

The 6850 thermocouple measurement system comes in configurations that have either 32, 64, or 96 input channels. Each set of 32 channels is equipped with a uniform temperature reference that measures the reference junction temperature. Removable screw terminal boards provide input connections at the rear of the unit. Channels have programmable gain and low pass filtering. The inputs are digitized to 16-bit resolution and then output to the Series 6000 USB data bus. Digitization rates up to 2,000 samples per second per channel are provided.

The 6850 is used to amplify and digitize low level signals, usually the output of thermocouples or other low level voltage instruments. It has an analog multiplexing architecture with amplifier and digitizer per 8 channels. Gains are selected for 32 channels.

Voltage substitution is provided for channel zero & gain calibration using an external voltage standard. A calibration attenuator enables the voltage standard to be used on its highest accuracy ranges. Using Pacific's PI660 software channel calibration and correction are automatic.

The differential inputs have 50 Megohm input impedance and are protected to ± 25 Volts. Both gain and zero calibration employ digital-to-analog converters with the calibration DAC settings stored in non-volatile memory on the module.

Upper and lower programmable alarm limits are provided and checked each time the output is digitized. In conjunction with a digital I/O module the alarms may be used to control external equipment.



FEATURES

- Differential input, ± 10 Volts
- 50 Megohms input impedance
- Up to 2K samples per second/channel
- Gain calibration by voltage substitution
- Automatic zero
- Programmable alarms
- Up to 96 channels in 3½ inch height

SPECIFICATIONS

THERMOCOUPLE

TypeB, C, E, J, K, N, R, S, and T
 CompensationUniform temperature reference

VOLTAGE INPUT

Range..... ± 2 mV to ± 10 Volts
 ConfigurationDifferential, 2-wire with shield.
 Impedance50 Megohms, shunted by 1,000 pf.
 Protection ± 25 Volts differential and common mode

CALIBRATION

VoltageAlternate input to the differential amplifier for external voltage calibration source. Applied calibration voltage may be connected to bus for external monitoring.
 Zero CalibrationAmplifier input disconnected and shorted for zero calibration.

AMPLIFIER

GainProgrammable steps are 1, 2, 3, 5, 10, 20, 30, 50, 100, 200, 300, 500, 1000, 2000, and 5000 with $\pm 0.05\%$ accuracy.
 Gain Stability $\pm 0.01\%$, $\pm 0.005\%/^{\circ}\text{C}$.
 Linearity $\pm 0.01\%$ for gains 1 to 1000, $\pm 0.02\%$ for gains above 1000.
 Common Mode75 dB plus gain in dB to 110 dB, DC to 60Hz.
 CM Voltage ± 10 Volts.
 Source Current ± 2 nA, ± 0.01 nA/ $^{\circ}\text{C}$.
 ZeroAutomatic to ± 1 uV RTI, ± 0.5 mV RTO.
 Zero Stability ± 5 uV RTI, ± 1 mV RTO, ± 1 uV/ $^{\circ}\text{C}$ RTI, ± 0.2 mV/ $^{\circ}\text{C}$ RTO. Short term: ± 2 uV RTI, ± 0.4 mV RTO for 8 hours.
 Noise (1 kHz)0.5 uV peak.
 Bandwidth1 kHz (-3dB).

ANALOG-TO-DIGITAL CONVERTER

Resolution16-bits, two's complement output.
 Sample Rate.....2K samples per second per channel.
 Linearity ± 2 LSB ($\pm 0.006\%$).
 ContinuityMonotonic to 15 bits

ALARMS

FunctionAlarm levels are checked for each ADC clock cycle and if the limits are exceeded an output is sent to the alarm bus.
 LevelsHigh and low limits are programmable for each channel.

GENERAL

Mounting2U Height, 19" Rack Mountable.
 ConnectorsScrew terminal, ejectable card, back of enclosure.
 Temperature0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$

ORDERING INFORMATION

6850-3232-Channel Enclosure.
 6850-6464-Channel Enclosure.
 6850-9696-Channel Enclosure