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# NI-9221

# Specifications

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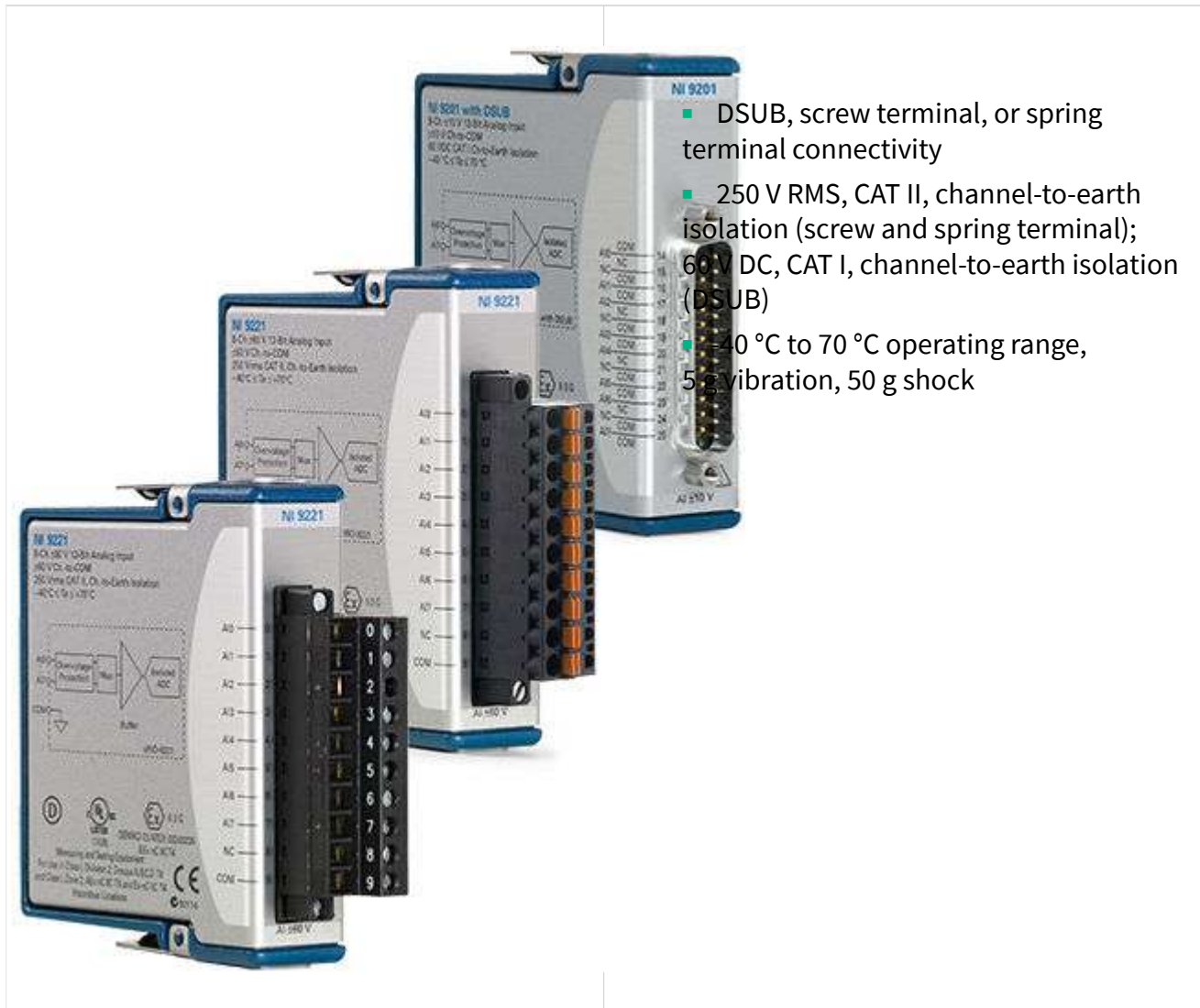
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# NI-9221 Datasheet



- DSUB, screw terminal, or spring terminal connectivity
- 250 V RMS, CAT II, channel-to-earth isolation (screw and spring terminal); 60 V DC, CAT I, channel-to-earth isolation (DSUB)
- -40 °C to 70 °C operating range, 5 g vibration, 50 g shock

The NI-9221 is an analog input module for CompactDAQ and CompactRIO systems. The NI-9221 provides eight channels of  $\pm 60$  V input with 800 kS/s sample rate.

 <p>Kit Contents</p>	<ul style="list-style-type: none"> <li>• NI 9221</li> <li>• NI 9221 Getting Started Guide</li> </ul>
 <p>Accessories</p>	<ul style="list-style-type: none"> <li>• NI 9927 Backshell Connector Kit (Screw Terminal)</li> <li>• NI 9981 Backshell Connector Kit (Spring Terminal)</li> <li>• NI 9924 Screw-Terminal Block (DSUB)</li> </ul>

C SERIES ANALOG INPUT MODULE COMPARISON						
Product Name	Signal Levels	Channels	Sample Rate	Simultaneous	Resolution	Connectivity
NI 9201	±10 V	8 Single-Ended	500 kS/s	No	12-Bit	Screw-Terminal, Spring-Terminal, DSUB
NI 9205	±200 mV, ±1 V, ±5 V, ±10 V	32 Single-Ended, 16 differential	250 kS/s	No	16-Bit	Spring-Terminal, DSUB
NI 9206	±200 mV, ±1 V, ±5 V, ±10 V	32 Single-Ended, 16 Differential	250 kS/s	No	16-Bit	Spring-Terminal
NI 9207	±10 V, ±20 mA	8 Differential, 8 Current	500 S/s	No	24-Bit	Spring-Terminal, DSUB
NI 9209	±10 V	32 Single-Ended, 16 Differential	500 S/s	No	24-Bit	Spring-Terminal, DSUB
NI 9215	±10 V	4 Differential	100 kS/s/ch	Yes	16-Bit	Screw-Terminal, Spring-Terminal, BNC
NI 9220	±10 V	16 Differential	100 kS/s/ch	Yes	16-Bit	Spring-Terminal, DSUB
NI 9221	±60 V	8 Single-Ended	800 kS/s	No	12-Bit	Screw-Terminal, Spring-Terminal, DSUB
NI 9222	±10 V	4 Differential	500 kS/s/ch	Yes	16-Bit	Screw-Terminal, BNC
NI 9223	±10 V	4 Differential	1 MS/s/ch	Yes	16-Bit	Screw-Terminal, BNC

## NI C Series Overview



NI provides more than 100 C Series modules for measurement, control, and communication applications. C Series modules can connect to any sensor or bus

and allow for high-accuracy measurements that meet the demands of advanced data acquisition and control applications.

- Measurement-specific signal conditioning that connects to an array of sensors and signals
- Isolation options such as bank-to-bank, channel-to-channel, and channel-to-earth ground
- -40 °C to 70 °C temperature range to meet a variety of application and environmental needs
- Hot-swappable

The majority of C Series modules are supported in both CompactRIO and CompactDAQ platforms and you can move modules from one platform to the other with no modification.

## CompactRIO



CompactRIO combines an open-embedded architecture with small size, extreme ruggedness, and C Series modules in a platform powered by the NI LabVIEW reconfigurable I/O (RIO) architecture. Each system contains an FPGA for custom timing, triggering, and processing with a wide array of available

modular I/O to meet any embedded application requirement.

## CompactDAQ

CompactDAQ is a portable, rugged data acquisition platform that integrates connectivity, data acquisition, and signal conditioning into modular I/O for directly interfacing to any sensor or signal. Using CompactDAQ with LabVIEW, you can easily customize how you acquire, analyze, visualize, and manage your measurement data.



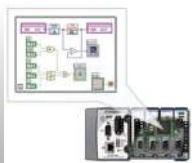
## Software

### LabVIEW Professional Development System for Windows



- Use advanced software tools for large project development
- Generate code automatically using DAQ Assistant and Instrument I/O Assistant
- Use advanced measurement analysis and digital signal processing
- Take advantage of open connectivity with DLLs, ActiveX, and .NET objects
- Build DLLs, executables, and MSI installers

### NI LabVIEW FPGA Module

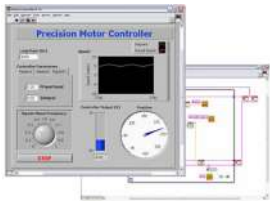


- Design FPGA applications for NI RIO hardware

### NI LabVIEW FPGA Module

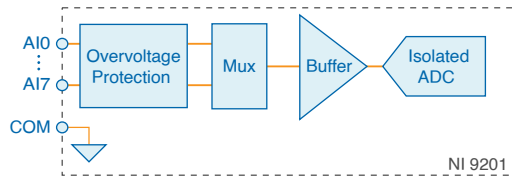
- Program with the same graphical environment used for desktop and real-time applications
- Execute control algorithms with loop rates up to 300 MHz
- Implement custom timing and triggering logic, digital protocols, and DSP algorithms
- Incorporate existing HDL code and third-party IP including Xilinx IP generator functions
- Purchase as part of the LabVIEW Embedded Control and Monitoring Suite

### NI LabVIEW Real-Time Module



- Design deterministic real-time applications with LabVIEW graphical programming
- Download to dedicated NI or third-party hardware for reliable execution and a wide selection of I/O
- Take advantage of built-in PID control, signal processing, and analysis functions
- Automatically take advantage of multicore CPUs or set processor affinity manually
- Take advantage of real-time OS, development and debugging support, and board support
- Purchase individually or as part of a LabVIEW suite

## NI-9221 Block Diagram



Input signals are scanned, buffered, conditioned, and then sampled by a single ADC.