

NI CompactDAQ USB Data Acquisition System

NI CompactDAQ

NI cDAQ-9172

- Accepts up to 8 C Series I/O modules
- Compact (25 by 9 by 9 cm)
- Hi-Speed USB connection to PC
- 11 to 30 V power supply included

NI C Series Modules

- Sensor-specific signal conditioning per module
- Up to 24-bit resolution
- Up to 3.2 MS/s per chassis
- Up to 256 channels per chassis

Operating Systems

- Windows 2000/XP

Recommended Software

- LabVIEW
- LabWindows/CVI
- Measurement Studio
- VI Logger

Measurement Services Software (included)

- NI-DAQmx driver
- Measurement & Automation Explorer



Overview

National Instruments NI CompactDAQ brings the simplicity of USB to sensor and electrical measurements on the benchtop, in the field, and on the production line. By combining the ease of use and low cost of a data logger with the performance and flexibility of modular instrumentation, NI CompactDAQ delivers fast, accurate measurements in a small, simple, and affordable system. Flexible software options make it easy to use NI CompactDAQ to log data for simple experiments or to develop a fully automated test or control system. The modular design can measure up to 256 channels of electrical, physical, mechanical, or acoustical signals in a single system. In addition, per-channel analog-to-digital converters and individually isolated modules ensure fast, accurate, and safe measurements.

Key Features

- Small, modular data acquisition system for industrial measurements
- Hi-Speed USB plug-and-play connectivity to PC
- Hot-swappable, autodetectable C Series I/O modules with direct sensor and signal connectivity
- NI-DAQmx API that provides powerful and easy-to-use programming interface
- Up to 2,300 V_{rms} isolation (withstand)
- NI CompactDAQ environmental certifications and ratings:
 - 0 to 55 °C operating temperature
 - 30 g shock rating (operating)
- PXI vibration specification
- International safety, EMC, and environmental certifications

C Series Modules

Type of Signal	Signal	Module	Channels	Special Features	Connectivity
Analog Input	Thermocouple	NI 9211	4 DI	24-bit delta-sigma, 14 S/s, differential (J, K, R, S, T, N, E, and B thermocouple types)	Screw terminal
	IEPE sensors (accelerometer, microphone)	NI 9233	4 SE	24-bit, 50 kS/s, simultaneous, IEPE conditioning	BNC
	General-purpose (± 200 mV to ± 10 V)	NI 9205	32 SE/16 DI	16-bit, 250 kS/s	Spring terminal or D-Sub
		NI 9206	16 DI	16-bit, 250 kS/s, 600 VDC Cat. I bank isolation	Spring terminal
		NI 9215	4 DI	16-bit, 100 kS/s/ch, simultaneous, differential	Screw terminal or BNC
	General-purpose (± 80 mV)	NI 9211	4 DI	24-bit, 14 S/s, differential	Screw terminal
Bridge	NI 9237	4	24-bit, 50 kS/s/ch	RJ 50	
Analog Output	General-purpose (± 10 V)	NI 9263	4 SE	16-bit, 100 kS/s/ch, simultaneous	Screw terminal
Digital Input	Bidirectional 5 V TTL	NI 9401	8	5 V TTL, ultrahigh-speed, bidirectional, 30 V protection	25-pin D-Sub
	24 V sinking	NI 9421	8	10 kS/s, 24 V logic, 40 V protection	Screw terminal or 25-pin D-Sub
Digital Output	Bidirectional 5 V TTL	NI 9401	8	5 V TTL, ultrahigh-speed, bidirectional, 30 V protection	25-pin D-Sub
	24 V sourcing	NI 9472	8	10 kS/s, 24 V logic, 750 mA max per ch, 30 V protection, short-circuit-proof	Screw terminal or 25-pin D-Sub
Relay	Electromechanical, Form A (SPST)	NI 9481	4	30 VDC (2 A), 60 VDC (1 A), 250 VAC (2 A) electromechanical Form A (SPST)	Screw terminal
Counter, Pulse Generation	Counter/timer/PWM/pulse generation (TTL)	NI 9401	8	5 V TTL, ultrahigh-speed, bidirectional, 30 V protection	25-pin D-Sub
	PWM/pulse generation (24 V)	NI 9472	8	10 kS/s, 24 V logic, 750 mA max per ch, 30 V protection, short-circuit-proof	Screw terminal or 25-pin D-Sub

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C Series modules accept a broad range of I/O including thermocouple inputs, ±10 V simultaneous-sampling analog input, ±10 V analog output, IEPE sensors, bridge inputs, 24 V industrial digital I/O with up to 750 mA current drive, and 5 V/TTL digital I/O. Each C Series module contains built-in signal conditioning and screw terminal, BNC, or D-Sub connectors so you can connect signals directly. This direct connectivity, in turn, significantly reduces space requirements and field-wiring costs.

Driver Software

NI-DAQmx is the driver software included with NI CompactDAQ and most National Instruments data acquisition and signal conditioning products. This easy-to-use software integrates the full functionality of your NI CompactDAQ hardware with National Instruments LabVIEW, LabWindows/CVI, or Measurement Studio for Visual Basic. High-performance features include multidevice synchronization, networked measurements, and simulated devices. Bundled with NI-DAQmx, the Measurement & Automation Explorer utility simplifies the configuration of your measurement hardware with device test panels, interactive measurements, and scaled I/O channels. NI-DAQmx also provides numerous example programs for LabVIEW and other application development environments to get you started with your application quickly.

Services and Support/Training

As a complement to your NI CompactDAQ system, consider:

- **Technical Support** – included in hardware/software purchase through applications engineers worldwide, and features Web resources with more than 3,000 example programs and more than 7,000 knowledge bases, and Premier Support – ni.com/support
- **Calibration** – NIST-traceable basic calibration certificate available, services for ANSI/NCCL-Z540 and periodic calibration – ni.com/calibration
- **Extended Warranty** – meet project life-cycle requirements and maintain optimal performance in a cost-effective way – ni.com/services
- **Data Acquisition Training** – take advantage of instructor-led courses – ni.com/training
- **Professional Services** – obtain feasibility assessments, consulting, and integration through National Instruments Alliance Partner program members – ni.com/alliance

For more information on NI services and support, visit ni.com/services.

Chassis	Module Slots	Connection to PC	Channels per Chassis	Analog Resolution	Analog Sampling Rate	Analog Throughput
cDAQ-9172	8	Hi-Speed USB	Up to 256 analog input, or 32 analog output, or 64 digital I/O	Up to 24 bits	Up to 400 kS/s per module	3.2 MS/s total throughput

Table 1. cDAQ 9172 Channel, Speed, and Resolution Specifications

Ordering Information

NI cDAQ-9172

U.S., 120 VAC	779508-01
Switzerland, 220 VAC	779508-02
Australia, 240 VAC	779508-03
Europe, 240 VAC	779508-04
UK, 240 VAC	779508-06
Japan, 100 VAC	779508-07

BUY NOW!

For complete product specifications, pricing, and accessory information, call (800) 813 3693 or go to ni.com/compactdaq.

Specifications

Power

Input 11 to 30 VDC at 15 W

Physical Dimensions

cDAQ-9172 chassis	254 by 88.1 by 88.1 mm (10.0 by 3.47 by 3.47 in.)
External AC adapter	117 by 38.1 by 38.1 mm (4.60 by 1.50 by 1.50 in.)
C Series I/O modules	69.9 by 22.2 by 87.4 cm (2.75 by .875 by 3.44 in.)

Connectors

DC power input	2 conductor input jack with threaded retainer
C Series module I/O	Removable screw/spring terminal, BNC, or D-Sub connector
C Series module to chassis	15-pin female D-Sub connector

NI Services and Support



NI has the services and support to meet your needs around the globe and through the application life cycle – from planning and development through deployment and ongoing maintenance. We offer services and service levels to meet customer requirements in research, design, validation, and manufacturing. Visit ni.com/services.

Training and Certification

NI training is the fastest, most certain route to productivity with our products. NI training can shorten your learning curve, save development time, and reduce maintenance costs over the application life cycle. We schedule instructor-led courses in cities worldwide, or we can hold a course at your facility. We also offer a professional certification program that identifies individuals who have high levels of skill and knowledge on using NI products. Visit ni.com/training.

Professional Services

Our Professional Services Team is comprised of NI applications engineers, NI Consulting Services, and a worldwide National Instruments Alliance Partner program of more than 600 independent consultants and

integrators. Services range from start-up assistance to turnkey system integration.

Visit ni.com/alliance.



OEM Support

We offer design-in consulting and product integration assistance if you want to use our products for OEM applications. For information about special pricing and services for OEM customers, visit ni.com/oem.

Local Sales and Technical Support

In offices worldwide, our staff is local to the country, giving you access to engineers who speak your language. NI delivers industry-leading technical support through online knowledge bases, our applications engineers, and access to 14,000 measurement and automation professionals within NI Developer Exchange forums. Find immediate answers to your questions at ni.com/support.

We also offer service programs that provide automatic upgrades to your application development environment and higher levels of technical support. Visit ni.com/ssp.

Hardware Services

NI Factory Installation Services

NI Factory Installation Services (FIS) is the fastest and easiest way to use your PXI or PXI/SCXI combination systems right out of the box. Trained NI technicians install the software and hardware and configure the system to your specifications. NI extends the standard warranty by one year on hardware components (controllers, chassis, modules) purchased with FIS. To use FIS, simply configure your system online with ni.com/pxiadvisor.

Calibration Services

NI recognizes the need to maintain properly calibrated devices for high-accuracy measurements. We provide manual calibration procedures, services to recalibrate your products, and automated calibration software specifically designed for use by metrology laboratories. Visit ni.com/calibration.

Repair and Extended Warranty

NI provides complete repair services for our products. Express repair and advance replacement services are also available. We offer extended warranties to help you meet project life-cycle requirements. Visit ni.com/services.



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