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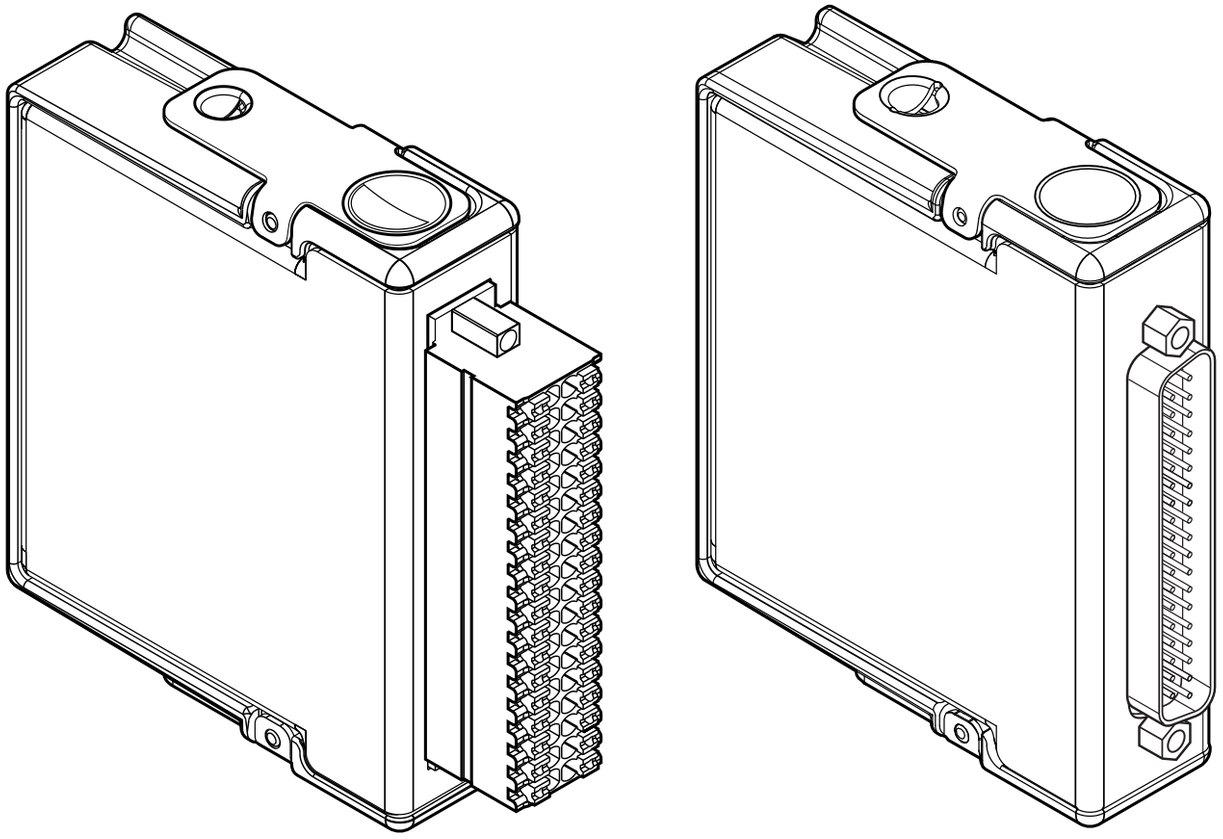
GETTING STARTED GUIDE

NI 9375

30 V DC, 16 DI/16 DO, 7 µs Sinking DI, 500 µs Sourcing DO C Series Digital Module



NATIONAL INSTRUMENTS™

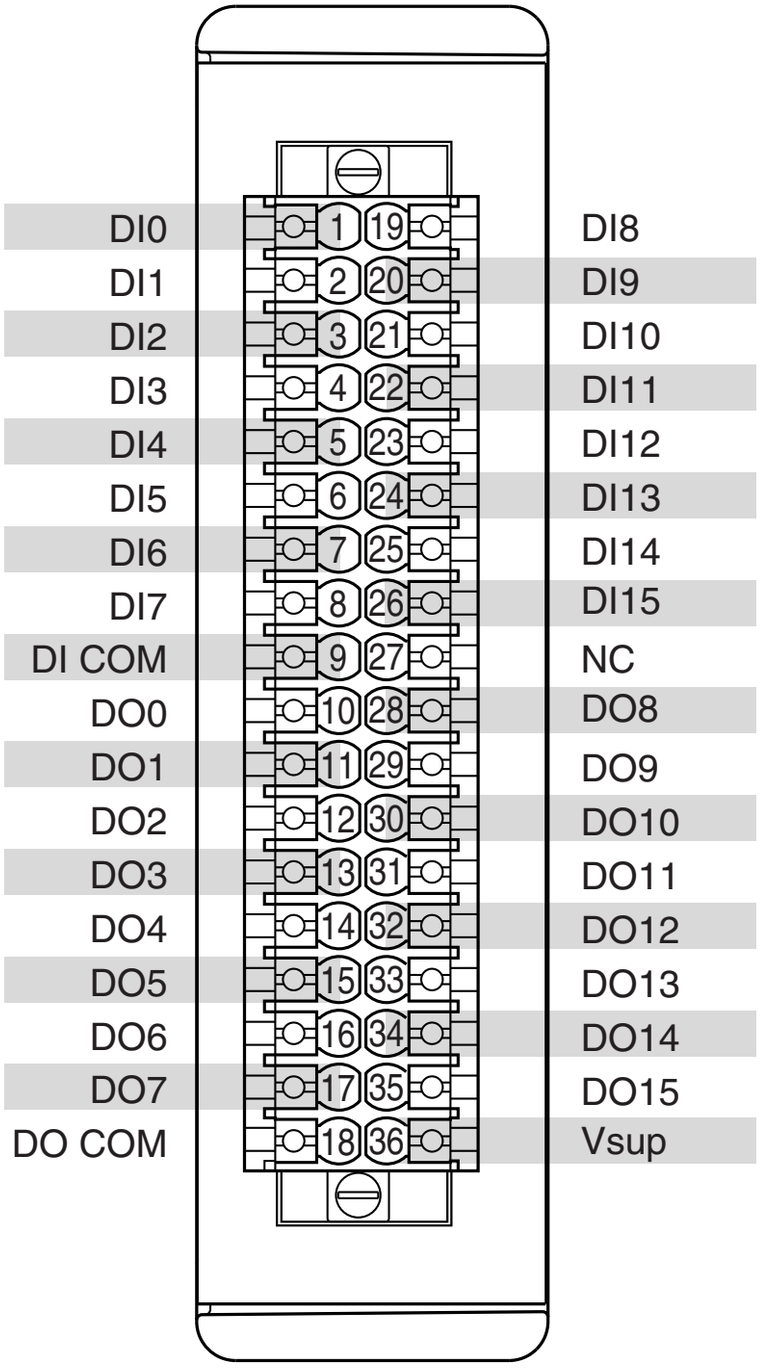
This document explains how to connect to the NI 9375. In this document, the NI 9375 with spring terminal and the NI 9375 with DSUB are referred to inclusively as the NI 9375. This document contains information for the push-in type NI 9375 with spring terminal model.

Note Before you begin, read the *NI 9375 Safety, Environmental, and Regulatory Information* document on *ni.com/manuals* and complete the software and hardware installation procedures in your chassis documentation.

Note The guidelines in this document are specific to the NI 9375. The other components in the system might not meet the same safety ratings. Refer to the documentation for each component in the system to determine the safety and EMC ratings for the entire system.

Notice Electrostatic Discharge (ESD) can damage the NI 9375 with spring terminal. To prevent damage, use industry-standard ESD prevention measures during installation, maintenance, and operation.

NI 9375 Pinout



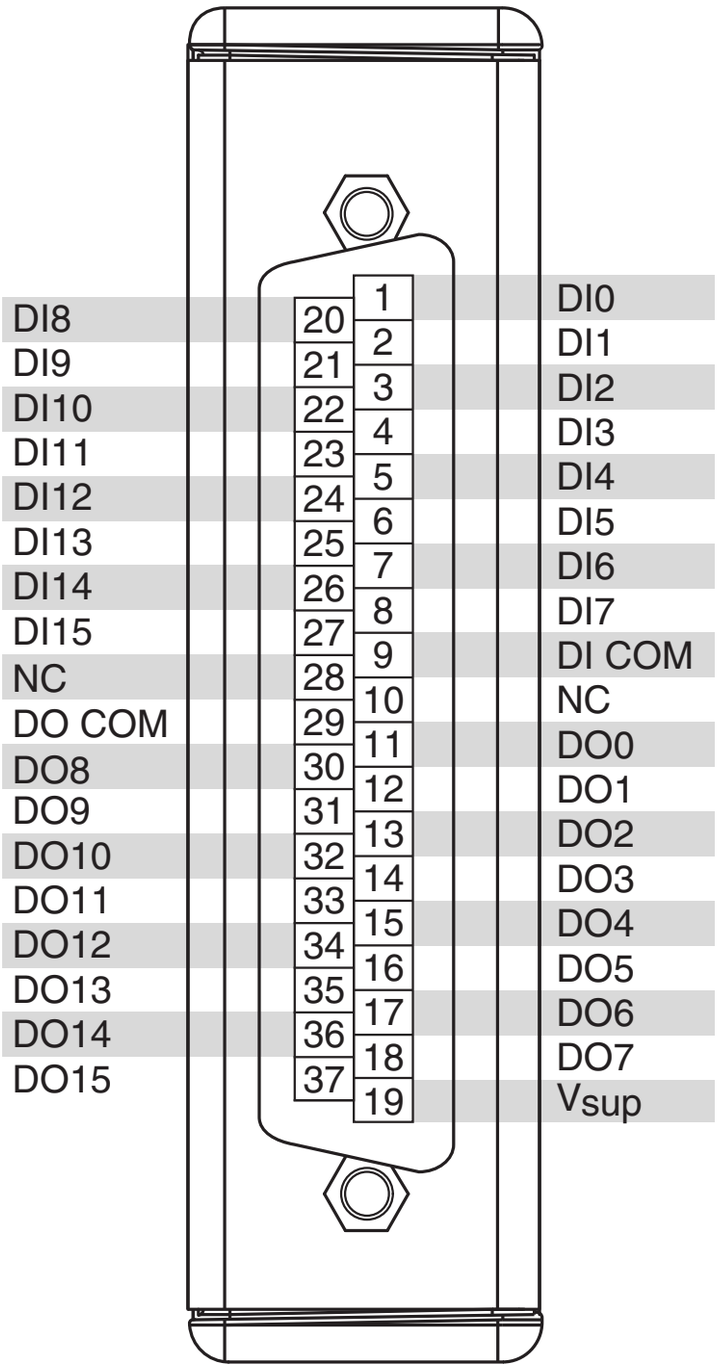
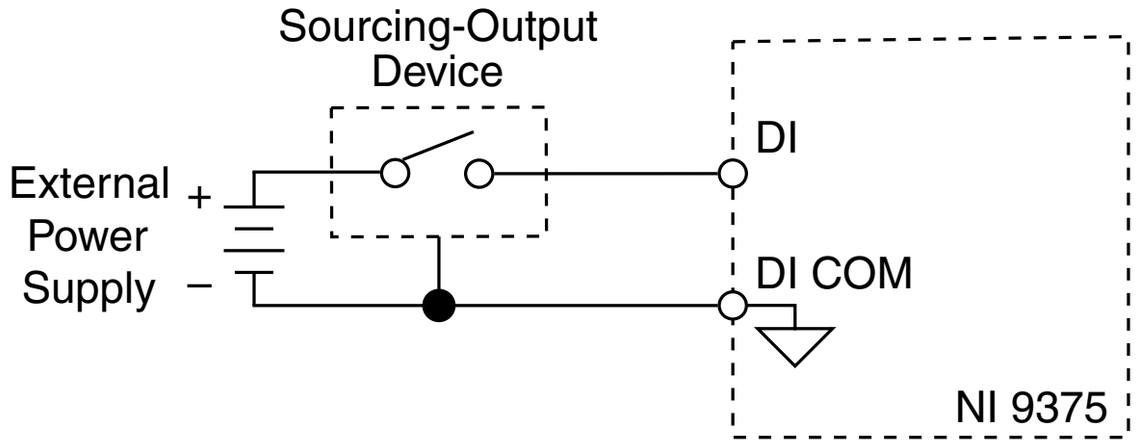


Table 1. Signal Descriptions

Signal	Description
DI	Digital input signal connection
DI COM	Common reference connection for the digital inputs
DO	Digital output signal connection
DO COM	Common reference connection for the digital outputs
NC	No connection
V_{sup}	Voltage supply connection

Sourcing-Output Connections

You can connect 2- and 3-wire sourcing-output devices to the NI 9375.

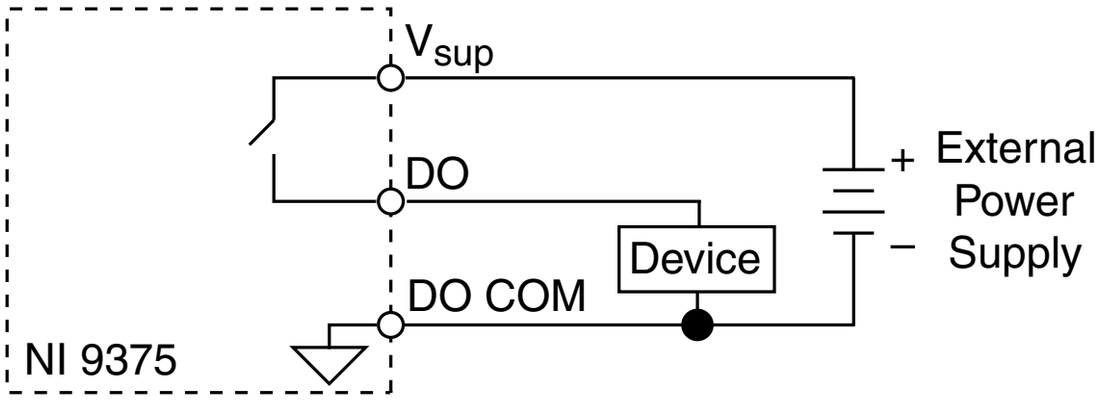


The NI 9375 channel registers as ON when the sourcing-output device drives enough current or applies enough voltage to DI. If no device is connected to DI, the channel registers as OFF.

Connecting Digital Devices

You can connect a variety of industrial devices, such as solenoids, motors, actuators, relays, and lamps to the NI 9375. You must connect an external power supply to the NI 9375. The power supply provides the current for the output channels.

Figure 1. Connecting an Industrial Device to the NI 9375



Caution Do not install or remove C Series modules from your system if any external power supplies connected to the V_{sup} and COM pins are powered on.

Attention Ne pas installer ou retirer les modules de la Série C de votre système si une alimentation externe connectée aux broches V_{sup} et COM est sous tension.

Ensure that the devices you connect to the NI 9375 are compatible with the output specifications of the NI 9375. Refer to the device datasheet at *ni.com/manuals* for output specifications.

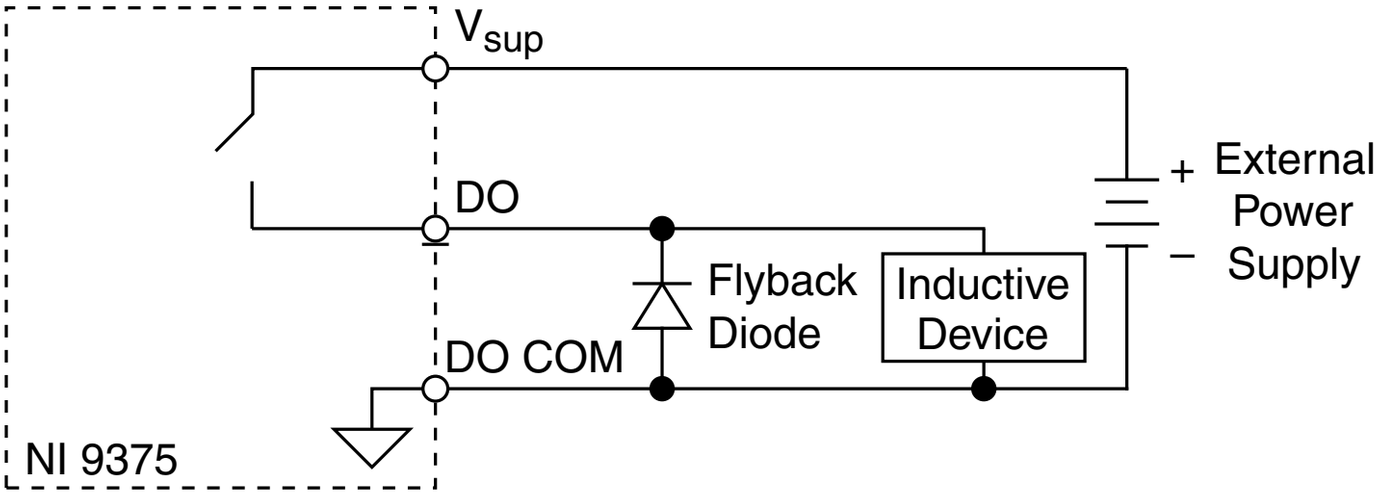
Note When the industrial device is off, DO is not connected to COM. For large source impedances, you must use a pull-down resistor between DO and COM.

Go to *ni.com/r/cseriesdopulsegen* for more information.

Protecting the Digital Outputs from Flyback Voltages

If the channel is switching an inductive or energy-storing device such as a solenoid, motor, or relay, and the device does not have flyback protection, install an external flyback diode.

Figure 2. Connecting a Flyback Diode



NI 9375 Connection Guidelines

- Refer to the *NI 9375 Datasheet* on *ni.com/manuals* for wiring specifications for the NI 9375 with spring terminal.
- Make sure that devices you connect to the NI 9375 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 9375 with spring terminal.
- For the NI 9375 with spring terminal, push the wire into the terminal when using a solid wire or a stranded wire with a ferrule.
- For the NI 9375 with spring terminal, open the terminal by pressing the push button when using stranded wire without a ferrule.

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 9375 with spring terminal.

I/O Protection

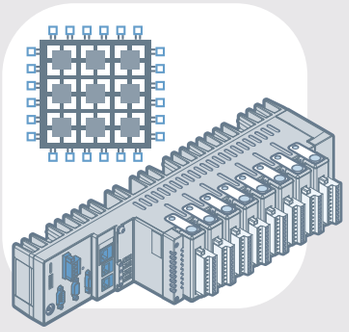
Each DO channel on the NI 9375 has circuitry that protects it from overcurrents resulting from a short-circuit or faulty loads.

Notice Overvoltage and reverse bias voltage conditions can damage the NI 9375. Check the voltage specifications for all devices that you connect to the NI 9375.

When a short circuit is present on a digital output channel, the DO channel cycles off and on until the short circuit is removed or the current returns to an acceptably low level. An overcurrent state can affect the performance of the NI 9375 and other modules in the system. To ensure safe and proper operation, the digital outputs should not exceed the maximum continuous output current specification.

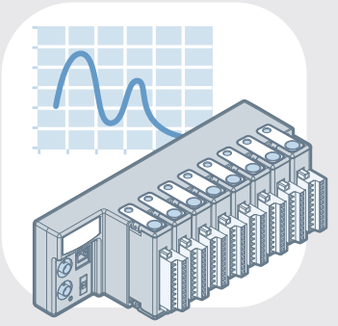
Where to Go Next

CompactRIO



- *NI 9375 Datasheet*
- *NI-RIO Help*
- *LabVIEW FPGA Help*

CompactDAQ



- *NI 9375 Datasheet*
- *NI-DAQmx Help*
- *LabVIEW Help*

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378026B-01 March 9, 2020