

The 6062 is a two-channel signal conditioning amplifier digitizer module with 50 kHz or 100 kHz bandwidth and both digitized and analog outputs. The bridge input is ten-wire shielded with programmable constant voltage or constant current excitation and programmable completion for quarter, half and full bridge transducers. Automatic bridge balancing accommodates large unbalances without limiting dynamic range.

The differential instrumentation amplifier has programmable gains from 1 to 5,000 and automatic zero. The standard filter is a six-pole Bessel with four programmable bandwidths. An optional four-pole Bessel filter has continuously programmable bandwidth. The filter output is digitized to 16 bits at up to 200 kS/s.

A "features card" provides shunt calibration using dedicated inputs. Two-step, resistive shunt calibration is standard. Four-step shunt calibration and simulated shunt using a DAC with 16-bit resolution are also available. Voltage substitution using an external source is provided for traceable gain calibration.



## FEATURES

- Plug-in channel configuration & calibration card
- Voltage & current excitation with remote sensing
- Automatic zero & balance
- Voltage substitution, DAC or 2/4 step shunt calibration
- Gains 1 to 5,000 with 50 kHz or 100 kHz bandwidth
- Four six-pole low-pass filters, optional programmable filter
- Up to 200kS/s per channel with 16-bit resolution
- Dual buffered 10 Volt analog outputs

## SPECIFICATIONS

### INPUT

Configuration.....Input configuration based on installed Features Cards. Features cards available for Bridge, IEPE and RTD. Other features cards available upon request.

### BRIDGE INPUT

Bridge Configuration...2 channels, 2 to 10 wire inputs. Programmable bridge completion for full and half bridges and 120 Ohm and 350 Ohm quarter bridges.

Bridge Balance.....Automatic by program control. Balance accuracy  $\pm 0.05\%$  of range,  $\pm 1$  mV RTO. Stability  $\pm 0.02\%$  for 8 hours,  $\pm 0.005\%/^{\circ}\text{C}$ . Supplied range is 2 mV/V (350 Ohm bridge).

### VOLTAGE EXCITATION / TRANSDUCER POWER

Voltage Excitation..Programmable from 0.1 to 20 Volts with 0.5 mV resolution. Calibrated 2-Volt steps  $\pm 0.1\%$ . 50mA limited to 70mA maximum..

Voltage Regulation ...Each channel individually regulated.  $\pm 0.01\%$  over input voltage range and no-load to full-load.

Voltage Exc Stability  $\pm 0.01\%$  for 30 days. Temperature coefficient less than  $\pm 0.005\%/^{\circ}\text{C}$ .

Voltage Exc Noise....200  $\mu\text{V}$  peak-to-peak, DC to 10 kHz.

Voltage Monitor .....Excitation voltage or current is read by a program instruction. Accuracy is  $\pm 0.2\%$ .

### CONSTANT CURRENT EXCITATION / TRANSDUCER POWER

Current Excitation ....Programmable 0.1mA to 51.2 mA with 1  $\mu\text{A}$  resolution. Calibrated 5 mA steps  $\pm 0.1\%$ .

Compliance.....0.1 to 20 Volts minimum.

Current Regulation... $\pm 0.01\%$  or  $\pm 0.1\mu\text{A}$  for 10% line change.

Current Stability.... $\pm 0.01\%$  or  $\pm 2$   $\mu\text{A}$  for 30 days. Temperature coefficient is less than  $\pm 0.005\%$  or  $\pm 1$   $\mu\text{A}/^{\circ}\text{C}$ .

Current Exc Noise....2  $\mu\text{A}$  or 5  $\mu\text{V}$  peak-to-peak DC to 10 kHz.

Current Monitor.....Excitation voltage or current is read by a program instruction. Accuracy is  $\pm 0.2\%$ .

### AMPLIFIER

Gain .....Programmable 1 to 5000, in 1, 2, 3, 5 steps, with  $\pm 0.05\%$  accuracy.

Gain Stability ..... $\pm 0.01\%$  for 30 days,  $0.004\%/^{\circ}\text{C}$ .

Gain Linearity..... $\pm 0.01\%$  for gain  $< 1000$ ,  $\pm 0.02\%$  for Gain 1000 and higher

Common Mode .....60 dB plus gain in dB to 120 dB for balanced input and 110 dB for a 350 Ohm source unbalance, DC to 60 Hz.

CM Voltage ..... $\pm 10$  Volts operating.

Zero.....Automatic zero  $\pm 1.0$  mV.

Zero Stability ..... $\pm 1$   $\mu\text{V}/^{\circ}\text{C}$  RTI,  $\pm 0.2$  mV/ $^{\circ}\text{C}$  RTO or ( $\pm 1$   $\mu\text{V}$  RTI,  $\pm 0.2$  mV RTO) / $^{\circ}\text{C}$

Source Current..... $\pm 5$  nA,  $\pm 0.05$  nA/ $^{\circ}\text{C}$ .

Noise (10 kHz) .....2.0  $\mu\text{V}$  RTI plus 0.3 mV RTO, RMS.

Bandwidth .....50 kHz (-3 dB) for gains 1 to 1,000, 20kHz (-3 dB) for gains above 1,000.

Bandwidth (HF).....100 kHz (-3 dB) for gains 1 to 1,000, 50 kHz (-3 dB) for gains above 1,000.

Slew Rate .....5 V/ $\mu\text{s}$ .

Overload Recovery...120  $\mu\text{s}$  to within  $\pm 0.1\%$  for a 10 times overload to  $\pm 10$  Volts.

Monitor .....Output is read by a program instruction. Accuracy is  $\pm 0.2\%$ ..

Output .....Two  $\pm 10$  Volt full scale buffered outputs. Each may be program selected for filtered or wideband response.

### FILTER

Type.....4 Frequency Six-pole, low-pass Bessel or continuously programmable 4-pole Bessel.

Standard Filter .....6062: 4-Frequency 6-Pole Bessel with 150 Hz, 625 Hz, 2.5 kHz, 10 kHz and wideband.. 6062HF: 4-Frequency 6-Pole Bessel with 300 Hz, 1.25 kHz, 5 kHz, 20 kHz and wideband.

Programmable Filter ..6062 4-Pole Bessel, continuously programmable 4 Hz to 10 kHz.. 6062HF: 4-Pole Bessel, continuously programmable 10 Hz to 20 kHz.

Other .....Other filter characteristics and cut offs are available.

## SPECIFICATIONS CONTINUED

### DIGITIZER

Sample .....±50 nS channel-to-channel time correlation.  
Resolution.....16 bits, two's complement output.  
Rate .....Programmable up to 100 kS/s per channel.  
Rate (HF).....Programmable up to 200 kS/s per channel.  
Linearity .....±1½ LSB (±0.004%).  
Continuity .....Monotonic to 15 bits.

### CALIBRATION

Voltage Subst. ....Voltage substitution, signal from external calibration source is applied to the amplifier input.  
Programmable attenuator with steps of 1, 0.1 and 0.01, ±0.02% accuracy. Output of the attenuator is provided for calibration.  
Zero .....Amplifier input disconnected and shorted.  
Shunt Calibration ...Shunt Calibration based on capability of Installed Features Card  
FC1: Two steps, single shunt, internal or external.  
FC2: Programmable resistive "DAC" shunt, 16-bit resolution.  
FC5: Four-step, single shunt, external.  
FC11: Four-step, double shunt, external.

### MECHANICAL

Mounting .....Occupies one slot in Series 6000 enclosures.  
Connectors.....Inputs are 15-pin and outputs are 9-pin Type D  
Temperature .....0°C to +50°C operating.

### ACCESSORIES

6087 .....Input Test Fixture

### ORDERING INFORMATION

6062 .....2-Ch Transducer Amp, 100kS/s, 4-Freq 6-Pole Bessel