







GENERAL INFORMATION

- The IHU chassis includes the S-FAM (fan module) and preassembled cable management tray routed with a 34-in, 9-pin cable ready for the expanders (i.e., RIX and OIX) connectivity.
- Each IHU includes 14 slots supporting the following modules:
 - RIX slot (Slot 1)
 - RIM slots (Slots 2-5; marked in red)
 - Dual slots (Slots 6-9; marked in white) – each slot supports RIMs or OIMs
 - OIM slots (Slots 10-13; marked in blue)
 - One OIX slot (Slot 14)
- IHU supports the following expansion connection options:
 - To a single IHU or,
 - To one HEU and one OIU











This document describes the installation procedure for the Corning® optical network evolution (ONE™) solutions integrated headend unit (IHU) and relevant modules.

1. ITEMS REQUIRED FOR IHU INSTALLATION

The following items are required for installing the IHU. If any of the listed items are missing, contact your Corning representative.

IHU Kit	Quantity	Item
Integrated Headend Unit Chassis	1	
Fan Module (S-FAM) – single unit hosting four fans (installed in the chassis rear)	1	
RJ45/RJ45 Communication Cable L = 2 m - 2.15 m (P/N 705900003) – HCM management cable	1	
Cable Management Tray – includes management tray with routed ERFC cable ERFC (Expander Cable) – RF interface cable between RIX and OIX modules; 9-pin SMP to SMP connector; L = 34 in	1	

Kits Required for IHU Installation | Table 1

RIM Kit (up to 8 according to order)	Quantity	Item
Radio Interface Module (service specific)	1	
OIM Kit (up to 8 according to order)	Quantity	Item
Optical Interface Module (OIM)	1	
MTP®-LC APC Harness Cable (P/N 37HP900162-006F) — connector for splitting fibers (6) leading from OIM to FMU Edge module	1	
RIX Kit	Quantity	Item
RF Expander Module – expands the RF sources to the OIM modules via the OIX	1	
Pilot Transport Cable (P/N: PCKC47*) – Single QMA-to-QMA cable; L = 47 in; used for passing reference clock signal connections between RIX modules. *Additional various lengths are available: <ul style="list-style-type: none"> • PCKC20: L = 20 in • PCKC63: L = 63 in • PCKC79: L = 79 in 	1 (per item)	
OIX Kit	Quantity	Item
OIU Expander Module – connects to the RIX expander module; provides RF interface between RIM and OIMs	1	
PSM Kit (AC or DC modules — 1 or 2 kits according to order)	Quantity	Item
PSM-AC: 100-240 VAC Power Supply Module including standard IEC 60320-1 C13 cable	1	
PSM-DC: 48 V DC Power Supply Module; 9 A max.; Includes 6-pin terminal block connector	1	
Controller Module Kit (HCM or ACM — according to order)	Quantity	Item
HCM Kit (Headend Control Module) – installed in Main IHU; enables remote/local management of all hosted units	1	
ACM Kit (Auxiliary Control Module) – installed in Auxiliary IHUs; provides management connections for the Auxiliary IHU.	1	

Kits Required for IHU Installation | Table 1 (continued)

2. ASSEMBLE CABLE MANAGEMENT TRAY ONTO IHU AND CONNECT ERFC CABLE TO RIX AND OIX MODULES

Refer to Appendix A of this document for instructions on how to assemble the provided Cable Management Tray and connect ERFC Cable (routed through tray).

3. MOUNT CHASSIS IN 19-IN RACK

- Notes:
- IHU chassis requires 4U rack height availability
 - Rack nuts and screws not provided

Step 1: Determine the location of the IHU in the rack while considering additional units (i.e., IHU, HEU, OIU) and the lengths of the available ERFC cable.

Step 2: Referring to Figure 1, secure the units' rack ears to the rack frame as follows:

- Insert two screws halfway into the rack frame (one on each side).
- Position the bottom half slots of the chassis rack ears onto the screws.
- Secure the unit in the rack via all applicable bracket holes using the appropriate rack nuts and screws.

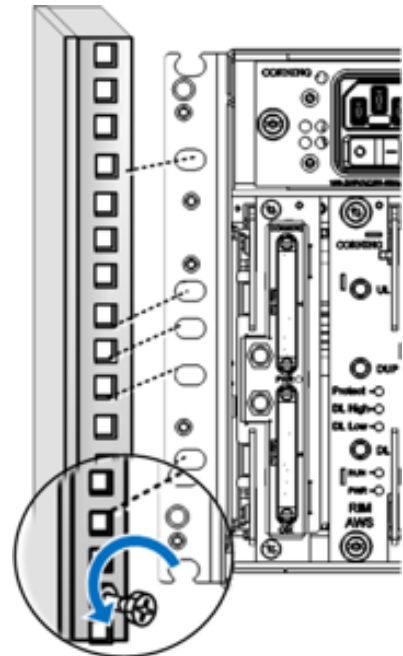


Figure 1: Installing Chassis in Rack

4. INSTALL ALL MODULES

Note: For modules with ejectors (i.e., RIM, RIX, OIM, OIX, and HCM/ACM) – verify that the ejectors are completely open when inserting in dedicated slot and then push in until the module clicks in to the backplane. Figure 3 shows example of module type captive screws and ejectors.

- Step 1:** Refer to Figure 2 for module locations. Remove blank panel and slide in the relevant module (chassis slots are 100 percent mistake proof):
- (One) HCM (for Standalone/Master IHUs)/ (One) ACM (for Auxiliary IHU)
 - (One to two) PSM – for single-power-supply installations, install the PSM in either (PSM) slot.
 - (One) RIX module
 - (One to eight) RIM – no need to terminate unoccupied RIM slot.
 - (One to eight) OIM
 - (One) OIX module

- Step 2:** Referring to Figure 3, secure the modules to backplane by:
- Closing the ejectors (for relevant modules)
 - Tightening the captive screws

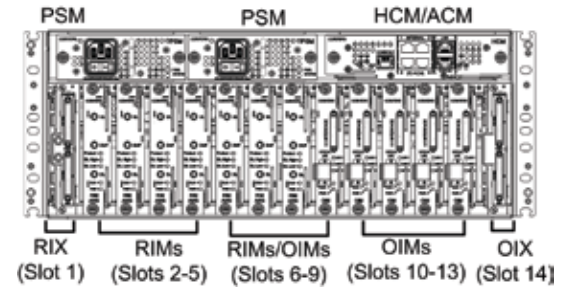


Figure 2: Example of Occupied IHU (Without Cable Management Tray)



Figure 3: Examples of Module Captive Screws and Ejectors

5. GROUND HEU CHASSIS

The grounding connection is performed via a two-hole, standard-barrel grounding lug located on the HEU rear panel (see Figure 4).

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

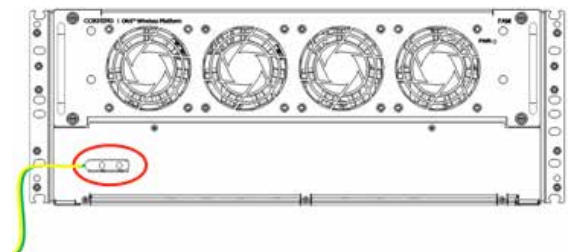


Figure 4: Grounding Lug (Chassis Rear)

6. IHU EXPANSION CONNECTIONS TO IHU, HEU, AND OIU UNITS

Notes: A single IHU supports expansion connections as follows:

- To one additional IHU
- To one HEU and one OIU

For connections to additional IHUs or HEUs, and OIUs:

Using the appropriate length ERFC cable (according to distance of available OIX/RIX port) connect remaining IHU RIX and OIX module connectors as follows:

- Connections to additional IHU (see Figure 5):
 - IHU #1 RIX 9-Pin connector to the corresponding IHU #2 OIX module
 - IHU #1 OIX 9-Pin connector to the corresponding IHU #2 RIX module
- Connections to additional HEUs and OIUs (see Figure 6):
 - IHU RIX 9-Pin connector to the corresponding connector on the OIX module of the additional OIU.
 - IHU OIX 9-Pin connector to the corresponding connector on the RIX module of the additional HEU.

Note: The RIX and OIX modules of the additional HEU and OIU units must also be connected.

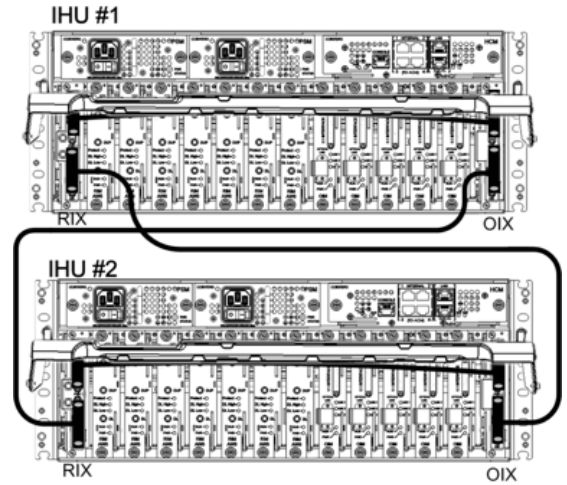


Figure 5: RIX to OIX Connections - Two IHUs

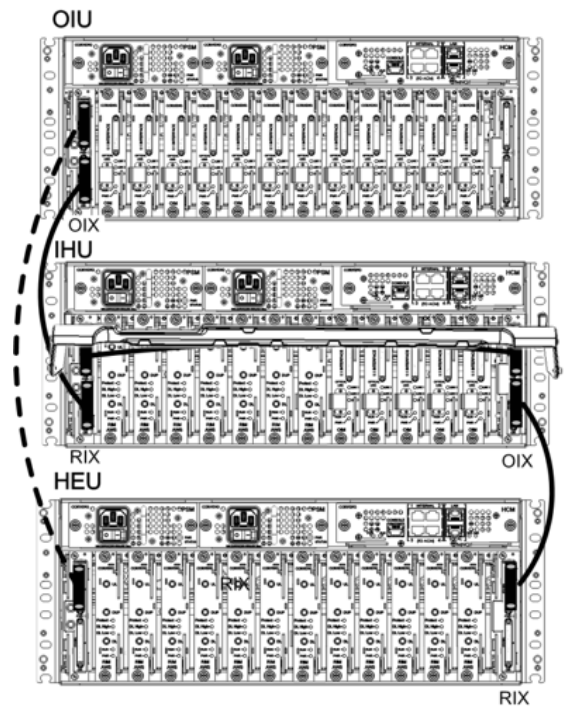


Figure 6: RIX to OIX Connections between IHU, HEU, and OIU

7. CONNECT RIMS TO RF SOURCE(S)

- Step 1:** For each RIM – connect the RF coax cable to the RIM's simplex or duplex QMA connectors. See Figure 7.
- Step 2:** Route the connected cables through the cable management tray towards the right or left of the tray (depending on the module location in the chassis).
- Step 3:** Connect the RF coax cable from the RIM to the corresponding external RF source.

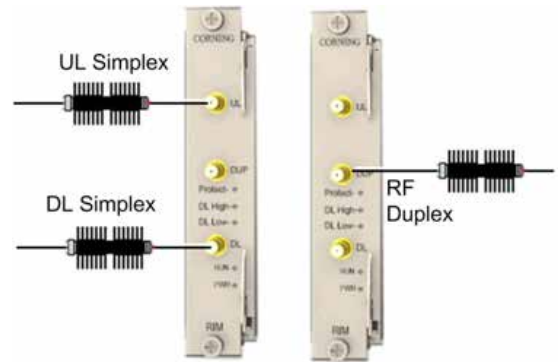


Figure 7: RIM RF Source Simplex/Duplex Interfaces

8. RIX 10 MHz PILOT CLOCK CONNECTIONS

- Notes:*
- This section is only relevant for configurations with additional IHU or HEU and OIU units.
 - The REF IN and REF OUT pilot clock ports must be connected in a closed loop as shown in Figure 8.
 - Both RIX modules of each chassis must be connected.
 - The jumper cables are routed through the sides of the cable management tray and door.

Referring to Figure 9, use the QMA/QMA jumper cable (PCKC47 provided with each RIX) to connect the REF OUT and REF IN ports of each of the RIX modules in the HEU chassis.

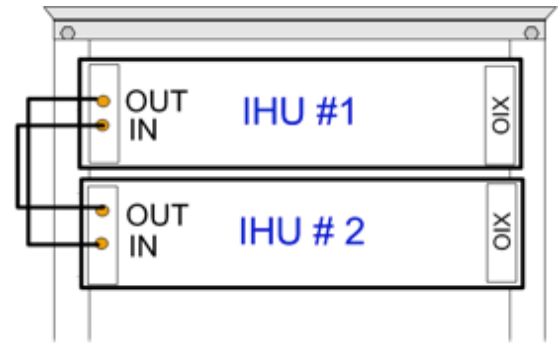


Figure 8: Example of Pilot Clock Connections Between Two IHUs

9. FIBER CONNECTIONS

Using the provided Corning MTP®-LC APC Harness Cable:

- Connect the cable MTP connector to the OIM MTP connector.
- Remove the protective plastic covers and connect the (3) LC APC connection fibers to the FMU Edge module LC APC connections. See Figure 9.



Figure 9: OIM Fiber Connections

10. MANAGEMENT CONNECTIONS

- Notes:
- One RJ45/RJ45 management cable is provided with each IHU.
 - Refer to control module quick installation sheet (CMA-348-AEN) provided with each module for instructions on how to perform the management connections.
 - The management connections are routed to the right via the cable management tray.

ATTENTION! Make sure there are no loop back connections to the HCM or ACM modules! An HCM connected to an ACM cannot have another cable connecting it back to the HCM – doing so may cause alarm flooding resulting in a system freeze!

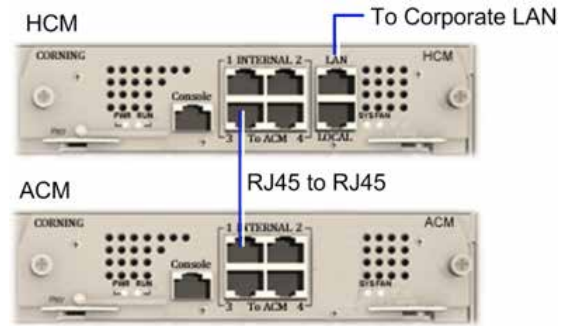


Figure 10: HCM LOCAL Port to ACM Port LOCAL Management Connection

11. POWER ON

Note: Max power consumption for fully loaded chassis: 300 W

- Step 1:**
- For PSM-AC modules – connect supplied power cable (100-240 VAC) connector to the PSM input connector and to the AC outlet and switch on. See Figure 11.
 - For PSM-DC modules – refer to Quick Start Guide provided with module for wiring pinout.
- Step 2:** Verify that the Power Status LED on each PSM shows green. See Figure 11 for PSM-AC LED.

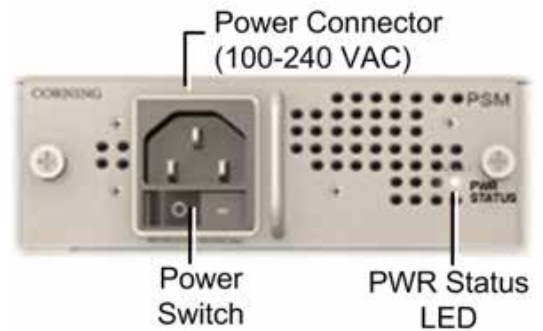


Figure 11: AC Power Supply Module LEDs

12. VERIFY NORMAL OPERATION

Referring to Table 2 and Figure 12, Figure 13, and Figure 14 respectively – verify that the RIM (if RF source is operational), OIM, and HCM/ACM LEDs indicate normal operation:

Module	LED	Description
RIM	RIM	N/A
	DL High	Off – DL RF input level in threshold range Steady Red – DL RF input level is 3 dB above max expected power
	DL Low	Off – DL RF input level in threshold range Steady Red – DL RF input level is 15 dB below max expected power
	RUN	Blinking Green – RIM module software has initialized and is up and running Off – Power off
	PWR	Steady green – Input power is within required range
OIM	Link 1/2/3	Steady Green – Optical link power to/from the connected remote is normal Off – No optical power from remote detected
	Run	Blinking Green – OIM module software has initialized and is up and running Off – Power off
	PWR	Steady Green – Power input detected in OIM
HCM/ACM	PWR	Steady Green – Power input detected by HCM/ACM
	RUN	Blinking Green – HCM software up and running
	SYS	Steady Green – Overall status of the managed system is ok
	FAN	Steady Green – Normal operation status for all fans

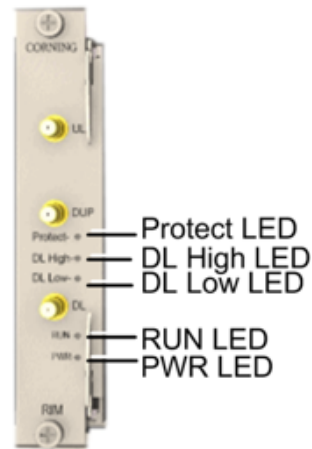


Figure 12: RIM LEDs



Figure 13: OIM LEDs

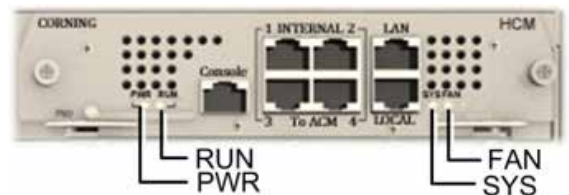


Figure 14: HCM/ACM LEDs

RIM, OIM, and HCM/ACM LED Descriptions | Table 2

APPENDIX: ASSEMBLING IHU CABLE MANAGEMENT TRAY

- Notes:
- The IHU cable management tray is used for managing the unit connection cables.
 - The IHU cable management tray includes a routed ERFC34 cable; Expander Cable — RF interface cable between RIX and OIX modules; 9-pin SMP to SMP connector; L = 34 in.
 - The tray can be assembled either before or after the IHU module cables are connected.
 - A Phillips screwdriver is required.

Step 1. Attach Cable Management Tray to IHU Chassis

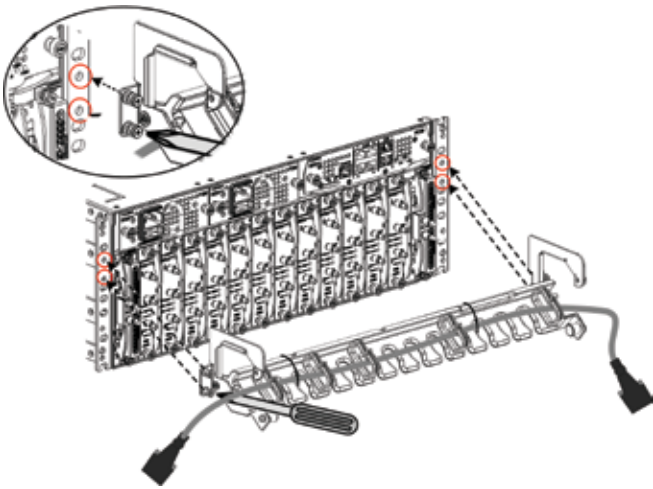


Figure A1: Assembling Cable Management Tray to IHU Chassis

Step 2. Connect ERFC cable to RIX (Slot 1) and OIX (Slot 14) 9-Pin Connector Connectors

ATTENTION! Make sure that ERFC cable is manipulated in such a way that the 9-pin connectors properly connect to the RIX and OIX modules and so that the cable does not obstruct the module slots. Do not remove the cable ties holding the cable in place!

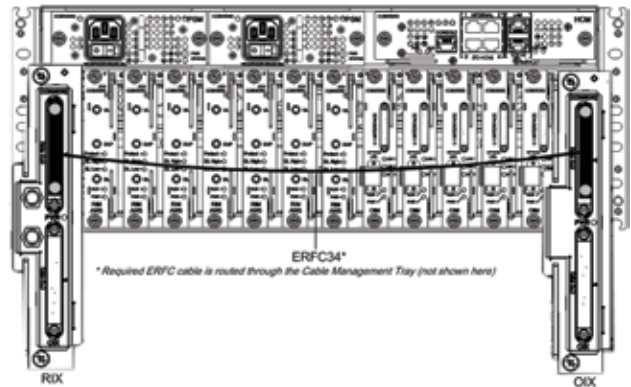


Figure A2: Overview of ERFC Cable Connection to RIX and OIX Modules

Step 3. Route Connected Cables and Lock Tray

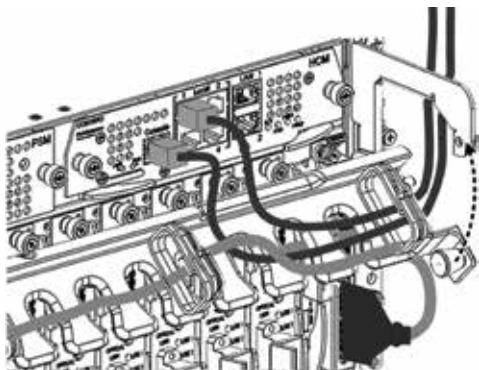


Figure A3: Routing Connection Cables and Locking Tray

Step 4. Example of Routed Cables and Locked Tray

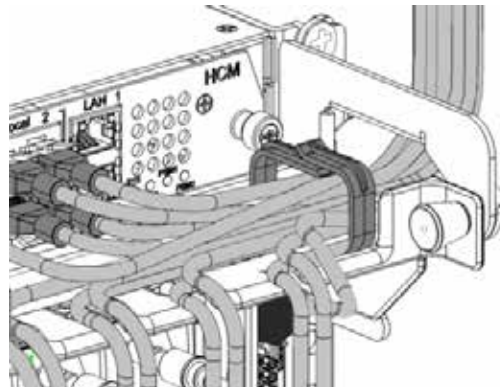


Figure A4: Example of Routed Cables

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