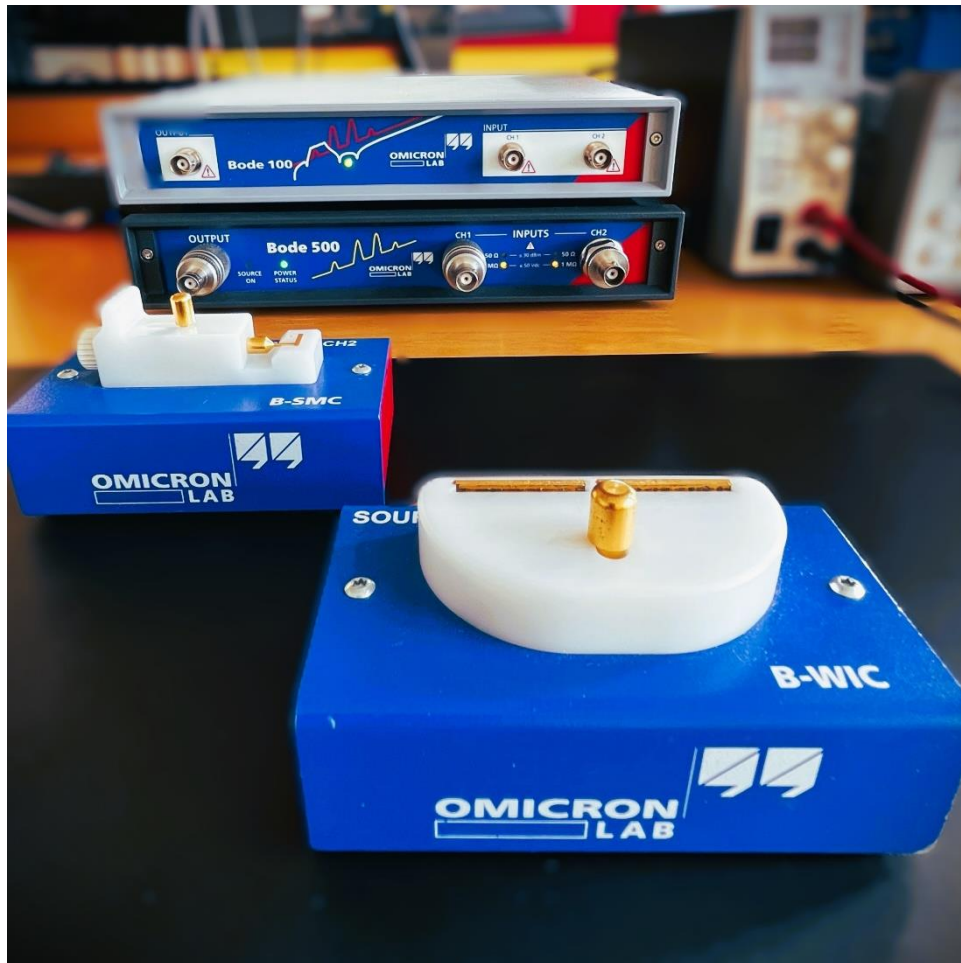


B-WIC & B-SMC - Information Note

Functionality Check of B-WIC & B-SMC



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1 Prior Information

The following checks will help you to determine whether your B-WIC and B-SMC are working correctly or needs to be replaced/repaired.

Note:



It is assumed that the user manual of the Impedance Test Fixtures (B-WIC & B-SMC) and the Bode 100 were read and understood before the measurements described in this document are executed. If you do not have a manual at hand, you can download it on our webpage <https://www.omicron-lab.com/>.

2 Required Equipment

Digital multimeter: **KEITHLEY 2100 6 ½ Digit Multimeter or equivalent.**

To connect the digital multimeter, use one of the following configurations:

- Banana-to-BNC adapter and coaxial cable, or
- Banana cables and Banana-to-BNC adapter, as shown in Figure 1a and Figure 1b.



a) Banana-to-BNC adapter and coaxial



b) Banana cables and Banana-to-BNC adapter

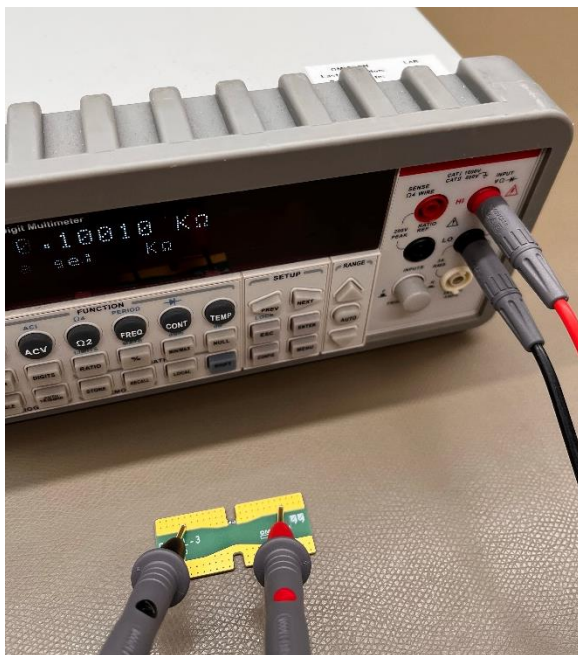
Figure 1: Different options for connecting the digital multimeter to the B-WIC & B-SMC.

Please note the **DC resistance** of the cables and adapters can impact your measurement results.

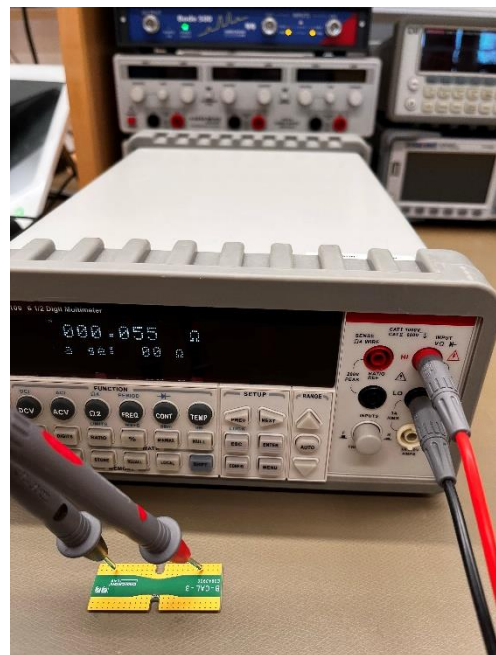
3 Test Procedure

3.1 Test on the B-CAL-3 Calibration Board

- Clean the connection pads with a cloth dampened with isopropyl alcohol.
- Perform a visual inspection for any wear or oxidation.
- Measure the DC resistance on the Load-Side. The expected value is **100 Ω** .
- Measure the DC resistance and conductivity on the Short-Side. The expected resistance value is approx. **< 100 m Ω** .



a) Load DC resistance



b) Short DC resistance

Figure 2: B-CAL-3 DC resistance

3.2 Testing the Short State

B-WIC:

- Clean the electrodes pads with a cloth dampened with isopropyl alcohol and inspect for signs of oxidation.
- Insert the short side of the B-CAL-3 into the electrode slots.
- Connect the SOURCE BNC terminal of the B-WIC to the digital multimeter and measure the DC resistance.

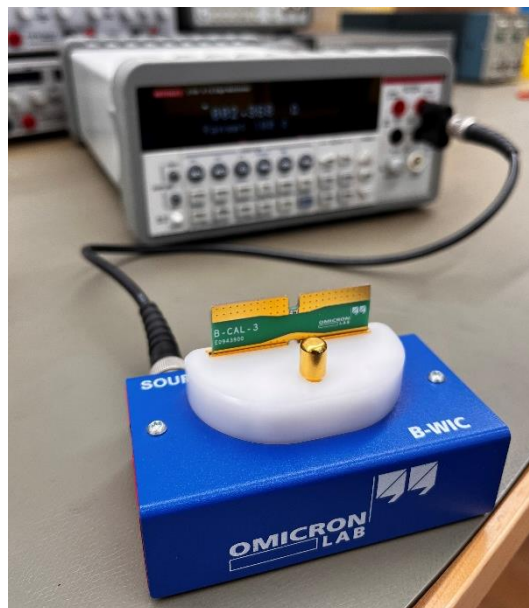


Figure 3: B-WIC shorting the electrodes.

B-SMC:

- Clean the electrode needle and pad with a cloth dampened with isopropyl alcohol and inspect for signs of wear or oxidation. wear or oxidation signs.
- Loosen the knurled nut until the needle touches the electrode pad.
- Connect the SOURCE BNC terminal of the B-SMC to the digital multimeter and measure the DC resistance.

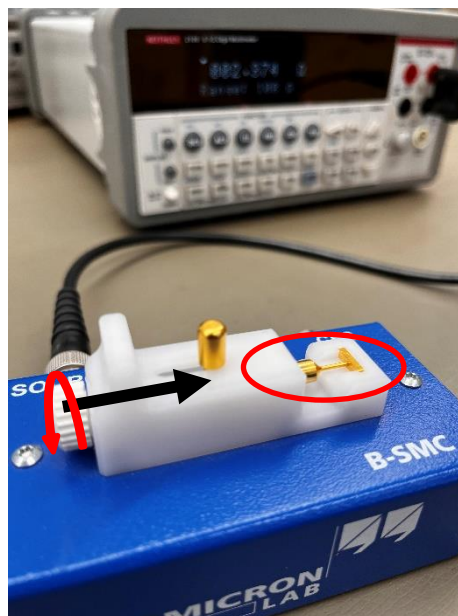


Figure 4: B-SMC shorting the electrodes.

In both cases (B-WIC or B-SMC), the expected resistance at SOURCE is: $2.35 \Omega \pm 0.1\Omega$

3.3 Testing the Open State

B-WIC:

- Remove the B-CAL-3.
- The electrodes should be closed. The B-WIC is now in an open state (see Figure 5a).

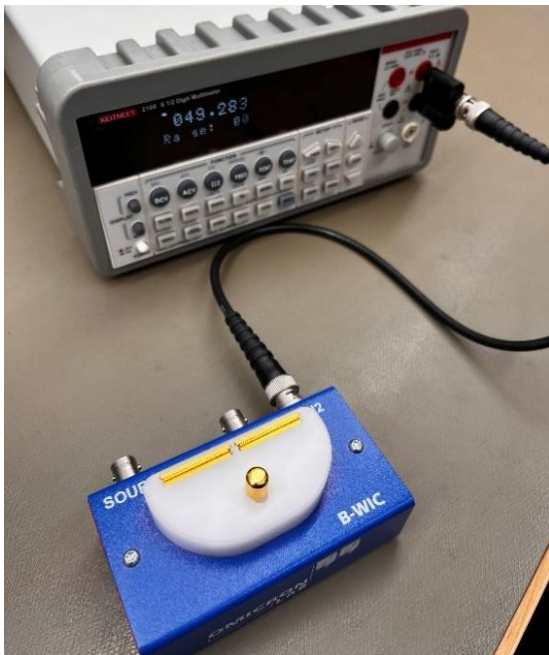
B-SMC:

- Adjust the knurled nut to set the distance between the electrode needle and the pad according to the DUT size, compensating for stray capacitance (see Figure 5b).

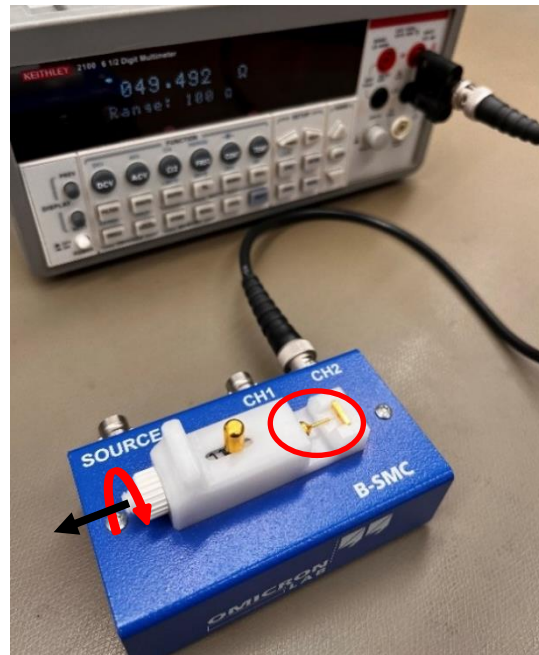
For both cases (B-WIC and B-SMC), measure the DC resistances for CH1, CH2 and Source. The expected results are shown in the following table:

Table 1: Expected resistance values

| Connector | Expected Resistance |
|-----------|---------------------------------|
| SOURCE | 1047 Ω \pm 20 Ω |
| CH1 | 47 Ω \pm 1 Ω |
| CH2 | 49.2 Ω \pm 1 Ω |



a) B-WIC DC resistance in Open State



b) B-SMC DC resistance in Open State

Figure 5: Measuring DC resistance at CH2 in Open State.

4 Repair / Replacement Handling

If one of the tests fails, please get in contact with the OMICRON Lab support team via: support@omicron-lab.com or check our website at www.omicron-lab.com/contact/support/





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