

Field Testing for Cables Rated 2 kV or Less, Non-Shielded Insulation Resistance Testing

BACKGROUND

It may be necessary to verify that the conductor insulation integrity has not been compromised, either due to handling and installation or use. For cables rated 2 kV or less without an insulation shield, an insulation resistance test (better known as a "Megger" test) is used. This test, when performed properly, will not cause any undue electrical stress on the conductor insulation. This type of a test is a "GO" or "NO GO" type of test.

INSULATION RESISTANCE TEST VALUES

Below is a table of the minimum and maximum test voltages for each cable voltage rating, along with the minimum insulation resistance value that is to be measured for each.

Conductor Voltage Rating	Test Voltage		Minimum Insulation Resistance Value
	Minimum	Maximum	
600 V	500 VDC	600 VDC	100 M
1 kV	1 kVDC	1 kVDC	100 M
2 kV	1 kVDC	2.5 kVDC	100 M

It is important to note the following:

- 1) The test duration should be at least 60 seconds, with the measured insulation resistance stabilizing within this time frame.
- 2) The minimum insulation resistance values are based on 1,000 ft of cable, with a conductor insulation temperature of 60 F (15.6 deg C). Longer lengths will result in a lower measured insulation resistance. Higher conductor insulation temperature will result in a lower measured insulation resistance.
- 3) Other factors that affect the measured insulation resistance include (but are