# USB-7845 Getting Started

# Contents

# Getting Started

Learn how to start using the NI USB-7845R.

## Safety Guidelines

⚠️ **Caution** Do not operate the NI USB-7845R in a manner not specified in this user manual. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it to National Instruments for repair.

## Electromagnetic Compatibility Guidelines

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

This product is intended for use in residential, commercial, and industrial locations. However, harmful interference may occur in some installations or when the product is connected to a peripheral device or a test object. 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.

⚠️ **Caution** To ensure the specified EMC performance, you must install the included snap-on ferrite bead onto the DC power cord of the power supply as described in this document.

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

# Unpacking the Kit

> ⓘ **Notice** To prevent electrostatic discharge (ESD) from damaging the device, ground yourself using a grounding strap or by holding a grounded object, such as your computer chassis.

1. Touch the antistatic package to a metal part of the computer chassis.
2. Remove the device from the package and inspect the device for loose components or any other sign of damage.

   > ⓘ **Notice** Never touch the exposed pins of connectors.

   > ✎ **Note** Do not install a device if it appears damaged in any way.
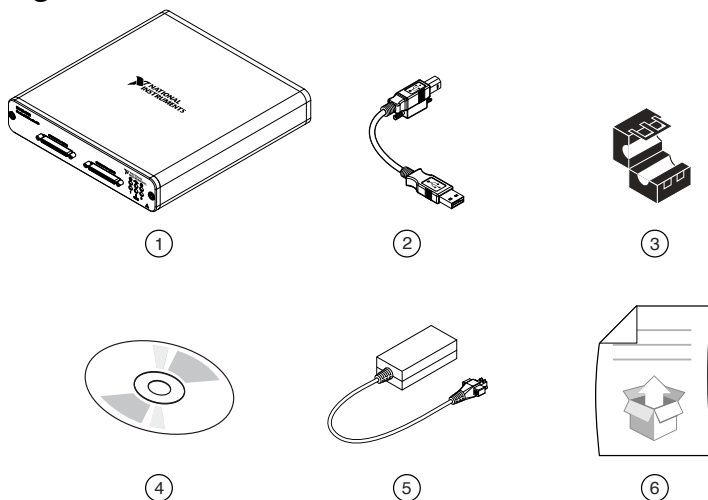
3. Unpack any other items and documentation from the kit.

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

## Verifying the Kit Contents

Verify that the following components are in your kit.

**Figure 1.** Kit Contents for the NI USB-7845R

1. Module
2. USB Cable
3. Ferrite Bead
4. NI-RIO Media
5. Power Supply
6. Getting Started Guide

# Installing Software on the Host Computer

Before using the NI USB-7845R, you must install the following application software and device drivers on the host computer.

1. Install the driver software using either the media included in your kit or by downloading the latest version from `ni.com/downloads`.
2. Follow the instructions in the installation prompts.
    a. Windows users may see access and security messages during installation. Accept the prompts to complete the installation.
3. When the installer completes, a dialog box asks if you want to restart, shut down, or restart later. Select **Restart**.

# Installing the Hardware

## Connecting the USB Cable

USB modules can be connected directly to the host PC, to a powered USB hub, or to an NI PXI or PXI Express chassis featuring a USB port.

1. Connect the USB cable to the NI USB-7845R using the cable device port.
2. Connect the other end of the USB cable to the host PC, powered hub, or chassis.
3. Use the jackscrew on the locking USB cable to securely attach the cable to the NI USB-7845R.

## Powering the Module

> ⚠️ **Caution** To ensure the specified EMC performance, install the included snap-on ferrite bead onto the DC power cord of the power supply in accordance with the instructions provided.

1. Install the ferrite bead by opening the housing and looping the power supply once through the center of the bead. Ensure the ferrite bead is as close to the end of the cable as practical.
2. Close the ferrite bead until the locking tabs engage securely.

   **Figure 2.** Installing the Ferrite Bead
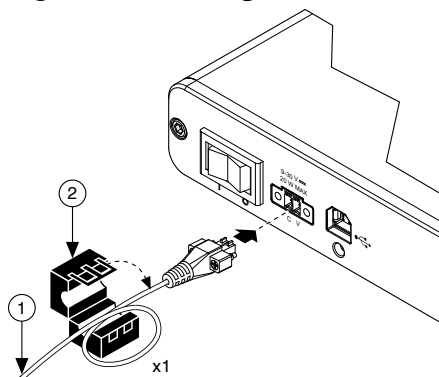
   

   1. Power Supply
   2. Ferrite
3. Connect the power supply to the NI USB-7845R.

4. Connect the other end of the power supply to a user-supplied power cord.
5. Connect the user-supplied power cord to the appropriate power source.
6. Turn the power switch on the NI USB-7845R to the on position.

## USB Device Security Cable Slot

The security cable slot allows you to attach an optional laptop lock to your NI USB-7845R.

> **Note** The security cable is designed to act as a deterrent, but might not prevent the device from being mishandled or stolen. For more information, refer to the documentation that accompanied the security cable.

> **Note** The security cable slot on the USB device might not be compatible with all laptop lock cables.

Refer to the documentation that accompanied the security cable for installation instructions.

## Verifying Hardware Installation

You can verify that the system recognizes the USB device by using Measurement & Automation Explorer (MAX).

1. Launch MAX by navigating to **Start** » **All Programs** » **National Instruments** » **MAX** or by clicking the MAX desktop icon.
2. Expand **Devices and Interfaces**.
3. Verify that the device appears under **Devices and Interfaces**.
   If the device does not appear, press <F5> to refresh the view in MAX. If the device does not appear after refreshing the view, visit `ni.com/support` for troubleshooting information.

# Connecting Signals

The following figure shows the I/O connector pin assignments and locations for the NI USB-7845R.

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

✏ **Note** NI is not liable for connections that exceed any of the maximum ratings of input or output signals on the NI USB-7845R and on the computer chassis. For the maximum input and output ratings for each signal, refer to the *NI USB-7845R Specifications*, available at `ni.com/manuals`.

**Figure 3.** NI USB-7845R Connector Pin Assignments and Locations

CONNECTOR 0 (DIO)

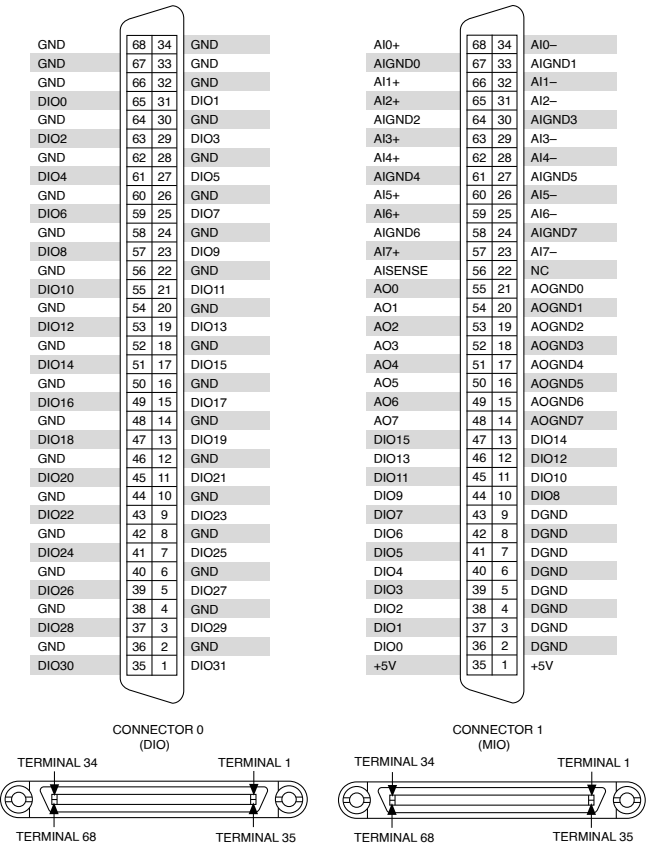| Signal | Pin | Pin | Signal |
| --- | --- | --- | --- |
| GND | 68 | 34 | GND |
| GND | 67 | 33 | GND |
| GND | 66 | 32 | GND |
| DIO0 | 65 | 31 | DIO1 |
| GND | 64 | 30 | GND |
| DIO2 | 63 | 29 | DIO3 |
| GND | 62 | 28 | GND |
| DIO4 | 61 | 27 | DIO5 |
| GND | 60 | 26 | GND |
| DIO6 | 59 | 25 | DIO7 |
| GND | 58 | 24 | GND |
| DIO8 | 57 | 23 | DIO9 |
| GND | 56 | 22 | GND |
| DIO10 | 55 | 21 | DIO11 |
| GND | 54 | 20 | GND |
| DIO12 | 53 | 19 | DIO13 |
| GND | 52 | 18 | GND |
| DIO14 | 51 | 17 | DIO15 |
| GND | 50 | 16 | GND |
| DIO16 | 49 | 15 | DIO17 |
| GND | 48 | 14 | GND |
| DIO18 | 47 | 13 | DIO19 |
| GND | 46 | 12 | GND |
| DIO20 | 45 | 11 | DIO21 |
| GND | 44 | 10 | GND |
| DIO22 | 43 | 9 | DIO23 |
| GND | 42 | 8 | GND |
| DIO24 | 41 | 7 | DIO25 |
| GND | 40 | 6 | GND |
| DIO26 | 39 | 5 | DIO27 |
| GND | 38 | 4 | GND |
| DIO28 | 37 | 3 | DIO29 |
| GND | 36 | 2 | GND |
| DIO30 | 35 | 1 | DIO31 |

CONNECTOR 1 (MIO)

| Signal | Pin | Pin | Signal |
| --- | --- | --- | --- |
| AI0+ | 68 | 34 | AI0– |
| AIGND0 | 67 | 33 | AIGND1 |
| AI1+ | 66 | 32 | AI1– |
| AI2+ | 65 | 31 | AI2– |
| AIGND2 | 64 | 30 | AIGND3 |
| AI3+ | 63 | 29 | AI3– |
| AI4+ | 62 | 28 | AI4– |
| AIGND4 | 61 | 27 | AIGND5 |
| AI5+ | 60 | 26 | AI5– |
| AI6+ | 59 | 25 | AI6– |
| AIGND6 | 58 | 24 | AIGND7 |
| AI7+ | 57 | 23 | AI7– |
| AISENSE | 56 | 22 | NC |
| AO0 | 55 | 21 | AOGND0 |
| AO1 | 54 | 20 | AOGND1 |
| AO2 | 53 | 19 | AOGND2 |
| AO3 | 52 | 18 | AOGND3 |
| AO4 | 51 | 17 | AOGND4 |
| AO5 | 50 | 16 | AOGND5 |
| AO6 | 49 | 15 | AOGND6 |
| AO7 | 48 | 14 | AOGND7 |
| DIO15 | 47 | 13 | DIO14 |
| DIO13 | 46 | 12 | DIO12 |
| DIO11 | 45 | 11 | DIO10 |
| DIO9 | 44 | 10 | DIO8 |
| DIO7 | 43 | 9 | DGND |
| DIO6 | 42 | 8 | DGND |
| DIO5 | 41 | 7 | DGND |
| DIO4 | 40 | 6 | DGND |
| DIO3 | 39 | 5 | DGND |
| DIO2 | 38 | 4 | DGND |
| DIO1 | 37 | 3 | DGND |
| DIO0 | 36 | 2 | DGND |
| +5V | 35 | 1 | +5V |

CONNECTOR 0 (DIO)  
TERMINAL 34   TERMINAL 1  
TERMINAL 68   TERMINAL 35

CONNECTOR 1 (MIO)  
TERMINAL 34   TERMINAL 1  
TERMINAL 68   TERMINAL 35

# NI Services

Visit 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 to learn about NI service offerings such as calibration options, repair, and replacement.

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

NI corporate headquarters is located at 11500 N Mopac Expwy, Austin, TX, 78759-3504, USA.