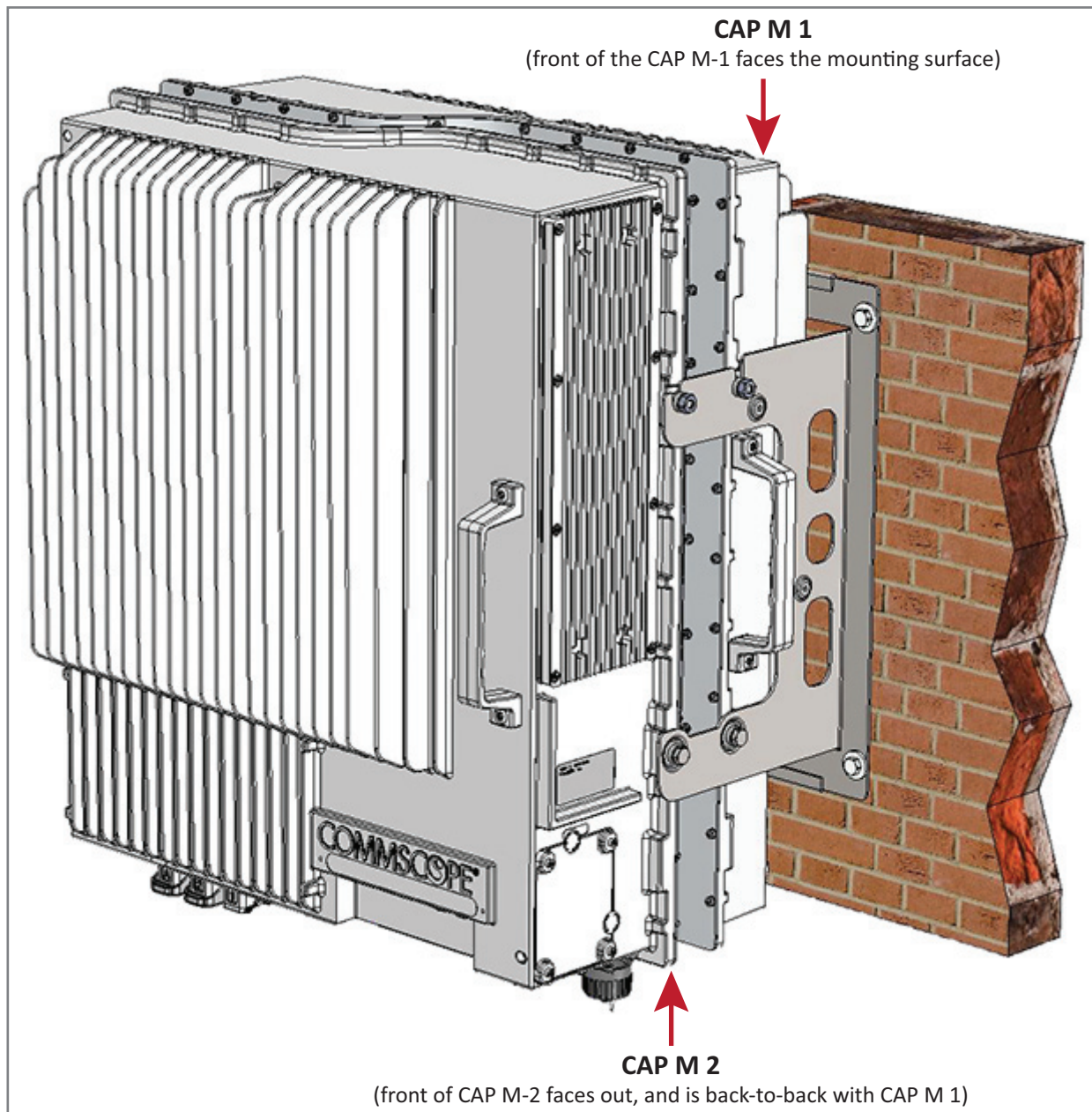## Mount Two CAP Ms Using a Dual Mounting Bracket

In this procedure you will mount two CAP Ms back-to-back in one Dual Mounting Bracket. The steps in this procedure will identify the two CAP Ms as CAP M-1 and CAP M-2, as shown in Figure 20.

Figure 20. Two CAP Ms Back-to-Back in a Dual Mounting Bracket

Do the following to mount two CAP Ms in a Dual Mounting Bracket.

1   Obtain the Dual Mounting Bracket (CommScope PN 7821954-xx).

2   Follow the steps in "Unpack and Inspect the CAP M and Optional Accessories" on page 29. Table 10 lists the parts that ship with the CAP M Dual Mounting Bracket.

Table 10. *Parts List for CommScope PN 7821954-XX*

Description	Quantity
Dual Wall Mounting Bracket	1

3   Refer to "Determine the Mounting Site" on page 24 to determine the mounting location, which must be able to support the weight and dimensions of the CAP M.

> ⚠️ **Installer must verify that the mounting surface will safely support the combined load of the electronic equipment and all attached hardware and components.**

4   Refer to "Mounting Orientation" on page 34 to determine the mounting orientation of the CAP M.

5   Refer to and observe all cautions listed in "General Mounting Cautions" on page 33.

6   Secure the Mounting Bracket to the wall (or another suitable vertical surface) as shown below.

   a   Install the mounting bracket using 4 M6 screw anchors (not included) or suitable lag bolts according to the drilling layout.

> 📝 **The M6 screw anchors do not ship with the CAP M as the anchor type is dependent on the on-site conditions (wall structure and materials). Use screw anchors that are rated for the mounting surface.**
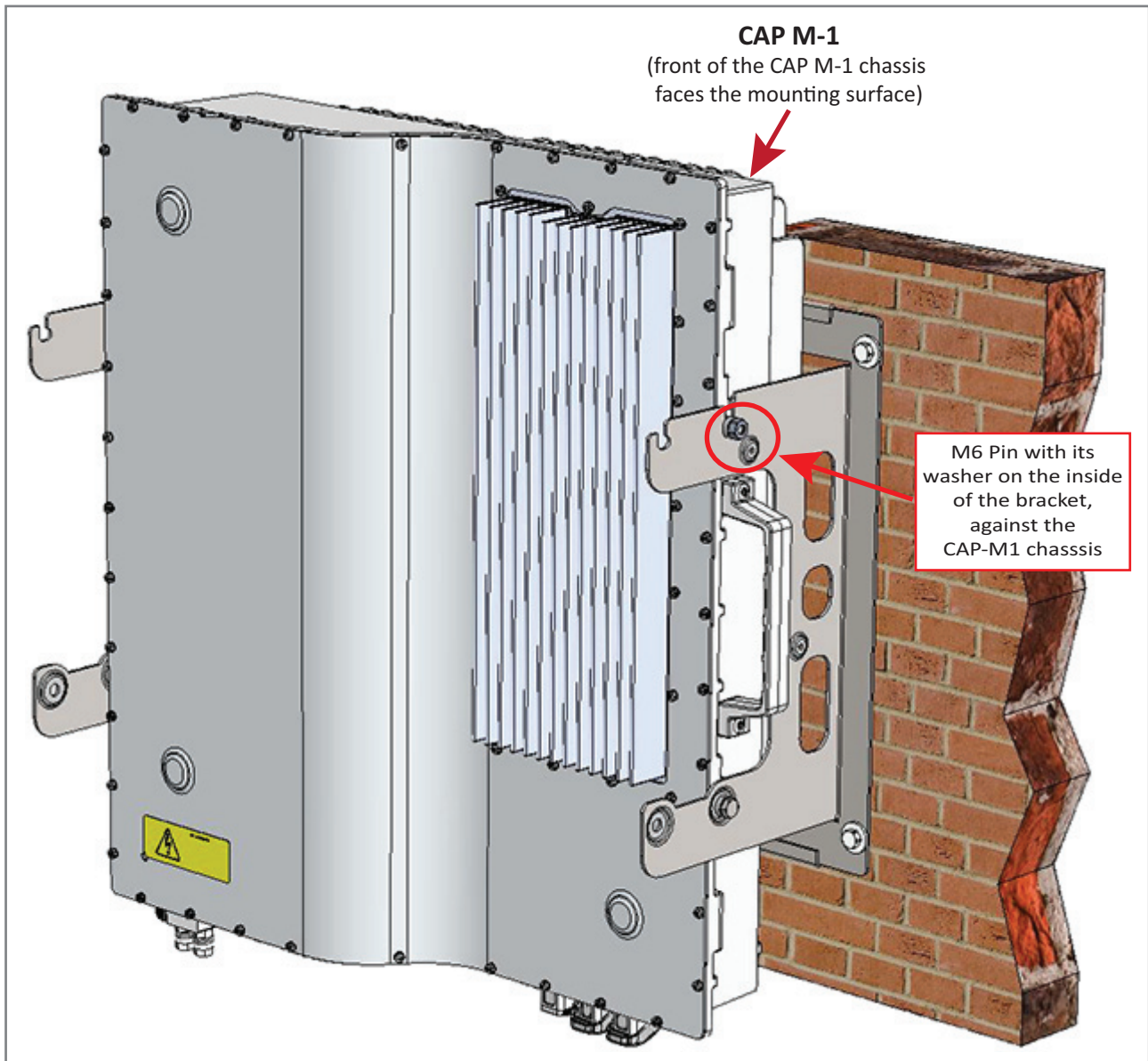
   b   Confirm that the bracket is securely fastened to the wall.
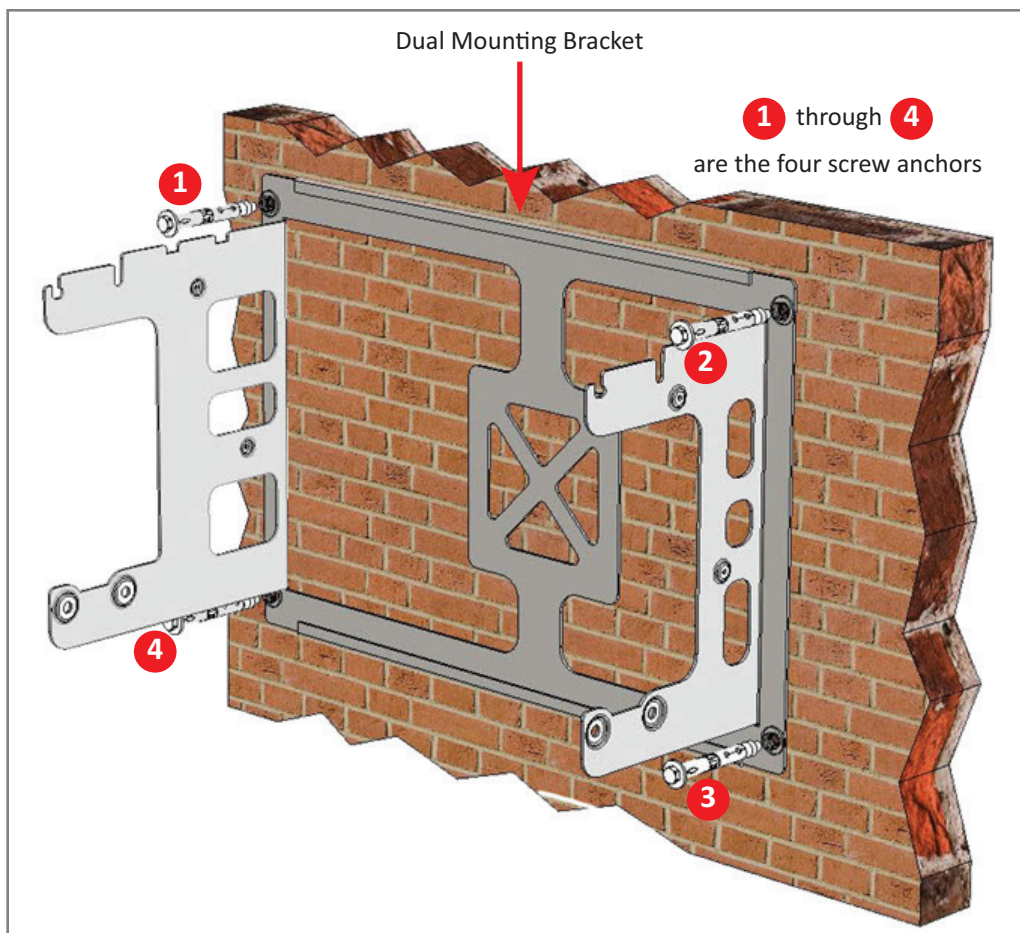
7 From both sides of CAP M-1:

    a Loosen the M6 pins, leaving its washer in place.

    b Remove the two M6 screws and their M6 plain and M6 split-lock washers; reserve the screws and washers as you will later reinstall them.

Loosen the M6 pin

Remove the M6x12 screw and its washers

M6 plain washer

M6 split-lock washer

M6x12 screw
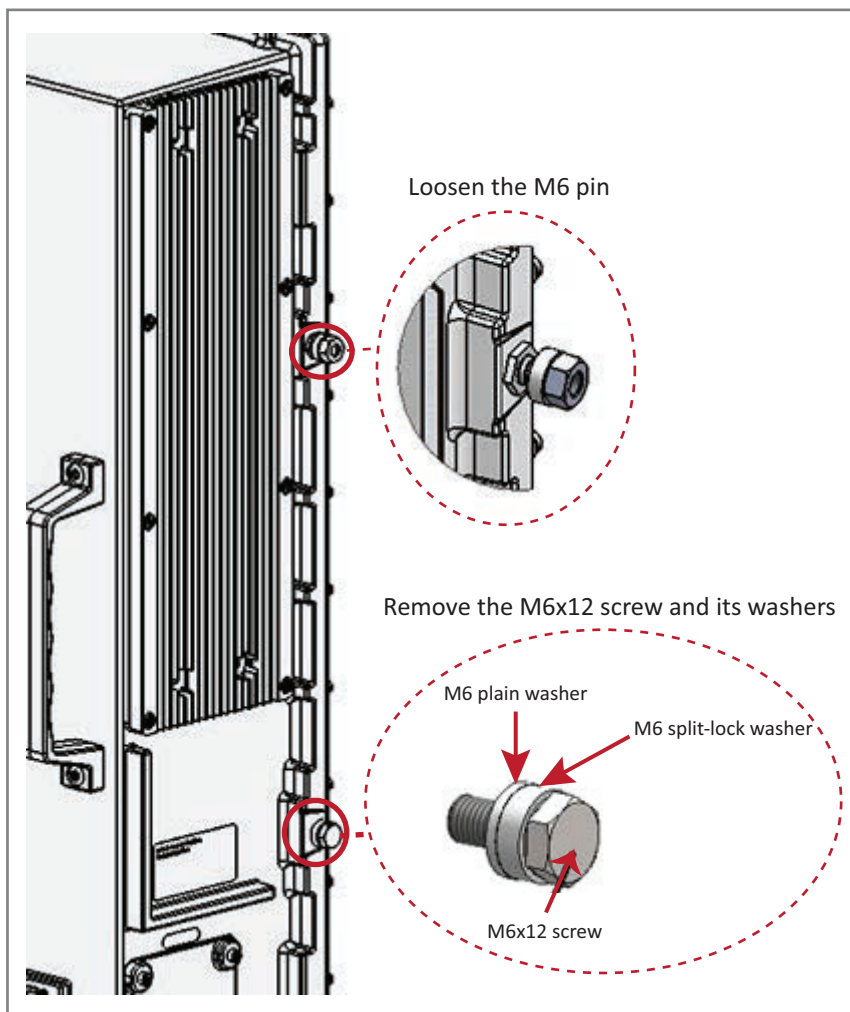
8   Use both handles on the CAP M-1 chassis to lift it above the Mounting Bracket, and with the front of the chassis facing the mounting surface, lower it into place.

- The M6 pins that you loosened in Step 7 on page 43 must align with the Mounting Bracket slots, as shown below.

- The washer for each M6 pin should be next to the CAP M-1 chassis (inside the bracket).

CAP M-1
(front of the CAP M-1 chassis faces the mounting surface)

M6 Pin with its washer on the inside of the bracket, against the CAP-M1 chasssis

9   On the right side of the CAP M-1, torque the M6 pin to 11 N-m.

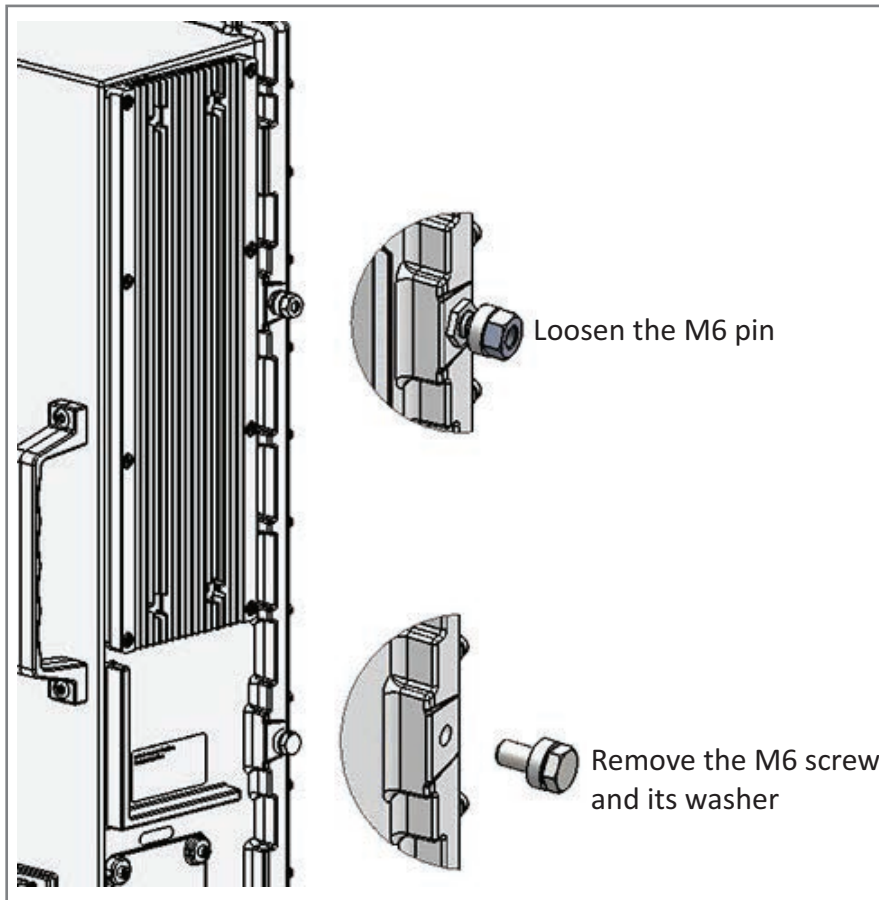**10**   Repeat Step 9 on the left side of the CAP M.

11   On lower right of the CAP M-1, reinstall the M6x12 screw and its washers that you removed in Step 7 on page 43.

    a   Slide first the M6 split-lock washer and then the M6 plain washer over the M6x12 screw.

    b   Insert the M6x12 screw through the screw hole shown below, and screw it back into the CAP M-1 chassis; torque to 11 N-m.
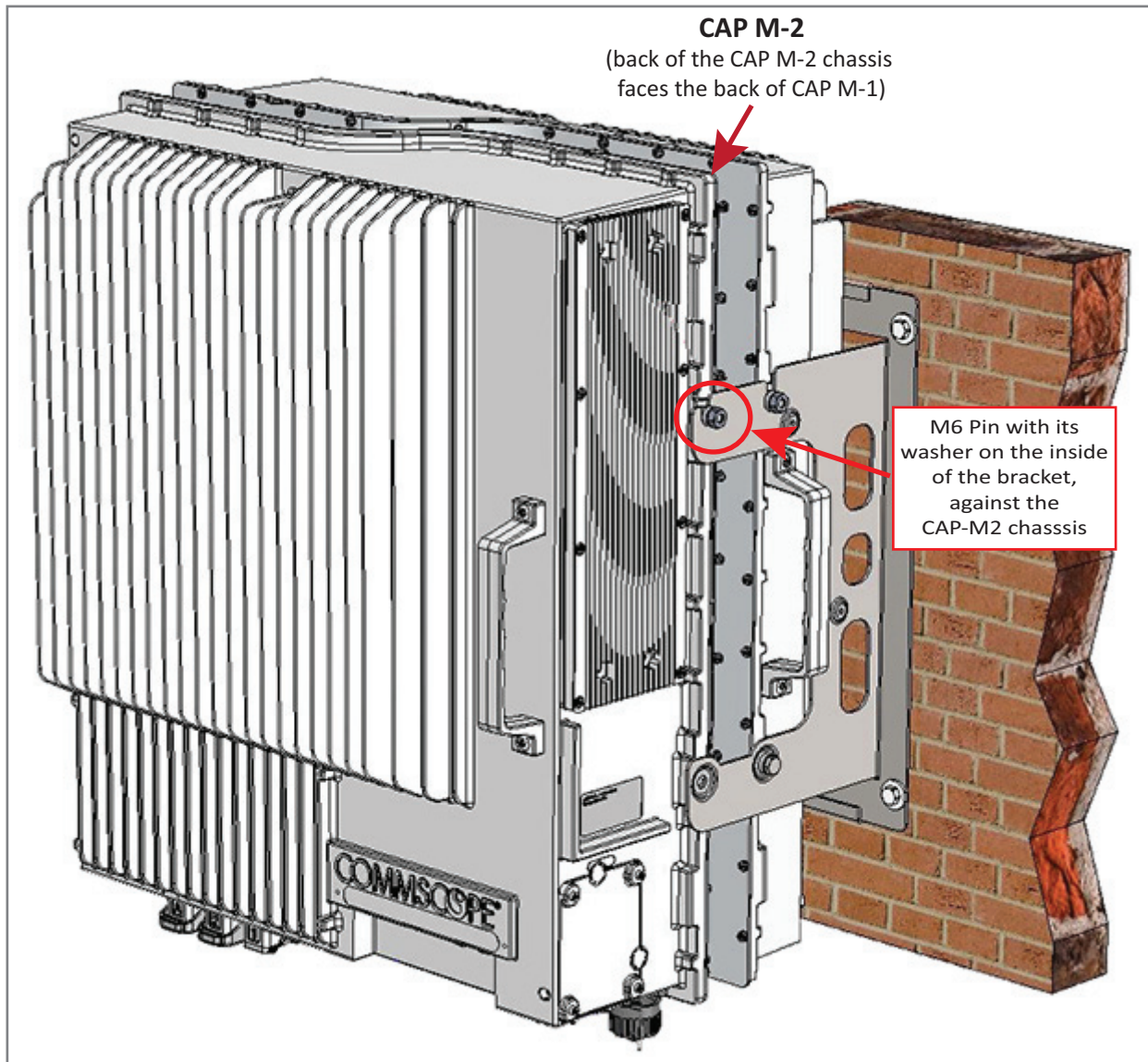

M6x12 screw and washer set in hole closest to the mounting surface
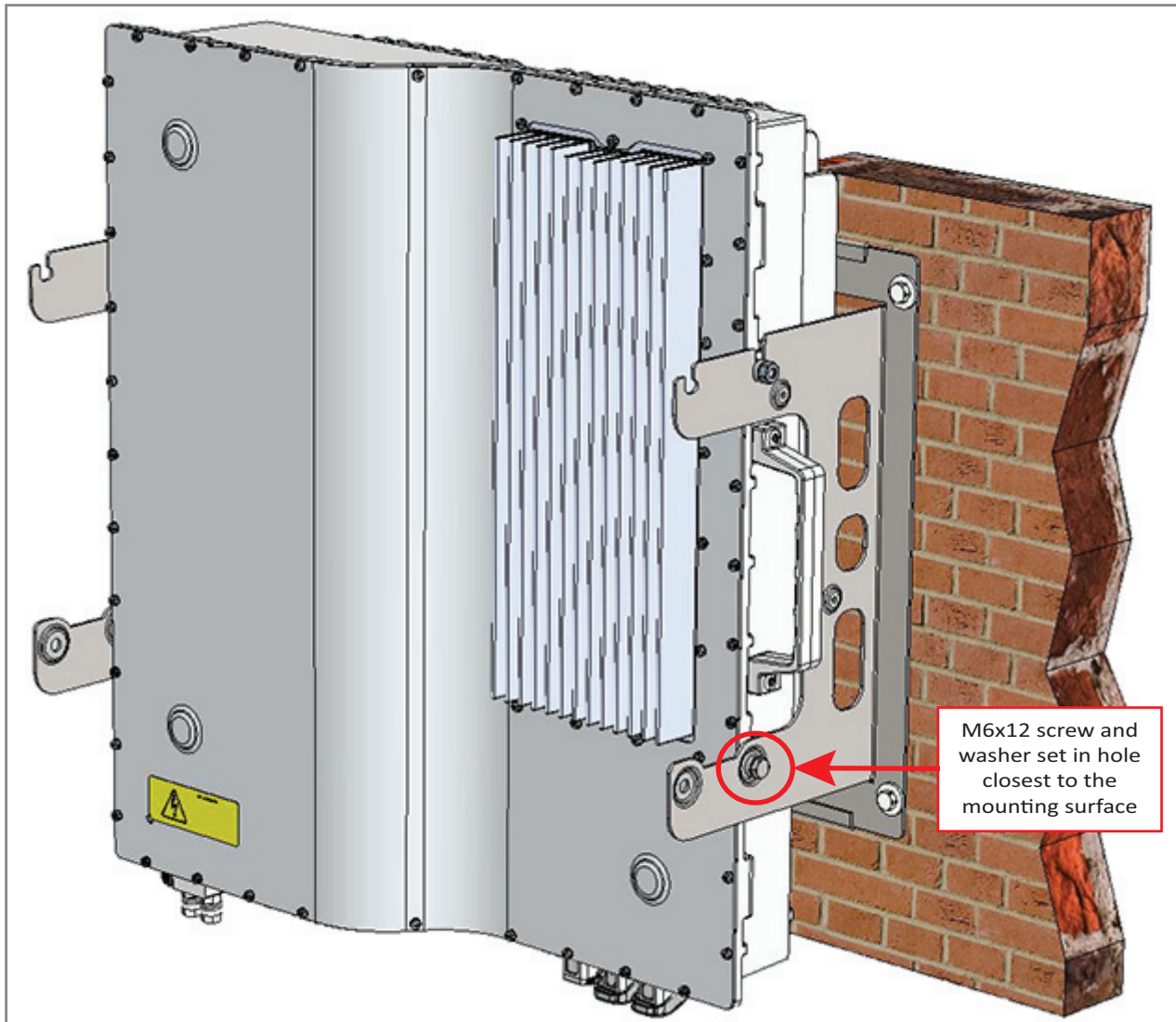
12   Repeat Step 11 on the left side of the CAP M-1.

13 From both sides of CAP M-2:

    a Loosen the M6 pins, leaving its washer in place.

    b Remove the two M6 screws and their washers; reserve the screws and washers as you will later reinstall them.


Loosen the M6 pin

Remove the M6 screw and its washer

14 Use both handles on the CAP M-2 chassis to lift it above the Mounting Bracket with the back of its chassis facing the back of CAP M-1, and then lower it into place.

  • The M6 pins that you loosened in Step 13 on page 46 must align with the Mounting Bracket slots, as shown below.

  • The washer for each M6 pin should be next to the CAP M-2 chassis (inside the bracket).

CAP M-2
(back of the CAP M-2 chassis faces the back of CAP M-1)

M6 Pin with its washer on the inside of the bracket, against the CAP-M2 chasssis

15 On the right side of the CAP M-2, torque the M6 pin to 11 N-m.

16 Repeat Step 15 on the left side of the CAP M.

17   On lower right of the CAP M-2, reinstall the M6x12 screw and its washers that you removed in Step 13 on page 46.

    a   Slide first the M6 split-lock washer and then the M6 plain washer over the M6x12 screw.

    b   Insert the M6x12 screw through the screw hole shown below, and screw it back into the CAP M chassis; torque to 11 N-m.


M6x12 screw and washer set in hole furthest from the mounting surface
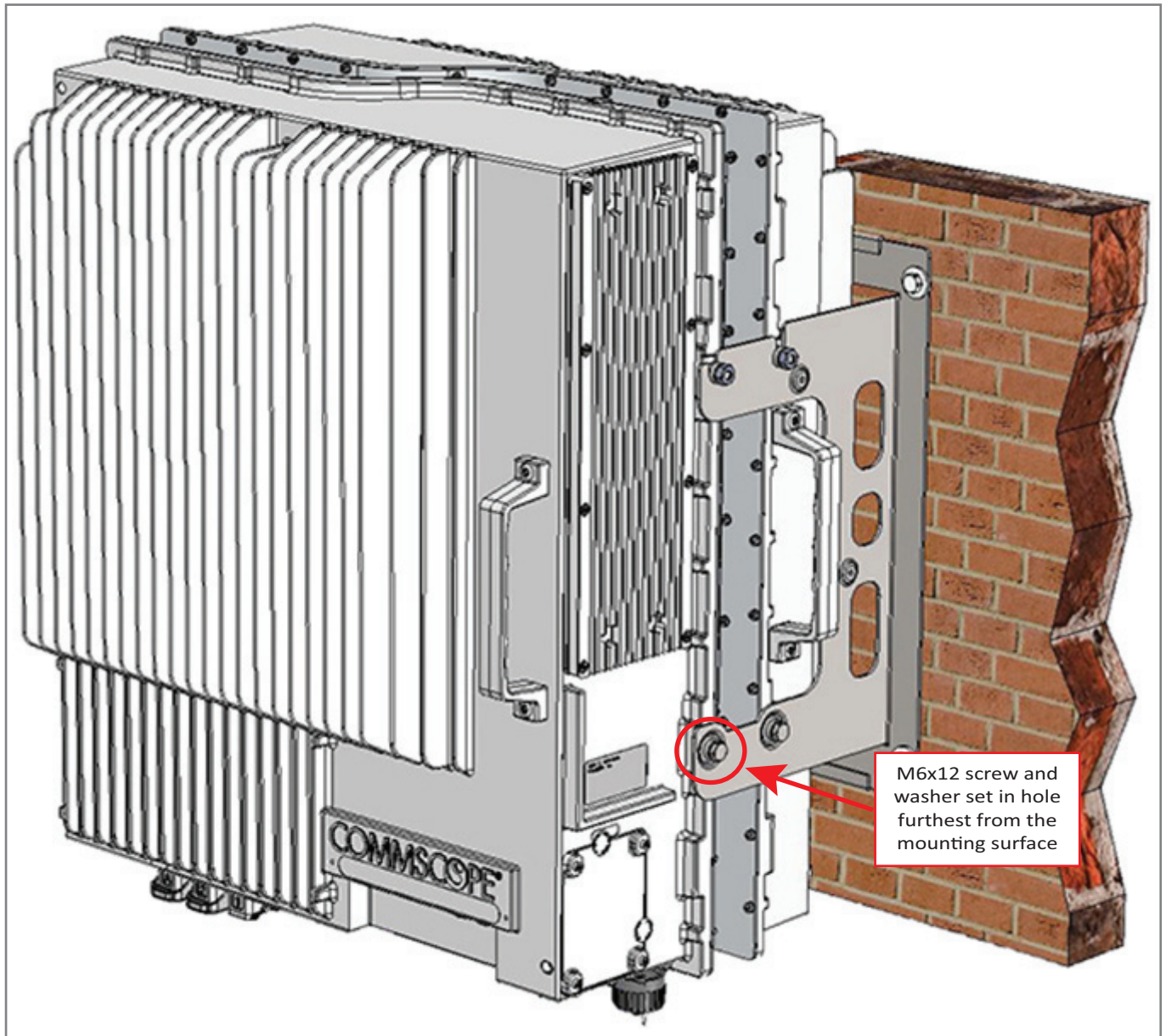
18   Repeat Step 11 on the left side of CAP M-2.

19   Do one of the following:

- If this installation requires a Hybrid Fiber Splice Box, go to "Attach a Hybrid Fiber Splice Box to the CAP M" on page 52.

- If this installation does **not** require a Hybrid Fiber Splice Box, go to "Grounding the CAP M" on page 56.

Mount the CAP M to a 4" to 18" Pole

This procedure is specific to the CAP M Pole Mounting Kit for Up to 18" Poles (CommScope PN 7692096-XX), which is used when mounting a CAP M to a pole with a circumference of 4" to 18" (10.2 cm to 45.8 cm). Figure 21 shows the assembled kit mounted to a pole.
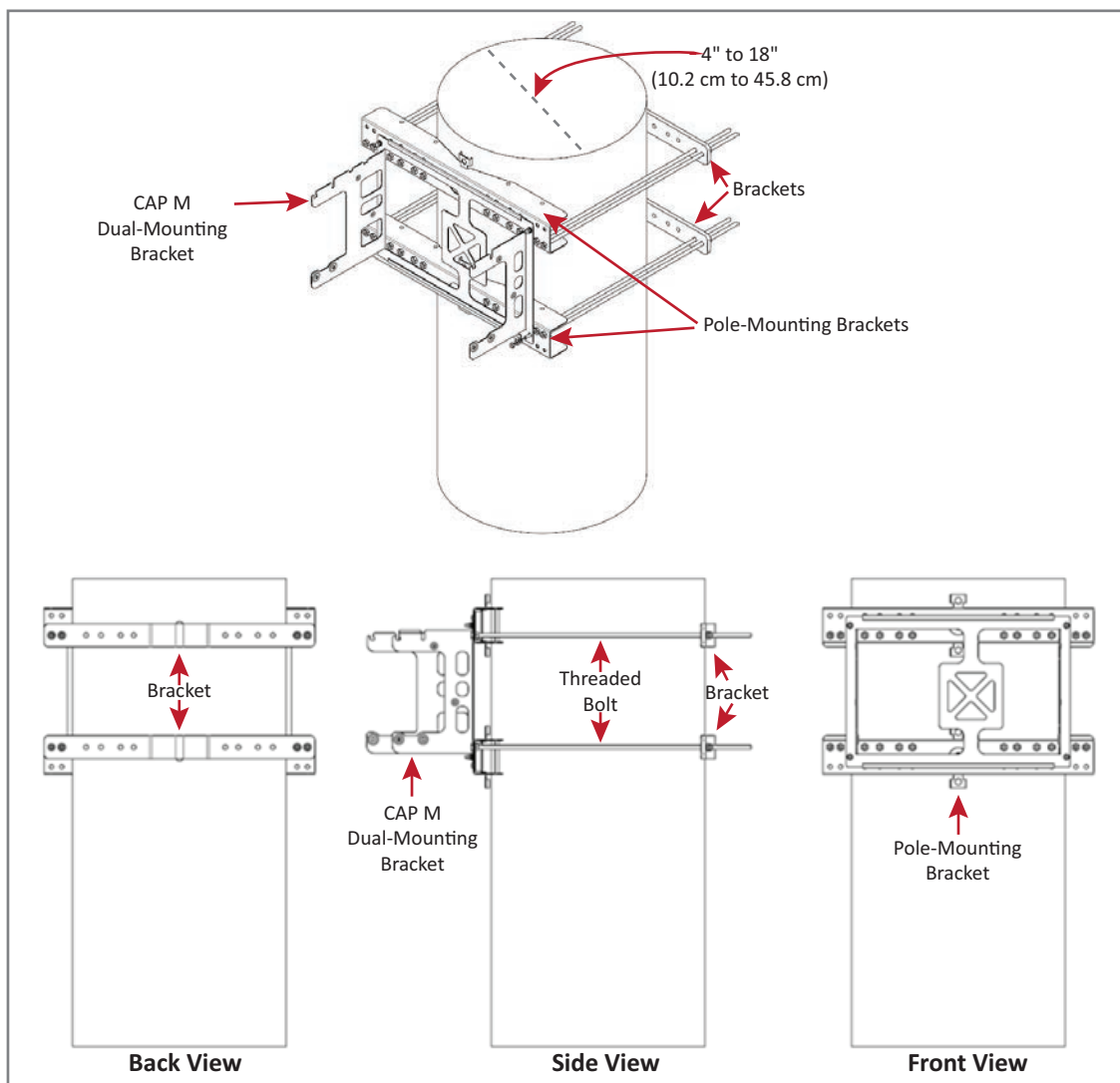
Figure 21. Installation Views of the CAP M Pole Mounting Kit for Up to 18" Poles (CommScope PN 7692096-XX)

Do the following to assemble the CAP M Pole Mounting Kit for Up to 18" Poles, mount the kit to a pole, and then mount the CAP M on the mounting kit.

> **This procedure requires two installers.**

1   Obtain the CAP M Pole Mounting Kit for Up to 18" Poles (CommScope PN 7692096-XX).

2   Obtain either a Single Mounting Bracket Kit (CommScope PN 7821955-xx) or a Dual Mounting Bracket Kit (CommScope PN 7821954-xx), as required for this installation.

3 Follow the steps in "Unpack and Inspect the CAP M and Optional Accessories" on page 29. Table 11 lists the parts that ship with the CAP M Pole Mounting Kit for Up to 18" Poles.

Table 11. Parts List for CommScope PN 7692096-XX

Description	Quantity	Description	Quantity
Pole-Mounting Bracket	2	M8 Threaded Bolt	8
Bracket	2	M8 Hexagon Nut	8
M6 Hexagon Nut	4	M8 Plain Washer	16
M6 Plain Washer	4	M8 Split-Lock Washer	8
M6 Split-Lock Washer	4	M8 Nut	8

4 Refer to "Determine the Mounting Site" on page 24 to determine the mounting location, which must be able to support the weight and dimensions of the CAP M.

⚠️ **Installer must verify that the mounting surface will safely support the combined load of the electronic equipment and all attached hardware and components.**

5 Refer to "Mounting Orientation" on page 34 to determine the mounting orientation of the CAP M.

6 Refer to and observe all cautions listed in "General Mounting Cautions" on page 33.

7 Attach either a Single Mounting Bracket (CommScope PN 7821955-xx) or a Dual Mounting Bracket (CommScope PN 7821954-xx) to the two screw pins on one of the two Pole-Mounting Brackets. Attach the M6 nut and washers in the order shown.

Dual-Mounting Bracket

Pole-Mounting Brackets

Screw pin

7c 7b 7a

   a Slide one M6 plain washer (**7A**) over each screw pin.

   b Slide one M6 split-lock washer (**7B**) over each screw pin, next to the M6 plain washer.

   **c** Secure one M6 Hexagon Nut (**7A**) to the end of each screw pin, and then torque to 11 N-m.
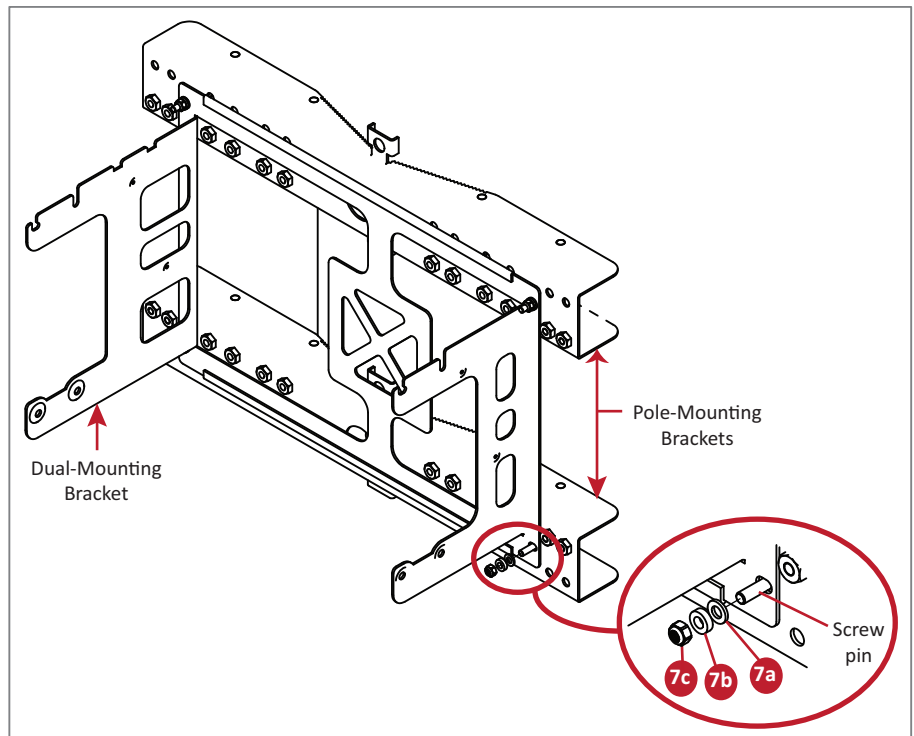
8 Repeat Step 7 on the second Pole-Mounting Bracket.

📝 **The balance of this procedure may require two installers to complete.**

9 Attach four of the threaded bolts to the side of the top Pole-Mounting Bracket that will face toward the pole (inside the Pole-Mounting Bracket). Install the M8 nut and washers in the order shown.

a Slide one M8 plain washer (**9A**) to one end of each of the four threaded bolts.

b Slide an M8 Hexagon Nut (**9B**) next to the M8 plain washer.

c Torque the M8 Hexagon Nut to 27 N-m.
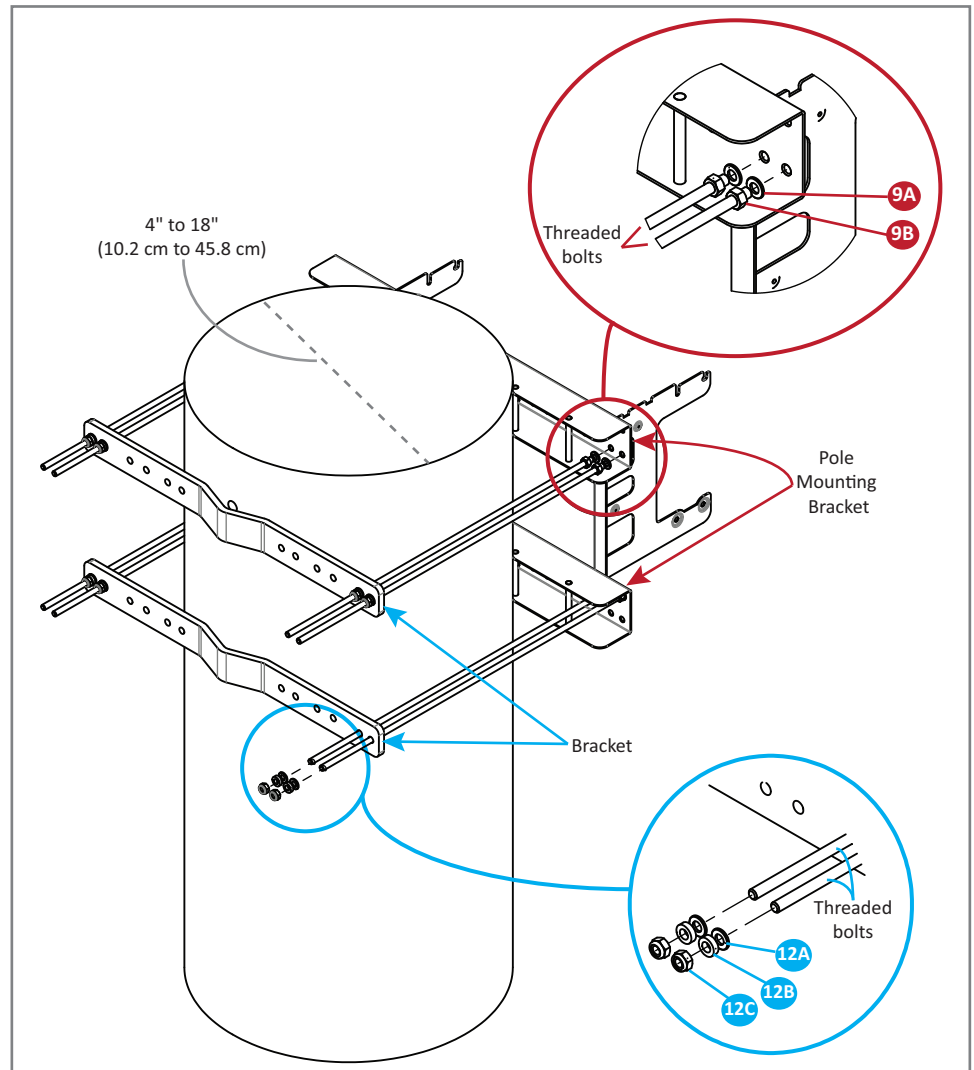
10 Repeat Step 9, but this time attach four of the threaded bolts to the bottom Pole-Mounting Bracket.

11 One installer should now hold the Pole-Mounting Brackets that you assembled in Step 7 through Step 10 against in the pole at the position at which the CAP M is to be attached to the pole. The eight threaded bolts will protrude to the other side of the pile.

12 The second installer should now attach one of the Brackets to the top four threaded bolts that protrude past the pole. Install the M8 nut and washers in the order shown.

a Slide one M8 plain washer (**12A**) to one end of each of the four threaded bolts.

b Slide an M8 split-lock washer (**12B**) next to the M8 plain washer.

c Use an M8 nut (**12C**) to screw the end of the threaded bolts (with the nut and washer) to the welded nuts on the inner side of the top Pole-Mounting Bracket.

d Torque the M8 Hexagon Nut to 27 N-m.

13 Repeat Step 12, but this time attach the second Bracket to the bottom four threaded bolts.

14 To mount the CAP M to the pole-mounting kit, follow the steps in "Mount a CAP M Using a Single Mounting Bracket" on page 35 or "Mount Two CAP Ms Using a Dual Mounting Bracket" on page 41, as appropriate for this installation.

# Attach a Hybrid Fiber Splice Box to the CAP M

📝 **The steps in this section pertain only to those installations that require the use of the optional Hybrid Fiber Splice Box to provide fiber and power to the CAP M. If the optional Hybrid Fiber Splice Box is not required for this installation, skip to "Grounding the CAP M" on page 56.**

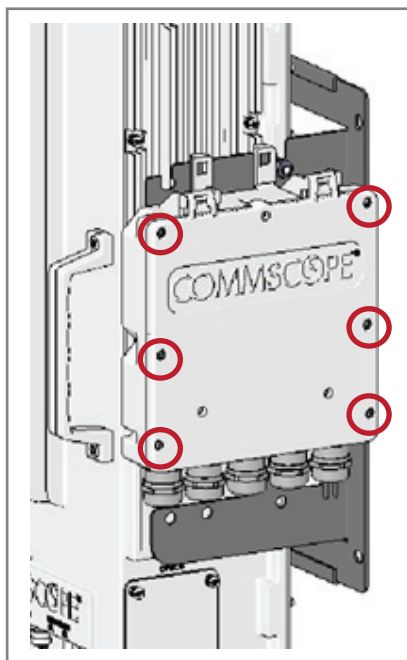Follow the procedure that is appropriate for this installation:

Attaching a Hybrid Fiber Splice Box for a Single Mount Installation

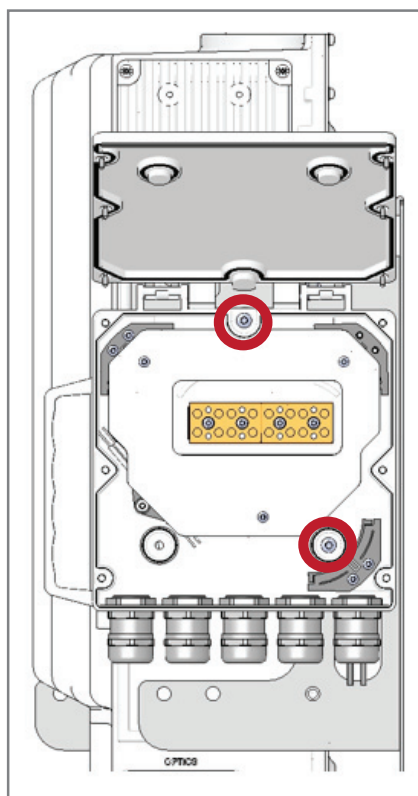1   Hang the Splice Box onto the Single Mounting Bracket on the right-hand side of the CAP M, as shown below.
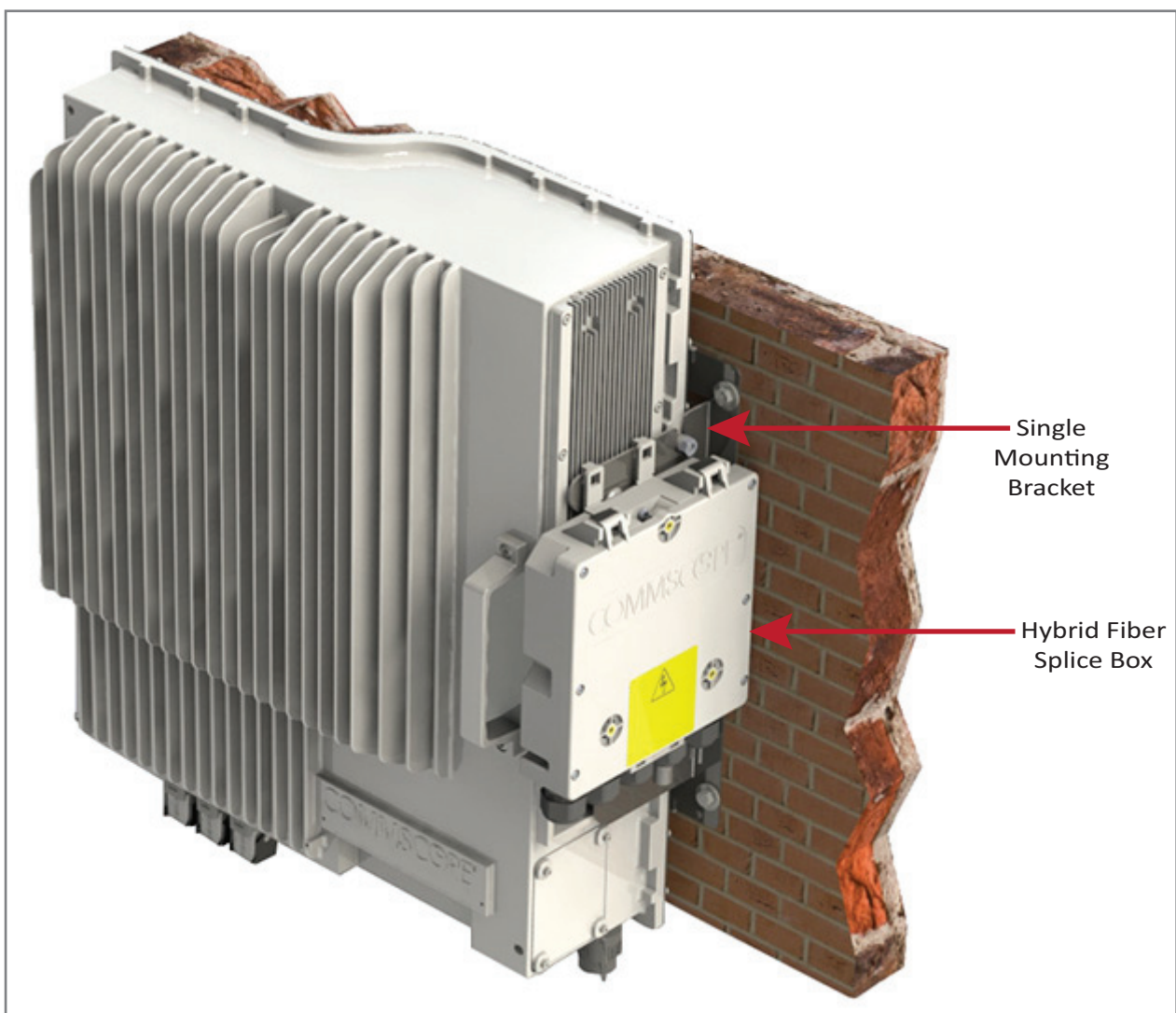
2 Remove the six neck screws (shown below) from the front cover of the Splice Box.
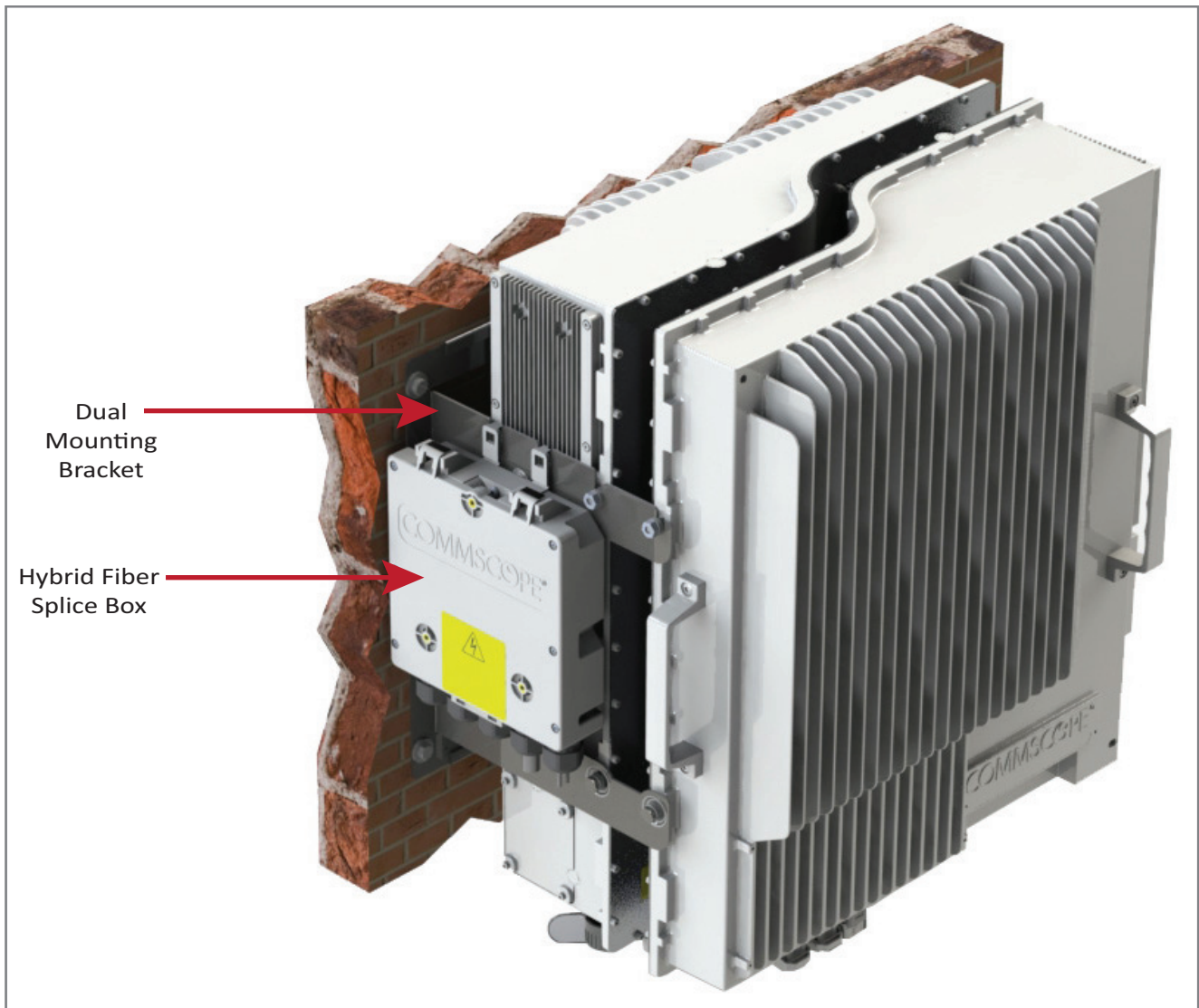

3 Open the Splice Box.

4 Attach an M4 x 25 pan-head screw to the upper hole, and a second M4 x 25 pan-head to the hole on the lower, right-hand side of the Splice Box.
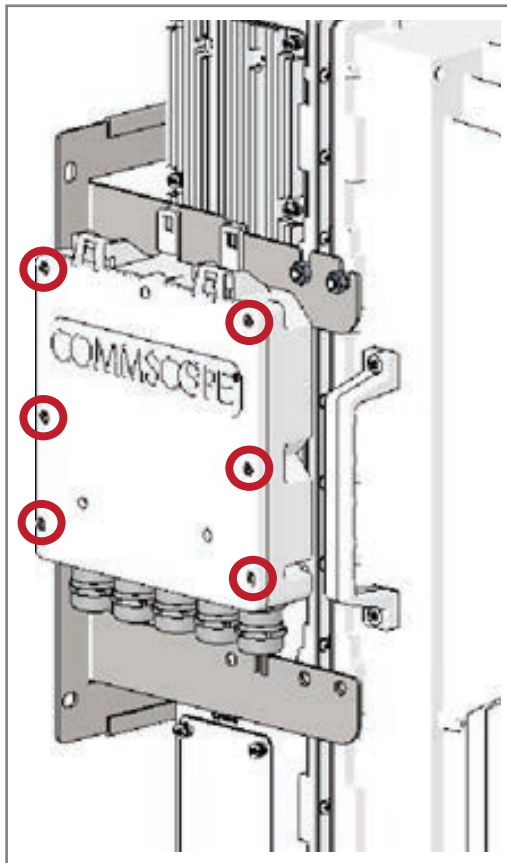

5 Close the Splice Box.

6 Replace the six neck screws that you removed from the front cover of the Splice Box in Step 2 on page 53.

7 Go to "Grounding the CAP M" on page 56.

## Attaching a Hybrid Fiber Splice Box for a Dual Mount Installation

1   Break the left-hand side hook of the Splice Box bracket. This is necessary for proper mounting.

2   Hang the Splice Box onto the Dual Mounting Bracket on the left-hand side of the CAP M, as shown below.

3   Remove the six neck screws (shown below) from the front cover of the Splice Box.

4   Open the Splice Box.

5   Attach an M4 x 25 pan-head screw to the upper hole, and a second M4 x 25 pan-head to the hole on the lower, left-hand side (shown at right) of the Splice Box.

6   Close the Splice Box.

7   Replace the six neck screws that you removed from the front cover of the Splice Box in Step 3 on page 55.

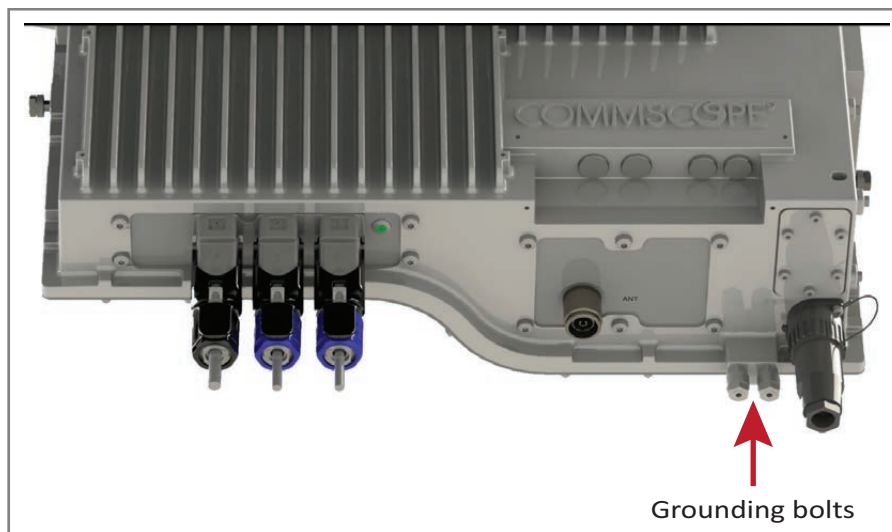**8**   Go to "Grounding the CAP M" on page 56.
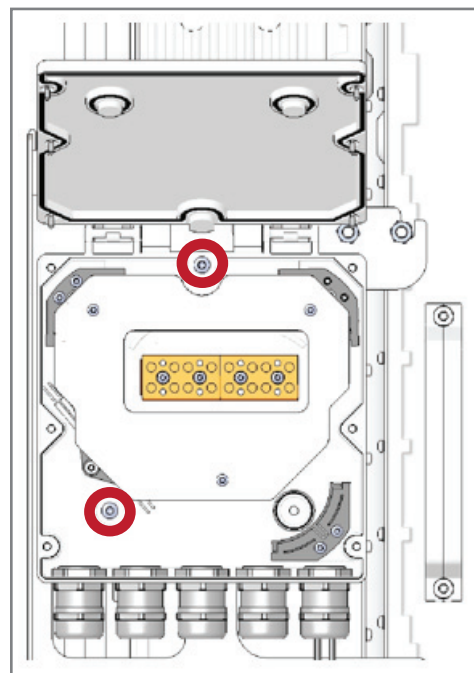
Grounding the CAP M

⚠️ **The CAP M must be grounded.**

⚠️ **Do not use the grounding bolts to connect an external device.**

1   Connect an earth-bonding cable to the grounding bolt connections on the outside of the CAP M chassis, as shown below.

Grounding bolts

2   Loosen the M6 hex nut(s), and then connect the earth-bonding cable between the two washers as shown to the right.

3   Secure the earth-bonding cable by tightening the M6hex nut(s) that you loosened in the preceding step.

4   Connect the other end of the earth-bonding cable to a suitable permanent ground per local electrical code practices.

5   Follow the steps in .

Plain washers
Locking ring
M6 hex nut
M6 hex nut
Earth-Bounding cable
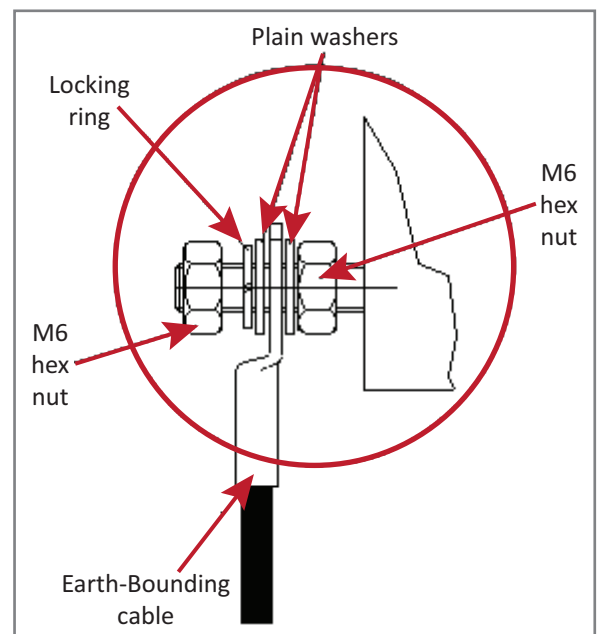
Connect the CAP M Cables

Complete the following procedures in the order in which they are presented. Unless otherwise noted, each procedure is applicable to a singular CAP M (not in a cascade), or to a Primary or Secondary CAP M in a cascade.

- "Obtain the Required Cable Material" on page 57
- "Connect the CAP M to an RF Antenna" on page 58
- "Connect the CAP M to a Classic CAN or TEN" on page 62
- "Connect a Secondary CAP M (Optional)" on page 62
- "Connect an External Ethernet Device (Optional)" on page 62.

⚠️ **Do not remove protective caps from any of the connectors until instructed to do so.**

Obtain the Required Cable Material

Contact your local CommScope sales representative to obtain the following components, as required, for this installation.

- Per the installation plan, obtain either Single Mode Fiber (SMF) or Multi Mode Fiber (MMF) that is of sufficient length to reach from the CAP M to the Classic CAN or TEN.

- Obtain at least one Optical OCTIS Kit (PN 7770612). All installations require one Optical OCTIS Kit, which is included in the CAP M shipment. If cascading a Secondary CAP M, a second Optical OCTIS Kit is required.

- Obtain SFP+ Module pairs that are appropriate for this installation. Table 12 identifies the available SFP+ Modules and the maximum range for each.

Table 12. Supported SFP+ Modules

CommScope PN	Description	Maximum Range	
7660511	SFP+, 10GBase-SR, Multi Mode	OM3 300m	OM4 400m
7680813	SFP+, 10GBase-LR, Single Mode	10km	
7803247	SFP+, 10GBase CWDM-270	40km	
7803249	SFP+, 10GBase CWDM-290	40km	
7803291	SFP+, 10GBase CWDM-310	40km	
7803293	SFP+, 10GBase CWDM-330	40km	
7803295	SFP+, 10GBase CWDM-350	40km	
7803298	SFP+, 10GBase CWDM-370	40km	
7803900	SFP+, 10GBase CWDM-390	40km	
7803902	SFP+, 10GBase CWDM-410	40km	
7803904	SFP+, 10GBase CWDM-430	40km	
7803906	SFP+, 10GBase CWDM-450	40km	
7801330	SFP+, 10GBase CWDM-470	40km	
7801340	SFP+, 10GBase CWDM-490	40km	
7801342	SFP+, 10GBase CWDM-510	40km	

Table 12. Supported SFP+ Modules

CommScope PN	Description	Maximum Range
7801344	SFP+, 10GBase CWDM-530	40km
7801360	SFP+, 10GBase CWDM-550	40km
7801363	SFP+, 10GBase CWDM-570	40km
7801365	SFP+, 10GBase CWDM-590	40km
7801367	SFP+, 10GBase CWDM-610	40km
7832204	SFP+, 10G BIDI TX1270/RX1330	40km
7832206	SFP+, 10G BIDI TX1330/RX1270	40km

- If connecting an external Ethernet device such as WiFi or IP camera, an Ethernet OCTIS Kit (PN 7760652) and appropriate CAT cable for the device.

Connect the CAP M to an RF Antenna

The following sections guide you through connecting the CAP M; complete these procedures in the order in which they are presented.

-
- .

Clean the RF Cable Connectors

This section tells you how to clean RF cable connectors. The graphics in this section illustrate the cleaning procedure and do not show the CAP M.

⚠️ **This procedure requires the use of compressed air. Wear protective clothing—especially protective glasses—to protect against injury from flying particles.**

🔥 **This procedure requires the use of flammable material. There is a risk of fire. Keep away from sources of ignition.**

⚠️ **This procedure requires the use of eye irritant product. There is a risk of eye irritation. Avoid contact with eyes and skin. Wear protective clothing—especially protective glasses.**
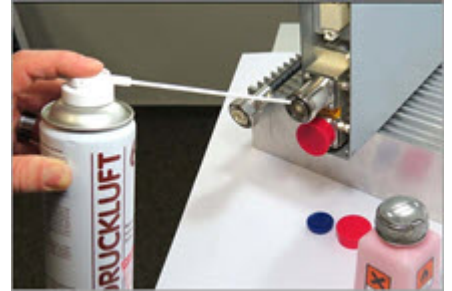
Do the following to clean the RF cable connectors.

1   Gather the following cleaning tools:

   - Isopropyl alcohol

   - Compressed air

   - Lint-free wipe

   - Cotton buds.

2   Remove the protective cap from the RF connector.
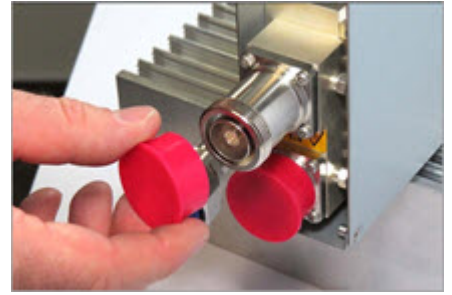
3   Use compressed air to remove metal chips and small particles from the mating and inner surfaces of the connector.
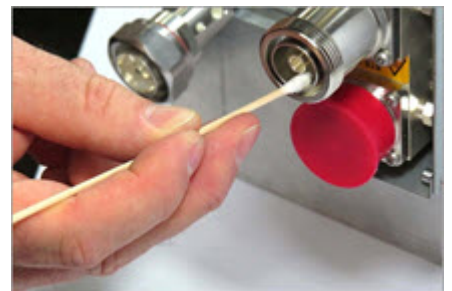

4   Use a lint-free wipe drenched with isopropyl alcohol to clean the connector winding.
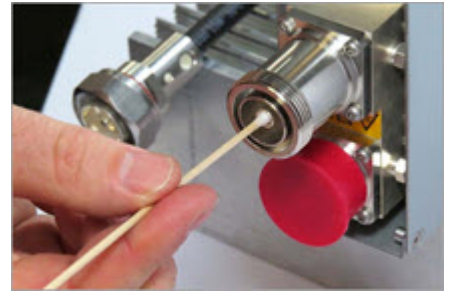

5   Use a cotton bud drenched with isopropyl alcohol to clean the lip of the inner ring.
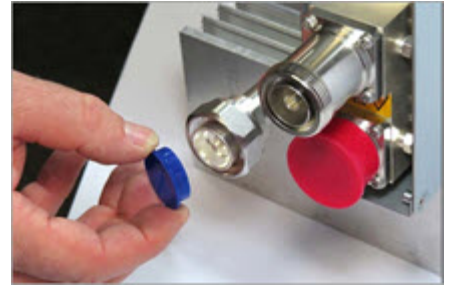

6   Use a cotton bud drenched with isopropyl alcohol to clean the inside surface of the inner ring.

7 Use a cotton bud drenched with isopropyl alcohol to clean the inside of the center conductor spring tines.

8 Remove the protective caps from the unit connector, and then clean it the same way that you cleaned the cable connector.

9 Use compressed air to remove metal chips and small particles from the mating and inner surfaces of the connector.

10 Use a lint-free wipe drenched with isopropyl alcohol to clean the winding area.

11 Use a cotton bud drenched with isopropyl alcohol to clean the inside mating surface of the inner ring.

12 Use a cotton bud drenched with isopropyl alcohol to clean the outside surface of the center pin.

Connect the Antenna Cable(s)

The following information regarding antenna mapping and is relevant to all CAP M variants.

- For Non-MIMO bands, there is no channel mapping option for the transceiver/antenna port. The transceiver/antenna port relationship is fixed in hardware.

- For MIMO bands, the ERA GUI maps MIMO channels according to their AP designation:

  – AP0 to antenna port ANT1

  – AP1 to antenna port ANT2.

- When using SISO channels on a CAP M that supports MIMO, the system will automatically balance the number of channels between the two antenna ports, where the first SISO channel is mapped to ANT1, the second SISO channel is mapped to ANT2, and so on.

Do the following to connect the antenna cables:

1 Obtain 50Ω coaxial cables that are of sufficient length to reach from the CAP M to the passive antenna. The end of the 50Ω coaxial cable that will connect to the ANT or ANT1 connector can be either a push-pull connector or a threaded connector.

2 Install the passive antennas per the manufacturer's installation instructions. For MIMO CAP M, if connecting both ANT connectors, you will connect the CAP M to either two separate external passive antennas or to two ports on a cross-polarized dual antenna. Each connector supports two RF bands. Use Table 13 to determine how to connect to the antenna correctly for each CAP M variation.

Table 13. Mapping CAP M Models to Antennas

Part Number	Model Name	ANT or ANT 1	ANT 2
7781125-000x	CAP M 9/18/21/26	9/18/21/26	Not Applicable
7820478-000x	CAP M 7E/80-85/17E/19	7E/80-85/17E/19	Not Applicable
7840984-000x	CAP M 80-85/17E/19/26	80-85/17E/19/26	Not Applicable
7820689-000x	CAP M 23/23/25/25	23/25 (MAIN)	23/25 (MIMO)
7835269-000x	CAP M 6/6/7E/7E	6/7E (MAIN)	6/7E (MIMO)
7833597-000x	CAP M 8/18/21/26	8 /18 / 21 / 26	Not Applicable

3 Remove the IP67/EMI blank plug from the ANT connector.

4 Connect the passive multi-band antenna to the ANT connector using coaxial cable with the least amount of loss possible.

- If the 50Ω coaxial cable has a push-pull connector, make sure the cable is seated firmly in the ANT connector.

- If the 50Ω coaxial cable has a threaded connector, torque the connector 5 N-m (3.69 ft-lb). Do not over-tighten the connector.

5 Connect the other end of the 50Ω coaxial cable to the passive antenna installed in Step 2.

6 For a MIMO installation, repeat Step 1 through Step 5 to connect an antenna cable to ANT2.

Connect the CAP M to a Classic CAN or TEN

Connect the CAP M Optical Port 1 as appropriate for this installation. Note the maximum range listed in Table 12.

1 Remove the dust cap from the CAP M Optical Port 1 connector and the connectors on the SMF or MMF.

2 Follow the local cleaning technique to clean the optical port for each SFP+ Module.

3 Clean the connectors on the SMF or MMF following the fiber supplier's recommendations.

4 Install the SFP+ connector and Optical OCTIS Kit on the end of the SMF or MMF that will connect to the CAP M, and then connect that end of the fiber to the CAP M Optical Port 1 connector. (Refer to the technical data sheet that ships with the OCTIS Kit for further information.)

5 Use the other SFP+ Module to connect the other end of the SMF or MMF to an open port on the OPT Card.

> **If installing a CAP M with a Hybrid Fiber Splice Box (PN 7693816-xx), the optical fiber will be hanging from the Splice Box.**

Connect a Secondary CAP M (Optional)

If appropriate for this installation, connect the Optical Port 2 connector. Note the maximum range listed in Table 12 on page 57.

1 Raise the lever on the EMI/IP67 cap on Optical Port 2 connector and remove the cap.

2 Remove the caps from the connectors on the SMF or MMF.

3 Follow the local cleaning technique to clean the optical port for each SFP+ Module.

4 Clean the connectors on the SMF or MMF following the fiber supplier's recommendations.

5 Install the SFP+ and Optical OCTIS Kit on the end of the fiber that will connect to the CAP M and connect that end of the SMF or MMF to the CAP M Optical Port 2 connector. (Refer to the technical data sheet that ships with the OCTIS Kit for further information.)

6 Use another OCTIS Kit and the other SFP+ Module to connect the other end of the SMF or MMF to Optical Port 1 on the cascaded CAP M.

Connect an External Ethernet Device (Optional)

> ⚠️ **If you are not connecting an Ethernet device, do not remove the plug from Port A.**

If connecting an Ethernet device to a cascaded pair, this must be the Primary Fiber CAP M.

1 Read and follow the rules in "Cat6A Cable Requirements for Ethernet Devices" on page 22.

2 Raise the lever on the EMI/IP67 cap on the Port A connector, and then remove the connector's plug.

3 Follow the local cleaning technique to clean Port A.

4 Install an Ethernet OCTIS Kit on the end of the CAT cable that will connect to the Fiber CAP M, and then connect that end of the cable to Port A on the Fiber CAP M. (Refer to the technical data sheet that ships with the OCTIS Kit for further information.)

> ⚠️ **Cat6A, including all Cat6A cables, Cat6A Patch Cords, and Patch Panels, between Port A on the Fiber CAP M and an auxiliary Ethernet device cannot exceed 3 meters (9.8 feet).**

5 Connect the other end of the CAT cable to the Ethernet port of the auxiliary device.

6 Go to .

Power the CAP M

> ⚡ **The CAP M is powered on as soon as power is connected to it. The CAP M must therefore be grounded before you connect any electrical power to it. If you have not completed the steps in "Grounding the CAP M" on page 56, stop and do so before proceeding.**

> ⚡ **CAP M APs require a minimum 120 Volt / 15 Amp or 240 Volt / 13 Amp, single-phase, 50 / 60 Hz AC service. MAINS power must be interruptible with an external delay-actions mains breaker. CommScope recommends external AC breakers capable of at least 15 Amps maximum for 120-Volt service or at least 13 Amps for 240-Volt service. One type B breaker can support up to two CAP M units, and a type C breaker can support up to four CAP M units.**

> ⚡ **For the AC power supply connection, a minimum cross section of 1.5 mm2 is required and for the DC power supply connection, a minimum cross section of 2.5 mm2 is required. Each wire must observe the applicable local regulations regarding loop impedance, voltage drop, and methods of installation. Make sure to connect the correct voltage to the CAP M.**

For the CAP M to operate, the Mains power must be connected to the CAP M Mains connector. Either an AC or a DC power cable is delivered with each CAP M—the type of power cable delivered is dependent on the type of power supply in the CAP M.

CAP M AC Power Cable

The AC power cable is a 3.2 m (10.5 ft) 16 AWG cable with a 4-pin Amphenol C016 series plug on one end to connect to the CAP M Mains connector. The other end of the cable is unterminated with 3 end splices to connect to the AC power source. A 10 m (33.7 ft) AC power cable is also available as an option. The AC power cable is shown in Figure 22.
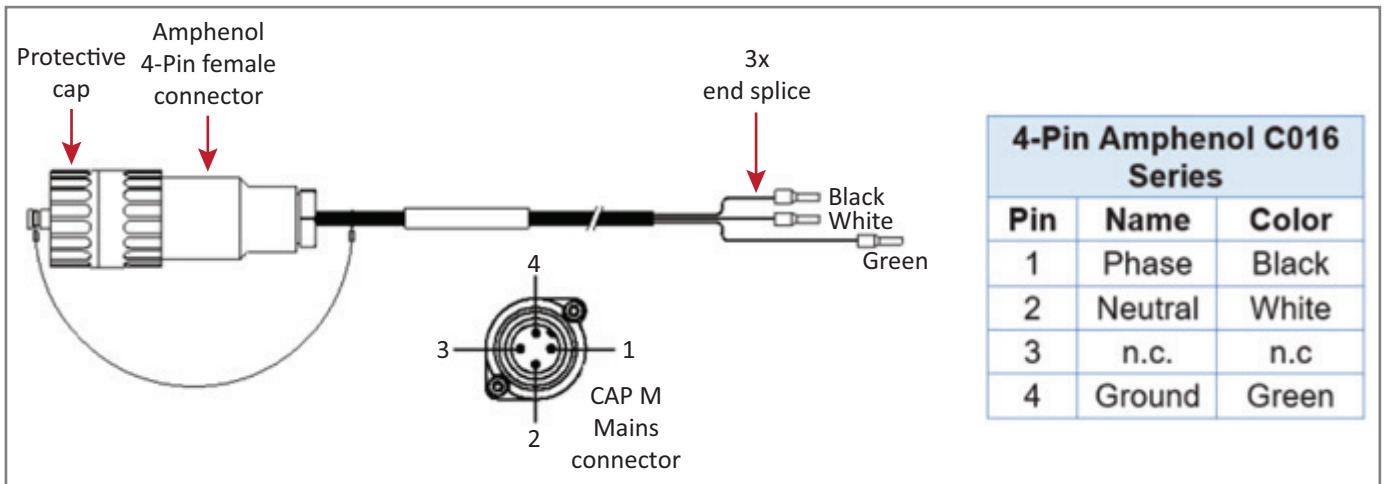
Figure 22. CAP M AC Power Cable

CAP M DC Power Cable

The standard CAP M DC power cable is a 3.2 m (10.5 ft) 13 AWG cable with a 4-pin Amphenol C016 series plug on one end to connect to the CAP M Mains connector. The other end of the cable is unterminated with 2 end splices to connect to the -48 Vdc power source. The standard DC power cable is shown in Figure 23.
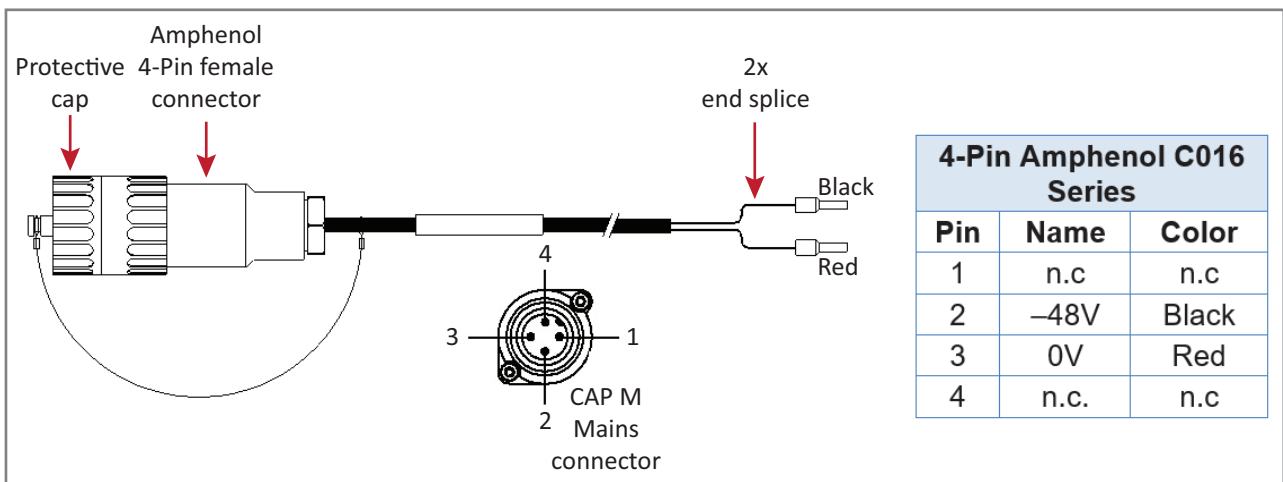

Figure 23. CAP M DC Power Cable

Connect the CAP M Power

⚠️ **Do not connect or disconnect the power cable at the Mains connector while power is on. Turn off Mains power before connecting the power cable at the unit, then, engage mains power again.**

Connect the Power connector as appropriate for this installation:

- "Connect the Mains Power to the CAP M" on page 65
- "Connect a Hybrid Fiber Splice Box" on page 66.

Connect the Mains Power to the CAP M

1 Locate the Mains power cable that was delivered with the CAP M.

2 Locate or install a suitable power junction box or receptacle near the unit and route the power cable from the power source to the CAP M.

⚠️ **Do not connect the cable to the unit's Mains connector at this time. The power source must be interruptible.**

⚠️ **The Mains cable must be properly secured observing local regulations and electrical codes. Be sure to allow enough slack in the cable at the CAP M to plug or unplug the cable into the Mains connector.**

3 Dependent on the type of power supply used by the unit, wire the power cable to the junction box or receptacle. Refer to the color code and pin numbers shown in:

- Figure 22 on page 64 for the AC power cable
- Figure 23 on page 64 for the DC power cable.

4 With the cable's Mains plug disconnected from the CAP M, turn the circuit breaker on, unscrew the plug's protective cover, and carefully test the plug with a voltmeter to ensure that the voltage and polarity are correct.

5 Once the testing has been completed, turn off the circuit breaker.

6 Unscrew the protective cover from the Mains connector of the unit.

7 Insert the AC or DC power cable into the Mains connector as shown below; tighten the clamping ring until it is hand tight. Do not over-tighten the clamping ring.

Mains connector

Clamping ring

Mains plug
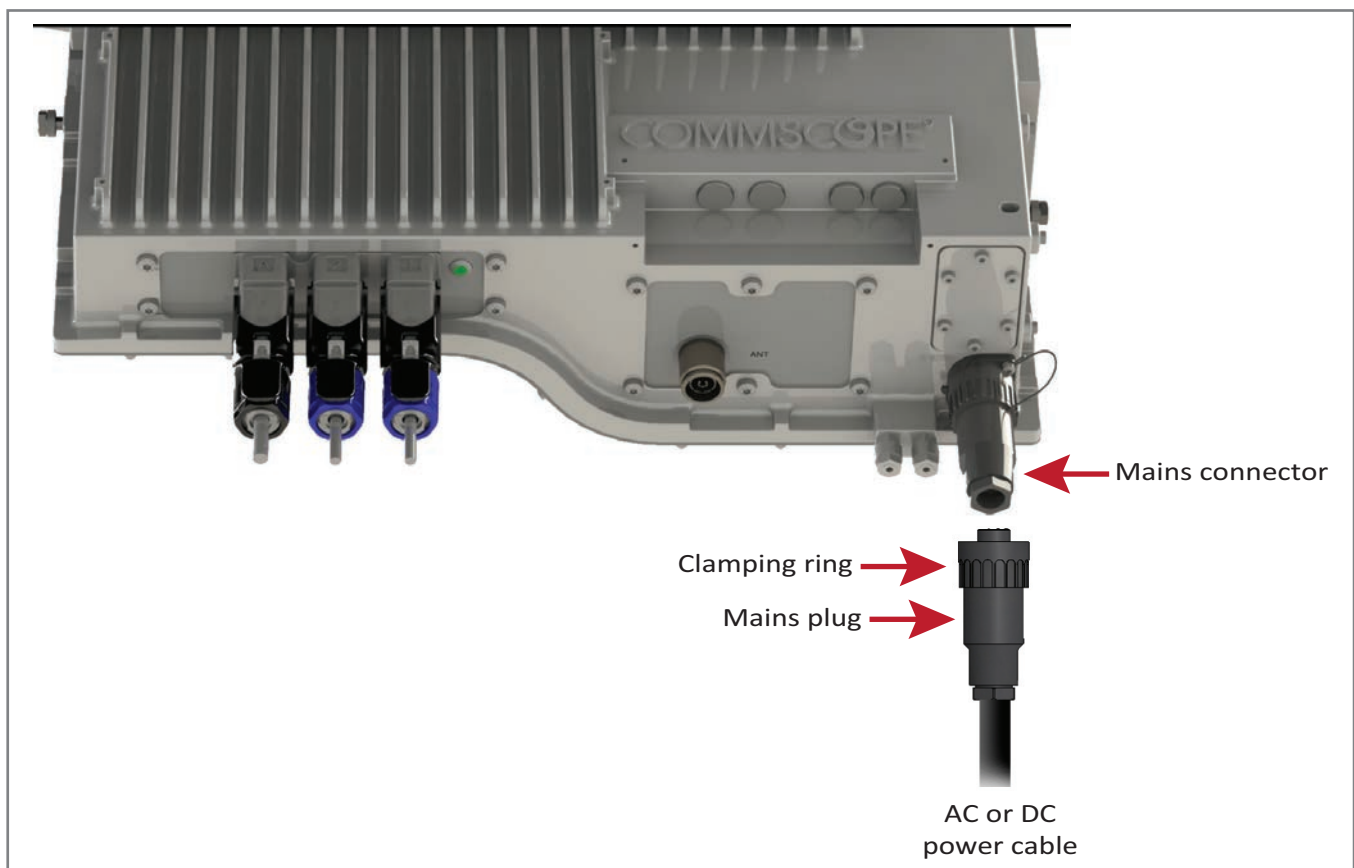
AC or DC power cable

Connect a Hybrid Fiber Splice Box

For a CAP M powered by the Hybrid Fiber Splice Box (PN 7693816-xx):

- connect the power cable to the proprietary 4-pin, 36 to 60 Vdc Power connector on the CAP M, and terminate the other end to the CAP M Hybrid Fiber Splice Box.

- Install an SFP+ module of the desired type (same as used at the OPT Card port) into the OCTIS connector before connecting the LC Fiber pigtail.

- connect the LC Fiber Pigtail to the supplied OCTIS connector and splice the other end of the fiber pigtail inside the locally-mounted CAP M Hybrid Fiber Splice Box. The LC Fiber Pigtail, which is not included with the Fiber Splice Box for the CAP M must be obtained separately.

Power the CAP M

The CAP M is powered on as soon as power is connected to it. Under normal operating conditions, the Power LED turns on briefly when the unit is first detected. It will then go out briefly, followed by an initialization period during which the Power LED flashes slowly while the CAP M is configured. The Power LED remains a steady green (not flashing) once the unit reaches a fully operational state, which typically occurs within 45 seconds.

CAP M Power LED behavior is as follows:

- Off—CAP M is not powered on.

- Initial flash on then off—CAP M is powered on and the fiber cable is not connected to a CAN/TEN.

- Steady green—CAP M is powered on and operational with the fiber cable connected to a CAN/TEN.

- Slow flashing green—CAP M is powered on and initializing.

- Rapid flashing green—CAP M Unit Identifier active via the **Flash LED** function in the ERA GUI.

REPLACING THE POWER SUPPLY UNIT (PSU)

If the PSU fails, you can replace the module at the site. There are two PSU types, VAC and VDC.

Table 14. PSU Part Numbers

PSU Part Number	Description	CAP M Model Name
7772503-00	PSU, VAC in / 28Vdc out	7835269-000x CAP M 6/6/7E/7E
7841092-00	PSU, VDC in / 28Vdc out	7835269-000x CAP M 6/6/7E/7E
7658962-01	VAC in / 31.5Vdc out	7781125-000x CAP M 9/18/21/26
		7820478-000x CAP M 7E/80-85/17E/19
		7820689-000x CAP M 23/23/25/25
		7833597-000x CAP M 8/18/21/26
		7840984-000x CAP M 80-85/17E/19/26
7823360-00	VDC in / 31.5Vdc out	7781125-000x CAP M 9/18/21/26
		7820478-000x CAP M 7E/80-85/17E/19
		7820689-000x CAP M 23/23/25/25
		7833597-000x CAP M 8/18/21/26
		7840984-000x CAP M 80-85/17E/19/26

Attention: Before starting any maintenance on the CAP M, read and observe the health and safety information in the "Safely Working with ERA Hardware" on page 15, "Mount the CAP M" on page 33, and the "Power the CAP M" on page 63 sections.

Danger: Electrical hazard. Danger of death or fatal injury from electrical current inside the unit in operation. Before opening the unit, disconnect mains power.

Caution: The unit reaches high temperature in operation. Risk of burns by hot surface. Do not touch the unit before it has sufficiently cooled down.

Replacing the VAC PSU

1   Switch off the circuit breaker supplying power to the CAP M.

2   Once you have confirmed that the power has been shut down, remove Mains power connector from the unit.

3   Disconnect all remaining cables from the CAP M VAC device.

4   Unmount the CAP M VAC device. Reverse the steps in "Mount the CAP M" on page 33.

5   Place the device on a bench or table with the connectors on the right. The PSU will be in front.

6 Loosen the eight Torx T-10 screws on the PSU. The weight of the power supply must be supported as you loosen the screws to prevent damage to the supply.


7 Remove the PSU from the housing, being careful not to damage the wires. Do not attempt to support the weight of the supply with the attached input and output cables. Due to the short length of the cables, once the top of the PSU is clear of the housing, angle it downward to remove it.
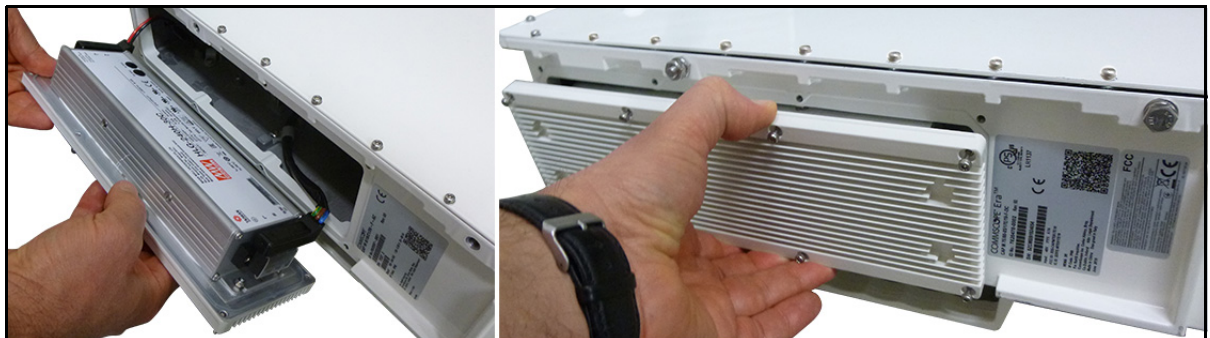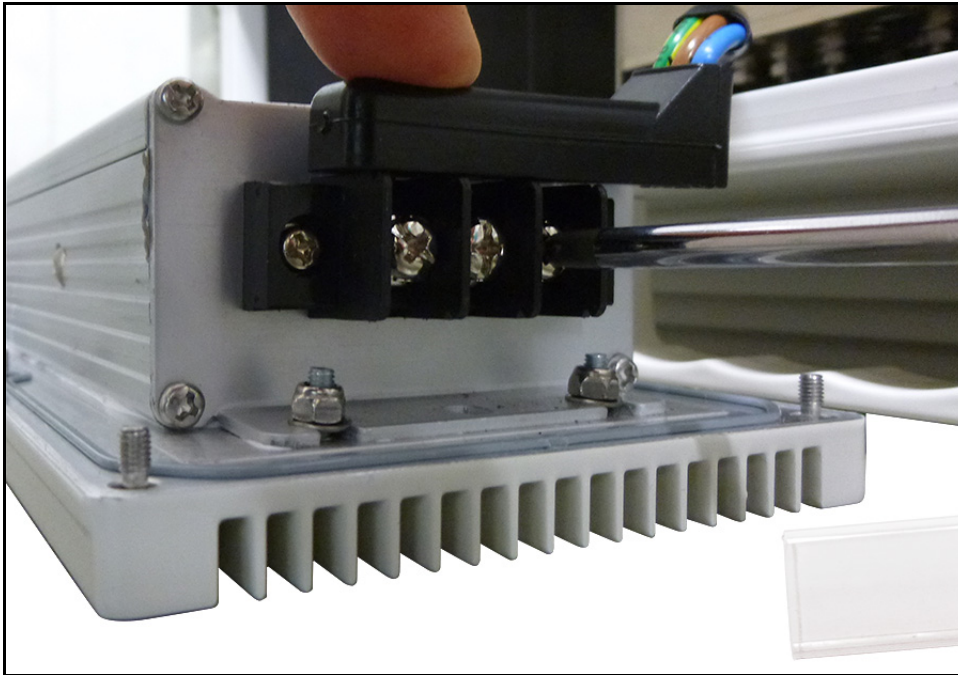
8 Place the PSU in the bench.

9 Remove the plastic connector guards that cover the connector blocks on either side of the PSU and set aside. You will need these later.
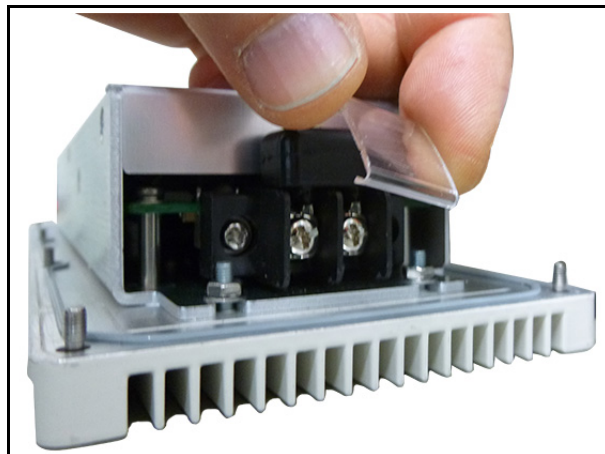
10 Loosen the 3 Phillips head terminal screws for the Input connector and pull the connector upward to remove it.

11 Loosen two Phillips head terminal screws for the Output connector and pull the connector upward to remove it. Set aside the PSU for return to CommScope.
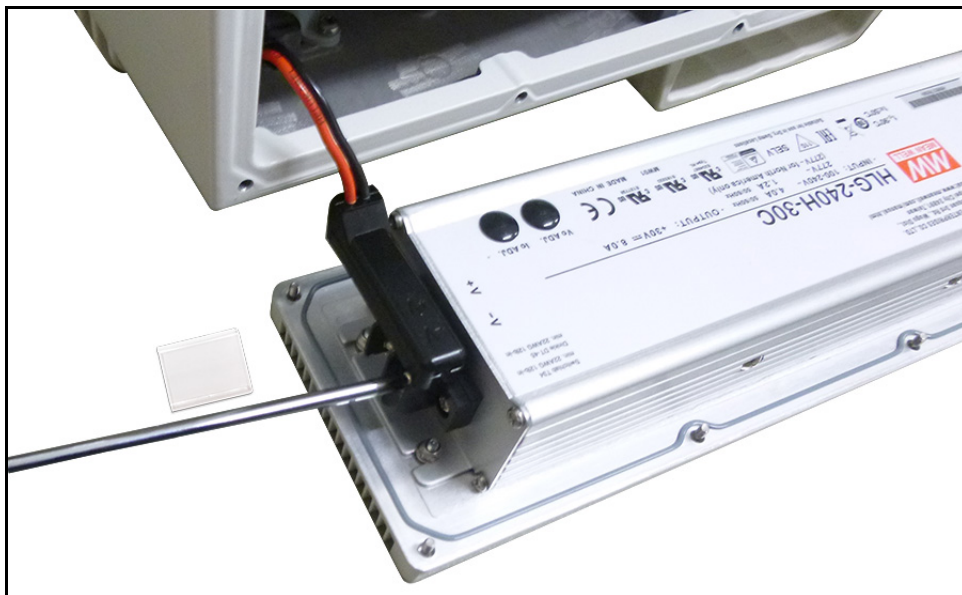
12 Place the replacement PSU next the CAP M with the two DC terminals on the left side and the three AC terminals on the right side. It is very important to confirm that the replacement supply is the same type as the original defective supply. The AC and DC supplies are not interchangeable.

CAUTION! **Make sure the product label is upside down, the +30 VDC label is on the left and the VAC input is on the right as shown in the picture below. Failure to follow this orientation may cause damage to the PSU.**


13 Reconnect the input and output connectors and tighten the associated terminal screws.

CAUTION! **The connector pins are to the side of the screws farthest from the CAP M housing for both connectors. These must be reassembled in the same location. Failure to follow this instruction may result in damaged connectors.**
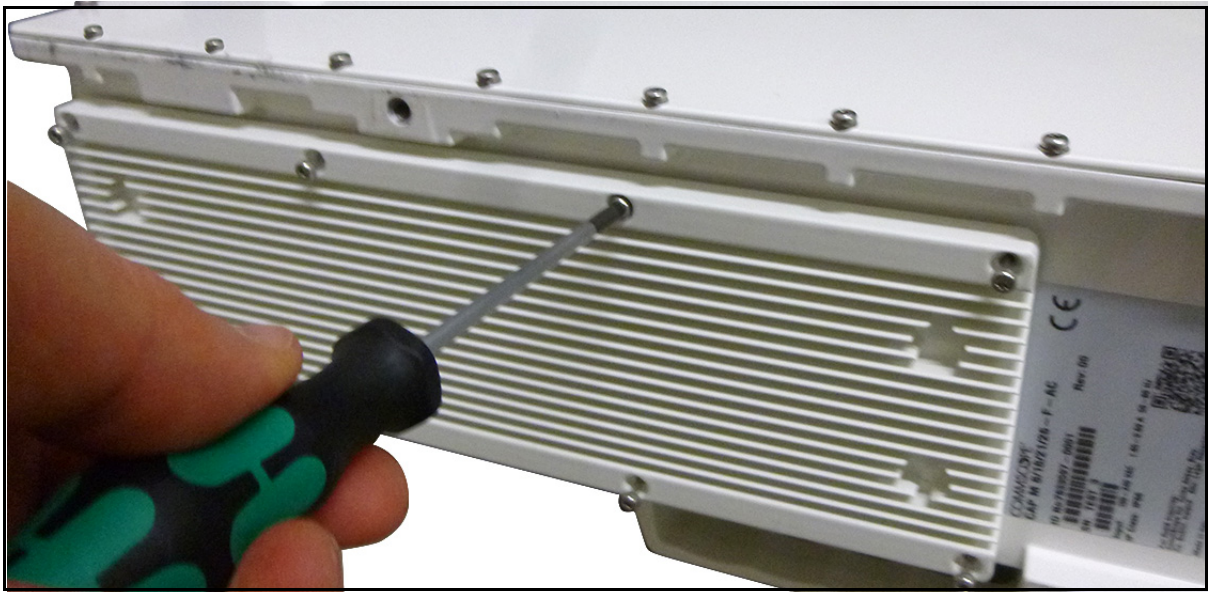

14 Place the plastic guard over both connectors.
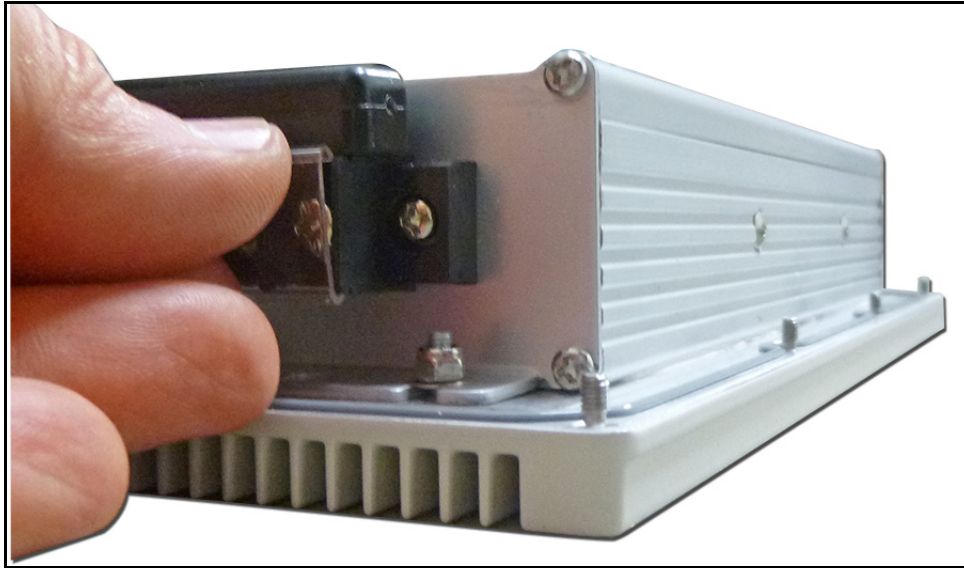
15 Place the PSU into the housing, being careful not to pinch the wires. The supply must be supported until the eight captive power supply Torx T-10 screws have been tightened.
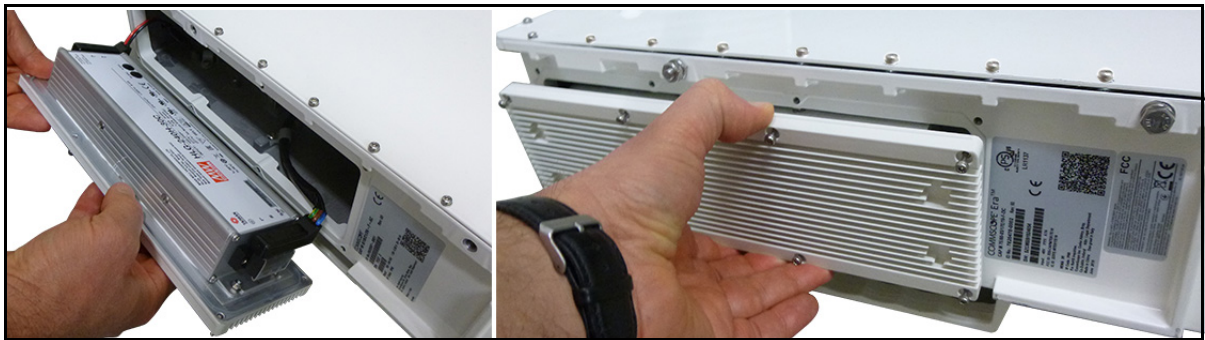
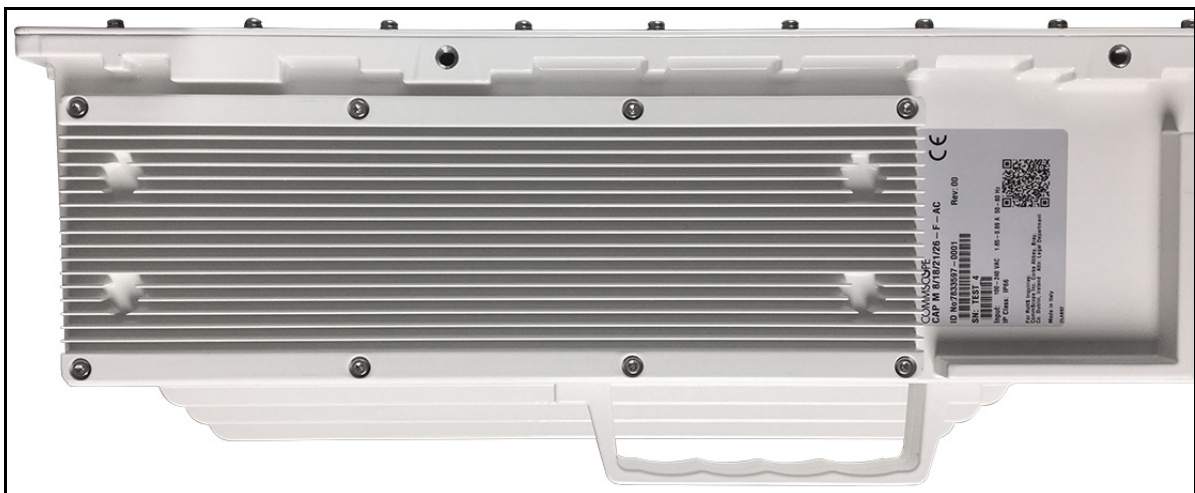**16** Tighten the eight Torx T-10 screws. The Torque value is 0.82Nm (7 inch pounds).

17 Remount the CAP M. See "Mount the CAP M" on page 33.

18 Reconnect the cables to the CAP M. See "Connect the CAP M Cables" on page 57.

19 Switch on the Mains power and check the CAP M for proper operation.

The green LED starts flashing slowly as the CAP M initializes and then turns steady when initialization is complete.

Replacing the VDC PSU

1 Switch off the circuit breaker supplying power to the CAP M.

2 Once you have confirmed that the power has been shut down, remove Mains power connector from the unit.

3 Disconnect all remaining cables from the CAP M VAC device.

4 Unmount the CAP M device. Reverse the steps in "Mount the CAP M" on page 33.

**5** Place the device on a bench or table with the connectors on the right. The PSU will be in front.

6   Loosen the eight Torx T-10 screws on the PSU. The weight of the power supply must be supported as you loosen the screws to prevent damage to the supply.


7   Remove the PSU from the housing, being careful not to damage the wires. Do not attempt to support the weight of the supply with the attached input and output cables. Due to the short length of the cables, once the top of the PSU is clear of the housing, angle it downward to remove it.
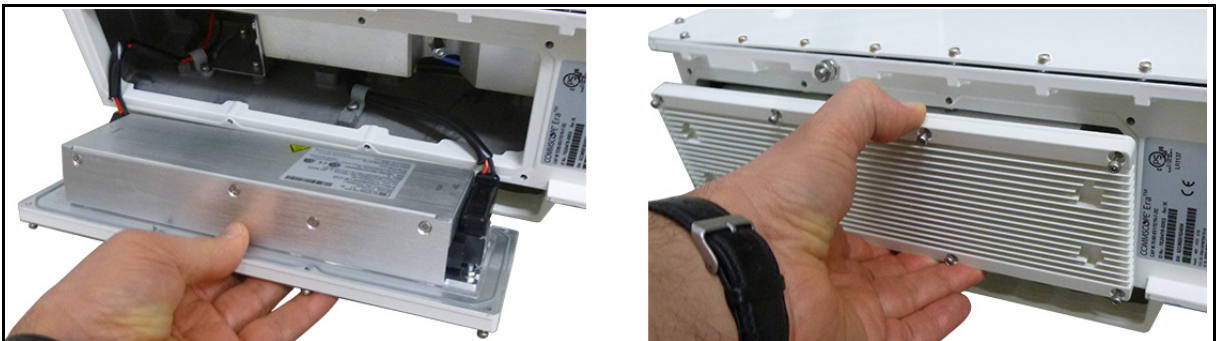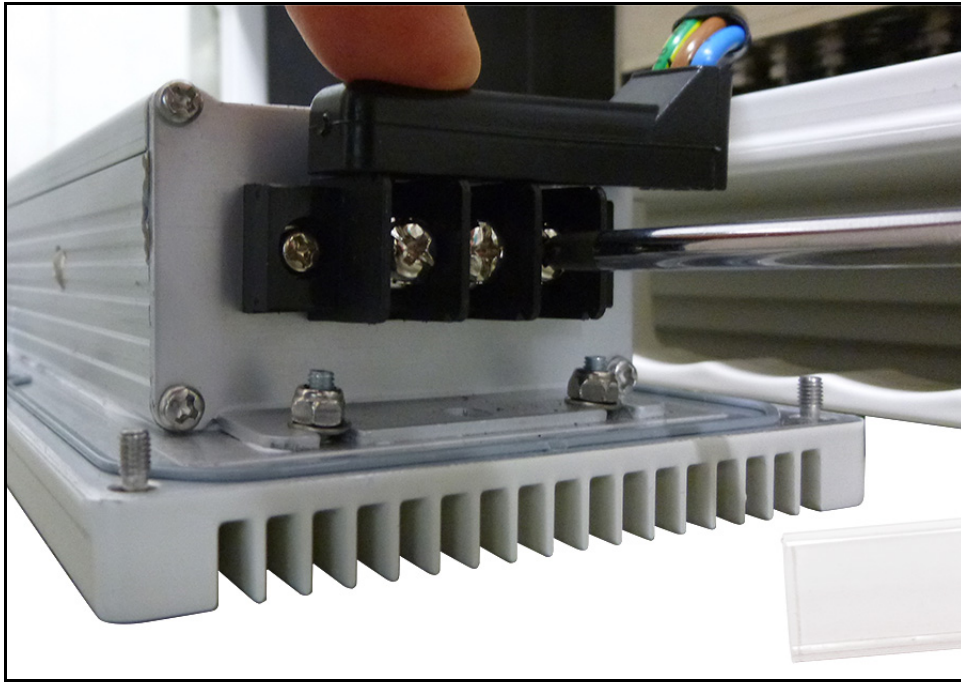

8   Place the PSU on the bench.
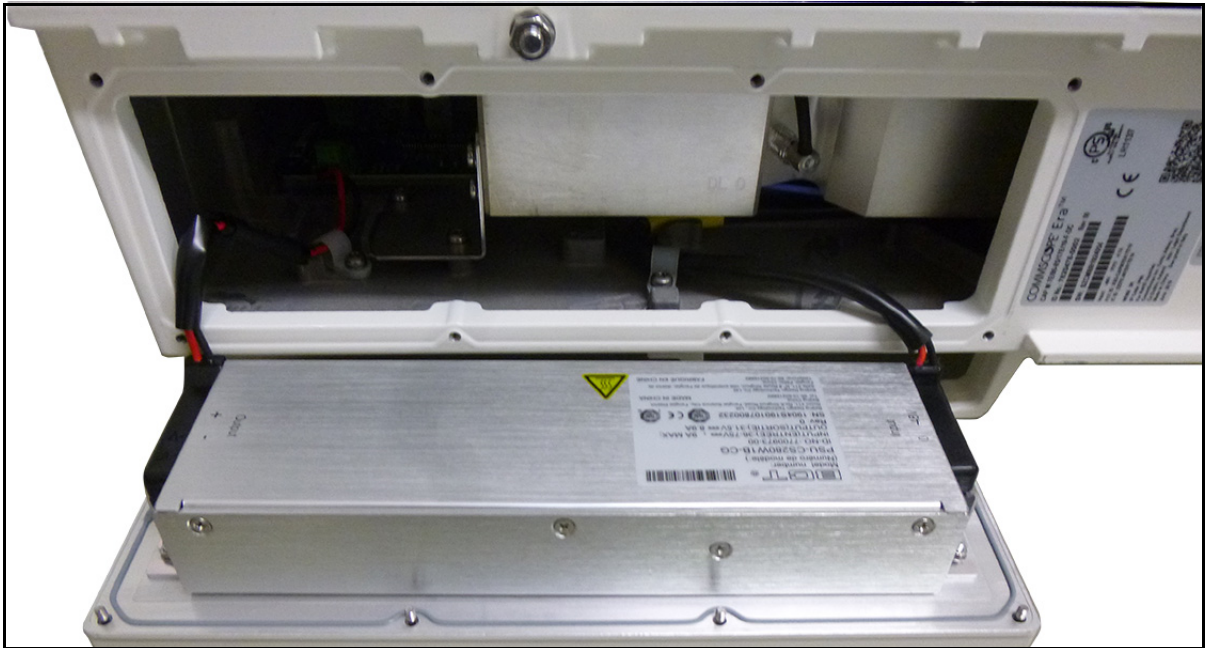
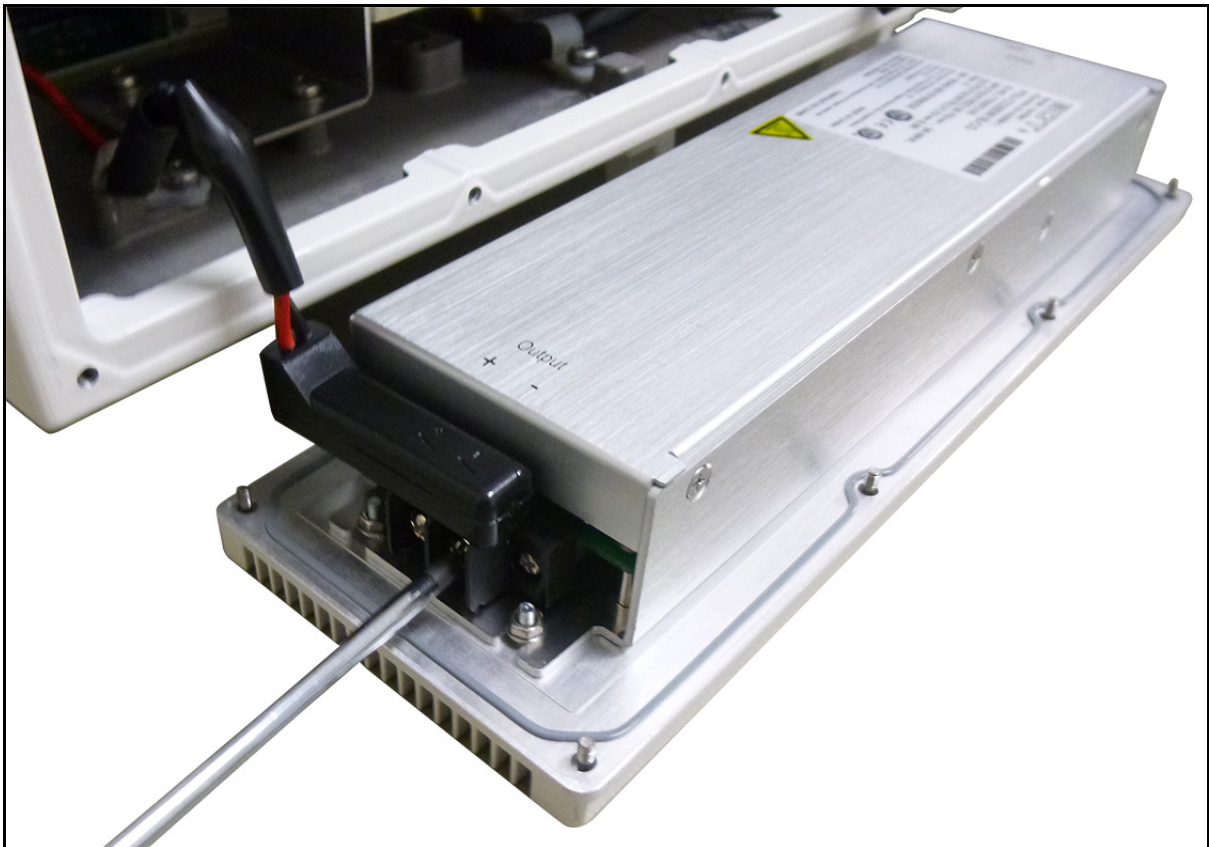**9** Remove the plastic guards from both connectors and set aside. You will need these later.
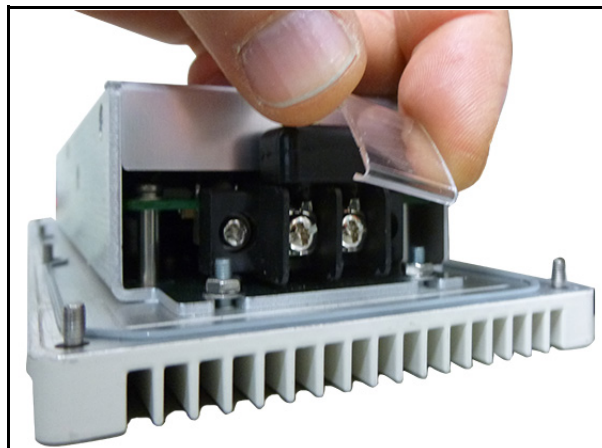
10 Loosen the 3 Phillips head terminal screws for the Input connector and pull the connector upward to remove it.

11 Loosen two Phillips head terminal screws for the Output connector and pull the connector upward to remove it. Set aside the PSU for return to CommScope.


12 Place the replacement PSU next the CAP M with the two DC terminals on the left side and the three AC terminals on the right side. It is very important to confirm that the replacement supply is the same type as the original defective supply. The AC and DC supplies are not interchangeable.

CAUTION! Make sure the product label is upside down, the +35.5 VDC label is on the left and the -48 VDC is on the right.


13 Reconnect the input and output connectors and tighten the associated terminal screws.

CAUTION! The connector pins are to the side of the screws farthest from the CAP M housing for both connectors. These must be reassembled in the same location. Failure to follow this instruction may result in damaged connectors.
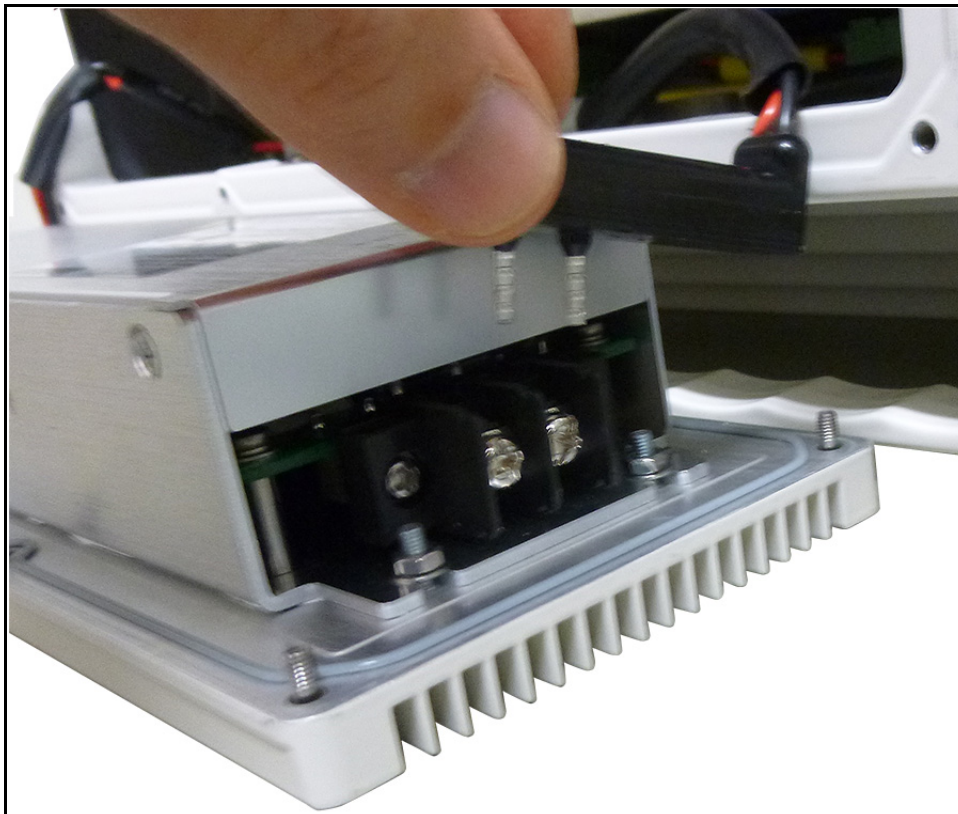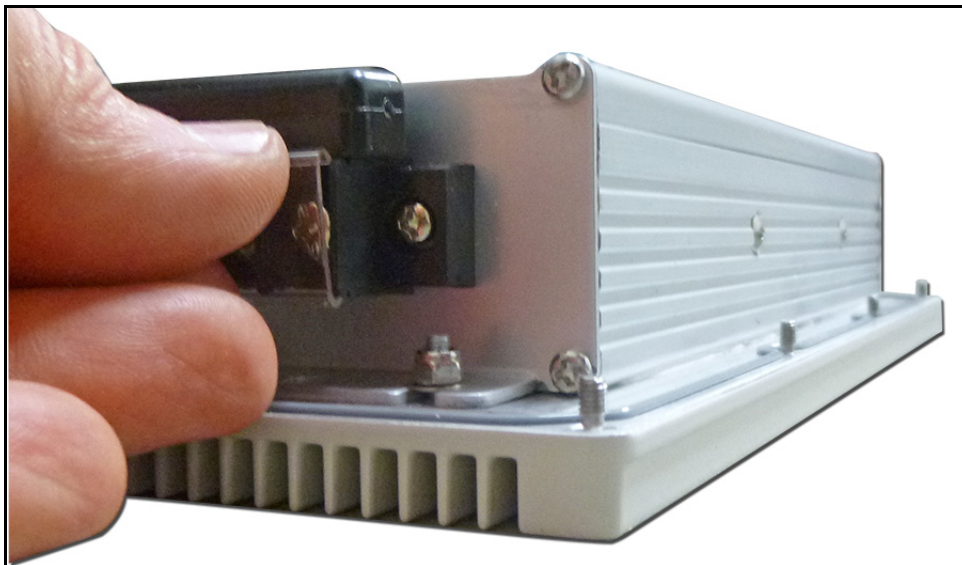

CAUTION! Make sure the +35.5 VDC marking is on the left and the -48 VDC marking is on the right. Failure to follow this instruction may result in a damaged PSU.
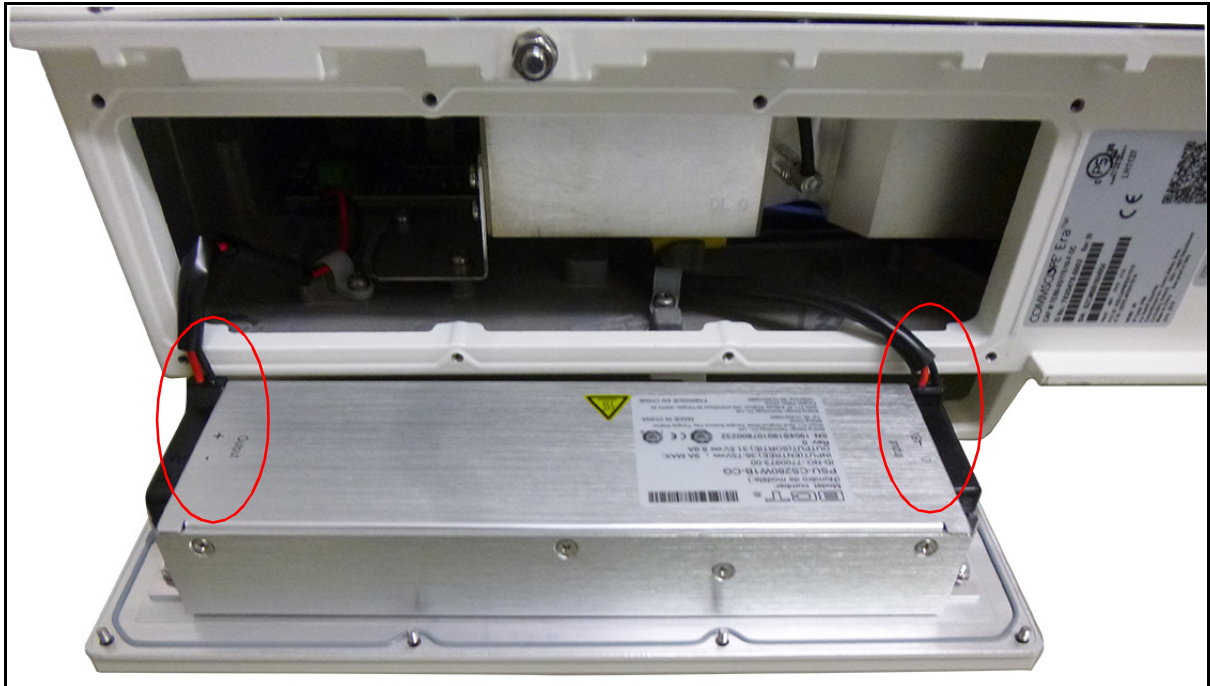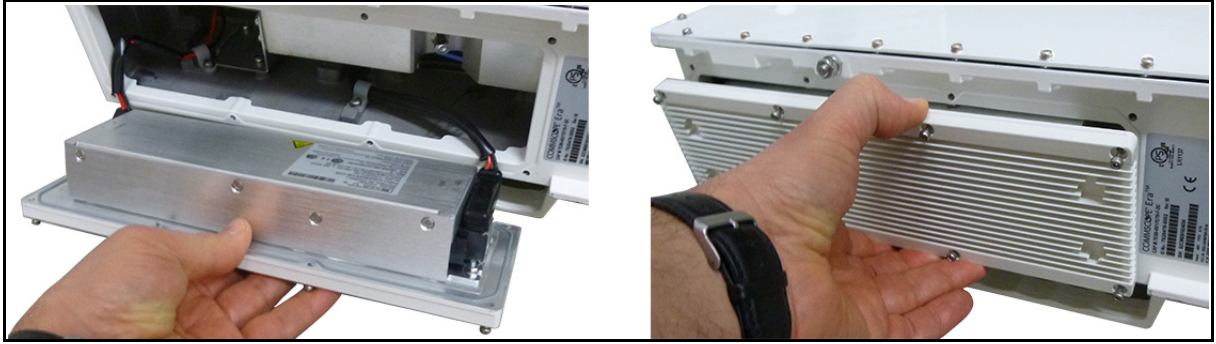
14 Place the plastic guard over both connectors.

15 Place the PSU into the housing, being careful not to pinch the wires. The supply must be supported until the eight captive power supply Torx T-10 screws have been tightened.

16 Tighten the eight Torx T-10 screws. The Torque value is 0.82Nm (7 inch pounds).

17 Remount the CAP M. See "Mount the CAP M" on page 33.

18 Reconnect the cables to the CAP M. See "Connect the CAP M Cables" on page 57.

19 Switch on the Mains power and check the CAP M for proper operation.

The green LED starts flashing slowly as CAP M initializes and then turns steady when initialization is complete.

CONTACTING COMMSCOPE

The following sections tell you how to contact CommScope for additional information or for assistance.

CMS GLOBAL TECHNICAL SUPPORT

The following sections tell you how to contact the CommScope Mobility Solutions (CMS) Technical Support team. Support is available 7 days a week, 24 hours a day.

Telephone Helplines

Use the following Helpline telephone numbers to get live support, 24 hours a day:

24x7	+1 888-297-6433 (Toll free for U.S. and Canada)
EMEA 8:00-17:00 (UTC +1)	+ 800 73732837 (Toll free for parts of EMEA and Australia)
	+ 49 909969333 (Toll charge incurred)
	Calls to an EMEA Helpline outside of the 8:00 to 17:00 time frame will be forwarded to the 24x7 Helpline.

Online Support

To go to the CommScope Wireless Support Request web site from which you can initiate a Technical Support ticket, do one of the following:

- Scan the QR Code to the right.

- If viewing this document online as a PDF, click on the following URL link:

  http://www.commscope.com/wisupport

- Enter the preceding URL into your web browser, and then press **ENTER** on your keyboard.

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT RECYCLING

Country specific information about collection and recycling arrangements per the Waste Electrical and Electronic Equipment (WEEE) Directive and implementing regulations is available on CommScope's website.

To access information on the CommScope recycling program, do any of the following:

- Scan the QR Code to the right.

- If viewing this document online as a PDF, click on the following URL link:

  http://www.commscope.com/corporate-responsibility-and-sustainability/environment/weee-customer-recycling/

- Enter the preceding URL into your web browser, and then press **ENTER** on your keyboard.

HARDWARE TO SOFTWARE MAPPING INFORMATION

1   Scan the QR Code to the right to view or download the minimum software requirements for each of the DCCS hardware modules. Alternatively, you can go to the following web address to access the portal:

http://www.commscope.com/resources/in-building-wireless

2   Click on a document link to open it, or right click on the link and select the **Save target as...** option from the contextual menu.

CMS TECHNICAL TRAINING

1   To access training on the online CommScope Mobility Solutions site, please use the following web address or scan the QRcode to the right:

www.commscopeuniversity.com

2   Once you have logged in, you can search for training by typing search words in the **Search** bar or by going to the **Catalog** page to view the available courses.

3   Instructor-led courses are conducted in North America and Europe. Before choosing a course, please verify the region.

4   For training related questions, please contact us:

Americas: DASTrainingUS@CommScope.com

EMEA: DASTrainingEMEA@CommScope.com

ACCESSING ERA USER DOCUMENTATION

1   Scan the QR Code to the right to go to the CommScope DCCS Customer Portal, where you can access the DCCS user documentation.

Alternatively, you can go to the following web address to access the portal:

http://www.commscope.com/membership

2   Access to the Customer Portal requires a user account and password. On the **Sign In** page, do one of the following:

  • If you have an account, enter your **Email** address and **Password**, and then click **Sign In**.

  • If you don't have an account, click the **Register** button, and follow the prompts.

  • After you've registered in My CommScope, click the **Request Additional Access** button and select the **DCCS Customer Portal** from the list of applications.

3   Once you have been granted access to the DCCS Customer Portal, you can use the link provided to access it directly or login to **My CommScope** and use the **DCCS** link there. You will be prompted to sign in using your Microsoft-enabled email account..

4   Select your site, and then click on a product link to open the product page.

5   Click on the title of any document to open it.

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