Resistance Ranger™
RangerTWO Constant Monitor - CM1602

Dependable, and Accurate Resistance Based Constant Monitor for One Operator & Work Surface

Transforming Technologies' RangerTWO constant monitor provides continuous protection against failing dual wire wrist straps and an ESD work surface. A constant pulse of an ultra-low voltage signal measures the electrical resistance of the wrist band and work surface and alarms if there is a problem.

The RangerTWO is an extremely sensitive and reliable ground monitoring instrument. Audible and visible alarms are triggered if the operator's resistance exceeds 35 megohm (factory default). Low resistance of 1.8 megohm also triggers an alarm event. Mat alarm limits are set at 100 meg ohm.

The RangerTWO saves time by eliminating the time consuming testing of grounding products. The system uses special dual wire wrist band sets that contain two independent elements which provide fail-safe protection. The series can be used with most common dual wire wrist straps available. Transforming Technologies offers both fabric and metal wrist bands paired with cords in either 5, 10, or 20 feet lengths.

Meets or exceeds requirements of ANSI ESD-S20.20 and ESDA Standard 1.1-2006

Applications:
ESD constant monitors reduce production costs by eliminating the time spent on testing wrist straps. Further savings may be realized by reduced ESD damage from broken wrist straps and work surface failures. Resistance based monitors are the most accurate technology available.

www.transforming-technologies.com
RangerTWO CM1602

The Superior Resistance Monitoring System

Workstations using resistance monitors are almost never at risk for a failed ground connection. This type of monitor is used with a two-wire (dual conductor) wrist strap. When a person is wearing a wrist strap, the monitor observes the resistance of the loop, consisting of a wire, a person, a wristband, and a second wire. If any part of the loop should open (become disconnected or have out of limit resistance), the circuit will go into the alarm state.

An important feature of the dual wire wrist strap is that even if one conductor is severed, the operator has reliable path-to-ground with the other wire.

Basic systems use impedance technology and single wire wrist straps which can be easily fooled. If a wrist strap is worn incorrectly, the monitor can still register a “pass” condition or if the wire of the wrist strap is severed the workstation could be put at risk for ESD damage.

Model CM1602 Specifications

- **DC Power Supply:** 7-15 VDC, 100mA.
- **AC Input:** 100-240 VAC, 1A.
- **Temperature limits:** 50° F (10°C) to 122° F (50°C)
- **Adjustments:** No serviceable components; see periodic verification tools
- **Dimensions:** 3" W x 2" D x 1" H
- **Weight:** 6.8oz
- **Monitoring Capabilities**
  - 1 wrist strap and 1 work surface
- **Alarm Limits**
  - **Wrist Strap**
    - Low Resistance: 1.8 megohm.
    - High Resistance: 35 meg ohm.
  - **Mat Resistance**
    - 100 meg ohm.
- **Typical Operator Voltage at 10M:**
  - Max 0.1V (100mV)
- **Max Mat Voltage (open circuit):**
  - 0.2V (200mV)
- **Max Mat Voltage (alarm at 100M):**
  - 0.15V (150mV)

Unit Accessories

- FM1515: Work Surface Ground Cable
- FM1515CM: Monitor Ground Cable
- FM1515NR: Monitor To Work Surface Cable
- CM2800-REMOTE: Remote Jack Replacement
- CM-REMOTE-IR: Proximity Sensing Remote

About Transforming Technologies

Since 1998, Transforming Technologies has helped electronic manufacturing facilities to protect their products and processes from the many serious problems associated with static electricity.

Transforming Technologies offers a wide range of unique and outstanding products to detect, protect, eliminate and monitor electrostatic charges. Our products are integral components of an effective static control program.