
NI-9411

Getting Started

2023-07-05



Contents

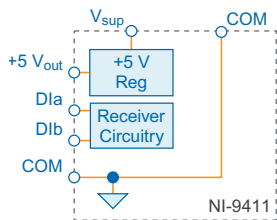
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NI-9411 Block Diagram

The NI-9411 channels share a common ground isolated from other modules in the system.

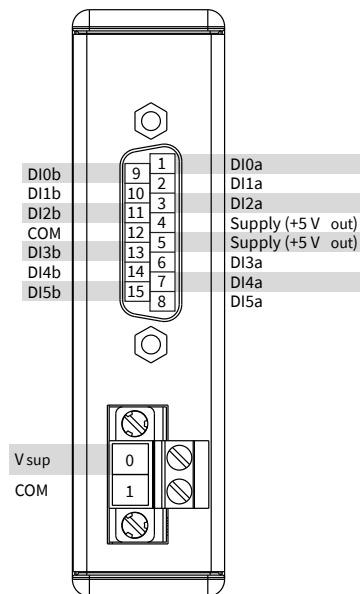
Figure 1. NI-9411 Input Circuitry



NI-9411 Pinout

The NI-9411 provides connections for 6 digital input channels.

Figure 2. NI-9411 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-9411 screw-terminal connector.

NI-9411 Signals

Table 1. DSUB Connector Signal Descriptions

Signal	Description
COM	Common reference connection to isolated ground
D1a and D1b	Digital input signal connections
Supply (+5 V _{out})	5 V power output connection for external devices

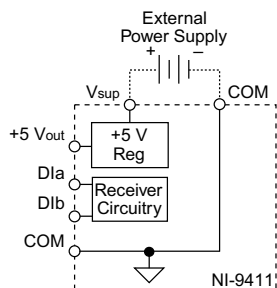
Table 2. Screw-Terminal Connector Signal Descriptions

Signal	Description
COM	Common reference connection to isolated ground
V _{sup}	Voltage supply connection

Connecting an External Power Supply to the NI-9411

You can connect an external power supply to the NI-9411. The external power supply provides power for external devices through the NI-9411 +5 V_{out} terminal. Connecting an external power supply to the NI-9411 is optional, depending on your application.

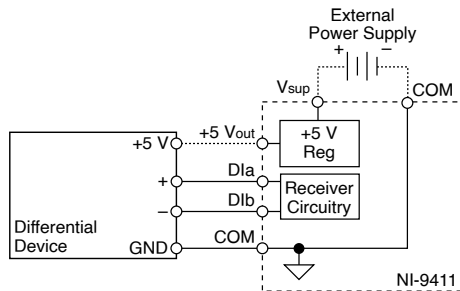
Figure 3. Connecting an External Power Supply



Connecting a Differential Device to the NI-9411

You can connect differential devices to the NI-9411.

Figure 4. Connecting a Differential Device to the NI-9411



The NI-9411 compares the difference between D1a and D1b to the digital logic levels to determine if the signal is in the high range or low range.

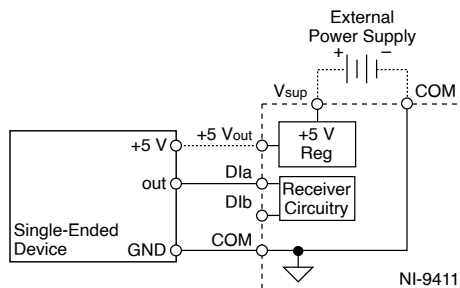


Tip Refer to the device datasheet at ni.com/manuals for the digital logic levels.

Connecting a Single-Ended Device to the NI-9411

You can connect single-ended (TTL) devices to the NI-9411.

Figure 5. Connecting a Single-Ended Device to the NI-9411



The NI-9411 compares the difference between D1a and COM to the digital logic levels to determine if the signal is in the high range or low range.



Tip Refer to the device datasheet at ni.com/manuals for the digital logic levels.

Connecting an Encoder to the NI-9411

An encoder has phase A, phase B, and index signals. Use the phase A signals to measure rotational speed. Use the phase B signals to measure direction. Use the index signals to measure the number of rotations. You can connect differential and single-ended encoders to the NI-9411.

Figure 6. Connecting a Differential Encoder to the NI-9411

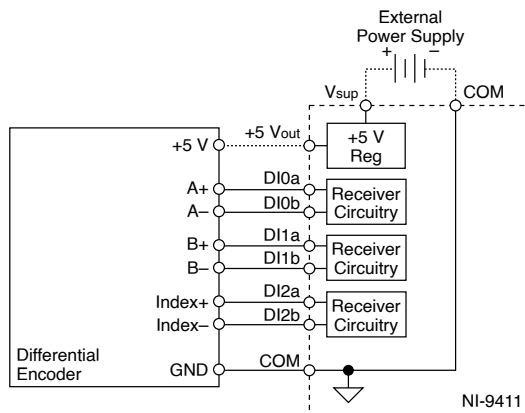
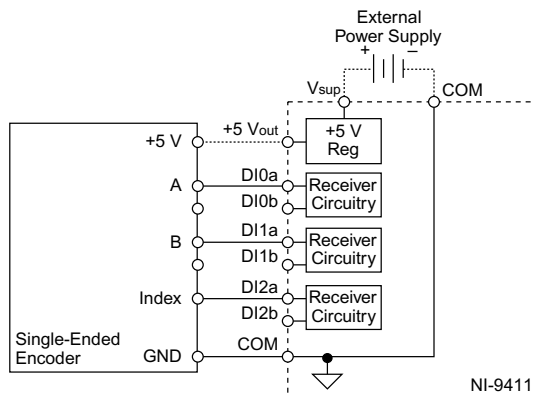


Figure 7. Connecting a Single-Ended Encoder to the NI-9411



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-9411:

- Use ferrules to terminate wires to the detachable connector.
- Use the NI-9948 connector backshell kit.