

The 6013 input module has eight channels, each with programmable gain instrumentation amplifier, low pass filter and sample and hold. The high level outputs are multiplexed and digitized to 16 bits then output to the 6000 data bus. A ninth reference temperature channel conditions the output of the temperature sensors in Model 6015 and 6084 thermocouple reference junctions. The 6013 provides regulated DC power for transducers with integral electronics. Each channel has a continuous, wideband analog output.

The 6013 is used with low-level voltages, thermocouples and transducers like DC-LVDTs that have built-in electronics and a voltage output. The power supply may be configured for ± 12 or ± 15 Volts DC.

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

The four-pole, low-pass filter uses an easily changed plug-in module to set bandwidth. Either the wideband or filtered output may be digitized and sent to the 6000 data bus. Two programmable alarms each with upper and lower limits are checked each time the outputs are digitized. The high-level analog outputs provide a means to independently monitor or record each channel.

SPECIFICATIONS

TRANSDUCER POWER

Voltage ± 12 or ± 15 Volts jumper selectable.
Current50 mA per channel, limited to 200 mA maximum per card.

THERMOCOUPLE

TypeB, C, E, J, K, N, R, S, and T.
ConfigurationDifferential, 2 wire with shield.

VOLTAGE INPUT

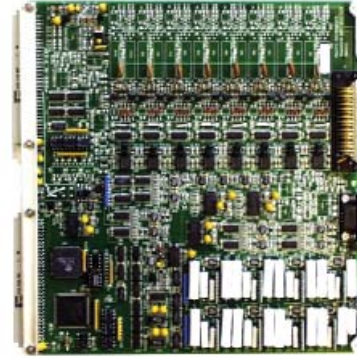
Range ± 2 mV to ± 10 Volts (± 200 mV to ± 100 Volts with optional attenuator).
Attenuator100:1, $\pm 0.2\%$ (optional).
ConfigurationDifferential, 2 wire with shield.
Impedance50 Megohms, shunted by 1,000 pf (1Megohm with attenuator).
Protection ± 50 Volts differential, ± 30 Volts common mode. ± 100 Volts differential with attenuator.

CALIBRATION

SubstitutionAlternate input for external voltage standard. Programmable attenuation steps of 1, 0.1, and 0.01 with $\pm 0.02\%$ accuracy. Output of the attenuator is provided on a rear panel connector for calibration.
ZeroAmplifier input disconnected and shorted.

AMPLIFIER

GainProgrammable steps are 1, 2, 3, 5, 10, 20, 30, 50, 100, 200, 300, 500, 1,000, 2,000, 3,000 and 5,000 with $\pm 0.05\%$ accuracy.
Gain Stability $\pm 0.01\%$, $\pm 0.005\%/^{\circ}\text{C}$.
Bandwidth1 kHz (-3dB).
Linearity $\pm 0.01\%$ for gains 0.1 to 1,000, $\pm 0.02\%$ for gains above 1,000.
Common Mode60 dB plus gain in dB to 110 dB, DC to 60Hz.
CM Voltage ± 10 Volts.
ZeroAutomatic to ± 1 μV RTI, ± 0.5 mV RTO.
Zero Stability ± 5 μV RTI, ± 1 mV RTO. ± 1 $\mu\text{V}/^{\circ}\text{C}$ RTI, ± 0.2 mV/ $^{\circ}\text{C}$ RTO. Short term: ± 2 μV RTI, ± 0.4 mV RTO for 8 hours.



FEATURES

- Voltage, thermocouple and DC-LVDT
- Optional thermocouple reference junction
- Gains 1 to 5,000 with 0.05% accuracy
- Automatic zero and gain calibration
- Four-pole, low-pass filter
- 10 kS/s with 16-bit ADC
- Programmable alarm levels
- Analog outputs

Source Current ± 2 nA, ± 0.01 nA/ $^{\circ}\text{C}$.
Noise (10 Hz)0.5 μV peak, RTI.
Noise (1kHz)1.5 μV peak, RTI.
Recovery800 μs to $\pm 0.1\%$ for 10X overload to ± 10 V
Analog Output ± 3.0 Volts full scale, unfiltered.

FILTER

TypeFour-pole, low-pass Butterworth.
FrequencyPlug-in, 4Hz to 1kHz, 10 Hz supplied.
Noise2 mV peak RTO.

SAMPLE & HOLD, ADC

SampleSimultaneous, within ± 50 nS channel-to-channel. Droop is less than $\pm 0.005\%$.
Resolution16 bits, two's complement output.
Sample Rate10 kS/s per channel.
Linearity ± 2 LSB ($\pm 0.006\%$).
ContinuityMonotonic to 15 bits.

GENERAL

MountingOccupies one slot in Series 6000 enclosures.
ConnectorsInput connector is 50-pin Type D. Output connector is 9-pin Type D. Connectors are mounted on the front and mates are supplied.
Temperature0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$ operating.

THERMOCOUPLE REFERENCE JUNCTION (6084)

Junction $\pm 0.25^{\circ}\text{C}$ over the range of 10 to 50 $^{\circ}\text{C}$. Includes junction temperature sensor.
Termination8 channels, screw terminals, #18 to #28 wire.
Cable2 meter cable is standard, other lengths are available on special order.
Size3-3/4" wide, 3-3/4" high, 2" deep.

ORDERING INFORMATION

60138-Ch Instrumentation Amplifier, 16-bit, 10 kS/s.
6013-AAttenuator, 100:1.
6081Screw Terminal Adapter.
6084Eight-Channel Thermocouple Reference Junction.