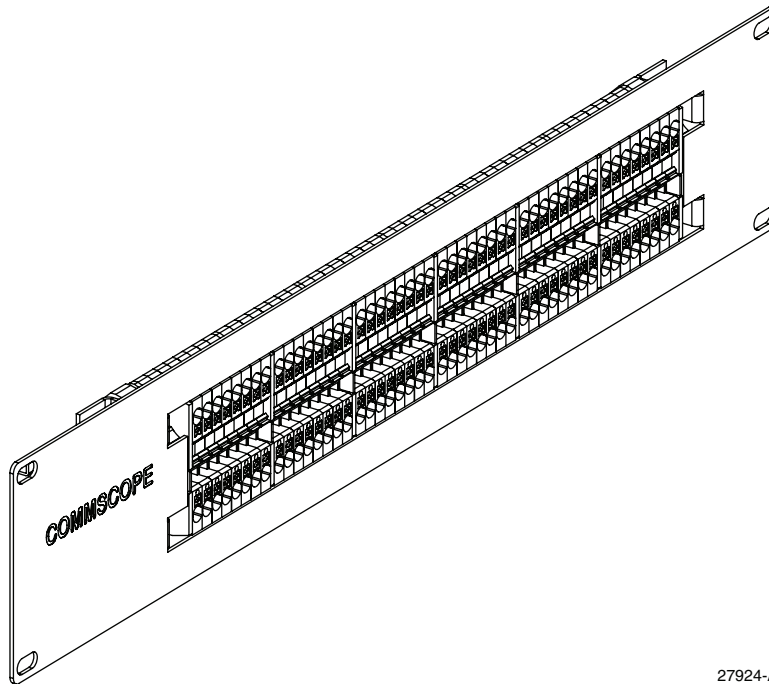


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Constellation™ Power Transition Panel (CPT-PP-48C)



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Constellation Power Transition Panel

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1 INTRODUCTION

Constellation™ delivers power and data over extended distances using a hybrid fiber power cable. The power is delivered from the power transmitter to the receiver using a combination of 20 AWG and 16 AWG cabling. The junction between the 20 AWG and 16 AWG power conductors is facilitated by the Power Transition Panel (CPT-PP-48C) documented in this user manual.

Contents of this manual include a description of the product and procedures for unpacking the panel, mounting it on a 19-inch rack, and terminating the 20 AWG and 16 AWG cables onto the panel.

1.1 Trademarks

CommScope (logo), **CommScope**, and **Constellation** are trademarks of CommScope, Inc.

Digital Electricity is a trademark of VoltServer, Inc.

1.2 Important Safety Cautions

When installing or operating the panel, observe these 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.
- This product has a remote risk of electric shock. Never install the product in wet conditions or during lightning storms. Never touch uninsulated power wires or terminals.
- This product is intended for indoor use only.
- Wearing safety glasses during installation of this panel is recommended.
- All wiring that connects to this equipment must meet applicable local and national building codes and network wiring standards.
- Care should be taken not to compromise the stability of the rack by installation of this equipment.

1.3 Constellation Products

Table 1 lists currently available Constellation products with catalog numbers and Material IDs (MIDs).

Table 1. Constellation Products

PRODUCT	CATALOG #	MID
Power Transmitter	CPCX-12	760254285
Management Module	CTX-MGT	760254286
Power Supply	CPM-3K	760254287
Transmitter Card	CTX-6	760254288
Multi-Chassis Synch Card	CMX-6	760254289
SAF D to L620P Cord	CABLE-PWR SAFD-L620P	760254290
C19 to L620P Cord	CABLE-PWR C19-L620P	760254291
C19 to 5-15P Cord	CABLE-PWR C19-515P	760254292
Power Transition Panel	CPT-PP-48C	760254293
Power Patch Cable	CTX-CBL-10	760254294
Powered Backplane	CPCB-1	760252855
Enclosure	CPCE-1	760252854
TBD	HFPC	TBD
Power Supply Bay Cover	PM500-COVER	760254642

1.4 Constellation Publications

Table 2 lists technical publications available for the Constellation system. These manuals can be accessed online using the QR code on the physical product or by contacting the CommScope Support Center at <https://www.commscope.com/SupportCenter>

Table 2. Constellation Technical Publications

Publication Title	Publication #
Constellation Power Transition Panel (CPT-PP-48C) User Manual	TC-96343-IP
Constellation Transmitter Card (CTX-6) Data Sheet	TC-96344-IP
Constellation Power Supply (3PM-3K) Data Sheet	TC-96345-IP
Constellation Multi-Chassis Synch Card (CMX-6) Quick Start Guide	TC-96346-IP
Constellation Power Supply Bay Cover (PM500-COVER) Data Sheet	TC-96347-IP
Constellation Management Software for Transmitters User Manual	TC-96348-IP
Constellation Powered Backplane (CPCB-1) Quick Start Guide	TC-96349-IP
Constellation Enclosure (CPCE-1) Quick Start Guide	TC-96350-IP
Constellation Best Practices Guide	TC-96351-IP
Constellation Power Transmitter (CPX-12) Quick Start Guide	TC-96352-IP

1.5 Contact Information

- 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>

2 PRODUCT DESCRIPTION

2.1 General Description

The Power Transition Panel (CPT-PP-48C) is a 19-inch rack-mountable panel that provides a controlled transition point between the 20 AWG power interconnection leads connecting the panel to the Power Transmitter (CPX-12) and the 16 AWG power conductors present in the Hybrid Fiber Power Cable (HFPC). The HFPC connects the panel to the Powered Backplane (CPCB-1) as shown in [Figure 1](#).

Note: The fiber leg of the HFPC (also shown in [Figure 1](#)) is not covered in this manual.

The Power Interconnection Leads (CTX-CBL-10) can be purchased in packs of 6 separate from the transmitter. The HFPC cable is also ordered separately. All connections to the CPT-PP-48C are made on site when the equipment is installed.

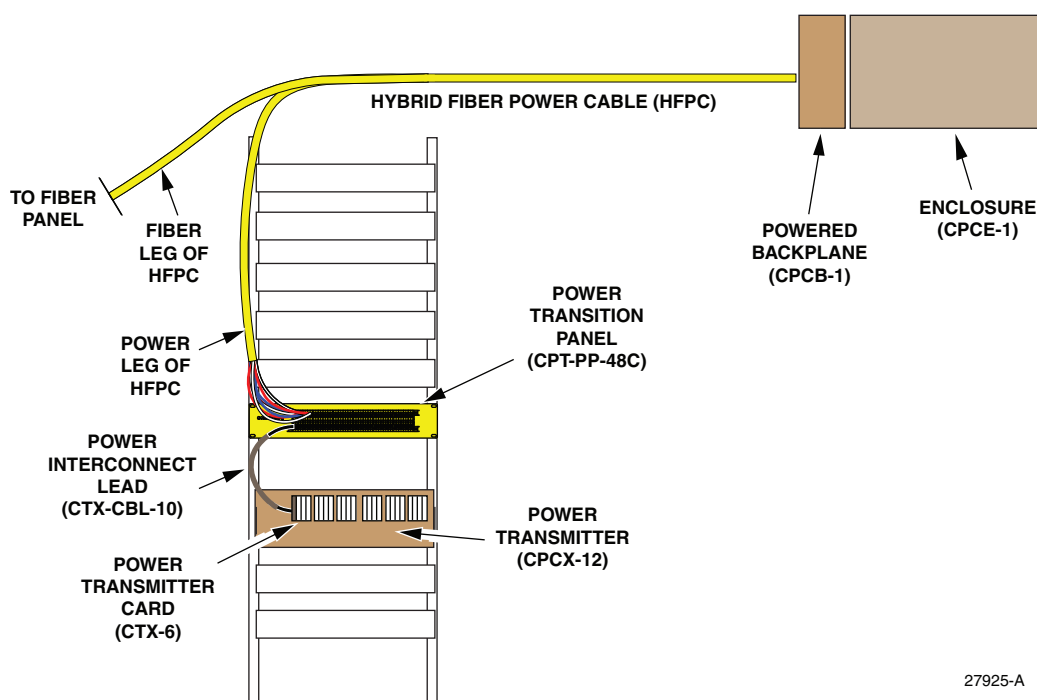


Figure 1. Position of Power Transition Panel in Constellation System

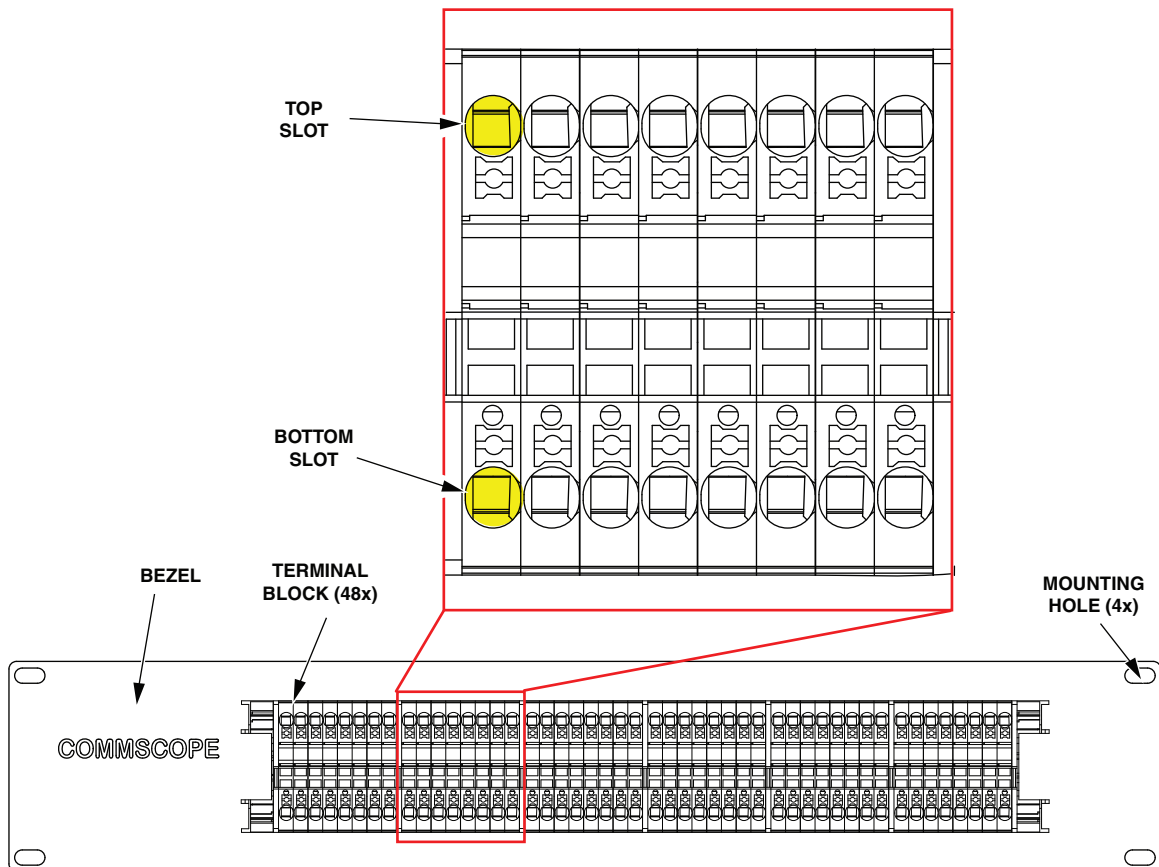
The CPT-PP-48C is a collection of 48 color coded terminal blocks. Each terminal block provides for cross-connection of one conductor from the transmitter and one conductor from the backplane.

Prior to installation, the conductors must be separated out from the two cables and stripped back to the specified distance per [Section 5 on Page 10](#) and [Section 6 on Page 12](#). The bare wires from the transmitter can then be plugged directly into the assigned bottom slots in the terminal blocks. It is recommended that the 16 AWG copper conductors in the HFPC that ultimately terminate at powered backplane are fitted with wire ferrules prior to being inserted in the top slots of the terminal blocks.

2.2 Main Features

Figure 2 shows a front view of the Power Transition Panel. The main features are:

- **Sheet Metal Bezel**—provides a support structure so that the terminal blocks can be installed in a 19-inch rack.
- **Mounting Holes**—4 mounting holes are provided so that the panel can be attached to the rack.
- **Terminal Block**—a pass-through block that connects one conductor from the transmitter and one conductor from the backplane. There are 48 terminal blocks.



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Figure 2. Power Transition Panel Main Features

- **Top Slot for Backplane**—the slot where a single conductor from the power leg of the HFPC attaches to a single terminal block on the panel.
- **Bottom Slot for Transmitter**—the slot where a single conductor from the power transmitter interconnect lead attaches to a single terminal block on the panel.

2.3 Specifications and Dimensions

Figure 3 shows dimensions for the Power Transition Panel. Table 3 lists dimensions.

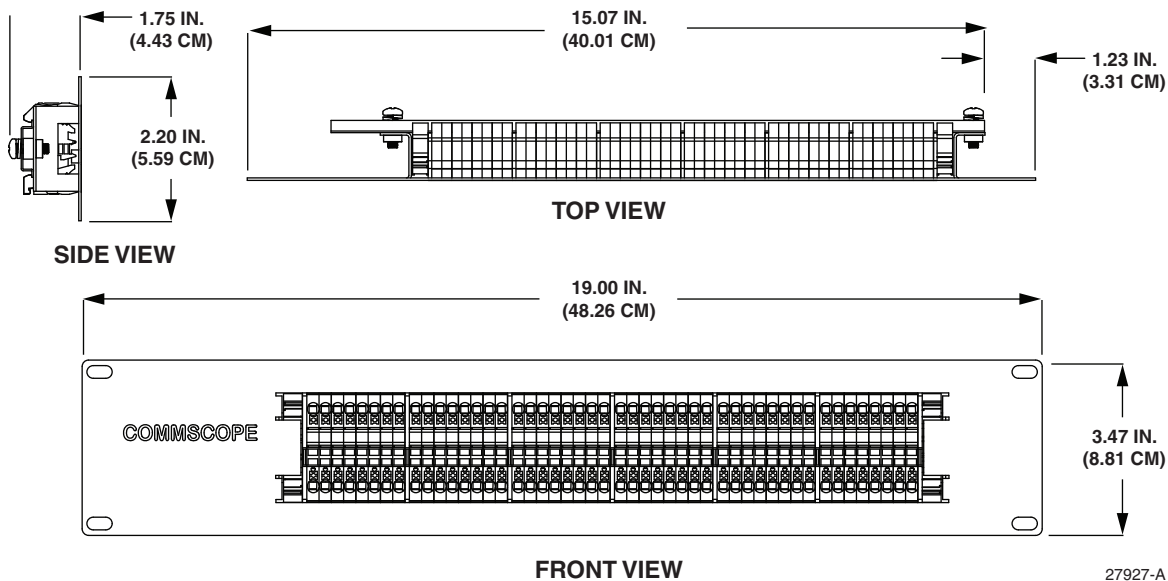


Figure 3. Power Transition Panel Dimensions

Table 3. Power Transition Panel Specifications

Parameter	Value
Height	3.47 in (8.83 cm)
Width	19.0 in. (48.26 cm)
Depth	1.75 in. (4.43 cm)
Weight	1.93 lbs. (0.875 Kg)

3 UNPACKING AND INSPECTION

Use the following procedure to unpack and inspect the product. Verify parts against [Table 4](#) below.

Table 4. Power Transition Panel Parts List

Description	Quantity
Power Transition Panel	1
Panel fastener pack	1

1. Inspect the exterior of the shipping carton for evidence of rough handling that may have damaged the components in the container.
2. Open the carton and remove the panel while carefully checking the contents for damage.
3. If damage is found or parts are missing, contact the CommScope Support Center using the URL: <http://www.commscope.com/SupportCenter>
4. If damaged, save the carton for inspection by the carrier.

4 MOUNTING THE PANEL ON THE RACK

The panel mounts on a 19-inch equipment rack. Use the following procedure.

1. Align the four mounting holes with the four holes in the selected rack location.
2. Secure the panel to the rack using the four screws provided.

Refer to [Figure 4](#).

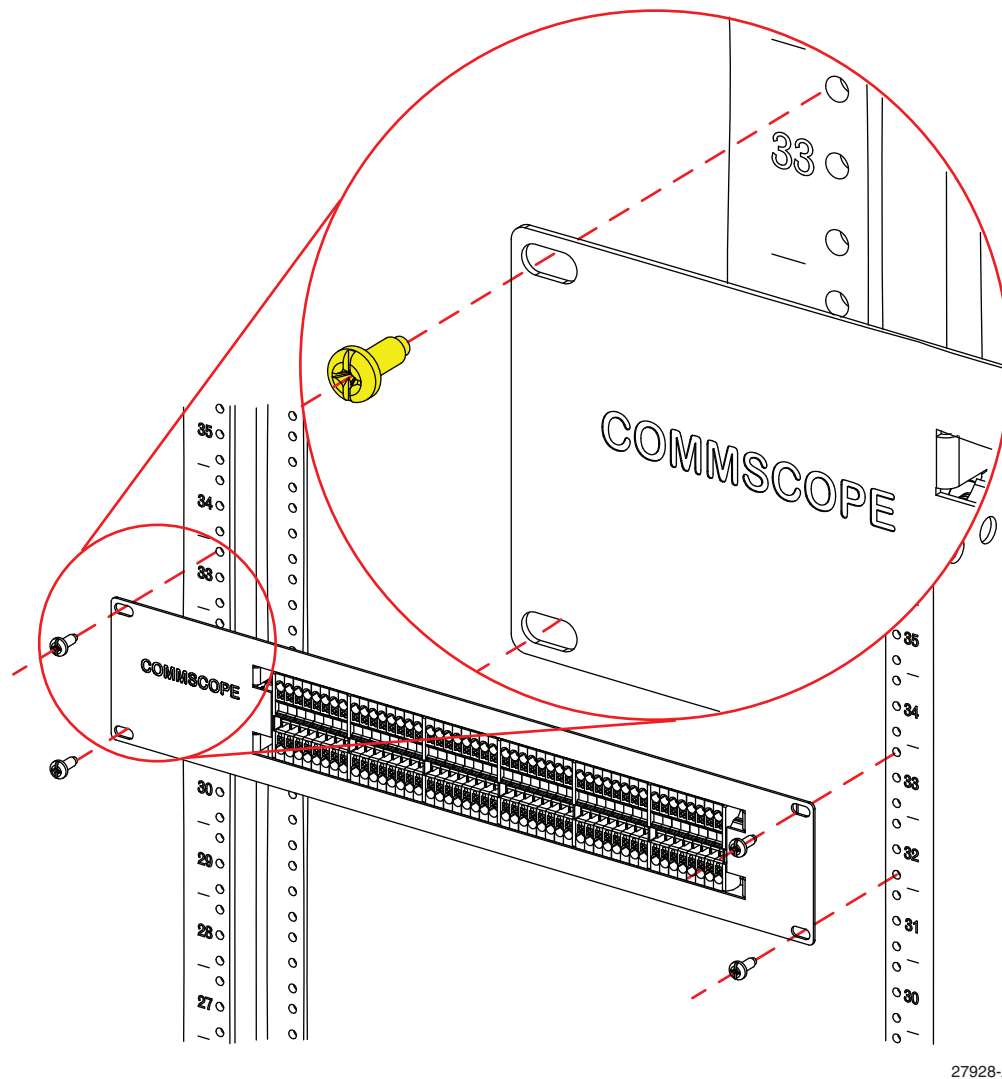


Figure 4. Mounting the Power Transition Panel

5 CONNECTING THE POWER TRANSMITTER TO THE TRANSITION POINT PANEL

The CTX-CBL-10 is a 20 AWG power interconnect lead that is used to connect the output of the transmitter to the Power Transition Panel (CPT-PP-48C). One end of the two-conductor cable is terminated onto the outer positions of a four position plug that is keyed to match the input to the CTX-6 power transmitter card (a subassembly of the CPCX-12). The jacket on the panel end of the cable has been removed and the conductors stripped back between 10 and 12 mm. These exposed connectors are the ends that terminate into the bottom slot of the CPT-PP-48C.

A small segment of loose heat shrink is also present on the 10-foot cable. If the cable is intended to be used in its original 10-foot length, the heat shrink can be applied at the end of the cable and the interconnect is ready for termination onto the panel. If the interconnect is to be shortened before terminating onto the panel, use the following procedure.

1. Cut the cable to the desired length (taking into account enough length for the desired cable routing).
2. Remove approximately 4 inches of the outer jacket.
3. Remove 10-12 mm of insulation from the ends of the insulated conductors.
4. Route the cable from the transition panel along the rack to the transmitter.
5. Use a small screwdriver or equivalent to press on the clamp release on the terminal block (Figure 5).



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Figure 5. Releasing the Clamp

6. Insert the stripped end of the wire into the opened clamping mechanism in the terminal block. While holding the wire in place, engage the clamping mechanism by removing the small screwdriver (Figure 6).

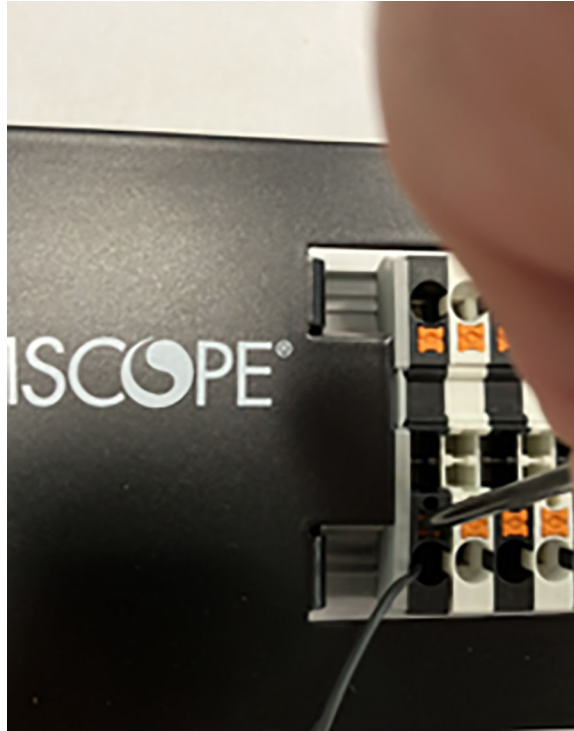


Figure 6. Bare Wire Being Inserted

7. Plug the transmitter end of the cable into the assigned location on the transmitter. Figure 7 shows the transmitter end of the cable plugged into the CTX-6.



Figure 7. Transmitter End of Cable Plugged in

6 INSTALLING THE POWER LEG OF THE HFPC CABLE

Wire ferrules aid in the successful installation of the power leg of the HFPC. Wire ferrules appropriate for 16 AWG stranded conductor wire (such as the McMaster 7950K25) are recommended. Strip the appropriate amount of insulation off of the four (two-pair HFPC) or eight (four-pair HFPC) conductors and crimp the wire ferrules onto the exposed conductor (approximately 15 mm of insulation needs to be removed when using the McMaster 7950K25 ferrule and AVEN 10178 crimper and 1.5 (16 AWG) setting). During the crimping procedure, the copper conductor should be flush or protrude from the end of the wire ferrule. Once the ferrule is crimped onto the conductor, any excess conductor can be trimmed away using a set of diagonal cutters.

The pairs in the HFPC cable are oriented and polarized so that the communication between the Constellation transmitter and receiver are assured. The different pairs engage different positions on the CPCB-1 according to the scheme summarized in [Table 5](#).

Table 5. Conductors and Connections

CONDUCTOR	CPCB-1 CONNECTION	PRESENT FOR
Red	CH 1+	Two- and four-pair Constellation HFPC table
Red/White	CH 1-	Two- and four-pair Constellation HFPC table
Black	CH 2+	Two- and four-pair Constellation HFPC table
Black/White	CH 2-	Two- and four-pair Constellation HFPC table
Blue	CH 3+	Four-pair Constellation HFPC table
Blue/White	CH 3-	Four-pair Constellation HFPC table
Brown	CH 4+	Four-pair Constellation HFPC table
Brown/White	CH 4-	Four-pair Constellation HFPC table

Once the conductors are terminated in ferrules, the appropriate conductors can be pushed into the appropriate holes in the panel. A properly terminated two-pair and four-pair HFPC cable that has been plugged into the CPT-PP-48C is shown in [Figure 8](#).

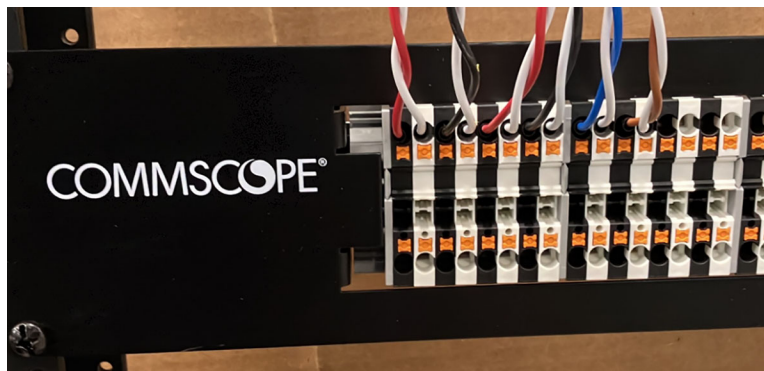


Figure 8. Properly Terminated HFPC