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(54) **APPLICATION SPECIFIC INTEGRATED CIRCUITRY FOR CONTROLLING ANALYSIS OF A FLUID**

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(51) **Int. Cl.**

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(52) **U.S. Cl.** ..... **702/25; 702/50; 702/54**

(58) **Field of Classification Search** ..... **702/23, 702/25**

See application file for complete search history.

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(57) **ABSTRACT**

A circuit chip is disclosed. The circuit chip includes analog-to-digital processing circuitry that is capable of interfacing with a sensor and host electronics. The analog-to-digital processing circuitry includes a frequency generator configured for providing stimulus to the sensor and signal detection circuitry that is configured for identifying amplitude data of a response signal. Further included is analog-to-digital conversion circuitry that is configured for converting the detected amplitude data into digital form. A memory that is capable of holding data characterizing the sensor is also provided. The digital form of the response signal is capable of being processed to generate fluid characteristics of fluids under-test.

**4 Claims, 16 Drawing Sheets**

