

The 6032 input module has four channels of high performance signal-conditioning amplifier-digitizers for strain gages and bridge transducers. Each channel has programmable excitation with remote sensing, voltage calibration, local or remote shunt calibration, programmable gain instrumentation amplifier and four-pole low pass filter. The high level outputs are multiplexed and digitized to 16 bits then output to the 6000 data bus. In addition to the digitized output, each channel provides a continuous analog output

The 6032 is used with quarter, half and full bridge transducers, potentiometers and low-level voltage signals in demanding applications such as load control. The EM option adds continuous excitation monitoring with out-of-limit alarms. The PF option adds a four-pole, 4 to 5,000 Hz programmable filter with 1 Hz resolution.

Voltage substitution using an external voltage standard is provided for traceable gain calibration. Internal or external shunt calibration is provided for transducer calibration. Transducer balance, zero and gain calibration are automatic. Two programmable alarms with upper and lower limits are checked for each digitized output. The high-level analog outputs provide a means to independently monitor or record each channel.



FEATURES

- Programmable excitation, remote sensing
- Programmable input configuration
- Shunt and voltage calibration
- Automatic zero and balance
- Gains 1 to 5,000 with 0.05% accuracy
- 0 to 20 kS/s ADC rate with 16-bit resolution
- Continuous 10 Volt analog outputs

SPECIFICATIONS

VOLTAGE EXCITATION

Output.....Programmable from 0-12 Volts in 1 Volt $\pm 0.1\%$ steps, with 3.3 mV resolution adjustment.
 Current.....50 mA limited to 70 mA.
 Regulation..... $\pm 0.01\%$ for $\pm 10\%$ line and no-load to full-load using remote sensing.
 Stability..... $\pm 0.01\%$, $\pm 0.005\%/^{\circ}\text{C}$.
 Noise200 μV peak to peak.
 MonitorCalibration mode applies excitation voltage to amplifier input.

EXCITATION MONITOR (OPTION EM)

Output.....Supplemental measured excitation channels using 16-bit ADC with four-level alarm, $\pm 0.1\%$

INPUT

Configuration2 to 8 wire with guard shield. Bridge configuration is programmable for $\frac{1}{4}$, $\frac{1}{2}$ and full bridge, 120 Ohm and 350 Ohm.
 Balance.....Automatic 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, 2 mV/V (350 Ohms) installed.
 Impedance50 Megohms shunted by 1,000 pF.
 Protection..... ± 50 Volts differential, ± 30 Volts common mode.

CALIBRATION

ShuntSingle step shunt, either polarity, internal or external connection, 0.502 mV/V (350 Ohm bridge), $\pm 1\%$ installed.
 Voltage.....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.

AMPLIFIER

Gain.....Programmable from 1 to 5,000 in 1, 2, 3, 5 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 (10 Hz)0.5 μV peak, RTI.
 Noise (1 kHz).....1.5 μV peak, RTI.
 Bandwidth.....5 kHz (-3dB) for gains ≤ 500 , 1 kHz for gains > 500 .
 Slew Rate.....0.5 V/ μs .
 Recovery.....800 μs to $\pm 0.1\%$ for 10X overload to ± 10 V.
 Analog Output ± 10 Volt full scale, wideband.

FILTER (STANDARD)

Type.....Four pole, low pass Butterworth.
 Frequency.....Plug-in, 4 Hz to 1 kHz, 10 Hz supplied.
 Noise1 mV peak, RTO.

FILTER (OPTION PF)

Type.....Four pole, low pass Butterworth.
 Frequency.....4Hz to 5kHz, 1Hz resolution, $\pm 2\%$ accuracy.
 Noise1 mV peak, RTO

ANALOG-TO-DIGITAL CONVERTER

Resolution16 bits, two's complement output.
 Sample Rate0 to 20 kS/s per channel.
 Linearity..... ± 2 LSB ($\pm 0.006\%$)
 Continuity.....Monotonic to 15 bits.

GENERAL

Mounting.....Occupies one slot in Series 6000 enclosures.
 ConnectorsInput is 50-pin Type D output is 9-pin Type D.
 Temperature0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$ operating.

ORDERING INFORMATION

6032Four-channel transducer amplifier-digitizer, 16-bits, 20kS/s.
 Opt. EM4-Ch. Excitation measurement.
 Opt. PF4-Ch. Programmable filter, 4 Hz to 1 kHz.