

The 6129 input module has eight channels each providing excitation for IEPE transducers, programmable AC or DC-coupled differential instrumentation amplifier and a low-pass filter. Each channel has two buffered outputs that can be independently selected for wideband or filtered response.

The 6129 is used to condition signals from piezoelectric transducers with built-in or in-line charge amplifiers having low-impedance outputs and other voltage measurements. It provides a current source with 24 Volt compliance that is adjustable from 2 mA to 20 mA for powering IEPE transducers. AC or DC input coupling is programmable enabling its use in static and dynamic applications. Input attenuation and current inputs, including 4-20 mA current loop, are available.

Gain is programmable from 1 to 5,000 providing ± 2 mV to ± 10 Volts full scale input sensitivity. Bandwidth is 1 Hz (AC coupled) or DC (DC coupled) to 50 or 100 kHz. Zero and gain calibrations are automatic. The single high-level analog output provides ± 10 Volts at 20 mA. Optional dual outputs are independently buffered so that a short on one output will not effect the other.

The low-pass filter may be employed to minimize alias errors for data sampling. A plug-in resistor module establishes the desired frequency. The 6129 is supplied with a 20 kHz filter module. A different frequency may be specified at the time of ordering. Frequency modules are available from 250 Hz to 50 kHz.



FEATURES

- Current source for IEPE Transducers
- AC or DC coupled differential input
- Programmable input sensitivity, ± 2 mV to ± 10 Volts
- 50 or 100 kHz signal bandwidth
- Four-pole, antialiasing filter
- Buffered output, ± 10 Volts

SPECIFICATIONS

INPUTS

ConfigurationDifferential, 2-wire with shield. Programmable AC or DC input. Input attenuator and current input are available.

F/S Range ± 2 mV to ± 10 Volts

SelectionInput, Voltage Calibration, Zero (short).

Impedance (AC)100k Ohms, shunted by 1,000 pF.

Impedance (DC)50 Megohms, shunted by 500 pF.

Protection ± 50 Volts differential, ± 30 Volts common mode.

EXCITATION

Current2 to 20 mA. 6 mA is supplied unless otherwise specified.

Compliance24 Volts minimum.

VerificationShort and open detection.

CALIBRATION

VoltageAlternate 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.

Zero CalibrationAmplifier input disconnected and shorted for zero calibration.

AMPLIFIER

GainProgrammable 1 to 1000 using calibrated steps or continuous with 0.05% resolution.

Gain Steps1, 2, 3, 5, 10, 20, 30, 50, 100, 200, 300, 500, 1,000, 2,000, 3,000, 5,000 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 Mode60 dB plus gain in dB to 110 dB, DC to 60 Hz.

CM Voltage ± 10 Volts.

ZeroAutomatic to ± 1 mV.

Zero Stab. X1 ± 1 mV, ± 0.2 mV/ $^{\circ}\text{C}$.

Zero Stab. X1000 ± 5 mV, ± 1 mV/ $^{\circ}\text{C}$.

Noise X10.2 mV RMS for 20 kHz bandwidth.

Noise X10002.8 mV RMS for 20 kHz bandwidth.

BandwidthDC to 50 kHz (-3dB). 1 Hz to 50 kHz (-3dB) in AC coupled mode.

Bandwidth (HF)DC to 100 kHz (-3dB). 1 Hz to 100 kHz (-3dB) in AC coupled mode.

Slew Rate3.2 V/ μs .

OutputOne buffered output, ± 10 Volts full scale, 20 mA. Programmable for wideband or filtered response. Optional dual buffered analog outputs available.

FILTER

TypeFour-pole, low-pass Bessel, with cut-off frequencies from 250 Hz to 50kHz and wide-band. Other frequency ranges are available.

FrequencySelected by plug-in module. 20 kHz supplied unless otherwise specified.

Zero ± 1 mV primary output, ± 5 mV on secondary output between wideband and filtered modes.

GENERAL

MountingOccupies one slot in the Series 6100 Mainframe enclosures.

ConnectorsInput connector is 50-pin Type D. Output connectors are 26-pin Type D. Connectors are mounted on the front and mates are supplied.

Temperature0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$.

SCREW TERMINAL ADAPTER (6081)

Termination8 channels, screw clamp terminals for inputs and outputs, #18 to #28 wire.

MountingInstalls on the front of the input module behind the enclosure door. Cables route to the rear through the enclosure's cable tray.

ORDERING INFORMATION

61298-Channel AC/DC-Coupled Instrumentation Amplifier with 50 kHz bandwidth.

6129HF8-Channel AC/DC-Coupled Instrumentation Amplifier with 100 kHz bandwidth.

6129A2Optional Dual Buffered Analog Outputs ± 10 Volts, 20mA.

6081Screw Terminal Adapter.