
NI-9220 Getting Started

2025-03-21



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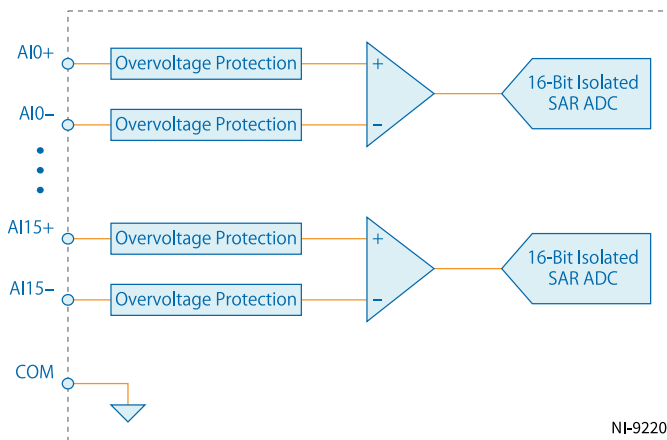
NI-9220 Getting Started

Connector Types

The NI-9220 has more than one connector type: NI-9220 with spring terminal and NI-9220 with DSUB. Unless the connector type is specified, NI-9220 refers to all connector types.

The NI-9220 with spring terminal is available in two types: push-in spring terminal and spring terminal. The push-in type spring terminal connector is black and orange. The spring terminal connector is black. NI-9220 with spring terminal refers to both types unless the two types are specified. Differences between the two types of spring terminal connectors are noted by the connector color.

NI-9220 Block Diagram



- Input signals on each channel are buffered, conditioned, and then sampled by an ADC.
- Each AI channel provides an independent signal path and ADC, enabling you to sample all channels simultaneously.

NI-9220 Spring Terminal Pinout

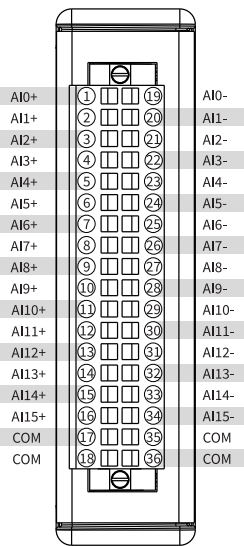


Table 1. Signal Descriptions

Signal	Description
AI+	Positive analog input signal connection
AI-	Negative analog input signal connection
COM	Common reference connection to isolated ground

NI-9220 Push-In Spring Terminal Pinout

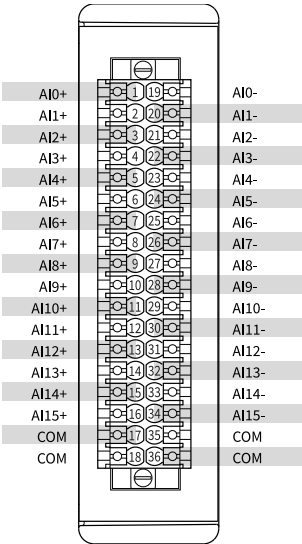


Table 2. Signal Descriptions

Signal	Description
AI+	Positive analog input signal connection
AI-	Negative analog input signal connection
COM	Common reference connection to isolated ground

NI-9220 DSUB Terminal Pinout

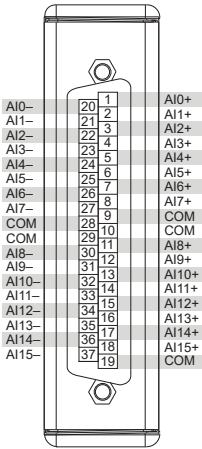
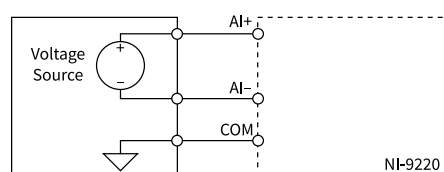


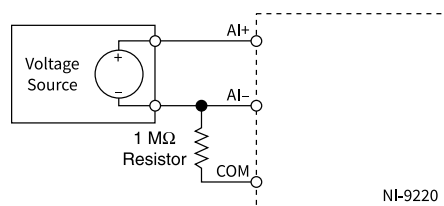
Table 3. Signal Descriptions

Signal	Description
AI+	Positive analog input signal connection
AI-	Negative analog input signal connection
COM	Common reference connection to isolated ground

NI-9220 Grounded Differential Connections

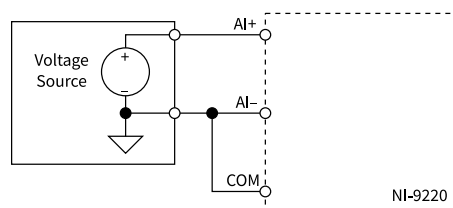


NI-9220 Floating Differential Connections



Connect the negative lead to COM through a 1 MΩ resistor to keep the signal source within the common-mode voltage range. The NI-9220 does not read data accurately if the signal source is outside of the common-mode voltage range.

NI-9220 Single-Ended Connections



Connect the ground signal to COM to keep the signal source within the common-mode voltage range.

NI-9220 Connection Guidelines

Make sure that devices you connect to the NI-9220 are compatible with the module specifications.

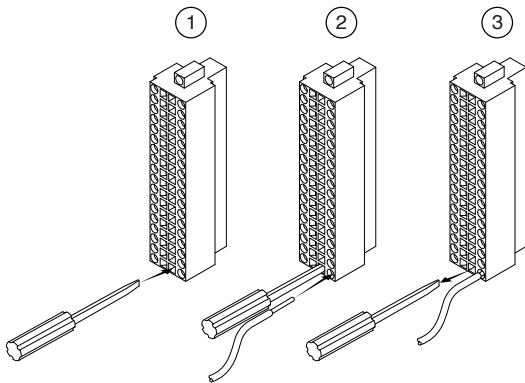
Connecting to a Spring-Terminal Connector

What to Use

- NI-9220 spring-terminal connector
- 0.08 mm² to 1.0 mm² (28 AWG to 18 AWG) copper conductor wire with 7 mm (0.28 in.) of insulation stripped from the end
- Flathead screwdriver with a 2.3 mm x 1.0 mm (0.09 in. x 0.04 in.) blade, included with the NI-9220

What to Do

Complete the following steps to connect wires to the spring-terminal connector.



1. Insert the screwdriver into a spring clamp activation slot to open the corresponding connector terminal.
2. Press a wire into the open connector terminal.
3. Remove the screwdriver from the activation slot to clamp the wire into place.

High-Vibration Application Connections

If your application is subject to high vibration, NI recommends that you use the NI-9940 backshell kit to protect connections to the NI-9220 with spring terminal.

Conformal Coating

The NI-9220 is available with conformal coating for additional protection in corrosive and condensing environments, including environments with molds and dust.

In addition to the environmental specifications listed in the ***NI-9220 Safety, Environmental, and Regulatory Information***, the NI-9220 with conformal coating meets the following specification for the device temperature range. To meet this specification, you must follow the appropriate setup requirements for condensing environments. Refer to ***Conformal Coating and NI RIO Products*** for more information about conformal coating and the setup requirements for condensing environments.

Operating humidity (IEC 60068-2-30 Test Db)	80 to 100% RH, condensing
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Related information:

- [Conformal Coating and NI RIO Products](#)