

4-Wire Resistance Measurement by Kelvin Coaxial Probes

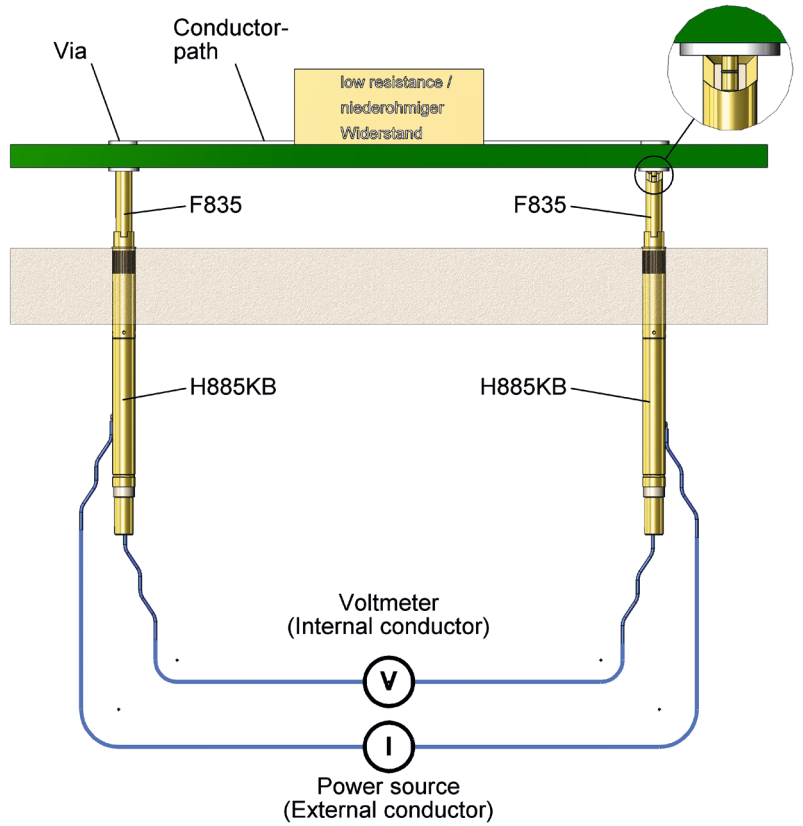
The Kelvin Method

A Kelvin probe is a coaxial contact probe with two electrically insulated measuring circuits. The typical 4-wire-method is based on a constant current, flowing through the test resistance and the measurement of the resulting drop in voltage, which is directly proportional to the resistance value.

According to $I = \text{constant}$ and because of the very high internal resistance of the voltmeter, the cable and contact resistances are not influencing the measuring result. This leads to high accuracy of this measuring method.

The contacting for current source and voltmeter is realised by two Kelvin probes, ideally located very close to the device under test. The constant current usually is carried by the outer conductor (force signal), while the voltage drop is detected by the inner conductor (sense signal).

The inner and outer conductors of FEINMETALL Coaxial Probes are independently spring loaded in order to balance mechanical tolerances and heights.



Application Note F820

Depending on the shape of the DUT the travel of inner contact and ring contact might be different. As soon as the ring contact is pushed in, the inner contact is carried along. This might lead to other travels and spring forces than the nominal values.

