



## **Cisco Fiber Optic Breakout Panel Installation Guide**

### **Installing the Cisco Fiber Optic Breakout Panel 2**

Singlemode Breakout Panel 2

Multimode Breakout Panel 2

Required Tools 2

Installing the Breakout Panel 3

Cleaning Accessories 5

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# Installing the Cisco Fiber Optic Breakout Panel

This document describes how to install and rack-mount a Cisco fiber optic breakout panel. The breakout panel is an enclosure used to protect and manage fiber optic cables on the Cisco NCS 6000 Series or Cisco ASR 9000 Series Routers.

There are two types of breakout panels, singlemode (SM) and multimode (MM) as described below.

## Singlemode Breakout Panel

- Product ID: NCS-PP-100x10-LR
- Adapters: 10 MPO adapters and 100 duplex LC adapters
- LC adapter: Color = Blue
- Supported optics: CPAK-10x10-LR
- Rear cable assemblies: Ships with yellow MPO 24-strand cables already connected on the back of the breakout panel.

## Multimode Breakout Panel

- Product ID: NCS-PP-100x10-SR
- Adapters: 10 MPO adapters and 100 duplex LC adapters
- LC adapter: Color = Beige
- Supported optics: CPAK-100G-S10, CXP=100G-SR10
- Rear cable assemblies: Ships with aqua MPO 24-strand cables already connected on the back of the breakout panel.



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**Caution** The LC adapters for the SM and MM breakout panels are different colors. To avoid damage to the breakout panel connections, do not install multimode MPO connectors in the singlemode breakout panel or vice versa.

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## Required Tools

Before you install the breakout panel into a rack, make sure that you have the following tools and equipment.

- Number 2 Phillips screwdriver
- Number 2 flat-head screwdriver
- M5x8 mm Phillips-head screws (used to secure the 19-inch/23-inch brackets to the breakout panel)
- M5x12 mm Phillips-head screws, provided (used to secure the breakout panel to a 21-inch rack)
- Reel cleaner

- 200X Microscope kit and adapter
- Velcro ties
- (Optional) Miller 80860 IET Insertion-Extraction tool (used to remove and install the connectors)
- (Optional) MPO and LC bulkhead cleaners (see [Cleaning Accessories](#), on page 5)

## Installing the Breakout Panel

Follow these steps to install a singlemode or multimode breakout panel:



### Warning

To avoid personal injury, always wear approved eye protection when working with optical fibers.



### Caution

Do not use a defective or damaged product. The enclosure and its components are not repairable.

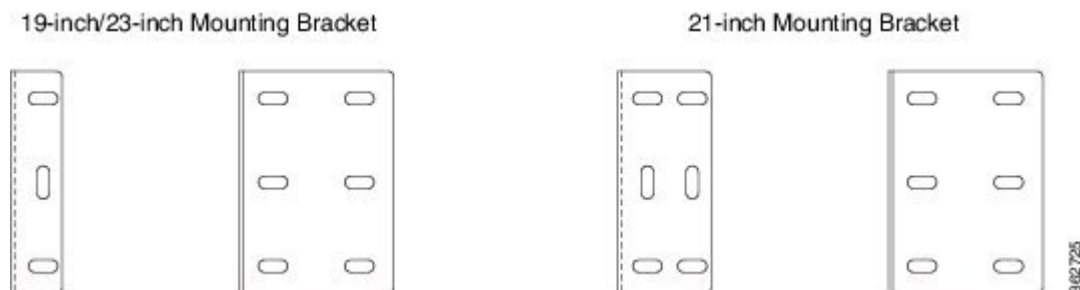
## Procedure

### Step 1

Mount the breakout panel to the rack.

**Note** The same bracket can be used for both 19-inch and 23-inch racks. A separate set of brackets is shipped with the breakout panel for 21-inch racks.

**Figure 1: Types of Mounting Brackets**



- For a 483-mm [19.0-in] rack, install each mounting bracket onto the breakout panel by the long tab (short tab out) with six M8x12 screws.
- For a 584-mm [23.0-in.] rack, remove each mounting bracket and flip it so that the long tab screwed into the breakout panel is facing outward. Re-attach it to the panel by the short tab.
- For a 533-mm [21.0-in.] rack, install the mounting bracket with the long tab attached to the breakout panel and the short tab out. Secure the panel to the rack with the six M5x12 mm screws.

### Step 2

Open the front door of the breakout panel ([Figure 2: Cisco Fiber Optic Breakout Panel](#), on page 4).

### Step 3

Install each MPO trunk cable as follows ([Figure 3: MPO and LC Adapters](#), on page 5):

- Remove the MPO adapter end cap.
- Mate the MPO trunk cable connector to the appropriate MPO adapter.
- Insert the MPO trunk cable through the appropriate cable management slot.

d) Remove the MPO connector end cap, and clean the connector end-face using the reel cleaner. If additional cleaning is necessary, use the MPO bulkhead cleaner.  
Ensure that the power signal source is disconnected, then inspect the connector end-face using the microscope and MPO adapter.

e) Install the MPO connector onto the MPO adapter.

**Note** We recommend columns 0 through 4 exit the left side of the breakout panel and columns 5 through 9 exit the right side of the breakout panel.

**Step 4** Install each LC interconnect cable as follows ([Figure 3: MPO and LC Adapters](#) , on page 5):

a) Remove the dual LC end cap from the LC adapter.

b) Mate the LC connector to the appropriate LC adapter.

c) Insert the LC interconnect cable through the appropriate cable management slot.

d) Remove the LC connector end cap, and clean the connector end-face using the reel cleaner. If additional cleaning is necessary, use the LC bulkhead cleaner.

Ensure that the power signal source is disconnected, then inspect the connector end-face using the microscope and LC adapter.

e) Install the LC connector onto the LC adapter.

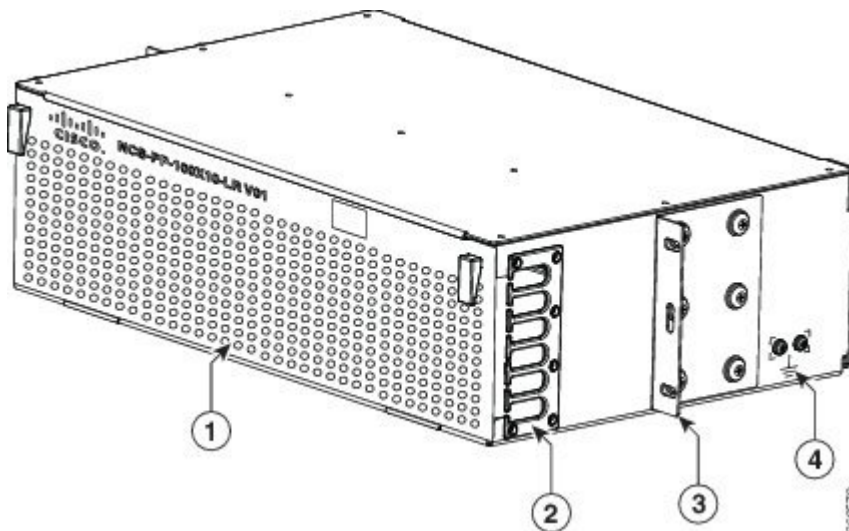
f) Secure the cable by using a cable tie for each row.

**Note** We recommend routing the cables from the outside to the inside columns and the bottom to the top rows.

**Step 5** If a port or adapter is not connected, install an adapter end cap to protect the connector end-face. Do not remove an adapter end cap from a port or from an adapter that is not in use.

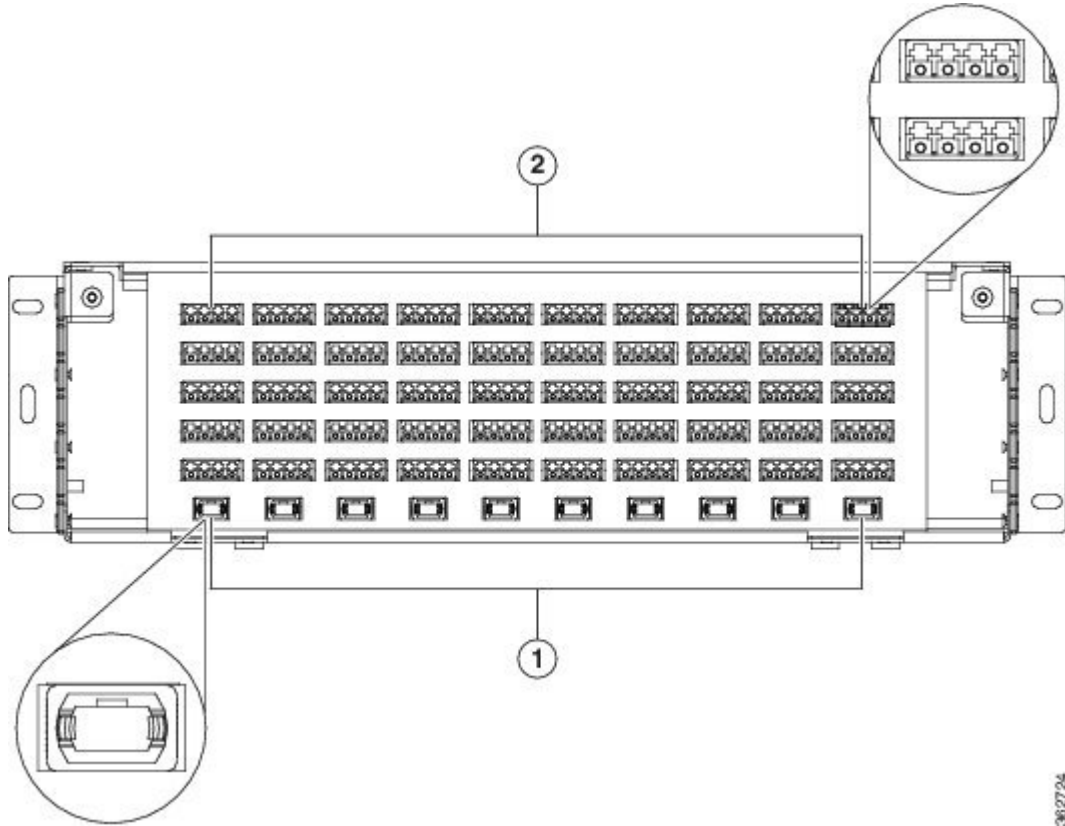
If preinstalled connectors require cleaning, remove and reinstall each connector by using the Miller Insertion-Extraction tool.

**Figure 2: Cisco Fiber Optic Breakout Panel**



1	Front door	3	Mounting bracket (one each side) 19-inch bracket shown
2	Cable management slots	4	Chassis ground

**Figure 3: MPO and LC Adapters**



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1	MPO adapter
2	LC adapter

## Cleaning Accessories

The following table lists the cleaning accessories used to clean the connectors and faces, if needed. You can order these products from TE Connectivity at: <http://www.te.com/en/home.html>.

TE Product	Part Number
200X Microscope Kit and Adapter	1754767-1
MPO Microscope Adapter (Multimode connector)	1828836-1

<b>TE Product</b>	<b>Part Number</b>
MPO Microscope Adapter (Singlemode connector)	1828837-1
LC Microscope Adapter (LC connector)	1754765-1
MPO Bulkhead Cleaner	1918809-1
LC Bulkhead Cleaner	2064500-1
Reel Cleaner	1918803-1

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