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User Manual

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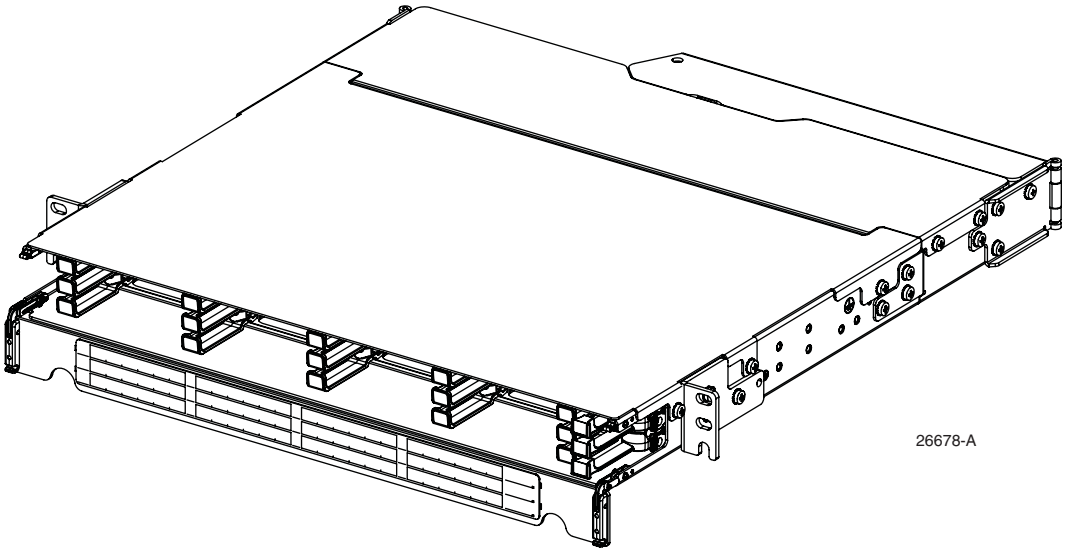
SYSTIMAX© Enhanced High Density (EHD) 1RU & 2RU Pre-Terminated Panel



EHD Pre-Terminated Panel
(1RU Model Shown)

Contents

Introduction

This user manual describes the SYSTIMAX Enhanced High Density (EHD) Pre-Terminated Panel, hereafter sometimes called simply “the EHD panel.” Included in this user manual are all procedures required in installing the EHD panel as well as operation procedures.

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Applicable Standards

UL 60950-1, 2nd Edition, 2007-03-27 (Information Technology Equipment - Safety - Part 1: General Requirements

CSA C22.2 No. 60950-1-07, 2nd Edition, 2007-03 (Information Technology Equipment -Safety - Part 1: General Requirements)

Admonishments

Danger! *Danger is used to indicate the presence of a hazard that will cause severe personal injury, death, or substantial property damage if the hazard is not avoided.*

Warning! *Warning is used to indicate the presence of a hazard that can cause severe personal injury, death, or substantial property damage if the hazard is not avoided.*

Caution! *Caution is used to indicate the presence of a hazard that will or can cause minor personal injury or property damage if the hazard is not avoided.*

General Safety Precautions

Caution! *When mounting equipment in the rack, make sure mechanical loading is even to avoid a hazardous condition, such as loading heavy equipment in the rack unevenly. The rack should safely support the combined weight of all equipment it supports.*

Caution! *This equipment is to be installed only in Restricted Access Areas (dedicated equipment rooms, equipment closets, etc.) in accordance with Articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA 70.*

1 Product Description

1.1 General Description

The SYSTIMAX Enhanced High Density (EHD) Pre-Terminated Panel is a pre-terminated fiber optic connector panel intended for use in large data centers in a direct connect or interconnect environment.

The EHD Panel mounts in a 19-inch (48.26 cm) equipment rack or cabinet. In each 1RU of rack space, a fully loaded panel provides 144 LC terminations using duplex LC adapters.

The EHD Panel is designed for ease of installation and access. It is available with either left- or right-side cable entry. The panel features sliding blades (three per 1RU of rack space), providing access to adapters. The EHD Panel is available with either a black or sky white baked enamel exterior.

1.2 Major Components

Figure 1 shows the main components of the EHD Pre-terminated Panel. They are as follows:

Note: In this figure, the 1RU panel is shown. Main components are analogous for other RU sizes.

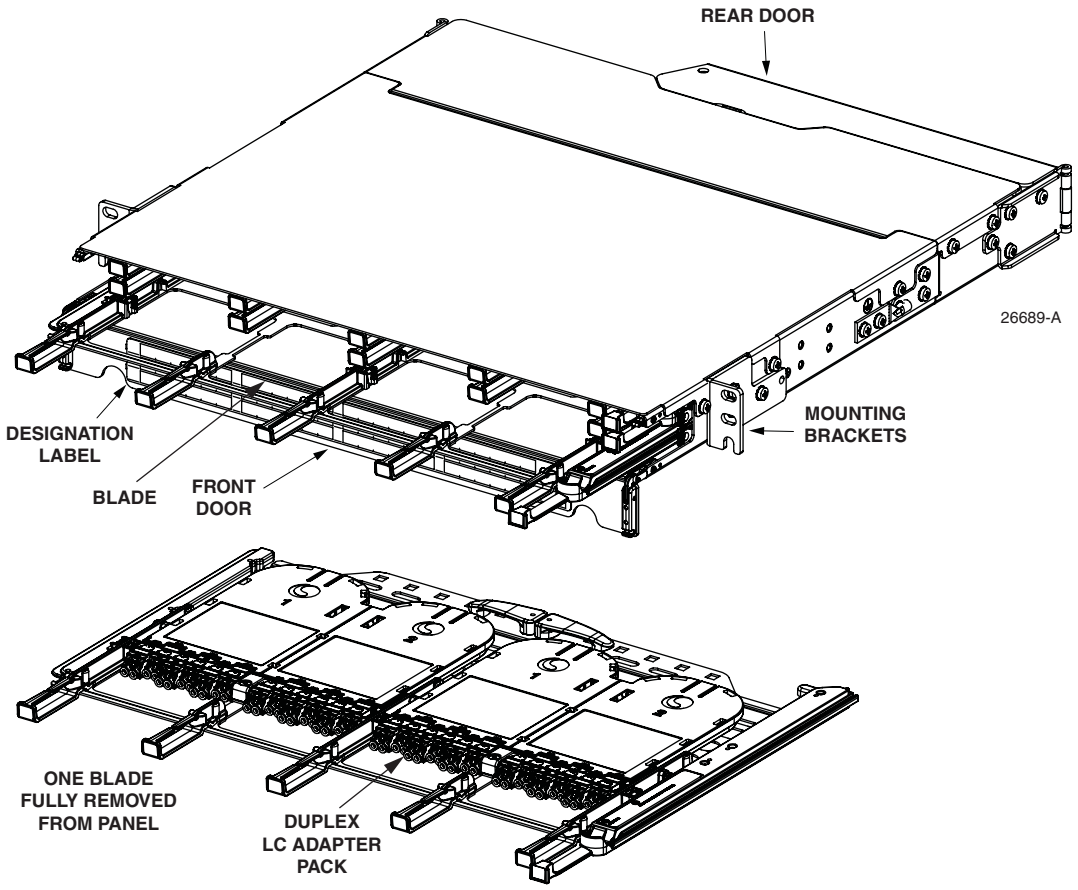

Figure 1. Main Components of SYSTIMAX EHD Pre-Terminated Panel

- **Blade—**holds adapter packs with slack-managing cassettes; slides out of the panel for access to the adapter packs. There are three blades per RU.
- **Mounting Brackets—**can be flipped around to provide either front- or rear-facing mounting on a channel rack.
- **Front Door—**swings down to provide access to the interior of the panel. The door features a double hinged design that allows users to open the door without interfering with equipment below the panel on the same rack. The double hinged design also lets the door to lay flat for easy access to the bottom blade.

- **Designation Label—**provides physical space for recording fiber designations.
- **Duplex LC Adapter Pack—**(shown with fiber slack cassette) mounts within the blade. Product offerings include LC adapter packs in singlemode APC or UPC style.
- **Read Door—**comes in two models providing either left or right cable entry, as shown in Figure 2.

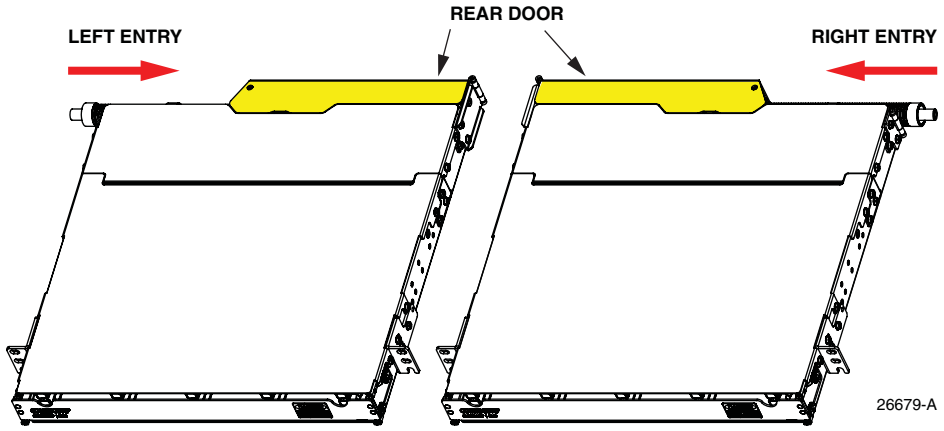

Figure 2. Left and Right Cable Entry Models

1.3 Specifications

Table 1 lists specifications for the SYSTIMAX EHD Pre-Terminated Panel.

Table 1: Specifications

Parameter	Specification	Remarks
Operating conditions	–14°F to +140°F (–10°C to +60C)	
Humidity	10% to 95% RH	No condensation
Storage conditions	–40°F to +158°F (–40°C to +70°C)	
1RU Panel		
Dimensions (1RU) D x W x H (with mounting brackets)	17.86 in. (45.36 cm) D x 19.00 in. (48.26 cm) W x 1.72 in. (4.37 cm) H	Width without mounting brackets: 17.35 in. (44.07 cm)
Weight per 1RU	17 lbs. (7.71 Kg)	
2RU Panel		
Dimensions (2RU) D x W x H (with mounting brackets)	17.86 in. (45.36 cm) D x 19.00 in. (48.26 cm) W x 3.44 in. (8.74 cm) H	Width without mounting brackets: 17.35 in. (44.07 cm)
Weight per 2RU	24 lbs. (10.88 Kg)	

2 Installation

2.1 Overview

The EHD panel is shipped on a spool, pre-terminated with 144 LC connectors per rack unit (RU).

The EHD panel is available in both left- and right-cable-entry versions. A blocking kit is provided for the purpose of splicing the provided cable into a splice bay such as the OMX.

After mounting, if the panel must be grounded, use a #2 Phillips Screwdriver to tighten the M4 screws through the ground lug (provided) into the panel ground PEM nuts, as described in Topic 2.6 on page 15.

Ground cables are NOT provided with the panel.

2.2 Tools and Hardware Needed

Use a #2 Phillips Screwdriver and the supplied screws to secure the panel to the equipment rack. Three screw sizes are included with the panel: 12-24, 10-32, and M6.

2.3 Checking the Shipment

Upon receiving the shipment pallet, and while unpacking the panel and spool as described in Topic 2.4, inspect the various components as follows:

1. Inspect the exterior of the shipment pallet, panel, and spool for evidence of rough handling that may have damaged the panel, cable, or any other items included in the shipment.
2. When unpacking the panel as described in Topic 2.4, carefully check for damage and verify items with the packing slip.
3. If damage is found or parts are missing, file a claim with the commercial carrier and notify CommScope Customer Service. Save the damaged cartons for inspection by the carrier.
4. Refer to Topic 6 on page 18 if you need to contact CommScope.
5. Save shipping containers for use if equipment requires shipment at a future date.

2.4 Unpacking a Panel With a Pre-Terminated Cable

The pre-terminated EHD panel is shipped with the panel mounted on top of a spool containing the cable. The stub end of the cable is unwound to a splice vault or other point of termination.

To protect the panel and cable windings contained within the upper cylinder of the shipping unit, It is critical to leave the foam packaging material surrounding the panel in place until the unit has been transported to the final installation location.

Transporting the unit without the foam packaging in place may result in damage to the panel and/or cable.

To unpack and mount the EHD panel, use the following procedure.

1. Place the spool as close as possible to the rack where the panel will be mounted.

Note: Use caution when unpacking and installing the EHD panel. Avoid twisting the cable and do not violate cable minimum bend radius.

2. Cut off the external plastic as shown in Figure 3.

Figure 3. Cutting Off External Plastic

3. Cut off the cardboard wrap on the cable spool as shown in Figure 4. Avoid nicking or damaging the outer jacket of the fiber optic cable.

Figure 4. Cutting Off Cardboard Wrap

4. Remove the four carousel locking screws shown in Figure 5 to unlock the carousel, allowing the spool to rotate freely.

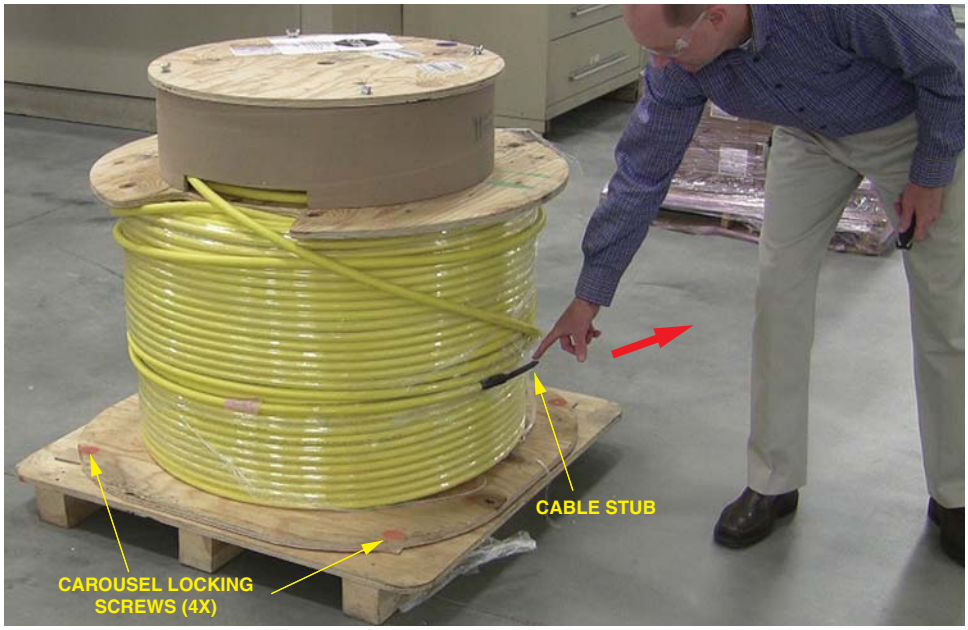

Figure 5. Carousel Locking Screws and Cable Stub

5. Pay out the cable stub as indicated by the red arrow in Figure 5 above, pulling the cable end to the termination location.

Note: The payout direction is dependent on whether the cable enters the left or right side of the panel.

6. Remove the four wing nuts shown in Figure 6.

Figure 6. Removing Wing Nuts

7. Lift off the top cover to expose the panel packaging as shown in Figure 7.

Figure 7. Lifting Off Top Cover

8. Remove the outer rim as shown in Figure 8.

Figure 8. Removing Outer Rim

9. Remove and unpack the accessories contained in the shipping carton shown on top of the packaging foam in Figure 9. Set aside the accessories for later use.

Figure 9. Shipping Carton Containing Accessories

10. Remove and unpack the plastic wrapper containing the EHD panel, as shown in Figure 10.

Figure 10. Removing and Unpacking Plastic Wrap

11. Lift the panel off of the spool and carefully uncoil the remaining cable, as shown in Figure 11.

Caution! ***Use caution to avoid twisting the cable.***

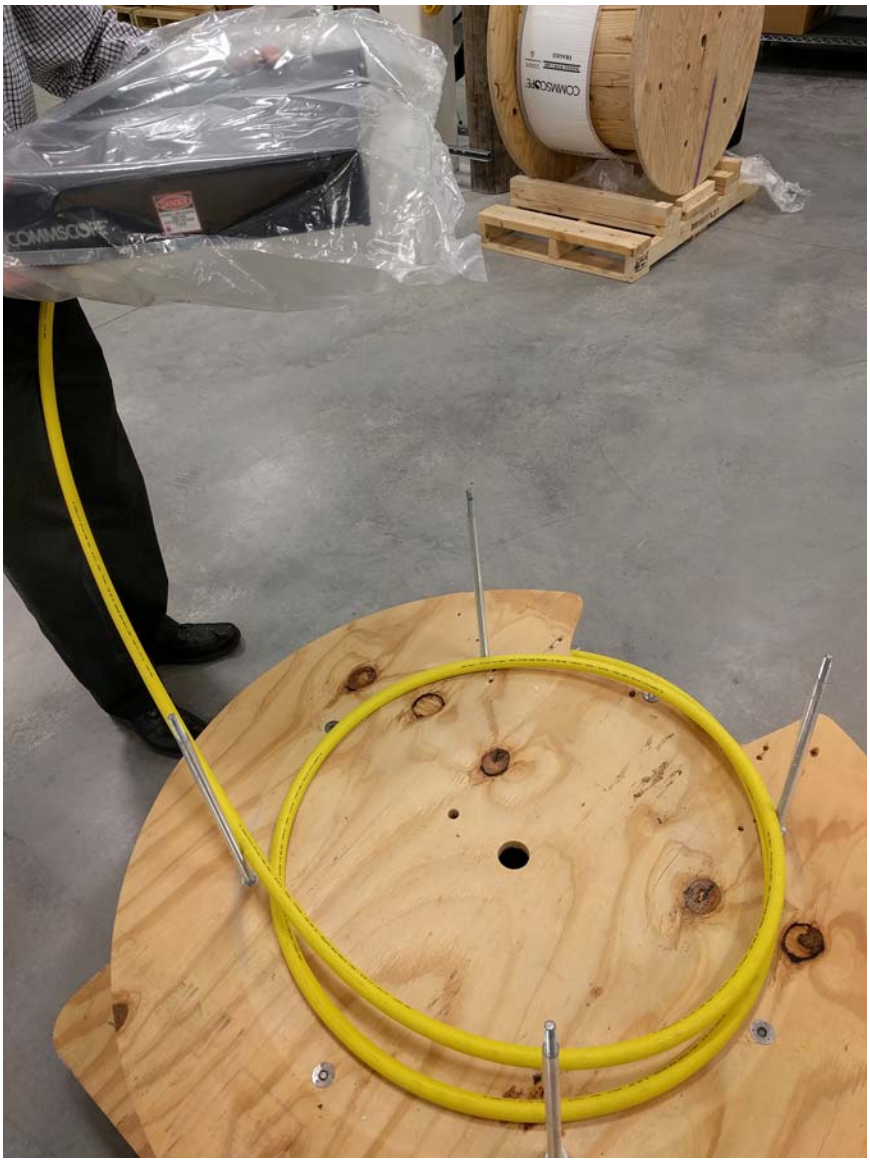

Figure 11. Shipping Carton Containing Accessories

12. Follow the procedure given in Topic 2.5 to install the panel in the frame or cabinet.
13. Splice the cable stub end per local practice, using blocking kit (provided) if required.

2.5 Mounting the Panel

Caution! *This equipment is to be installed only in Restricted Access Areas (dedicated equipment rooms, equipment closets, etc.) in accordance with Articles 110-16, 110-17, and 110-18 of the National Electrical Code, ANSI/NFPA 70.*

The panel is to be installed in a 19-inch (482.6mm) equipment rack. Use the following procedure to mount the 1RU/2RU panel.

1. Obtain the following tools and equipment:
   - Phillips #2 Screwdriver
   - Appropriate size mounting hardware

Note: The panel is shipped with the mounting brackets already installed in the front position. If another position is desired, remove the brackets and re-install them.

2. If the panel will be installed on a channel rack, determine the channel size and whether the panel will be installed on front or rear. Figure 12 shows comparative mounting positions of a 1RU panel on 3-inch, 5-inch, and 6-inch channel racks.

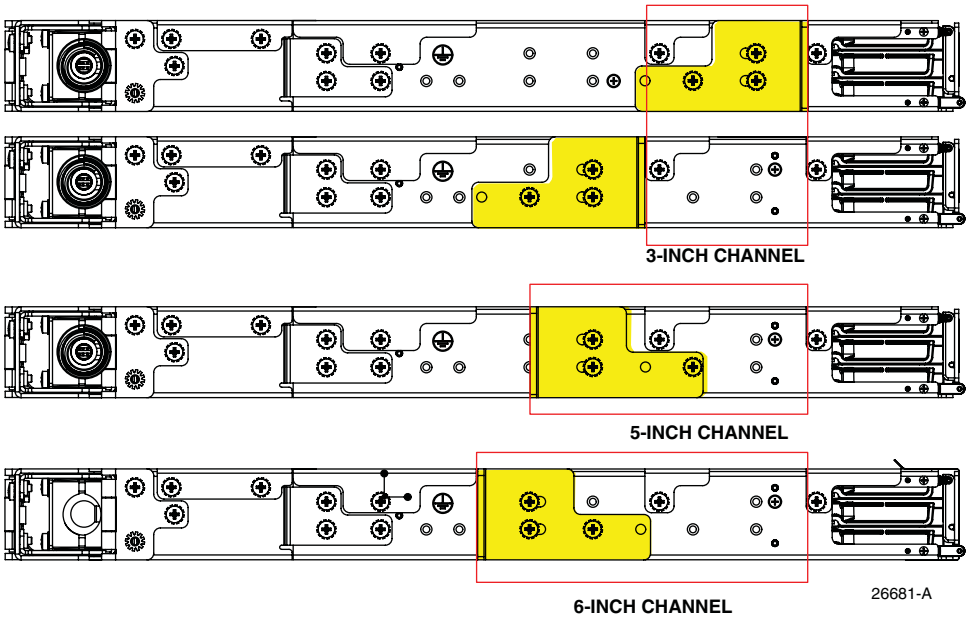

Figure 12. Mounting Positions on 3-Inch, 5-Inch, and 6-Inch Channel Racks

Hold the panel up to the assigned mounting space and align the holes in the mounting brackets with the holes in the rack.

a. When neighboring rack locations are open, rotate the panel and feed it through the rack, as shown in Figure 13. Ensure the cable does not get kinked or twisted.

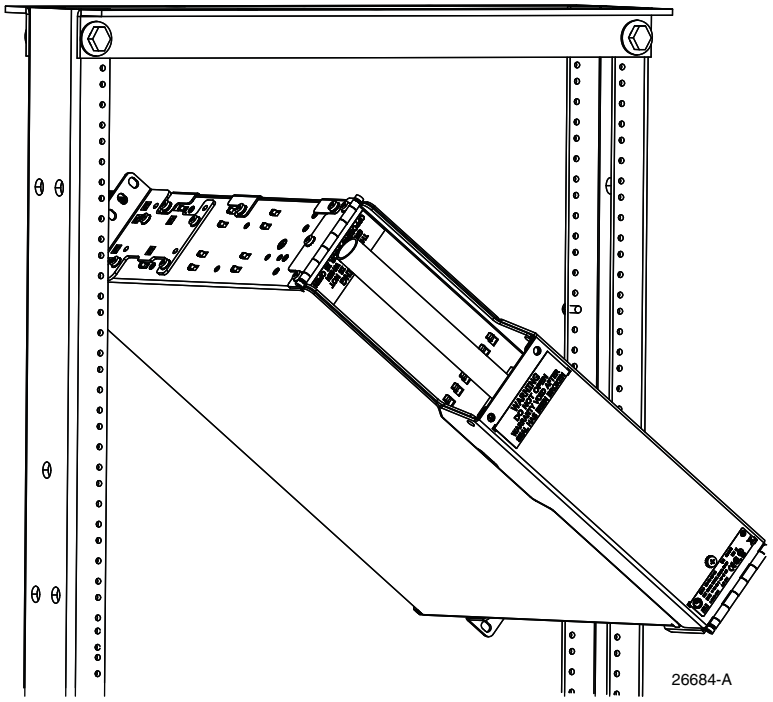

Figure 13. Rotating the Panel to Fit It on the Rack

b. When neighboring rack locations are filled, remove the mounting brackets, slide the panel through the rack, and reattach the mounting brackets (Figure 14).

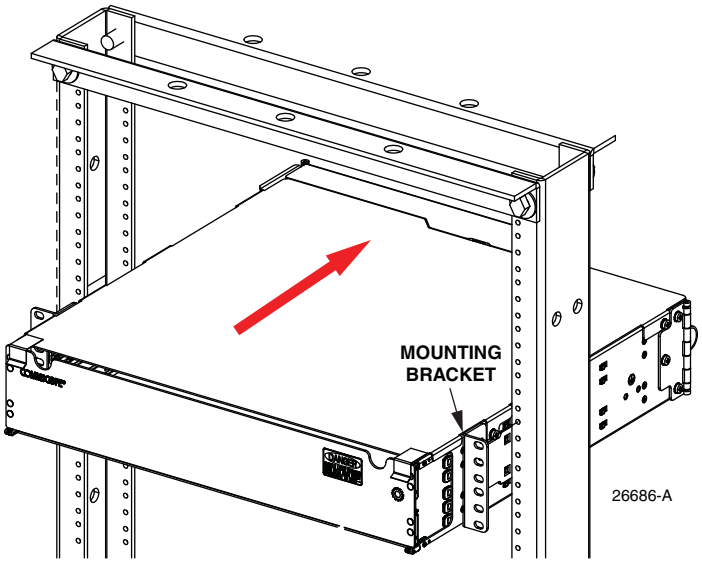

Figure 14. Sliding the Panel into the Rack

c. Secure the panel to the equipment rack using the required size screws (Figure 15 above). Torque these screws to approximately 27 pound-inches (3.1 Newton meters).

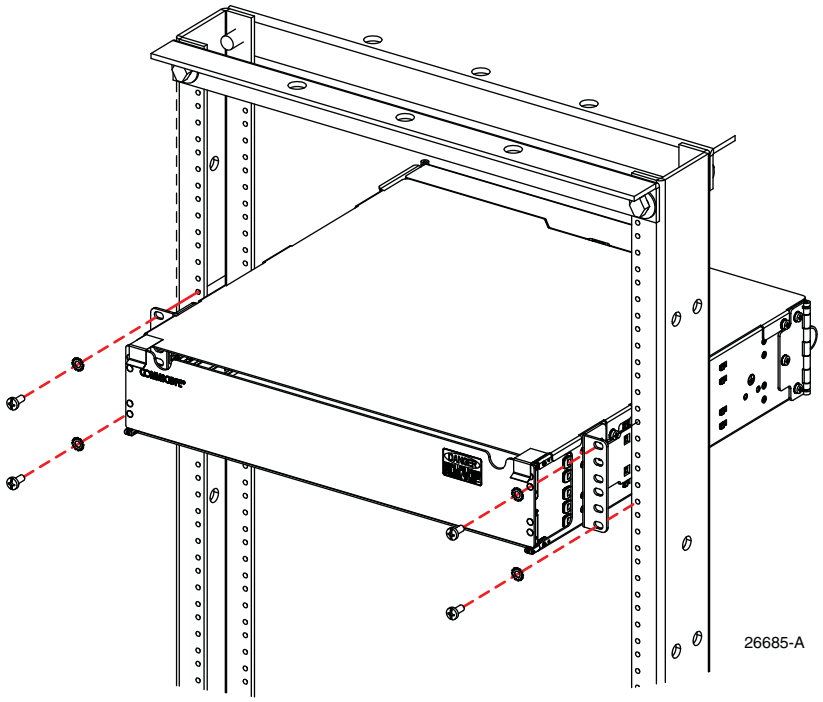

Figure 15. Securing Panel on Rack

3. After securing the panel and cable, remove the protective corrugated tubing shown in Figure 16.

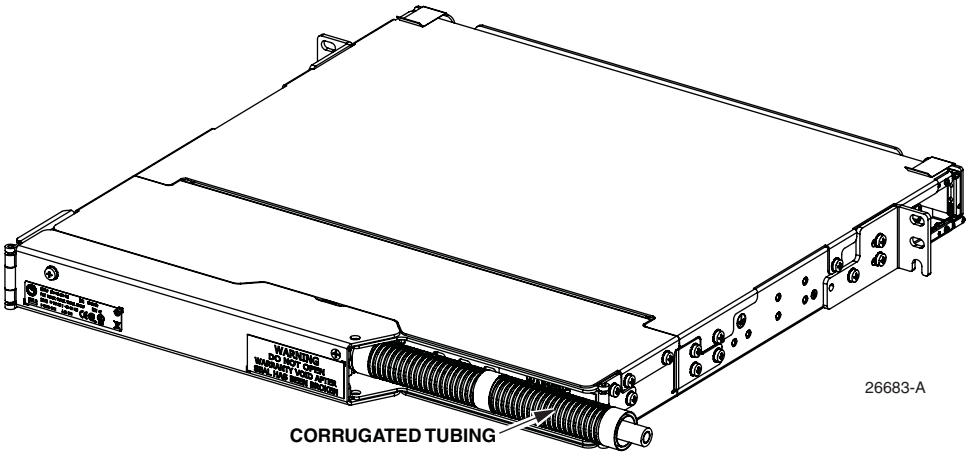

Figure 16. Corrugated Tubing on Cable

2.6 Grounding the Panel

A termination (for an M4 screw) is provided on the panel for a grounding connection to an earth ground conductor. The connection must be made in accordance with local and national electrical codes. Use the following procedure.

1. Locate the grounding location on the panel. At the grounding location, remove the protective tape from the panel.
2. Using AWG 14 (1.6mm) solid copper wire, secure a crimp lug to one end of the ground wire (installer provided). Secure the crimp lug to the panel with two M4 screws. Torque screws to approximately 15 pound-inches (1.7 Newton meters). Refer to Figure 17.

Caution! Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit.

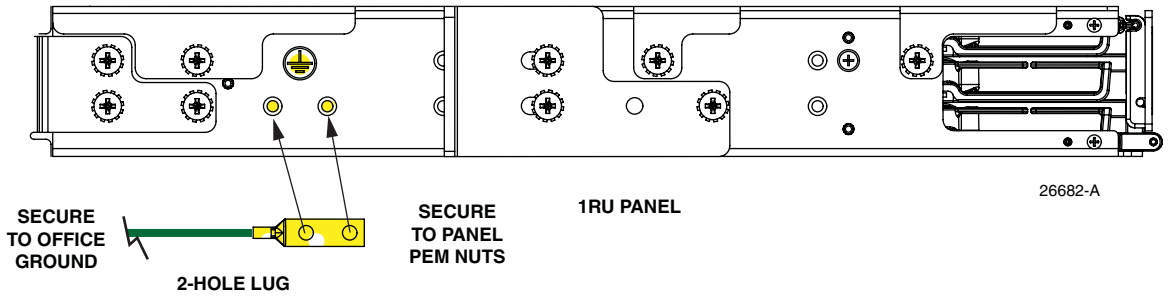

Figure 17. EHD Panel Grounding

3. Connect the other end of the ground wire to the earth ground conductor. Ensure this connection is made using methods and hardware that meets all applicable local and national electrical codes.

3 General Cable Requirements

The pre-terminated EHD panel uses Reduced Bend Radius (RBR) G657.A2 rollable ribbon singlemode fiber. Installers should follow the manufacturer recommended settings when testing and splicing RBR G657.A2 fiber to G.652 standard singlemode fiber. Please alert contractors to this fact.

Table 2 gives the minimum cable radius for loaded and unloaded 144- and 288-fiber cables ("loaded" here means under stress from being pulled).

Table 2: Minimum Cable Bend Radius

Number of Fibers	Unloaded	Loaded
144-fiber cable	14.8 in. (37.59 cm)	19.7 in. (50.04 cm)
288-fiber cable	12.4 in. (31.50 cm)	16.5 in. (41.91 cm)

CommScope recommends the following type patch cords for use in the EHD panel:

- 2-Fiber UPC LC Singlemode Dual-Zip 1.7mm patch cord FPCT-SPLC-S-xM
- 2-Fiber UPC LC Singlemode Dual-Zip 1.7mm RBR patch cord FPCTE-SPLC-S-xM
- 2-Fiber UPC LC Singlemode Dual-Zip 2mm patch cord FPC2-SPLC-S-xM
- 2-Fiber UPC LC Singlemode Dual-Zip LSZH 2mm patch cord FPCH2-SPLC-S-xM
- 2-Fiber UPC Duplex LC Singlemode Dual-Zip 1.7mm patch cord FPCT-SDLC-S-xM
- 2-Fiber UPC Duplex LC Singlemode Dual-Zip 1.7mm RBR patch cord FPCTE-SDLC-S-xM
- 2-Fiber UPC Duplex LC Singlemode Dual-Zip 2mm patch cord FPC2-SDLC-S-xM
- 1-Fiber UPC LC Singlemode 1.7mm patch cord FPCF-SPLC-S-xM
- 1-Fiber UPC LC Singlemode 2mm patch cord FPCM-SPLC-S-xM

The maximum patch cord size that can fit in the panel is 2mm simplex or duplex.

4 Operation

4.1 Sliding Out Blade to First Position

To slide out a blade to the first (access) position, pull out the pull arm on the right side of the panel until the blade contacts the first detent, as shown in Figure 18.

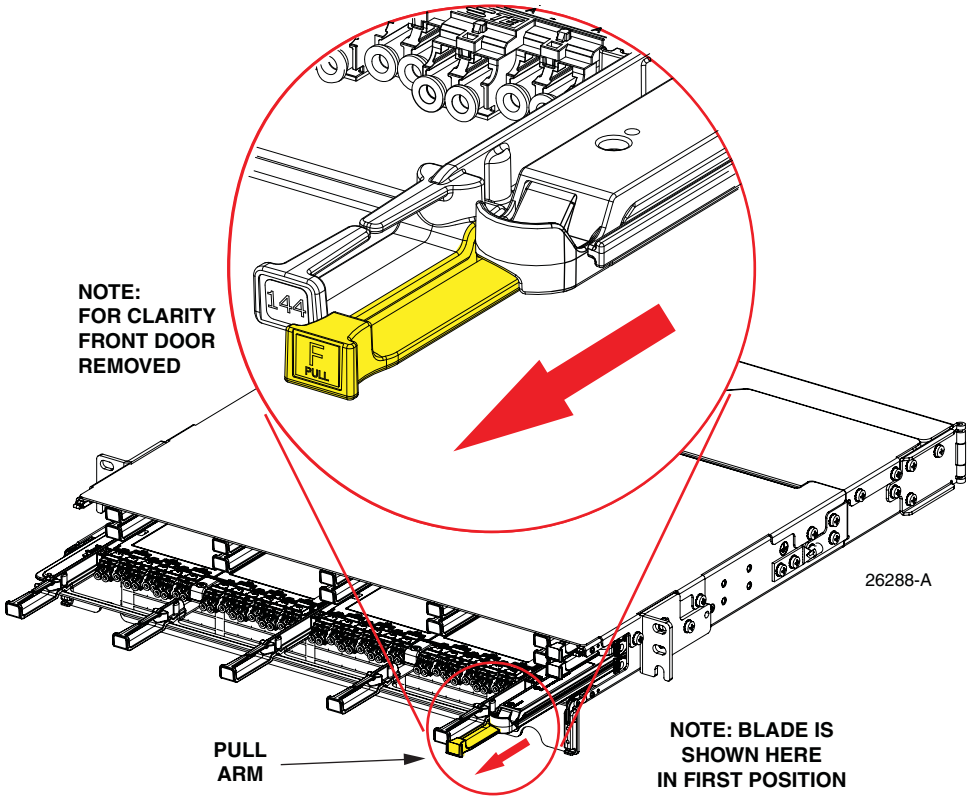

Figure 18. Sliding Out Blade to First (Access) Position

From this first (access) position, terminate and dress patch cords to the adapter packs.

Note: There is a second, further extended blade position that is not used with this pre-terminated panel.

4.2 Closing Blade

To close a blade, push in the push handle on the right side of the panel until the blade is fully within the panel.

Note: This is the opposite action from what is shown in Figure 18 on Page 16.

5 Installing Accessories

Accessory kits are provided with the panel. Included are the following.

- Breakout kits such as shown in Figure 19 provide for an orderly and protected fiber break-out at the stub end of the pre-terminated cable.

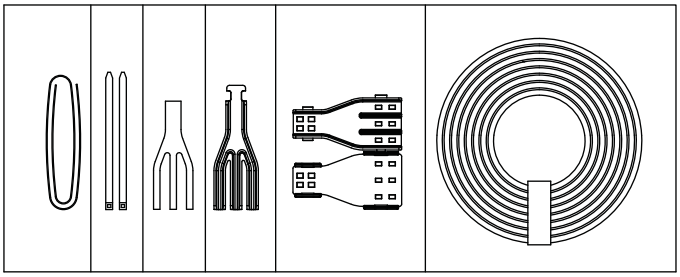

Figure 19. Breakout Kit Example

- Vertical Cable Guide (VCG) kits such as shown in Figure 20 provide a radius for patch cord routing and protect patch cords as they exit the panel.

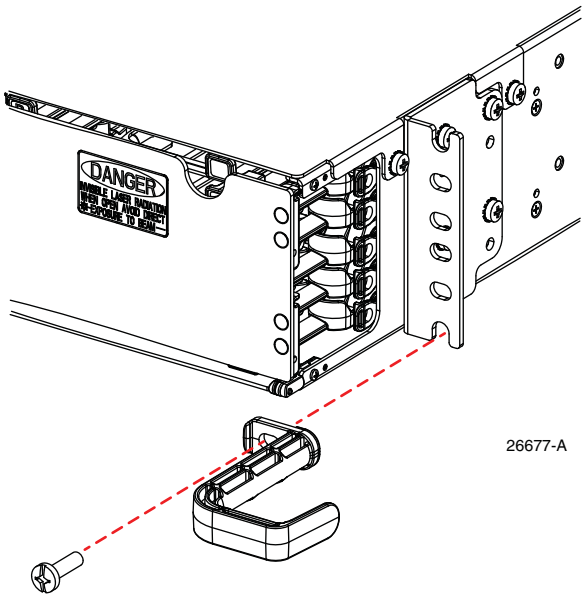

Figure 20. VCG Example

6 Contact Information

- For technical assistance, customer service, or to report any missing/damaged parts, visit us at www.commscope.com/SupportCenter
- This product may be covered by one or more U.S. patents or their foreign equivalents. For patents, see http://www.cs-pat.com

