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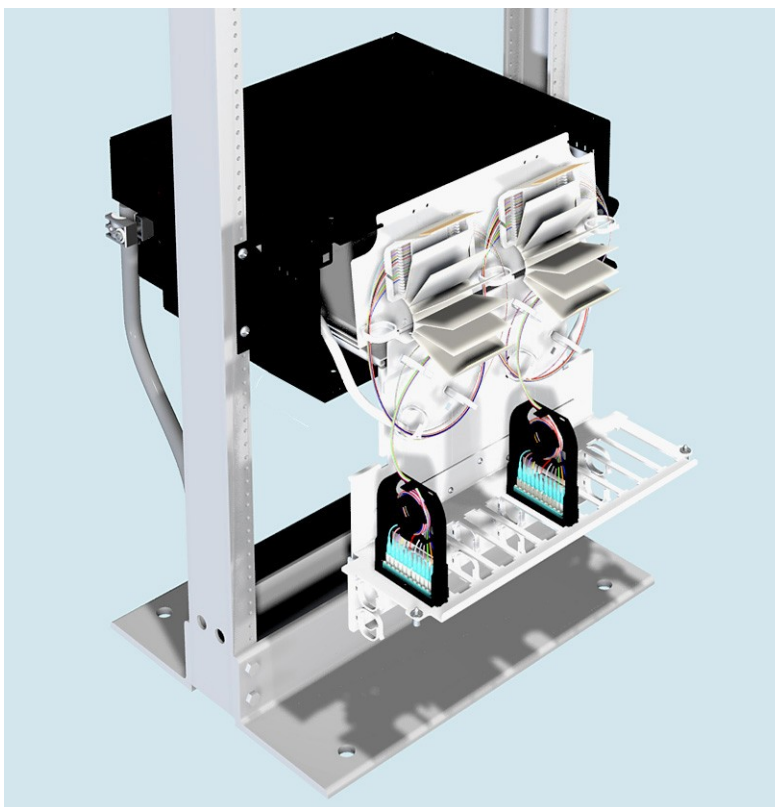
HD-4U-SP Front Access Fiber Optic Splicing Shelf

General

The HD-4U-SP sliding, front access fiber optic splicing shelf mounts onto a standard 19-inch (483mm), 23-inch (584mm) or ETSI equipment rack. This shelf will accommodate a maximum of 192 single fusion splices when using the **Splice Wallet**® or 128 single fusion splices when using the **RoloSplice**® splice tray organizers. This product is intended for indoor use or may be used outdoors in a suitable protective enclosure.

Ordering information is listed below:

Material ID	Part No.	Description
760231522	HD-4U-SP	4U front access splicing shelf



HD-4U-SP Front Access Fiber Optic Splicing Shelf



How to Contact Us

- To find out more about **CommScope**® products, visit us on the web at www.commscope.com/
- For technical assistance, customer service, or to report any missing/damaged parts, visit us at <http://www.commscope.com/SupportCenter>

Tools Required

- Phillips-head screwdrivers (#2 for door attachment and #3 for rack attachment)
- Isopropyl alcohol
- Lint-free wipes or tissues

Ordering Information

Termination cartridges, distribution panels, splice organizers and splice carriers (example: **Splice Wallet**, **RoloSplice**) are optional and must be ordered separately. Build-out blocks, couplers, splicing materials and equipment used with this shelf must also be ordered separately.

Separately orderable accessories are available for this shelf. Ordering information is listed below.

Material ID	Product No.	Description
760027516	RS-00	RoloSplice (unpopulated, splice trays available separately)
760031849	RS-4AM-12SF	RoloSplice , 2U version, equipped w/ mechanical splice trays
760031856	RS-4AF-16SF	RoloSplice , 2U version, equipped w/ fusion splice trays
760039859	RS-2AM-12SF	RoloSplice , 1U version, equipped w/ mechanical splice trays
760039867	RS-2AF-16SF	RoloSplice , 1U version, equipped w/ fusion splice trays
760032102	MODG2-BLANK	G2 Modular blank panel bezel (package of 4)
760039875	G2-SRF	Liquid-tight cable fitting kit for small-diameter cables
760039883	G2-23BRKT	Frame mounting bracket kit for 23" frames and ETSI frames
760128942	SMB-KIT-8-1/2-360G2	360G2 Fitment – InstaPATCH attachment bracket (2), shelf mounted, four 1/2 inch fittings per bracket and (2) expanded cable protector covers
760128959	SMB-KIT-4-3/4-360G2	360G2 Fitment – InstaPATCH attachment bracket (2), shelf mounted, two 3/4 inch fittings per bracket and (2) expanded cable protector covers
760122895	BAF-1/2-NPT	Bracket for armor fitting, 1/2 NPT
760122903	BAF-3/4-NPT	Bracket for armor fitting, 3/4 NPT
760122911	BAF-1-NPT	Bracket for armor fitting, 1 NPT
760122929	BAF-1-1/4-NPT	Bracket for armor fitting, 1-1/4 NPT
760122937	BAF-1-1/2-NPT	Bracket for armor fitting, 1-1/2 NPT

Parts List

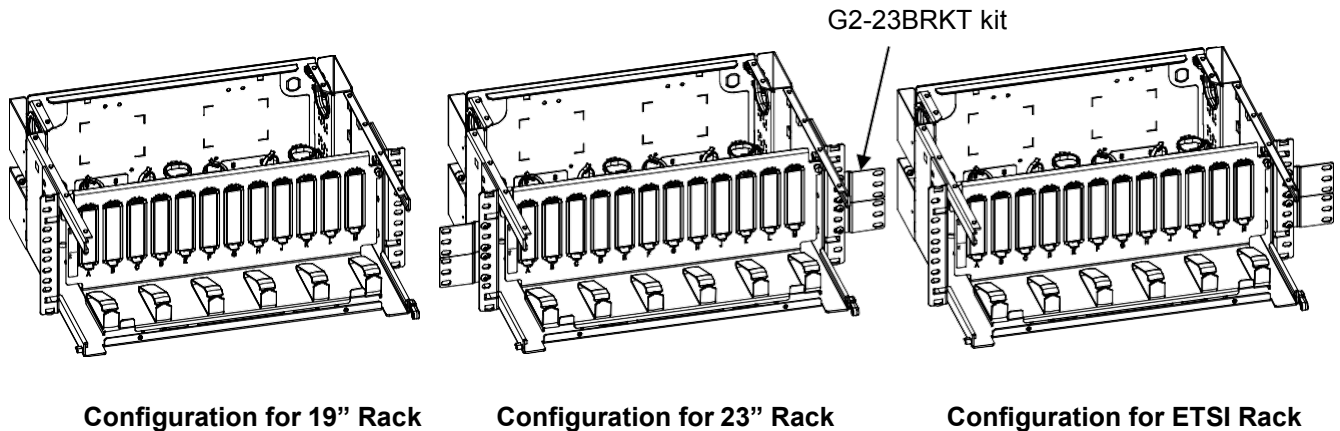
Verify parts against the parts list below

Loose Parts Furnished with Shelf	
Quantity	Description
1	Front door
1	Rear door
1	Label holder
11	Round fiber rings
2	LH cable protectors
2	RH cable protectors
3	Flat tie holders
4	12-24 x 1/2 screws
4	M6 x 12 screws
1	Hinge kit
1	Instruction sheet

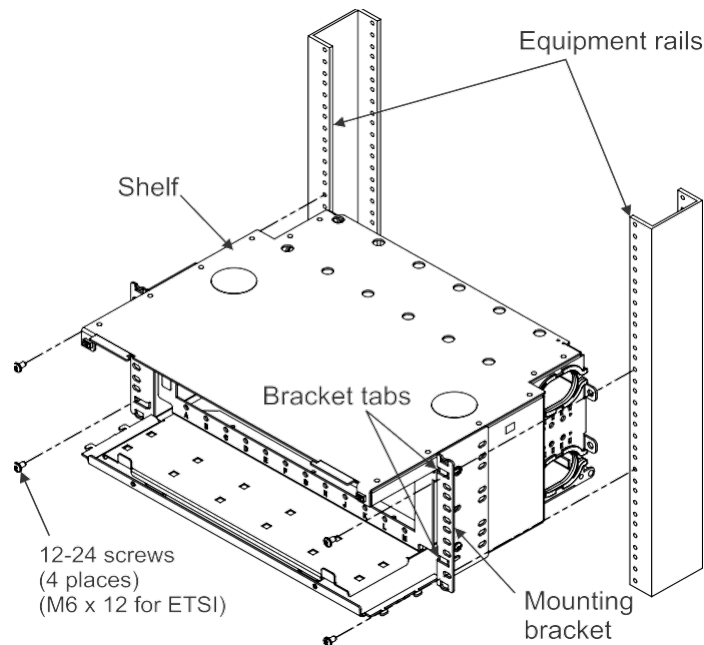
CAUTIONS

- 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.
- 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.
- Wearing safety glasses during installation of this shelf is recommended. Although standard safety glasses provide no protection from potential optical radiation, they offer protection from accidental airborne hardware and cleaning solvents.

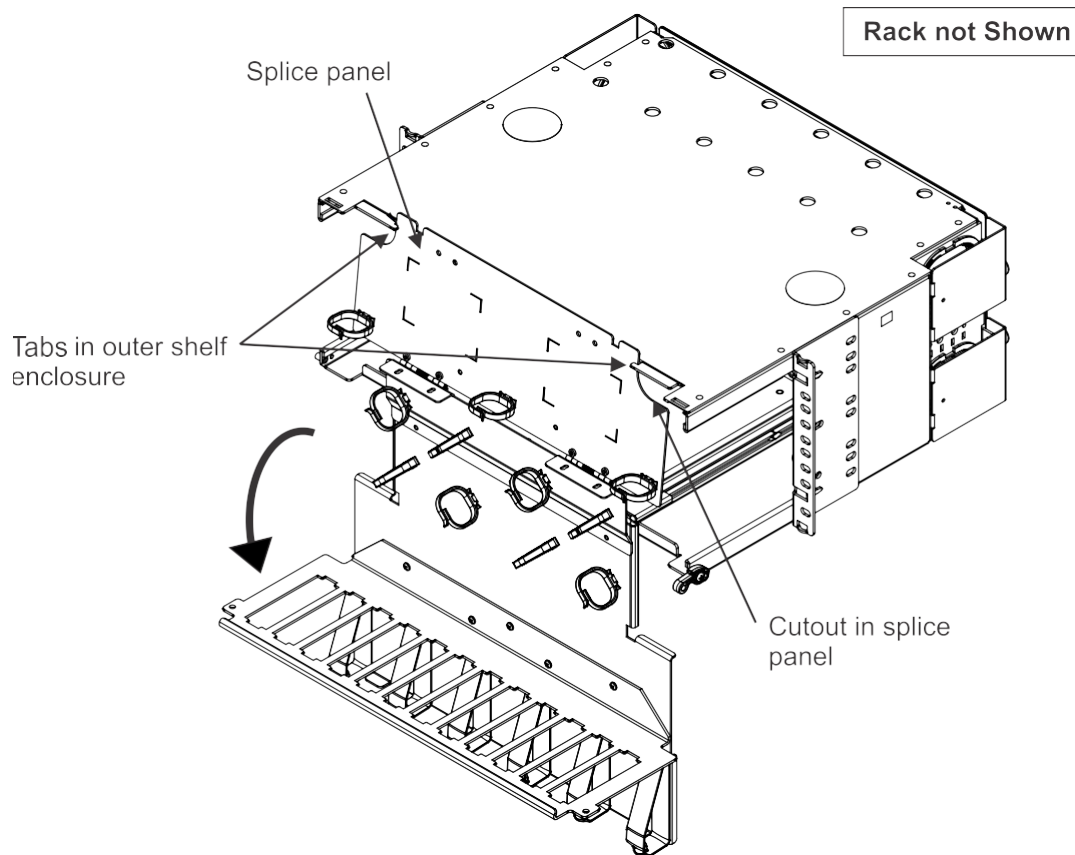
Step 1 – Configure Mounting Brackets and Mount Shelf to Equipment Rack



1. Configure mounting brackets to match type of equipment rack to be used as shown above.
Note: If shelf is to be mounted on a 23" or ETSI rack/cabinet, G2-23BRKT kit (MID 760039883) is required – one kit for ETSI and two for 23".
2. Align tabs on mounting brackets (two per bracket) with the holes on the front of equipment rails.
Note: If tabs do not insert into holes in equipment rails without interference, DO NOT FORCE as damage to shelf will result. In this case, tabs must be bent back or trimmed off to eliminate interference. This situation is usually caused by equipment racks/cabinets being improperly assembled. Great care should be taken when assembling racks/cabinets to assure that the rails are properly aligned. Use of an alignment tool is recommended.
3. Install shelf to front of equipment rails using four 12-24 x 1/2-inch screws (provided) for 19-inch (483mm) rack and 23-inch (584mm) racks and four M6 x 12 screws for ETSI racks. See figure below.



Step 2 – Extend Shelf Sliding Mechanism



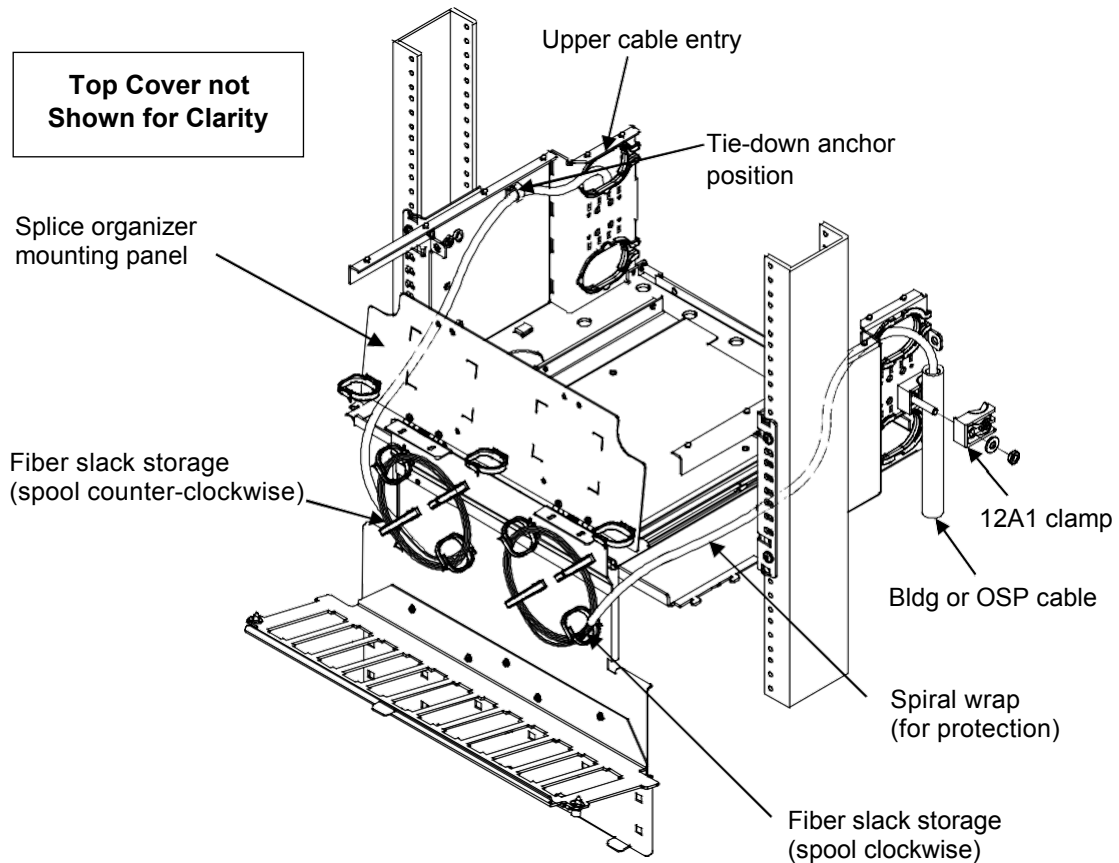
1. Fully extend internal sliding mechanism allowing the cord management tray and bulkhead to hang down.
2. Pivot splice panel so that cutouts in upper corners line up with tabs on top of outer shelf enclosure, then slide splice panel back into shelf enough so that panel engages the tabs and is supported.
3. Shelf is now ready to perform fiber splicing procedures.

Step 3 – Install Building Cables/Outside Plant Cables (OSP)

Note: All fiber installation must be done with the internal mechanism pulled out from the outer shelf enclosure and fully lowered.

! **WARNING:** Use of spiral wrap (such as **RICHCO** part no. HR8R-1/2) for protection of fibers entering the shelf is strongly recommended. Movement of internal mechanism may damage stray fibers if proper precautions are not taken.

Step 3a – Rear/Bottom Cable Entry Configuration

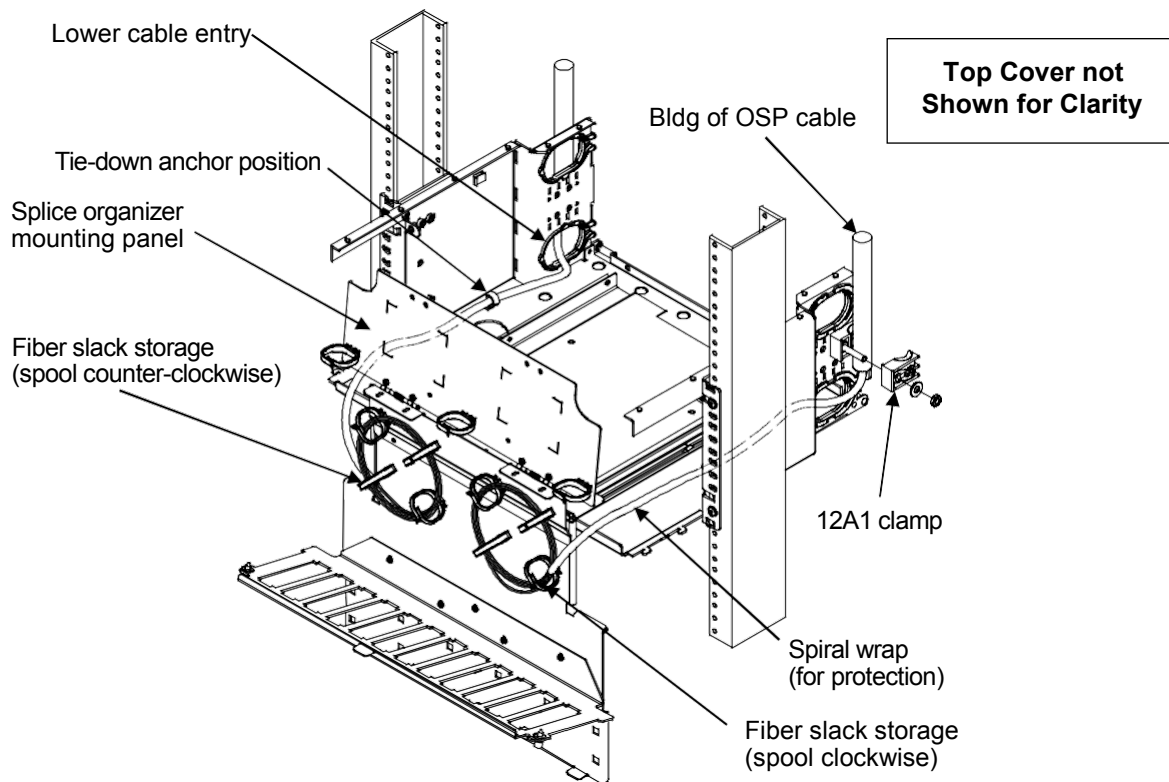


1. Prepare fiber optic building cables or outside plant (OSP) cables. See 636-299-110-5 for cable preparation procedures for metallic or armored cables.
2. Secure incoming cables to 4U shelf per the following methods:
 - Building cables – fit cables with appropriately sized cable glands and use CommScope shelf mounted brackets (SMB) or rack mounted brackets (RMB) to restrain cables. As an alternate, use two cable ties anchored through slots provided in shelf sidewall and cinch cable ties against outer jacket of cable.
 - OSP cables – use 12A-type clamps installed in sidewall of shelf. Use 12A1 clamp for metallic cables and 12A2 clamp for nonmetallic cables. Ground metallic cables to the equipment rack or other suitable ground (refer to 636299110-5 for details).

Note: The SMB kit, RMB kit, and 12A-type clamps are ordered separately. Cable glands are available from www.sealconusa.com

3. Locate cable-tie anchoring positions provided in upper sidewalls of shelf.
4. Route buffered building cables or PVC protected OSP fibers into shelf through oblong openings provided in upper rear corner of sidewalls. *Use of protective spiral wrap around these fibers is highly recommended.* Secure fiber bundle to the sidewall using cable-ties and anchor position, as shown above. Tighten cable-ties sufficiently to restrict fiber movement but do not over tighten and cause damage to fibers.
5. Route fiber bundle into slack fiber management rings, as shown in Figure 5, so that approximately 1/2 to 1 inch (13 to 25mm) of protected fiber bundle passes through first ring. Enough slack should be left between first fiber ring and restrained portion of bundle so that a loop is formed when mechanism is pushed back into shelf. Spool as much slack fiber into rings as will be needed for subsequent splicing operations.
6. If no other cables are to be installed, proceed to Step 4.

Step 3b – Rear/Top Cable Entry Configuration



1. Prepare fiber optic building cables or outside plant (OSP) cables. See 636299110-5 for cable preparation procedures for OSP cables.
2. Secure incoming cables to 4U shelf per the following methods:
 - Building cables – fit cables with appropriately sized cable glands and use CommScope shelf mounted brackets (SMB) or rack mounted brackets (RMB) to restrain cables. As an alternate, use two cable ties anchored through slots provided in shelf sidewall and cinch cable ties against outer jacket of cable.
 - OSP cables – use 12A-type clamps installed in sidewall of shelf. Use 12A1 clamp for metallic cables and 12A2 clamp for nonmetallic cables. Ground metallic cables to the equipment rack or other suitable ground (refer to 636299110-5 for details).

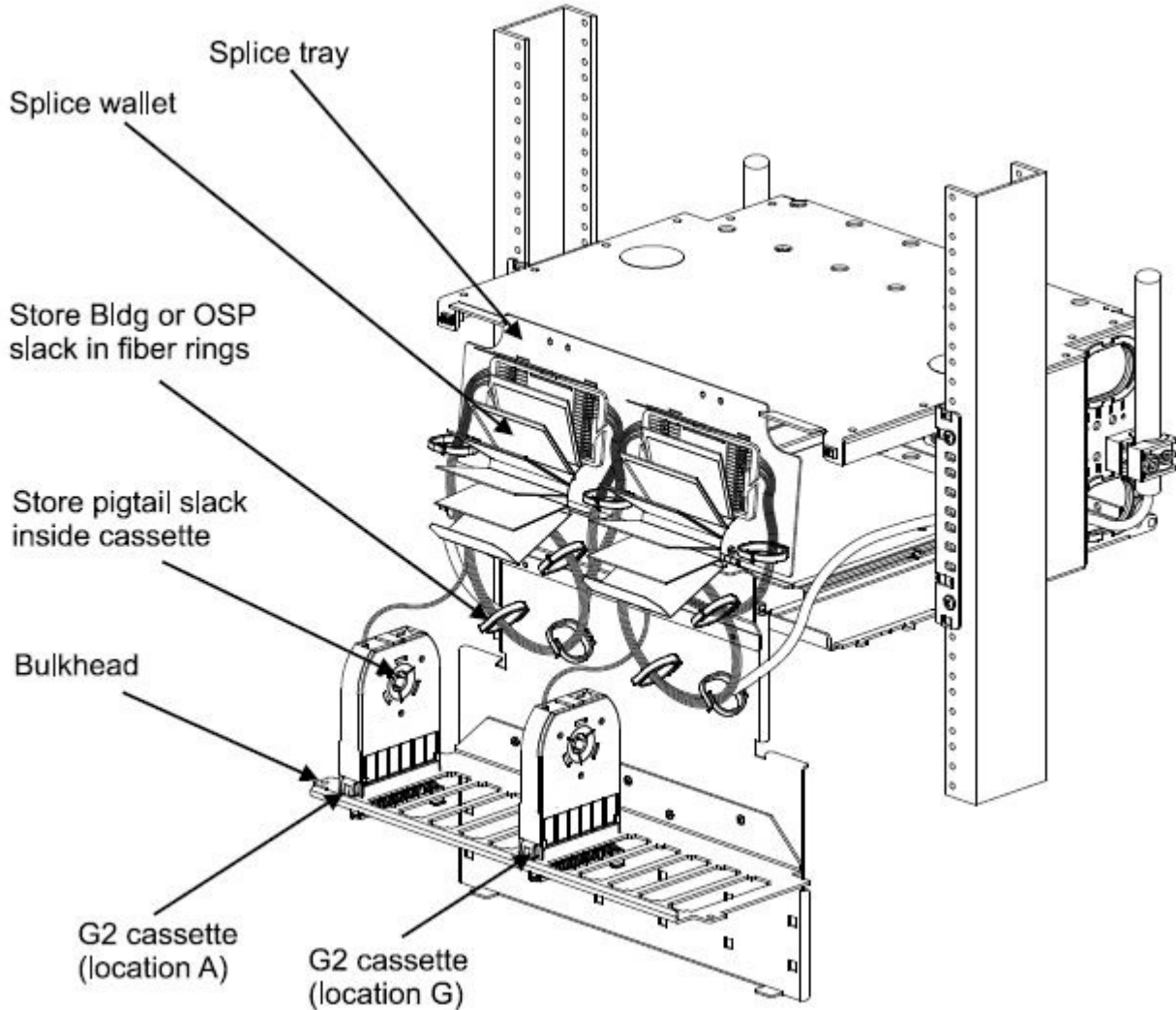
Note: The SMB kit, RMB kit, and 12A-type clamps are ordered separately. Cable glands are available from www.sealconusa.com

3. Locate cable-tie anchoring position provided in floor of shelf.
4. Route buffered building cables or PVC protected OSP fibers into shelf through oblong openings provided in lower rear corner of sidewalls. *Use of protective spiral wrap around these fibers is highly recommended.* Secure fiber bundle to the floor of shelf using cable-ties and anchor positions, as shown above. Tighten cable-ties sufficiently to restrict fiber movement but do not over tighten and cause damage to fibers.
5. Route fiber bundle into slack fiber management rings, as shown above, so that approximately 1/2 to 1-inch (13 to 25mm) of protected fiber bundle passes through first ring. Enough slack should be left between first fiber ring and restrained portion of bundle so that a loop is formed when mechanism is pushed back into shelf. Spool as much slack fiber into rings as will be needed for subsequent splicing operations.
6. Install cable protector kit (provided) and jumper bend limiter kit (provided) as desired.
7. If no other cables are to be installed, proceed to Step 4.

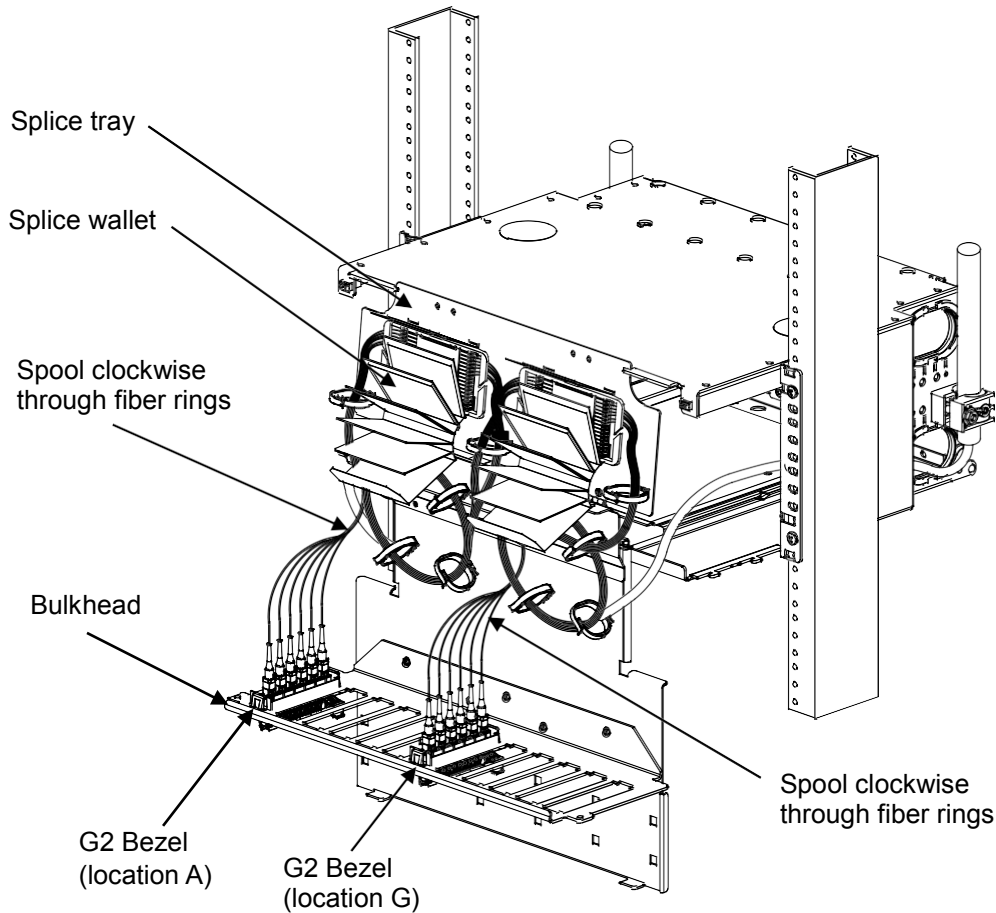
Step 4 – Install Termination Devices

Note: Modular cassettes and distribution panels are ordered separately from the shelf.

Step 4a – G2 Modular Cassette Application



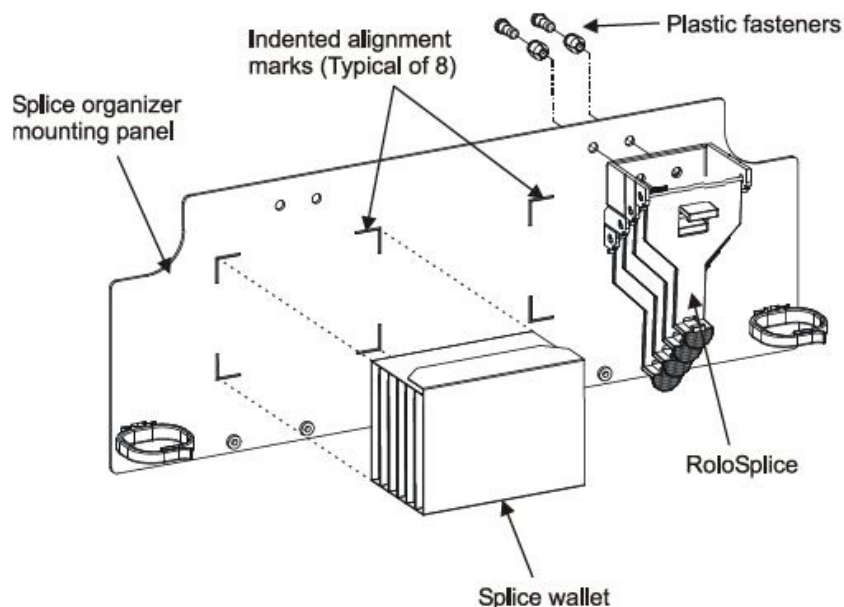
1. Starting at location A (the left-most position), plug a cassette into the bulkhead cutout until it snaps into place, as shown in figure above.
2. Remove cassette cover and spool out enough length from the pigtails that they may be routed into the slack fiber management rings and have sufficient length for subsequent splicing operations. Spool fiber into slack management rings as shown. Replace cover.
3. Repeat items 1 and 2 for the next five consecutive cassette locations (locations B through F).
4. Starting at location G (seventh location from the left side), repeat items 1 and 2 for all remaining locations (locations G through M).
5. Pigtails from locations A through F are to be spooled into the first set of slack fiber management rings (four rings on the left-hand side of the shelf). Fibers from locations G through M are to be spooled into the second set of slack fiber management rings (four rings on the right-hand side of the shelf).

Step 4b – G2 Distribution Panel Application

1. Starting at location A (the left-most position), plug a distribution panel into the bulkhead cutout until it snaps into place, as shown in figure above.
2. Terminate a fiber pigtail into distribution panel, color keying as required. Repeat for remaining locations. Bundle all pigtails together with a suitable device that will not damage the fibers (e.g. twist tie or hook-and-loop strip) at approximately 1-foot (305mm) increments.
3. Spool fiber bundle into slack fiber management rings in a clock-wise direction as shown.
4. Repeat items 1 through 3 for the next five consecutive distribution panel locations (locations B through F).
5. Starting at location G (seventh location from the left side), repeat items 1 through 4 for all remaining locations (locations G through M).
6. Pigtails from locations A through F are to be spooled into the first set of slack fiber management rings (four rings on the left-hand side of the shelf). Fibers from locations G through M are to be spooled into the second set of slack fiber management rings (four rings on the right-hand side of the shelf).

Step 5 – Splicing Provisions

Note: Splice organizer trays and splice carriers are ordered separately from the shelf. Splicing operations are not covered in this document.



Splice Wallet

Splice Wallet is to be mounted within areas of splice organizer mounting panel indicated by four indented alignment marks (in two places). See figure above.

1. Using a lint-free wipe and isopropyl alcohol, clean and degrease area of splice organizer mounting panel where **Splice Wallet** will be mounted.
2. Peel off paper backing from hook-and-loop strip on base of **Splice Wallet**. Orient opening flap toward top of shelf and center between alignment marks on panel. Press the **Splice Wallet** firmly into place and hold for several seconds to assure that adhesive makes good contact.

The **Splice Wallet** is designed to accommodate most splice trays of different standard types, including:

- Mechanical (Rotary)
- Fusion
- Mass Fusion.

In order to function properly, all positions must be populated with splice trays, whether or not they are to be used. Splice trays are mounted with adhesive pads provided on leaves of **Splice Wallet**.

Splice Wallet may be temporarily removed from splice organizer mounting panel (by releasing the hook-and-loop fastener) for splicing operations or splice trays may be populated with splices before the trays are mounted into the **Splice Wallet**.

RoloSplice

1. Assemble components for mounting in the illustrated position, if required. See figure above.
2. Install plastic fasteners into splice organizer mounting panel as shown.
3. Assemble base of **RoloSplice** onto plastic fasteners and push in plungers to fasten.

Note: The **RoloSplice** is designed to accommodate most splice trays of different standard types, including:

- Mechanical (Rotary)

- Fusion
- Mass Fusion.

Splice trays may be assembled onto pivoting trays of **RoloSplice** by slightly bending pivot tray sufficiently to allow splice tray to be snapped in between engaging features.

RoloSplice may be temporarily removed from splice organizer mounting panel (by releasing the plastic fasteners) for splicing operations or splice tray/pivot tray assemblies may individually be removed and populated with splices before being placed back into the assembly.

Step 6 – Return Internal Mechanism to Normal Position and Secure

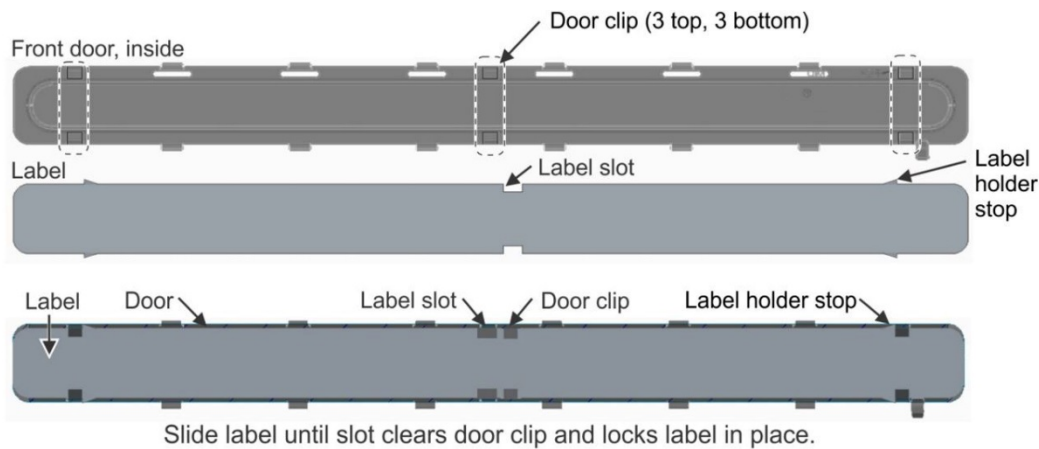
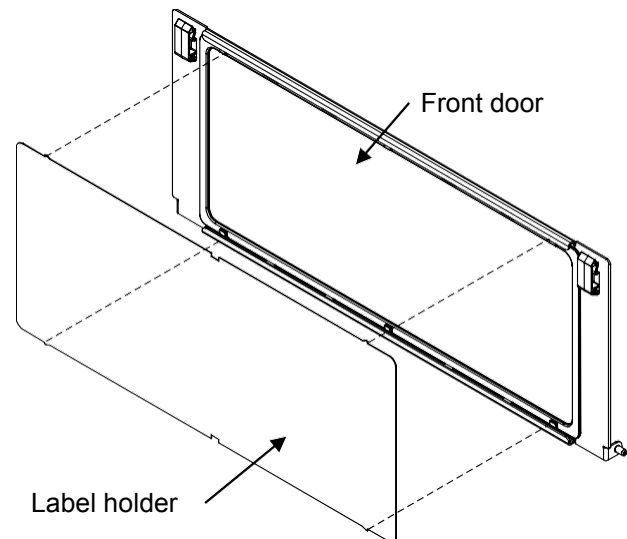
Pivot internal mechanism up into position parallel to shelf bottom and slide inside shelf outer enclosure, as shown in figure on previous page.

▲ CAUTION: Assure that no fiber slack becomes pinched or bent.

1. Secure bulkhead with two captive fasteners.

Step 7 – Install Fiber Designation Label

1. The door may be fitted with labels visible through the door window when closed or may be visible when the door is open.
2. Open door to 180°.
3. Slide label holder under clips on door, three on the top and three on bottom of door.
4. Slide label holder to left or right to secure (depending on label orientation). Note that there are small stops to resist label sliding past door edge.

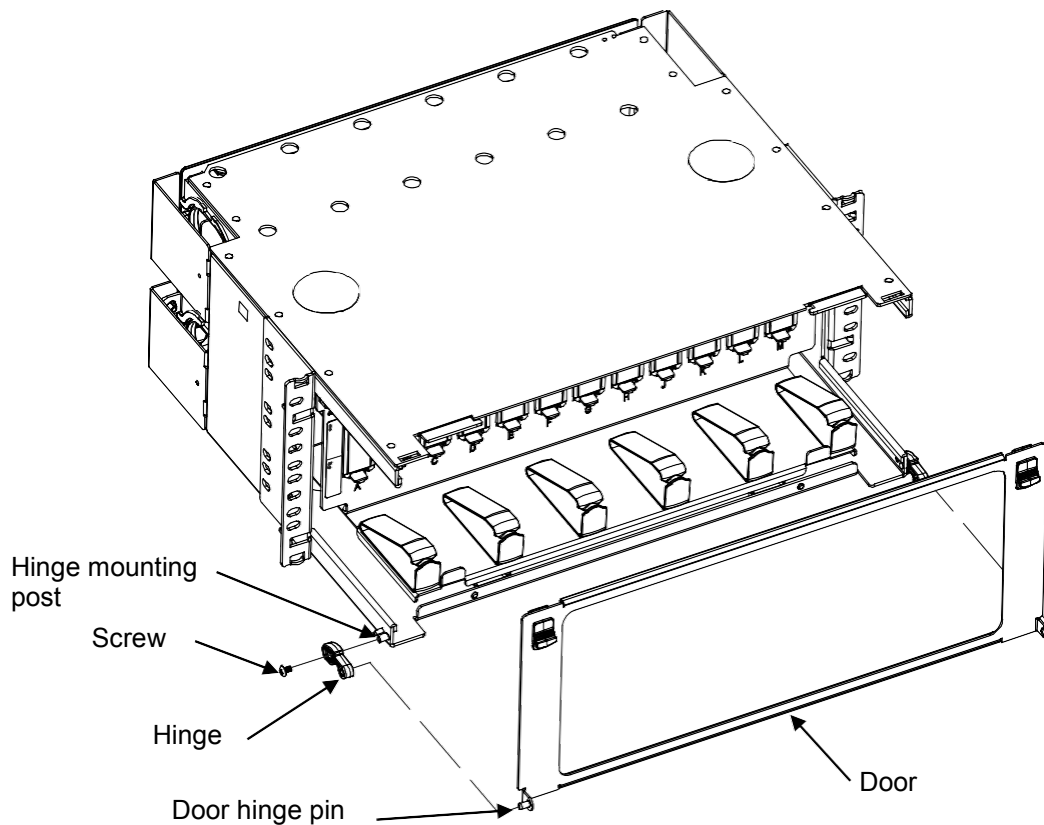


1U shown, 4U is similar

Printable label templates are available on the **CommScope**® website, which can be used along with available label stock to create finished port numbering labels.

1. **Note:** To print a designation label, go to <http://www.commscope.com/Resources/Labeling-Templates>, scroll down to the High-Density Fiber Shelf and select the appropriate label template.

Step 8 – Install Front Door



Note: Take special care when installing door to prevent scratches or damage.

1. Mount hinge with screw on one side only.
2. Slide door hinge pin into the mounted hinge.
3. While holding door steady, simultaneously slide loose hinge on door pin and hinge mounting post.
4. Secure hinge to mounting post with screw.
5. Close door to ensure correct operation and latching.