

ESR60 and ESR70 Probe Compensation and Calibration Verification

Rev1. 11/02/2010

Models:

ESR60
ESR70 (ESR Plus)

Firmware Versions:

R3.0 and later

Items required:

ESR60/70 with gold croc probes
Fresh GP23A battery (or equiv)
1Ω 1% resistor
10Ω 1% resistor

Probe Compensation:

1. Ensure a good battery is installed in the instrument. Voltage (when unit is off) should ideally be >11.75V. Important self-tests are not performed if the battery is very low.
2. Ensure probes are gold plated croc probes and in good condition.
3. Clip each probe to each other as shown here:



4. Press and hold the “**on-test**” button until the message **Probe Compensation** is displayed. Note that it may take several seconds for the message to appear. Release the button.
5. As the probes are already shorted together, briefly press the “**on-test**” button when prompted.
6. The instrument should then display **OK** and switch off.

Calibration Verification:

The ESR60 and ESR70 are designed specifically for the measurement of ESR. It is the accuracy of the ESR measurement that will be verified here.

1. Clip each probe to each other (as before).
2. Briefly press “**on-test**”.
3. Verify that the displayed ESR value is between 0.00Ω and 0.02Ω inclusive.
4. Clip probes to a clean 1Ω 1% resistor. Ensure clips are fairly close (but not touching) the resistor body.
5. If the test did not start automatically*, briefly press the “**on-test**” button.
6. Verify that the displayed ESR value is between 0.96Ω and 1.05Ω inclusive.
7. Clip probes to a clean 10Ω 1% resistor.
8. If the test did not start automatically*, briefly press the “**on-test**” button.
9. Verify that the displayed ESR value is between 9.6Ω and 10.5Ω inclusive.



*Firmware R4.1 and later supports automatic analysis start upon the connection of a component (if the instrument is powered up). Older firmware requires a press of the **on-test** button to start an analysis.

Summary ESR measurement accuracy source data (ESR60 user guide Rev2 and later):

Test Resistor	Resistor Tolerance	Min Resistance	Max Resistance	Instrument Tolerance	Instrument Resolution	Min acceptable reading	Max acceptable reading
0.00	0%	0	0	1.50%	0.02	-0.02	0.02
1.00	1%	0.99	1.01	1.50%	0.02	0.96	1.05
10.00	1%	9.9	10.1	1.50%	0.2	9.6	10.5