NI-9421 Getting Started

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Contents

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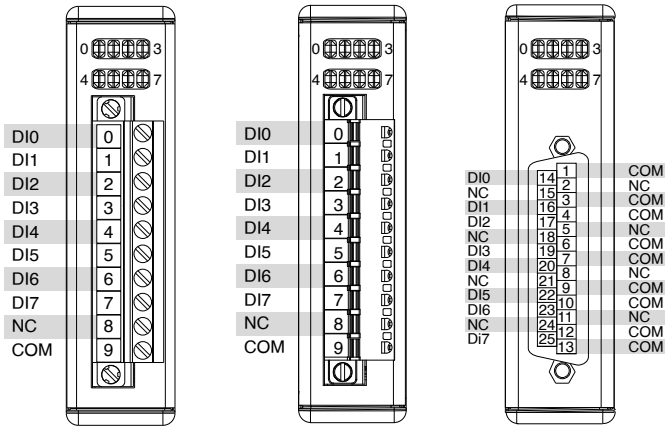
Connector Types

The NI-9421 has more than one connector type: NI-9421 with screw terminal, NI-9421 with spring terminal, and NI-9421 with DSUB. Unless the connector type is specified, NI-9421 refers to all connector types.

Connecting the NI-9421

The NI-9421 provides connections for eight digital input channels.

Figure 1. NI-9421 Pinout



Note You must use 2-wire ferrules to create a secure connection when connecting more than one wire to a single terminal on the NI-9421 with screw terminal or NI-9421 with spring terminal.

NI-9421 Signals

Each channel of the NI-9421 has a DI terminal or pin to which you can connect voltage or current signals. The NI-9421 also has COM, a common terminal or pin that is internally connected to the isolated ground reference of the module.

The NI-9421 has sinking inputs, meaning that when the external device drives current

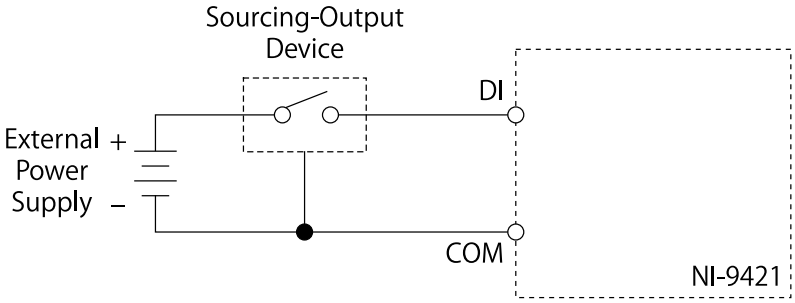
or applies voltage to the DI terminal or pin, DI provides a path to COM for the current or voltage. The NI-9421 internally limits current signals connected to DI.

Connecting Sourcing-Output Devices

You can connect 2-, 3-, and 4-wire sourcing-output devices to the NI-9421. A sourcing-output device drives current or applies voltage to DI. An example of a sourcing-output device is an open collector PNP.

Connect the output of the sourcing-output device to DI on the NI-9421. Connect the common of the external device to the COM terminal or pin.

Figure 2. Connecting a Device to the NI-9421 (3-Wire Device Shown)



The NI-9421 channel registers as ON when the sourcing-output device applies a voltage or drives a current that is in the input ON range to DI. The channel registers as OFF when the device applies a voltage or drives a current that is in the input OFF range to DI. If no device is connected to DI, the channel registers as OFF.

LED Indications

Each channel has an LED that indicates the state of the channel, as the following table describes. The LEDs are disabled when the chassis is in sleep mode.

Table 1. LED Indications

LED State	Indication
Illuminated	Channel is on
Not illuminated	Channel is off

High-Vibration Application Connections

If your application is subject to high vibration, NI recommends that you follow these guidelines to protect connections to the NI-9421:

- Use ferrules to terminate wires to the detachable connector.
- Use the NI-9927 backshell kit with the NI-9421 with screw terminal or the NI-9981 backshell kit with the NI-9421 with spring terminal.

Conformal Coating

The NI-9421 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-9421 Safety, Environmental, and Regulatory Information***, the NI-9421 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