

5. MOUNTING METHOD

5.1 Head End

5.1.1 Rack Mount

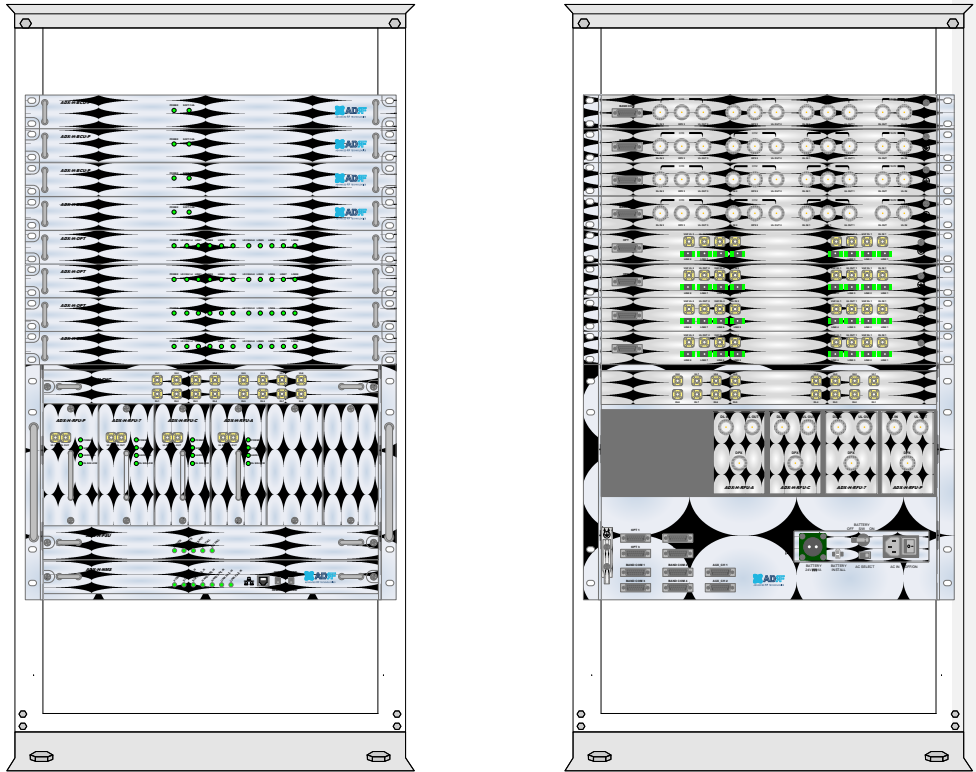


Figure 5-1 HE Rack Mount (Front & Rear view)

- Expandable up to 4 OPTs, 4 BCUs and 2 AUX CHs

5.1.2 Wall Mount

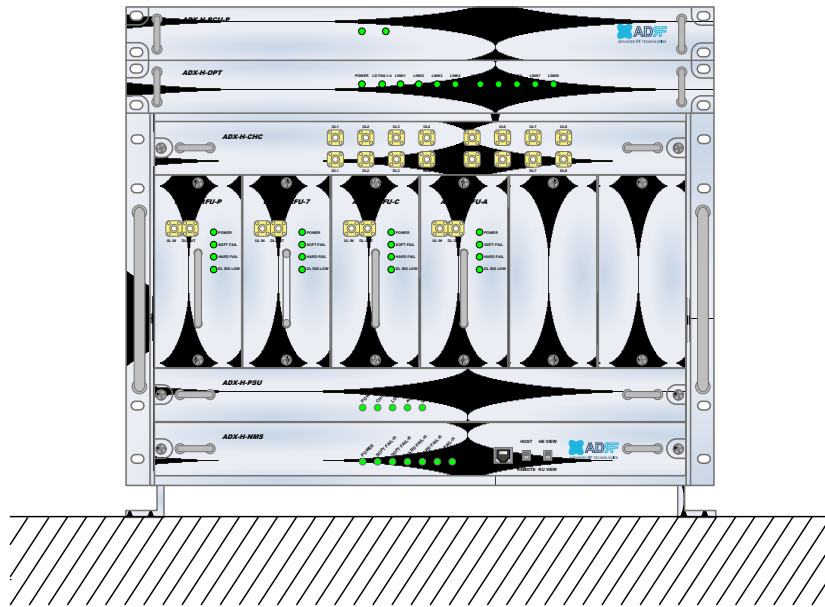


Figure 5-2 HE Wall Mount (Top View)

- Expandable up to 3 units (OPT, BCU) or max 3U (132mm)
 - ODU Rack or BCU will be stacked up above basic 19" HE chassis which includes NMS, RFU, PSU and CHC

5.2 Remote Unit
5.2.1 Rack Mount

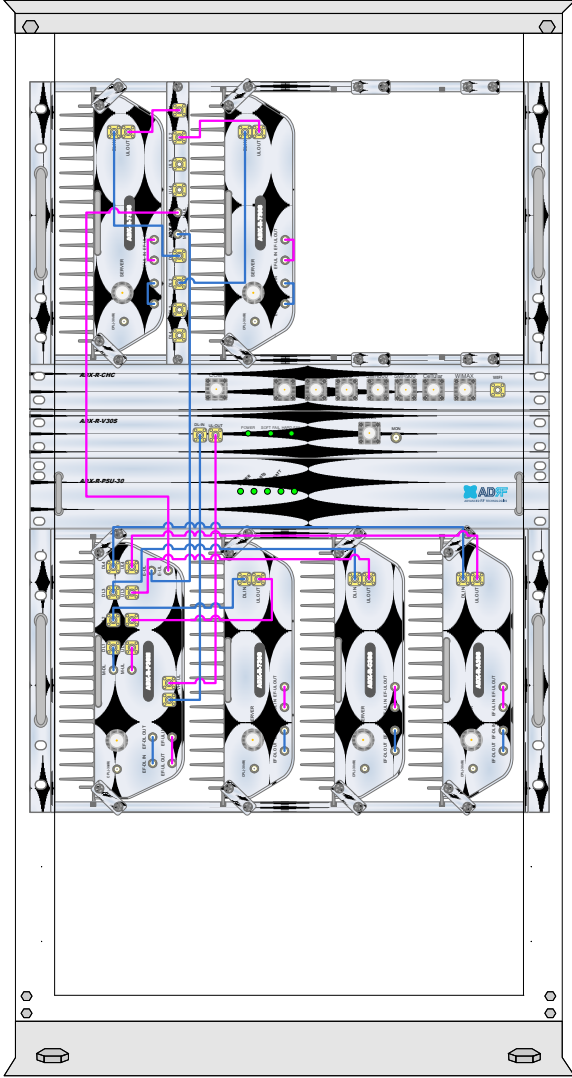


Figure 5-3 RU Rack Mount (Front view)

5.2.2 Wall Mount

5.2.2.1 Remote Unit using RU Chassis (ADX-R-CHA-30)

Wall mount brackets attached to the individual remote modules must be removed before sliding the remote modules into the RU Chassis.

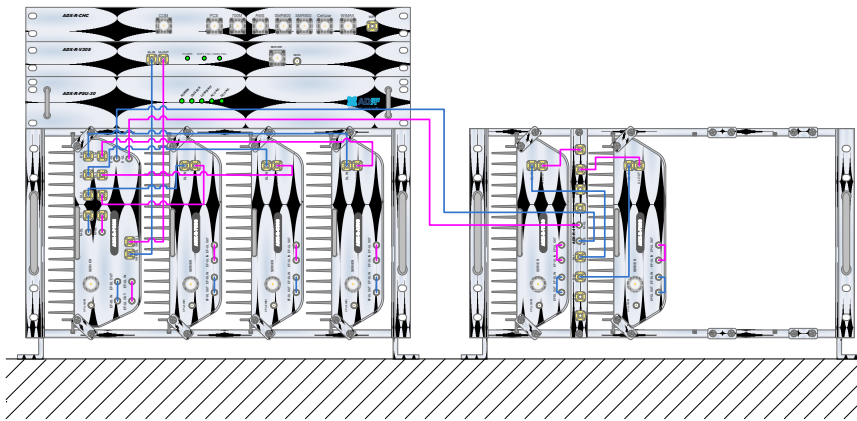


Figure 5-4 19" Shelf type - RU Wall Mount (Top view)

5.2.2.2 Individual Remote Module

Remote modules can be mounted using the attached mounting bracket that ships with the unit.

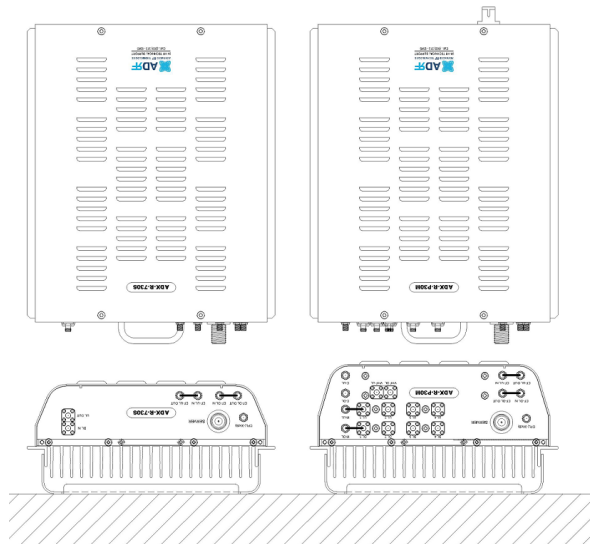


Figure 5-5 Remote Module Wall Mount (Top view)

6. INSTALLATION

6.1 Pre-Installation Inspection

Please follow these procedures before installing ADX equipment:

- Verify the number of packages received against the packing list.
- Check all packages for external damage; report any external damage to the shipping carrier. If there is damage, a shipping agent should be present before you unpack and inspect the contents because damage caused during transit is the responsibility of the shipping agent.
- Open and check each package against the packing list. If any items are missing, contact ADRF customer service.
- If damage is discovered at the time of installation, contact the shipping agent.
- Verify the AC voltage with DVM (Volt meter), then select the either 110V or 220V AC using the selection switch located at the rear of HE and RU PSU. The ADX ships with the AC selection switch set to the 110V position. Incorrect AC selection can damage the ADX equipment.

6.2 ADX DAS Installation Procedure

6.2.1 HE Installation Procedure



CAUTION: ADX DAS HE should be installed inside building only.

6.2.1.1 Installing a ADX DAS HE in a rack

The ADX HE chassis mounts in a standard 19" (483mm) equipment rack. Allow clearance of 3" (76mm) at the front and rear, and 2" (51mm) on both sides for air circulation. No top or bottom clearance is required.

- Consideration:
 - Eight mounting holes are located on 4 corners of ADX HE to attach it to the 19" rack. The ADX HE must be securely attached to a rack that can support the weight of the ADX.
- Mount procedure
 - The following steps should be followed while mounting the ADX HE
 - > Detach the wall mount bracket assembled located at the base of the ADX-HE chassis
 - > Verify that the HE and Mounting holes are in good condition
 - > Set the ADX DAS HE against the 19" rack and secure the unit with screws
 - > Verify that ADX HE is securely attached
 - > Connect the GND cable
 - > Connect the RF cable
 - > Connect the Power
 - > Connect the Optic cable

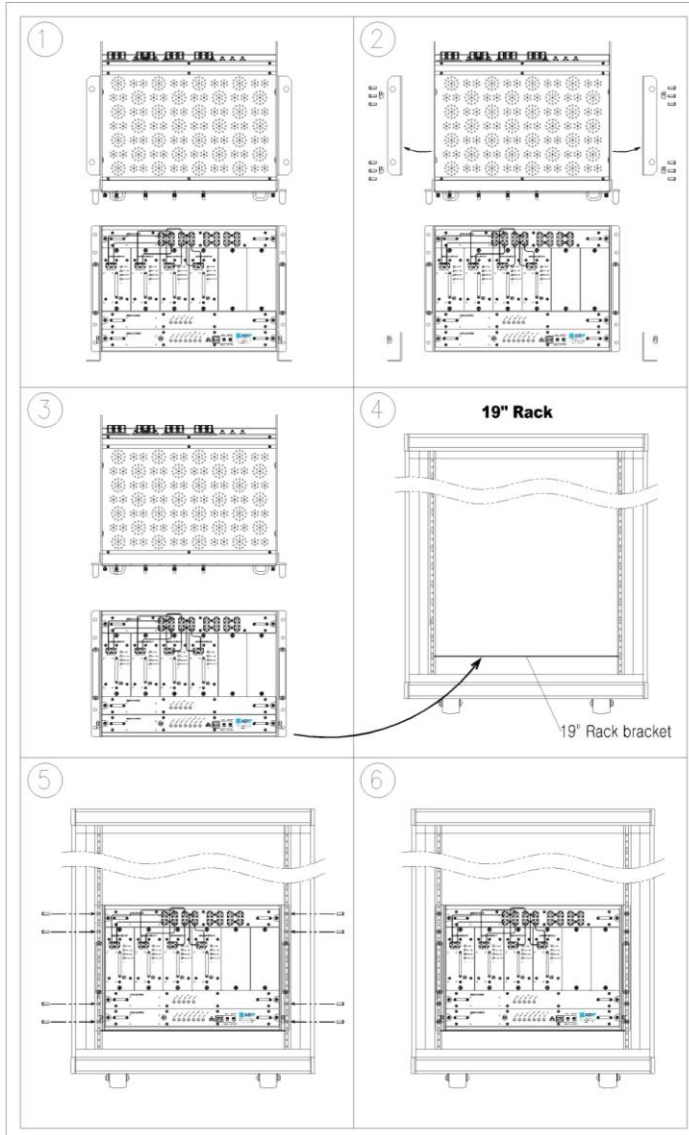


Figure 6-1 ADX HE 19" Rack Mount Instructions

6.2.1.2 Wall mounting the ADX DAS HE

If the ADX HE chassis is being mounted to a wall, then allow clearance of at least 17" (430mm) on the top (front side of HE) and 2" (51mm) on the bottom (rear side of HE) and 2" (51mm) on both sides and front for air circulation.

- Mount procedure
 - The following steps should be followed when wall mounting the ADX HE
 - > Verify that the HE and Mounting hole are in good condition
 - > Place the ADX HE against the wall and mark of the mounting holes
 - > Drill holes(4holes, 18Φmm, 50mm depth) in the installation surface and insert the anchor bolts
 - > Bolt the ADX HE to the wall
 - > Make sure the ADX HE is securely attached
 - > Connect the GND cable
 - > Connect the RF cable
 - > Connect the Power
 - > Connect the Optic cable

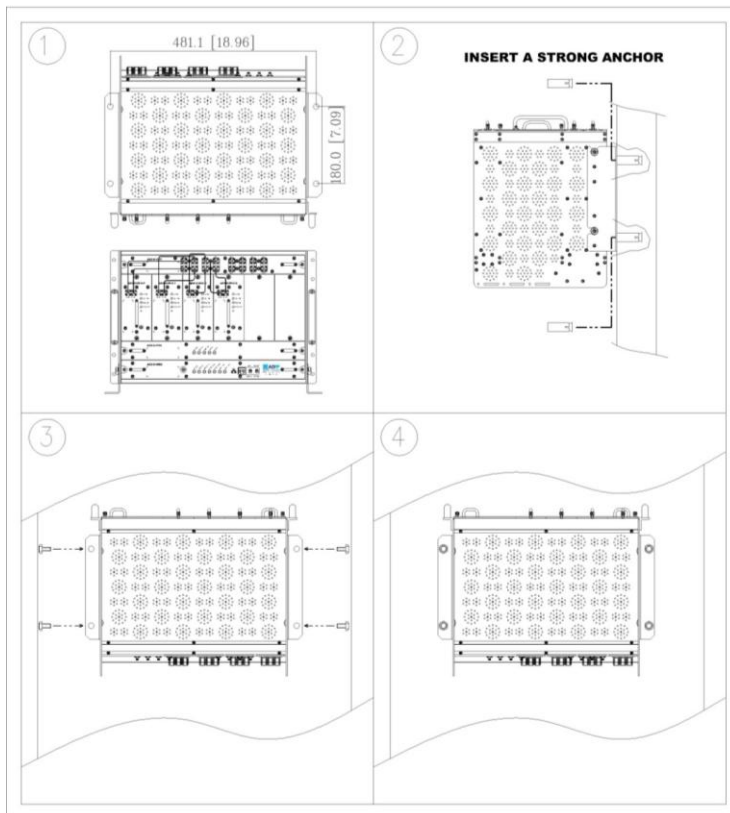


Figure 6-2 ADX HE Wall Mount Instructions

6.2.1.2.1 Installing added rack type modules into basic HE chassis

Additional modules such as the ADX-H-RACK-ODU and ADX-H-BCU can be mounted to the Chassis (ADX-H-CHA) using the included mounting brackets that come with the add-on modules.

- A maximum of up to 3 add-on modules (OPT, BCU) can be mounted to the chassis
 - ODU Rack or BCU will be stacked up above basic 19" HE chassis which includes NMS, RFU, PSU and CHC

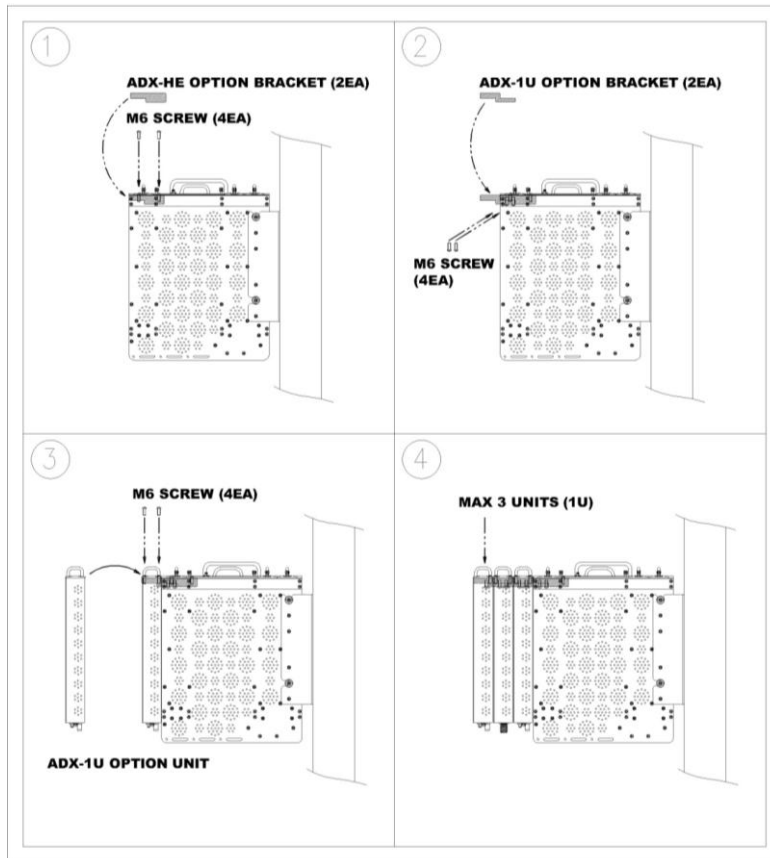


Figure 6-3 Wall Mount Instructions for ADX-HE added 1U Unit

6.2.2 RU Installation Procedure



CAUTION: ADX DAS RU should be installed inside building only.

6.2.2.1 Installing a ADX DAS RU in a rack

If the ADX RU chassis is being wall mounted then allow clearance of 3" (76mm) front and rear, and 2" (51mm) on both sides for air circulation. No top or bottom clearance is required.

When ADX DAS RU mounts in a standard 19" equipment rack, rack or wall type fan is needed for heat dissipation. The rack type fan (ADX-R-FAN) must have at least 1.75" of clearance.

- Consideration:
 - Eight mounting holes are located on 4 corners of ADX RU to attach it to the 19" rack. The ADX RU must be securely attached to support the weight of the ADX-RU units.
- Mount procedure
 - The following steps should be followed while mounting the ADX-RU units
 - > Detach the wall mount bracket located at the base of the ADX-RU chassis
 - > Verify that the RU and Mounting hole are in good condition
 - > Screw the ADX DAS RU to the 19" rack
 - > Make sure the ADX RU is securely attached
 - > Connect the GND cable
 - > Connect the RF cable
 - > Connect the Power
 - > Connect the Optic cable

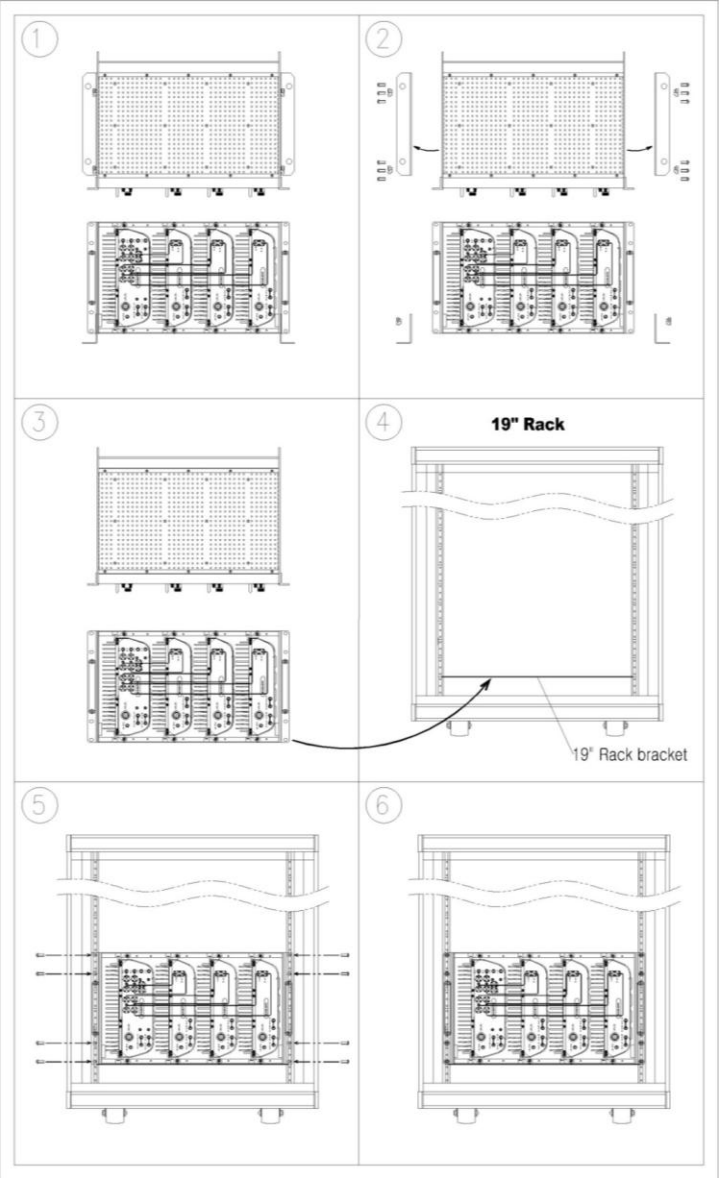


Figure 6-4 ADX-RU 19" Rack Mount Instructions

6.2.2.2 Wall mounting the ADX DAS RU

If the ADX RU chassis is being mounted to a wall, then allow clearance of at least 16" (406mm) on the top (front side of RU), 2" (51mm) on the bottom (rear side of RU) and 2" (51mm) on both sides and front for air circulation.

- Mount procedure
 - The following steps should be followed while mounting the ADX RU
 - > Verify that the RU and Mounting hole are in good condition
 - > Place the RU chassis up against the wall and mark off the mounting holes
 - > Drill holes(4holes, 18Φmm, 50mm depth) in the installation surface and insert the anchor bolts
 - > Bolt the RU chassis to the wall
 - > Install the individual Sub-RU inside of the chassis
 - > Make sure the RU chassis is securely attached
 - > Connect the RF cable
 - > Connect the Antenna cable
 - > Connect the Power
 - > Connect the Optic cable

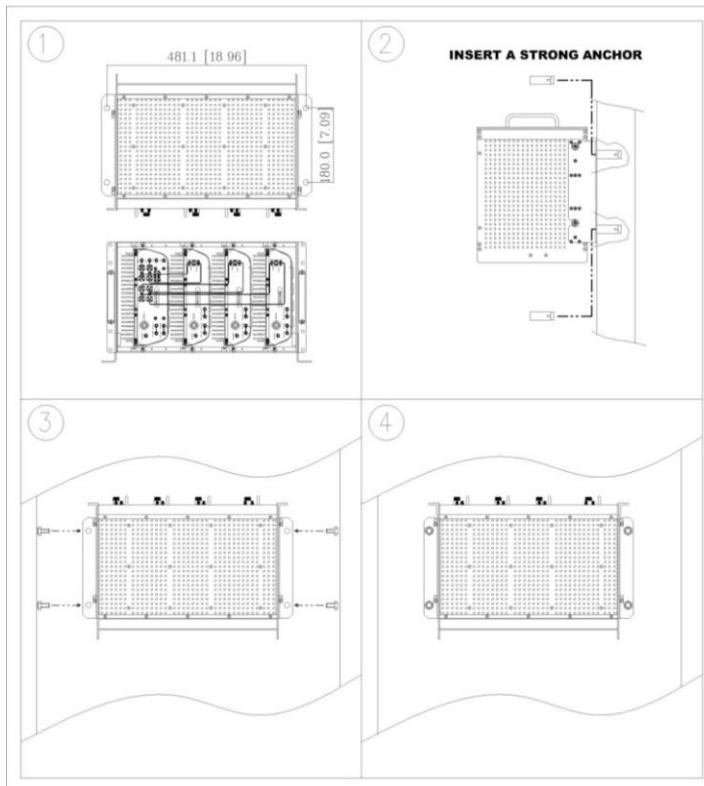


Figure 6-5 ADX-RU Wall Mount Instructions

6.2.2.2.1 Installing added rack type modules into basic HE chassis

Additional modules such as the ADX-R-CHC (channel combiner) and ADX-R-PSU (power supply unit) can be mounted to the Chassis (ADX-R-CHA) using the included mounting brackets that come with the add-on modules.

- A maximum of up to 2 add-on modules (ADX-R-CHC and ADX-R-PSU) can be mounted to the chassis.
 - ADX-R-PSU or ADX-R-CHC will be stacked up above basic 19" RU chassis which holds the Master/Slave RU units.

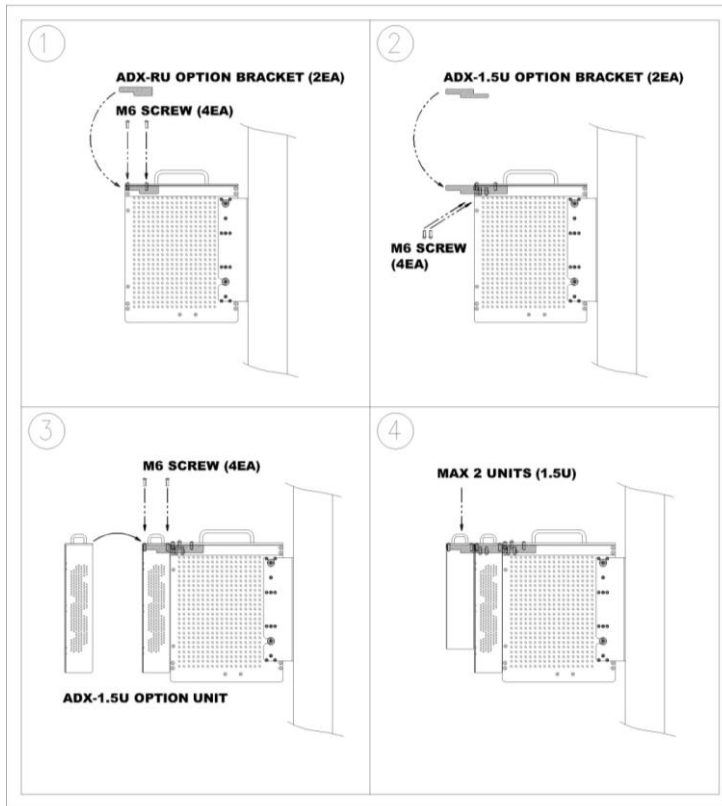


Figure 6-6 Wall Mount Instructions for ADX-RU added 1.5U Unit

6.2.2.3 Wall mounting an ADX Remote Module

- Mount procedure
 - The following steps should be followed while mounting the Remote Module
 - > Verify that the RU and Mounting hole are in good condition
 - > Separate the wall mount bracket from the Sub-RU
 - > Placed the wall mount bracket against the wall and mark off the mounting holes
 - > Drill holes(4holes, 6Φmm) in the installation surface then insert the enclosed anchor bolts
 - > Bolt the mounting bracket to the wall
 - > Install the Sub-RU to the mounting bracket
 - > Fasten the Sub-RU to the mounting bracket using the included screws
 - > Verify that the Remote Module is securely attached
 - > Connect the Antenna cable
 - > Connect the Power
 - > Connect the Optic cable (if applicable)

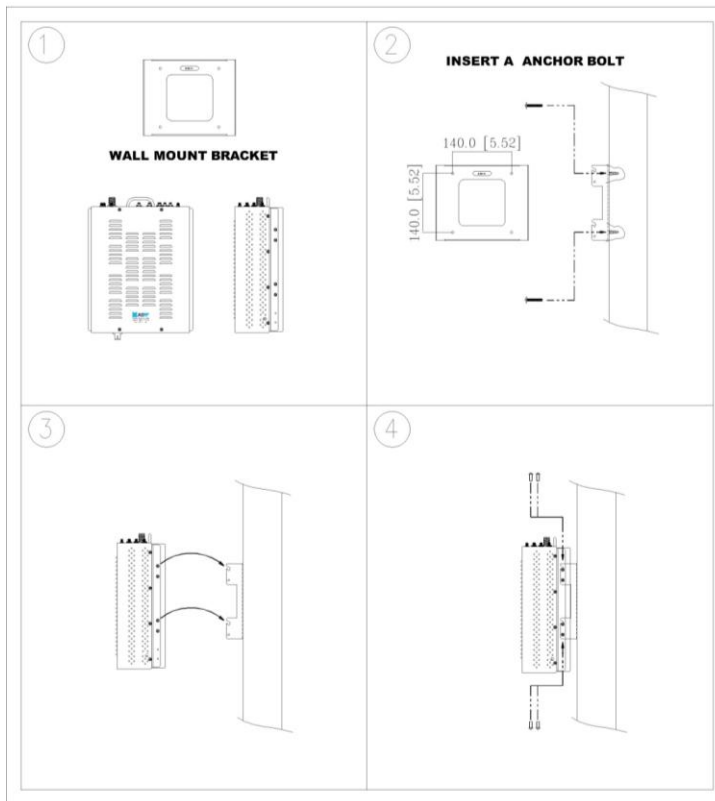


Figure 6-7 Remote Module Wall Mount Instructions

6.2.3 ADX-H-OEU Installation Procedure



CAUTION: ADX-H-OEU should be installed inside building only.

6.2.3.1 Installing a ADX-H-OEU in a Rack

The ADX-H-OEU mounts in a standard 19" (483mm) equipment rack. Allow clearance of 3" (76mm) front and rear, and 2" (51mm) on both sides for air circulation. No top or bottom clearance is required.

- Consideration:
 - Four mounting holes are located on 4 corners of ADX-H-OEU to attach it to the 19" rack. The ADX-H-OEU must be securely attached to support the weight of the unit.
- Mount procedure
 - The following steps should be followed while mounting the ADX-H-OEU
 - > Detach the wall mount brackets located at the base of the ADX-H-OEU
 - > Verify that the OEU and mounting hole are in good condition
 - > Screw the ADX-H-OEU to the 19" rack
 - > Make sure the ADX-H-OEU is securely attached
 - > Connect the GND cable
 - > Connect the RF cable
 - > Connect the Power
 - > Connect the Optic cable

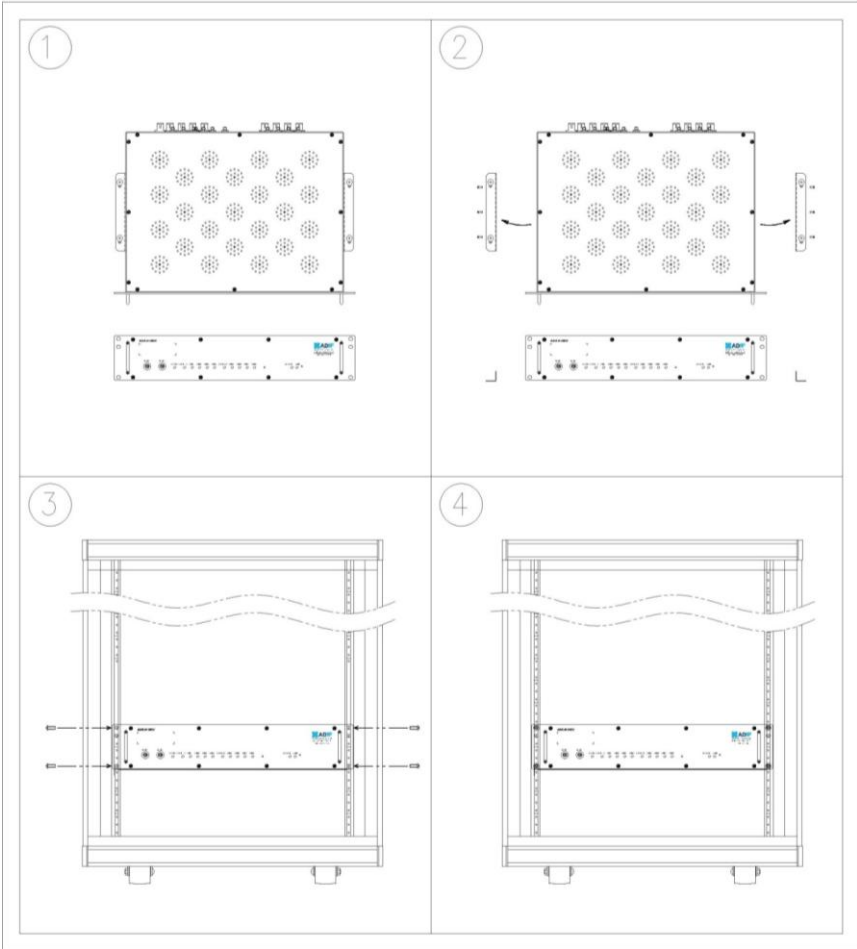


Figure 6-8 ADX-H-OEU Rack Mount Instructions

6.2.3.2 Wall mounting the ADX-H-OEU

- Mount procedure
 - The following steps should be followed while mounting the ADX-H-OEU
 - - > Verify that the OEU and Mounting hole are in good condition
 - > Drill holes(4holes, 6Φmm) in the installation surface then insert the enclosed anchor bolts
 - > Set the ADX-H-OEU against the wall
 - > Make sure the OEU is securely attached
 - > Connect the RF cable
 - > Connect the Antenna cable
 - > Connect the Power
 - > Connect the Optic cable

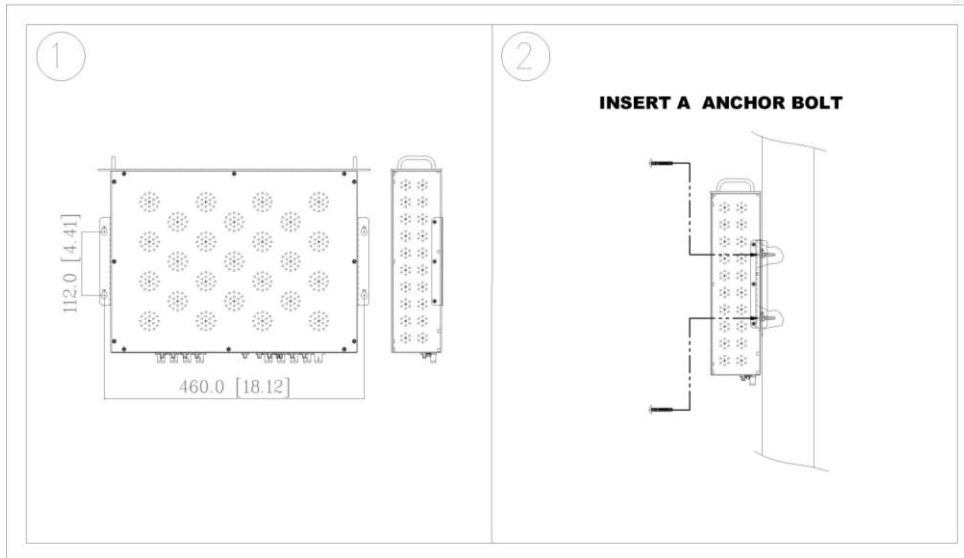


Figure 6-9 ADX-H-OEU Wall Mount Instructions

6.3 Grounding

A ground cable is included in the box. The grounding terminals are located at the rear of the ADX HE and RU. The grounding cable should be properly connected before powering on the equipment.

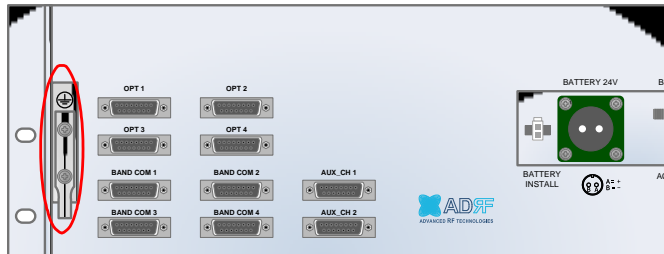


Figure 6-10 Ground Cable Connection (HE rear side)

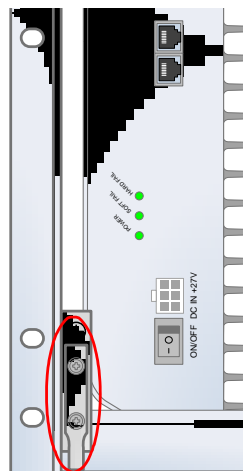


Figure 6-11 Ground Cable Connection (RU rear side)

6.4 Optic Port Cleaning

- We recommend cleaning optic connector using a dry optical cleaning swab or tissue in a dry environment as needed. We recommend cleaning the optic connectors only if the expected optic loss is higher than the loss reported in the Web-GUI by 1.5dB_o. (Figure 6-12)
- When optic connector are not in use, the port should be covered with a protective dust cap. (Figure 6-13)

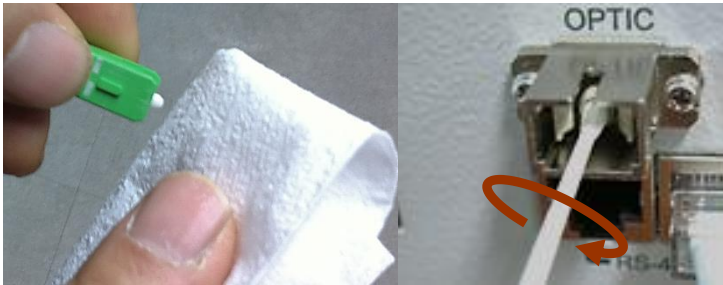


Figure 6-12 Optic Connector Cleaning (left) and Optic Port Cleaning (right)

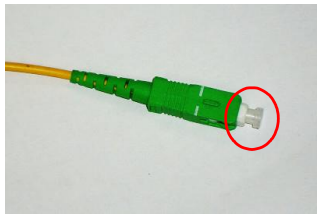


Figure 6-13 SC/APC Optic Connector Dust Cap

7. WARRANTY AND REPAIR POLICY

7.1 General Warranty

The ADX carries a Standard Warranty period of two (2) years unless indicated otherwise on the package or in the acknowledgment of the purchase order.

7.2 Limitations of Warranty

Your exclusive remedy for any defective product is limited to the repair or replacement of the defective product. Advanced RF Technologies, Inc. may elect which remedy or combination of remedies to provide in its sole discretion. Advanced RF Technologies, Inc. shall have a reasonable time after determining that a defective product exists to repair or replace the problem unit. Advanced RF Technologies, Inc. warranty applies to repaired or replaced products for the balance of the applicable period of the original warranty or ninety days from the date of shipment of a repaired or replaced product, whichever is longer.

7.3 Limitation of Damages

The liability for any defective product shall in no event exceed the purchase price for the defective product.

7.4 No Consequential Damages

Advanced RF Technologies, Inc. has no liability for general, consequential, incidental or special damages.

7.5 Additional Limitation on Warranty

Advanced RF Technologies, Inc. standard warranty does not cover products which have been received improperly packaged, altered, or physically damaged. For example, broken warranty seal, labels exhibiting tampering, physically abused enclosure, broken pins on connectors, any modifications made without Advanced RF Technologies, Inc. authorization, will void all warranty.

7.6 Return Material Authorization (RMA)

No product may be returned directly to Advanced RF Technologies, Inc. without first getting an approval from Advanced RF Technologies, Inc. If it is determined that the product may be defective, you will be given an RMA number and instructions in how to return the product. An unauthorized return, i.e., one for which an RMA number has not been issued, will be returned to you at your expense. Authorized returns are to be shipped to the address on the RMA in an approved shipping container. You will be given our courier information. It is suggested that the original box and packaging materials should be kept if an occasion arises where a defective product needs to be shipped back to Advanced RF Technologies, Inc. To request an RMA, please call (800) 313-9345 or send an email to techsupport@adrfttech.com.

8. WEB-GUI

8.1 Web-GUI Setup

The Web-GUI allows the user to communicate with the DAS system either locally or remotely. To connect to the DAS system locally, you will need a laptop with an Ethernet port and a RJ-45 crossover cable. To connect to the DAS system remotely, you will need to have an active internet connection and the ADX system must have an external modem box connected to the ADX.

8.1.1 DAS system/PC Connection Using Web-GUI

- Verify that your Local Area Connection is set to **Obtain an IP address automatically** under the Internet Protocol (TCP/IP) properties
 - If you are connecting to the unit remotely (use of a modem), then skip this and next step.
- Connect the RJ-45 crossover cable between the laptop's Ethernet port and the repeater's Ethernet port
- Launch an Internet Browser
- Type the following IP address into the address bar of Microsoft Internet Explorer: <http://192.168.63.1>
 - If you are connecting to the unit remotely, then type the IP address of the modem to connect to the unit
- The following login screen will appear:

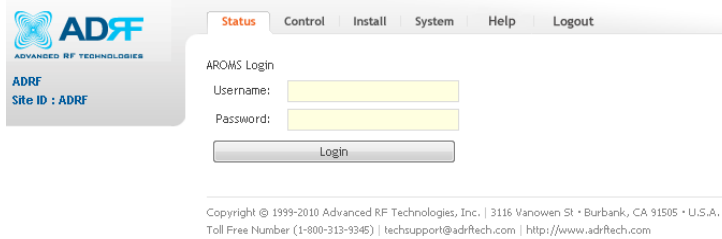


Figure 8-1 Login screen

If you are not the Administrator, please type in your assigned username & password which you should have received from the Administrator.

Table 8-1 Account Information for Login

Account type	Show items	Control Items	Default ID	Default Password
Administrator	all Items	all items	admin	admin
User	restricted items	restricted items	adrft	adrft
Guest	restricted items	read-only	guest	guest

8.2 Administrator/User Mode

8.2.1 Common

8.2.1.1 Navigation tree Lock/Unlock

When the system is “Locked”, a green lock icon will appear above the navigation tree. When the system is locked, new devices cannot be added. Any devices added to the system when the system is “Locked” will not be detected by the NMS. After a system has been commissioned properly, the system should be left in the “Locked” position. To unlock the system, click on the “Unlock System” button to the right of the icon.

When the system is “Unlocked”, an orange icon will appear above the navigation tree. When the system is unlocked, new devices added to the system will be automatically detected. Once the new hardware appears in the system tree, then the system can be locked. To lock the system, click on the “Lock System” button to the right of the icon.



Figure 8-2 Navigation tree Lock/Unlock

8.2.1.2 Navigation Tree

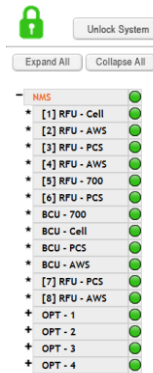


Figure 8-3 Navigation tree

The navigation tree located on the left hand side of the Web-GUI allows the user to switch between the various modules that are connected to the system.



Table 8-2 Navigation tree

Parameters	Description
Expand All	Expands the entire navigation tree
Collapse All	Collapses the entire navigation tree
+	The module has the expandable subordinate modules
-	The branch is currently expanded
Orange circle	The module has soft fail alarm
Red circle	The module has hard fail alarm
Green circle	The module has no alarms (normal)
NMS	The selected module will have orange colored text

8.2.1.3 Power Status

Display the power source that is currently being used.



Table 8-3 Power Supply Status

Input Power Status	Display Image
AC	 Power
Battery	 Battery

8.2.1.4 Commissioning Status

Display whether or not the module has successfully been commissioned.

Table 8-4 Commissioning ICON

Status	Display Image
Commissioned	 Commissioned
Not-Commissioned	 Not Commissioned

8.2.1.5 Information

ADRF Remote Operation & Management System

Information

Serial Number	SN_NMS
Latitude	N777.777777
Longitude	E777.777777
Firmware	13000F01002X
Web GUI	X0.0.35

Location
ADRF
3116 Vanover St.
Burlingame CA 94505

Description
nms_desc

Technical Support
Phone: 800-313-9345
E-mail: techsupport@adrf-tech.com

Installer Contact Info
Company: ADRF
Installer: Installer
Phone: 800-313-9345
E-mail: techsupport@adrf-tech.com

Figure 8-4 ADX DAS General Information

- Information: Displays the serial number, latitude/longitude, firmware version of selected module, and Web GUI version of the NMS.
- Location: Displays the address where the ADX DAS is installed.
- Description: Displays the description of selected module. The description of each module can be edited from the Install tab. It is recommended to use the location of the module as the description. This description information can be seen when hovering over the device tree in order to easily identify each component.
- Technical Support: Displays ADRF's Technical Support contact information.
- Installer Contact Info: Displays the contact information of the installer.

8.2.2 Status Tab
8.2.2.1 Status – NMS

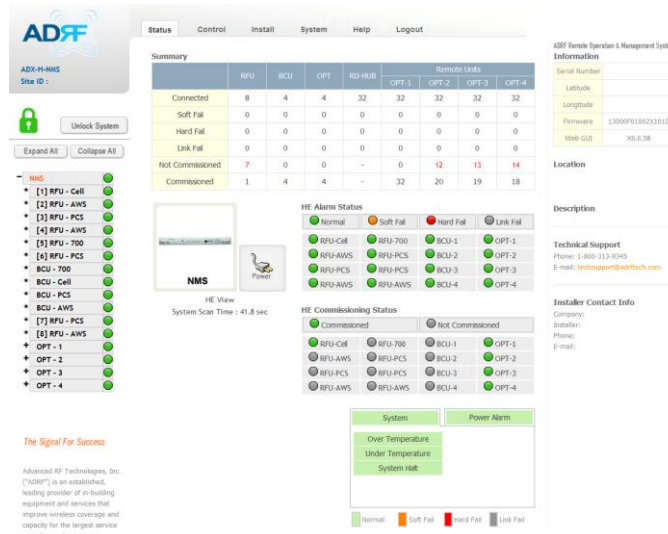


Figure 8-5 Status - NMS

The NMS Status page provides an overall view of how the system is performing. From the NMS Status page, the user can see what modules are connected to ADX DAS. In addition, the user can see if any alarms are present in the system and also the commissioning status of each module.

8.2.2.1.1 System Summary

Summary	RFU	BCU	OPT	RU-HUB	Remote Units			
					OPT-1	OPT-2	OPT-3	OPT-4
Connected	8	4	4	32	32	32	32	32
Soft Fail	0	0	0	0	0	0	0	0
Hard Fail	0	0	0	0	0	0	0	0
Link Fail	0	0	0	0	0	0	0	0
Not Commissioned	7	0	0	-	0	12	13	14
Commissioned	1	4	4	-	32	20	19	18

Figure 8-6 System Summary

The Summary section provides the user with the number of components physically connected, the number of soft/hard/link fails present in the system, and also the number of commissioned and non-commissioned components.

Table 8-5 System Summary Description

Parameters	Description
Connected	Display the number of modules physically connected to ADX DAS
Soft Fail	Display the number of soft fail present on each module
Hard Fail	Display the number of hard fail present on each module
Link Fail	Display the number of link fail present on each module
Not Commissioned	Display the number of non-commissioned or commission failed module
Commissioned	Display the number of successfully commissioned module

8.2.2.1.2 HE View / RU View, System Scan Time

- HE View/RU View
 - Displays whether the NMS is set to HE view or RU view.
 - Refer to section 3.1.1.4
- System Scan Time
 - Displays the time it takes to scan and update the information of all the modules that are on the navigation tree. This time will increase as more components are added to the system.
 - When Navigation Tree is unlocked, the user should wait at least the "System Scan Time" for the system to detect newly added hardware.

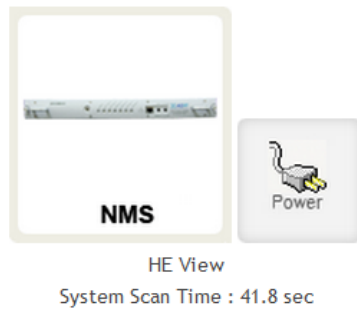


Figure 8-7 System scan time, HE view/RU view

8.2.2.1.3 HE Alarm Status

Display the alarm status of each HE component.

HE Alarm Status

Normal	Soft Fail	Hard Fail	Link Fail
● RFU-Cell	● RFU-700	● BCU-1	● OPT-1
● RFU-AWS	● RFU-PCS	● BCU-2	● OPT-2
● RFU-PCS	● RFU-PCS	● BCU-3	● OPT-3
● RFU-AWS	● RFU-AWS	● BCU-4	● OPT-4

Figure 8-8 HE alarm status

8.2.2.1.4 HE Commissioning Status

Display commissioning status of each HE component.

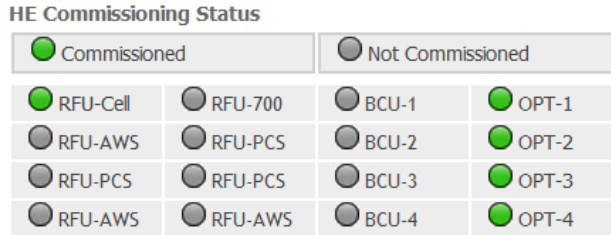


Figure 8-9 HE Commissioning status

Table 8-6 Description for HE Commissioning status

Status	Display	Description
Installed Status	Physically Installed	RFU-PCS Text is black
	Physically Not-Installed	RFU-PCS Text is gray
Commissioning Status	Success	 Green
	Failed or not commissioned	 Gray

8.2.2.1.5 Alarm

Displays alarm status of the NMS. If an alarm is present in the system, the color of the system alarm tab will change according to the type of failure.

Table 8-7 Description for NMS alarm

Alarm	Severity	Description
	Over Temperature	Hard Fail / Soft Fail Temperature of NMS is higher than the threshold level for over temperature alarm
	Under Temperature	Soft Fail Temperature of the NMS is lower than the threshold level for under temperature alarm
	System Halt	Hard Fail HE system halt
	AC Fail	Soft Fail AC power is operating outside of its normal range
	DC Fail	Soft Fail DC power is operating outside of its normal range
	Over Current	Hard Fail Total current of HE is higher than the threshold level for over current alarm
	Battery Low	Soft Fail Voltage of battery connected to HE PSU is lower than the defined threshold

8.2.2.2 Status – BCU

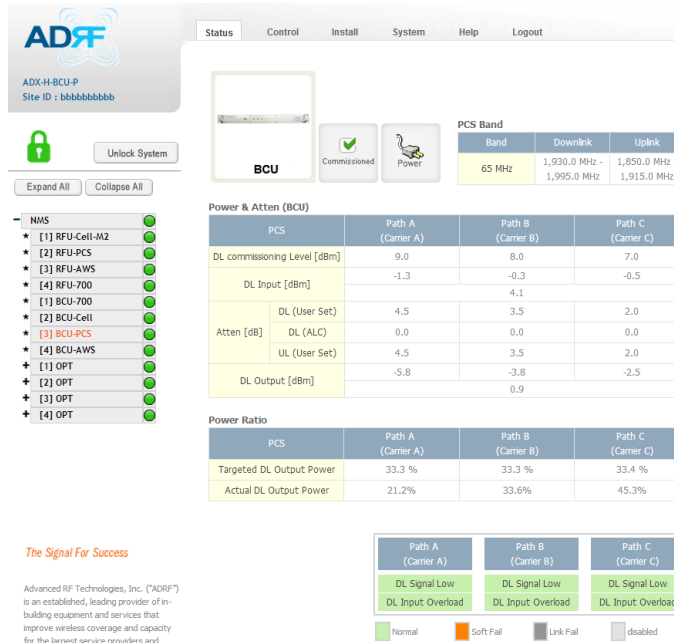


Figure 8-10 Status – BCU

8.2.2.2.1 Band

Displays the bandwidth and the frequency ranges for DL and UL of the BCU module.

PCS Band

Band	Downlink	Uplink
65 MHz	1,930.0 MHz - 1,995.0 MHz	1,850.0 MHz - 1,915.0 MHz

Figure 8-11 Status – BCU Band

8.2.2.2.2 Power & Atten

Power & Atten (BCU)

PCS	Path A (Carrier A)	Path B (Carrier B)	Path C (Carrier C)
DL commissioning Level [dBm]	9.0	8.0	7.0
DL Input [dBm]	-1.3	-0.3	-0.5
		4.1	
DL (User Set)	4.5	3.5	2.0
DL (ALC)	0.0	0.0	0.0
UL (User Set)	4.5	3.5	2.0
DL Output [dBm]	-5.8	-3.8	-2.5
		0.9	

Figure 8-12 Status – BCU Power & Atten

- *DL Commissioning Level*: Displays the commissioning level for each individual RF path. If unit has not been commissioned, “Not Commissioned” will be displayed.
- *DL Input*: Displays the currently incoming signal strength of each RF path along with the composite DL input power of all 3 RF paths.
- *Atten*: Displays the attenuation values that the system is currently using which is defined by the power ratios specified by the user.
- *DL Output*: Displays the output value for each RF path along with the composite DL output power of all 3 RF paths. The DL Output level for each RF path will not exceed 5dBm and the composite output power will not exceed 10 dBm.

8.2.2.2.3 Power Ratio

Power Ratio			
PCS	Path A (Carrier A)	Path B (Carrier B)	Path C (Carrier C)
Targeted DL Output Power	33.3 %	33.3 %	33.4 %
Actual DL Output Power	21.2%	33.6%	45.3%

Figure 8-13 Status – BCU Power Ratio

- *Targeted DL Output Power*: Displays desired power ratios specified by the user. If unit has not been commissioned, “Not Commissioned” will be displayed.
- *Actual DL Output Power*: Displays the currently power ratios that the system is using. These values will fluctuate based on the amount of traffic that is in the system.

8.2.2.2.4 Alarm

Displays the current alarm status of each individual RF path. Parameters for both DL Signal Low and DL Input Overload can be specified from the Control tab.

Path A (Carrier A)	Path B (Carrier B)	Path C (Carrier C)
DL Signal Low	DL Signal Low	DL Signal Low
DL Input Overload	DL Input Overload	DL Input Overload

■ Normal
 ■ Soft Fail
 ■ Link Fail
 disabled

Figure 8-14 Status – BCU Alarm

8.2.2.3 Status – RFU

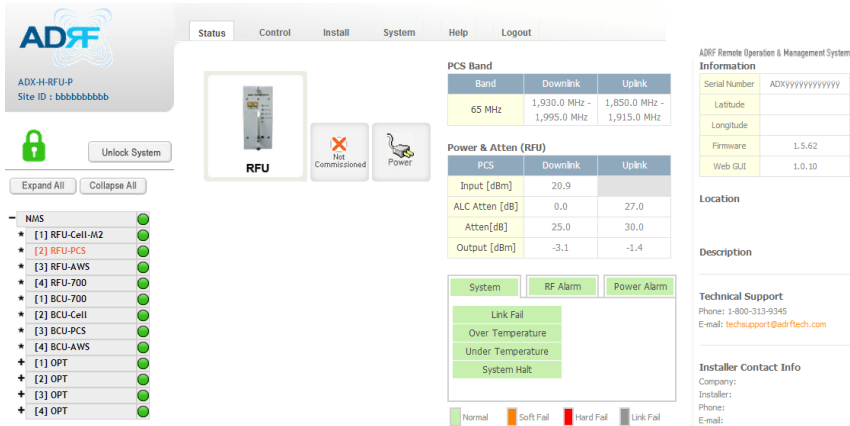


Figure 8-15 Status – RFU

8.2.2.3.1 Band

Displays the bandwidth and the frequency ranges for DL and UL of the RFU module.

PCS Band		
Band	Downlink	Uplink
65 MHz	1,930.0 MHz - 1,995.0 MHz	1,850.0 MHz - 1,915.0 MHz

Figure 8-16 Status – RFU Band

8.2.2.3.2 Power & Gain (Admin/User)

- Admin Mode- Displays the Downlink Input/output, Downlink/Uplink Attenuation, and Uplink Output.
- User Mode- Displays the Downlink Input, Downlink/Uplink Attenuation, and Uplink Output.

Power & Gain (RFU)		
Cell	Downlink	Uplink
Input [dBm]	9.9	
ALC Atten [dB]	0.0	0.0
Atten[dB]	10.0	10.0
Output [dBm]	-4.1	-22.4

Figure 8-17 Power & Gain Display (Admin)

Power & Gain (RFU)

Cell	Downlink	Uplink
Input [dBm]	--.-	
Atten[dB]	25.0	35.0
Output [dBm]		--.-

Figure 8-18 Power & Gain Display (User)

- Input [dBm]: Displays the Downlink RF input level which comes from the ADX-H-BCU, BTS. This value should be between 0 to 25 dBm.
- ALC Atten [dB]: The amount of attenuation that is being used by the system when ALC is active.
- Atten [dB]: The amount of attenuation that has been set manually by the user.
- Output [dBm]: The downlink/uplink output power of the RFU and NOT the output power of the RU.

8.2.2.3.3 Alarm

Displays System, RF, and Power Alarms. If an alarm is present in the system, then the color of the tab will change according to the type of failure.

Table 8-8 RFU Alarm Status

Alarm	Severity	Description	
<p>System</p> <p>Link Fail</p> <p>Over Temperature</p> <p>Under Temperature</p> <p>System Halt</p> <p>Normal Soft Fail Hard Fail Link Fail</p>	Link Fail	Soft Fail	A component is physically connected, but the NMS is unable to communicate with it.
	Over Temperature	Hard Fail / Soft Fail	The temperature of NMS is higher than the threshold level for over temperature alarm.
	Under Temperature	Soft Fail	The temperature of NMS is lower than the threshold level for under temperature alarm.
	System Halt	Hard Fail	System will go into a "System Halt" state when a hard fail alarm does not clear after 10 checks. System Halt can only be cleared with a power cycle, reboot, or factory settings.
<p>RF Alarm</p> <p>DL Signal not detected</p> <p>DL Signal Low</p> <p>Input overload</p> <p>Over Power</p> <p>Normal Soft Fail Hard Fail Link Fail</p>	DL Signal not detected	Soft Fail	Downlink input signal is lower than the defined threshold by user.
	DL Signal Low	Soft Fail	Downlink input signal is lower than the defined threshold by user.
	Input Overload	Hard Fail / Soft Fail	Downlink input signal is higher than the defined threshold.
	Overpower	Hard Fail / Soft Fail	Uplink output signal is higher than the defined threshold by user.
<p>Power Alarm</p> <p>AC Fail</p> <p>DC Fail</p> <p>Over Current</p> <p>Battery Low</p> <p>Normal Soft Fail Hard Fail Link Fail</p>	AC Fail	Soft Fail	AC power is not operating within parameters.
	DC Fail	Soft Fail	DC power is not operating within parameters.
	Over Current	Hard Fail	Total current of HE is higher than the threshold level for over current alarm.
	Battery Low	Soft Fail	Voltage of battery connected to HE PSU is lower than the defined threshold.

8.2.2.4 Status – ODU

ADRF Remote Operation & Management System
Information

Serial Number	odu26@du26
Latitude	
Longitude	
Firmware	1.5.20
Web GUI	X0.0.58

Location

Description

Technical Support
 Phone: 1-800-313-9345
 E-mail: techsupport@adrftech.com

Installer Contact Info
 Company:
 Installer:
 Phone:
 E-mail:

Summary

	Link-1	Link-2	Link-3	Link-4	Link-5	Link-6	Link-7	Link-8
Connected	4	4	4	4	4	4	4	4
Soft Fail	0	0	0	0	0	0	0	0
Hard Fail	0	0	0	0	0	0	0	0
Link Fail	0	0	0	0	0	0	0	0
Not Commissioned	0	0	0	0	0	0	0	0
Commissioned	4	4	4	4	4	4	4	4

RF Status

	Downlink	Uplink
ODU RF 1 [dBm]	-0.1	0.0
ODU RF 2 [dBm]	0.0	26.3

Optic Status

	LD Power	PD Power
Link 1-1 [dBm]	1.2	3.0
Link 1-2 [dBm]		3.5
Link 1-3 [dBm]		3.6
Link 1-4 [dBm]		3.6
Link 1-5 [dBm]	1.2	4.3
Link 1-6 [dBm]		4.4
Link 1-7 [dBm]		4.3
Link 1-8 [dBm]		4.6

Optic Atten

	Downlink	Uplink	
		Common	Link
Link 1-1 [dB]	5.0	5.0	6.5
Link 1-2 [dB]			6.5
Link 1-3 [dB]			6.5
Link 1-4 [dB]			8.5
Link 1-5 [dB]	5.0	5.0	8.0
Link 1-6 [dB]			8.0
Link 1-7 [dB]			8.0
Link 1-8 [dB]			8.5

Optic Link Status

- Link 1-1 ~ 4 LD
- Link 1-1 PD
- Link 1-2 PD
- Link 1-3 PD
- Link 1-4 PD
- Link 1-5 ~ 8 LD
- Link 1-5 PD
- Link 1-6 PD
- Link 1-7 PD
- Link 1-8 PD

Figure 8-19 Status - OPT

8.2.2.4.1 Summary

The Summary section displays the number of remote modules that are physically connected, the number of soft/hard/link fail alarms, and the number of Remote Module that have been commissioned and the number of Remote Module that need to be commissioned.

Summary

	Link-1	Link-2	Link-3	Link-4	Link-5	Link-6	Link-7	Link-8
Connected	4	4	4	4	4	4	4	4
Soft Fail	0	0	0	0	0	0	0	0
Hard Fail	0	0	0	0	0	0	0	0
Link Fail	0	0	0	0	0	0	0	0
Not Commissioned	0	0	0	0	0	0	0	0
Commissioned	4	4	4	4	4	4	4	4

Figure 8-20 Summary (Status – OPT)

Table 8-9 Summary Description

Parameters	Description
Connected	Displays the number of Remote Module's connected to the ADX-H-OPT.
Soft Fail	Displays the total number of soft fail present.
Hard Fail	Displays the number of hard fail present on each module.
Link Fail	Displays the number of link fail present on each module.
Not Commissioned	Displays the number of non-commissioned or commission failed module.
Commissioned	Display the number of successfully commissioned module

8.2.2.4.2 RF Status

Displays the DL input power and the UL output power for each ODU.
An ODU Rack is composed of 2 ODUs.

RF Status

	Downlink	Uplink
ODU RF 1 [dBm]	-0.1	0.0
ODU RF 2 [dBm]	0.0	26.3

Figure 8-21 RF Status (Status – OPT)

8.2.2.4.3 Optic Status

Display LD Power and PD Power for each optic path. LD Power is the power that is being sent to the RU and PD Power is the power that is being received from the RU.

Optic Status

	LD Power	PD Power
Link 1-1 [dBm]	1.2	3.0
Link 1-2 [dBm]		3.5
Link 1-3 [dBm]		3.6
Link 1-4 [dBm]		3.6
Link 1-5 [dBm]	1.2	4.3
Link 1-6 [dBm]		4.4
Link 1-7 [dBm]		4.3
Link 1-8 [dBm]		4.6

Figure 8-22 Optic Status (Status – ODU)

8.2.2.4.4 Optic Atten (Admin Only)

The ADX-H-ODU has 3 types of attenuators.

- Downlink Common Attenuator- Displays the common attenuation level on the DL path.
- Uplink Common Attenuator- Displays the common attenuation level on the UL path.
- Uplink Optic Attenuator- Displays the amount of attenuation used at each optical link.

Optic Atten			
	Downlink	Uplink	
		Common	Link
Link 1-1 [dB]	5.0	5.0	6.5
Link 1-2 [dB]			6.5
Link 1-3 [dB]			6.5
Link 1-4 [dB]			8.5
Link 1-5 [dB]	5.0	5.0	8.0
Link 1-6 [dB]			8.0
Link 1-7 [dB]			8.0
Link 1-8 [dB]			8.5

Figure 8-23 Optic Attenuation (Status – OPT)

8.2.2.4.5 Optic Path Status

Displays the optic status for each optic path

Optic Link Status	
● Link 1-1 ~ 4 LD	● Link 1-5 ~ 8 LD
● Link 1-1 PD	● Link 1-5 PD
● Link 1-2 PD	● Link 1-6 PD
● Link 1-3 PD	● Link 1-7 PD
● Link 1-4 PD	● Link 1-8 PD

Figure 8-24 Optic Path Status (Status – OPT)

Table 8-10 Description for optic path status

Status	Display	Description
LD Status	● Normal	Green, optic signal being sent to Master RU is > -5dBm
	● LD fail	Orange, optic signal being sent to Master RU is < -5dBm
	● Not Connected	Gray, no connection between ODU and Master RU
PD Status	● Normal	Green, optic signal being received from Master RU is > -10dBm
	● PD fail	Orange, optic signal being received from Master RU is < -10dBm
	● Comm Fail or Not Connected	Gray, no connection between ODU and Master RU

8.2.2.5 Status – RU Hub

RU-Hub is not separate module but is integrated into the master RU. The picture of RU Hub displayed on web based GUI is same as the picture of master RU.

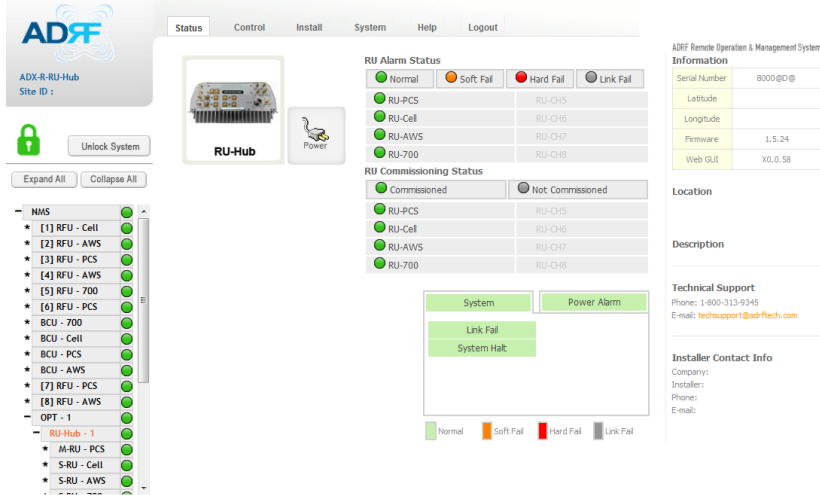


Figure 8-25 Status - RU Hub

8.2.2.5.1 RU Alarm Status

The RU Hub can support up to 8 remote modules. The RU alarm status displays the alarm status of each remote module.

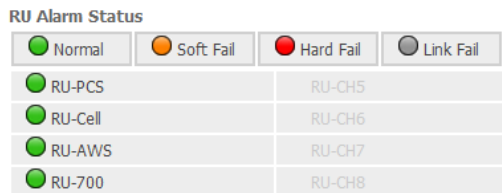


Figure 8-26 RU Alarm Status (Status - RU Hub)

8.2.2.5.2 RU Commissioning Status

Display the Commissioning status of each Remote Module.

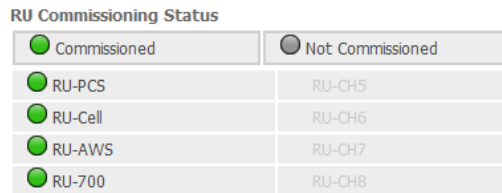


Figure 8-27 RU Commissioning Status (Status - RU Hub)