

## HIGH SPEED, HIGH ACCURACY FOOTWEAR / WRIST STRAP TESTER Installation, Operation and Maintenance



Figure 1. Vermason 222518 High Speed, High Accuracy Footwear / Wrist Strap Test Station

### Description

A digital instrument with a programmable IC at its heart that will test the resistance of an operator's grounding system. The tester is capable of testing both wrist strap and conductive footwear. The instrument will indicate whether the resistance is in the ranges specified in EN 61340-5-1.

"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, paragraph 9.6.2 Wrist strap) "Where toe and heel straps are used as ESID footwear, once these are worn outside the EPA [ESD protected area], particularly on carpets, they are likely to accumulate fluff and become ineffective; this requires that they be checked or replaced on every visit to the EPA. ...When ESD footwear is used, it should be noted that ESD footwear alone cannot achieve protection, but needs to be used in conjunction with a suitable ESID floor." (EN 61340-5-2 Paragraph 5.2.8 Footwear) "All wearers shall check that their heel

and toe straps meet requirements [of Table 1 NOTE 2 – 'When the footwear/floor systems are used as the primary means of grounding personnel, the resistance of the combination shall be determined by the ESD coordinator, and is recommended to be between  $7.5 \times 10^5$  ohms and  $3.5 \times 10^7$  ohms]. The check shall be made before entering the EPA." (EN 61340 5-1 Daily checks, paragraph 9.6.3 Non-permanent footwear)

### Packaging

- 1 High Speed, High Accuracy Footwear / Wrist Strap Tester
- 1 Foot Plate
- 1 Wall panel

### Installation

1. Mount wall panel at eye level on a wall conveniently situated near the EPA. Staff will use the test station upon entering the EPA.
2. Install the 9V battery into the tester.
3. Put footwear test plate on floor below panel. Connect it to the cord of the tester.
4. Mount tester on the wall panel.

### Procedure to test wrist strap

1. Wear wristband. Choose one that fits snugly or adjust it to do so.
2. Connect the wrist cord securely to the wrist using the snap connector.
3. Connect the other end of the cord to a matching termination on the tester.
4. Push the round metal button in the centre of the tester with one finger. The tester will now indicate whether the total resistance is within the acceptable range.
5. Green light and buzzer indicate

that the total resistance is either less than  $10M\Omega$  or less than  $35M\Omega$ .

**Green = PASS**

6. A red light indicates non-conformance.

**Red = FAIL**

- Do not proceed in the usual manner but contact your supervisor or follow your company procedure.
7. Contact your supervisor if the battery low light illuminates.

### Procedure to test footwear

1. Wear shoes or heel grounders as prescribed.
2. Place each foot in turn on the foot plate.
3. Push the contact plate on the tester with one finger. The tester will now indicate whether the total resistance is within the acceptable range.
4. Green light and buzzer indicate that the total resistance is either less than  $10M\Omega$  or less than  $35M\Omega$ .

**Green = PASS**

5. A red light indicates non-conformance.

**Red = FAIL**

6. Do not proceed in the usual manner but contact your supervisor or follow your company procedure.
7. Contact your supervisor if the battery low light illuminates.

## In case of non-conformance

The instrument measures the resistance of the external circuit between the test button and the cord connectors or the foot plate. The wristband and cord, the plates and the footwear, the connection to the operator, the operator's body resistance and the test button contact are all part of the circuit. If a failure is indicated, determine whether the wrist strap or the footwear alone is failing by ensuring that the other elements of the circuit are sound.

### Note:

If the battery low light illuminates, insert a new 9V alkaline battery. The battery low threshold is factory set at 6.5V.

## Calibration

All resistances are in-built using matched fixed resistors. They are measured using an ohmmeter, which is of known accuracy and standards used are traceable to UKAS. No variable resistors e.g. potentiometers are used. The resistances should nonetheless be re-checked once a year.

Use a calibration unit such as our product code [223002](#).

The potentiometers are accessible through the two holes on the left-hand side of the case. The upper hole allows the lower limit to be adjusted. The lower hole allows the higher limit to be adjusted. Follow the procedure described on [TB-7543](#). Alternatively, we offer a calibration service.

## Specifications

### Resistance Limits

**Wrist straps:** Low - 0.75M $\Omega$   
High - 10 and 35M $\Omega$

**Foot wear:** Low - 0.1M $\Omega$   
High - 10 and 35M $\Omega$

**Accuracy**  $\pm 5\%$

**Weight** 0.1kg excluding battery

**Dimensions** 145 x 90 x 32mm

**Power supply** 9 volt battery, preferably alkaline

**Battery life** typical 3000 tests (3s per test)

**Test voltage** maximum 24V

**Short circuit current** 12 $\mu$ A max

### Limited Warranty

Vermason expressly warrants that for a period of one (1) year from the date of purchase, Vermason High Speed, High Accuracy Combined Footwear / Wrist Strap Testers will be free of defects in material (parts) and workmanship (labour). Within the warranty period, a unit will be tested, repaired or replaced at Vermason's option, free of charge. Call Customer Service at 0044 (0) 1462 672005 for a Return Material Authorisation (RMA) and for proper shipping instructions and address. Any unit under warranty should be shipped prepaid to the Vermason factory. You should include a copy of your original packing slip, invoice, or other proof of purchase date. Warranty repairs will take approximately two weeks.

If your unit is out of warranty, Vermason will quote repair charges necessary to bring your unit to factory standards. Call Customer Service at 0044 (0) 1462 672005 for a Return Material Authorisation (RMA) and proper shipping instructions and address.

### Warranty Exclusions

THE FOREGOING EXPRESS WARRANTY IS MADE IN LIEU OF ALL OTHER PRODUCT WARRANTIES, EXPRESSED AND IMPLIED, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH ARE SPECIFICALLY DISCLAIMED. The express warranty will not apply to defects or damage due to accidents, neglect, misuse, alterations, operator error, or failure to properly maintain, clean or repair products.

### Limit of Liability

In no event will Vermason or any seller be responsible or liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, users shall determine the suitability of the product for their intended use, and users assume all risk and liability whatsoever in connection therewith.