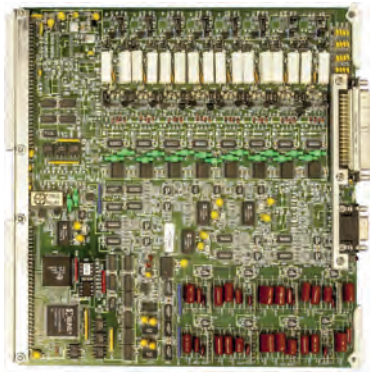
# MODEL 6014
## 8-Channel Accelerometer Amplifier-Filter-Digitizer

**The 6014 input module has eight channels, each with AC or DC coupled 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. Each channel has a 2-20 mA current source for powering low impedance, voltage mode charge transducers.**

**The 6014 is used with low impedance, piezoelectric transducers and low or high-level voltage signals. The input may be AC coupled for amplifying dynamic signals without the DC signal component or by changing jumpers it becomes a DC-coupled instrumentation amplifier.**

**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 has a post-attenuator output for calibration. Using Pacific's PI660 software zero and gain calibration and correction are automatic.**

**A four-pole, low-pass filter uses easily changed plug-in modules to set bandwidth. Either the wideband or filtered output may be digitized and sent to the 6000 data bus. Two programmable alarms 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.**



## FEATURES

- **AC or DC coupled inputs, IEPE transducers**
- **2 to 20 mA current excitation**
- **Gains 1 to 5,000 with 0.05% accuracy**
- **Automatic zero & gain calibration**
- **Four pole, low pass filter**
- **Up to 10 kS/s per channel with 16-bit resolution**
- **Two alarms with programmable upper & lower limits**

## SPECIFICATIONS

### INPUT

Configuration .....8 channels differential, 2 wire with shield.
Range .....±100 mV to ±10 Volts (±2 mV to ±10 Volts with reduced bandwidth).
Type .....Jumper selection of AC or DC input coupling.
DC Coupled .....50 Megohms, shunted by 1,000 pF.
AC Coupled .....100K Ohms.
Protection.....±50 Volts differential, ±30 Volts common mode.

### EXCITATION / TRANSDUCER POWER

Level .....2 to 20 mA set by resistor for each channel. Factory set to 6 mA. Compliance is 24-28 Volts. Requires optional supply for the enclosure.
Supply.....Internal on Series 6000 enclosures.

### AMPLIFIER

Gain .....Programmable 1-5000, in 1, 2, 3, 5 steps, with ±0.05% accuracy
Gain Stability.....±0.01%, ±0.005%/°C.
Bandwidth (DC)....DC to 5 kHz for gains 1 to 100. DC to 1 kHz for gains above 100 (-3dB).
Bandwidth (AC) ....0.5 Hz to 5 kHz for gains 1 to 100. 0.5 Hz to 1kHz for gains above 100 (-3dB).
Linearity .....±0.01% for gains < 1,000, ±0.02% for gains 1,000 and higher.
Common Mode .....80dB plus gain in dB up to 110dB, DC to 60Hz.
CM Voltage.....±10 Volts.
Zero .....Automatic to ±1 mV RTI, ±0.5 mV RTO.
Zero Stability.....±2 µV RTI, ±1 mV RTO. ±1 µV/°C RTI, ±0.2 mV/°C RTO. Short term: ±2uV RTI, ±0.04 mV RTO for 8 hours.
Source Current .....±5nA, ±0.01nA/°C.
Noise (10 Hz) .....0.5 µV peak, RTI.
Noise (1kHz) .....1.5 µV peak, RTI.
Recovery.....800 µS to ±0.1% for 10X overload to ±10V.
Analog Output .....±3 Volts full scale, unfiltered.

### FILTER

Type .....Four-pole, low-pass Butterworth.
Frequency.....Plug-in, 40 Hz to 5 kHz, 1 kHz supplied.
Noise .....2 mV peak RTO.
Other.....Other filter characteristics and cut offs available.

### DIGITIZER

Sample.....Simultaneous sample and hold with ±50 nS channel-to-channel. Droop is less than ±0.005%.
Resolution .....16 bits, two's complement output.
Sample Rate .....Up to 10 kS/s per channel.
Linearity .....±2 LSB (±0.006%).
Continuity.....Monotonic to 15 bits.
Alarms.....Two alarms each with upper and lower limits that are programmable from negative to positive full scale. Limits checked on each ADC sample.

### CALIBRATION

Voltage Subst. .....Alternate input for external voltage standard. Programmable attenuation steps of 1, 0.1, and 0.01 with ±0.02% accuracy. Output of attenuator is provided for calibration.
Zero .....Amplifier input disconnected and shorted.

### MECHANICAL

Mounting.....Occupies one slot in Series 6000 enclosures.
Connectors .....Input connector is 50-pin Type D. Connectors are mounted on the front and mates are supplied.
Temperature .....0°C to +50°C operating.

### ACCESSORIES

SCREW TERMINAL ADAPTER (6081)
Termination .....8 channels, screw clamp terminals for inputs and outputs, #18 to #28 wire.
Mounting.....Installs on the front of the input module behind the enclosure door.

### ORDERING INFORMATION

6014 .....8-Ch Accelerometer Amplifier-Filter-Digitizer.
6081 .....Screw Terminal Adapter.

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