



Armeka Engineering Ltd has offered ESD products and services for over ten years and been developed to the leading ESD expert company in Finland. In addition to the imported products of our principals (for instance: Prostat, ION Systems, Tarkett-Sommer) we manufacture high-class Finnish ESD products to home and export market.

We offer to our customers comprehensive ESD service, training, consulting, planning and building of ESD areas. You can get all necessary materials, products and measuring devices to ESD protection.

Armeka Engineering Oy has trained and consulted big and small companies for many years all over the world.

Armeka Engineering Oy is able to install ESD surfaces like floor mats and epoxy resin coatings which demand very special know how.

We are glad to offer our know-how to you.

With Best Regards:

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FLOORING SYSTEMS

Torostat 9500 ESD floormat	5
ESD STB epoxy coating	6
ESD SL epoxy coating	6
ESD CBX epoxy coating	6
Armeka 3300 ESD-grating mat	7
Werkstep stand mat	7

TABLE AND SHELF COVERINGS

Torostat 9500 shelf and table covering	7
A-8500 synthetic rubber mat	7

SHIELDING BAGS

A-2000 metallized shielding bags	8
A-2010 metallized shielding bags (recloseable)	8
A-9200 antistatic shielding bags	8

PERSONAL GROUNDING

Wrist straps	9
Wrist strap coil cords	9
Wrist strap grounding points	10

GROUNDING ACCESSORIES

A-9400 earth bonding point (EBP)	11
A-9410 earth bonding point (EBP) bar	11
A-1140 grounding copper	11
3M-1190 copper tape	11
ARMEKA shoe grounding assembly	11
3M-2045 shoe grounding strap, disposable	11
Sievi ESD-footwear	12
ESD-socks	12

ESD OFFICE SUPPLIES

A-9110 antistatic document holders	12
A-1600 ESD ring binders	12
A-1710 and A-1720 tarifolds	12
A-1112 conductive document tray	12

PACKAGING AND STORAGE SUPPLIES

A-2920 conductive bubble film	13
A-2960 conductive polyethylene foam	13
A-4000 conductive component boxes (with hinged top)	13
Armeka storage, handling and shipping boxes	13
Treston ESD workstations and cabinets	14
A-4500 SMD boxes and cases	14
Component reel racks	14



CLEANING AND MAINTENANCE

ACL-8012 wipes	15
A-9500 ESD-waste basket	15
A-9510 antistatic carbage bag	15
A-9530 antistatic trash bags	15
A-5800 clean walking mats	15
A-8000 ESD-wipes	15
A-497 ESD service vacuum cleaner	16
Conductive brushes	16
ACL-8040 antistatic swabs	16
A-9200 ESD-cleaning agents	17
Static dissipative floor finishishes	17
ACL-7001 staticide hi tech hand lotion	17
A-2500 dissipative coating	18

ESD WORK CHAIRS

A-1100 ESD standard work chair	18
A-1300 ESD work chair (saddle model)	18
A-1600 ESD work chair	18
WS 1620 MOS ESD work chair	19
WS 2620 MOS ESD work chair	19
A-8501 ESD field service kit	19
ESD work station	20

TEST AND MEASUREMENT EQUIPMENT

A-750 footwear and wrist strap tester	22
ACL-750 combo-tester kit with software	22
PRS-801 resistance system kit	23
PRS-812 resistance meter set	24
3M-701 test kit for static control surfaces	26
PROSTAT® PAR-809B variable resistance reference	26
PROSTAT® PRF-911 concentric ring set	26
PRF-914 miniature E14 probe set	27
PRF-912 miniature E12 probe set	27
PROSTAT® PFC-721 faraday cup assembly	28
PROSTAT® PFM-711A electrostatic field meter	29
PROSTAT® PFK-100 instrument set	30
PDT-740B electrostatic decay timer	31
ION-775 electrostatic field meter	32
ION-775pvs periodic verification system	32
3M-711 charge analyzer	33
ION-210 charged plate monitor	34
IO280 charged plate monitor	34
VAISALA HM 34 humidity and temperature meter	35
CTK031 electromagnetic compliance training kit model	36
CTA201 EMI fixture	36
CTK053 EMI/ESD diagnostic kit for ESD event analysis	36
EM Aware™ ESD event monitors	37
EM Eye® directional field strength and RF signal meter	38
ScanEM® -QC probes and electromagnetic field sensors	38
ES-81 V EMI LOCATOR	38

ESD dehumidification cabinets

A-564 ESD dehumidification cabinet	39
A-1686 ESD dehumidification cabinet	39



IONIZERS

6420 point of use ionizing blower	40
6421 battery-operated ionizing blower	40
6430 local area ionizing blower	40
6442 benchtop ionizing blower	40
6665 ionizing aerobar	41
5802 single fan ionizing blower	41
6115 AirForce ionizing blow-off gun	42
6110(a) air ionizing cartridge	42

ESD SIGNS

ESD signs	42
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ANTISTATIC TAPES

8220 antistatic PVC tape with ESD symbols	43
8320 antistatic PP tape	43

ESD WHEELS

ESD wheels	43
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ESD TRAINING AND CONSULTING

Armeka Engineerin consulting, training & EPA planning	43
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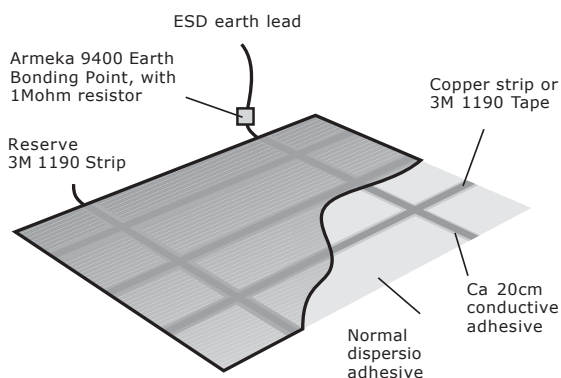


Flooring systems

Torostat 9500

TOROSTAT 9500 is homogenous, static dissipative ESD floor covering. The background in TOROSTAT 9500 is black, conductive material, which guarantees good ESD properties in all conditions. So, the conductivity does not depend on adhesives and installation as most of the ESD floorings. When installing TOROSTAT 9500 ESD floor mat, it is needed to use conductive adhesive only for grounding Cu -strips, in the rest of the area we may use just a normal dispersion adhesives. This makes the installation very cost effective. TOROSTAT 9500 is also possible to install by 2 -sided mat installation tape.

TOROSTAT 9500 meets the requirements of all the most used ESD Standards, like EN 61340-5-1, method IEC 1340-4-1, ANSI EOS/ESD-S20.20, method S7.1-1994 etc.



Adhesive Installation:

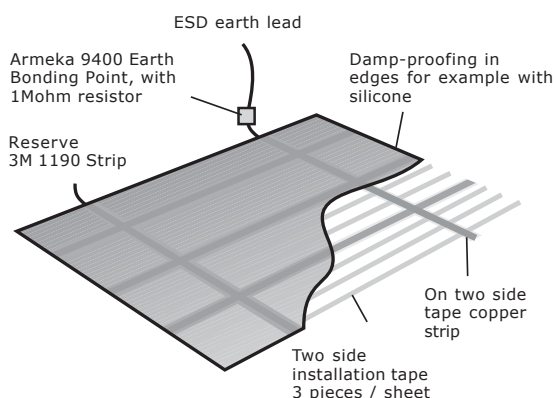
The flooring is glued with a normal dispersion adhesive. The copper strips are covered by a conductive adhesive with the width of ca 20 cm.

A cheap and reliable installation.

The grounding via a 1 Mohm resistor. Use Armeka 9400 Earth Bonding Point and 3M-1190 Fibre Tape in bonding.

Benefits:

- low installation costs, you can use normal adhesive
- reliable conductivity



Tape Installation:

The flooring is installed on the old flooring with the Armeka XX Both Side Tape. A sheet is installed with three tapes/ sheet and then the flooring can stand hard load without damages. Smaller areas in work stations can be taped lighter. The copper strips are laid on the tapes across the direction of the sheet. The bonding to the ESD earth with Armeka 9400 Earth Bonding Point and 3M 1190 Fibre Tape.

Benefits:

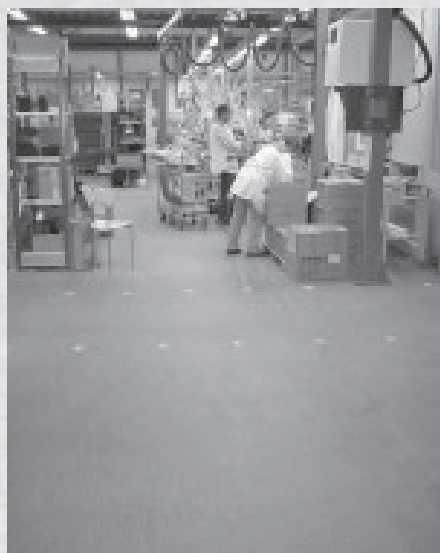
- a cheap way to install
- fast and clean
- no preparation
- reliable conductivity



Torostat 9500



Flooring systems

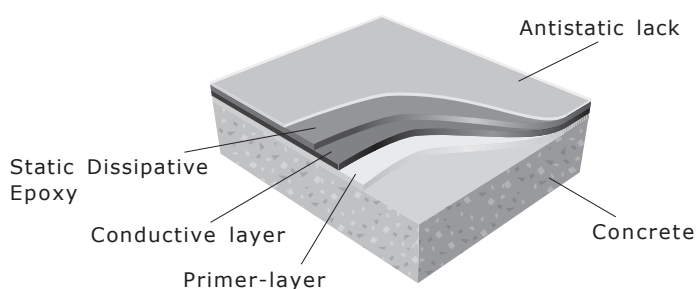


ESD STB

ESD STB Epoxy Coating

ARMEKA ESD STB is a solvent free two-component , high-filled conductive epoxy coating composed of unpigmented epoxy mixed with specially graded, coloured quartz crystals.

ARMEKA ESD STB is primarily intended for use as a floor coating on concrete. By means of the proper balance between the amount of surface varnish and the size of the quartz crystals, the surface acquires interconnecting grooves. This proves a slip-proof finish, making ARMEKA ESD STB suitable for industrial areas; electronics production, electronics stocks, chemical industry etc.



ESD SL

ESD SL Epoxy Coating

ARMEKA ESD SL smooth is an epoxy coating formulated for surface treatment of concrete floors where there is a need to disperse static electricity.

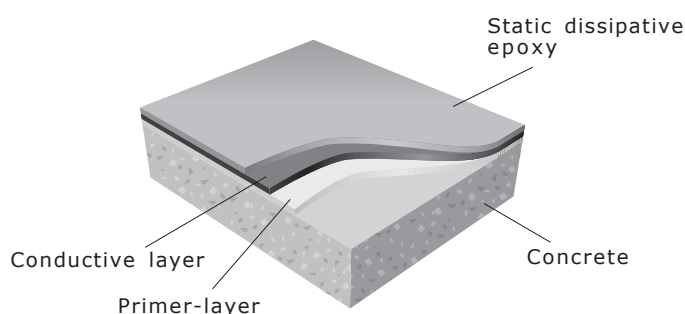
ARMEKA ESD SL is hard-wearing, has high compressive strength, excellent resistance to alkalis and good resistance to many acids. Suitable areas of application include industrial production areas, storage and workshop areas for example, the chemical and electronic industries, computer rooms, facilities which handle or store easily ignited materials or areas where there is a high risk of dust explosion.



ESD CBX

ESD CBX Epoxy Coating

ARMEKA ESD CBX is a solvent free two-component, filled conductive epoxy coating composed of pigmented epoxy mixed with specially graded quartz crystals. ARMEKA ESD CBX is primarily intended for use as a floor coating on concrete. By means of the proper balance between the amount of surface varnish and the size of the quartz crystals, the surface acquires interconnecting grooves. This proves a slip-proof finish, making ARMEKA ESD CBX suitable for industrial areas; electronics production, electronics stocks, oil and chemical industry etc.

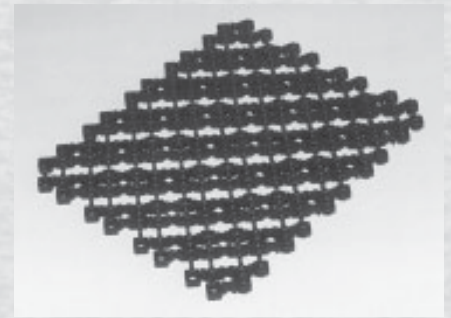




Flooring systems

ARMEKA 3300 ESD-Grating mat

This mat can be joined to desired size with handy "snap-on" joints. Material conductive plastic, resistance to earth app. 10^3 Ohms. Size of one piece 205 x 255 mm.



3300 ESD-Grating mat

Werkstep stand mat

Anti-Fatigue Rubber Matting is an effective way to reduce standing worker fatigue while providing ideal protection against static electricity problems.

Size 600 x 900 mm, thickness 14 mm.
Material conductive polyurethane.
Resistance to ground app. 100 MOhms.
3-year guarantee.



Werkstep stand mat

Table and shelf coverings

Torostat 9500 shelf and table covering

Torostat 9500 on 2,0 mm thick, homogenous, dissipative material. Covering is very durable. Typical surface resistance $10^7 \dots 10^8$ Ohm, resistance to earth according to EN-61340-5-1 <100 MOhms.

Deliveries: precut, or in rolls; roll width 2m length 25m.
Colors grey 69791 and blue 69793.

A-8500 synthetic rubber mat

This mat is specially designed for work stations where soldering is used. Surface is dissipative synthetic rubber, bottom is conductive material.

Resistance to earth $1 \times 10^6 \dots 5 \times 10^7$ Ohm.
thickness 2,0 mm.
Colors: 8501 light beige, 8502 blue, 8503 grey.
width 1,22 m, length 10 m (roll).
Deliveries: precut or rolls



Shielding bags

A-2000 metallized shielding bags

Armeka-2000 series metallised shielding bags are Metal-In type bags which give a good protection against direct and indirect discharge and triboelectric charging. There is a transparent vaporised aluminium between the inner dissipative polyethylene and outer layers, so devices with battery will not discharge. The bags meet the requirements of standard EN-61340-5-1.

Normal metallised bags with polyethylene inner layer are heat sealable or they can be equipped with a zipper closure.

A-2000 Size and ordering information

inch	mm	inch	mm	inch	mm
3"x 5"	76 x 127	7"x 15"	178 x 381	11"x 15"	279 x 381
4"x 4"	102 x 102	8"x 8"	203 x 203	12"x 16"	305 x 406
4"x 6"	102 x 152	8"x 10"	203 x 254	12"x 18"	305 x 457
4"x 24"	102 x 610	8"x 12"	203 x 305	14"x 18"	356 x 457
4"x 30"	102 x 762	10"x 12"	254 x 305	15"x 18"	381 x 457
5"x 8"	127 x 203	10"x 14"	254 x 356	16"x 24"	406 x 610
5"x 10"	127 x 254	10"x 24"	254 x 610	18"x 18"	457 x 457
6"x 8"	152 x 203	10"x 30"	254 x 762	18"x 24"	457 x 610
6"x 10"	152 x 254				

A-2010 metallized shielding bags (recloseable)

Material same as in Armeka2000 -series bags.

Dimensions in table; width x length. 100 pcs per packet.

A-2010 Size and ordering information

inch	mm	inch	mm	inch	mm
3" x 5"	76 x 127	8" x 8"	203 x 203	12" x 12"	305 x 305
4" x 4"	102 x 102	8" x 10"	203 x 254	12" x 16"	305 x 406
4" x 6"	102 x 152	8" x 12"	203 x 305	12" x 18"	305 x 457
5" x 8"	127 x 203	10" x 12"	254 x 305	14" x 10"	356 x 254
6" x 8"	152 x 203	10" x 14"	254 x 356	14" x 16"	356 x 406
6" x 10"	152 x 254	10" x 30"	254 x 762	18" x 18"	457 x 457
6" x 30"	152 x 762	11" x 15"	279 x 381		

A-9200 antistatic shielding bags

Antistatic bags are made of very high quality antistatic and amine -free polyethen material. Material is heat sealable.

Dimensions in table; width x length in mm. 100 pcs per packet.

9200 -series

sizes
100 x 150 mm
130 x 200 mm
150 x 225 mm
200 x 250 mm
250 x 300 mm
300 x 400 mm
400 x 500 mm

9220 -series (recloseable)

sizes
80 x 120 mm
100 x 150 mm
150 x 225 mm
120 x 170 mm
200 x 250 mm
250 x 300 mm
300 x 400 mm



Personal grounding

Wrist straps

ARMEKA - wrist bands are adjustable, very durable high quality wrist bands. There is lot of conductive threads in a band, which guarantees a good contact to the skin. 1 MOhm resistor is molded to the snap. The coil cord will be fixed to the band firmly by 4mm snap. There are several ways to connect wrist strap to the grounding point.

Wrist strap consists of three parts:

1. wrist strap
2. coil cord
3. connector

Wrist band codes:

- A-2202 LC blue
- A-2204 EC red
- A-2206 SD blue
- A-2210 metallic



Wrist strap coil cords

- A-2410 Coilcord 2,5 m, 4 mm snap/ 4 mm banana plug
- A-2420 Coilcord 2,5 m, 4 mm snap/ GSGS
- A-2430 Coilcord 2,5 m, 4 mm snap/ 10 mm snap
- A-2440 Coilcord 2,5 m, 4 mm snap/ 7 mm snap





Personal grounding

Wrist strap grounding points

Wrist strap grounding points can be installed under the table. According ESD standards it is possible to connect two wrist straps.

Ordering information

A-3142 GSGS Grounding point (size: width 81 mm x depth 38 mm x height 25 mm), ground cord 3 m

A-3145 Grounding point, 10 mm male snaps, ground cord 3 m

A-3147 Grounding point, 10 & 7 mm male snaps, ground cord 3 m

A-3141 Grounding point for banana plug, ground cord 1,8 m

A-3140 Grounding point for banana plug, ground cord 4,5 m. With this it is possible to ground the table mat and wrist strap at the same time.

Grounding accessories

A-3137

Insulated alligator clip for standard 4 mm banana plugs

A-3040

Ground cord 4,6 m. 10 mm Low Profile shielded female snap / ring end. With 1 MOhm resistor

A-3043

Connection cord 1,5 m. Low Profile shielded female snaps.

A-3045

Extending cord 2,0 m for 4 mm banana plugs.

A-3033

Male snap 10 mm

A-3034

Female snap 10 mm

A-3165

GSGS adapter

A-3170

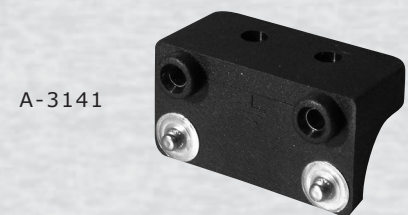
10 mm snap adapter, female



A-3170



A-3142



A-3141



A-3140



A-3137



A-3040



A-3043



A-3033



A-3034



A-3165



Grounding accessories

A-9400 Earth Bonding Point (EBP)

With this EBP it is easy to connect all the ESD workstations ground cords to ESD earth via 1 MOhm resistor.

A-9410 Earth Bonding Point (EBP) bar

In this grounding bar there is places for 2 x Ø 5 mm and 5 x Ø 4 mm cords.

A-1140 grounding copper

Grounding copper stripe with adhesive background for floormat grounding. Width 15 mm, thickness 0,08 mm, 33 m / roll.

3M-1190 copper tape

Very strong knitted copper tape for grounding
Width 19 mm. length 16,5 m.

ARMEKA shoe grounding assembly

With ARMEKA shoe grounding assembly, body can be grounded to the floor when using ordinary shoes. Temporary ESD-footwear can be replaced by these ARMEKA shoe grounding assemblies (for example visitors, maintenance personnel)

Straps are very enduring, easy to dress and wear and conductivity is permanent.

A-1450 shoe grounding assembly, 1 MOhm resistor, men´s model

A-1451 shoe grounding assembly, 1 MOhm resistor, women´s model

3M-2045 shoe grounding strap, disposable

3M™ Velostat™ 2045 Disposable Shoe Grounding Straps provide a reliable path for static charge drain to ground when personnel are wearing shoes with insulative soles.

The shoe grounding straps are especially desirable in work situations where personnel must move around - wave soldering, automatic insertion or operation of sensitive computerized equipment. To be effective, the shoe grounders must be worn on both feet.

Packing data: 100 per box



A-9400



A-9410



A-1140



A-1450



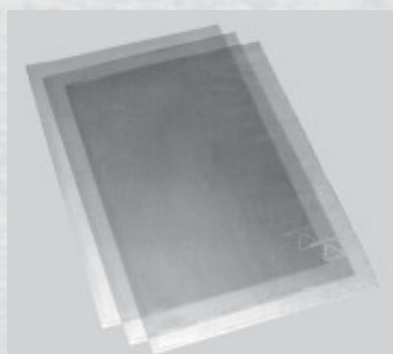
3M-2045



Grounding accessories



ESD-socks



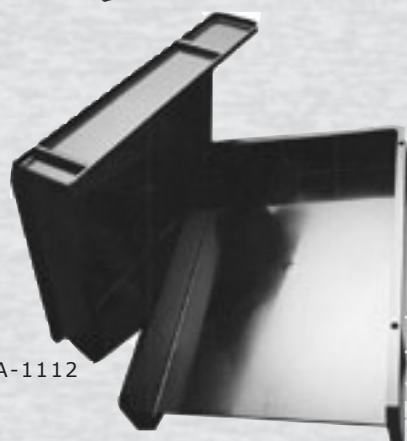
A-9110



A-1600



1720



A-1112

Sievi ESD-footwear

Sievi is the leader in professional and ESD shoes in Europe. Sievi got the first certified quality system as a working shoes manufacturer in Northern Europe and also the rights to use CE - marking in it's shoes. It is also ISO 9001 Certified company. All these together will guarantee the best possible quality for Sievi's customers. Contact us and ask for complete Sievi's work- and ESD shoe catalogue!



ESD-socks

High quality, static dissipative and durable ESD socks, made in Finland

art.		composition
A-0415	ESD-fresh	60% cotton, 37% polypropen, 3% TAM-Silver
A-0416	ESD-Cotton	55% cotton, 42% polyamid, 3% TAM-Silver
A-0417	ESD-Amicor	25% cotton, 34% polypropen, 38% AMICOR, 3% TAM-Silver

ESD office supplies

A-9110 antistatic document holders

Material: high quality antistatic polyethen.
Packing: 100 pcs / box.

- A-9110 A4-size, open top with perforations
- A-9210 A4-size, two sides open no perforations
- A-9230 A3-size, tall side open with perforations

A-1600 ESD Ring Binders

ARMEKA ESD binders are made from durable, dissipative material, surface resistance $> 10^4$ Ohm.

- A-1660 A4-binder, width 25 mm, ring mechanism
- A-1680 A4-binder, width 45 mm, ring mechanism and paper clip
- A-1690 A4-binder, width 70 mm, ring mechanism and paper clip
- A-1630 A3-binder, width 45 mm, ring mechanism and paper clip

A-1710 and A-1720 tarifolds

- wall mounted 1710 and table mounted 1720.
- stainless steel
- includes 10 document holders

A-1112 conductive document tray

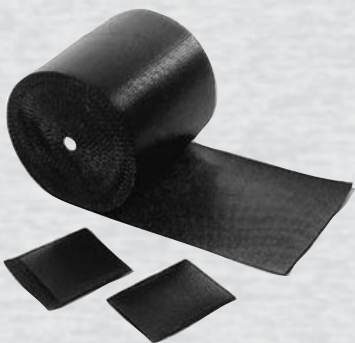
For A4-size documents.



A-2920 conductive bubble film

Bubble film absorbs shocks and dampen vibrations to protect ESD sensitive devices from both damage and tribocharging.
Typical resistance to earth < 1 MOhm

sizes		
widht	length	m 2
600 mm	100 m	60
1200 mm	100 m	120

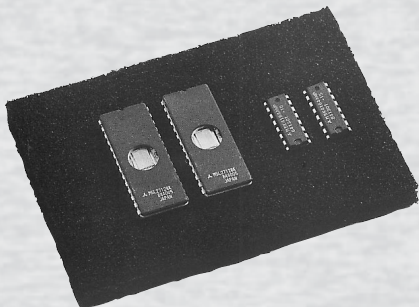


A-2920

A-2960 Conductive Polyethylene Foam

Cross link polyethylene conductive and permanently static dissipative foam. Non-contaminating, non-corrosive, and non-sloughing. Suitable for long term component storing.
Surface resistance 10^4 Ohms.

A-2960 Ordering information
thickness 5 and 10 mm. Deliveries in rolls or precut.



A-2960

A-4000 conductive component boxes

(with hinged top)

Dimensions		
55 x 38 x 14 mm	38 x 38 x 12 mm	230 x 130 x 31 mm
70 x 45 x 14 mm	74 x 52 x 20 mm	230 x 130 x 40 mm
130 x 32 x 14 mm	90 x 64 x 19 mm	253 x 152 x 38 mm
141 x 44 x 14 mm	108 x 82 x 17 mm	304 x 228 x 38 mm
77 x 55 x 12 mm	155 x 100 x 30 mm	
177 x 90 x 21 mm	230 x 130 x 22 mm	



A-4000 series

Armeka storage, handling and shipping boxes

We have a great variety of conductive storage, handling and shipping boxes. Besides hinged boxes our variety consists of boxes with adjustable dividers and printed circuit board racks.





Treston ESD workstations and cabinets

We also sell universal trolleys, cantilever benches, workbenches, Metal cabinets, shelf trolleys, small parts shelving and bins.

Ask for catalogue



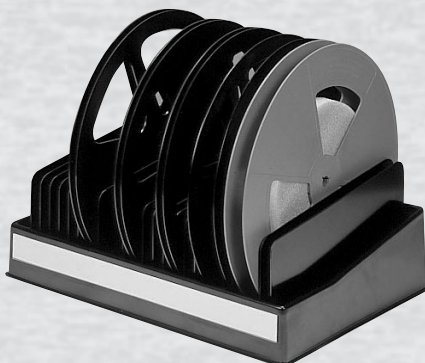
A-4500

A-4500 SMD boxes and Cases

A great variety of SMD boxes and cases
SMD boxes and cases with hinged top. Material conductive plastic. Boxes can be attached to each other. Several sizes.

SMD-boxes specifications:

art number	dimensions
4500	29 x 17 x 20 mm
4501	29 x 33 x 20 mm
4502	52 x 33 x 20 mm



Component reel racks

450 x 240 mm
455 x 315 mm
455 x 360 mm

182 x 169 x 190 mm
335 x 315 x 190 mm
375 x 365 x 230 mm



Cleaning and maintenance

ACL-8012 Wipes

A long lasting, biodegradable wipe designed to keep such equipment as computer screens, keyboards, office machines and telephones clean and static free. (Do not use on anti-glare/Polaroid filter screens.)
24 individually foil wrapped wipes per box/12 boxes per case



ACL-8012

A-8000 ESD-wipes

Keep your equipment looking new with lint free antistatic wipes.
Size 180 x 210 mm

- A-8001 dry ESD-wipes, packing 80 or 400 wipes/packet
- A-8002 pre-moistened ESD-wipes, packing 80 or 400 wipes/packet



A-8000

A-9500 ESD-waste basket

The ESD waste basket is made of conductive polypropylen (plastic), the container measures 10^4 Ohms for surface resistance. With ESD-symbols.

Dimensions: h 320 mm, mouth Ø 300 mm, bottom Ø 205 mm. Volume 16 litres.



9500, 9510

A-9510 antistatic garbage bag

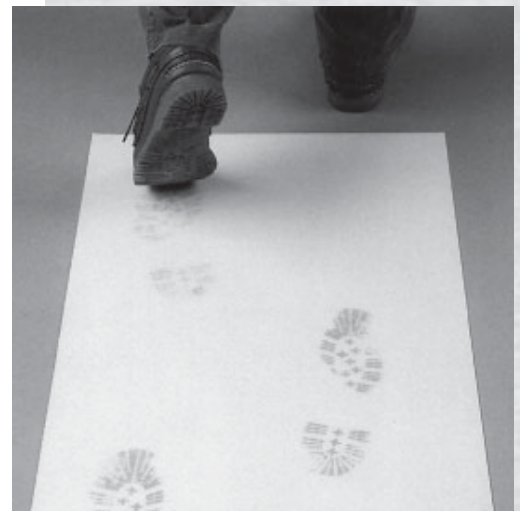
Material high-quality transparent antistatic HD-polyethen.
Size of bag: 300 + 200 x 600 mm.
Deliveries in rolls, which have 100 bags / roll.
Packing: 10 rolls / box.

A-9530 antistatic trash bags

Material is same as in 9510 bags , except thickness is 0,06 mm.
Volume 150 litres, 100 bags / box

A-5800 Clean Walking Mats

Clean Walking Mats remove dirt and contaminants from any object which comes in contact with the surface such as shoe soles or wheels. When the top sheet becomes soiled, it can be peeled back to reveal a clean adhesive sheet underneath.
Mat size 1195 x 415 mm.



A-5800



A-497 ESD service vacuum cleaner

Normal vacuum cleaner creates very strong electrical fields and so it charges the objects very effectively by electrostatic charge. With A-497 ESD service vacuum cleaner it is safe to clean electronic equipment and circuit boards.

The hose of the vacuum cleaner is static dissipative, flexible plastic and all the nozzles are static dissipative material. All the parts will be grounded via equipment ground.

Technical data:

- Operation voltage 230 V AC
- Power 850 W
- Dimensions: length 452 mm, width 197 mm, height 235 mm

Delivery set includes:

- A-497 Vacuum Cleaner
- Flexible (up to 2,5 m) hose
- Pipe -nozzle, length 400 mm
- Thin tip -nozzle, length 230 mm
- Conductive brush for Thin tip -nozzle

Conductive Brushes

A-6111	12,5 mm	flat hard brush
A-6112	19,0 mm	flat hard brush
A-6113	25,0 mm	flat hard brush
A-6114	38,0 mm	flat hard brush
A-6115	50,0 mm	flat hard brush
A-6101	3,0 mm	round hard brush
A-6102	6,0 mm	round hard brush
A-6211	150,00 mm	wide soft brush
A-6212	80,0 mm	wide hard brush
A-6201	30,0 mm	hard brush
A-6202	60,0 mm	hard brush



ACL-8040 Anti-static Swabs

This foam tip attracts dust and contaminants for easy cleaning while reducing and dissipating static electricity; 5" handle.

Packing: 50 swabs / case, 12 case / box

- ACL-8046 Anti-static Wide Head Swab, 5" handle
- ACL-8048 Anti-static Narrow Head Swab, 6" handle

A-497

A-8040



Cleaning and maintenance

A-9200 ESD-cleaning agents

ESD-cleaning agents especially for conductive surfaces. . It effectively removes dirt without degrading the surface's anti-static properties. Easy to use cleaning agents in handy spray-bottles. Safe to use.

Sizes: 1 litre spray-bottle or 5 litre refill

- A-9205 Heavy Duty, designed for porous surfaces
- A-9203 General Purpose, designed for non-porous surfaces
- A-9201 Cleaner, designed for table tops and anti-static mats



A-9200

Static dissipative floor finishes

These high performance, easy to use dissipative floor finishes form a conductive surface to ordinary floor finishes. Typical resistance of surface $10^8 \dots 10^{10}$ Ohm. 3,8 litre / bottle.

ACL-4000 Designed to provide high performance static control on any sealed or hard surface in manufacturing production areas, Staticide Acrylic Floor Finish is a high solids, low cost solution to protect sensitive manufacturing areas from the dangers of static build up.

ACL-4200 ZERO V.O.C Zero V.O.C. Floor Finish combines the benefits of a high quality finish, Staticide static control and environmentally safe chemicals. Staticide Zero V.O.C. Floor Finish emits no harmful or dangerous vapors in the air during the application or maintenance process; making it the ideal finish for clean rooms or any environment where contamination needs to be minimized

ACL-4500 Gold Created to meet the precise ESD control requirements of the electronics, telecommunications and other technically advanced industries. Staticide Gold lasts up to 24 months, provides 30-40% more coverage per gallon, and requires no buffing.

ACL-4600 Ultra Ultra is more economical, dries faster and with higher gloss intensity than other leading ESD floor finishes. Also provides superior abrasion performance that lasts up to 18 months with no buffing required.



ACL-4000

ACL-4600

STATIC DISSIPATIVE FLOOR FINISH

art nro	coverage	gloss	dries up in	lasts up to
ACL-4000 Acrylic	130-170 m ² /l	good	1 h	3-6 months
ACL-4200 Zero	130-170 m ² /l	good	1 1/2 h	3-6 months
ACL-4500 Gold	150-200 m ² /l	good	3-5 h	12-24 months
ACL-4600 Ultra	150-200 m ² /l	excellent	1h	12-24 months

ACL-7001 Staticide Hi Tech Hand Lotion

Static dissipative hand lotion equipped to prevent and handle static discharge, especially in the electronics industry. Complies with DOD 1686A and DOD HDBK 263.

236 ml / bottle, 24 bottles / box.



ACL-7001



A-2500

A-2500 dissipative coating

Staticide ESD permanent clear coating is the first and only permanent electrostatic dissipative clear coating available to stop dangerous static electricity.

Staticide ESD is not a temporary anti-stat like other spray or wipe-on products. Staticide ESD uses a unique semi-conductor technology to provide permanent static dissipation even under zero humidity conditions. Combined with ultra tough acrylic polymers, Staticide ESD comes in an easy to use aerosol spray can and dries to the touch in minutes.



A-1100

ESD work chairs

Armeka Engineering Ltd has a conductive work chair for all purposes. Our model range consists of high-quality domestic and German work chairs. Werksitz from Germany manufactures long-lived work chairs which are designed for hard use. All chairs have conductive cloth upholstery, adjustable height with gas lift, grounding to earth through conductive wheels. Chairs have 2-year guarantee.

We also deliver clean room chairs with artificial leather upholstery !



A-1300

A-1100 ESD Standard work chair

A-1100 Standard work chair has basic adjustments, no back rest adjustment. For workstations where sitting is needed for short periods.

A-1300 ESD work chair (saddle model)

Height adjusting with gas lift. Upholstered with conductive cloth.



A-1600

A-1600 ESD work chair

This heavy duty work chair is suitable for long working periods. Upholstered with conductive cloth. This chair has all adjustments.



ESD work chairs

WS 1620 MOS ESD -work chair

Werkstisch 1620 MOS work chairs are known for their durable structure and long in-service life. Chairs body is casted aluminium which lasts years of service without maintenance. This chair has all adjustments with separate levers.

WS 2620 MOS ESD work chair

This is a advantageous yet heavy-duty work chair where the comfortable sitting position is easy to find. This chair has all adjustments. Basic adjustments with one lever, height adjustment with another.



WS 1620 MOS



WS 2620 MOS

A-8501 ESD Field Service Kit

A-8501 ESD Field Service Kit is service personnels basic kit when working in EPA or in the "Field Service", equipment maintenance etc.. Grounding via insulated alligator clip to the equipment, and the operator grounds himself by wrist strap which comes with the A-8501 kit.

Surface resistance of the mat is 10^8 Ohm, so it is safe even if it is accidentally put on the current devices or cables.

Size of the mat is 610 x 610 mm, material thickness 0,6 mm. Material is very durable and stands well against cold temperature without braking.

A-8501 ESD Field Service Kit includes:

- mat
- adjustable wrist strap
- ground cord with insulated alligator clip



A-8501



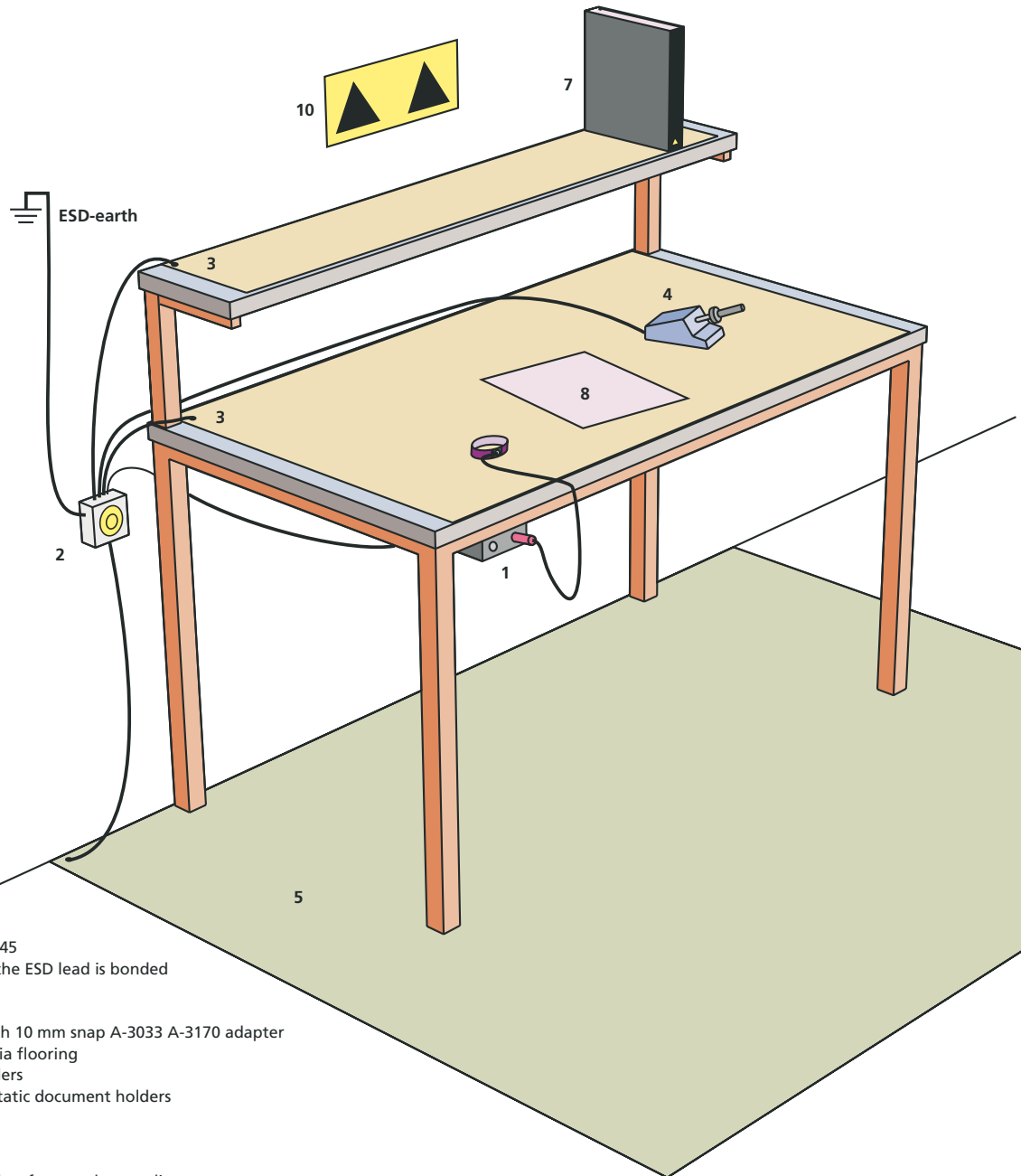
ESD Earth:

The ESD grounding shall be made with a plain black lead according to the latest recommendations. The lead cross section is not determined separately. It's not allowed to bond to the ESD earth other grounding than ESD grounding. The protective grounding of machines and devices must be bonded to other grounding according to the regulations.

The ESD earth lead must be bonded to the equipotential bonding in the main exchange where the electric and structural earth is connected.

To an extension exchange the ESD earth can be bonded so that the ESD lead is bonded separately to the structural earth via a metallic air pressure net, air-condition tubes, radiator pipes etc before the lead is bonded to the extension exchange.

The black ESD lead shall be marked with a clear sign "ESD earth". The reason for clear marking of the black lead is to separate the ESD lead from the yellow green protective grounding lead. As the ESD grounding is used for personal grounding, it must be according to the safety rules such that the electric and structural earth are connected.



1. Wrist band grounding point A-3142 / A-3145
2. Armeka 9400 Earth Bonding Point where the ESD lead is bonded
3. Grounding of table and shelf surfaces
4. ESD grounding of soldering iron
5. Grounding of static dissipative flooring with 10 mm snap A-3033 A-3170 adapter
6. Conductive Armeka ESD chair, grounded via flooring
7. Documents in Armeka ESD document binders
8. Documents on table in Armeka 9100 antistatic document holders
9. Static dissipative waste-basket
10. ESD warning sign A-7413
11. Wrist band and shoe tester A-750
12. Resistance meter 3M-701 for measuring of surfaces and grounding
13. Electrostatic field meter PFM-711A for measuring of material charging





A-750 Footwear and Wrist Strap tester

A-750 is battery operated, for regular footwear and wrist strap testing meant equipment. Wanted resistance values are easy to set for both wrist strap and foot wear testing, separately. Test value is right for reliable testing.

Technical data:

- Size of the tester: 70 x 85 x 35 mm, weight 260 g, material Polystyren
- Wrist strap connectors: 7 & 10 mm snaps, 4 mm banana plug and GSGS
- Connection to the foot test plate: 4 mm banana plug
- Touch plate stainless steel, touch area 26 x 28 mm
- Operational lights:
 - 3 leds for both, wrist strap & footwear
 - LOW (red) = test result less than 750 kOhm (non-acceptable)
 - OK (green) = test result between 750 kOhm - 10/35 MOhm (acceptable)
 - HIGH (red) = test result over 10/35 MOhm (non-acceptable)
- Foot test plate:
 - Size 190 x 390 mm, conductive area 150 x 350 mm, stainless steel
- Test voltage 24 V
- Accuracy $\pm 5\%$ when temperature $+15...+35\text{ }^{\circ}\text{C}$
- Battery: Standard 9 V Alkaline battery 6LR61
- LOW BAT -led blinking if battery voltage is 6 V or less
- Bad battery: Operation lights wont be operating if battery voltage is 4,7 V or less
- Battery life: Over 20 000 tests (alkaline battery, test 10 sec.)
- 10/35 MOhm upper limit set: two jumpers in battery room
- Default setting 35 MOhm



A-750

ACL 750 Combo-Tester Kit with software

This kit will monitor and analyze wrist straps and heel grounders to meet specification ranges in all sensitive work areas. Comes with easy to use Windows Software that will generate reports to manage static control systems.

ACL 750 measures accurately the resistance for wrist band and footwear at the same time.

ACL 750 tester, properties and benefits:

- Meets the requirements of ISO 9000
- Measures accurately the resistance for wrist band and footwear between 500 kOhm and 100 MOhm
- Compares the resistances to given limits and sends the values to a computer
- Measuring voltage 19-20 V
- Footwear electrode and tester are fixed together; tester can be removed and fixed on a wall
- Operates with a bar code reader (optional accessory) or by keyboard writing
- Green LED: test passed, red LED and a buzzer: fail
- Pass/ Fail limits can be set separately for each area or even for each worker
- Meets the U.S. and European security and quality requirements
- AC or BC supply



ACL-750



Test & measurement equipment

ACL 750 software, properties and benefits

- Data acquisition of even 2500 workers for 1 year
- Reports a worker's ESD training, monthly test results, daily events, continuous events, fail tests, due date monitoring of certification
- Each report can be limited to a certain group
- Data can be moved easily to spreadsheet computation
- Changing of the settings needs a password
- Windows 95 or 3.1, RS 232-interface
- One year guarantee

PRS-801 Resistance System Kit

The PRS-801 is a unique, wide range ohmmeter with data logging, calculating and computer communication capabilities. Fully portable and battery operated, the PRS-801 measures resistance from 0.1 to 2.0×10^{14} Ohms with measurement accuracy of $\pm 5\%$. It can be operated in Automatic, Automatic-Manual and Manual modes.

To enhance accuracy in the 0.1 to 10 Ohm ranges, the PRS-801 incorporates an automatic self calibration feature. Low range self calibration is performed using a defined resistance reference supplied with the system.

Kit contents

- PRS-801 Wide Range Resistance Meter with 2 9V batteries
- PRS-801 30-inch Shielded Sensing Cable and Power Lead Set
- Low Range 4-inch Self Calibration Reference
- PRS-801 Connectivity Software for computer data downloading
- PRS-801 RS-232 Data Transmission Cable to standard I/O COM 9 Pin computer ports
- Clips, Stainless Steel and Acrylic Test Plates
- Operator's Manual for PRS-801 Resistance System

PRS-801 specifications

Range

Resistance from 0.1 Ohms up to 2.0×10^{14} ohms (200 Tera Ohms)

Test Voltages

Automatic mode Default: <0.01 to 10 volts (up to 10^4 Ohms), 10 volts (10^4 Ohms to 10^6 Ohms), and 100 volts (10^6 to $>2.0 \times 10^{14}$ Ohms)

Accuracy

$\pm 5\%$ at ambient conditions (23°F and 30% Rh).

Display

Multi-function 2-5/8" x 1-5/8" Liquid Crystal Display with 0.5" digital height. Displays 3-1/2 digits in Ohms, or X.XE00 in exponential format. Includes 19 segment analog scale (1-10 with 0.5 indication) with x1, x10, x100 multipliers. Number of Data Points in Memory (MEM), and time in seconds (SEC) required to obtain stable measurement. Displays data HOLD, BATTERY

LED Indicators

14 color programmable (RED, GREEN, YELLOW or OFF) LED's from $<10^3$ to $>10^{14}$ ohms. Colors may be operator programmed in SETUP mode.

Timer

Times measurements in Seconds up to 99 seconds (Displayed on LCD)

Memory

Memory register stores up to 80 data points (MEM# Displayed after RESET)

RS-232 Output

Digital format: Exponential Power followed by Integer.



PRS-801



PRS-801 specifications

Response & Electrification

Response from >0.2 to $>10^6$ Ohms: <2.0 seconds Actual Electrification Period from 0.0 ohms to 10^{12} Ohms 2.5 Seconds Calculated Electrification Period per ESD S11.11 7.5 Seconds Programmed Electrification 10^6 to 10^{12} Ohms: 7.5 Seconds. Electrification at $>10^{12}$ is 15 seconds minimum and variable depending on measurement stability.

Power

2 each 9 VDC alkaline batteries. Nominal battery life >25 hours depending on typical measurement ranges.

Dimensions

4.0 " wide x 6.0 " long x 2.0 " deep.

Weight

22 ounces, with batteries.

Resistance Range Select

2 each arrow UP and DOWN triangular buttons. Selects Resistance Measurement Range in single order of magnitude in Manual mode.

Test Volts

Manual Selection of <10 , 10 or 100 volts in Manual.

Mode

Six modes of operation in Automatic, Manual, Automatic Manual in Digital Ohms or Exponential Display.

Record/Recall

Turns Memory register ON if OFF. Calculates and Displays Minimum, Maximum and Average of data stored in Memory registered.

Send

Transmits data in Memory Register to RS-232 Output Port.

Clear

Erases data in Memory Register; if in HOLD

On/Off

Power-up, perform functional & battery tests. Power down if ON.

Batt. Test

Displays GOOD or LO on LCD

Reset

Enters data into Memory Register, Clears Hold and Displays.

PRS-812 Resistance Meter Set

The PRS-812 is a constant voltage, wide range ohmmeter with data logging and calculating capabilities. Fully portable and battery operated, the PRS-812 measures resistance from <0.1 to 10^{12} Ohms with measurement accuracy of $\pm 5\%$. It can be operated in fully Automatic, Automatic,-Manual and Manual modes.

This sophisticated instrument digitally displays measurements in Ohms, kilohms, megohms, gigohms and terohms, and in exponential format, e.g., $1.5E8$. It simultaneously displays data with a fully synchronous analog scale using $\times 1$, $\times 10$ and $\times 100$ multipliers, and a bank of color coded LED's ($<10^3$ to $>10^{12}$ Ohms). Multiple test voltages include 0.01 - $10V$, constant $10V$ and $100V$ ranges, which may be selected automatically by the instrument to comply with industry measurement practices, or manually by the operator.

The PRS-812 records and stores up to 80 measurements, and calculates minimum, maximum and average of all stored data. Fully automatic, the PRS-812 controls test voltage, resistance ranging and electrification period to make the most accurate and repeatable measurements available to ESD Auditors and technicians.



Test & measurement equipment

Kit contents

- PRS-812 Resistance Meter Instrument with two 9V alkaline batteries
- Two 10-foot leads (PRS-801L) for general audit measurements up to 1.0×10^{12} Ohms
- One heavy duty, black "Bulldog" clip (PRS-801 BC)
- Two metal alligator clips (PSI-870-MAC)
- One insulated test plate (PRS-800-INS)
- One metal test plate (PRS-800-MTL)
- One four inch calibration shunt for low range adjustment (PRS-801 CC)

PRS-812 specifications

Range

Optimal Resistance Range from <0.1 Ohms to 10^{12} Ohms).

Test Voltages

Automatic mode Default: <0.01 to 10 volts Variable 0.1 to 10^4 Ohms

Constant Voltage 10 volts $\pm <0.2$ volts 10^4 to 10^6 Ohms

At 10 & 100 Volts 100 volts $\pm <2.0$ volts 10^6 to 2.0×10^{14} Ohms

Manual mode: <0.01 to 10 volts Variable 0.1 to 10^4 Ohms

10 volts $\pm <0.2$ volts 10^2 to 10^9 Ohms

100 volts $\pm <2.0$ volts 10^5 to 2.0×10^{14} Ohms

Accuracy

Overall: $\pm <5\%$ at ambient conditions (at 23°F and 30% Rh).

Specific Range Tolerances:

0.1 to 10 Ohms: $+5\%$ Corrected for Test Lead Resistance

10 to 10^{12} Ohms: Typically $\pm 2\%$

$>10^{12}$ Ohms: Typically $\pm 50\%$

Display

Multi-function 2-5/8" x 1-5/8" Liquid Crystal Display with 0.5" digit height. Displays 3-1/2 digits in Ohms, or 1.0EXX in exponential format.

Ohms Display indicators: ohms, kilohms, megohms, gigohms and terohms. Includes 19 segment analog scale (1-10 with 0.5 indication with x1, x10, x100 multipliers. Number of Data Points in Memory (0-80). Automatic Electrification Time (seconds), or yime required to manually obtain steady state measurement.

Displays data HOLD, BATTERY status, MIN, MAX, AVG, REC and Test Voltage (< 10 , 10, or 100V).

Timer

Times measurements in Seconds up to 99 seconds (Displayed on LCD)

Memory

Register stores up to 80 data points (MEM # Displayed after RESET)

Response & Electrification

Response from >0.1 to >1.06 Ohms: <2.0 seconds

Average Measurement Time from 0.1 ohms to 1.012 Ohms 2.5 Seconds.

Calculated Electrification Period per ESD S11.11: 7.5 seconds 0.1 Ohms to 10^{12} Ohms.

Programmed Electrification $>10^{12}$ Ohms: 15.0+ seconds

Power

Two 9-VDC alkaline batteries. Nominal battery life 25 hours

Dimensions

4.0" wide x 6.0" long x 2.0" deep.

Weight

22 ounces, with batteries

Open Circuit

Current(1): $< 4\text{mA}$ @ 100 Volts

Test & measurement equipment



3M-701 Test Kit for Static Control Surfaces

3M-701 Test Kit for Static Control Surfaces contains a lightweight, user-friendly megohmmeter plus all of the components needed to make testing mats and other surfaces simple and accurate.

PROSTAT® PAR-809B Variable Resistance Reference

The PAR-809B is a precision resistance reference employing 31 ± 1 percent tolerance resistors for accuracy. It is designed to functionally test the PASS/FAIL resistance range and performance of wrist strap and footwear checkers, megohmmeters, monitoring systems, meters and other indicating devices, to both US and International Standards. Proper use of the PAR-809B ensures accurate, functional performance confirmation of critical ESD control tools.

Resistance in Ohms ($\pm 1\%$) When Measured at 10 volts

* 1.00×10^0 - Used for verification only		
* 1.00×10^2 - Used for verification only		
9.50×10^2	1.05×10^3	9.50×10^3
1.05×10^4	9.50×10^4	1.05×10^5
4.70×10^5	7.75×10^5	5.30×10^5
7.10×10^5	8.40×10^5	9.50×10^5
1.10×10^6	4.75×10^6	5.25×10^6
9.00×10^6	9.50×10^6	1.05×10^7
1.10×10^7	3.30×10^7	3.70×10^7
4.50×10^7	5.50×10^7	9.00×10^7
1.10×10^8	9.00×10^8	1.10×10^9
9.00×10^9	1.10×10^{10}	

* Verification resistors are measured at <10 volts.

PROSTAT® PRF-911 Concentric Ring Set

Designed originally for flat (planar) packaging materials, this unique portable test fixture will measure surface resistance and volume resistivity of virtually any flat material in accordance with current industry specifications.

The PRF-911 Concentric Ring is a low-profile test fixture conceived specifically for use with the PROSTAT PRS-801 Resistance System and PRS-812 Resistance Meter. It will measure surface resistance per ESD S11.11-1993, and volume resistance per ESD S11.12, and volume resistivity per ASTM D-257.

Its compact size allows the fixture to be inserted into small flexible containers, such as an ESD protective bag, without having to cut the package.

The PRF-911 incorporates a spring loaded, self aligning center electrode feature. This unusual feature aids in maintaining consistent contact of the fixture's highly conductive rubber electrode surfaces with materials under test. This reduces the need for frequent alignment of the fixture, or dressing the electrode test surfaces.

The PTB-920 Dual Test Bed consists of an insulated test surface for S-11.11 surface measurements laminated to a steel test plate, which is employed for volume resistivity measurements. The four inch diameter steel test bed assembly includes a banana receptacle for instrument connections during volume measurements.



PRF-914 Miniature E14 Probe Set

The PRF-914 Miniature E14 Probe Set accurately measures surface resistance of small areas up to 2.0×10^{14} Ohms. It consists of a PRF-914 Concentric Resistance Fixture, dual shielded cables equipped with SMA and BNC connectors, and a BNC to male banana instrument adapter. The optional PRV-913 Verification Fixture is designed to confirm the proper operation of the PRF-912 and high resistance PRF-914 Miniature Probe Sets. The PRF-914 is designed to work with a precision wide range resistance instrument, such as the PROSTAT PRS-801 Resistance System, and an insulated test bed. It provides surface resistance measurements in Ohms per ESD S11.11 Surface Resistance standard. To estimate ASTM D-257 surface resistivity in ohms/square, multiply the fixture measurement by 10, i.e., add one decade.

PRF-914 specifications

Range

0.9 to greater than 1.0×10^{14} Ohms ($1.0\text{E}+14$)

ASTM D-257

Correction from Ohms to Ohms/square: multiply by 10

Dimensions

Length: 6.3 inches (160mm). Diameter 0.5 inches (12.7mm). High resistance cable connection end: 0.88 inches (22.5 mm) x 0.68 inches (17.3 mm)

Contact Size

Inner (center) contact probe: 0.1 inches (2.54mm). Outer contact probes: Ten each 0.06 inches (1.59mm) diameter at 0.258 inches (6.56mm) bolt circle.

Cables

Dual RG-174 coaxial cables equipped with SMA connectors. Instrument Adapter for connection to PROSTAT PRS-801 Resistance System equipped with BNC male terminals to fit cable BNC female fittings.

Connection

Dual SMA with Source on the right and Sense of the left with ground.

Min. Sample

0.32 inches (8.2mm) diameter

Probe Spring

Force/Test 3.5 pounds (1.6 kg)

Probe Travel

0.3 inches (7.8mm)

Probe Weight

2.0 ounces (57 grams)

Finish

Black anodized

Dielectric Material

Teflon

Power

Not applicable. Fixture powered by resistance instrument



PRF-914

PRF-912 Miniature E12 Probe Set

The PRF-912 Miniature E12 Micro Probe Set accurately measures surface resistance of small areas up to 1.0×10^{12} Ohms. It consists of a PRF-912 Concentric Resistance Fixture, shielded cable equipped with BNC connectors, and a BNC to male banana instrument adapter. The optional PRV-913 Verification Fixture is designed to confirm the proper operation of the PRF-912 and high resistance PRF-914 Miniature Miniature Probe Sets.

The PRF-912 is designed to work with a precision wide range resistance instrument, such as the PROSTAT PRS-801 Resistance System, and an insulated test bed. It provides surface resistance measurements in ohms per ESD S11.11 Surface Resistance test standard. To estimate ASTM D-257 Surface Resistivity in ohms/square, multiply the fixture measurement by 10.

Test & measurement equipment



PRF-912 specifications

Range

0.9 - 1.0×10^{12} Ohms ($1.0\text{E}+12$)

ASTM D-257

Correction from ohms to ohms/square: Multiply by 10

Dimensions

Length: 5.9 inches (150mm) without probe cover. 6.5 inches (165mm) with probe cover. Probe diameter 0.5 inches (12.7mm).

Probe cover outer diameter 0.63 inches (16mm).

Probe Weight

1.5 ounces (43 grams)

Finish

Black anodized

Dielectric Material

Teflon

Contact Size

Inner (center) contact probe: 0.1 inches (2.54mm). Outer contact probes: Ten each 0.06 inches (1.59mm) diameter at 0.258 inches (6.56mm) bolt circle.

Min. Sample

0.32 inches (8.2mm) diameter

Probe Spring

Force/Test 3.5 pounds (1.6 kg)

Probe Travel

0.3 inches (7.8mm)

Connection

BNC with outer source and inner sense connections

Cable

RG-174 coaxial cable equipped with insulated BNC couplers, and BNC/Banana adapter for connection to PROSTAT PRS-801 Resistance System.

Power

Not applicable. Fixture powered by resistance instrument.

PROSTAT® PFC-721 Faraday Cup Assembly

Simple in design, the PROSTAT PFC-721 Faraday cup is the experienced ESD practitioner's fastest solution for obtaining approximate charge generation measurements on small parts and assemblies.

Designed for use in tight machine spaces, the PFC-721 is used with PROSTAT's CPM-720 Charge Plate Monitor and PFM-711A Field Meter.

Devices placed into the PFC-721 share their charge with the cup and the upper sensing plate of the CPM-720. The resulting field measurement on the PFM-711A is multiplied by the cup's correction factor to calculate charge (Q) in nanocoulombs.

PFC-721 specifications

Interior Dimensions

2.35 x 3.00 x 2.84 inches

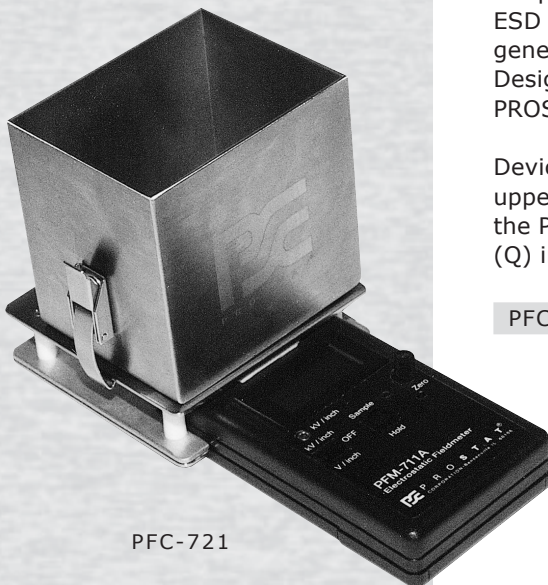
Materials

Stainless Steel

Conductive Foam Bottom Cushion

Correction Factor

.0169



PFC-721



Test & measurement equipment

PROSTAT® PFM-711A Electrostatic Field Meter

A hand held, compact, electronic digital chopper field meter used for locating and measuring electrostatic fields.

Use alone to measure fields on defined surfaces and materials. Red "Bulls Eye" ranging lights assist in obtaining reproducible measurements.

Use with CPM-720A Charge Plate Assembly and PCS-730 Charging Source to balance and test ionization blowers and devices. May be used to measure charge generation related to personnel, floors, chairs, carts, equipment, packaging materials, etc.

Analog output allows documentation of measurements when used in conjunction with X-Y plotter, analog data recording device, or computer equipped with A - D Daq card. (Recording device not supplied.)

PFM-711A specifications

Meter Display

3-1/2 digit Liquid Crystal Display with 0.4" digit height. Automatic polarity, HOLD and LOW BATTERY indicators.

Output

Analog signal output and 30 inch two conductor cable provided. +/- 10.0 kV meter reading equals +/-1.0 volts output.

Range

High Range 0 V to +/- 19.99 kV; least significant digit indicates tens of volts at one inch distance.

Low Range 0 V to +/- 1,999 V; least significant digit indicates 1 volt at one inch distance.

Measures higher voltages at greater distances, e.g., at two inches double indicated voltage, at four inches multiply indicated voltage by four.

Range Lights

Red "Bulls Eye" at one inch distance

Accuracy & Environment

+/-2% at ambient conditions (23oF and 30% Rh).

+/-5% at 0 - 50oC and 0 - 85% Rh (non-condensing).

Accuracy unaffected by the presence of air ionization.

Response

Digital display updates three (3) times per second.

Analog Output Time Constant: Either Range 0.1 sec.

Display Time Constants: High Range 0.2 sec

Low Range 2.0 sec

Controls

Three position slide switch: KV/INCH - OFF - V/INCH

Sample/HOLD push button, and ZERO adjust knob.

Grounding

Meter circuit grounded through the conductive case and 10 mm snap fastener mounted on back of case.

Power

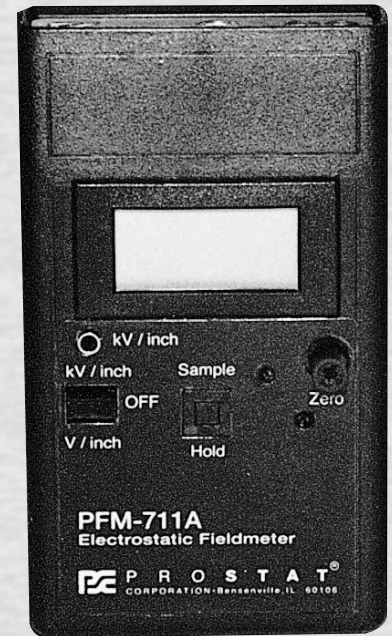
9 VDC alkaline battery. Battery life minimum 40 hours.

Dimensions

2.4" wide x 4.2" long x .9" deep (1.3" deep with zero knob and snap fastener).

Weight

5 ounces, with battery



PFM-711A



PROSTAT® PFK-100 Instrument Set

The PFK-100 set includes PROSTAT's unique PFM-711A dual range field meter, CPM-720 charged plate monitor assembly and PCS-730 ± 1 kV charging source. With this instrument set you can measure electrostatic fields, analyze ionizer performance and assess the voltage generation of materials, equipment and personnel.

The battery operated PFM-711A Field Meter is a compact "electronic chopper" design with accuracy of $\pm 2\%$ at ambient conditions (23°C and 30%Rh). It features automatic polarity, measurement "hold" button, low battery indicator, high and low ranges, distance ranging lights for accurate and repeatable measurements, manual zero control and a ground snap. With the supplied analog output cable, it can be used in conjunction with an X-Y plotter or any analog data-recording device.

The CPM-720A Charge Plate Assembly is 3.25 inches square. It attaches to the PFM-711A field meter for ionizer balancing per ANSI/ESD-S3.1, voltage or charge generation and voltage suppression analysis.

The PCS-730 \pm kV Charging Source is used to charge the CPM-720 to $\pm 1,000$ volts to measure ionizer decay and material decay. These three instruments are match calibrated to work together for accurate and efficient auditing.

Applications

- Measure electrostatic fields
- Balance ionizers and analyze ionizer performance
- Measure body voltages
- Measure charge generation

Test According To ANSI/EOS/ESD S3.1 Ionization

Kit Contents

PFM-711A Field Meter w/Analog output cable
CPM-720A Charge Plate Assembly
PCS-730 \pm kV Charging Source





Test & measurement equipment

PDT-740B Electrostatic Decay Timer

The PDT-740B Static Decay Timer is designed to measure the time required for a 1,000 volt charge to dissipate to less than 100, 50 or 10 volts in tenths of a second. This extremely useful accessory is used with the PROSTAT PFM-711A Field Meter and CPM-720A Charge Plate Monitor to evaluate Ionizer Decay Time in accordance with ESD Association Ionization Standard S-3.1. The PDT-740B may be used to evaluate the static decay capabilities of materials, personnel, equipment and other products. It is compatible with most portable CPM's and field meters having an analog output (10,000 volts equals 1 volt). Completely automatic, the PDT-740B is simple to operate and easy to use.

Specifications

Controls

OFF-ON

Cut Off Voltage, 10, 50 and 100 Volts (Selects Voltage to stop timing)

Indicators

Green LED: Decay Cycle Ready $\geq \pm 1\text{kV}$, CPM voltage $\geq \pm 1,000$ volts

Red LED: Timing in Progress, CPM voltage decay timing activated

LOBAT displayed when battery voltage < 6.0 volts

Display

Liquid Crystal Display (LCD) displays elapsed decay time from $\pm 1,000$ volts to selected Cut Off voltage in seconds and tenths of a second (00.0)

Polarity

Automatically senses Positive & Negative voltage references

Zero & Reset

Automatically Resets Timer and Display to 00.0 when CPM voltage $\geq \pm 1\text{kV}$. Reset indicated when Green LED Decay Cycle Ready LED is ON.

Response

Approximately 200 milliseconds in combination with CPM and PFM-711A

Timing Range

From 0.2 to 159.9 seconds

Timing Setpoints

Reset when voltage input $100\text{mV} \pm 2\text{mV}$ (1,000 Field Meter Volts $\pm 20\text{V}$)

Cut Off Voltage @ 100 V: $10\text{mV} \pm 0.2\text{mV}$ (100 Field Meter Volts $\pm 2\text{V}$)

Cut Off Voltage @ 50 V: $5\text{mV} \pm 0.2\text{mV}$ (50 Field Meter Volts $\pm 2\text{V}$)

Cut Off Voltage @ 10 V: $1\text{mV} \pm 0.2\text{mV}$ (10 Field Meter Volts $\pm 2\text{V}$)

Accuracy

Typically $\pm 5\%$

Power

One (1) standard 9-volt battery, PROCELL, Eveready #216 (NEDA 1604, JIS 006P, IEC 6F22) Eveready #216

Battery Life

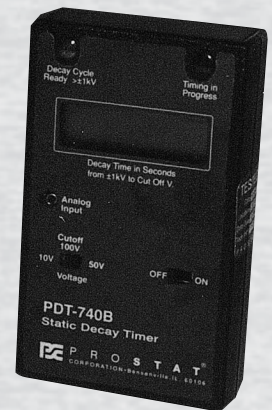
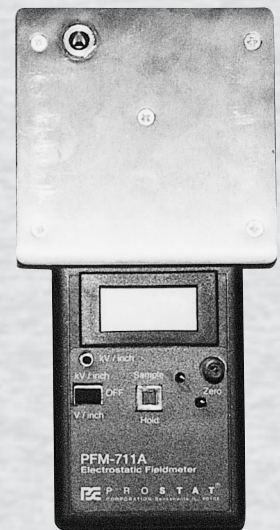
> 40 hours typical

Dimensions

4.50 inches x 2.75 inches x 1.0 inches

Weight

6.5 oz. (184 gm)



PDT-740B



IO775

ION-775 Electrostatic Fieldmeter

Compact electrostatic fieldmeter for locating and measuring static charge potentials in hard-to-reach places.

The pocket-sized 775 Fieldmeter is designed to locate and measure static charge potentials on product, people, equipment and packaging. The 775 uses a noncontacting, chopper stabilized field sensor and a ranging light mechanism to ensure correct measurements of electrostatic fields in all areas-even those using air ionization. The Fieldmeter is easily zeroed with the turn of a small knob and does not require re-zeroing between measurements. Powered by a 9-volt battery, the 775 features a conductive, impact-resistant case and a convenient snap-on ground lead to facilitate grounding and increase accuracy.

The 775's SAMPLE and HOLD functions allow measurements in places difficult to reach with other instruments.

Features

- Digital display
- Distance ranging lights
- Chopper-stabilized circuit
- SAMPLE and HOLD functions
- Battery powered, pocket-sized meter
- Analog output

Benefits

- Easy to read
- Ensures accurate distancing and measurements
- Operates in ionized environments
- Useful in hard-to-reach places
- Portable, for use in facility static audits
- Signals to a chart recorder or other device for hard copy documentation of static charge levels



IO775pvs

ION-775pvs Periodic Verification System

Ion Systems' 775pvs Periodic Verification System is a hand-held alternative to a charged plate monitor. It consists of three components-a fieldmeter, a detachable plate, and a charger-for measuring static charge and verifying ionizer performance. Used alone, the fieldmeter measures electrostatic fields on any surface. Ranging lights ensure accurate and repeatable measurements by enabling users to determine the exact distance at which the voltage reading is correct. A SAMPLE and HOLD function allows measurements in places difficult to reach with other instruments. Attach the plate and use the charger, and the 775pvs can be used to verify ionizer operation and check ion balance and discharge times.

The 775 Plate Assembly and 775c Charger have been designed to match the small size of the fieldmeter. The charger contains an isolated power supply with two stainless steel contact plates for positive or negative charging. A set screw in the plate assembly calibrates the measured voltage.

Features

- Digital display
- Distance ranging lights
- Chopper circuit
- NIST-traceable calibration



3M-711 Charge Analyzer

3M™ 711 Charge Analyzer, certified only, is a sophisticated instrument with three distinct operating functions: static field sensor, voltmeter, and static decay monitor.

3M-711 Charge Analyzer / Static Decay Monitor

Sophisticated scientific instrument for testing ESD materials and controlling equipment.

Three distinct operating functions: 1. static voltmeter 2. static field sensor 3. static decay monitor.

1. Static Voltmeter
 - non-contacting measuring of materials and persons
 - testing footwear and wrist band
 - testing properties of materials
 - for demonstrating the relationship between voltage and capacitance
 - function like in an electrometer
2. Static Field Sensor
 - field mill principle
 - measuring the static fields generated by different materials
3. Static Decay Monitor
 - testing dissipative materials
 - static decay time from 1000 V to 100 V. Clear digital display for decay time.
 - positive and negative charging of material

3M-711 Technical Data

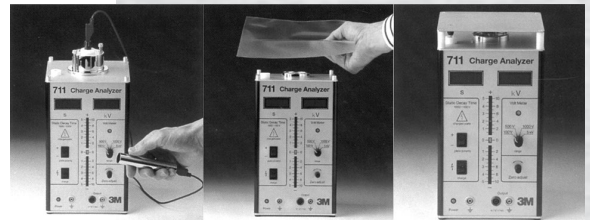
Size: 152 x 152 h = 250 mm
Weight: 2,6 kg
DC range: 0-100 V, 0-500 V, 0-1000 V, 0-5000 V
0-setting: 0,50 % from full scale
Response time: 0-100 %, 100 ms
Impedance: $> 10^{15}$ Ohm
Load current: 100 mA
Voltage: 230 VAC/ 50 Hz
Charge voltage: 1500-2000 V
Protection resistance: 10 MOhm

3M-711 contains

- 711 Analyzer
- charging plate
- conductive demo box
- hand probe, cord and adapter



3M-711





ION-210

ION-210 Charged Plate Monitor

Charged plate monitor accurately tests and calibrates any type of ionization equipment.

The charged plate monitor (CPM) is an easy to use, self-contained instrument for testing ionizer performance. To measure long-term average balance, the voltage plate is set to zero and allowed to float. The voltage then swings positive and negative as the electrostatic field fluctuates and ions arrive at the plate. The CPM's peak voltage mode records and displays peak voltage swing levels, while an LED bar display clearly indicates the swing of pulsing ionization systems. To measure discharge time, the plate can be charged to 1,000 or 5,000 volts of either polarity, set to one of several stop times, and timed with an internal timer. The 210 CPM makes all measurements described in Ionization Standard ANSI EOS/ESD S3.1-1996 (1991) of the ESD Association

ION-210 Features

- User-selectable charging levels (1 or 5 KV) and stop levels (50, 100 or 500 V)
- Displays floating offset voltage, peak voltage swing, and long-term average balance
- Unique LED bar graph for easy positive and negative balancing
- Analog output

ION-210 Benefits

- Ionizer discharge time can be tested at a variety of settings depending on user needs
- Ionizer balance can be viewed real-time or high and low levels can be displayed
- Easy visualization of voltage swings
- Signals to a chart recorder or other device for hard copy documentation of static charge levels

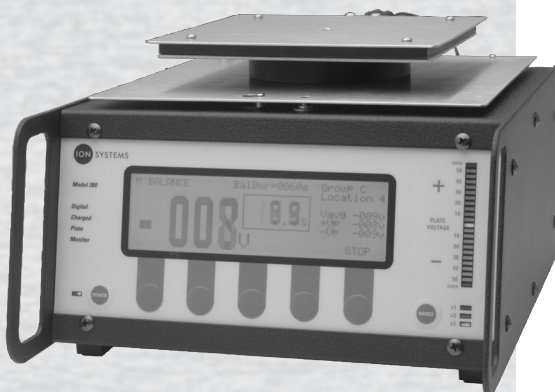


IO280 Charged Plate Monitor

Next generation charged plate monitor allows precise control and testing.

Ion's next-generation charged plate monitor(CPM) is an easy-to-use, self-contained instrument for precise testing of ionizer performance. The architecture of the Model 280 has been designed to simplify ionizer audits. With Ion's

experience in electrostatics engineering, the technology offered by the 280 CPM ensures a consistent discharge time measurement for all plate sizes. With all measurement parameters of the instrument being programmable, the tests can be designed for optimal results. The Model 280 is a small, portable CPM capable of 6 hours of operation on the internal battery before recharge, and enough memory for storage of over 1000 tests and more than 100 individual test locations.



IO-280



Test & measurement equipment

IO280 Features

- Delayed measure start
- Portable, battery operated
- User programmable test protocol
- Detachable plate with varying sizes
- Onboard data archiving memory
- Analog and digital LCD display

IO280 Benefits

- Automatically accounts for settling time thereby protected from field distortion by operator
- No need to plug-in and unplug at every station
- Eliminates human errors in repetitive audits
- Ideal for mini-environments and inside process tools
- RS232 port for data collection eliminates manual data transcription and need for separate computer for data archiving

VAISALA HM 34 humidity and temperature meter

Pocket sized humidity- & temperature meter HM34 is the right solution when measuring relative humidity of the air and temperature. This fast, reliable and small sized meter is suitable for example ESD measurements, laboratory and R&D work etc.

Pull-out probe and HOLD -function makes it possible to use also in very tight places.

Technical Data

Relative Humidity:

- Measurement range: 0...100 % RH

Accuracy in + 20 °C:

- Against factory references ± 1 % RH
- Field Calibration ± 2 % RH (0...90 % RH), ± 3 % RH (90...100 % RH)
- Dependency of temperature: $\pm 0,04$ % RH / °C
- Segregation capability: 0,1 % RH
- Probe: HUMICAP® H -probe

Temperature:

- Measurement range: -20...+60 °C
- Accuracy: +20 °C $\pm 0,3$ %°C
- Dependency of temperature: $\pm 0,02$ °C / °C
- Segregation capability: 0,1 °C
- Probe: Pt 100 IEC 751

Other:

- Display: 3 ½ digit LCD
- Hold Function: Reading holds in display when HOLD -button is pushed
- Battery: 9 V battery (IEC 6F22)
- Battery lifetime: 50 h
- Weight: 180 g with battery
- Height: 250 mm when probe is out, 160 mm when probe is in
- Width: 57 mm
- Thickness: 27 mm



VAISALA HM 34



CTK031 Electromagnetic Compliance Training Kit model

If you or your students can improve on understanding of electromagnetic emission and get first-hand experience with real-world compliance problems and tools, Electromagnetic Compliance Training Kit model CTK031 is for you.

It contains everything you need to provide a jump-start for yourself or your students in the field of Electromagnetic Compliance. Very few technical schools provide adequate EMC education and, as a result, EMC expertise has shifted to the domain of mysterious (and expensive) specialists. Instead, if every design engineer knew the practical approach to electromagnetic compliance, FCC and CE test failure rates would drop, production costs would go down and overall surprises at compliance test time would be eliminated.

CTK031 kit contains the award-winning ScanEM-C near-field probes, both for electric and magnetic fields, an EM demo fixture that exhibits multiple electrical and magnetic field problems found in many products, a 6' cable and all adapters required for connecting your ScanEM probes to any piece of measuring equipment for expanded functionality.

By using ScanEM probes as ultra-broadband non-contact oscilloscope probes, you can demonstrate how to identify and evaluate signal integrity problems in high-speed circuits.

ScanEM probes are the only self-contained, full-featured EMI probes on the market. While they are perfect for instructional purposes, they are the most practical real-world tools used by high-tech corporations all over the world to simplify and reduce costs of EM compliance.

In training courses and seminars as well as in college courses, these easy-to-use probes bridge the gap between theory and practice in a field that is often shunned for its complexity. The CTK031 training kit lets you teach an invaluable skill set while learning how easy its application can be with leading-edge tools from Credence Technologies.

CTA 201 EMI Fixture

This EMI fixture model CTA201 demonstrates numerous emission problems that can be easily discovered and characterized using ScanEM-C probes. This demo fixture is a part of Educational Kit model CTK031 and is also available to Credence Technologies' distributors as a way to demonstrate to customers how ScanEM probes can simplify dealing with EMC and signal integrity problems.



CTK031



Test & measurement equipment

CTK 053 EMI/ESD Diagnostics Kit for Precision ESD Event Analysis

In order to perform professional analysis of ESD problems, you need to have professional tools. Measuring waveforms of ultra-short ESD Events with home-made pieces of wire cannot withstand scrutiny of accuracy and repeatability. Measurements of very weak events such as ones important for the disk drive industry and sensitive semiconductors and flat-panel displays require high sensitivity that conventional passive antennae do not provide.

CTK053 includes the following

- Miniature active radiated antenna CTS001
- Miniature active radiated omnidirectional antenna CTC112
- Miniature active conducted antenna for measuring emission on wires and cables
- Portable 2-channel interface module with rechargeable batteries
- AC/DC worldwide charger
- Two 3' (0.9m) RF cable from interface module to an oscilloscope
- Two 6' (1.8m) RF cable from antenna to interface module
- User's guide
- Soft carrying case



CTK053

EM Aware™ ESD Event Monitors

Don't Assume — Verify!

Wrist straps, anti-static chairs, conductive floors, ionizers — if you have them, you must feel safe already. Then why are you still interested in yet more protection against ESD?

Preventive measures work on assumption that no ESD events are generated if these measures are properly implemented. However assumption is not the word you want to hear when your production yield is falling and losses are piling up.

EM Aware® ESD Event monitors are placed in the areas where ESD Events are not tolerated. Indication of an ESD event is a sure sign that your ESD-preventive measures need immediate attention.

Miniature and unobtrusive, EM Aware® monitors can be placed on workbenches and equipment. Connected into a network, EM Aware® monitors can give you information on location of ESD Events, their frequency and magnitude. Collected information can be tracked day-to-day to monitor ESD environment and, ultimately, improve yield.

EM Aware® shortens corrective-action loop from finding ESD-related problems by yield loss to real-time actions.

Features

- EM Aware® ESD Event monitors work on verification rather than on assumption.
- EM Aware® lets you know about any relevant ESD Events and their magnitude.
- EM ® tells you whether your ESD-preventive measures work, as they should.
- EM Aware® provides input to virtually any data logger so that you know ESD environment on your production floor at any time.
- EM Aware® can be connected to your existing network to provide an important information relevant to your bottom line.





EM Eye® Directional Field Strength and RF Signal Meter

The smallest of its class, brand-new EM Eye® broadband electromagnetic field and RF signal meters offer a unique combination of features in a miniature and convenient package.

As a field strength meter, EM Eye® features miniature directional broadband antenna, frequency range of 2MHz to 2GHz, high sensitivity (down to 10mV/m), simultaneous linear and logarithmic displays, real-time bar-graph with lin/log scales and zoom, three types of detectors (average, peak and quasi-peak). EM Eye measures field strength, power density and amplitude modulation. It has built-in frequency counter with high sensitivity, REF/Auto-zero and Hold functions, and a laser pointer that helps to identify the sources of emission.

EM Eye®-DL model CTM045 adds ability to measure the power (EIRP) of a transmitter.

Detachable active directional antenna helps to increase accuracy of measurements by reducing influence of ambient noise and reflections. It allows differentiation between separate emission sources.

Remove the antenna and connect your RF source via optional SMA adapter and **EM Eye®** becomes the **smallest RF signal meter**. It can signal power and voltage and all of the relevant parameters mentioned above.

EM Eye® is equipped with RS232 interface and comes with MS Windows-based software for data exchange and software upgrades.

EM Eye®-DL model CTM045 provides data logging capabilities with up to 2000 data points capacity, Y2K-compliant time/date stamp and advanced data-logging features such as manual, event-based and time-based recording, averaging, etc. Supplied MS Windows-based software provides data exchange and viewing on PC.

ScanEM -QC Probes as Electromagnetic Field Sensors for Your Oscilloscope

ScanEM-EQC electric field probe will show you the electric field environment and ESD Events occurring nearby.

ScanEM-QC probes easily pick electromagnetic and ESD Events from the cables and ground planes. Check your grounding wires with ScanEM-HQC for high-frequency noise.

Both probes can work in self-contained mode as well, giving visual and audio indication of electromagnetic field strength.

ScanEM-Q probes were originally designed for, and in cooperation with, the FCC in order to enable their inspectors to check for violators of FCC emission rules in the field. After their successful test and adoption of the ScanEM-Q probes for FCC use, now these probes are available for engineers, technicians and QA inspectors to test their products the same way the FCC does. Check applications of ScanEM-QC probes for EMC.

ES-81 V EMI Locator

Another technique useful in locating static charge involves searching for EMI resulting from ESD. This technique is particularly useful when it is impractical to get close enough to the charged object to use a fieldmeter, or when the object is on a ground plane which suppresses the electric field extending from the object. When the charged object is located close to ground, it is impossible to detect its electric field with a field-meter but it is more likely that it will cause a spark and generate a detectable EMI event.



ScanEM



ES-81 V



ESD dehumidification cabinets

A-564 ESD Dehumidification Cabinet

For storing humidity sensitive components.

- Painted steel (RAL 7032)
- Height 520mm, Width 600 mm, Depth 400 mm
- Total height: appr. 1 m
- Weight: appr. 30 kg
- Tightness class: IP54
- Dehumidifier: Munters MG50
- 1-phase, 230 V AC, 450 W
- Electronic Humidistat
- Temperature and Humidity Monitoring
- Setting range: 0 % RH...environment RH
- Fixed self with ESD mat
- Conductive foot



A-564

A-1686 ESD Dehumidification Cabinet

For storing humidity sensitive components.

- Painted steel (RAL 7032)
- Height 1600 mm, Width 800 mm, Depth 600 mm (model A-16810, depth 1000 mm)
- Weight: appr. 200 kg
- Tightness class: IP54
- Dehumidifier: Munters M120
- 1-phase, 230 V AC, 1300 W
- Electronic Humidistat
- Temperature and Humidity Monitoring
- Setting range: 0 % RH...environment RH
- Shelves: Fixed or Pull-out type with ESD mat
- ESD Wheels, Ø 125 mm



A-1686



Ionizers



6420

6420 Point of use Ionizing Blower

The model 6420 is a self-contained auto-balancing ionizer providing static control for point of use applications. It can also be mounted inside production equipment.

- air flow velocity 300 fpm, air flow volume 22 cfm
- dimensions 114 x 83 x 64 mm,



6421

6421 Battery-Operated ionizing blower

The 6420 Battery-Operated blower is the first truly portable ionizing blower designed for indoor or field service use.

- air flow velocity 150 fpm, air flow volume 20 cfm
- dimensions 114 x 84 x 51 mm



6430

6430 Local Area Ionizing Blower

The model 6430 blower controls static discharge in mid-sized areas, wherever static build-up can cause contamination, ESD, material handling problems or microprocessor lock-up.

- air flow velocity 240 fpm, air flow volume 49 cfm
- dimensions 133 x 127 x 57 mm



6442

6442 Benchtop Ionizing Blower

The Model 6442 Benchtop Blower features an adjustable two-speed fan for varying applications and operating conditions for high performance electrostatics management. The small footprint of the Model 6442 allows the ionizer to occupy much less workspace than traditional bulky blowers. With its universal mounting bracket/stand, the unit can be used to control static charge in virtually any location.

The Model 6442 features IsoStat technology for intrinsically balanced ionization, eliminating the need for periodic calibration regardless of variations in line voltage or fan speed. It controls static charge wherever contamination, electrostatic discharge (ESD), material-handling problems or microprocessor lock-up are concerns in the manufacturing environment.

Specifications

Input 24 VAC, 7 watts

Power Indicator Multicolor LED Power on-green, alarm-red

Ion Emission: Steady-state DC

Emitter Points: Tungsten; 2-year life

Ion Balance Better than ± 15 volts at 1 foot *

Discharge Time ≤ 3 seconds @ 1 foot *

Air Volume 112 CFM maximum

Ozone < 0.005 ppm (24-hour accumulation)

Mounting Gimbaled bracket/stand

Dimensions 10.5"H x 7.6"W x 5"D (26.67 x 19.3 x 5.7 cm)

Weight 3.4 lbs. (1.36 Kg)

Operating Temperature Range 68-77F (20-25C)

Environment Humidity 30-50% RH (non-condensing)

Warranty 2-year limited warranty

* with periodic unit cleaning



Ionizers

6665 Ionizing AeroBar

Reliable, Low Maintenance Ionization.

The 6665 Ionizing AeroBar is designed to prevent contamination, ESD and microprocessor lock-up in laminar flow hoods and benches. Patented IsoStat technology makes it one of the most reliable ionizers available. No calibration or adjustments are ever required. Steady-state DC ion emission provides effective discharge for most applications. For easy installation, a variety of lengths and mounting methods are available. If emitter points need replacing, they can be quickly snapped in and out.

Specifications:

6665 Ionizing AeroBar

Input	24 VAC, From 1320 wall transformer
Power Indicator	Green LED
Ion Emission	Steady-state DC, 15 microamps maximum output current
Emitter Points	Replaceable machined titanium, 3-year estimated life
Air flow	60 fpm (.045 m/s) minimum required at bar for proper operation
Mounting	A variety of mounting methods and clips are available for any environment
Dimensions	2.1"H x 1.2"W x 11", 22", 44", or 64"L (5.3 x 3.0 x 27.9, 55.9, 111.8, or 162.6 cm)
Weight	9.6 oz. per foot of bar length (.89 kg/m)
Warranty	2-year limited warranty

1320 Wall Transformer

Input	120 VAC, 50/60 Hz, 16 watts; alternate transformer available for 230 VAC operation
Output	24 VAC, 0.45 amp
Cabling	6' (182.9 cm) cable with standard miniature barrel type connector
Dimensions	2.4"H x 2.2"W x 1.6"D (6.1 x 5.6 x 4.1 cm)
Weight	9.5 oz. (269.3 g)



5802 Single-Fan Ionizing Blower

Features:

- Fine balance adjustment with high gain feedback
- Small 6.5 x 5 inch (16.5 x 12.7 cm) product footprint
- Auto-Clean System option for emitter points
- Sealed fan stacks; machined titanium emitter points
- Filtered for low electromagnetic interference (EMI)

Benefits:

- Stable balance and fast charge neutralization
- Occupies minimum amount of space on workbench
- Reduces frequency of required manual cleanings
- Meets class 10 cleanroom requirements
- Causes no interference to other equipment from possible radiated or conducted EMI





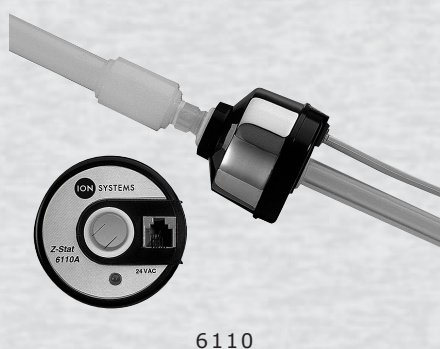
Ionizers



6115 Airforce Ionizing Blow-Off Gun

The AirForce was designed with the operator in mind. The AirForce's lightweight, flexible air hose - just 3/8" in diameter - moves with the operator and makes work easier. No high voltage cable means improved operator safety. The gun's ergonomic design with a light touch trigger and easy view LED-minimizes fatigue and eliminates wrist hyperextension. The compact console can be mounted anywhere, so it doesn't take up valuable workspace but is still easily accessible. To make the work environment more pleasant, the AirForce also features low audible noise.

Air pressure 20 – 100 psi

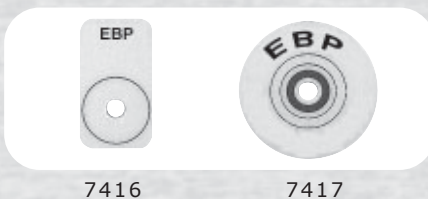
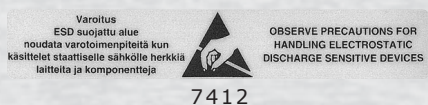


6110 (a) Air Ionizing Cartridge

Ion Systems' self-contained compressed air ionizing cartridge controls static charge in production, packaging, laboratory and other environments where static build-up can cause contamination, ESD, material handling problems or microprocessor lock-up. Compact and rugged, the cartridge can be used either for in-line ionization or as an ionizing blow-off gun. For in-line use, connect the 6110 to a compressed air source and it is ready to ionize any type of production equipment. Or attach the 6110 to an ordinary air gun and the airstream is ionized for effective particle removal. An internal sensor initiates ionization only when the gun is triggered, ensuring on-demand control of static charge.

- Size: 56 x 79 mm
- Air flow requirement: >cfm

ESD signs



- 7412, size 150 x 25 mm
- 7413, size 300 x 150 mm
- 7414, size 500 x 200 mm
- 7415, size 400 x 250 mm
- 7416, size 20 x 36 mm
- 7417, ø 36 mm





Antistatic tapes

8220 Antistatic PVC tape with ESD symbols

width 38 mm, length 66 m
width 50 mm, length 66 m

8320 antistatic PP tape

width 12 mm, length 34 m
width 18 mm, length 34 m
width 24 mm, length 34 m

3M Antistatic tapes

3M-40 Antistatic tapes

breadth	length	rolls/box (min. order amount)
12 mm	66 m	19
19 mm	66 m	12
25 mm	66 m	9
50 mm	66 m	4

ESD Wheels

These wheels are german made heavy-duty ISO 9001 certified quality. You can modify non- ESD carts with these wheels to suit EP-area. Wheels for different purposes and several sizes are available.

ARMEKA ESD Consulting, Training & EPA Planning

Armeka Engineering Ltd. has a long timed and many-sided experience in planning the ESD protected areas, giving ESD training and consulting. We fix the "taylor made" training just for each customer, considering the all special needs they might have.

Because of our own training material producing, product developement and very active following of the ESD reviews, we can guarantee the very high quality results in training and consulting.

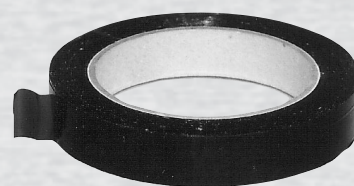
EPA planning projects can be done as taylor-made basis, when the customer gets the complete ESD report with conclusions and arguments, as the references to the ESD standards as well.

Our service includes among other things:

- EPA Audits
- Planning and fulfilling of ESD premises
- Researching and measuring ESD material properties
- We give ESD measurement training
- ESD training for personnel

When using our expertation:

- The quality of your products gets better
- Your ESD program comes more cost effective, because you get the right solutions for your needs right away
- All activities will follow the ESD standards
- We will give a guarantee for our work
- Motivation of the personnel and effective using of ESD protective items will spare the costs directly and will raise the quality of your products



8220

