





P/N: 8BM-612A Ready-to-use 3-layer ESD Safe Table Mat Kit (size 60x120cm)

 This kit contains: ESD Safe Table Mat of size 60x120 cm with snap buttons, Wrist Strap & Dual point Grounding Cord

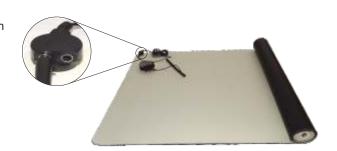
• 1 MOhm Resistor in the grounding wire for static protection

• Total thickness 3 mm:

Face layer: 0.2mm laminated PVC, Center layer: 2.7mm PVC foam, Bottom layer: 0.1mm laminated PVC

Resistivity: Face, Center & Bottom 10M~1KMΩ/Sq,

Combination layer 1K~1MΩ/Sq



P/N:ESD-DB-180 ESD Safe Liquid Dispenser

Made up of Polyethylene

· Stainless steel one touch pump top

Capacity: 115ml

Surface resistivity: 10⁹ ~ 10¹⁰



P/N: ES4-01-2 PCB Magazine Rack

For easy storage and transportation of PCB

Surface resistance: 10⁴~10⁶Ω Overall Size: 355x315x580 mm 50 pcs of PCBs can be stored.

Sizes of PCBs: 80~250 mm adjustable x 350 mm Side guide slot: depth 3.5 mm, width 8 mm, pitch 10 mm

The top and bottom plates are made of plastic.

Adjustable through screws.



P/N: ES4-01-3 PCB Magazine Rack

For easy storage and transportation of PCB

Surface resistance: 10⁴~10⁶Ω Overall Size: 355x320x563 mm 50 pcs of PCBs can be stored.

Sizes of PCBs: 80~250 mm adjustable x 350 mm Side guide slot: depth 3.5 mm, width 5 mm, pitch 10 mm

The top and bottom boards are made of metal.

Gear track allow easy operation.



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Hi-Quality ESD Safe Tools & Accessories



P/N: ESD-WSG-1

ESD Safe Wrist Strap

 Fabric: Elastic Polyester with conductive plated threads

• Resistor: 1 Mohm

· Colour: Blue and Maroon

· Length of cord: 6 feet



ESD Safe Gloves

 Surface resistivity: 10⁶ ~ 10¹⁰ Ohm

- Made from soft nylon for operator's comfort
- PU coated Finger tips
- Elastic, absorbent and non-slip type



ESD Safe PU Sleeper

P/N: ESD-SLP-40 or 42

ESD Safe PCB Bag

- · ESD Safe and skidproof
- Tenacious sole and upper
- Comfortable & convenient
- Washable & wear-resistant
- Resistivity: 10⁶ to 10⁹ ohm
- Colour: Black
- Size: 40 and 42



· ESD safe bag for PCBs

- Made from transparent PE membrane with conductive black printing ink
- Size: 20x30 cm
- Surface resistance < 10⁶ ohm



P/N: ES5-01-3

ESD Safe Cleaning Brush

Removes dirt on PCBs & on other static sensitive components

- ESD safe Cleaning of PCBs
- Conductive plastic brush
- Surface resistivity: 10³~10⁶ Ω
- Bristle size: 16x55 mm



P/N: ESD-E2

ESD Safe Cleaning Brush

Removes dirt on PCBs & on other static sensitive components

- ESD safe Cleaning of PCBs
- Conductive plastic brush
- Surface resistivity: 10³~10⁶ Ω
- Bristle size: 16x15 mm



P/N:ESD-TR-9

P/N: ESD-A2

ESD Safe Storage Box

- Surface resistance: 10⁴~10⁶Ω
- Size: Interior: 40x26x16 mm Exterior: 56x32x21 mm
- Spring loaded top cover
- Very useful to store miniature SMD Chip Components



P/N:ESD-BOX-M

ESD Safe Conductive Tray

Surface resistance: 10⁴~10⁶Ω

 9 sections each of 100x100x10 mm size

 Interior size: 300x300x10 mm Exterior size: 315x315x15 mm



P/N: ESD-GC-2H

Common Grounding Point P/N: ESD-CGP-4H

- Designed for use at workstations
- Provides grounding points for two Wrist Straps as well for Table Mat and Runners



- One end has 2 Snap Buttons and 2 Banana Jacks & other end has Ring Terminal
- Length: 2 meters (approx.)

Grounding Cord

Designed to ground ESD Table Mat

 Provides two grounding points, one for Wrist Strap & other for connection to ground

 One end has Snap Button and 2 Banana Jacks & other end has Grounding Thimble

Length: 2 meters (approx.)



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Model ITK-ESD-3141









ESD Safe Wrist Strap





The Kit includes:

ESD Safe Screwdrivers

- Philips Screwdriver #1
- → Slotted Screwdriver 3.0mm

ESD Safe Precision Tweezers

- ESD Safe Superfine Tip Curved Tweezer
- ESD Sage Superfine Tip Straight Tweezer
- ESD Safe Conductive Tweezer
- ESD Safe Reverse Action Tweezer

ESD Safe Cutter & Stripper

- ESD Safe Micro Cutter
- ESD Safe Precision Wire Stripper

Miscellaneous ESD Safe Tools

- ESD Safe Cleaning Brush
- ESD Safe Wrist Strap

Packaging

- Zipper Pouch



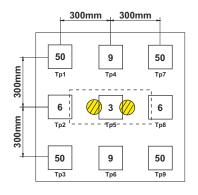




The suspended overhead type ionized air blowers produce an air flow rich in positive and negative ions. Directing this air flow on an object, that has a static charge, will neutralize the static charge. Air flow volume is controlled by variable speed control. The ionizers feature a balancing circuit.

Features

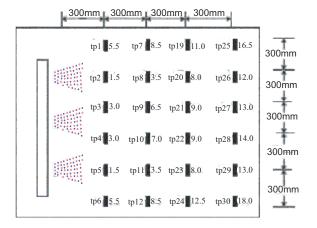
- · Rapidly neutralizes static charges
- · ionization indicator lamp
- · Covers an extended distance and large area with ionized air
- · Variable speed fan with wide range of air flow
- Inherently balanced ion output
- Durable, electrically grounded metal enclosure
- · Angle of airflow can be adjusted







Model ISE-447 (2 Fan type)





Model ISE-442-3 (3 Fan type)

Specifications

Specifications	Model ISE-447	Model ISE-442-3
Power Consumption	36 Watt	80 Watt
Output Voltage	± 5 KVDC ~ ± 10 KVDC	5.6KVAC
Ion Balance	≤ ± 10 VDC (450 mm from panel)	≤ ± 15 V (450 mm from panel)
Air Volume	≤ 1.6 m³/min	≤ 1.2 ~ 2.4m³/min (x3, adjustable)
Ozone Production	≤ 0.03 ppm (150 mm from center of air outlet)	≤ 0.03 ppm (150 mm from center of air outlet)
Effective Range	600x750 mm	600x1600 mm
Dimensions	430x170x60 mm (approximately)	1086 x 170 x 90 mm (approximately)
Weight	3 kg (approximately)	9 Kg



Adjustable Angle Table Top Static Charge Eliminators & Gun



Model I443D

Bench Top ionized Air Blower

- · Eliminates build-up of damaging static charge
- · Neutralizes static charge in the work area
- Quiet and comfortable air flow with compact size
- Uses long life magnetic transformer, prevents short circuit
- · Compact size, light weight and portable design
- · Adjustable fan speed to generate large area ion stream

Specifications:

Input Supply
 Output Voltage
 Ion Balance
 Effective Range
 Air Volume
 Dimensions
 220V/50Hz, 30 Watt
 DC ± 5000 V
 ≤ ± 5 V
 400x1500 mm
 ≤ 2.4 m³/min
 190x240x95 mm

• Ozone Production : ≤0.01 ppm (150 mm from centre of air outlet)



Model IND-ESDSET28

Stainless Steel Bench Top ionized Air Blower

- Eliminates build-up of damaging static charge
- · Neutralizes static charge in the work area
- · Quiet and comfortable air flow with compact size
- · Uses long life magnetic transformer, prevents short circuit
- Adjustable fan speed to generate large area ion stream

Specifications:

Input Supply
 Effective Range
 Dimensions
 Ozone Production
 : 220V/50 Hz, 30 Watt
 : 400x1500 mm
 : 140x220x84 mm
 : ≤0.03 ppm

(150 mm from centre of air outlet)

Output Voltage : AC 5.6 kV
 ion Balance : ≤ ± 10 V
 Air Volume : ≤ 2.4 m³/min







Model ISE445EF-446EF

Ionizing Air Blowing Snake Style

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

Technical specifications

Ionizing Air Snake

Ion Balance : ±10V

High Voltage Input
 Air Required
 TKV AC (0 - 40%) 50 Hz
 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 : 220 V AC, 50Hz

Sub short-circuit Current : < 3mARelative Humidity : < 70%

• High Voltage Output : 7KV AC (0 - 40%)

• Rated Power : 30 Watt



Warmbier Germany High Resistance Test Kit Metriso 2000



Suitable for resistance point-to-point and resistance to ground measurements

Metriso® 2000 - TEST KIT

(Part No.: 7100.2000.MK.E)

- Suitable for resistance to ground and point-to-point resistance measurements according to IEC 61340-4-1 Ed. 2.0 and IEC 61340-2-3
- Suitable for measuring the electrical resistance of footwear and flooring in combination with a person according to IEC 61340-4-5.
- Integrated data logger for 2500 values and infrared communication port for data transmission
- Clip-on humidity and temperature sensors
- · Special guard socket reduces distortion at high value resistance measurements
- Includes two Probes Model 850 according to IEC 61340-4-1 Ed. 2.0 / IEC 61340-2-3 and a handheld probe according to IEC 61340-4-5



Technical data:

Test voltage : DC 10V, 100V, 250V, 500V

Resistance : $10^3 - 10^{12} \Omega$ Temperature : -10° C to $+50^{\circ}$ C Humidity : 10% to 90%

Operation : Battery operated or with

rechargeable batteries

Probes : 2 x Model 850

: 1 x Handheld probe Model 45

Size : 140 x 50 x 270 mm (W x H x D)

Weight: 1120 grams

- Digital high Resistance Tester Metriso 2000
- Infrared Interface Adapter (USB)
- · Communication Software
- Humidity and Temperature Sensor
- 2 Probes Model 850 acc. to

IEC 61340-4-1 /2-3

• 1 Handheld Probe Model 45 acc. to

IEC 61340-4-5

- Connecting Cables
- Conductive Carrying Case
- · User's Manual in German/English/French



Warmbier Germany High Resistance Test Kit Metriso 2000



Suitable for resistance point-to-point and resistance to ground measurements

Technical Specifications

Measured Quantity	Measuring range	Test current/ Impedance	Nominal values	Intrinsic Error
R _{ESD}	1 kΩ - 100 kΩ		U _M = 10V	±(5% rdg. + 3 d)
R _{ESD}	>100 kΩ - 10 GΩ	1 mA	U _M = 100V	±(5% rdg. + 3 d)
R _{ESD}	>10 GΩ - 100 GΩ	1 mA	U _M = 100V	±(8% rdg. + 3 d)
R _{ESD}	0 MΩ - 10 GΩ	1 mA	U _M = 250/500V	±(5% rdg. + 3 d)
R _{ESD}	0 ΜΩ - 100 GΩ	1 mA	U _M = 250/500V	±(8% rdg. + 3 d)
R _{ESD}	>100 GΩ - 1 TΩ	1 mA	U _M = 100/250/500V	±(25% rdg. + 5 d)
U _M	0 V - 720V	5 MW		±(2,5% rdg. + 3 d)
Т	-10°C - +50°C			± 2°C
F _{rel}	10% - 90 %			± 5%

Power Supply, Battery Life Expectancy:

The instrument is supplied including the batteries (4 x 1,5 V baby cells) Battery life is about 3000 measurements at RESD with one set of batteries. (With 10 sec. on-time and performance of one measurement before each automatic instrument shutdown)

- ► 1 year limited warranty
- ► Recommended calibration interval: 2 years

Accessories (optional):



Part No. 7100.2000.TR50

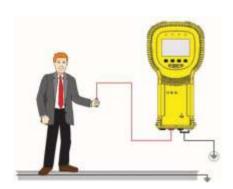
50m Cable reel with unroll handle for floor measurement

Metriso 2000 Kit (P/N: 7100.2000.MK.E) includes:

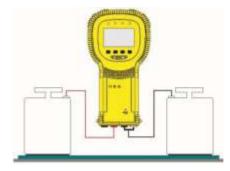
- # Digital High Resistance Tester Metriso2000
- # Infrared Interface Adapter (USB)
- # Communication Software
- # Humidity and Temperature Sensor
- #2 Probes Model 850
- # 1 Handheld Probe Model 45
- # Connecting Cables
- # Conductive Carrying Case
- # User's Manual

Metriso 2000 (P/N: 7100.2000.G.E) includes:

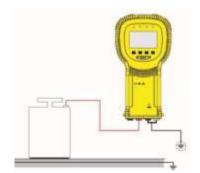
Digital High Resistance Tester Metriso 2000 only



R_a system Resistance of person / ESD shoes / flooring to ground



Point to Point Resistance



Resistance to ground or groundable point

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Warmbier Germany, Electrostatic Field Meter EFM51

- Handheld, portable, digital electrostatic field meter with rotating chipper
- Detects and accurately measures electrostatic fields
- Measures: Fields, Potentials and Discharge Time
- · Automatic field to voltage conversion according to selected distance
- Very stable zero adjust

Technical Data:

Power supply : 9V Battery IEC6F22

or rechargeable battery

Range : 0 - 160kV / 0 - 800kV/m

Display : 2 row LCD Display

Dimension : 70 x 122 x 26mm (W x L x H) Weight : 130 grams (without battery)

Distance	Range	Max. Resolution
1 cm	0~8 kV	1 volt
2 cm	0~16 kV	2 volt
5 cm	0~40 kV	10 volt
10 cm	0~80 kV	10 volt
20 cm	0~160 kV	20 volt
E-Filed Mode	0~800 kV/m	100V/m
CPS Mode	1.000 to 100 volts	0.1 sec.







Warmbier P/N: 7100.EFM51

Charged Plate

Field Meter

Scope of Supply standard package (P/N 7100.EFM51)

EFM51 Meter # Carry Bag

Ground Cord # 9V Battery and Manual

Scope of Supply with Charged Plate Set (P/N 7100.EFM51.CPS)

EFM51 Meter # Carry Bag # Charged Plate Set # 9V Battery # Ground Cord # Manual

Charged Plate Retrofit Set for use with EFM15 is also available

Ordering code for retrofit set is 7100.EFM51.CPS.SET

Warmbier Model: SRM 110

(Part No.: 7100.SRM110.A)

Pocket size, lightweight, auto ranging surface resistance meter for verification of conductive and dissipative materials. Internal parrallel metal electrode. External probes can be connected.

Specifications

• LED : 10 lights Low Battery : LED flashing : 9 volts Battery : 10³ - 10¹² Range : +/- 10% Accuracy Range

: 130 x 65 x 31mm Size Weight : 240 grams

Warmbier Germany, Surface Resistance Meter



Supplied with:

- Instrument SRM 110
- Carrying bag
- 9V-battery (installed)
- · Grounding cord
- User's manual
- Calibration certificate



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Warmbier Digital Surface Resistance Starter Kit

Model SRM200/EFM51 (P/N: 7100.SRM200.SK51)

Starterkit for testing conductive an dissipative surfaces and electrostatic fields/surface potentials, includes

SRM200 Digital Surface Resistance Tester

• EFM51 Electrostatic Field Meter

· Conductive Carrying Case

Scope of Supply (Model SRM200/EFM51) P/N 7100.SRM200.SK51)

SRM2000 Surface Resistance Meter

EFM51 Electrostatic Field Meter

Carrying Case

Battery Charger

USB Cable

ESD Safe

Ground Cord

Software

Manual and Calibration Certificate



Warmbier Calibration Unit for PGT120 Combo Tester

The Calibration Unit contains resistors to test the limits of the Personal Grounding Tester PGT 120. It works without battery or any external power supply. To measure test voltage of the PGT 120 - a DC voltmeter with an impedance of $\geq 10 \text{M}\Omega$.

The Calibration Unit is used to check/calibrate the following parameters of PGT120 Combo Tester:

- Test Voltage
- Wrist Strap Verification
- Footwear Test Verification single shoe (Right)
- Footwear Test Verification single shoe (Left)
- Footwear test in series

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P/N: 7100.PGT120.CU

P/N: 7110.585.SET.KA

Warmbier Re-Calibration Audit Kit

The ESD-Audit-Kit includes the relevant test instruments for the verification of the ESD control elements according to IEC 61340-5-1 in an ESD protected area (EPA)

Applications

- · Evaluate packaging materials
- Evaluate garments
- · Measure flooring, working surface and furniture resistance
- Measure electrostatic fields
- · Measure temperature and relative humidity
- · Analyze Ionizers performance

Consists of:

- 7100.2000.KA Re-calibration Metriso 2000
- 7220.844.KA Re-calibration two-point Resistance Probe 844
- 7220.880.KA Re-calibration Ring Probe model 880
- 7100.EFM51.KA Re-calibration Electrostatic Field Meter EFM51
- 7100.SRM110.KA Re-calibration Surface Resistance Meter SRM110



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Warmbier Germany, Digital Surface Resistance Test Kit

Warmbier Model SRM200, Part No. 7100.SRM200.K+2x850



Digital test kit makes testing all surfaces accurate and simple. Supplied with two 5 lb. weights & foam filled case.

Features:

- Pocket size, lightweight, auto ranging surface resistance meter
- · LCD Display and data memory
- · USB interface to PC
- · Integrated temperature and humidity sensor
- · Built-in electrodes with conductive rubber
- · External probes can be connected
- · Rechargeable battery operated





Specifications

Resistance range: 1x10³-1x10¹²

 Accuracy range $: 10^3 - 10^9 = 10\%$

 $10^{10} - 10^{12} = 25\%$

 Test Voltage : 10/100V

 Electrodes : Two (2) 5lb weights

 Weight : 290 g

Kit, P/N 7100.SRM200.K)

SRM2000 # Carrying Case # Battery Charger # USB Cable # Ground Cord

 Size : 145 x 80 x 35 mm

Scope of Supply (Model SRM200 Test





Back side view

Software # Manual and Cal. Certificate

Scope of Supply (Model SRM200 Test Kit, P/N 7100.SRM200.K+2x850)

SRM200

2x 5 Pound Weights

Carrying Case

Battery charger

USB Cable

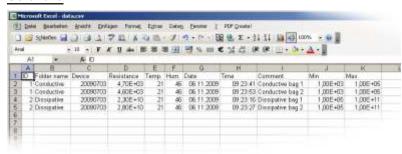
Ground Cord

Software

Manual and Cal. Certificate

Probe model 850

Software





Warmbier Germany, Wrist Strap & Footwear Combo Tester



Warmbier Model PGT120, Part No. 7100.PGT120 based

The personnel Grounding Tester PGT 120 is a wrist strap and footwear tester for access control of ESD protected Areas (EPA). Used for compliance with the ANSI ESD S20.20 para 6.1.3.2 'Compliance Verification Plan'.

Features:

- · Simultaneous testing of wrist strap, right and left shoe
- Separate measurement of right and left foot
- LEDs display different test results
- Test result is indicated with audible and visual LED indications
- Can be used on becnh tops or as a wall mounted unit
 (Wall mounting requires an additional wall mounting plate
- · Battery powered with low-battery indication
- · Optional AC Adaptor is available.
- · Lower limit disabling is possible.

Specifications:

• Floor Plates : Aluminum

Unit dimensions : 150 x 200 x 65mmFoot Plate size : 350 x 500 x 8 mm

• Battery : 9 volt

LEDs : (6) Low, High & PassAlarm : Internal buzzer

• External Power : AC/DC (optional)





Footwear Electrode for separate shoe testing (350 x 500 x 8mm)



Limit Values and Measure Mode:

	Measuring range / Test voltage	Standard
Wrist strap / coil cord	750 kΩ - 35 MΩ	IEC 61340-5-1
Footwear worn on metal plate (values for each shoe)	(100 kΩ *) - 35 MΩ or (100 kΩ *) - 70 MΩ * lower limit can be disabled	IEC 61340-5-1
Footwear in series	140 M Ω or 70 M Ω (both shoes in series)	
Test voltage (without load)	100V/DC changeable to 50V or 30V	IEC 61340-5-1

Scope of Supply (Model PGT120-WK Test Kit, P/N 7100.PGT120-P)

- Main PGT120 Combo Tester
- Footwear Electrode
- Wall Mounting Plate
- 9 Volt Battery
- User Manual & Cal. Certificate

Scope of Supply (Model PGT120 Tester, P/N 7100.PGT120)

- Main PGT120 Combo Tester
- Footwear Electrode
- 9 Volt Battery
- User Manual & Cal. Certificate

Accessories (Optional)

- P/N: 7100.PGT120.WK, Wall Mounting Plate
- P/N: 7100.PGT120.SM, Mat for footwear electrode with yellow edges

Note: Special version of the Personnel Grounding Tester PGT®120 with RS232 interface is also available

Scope of Supply (Model PGT120.COM) P/N: 7100.PGT120.COM

- Main PGT120 Combo Tester with RS232
- 9 Volt Battery

- Footwear Electrode
- User Manual & Calibration Certificate

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