SolarTech Power Solutions

Wind power ground resistance measurement at communication base stations

Overview

What is a good resistance value for a ground grid connection?

The resistance value of such connections should be very low (100 μΩ or less). The most effective way to complete ground grid connections integrity tests is to use a large but practical current and some way of measuring the voltage drop caused by this current. There is a test set to conduct this measurement using AC current.

What are the elements of grounding resistance?

Grounding resistance is comprised of the following elements: Electrode resistance and resistance of its connection. Ground resistance immediately surrounding the grounding electrode or resistivity of ground. Typically, this is the major factor. Contact resistance of the surrounding ground to the electrode. Figure 1.

What is the effective resistance area of a grounding electrode?

The distance at which this effect happens is known as the effective resistance area and it directly depends on the depth of the grounding electrode. When ground fault current goes from a ground rod to earth, it dissipates in all directions through a series of concentric spheres or shells.

What is the maximum range of ground resistance?

Typically, the maximum range is 30 A. If the ground current surpasses 30 A, ground resistance measurements cannot be done and there is no need to proceed with any further measurements. Once ground current is measured, choose the ground resistance range Ω and measure the resistance directly.

Why is the resistance of a grounding electrode higher?

The only element that remains is the resistance of the surrounding ground. The electrode can be looked at as being surrounded by concentric shells of ground, all of the same thickness. The closer the shell to the grounding

electrode, its surface area is smaller. Therefore, its resistance is higher.

How do you measure ground resistance?

In theory, the ground resistance needs to be measured up to infinite distance from the ground rod. Nevertheless, for practical purposes, the effective cylinder of ground (shells) that contributes the major portion of the ground resistance is two times the length of the ground rod.

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