

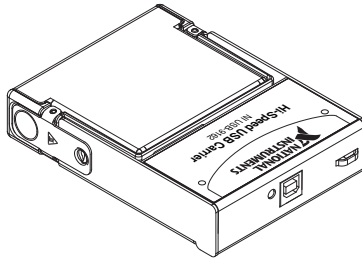
# USER GUIDE

# NI USB-9162

## Portable Bus-Powered USB Carrier for NI C Series I/O Modules

This user guide describes how to use the National Instruments USB-9162 and lists specifications.

**Figure 1.** NI USB-9162 and C Series I/O Module



## Safety Guidelines

Operate the NI USB-9162 only as described in these operating instructions.



**Hot Surface** This icon denotes that the component may be hot. Touching this component may result in bodily injury.

## Safety Guidelines for Hazardous Voltages

If hazardous voltages are connected to the module, take the following precautions. A hazardous voltage is a voltage greater than 42.4 V<sub>pk</sub> or 60 VDC to earth ground.



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

# Electromagnetic Compatibility Guidelines

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



**Caution** To ensure the specified EMC performance, operate this product only with shielded cables and accessories.

## Unpacking

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The NI USB-9162 carrier ships in an antistatic package to prevent electrostatic discharge (ESD). ESD can damage several components on the device.



**Caution** *Never* touch the exposed pins of connectors.

To avoid ESD damage in handling the chassis, take the following precautions:

- Ground yourself with a grounding strap or by touching a grounded object.
- Touch the antistatic package to a metal part of your computer chassis before removing the chassis from the package.

Remove the chassis from the package and inspect it for loose components or any other signs of damage. Notify NI if the device appears damaged in any way. Do not install a damaged chassis.

Store the carrier in the antistatic package when the carrier is not in use.

## Setting up the NI USB-9162 Carrier

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The NI USB-9162 carrier and NI C Series I/O module are packaged separately. Complete the following steps.

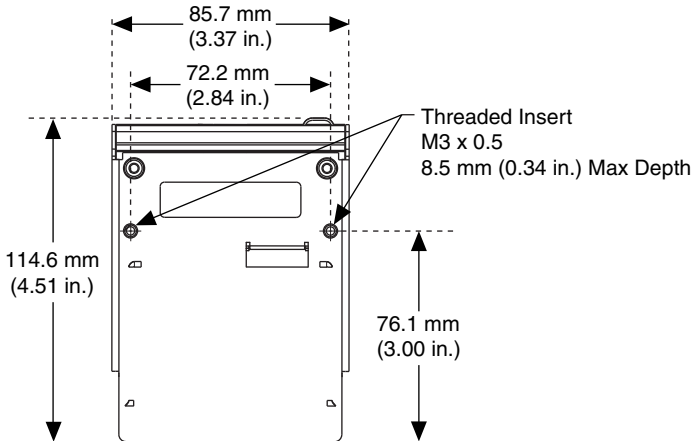
1. Install the application software (if applicable), as described in the installation instructions that accompany your software.
2. Install NI-DAQmx. For more information, download the *Read Me First: NI-DAQmx and DAQ Device Installation Guide*.



**Note** The NI-DAQmx software is included on the disk shipped with your kit and is available for download at [ni.com/support](http://ni.com/support). The documentation for NI-DAQmx is available after installation from **Start»All Programs»National Instruments»NI-DAQ**. Other NI documentation is available from [ni.com/manuals](http://ni.com/manuals).

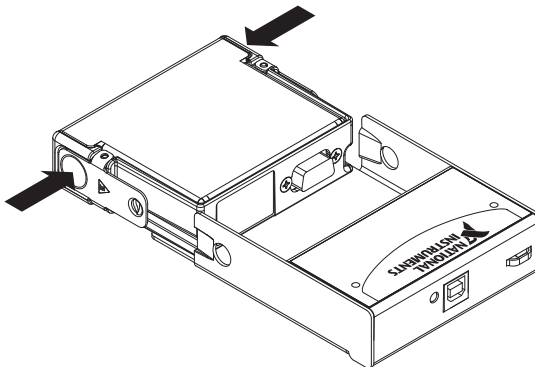
3. Make sure that no signals are connected to the C Series I/O module and the USB cable is not connected to the NI USB-9162.
4. (Optional) Mount the NI USB-9162 to a panel or wall. Threaded inserts are located in the NI USB-9162 for panel mounting. Refer to Figure 2 for dimensions.

**Figure 2. Mounting Dimensions**



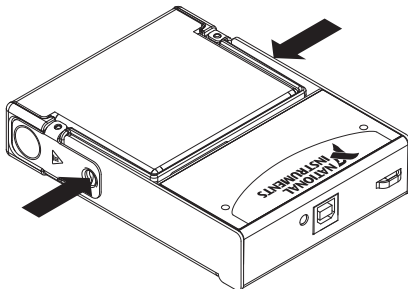
5. Remove the protective cover from the 15-pin D-SUB connector.
6. Align the C Series I/O module with the NI USB-9162 carrier, and then squeeze the latches while inserting the C Series I/O module into the carrier, as shown in Figure 3.

**Figure 3. Module Installation**



- Press firmly on the connector side of the C Series I/O module until the latches lock the module into place, as shown in Figure 4.

**Figure 4.** Locking Module into Place



- Plug one end of the USB cable into the NI USB-9162 and the other end into an available USB port on the computer. Refer to the *NI-DAQmx for USB Devices Getting Started Guide* that shipped with your device, and is also accessible from **Start»All Programs»National Instruments»NI-DAQ**, for more information.



**Note** You can provide strain relief for the USB cable by threading a zip tie through the strain relief loop and tightening the tie around the looped cable.

## LED Indicator

The NI USB-9162 has a green LED next to the USB connector. The LED indicator indicates device status, as listed in Table 1.

**Table 1.** LED State/Device Status

LED State	Device Status
Not lit	Device not connected or in suspend.
On, not blinking	Device connected, but no module installed or device not initialized, or computer might be in standby mode. Make sure that you have the latest version of NI-DAQmx installed on your computer.
Single-blink	Operating normally. The device is initialized and receiving power from the connection.
Double-blink	Operating normally.
Quadruple-blink	Device error. Refer to <a href="http://ni.com/support">ni.com/support</a> .

# Specifications

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The following specifications are typical for the range 0 to 60 °C unless otherwise noted.

## Power Requirements



**Caution** The protection provided by the NI USB-9162 carrier can be impaired if it is used in a manner not described in this document.

Current consumption from USB..... 500 mA, max

Suspend mode..... 2.5 mA, max

## Bus Interface

USB specification..... USB 2.0 Hi-Speed

## Physical Characteristics

Weight..... 101 g (3.5 oz)

Dimensions..... 114.6 mm × 85.7 mm × 25.1 mm  
(4.51 in. × 3.37 in. × 0.99 in.)

If you need to clean the module, wipe it with a dry towel.

## Safety Voltages

Connect only voltages that are within these limits.

### Isolation

#### Channel-to-channel

Continuous..... 250 VAC, Measurement Category II

Withstand..... 1500 VAC, verified by a 5 s dielectric withstand test

#### Channel-to-earth ground

Continuous..... 250 VAC, Measurement Category II

Withstand..... 3000 VAC, verified by a 5 s dielectric withstand test

Measurement Category II is for measurements performed on circuits directly connected to the electrical distribution system. This category refers to local-level electrical distribution, such as that provided by a standard wall outlet, for example, 115 V for U.S. or 230 V for Europe. *Do not* connect the NI USB-9162 to signals or use for measurements within Measurement Categories III or IV.

# Environmental

- Operating temperature (IEC 60068-2-1, IEC 60068-2-2)..... 0 to 60 °C
- Storage temperature (IEC 60068-2-1, IEC 60068-2-2)..... -40 to 85 °C
- Operating humidity (IEC 60068-2-56) ..... 10 to 90% RH, noncondensing
- Storage humidity (IEC 60068-2-56) ..... 5 to 95% RH, noncondensing
- Maximum altitude ..... 2,000 m
- Pollution Degree (IEC 60664) ..... 2
- Indoor use only.

# Hazardous Locations

The NI USB-9162 is not certified for use in hazardous locations.

# Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control, and laboratory use:

- IEC 61010-1, EN 61010-1
- UL 61010-1, CSA 61010-1



**Note** For UL and other safety certifications, refer to the product label or the [Online Product Certification](#) section.

# Electromagnetic Compatibility

This product meets the requirements of the following EMC standards for electrical equipment for measurement, control, and laboratory use:

- EN 61326-1 (IEC 61326-1): Class A emissions; Basic immunity
- EN 55011 (CISPR 11): Group 1, Class A emissions
- AS/NZS CISPR 11: Group 1, Class A emissions
- FCC 47 CFR Part 15B: Class A emissions
- ICES-001: Class A emissions



**Note** In the United States (per FCC 47 CFR), Class A equipment is intended for use in commercial, light-industrial, and heavy-industrial locations. In Europe, Canada, Australia and New Zealand (per CISPR 11) Class A equipment is intended for use only in heavy-industrial locations.



**Note** Group 1 equipment (per CISPR 11) is any industrial, scientific, or medical equipment that does not intentionally generate radio frequency energy for the treatment of material or inspection/analysis purposes.



**Note** For EMC declarations and certifications, and additional information, refer to the *Online Product Certification* section

## CE Compliance

This product meets the essential requirements of applicable European Directives, as amended for CE marking, as follows:

- 2006/95/EC; Low-Voltage Directive (safety)
- 2004/108/EC; Electromagnetic Compatibility Directive (EMC)



**Note** Refer to the Declaration of Conformity (DoC) for this product for any additional regulatory compliance information. To obtain the DoC for this product, visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

## Online Product Certification

To obtain product certifications and the Declaration of Conformity (DoC) for this product, visit [ni.com/certification](http://ni.com/certification), search by model number or product line, and click the appropriate link in the Certification column.

## Environmental Management

NI is committed to designing and manufacturing products in an environmentally responsible manner. NI recognizes that eliminating certain hazardous substances from our products is beneficial to the environment and to NI customers.

For additional environmental information, refer to the *Minimize Our Environmental Impact* web page at [ni.com/environment](http://ni.com/environment). This page contains the environmental regulations and directives with which NI complies, as well as other environmental information not included in this document.

## Waste Electrical and Electronic Equipment (WEEE)



**EU Customers** At the end of the product life cycle, all products *must* be sent to a WEEE recycling center. For more information about WEEE recycling centers, National Instruments WEEE initiatives, and compliance with WEEE Directive 2002/96/EC on Waste and Electronic Equipment, visit [ni.com/environment/weee](http://ni.com/environment/weee).

## 电子信息产品污染控制管理办法（中国 RoHS）



**中国客户** National Instruments 符合中国电子信息产品中限制使用某些有害物质指令 (RoHS)。关于 National Instruments 中国 RoHS 合规性信息，请登录 [ni.com/environment/rohs\\_china](http://ni.com/environment/rohs_china)。(For information about China RoHS compliance, go to [ni.com/environment/rohs\\_china](http://ni.com/environment/rohs_china).)

# Related Documentation

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For more information about using the NI USB-9162 and C Series I/O module, refer to the following resources:

- Documentation for your C Series I/O module at [ni.com/manuals](http://ni.com/manuals)
- *Measurement & Automation Explorer Help*
- *NI-DAQmx Help*
- NI KnowledgeBase at [ni.com/kb](http://ni.com/kb)
- NI Developer Zone at [ni.com/zone](http://ni.com/zone)

# Where to Go for Support

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The National Instruments Web site is your complete resource for technical support. At [ni.com/support](http://ni.com/support) you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

A Declaration of Conformity (DoC) is our claim of compliance with the Council of the European Communities using the manufacturer's declaration of conformity. This system affords the user protection for electromagnetic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting [ni.com/certification](http://ni.com/certification). If your product supports calibration, you can obtain the calibration certificate for your product at [ni.com/calibration](http://ni.com/calibration).

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