NI-9476 Getting Started

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NI-9476 Nomenclature

In this article, the NI-9476 with spring terminal and NI-9476 with DSUB are referred to inclusively as the NI-9476. The information in this document applies to all versions of the NI-9476 unless otherwise specified.

NI-9476 Pinout

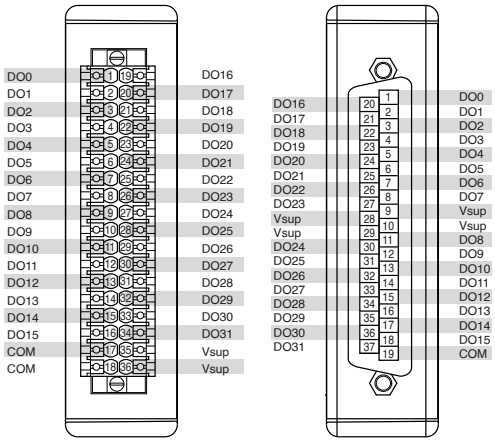
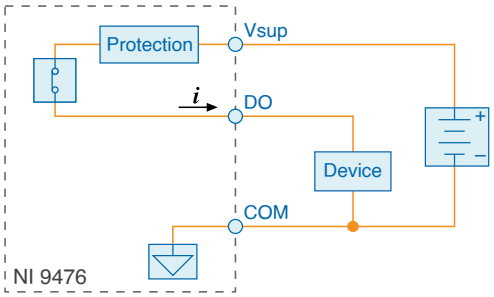


Table 1. Signal Descriptions

Signal	Description
COM	Common reference connection
DO	Digital output signal connection
V_{sup}	Voltage supply input connection

NI-9476 Block Diagram

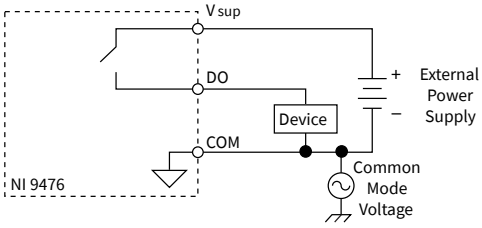


- The NI-9476 has sourcing outputs. Sourcing outputs drive current from Vsup to DO when the channel is on.

Tip For more information about sourcing outputs, visit ni.com/info and enter the Info Code sinksource.

Connecting a Device

Connect the device to DO and COM, and connect the external power supply to V_{sup} and COM.



Note When DO is off, DO is not connected to COM. For devices with large source impedances, you must use a pull-down resistor between DO and COM. Visit ni.com/info and enter the Info Code CSeriesDOPulseGen for more information.

Related information:

- Using an Info Code

Connecting an External Power Supply

You must connect an external power supply with a 6 V DC to 36 V DC voltage range to the NI-9476. This power supply provides the current for the devices you connect to the module. You can connect only one external voltage supply to the NI-9476.

1. Connect the positive lead of the power supply to V_{sup}.
2. Connect the negative lead of the power supply to COM.

> **Caution** Do not remove or insert modules if the external power supply connected to the V_{sup} and COM pins is powered on.

Connection Guidelines

- Make sure that devices you connect to the NI-9476 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-9476.
- For the NI-9476 with spring terminal, push the wire into the terminal when using a solid wire or a stranded wire with a ferrule.
- For the NI-9476 with spring terminal, open the terminal by pressing the push button when using stranded wire without a ferrule.
- For CAT II measurements, you must use a power supply with isolated DC outputs.

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-9476 with spring terminal.

I/O Protection

The NI-9476 is protected against overcurrent, inrush, and short-circuit conditions in accordance with IEC 61131-2.

Each channel on the NI-9476 has circuitry that protects it from voltage and current surges resulting from short circuits.

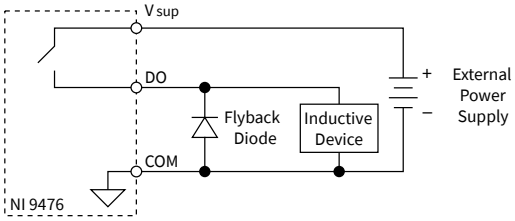
> **Caution** The NI-9476 can be damaged under overvoltage and reverse bias voltage conditions. Check the voltage specifications for all devices that you connect to the NI-9476.

Excessive current through a DO pin causes the channel to go into an overcurrent state. In an overcurrent state, the channel cycles off and on until the short circuit is removed or the current returns to an acceptably low level.

Each channel has a status line that indicates in software whether the channel is in an overcurrent state.

Protecting the Module from Flyback Voltages

Install an external flyback diode if the NI-9476 is switching an inductive or energy-storing device such as a solenoid, motor, or relay, and the device does not have flyback protection.



Increasing Current Drive

Each channel has a continuous output current of 250 mA. If you want to increase the output current to a device, you can connect any number of channels together

in parallel. For example, if you want to drive 1 A of current, connect DO<0..3> in parallel. You must turn all parallel channels on and off simultaneously so that the current on any single channel cannot exceed the 250 mA rating.