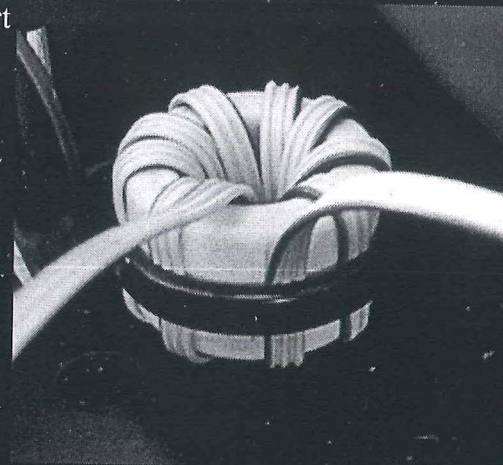


- Can I really measure impedances on symmetrical (open) line while the analyzer is essentially asymmetric?
- Do I need to use some sort of BALUN?

To begin with the last question, no you don't need a balun. In fact a balun will distort the measurement and is not effective if the line impedance is high. The simple trick is to keep the analyzer floating. That is why it should be battery operated. Although the analyzer circuit itself has some capacitance (with respect to ground) in most cases it is low enough to prevent any problems. I would advice to build the analyzer in a plastic housing (not a metal one) and keep it away from big metal structures during measurements.



A special case however is when you want to connect the analyzer to a computer to do a frequency scan. The RS232 connection will prevent the analyzer from floating and will cause measurement errors if no measures are taken to isolate (for HF) the instrument from the computer. I have done this by winding the (internal) wiring to the RS232 connector on a ferrite core. The best practice is to use a high permeability (μ) core. This will insert a HF resistance rather than an inductance into the RS232 connection. The resistance is almost constant over the entire frequency range and in my case exhibits a resistance level of well over $1k\Omega$. This is normally high enough to keep the analyzer properly floating.

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