

ProDAQ LXI Instruments

ProDAQ 6131

Isolated Precision RTD input LXI

Instrument

(Model 6131-AA: RTD)



OVERVIEW

The ProDAQ 6131 is an LXI instrument designed for up to 32-channel isolated precision RTD measurements. It supports various types of RTDs, including Pt-100, Pt-500 and Pt-1000 and other resistive devices. Each channel is isolated from both the chassis and all other channels.

The ProDAQ 6131 provides an easy to use, cost effective and scalable solution for the most demanding resistive temperature measurement applications. As a standalone LXI instrument it can be directly connected to your network and operated either through the integrated web pages or integrated to your data acquisition application using the VISA I/O library. Measurement data can be read from the instrument or directly streamed to one or several servers. Multiple devices can be synchronized via the IEEE1588 precision time protocol. The unit is equipped with a redundant power supply and two Ethernet ports.

FEATURES

Analog Inputs: Each channel of the ProDAQ 6131 employs a 24-bit Sigma-Delta ADC to provide the highest possible measurement accuracy. Each channel is isolated from any other and also from the chassis, with a working isolation voltage up to 300VDC. This allows any channel not only to float to different voltage potentials but also eliminates the possibility of ground loop error. An EMI filter is included per channel to reduce the possibility of error due to high frequency conducted noise. This filter also acts as an Anti-alias filter for the Sigma-Delta ADC.

Excitation Current: Each channel has individual pulsed excitation current with values programmable from 0.2mA to 2mA.

Simultaneous Sampling: The ProDAQ 6131 has a dedicated ADC per channel. This allows for true simultaneous sampling of all channels. The scan rate can be varied from 1 S/s to 1000 S/s, with a resolution of 1Hz.

Analog Outputs: Each channel is equipped with 2 buffered analog outputs, ranging from 0V to +10V, with a level designed to cover the required resistance range for each RTD type.

Various Mounting Options: The ProDAQ 6131 comes in a 1U high unit suitable for rack mount in a standard 19" rack if used with the ProDAQ 5725 Rack-Mount kit. The ProDAQ 6131 can also be desktop mounted using the ProDAQ 5726 Stackable Tabletop Feet Set.

Features & Benefits

- ▶ **19", 1U** solution for **32 RTD Input Channels**
- ▶ **Support** for **Pt-100, Pt-500 and Pt-1000** devices
- ▶ **Channel Isolation up to 300 VDC** (channel to channel and channel to ground)
- ▶ **24-Bit Sigma Delta** ADC per channel
- ▶ **Simultaneous Sampling** of all channels
- ▶ **Two Analog Outputs** per channel



SPECIFICATIONS (Model 6131-AA only)

General	
Number of signal channels	32
Isolation	300 VDC (Channel to channel, channel to outputs and channel to chassis)
ADC Resolution	24-bit
ADC Sampling Rates, f_s	1 to 1000 Samples per second, 1Hz Resolution
EMI Filtering	Yes, per channel
Input Protection	$\pm 30V$, max. continuous input current 10 mA, max. 3A for up to 10msec
Input Type	RTD/resistance (Minimum span: 5 Ω)
Common Mode Voltage	Provided by the instrument, min 0.45V, max 4.21V
Input Impedance	$\geq 1M\Omega$
Filter Type & Specification	Low pass, 10Hz FIR filter @ 1kSPS, 63 taps, scales proportionally with sampling rate
Noise	<100 μ Vrms
Linearization	In built Linearizer through software
Calibration	Software calibration (zero and gain). Factory Calibrated.
Calibration Option	Internal/External source
Response Time	<100ms
RTD Measurement	
RTD Types	Pt-100, Pt-500, Pt-1000
Excitation Currents	0.2mA to 2mA, pulsed
Excitation stability (24 hrs.)	$\leq 0.01\%$
Temperature Stability	$\leq 50\text{ppm} / ^\circ\text{C}$
Accuracy	$\leq 0.25\%$ FSO
Voltage Output	
Output level	0 to +10V
Number of Outputs	2 per channel
Output Resistance	$\leq 1\Omega$, short circuit protected
Control Interface	
Physical Interface	Two redundant network ports, 10/100/1000 Base-TX
Software Interface	SCPI over VXI-II protocol (VISA), TCP/IP, Web Interface
Operating System Support	Windows 10
Environmental	
Temperature	5 $^\circ\text{C}$ to +50 $^\circ\text{C}$ (operational) -40 $^\circ\text{C}$ to +70 $^\circ\text{C}$ (storage only)
Humidity	5% - 95% (non-condensing)
Size	425 mm x 330 mm x 43.5 mm (excl. connectors)
Weight	5 kg
Power Supply	
Input	Two redundant inputs, 85 - 264V AC, 47 - 63 Hz each
Power	40W typical

Ordering Information

- ▶ **6131-AA** LXI Isolated Precision Thermocouple Instrument, 16 Channel

Related Products:

- ▶ **5725** Rack-Mount Kit
- ▶ **5726** Stackable Tabletop Feet Set

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BLOCK DIAGRAM (Model 6131-AA only)

