

Model 442-3 is a portable overhead ionized air blower that produces an air flow rich in positive and negative ions. Directing this air flow on an object that has a static electricity charge, will neutralizes the charge. It uses 3 fans to produce air flow. Air flow volume is controlled by variable speed control. The ionizer features a patented balancing circuit.



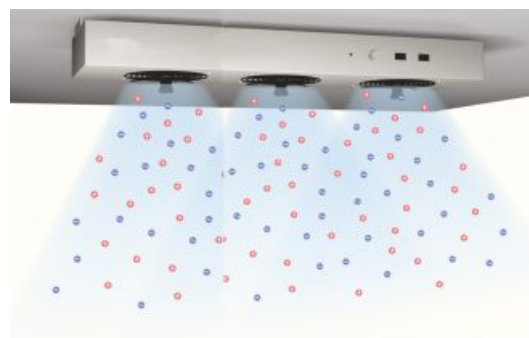
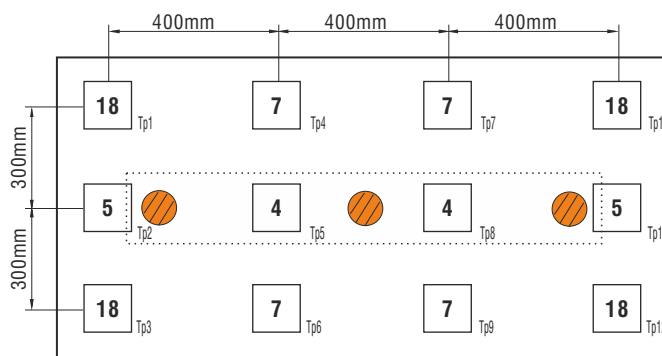
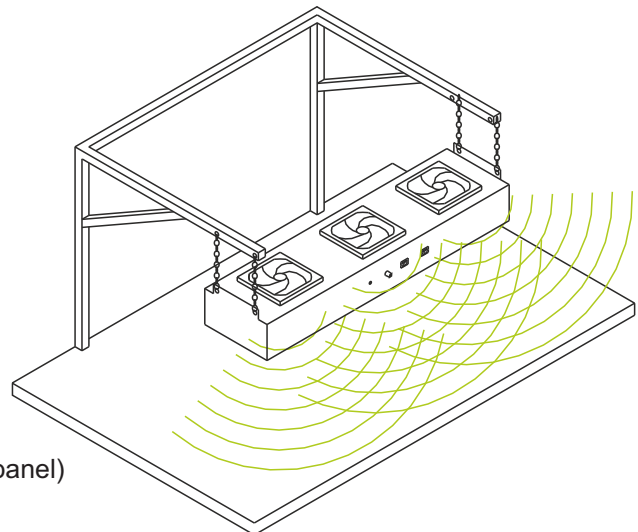
**Model: 442-3**

## Features:

- Rapidly neutralizes static charges
- Ionization indicator lamp
- Covers large area with ionized air
- Variable speed fan with wide range of air flow
- Integrated task lights (2x9 watt twin tube)
- Inherently balanced ion output
- Durable, electrically grounded metal enclosure

## Specifications:

- Power Consumption : 80 Watt
- Output Voltage : 5.6 KV AC
- Ion Balance : Adjusted within  $\pm 15V$  before delivery (450mm from panel)
- Air Volume :  $\leq 1.2 - 2.4 \text{ m}^3/\text{min}$
- Ozone Production :  $\leq 0.03 \text{ ppm}$  or below (150mm from centre of air outlet)
- Effective Range : 600 x 1600 mm
- Dimensions (LxWxH) : 1086 x 170 x 90 mm (approx.)
- Weight : approx 9 Kg



Warranty is 12 months from the date of invoice. It excludes any mechanically damaged part. shown trademarks are property of their respective owners.

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### Stainless Steel Body Static Charge Eliminator

P/N: ESDSET28

- Compact size, light weight, portable design with adjustable angle
- Rapidly neutralizes static charges
- Adjustable fan speed can generate large range of ion stream
- Stable ion balancing
- Long lifetime magnetic transformer protect the unit from short circuit
- Built-in emitter cleaner for easy cleaning
- Stainless steel housing, ideally suitable for clean room applications

#### Specifications

Power consumption	: 30 Watt
Output Voltage	: 5.6 KVAC
Ion Balance	: $\pm 10V$
Air Volume	: $\leq 2.4m^3/min$
Effective range	: 400 x 1500mm
Ozone production	: $\leq 0.03ppm$ (150mm from centre of air outlet)
Noise	: 45dB
Dimensions	: 140x84x220mm (approx.)
Weight	: 2.4 Kg (approx.)

**Stainless Steel body  
for Cleanroom  
applications**



### Compact & Portable DC type Static Charge Eliminator

P/N: 443A

- Compact size, light weight, portable design with adjustable angle
- Rapidly neutralizes static charges
- Adjustable fan speed can generate large range of ion stream
- Stable ion balancing
- Long lifetime magnetic transformer protect the unit from short circuit
- Built-in emitter cleaner for easy cleaning
- Easy cleaning of Filter Mesh as it is fixed with magnet

#### Specifications

Power consumption	: 15 Watt
Output Voltage	: DC $\pm 5000V$
Ion Balance	: $\leq \pm 10V$
Air Volume	: $\leq 2.4m^3/min$
Effective range	: 400 x 1500mm
Ozone production	: $\leq 0.03ppm$ (150mm from centre of air outlet)
Noise	: 45dB
Dimensions	: 135x190x75mm (approx.)
Weight	: 1.25 Kg (approx.)



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### Ionizing Air Gun + High Voltage Power Supply P/N: 445D+446

The 445D Ionizing Air Gun is used for removing static charge and dust of the inaccessible charged object. It will easily clean the parts from static charge and also will keep the same static free after that.

#### Features

- Compact design for easy operation
- Rapidly neutralizes static charges
- Built-in regulator of remnant voltage for effective ion balancing
- Two ionizing Air Guns can be connected with Power Supply model 446

#### Specifications

Input Voltage	: 220VAC/50Hz
Secondary Output Voltage	: 4.0 KVAC (0 ~ -40%)
Power Consumption	: 20 Watt
External Air requirement	: 0.1 ~ 0.7MPa (Dry & Clean)
Effective Distance	: within 1000mm
Discharge Time	: 0.4S (Test Distance: 15cm)
Standard length of Cable	: 3 meter (approx.)

#### Time for Static Neutralizing

Pressure	Air Flow	Decay Time	Noise
0.2MPa	0.06m <sup>3</sup> /min	1.2s	≤71dB
0.4MPa	0.12m <sup>3</sup> /min	0.6s	≤88dB
0.6MPa	0.18m <sup>3</sup> /min	0.4s	≤95dB
0.7MPa	0.20m <sup>3</sup> /min	0.3s	≤98dB

Note: Testing distance 15 cm from the outlet of the air gun



Model 445D  
Ionizing Air Gun



Model 446  
High Voltage Power Supply

### Ionizing Air Gun + High Voltage Power Supply P/N: 445F+446F

The 445F Ionizing Air Gun is used for removing static charge and dust of the inaccessible charged object. It will easily clean the parts from static charge and also will keep the same static free after that.

#### Features

- Compact design for easy operation
- Rapidly neutralizes static charges
- Air flow is adjustable
- Capacitor coupling high voltage design, safe & reliable

#### Specifications

Secondary Output Voltage	: 7.0 KVAC (0 ~ -40%)
Power Consumption	: 30 Watt
External Air requirement	: 0.1 ~ 0.7MPa (Dry & Clean)
Effective Distance	: within 1000mm
Discharge Time	: 1.0s (Test Distance: 30cm)
Ion Balance	: ±10V

Pressure	Distance	15cm	30cm	45cm	60cm
0.2MPa	Decay time(S) ion balance(V)	0.9~1.0s -1V	1.3~1.4s +5V	1.7~2.1s +6V	2.1~2.9s 0V
0.4MPa	Decay time(S) ion balance(V)	0.8~1.0s 0V	1.0~1.3s +1V	1.3~2.0s +1V	1.9~2.5s 0V
0.6MPa	Decay time(S) ion balance(V)	0.8~0.9s -2V	1.0~1.4s -4V	1.4~1.8s +6V	1.5~2.7s -14V

Note: Testing distance 30 cm from the outlet of the air gun



Model 445F  
Ionizing Air Gun



Model 446F  
High Voltage Power Supply

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## Ionizing Air Snake + High Voltage Power Supply P/N: 445EF+446EF

The 445EF Ionizing Air Snake is used for removing static charge and dust of the inaccessible charged object. It will easily clean the parts from static charge and also will keep the same static free after that.

### Features

- Rapidly neutralizes static charges
- Built-in silencer, low noise
- Capacitor coupled high voltage design, safe & reliable.
- Photoelectric switch or pedal switch controls air flow and high voltage at the same time
- Table-clamping design, adjust the direction of air hose freely

### Specifications

#### Ionizing Air Snake

Ion Balance	: $\pm 10V$
High Voltage Input	: 7KV AC (0 - 40%) 50 Hz
Air Required	: Clean & dry air, 0.1-0.7MPa
Distance	: Effective Static Discharge distance within 1000mm
Height of air-snake	: 50cm

#### High Voltage Power Supply

Power Supply	: 220VAC, 50Hz
Sub short-circuit Current	: < 3mA
High Voltage Output	: 7KV AC (0 - 40%)
Rated Power	: 30 Watt



Photoelectric Switch



Pedal Switch



Photoelectric Switch Fixing

## Ionizing Air Snake + High Voltage Power Supply P/N: 445E+446E

The 445E Ionizing Air Snake is used for removing static charge and dust of the inaccessible charged object. It will easily clean the parts from static charge and also will keep the same static free after that.

### Features

- Adjustable Nozzle
- Pedal switch controls airflow & output ion high voltage simultaneously
- Built-in regulator of remnant voltage for rapid static neutralization
- Save energy, prolong lifetime
- Photoelectric switch optional

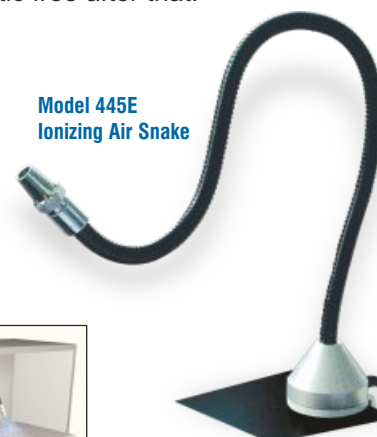
### Specifications

Secondary Output Voltage	: 4.0 KVAC
Power Consumption	: 20 Watt
External Air requirement	: 0.1 ~ 0.7MPa (Dry & Clean)
Effective Distance	: within 1000mm
ion Balance	: $\pm 10V$

#### Time for Static Neutralizing

Pressure	Air Flow	Decay Time	Noise
0.2MPa	0.06m <sup>3</sup> /min	1.2s	$\leq 71dB$
0.4MPa	0.12m <sup>3</sup> /min	0.6s	$\leq 88dB$
0.6MPa	0.18m <sup>3</sup> /min	0.4s	$\leq 95dB$
0.7MPa	0.20m <sup>3</sup> /min	0.3s	$\leq 98dB$

Note: Testing distance 15 cm from the outlet of the air gun



Model 446E  
High Voltage Power Supply

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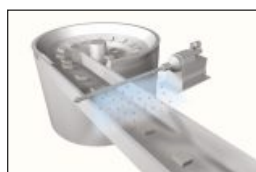
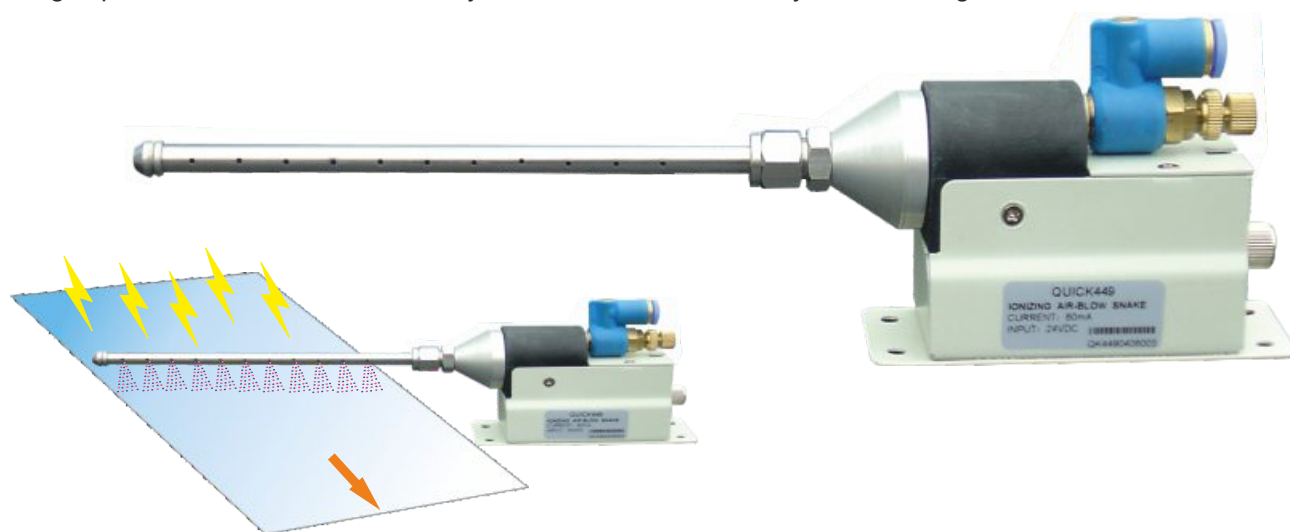


This Static Charge Eliminator works with low voltage power supply which makes it safe to use very close to the components. The ions are produced by high-frequency voltage in large quantity and high density so that the ions do not disappear during long travelling in the tube.

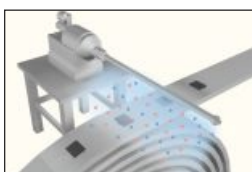
Voltage produced by the High Voltage Power Supply for inside of the discharge needle, gives-off alternating current corona discharge toward connection plug to produce positive and negative ions. These ions are transported out by external air pressure. The ionized air flow neutralizes the static electricity of charged objects, removes dust stuck on the charged objects and protects the same from being stuck again.

### Characteristic:

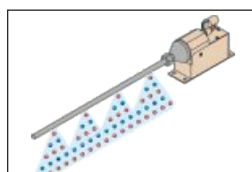
- It can transfer ionized air by using the air tube in addition to air blowing directly through the nozzle.
- High speed removal of static electricity
- Reliable and steady ion balancing.



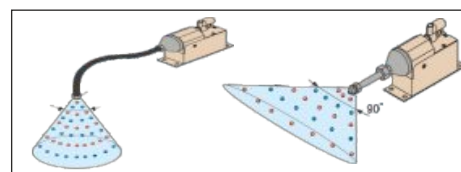
**Production Lines**



**Packing of SMDs**



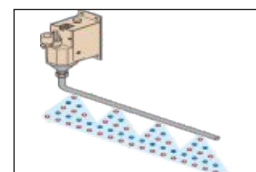
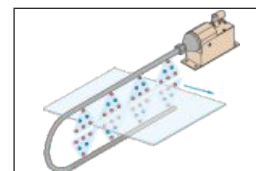
**Conveyor Line**



**Specific customized Areas**

### Specifications

Mode of Producing ions	: Corona discharge with high frequency voltage
Input Voltage	: 24V DC
Capacity	: 2.4VA
Output Voltage	: 2.0KV AC / about 68KHz
Abnormal Output Circuit	: Collector open circuited
Ozone Generation	: 0.05ppm: (measured at distance of 50mm)
ion Balance	: within $\pm 15$ Volt
External Air requirement	: 0.02 ~ 0.4MPa
Dimension (approx.)	: 104L×35W×57H (mm)
Weight (approx.)	: 210 grams



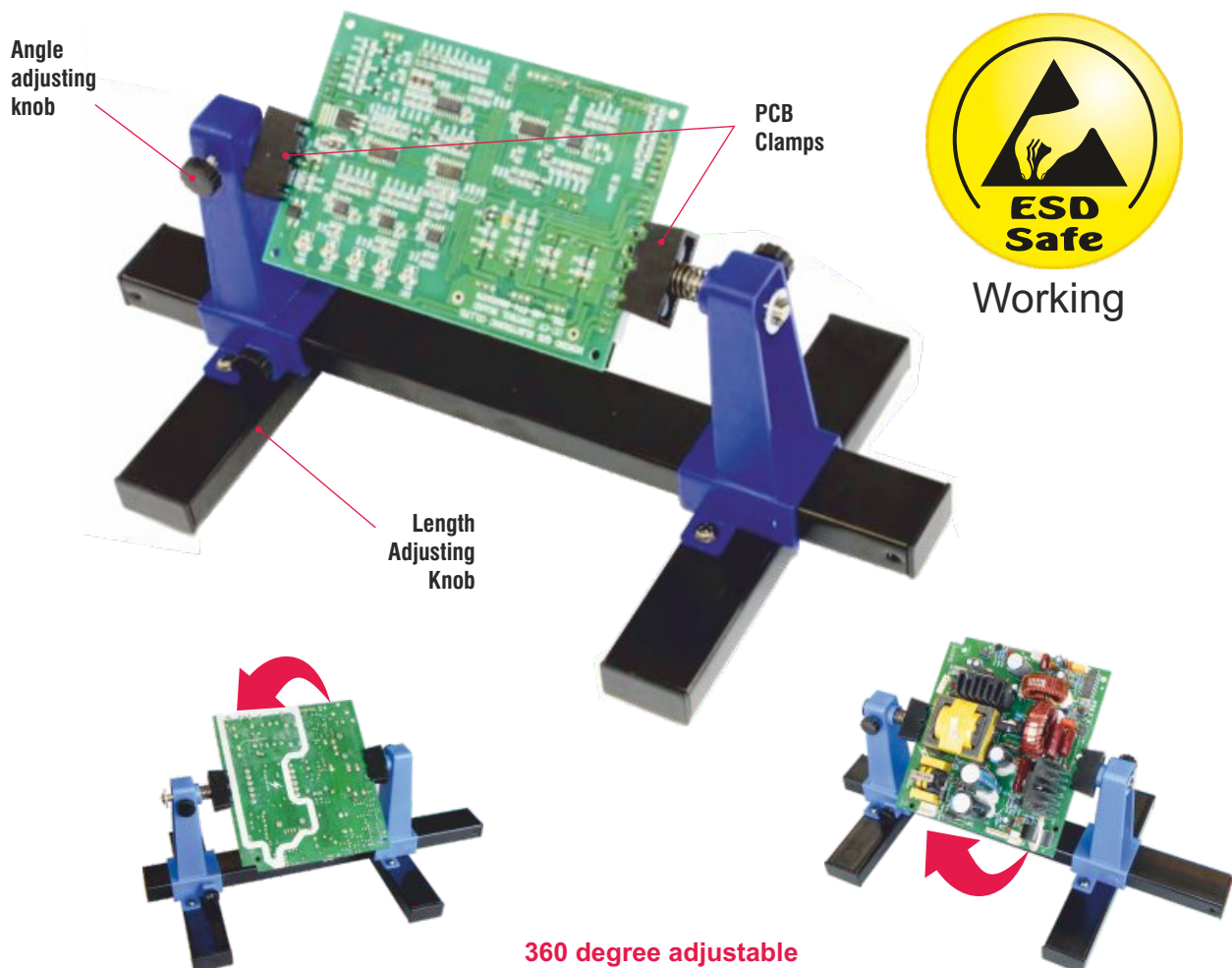
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This adjustable Circuit Board Holder is very useful for clamping PCB for comfortable working of operator during soldering, desoldering and reworking .

It features 2 adjustable grips on a retractable stand to accommodate various sizes of PCBs up to 198mm width. The adjustable clamps allow the PCB to rotate 360 degrees and stay set in any position.

The base of this rigid metal stand features four rubber feet to ensure stability.



### Features:

- The PCB can be turned and rotated thru-out 360° to set the PCB to comfortable positioning to have every access (like front, back viewing) of the PCB.
- Holds circuit boards up to 200 x 130mm size.
- Spring Clamp for holding PCBs
- Light weight, easy to move around

### Operation:

- Unscrew Length Adjusting Knob for clamping as per PCB requirement and screw the knobs.
- Put the PCB into the clamping teeth
- Unscrew Angle Adjusting Knob to get the desired angle and then screw the knobs.

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There is no warranty for this item. shown trademarks are property of their respective owners.



**ESD Safe fully metallic PCB Rack P/N: COP-804L (suitable for use in ovens)**  
(We will procure this PCB Rack on a MOQ 50 pieces order)



### Features:

- Complete metallic body of Aluminium alloy
- Heat Resistant upto 180°C
- Side panels consists of five flashboards for easy change
- Screw adjustable type can also be used in ovens

### Specifications

Surface Resistance	: $10^4 \sim 10^6 \Omega$
Overall Size	: 355 x 320 x 563 mm
PCB Capacity	: 50 pieces
Suitable PCB sizes	: 50~250 mm PCB width
PCB Guide Slot	: 3.5D x 5W x 10P mm
Material:	
- Side Panel	: Aluminium Side Panel
- Pillars	: Aluminium Pillars
- Base	: Zinc coated steel base

**Durable Hi-Quality ESD Safe PCB Rack (easily adjustable with 4-Levers) P/N: IPMR-805**



Smooth sliding easy PCB size adjustment

### Specifications

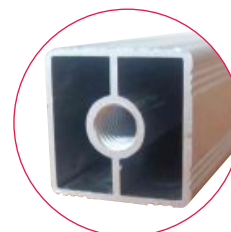
- Surface Resistance:  $10 \sim 10^4 \sim 10^6 \Omega$
- Heat Resistance: 80°C
- Size: 355 x 320 x 563 mm (approx.)
- PCB Capacity: 50 pieces
- Suitable for 50~250 mm PCB width
- PCB Guide Slot: 3.5 x 5 x 10 mm
- Top & Bottom Plates: Plastic
- Easy-to-adjust Lever Mechanism



High quality heavy duty  
Screws for channels



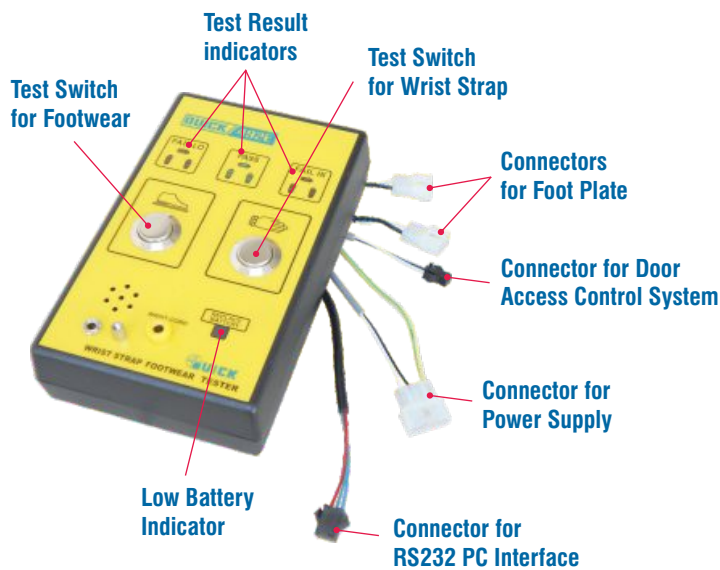
Hi-Quality, easy-to-adjust  
Lever mechanism  
inplace of screws



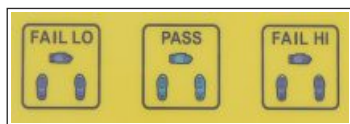
High strength thick  
wall metallic channel

There is no warranty for these consumable items.  
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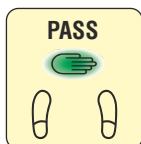
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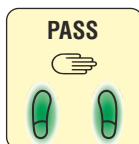
### Test Result Indications



Nine Test Lights for Wrist Strap and Foot Wear testing (3 Pass Green, 3 Fail Low & 3 Fail High)



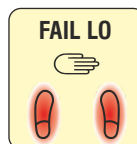
Wrist Strap PASS Resistance in range



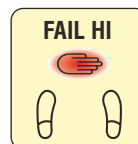
Foot Wear PASS Resistance in range



Foot Wear FAIL Resistance High



Foot Wear FAIL Resistance Low



Wrist Strap FAIL Resistance High



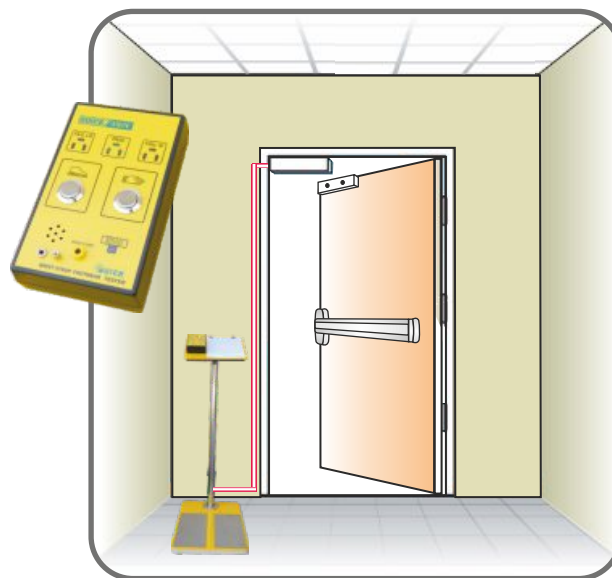
Wrist Strap FAIL Resistance Low

### Features

- Has 2 Test Modes:
  - Single Test Mode: Checks the ESD status of Wrist Strap or Footwear.
  - Comprehensive Test Mode: Checks the ESD status of both Wrist Strap and Footwear.
- Customer can connect it to Door Control System thru Access System Control Signal from this Tester.
- This Model uses micro-current testing for stable and accurate results.
- Low Voltage Alarm Function: when the battery goes low in this Tester, there will be alarm indication.

### Specifications

Power supply	: 9V Battery
Touch-Point	: Voltage $\leq 400V$ (peak, DC or AC)
Switching Output	: Switch Current $\leq 130$ mA Touch-Point Resistance of $< 30\Omega$ Test PASS: Touch-Point Close Test FAIL: Touch-point open
Accuracy	: Wrist Strap testing: $\pm 10\%$ Footwear testing: $\pm 10\%$ (100 K $\Omega$ ), $\pm 20\%$ (100 M $\Omega$ ), $\pm 30\%$ (1 G $\Omega$ )
Access Control	: $\pm 400V$ (Peak DC/AC); 100mA
Signal Output	: (Recommended Relay KAQW214)
Dimensions (approx.)	: 160 mm x 100 mm x 40 mm
Weight (approx.)	: 0.6 kg (Test Unit only)



**This Combo Tester can be connected to Door Control System thru Access Control System Signal from this Tester. It gives signal of  $\pm 400V$  (Peak DC/AC); 100mA to operate relay (KAQW214) of Access Control System**

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## Wrist Strap Tester P/N: 498

Wrist straps are the primary method to minimize the static charge on the human body. They must be able to drain this charge as rapidly as it is generated. For this reason it is important to test wrist straps on a regular basis to ensure they are working properly. To ensure the proper working of Wrist Straps, this model 498 is used to check the grounding quickly.

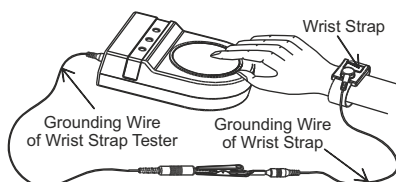
- Use anywhere to check personnel ESD grounding quickly
- Checks contact resistance between Wrist Strap and skin

### Specifications:

- Resistance Test Range : 750KΩ ~ 10MΩ
- Power Supply : 9-volt battery
- Changeover Point : ±10%
- Dimensions (approx.) : 117mm (L) x 80mm (W) x 40mm (H)
- Weight (approx.) : 110 grams

### Operation

Simply touch circular surface on Tester with your hand and connect ground wire. In case of a safe ground, LED will be 'Green'. Opposite Table summarizes test indications.



### Scope of Supply:

- Wrist Strap Tester Model 498
- Power Supply: 9V Battery
- Grounding Wire: 2.5 meter

LED Indication	Resistance	Buzzer
Power Low (Red)	<750KΩ	OFF
Good (Green)	750KΩ ~ 10MΩ	ON
High (Red)	>10MΩ	OFF

## Continuous Wrist Strap Monitor P/N: 495

Model 495 Continuous Wrist Strap Monitor continuously monitors the ESD integrity of wrist strap and its ground. It provides instant notification of the wrist strap or ground failure. When the production process is of very high value, reliable ESD safety and ground is must for continuous monitoring at operator level.

### Features:

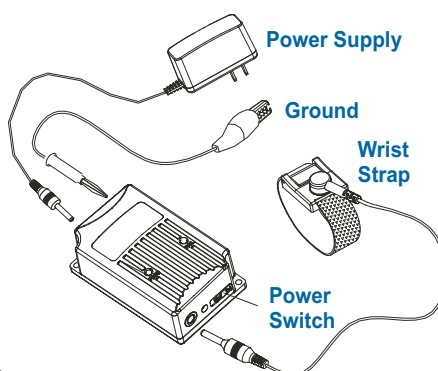
- Sound and light alarm
- Portable and compact, easy to use
- Real time monitoring of Wrist Straps
- Real time monitoring of grounding

### Specifications:

- Input Voltage : 6 ~ 12 VDC
- Working Current : <50mA (12VDC)
- Weight (approx.) : 50 grams
- Dimensions (approx.) : 75Lx46Wx27H mm

### Scope of Supply:

- Wrist Strap Monitor
- Grounding Cord
- Power Supply Adaptor (DC 6-12V)



LED	Value
OK (Green)	825KΩ ~ 9MΩ
Fail (Red)	11MΩ and above
Fail (Red)	765KΩ and below

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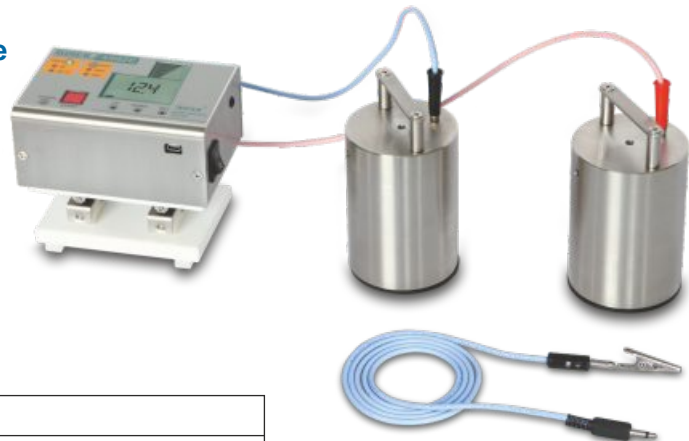
**ESD Audit Test Kit P/N: 499ZC**  
**Heavy Hammer type for surface impedance**

**Features:**

- Testing by putting on the surface to be tested
- Testing voltage switches automatically
- Various testing modes can meet different testing requirement.
- LCD display, easy to read.
- Chargeable battery (via USB Adaptor)

**Specifications:**

Measurement Range	$10^{2.5} \sim 10^{13.5}$ Ohm
Testing Modes	Standard surface impedance test mode ESD material and ground terminal test mode IEC specified heavy hammer test mode
Power Supply	3.7V chargeable battery (standard USB or adapter)
LCD Display	Test result displayed in digital form Test time display, Battery display
Testing Time	15s/30s/60s
Testing Voltage	Automatic switches 1- $10^{2.5}$ - $10^6$ Ohm 10V, 10mA max 2- $10^6$ - $10^{13.5}$ Ohm 100V, 1mA max
Resolution	0.1 digit
Accuracy	$\pm 0.5$ digit
Dimensions	114(L) $\times$ 78(W) $\times$ 69(H)mm (approx.)
Weight	5kg (Including battery) (approx.)



**This kit is designed to take measurements in accordance with the test methods in:**

- Floors - ANSI/ESD S7.1 Resistive Characterization Floor Materials
- Workstations - ESD-ADV53.1 ESD Protective Workstations
- Work Surfaces - ANSI/ESD S4.1 Worksurfaces Compliance Verification ESD TR35-Resistance Measurements

**Routine ESD Surface Resistivity & Grounding Tester P/N: 499D**  
**Digital Display (not mere LEDs indication as in low priced models)**

Surface Impedance Tester is used for measuring the surface coefficient and grounding resistance of objects, as well as the antistatic and insulating material.

**Specifications:**

Test range	: $10^3 \sim 10^{12}\Omega$
Power	: 9V battery
Resolution ratio	: 0.1 order of magnitude
Precision	: $\pm 10\%$
Condition	: $0^\circ\text{C} \sim 49^\circ\text{C}$ , RH 0%–80%
Size	: 130(L) $\times$ 72(W) $\times$ 35(H)mm (approx.)
Weight	: about 170 g (battery included)

**Test Results reading**

**X.X E XX** display means X.X raise to the power 10 ( $10^{xx}$ )  
Example: If display shows 9.5E10, it means  $9.5 \times 10^{10}\Omega = 95\text{G}\Omega$

**Interpretation of Digital Display**

- bL** --- It needs Battery replacement.  
**CE** --- It means Calibration Error, needs re-calibration.  
**Lr** --- Test resistance is less than  $300\Omega$  ( $3 \times 10^2\Omega$ ).  
**Hr** --- Test resistance is more than  $3\text{T}\Omega$  ( $3 \times 10^{12}\Omega$ ).



**Electrodes on the back side**

**Digital display readout**



Warranty is 12 months from the date of invoice. It excludes any mechanically damaged part. shown trademarks are property of their respective owners.

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