

860609635
 Revision D / May 2018
 commscope.com

SYSTIMAX® High-Density iPatch® 12LC, 24LC and MPO Fiber Shelves

General

The **SYSTIMAX® iPatch®** 12LC, 24LC and MPO high-density fiber shelves come equipped with **iPatch** components used in an **iPatch** system. Shelf will accommodate MPO distribution panels and **InstaPATCH® 360** modules that allow connection of multi-fiber trunk cables terminated with MPO connectors. The sliding shelves include sliding modular pair trays, fiber management troughs and a steel top cover. Shelves mount in a standard 19-inch (483mm) rack with universal hole spacing.

Note: To use the **iPatch** shelf in an existing **iPatch** System, the **imVision®** Controller must be running firmware version 10.2j or later. The System Manager software, used to manage the system, must be version 7.2.4 or later. We recommend upgrading the System Manager software before installing the shelf.

Ordering information is listed below:

Material ID	Part No.	Description
760218396	HD-IP-1U-48F-LC-DM-LS-SD	HD iPatch 1U 48F-LC DM sliding fiber shelf with LazrSPEED® modules
760218404	HD-IP-1U-48F-LC-DM-TS-SD	HD iPatch 1U 48F-LC DM sliding fiber shelf with TeraSPEED® modules
760217414	HD-IP-1U-96F-LC-DM-LS-SD	HD iPatch 1U 96F-LC DM sliding fiber shelf with LazrSPEED modules
760217422	HD-IP-1U-96F-LC-DM-TS-SD	HD iPatch 1U 96F-LC DM sliding fiber shelf with TeraSPEED modules
760235602	HD-IP-1U-96F-LC-DM-WB-SD	HD iPatch 1U 96F-LC DM, LazrSPEED WideBand, Sliding Shelf
760236400	HD-IP-1U-96F-LC-DM08-ULL-WB-SD	HD iPatch 1U 96F-LC MPO08 ULL Module, LazrSPEED WideBand, Sliding Shelf
760236401	HD-IP-1U-96F-LC-DM08-ULL-LS-SD	HD iPatch 1U 96F-LC MPO08 ULL Module, LazrSPEED, Sliding Shelf
760236404	HD-IP-1U-96F-LC-DM12-ULL-WB-SD	HD iPatch 1U 96F-LC MPO12 ULL Module, LazrSPEED WideBand, Sliding Shelf
760236405	HD-IP-1U-96F-LC-DM12-ULL-LS-SD	HD iPatch 1U 96F-LC MPO12 ULL Module, LazrSPEED, Sliding Shelf
760236408	HD-IP-1U-96F-LC-DM24-ULL-WB-SD	HD iPatch 1U 96F-LC MPO24 ULL Module, LazrSPEED WideBand, Sliding Shelf



HD iPatch 2U 64-MPO
DP Sliding Fiber Shelf



HD iPatch 2U 192F-LC
DM Sliding Fiber Shelf



HD iPatch 2U 96F-LC
DM Sliding Fiber Shelf

SYSTIMAX High-Density iPatch® Sliding Fiber Shelves



Recycling information can be obtained from the WEEE recycling section at www.CommScope.com

Material ID	Part No.	Description
760236409	HD-IP-1U-96F-LC-DM24-ULL-LS-SD	HD iPatch 1U 96F-LC MPO24 ULL Module, LazrSPEED, Sliding Shelf
760217463	HD-IP-1U-32-MPO-DP-SD	HD iPatch 1U 32-MPO DP distribution panel, sliding shelf
760239558	HD-SP-iP-1U-48F-LC-DP	HD Splicing iPatch 1U 48F-LC DP, Sliding Shelf
760239559	HD-SP-iP-1U-96F-LC-DP	HD Splicing iPatch 1U 96F-LC DP, Sliding Shelf
760218420	HD-IP-2U-96F-LC-DM-LS-SD	HD iPatch 2U 96F-LC DM sliding fiber shelf with LazrSPEED modules
760218438	HD-IP-2U-96F-LC-DM-TS-SD	HD iPatch 2U 96F-LC DM sliding fiber shelf with TeraSPEED modules
760217448	HD-IP-2U-192F-LC-DM-LS-SD	HD iPatch 2U 192F-LC DM sliding fiber shelf with LazrSPEED modules
760217455	HD-IP-2U-192F-LC-DM-TS-SD	HD iPatch 2U 192F-LC DM sliding fiber shelf with TeraSPEED modules
760235602	HD-IP-2U-192F-LC-DM-WB-SD	HD iPatch 2U 192F-LC DM, LazrSPEED WideBand, Sliding Shelf
760236402	HD-IP-2U-192F-LC-DM08-ULL-WB-SD	HD iPatch 2U 192F-LC MPO08 ULL Module, LazrSPEED WideBand, Sliding Shelf
760236403	HD-IP-2U-192F-LC-DM08-ULL-LS-SD	HD iPatch 2U 192F-LC MPO08 ULL Module, LazrSPEED, Sliding Shelf
760236406	HD-IP-2U-192F-LC-DM12-ULL-WB-SD	HD iPatch 2U 192F-LC MPO12 ULL Module, LazrSPEED WideBand, Sliding Shelf
760236407	HD-IP-2U-192F-LC-DM12-ULL-LS-SD	HD iPatch 2U 192F-LC MPO12 ULL Module, LazrSPEED, Sliding Shelf
760236410	HD-IP-2U-192F-LC-DM24-ULL-WB-SD	HD iPatch 2U 192F-LC MPO24 ULL Module, LazrSPEED WideBand, Sliding Shelf
760236411	HD-IP-2U-192F-LC-DM24-ULL-LS-SD	HD iPatch 2U 192F-LC MPO24 ULL Module, LazrSPEED, Sliding Shelf
760217471	HD-IP-2U-64-MPO-DP-SD	HD iPatch 2U 64-MPO DP distribution panel, sliding shelf
760237316	HD-IP-4U-192F-LC-DM-LS-SD	HD iPatch 4U 192F-LC DM , LazrSPEED, Sliding Shelf
760237317	HD-IP-4U-192F-LC-DM-TS-SD	HD iPatch 4U 192F-LC DM , TeraSPEED, Sliding Shelf
760237318	HD-IP-4U-384F-LC-DM-LS-SD	HD iPatch 4U 384F-LC DM , LazrSPEED, Sliding Shelf
760237319	HD-IP-4U-384F-LC-DM-TS-SD	HD iPatch 4U 384F-LC DM , TeraSPEED, Sliding Shelf
760237320	HD-IP-4U-384F-LC-DM-WB-SD	HD iPatch 4U 384F-LC DM, LazrSPEED WideBand, Sliding Shelf
760237321	HD-IP-4U-384F-LC-DM08-ULL-LS-SD	HD iPatch 4U 384F-LC MPO08 ULL Module, LazrSPEED, Sliding Shelf
760237322	HD-IP-4U-384F-LC-DM08-ULL-WB-SD	HD iPatch 4U 384F-LC MPO08 ULL Module, LazrSPEED WideBand, Sliding Shelf
760237323	HD-IP-4U-384F-LC-DM12-ULL-LS-SD	HD iPatch 4U 384F-LC MPO12 ULL Module, LazrSPEED, Sliding Shelf
760237324	HD-IP-4U-384F-LC-DM12-ULL-WB-SD	HD iPatch 4U 384F-LC MPO12 ULL Module, LazrSPEED WideBand, Sliding Shelf
760237325	HD-IP-4U-384F-LC-DM24-ULL-LS-SD	HD iPatch 4U 384F-LC MPO24 ULL Module, LazrSPEED, Sliding Shelf
760237326	HD-IP-4U-384F-LC-DM24-ULL-WB-SD	HD iPatch 4U 384F-LC MPO24 ULL Module, LazrSPEED WideBand, Sliding Shelf
760237332	HD-IP-4U-384F-LC-DM-LS-FX	HD iPatch 4U 384F-LC DM , LazrSPEED, Fixed Shelf
760237333	HD-IP-4U-384F-LC-DM-TS-FX	HD iPatch 4U 384F-LC DM , TeraSPEED, Fixed Shelf
760237334	HD-IP-4U-384F-LC-DM-WB-FX	HD iPatch 4U 384F-LC DM , LazrSPEED WideBand, Fixed Shelf
760237335	HD-IP-4U-384F-LC-DM08-ULL-LS-FX	HD iPatch 4U 384F-LC MPO08 ULL Module, LazrSPEED, Fixed Shelf
760237336	HD-IP-4U-384F-LC-DM08-ULL-WB-FX	HD iPatch 4U 384F-LC MPO08 ULL Module, LazrSPEED WideBand, Fixed Shelf
760237337	HD-IP-4U-384F-LC-DM12-ULL-LS-FX	HD iPatch 4U 384F-LC MPO12 ULL Module, LazrSPEED, Fixed Shelf
760237338	HD-IP-4U-384F-LC-DM12-ULL-WB-FX	HD iPatch 4U 384F-LC MPO12 ULL Module, LazrSPEED WideBand, Fixed Shelf
760237339	HD-IP-4U-384F-LC-DM24-ULL-LS-FX	HD iPatch 4U 384F-LC MPO24 ULL Module, LazrSPEED, Fixed Shelf
760237340	HD-IP-4U-384F-LC-DM24-ULL-WB-FX	HD iPatch 4U 384F-LC MPO24 ULL Module, LazrSPEED WideBand, Fixed Shelf
760237327	HD-IP-4U-128-MPO-DP-SD	HD iPatch 4U 128-MPO Panel, Sliding Shelf
760237341	HD-IP-4U-128-MPO-DP-FX	HD iPatch 4U 128-MPO Panel, Fixed Shelf

Specifications

Fiber Optic Interface

Industry-standard LC and MPO

Compatible Fiber Size

Multimode with 50 µm core diameter, such as **LazrSPEED**

Singlemode with 8.3 µm core diameter, such as **TeraSPEED**

Environmental Data

Temperature Range: -40° F to 158° F (-40° C to 70° C) (storage)
23° F to 122° F (-5° C to 50° C) (operational)

Humidity: 95% non-condensing

Tools Required

- Phillips-head screwdriver
- T10 torx driver (optional)

Parts List

Verify parts against the parts list below:

Quantity						Description
Shelf with InstaPATCH modules (DM)			Shelf without InstaPATCH modules (DP)			
1U	2U	4U	1U	2U	4U	
1	1	1	1	1	1	Shelf assembly with iPatch
4	4	4	4	4	4	#12-24 x 1/2-inch screws for 19-inch (483mm) and 23-inch (584mm) rack mounting
1	1	1	1	1	1	Product label
3	3	3	3	3	3	Flat retainer clips
1	1	1	1	1	1	Hook-and-loop strips
Instruction sheets:						
1	1	1	1	1	1	860601012 – High-Density Sliding Fiber Shelf
1	1	1	1	1	1	860609635 – High-Density iPatch 12LC, 24LC, and MPO Fiber Shelves
1	1	1	1	1	1	860557313 – LC/SC and MPO Module Port Cleaning Instructions

Separately Orderable Components

Material ID	Part No.	Description
760039883	G2-23BRKT	Mounting bracket accessory kit for 23-inch (584mm) rack and ETSI rack

Important – Limits for HD iPatch shelf and panel connections:

- **iPatch** fiber shelves are limited to a maximum number of rack units (RUs) and will not support a fully populated rack or cabinet. **iPatch** fiber shelves support a total of 52 **iPatch** units (26 rows) per rack/cabinet, as configured for (26) 1U shelves, (13) 2U shelves, (8) 2U UHD shelves, (6) 4U shelves, (4) 4U UHD shelves, or any combination thereof. **ImVision**® Controller with the **imPower**™ power extender supports a total of 104 **iPatch** units.
- **iPatch** fiber shelves are limited to a maximum number of five (5) panels per panel bus male connector. Start a new panel bus chain with every sixth panel in the rack system.
- Do not mix MPO and LC **iPatch** kits in the same row of a rack.
- When mixing **iPatch** copper and fiber kits in a single rack, observe the following power worksheet formulas:

imVision only

Number of iPatch kits	factor by
# of HD fiber modules	x 158
# of CU kits	x 222
# of 1U G2 LC kits	x 222
# of 96F LC or MPO kits	x 188
Maximum no. of kits in rack	≤ 10,000

ImVision with imPower

Number of iPatch kits	factor by
# of HD fiber modules	x 138
# of CU kits	x 222
# of 1U G2 LC kits	x 222
# of 96F LC or MPO kits	x 94
Maximum no. of kits in rack	≤ 10,000

Adding all kit types multiplied by factor should total $\leq 10,000$.



Important Safety Cautions

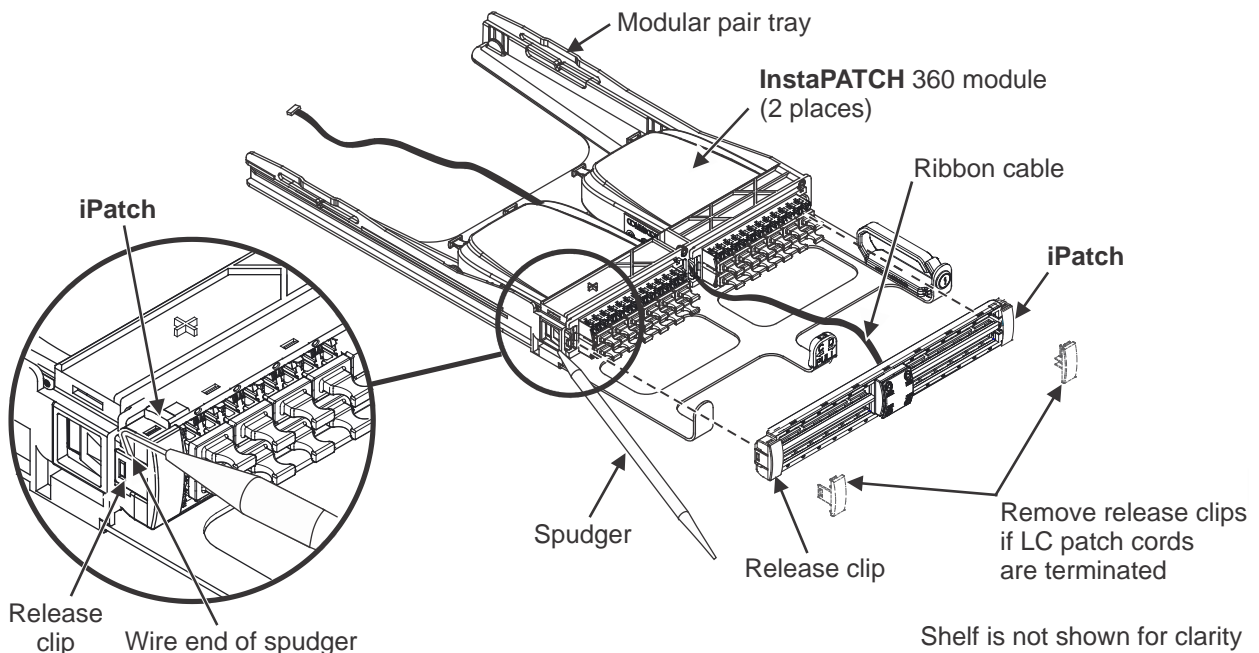
- To reduce the risk of fire, electric shock, and injury to persons, read, understand, and adhere to the following instructions as well as any warnings marked on the product.
- Remote risk of electric shock. Never install the product in wet locations or during lightning storms. Never touch uninsulated communication wires or terminals.
- Disconnected optical components may emit invisible optical radiation that can damage your eyes. Never look directly into an optical component that may have a laser coupled to it. Serious and permanent retinal damage is possible. If accidental exposure to laser radiation is suspected, consult a physician for an eye examination.
- Wear safety glasses to install the shelf. Although standard safety glasses provide no protection from potential optical radiation, they offer protection from accidental airborne hardware and cleaning solvents.
- The 4U versions exceed 40lbs, 2 person lift required.

Precautions

- High-density **iPatch** fiber modules require virtually no maintenance to maintain their performance. They contain no user-serviceable components, and any damage to the anti-tamper label or removal of top cover or front adapter mounting panel will void the warranty.
- Fiber optic trunk cable and jumper performance is sensitive to bending, pulling, and crushing. Minimum bend radius must be maintained during installation per the manufacturer's specification. Appropriate pulling socks must be used during installation, and pulling forces shall not exceed manufacturer's recommendations. MPO terminated trunk cables may use ribbonized fiber optic cable, which has a preferential bend axis. Use caution to avoid kinking trunk cables.

- All wiring that connects to this equipment must meet applicable local and national building codes and network wiring standards for communication cable.
- High-density **iPatch** fiber MPO adapters are equipped with protective dust caps installed on all adapters.
- Prior to installation, clean the trunk cable and jumper connectors per the manufacturer's recommendations.
- Isopropyl alcohol is flammable, and can cause eye irritation on contact. If eye contact occurs, flush with water for at least 15 minutes. In case of ingestion, consult a physician. Use only in well ventilated areas.
- **IMPORTANT:** Dust covers are installed in the ports to protect the fibers connected to the back of the ports. Do not remove a dust cover from a port until you connect a patch cord to that port. If you remove a patch cord later, replace dust cover in the port.
- Care should be taken not to compromise the stability of the rack by installation of this equipment.
- High-density **iPatch** fiber shelves are for use in restricted access areas only.
- **SYSTIMAX 360 iPatch InstaPATCH** shelves use infrared sensing technology and should be installed where they are not exposed to direct sunlight or other infrared sources.

Step 1 – Remove iPatch Components from Shelf to Orient InstaPATCH Modules



The high-density **iPatch** fiber shelf is shipped with four **InstaPATCH 360** modules installed in the ALPHA orientation. The **InstaPATCH 360** modules must be oriented for the proper polarity. Identical modules are used at each end of a trunk cable, but one module must be in the ALPHA orientation and the other module must be in the BETA orientation.

Note: Refer to the **SYSTIMAX® High-Density Sliding Fiber Shelf Instructions (860601012)** for details regarding **InstaPATCH 360** module orientation.

1. Slide one modular pair tray forward for access. Trays slide to the front of the shelf separately until reaching stops that prevent them from sliding out.
2. Use a spudger to depress the release clip on one end of an **iPatch** unit and pull forward to release it. Repeat on other end and pull the entire unit forward to remove it from the tray as shown.

Note: If LC patch cords are terminated, then **iPatch** release clips should be removed to allow unit to clear latch on LC connectors. Patch cord will not need to be disconnected.

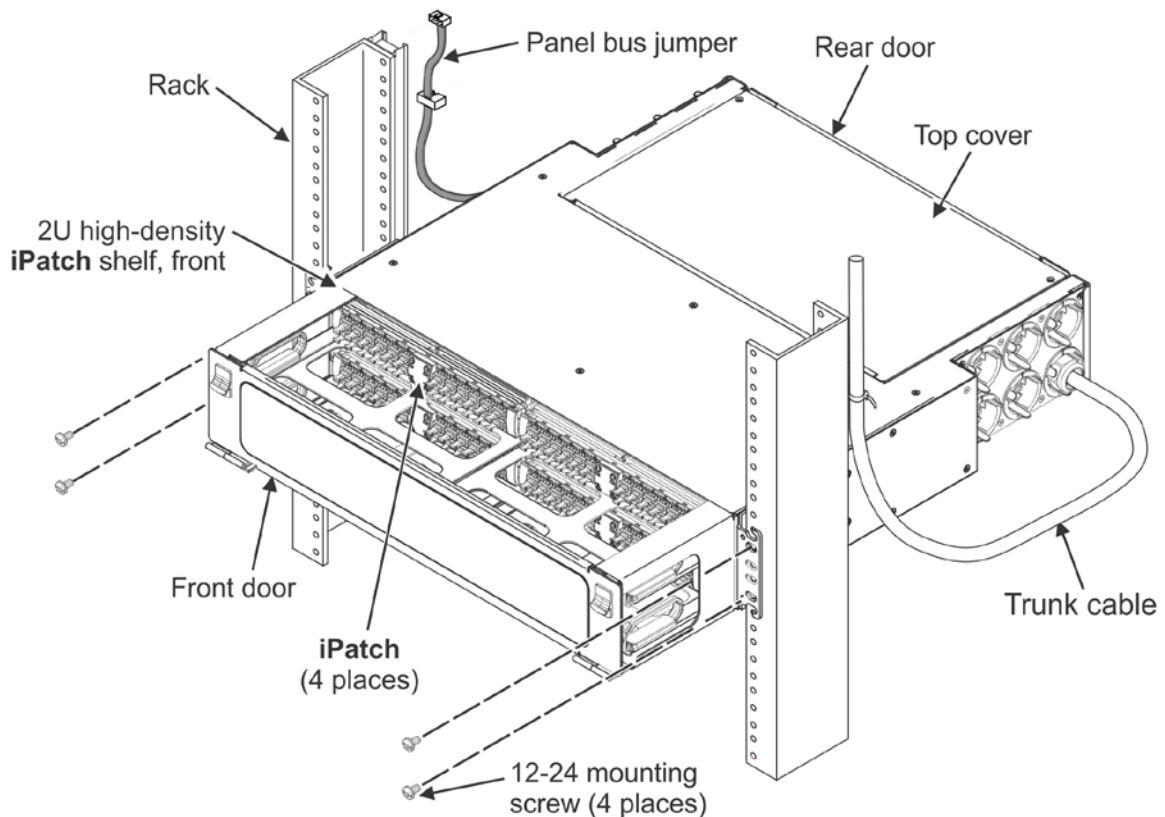
To remove release clips, gently twist one side of the top horizontal section of the **iPatch** unit in a downward

motion to release the top tab on the release clip. Remove release clip from **iPatch** and repeat on other end of unit. Flex the horizontal pieces to clear connector latches when removing **iPatch** unit.

Caution: Pull **iPatch** unit away from tray slowly to avoid damaging internal components.

3. Carefully set **iPatch** unit aside without disconnecting the ribbon cable from it.
4. After removing **iPatch**, remove the **InstaPATCH** 360 modules. Use a small flat blade screwdriver to depress inner-most latch to release module from modular pair tray.
5. Shelf ships with modules in ALPHA orientation. If necessary to reinstall a module in BETA position, slide it into an opening in the shelf until the tabs engage and an audible click is heard. This indicates the module is fully seated in the shelf.
6. Ensure that the ribbon cable is still firmly connected to the back of the **iPatch** unit.
Note: If the connector does need re-inserting, orient it so the red dot is facing the top edge of the unit for correct alignment with the connection on the back of the unit.
7. Place the **iPatch** unit back on the front of the shelf, being careful to pull the ribbon cable through its opening in the shelf at the same time. Do not allow cable to be kinked or damaged.
8. Once the **iPatch** unit is seated over the **InstaPATCH** 360 modules, push in on each release clip at ends of unit to engage the latches to secure it.

Step 2 – Install Shelf and Connect Panel Bus Jumper



1. Determine the rack size and desired mounting location.
 - For 19-inch (483mm) rack – Mount shelf to rack using the pre-installed mounting brackets and four #12-24 x 1/2-inch screws (provided) as shown.
 - For a 23-inch (584mm) rack, use the G2-23BRKT accessory kit (ordered separately) and install conversion brackets on each side of shelf using four 10-32 screws included in the kit. Mount shelf to rack using four 12-24 screws provided.

Note: 1 accessory kit is required for a 1U shelf, 2 accessory kits used for a 2U shelf and 4 accessory kits for a 4U shelf.

- For an ETSI rack, use the G2-23BRKT accessory kit (ordered separately) and install one conversion bracket on one side of shelf using two of the four 10-32 screws included in the kit. Mount shelf to rack using four M6 x 12mm screws (provided). The shelf will not be centered in the rack.

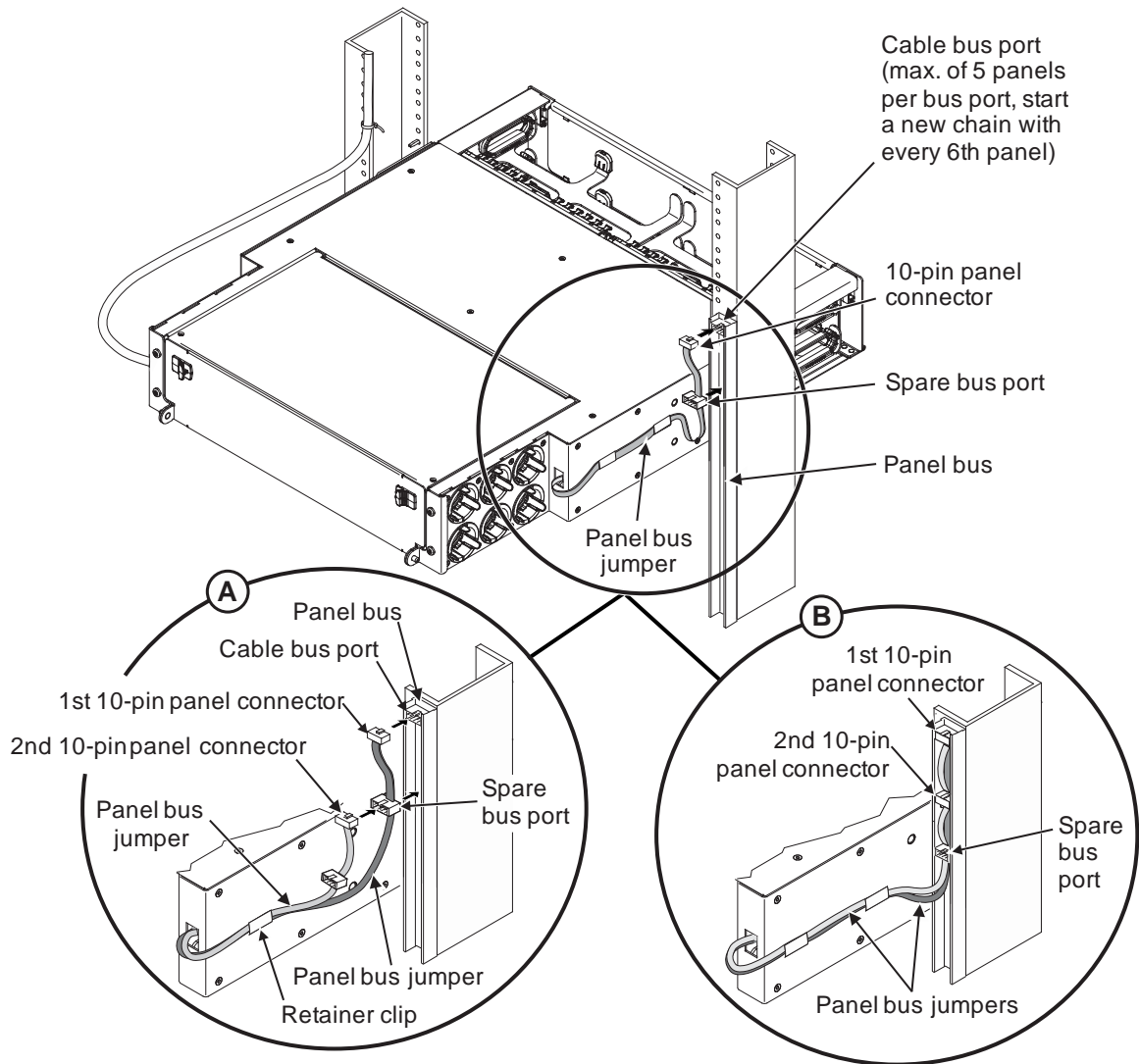
Note: 1 accessory kit can be used for two 1U shelves, 1 accessory kit to be used for a 2U shelf and 2 accessory kits for a 4U shelf.

2. Connect the keyed female 10-pin connector on the panel bus jumper into the nearest panel bus port on panel bus as shown below.

Important: Make sure the jumper connector is fully seated.

3. Install spare port built into jumper cordage into panel bus frame by turning it at an angle, inserting into frame, and turning it back perpendicular to frame.

Note: Some fiber shelves use two or more panel bus jumpers to connect to the **iPatch** panel bus. Route the 2nd panel bus jumper to the panel bus 10-pin panel bus connector inserted into the spare bus port on the 1st panel bus jumper, as shown in detail A. Insert both connectors and 2nd spare bus port into panel bus channel as shown in detail B.



Trade-marks

All trademarks identified by ® or ™ are registered trademarks or trademarks, respectively, of CommScope, Inc. This document is for planning purposes only and is not intended to modify or supplement any specifications or warranties relating to CommScope products or services. CommScope is committed to the highest standards of business integrity and environmental sustainability, with a number of CommScope's facilities across the globe certified in accordance with international standards, including ISO 9001, TL 9000, and ISO 14001.

Further information regarding CommScope's commitment can be found at www.commscope.com/About-Us/Corporate-Responsibility-and-Sustainability.

Contact information

Visit our website or contact your local CommScope representative for more information.

For technical assistance, customer service, or to report any missing/damaged parts, visit us at:

<http://www.commscope.com/SupportCenter>

Or Contact PartnerPRO Network Partner <https://www.commscope.com/Partners/PartnerPRO-Network>

This product may be covered by one or more U.S. patents or their foreign equivalents.

For patents, see www.cs-pat.com