

## A-401 Set: Universal ESD Cart and ESD Chair Resistance Checker

Measures the ability of an ESD Chair or ESD cart to discharge static electricity to an ESD floor or Floor mat.



**Fig. 1**



**Fig. 2**

### **Description:**

The A-401 Set allows quick verification of compliance with required standards for ESD-Safe carts and ESD-safe chairs in a matter of minutes. Compact and easy to use, it includes an A-400 Resistance Checker, 5 conductive plates, a 5 lb probe, and a set of cables.

**How to use the A-401 Set** to verify an ESD-safe Cart's compliance with standards:

1. Place four plates on the floor. Connect them with each other, the meter and a probe as shown in Fig 1.
2. Place the cart on the plates so that each wheel is in the center of a plate.
3. Move the Probe and the Meter to the top shelf of the Cart without disconnecting the wires (Fig 2).
4. Press the button in the center of the meter to read the resistance of the Cart's top shelf to the floor.  
It should read < 10e9

Note: You are testing the empty cart without any load. Under load, the cart's wheels will have better contact with the floor and the resistance of the top shelf to the ground will be lower than your reading during the test

5. Move the Probe to the next shelf and repeat the measurement.  
If the measurements of all shelves are within the required standard. your Cart is safe to use and will discharge static electricity when rolled on an antistatic floor.

Note: Cart compliance verification should be done as required by your Company Practices. The static safe wheels will collect dust from the floor which in time can form an insulative layer that electrically separates the wheel from the floor, preventing discharge of static electricity from the Cart to the floor.

**How to use the A-401 Set** to verify an ESD safe Chair's compliance with the standards:



**Fig. 3**



**Fig. 4**

1. Place five plates on the floor. Connect them with each other, the meter and a probe as shown in Fig 3.
2. Place the chair on the plates so that each wheel is in the center of a plate.
3. Move the Probe and the Meter to the seat of the Chair without disconnecting the wires (Fig 4).
4. Press the button in the center of the meter to read the resistance of the Chair seat to the floor.  
It should read < 10e9

Note1: You are testing an empty chair without any load. Under load, the chair wheels will make better contact with the floor and the resistance of the seat to the ground will be lower than your reading during the test.  
If the measurements are within the required standard your Chair is safe to use and will discharge static electricity when rolled on an antistatic floor.

Note2: The Chair compliance verification should be done as required by your Company Practices. The static safe wheels will collect dust from the floor which can form an insulative layer electrically separating the wheel from the floor preventing discharge of static electricity from the Chair to the floor.

**A-400 Checker features:**

- Measures surface resistance, surface resistance to ground, and point to point resistance.
- Easy to use. It is supplied with 2 cables for point to point resistance checks.
- Extended to 10e12 range of readings in ohms per square for surface resistivity measurements and in ohms for surface resistance to ground and point to point resistance.
- Portable and light. It uses 9-volt battery.



**Package includes:**

1. A-400 Universal Resistance Checker
2. Two lead wires for point to point measurements
3. A-SRP Set of two Resistance Probes, 5lb each.
4. Manual and Warranty Card
5. Certificate of Calibration
6. 9-volt battery

**Three functions of A-400 Universal Resistance Checker**

**A: Surface Resistance check**



Pair of electrodes to measure surface resistance

For Surface Resistivity Readings: Place the meter on the surface being tested and press the center button labeled TEST. If the LED labeled  $10^6$  illuminates, the test surface has a surface resistivity of  $10^6$  ohms per square or less. If the LED labeled “insulative” illuminates, the test surface has a surface resistivity greater than  $10^{12}$  ohms per square. (Be sure the ground wire is not connected through the ground jack when surface resistivity is measured.)

**B: Surface resistance To Ground check**



Ground jack used when measuring Surface to Ground Resistance

Place the meter on the surface being tested. Connect the meter to a known ground through the ground jack. Note: When the ground wire is connected through the ground jack, the meter will not measure surface resistivity. Press the center button labeled Test and the LED will illuminate to indicate the resistance to ground. If the LED labeled insulative illuminates, the resistance to ground of the surface under test is greater than  $10^{12}$  ohms.

**C: Point to point resistance check:**



Jacks to connect the wires for point to point resistance check (Wires are supplied with the unit)

Place the meter on a flat surface. Connect the two test wires supplied with the meter to the jacks on the top of the meter (jacks shown on the picture on the left). Connect the other side of the wires (crocodile clips) to the two points between which the resistance is to be checked.

Press the center button labeled Test and the LED illuminates to indicate the resistance between these two points.

If the LED labeled “insulative” illuminates, the resistance between the two points is greater than  $10^{12}$  ohms.

### Technical specifications:

Range	Automatic form $10^3 \Omega/Sq$ to $10^{12} \Omega/Sq$ for Surface Resistance check and $10^3 \Omega$ to $10^{12} \Omega$ for Surface to Ground and Point to Point check
Display	LED's - one per decade.
Accuracy	$\pm 10\%$
Changeover Point	$\frac{1}{2}$ decade on a logarithmic scale ( $3.16 \times 10n$ )
Changeover Point Accuracy	$\pm \frac{1}{2}$ decade
Power	9-volt battery. Battery Life over 40 hours of continuous use
A-400 Dimensions	2.40" x 1.02" x 3.78" (61mm X 26mm X 96mm)
A-400 Weight	6 ounces (170g)
A-SRP Dimension	$\varnothing 2.56"$ x 4.8" height ( $\varnothing 65mm$ x 122mm height)
A-SRP Set weight	10 lb, (2x 5 lb each) (4.52 kg, 2.26kg each)
Packaged weight	15 lb (6.8 kg)

#### NOTE

Bottom/Red Light on the tester indicates BATTERY LOW.  
Test is not valid when this light is on.



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