

The 6132 input module has four channels of high performance signal-conditioning amplifiers 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 6132 is used with quarter, half and full bridge transducers, potentiometers and low-level voltage signals in demanding applications such as load control. 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 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
- 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..... $\pm 0.01\%$ ,  $\pm 0.005\%/^{\circ}\text{C}$ .  
 Noise .....200  $\mu\text{V}$  peak to peak.  
 Monitor .....Calibration mode applies excitation voltage to amplifier input.

#### INPUT

Configuration .....2 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,  $\pm 1$  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.  
 Impedance .....50 Megohms shunted by 1,000 pF.  
 Protection..... $\pm 50$  Volts differential,  $\pm 30$  Volts common mode.

#### CALIBRATION

Shunt .....Single 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.  
 Zero .....Amplifier 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 Mode.....60 dB plus gain in dB up to 106 dB, DC to 60Hz for  $\pm 10$  Volts.  
 Zero .....Automatic to  $\pm 1$   $\mu\text{V}$  RTI,  $\pm 0.5$  mV RTO.

Zero Stability..... $\pm 5$   $\mu\text{V}$  RTI,  $\pm 1$  mV RTO,  $\pm 1$   $\mu\text{V}/^{\circ}\text{C}$  RTI,  $\pm 0.2$  mV/ $^{\circ}\text{C}$  RTO. Short term:  $\pm 2$   $\mu\text{V}$  RTI,  $\pm 0.4$  mV RTO for 8 hours.  
 Source Current ..... $\pm 2$  nA,  $\pm 0.01$  nA/ $^{\circ}\text{C}$   
 Noise (10 Hz) .....0.5  $\mu\text{V}$  peak, RTI.  
 Noise (1 kHz).....1.5  $\mu\text{V}$  peak, RTI.  
 Bandwidth.....5 kHz (-3dB) for gains  $\leq 500$ , 1 kHz for gains  $> 500$ .  
 Slew Rate.....0.5 V/uS.  
 Recovery.....800  $\mu\text{S}$  to  $\pm 0.1\%$  for 10X overload to  $\pm 10$  V.  
 Analog Output ..... $\pm 10$  Volt full scale, wideband.

#### FILTER (STANDARD)

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

#### FILTER (OPTION PF)

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

#### GENERAL

Mounting.....Occupies one slot in Series 6000 enclosures.  
 Connectors .....Input is 50-pin Type D output is 9-pin Type D.  
 Temperature .....0 $^{\circ}\text{C}$  to +50 $^{\circ}\text{C}$  operating.

#### ORDERING INFORMATION

6132 .....Four-channel transducer amplifier, 16-bits, 20ks/s.  
 Opt. PF .....4-Ch. Programmable filter, 4 Hz to 1 kHz.