

The 6029 input module has eight channels each providing excitation for IEPE transducers, programmable AC or DC-coupled differential instrumentation amplifier, low-pass filter and analog to digital converter. Sample rate is programmable up to 200 kS/s with 16-bit resolution. Each channel has a buffered analog output that can be selected for wideband or filtered response.

Using amplifier/digitizer-per-channel architecture the 6029 provides high bandwidth and digitizing speed with excellent channel-to-channel time correlation. It offers the highest accuracy and completely eliminates crosstalk between channels. It may be used to condition and digitize signals from piezoelectric transducers with built-in or in-line charge amplifiers and other AC or DC voltage measurements. Input attenuation and current inputs, including 4-20 mA current loop, are available.

An adjustable 2-20 mA current source with 24 Volt compliance is provided for powering IEPE transducers. Gain is programmable from 1 to 5,000 providing ± 2 mV to ± 10 Volts full scale input sensitivity. Zero and gain calibrations are automatic.

Bandwidth is DC, 1 Hz when AC coupled, to 100 kHz. The low-pass filter may be employed to minimize alias errors for data sampling. A plug-in resistor module establishes the desired frequency. Filter frequency may be specified at the time of ordering. Frequency modules are available from 250 Hz to 50 kHz.

SPECIFICATIONS

INPUT

Configuration8 channels, differential, 2-wire with shield.
 TypeProgrammable AC or DC input. Input attenuator and current input are available.
 Range ± 2 mV to ± 10 Volts
 Impedance (AC) . .100k Ohms, shunted by 1,000 pf.
 Impedance (DC) . .50 Megohms, shunted by 500 pF.
 Protection ± 50 Volts differential and common mode.

EXCITATION / TRANSDUCER POWER

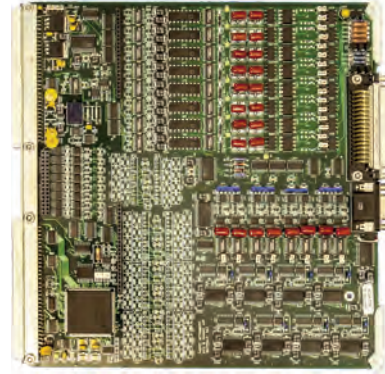
Current2 to 20 mA. 6 mA is supplied unless otherwise specified.
 Compliance28 Volts minimum.
 VerificationShort and open detection.
 Voltage ± 12 or ± 15 Volts jumper selectable per channel, ± 28 also available

AMPLIFIER

GainProgrammable 1 to 5000, in 1, 2, 3, 5 steps, with $\pm 0.05\%$ accuracy.
 Gain Stability $\pm 0.01\%$, $\pm 0.005\%/^{\circ}\text{C}$.
 Linearity $\pm 0.01\%$. for Gains < 1,000, $\pm 0.02\%$ for Gains > 1,000
 Common Mode . . .60 dB plus gain in dB to 110 dB, DC to 60 Hz.
 CM Voltage ± 10 Volts.
 ZeroAutomatic to ± 2 mV.
 Zero Stab. X1 ± 1 mV, ± 0.2 mV/ $^{\circ}\text{C}$.
 Zero Stab. X1000 . . . ± 5 mV, ± 1 mV/ $^{\circ}\text{C}$.
 Noise X10.4 mV RMS for 20 kHz bandwidth.
 Noise X10002.8 mV RMS for 20 kHz bandwidth.
 BandwidthDC to 100kHz for Gains 1 to 1,000 and 50kHz for Gains > 1,000 (-3dB). 1Hz to 100kHz (-3dB) in AC coupled mode.
 Slew Rate3.2 V/ μs .
 Analog Output ± 10 Volts full scale, 20 mA. Programmable for wideband or filtered response.

FILTER

TypeSingle frequency 4-pole (standard) or 4 frequency 4-pole or 2 frequency 8-pole Bessel.



FEATURES

- AC or DC coupled inputs
- 2 to 20 mA current excitation
- Gains 1 to 5,000 with 0.05% accuracy
- 4, 6 or 8-pole, low-pass filter
- 100 kHz signal bandwidth
- Up to 200 kS/s per channel with 16-bit resolution
- Buffered ± 10 Volt analog output

FrequencyFrom 500Hz to 50kHz
 Standard 4 Pole: 10kHz
 4 Frequency 4 Pole: 10Hz, 1kHz, 10kHz, 20kHz
 2 Frequency 8 Pole: 2kHz and 20kHz.
 Noise1 mV peak, RTO.
 OtherOther filter characteristics and cut offs available.

DIGITIZER

Sample ± 50 nS channel-to-channel time correlation.
 Resolution16 bits, two's complement output per channel.
 RateProgrammable up to 200 kS/s digitizer per channel.
 Linearity $\pm 1\frac{1}{2}$ LSB ($\pm 0.004\%$)
 ContinuityMonotonic to 15 bits.
 AlarmsTwo alarms each with upper and lower limits that are programmable from negative to positive full scale. Limits checked on each ADC sample.

CALIBRATION

Voltage SubstAlternate input for external calibration source. Programmable 1, 0.1 and 0.01, attenuation with $\pm 0.02\%$ accuracy. Attenuator output may be connected to output bus for accuracy check.
 ZeroAmplifier input disconnected and shorted for zero calibration.

MECHANICAL

MountingOccupies one slot in Series 6000 enclosures.
 ConnectorsInput connector is 50-pin Type D. Output is 15-pin Type D High Density. Mating connectors are supplied.
 Temperature0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$.

ORDERING INFORMATION

6029-BE48-Ch Voltage/IEPE Single Freq, 4-Pole Bessel.
 6029PF4-BE48-Ch Voltage/IEPE 4-Freq, 4-Pole Bessel.
 6029PF2-BE88-Ch Voltage/IEPE 2-Freq, 8-Pole Bessel.
 6029-HV8-Ch Voltage Digitizer w/ 100:1 Attenuator
 6029-I8-Ch Current Input for 0-20mA
 60838-Ch BNC Adapter