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Data Sheet

August 13, 2026

NI

NI USB-6008 12-Bit Multifunction DAQ USB Device

The NI USB-6008 is a low-cost, 12-bit multifunction DAQ device built for USB 2.0 Full-Speed connectivity and bus-powered operation. It delivers analog input across 8 single-ended or 4 differential channels at 10 kS/s aggregate sample rate, two 12-bit analog outputs up to 150 S/s, 12 individually configurable digital I/O channels, and a 32-bit event counter supporting edge counting to 5 MHz. The device suits data logging, mobile measurements, and educational applications with selectable differential input ranges from ± 1 V to ± 20 V and single-ended ± 10 V operation. Successive approximation conversion with 41.67 ns timing resolution (24 MHz timebase) and 100 ppm timing accuracy ensures reliable signal acquisition. System noise ranges from 0.5 mVrms at ± 1 V to 5 mVrms at full scale, with absolute accuracy of 1.53 mV to 14.7 mV depending on range. A single 32-bit counter accepts falling-edge



MODEL

NI USB-6008

CALIBRATION

Available on request

CONDITION

Used

STATUS

In stock

RFQ / SKU

USB-6008

LISTING

<https://aumictechlabs.com/products/usb-6008-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

The NI USB-6008 is a low-cost, 12-bit multifunction DAQ device built for USB 2.0 Full-Speed connectivity and bus-powered operation. It delivers analog input across 8 single-ended or 4 differential channels at 10 kS/s aggregate sample rate, two 12-bit analog outputs up to 150 S/s, 12

individually configurable digital I/O channels, and a 32-bit event counter supporting edge counting to 5 MHz. The device suits data logging, mobile measurements, and educational applications with selectable differential input ranges from ± 1 V to ± 20 V and single-ended ± 10 V operation. Successive approximation conversion with 41.67 ns timing resolution (24 MHz timebase) and 100 ppm timing accuracy ensures reliable signal acquisition. System noise ranges from 0.5 mVrms at ± 1 V to 5 mVrms at full scale, with absolute accuracy of 1.53 mV to 14.7 mV depending on range. A single 32-bit counter accepts falling-edge events on PFI 0, configurable as digital trigger or counter input. The device provides +5 V auxiliary power up to 200 mA and a +2.5 V external reference. Lightweight, portable enclosure with screw terminal connectors (16–28 AWG) and overvoltage protection to ± 35 V rounds out the design. NI-DAQmx driver software simplifies configuration and measurement execution across Windows and embedded platforms.

Technical Specifications

Analog Input 8 single-ended or 4 differential channels 12-bit resolution, ± 1 V to ± 20 V differential ranges, ± 10 V single-ended 10 kS/s aggregate sample rate, successive approximation converter 144 k Ω input impedance, ± 35 V overvoltage protection System noise: 0.5–5 mVrms; absolute accuracy 1.53–14.7 mV @ 25 °C Analog Output 2 channels, 12-bit resolution, 0–5 V range 150 S/s maximum update rate, software-timed Digital I/O 12 channels, individually configurable input/output Port 0: channels 0–7; Port 1: channels 0–3 Event Counter 1 $\times$ 32-bit counter, falling-edge detection to 5 MHz 100 ns minimum pulse width, PFI 0 configurable as trigger or counter input Power & Reference +5 V @ 200 mA auxiliary output; +2.5 V external reference provided USB bus-powered via USB 2.0 Full-Speed (12 Mb/s)

Key Features

Screw terminal connectors accommodate 16–28 AWG wire Timing resolution 41.67 ns, 100 ppm accuracy Compact, portable design suitable for field deployment NI-DAQmx driver integration for rapid application development

Typical Applications

Basic data logging and mobile sensor measurements Educational laboratory experiments and bench-top testing Signal conditioning and low-speed transducer monitoring

Compatibility & Integration

Supported by NI-DAQmx driver software; operates as USB 2.0 Full-Speed device on standard Windows and Linux platforms with Python, C, and LabVIEW compatibility.

Features & description

From manufacturer datasheet

Features

- 8 SE / 4 DI analog inputs, 12-bit differential / 11-bit single-ended • 10 kS/s aggregate maximum • Two 12-bit analog outputs, 0 to 5 V • 12 DIO, open-collector configuration • 32-bit counter • USB 2.0 full-speed, bus-powered

USB6008 Characteristics / Specifications

PARAMETER	VALUE
Model	USB-6008
Manufacturer	National Instruments
Instrument Type	USB Multifunction DAQ
Series	USB-6008/6009
Alias	USB-6008; NI USB-6008
AI Differential	4
AI Single Ended	8, software selectable
AI Resolution Differential	12 bits
AI Resolution Single Ended	11 bits
Maximum Sample Rate Single	10 kS/s
Maximum Sample Rate Aggregate	10 kS/s
Converter Type	multiplexed successive approximation (one ADC)
Timing Resolution	41.67 ns (24 MHz timebase) family
Timing Accuracy	100 ppm of actual sample rate family
AI FIFO	512 bytes family
Input Ranges	+/-20 V, +/-10 V, +/-5 V, +/-4 V, +/-2.5 V, +/-2 V, +/-1.25 V, +/-1 V (USB-6008/6009 family)
Overvoltage Protection	+/-35 V family
Input Impedance	144 kohm family
AO Channels	2
AO Resolution	12 bits
AO Range	0 to 5 V
AO Update	software timed, 150 Hz class
DIO Channels	12 (P0.0..7 and P1.0..3)
DIO Configuration	open collector
Counter Resolution	32 bits

PARAMETER	VALUE
USB Specification	USB 2.0 full-speed (12 Mb/s)
Power	USB bus-powered
Wiring Gauge	16 AWG to 28 AWG
Terminal Torque	0.22 Nm to 0.25 N m (2.0 to 2.2 lb in)
Connectors	two detachable screw terminal plugs
USB Connector	USB with cable strain relief
Status LED	green, blinks when initialized and powered
Firmware	uploaded by NI-DAQmx on connect
Driver Minimum	NI-DAQmx 7.5
EMC Note	specified EMC with shielded cables and accessories
Compared Sibling	USB-6009 is 14-bit differential / 13-bit SE at 48 kS/s with per-channel open-collector or active-drive DIO
Form	portable USB DAQ enclosure Notes Specs from NI USB-6008/6009 User Guide comparison table and USB-6008 Device Specifications. USB-6008 DIO is open-collector only. Confirm the unit is USB-6008 versus USB-6009 on the label.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
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Input Ranges	+/-20 V, +/-10 V, +/-5 V, +/-4 V, +/-2.5 V, +/-2 V, +/-1.25 V, +/-1 V (USB-6008/6009 family)
Overvoltage Protection	+/-35 V family
Input Impedance	144 kohm family
A0 Channels	2
A0 Resolution	12 bits
A0 Range	0 to 5 V
A0 Update	software timed, 150 Hz class
DIO Channels	12 (P0.0..7 and P1.0..3)
DIO Configuration	open collector
Counter Resolution	32 bits

PARAMETER	VALUE
USB Specification	USB 2.0 full-speed (12 Mb/s)
Power	USB bus-powered
Wiring Gauge	16 AWG to 28 AWG
Terminal Torque	0.22 Nm to 0.25 N m (2.0 to 2.2 lb in)
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Status LED	green, blinks when initialized and powered
Firmware	uploaded by NI-DAQmx on connect
Driver Minimum	NI-DAQmx 7.5
EMC Note	specified EMC with shielded cables and accessories
Compared Sibling	USB-6009 is 14-bit differential / 13-bit SE at 48 kS/s with per-channel open-collector or active-drive DIO
Form	portable USB DAQ enclosure

Notes

Specs from NI USB-6008/6009 User Guide comparison table and USB-6008 Device Specifications. USB-6008 DIO is open-collector only. Confirm the unit is USB-6008 versus USB-6009 on the label.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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NIST-traceable calibration · SAM registered ·
30-day returns
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.