Development Board ESD Benchtop Kit

The RS Development Board ESD Benchtop Kit provides a convinient and effective ESD control workstation. It creates a temporary ESD Protected Area (EPA). An EPA is a working space where electrostatic discharge sensitive devices (ESDS) may be unpacked, handled and packed with the minimum risk of being damaged by static electricity.

The Development Board ESD Benchtop Kit is available in the following two versions:

Part Number	Description
123-5614	Development Board ESD Benchtop Kit - UK
123-5615	Development Board ESD Benchtop Kit - EU

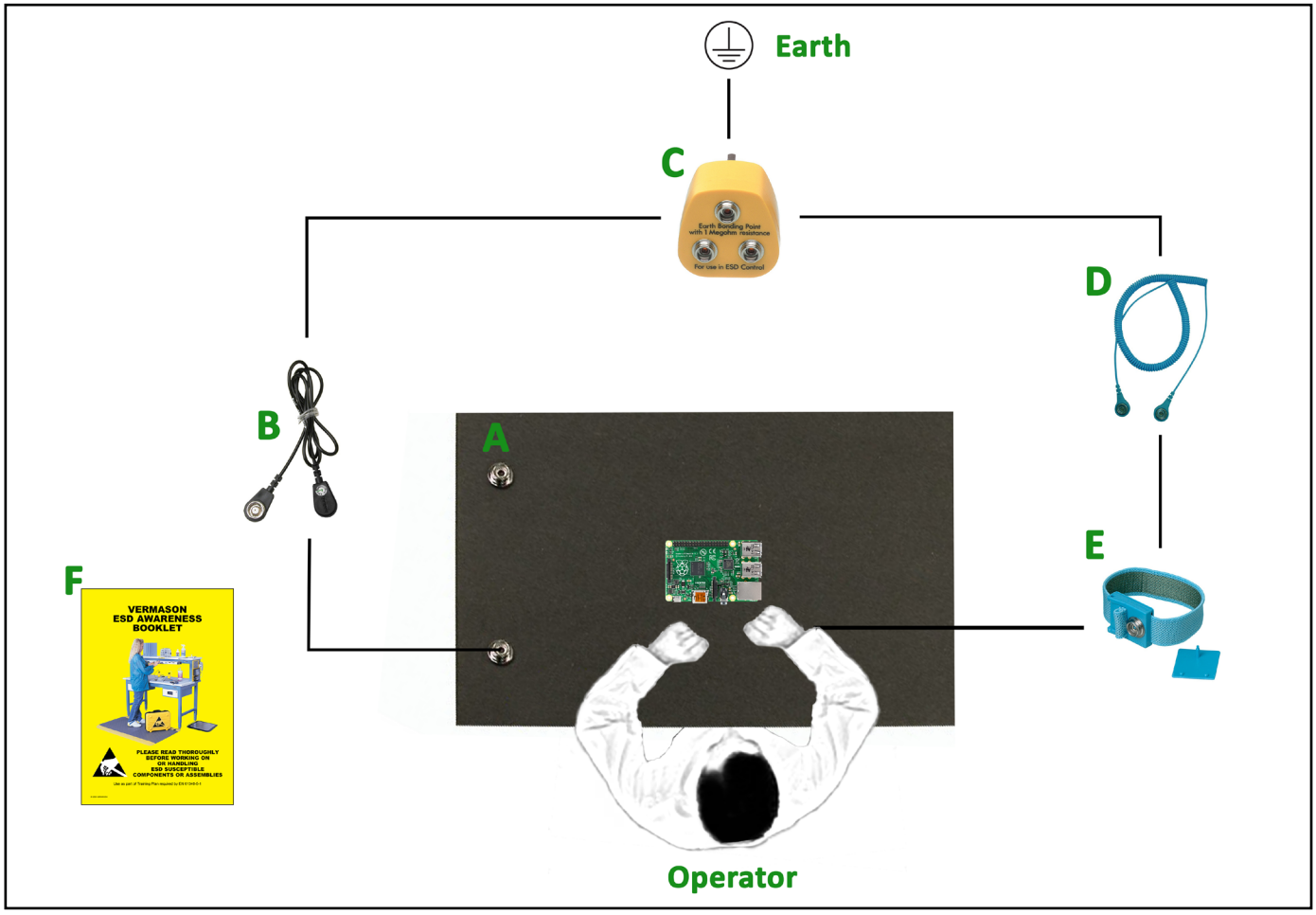

Figure 1: Setting up the Development Board ESD Benchtop Kit

The Development Board ESD Benchtop Kit includes:

	Quantity	Description
A	1	Pro-Mat, 2 x 10mm Stud, 298mm x 450mm x 2mm
B	1	Black Straight Cord, 0.7m long, 2 x 10mm Socket
C	1	UK EBP Plug, 3 x 10mm Studs (RS part number 123-5614 only) EU EBP Plug, 3 x 10mm Studs (RS part number 123-5615 only)
D	1	Blue Coiled Cord, 2.4m long, 2 x 10mm Socket
E	1	Blue Adjustable Elastic Wrist Band, 10mm Stud
F	1	ESD Awareness Guide

RS Components Ltd., Birchington Road, Corby, Northants, NN17 9RS, UK

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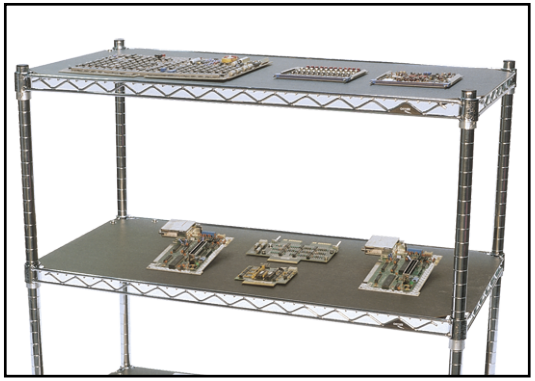
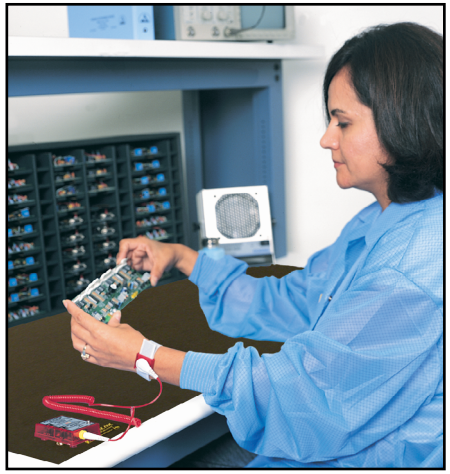


Pro-mat shown being used on shelving and as a working surface



EN 61340-5-1 paragraph 5.2.2 Working surfaces and storage racks "All working surfaces and storage racks on which unprotected ESDS may be placed shall be capable of being connected to EPA ground and shall have a point-to-point resistance and resistance to EPA ground in accordance with table 1 (Rp greater or equal to 1 x 10^4, less than or equal to 1 x 10^9 ohms, and Rg greater or equal to 7,5 x 10^5 to less than or equal to 1 x 10^9 ohms)."

RoHS Compliance Statement
None of the following materials are intentionally added in manufacturing this product: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE) as outlined in the Directive 2002/95/EC Article 4.1. See Vermason's statement online at Vermason.co.uk.

Features

- Rp-p 1 x 10^6 < 1 x 10^9 ohms, meets working surface limit and recommendation of EN 61340-5-1
- Economical ESD working surface or shelving
- Meets required limits of EN 61340-5-1 for working surface and for shelving
- Low charging antistatic, dissipative surface
- Includes 2 x 10mm male stud grounding snaps
- Chemical resistant
- Great choice for shelves and transportation carts, or for messy soldering applications
- Impregnated material; greater durability
- Made from 100% recycled material, and is 100% recyclable
- Made in United States of America

Meets the required limits of EN 61340-5-1

SPECIFICATIONS

Properties	Typical Values	Test Procedures/Method
Surface Resistance	1 x 10^6 to < 1 x 10^9 ohms	IEC 61340-2-3
Sloughing Test	Negligible surface damage at 10 cycles and <5% of surface damage at 200 cycles in Taber Abrasion Test.	ASTM D4060 at 70 rpm with CS-17 abrasive-coated wheels and 1000 grams load
	No conductive particles abrased from surface	Rockwell International Test Report of January 8, 1992
Recyclability	Complete recyclability of package	Rockwell International Test Report of January 8, 1992

Colour and texture may vary between lots and mills
Specifications and procedures subject to change without notice.

Made in the United States of America

Pro-Mat,1 x 10mm Stud, 298mm x 450mm x 2mm

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NORTHANTS, NN17 9RS, UK

DATE:
August 2016

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- Ground cord used to connect mats to Earth Bonding Point (EBP) plugs
- 1 megohms (1 x 10^6 ohms) resistor in socket end
- 2.5mm cord diameter
- PVC insulation with 7 ends duplex tinsel copper conductor

"EPA ground cords shall be used to make electrical connections between groundable points and the EPA ground facility.

Where a single resistor is used in the EPA ground cord, this shall be located near the groundable point. Where more than one resistor is used, a resistor of a minimum resistance value of one half the total resistance shall be located near the groundable point.

When accessible, the EPA ground cord and its groundable point connection shall be shrouded by insulating material." (EN 61340-5-1 section 5.3.4 EPA ground cords)

Unless otherwise noted, tolerance is ±10%

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Black Straight Cord, 0.7m long, 2 x 10mm Socket

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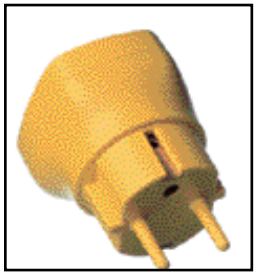
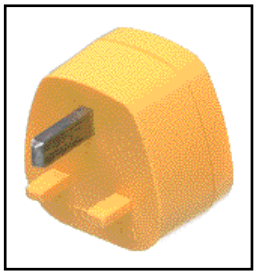


EU Version



UK Version

Property	Value
Colour	Yellow
Size of plug casing	51mm x 49mm x 31mm (UK version) 63mm x 49mm x 49mm (EU version)
Weight	36g
Connector to earth pin resistance	0.8 - 1.2 megohms
Connector to connector resistance	approx 2 megohms

Unless otherwise noted, tolerance ±10%

Specifications and procedures subject to change without notice.

Description

- To fit UK 13A socket (UK version) or European CEE (7) VII Schuko sockets as used in Belgium, France, Germany, Holland, Spain (EU version).
- The Earth Bonding Point (EBP) plug is designed to provide a common ground point for grounding using protective earth in an ESD protected area (EPA). The plug fits into the mains supply socket, making a connection with the earth conductor only. In place of the live and neutral pins are moulded insulating plastic pins to allow positive location in the socket. Connectors on the front of the plug are available for connection via ground cords to the various elements of the EPA. Thus each element is held at a common potential.
- A resistance of sufficient resistance to limit current to less than 0.0005 amperes (0.5 milliamperes), at the highest voltage that may be encountered, should be incorporated. Nominally, 800 kilohms are sufficient for voltages of up to 240 volts alternating current (AC). The value of one megohm is specified because it is a standard value discrete resistor. Follow appropriate regulatory or company safe grounding instructions. (Ref: ANSI/ESD S1.1).
- If overstressed the resistor will open the circuit.
- It is virtually impossible to misuse the plug, which is permanently sealed. The resistance between the terminations and the pin of each plug is tested after manufacture.
- Check that the connectors on the plug face correspond with the terminations on the wrist strap and ground cords: several variations of the plug are available. Insert the EBP plug into a mains supply socket and push it fully home. The plug functions safely whether the socket is switched off or on. Connect the elements of the EPA such as bench and floor mats to the EBP plug face using ground cords.
- The plug is ONLY to be used for ESD control purposes.
- ONLY use ground cords with compatible connections to those on plug.
- NOT to be used for earthing electrical appliances
  DO NOT open or try to repair. Test the plug by measuring the resistance from each termination to the Earth pin. Resistance should be between 0.8 and 1.2 megohm.
- Each termination is connected to its own 1 megohm resistor. The resistance between two terminations should be approximately 2 megohms.
- To avoid the need for unduly long ground cords and to simplify the daily visual check, that all connections are sound and in place, an EBP plug should not be shared by more than two work stations.
- The EBP plug may also be used in conjunction with a EBP box or bar installed at the front of a bench for easier connecting of wrist straps for example.

Made in the United Kingdom

EBP Plug, 3 x 10mm Studs

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- Coiled cord used to connect wrist bands to Earth Bonding Point (EBP) plugs
- 1 megohms (1 x 10^6 ohms) resistor in socket end
- 2.7mm cord diameter
- Polyurethane insulation with tinsel copper conductor

Per CLC/TR 61340-5-2:2008 User guide Wrist Strap clause 4.7.2.6 Summary

- Wrist straps provide an effective means for maintaining personnel at ground potential or at the same potential as the item(s) being handled. People who are at ground potential or a potential the same as the ESDS they are handling cannot discharge to the ESDS when it is handled or touched.
- Wrist straps usually have a current-limiting resistor, typically 1,0 x 10E6 ohm, molded into the ground cord near the point where the cord attaches to the cuff. The resistor usually has a working voltage rating of 250 V.
- Wrist straps are sometimes supplied with a 1,0 x 10E6 ohm resistor molded into both ends of the ground cord when both ends of the cord have the same type snap connector.
- Wrist straps should not be worn by personnel where they could come into contact with voltage over 250 V.
- Wrist strap ground cords should have a quick release connector to the cuff so personnel will not be tied to the workstation.
- Wrist strap bands should be worn comfortably snug around the wrist while making full skin contact.
- Wrist strap ground cords shall be connected to a groundable point or an equipotential bonding point. Do not connect to a snap on a dissipative mat unless it is the groundable point for the mat. Do not clip a wrist strap to the edge of a dissipative mat.
- Wrist straps should be tested on a regular basis with daily testing being recommended."

Unless otherwise noted, tolerance ±10%

Specifications and procedures subject to change without notice.

Made in Taiwan

Blue Coiled Cord, 2.4m long, 2 x 10mm Socket

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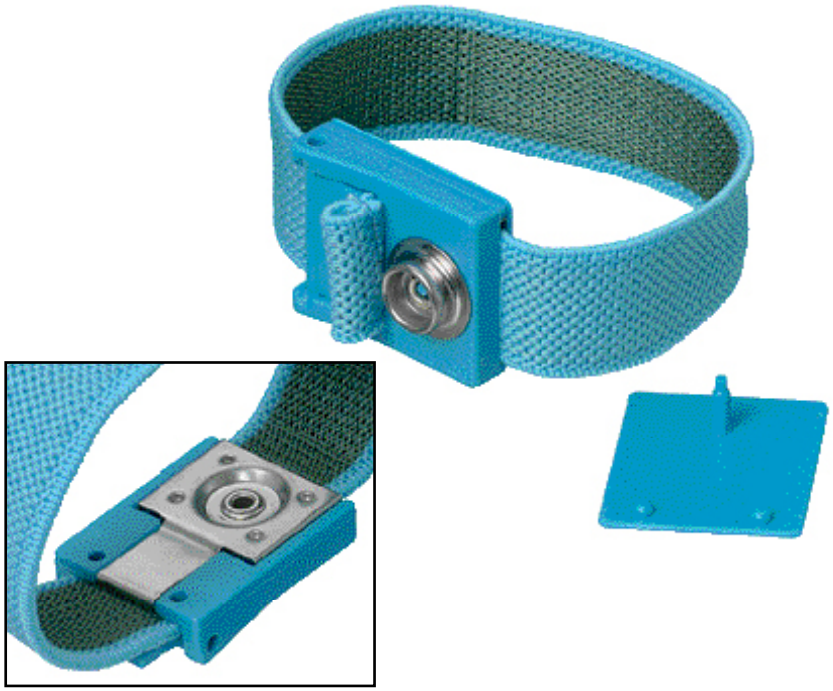

- Versatile: metal back or plastic back
- Metal helps contact to dry skin. Insert plastic cover if there are metal-on-skin issues
- Adjustable blue elasticated band to suit wrist circumference of 130 to 180mm
- 10mm stud connector

Adjustable Wrist Strap

BAND

A. Surface-Inside:	80 threads Acrylonitrile-Copper Sulfide dye composition fibre for inner conductive material
B. Surface-Outside:	Polyester fibre
C. Band Resistance:	80-90 Ohm/inch

PLASTIC PLATE & LATCH

A. Plastic Plate:	Polycarbonate
B. Latch:	Polycarbonate
METAL BASE	#304 Stainless Steel

"The primary means of grounding personnel shall normally be by a wrist strap connected to an EBP." Paragraph 5.2.7 "The wrist strap shall consist of a band that fits snugly around the wrist and a cord to connect the band to an EBP. The wrist strap shall incorporate a quick release connection. The cord shall have a termination compatible with the EBP and shall incorporate at least one insulated current-limiting resistor. The total resistance from hand to EBP [Earth Bonding Point] shall be in accordance with table 1 [Rg 7,5 x 10E5 to 3,5 x 10E7 ohms]." (EN 61340-5-1 paragraph 5.5 EPA working practices)

"The term 'wrist strap' describes the combination of the wrist band, which should fit around the wrist making good skin contact, and the wrist cord which bonds the wearer to an earth bonding point. The wrist band will normally be worn for several hours at a time so it needs to be comfortable while making good contact with the skin. It is a good idea to check the wrist strap every time it is applied. Constant on line monitors can be used so that any breaks will be immediately found.

As a safety feature, the ground cord should release with a force of between 5 N and 25 N, preferably at the wrist band end." (EN 61340-5-2 paragraph 5.2.7 Wrist strap)

"Wrist straps shall be checked before use. Each check shall be made with the wrist band worn in contact with the wearer's skin and with the ground cord attached to the appropriate tester." (EN 61340 5 1 paragraph 9.6 Daily checks)

Unless otherwise noted, tolerance ±10%

Specifications and procedures subject to change without notice.

Made in the United Kingdom

Blue Adjustable Elastic Wrist Band, 10mm Stud

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