110-S4B

The probe height of 15 mm conforms to JIS standard, 20mm probe height is also available upon request.

H-0110-S4B



Please specify 50Hz or 60Hz. AC power for H-0110-S4B is only AC100V available. In case over AC100V use, please prepare step-down transformer.

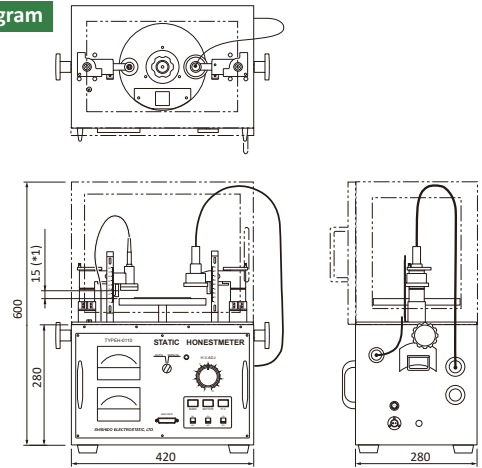
Main Features

※Safety cover is included in standard accessory.

The Static Honestmeter measures the electrostatic diffusion of material by irradiating the sample with corona discharge and measure the static decay curve after the irradiation stopped.

- Comforms with ISO 18080-1:2015 & JIS L1094:2014 testing methodology with the half-life measurement for testing the electrostatic prope of woven and knitted fabrics.
- The sample are irradiated by corona discharge ions. By selecting the polarity of the corona discharge or the applied voltage, the sample can be discharged with positive or negative ions as well as changing the voltage.
- Any sheet-like sample sygc as films, boards, threads, fabrics, carpets, glass etc, can all be measured.

Dimension Diagram



Note 1: Probe height during our calibration

Model	H-0110-S4B
Input Voltage	Only AC100V±10% (50/60Hz) *1
Capacity	100VA
High Voltage Output	H.V(Applied Voltage for Corona Discharge) 0~10kV
Calibration Probe Height	15mm(ISO 18080-1:2015 & JIS L1094-2014 standard)
Environment	Temperature: 0 ~ 40°C, Humidity: 20 ~ 90%RH(No Condensation)
Output Signal	ANALYZER terminal for analyzer Voltage 0 ~ ±10V Accuracy: around 10%
Dimensions	420×603×280mm(W×H×D) (exclude cable and stickout parts)
Weight	Approx. 33kg
Accessory	Power Cable (1), Single Cable (1), Hexagonal Wrenches (1), 2A Fuse (3), Table for Testing

*Note 1: Please specify 50Hz or 60Hz upon purchase. It does not correspond to different standard of voltage.

HONEST DATA ANALYZING SYSTEM V3

V3

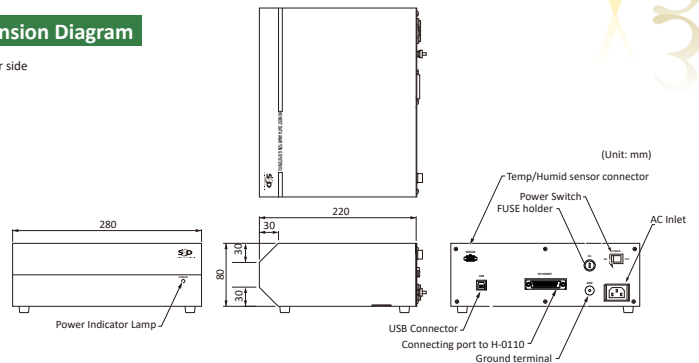
■ HONEST METER H-0110-S4B

■ HONEST DATA ANALYZING SYSTEM V3

■ PC ※prepared by customer side



Dimension Diagram



Main Features

The Honest Data Analyzing System calculates the half-life of voltage attenuation from the electrostatic decay curve received from the Honest Meter. The electrostatic attenuation of the material can be measured automatically with one touch by connecting to PC.

- Decay Time Setting(half-decay setting normally 50%): 2 ~ 100%
- Measured data can be saved into PC data.
- Temperture and moisture data can be saved automatically into file
- Flexible to adjust voltage and time axis

Model	V3
Input Voltage	AC100 ~ 240V±10% (50/60Hz)
Capacity	0.5VA
Dimension	280×220×80mm(W×H×D)
Weight	1kg
Interface	PC connected with USB (only 1 by 1)
Required Software	DOS/V PC with USB Interface Memory: Over 128MB, Comply with OS required capacity Available 2GB space on Hard Disc Drive(HDD) or Solid State Drive(SSD) Pixel resolution: Over 1024×768
Required OS	Windows 7 64 bit Windows 8, Windows 8.1, Windows 10 Windows 11
Accessory	Power Code(1), Honest Meter Main Unit Connecting Cable (1) USB Cable(1), Temperture/Moisture sensor (1), CD-ROM(V3 software), Stand

TESTER

Device configuration and operation

Figure 1 shows the principle of charge decay measurement. The capacitance of the sample is "C" and leakage resistance is "RL". Charge the sample from the power source and wait for the charge distribution to reach to a trable state, then turn off the power. Assume the electrostatic potential of the sample now is at "0". After "t" seconds, through the leakage resistance of the sample, the electrostatic potential decreases due to the current as shown in Fig.2, the decay curve. The potential ΔV of the decay curve is given by the following fomula.

$$V = V_0 \exp[-t/(RL \cdot C)] \dots\dots\dots \text{Fomula 1}$$

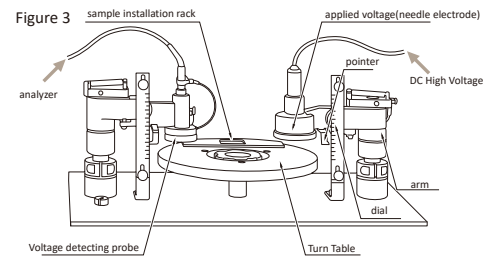
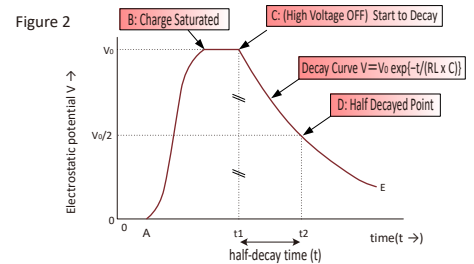
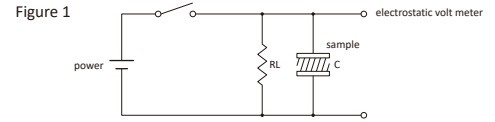
The half-life τ is the time from the leakage and diffusion of the charge of the sample to the decay until the potential becomes 1/2 of the initial potential V0. In formula 1, when V = V0 / 2, the half-life τ is calculated by the following formula

$$\tau = (RL \cdot C) \ln 2 \dots\dots\dots \text{Formula 2}$$

In formula 2, since the half-life τ is proportional to the leakage resistance RL, it can be inferred as long as the half-life τ is measured

Principle of charge decay measurement

As shown in Figure 3, the device consists of the following: the applied voltage part to corona discharge the sample, a rotational turntable to place the sample and a power receiving part for measuring the electrostatic potential of the sample. The operation of the device is shown in Figure 2. Place the sample on the turntable and rotate, then start to apply high voltage (point A) to increase the electrostatic potential of the sample. When the turntable rotates, the applied voltage and the leakage of electrostatic potential reach to an equilibrium (point B), the electrostatic potential of the sample reach to the saturation level. After the electrostatic potential reaches to the constant value V0 at time t1 (point C), turn off the high voltage and let the electrostatic potential to decrease (point C → point E). The half-life τ is when the electrostatic potential V0 decays to 1/2 of the initial electrostatic potential t2 (point D).



Digital Surface Resistance Meter MEG102



Surface resistance can be measured quickly!

Main Features

- It can be used in different type of materials to measure surface resistance, mostly suitable for (RTT, RTG)
- Automatic range switching functions, easy to use
- Optional probes available to meet the required measurement

*RTT: Resistance to (Table) Top RTG: Resistance to Ground

Optional



OMEG-B (Optional)



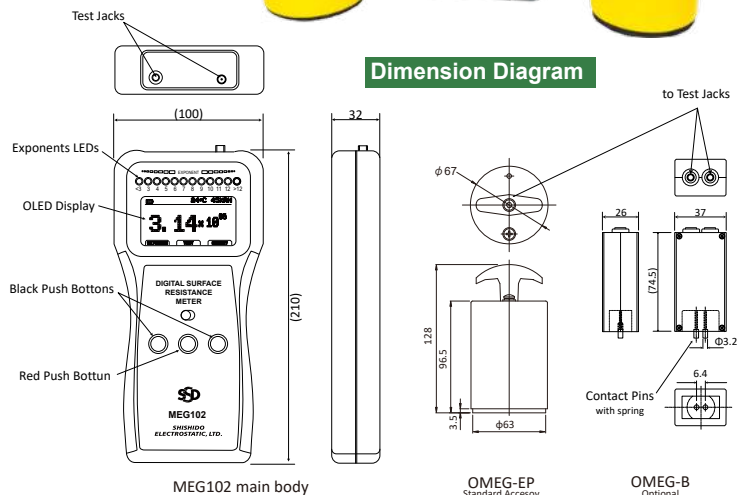
OMEG-RING (Optional Probe)

Measured Range	10V supply: 1x10 ³ ~ 1x10 ⁶ Ohm 100V supply: 1x10 ⁶ ~ 10 ¹² Ohm
Measured Resistance Accuracy	±10% (above 10 ¹¹ ±20%)
Applied Voltage	10V, 100V (± 5%)
Memory Capacity	For 100 times measurement
Power	AA alkaline dry batteries (4 pcs)
Battery Life	Around 1,500 times (Available measured data)
Weight	400g
Dimentions	Main Unit: 100mm×210mm×32mm
Environment	Temperature: 5 ~ 30°C, Humidity: Below 80%RH
Accessories	Probe: 2.27kg, OMEG-EP (2), Testing Wire OMEG-CA (2), Electrode spacer (10" & 36")
Optional Probe	Allegator Clip(1), Type three alkaline dry batteries (4 pcs), Carrying case

MEG102



Dimension Diagram



TESTER

Resistance Measuring Device

TESTER

Antistatic Shoe Leakage Measuring Device SHOETESTERII



SHOETESTERII have other model for each foot check, and Wriststrap check. Please ask us.

SHOETESTER



(Standing pole is optional)

SHOETESTERII Standard model
(One foot plate for both foot check in a same time)

Application

- Semiconductor manufacturing fabs
- Paint Factories
- Plants where hazardous products such as solvents or powder are handled and the wearing of antistatic shoes is required.

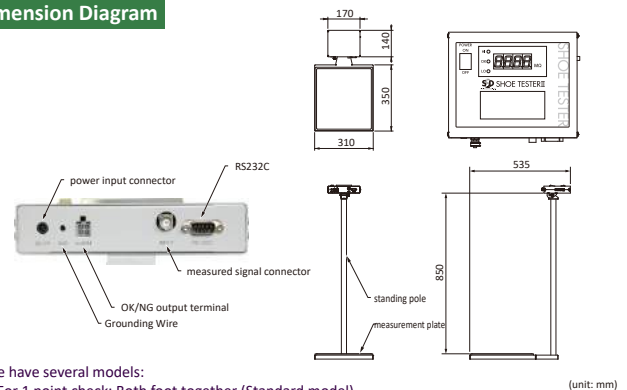
Main Features

The SHOE TESTER is a dedicated measuring device that measures the electrical resistance of Conductive shoes designed to eliminate static electricity from the human body, while the shoes are being worn. To perform measurement, the person wearing the shoes stands on the base metal plate and operates the device simply by touch panel.

A resistance of 100 MΩ or less to ground is required to eliminate static electricity from the human body, and at least 0.1 MΩ is desired for the prevention of electrical shock. Since the resistance of the shoes varies depending on the temperature and humidity, dirt on the shoe soles, and friction, periodic measurement and maintenance is required. We have two types of measurement plates available, both feet or single foot type. Additionally we also have additional port for Wriststrap check as different model.

- The main unit and footplate are separated units, and the main unit can be mounted on the wall, placed on a table, or integrated with the stand as required.
- Display the measured value. If the measured value exceeds the upper limit or lower limit, an alarm via the indicator light and buzzer sends out signals.
- The buzzer can be switched to ON or OFF.
- 1MΩ check function is built in.
- Data can be transmitted via RS232C port. Software installation is possible on PC. Please contact us for details.

Dimension Diagram



We have several models:

- For 1 point check: Both foot together (Standard model)
- For 2 points check: Each foot separately & Both foot together with Wriststrap
- For 3 points check: Each foot separately & Wrist strap

Model	SHOETESTERII	SHOETESTERII-S
Measured Mode	Measured by two feet	Continuously measured by right and left foot separately
Measured Voltage	DC 10V	
Measured Accuracy	±10%+2digit	
Measured Range	0.00 ~ 200.0MΩ	
Limit Setting	[Upper Limit] 1MΩ/5MΩ/10MΩ/20MΩ/35MΩ/50MΩ/100MΩ (Standard model) [Lower Limit] 0.1MΩ/0.5MΩ/1MΩ/5MΩ/10MΩ (Standard model) *not required to set limits	
Alarm/Normal	"OK" indicator lights up over upper limit "HI", below lower limit "LO" lights up, Buzzer sounds *Use ON/OFF switch to set up buzzer	
Function Detection	Self-check button detects the internal resistance of 1MΩ	
Power	DC12V(AC Adaptor: AC100 ~ 240 50/60Hz)	
Other Function	Output to PC (RS232C output)	
Dimensions	Main Body Size: 170×140×37mm (W×D×H)	
Measurement Plate Size	310×350×27mm (W×D×H)	
Accessories	Manual, Measuring Plate, Bracket for wall mounting Installation AC Adaptor, Signal Measuring Cable	
Options	Standing pole with angle adjustment(OPSH2-PA) OK/NG signal cable(OPSH2-SCA), RS232C cable(OPSH2-RCA)	

High-Voltage Power Supplies

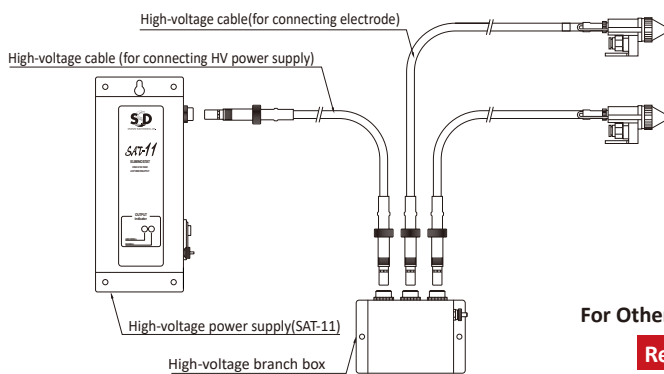
ELIMINOSTAT SAT Series

ELIMINOSTAT SAT Series comply with PL law

Interruption of high-voltage supply when abnormal current leakage is detected

SAT Series

Connection Diagram



ELIMINOSTAT SAT-11

- Powerful Static Elimination
- Standardized Alarm Output



SAT-11

For Other Connection Diagram

Refer to SSD website

• For details on the setting you can configure using the formula below

SAT-11, AT-10	[Total electrode length] + [Total cable length] ≤ 8m
SAT-20	[Total electrode length] ≤ 10m + [Total cable length] ≤ 12m

*The length of the branch box is calculated as 1m.
The length of AP-5•AG-5•FAPS-GP electrodes is calculated as 0.5m.

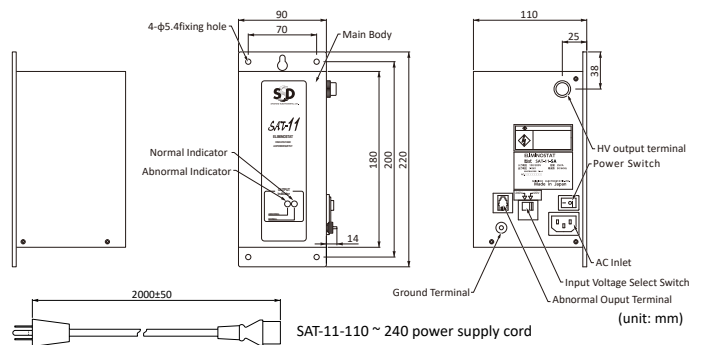
*Please make sure the cable length is within the range. otherwise, it may display an alarm after connecting with SAT.

Main Features

The ELIMINOSTAT SAT series meets the standards proscribed under the Product Liability Law. The safety device interrupts the high-voltage power supply when it detects abnormal current in the electrode or in the high-voltage cables.

This SAT Series comprises a static-eliminating electrode, a high-voltage power supply, high voltage cables and a high-voltage branch box for connecting the system units.

- Maintain high reliability
- The safety device uses an extremely high-precision method that detects an over-current in the secondary high-voltage transformer circuit. If an abnormal current leakage is detected in the static-eliminating electrode or a high-voltage cable, the safety device cuts off the high-voltage power supply and displays an alarm.
- Shielded cables are used for the high-voltage cables to reduce the generation of noise.
- The SAT Series high-voltage power supplies can be combined with any of the bar, point, or air electrodes offered.



Model	SAT-11-SA
Input Power	AC220 ~ 240V(with select switch AC110 ~ 120V available) When we ship SAT-11, the input voltage is set for 220 ~ 240V use.
Capacity	25VA
HV Power	Commercial Frequency AC Power Supply (winding HV power supply)
High-Voltage Output	AC7.0kV
Output Current	2.5mA
Environment	Temperature: 0~40°C
Dimensions	90×220×110mm(W×H×D)
Weight	3.6kg
Alarm Functions	Power shutdown and LED indicator lights up when an over current occurs
Abnormal output	An overcurrent protection circuit to detect overload, NO, NC contact output
Electrodes/Wiring Length	8m in total
Accessories	Manual, AC Power Supply Cord (100V AC 3P-plug)2000mm
Options	Alarm Output Cable 5m(OCBL11-5M), 10m(OCBL11-10M)

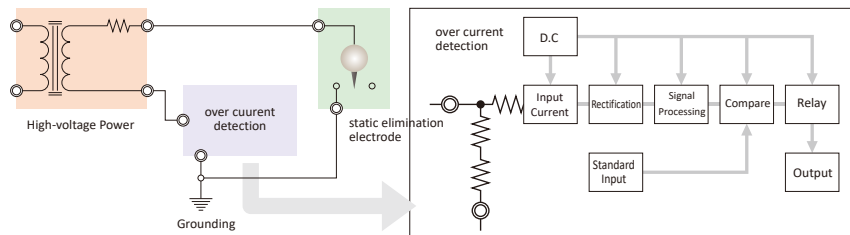
High-Voltage Power Supplies

ELIMINOSTAT

Configuration of the Safety Device

- The overcurrent detector is a device that detects overcurrent by detecting the return current flow to the secondary ground terminal of the high-voltage transformer and comparing it with the reference input.
- When the static elimination electrode or high-voltage cable is being detected with an abnormal leakage of current, the safety device stops the high-voltage power supply and displays the alarm.

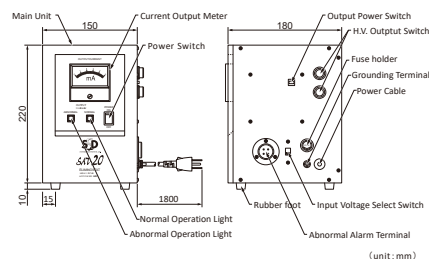
Model	Current Setting for Abnormal Detection
SAT-11	Upper Limit 2.5mA
SAT-20	3 steps of setting: 2 / 3.5 / 5mA



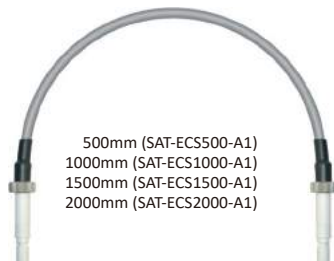
ELIMINOSTAT SAT-20



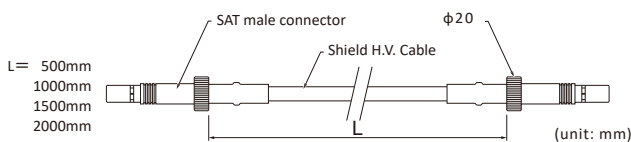
Model	SAT-20-2
Input Power	Able to switch between 110 ~ 120V or 220 ~ 240V. specification, please contact us for details.
Power Cable	1.8m 3P with plug
Capacity	40VA
High-voltage	Commercial Frequency AC power supply (winding type H.V. power supply)
Output Voltage	AC7.0kV
Current Output Available	Maximum 5.0mA (Switchable Setting 2mA / 3.5mA / 5mA)
Environment	Temperature: 0 ~ 40°C Humidity: below 65%
Main Unit Size	150x230x180mm(WxHxD)
Weight	6kg
Alarm	Detection of over current, the buzzer sounds, LED and HV power supply turns off
Alarm Contact Output	Detection of over current, NO, NC contact outputs
Alarm Contact for loading	Max. Voltage: AC250V, DC30V Max. Current: 5A(NO), 3A(NC)
Electrode & Cable Length	Electrode Length: 10m Cable Length: 12m
Accessories	Manual, Alarm Output Metal Connector (SAT Resin Cap) (For protection of unused high voltage terminals) 3P Adaptor



High-Voltage (H.V.) Cable SAT-ECS-A1



500mm (SAT-ECS500-A1)
1000mm (SAT-ECS1000-A1)
1500mm (SAT-ECS1500-A1)
2000mm (SAT-ECS2000-A1)



HVB High-Voltage (H.V.) Branch Box

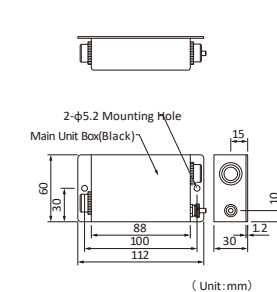
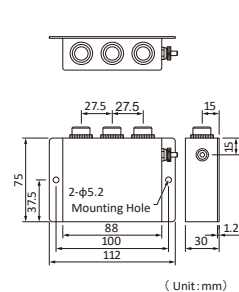
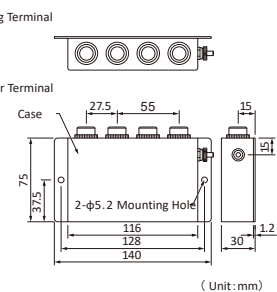
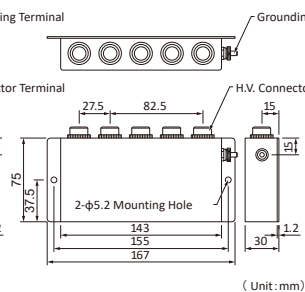
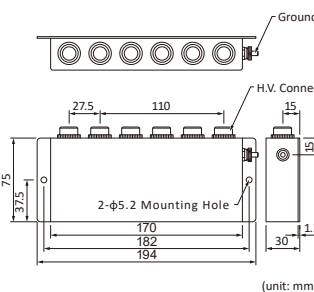
HVB-5

HVB-4

HVB-3

HVB-2

HVB-1



Electrodes

AC Ionizer

•High voltage power supply for all types of AC Ionizer are sold separately.

- Use as a high voltage power supply to connect to SAT series or AT-10 for eliminating statics from film and paper etc
- Minimize electric shock
- Standard length of high voltage cable is 1m
- Optimum installation location of the electrode is at a distance of 30 ~ 50mm (when air is not used) away from the charged object
- Maximum ionizing speed to the charged object is 120m/min Speed of ionizing can be increased by applying multiple electrodes. Please contact us for more details

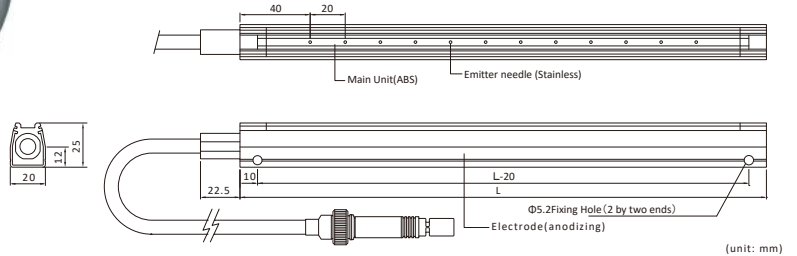
Bar-type ELIMINOSTAT BJS

Best use for small spaces



(standard cable length: 1m)
Compact shape(square)
Best fit for small spaces

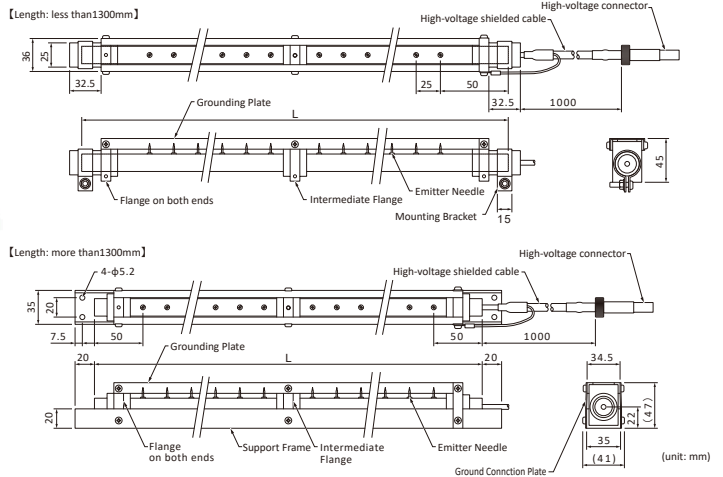
- Solid : Strengthen structure with solid Inner filling
- Compact size : Ideal to install in small spaces
- Improved performance : Faster static elimination compared to old model



Bar-type ELIMINOSTAT BOS

Best use for long-length

(standard cable length: 1 m)
strong available length(~3000mm)



Electrodes

ELIMINOSTAT

AC Applied Voltage Static Eliminostat

Air Electrodes ELIMINOSTAT BUAS

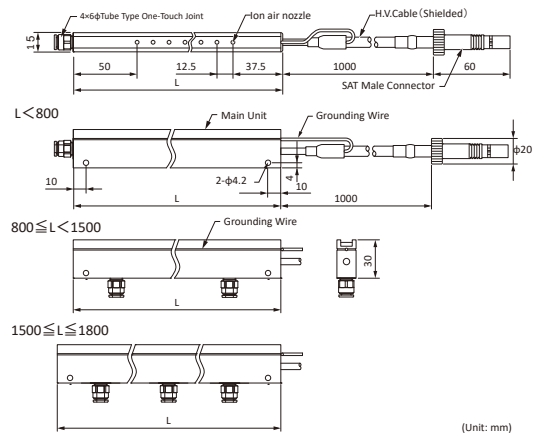
Bar Type for small space

(standard cable length: 1m)

It is desined to reduce air consumption and the compact size can be installed in any place.



The position of the air connector changes by length.

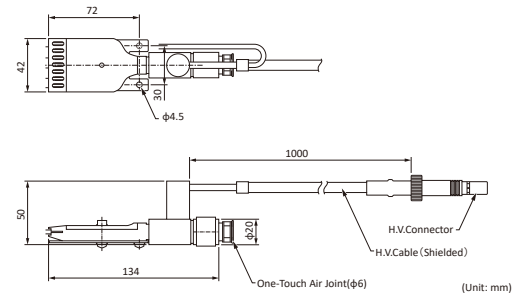


Air Electrodes ELIMINOSTAT FAPS-GP

Flat Nozzle Type

(standard cable length: 1m)

The use of flat nozzles has a strong dust removal effect on laminar air.



Air Electrodes ELIMINOSTAT AP-5

Pointed Nozzle Type

(standard cable length: 1m/2m)

The pointed nozzle is most suitable for small objects static elimination.

Available Cable Length

AP-5-1000-A1 (length 1m)

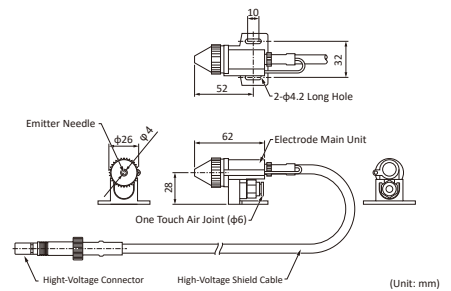
AP-5-2000-A1 (length 2m)



Nozzle A Type



Nozzle B Type



We have other cable length available.

For inquiries, please contact us.

Air Electrodes ELIMINOSTAT AG-5

Gun Type

(standard cable length: 2.5m / 5m)

Safety design:

No-direct with emitter needle

AG-5-2500-A1 (length 2.5m)

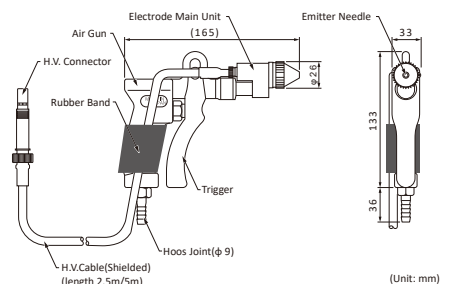
AG-5-5000-A1 (length 5m)



Nozzle A Type



Nozzle B Type



We have other cable length available.

For inquiries, please contact us.

DC Ionizer with Integral Power Supply

DC Voltage Ionizer ELIMINOSTAT DC-ESR-C



Adaptor Specification (Option)
Two electrodes: AD-02
Six electrodes: AD-06

Ion Alarm LED

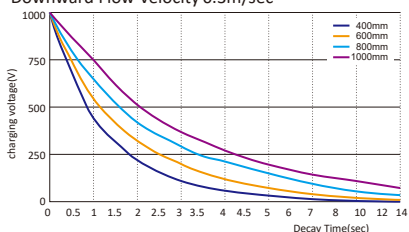
AC Adaptor (Option)

Main Features

The DC-ESR-C is a corona discharge bar type ionizer. As the compact-size DC power supply built in the bar electrode, it requires only a low-voltage cables and low-voltage wiring for safety features.

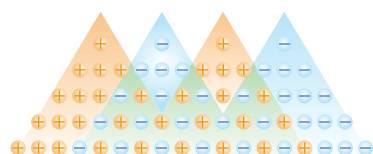
- Good ion balance by DC corona discharge (manual ion balance feature is also available)
- Less dust produced by Tungsten emitter needle.
- Multiple electrodes can be connected to the connector on two ends of the bar. (it is possible to connect 2 electrodes, upto 6 electrodes by changing adaptor.)

Downward Flow Velocity 0.3m/sec

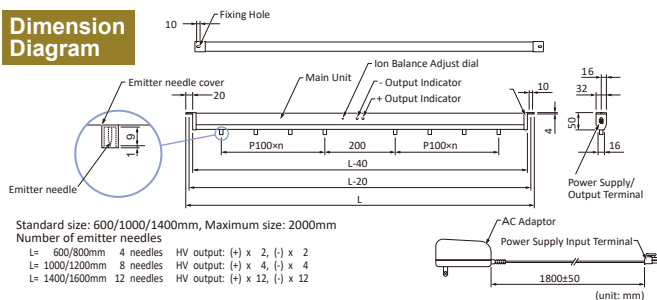


▲ Connector

Principle of Static Elimination



Dimension Diagram



Standard size: 600/1000/1400mm, Maximum size: 2000mm
Number of emitter needles
L= 600/800mm 4 needles HV output: (+) x 2, (-) x 2
L= 1000/1200mm 8 needles HV output: (+) x 4, (-) x 4
L= 1400/1600mm 12 needles HV output: (+) x 12, (-) x 12

Model	DC-ESR-C
Input Power	DC24V(Option AC Adaptor AC100~240V Available)
Current Consumption	0.1A
High Voltage	DC High Voltage Power Supply
Output Voltage	Minimum DC4kV Maximum DC7kV
Dimensions(D×H×L)	32×50×600/800/1000/1200/1400/1600/1800mm
Weight	0.37kg(L=600)
Ion Balance	Ion Balance Adjust Feature
Decay time	2.1sec ^{*1}
Ozone Level	Ozone Below 0.05ppm ^{*2}
Emitter Needle Material	Tungsten(option: single-crystal silicon)
Environment	Temperature: 10~40°C, Humidity: 5~70%RH(No Condensation)
Connection Features	AC Adaptor AD-02(Optional): upto 2 cables, AC Adaptor AD-06(Optional): upto 6 cables. Total length of all cables must be less than 12m.
Optional	AC Adaptor(AD-02, AD-06), Power Cable: PWC-DC(2m) Connectin Cable EC-DC500(0.5m), EC-DC1500(1.5m), EC-DC2500(2.5m)

*1: CPM Tester (corresponding to ESD STM3.1-2000) ion balanced condition, Static elimination from +1000V to +100V decay time, reference distance 300mm.

*2 Distance from the main unit air outlet at 150mm to measure ozone density

Explosion Proof Ionizer

EXPLOSION PROOF IONIZER 8804 System (Manufacture: YDK Technologies Co., Ltd.)

Static Elimination Electrode JT8853



Connection Joint JT8880

Power Device JT8823



Main Features

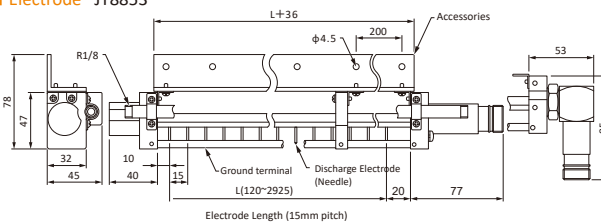
This is a static elimination system with a special explosion-proof structure(s1G4). The design of this system emphasizes on providing maximum safety level, such as by using non-flammable V0 as the insulation material of the electrode.

- Certified by explosion proof structure inspection (certified as # T55243 etc)
- Connection cable is made of pressure-proof and explosion-proof structure.
- Effective electrode length is 120 to 2925 mm (pitch: 15mm). One power supply can use up to 5 static elimination electrodes.
- High-voltage cables can be connected up to 50 m in length, and various cable connectors (round branch, small branch, L-shaped connector, plug) can be used in various installation environments.
- The integrated electrode tube blower type eliminates more static electricity area than ion blower type.

***This anti-explosive regulation is only approved in Japanese Government. In case its installation, need to submit "Customer(User) name", "User address", "User installation purpose and location", "The kind of solvent or gas for application", and "Sales channel".**

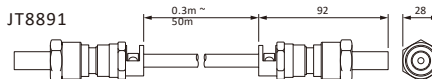
Dimension Diagram

■ Electrode JT8853



■ High Voltage Cable JT8891

(unit: mm)



Electrode	JT-8853
Electrode Length	120~2925mm(15mm interval)
Number of Electrodes	1 ~ 5 unit/1 power supply device
Ion Blower Pipe	Available for with or without
Air Pressure	50 ~ 200kPa
Accessories	Electrode length above 1155mm is standard spec
Power unit	JT-8823
Power Voltage	Only AC100V 50/60Hz
Current Consumption	Maximum 2.7A
Secondary Voltage	AC6600V 50/60Hz
Heavy/Light Fault Output	Each 1C Contact Output AC125V 0.4A
Paint Color	2.5Y9/1(standard)
Weight	around 14kg
HV Cable	JT-8891
Structure	Silicon rubber insulated, Chloroprene sheath coaxial cable
Total Cable Length	4~50m per 1 Power Unit
System Model	8804(includes static elimination electrode, power unit and cable)
Explosion-Proof Specifications	Special Explosion-Proof Structure (s1G4) Cable Installation Location: Non-Dangerous(Flammable) Spot Other Device Spot: Dngerous Spot(under explosion-proof environment) Certification Number: Based on Electrode Length T55243, T55561~T55566 (Different combinations of certification number are not allowed)
Efficient Current	Over 0.4μA/cm (charged voltage -5kV, installation distance 2cm)
Environment	Temperature: -10°C ~ +40°C, Humidity: Under 80%RH(No Condensation)

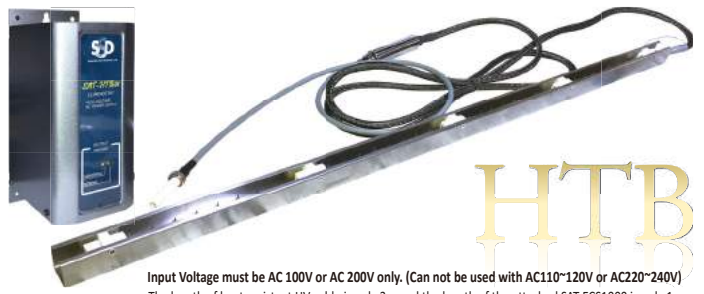
HEAT RESISTANCE / LIGHT IRRADIATION DEVICE

Heat Resistance Ionizer

ELIMINOSTAT HTB

NEW

SAT-HTB01



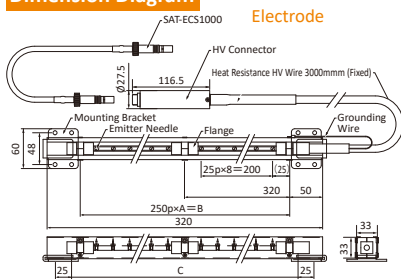
HTB

Input Voltage must be AC 100V or AC 200V only. (Can not be used with AC110~120V or AC220~240V)
The length of heat-resistant HV cable is only 3m and the length of the attached SAT-ECS1000 is only 1m.

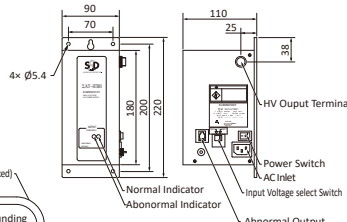
Feature

- Heat resistance in a temperature of 150°C ~ 200°C
- HV shielded cable also has a heat-resistance of 200°C
- Possible to be used in combination with the heat resistant electrode HTB and HV power supply SAT-HTB01
- High speed ionizing: Takes only 0.3 seconds for static elimination from ±5000V to ±500V
- Small electrode cross section
- Electrode can be installed by both ends

Dimension Diagram



HV Power Supply



Model	L(Electrode length)	A	B	C(Mounting Pitch)
HTB350	350mm	1	250	(273)
HTB600	600mm	2	500	(523)
HTB850	850mm	3	750	(775)
HTB1100	1100mm	4	1000	(1025)
HTB1350	1350mm	5	1250	(1277)
HTB1600	1600mm	6	1500	(1527)
HTB1850	1850mm	7	1750	(1779)
HTB2100	2100mm	8	2000	(2029)

Electrode

Model	HTBxxxx (xxxx is the length of electrode)			
Method of Combination	Direct Combination			
Ion Generation Method	Corona Discharge Method			
Electrode Material	Case	Stainless		
	Needle	Stainless		
Heat Resistance	HV	Aluminium		
	Insulation	PTFE		
Dimensions	Electrode	150° ~ 200°C		
	HV Cable	150°C ~ 200°C(HV connectro from root to 150mm)		
	HV Connector	0°C ~ 40°C		
Weight	350mm:	0.8kg	600mm: 1.2kg	850mm: 1.5kg
	1350mm:	2.2kg	1600mm: 2.6kg	1850mm: 2.9kg
	2100mm:	3.3kg		

High Voltage Power Supply

Model	SAT-HTB01			
Voltage	AC100V (101V ± 6V) or AC200V (202V ± 12V)			
Frequency	50/60Hz			
Capacity	20VA			
Output Voltage	AC 4,000V			
Maximum Output Current	1.9mA			
Dimensions	W90mm x D110mm x H220mm			
Weight	3.9kg			
Temperature	0°C ~ 40°C			
Humidity	10% ~ 85% (No Condensation)			

Light Irradiation Ionizer

Soft X-ray Irradiation Ionizer

IRISYS-SX ISX-224

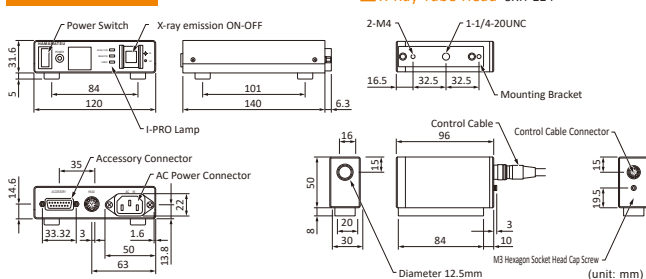
(Manufacture: Takasago Thermal Engineering Co., Ltd.)



Dimension Diagram

Controller CTR-224II

X-Ray Tube Head SXH-224



Necessity of Insulation

The basic regulation for the handling of radiation is to make exposure as close to zero as possible. The standard for radiation should focus on the protection through insulation instead of just to meet the limits by law.

Insulation of Declaration

Please confirm with the local Labor Standards Office and related authorities.

X-Ray Head	SXH-224
Method	Soft X-ray Irradiation
Dimension	30x 50x 96mm(WxHxD)
Light	Soft X-ray Tube
Tube Voltage	9.5ekV
Cooling Method	Nature Air Cooling System
Material	Main Body: Aluminum/SUS304 Window: Be(Beryllium)
Weight	350g
Controller	CTR-224II
Dimension	120x 32x140mm(WxHxD)
Input Power	AC100 ~ 240V, 50/60Hz
Consumed Electricity	11W
Functions	Remote Terminal, Accessory Terminal, I-PRO Terminal, Remote Mode, Ion Generation Mode, POWER Switch, ION ON/OFF Switch, Tube Life-Span Indicator
Weight	500g
Accessories	Control Cable (10mm), Accessory Connector, Power Code(2m) Radiation Control Area Display Sticker, Manual
	*CTR224II is also available for 4 heads connection

Main Feature

The ISX-224 is a compact, powerful device that eliminates static by using soft X-ray irradiation to directly ionize gas molecules.

- Regardless of the flow state of the gas, the gas in the space irradiated by the light is ionized over a wide area, a stable performance is acquired and not being affected by the uneven air flow in the vicinity of the target object.
- Daily maintenance are not required. The X-ray head is replaceable after usage of average lifetime 8000 hours.
- Due to the even distribution of the positive and negative ions, the residual potential of the target object can be reduced to 0V.
- It uses light to ionize the gas molecules. Under the atmospheric pressure, the device can eliminate static from inert gases such as N₂(Nitrogen) or Ar(Argon).
- The light-irradiation system does not generate any dust whatsoever, and the electromagnetic noise is minimal.
- This system comprises two units: a soft X-ray head and a power unit. It can therefore be easily installed in manufacturing systems or conveyor operations.

Direct Current High-Voltage Generator

Direct Current High-Voltage Generator

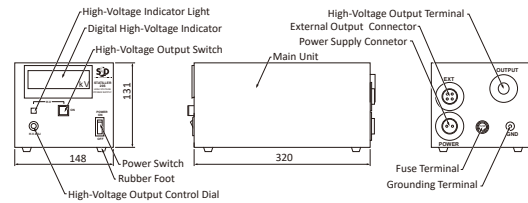
STATILLER

STATILLER 20S2, 35S4

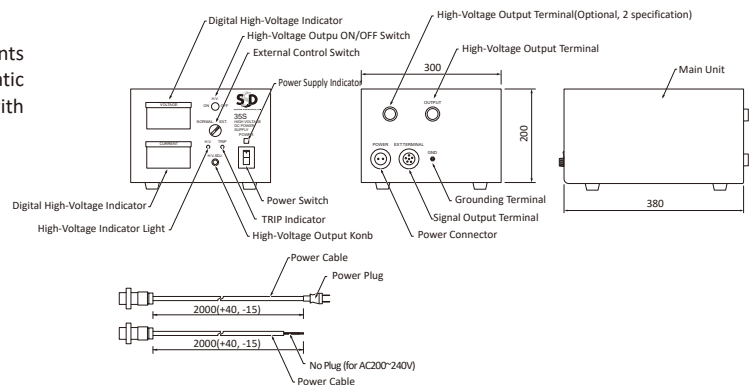


Dimension Diagram

STATILLER 20S2



STATILLER 35S4



Main Features

The STATILLER is most suited to use as a power supply unit in experiments related to static electricity, and for devices requiring the application of static electricity. We can also design and manufacture a device in accordance with any special specifications required to suit the desired purpose of use.



For STATILLER 35S4 (as picture)
High-Voltage Cable for connection
(20S2/35S4: Optional)

Model and Power Supply Cable

Model	Power Supply	Polarity	Output
STATILLER 20S2	AC100 ~ 240V	Chose Negative or Positive	1
Model	Power Supply	Polarity	Output
STATILLER 35S4-N-1	AC100 ~ 240V	Negative Polarity	1
STATILLER 35S4-P-1	AC100 ~ 240V	Positive Polarity	1
STATILLER 35S4-N-2	AC100 ~ 240V	Negative Polarity	2
STATILLER 35S4-P-2	AC100 ~ 240V	Positive Polarity	2

20S2 Standard Specification

Input Voltage	AC100 ~ 240V(50/60Hz)
Output	Specify DC polarity, positive or negative polarity
Rectification	Full Wave Rectification
Output Adjustment	Continuously Adjustable
Circuit Protection	① over-current, ② output short-circuit
High-voltage Output Terminal	1

35S4 Standard Specification

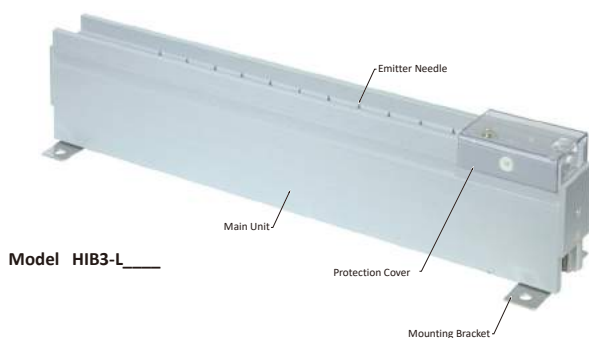
Input	AC 100 ~ 240V(50/60Hz)
Output	Specify DC polarity, positive or negative polarity
Rectification	Full Wave Rectification
Output Adjustment	Continuously Adjustable
Circuit Protection	① over-voltage, ② over-current, ③ output short-circuit
High-voltage Output Terminal	1 or 2

Category and Specification

Model	20S2	35S4
Polarity	Single Polarity(s)	
Short-circuit Current	0.5 mA	2 mA
Insulation Method	Dry Type	
2nd High-Voltage Maximum Output	20kV	35kV

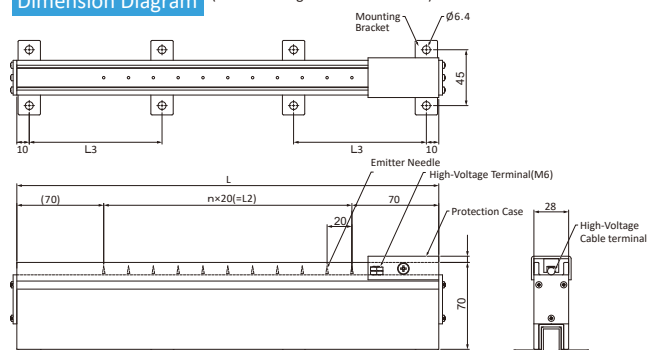
Require to specify positive or negative polarity

Standard Electrode HIB3



Dimension Diagram

(In case "L" length is above 2000mm)



For notes and size L3, please refer to the list on the right.

L/mm	L3/mm	Mounting Bracket
Less 1000mm	L-20	2
over 1000mm to 2000mm	L/2-10	3
over 2000mm to 2300mm	700	4
over 2300mm to 2600mm	800	4
over 2600mm to 3000mm	1000	4

Please contact us for L is over 3000mm.

Static Elimination and Dust Removal Device

DUST HALER Trz:CuBe / Flt:CuBe / Trz:MaXi

DUST HALER



Trz:CuBe

Flt:CuBe

Trz:MaXi
(Build-to-order)

Main Feature

- The centrifugal fan produces large absorption capacity, the removed ashes do not scattered everywhere. (Trz: CuBe)
- Two flat nozzles located on the top while one is located on the down side, so the air blows from up and down side to eliminate statics.



Top Nozzle



Bottom Nozzle

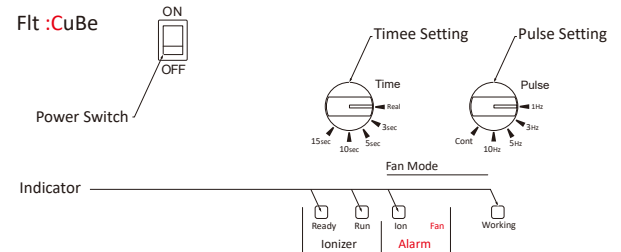
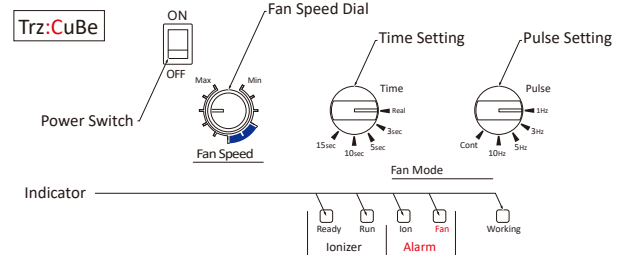
- Installed HDC-AC Ionizer for fast decay performance.
- Easy to control air blow by timer and takt management
- Four types of pulsed air blow available according to different needs for better elimination performance
- Attached additional Filter (1 pc)
- Non-fan vacuum type (Flt:CuBe) or large opening type (Trz: MaXi) are available to select according to your needs.

Specification

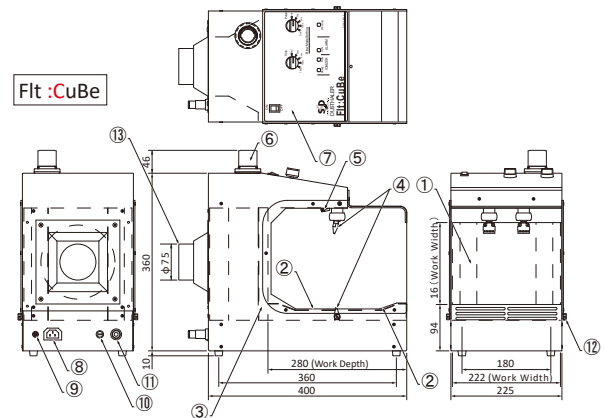
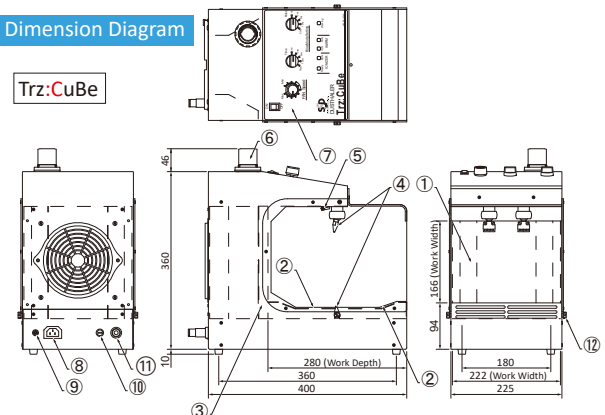
Model	Trz:CuBe	Flt:CuBe	Trz:MaXi
Input Voltage	AC100V ~ 240V(50/60Hz)±10%		
Electricity Consumption	Maximum 240W	Maximum 50W	Maximum 240W
Ionizer Specification	System: HDC-AC Ion Balance: Within ± 30V Static Elimination: Below 1 second(Air Pressure 0.6MPa) ^{*1} Dried Clean Air ^{*2}		
Air Supplied	Dried Clean Air ^{*2}		
Air pressure range	0.2MPa ~ 0.6MPa ^{*3}		
Pipe Joint Diameter	Dia 8mm Quick Joint		
Air Blow Nozzle	Top side: 2pcs (angle adjustable)	Top side: 1pc Available Range 300mm Angle Adjustable	
	Bottom side: 1pc	Bottom side: 1pc Available Range 150mm ON/OFF available	
Filtering	over 10µm 98% eliminated (changable)		
Air Blow	Pulse Setting: 1Hz, 3Hz, 5Hz, 10Hz, Cont		
Air Blow Time Setting	3/5/10/15, Real	1/2/3/4/5/6/7/8/9/10/15sec Real	
Fan Speed	Non-step adjustable		
Additional	N/A	Foot Pedal Switch External sensor/Slide Table Continuous Blow Selector	
Air Consumption	270ℓ/min ANR(0.3MPa, Cont Setting)		300ℓ/min ANR(0.3MPa, Cont Setting)
Dust Collection Mechanism	Centrifugal Fan	Dust Collection(Need Dust collector)	
Noise	Minimum Rotational: 51dBA, 50% Rotation: 74dBA		
Size	225×360×400mm(W×H×L)		
Weight	9kg	8.5kg	16kg
Environment	Temperature: 0 ~ 40°C, Humidity: 15 ~ 85%RH (No Condensation)		
Accessories	Manual, Power Cable, Socket Case(3), Replacable Filters		
Option	Replacable Filters(5pcs/Set): Trz-RKF05		Replacable Filters(5pcs/Set): Trz-MXF05

* 1 Checked by CPM with 150x150mm plate (20pF), Decay time is from ±1000V to ±100V.
* 2 Supplied air must be Clean and Dry, the contaminated air with moisture or oil damages to the ionizer.
* 3 Set up the air pressure of this device

Panel/Function Details



Dimension Diagram



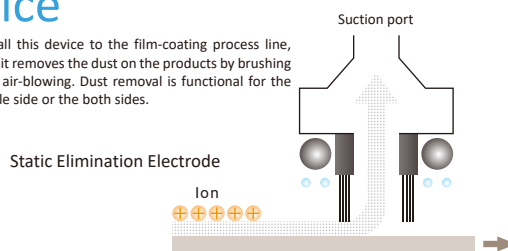
- ① Insertion
- ② Mother Board
- ③ Filter
- ④ Blow Nozzle
- ⑤ Ionizer
- ⑥ Regulator
- ⑦ Setting and Panel Display
- ⑧ Power Cord Inlet
- ⑨ Grounding Terminal
- ⑩ Fuse Case
- ⑪ φ 8 Quick Joint
- ⑫ Knurled Screw
- ⑬ Suction Point

Static eliminator and Dust remover device Dust Haler H (Custom Made)



A high voltage SAT series power supply and a high voltage cable/high voltage power strip are required when using.

Install this device to the film-coating process line, and it removes the dust on the products by brushing and air-blowing. Dust removal is functional for the single side or the both sides.



Main Features

This device uses static electricity to remove the dust and prevent the dust from attaching.

- The dust is removed by static electricity and eliminated by the air pressure from the air vent at the end of the device, so the dust will not be attached to the device which can be kept clean. Place the object such as films in the middle of the brushes of the device when using.
- BJS bar included

Examples

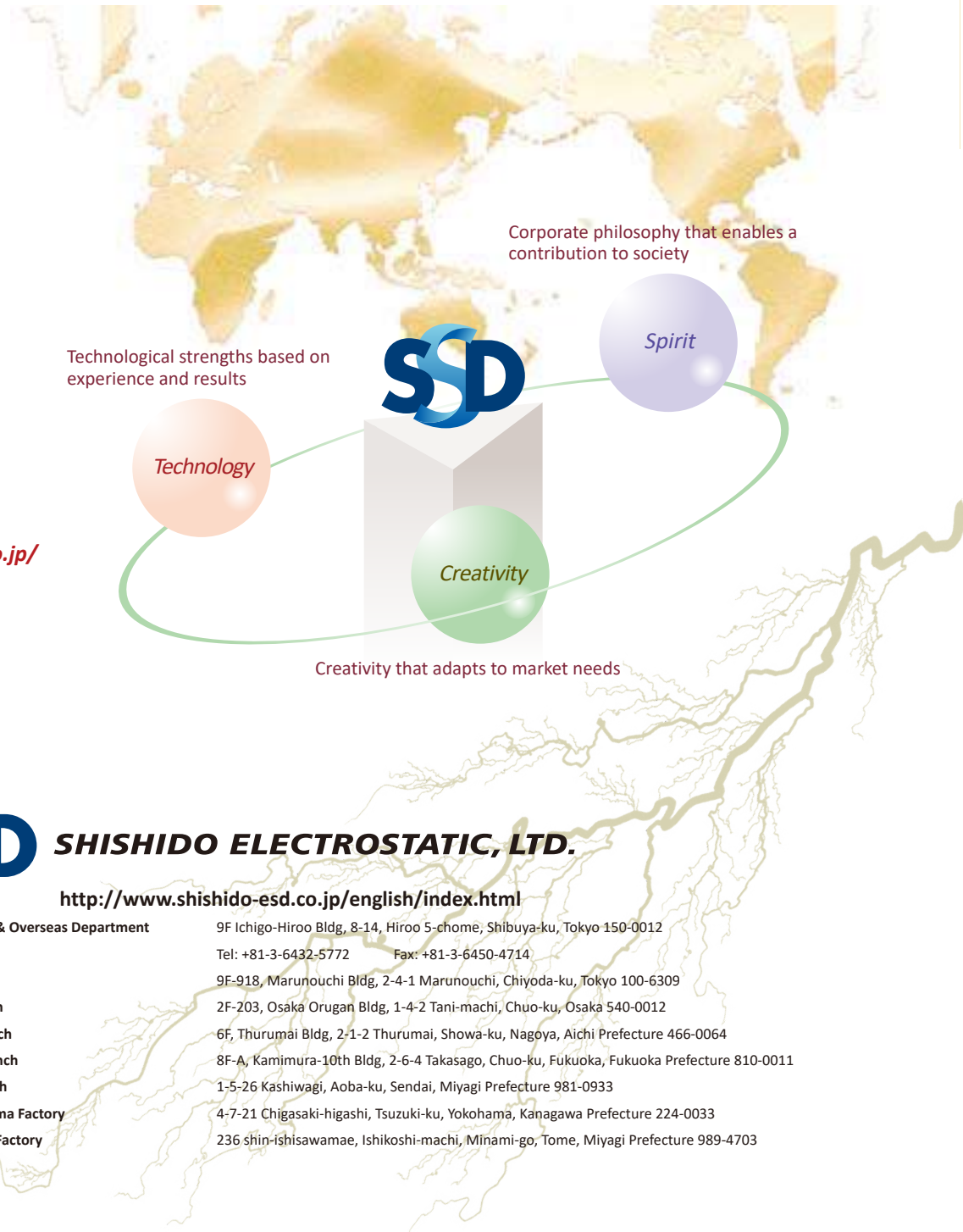
- To remove the dust on the films for chemical/food wrappings
- To remove the dust on the films prior to printing

By strengthening new product development efforts and continuing to provide high-reliability products that conform to strict quality control standards, Shishido Electrostatic, Ltd. is aiming to become a corporation that makes a positive contribution to society.

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<http://www.shishido-esd.co.jp/>



SHISHIDO ELECTROSTATIC, LTD.

<http://www.shishido-esd.co.jp/english/index.html>

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SHISHIDO OFFICIAL AGENT

