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# NI-9436 Getting Started

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2024-11-01



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# Before You Begin

Read the **NI 9436 Safety, Environmental, and Regulatory Information** and complete the software and hardware installation procedures in your chassis documentation.

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## Safety Guidelines



**Caution** Observe all instructions and cautions in the user documentation. Using the product in a manner not specified can damage the product and compromise the built-in safety protection.



**Attention** Suivez toutes les instructions et respectez toutes les mises en garde de la documentation d'utilisation. L'utilisation du produit de toute autre façon que celle spécifiée risque de l'endommager et de compromettre la protection de sécurité intégrée.

## Safety Voltages

Connect only voltages that are within the following limits:

D1a-to-D1b	250 Vrms maximum, Measurement Category II
<b>Isolation</b>	
Channel-to-channel	

Continuous	250 Vrms, Measurement Category II
Withstand	1,500 Vrms, verified by a 5 s dielectric withstand test
<b>Channel-to-earth ground</b>	
Continuous	250 Vrms, Measurement Category II
Withstand	3,000 Vrms, verified by a 5 s dielectric withstand test

## Safety Guidelines for Hazardous Voltages



**Caution** Ensure that hazardous voltage wiring is performed only by qualified personnel adhering to local electrical standards.



**Caution** Do not mix hazardous voltage circuits and human-accessible circuits on the same module.



**Caution** Ensure that devices and circuits connected to the module are properly insulated from human contact.

## Electromagnetic Compatibility Guidelines

This product was tested and complies with the regulatory requirements and limits for electromagnetic compatibility (EMC) stated in the product specifications. These requirements and limits provide reasonable protection against harmful interference when the product is operated in the intended operational electromagnetic environment.

This product is intended for use in industrial locations. However, harmful interference

may occur in some installations, when the product is connected to a peripheral device or test object, or if the product is used in residential or commercial areas. To minimize interference with radio and television reception and prevent unacceptable performance degradation, install and use this product in strict accordance with the instructions in the product documentation.

Furthermore, any changes or modifications to the product not expressly approved by National Instruments could void your authority to operate it under your local regulatory rules.

## Special Conditions for Marine Applications

Some products are approved for marine (shipboard) applications. To verify marine approval certification for a product, visit [ni.com/product-certifications](https://ni.com/product-certifications), search by model number, and click the appropriate link.



**Notice** In order to meet the EMC requirements for marine applications, install the product in a shielded enclosure with shielded and/or filtered power and input/output ports. In addition, take precautions when designing, selecting, and installing measurement probes and cables to ensure that the desired EMC performance is attained.

## Preparing the Environment

Ensure that the environment in which you are using the NI 9436 meets the following specifications.

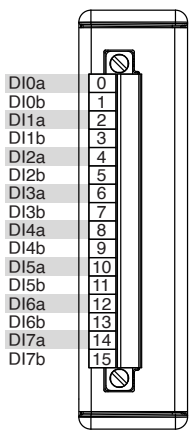
Operating temperature (IEC 60068-2-1, IEC 60068-2-2)	-40 °C to 70 °C
Operating humidity (IEC 60068-2-30)	10% RH to 90% RH, noncondensing

Pollution Degree	2
Maximum altitude	5,000 m

Indoor use only.

 **Note** Refer to the *NI 9436 Specifications* on [ni.com/manuals](http://ni.com/manuals) for complete specifications.

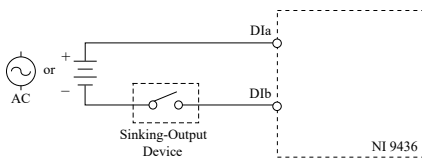
## NI 9436 Pinout



**Table 1.** Signal Descriptions

Signal	Description
D1a and D1b	Digital input signal connections

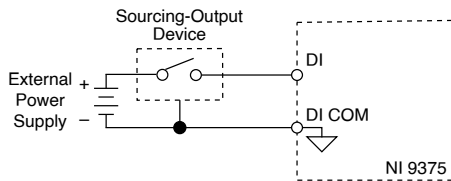
## Sinking-Output Connections



The NI 9436 channel registers as ON when the sinking-output device drives the input within the input ON range. If no device is connected to DI, the channel registers as OFF.

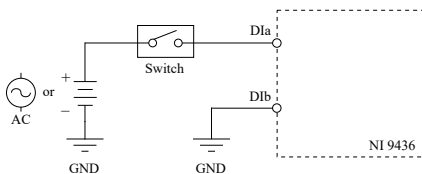
## Sourcing-Output Connections

You can connect 2- and 3-wire sourcing-output devices to the NI 9436.



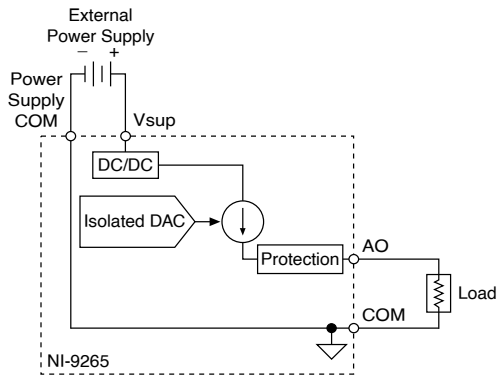
The NI 9436 channel registers as ON when the sourcing-output device drives enough current or applies enough voltage to DI. If no device is connected to DI, the channel registers as OFF.

## Switch Connections



## Load Connections

You can connect a load to each channel of the NI 9265.



## NI 9436 Connection Guidelines

Make sure that devices you connect to the NI 9436 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 9436.

### Wiring the NI-9939

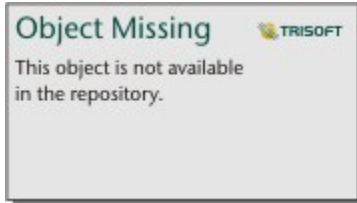


**Caution** For safe operation with hazardous voltages, you must use the NI 9939 connector backshell kit with the 16-position screw terminal connector on the NI 9436.

When connecting all 16 terminals, the total maximum wire diameter including insulation must not exceed 2.3 mm (0.09 in.) per wire in order to fit through the 11.0 mm (0.43 in.) opening on the NI-9939.

When connecting all 16 terminals using the cable retainer, the total maximum wire diameter including insulation must not exceed 1.6 mm (0.06 in.) per wire in order to fit under the 7.6 mm (0.30 in.) clearance of the NI-9939 cable retainer.



**Figure 1.** NI 9939 Wire Clearance Dimensions

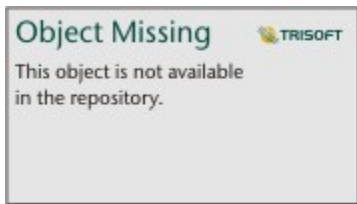
Complete the appropriate procedure based on the total maximum wire diameter used.

## Installing the NI-9939

### What to Use

- NI 9939 connector backshell kit
- 0.05 mm<sup>2</sup> to 1.5 mm<sup>2</sup> (30 AWG to 14 AWG) wire with 6 mm (0.24 in.) of the insulation stripped
- Slotted screwdriver

### What to Do



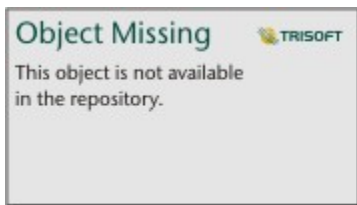
1. Insert the stripped end of the wire fully into the appropriate terminal on the 16-Position Screw Terminal Connector (2) and tighten the screw. Make sure no exposed wire extends past the screw terminal.
2. Route the wire through the NI-9939 opening and remove slack from the wiring.
3. Install the Backshell Top Enclosure (1) to the Backshell Bottom Enclosure (3).
4. Place the Label (5) in the Label Carrier (4) and attach onto the backshell.

## Installing the NI-9939 Using the Cable Retainer

## What to Use

- NI 9939 connector backshell kit
- 0.05 mm<sup>2</sup> to 1.5 mm<sup>2</sup> (30 AWG to 14 AWG) wire with 6 mm (0.24 in.) of the insulation stripped
- Slotted screwdriver

## What to Do



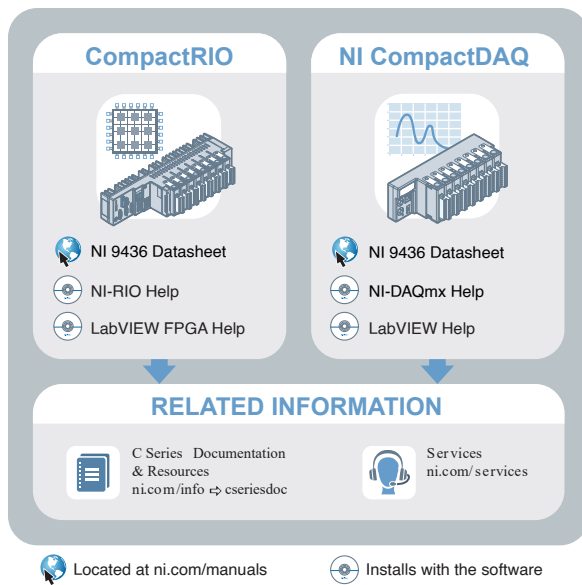
1. Insert the stripped end of the wire fully into the appropriate terminal on the 16-Position Screw Terminal Connector (2) and tighten the screw. Make sure no exposed wire extends past the screw terminal.
2. Route the wire through the NI-9939 opening, remove slack from the wiring, and secure wires using the Cable Retainer (6) and tighten the Screws (7).
3. Install the Backshell Top Enclosure (1) to the Backshell Bottom Enclosure (3).
4. Place the Label (5) in the Label Carrier (4) and attach onto the backshell.

## 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 9436:

- Use ferrules to terminate wires to the detachable connector.
- Use the NI 9939 connector backshell kit.

## Where to Go Next



## NI Services

Visit [ni.com/support](https://ni.com/support) to find support resources including documentation, downloads, and troubleshooting and application development self-help such as tutorials and examples.

Visit [ni.com/services](https://ni.com/services) to learn about NI service offerings such as calibration options, repair, and replacement.

Visit [ni.com/register](https://ni.com/register) to register your NI product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

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