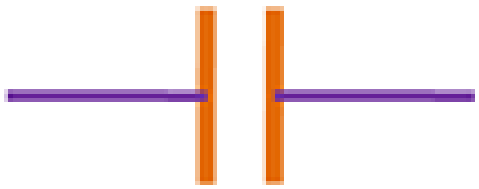
Fundamentals of Industrial Measurement Technology

Capacitance and Inductance Measurement



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Measuring capacitance and inductance is tricky.

You cannot measure them with a simple DC excitation. Instead, a sinusoidal signal must be used, and the instrument evaluates phase shift.

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Choose the frequency where the given impedance is dominant.

- large capacitance → lower frequency
- small capacitance → higher frequency

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The cable length is another major challenge!

1. You cannot use the standard 50 cm crocodile-clip in an industrial test system.
2. The length of the cable between the instrument and the probe fixture is 1-3 m.

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How to improve measurement accuracy?

- Equal-length wires
- Twisted pairs for source–sense lines
- Low-frequency multiplexing
- Pre-validation with the final cable length

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