

Title: Sub-100 ppm Auto-calibrated Fiftyfold Range Resistive Sensor Measurement ASIC and System

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Abstract: Most of the sensitive resistive sensors have a large baseline resistor and small incremental change below 100ppm. On the other hand, auto calibration is a requirement while adjusting to the baseline value, compensating the mismatch and attenuating other non-ideality effects. A versatile ASIC is presented constituting half-bridge low-noise auto-programmable current source for the signal injection and low noise, high CMRR current-mode instrumentation amplifier, which is the core of a prototyped measurement system. The proposed fully automated system is able to measure sub-100 ppm relative change within the wide range of fiftyfold sensor resistance range.