NI-9477 Getting Started





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NI-9477 Block Diagram



The NI-9477 has sinking outputs. Sinking outputs drive current from DO to COM when the channel is on.

Related information:

• Sinking and Sourcing with NI DAQ C Series Hardware

NI-9477 Pinout



Table 1. NI-9477 Signal Descriptions

Signal	Description
СОМ	Common reference connection

Signal	Description
DO	Digital output signal connection
NC	No connection

Connecting Digital Devices

You can connect a variety of industrial devices, such as solenoids, motors, actuators, relays, and lamps to the NI-9477. You must connect an external power supply to the NI-9477. The power supply provides the current for the output channels.

Figure 1. Connecting an Industrial Device to the NI-9477





Caution Do not remove or insert modules if the external power supply connected to the Vsup and COM pins is powered on.

Caution Ne pas retirer ou insérer de modules si l'alimentation externe connectée aux broches Vsup et COM est sous tension.

Ensure that the devices you connect to the NI-9477 are compatible with the output specifications of the NI-9477. Use cables and connectors that are suitably rated for the 20 A module output current limit.

Increasing Current Drive

Each channel of the NI-9477 has a continuous output current of 1 A. 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 4 A of current, connect DO0 through DO3 in parallel, as shown in the following figure. You must turn all parallel channels on and off

simultaneously so that the current on any single channel cannot exceed the 1 A rating.



Figure 2. Increasing the Current to a Device Connected to the NI-9477

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 3. Connecting a Flyback Diode





Caution The system must be installed in an enclosure certified for the intended hazardous (classified) location, having a tool secured cover/door, where a minimum protection of at least IP54 is provided.

Note For Division 2 and Zone 2 applications, install a protection device across the external power supply and the COM pin. The device must prevent the external power supply voltage from exceeding 70 V if there is a transient overvoltage condition.

Conformal Coating

The NI-9477 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-9477 Safety, Environmental, and Regulatory Information*, the NI-9477 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:

<u>Conformal Coating and NI RIO Products</u>