Voltage Measurement Hardware

A modular data acquisition system for voltage measurements.

Engineers use NI DAQ systems for:

- Benchtop test and measurement
- System-level validation tests that combine sensors and electrical signals
- Field tests that need rugged instrumentation

Popular Features

Complete System

Module with Chassis designed for voltage-based measurements

Rugged

-40° to 70° C Temp range
50g shock

Pre-Configured Hardware System for Voltage Measurements

Spend less time configuring your test system and more time testing your products with NI's voltage measurement systems based on CompactDAQ hardware.
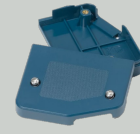
Voltage High-Channel Bundle
System P/N: 865683-01

cDAQ-9171   NI-9205   cRIO-9940

Voltage 4-Channel Differential Bundle
System P/N: 865684-01

cDAQ-9171   NI-9215   NI-9981
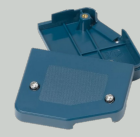
Voltage 16-Channel Differential Bundle
System P/N: 865685-01

cDAQ-9171   NI-9220   cRIO-9940

Voltage Input Module Compare	Single-Ended Channels	Differential Channels	Voltage Range	Sample Rate	Module Features
NI-9205	32	16	-10 V to 10 V -5 V to 5 V -1 V to 1 V -200mV to 200 mv	250 kS/s Multiplexed	• 16-bit Analog Resolution • Spring Terminal Connectivity
NI-9215	0	4	-10 V to 10 V	100 kS/s/ch Simultaneous	
NI-9220	0	16	-10 V to 10 V	100 kS/s/ch Simultaneous	

Chassis Features: cDAQ-9171

- USB Bus-Powered
- Compact and Rugged

- -20 to 55 ºC Operating temperature
- 30g/0.3g$_{RMS}$ Operational shock and vibration

Replacement and Upgrade Options for Voltage Measurements

Need more channels or a different sample rate? NI offers more Voltage Input Modules for your voltage-based test needs.

Voltage Input Modules

Module	Connectivity	Channels	Sample Rate	Voltage Range	Resolution
NI-9201	D-SUB, Screw Terminal, Spring Terminal	8 Single-Ended	500 kS/s	-10 V to 10 V	12 bits
NI-9202	D-SUB, Spring Terminal	16 Differential	10 kS/s/ch	-10 V to 10 V	24 bits
NI-9206	Spring Terminal	32 Single-ended, 16 Differential	250 kS/s	-10 V to 10 V -5 V to 5 V -1 V to 1 V -200 mV to 200 mV	16 bits
NI-9209	D-SUB, Spring Terminal	32 Single-ended, 16 Differential	500 S/s	-10 V to 10 V	24 bits
NI-9221	D-SUB, Screw Terminal, Spring Terminal	8 Single-ended	800 kS/s	-60 V to 60 V	12 bits
NI-9222	BNC, Screw Terminal	4 Differential	500 kS/s/ch	-10 V to 10 V	16 bits
NI-9223	BNC, Screw Terminal	4 Differential	1 MS/s/ch	-10 V to 10 V	16 bits
NI-9224	Screw Terminal	8 Differential	1 kS/s/ch	-10 V to 10 V	24 bits
NI-9225	Screw Terminal	3 Differential	50 kS/s/ch	300 Vrms	24 bits
NI-9228	Screw Terminal	8 Differential	1 kS/s/ch	-60 V to 60 V	24 bits
NI-9229	BNC, Screw Terminal	4 Differential	50 kS/s/ch	-60 V to 60 V	24 bits
NI-9238	Screw Terminal	4 Differential	50 kS/s/ch	-500 mV to 500 mV	24 bits
NI-9239	BNC, Screw Terminal	4 Differential	50 kS/s/ch	-10 V to 10 V	24 bits
NI-9242	Screw Terminal	3 Single-ended	50 kS/s/ch	400 Vrms	24 bits
NI-9244	Screw Terminal	3 Single-ended	50 kS/s/ch	400 Vrms	24 bits
NI-9251	Mini-XLR	2 Differential	102.4 kS/s/ch	3 Vrms	24 bits
NI-9252	D-SUB, Screw Terminal	8 Differential	50 kS/s/ch	-10 V to 10 V	24 bits

CompactDAQ Chassis

Need more than one module or a different connectivity? Upgrade to an Ethernet or Wi-Fi enabled 1-slot CompactDAQ Chassis or a larger CompactDAQ Chassis to add more modules to your test system.

Ethernet: 1, 4, and 8-Slot chassis | **USB:** 1, 4, 8, 14-Slot chassis | **Wi-Fi:** 1-Slot chassis

Contact your NI product expert to get help solving your test challenges.

Improve Test Performance with NI Software

Build an Automated Test System with LabVIEW

- **Acquire data** from NI hardware, 3rd party instruments, and many industry-standard protocols

- **Create interactive UIs** for test monitoring and control.

- **Process** with standard math, probability, and statistical functions.

- **Integrate code** written in Python, C/C++, .NET, and MathWorks MATLAB® software.

- **Save data** to .csv, .tdms, or any custom-defined binary file.

Perform Quick Tests with FlexLogger No-Code Software

- **Configure** quick tests with alarms, test properties, and real-time data displays

- Simplify **sensor measurement** with sensor-specific templates

- **Log test results** to .tdms or .csv files

- **Add calculations** for simple math, filtering, Boolean logic, and more

- **Review data** with an included interactive TDMS file viewer

Develop with Your Preferred Programming Language

- Python

- C, C+, C#

- .NET

- MATLAB® (Contact MathWorks® for the Data Acquisition Toolbox)

MATLAB is a registered trademark of The MathWorks, Inc.
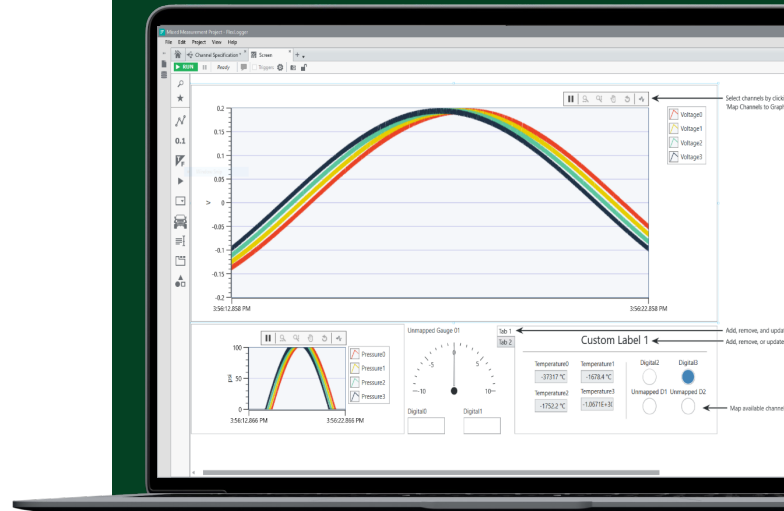
""FlexLogger makes it easier to troubleshoot and verify that the raw data from different sensors are correct before I start my test. This helps shorten test development by saving time typically wasted on redoing configurations."

- Andy Tarman,
Lab Test Engineer
CNH Industrial