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(54) Title: INTEGRATED MEASUREMENT SYSTEMS AND METHODS FOR SYNCHRONOUS, ACCURATE MATERIALS PROPERTY MEASUREMENT

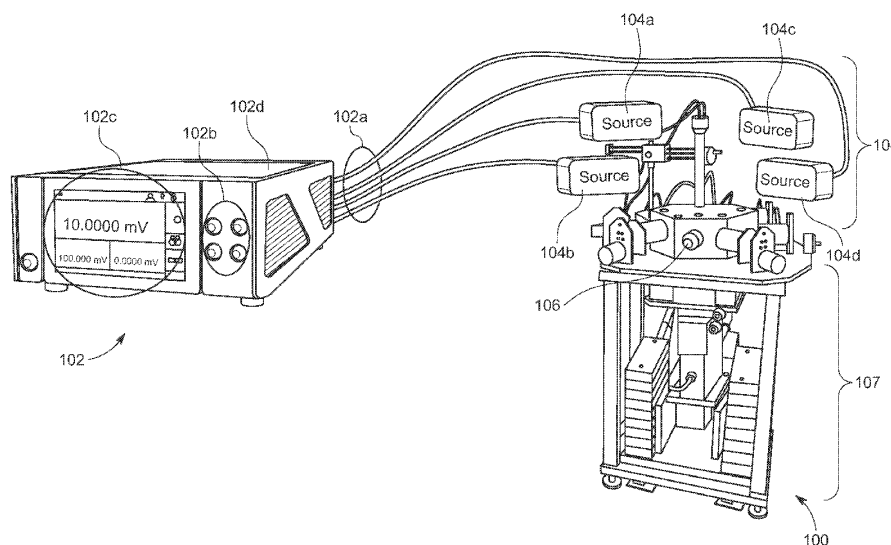


FIG. 1

(57) Abstract: A measurement system includes a source unit to provide a source signal to a sample and a voltage source and/or a current source and a memory. The system also includes a measurement unit configured to acquire from the sample an measurement signal that may be responsive to the source signal and a voltage measuring unit, a current measuring unit, and/or a capacitance measuring unit, and a memory. The system also includes a control unit including a digital signal processing unit; a source converter; a measurement converter. The system further includes a synchronization unit configured to synchronize clocks of the digital signal processing unit, the source converter, the measurement converter, the source unit, and the measurement unit; a calibration unit for calibrating aspects of the system including the control unit; and a reference voltage supply configured to supply a common reference voltage for the control unit.

[Continued on next page]

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