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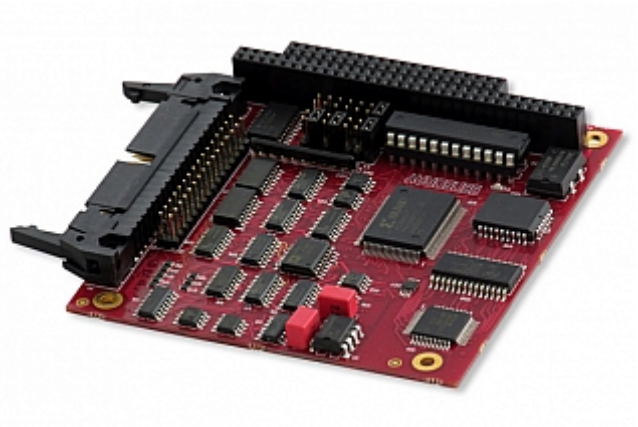
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SENSORAY

embedded electronics

8-channel smart sensor interface | Model 518

- Measures thermocouples, RTDs, strain gauges, thermistors, voltage and resistance
- Provides complete sensor signal conditioning
- High-accuracy differential inputs
- Excellent 50/60 Hz rejection
- Pulsed excitation minimizes sensor self-heating
- 4-wire circuits eliminate lead-loss errors
- Transparent cold-junction compensation for thermocouples

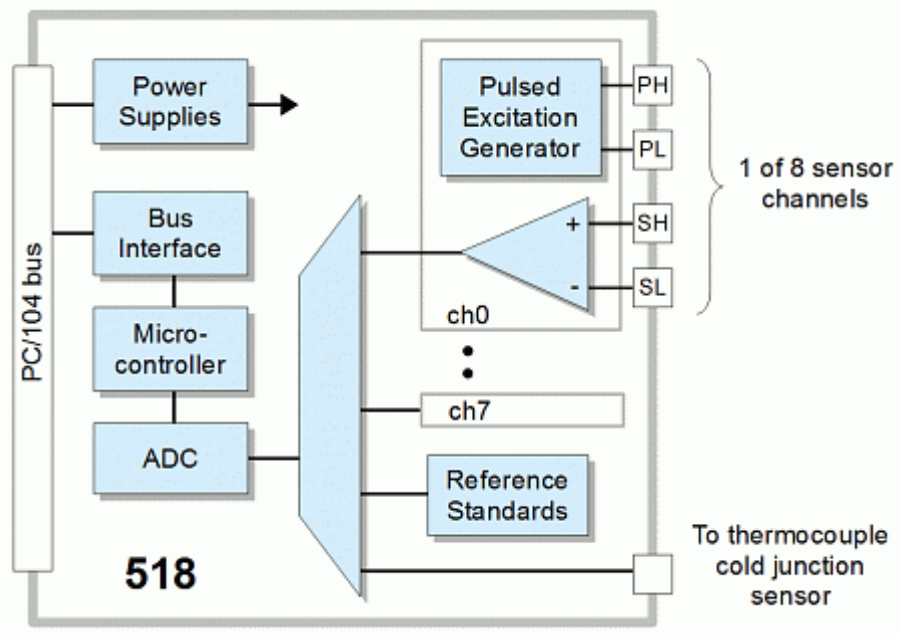


Description

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Model 518 is a smart 8-channel sensor measurement system on a PC/104 board. It provides excitation for passive sensors and complete signal conditioning for thermocouples, RTDs, thermistors, and strain and pressure gauges. Each channel can be independently configured to measure voltage, resistance, or any supported sensor type.

518 block diagram



The board automatically scans all enabled sensor channels at an aggregate rate of 45 samples/second, yielding a per-channel rate of approximately 5.6 sps when all channels are active. When scanned, a sensor is excited, amplified, digitized, linearized, converted to appropriate engineering units (e.g., °C, Ω, V), and stored in on-board memory. The host can quickly retrieve the most recent sample from each channel so that it never needs to initiate or wait for data conversion.

Excitation

Sensoray's exclusive pulsed excitation system provides the ideal stimulus for passive sensors. Excitation is applied only when measuring, thus reducing both sensor self-heating and overall board power consumption.

Lossless measurement

Each channel has provision for a four-wire connection, enabling it to completely eliminate lead loss errors from RTD, thermistor, and resistor measurements.

Thermocouples

The board automatically performs cold junction compensation in conjunction with an optional, external temperature transducer. A dedicated input is provided for the transducer so that all eight sensor channels are preserved for application use. A compatible transducer is integrated into several Sensoray termination boards; click the Accessories tab above for details.

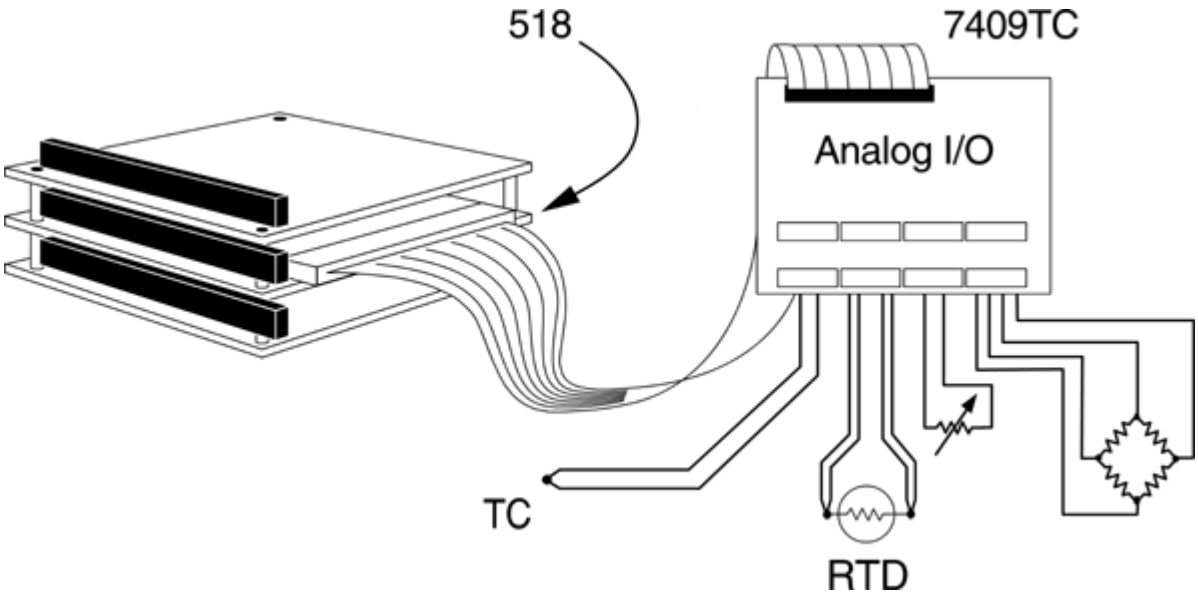
Calibration

Fully electronic calibration is used to ensure rock-solid performance in high-vibration environments. Factory-programmed calibration data is stored on-board to enable quick and easy installation.

Sensor Connections

All field wiring signals are accessible through a 40-pin header. The header may be connected to a custom termination system or to any of several breakout boards available from Sensoray.

Typical Application



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