

The 6028 input module has eight channels each with a differential input, unity gain instrumentation amplifier, low pass filter and 16-bit analog to digital converter. Each channel is capable of digitizing high-frequency signals at up to 100,000 samples per second. In addition each channel has a continuous, wideband analog output.

The 6028 is used to digitize high level signals, usually the output of signal conditioning amplifiers or other measuring instruments. The four-pole filters may be employed to prevent alias errors in the sampled data and are available with bandwidths from 100 Hz to 20kHz. The ADC-per-channel architecture provides sampling rates up to 100 kS/s with 50 nS time correlation between data sampled on different channels.

The differential inputs have 50 Megohm input impedance, 80 dB common mode rejection, and are protected to  $\pm 50$  Volts. Zero and gain calibrations are automatic. Up to four programmable alarm limits are provided and checked each time the output is digitized. The high-level analog outputs provide a means to independently monitor and record each channel.



## FEATURES

- Differential input,  $\pm 10$  Volts,  $\pm 50$  Volts with optional attenuator
- Buffered  $\pm 10$  Volts analog outputs for redundancy
- Four-pole filter, 100 Hz to 20 kHz
- Up to 100 kS/s per channel with 16-bit digitizer
- Two alarms with programmable upper and lower limits

## SPECIFICATIONS

### INPUT

Configuration ..... 8 channels, differential, 2-wire with shield.  
Range .....  $\pm 10$  Volts,  $\pm 50$  Volts with optional attenuator.  
Attenuator (opt) .... 5:1,  $\pm 0.2\%$ .  
Impedance ..... 50 Megohms, shunted by 1,000 pf, 100K Ohms with attenuator.  
Protection .....  $\pm 50$  Volts differential,  $\pm 30$  Volts common mode.  
.....  $\pm 200$  Volts differential with attenuator.

### AMPLIFIER

Gain .....  $1 \pm 0.05\%$   
Gain Stability .....  $\pm 0.01\%$ ,  $\pm 0.005\%/\text{°C}$ .  
Linearity .....  $\pm 0.01\%$ .  
Common Mode ..... 80 dB DC to 60 Hz.  
CM Voltage .....  $\pm 10$  Volts.  
Zero ..... Automatic to  $\pm 1$  mV.  
Zero Stability .....  $\pm 1$  mV,  $\pm 0.2$  mV/ $^{\circ}\text{C}$ .  
Noise (1 kHz) ..... 0.25 mV peak.  
Noise (50 kHz) ..... 1.5 mV peak.  
Bandwidth ..... 100 kHz (-3dB), 30 kHz with attenuator.  
Slew Rate ..... 3.2 V/ $\mu$ s, 100 kHz full power bandwidth.  
Analog Output .....  $\pm 10$  Volts full scale, unfiltered.

### FILTER

Type ..... Four-pole, low-pass Butterworth.  
Frequency ..... Plug-in 100 Hz to 20kHz, 1kHz supplied.  
Other ..... Other filter characteristics and cut offs available.

### DIGITIZER

Sample .....  $\pm 50$  nS time correlation channel-to-channel.  
Resolution ..... 16-bits, two's complement output.  
Sample Rate ..... Up to 100kS/s digitizer per channel.  
Linearity .....  $\pm 2$  LSB ( $\pm 0.006\%$ ).  
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  $\pm 0.01\%$  accuracy. Output of the attenuator is provided on a rear panel connector 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. Output connector is 9-pin Type D. Connectors are mounted on the front and mates are supplied.  
Temperature ..... 0°C to +50°C.

### 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. Cables route to the rear through the enclosure's cable tray.

### ORDERING INFORMATION

6028 ..... 8-Ch Voltage Digitizer.  
6028-HV ..... 8-Ch Voltage Digitizer w/ 100:1 Attenuator.  
6081 ..... Screw Terminal Adapter.