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(12) **United States Patent**  
**Steger et al.**

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(54) **MEASUREMENT SYSTEM WITH MODULAR MEASUREMENT MODULES THAT CONVEY INTERFACE INFORMATION**

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(Continued)

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U.S. Appl. No. 11/403,167, entitled "Adapting a plurality of measurement cartridges using cartridge controllers", by Brian Keith Odom, Jeffrey J. Kellam, Rafael Castro, and Kyle Bryson, filed on Apr. 12, 2006.

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1736 days.

(Continued)

This patent is subject to a terminal disclaimer.

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(21) Appl. No.: **10/195,051**

(57) **ABSTRACT**

(22) Filed: **Jul. 12, 2002**

System and method for measurement, DAQ, and control operations which uses small form-factor measurement modules or cartridges with a re-configurable carrier unit, sensors, and a computer system to provide modular, efficient, cost-effective measurement solutions. The measurement module includes measurement circuitry, e.g., signal conditioner and/or signal conversion circuitry, and interface circuitry for communicating with the carrier unit. The module communicates interface information to the carrier unit, which informs the computer system how to program or configure a functional unit on the carrier unit to implement the communicated interface, or sends the information directly to the computer system. The computer system programs the carrier unit with the interface, and the programmed carrier unit and measurement module together function as a DAQ, measurement, and/or control device. The carrier unit may receive multiple cartridges, each having a respective interface protocol, where the carrier unit is configurable to support the respective protocols sequentially and/or in parallel.

(65) **Prior Publication Data**

US 2003/0074489 A1 Apr. 17, 2003

**Related U.S. Application Data**

(60) Provisional application No. 60/312,254, filed on Aug. 14, 2001.

(51) **Int. Cl.**  
**G06F 19/00** (2006.01)

(52) **U.S. Cl.** ..... **702/127; 702/188; 710/100; 717/124; 717/149**

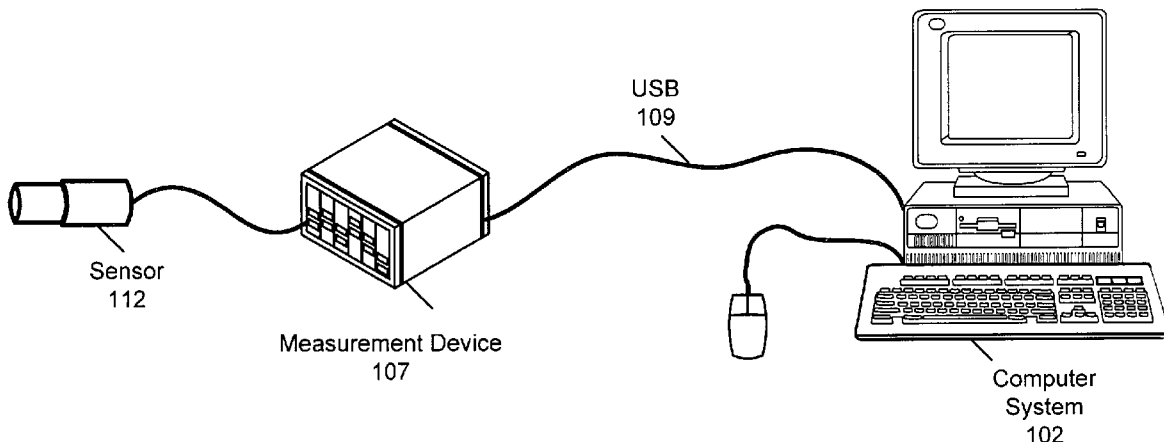
(58) **Field of Classification Search** ..... **702/127; 702/188; 710/100; 717/124, 149**  
See application file for complete search history.

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**100 Claims, 48 Drawing Sheets**



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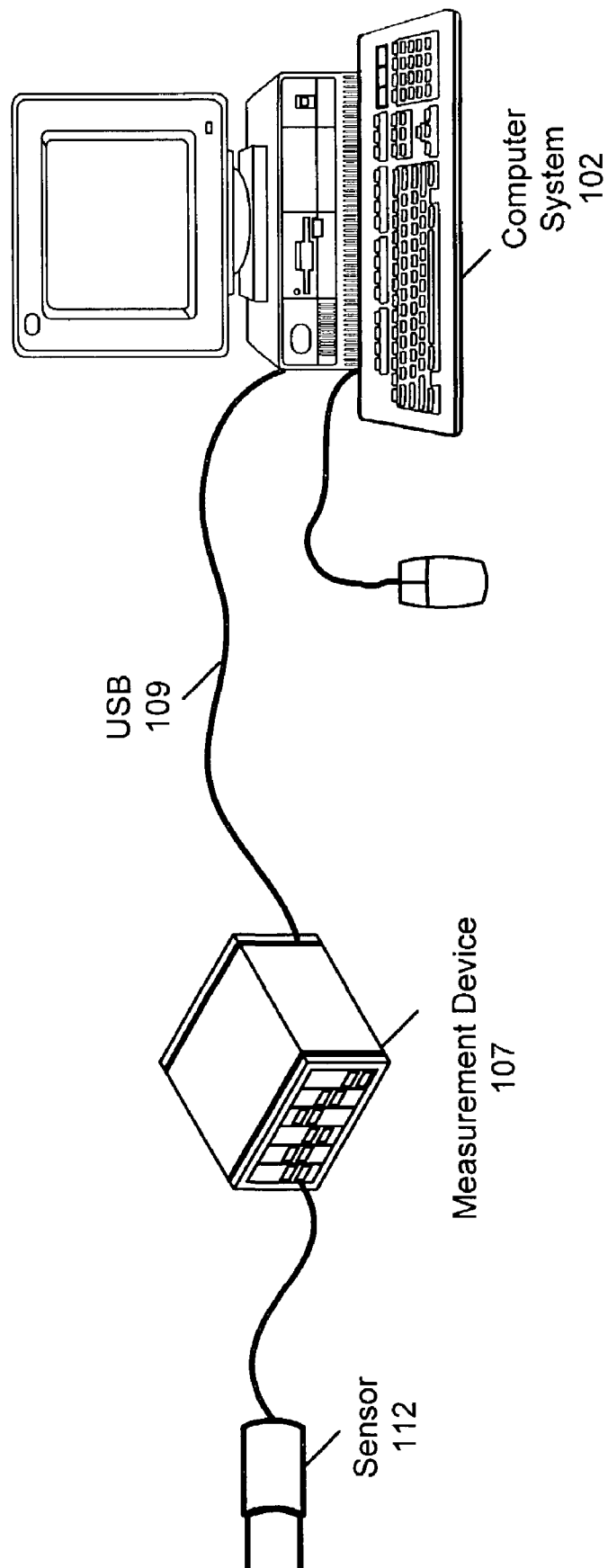


FIG. 1A

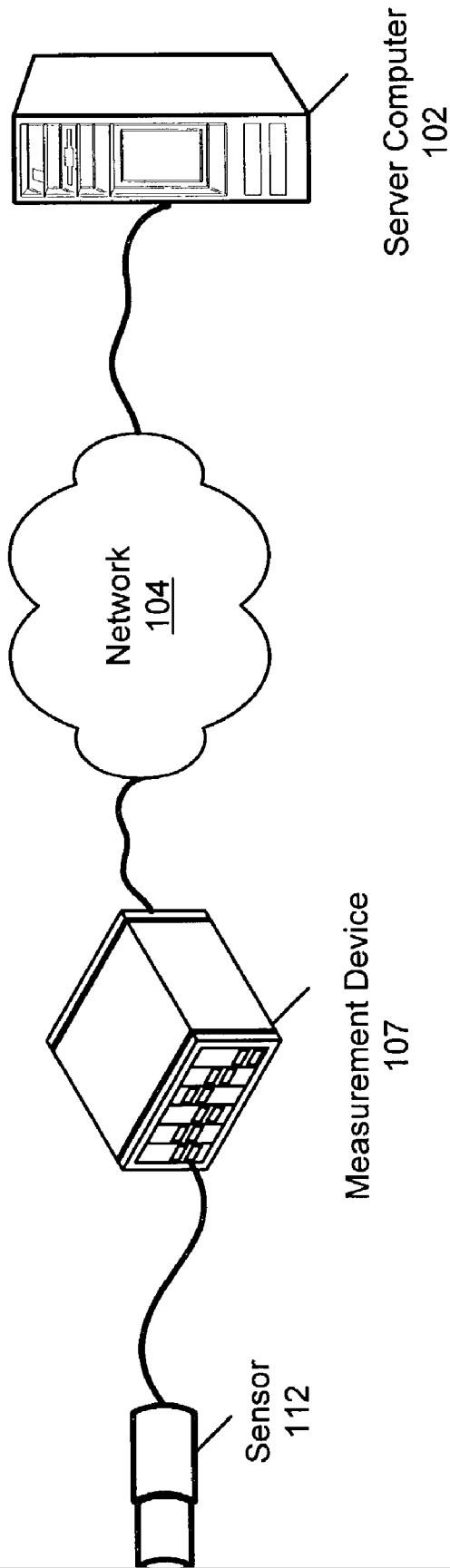


FIG. 1B

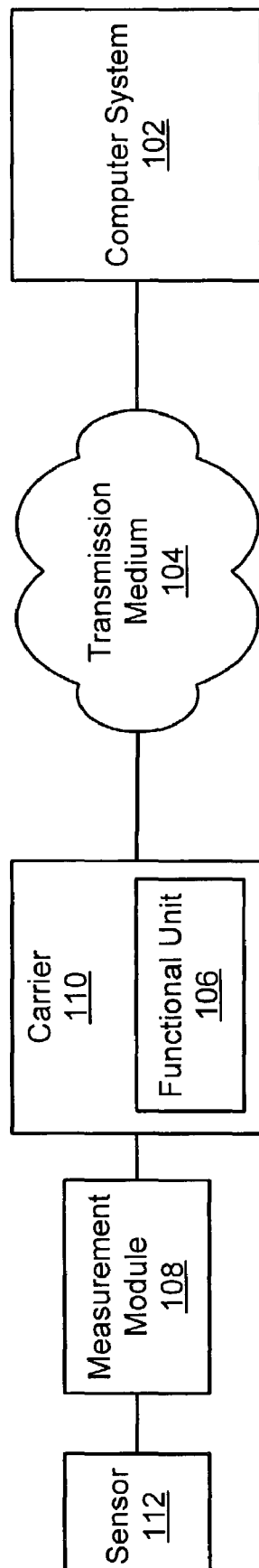


FIG. 2

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