FD3-Demarc Configuration

Installation Instructions

Amphenol
NETWORK SOLUTIONS™

Installation Guide, FD3-Demarc Configuration

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About

Amphenol Network Solutions is a global innovative original equipment manufacturer that serves the data and communications markets. We design, manufacture, and distribute products for customers who need an end to end solution for network connectivity, fiber, power distribution and rack management. We collaborate with our customers to deliver product solutions that exceed expectations with innovative designs and world class quality. Amphenol Network Solutions is the industry thought leader on network cable management.

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Table of Contents

FD3 Demarc Configuration

1.0 Introduction

Amphenol Network Soltuions' FD3 Demarc Configuration box is designed to enable quick and easy fiber splicing and connectivity for indoor applications. This product requires some assembly and it is recommended that these instructions be read before starting the installation. The box layout enables a variety of splicing and patching combinations.

1.2 Safety Precautions

⊙ ALERT

 Danger: Direct eye exposure to laser light will cause serious eye damage. Avoid looking directly into an optical fiber, optical connector or optical adapter that is connected to an active source.

⚠ WARNING

Warning: Wear safety glasses to prevent accidental eye injury. Wear protective gloves and clothing to prevent accidental injury.

⚠ WARNING

Warning: Observe company policies and procedures regarding personal safety.

⚠ WARNING

Warning: Follow local and national safety and construction codes.

⚡ CAUTION

Caution: Handle fiber optic cable per manufacturer's recommendation for minimum bend radius, maximum tensile loading, and maximum crush resistance.

1.3 Tools Required

- 216 Tool
- #2 Phillips Screwdriver
- Fiber Optic Cleaning Supplies
- Cable Preparation Tools

1.4 Package Contents

- FD3 Fiber Demarcation Box
- FD3 Standard Sub-Assembly Kit
- Fiber splice identification label for tray
- Single cable retention bracket (2)
- Grommets (4)
- Tie-wraps
- Mounting screws
- Installation Instructions
- Additional component kits per ordered configuration

The FD3 Demarc Configuration is a modular and configurable product. Multiple component kits are available for the FD3 that encompass a wide range of components for varied applications. Component kits may be selected at the time of order using the ordering guide section of the product datasheet.

Accessory kits are also available that can be ordered separately for the FD3. These kits are listed on the product datasheet.

FD3 Demarc Configuration

Fig. 1

Fig. 2

Fig. 3

2.0   Installing the Product

2.1 Unpacking

Ensure all components are available per the configuration ordered.

2.2 Mounting

1. Choose a mounting location for the box.
2. Place the box or mounting template against the wall. While making sure it is level, mark the four [4] mounting locations at the keyholes.
3. Drill four 1/8" pilot holes at the marks.
4. Install screws into wall at the four [4] locations, keeping head of screws ~ 1/8" from wall.
5. Install box into position and tighten screws (Fig. 1 black arrows).

2.3 Pigtail and Adapter Installation

The adapters and pigtails may already be factory installed. If not, install them as described below.

1. Insert the adapter panel into the upper bulkhead opening and depress the top and bottom push pins to secure the panel to the bulkhead (Fig. 2).

2. The same procedure should be followed when using the lower bulkhead opening. However, a pigtail bracket (Fig. 1) must be installed beside the lower bulkhead opening prior to inserting those adapters and pigtails.

Note that the pigtail bracket for the lower bulkhead opening is available as an accessory since it is only used when installing adapters and pigtails. The bracket can not used when a cassette is installed.

4. After plugging in the pigtail connectors, route the pigtails up and around the top of the box and over the bend control. The pigtails should be routed down the left side, over left side bracket, then behind the tray tower and up to the tray (Fig. 3)

5. The pigtails are provided with multiple Velcro® wraps to bundle them together along the pigtail length. Secure the first Velcro® wrap to the Velcro® strip attached to the top of the fiber bend control bracket.
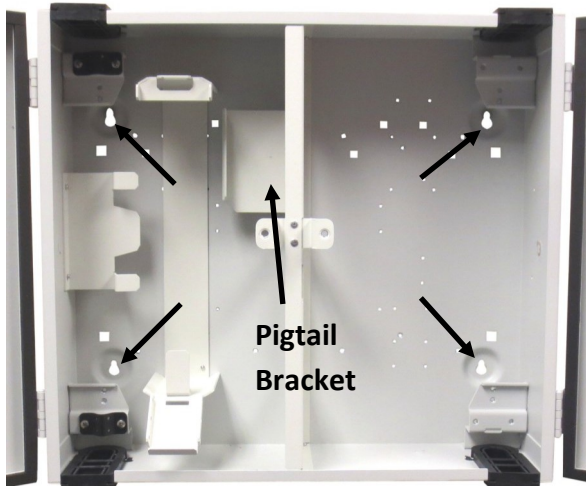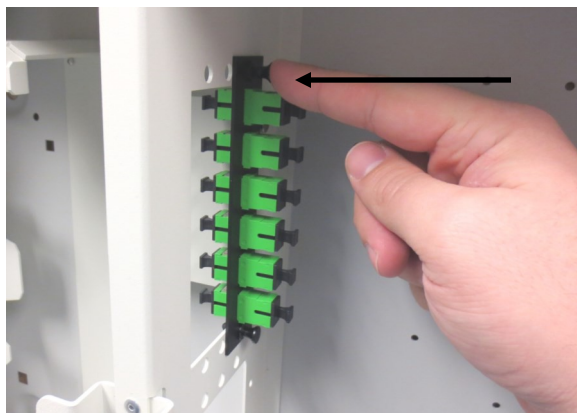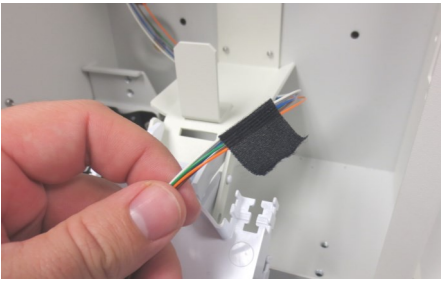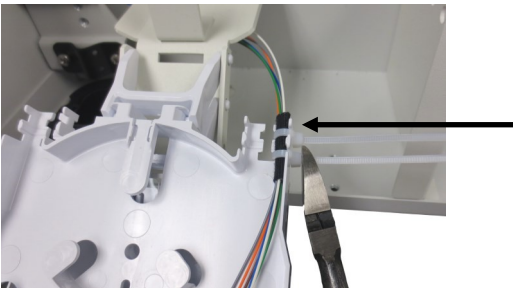
FD3 Demarc Configuration   5

Fig. 4

Fig. 5

Fig. 6

6. While making sure to create a generous transition with the pigtails, secure another Velcro® wrap to the Velcro® strip on the side bracket, along the left side of the box.

7. Other Velcro® wraps can be positioned as needed along the pigtail length to retain the bundle.

8. Continue to route the pigtails down and behind the tray tower, to the opposite side of the tray, to the attachment point (Fig. 5). Make sure to allow enough length for tray hinging then mark the pigtails at the tray attachment point and wrap the pigtail bundle with the provided felt wrap for protection (Fig. 4).

9. Install the tie-wraps around the pigtail bundle, then slide it into position over the installed felt wrap and tray corner. Ensure that the bundle is secure to the tray. Trim tie-wraps after securing bundle (Fig. 5).

10. Route 1.5 service loops in the tray and trim as desired for splicing.

2.4 Cable Preparation Lengths

The below lengths will provide about 36" of bare fiber for splicing on the tray.

Prepare cable(s) for installation, using the above chart as a guide for cut lengths.

Note: If cable grounding is needed, install the B-Bond onto the cable per company approved practice.

Note: If rigid strength members exist and you are using the Strength Member Bracket (SMB), trim the strength members 2" from the ring cut(s).

Cable opening measured from cable ring cut to ring cut or cable end	Cable Preparation Lengths (cable end or cut dead to field)	Cable Preparation Lengths (when splicing both in and out fibers)
Midspan	**75"**, 95", 115"	**161"**, 181", 201"
Cable End (top port)	**65"**, 85", 95"	
Cable End (bottom port)	**75"**, 95", 115"	

FD3 Demarc Configuration

6

Fig. 7

Fig. 8

Fig. 9

Fig. 10

2.5 Chassis Grounding

All grounding should follow local codes and practices.

Grounding components are available for grounding the box and/or non-dielectric cable(s). Refer to the Ordering Guide section of the product datasheet for details.

1. Locate and remove the small metal knock-out that is closest to the non-dielectric cable or external ground wire you are connecting (Fig. 7).

    Note: Ensure the circular masking around the inside of the ground feed-thru knock-out hole is removed before installing the ground feed-thru lug.

2. Attach Ground Feed-Thru Lug by placing the longer threaded section into the hole from the outside of the enclosure. Sufficiently tighten the box retaining nut to >40 in-lbs. (Fig. 8 & 9).

    Warning: Company practices may apply to stacking order and torque of various ground components.

3. Next, attach the external ground wire, then the star washer, then the nut. Torque the external nut per company-approved practices (Fig. 10).

4. If included in the kit, the internal braided ground wire can be installed next, followed by the washer and nut. Orient the eyelet for routing to the port which will contain the non-dielectric cable and torque nut to recommended level.
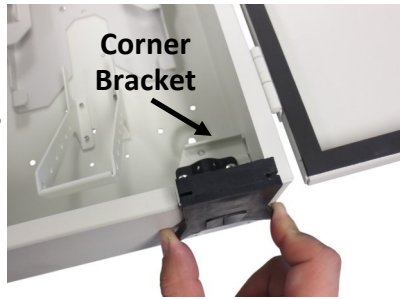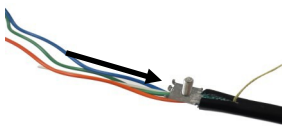
FD3 Demarc Configuration   7

Fig. 11

Corner Bracket
Fig. 12

a

b

c

d

Fig. 13

Fig. 14
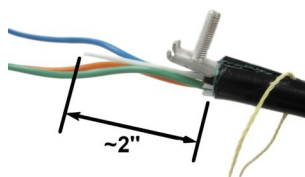

Fig. 15

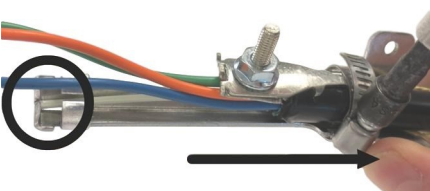Fig. 16

~2"
Fig. 17

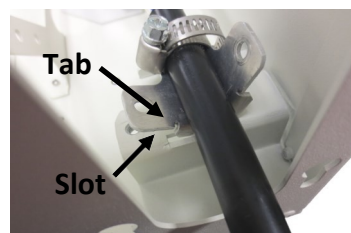Fig. 18a

Fig. 18b

Tab
Slot
Fig. 19

Fig. 20

2.6 Cable Assembly

The cable ring cut should be positioned about an inch inboard of the selected port corner bracket (Fig. 12). Measure ring cut and remove the outer cable jacket per chart recommendations on page 4.

Follow the cable preparation sequence below in order and as needed for cable hardware installation.

Retention & Grounding Preparations

Rubber Grommet Seal

This is the standard port seal (Fig. 11). Remove and modify grommet as needed by lifting the winged sections and sliding out (Fig. 12). The grommet can be installed over the end of the cable(s) by cutting a hole or slitting the curved end of the grommet and installing it around cable(s) either before or after cable(s) are installed in the port.

B-bond

Install the B-bond onto the cable. Follow company practice to ensure proper connection to the cable armor is made.

Note: Tabbing both sides of the cable, or pulling the rip cords just past the ring cut will make B-bond installation easier and provide two position options for the clamp (Fig. 13a thru 13d). Consider orientation of cable in the port before B-bond installation onto the cable. The ground wire can be attached after the cable is installed in the port (Fig. 14-15).

Strength Member Bracket (SMB)

If the cables have rigid strength members and the SMB is used (Fig. 16), trim the strength members to 2" - 2 1/4" from the ring cut (Fig. 17). When installing an SMB onto the cable, take note of the SMB tab position and make sure it will align with the corner bracket slot (Fig. 19). Make sure the strength members are pushed in fully against the inside end of the SMB and that no fiber tubes are trapped under the strength members (see circle in Fig. 18a-b). Install the hose clamp into position as shown. While pulling the SMB back against the end of the protruding strength members, tighten hose clamp into position. Next, secure SMB with provided screw into corner bracket (Fig. 20).

FD3 Demarc Configuration 8
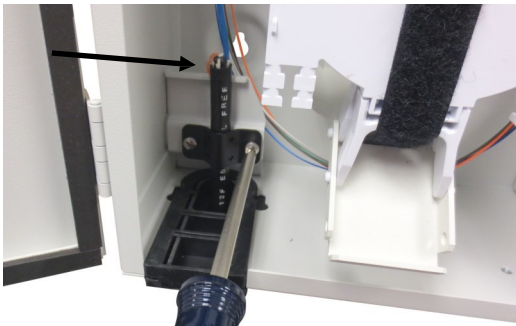
Fig. 21   Fig. 22

Fig. 23

Fig. 24

Fig. 25

Fig. 26

Dual Cable Bracket (DCB)

Install the DCB into the selected port using the supplied hardware (Fig. 21). The flat head screw goes into the center top hole (Fig. 21) and two short screws are provided for the lower two locations.

- Cables can be installed with the rubber grommet in place (if slit) or with smaller cables, the grommet can be installed after cables are secured to the bracket; made easier by slitting from the curved end of the grommet.

- Position the first cable in the lower section of the DCB and secure with either a hose clamp or large tie-wrap (Fig. 22 & 23). Make sure cable ring cut extends past the end of the bracket. Position the second cable in the upper section and secure the same way.

  Note: Orient the hose clamp away from fibers that may be routed nearby.

- If grommet is not already installed, modify and install now.

Single Cable Retention Brackets
- Remove or loosen the single cable bracket and install the cable assembly into the selected box port.

- Push the rubber grommet into the port fully, the sealing flange should be even with sealing flange of the box.

- Adjust the cable sheath ring cut so it extends past the cable bracket (Fig. 24).

- Tighten the screws of the single cable bracket to secure cable (Fig. 24).

- If grommet is not already installed, modify and install now.

- Smaller cables can be secured to the single cable bracket using tie-wraps as shown in Figures 25-26.
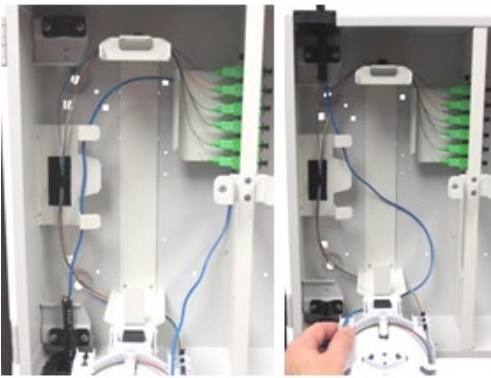
FD3 Demarc Configuration

9
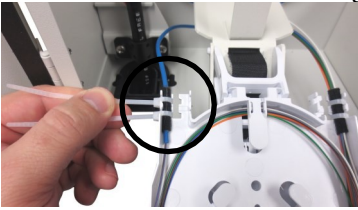
Fig. 27

Fig. 28

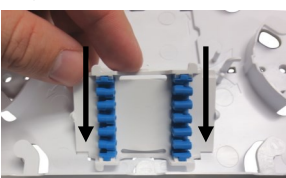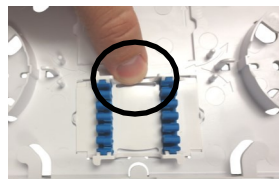Fig. 29

Fig. 30

Fig. 31   Fig. 32

Fig. 33

Fig. 34

2.7 Fiber Routing

1. Separate the designated fibers or tubes from the pass-through or unused fibers or tubes.

2. Store the dark or pass-thru fibers into the slack basket area.

3. Dress the fibers into the basket along the upper section of the basket for easier transition.

4. Ring cut and remove 36" of the LBT(s) of the designated tubes to expose the fibers to be spliced.

5. Clean fibers.

6. Store the extra slack length of fiber tubing in the slack basket.

7. Depending on entrance port, route the fibers as follows:

   From the bottom port, route the fiber up and in a clockwise direction, then down behind the right side of the tray tower and over to the left side tray attachment point (Fig. 27).

   From the top port, route fibers in a counter-clockwise direction, but when routing to the tray, an "s-bend" or crossover just prior to routing behind the tray tower is needed to get to the tray attachment point. Tubes should be routed with gentle transitions to avoid kinking (Fig. 28).

8. Secure fiber tubes to the tray with supplied tie-wraps, wrapping tubes as needed with the black felt wrap at tie-wrap locations prior to securing tie-wraps (Fig. 29). Remove excess tie-wrap material after securing fiber tube (Fig. 30 black circle)

9. Remove the tray cover and store fiber on the tray around the perimeter.

Fiber Tray Splicing

1. Remove fibers form the tray(s) and trim to the desired length, keeping in mind which splice cradle location each set of fibers or ribbon will be routed to.

2. To remove cradle, apply pressure against the cradle as shown until the center tab clears the inboard tray tab, then lift and remove.

3. Re-installation of splice cradle.

   - Slide the cradle outboard until it engages with the tray in the corners (Fig. 31).

   - While holding the cradle in place, lay the cradle flat and snap the center inboard tab of the cradle under the center tab of the tray (Fig. 32).

   - Final assembly will result in all tabs engaged and the cradle lying flat and secure in the tray recess.

4. Once splicing is complete, install the tray cover and label, then mark the label as needed for connection identifications (Fig. 33).

5. Hinge the tray(s) up in the closed position and secure them with the Velcro® strap (Fig. 34).

FD3 Demarc Configuration
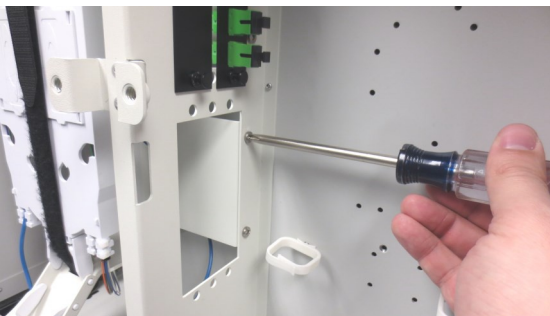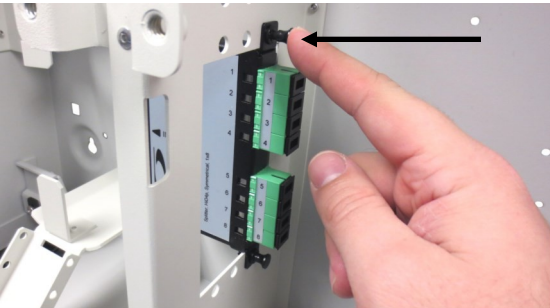
Fig. 35   Fig. 36

Fig. 37

Fig. 38

2.8 Customer Jumper Routing

1. If not installed from the factory, insert routing rings as shown in the black circles of Figure 35.
2. Clean connectors and insert into the appropriate adapter.
3. Route jumpers with a service loop before exiting the box (Fig. 36).
4. Jumper slack may be secured with single cable clamp with felt wrap.

2.9 Loading Passive Modules

- Passive devices such as Amphenol Network Solutions' adapter assembly, HiD4 or Mini-LGX may be mounted in the FD3 Demarc box's bulkhead to provide additional features.

- If passive modules are being installed in the bulkhead lower opening, you must remove the pigtail plate if installed (Fig. 37).

- Up to three (3) HiD4 or two (2) Mini-LGX Cassettes may be mounted in the upper and lower openings of the bulkhead. Insert the passive module into the upper or lower bulkhead opening and depress the top and bottom push pins to secure the panel to the bulkhead (Fig. 38).

FD3 Demarc Configuration   11

2.10 Connector Cleaning

– Recommended prior to product usage

Note: Utilize connector and adapter protective caps whenever possible; however, this practice does not guarantee cleanliness of the optical interface.

Before connecting, or after each disconnect, it is recommended to perform the following cleaning procedure. A connector inspection scope, lint-free wipes and optical cleaning solvent are necessary equipment.

This procedure conforms to the IPC 8491-1, "Cleaning Methods and Contamination Assessment for Optical Assembly."

- Make sure the fiber is not active.
- Remove the protective caps.
- Gently wipe the connector ferrule end with a lint-free wipe.
- Verify the cleanliness of the connector with an inspection scope.
- If necessary, gently wipe the fiber end with a lint-free wipe moistened with a small amount of cleaning solvent. Then dry with a clean lint-free wipe.
- Verify the cleanliness of the connector with an inspection scope.