# MODEL 7010C

## *High Voltage Capacitance Bridge*


- Automatic Self Balancing
- Current Comparator Technology
- 2-3 Terminal Measurements
- Lead Compensation Circuit
- Overall Accuracy 15 ppm
- Range Extension Option with 7020

## MODEL INFORMATION

The Model 7010C offers a wider capacitance range and increased voltage sensitivity. Minimum voltage sensitivity for full scale accuracy is 100 volts. The 7010C 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 (Tanδ). 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 7010C 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 7010C may also be used for calibration of precision standard capacitors, tan-delta measurements and of precision potential transformers. Overall accuracy is <15 ppm in magnitude and phase. The technology is based on the two-stage-current-comparator-principle.

The 7010C 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 7020, may be added to increase the ratio to 2,000,000:1. All connections are made on the rear of the instrument. The model 7010C 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:

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| 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:

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| Capacitance Range | Cs: 10pF to 10,000pF<br>Cx: 10pF to 10,000,000pF (10µF) |
| Capacitive Ratio 1:1 to 1000:1 | Ns: 0 to 1.11110 in steps of 0.000001<br>Nx: 1 to 1000 in steps of 1, 2, 5 |
| Primary Current | 10 Amp Maximum |
| Secondary (Cs) Current Range | 40µA to 10mA |
| Dissipation Factor Range | 0 to 10% in steps of 0.000001 |
| Inductance Range | 700µH to 700000H (Q factor > 10) |
| Test Frequencies | 50 and 60Hz |
| Accuracy | Ratio: ±15 ppm for all Cx Ratios |
| Loss Angle | ±1% of Reading ±10 ppm |
| Display | Large Vacuum Florescent |
| Reading Update | 1 Second |
| Warm Up Time | < 5 Minutes to Full Rated Accuracy |
| Operating Environment | 18 to 34°C, 10 to 80% RH |
| Operating Power | 100, 120, 220, 240V - 50/60Hz |

## Product Details

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| Dimensions | 545 x 435 x 355 mm |
| Weight | 41 kg |
| Shipping Weight | 50 kg |
| Warranty | 1 Year Parts & Labor |



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