NI-9226 Getting Started

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Contents

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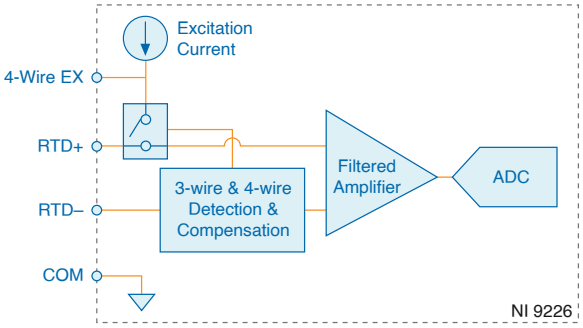
Connector Types

The NI-9226 has more than one connector type: NI-9226 with spring terminal and NI-9226 with DSUB. Unless the connector type is specified, NI-9226 refers to all connector types.

The NI-9226 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-9226 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-9226 Block Diagram



- RTD channels share a common ground that is isolated from other modules in the system.
- Each RTD channel is filtered and then sampled by a 24-bit analog-to-digital converter (ADC).

NI-9226 with DSUB Pinout

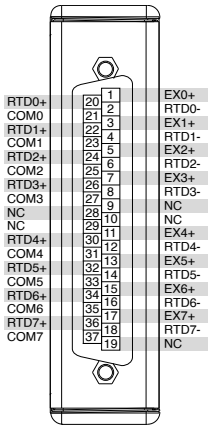


Table 1. Signal Descriptions

Signal	Description
COM	Common reference connection to isolated ground
EX+	Positive sensor excitation connection
NC	No connection
RTD+	Positive resistance temperature detector connection
RTD-	Negative resistance temperature detector connection

NI-9226 with Spring Terminal Pinout

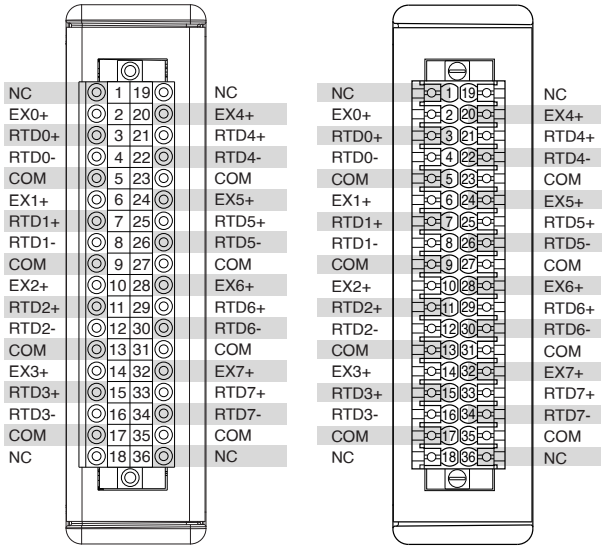


Table 2. Signal Descriptions

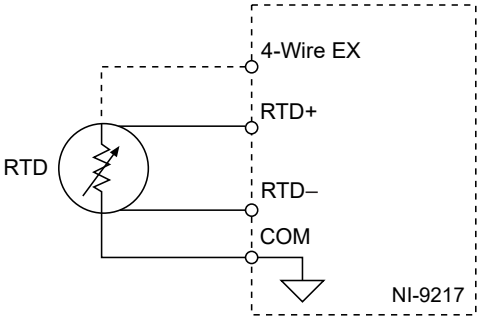
Signal	Description
COM	Common reference connection to isolated ground
EX+	Positive sensor excitation connection
NC	No connection
RTD+	Positive resistance temperature detector connection
RTD-	Negative resistance temperature detector connection

Connecting 3-Wire and 4-Wire RTDs

You can connect any combination of 3-wire or 4-wire RTDs to the NI-9226. Each NI-9226 channel contains circuitry that automatically detects the type of RTD connected to the channel. The NI-9226 scans all eight input channels and automatically configures each channel for the appropriate mode. In 4-wire mode, the EX terminal is a 0.1 mA current source. In 3-wire mode, the RTD+ terminal is a 0.1 mA current source. The NI-9226 compensates for the error that lead resistance causes in 3-wire mode.

If you are using a 4-wire RTD, connect EX to the positive lead of the RTD. If you are using a 3-wire RTD, do not connect the RTD to the EX terminal.

Figure 1. Connecting an RTD to the NI-9226



For the best measurement results when using the NI-9226 with a 3-wire RTD, use

equal-length wires between the RTD+ terminal and the RTD and between the COM terminal and the RTD. Also, keep the lead resistance within 5% of the nominal RTD value. The NI-9226 accuracy specifications account for this lead error.

Note The accessory used with the NI-9226 may introduce additional lead resistance mismatch error in 3-wire mode. Refer to the device specifications for information about errors due to lead resistance mismatch.

NI-9226 Connection Guidelines

Make sure that devices you connect to the NI-9226 are compatible with the module specifications.

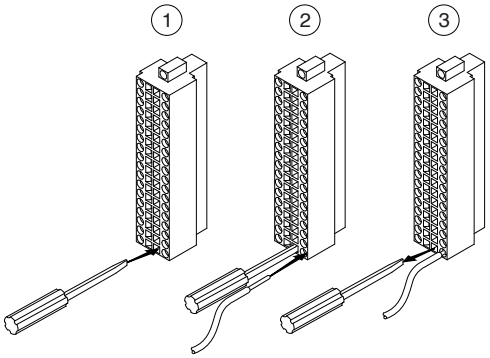
Connecting to a Spring-Terminal Connector

What to Use

- NI-9226 spring-terminal connector
- 0.8 mm^2 to 1.0 mm^2 (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-9226

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.

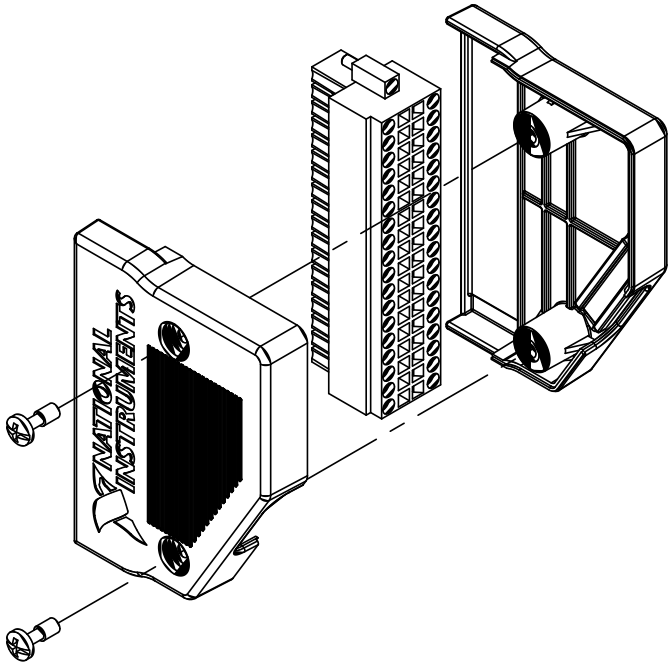
High-Vibration Application Connections

If your application is subject to high vibration, NI recommends that you use the NI-9940 backshell kit to protect connections to the NI-9226 with spring terminal.

Installing the NI-9940

To meet the EMC guidelines in this document and the Electromagnetic Compatibility specifications in the ***NI-9226 Datasheet***, you must use the NI-9940 connector backshell kit.

Figure 2. NI-9940 Connector Backshell Installation



1. Install the NI-9940 backshell on the 36-pin spring-terminal connector.
2. Tighten the NI-9940 backshell screws to 0.45 N · m (4.0 lb · in) torque.

Conformal Coating

The NI-9226 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-9226 Safety, Environmental, and Regulatory Information***, the NI-9226 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

Related information:

- Conformal Coating and NI RIO Products

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