

CPS-8910

Cabled PCI Express Switch Box x4 10 Port

This document explains how to install the CPS-8910.

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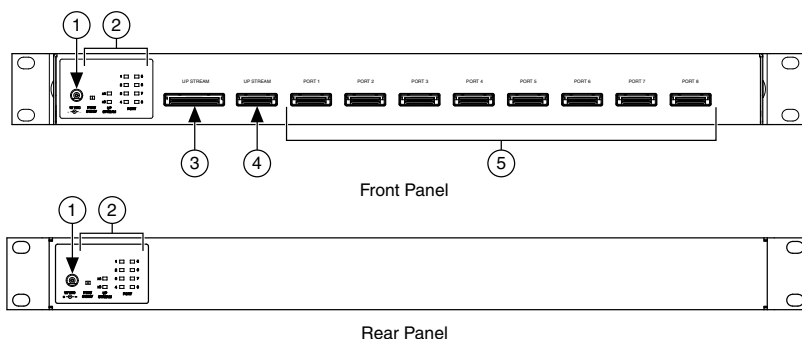
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CPS-8910 Description

The CPS-8910 is a 1U rack-mountable PCI Express 10-port switch. It has a Gen 2 PCI Express x8 upstream port, a Gen 1 PCI Express x4 upstream port, and eight Gen 1 PCI Express x4 downstream ports to enable linking any PCI Express host to multiple expansion chassis or peripheral devices.

The following figure shows the key features of the CPS-8910 front and rear panels.

Figure 1. CPS-8910 Front and Rear Panels



1. 12 V Power Supply Input
2. LED Indicators
3. x8 Gen 2 Upstream Port
4. x4 Gen 1 Upstream Port
5. x4 Gen 1 Downstream Ports

Both the front and rear panels include the following LEDs:

- Power indicator—illuminates when the CPS-8910 is powered on.
- Up Stream
 - Off—no connection.
 - On—connected to a x8 upstream device.
 - Blinking—connected to a x4 upstream device.
- Ports (1 through 8)
 - Off—no connection.
 - Blinking at 75% duty cycle—connected.

What You Need to Get Started

The following items are included in the device kit:

- Cabled PCI Express Switch Box x4 10 port
- Rack-mounting brackets
- *CPS-8910 Getting Started Guide*
- 12 V, 24 W power supply



Note If you are using the CPS-8910 with fiber optic cables, you must purchase a 12 V, 50 W power supply with the proper connection from a different source. Refer to the [Specifications](#) section of this document for power supply connector information.

The following items are available on ni.com:

- Copper or fiber optic PCI Express cable



Note The maximum copper cable length for the x8 upstream port is 2 m. All other copper cables have a maximum length of 7 m. Refer to the [Electromagnetic Compatibility Guidelines](#) section for more information.

Unpacking the Kit



Caution 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.



Caution 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.

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.



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



Caution To ensure the specified EMC performance, the length of all I/O cables must be no longer than 100 m (328 ft).



Caution To ensure the specified EMC performance, do not connect the power input to a DC mains supply or to any supply requiring a connecting cable longer than 3 m (10 ft). A DC mains supply is a local DC electricity supply network in the infrastructure of a site or building.

Installing the CPS-8910 in a Rack

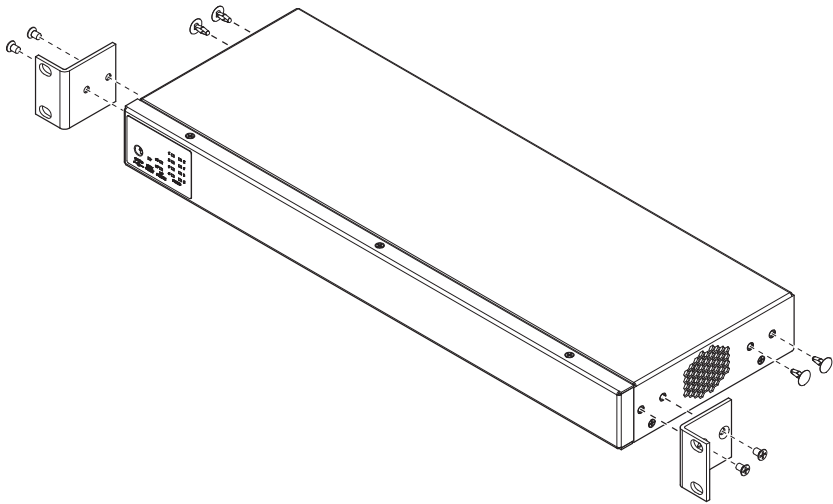
The CPS-8910 comes with adjustable rack-mount ears for front or rear-facing installation, as shown in the following figure. Complete the following steps to install the CPS-8910 and connect devices to it.



Caution When mounting the equipment in the rack, do not create a hazardous condition due to uneven mechanical loading.

1. Mount the CPS-8910 in the desired position by installing the rack-mount ears and tightening the four rack-mounting screws as shown.

Figure 2. CPS-8910 Rack-Mount Ear Installation



2. Connect the 12 V power supply to the CPS-8910.
3. Connect the PCI Express host device to either the x8 or x4 upstream port connection.
4. Connect up to eight PCI Express expansion systems or devices to the x4 downstream ports.
5. Power on the chassis or computer containing the PXI Express or PCI Express host.

Providing Adequate Clearance

Apertures along both sides of the CPS-8910 facilitate cooling.

Place the CPS-8910 in an instrument rack so that the apertures have adequate ventilation. Keep other equipment a minimum of 76.2 mm (3 in.) away from the air outlets on the sides of the CPS-8910.

Specifications

This section contains the specifications for the CPS-8910.

Interface

Upstream ports	One Gen 2 x8 and one Gen 1 x4 PCI Express upstream connectors with mutual lockout mechanism. Maximum x8 cable length is 2 m, copper.
Downstream ports	Eight Gen 1 PCI Express x4 downstream cable connectors
LED indicators	Single power indicator (one link status indicator per PCI Express cable connector)

Power Consumption

Copper cables	12 V, 20 W
Fiber optic cables	12 V, 54 W

Physical Characteristics

Maximum copper cable length	
x8 upstream	2 m (78.74 in.)
x4 upstream	7 m (275.59 in.)
x4 downstream	7 m (275.59 in.)
Dimensions (H x W x D)	44.5 mm x 432 mm x 304 mm (1.75 in. x 17 in. x 12 in.)
Power supply connector dimensions	
Inner diameter	2 mm (0.079 in.)
Outer diameter	5.5 mm (0.217 in.)

Barrel length 9.52 mm (0.375 in.)

Center positive



Note For a locking power connector, use a Switchcraft S760BK (used on the included 12 V power supply).



Caution Clean the CPS-8910 with a soft nonmetallic brush. Make sure that the device is completely dry and free from contaminants before returning it to service.

Environmental

Operating environment

Operating temperature 0 °C to 55 °C (32 °F to 140 °F)

Operating humidity 10% to 90% RH, noncondensing

Storage environment

Storage temperature -40 °C to 85 °C (-40 °F to 185 °F)

Storage humidity 5% to 95% RH, noncondensing

Maximum altitude 2,000 m (800 mbar)

Pollution Degree 2

Indoor use only.

Safety

This product is designed to meet the requirements of the following electrical equipment safety standards 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
- EN 55022 (CISPR 22): Class A emissions
- EN 55024 (CISPR 24): Immunity
- AS/NZS CISPR 11: Group 1, Class A emissions
- AS/NZS CISPR 22: 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 follows:

- 2014/35/EU; Low-Voltage Directive (safety)
- 2014/30/EU; Electromagnetic Compatibility Directive (EMC)

Online Product Certification

Refer to the product Declaration of Conformity (DoC) for additional regulatory compliance information. To obtain product certifications and the DoC for this product, visit 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. 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 NI products must be disposed of according to local laws and regulations. For more information about how to recycle NI products in your region, visit ni.com/environment/weee.

电子信息产品污染控制管理办法（中国 RoHS）



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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. If your product supports calibration, you can obtain the calibration certificate for your product at ni.com/calibration.

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