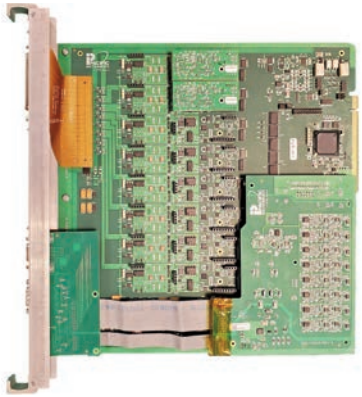
MODEL 6729
8-Channel Voltage/IEPE Amplifier-Filter-Digitizer

The 6729 input module has eight channels, each providing excitation for IEPE transducers, programmable AC or DC-coupled differential instrumentation amplifier, 8 programmable linear phase FIR filters and wideband and analog to digital converter. Sample rate is programmable up to 250 kS/s with 24-bit digitizer. Each channel has an optional isolated analog output and an optional isolated digital alarm output. Each 6729 I/O module has 1200 V isolation from other 6700 I/O modules.

Using amplifier/digitizer-per-channel architecture the 6729 provides high bandwidth and digitizing speed with excellent channel-to-channel time correlation. It offers high accuracy and removes 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. Optional input attenuation and current inputs, including 4-20 mA current loop, are available.

A two position selectable 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 automated.

Bandwidth is DC to 100 kHz. AC or DC coupling is selectable. The programmable 256 tap linear phase FIR filters may be employed to minimize alias errors for data sampling.



FEATURES

- **AC or DC coupled inputs**
- **2 to 20 mA current excitation**
- **Gains 1 to 5,000 with 0.01% to 0.02% accuracy**
- **8 Linear phase FIR filters**
- **100 kHz signal bandwidth**
- **Up to 250 kS/s per channel with 24-bit resolution**
- **Optional ±10 Volt analog output**
- **Digital alarm output option**

SPECIFICATIONS

INPUT

Configuration . . . .8 channels, differential, 2-wire with shield.
Type . . . . . .Programmable AC or DC input. Input attenuator and current input are available.
Range . . . . . .±2 mV to ±10 Volts
Impedance (AC) . .1M Ohm, shunted by 1,000 pf.
Impedance (DC) . .10M Ohm, shunted by 500 pF.
Protection . . . . . .±50 Volts differential and common mode. Optional lightning protection. Card-to-card common mode voltage 300V.

EXCITATION / TRANSDUCER POWER

Current . . . . . .6mA & 10mA selectable, standard.
Compliance . . . . . .24 Volts minimum.
Verification . . . . . .Short and open detection.
Voltage.....±12 or ±15 Volts jumper selectable per module.

AMPLIFIER

Gain . . . . . .Gains 1 to 500 ±0.01%. Gains 1 to 5000 ±0.02%.
Gain Stability . . . .±0.01%, ±0.005%/°C.
Linearity . . . . . .±0.01%. for Gains < 1,000, ±0.02% for Gains > 1,000
Common Mode ....Better than 80dB (between input & excitation ground).
CM Voltage . . . . .±10 Volts (input to excitation common).
Zero . . . . . .Automatic to ±1 mV.
Zero Stab. X1 . . . .Better than ±1 mV, ±0.2 mV/°C.
Zero Stab. X1000 .Better than ±5 mV, ±1 mV/°C.
Noise X1 . . . . . .0.1 mV RMS for 20 kHz bandwidth.
Noise X1000 . . . .1.4 mV RMS for 20 kHz bandwidth.
Bandwidth . . . . . .100kHz.
AC Coupling . . . .1Hz corner frequency standard. Other cutoff frequencies are possible.
Slew Rate . . . . . .>10 V/µs.
Analog Output . . . .±10 Volts full scale, 20 mA.

FILTER

Type . . . . . .8 Linear phase FIR filters.
Frequency . . . . . .1000 Hz to 50 kHz.
Noise . . . . . .1 mV peak, RTO.
Other . . . . . .Other filter characteristics and cut offs available.

DIGITIZER

Sample.....±50 nS channel-to-channel time correlation.
Resolution .....24 bits, two's complement output per channel.
Rate.....Programmable up to 250 kS/s digitizer per channel.
Linearity .....±1½ LSB (±0.004%)
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 calibration source. Programmable 1, 0.1 and 0.01, attenuation with ±0.02% accuracy. Attenuator output may be connected to output bus for accuracy check.
Zero .....Amplifier input disconnected and shorted for zero calibration.

MECHANICAL

Mounting . . . . . .Occupies one slot in Series 6700 enclosures.
Connectors . . . . . .Three D-subminiature connectors, compatible with 6000 series pinouts. One 50 position transducer socket, one 9-position analog output socket, one 9-pin status output. Other connector arrangements are possible.
Temperature . . . . .0°C to +50°C.

ORDERING INFORMATION

6729 . . . . . .8-Ch Voltage/IEPE 8 Freq, Linear phase FIR filters.

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