



## SYSTIMAX 360™ iPatch® G2 Fiber Sliding Shelf, LC InstaPATCH®/ Distribution Panel Instructions

### General

The **SYSTIMAX 360™ iPatch® InstaPATCH®** LC shelf includes four modules that allow connection of multi-fiber trunk cables terminated with push-on MPO connectors. Each module provides 12 duplex LC fiber ports. The **SYSTIMAX 360™ iPatch® G2** LC shelf provides for connection of non-metallic Outside Plant (OSP) cable to 48 **iPatch** duplex LC fiber ports either by direct termination or splicing.

The **SYSTIMAX 360™ InstaPATCH** and G2 shelves come equipped with a modular faceplate, jumper-storage trough, and polycarbonate top cover. These shelves mount in a standard 19-inch (483mm) rack with universal hole spacing. The shelves are intended for indoor use, but may be used outdoors in a suitable enclosure.

**Note:** To use the **SYSTIMAX 360 iPatch** shelf in an existing **iPatch** System, the **iPatch** Rack and Panel Managers must be running firmware version 8.1 or later and the **imVision®** Controller must be running firmware version 10.1 or later. The System Manager firmware, used to manage the system, must be Version 7.1 or later. We recommend that you upgrade the System Manager software to Version 7.1 or a later version before you install the shelf.

Ordering information is listed below:

Material ID	Part No.	Description
760168419	360G2-iP-1U-96F-LC-DP-SD	<b>360G2 iPatch</b> 1U 96F-LC distribution panel, sliding shelf
760188375	360G2-iP-2U-192F-LC-DP-SD	<b>360G2 iPatch</b> 2U 192F-LC distribution panel, sliding shelf
760168435	360G2-iP-1U-96F-LC-DM-LS-SD	<b>360G2 iPatch</b> 1U 96F-LC distribution module, <b>LazrSPEED®</b> , sliding shelf
760188326	360G2-iP-1U-96F-LC-DM-TS-SD	<b>360G2 iPatch</b> 1U 96F-LC distribution module, <b>TeraSPEED®</b> , sliding shelf
760188383	360G2-iP-2U-192F-LC-DM-LS-SD	<b>360G2 iPatch</b> 2U 192F-LC distribution module, <b>LazrSPEED®</b> , sliding shelf
760188391	360G2-iP-2U-192F-LC-DM-TS-SD	<b>360G2 iPatch</b> 2U 192F-LC distribution module, <b>TeraSPEED®</b> , sliding shelf



**SYSTIMAX 360™ iPatch® G2 Fiber LC Shelves**

This product is covered by one or more of the following U.S. patents or their foreign equivalents: 5,923,807, 6,245,998. The **iPatch** System is covered by U.S. patents 6,285,293, 6,522,737 and 8,344,900



## How to Contact Us

- To find out more about **CommScope**® products, visit us on the web at <http://www.commscope.com/>
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  - Within the United States, contact your local account representative or technical support at 1-800-344-0223. Outside the United States, contact your local account representative or **PartnerPRO**™ Network Partner.
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## Tools Required

- Phillips-head screwdriver
- Lint-free cloth or tissues
- Flat-blade screwdriver (optional)
- Isopropyl Alcohol (IPA)
- Spudger

## Specifications

### Fiber Optic Interface

Industry-standard 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% noncondensing

## Parts List

Verify parts against the parts list below:

Quantity		Description
360G2 DP LC Shelf 760168419	InstaPATCH DM LC Shelf 760168435	
–	1	96-fiber shelf with (4) 12-port duplex LC fiber <b>InstaPATCH</b> modules
1	–	96-fiber shelf with (4) 12-port LC fiber adapter panels
1	1	Patch cord trough
1	1	Hinged door for patch cord trough
4	4	12-24 x 1/2" screws for mounting in a 19-inch (483mm) or 23-inch (584mm) rack
2	2	Liquid tight cable fittings (cable glands)
3	3	Flat retainer clips
1	–	Fiber type label kit
2	2	Plastic cable tie retainers
4	4	Cable ties
1	1	Shelf installation instruction sheet
1	1	Fiber cleaning instruction sheet

## Separately Orderable Components

MID	Part No.	Description
760039883	600-23BRKT	Mounting bracket for 23-inch rack and ETSI rack
760148502	360-LP-STACK-SPT	Stackable fusion splice tray kit
760039875	G2-SRF	Small diameter cable gland kit

### Important: Limits for iPatch shelf and panel connections:

- **iPatch** LC fiber shelves are limited to a maximum number of rack units (RUs) and will not support a fully populated rack or cabinet. **iPatch** LC fiber shelves support 26 rows per rack/cabinet, such as configured for (26) 1U shelves, (13) 2U shelves, (10) 2U UHD shelves, (6) 4U shelves, (5) 4U UHD shelves, or any combination thereof.
- **iPatch** LC 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.



### Important Safety Cautions

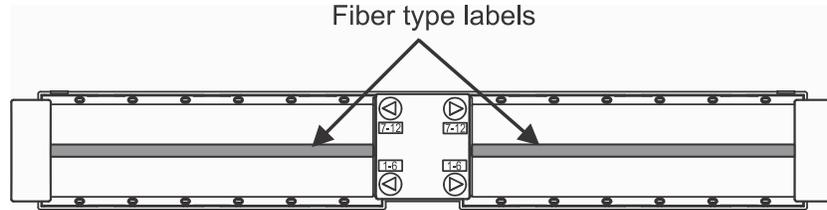
- To reduce the risk of fire, electric shock, and injury to persons, read, understand, and adhere to the following instructions as well as any warnings marked on the product.
- Remote risk of electric shock. Never install the product in wet locations or during lightning storms. Never touch uninsulated 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.

### Precautions

- **iPatch** high density 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.
- Care should be taken not to compromise the stability of the rack by installation of this equipment.
- **iPatch** fiber shelves are for use in restricted access areas only.
- **SYSTIMAX 360 iPatch** fiber shelves use infrared sensing technology and should be installed where they are not exposed to direct sunlight or other infrared sources.
- Prior to installation, clean the trunk cable and jumper connectors per the manufacturer's recommendations.

## Step 1 – Prepare Shelf

### Step 1A – Apply Fiber Type Labels For DP Shelf Configurations ( 760168419, 760188375)

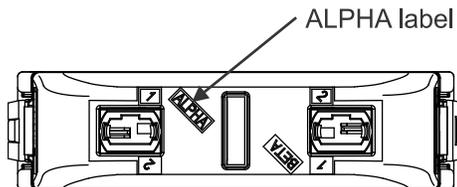


1. Apply one of the provided color-coded labels as shown to each side of the **iPatch** ready kit to indicate the type of fiber optic cable used for the kit.
  - Aqua – Multimode with 50  $\mu\text{m}$  core diameter, such as **LazrSPEED**
  - Blue – Singlemode with 8.3  $\mu\text{m}$  core diameter, such as **TeraSPEED**

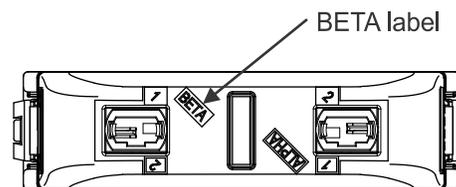
**Note:** If unsure what type of fiber cable will be used for each kit, the labels can be applied later after the shelf has been installed and the cable has been connected to the back of the kits.

### Step 1B – Orient the InstaPATCH 360 Modules For DM Shelf Configurations ( 760168435, 760188326, 760188334, 760188383, 760188391, 760188409)

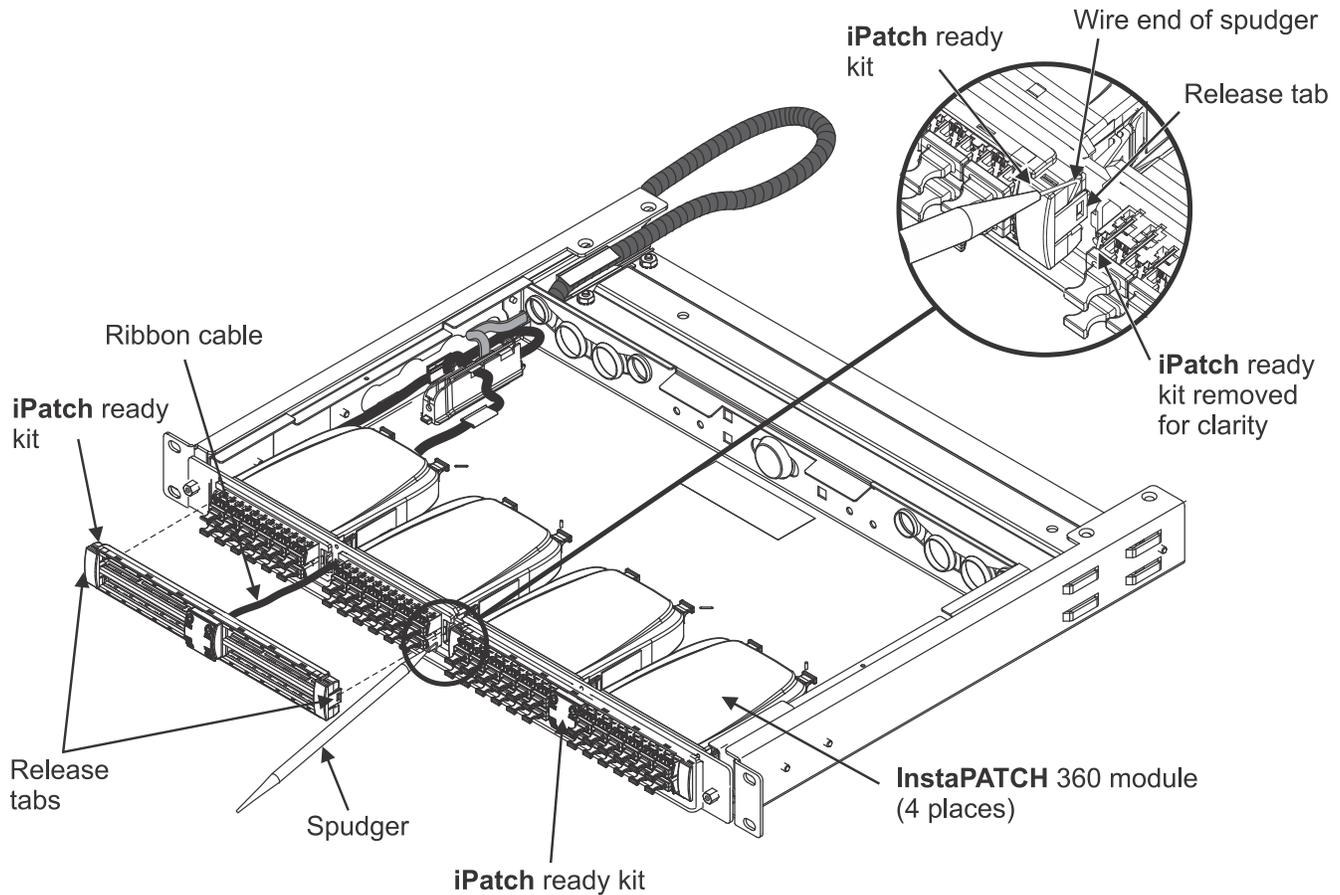
**Note:** The **InstaPATCH** fiber shelf is shipped with four **InstaPATCH** 360 modules installed in the ALPHA orientation. The **InstaPATCH** 360 modules must be oriented for the proper polarity. Identical modules are used at each end of a trunk cable, but one module must be in the ALPHA orientation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



Module in ALPHA Orientation  
(Rear View)



Module in BETA Orientation  
(Rear View)

**Step 1C – Remove iPatch Ready Kit**

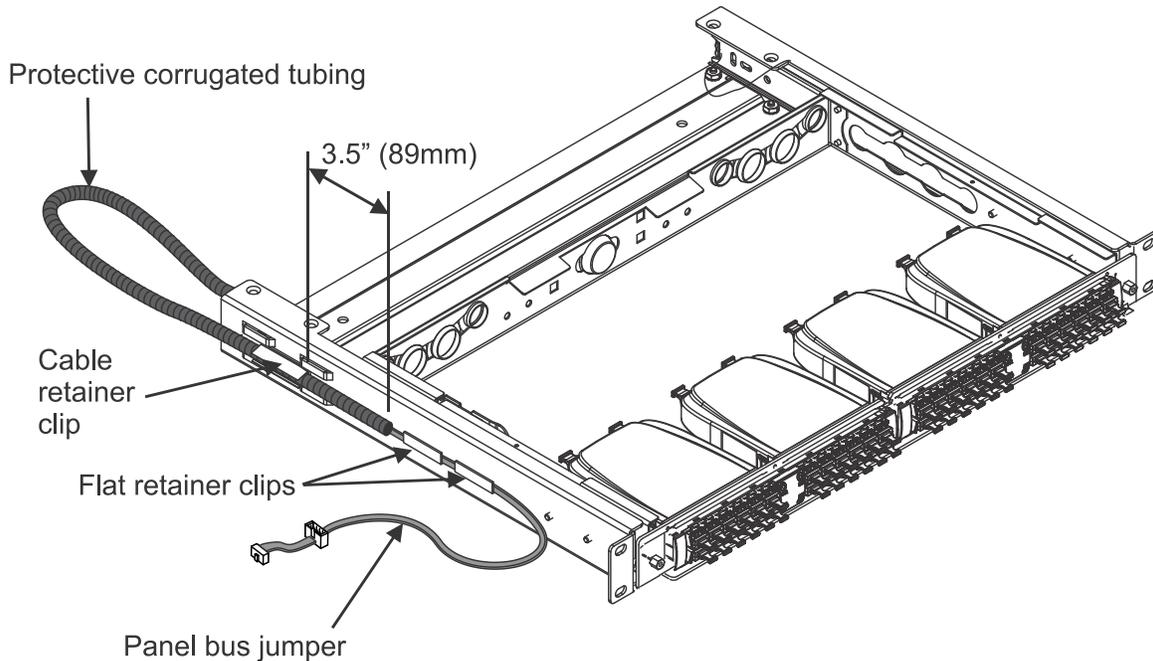
1. Slide the cover off the shelf.
2. Use a spudger to depress the release tab on one end of the **iPatch** ready kit and pull forward to release it. Repeat on other end, then pull the entire kit forward to remove it from the shelf.

**Caution:** Pull kit away from shelf slowly to avoid damaging internal components.

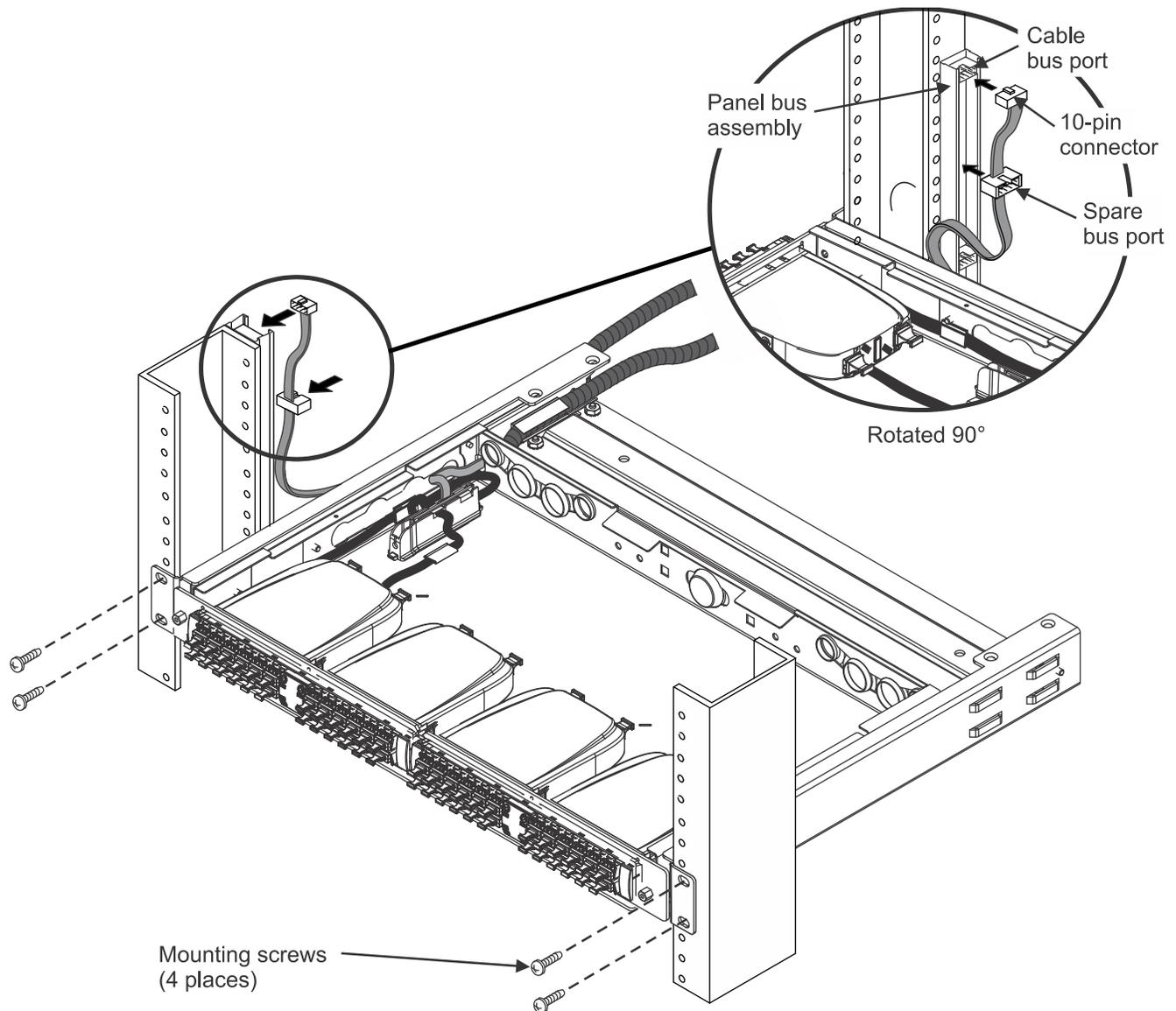
3. Carefully set aside the kit without disconnecting the ribbon cable from it.
4. After removing the **iPatch** ready kit, remove the **InstaPATCH** 360 modules from the front of the shelf by depressing the tabs on both sides of the module and at the same time pulling forward. Pull the module out from the front of the shelf.
5. Shelf ships with the module in ALPHA orientation. If necessary to reinstall the module, 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** ready kit.
 

**Note:** If the connector does need re-inserting, orient it so the red dot is facing the top edge of the kit for correct alignment with the connection on the back of the kit.
7. Place the **iPatch** ready kit 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** ready kit is seated over the **InstaPatch** 360 modules, push in on each end of the ready kit to engage the latches and secure it.

## Step 2 – Route Panel Bus Jumper

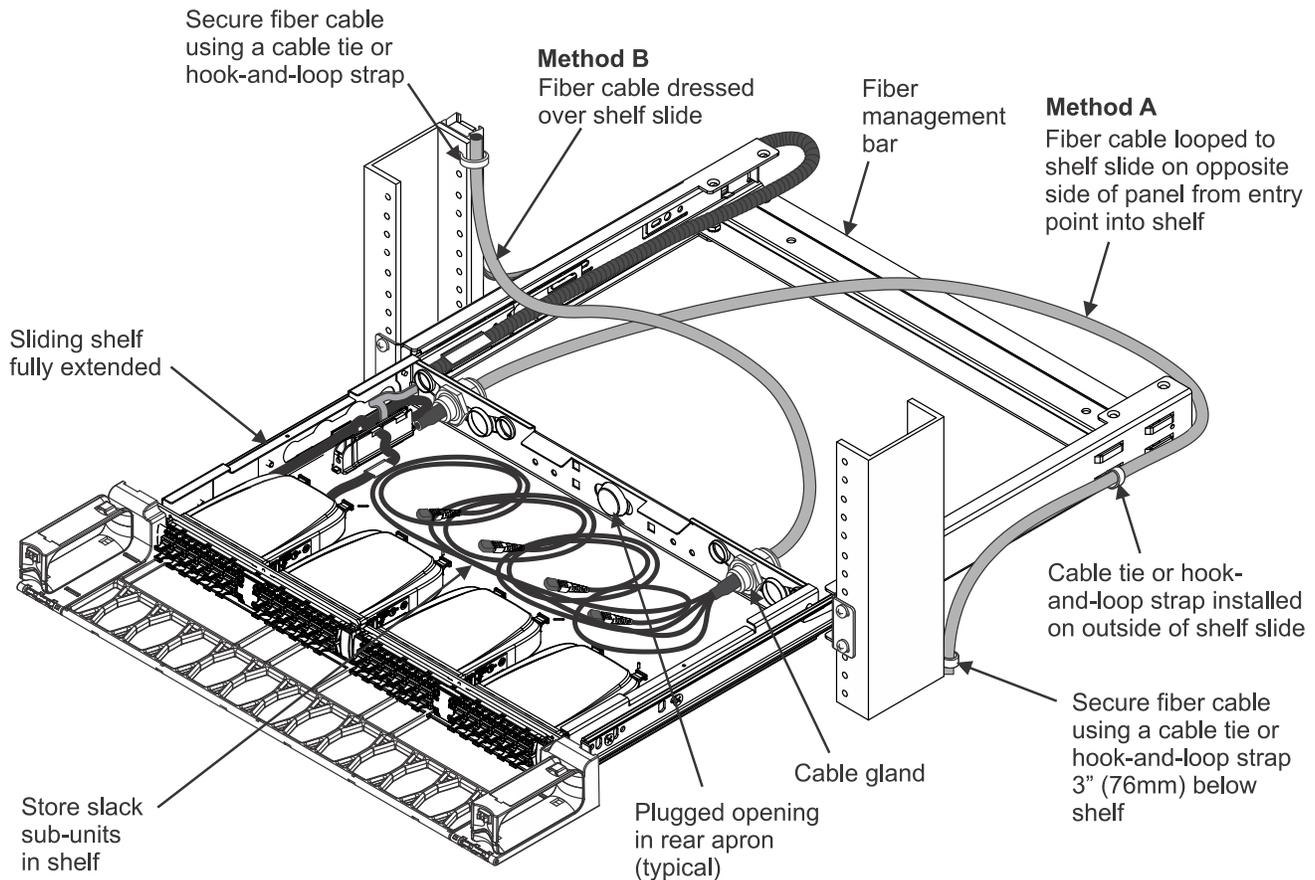
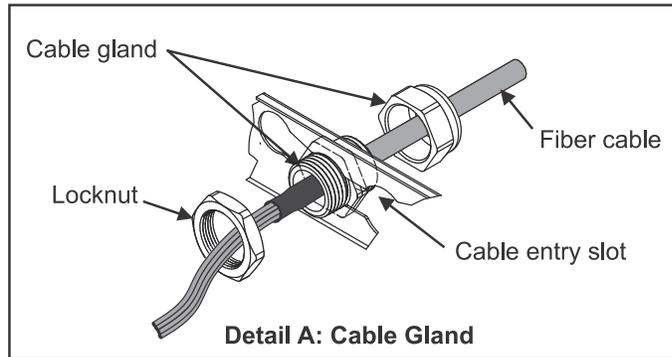


1. If it has not already been removed, slide the cover off the shelf.
2. Remove the tape securing the panel bus jumper to the cable support.
3. Route the panel bus jumper with protective corrugated tubing around the end of the sliding rail to the outside of the rail.
4. Snap the corrugated tubing protecting the panel bus jumper into the cable retainer clip on the outside of the rail as shown.
5. Position the corrugated tubing so that about 3.5 inches (89mm) of the tubing extends past the end of the cable retainer clip.
6. Position the exposed ribbon cable of the panel bus jumper in the flat retainer clips on the outside of the sliding rail as shown above.

**Step 3 – Install Shelf and Connect Panel Bus Jumper**

1. Mount the shelf in the rack using the four mounting screws provided
  - For a 19-inch (483mm) rack, mount the shelf to the rack using the pre-installed mounting brackets and the four 12-24 x 1/2-inch screws provided.
  - For a 23-inch (584mm) rack, use the 600-23BRKT accessory kit (ordered separately) and install one conversion bracket on each side of the shelf using the four 10-32 x 3/8-inch screws included in the kit. Mount the shelf to the rack using the four 12-24 x 1/2-inch screws provided.
  - For an ETSI rack, use the 600-23BRKT accessory kit (ordered separately) and install one conversion bracket on one side of the shelf using two of the four 10-32 x 3/8-inch screws included in the kit. Mount the shelf to the rack using four M6 x 12 screws (not provided). The shelf will not be centered in the rack.
2. Connect the keyed female 10-pin connector on the panel bus jumper into the nearest cable bus port on panel bus.
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.

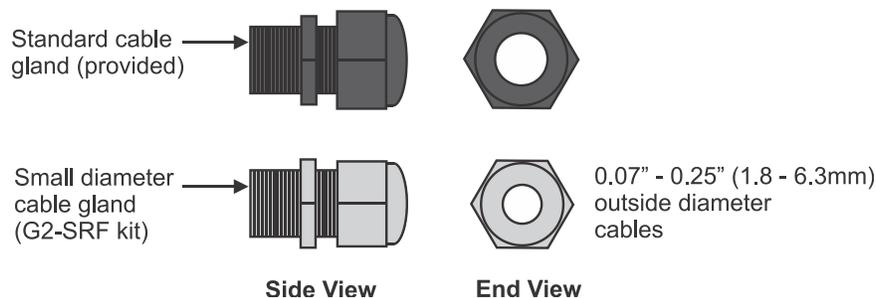


**Step 5 – Route Trunk Cable(s)**

1. Pull shelf out to the fully extended position.
2. Pull the trunk cable(s) to the rack and determine the best way to route the cable to the shelf (from above or below).
3. The trunk cable and sub-units may enter shelf from either right or left side of rear apron. Carefully loop cable to rear of shelf on either side and continue to feed the trunk cable over top of rear apron. Loosely secure cable to rear of shelf using a cable tie or hook-and-loop strap.
4. Temporarily store slack sub-units in shelf.
5. Remove plug from appropriate size opening in shelf to accommodate cable gland on fiber cable. Select an opening on rear apron that will be most advantageous for cable entry.
6. Loosen locknut on cable gland. The locknut does not have to be removed to install the cable gland.

7. Feed sub-units through opening in shelf and temporarily coil them loosely inside shelf.
8. Rotate locknut as required to allow it to pass through the opening and enter shelf.
9. **Note:** It may be necessary to temporarily remove a plug from an adjacent opening to provide sufficient clearance for locknut to be inserted through opening.
10. Insert threaded body of cable gland into opening and tighten locknut onto threaded section to secure trunk cable to shelf.

**Note:** For smaller diameter cables, the separately ordered G2-SRF kit (760039875) provides two liquid-tight fittings with a smaller inside diameter. The smaller diameter fittings would be more appropriate for these cables.



11. Using one of the methods described below, route and secure the trunk cable from the cable gland back to the rack.

#### Method A

1. Working back from where the fiber cable enters shelf (at a cable gland), carefully loop cable over rear fiber management bar and then to outside of shelf slide on opposite side of panel from cable entry point as shown. Maintain cable in as small of a radius as possible while not exceeding minimum bend radius for cable. Secure fiber cable to shelf slide in at least two places using cable ties or hook-and-loop strips threaded through slots and punches provided in rails. **Do not secure cables to fiber management bar.**
2. From shelf slide, route cable to equipment rack and loosely secure cable to rack upright approximately 3 inches (76mm) above or below shelf, using a cable tie or hook-and-loop strip.

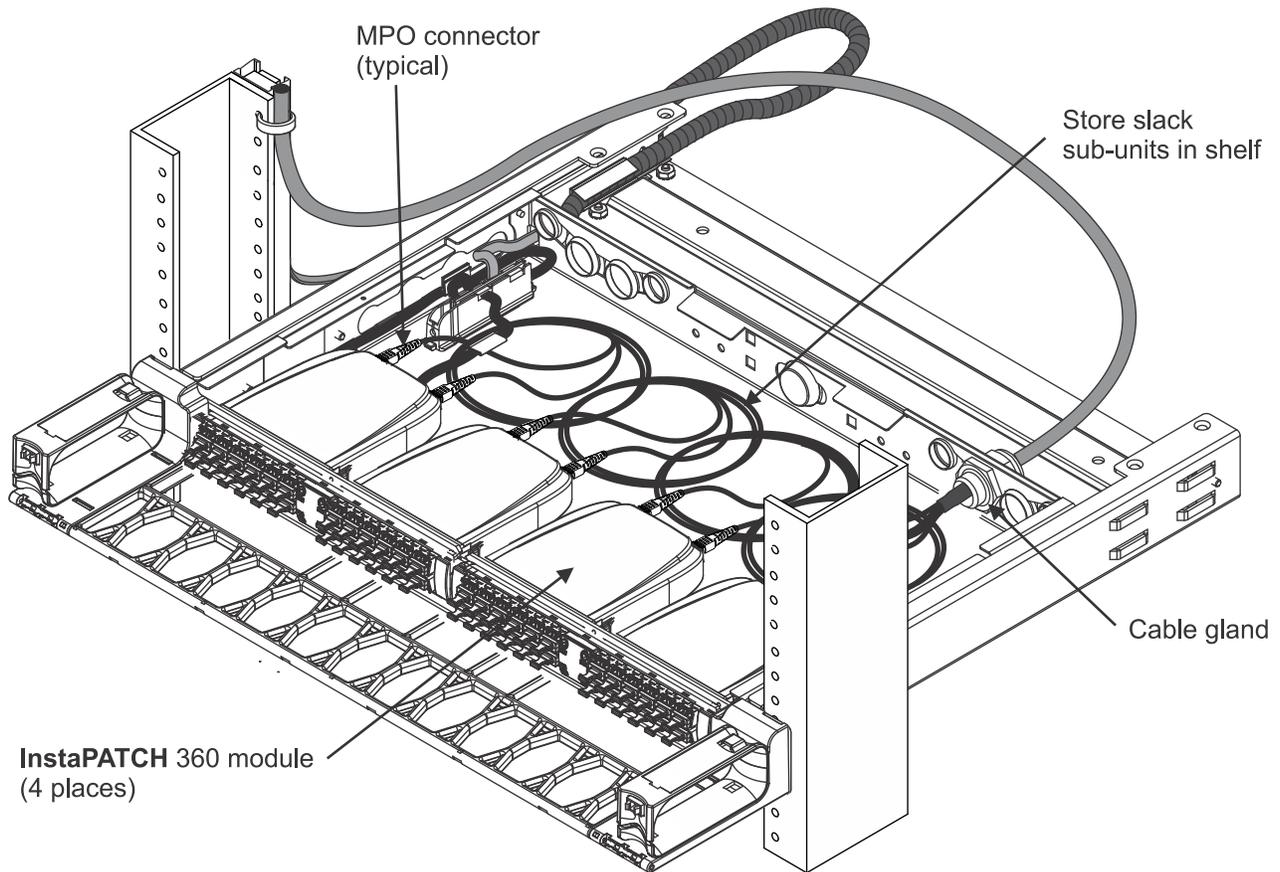
**Note:** Do not exceed minimum bend radius for fiber cable.

3. Verify that shelf retracts and extends fully before proceeding.
4. The ribbon cable of the panel bus jumper may slide in the corrugated tubing.

#### Method B

**Note:** This method reduces the slack loop length at rear of shelf, but it requires an open space of at least 1U above the shelf to work.

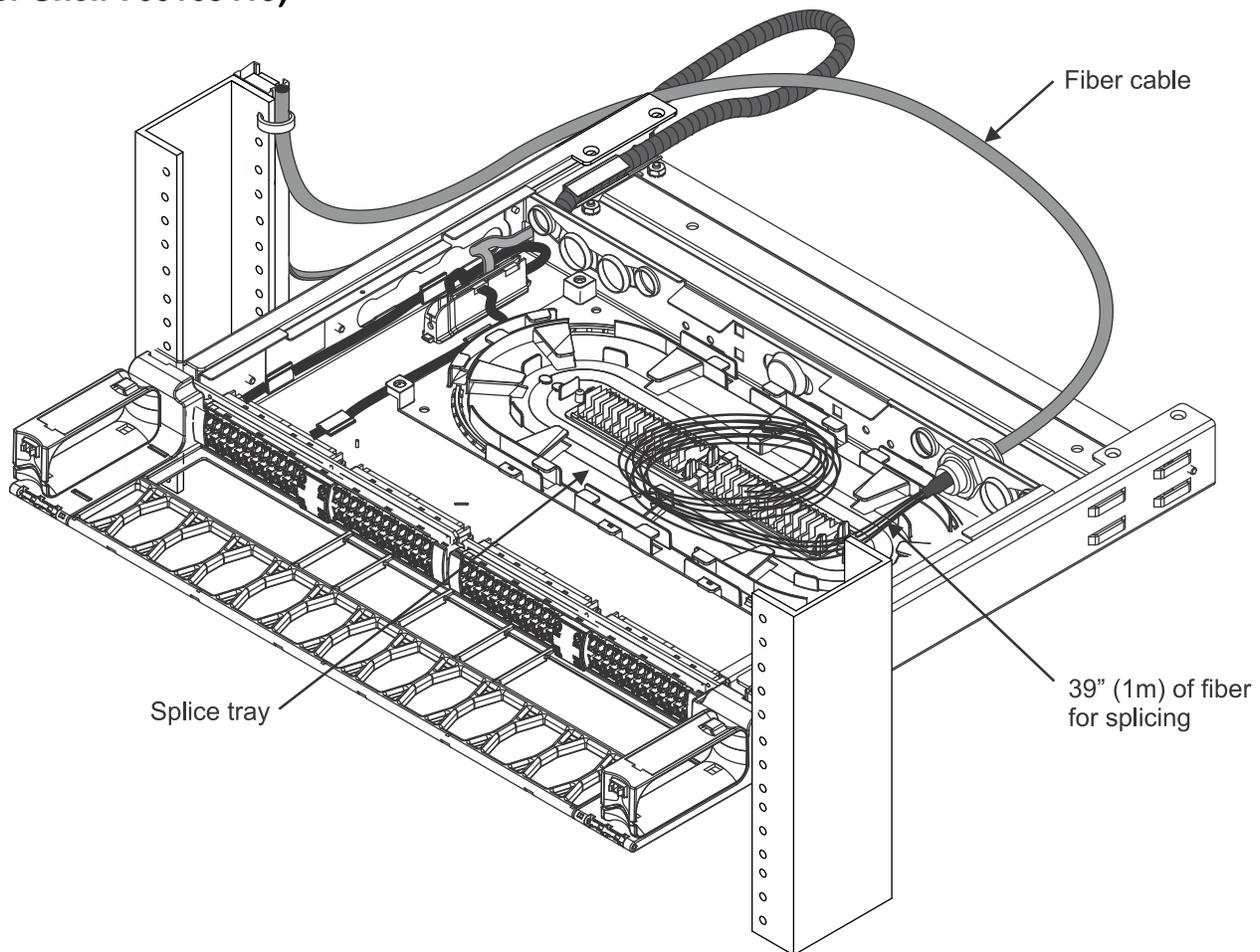
1. Working back from where the fiber cable enters shelf (at a cable gland), carefully loop cable over rear fiber management bar and then across shelf slide on opposite side of chassis from cable entry point as shown. Maintain cable in as small of a radius as possible while not exceeding the minimum bend radius for the cable. **Do not secure cables to fiber management bar or drawer slide.**
2. Route cable to equipment rack and loosely secure cable to rack upright approximately 3 inches (76mm) above or below shelf, using a cable tie or hook-and-loop strip.
3. Verify that shelf retracts and extends fully before proceeding.
4. The ribbon cable of the panel bus jumper may slide in the corrugated tubing.

**Step 6A – Connect Cables to InstaPATCH 360 Modules**

1. Remove the protective dust covers from the MPO connectors on the cable and the MPO couplers on the back of the **InstaPATCH 360** modules.
2. Grasp the connector by its boot, near the base of the connector. Insert the MPO connector into the coupler until it clicks into place.  
**Note:** The MPO connection is keyed. The polarized tab on the connector fits into the opening on the coupler on the module.
3. Repeat item 2 to insert each of the trunk cable's MPO connectors into the MPO coupler on an **InstaPATCH 360** module.
4. Route sub-units so that slack length is contained below the modules (as much as is possible) and so as to avoid tight bends as the connectors are terminated into the couplers on the rear of the modules.

**Note:** To unplug an MPO connector, grasp the ribbed sleeve section and pull the connector out of the coupler. Do not pull on the boot to unplug an MPO connector.

## Step 6B – Route Fiber Cable Inside Shelf Using Optional Stackable Splice Trays (for Shelf 760168419)



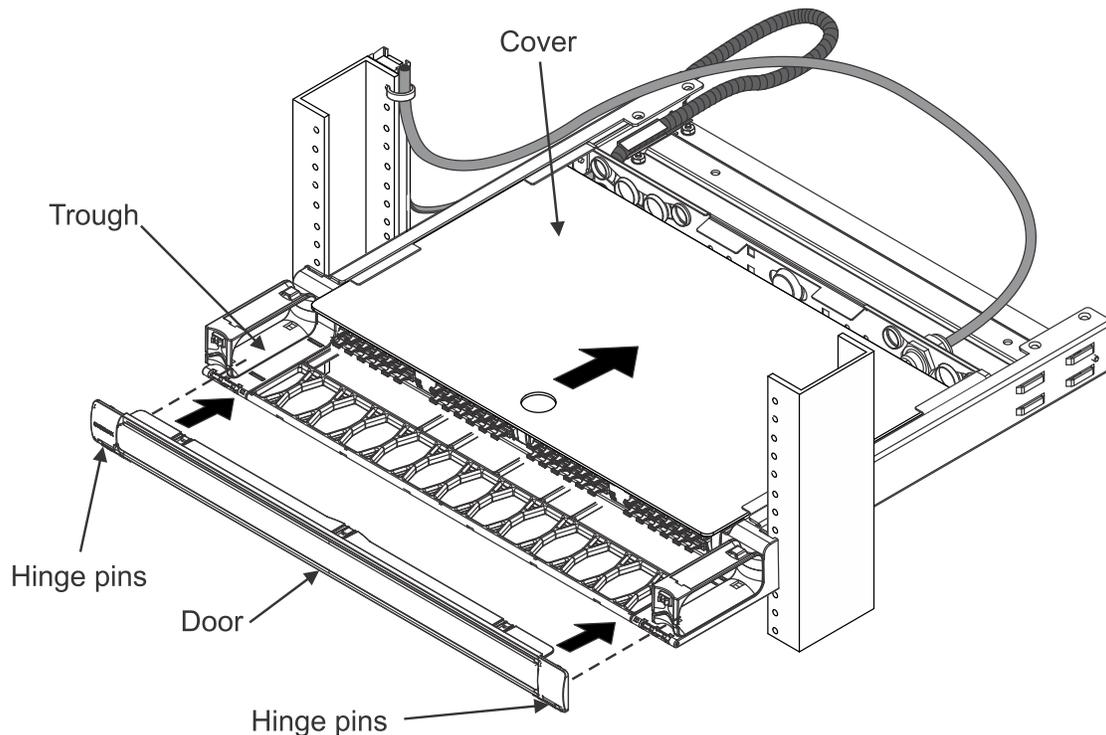
**Note:** Stackable splice tray kit (760148502) is ordered separately from shelf. Refer to instructions enclosed with that kit for all details not covered here. Each splice tray will accommodate up to 48 fusion splices. If more splice capacity is required, an additional splice tray may be stacked and attached to the first for a total of 96 splices.

1. Using a lint-free wipe and isopropyl alcohol, clean area on shelf floor where splice tray is to be located.
2. Peel off paper backing from splice tray. Position on shelf floor approximately as shown above and press down firmly. If permanent adhesion to the floor is not desirable, installer provided hook-and-loop or mechanical fasteners (such as **Micro Plastics**<sup>®</sup> p/n 011032ABTS050 stud and 0401032HFN nut) may be used.

### Fiber Management When Using Stackable Splice Trays

1. Trim all pigtail lengths to 1 meter (39 inches) or less.
2. Terminate a fiber pigtail into panel, color keying as required. Repeat for all remaining locations.
3. Perform fusion splicing operations per best practices and snap splice sleeves into holders provided inside of tray.
4. Wind and dress fibers from buffer tube(s) into tray.
5. Wind and dress pigtails into tray.
6. After tray is fully populated, snap on clear plastic top cover.
7. Repeat steps 1-6 for an additional tray.

## Step 7 – Install Cover and Door



Install top cover and trough door (both provided) to shield shelf from foreign particles. The cover, which is made of clear, flame-retardant plastic, slides on and off shelf. The door for the patch cord trough is hinged and has touch-latches for closing and opening.

1. Remove protective film from cover before installing. From front of shelf, position cover between upper and lower sets of tabs on each side of shelf and slide it into place as shown
2. Remove door from protective wrapping.
3. Orient door at an angle from trough and position hinge pins on door into hinge sockets on trough.
4. Using one hand to support bottom of trough on one end, push down on inside of door over hinge pins with other hand to seat pins into hinge sockets.
5. Repeat on other end to secure door to trough.
6. Pivot door into the vertical position until strikes engage latches and door snaps into the closed position with an audible click.
7. Door may be reopened by pulling on both upper corners of door (opposite strikes) until the latches release (verified by an audible click).

**Note:** Trough door may be removed when opened to a 45° position, by holding one of the side hinge brackets and pulling upward until hinge pins release from socket. Lift door to release from hinge socket on other side bracket.

8. Fully retract the shelf in the rack.

## Step 8 – Trough Removal (If Required)

1. Using a Phillips head screwdriver, loosen the two captive screws located on the inside of the fiber management rings on each end of the trough, then pull the trough off.

**Note:** Captive screws will not disengage from trough.