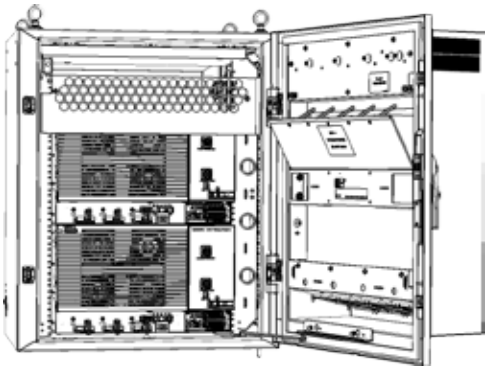
CORNING

Mid-Power Remote Unit (MRU) Outdoor Enclosure MIMO Assembly Quick Installation Sheet

CMA-595-AEN



GENERAL INFORMATION

1. Additional relevant documentation:
   - MRU quick installation sheet provided with the unit (or download from Corning partner portal: CMA-398-AEN)
   - Purcell® FlexSure®16-GR487 installation manual provided with the cabinet
   - MEAN WELL DIN rail power supply installation manual: http://www.meanwell.com/webapp/product/search.aspx?prod=sdr-480&pdf=U0RSIERJTiByYWlsLnBkZg==&a=4
2. Only trained and qualified personnel should be allowed to install, replace, or service this equipment.
3. Corning recommends using the MEAN WELL SDR-480-48 DIN rail AC/DC converter or equivalent.
4. The MRU connections are performed after the two chassis are installed in the cabinet.

This document provides instructions on how to install two Corning® optical networks evolution (ONE™) solution mid-power remote units (MRUs), required for a MIMO configuration, in an accommodating Purcell cabinet and how to perform the external alarm connections between the units and the enclosure.

1. KITS REQUIRED FOR INSTALLATION

The following kits are required for installing the MRUs in the outdoor enclosure. Each kit is ordered separately.

Kit	Description	Quantity
FLX16-GR487-B	Purcell FlexSure 16RU Outdoor GR-487 Enclosure for dual MRU installations Purcell MIMO cabinet P/N: 2000004345 FLX16-GR487, Bump-out hatch	1
MRU-E-XXXXX-AC/DC	Mid-Power Remote Unit	1
AK-MRU-DCA-CBL	External Alarms Cable; DB9 male open wire cable for external alarm connections	1
AK-FLX1216-POLE-MK (optional)	Platform Pole-Mountable Kit for FLX12 or FLX16 outdoor enclosures Purcell P/N: 2000003986	1
AK-FLX16-SIDE-MK (optional)	Sideways Mount Kit for FKX16 outdoor enclosures Purcell P/N: 2000004015	1

Table 1. Required Kits

2. ADDITIONAL REQUIRED ITEMS (NOT SUPPLIED)

- Standard electrician tools (including ratchet wrench with extension bar and 8 mm socket) for tightening self-drilling screws securing MRU chassis to cabinet rails
- Assorted cable ties
- 90-degree right-angle 4.3-10 type male connector coax cables – one for antenna connection and one for external 2.5 GHz RF source connection (if relevant)
- Sealing material for knockouts – if not using conduits
- Recommended – Flexible cable conduits for routing connection cables through cabinet knockouts; refer to Figure 2 for relevant knockouts. Following are recommended Heyco® part numbers for flexible liquid-tight conduits (or the equivalent):

Manufacturer Part Number	Description
8406	Heyco-Flex™ Liquid-Tight Conduit Fittings, HFC 1 Black with 8467 Nut, conduit fitting 1-in thread
8453	Heyco-Flex Liquid-Tight Tubing, HF2 1 tubing 100 ft coil, black
8456	Heyco-Flex II Liquid-Tight Tubing, HF2 2 tubing 50 ft coil Black
8642	Heyco-Flex Liquid-Tight Conduit Fittings, HFC 2 black; conduit fitting 2-in thread

Table 2. Recommended Conduits

- Recommended DIN rail power supply for MRU AC models — MEAN WELL SDR-480-48 or equivalent; Input: 100-240 V AC; 5 A 50/60 Hz; Output: 48 V; 10 A
- DIN rail TS-35 / 7.5 or 15 — used for mounting DIN rail power supply onto air tray
- Rail/profile cutter
- Two screws for securing DIN rail to cabinet air tray
- Slotted 4 mm screwdriver — for SDR wiring

3. PRE-INSTALLATION PROCEDURES

Step 1: Remove each rack ear and reassemble according to position shown in Figure 1.

Step 2: Carefully lay cabinet on backside so door faces upwards.

Step 3: Referring to Figure 2 for relevant knockouts, use appropriate knockout tools to punch out knockouts for routing connection cables.

Note the following:

- 2.469-in dia. knockouts — for RF and power cables; front pair for power and RF and rear pair for power and RF
- 1.375-in dia. knockouts — for fiber and power (if power cable diameter is too small for the large knockouts)

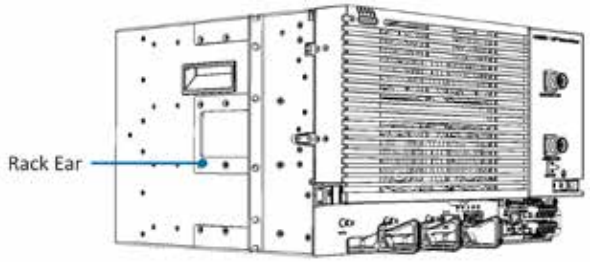


Figure 1. Required Position of MRU Rack Ears

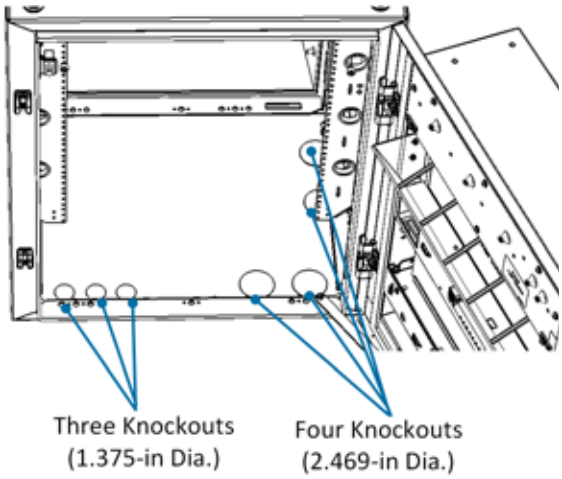


Figure 2. Required Knockouts

ATTENTION! In the event that a power amplifier (PAM) or the optical module (OPTM) needs to be removed from the chassis, make sure to first press the release button on the module and then pull out using the handle (see Figure 3). Any attempt to pull out the module without first releasing may cause damage.

Corning will not be liable for damage of products resulting from improper handling during installation or repair.

Figure 3. Extraction of PAM/OPTM

4. INSTALL MRU IN CABINETS

Step 1: With the cabinet still laying on backside (so door faces upwards), open the cabinet door.

ATTENTION! Make sure that the door hatch locks into the door rail in order to avoid closing of door while installing the chassis. See Figure 4.

To close the door, push hatch inwards towards the door to release.

Note: The first MRU chassis is installed on the bottom of the cabinet and the second above it.

Step 2: Insert one 8 mm self-tapping screw (provided with the cabinet) halfway into the bottom hole of each rail. Refer to Figure 5.

Note: An extension bar may be required to access the screws due to narrow space between chassis and cabinet rails.

Step 3: Position the bottom half slots of the MRU rack ears onto the protruding screws and tighten the screws using a ratchet wrench. Refer to Figure 6.

Step 4: Insert at least two additional screws into each of the cabinet rails to safely secure MRU and tighten.

Step 5: Perform Steps 2 - 4 for the second MRU, positioning it above the first installed unit, as shown in Figure 7.

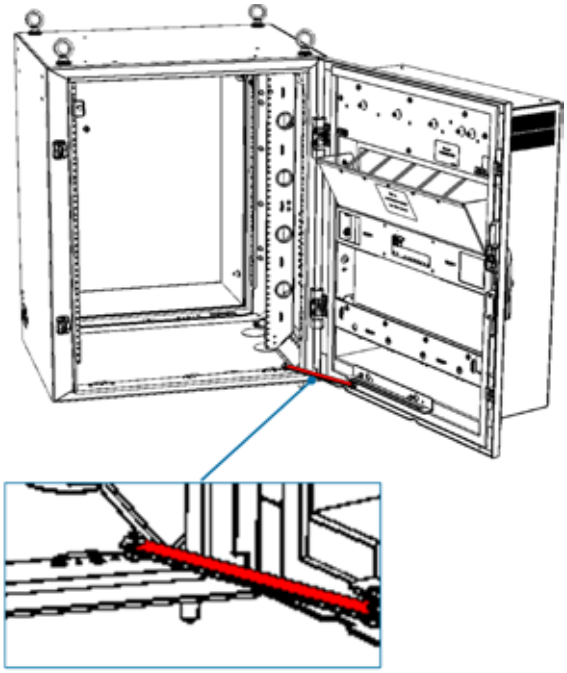


Figure 4. Opening Cabinet Door and Locking Hatch in Place

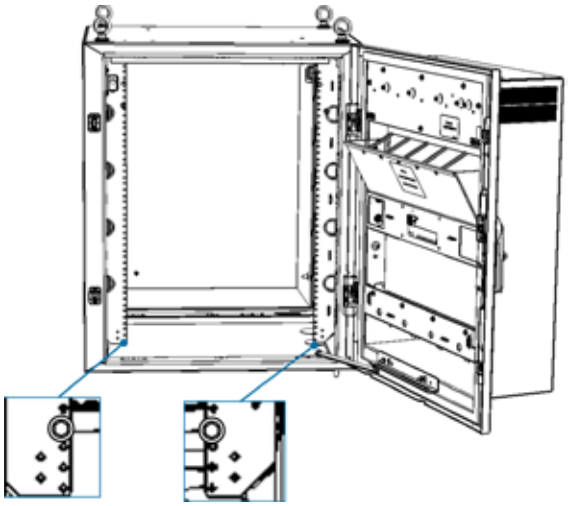


Figure 5. Inserting Self-Tapping Screw in each Rail

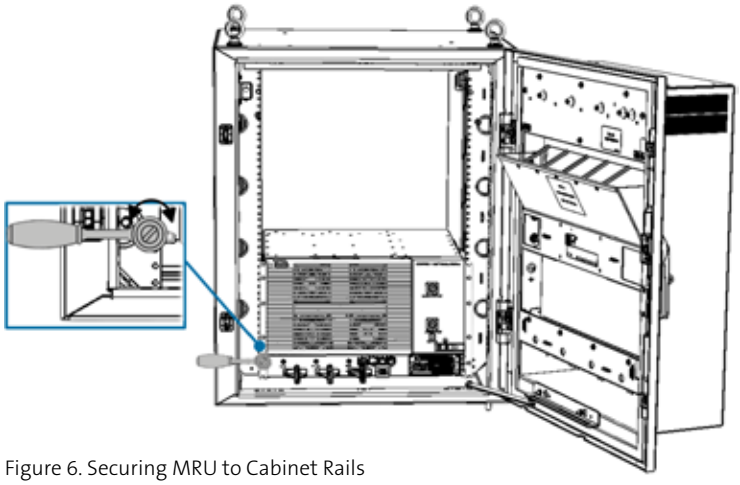


Figure 6. Securing MRU to Cabinet Rails

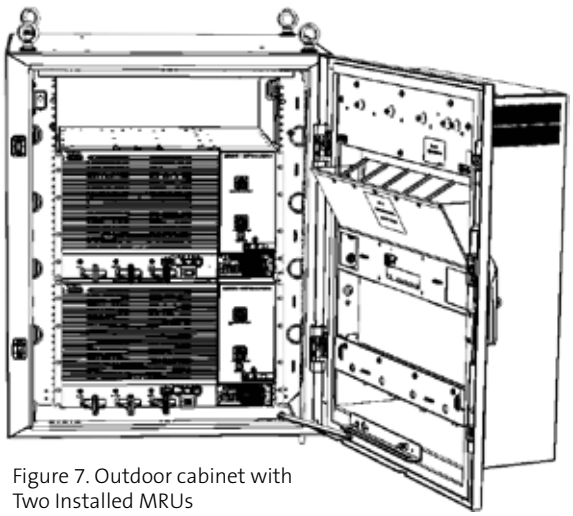


Figure 7. Outdoor cabinet with Two Installed MRUs

5. INSERT LIQUID-TIGHT FLEXIBLE CONDUITS IN KNOCKOUTS (RECOMMENDED)

Insert the appropriate size conduits in each of the punched-out knockouts (shown in Figure 2). See Section 2 for recommended conduits.

6. GROUND CABINET AND MRUs

Step 1: Ground cabinet - refer to the manufacturer's installation guide for instructions on cabinet grounding. Figure 8 shows cabinet grounding bolt location (left side panel).

Step 2: For each MRU chassis - using one of the grounding cables provided with the cabinet, ground the MRU via the two-hole, standard barrel grounding lug located on the front panel to one of the cabinet grounding bolts. Refer to Figure 8.

MRU grounding lug requirements:

- For use with stranded copper wire conductors
- 10-14 AWG
- Holes - 1/4-in

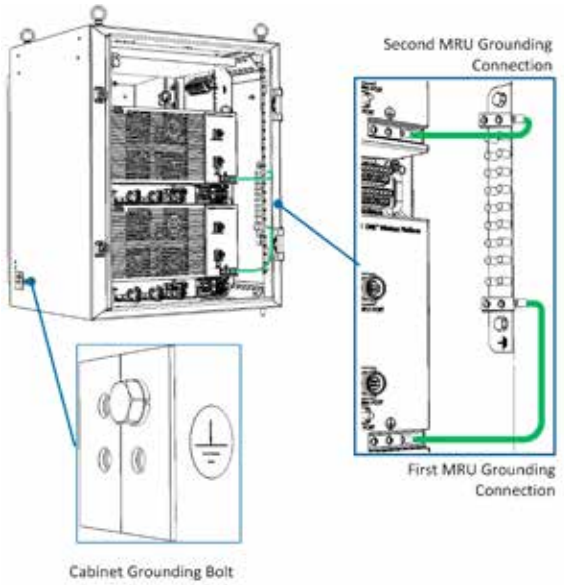


Figure 8. Example of Grounding MRUs to Cabinet

7. CONNECT RF ANTENNA COAX

For both 4.3-10 Type “ANTENNA PORT” and “2.5 GHz INPUT PORT” - route coax cables (with 90-degree right-angle connector) through their designated knockouts (see Figure 2) behind and above both MRU chassis and connect to the corresponding RF ports. Refer to Figure 9.

8. ROUTE FIBER AND POWER CABLES

IMPORTANT! If cables are routed without the use of conduits, the knockouts must be sealed using appropriate sealing materials.

Route optic fiber from fiber switch and power cables, for both MRUs, through designated knockouts (see Figure 2) and connect according to instructions in MRU quick installation sheet. Refer to Figure 9.

Note: For DC power connections – route DC power cable with open wires (without connector) and then wire according to instructions in MRU quick installation sheet (CMA-398-AEN).

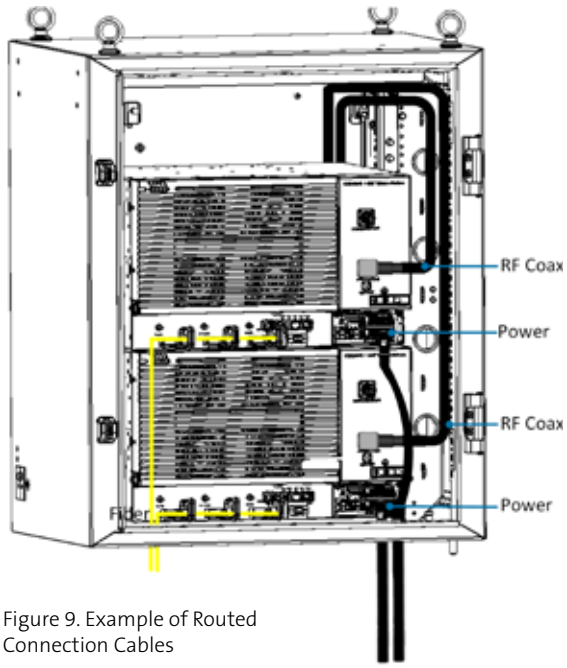


Figure 9. Example of Routed Connection Cables

9. INSTALL AND CONNECT DIN RAIL POWER SUPPLY (RECOMMENDED FOR MRU AC MODELS)

Recommended DIN rail power supply:

- Type: MEAN WELL SDR-480-48 or equivalent;
- Input: 100-240 V AC; 5 A 50/60 Hz;
- Output: 48 V; 10 A
- Recommended fuse and maximum number of SDR PSUs for a 230 V circuit breaker:

Fuse	Circuit Breaker	
	C16	D16
T8A / L250V	4	4

Step 1: Remove air tray front panel, as shown in Figure 10.

Step 2: Open the four screws , securing the air tray to the cabinet rear brackets, and remove the air tray. Set the removed screws aside.

Step 3: Using a rail/profile cutter, cut the DIN rail (not provided) length so that it fits the length of the air tray side panel. See Figure 11.

Step 4: Secure the DIN rail in place using one or two screws.

⚠ **ATTENTION!** When assembled, the power supply must be flush with the rear of the air tray. Refer to Figure 11 .

Step 5: Mount the power supply onto the DIN rail.

IMPORTANT! The top of the power supply should be facing the front of the air tray (towards cover), as shown in Figure 12.

Step 6: Perform the wiring connections on the power supply side (before installing tray in cabinet).

Wiring requirements:

- Copper wires only
- Wires that can withstand a minimum temperature of 80°C (e.g., UL1007)
- Recommended wire strapping length = 0.197 in (5 mm)
- Recommended wires:

AWG	18	16	14	12	10
Rated Current of Equipment (Amp)	6	6-10	13-16	16-25	25-32
Cross-Section of Lead (mm^2)	0.75	1.00	1.5	2.5	4

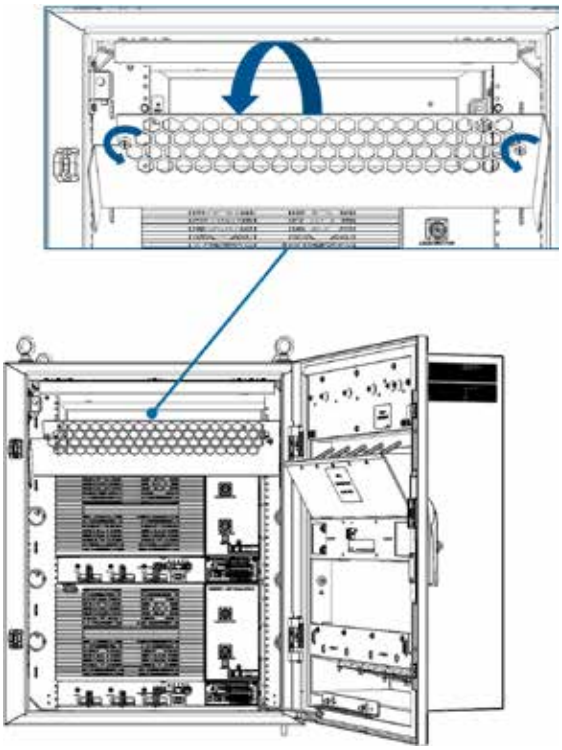


Figure 10. Removing Air Tray Cover

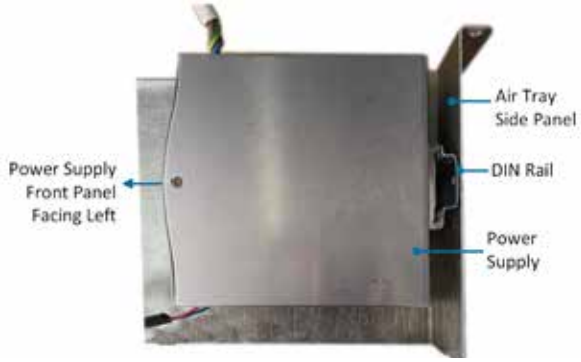


Figure 11. Assembled DIN Rail Power Supply and Air Tray (Top View)

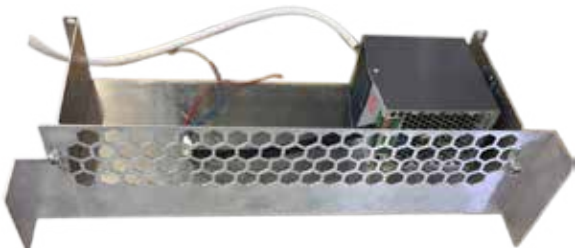


Figure 12. Air Tray (with cover) with Assembled and Wired Power Supply

9. INSTALL AND CONNECT DIN RAIL POWER SUPPLY (RECOMMENDED FOR MRU AC MODELS) (CONTINUED)

Notes:

- *When using five or more wires connected to the unit, the current of each wire should be derated to 80 percent of the recommended current above.*
- *The maximum allowable cross-sectional area of the wire for the SDR terminal is 12 AWG/2.5 mm²*

Step 7: Using 3 A gauge wires, connect a pair of DC wires to the "-V" and "+V" terminal block connectors .

Step 8: Connect 2 A gauge double insolation wire to power supply (leads to AC inlet power). See Figure 13.

IMPORTANT! Make sure that all strands of each stranded wire enter the terminal connection and that the screw terminals are securely fixed to ensure good contact. If the power supply consists of multiple output terminals, make sure each contact is connected to wires to prevent excess current stress on a single contact.

Step 9: Install the assembled air tray and power supply (without cover) in the cabinet above the MRUs and secure rear of tray to cabinet brackets using the four screws (previously removed).

Step 10: Connect the pair of 3 A gauge wires from the power supply "-V" and "+V" terminal block connectors to the socket box on the right of the enclosure.

Step 11: Connect the 2 A gauge double insolation wire from the SDR to AC inlet power. See Figure 15 for illustration of connections betweeen external enclosure and DIN rail power supply.

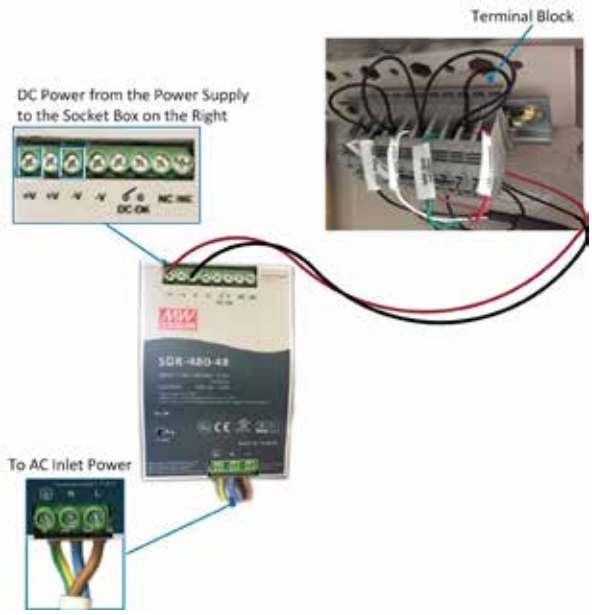


Figure 13. Overview of Recommended SDR Connections Alarms Connector and Cabinet Alarms Block

10. PERFORM EXTERNAL ALARM CONNECTIONS BETWEEN MRUs AND CABINET

Note: Also refer to relevant section of the cabinet installation manual (i.e., "Connecting Optional Custom Alarms").

Step 1: For each MRU - connect the external alarms cable (ordered separately) to the chassis DB-9 "External Alarms" connector.

The connector provides indications for door opening, heat exchanger (HEX), and one additional input for future use.

Refer to Table 3 and to Figure 14 for MRU "External Alarms" connector pinout.

Pin	Description
1	Common
2	Not connected
3	Not connected
4	Not connected
5	Not connected
6	Door alarm
7	HEX alarm
8	Future alarm
9	Exist indication (indicates existing connection of alarm cable)

Table 3. MRU External Alarm Connector Pinout Description

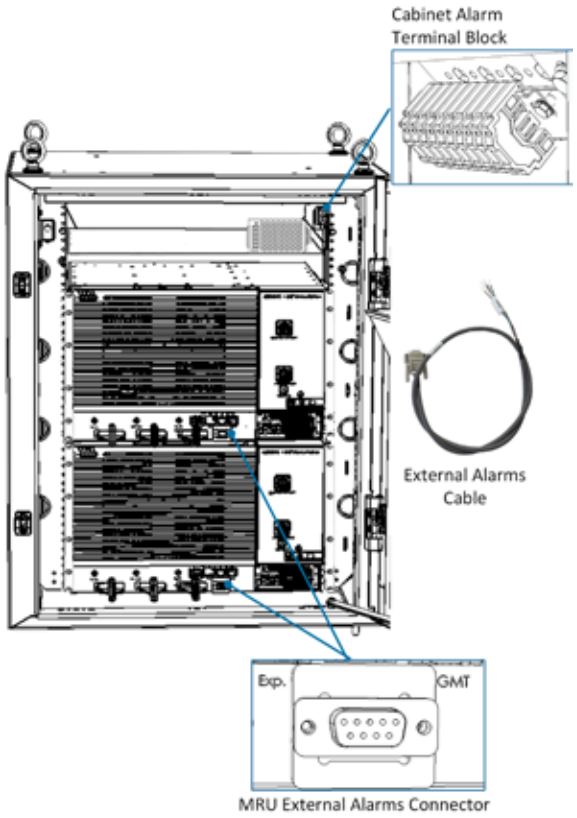


Figure 14. Location of External Alarm Connector

Step 2: Route the cable alarm wires to the alarm block, located on the upper right corner of the cabinet.

Step 3: Connect the external alarm connections to the cabinet according to the following:

Refer to Table 4 for external alarms cable wiring description.

Color	Description
Red	+48 V_COMMON
Green	-48 V_EXIST INDICATION
Brown	-48 V_DOOR ALARM
Black	-48 V_HEX ALARM
White	-48 V_FUTURE ALARM

Table 4. MRU External Alarm Connector Pinout Description

10. PERFORM EXTERNAL ALARM CONNECTIONS BETWEEN MRUs AND CABINET (CONTINUED)

Refer to Table 5 for wiring description of MRU external alarms connector and to Figure 15 for examples of the upper and lower cabinet block wiring connections.

External Alarms Connector Pin Number	
1 Common	8 Future Alarm
6 Door Alarm	4 NC
2 NC	9 Exist Indication
7 HEX Alarm	5 NC
3 NC	*Note: NC = Not Connected*

Table 5. External Alarms to Cabinet Block Wiring

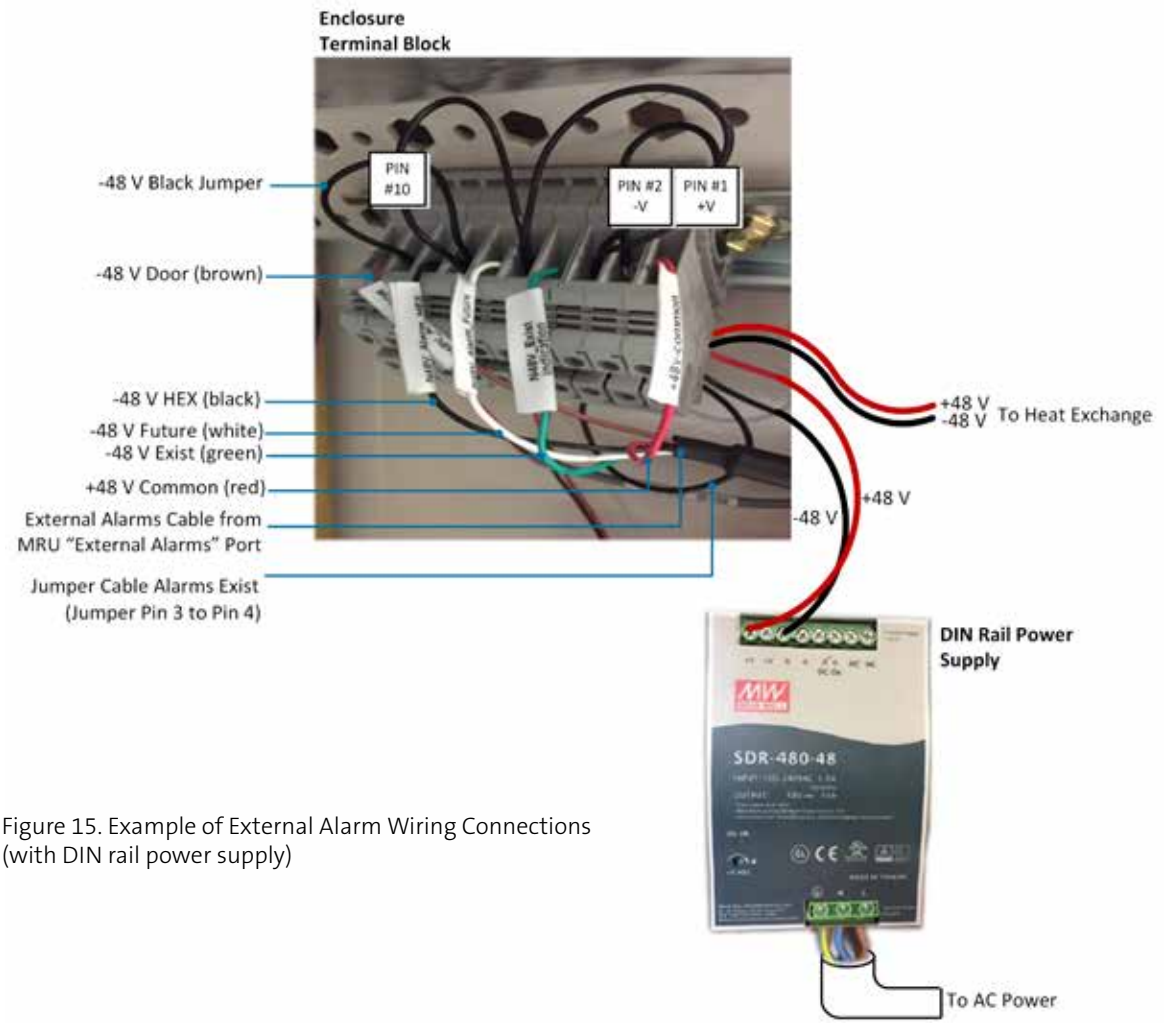


Figure 15. Example of External Alarm Wiring Connections (with DIN rail power supply)

11. INSTALL AIR TRAY COVER IN PLACE

Install air tray cover and secure with both screws.
See Figure 16 for example of assembled air tray cover.

12. VERIFY NORMAL OPERATION

Step 1: Verify that fans are operational.

Step 2: Refer to status LEDs on the inside of the cabinet door and verify that all show green.

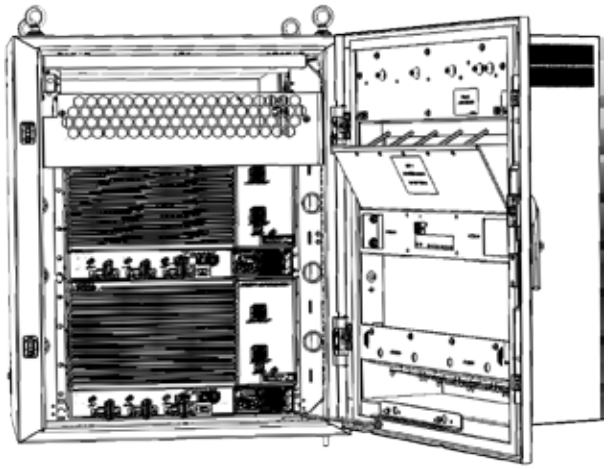


Figure 16. MRU MIMO Cabinet with Air Tray Cover

NOTES

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