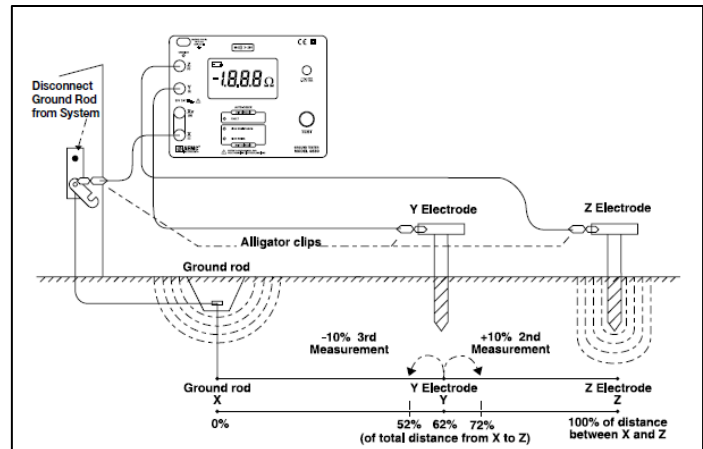


# Measuring Ground Resistance with the 62% Method

Ground resistance is a measurement of the conducting connection between a grounding system and earth. The goal is LOW RESISTANCE TO GROUND. Ground resistance depends on grounding electrode selection, soil resistivity, soil contact, and other factors. The 62% Method (aka Simplified Fall of Potential Test) is one way you can measure the ground resistance at your site.

This test requires a 3-point ground resistance tester such as AEMC's 4620 or 4630 Ground Resistance Tester.

To perform the 62% Method test, you position one of the electrodes that comes with the ground resistance tester in a straight line out from the grounding point that you want to test. Then you place the other electrode at 3 separate increments based on the total distance between the grounding point and the farthest electrode. You take a reading at each of these increments, and then compare the variation between the readings to determine the ground resistance.



## Setting Up the Equipment for the Test

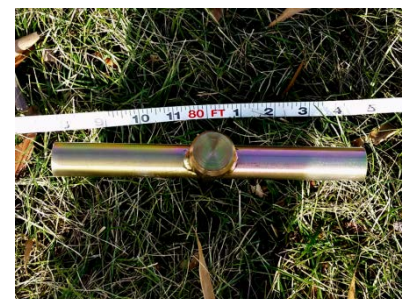
1. Go to the location of the grounding point that you want to test.
2. Isolate the grounding point by disconnecting it from the rest of the system.

**Example:** When testing a two-wire grounding point, disconnect the lightning arrestor. When testing the controller ground, disconnect it from the system ground.

3. Lay out the tester, the wire spools, and the electrodes.
4. If you are using an AEMC Ground Resistance Tester for the first time, attach a spade lug to the end of the green wire lead and on one end of the short red and blue wire leads.

**Note:** You can attach the spade lug to either end of the wire, but you might need to apply some pressure in order to push the spade lug into the connector on the end of the wire.

5. Loosen the terminals on the tester slightly. Slide the spade lugs on the wire leads under their corresponding terminals, and then retighten them.
6. Plug the other end of the red and blue wire leads into the spools.
7. Attach the alligator clip on the green wire to the grounding point that is being tested. This is considered to be **electrode X**.



## Measuring Ground Resistance with the 62% Method

- Position **electrode Z** out approximately **10x** the depth of the grounding point.

**Example:** If you are testing an 8ft ground rod, the location for electrode Z is 80ft from the ground rod.

- Push **electrode Z** into the ground, and then attach the alligator clip on the red wire to the electrode. Electrode Z remains in this position for the duration of the test.
- Calculate the 52%, 62%, and 72% increments from electrode X to electrode Z.

**Example:** If electrode Z is 80ft away from the electrode X (the grounding point being tested), the increments are as follows:

$$52\% = 41.6\text{ft (round up to 42ft)}$$

$$62\% = 49.6\text{ft (round up to 50ft)}$$

$$72\% = 57.6\text{ft (round up to 58ft)}$$

- Measure from the grounding point to the 52% location.
- Push **electrode Y** into the soil at the 52% location, and then attach the alligator clip on the blue wire to the electrode.
- Turn on the tester.
- Press and hold the **Test** button on the tester. Hold the button down for approximately 5 seconds while the readings stabilize. The final number is the ground resistance reading.
- Record the reading along with the sequence, distance, and increment.



Sequence	Distance	Increment	Reading
1st	42'	52%	15.61
2nd	50'	62%	
3rd	58'	72%	

- Measure from the grounding point to the 62% location.
- Move **electrode Y** to the 62% location. Make sure the alligator clip on the blue wire remains connected.
- Press and hold the **Test** button on the tester. When the readings stabilize, record the number.
- Measure from the grounding point to the 72% location.
- Move **electrode Y** to the 72% location. Make sure the alligator clip on the blue wire remains connected.
- Press and hold the **Test** button on the tester. When the readings stabilize, record the number.
- Compare the readings. If the values are within a few ohms (less than 3% change), use the average of the 3 readings as the effective resistance for that grounding point.
- Disconnect the alligator clips from the electrodes, and return the test equipment to the carrying case.
- Reconnect the grounding point that you tested.