
NI-9209 Getting Started

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Contents

NI-9209 Getting Started 3

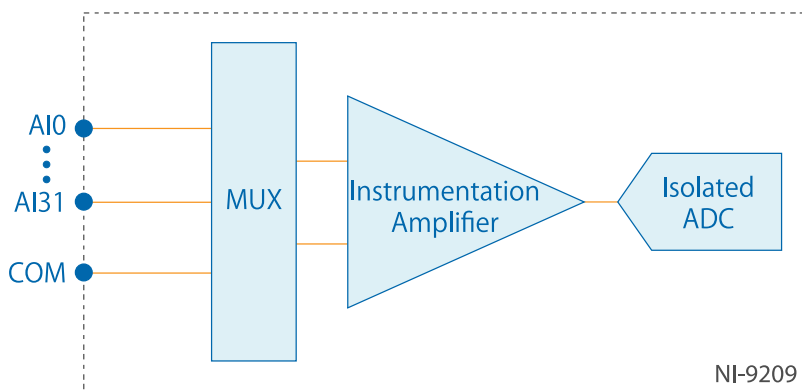
NI-9209 Getting Started

Connector Types

The NI-9209 has more than one connector type: NI-9209 with spring terminal and NI-9209 with DSUB. Unless the connector type is specified, NI-9209 refers to all connector types.

The NI-9209 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-9209 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-9209 Block Diagram



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

NI-9209 Pinout

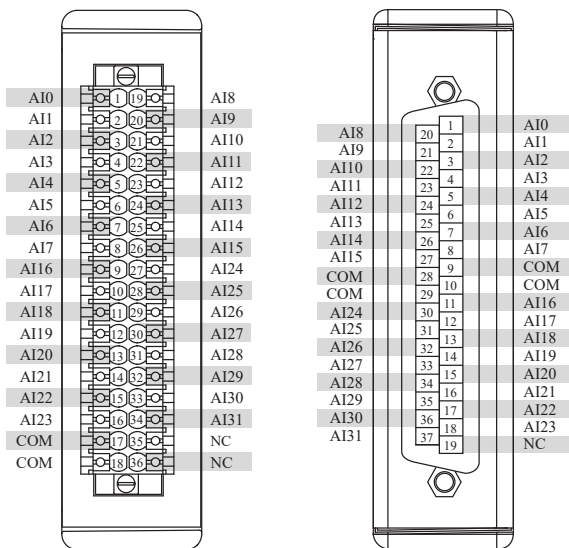


Table 1. Signal Descriptions

| Signal | Description |
|--------|--|
| AI | Analog input signal connection |
| COM | Common reference connection to isolated ground |
| NC | No connection |

NI-9209 Signals

You can connect single-ended or differential signals to the NI-9209; use a differential measurement configuration to attain more accurate measurements and less noise. Specific signal pairs are valid for differential connections.

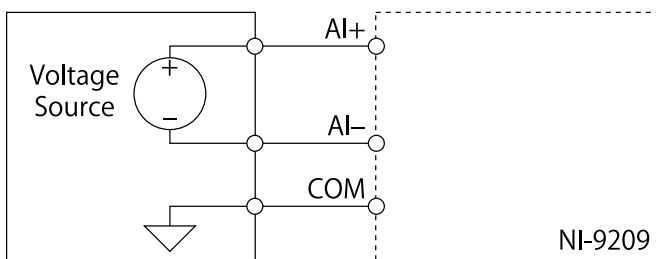
The following table shows the signal pairs that are valid for differential connection configurations with the NI-9209.

Table 2. NI-9209 Differential Pairs

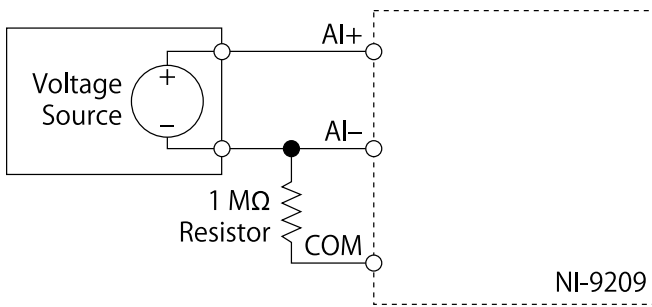
| Channel | AI+ | AI- |
|---------|-----|------|
| 0 | AI0 | AI8 |
| 1 | AI1 | AI9 |
| 2 | AI2 | AI10 |

| Channel | AI+ | AI- |
|---------|------|------|
| 3 | AI3 | AI11 |
| 4 | AI4 | AI12 |
| 5 | AI5 | AI13 |
| 6 | AI6 | AI14 |
| 7 | AI7 | AI15 |
| 16 | AI16 | AI24 |
| 17 | AI17 | AI25 |
| 18 | AI18 | AI26 |
| 19 | AI19 | AI27 |
| 20 | AI20 | AI28 |
| 21 | AI21 | AI29 |
| 22 | AI22 | AI30 |
| 23 | AI23 | AI31 |

NI-9209 Grounded Differential Connections

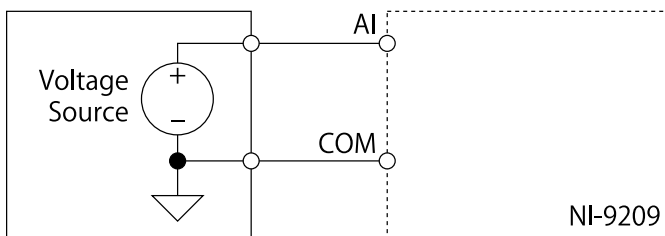


Floating Differential Connections



Connect the negative lead to COM through a 1 MΩ resistor to keep the signal source within the common-mode voltage range. The NI-9209 does not read data accurately if the signal source is outside of the common-mode voltage range.

Single-Ended Connections



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

NI-9209 Connection Guidelines

- Make sure that devices you connect to the NI-9209 are compatible with the module specifications.
- You must use 2-wire ferrules to create a secure connection when connecting more than one wire to a single terminal on the NI-9209 with spring terminal.
- When using a solid wire or a stranded wire with a ferrule with the NI-9209 with spring terminal, push the wire into the terminal.
- When using stranded wire without a ferrule with the NI-9209 with spring terminal, open the terminal by pressing the push button.

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-9209 with spring terminal.