

The 6038 input module has eight channels of programmable transducer signal conditioning amplifiers, filters and digitizer. Each channel has programmable voltage excitation, bridge completion and balance, programmable gain instrumentation amplifier and four-pole low pass filter. Channel outputs are multiplexed and digitized to 16 bits then provided to the 6000 data bus.

The 6038 is used with 1/4, 1/2 and full bridge transducers, potentiometers and low-level voltage signals. It is particularly suited to strain gages and bridge transducers. A shielded eight-wire input provides excitation, calibration and signal connections to the transducer. Excitation is programmable from 0 to 12 Volts for each channel. Remote sensing regulates excitation at the transducer eliminating line losses. The effect of loading or a short on any other channel is less than 0.01%. A calibration mode is provided to measure the excitation voltage applied to the transducer.

Gain calibration may be done by voltage substitution using an external traceable voltage standard. A calibration attenuator enables the voltage standard to be used on its highest accuracy ranges and has a post-attenuator output for accuracy verification. Internal and external shunt is provided for transducer calibration. Calibration and gain and zero correction can be automated using Pacific's PI660 software. Two alarms with programmable upper and lower limits are provided.

SPECIFICATIONS

INPUT

Configuration8 channels, 2 to 8 wire with guard shield. Bridge configuration is programmable for 1/4, 1/2 and full bridge. Completion resistor is $\pm 0.1\%$, desired value must be specified.

BalanceAutomatic by program control. Balance accuracy $\pm 0.05\%$ of range, ± 1 mV RTO. Stability $\pm 0.02\%$ for 8 hours, $\pm 0.005\%/^{\circ}\text{C}$. Range set by resistor up to 10 mV/V, ± 5 mV/V (350 Ohms) installed.

Impedance50 Megohms shunted by 1000 pF.

Protection ± 50 Volts differential, ± 50 Volts common mode.

EXCITATION / TRANSDUCER POWER

VoltageProgrammable from 0-12 Volts in 1 Volt $\pm 0.1\%$ steps, with 3.3 mV resolution adjustment.

Current50 mA limited to 70 mA.

Regulation $\pm 0.01\%$ for $\pm 10\%$ line and no-load to full-load using remote sensing. Operation reverts to local sense if sense leads are not connected.

Stability $\pm 0.01\%$, $\pm 0.005\%/^{\circ}\text{C}$.

Noise200 μV peak to peak.

MonitorCalibration mode applies excitation voltage to the amplifier input.

AMPLIFIER

GainProgrammable from 1 to 5,000 in 1, 2, 3, 5 10 steps with $\pm 0.05\%$ accuracy

Gain Stability $\pm 0.01\%$, $\pm 0.004\%/^{\circ}\text{C}$.

Linearity $\pm 0.01\%$ for gains $< 1,000$, $\pm 0.02\%$ for gains 1,000 and higher.

Common Mode60 dB plus gain in dB up to 106 dB, DC to 60Hz for ± 10 Volts.

ZeroAutomatic to ± 1 μV RTI, ± 0.5 mV RTO.

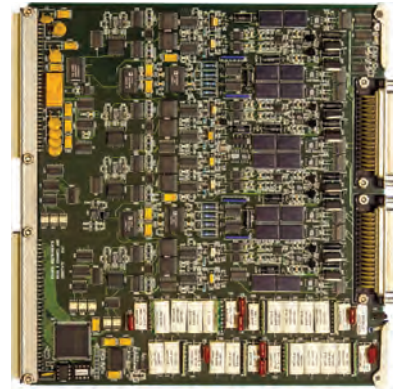
Zero Stability ± 5 μV RTI, ± 1 mV RTO, ± 1 $\mu\text{V}/^{\circ}\text{C}$ RTI, ± 0.2 mV/ $^{\circ}\text{C}$ RTO. Short term: ± 2 μV RTI, ± 0.4 mV RTO for 8 hours.

Source Current ± 2 nA, ± 0.01 nA/ $^{\circ}\text{C}$

Noise (1 kHz)0.5 μV rms, RTI.

Bandwidth1 kHz (-3dB).

Recovery800 μs to $\pm 0.1\%$ for 10X overload to ± 10 V.



FEATURES

- Programmable input configuration, 1/4, 1/2 & full bridge
- Programmable excitation with remote sensing
- Shunt & voltage calibration
- Automatic zero & balance
- Gains 1 to 5,000 with 0.05% accuracy
- Four-pole, low-pass filter
- Up to 10kS/s per channel with 16-bit resolution
- Two alarms with programmable upper & lower limits

FILTER

TypeFour pole, low pass Butterworth.

FrequencyPlug-in, 1 Hz to 1 kHz, 10 Hz supplied.

Noise0.5 mV rms, RTO.

OtherOther filter characteristics and cut offs available.

DIGITIZER

SampleSimultaneous, within ± 50 nS using sample & hold amplifier. Droop is less than $\pm 0.005\%$.

Resolution16 bits, two's complement output.

Sample RateUp to 10 kS/s per channel.

Linearity ± 2 LSB ($\pm 0.006\%$)

ContinuityMonotonic to 15 bits.

AlarmsTwo alarms each with programmable upper and lower limits and persistence checked on each ADC sample.

CALIBRATION

ShuntSingle step shunt of internal completion resistor or external strain gage or bridge arm using dedicated input connector pins. Installed shunt resistor provides 0.502 mV/V (350 Ohm) or 0.172 mV/V (120 Ohm) $\pm 0.5\%$.

Voltage Subst.Alternate input for external calibration source. Programmable attenuator with steps of 1, 0.1 and 0.01, $\pm 0.02\%$ accuracy. Output of the attenuator is provided for calibration.

ZeroAmplifier input disconnected and shorted.

MECHANICAL

MountingOccupies one slot in Series 6000 enclosures.

ConnectorsInputs are on two 50-pin, Type D. connectors. Mating connectors supplied.

Temperature 0°C to $+50^{\circ}\text{C}$ operating.

ORDERING INFORMATION

60388-Ch Strain-Bridge, 8-Wire Input.