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Find the *National Instruments NI 9481* at our website: ***Click HERE***

C Series Analog Input Modules

NI 9201, NI 921x, NI 9221, NI 923x

- Signal conditioning for high voltage (±60 V), thermocouples, RTDs, accelerometers, microphones, strain gages, current inputs
- Advanced features such as smart TEDS sensor capability, antialiasing filters, open-thermocouple detection
- ±80 mV, ±10 V, or ±60 V analog input ranges
- 12-, 16-, or 24-bit (delta-sigma) resolution
- Up to 800 kS/s multiplexed or up to 100 kS/s simultaneous-sampling analog-to-digital converter (ADC)
- Up to 32 channels per module
- Up to 2,300 V_{rms} isolation (withstand), up to 250 V_{rms} isolation (continuous)
- NIST-traceable calibration certificate for guaranteed accuracy



Model	CompactRIO	NI CompactDAQ	Signal Type	Channels	Resolution (bits)	Max Sampling Rate (S/s)	Signal Input Ranges	Simultaneous Sampling	Antialiasing Filters	Isolation	Connector Options
NI 9201	✓	✓	Voltage	8	12	500 k	±10 V	–	–	✓	Screw Terminal, D-Sub
NI 9203	✓	✓	Current	8	16	200 k	±20 mA, 0 to 20 mA	–	–	✓	Screw Terminal
NI 9205	✓	✓	Voltage	32 SE/16 DI	16	250 k	±10, ±5, ±1, ±0.2 V	–	–	✓	Spring Terminal, D-Sub
NI 9206	✓	✓	CAT I Isolated Voltage	16 DI	16	250 k	±10, ±5, ±1, ±0.2 V	–	–	✓	Spring Terminal
NI 9211	✓	✓	Thermocouple	4	24	15	±80 mV	–	✓	✓	Screw Terminal
NI 9215	✓	✓	Voltage	4	16	100 k/ch	±10 V	✓	–	✓	Screw Terminal, BNC
NI 9217	✓	✓	RTD	4	24	400	0 to 400 Ω	–	✓	✓	Screw Terminal
NI 9221	✓	✓	Voltage	8	12	800 k	±60 V	–	–	✓	Screw Terminal, D-Sub
NI 9233	✓	✓	IEPE	4	24	50 k/ch	±5 V	✓	✓	–	BNC
NI 9237	✓	✓	Bridge	4	24	50 k/ch	±250 mV	✓	✓	✓	RJ50

Table 1. C Series Analog Input Modules Selection Guide

Overview

High-accuracy C Series analog input modules for National Instruments CompactRIO and NI CompactDAQ provide high-performance measurements for a wide variety of industrial, in-vehicle, and laboratory sensors and signal types. Each module includes built-in signal conditioning and an integrated connector with screw terminal or cable options for flexible and low-cost signal wiring. All modules feature NI CompactRIO Extreme Industrial Certifications and Ratings.

System Compatibility

You can use NI C Series modules in multiple system types depending on available software. See Table 1 for CompactRIO and NI CompactDAQ module compatibility because not all modules work with both systems. Many of the advanced features described apply only to reconfigurable I/O systems and not to NI CompactDAQ.

Advanced Features

When used with CompactRIO, NI C Series analog input modules connect directly to reconfigurable I/O (RIO) FPGA hardware to create high-performance embedded systems. The reconfigurable FPGA hardware within CompactRIO provides a variety of options for custom timing, triggering, synchronization, filtering, signal processing, and high-speed decision making for all C Series analog modules. For instance, with CompactRIO, you can implement custom triggering for any analog sensor type on a per-channel basis using the flexibility and performance of the FPGA and the numerous arithmetic and comparision function blocks built into NI LabVIEW FPGA.

Key Features

- High-accuracy, high-performance analog measurements for any CompactRIO embedded system, R Series expansion chassis, or NI CompactDAQ chassis
- Screw terminals, BNC, D-Sub, spring terminals, strain relief, high-voltage, cable, solder cup backshell, and other connectivity options
- Available channel-to-earth ground double-isolation barrier for safety, noise immunity, and high common-mode voltage range
- CompactRIO Extreme Industrial Certifications and Ratings
- Built-in signal conditioning for direct connection to sensors and industrial devices

Visit **ni.com/compactrio** or **ni.com/compactdaq** for up-to-date information on module availability, example programs, application notes, and other developer tools.

North American Hazardous Locations

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C Series Module Accessories

Connectivity Accessories

CompactRIO and NI CompactDAQ systems are designed to provide flexible options for low-cost field wiring and cabling. Most C Series modules have a unique connector block option that offers secure and safe connections to your C Series system. Table 2 contains all of the connector blocks available for C Series I/O modules.

Accessory	Description
NI 9932	10-position strain relief and high-voltage screw-terminal connector kit
NI 9933	37-pin D-Sub connector kit with strain relief and D-Sub shell
NI 9934	25-pin D-Sub connector kit with strain relief and D-Sub shell
NI 9935	15-pin D-Sub connector kit with strain relief and D-Sub shell
NI 9936	10-position screw-terminal plugs (quantity 10)
NI 9939	16-position connector kit with strain relief

Note: To meet shock and vibration requirements, you must affix ferrules to the ends of the wires on all screw-terminal connectors.

Table 2. Connector Blocks for C Series I/O Modules

Table 3 lists the recommended connector block accessories for each C Series analog input module.

C Series Analog Input Module	Recommended Module Accessory
NI 9201	NI 9932, NI 9936
NI 9201 with D-Sub	NI 9934[1]
NI 9211	NI 9932, NI 9936
NI 9215	NI 9932, NI 9936
NI 9217	NI 9939
NI 9221	NI 9932, NI 9936
NI 9221 with D-Sub	NI 9934[1]

[1]Requires a 25-pin D-Sub connector such as the NI 9934 accessory kit.

Table 3. Recommended Connector Block Accessories

The NI 9932 kit provides strain relief and operator protection from high-voltage signals for any 10-position screw-terminal module.



Figure 1. NI 9932 10-Position Strain Relief and High-Voltage Screw-Terminal Connector Kit

The NI 9933 includes a screw-terminal connector with strain relief as well as a D-Sub solder cup backshell for creating custom cable assemblies for any module with a 37-pin D-Sub connector.

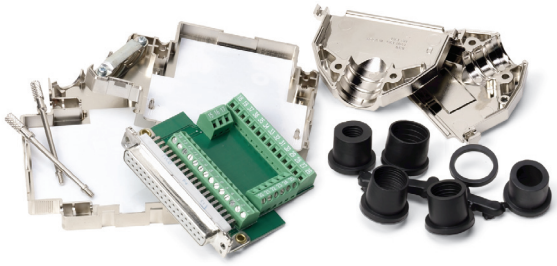


Figure 2. NI 9933 37-Pin D-Sub Connector Kit with Strain Relief and D-Sub Shell

The NI 9934 includes a screw-terminal connector with strain relief as well as a D-Sub solder cup backshell for creating custom cable assemblies for any module with a 25-pin D-Sub connector.

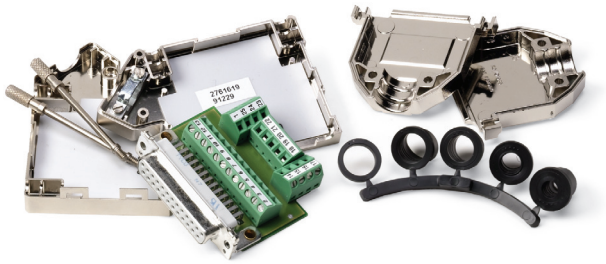


Figure 3. NI 9934 25-Pin D-Sub Connector Kit with Strain Relief and D-Sub Shell

The NI 9935 includes a screw-terminal connector with strain relief as well as a D-Sub solder cup backshell for creating custom cable assemblies for any module with a 15-pin D-Sub connector.

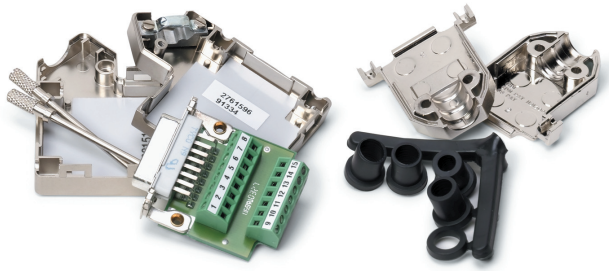


Figure 4. NI 9935 15-Pin D-Sub Connector Kit with Strain Relief and D-Sub Shell

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C Series Module Accessories

The NI 9936 consists of 10-position screw-terminal plugs for any 10-position screw-terminal module.



Figure 5. NI 9936 10-Position Screw-Terminal Plugs

Visit **ni.com/compactrio** or **ni.com/compactdaq** for up-to-date information on availability of accessories.

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CompactRIO Ordering Information

Ordering Information

Developer Kits

NI cRIO-9961 Embedded System Developer
Hardware Evaluation Kit 779107-01
NI Reconfigurable I/O
Software Development Kit 779149-03

Reconfigurable Embedded Systems

Real-Time Controllers

NI cRIO-9002 779000-01
NI cRIO-9004 779055-01

Reconfigurable Chassis

NI cRIO-9101 779052-01
NI cRIO-9102 779007-01
NI cRIO-9103 779053-01
NI cRIO-9104 779054-01

Power Supplies

NI PS-1 777567-01
NI PS-2
U.S. 120 VAC/Japan 100 VAC 777584-01
North American 240 VAC 777584-05
NI PS-3
U.S. 120 VAC/Japan 100 VAC 777585-01
North American 240 VAC 777585-05
NI PS-4 778586-90
NI PS-5 778805-90

R Series Expansion Systems

Expansion Chassis

NI cRIO-9151 chassis 779008-01
SH68-C68-S cable, 2 m 186381-02

R Series Devices

PCI

NI PCI-7811R digital I/O 779363-01
NI PCI-7813R digital I/O 779370-01
NI PCI-7830R multifunction I/O 779361-01
NI PCI-7831R multifunction I/O 778797-01
NI PCI-7833R multifunction I/O 779359-01

PXI

NI PXI-7811R digital I/O 778800-01
NI PXI-7813R digital I/O 779362-01
NI PXI-7830R multifunction I/O 779364-01
NI PXI-7831R multifunction I/O 778668-01
NI PXI-7833R multifunction I/O 779360-01

C Series Modules[1]

Analog Input Modules

NI 9201 779013-01
NI 9201 with D-Sub 779372-01
NI 9203 779516-01
NI 9205 779519-01
NI 9205 with D-Sub 779357-01
NI 9206 779526-01
NI 9211 779001-01
NI 9215 779011-01
NI 9215 with BNC 779138-01
NI 9217 779592-01
NI 9221 779014-01
NI 9221 with D-Sub 779373-01
NI 9233 779015-01
NI 9237 779521-01

Analog Output Module

NI 9263 779012-01
NI 9265 779334-01

Digital Input and Counter/Timer Modules

NI 9401 779351-01
NI 9411 779005-01
NI 9421 779002-01
NI 9421 with D-Sub 779136-01
NI 9422 779522-01
NI 9423 779009-01
NI 9425 779139-01
NI 9435 779010-01

Digital Output and Relay Modules

NI 9401 779351-01
NI 9472 779004-01
NI 9472 with D-Sub 779137-01
NI 9474 779003-01
NI 9476 779140-01
NI 9477 779517-01
NI 9481 779006-01

Accessories

NI 9912 779019-01
NI 9915 779018-01
NI 9917 779454-01
NI 9918 779455-01
NI 9932 779017-01
NI 9933 779103-01
NI 9934 779104-01
NI 9935 779016-01
NI 9936 779105-01
NI 9937 779106-01
NI 9939 192692-01

Ethernet Cables

CAT 5
5 m 182219-05
CAT 5 Crossover
5 m 187375-05

OEM Discounts Available

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NI CompactDAQ Ordering Information

Ordering Information

System Chassis

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 V) 779508-07

C Series Modules

Analog Input Modules

NI 9205 779519-01
NI 9205 with D-Sub 779357-01
NI 9206 779526-01
NI 9211 779001-01
NI 9215 779011-01
NI 9215 with BNC 779138-01
NI 9233 779015-01
NI 9237 779521-01

Analog Output Module

NI 9263 779012-01

Digital Input Modules

NI 9401 779351-01
NI 9421 779002-01
NI 9421 with D-Sub 779136-01

Digital Output and Relay Modules

NI 9401 779351-01
NI 9472 779004-01
NI 9472 with D-Sub 779137-01
NI 9481 779006-01

Accessories

NI 9915 779018-01
NI 9901 779473-01
NI 9933 779103-01
NI 9940 779567-01
NI 9941 779568-01
NI 9917 779454-01
NI 9918 779455-01
NI 9932 779017-01
NI 9936 779105-01

Academic Bundles

Standard Bundle 777448-60
Instrumentation Bundle 777448-61
DSA (Sound and Vibration) Bundle 777448-62

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351511A-01 2007-9108-301-101-D

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