

3M™ Continuous Monitors use a new solid state impedance design to continuously test the connection integrity of the entire ground loop including the person, the wrist band, and the coil cord. Two models also monitor the bench mat. This system is fully automatic and activates when a wrist strap is plugged into the unit. Provides a green light for safe condition and a red light and tone for unsafe condition. Unit is powered and grounded by the included AC adapter. *Continued on page 2.*

3M WSMONITOR1

Monitors One Wrist Strap

- Checks one wrist strap/person.
- Compatible with any standard wrist strap.
- Easy to use: Simply plug in the wrist strap.
- Easy to install: Attach the monitor to the bench with included hardware, and plug it in.



3M WSMONITOR2

Monitors One Wrist Strap and Bench Mat

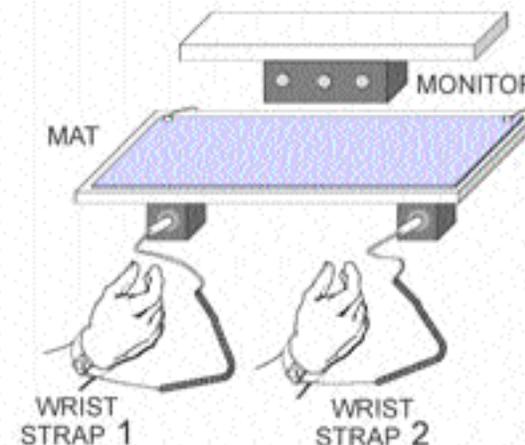
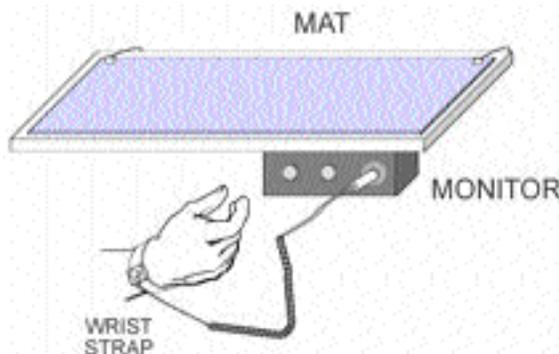
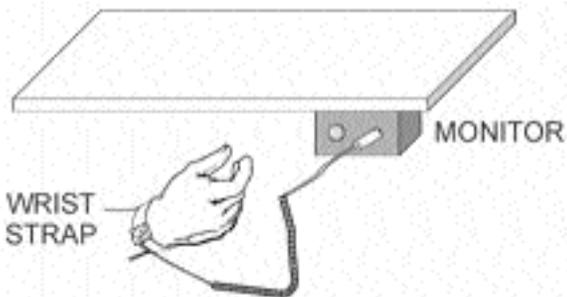
- Checks one wrist strap/person.
- Checks connections to the bench mat.
- Compatible with any standard wrist strap.
- Easy to use: Simply plug in the wrist strap.
- Easy to install: Attach the monitor to the bench with included hardware, connect the mat, and plug it in.



3M WSMONITOR3

Monitors Two Wrist Straps and Bench Mat

- Checks two wrist straps/persons.
- Checks connections to the bench mat.
- Compatible with any standard wrist strap.
- Easy to use: Simply plug in the wrist strap.
- Easy to install: Attach the monitor boxes to the bench with included hardware, connect the mat, and plug it in.



P R O D U C T D A T A S H E E T

Constant Monitors for Wrist Straps ~ SINGLE WIRE

PRODUCT
 SINGLE WIRE CONSTANT WRIST STRAP MONITORS

ITEM NUMBER
 SEE PAGE 3

DATASHEET
 1142-B

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Introduction

Damage to electronic devices is primarily caused by static electricity from people. Connecting people to ground directs static electricity away from devices. Constant monitors are designed to continuously test the connection of the person, the wrist band, and the coil cord to ensure that people remain grounded.

Constant monitor WSMONITOR1 uses a solid state impedance design to continuously test the connection integrity of the entire ground loop including the person, the wrist band, and the coil cord. Models WSMONITOR2 and WSMONITOR3 also provide bench mat monitoring. This system is fully automatic and activates when a wrist strap is plugged into the unit. It provides a green light for safe condition and a red light and tone for unsafe condition. The unit is powered and grounded by the AC adapter.

Monitors Reduce Cost

Constant monitors reduce production costs by eliminating the time associates spend testing wrist straps before each shift. With a constant monitor, associates may begin work by simply plugging in their wrist strap. Further savings may be realized by reduced ESD damage from broken wrist straps. Constant monitors indicate a failed wrist strap when the wrist strap breaks. A broken wrist strap may expose products to ESD over an entire shift if it is checked only at shift change with wrist strap checker.

Cost Savings Model:

Savings Per Monitor = Time to check wrist strap X Labor rate (\$ per Hour /60) X
240 days per year

$$\$153.6 = 4 \text{ minutes} \times \$0.16 (\$10 \text{ hour}/60\text{min}) \times 240$$

The WSMONITOR1 pays for itself in 100 days.

This is a conservative estimate of the cost savings. Many people use the trip to the checker as an opportunity to socialize, increasing times to 6 or even 9 minutes. This exercise assumes a single shift, with a once daily test. Many companies test at the beginning of each shift, tripling the labor required.

Technology

Single Wire - Constant Monitors

A low level AC signal is used to constantly look for a broken or disconnected wrist strap. 3M "Single Wire" or "impedance type" monitors use the phase difference between current and voltage to detect changes in impedance of the cord, band and person. A special buffering circuit design prevents false alarms from bunched cords and changing capacitance. Any standard wristband and coiled cord can be used. No adjustments are required.

Dual Wire - Continuous Monitors

These units provide *continuous* monitoring instead of *constant* monitoring. To avoid skin irritation from the constant application of DC voltage, the sensing signal is pulsed, on for one second and then off for two seconds. "Dual Wire" or "resistance type" monitors apply as much as 16 volts DC to the operator through a special wristband and coiled cord to look for a broken or disconnected wrist strap.

Cost of Ownership

Cost of installation and ownership for Dual Wire units is higher than Single Wire units, with a Dual Wire monitor costing as much as \$167 and the special wrist straps \$33 each. By comparison, a Single Wire monitor costs about \$60 with standard wrist straps costing \$8.

Calibration / Verification

Both single wire impedance type and dual wire resistance type monitors are designed to be adjustment free. Annual calibration is not necessary. If, however, your quality program requires testing, a verification tool that simulates a functional and non-functional wrist strap is available to verify that the monitor is functional. See s on page 3.



Page 2 of 3

Page 1. Constant Monitors- single wire.
Page 2. Application, Technology, Savings.
Page 3. Item Numbers, Specs, Test Module.

P R O D U C T D A T A S H E E T

Constant Monitors for Wrist Straps ~ SINGLE WIRE

PRODUCT

SINGLE WIRE CONSTANT WRIST STRAP MONITORS

ITEM NUMBER

SEE PAGE 3

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Item Numbers

ITEM CODE:	SIZE:	MONITORS:	POWER:
WSMONITOR1	0.88"h x 1.75"w x 1.25"d	One wrist strap/person	120VAC -3 prong
WSMONITOR2	1"h x 2.4"w x 2.3"d	One wrist strap/person and bench mat	120VAC -3 prong
WSMONITOR3	1"h x 4"w x 2.4"d	Two wrist straps/persons and bench mat	120VAC -3 prong
TMTOOL1		Test Module for WSMONITOR 1	none
TMTOOL2		Test Module for WSMONITOR 2	none
TMTOOL3		Test Module for WSMONITOR 3	none

Specifications

MONITOR TYPE: Impedance - Single Wire
 CIRCUITRY: Solid-state, surface mount
 ALARM: Audible and visual (LED)
 TRIP LEVEL: 6.5 megohms
 POWER: 120VAC adapter (included)
 ADJUSTMENTS: None Required.
 CALIBRATION: None Required. Test Module available.

This tool simulates a good wrist strap and a bad wrist strap.

Ownership Information

Warranty

WSMONITORS are warranted against electrical or mechanical defects for 90 days. This warranty is void if the unit is damaged through improper use or unauthorized repairs.

Support

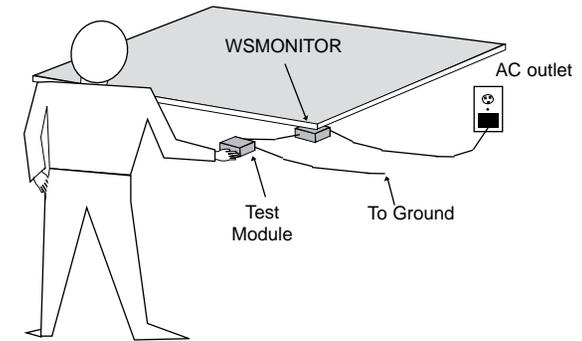
Telephone support is available.

Returns

An RMA number must be obtained prior to any return. Request for non-warranty related returns must be made within 30 days of delivery.

Test Module

Since these monitors use solid state circuitry, adjustments or calibration is not required. However many quality programs require that proper operation of constant monitors be verified. The TMTOOL units simulate a correctly functioning person and wrist strap (Accept), and an open circuit (Reject).



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