



USB2250 USB Sensor Interface For Data Acquisition



- **Direct Sensor Input to Your PC via USB**
- **16-bit Resolution, 100 KHz Conversion Rate**
- **16 Input Channels, Sensor Excitation Provided**
- **Accepts Any Mix or Combination of Sensor Inputs**
Thermocouples, RTDs
Strain Gages, LVDTs, VR Sensors
Potentiometers, DC Volts
- **Data Acquisition Software Included**

The USB2250 PCI Sensor Interface provides real-world data acquisition for your PC via the USB port. 16 sensor inputs in any mix or combination are accepted by the USB2250. **No external signal conditioning is required.** The USB2250 includes configuration and data acquisition software.

Thermocouples, RTDs, strain gages, LVDTs, potentiometers, VR sensors and low-level DC voltages are wired directly to the USB terminals in *any mix or combination of single-ended or differential* input types. All required excitation, amplification and linearization is provided by the USB2250. No additional equipment is required.

The USB2250 features 10 input ranges from 20 mV to 10.24 V full scale all with 16 bits of resolution, programmable channel-by-channel. An innovative dual-conversion scheme provides outstanding zero offset correction for low-level measurements.

The USB2250 provides polynomial linearization for thermocouples and RTD's. Scale and offset factors can be applied to all inputs. The USB2250 produces a floating-point value for all readings, directly in engineering units.

Software for the USB2250 includes a GUI configuration utility that allows the user to set sensor type, gain range, channel, and all other input parameters. The configuration can be saved to non-volatile memory on the card so that The USB2250 can be used in embedded applications.

Easy Sense 2250 data acquisition software is also included so that the user may record sensor data to a spreadsheet or ASCII file in real time.

The USB2250 is compatible with Visual basic and C++ programming environments. All required drivers are included on the USB2250 CD.

USB2250 Advantages

- **Direct Sensor Input**
- **No External Signal Conditioning Needed**
- **Sensor Excitation Included**
- **On-Board TC, RTD Linearization**
- **Works with VB, C++**
- **All Cables and Terminal Blocks Included**
- **Separate TC Reference Temp Sensor Channel Provided**

USB2250 Specifications

General Specifications -

Available I/O:

16 single-ended inputs which can be paired as differential inputs in any mix or combination. One additional input for thermocouple cold-junction compensation.

I/O Connections:

Analog input terminal block with screw terminal connections

Environmental:

0 to +55C, 95% RH, non-condensing

Power Required:

Eternal 110 VAC Power Supply is provided.

Computer Interface:

USB 1.12, USB 2.0

I/O Specifications -

Thermocouples:

Types J, K, E, T & S, linearized in C. Typical resolution 0.05 C.

RTD:

Pt 391, Pt392 and Pt385 alpha, linearized -200 to +850C. 2, 3 or 4-wire configurations. Excitation from internal current source supplied. Typical resolution, 0.05C

Strain Gages:

Up to 8 120 Ohm full bridge gages at 5 Vdc excitation or 8 350 Ohm (or greater) gages at 5 V or 10 Vdc, selectable excitation. Partial bridges completed on terminal block. Precision excitation to 350 mA @ 5 V and 300 mA @ 10 V provided.

LVDT/RVDT/VR:

4 mV/V to 2.6 V/V in 10 binary ranges. 2.5 VAC @ 5 KHz sine wave excitation provided.

Voltages:

+/-20 mV to +/-10.24 Vdc FS single-ended or differential input in 10 binary ranges.

Resistances:

20 Ohms to 150K Ohms, full scale

Sensor Excitation:

Integral +5 or +10 Vdc for strain gages, (0.35 A maximum), current source for RTDs, 1.0 mA nominal per channel @ 5 vdc. 2.5 VAC @ 5 KHz sine wave carrier for LVDT and VR sensors.

Input Protection:

Over-Voltage to +/-25 Vpk (power off), or +/-40 Vpk (power on). Typical static discharge of 4 KV is survived.

Common Mode:

+/-10 V

Crosstalk:

-115 db or better

Resolution:

16 bits

Averaging:

Programmable rolling average for each channel

Data Acquisition Rate:

100,000 readings per second, spread over active inputs.

System Accuracy:

Total system error 0.02% FS. Range tempco typically 50 ppm/C. Offset zero tempco typically 0.15 uV/C