

## DATA SHEET

### MODEL 7010B



### High Voltage Capacitance Bridge

- Automatic Balancing
- Current Comparator Technology
- 3-4 Terminal Measurements
- Lead Compensation Circuit
- Overall Accuracy 20 ppm
- Range Extension Option with 7020H

### MODEL INFORMATION

The Model 7010B offers a wider capacitance range and increased voltage sensitivity. Minimum voltage sensitivity for full scale accuracy is 100 volts. The 7010B is a microprocessor controlled, metrology based, high voltage capacitance bridge. Its operation is fully automatic. A large vacuum florescent display presents relevant measuring quantities such as capacitance (Cx) and dissipation factor (Tan $\delta$ ). Easy to use front panel keyboard menus allow the operator to select the number of readings for statistical analysis of uncertainty calculations at the 95% (2s) level. All measured parameters can be transmitted over the IEEE488 interface for storage to a computer.

The model 7010B is a capacitance bridge with a ratio of 1000:1 making it ideal for both low and high voltage applications. The automatic self-balancing feature facilitates the use of the bridge for accurate load loss measurements of large high voltage inductive loads. The 7010B may also be used for calibration of precision standard capacitors, tan-delta measurements and of precision potential transformers. Overall accuracy is

<20 ppm in magnitude and phase. The technology is based on the two-stage-current-comparator-principle. The 7010B has a capacitance ratio up to 1000:1 and dissipation (loss tangent) of 0 to 10% with a resolution of 1 ppm. To accommodate capacitance ratios larger than 1000:1 an additional two stage range extender, model 7020H, may be added to increase the ratio to 1,000,000:1. All connections are made on the rear of the instrument. The model 7010B is fully protected against transients.

The effect of lead and winding impedance on the measurement accuracy has been reduced by means of a built-in lead compensation circuit.

**Applications:**

Shunt Reactor Loss Measurements	Power Transformer Measurements
Calibration of Potential Transformers	Calibration of Low Voltage Std. Capacitors
Calibration of High Voltage Dividers	Calibration of High Voltage Power Capacitors
Inductance Measurements	Measurement of Low Loss, High Voltage Power
Loss Tangent Measurements to 10%	Corona Loss Measurements
Insulator and Dielectric Testing	

**Specifications:**

<b>Capacitance Range</b>	Cs: 10 pF to 10,000 pF Cx: 10 pF to 10,000,000 pF (10 uF)
<b>Capacitive Ratio 1:1 to 1000:1</b>	Ns: 0 to 1.11110 in steps of 0.000001 Nx: 1 to 1000 in steps of 1, 2, 5
<b>Primary Current</b>	10 Amp Maximum
<b>Secondary (Cs) Current Range</b>	1uA to 10mA
<b>Dissipation Factor Range</b>	0 to 10% in steps of 0.000001
<b>Inductance Range</b>	700mH to 700000H (Q factor > 10)
<b>Test Frequencies</b>	50 and 60 Hz
<b>Accuracy</b>	Ratio: ± 20 ppm for all Cx Ratios
<b>Loss Angle</b>	±1% of Reading ±10 ppm
<b>Display</b>	Large Vacuum Florescent
<b>Reading Update</b>	1 Second
<b>Warm Up Time</b>	< 5 Minutes to Full Rated Accuracy
<b>Operating Environment</b>	18 to 34°C, 10 to 80% RH
<b>Operating Power</b>	100, 120, 220, 240V - 50/60 Hz
<b>Product Details</b>	
<b>Dimensions:</b>	545 x 435 x 355 mm
<b>Weight:</b>	41 kg
<b>Shipping Weight:</b>	50 kg
<b>Warranty</b>	1 Year Parts & Labor

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