

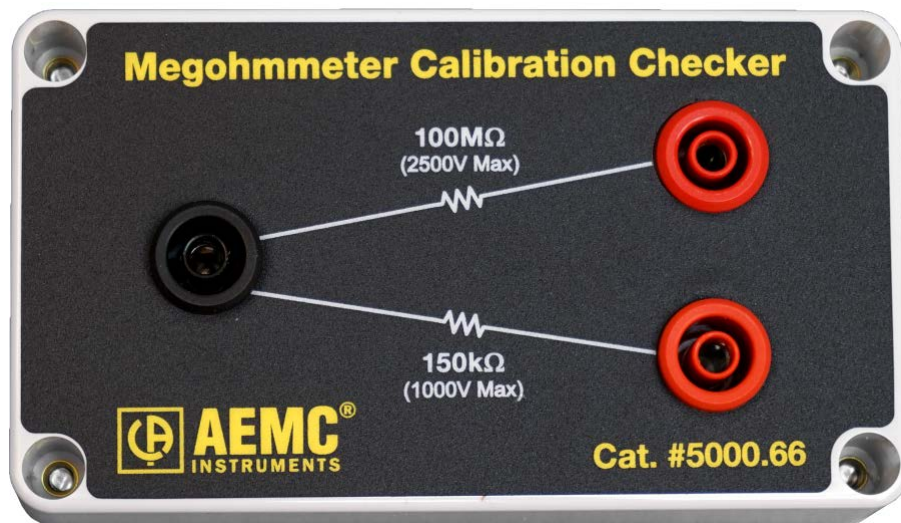
Megohmmeter Calibration Checker and Ground Resistance Checker

All electronic measurement instruments should be checked regularly for accuracy. Over time, an instrument's measurements may drift from their original factory settings. Periodically checking the readings against a known value can identify whether or not the instrument is still producing accurate results, or whether it may need to be sent to an authorized facility for recalibration.

In this Application Note, we look at two handy tools provided by AEMC for checking the accuracy of resistance measurement instruments. One is the Megohmmeter Calibration Checker and the other is the Ground Resistance Checker. Both let you quickly and easily verify whether or not your instrument is performing within its measurement specifications. (Note that these tools are not designed to calibrate instruments.)

Megohmmeter Calibration Checker

The Megohmmeter Calibration Checker provides two known resistances, 150k Ω and 100M Ω . The k Ω terminal accepts test voltages up to 1000V, while the M Ω terminal accepts inputs up to 2500V.



To run a test with the Megohmmeter Calibration Checker:

1. Use the leads supplied with your megohmmeter to connect the Checker's black terminal to the megohmmeter's negative terminal, and the red 150k Ω terminal to its positive terminal.
2. Turn the megohmmeter's dial to the k Ω setting and perform a test, as instructed by the instrument's User Manual. The resistance reading appears on the instrument's display screen. This should be close to 150k Ω .
3. Next, disconnect the lead from the 150 k Ω terminal and insert it into the 100M Ω terminal.
4. Turn the megohmmeter's dial to a 100M Ω setting. Any voltage setting at or below 2500V will work. Perform a test. The reading should be close to 100M Ω .

Ground Resistance Checker

Now we'll demonstrate the Ground Resistance Checker. This provides test resistances for the measurements R_E (X), R_H (Z), and R_S (Y). The R_E resistance is 5Ω or 25Ω , depending on switch position. The R_H and R_S resistances are both 100Ω .

To perform a test:



1. Connect the Ground Resistance Checker to the instrument. The leads are color-coded to match the terminals on AEMC's ground resistance testers; match each lead's color to the appropriate instrument terminal color. If required by your instrument's terminals, use the four fork terminals supplied with the Ground Resistance Checker to facilitate connection to binding posts.
2. Turn the Ground Resistance Checker's switch to the left to set the R_E resistance to 25Ω . Then turn the instrument's dial to a setting that displays R_E , R_H , and R_S . For some instruments this is the 4 Pole setting, for others, such as the Model 6472, this is the 3+1 Pole setting.
3. Hold down the START button for two seconds. After a few moments the R_E , R_H , and R_S readings appear on the display screen. The R_E reading should be within $\pm 2\%$ of 25Ω . The R_H and R_S readings should be within $\pm 3\%$ of 100Ω .
4. Turn the switch on the Ground Resistance Checker to the right to set the R_E resistance to 5Ω . Hold down the START button and take a measurement. The R_E reading should be within $\pm 2\%$ of 5Ω .

Note that you can also use the Ground Resistance Checker to perform a 4-Pole milliohm test.