

## SINGLE CONTINUOUS MONITOR FOR WRIST STRAP AND BENCHMAT Installation, Operation and Maintenance



Figure 1. 225208 Single Continuous Monitor.

### Description

The 225208 continuous monitoring system provides constant monitoring of personnel and work surface grounding. It operates using a current loop and dual wrist strap system. It uses a low-test voltage and current which makes it suitable for use with most ESD sensitive items. The unit is unaffected by capacitance variations associated with personnel and environmental conditions. It is suitable for use in some clean rooms. The resistance thresholds are set to meet the requirements of EN 61340-5-1 but they can be altered if required.

Leading companies use continuous monitors as a cost effective component in satisfying some of the audit and check requirements of EN 61340-5-1. Wrist strap testing "Where continuous monitoring is used, no additional testing is required." (EN 61340-1, per A.5.2)

"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 to that any breaks will be immediately found." (EN 61340-5-2 section 5.2.7)

### Inspection

Remove the test unit from the carton and inspect for shipping damages.

Each 225208 unit should include the following:

- 1 Single Continuous monitoring unit, item #225207
- 1 Dual fabric wrist band
- 1 Dual cord for dual wrist band
- 1 Remote connecting box (with a monitored socket and guest connection) complete with mounting screws
- 2 mat grounding cords, 2.5m long, 10 mm socket / 4mm banana plug
- 1 monitor grounding cord, 2.5m long, 4mm plug/ring terminal
- 1 Power supply UK
- 1 Screws, adhesive hook and loop straps for mounting monitor
- 1 Washers, studs, screws for connecting to bench top

### Installation

1. Determine the mounting location of the monitor (225207) and remote boxes (225204). The monitor can easily be mounted on top of the work surface or underneath a shelf using double-sided adhesive hook and loop straps, or the supplied screws. The front panel should be readily visible to the operators. The remote box should be mounted in an easily accessible position, as the operator has to be connected to this box.
2. Wire the remote boxes to the monitor by connecting the stereo jack plug to the jack socket mounted on the back panel of the monitor. This cord provides a path to ground for the monitored wrist strap socket and the guest socket, as well as the monitoring signal. The picture on the right shows how to connect the remote boxes to the back panel of the instrument.
3. Mount two 10 mm press-studs on the work surface about 5 cm apart. Two types of press-studs

are included with the kit; choose the most convenient one for your surface. If using hard laminate ensure that both press-studs are making connection with the conductive layer. It is generally good to use the supplied rubber washer to ensure optimum connection, whatever the type of surface. Place it under the stud on the surface.

4. It is possible to connect the mats in two different ways:

Solution 1: connect one stud to the earth and the other to the monitor.

**Note:** The earth loop is monitored with this method of wiring, if the earth cord is disconnected, the instrument will alarm

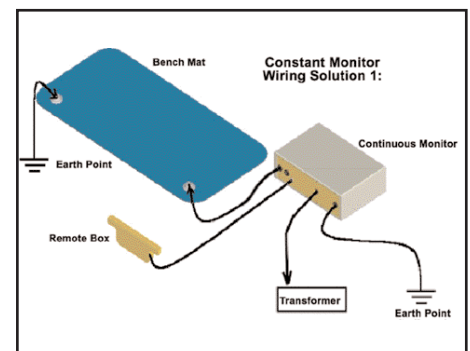


Figure 2. 225208 Wiring Solution 1.

Solution 2: Connect both studs on the mat to the monitor using two 230385 cords.

**Note:** The earth loop is not monitored with this method of wiring. If the earth cord is disconnected, the instrument will not alarm. However, the two mat testing circuits are fully independent. Use only this wiring solution if the bench top resistance is very high and the standard connection method does not provide satisfactory results. With this method, the earth cord must be hard-wired and tested regularly.

Solution 2 ensures correct threshold monitoring of the mat's resistance. Use Solution 2 only if Solution 1 does not provide satisfactory results. However, the advantage of solution 1 is that the mat and the instrument ground connections are monitored which is more meaningful than the mat resistance.

5. Connect the system to earth facility using a cord inserted into the 4mm plug socket
6. Plug the DC power supply plug (224700) into the power jack in the rear of the unit. Route the wire from the supply to a nearby mains socket and plug the power supply into the socket.

### Unit Operation

Install the operator wristband and ground cord (225200 and 225202). The right-angled plug inserts into the socket on the yellow remote box. The wrist strap is monitored as soon as the cord is connected to the remote box socket.

**Note:** The remote box is fitted with three sockets, a jack stereo socket and two 4mm plug socket. The latter are for guest use, and are not monitored.

### The front panel

The LED located in the centre of the unit indicates the status of the workstation. On the far right of the unit is an orange LED indicating that the unit is powered.

The workstation status is indicated via 4 LED and a buzzer. The buzzer and the two red LED labeled "Low" and "High" indicate if the wrist strap resistance, when worn, is lower than  $0.75M\Omega$  or higher than  $35M\Omega$ . These LED should not come on when the resistance of the wrist strap is within these limits. Assuming Solution 1 has been chosen, the LED labeled "Mat" will turn red when the resistance to ground of the work surface is higher than  $100M\Omega$ .

Should the mat resistance be below this limit, and the worn wrist strap resistance be between  $0.75$  and  $35M\Omega$  limits, the green "OK" LED should turn on and the buzzer will remain silent.

### Parking a station

When an operator has to leave the work area, his wrist strap monitor should be parked by unplugging his wrist strap ground cord from the remote box. In this situation the green "OK" LED will not illuminate and the buzzer will remain silent.

### Certification

Depending upon the requirements of a facility, periodic verification of the monitoring unit may be performed using a calibrated decade box Vermason product code 223000. The calibration procedure is described in the Instructions for Use of this decade box.

### Specifications

**Test voltage:** Max 5 Volts DC

**Test current:** Max  $5\mu A$

### Resistance settings

**Lower limit:**  $0.7-0.8M\Omega$   
adjustable from  $0.5$  to  $2M\Omega$

**Upper limit:**  $34-36M\Omega$  adjustable from  $25$  to  $50M\Omega$

### Accuracy, mat test:

$\pm 10\%$  (both mat connectors wired to the monitor, wiring solution 1).

### Calibration, mat test:

$90-100M\Omega$  (fully adjustable from  $25$  to  $110M\Omega$ )

**Station status indication** via 4 LED  
+power-on LED

**Station parking facility** (unplug wrist strap from remote box)

### Limited Warranty

Vermason expressly warrants that for a period of one (1) year from the date of purchase, Vermason Single Continuous Monitor For Wrist Strap and Benchmats 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.