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NI USB-6221

Legacy USB DAQ Device

- 16 analog inputs (16-bit, 250 kS/s)
- 2 analog outputs (16-bit, 833 kS/s); 24 digital I/O (8 clocked); 32-bit counters
- National Instruments recommends the X Series USB-6341 for all new applications



Overview

This is a legacy device. National Instruments recommends the X Series USB-6341 multifunction DAQ device for all new applications.

The National Instruments USB-6221 is a USB high-performance M Series multifunction data acquisition (DAQ) module optimized for superior accuracy at fast sampling rates.

The National Instruments USB-6221 is designed specifically for mobile or space-constrained applications. Plug-and-play installation minimizes configuration and setup time, while direct screw-terminal connectivity helps keep costs down and simplifies signal connections.

Each module also features an OEM version. Check the resources tab or use the left navigation to get pricing and technical information.

Driver Software

NI-DAQmx driver and measurement services software provides easy-to-use configuration and programming interfaces with features such as DAQ Assistant to help reduce development time. Browse the information in the Resources tab to learn more about driver software or download a driver. M Series devices are not compatible with the Traditional NI-DAQ (Legacy) driver.

Application Software

Every M Series data acquisition device includes a copy of NI LabVIEW SignalExpress LE so you can quickly acquire, analyze, and present data without programming. In addition to LabVIEW SignalExpress, M Series data acquisition devices are compatible with the following versions (or later) of NI application software – LabVIEW 7.1, LabWindows™/CVI 7.x, or Measurement Studio 7.x. M Series data acquisition devices are also compatible with Visual Studio .NET, C/C++, and Visual Basic 6.

Specifications

Specifications Documents

- Specifications (2)
- Data Sheet

Specifications Summary

General

Product Name	USB-6221
Product Family	Multifunction Data Acquisition
Form Factor	USB
Part Number	779808-01 , 779808-02 , 779808-03 , 779808-04 , 779808-06 , 779808-07
Operating System/Target	Windows
DAQ Product Family	M Series
Measurement Type	Quadrature encoder , Voltage
RoHS Compliant	Yes

Analog Input

Channels	16 , 8
Single-Ended Channels	16
Differential Channels	8
Resolution	16 bits
Sample Rate	250 kS/s
Max Voltage	10 V
Maximum Voltage Range	-10 V , 10 V
Maximum Voltage Range Accuracy	3100 μ V
Maximum Voltage Range Sensitivity	97.6 μ V
Minimum Voltage Range	-200 mV , 200 mV
Minimum Voltage Range Accuracy	112 μ V
Minimum Voltage Range Sensitivity	5.2 μ V
Number of Ranges	4
Simultaneous Sampling	No
On-Board Memory	4095 samples

Analog Output

Channels	2
Resolution	16 bits
Max Voltage	10 V

Maximum Voltage Range	-10 V , 10 V
Maximum Voltage Range Accuracy	3230 μ V
Minimum Voltage Range	-10 V , 10 V
Minimum Voltage Range Accuracy	3230 μ V
Update Rate	833 kS/s
Current Drive Single	5 mA
Digital I/O	
Bidirectional Channels	24
Input-Only Channels	0
Output-Only Channels	0
Number of Channels	24 , 0 , 0
Timing	Hardware , Software
Max Clock Rate	1 MHz
Logic Levels	TTL
Input Current Flow	Sinking , Sourcing
Output Current Flow	Sinking , Sourcing
Programmable Input Filters	Yes
Supports Programmable Power-Up States?	Yes
Current Drive Single	24 mA
Current Drive All	448 mA
Watchdog Timer	No
Supports Handshaking I/O?	No
Supports Pattern I/O?	Yes
Maximum Input Range	0 V , 5 V
Maximum Output Range	0 V , 5 V
Counter/Timers	
Counters	2
Buffered Operations	Yes
Debouncing/Glitch Removal	Yes
GPS Synchronization	No
Maximum Range	0 V , 5 V

Max Source Frequency	80 MHz
Minimum Input Pulse Width	12.5 ns
Pulse Generation	Yes
Resolution	32 bits
Timebase Stability	50 ppm
Logic Levels	TTL
Physical Specifications	
Length	26.67 cm
Width	17.09 cm
Height	4.45 cm
I/O Connector	Screw terminals
Timing/Triggering/Synchronization	
Triggering	Digital

Pricing

Part Number	Description	Est Ship	Euro*	Qty
Device and Professional Accessory Set				
779808-02	NI USB-6221 M Series, 26 cm, Screw Term, SWISS (220V)	12 - 20	€ 1,149.00	0
779808-04	NI USB-6221 M Series, 26 cm, Screw Term, EURO (240V)	5 - 10	€ 1,149.00	0
779808-06	NI USB-6221 M Series, 26 cm, Screw Term, U.K. (240V)	5 - 10	€ 1,149.00	0
Optional Accessories				
780315-01	Rugged Carrying Case for Portable Instrumentation	5 - 10	€ 159.00	0
779489-01	Data Acquisition: 7 Steps To Success Tutorial Kit	5 - 10	€ 79.00	0
780214-01	Externally Powered USB M Series Panel Mounting Kit	5 - 10	€ 49.00	0

* You have selected Netherlands as the country where you will use the product(s). Pricing may have changed since you printed this document on 04/11/2011. Please visit ni.com to see current pricing.

Place Order or Obtain Quote

Order Online or by Fax

- 1 . Navigate to ni.com/products and select "Order by Part Number" found under the "Business Center" section.
- 2 . Once you have added your items to your cart, see the "Your Cart Options" section to place your order, obtain a quote, or print a fax form.

Order by Phone

Call 0348 433 466 to place your order or obtain a quote.

Services

Extended Warranties

National Instruments designs and manufactures all products to minimize failures, however unexpected failures can still occur. Extended warranties provide a fixed economical price at the time of system purchase, covering any repair costs for up to three years. In addition, they offer the following benefits:

- Significant cost savings compared to individual repair incidents
- Fault location, diagnostics, and repair by NI any time the system product fails
- All parts and labor costs covered as well as any adjustments needed to restore the hardware to manufacturing specifications

For more information about your warranty options:

- Learn More About Warranty Services [<http://www.ni.com/services/warranty.htm>]
- Talk to an Expert About Extended Warranties [[javascript:openCallMeWindowCTA\(document.referrer,%20'US'\)](http://www.ni.com/services/warranty.htm#expert)]
- View Warranty Repair Policies [http://www.ni.com/services/warranty_repair_policies.htm]

Calibration

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. NI provides manual calibration procedures, services to recalibrate your products, and automated calibration software to calibrate many NI measurement products.

- Learn More About Calibration Services [<http://www.ni.com/services/calibration.htm>]

Training

NI training is the fastest, most certain route to productivity with NI tools and successful application development.

- Learn More About NI Training and Certification [<http://www.ni.com/training/>]
- Find a Course Near You and View Schedules [<http://sine.ni.com/apps/utf8/nisv.custed>]

Repair Services

Return your registered product under warranty at no additional labor and parts cost. NI offers fault location, diagnostics, and repair any time the system fails as well as any adjustments needed to restore the hardware to manufacturing specifications.

- Learn More About Repair Services [<http://www.ni.com/services/warranty.htm>]
- Contact NI to obtain a Return Material Authorization (RMA) form and shipping instructions. [http://sine.ni.com/apps/utf8/nicc.call_me]
- View your RMA support request status online. [<http://www.ni.com/support/servicereq/>]
- Register your product [<http://www.ni.com/register/>].

Technical Support

[ni.com/support](http://www.ni.com/support) [<http://www.ni.com/support/>]

Resources

Additional Product Information

- Manuals (6)
- Dimensional Drawings
- Product Certifications

Related Information

- NI USB Data Acquisition for OEM
- Download NI Data Acquisition Drivers
- NI LabVIEW SignalExpress Interactive Data-Logging Software
- NI Signal Streaming: bidirectional high-speed data streams over USB

