Newtons4th Ltd
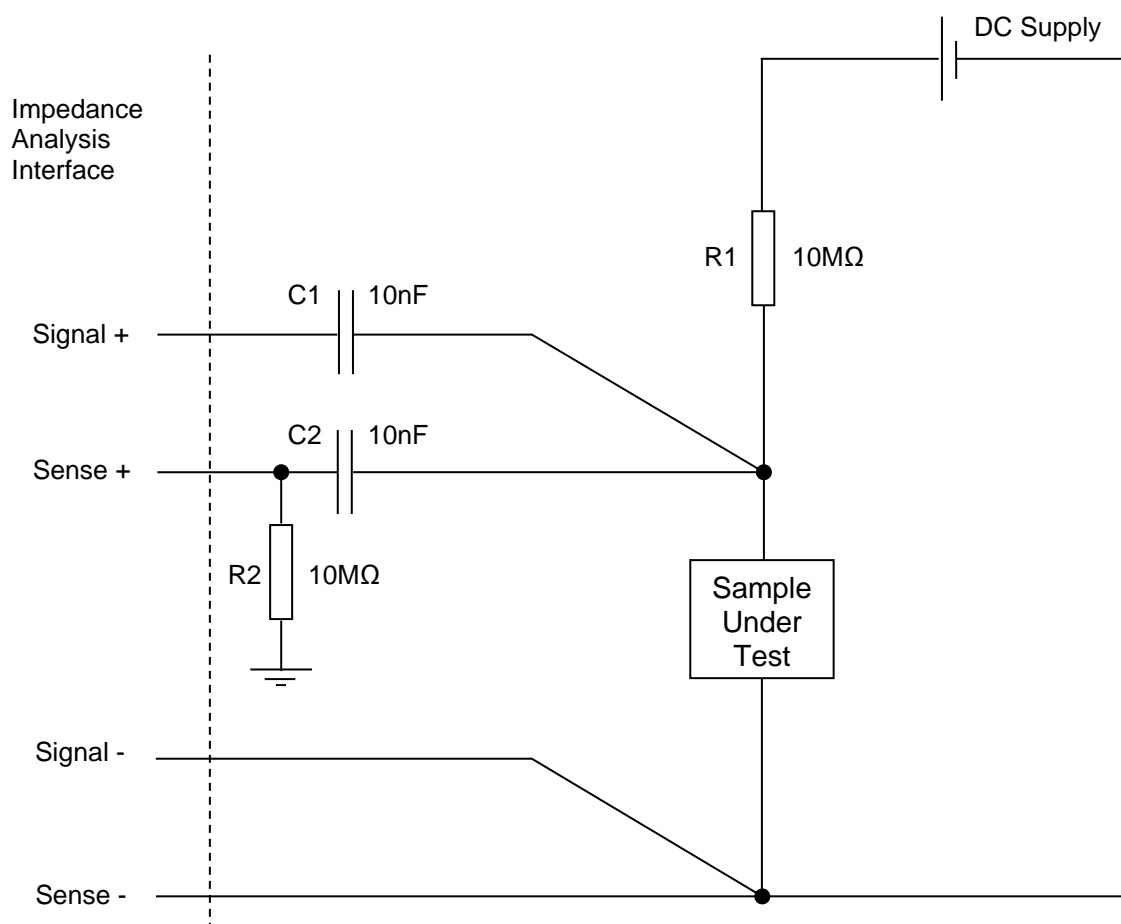office@newtons4th.com
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APPLICATION NOTE 44
PSM Series Impedance analysis with an external DC bias

With direct connections to a sample, a PSM1700/35 + IAI impedance analysis system provides wide bandwidth AC impedance measurements in the presence of a DC component, but the dc component cannot exceed the internal generator level of ±10V DC.

To make impedance measurements in the presence of a larger DC level, it is necessary to use an external circuit that will block the dc component from the measurement instrument while allowing the ac component to be measured.

The following diagram illustrates a circuit that will provide DC blocking, a capacitor discharge path and DC source resistance. DC voltages up to the rated voltage of the capacitors can now be used.

The recommended component values in this circuit are appropriate for a Sample Under Test that exhibits an impedance less than 10MΩ over the test frequencies being used. It is important to remember that open/short circuit sweep compensation should be applied to minimise the effect of the test circuit on impedance measurement results.