



## GENERAL INFORMATION

1. THE MxU supports the 2.5 GHz TDD band and is installed in conjunction with the mid-power remote unit (MRU) (ordered and installed separately), expanding the number of supported services to eight.
2. The MxU is installed at the remote site and interfaces the MRU.
3. Depending on the model (including AC or DC power supply module), the unit requires a 100-240 VAC or 48 VDC (30-60 VDC).
4. The MxU is intended for connection to a TN power system and IT power system of Norway only.
5. Unit is provided with two mounting options:
  - 19-in rack – preassembled rack ears
  - Wall-mountable – mounted onto MRU mounted on a wall (wall-mountable brackets ordered separately)

This document describes the installation and connection procedures for the Corning® optical network evolution (ONE™) solutions mid-power expansion unit add-on (MxU).

## 1. PACKAGE ITEMS

The items listed in Table 1 are included in the MxU package. If any of the listed items are missing, contact your Corning representative.

Item Description	Quantity
Mid-Power Expansion Unit: MRU-ASM-AO-AC MRU-ASM-AO-DC	1
Rack-Mountable Brackets (factory assembled)	2
QMA/QMA RF Cables — used for UL/DL RF connections	2
RJ45 100 Base-T Ethernet Cable (P/N: 705A055702) — used for management port connection	1
4.3-10 DIN RF Jumper Cable (P/N: 705A055602) — used for antenna port connection	1
AC Power Cable (for MxU AC models only) — straight, U.S 10 A ,UL, L = 1.8-2.5 m, black, 110 V (P/N: 705900007)	1

Table 1. Package Items List

## 2. ADDITIONAL REQUIRED ITEMS (NOT PROVIDED)

- Four rack-mount nuts and screws for securing unit in communication rack (type depends on rack)
- Torque wrench for RF connectors (i.e., QMA, 4.3-10 DIN)
- Grounding tools and components:
  - Grounding wire – grounding wire should be sized according to local and national installation requirements. The provided grounding lug supports 14 AWG to 10 AWG stranded copper (or 12 AWG to 10 AWG solid) wire conductors.

*Note: The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.*

- Phillips-head screwdriver
- Crimping tool to crimp the grounding wire to the grounding lug
- Wire-stripping tool to remove the insulation from the grounding wire

## 3. INSTALL UNIT IN 19-IN RACK

*Note: MxU requires 1U rack height availability*

**Step 1:** Determine the location of the MxU in the rack while considering additional units (e.g., MxU, power supply). Refer to Figure 1.

**Step 2:** Install the unit in the rack and secure to rack frame via applicable bracket holes using appropriate rack nuts and screws.

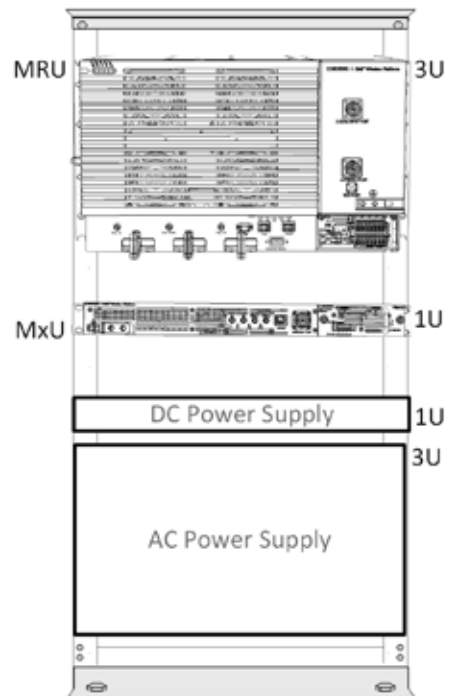


Figure 1. Example of Rack installation

## 4. GROUND UNIT

The grounding connection is performed via a two-hole, standard barrel grounding lug located on the left of the front panel (see Figure 2).

### Prise de terre du châssis MxU

La mise à la terre est réalisée en utilisant une cosse deux trous a œillet standard, située à gauche de la face avant (voir Figure 2).

- Step 1:** Use a wire-stripping tool to remove approximately 0.4-in (10.9 mm) of the covering from the end of the grounding wire.
- Step 2:** Insert the stripped end of the grounding wire into the open end of the grounding lug.
- Step 3:** Crimp the grounding wire in the barrel of the grounding lug. Verify that the ground wire is securely attached to the ground lug by holding the ground lug and gently pulling on the ground wire.
- Step 4:** Prepare the other end of the grounding wire and connect it to an appropriate grounding point at the site to ensure adequate earth ground.

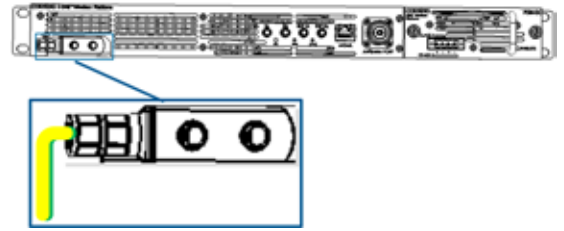


Figure 2. MxU Grounding Lug

## 5. RF AND MANAGEMENT CONNECTIONS

Refer to Figure 3 and connect the RF cables according to the following table.

Connect MxU Port	To MRU Port	Using the Provided
“UL”	“Exp. UL”	QMA/QMA RF cable
“DL”	“Exp. DL”	QMA/QMA RF cable
“Antenna Port”	“2.5 GHz Input Port”	4.3-10 DIN RF Cable

### IMPORTANT!

- Keep the cable straight or adhere to the bend radius of the cable when tightening the nuts:
  - Minimum bend radius (one time): 8 mm
  - Minimum bend radius (repetition): 40 mm
- Screw torque  $\geq 5$  Nm
- Make sure that the cable is not stressed when tightened

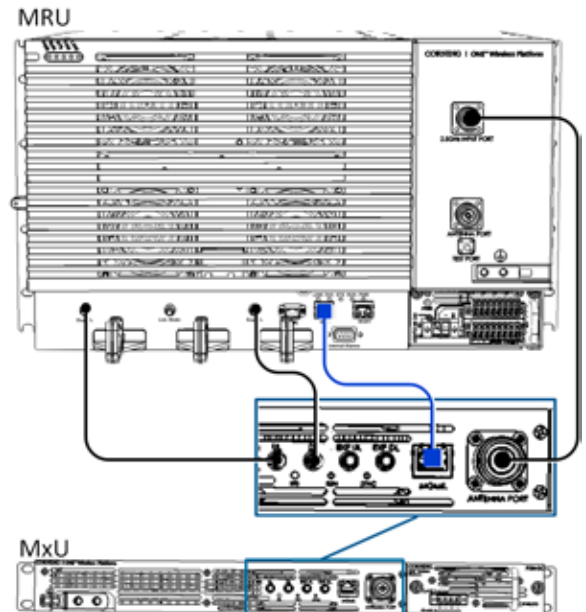


Figure 3. MxU-to-MRU Connections

## 6. MANAGEMENT CONNECTION

Referring to Figure 3, connect the MxU “MGMT” port to the MRU RJ45 “Exp.” Port using an RJ45 Ethernet cable.

## 7. POWER UP

- Notes:
- The MxU PSM is located on the bottom right of the front panel.
  - The PSM type (AC/DC) is model dependent.
  - Refer to section 7A for AC models.
  - Refer to section 7B for DC models.

### 7A. AC MODELS

#### ATTENTION!

1. Approved power cable – the entire length of the power cable (or flexible cord) and the insulation must be intact. The cable must be firmly connected to both the electrical plug and the unit itself.
2. Standard plug – the use of a standard plug is mandatory. The use of a non-standard power plug can cause electrocution! Also, plugging a non-standard plug into a standard socket that does not correspond to the plugs' shape, can damage the socket making it a safety hazard.

Connect the MRU power connector to the AC power source using the provided AC power cable (P/N 705900007):

- Power input: 100-240 VAC/50-60 Hz
- Power consumption: 128 W (maximum)
- Maximum AC current consumption: 2.5 A

See Figure 4 for AC connector location.

### 7A. MODÈLES ÉLECTRIQUES AC

#### ATTENTION!

1. Câble d'alimentation qui est approuvé - la totalité de la longueur du câble d'alimentation (ou cordon souple) et de l'isolation doit être intact. Le câble doit être bien connecté à la fois à la prise électrique et l'appareil.
2. Prise électrique standard - l'utilisation d'une fiche standard est obligatoire. L'utilisation d'un cordon d'alimentation non standard peut entraîner l'électrocution!

De meme, brancher une fiche non-standard sur une prise standard ne correspondant pas à la forme de de la fiche, peut endommager la Prise, ce qui en fait un danger de sécurité.

Branchez la prise d'alimentation du MRU à la source d'alimentation secteur à l'aide du câble d'alimentation secteur fourni:

- Alimentation: 100-240 VAC / 50-60 Hz
- Consommation d'énergie : 128 W (maximum)
- La consommation de courant maximale: 2.5 A

Voir Figure 4 pour l'emplacement du connecteur AC.

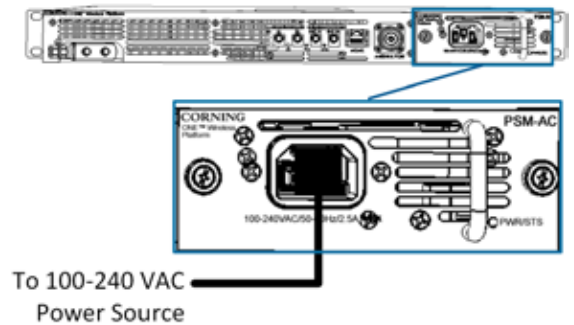


Figure 4. MxU PSM-AC Connection

## 7B. DC MODELS

Note: DC models include one four pin terminal block connector which supports both NEC CLASS1 and CLASS2

- CLASS2 (default) – supported by the four pins of the DC terminal block connector for remote feed supporting two DC wiring pairs
- CLASS1 – supported by the first two pins (LT-to-RT) of the DC terminal block for local plant feed. To use CLASS1 – user must change default connector mode from CLASS2 to CLASS1 (see “Local plant feed – CLASS1 connector” description).

### Remote feed – CLASS2 connector (default)

DC CLASS2 connector specs:

- Supported wire AWG:
  - Conductor cross-section, solid (AWG/mm<sup>2</sup>): 30~12/0.2~2.5
  - Conductor cross-section, flexible (AWG/ mm<sup>2</sup>): 30~12/0.2~2.5
- Wire strip length: 9~10 mm

DC Power input: 30-60 VDC

Power amplifier consumption per pair:

- First pair: 50 W
- Second pair: 78 W

Maximum power consumption: 131 W

Maximum current consumption:

- First pair: 2.1 A
- Second pair: 3.3 A

### Local plant feed – CLASS1 connector:

- Step 1:** Open PSM captive screws and pull-out module from chassis.
- Step 2:** Remove PSM-DC top panel by unscrewing the three screws on each side panel, as shown in Figure 6.
- Step 3:** Disconnect DC input source type connector and reconnect with the arrows pointing to the “CLASS1” setting. See Figure 7.
- Step 4:** Close top panel and insert PSM-DC in chassis slot.
- Step 5:** Route DC pair from the first two DC CLASS1 connector to local power source.

Power input: 48 VDC (40-60 VDC) 9 A maximum

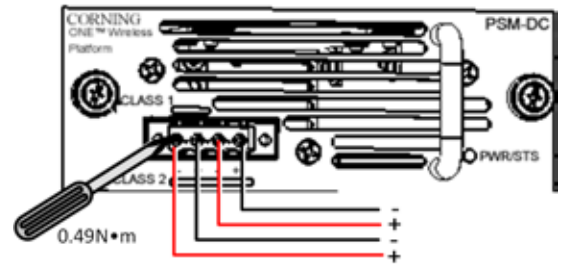


Figure 5. Example of DC CLASS2 Wiring

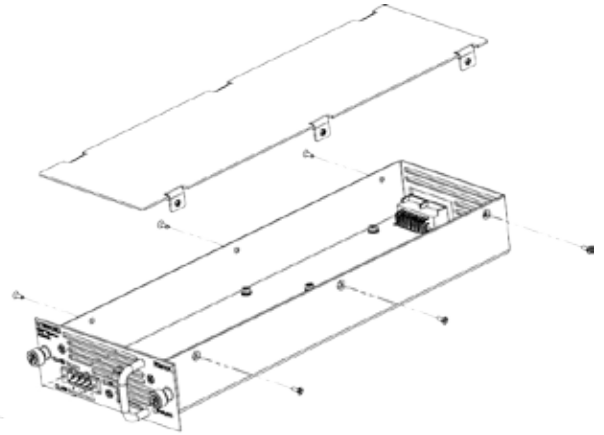


Figure 6. Removing PSM-DC Top Panel

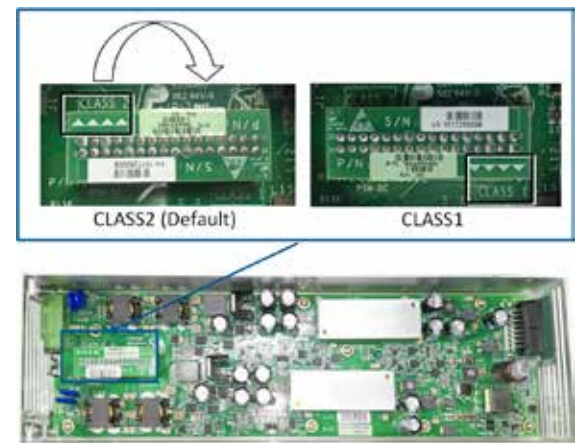


Figure 7. Modifying DC Source Input Setting to CLASS1



Figure 8. Example of DC CLASS1 Wiring

## 8. VERIFY NORMAL OPERATION

**Step 1:** Verify that fans are operational.

**Step 2:** Refer to status LEDs on front panel to confirm normal system operation according to Table 2.

LED	Description	
PSM-AC/DC) PWR/STS	Steady green:	Power supply module power input OK
	Red:	Faulty power input
RUN	Blinking green (1 sec.):	Module software is running and operational
	Rapid blinking green:	“Identify” feature has been enabled via the management GUI
	Off:	No power input detected
SYNC	Steady green:	TDD sync locked
	Steady red:	TDD signal out of sync
STS	Steady green:	Normal operation; Overall status ok
	Steady red:	Indicates generated alarm in unit
	Blinking red:	“Over temperature” alarm active; Indicates temperature has exceeded threshold (with door open) <i>Note: Temperature alarm is set as first priority and overrides any other alarm indication.</i>
MGMT RJ45 Port LEDs	Blinking green:	Ethernet connection to MRU OK

Table 2. Status LED Descriptions

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## NOTES

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**Corning Optical Communications LLC • PO Box 489 • Hickory, NC 28603-0489 USA  
800-743-2675 • FAX: 828-325-5060 • International: +1-828-901-5000 • [www.corning.com/opcomm](http://www.corning.com/opcomm)**

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