

# AEMC's NEW Clamp-On Ground Testers Model 6416 & 6417

Clamp-on Ground resistance testing is a trusted test method that has been in use for more than 20 years. AEMC instruments, the leading supplier, pioneered the technology into its present form over these last 20 years. The latest AEMC product introduction, models 6416 and 6417, are the fourth generation of improvements and upgrades and have significant advantages compared to all other clamp-on ground resistance testing products available. These advantages were developed as a direct result of hands-on support and extensive application knowledge from thousands of units in customer use that are employed in a wide variety of applications including the areas of communication, power, mining, industrial and residential ground resistance testing.

AEMC's Clamp-On Ground Resistance

Testers, Models 6416 and 6417 have the ability to measure grounding electrode and grid resistance without the use of auxiliary rods or the need to disconnect and isolate the system being tested. There is also no need to de-energize the facility associated with the test. This provides both a safer testing environment as well as elimination of down time for the customer. The models 6416 and 6417 simply clamp around the ground conductor or rod and employing a transmitter/receiver system built into the jaws of the clamp which provides the ability to measure the resistance to ground. By performing measurements on intact ground systems, the user also verifies the quality of the grounding connections and bonds throughout the grounding system that is tested. Resistance and continuity of grounding loops around pads and build-

ings may also be measured.

Ground loop resistance can often be mistaken for a low resistance good ground. Now the trained user can set an alarm in these new meters that will indicate this condition as a loop resistance both visually and audibly and not a true ground resistance measurement thus insuring that false conditions are not documented as earth grounds.

Both models also include a high sensitivity current measurement function. This feature enables measurement of leakage current flowing to ground or circulating in ground loops from as low as 200 microamps to as high as 40 Amps with resolution down to 1 microamp. The resistance measurement range is from 0.01 to 1500 ohms. To assist the operator in decision making, the current and

Continued on page 22



resistance readings are both displayed simultaneously (see figure 1) on the multi-line organic liquid crystal display (OLED) screen eliminating the need to run separate tests. This bright display is easily readable in the dark or in full direct sunlight, a feature not attainable on standard LED displays. Additionally it offers wide, 180 degree, peripheral viewing that facilitates reading the test results in areas where the meter is at a difficult viewing angle.

Another significant feature is the ability of the models 6416 and 6417 to determine contact voltage at the test point providing a level of safety for the operator not found in other clamp-on ground testers. This voltage is displayed and can also provide an audible signal based on a user programmable alarm set point. Additionally alarms set points are available for resistance and cur-

rent levels. This alarm feature also permits quick field checks where only “pass” or “fail” readings are required.

Yet another unique feature found only in the AEMC product offering is the ability for the operator to select a test frequency, choosing from 50, 60, 128 or 2,083 Hz. This provides significant improvement in the accuracy of readings in environments where inductive values can affect the test result. It also lets the operator see the test results at normal system operating frequencies (i.e. 50 or 60Hz) and run comparative tests with the fall-of-potential method which is typically conducted at a

frequency of 128 Hz.

Both models provide the ability to store time and date stamped test results of all measurements (resistance, current voltage, test frequency and inductance) that can be reviewed at a later time. The model 6416 can store 300 tests while the



FIGURE 1



6417 can store up to 2000 tests. The model 6417 also adds wireless Bluetooth communication to a PC, smartphone or tablet PC. Software is provided with the unit and an Android platform application is available through normal app store download. This expands the operator's access to the stored data, real-time measurement, as well as the ability to configure the instrument and enables the user to email or text message the results to others. AEMC's DataView® software is included facilitating transferring stored data to the PC, real-time display, analysis, report generation and system configuration. The smartphone/tablet PC app provides the ability to see the test results real-time in locations where the meter has to be clamped around a ground conductor in a way that the visual access to the display is not possible, such as in ground wells commonly referred to as flower pots. A side benefit of the smartphone/tablet PC application is the ability to geolocate the test site to include in reports.

These feature rich clamp-on ground testers advance the ability to obtain accurate results in today's demanding environments and employ the most up-to-date way to communicate the results and create reports making the task of conducting ground resistance surveys quick, easy and cost effective. □