

Impedance bridge does not measure impedance

I must comment on the Impedance Bridge in Circuit Notebook on page 70 of the March issue. I realise that this is not your circuit but one look at the actual bridge circuit shows that it can only be used for resistance measurements (much simpler to do with an ohmmeter). If the unknown is in any way reactive, the bridge will not balance, or be correct.

For instance, if the unknown is a pure reactance of half the value of the multiplier (ie, an impedance ratio of 2:1), the minimum balance

reading (which will be very broad and some 40% of the input voltage) will occur at a 4:1 ratio of the range switch.

As is well-known, impedance bridges must have a compensating reactive component in one of the branches. Even for resistance measurements there is a problem as, with the values shown, the maximum resistance that can be measured is 10k Ω ! And of course, no need for choice of frequency. Sorry to spoil the effort.

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