



GigaSpire BLAST u10xe Installation Guide

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About this Guide

This document provides general installation practices for the Calix u10xe GS4237 BLAST.

This document also provides a general description of the products, and guidance for planning, site preparation, power installation, splicing to the outside plant, and basic troubleshooting.

Important

Illustrations and photos within this installation guide are displayed using u10xe images. However, unless indicated otherwise, these same illustrations reflect both the u10xe and the .

Intended Audiences

This document is intended for use by network planning engineers, outside plant engineers, field support personnel, and craft personnel responsible for installation and maintenance of customer premises equipment.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Safety Notices

This document uses the following safety notice conventions.



DANGER! Danger indicates the presence of a hazard that will cause severe personal injury or death if not avoided.



WARNING! Warning indicates the presence of a hazard that can cause severe personal injury if not avoided.



CAUTION! Caution indicates the presence of a hazard that can cause minor to moderate personal injury if not avoided.

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ALERT! Alert indicates the presence of a hazard that can cause damage to equipment or software, loss of data, or service interruption if not avoided.



DANGER! CLASS 1 LASER PRODUCT. INVISIBLE LASER RADIATION MAY BE PRESENT. Fiber optic radiation can cause severe eye damage or blindness. Do not look into the open end of an optical fiber.

IMPORTANT SAFETY INSTRUCTIONS

When using your equipment, basic safety precautions must always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

- Do not use this product near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
- Use only the power cord indicated in this manual.
- For external power supplies, the external power supply used in this device is to be Class II or a Limited Power Source (LPS) power supply.

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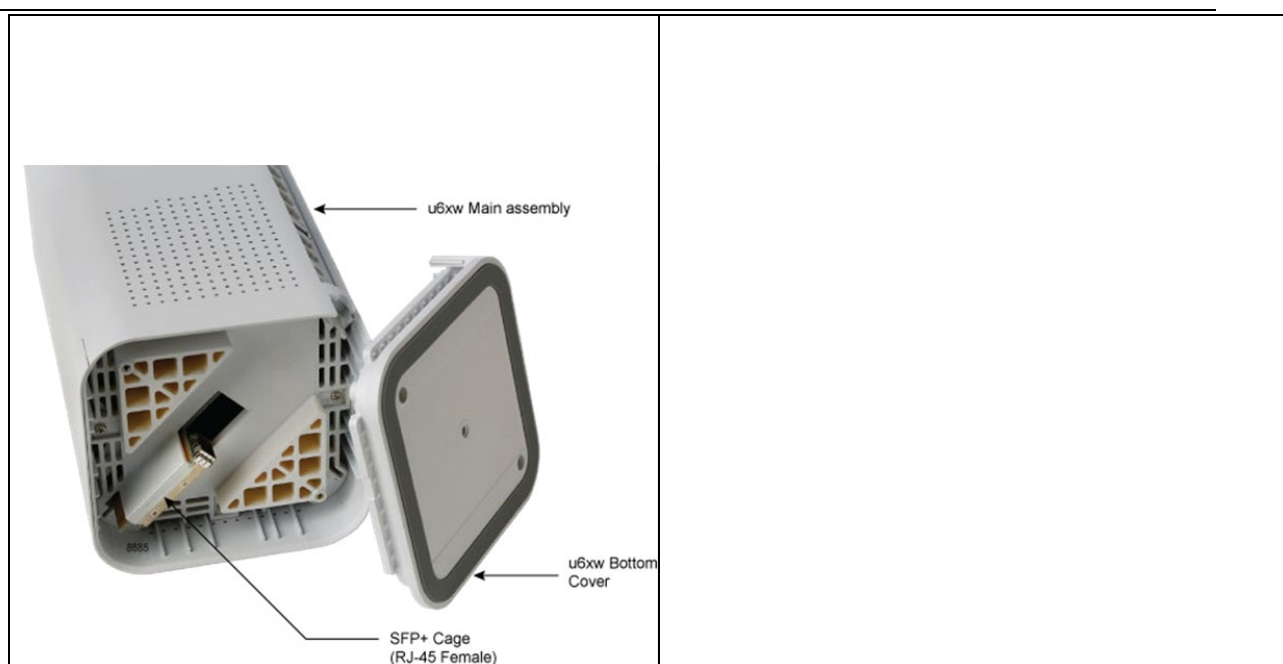
Chapter 1 GigaSpire BLAST Overview (u10xe)

The Calix u10xe GS4237 are the newest generation of smart home system that integrates optical network termination (ONT) and residential gateway functionality into a single system. It supports virtually any passive optical network (PON) and Ethernet technology, while providing the ultimate Wi-Fi experience. Besides supporting broadband connectivity of data and video services, this intelligent, high-performance system offers the latest 802.11ax 'Wi-Fi 6' technology. Both models provide switching and routing functions that support multi-Gigabit throughput for IPTV video and data services.

The u10xe GS4237 are premium smart home integrated systems that deliver the latest Wi-Fi 6 certified technology (802.11ax). Either model uses an SFP+ cage supporting a 10 Gigabit link* at the subscriber's premises to provide carrier-class WAN, including GPON and XGS-PON, as well as 1 and 10 Gigabit Ethernet options. In addition, with model can accept an Ethernet connection or a direct fiber connection dependent on the SFP+ module installed.

Note: The location of the SFP+ cage is different in the u10xe GS4237 models. In the u10xe GS4237, the SFP+ connections are accessible by removing a side panel of the device. For the u10xe GS4237, the SFP+ connections are accessible by removing the bottom cover of the unit.

SFP+ Mount - u10xe GS4237	
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On the LAN side, Wi-Fi and four (4) Gigabit Ethernet interfaces are available for customer multi-media devices. The u10xe GS4237 enables residential subscribers to receive Gigabit broadband data, Internet Protocol (IP) video, and voice (POTS) services. Using the latest 802.11ax technology in the 2.4, 5 and 6 GHz radios, the u10xe GS4237 incorporates 10x10 streams of Wi-Fi delivery (2x2 @ 2.4 GHz, 4x4 @ 5 GHz and 4x4 @ 6 GHz). In addition, with multi-user multipleinput and multiple-output (MU-MIMO) and beamforming, the u10xe GS4237 allows service providers to extend the access network inside the home and establish a strategic location for the delivery and control of broadband services.

Product Name	BLAST u10xe GS4237
Ethernet WAN (100/1000/2500/10000)	Yes
WAN: SFP+ Cage (Up to 10 GBT)	Yes
LAN	GE 1-4
Wi-Fi - 2.4 GHz	2x2 802.11ax (Wi-Fi 6)
Wi-Fi - 5 GHz	4x4 802.11ax (Wi-Fi 6)
Wi-Fi - 6 GHz	4x4 802.11ax (Wi-Fi 6)
Voice Recognition	Yes
Bluetooth	No
Security	PuF
Housing - u10xe	4.7" L x 4.7" W x 10.05" H

With Wi-Fi being the de facto wireless data communication technology of choice for consumers, Calix engineered these devices for optimal whole-home coverage with simultaneous tri-band 2.4 GHz, 5GHz and 6 GHz operation and dynamic beamforming in both spectrums. Leveraging the latest Wi-Fi 6 features, the u10xe GS4237 provides longer range, higher efficiency, and less interference compared to earlier generations of Wi-Fi technology. These devices also supports the entire 5 GHz band, including Dynamic Frequency Selection (DFS) channels and can be provisioned to support 160 MHz channel bandwidth at 5 GHz. The u10xe GS4237 easily delivers HD and UHD (ultra-HD) video and data throughout a subscriber's home in an increasingly video-rich and mobile broadband environment.

Ensuring consumers can have ultra-fast Wi-Fi throughout their premises, the u10xe GS4237 provides the latest generation of redundant Wi-Fi 6 mesh via 3rd party satellite devices. With the GigaSpire BLAST as the hub, and these 3rd party satellite extenders, consumers can truly gain the whole home/smart home experience.

With the Calix integrated system, Calix has redefined how to install and activate residential services at a subscriber's premises. Using mobile applications and a phone or laptop, a field technician can install and apply the subscriber's service profile without special equipment or assistance from the central office. Extensive troubleshooting capabilities, remote software downloads, and easy-to-use service activation features ensure that services are delivered and maintained without needless truck rolls and hardware upgrades. Deploying BLAST systems allows service providers to reduce their operational expenses while effectively delivering the Gigabit experience to their subscribers. If a PON module is being used, PON configuration and management is done via the OMCI protocol.

Agency Listing

FCC WARNING: These devices comply with Part 15 of the FCC Rules and Regulations. Operation is subject to the following conditions.

This device may not cause harmful interference, and, this device must withstand any interference received, including interference that may cause undesired operation.

Hazardous Materials

There are no hazardous materials identified for the u10xe GS4237.

Application Standards

Following is a list of standards that apply to this product:

Standards		
FCC Part 15, Sub Part B, class B	UL 62368-1/UL1697	EN 300 328
CAN ICES-003 Class B	CSA C22.2 No. 62368-1	EN 301 893
ANSI C63.4	IEC 62368-1	EN 301 489-1
FCC Part 15.247	ITU-T K21	EN 301 489-17
FCC Part 15.203	ITU-T K44	EN 55032 Class B
FCC Part 15.207	EN 62368-1	EN 61000-3-2
FCC Part 15. 209	IC ID 4009A-U10XE	EN 61000-3-3
FCC ID 2ABLKU10XE	EN 62311	EN 50581
RSS 102	CE / RED, RoHS, WEEE, Energy	USB 2.0 Type A
RSS 247	Telcordia GR-63	EN 50564
FCC Part 15.407	Telcordia-GR-1089	CISPR 32 Class B
NEC(National Electrical Code)	Telcordia GR-950	IEEE: 802.3, 802.3AB, 302.3U, 802.11p, 802.11Q
Telcordia GR-909	Telcordia GR-1244	RCM
Telcordia GR-49		Telcordia GR-2890
Wi-Fi Alliance Certified 802.11ax	CISPR-22	 8318 c UL US LISTED I.T.E E207975
DFS Certification (Effective with EXOS-R21.4.0)		

Radiated Emissions

- This Class-B digital device complies with radiated emissions requirements as defined in Canadian ICES-003.

Power Supply

Note: When using the standard power adapter, units will be inoperable after loss of main power.

-
- The unit must be powered by a listed power adapter or DC power source marked "LPS" (Limited Power Source) and rated output between 12 VDC, 4.5A minimum, TMA = 40° C minimum. If additional help is needed on implementing a power supply, please contact your local Calix service professional.

An external power supply is included with the following rating:

u10xe GS4237

- Input voltage: 12 VDC (nominal)
- 10 VDC (min.), 15 VDC (max)
- External Power Adapter: 12 VDC, 4.5A



DANGER! Using non-approved or incorrect power adapters can result in injury.

Site Preparation

Before you install this device, you need to consider the routing of the power adapter cord, the fiber pigtail that plugs into the SFP+ module, and the Ethernet cable (if used).

Note: It is critical that you maintain the proper airflow in and around the unit. The u10xe GS4237 devices are designed for surface mounting only. Do not install cabinetry or other building material around the outside of the unit.

Power Cords

To complete the installation, a power cord is required:

- u10xe GS4237 - Connectorized Power and Signal Cable - A 2-pin barrel connector to the local AC power receptacle (Type A) or an 8-pin interface cable that provides power and signaling to the UPS.

Before you Begin

Before starting the installation process, check that the following conditions are met:

- Ensure the site preparation steps are complete based on the model being installed.

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- Ensure that all components are on-site or readily available to complete the installation.
 - The customer is aware of your planned visit and will provide access to the inside of the home.

Introduction

This document describes the installation of the following:

The u10xe GS4237 is designed to be placed in a horizontal table-top configuration or can be wall mounted using the optional wall mount bracket.

Powering Options

- By attaching to any 110/220 VAC power outlet using the supplied 12 VDC wall transformer.
- Incorporating a UPS with alarm telemetry and a u10xe GS42377 with the provided 8pin connector that attaches to an 8-pin connector on the UPS.

Note: For all models, the power cord configuration must be appropriate for use in the country where the device is being deployed.

Note: Only provided and approved power cords or voltage adapters should be used to connect to this product.

Chapter 2 Installation

Installation Tips



CAUTION! Use of controls or adjustments or performance of procedures other than those specified here may result in hazardous radiation exposure.

Follow these tips when installing a BLAST device:

- For subscribers using data services, all data wiring inside the home must be CAT5 cable or better.
- Make sure subscriber connections are tightened properly.
- When routing optical fiber near the device, make sure the pigtail is not pinched or bent beyond the recommended fiber bend radius.
- Check the contents of each box carefully as you receive them. Components may not be located where you might expect them due to certain items being tested immediately before shipment.

About Wi-Fi Placement

Certain building materials are particularly effective at blocking Wi-Fi signals (see table below) and should be considered when locating the router. Line of sight is not necessary since MIMO technology takes advantage of reflections in the over-the-air path to carry additional data. However, it is recommended that when possible, the u10xe GS4237 or u10xe GS4237 should be placed in a centralized location within the home to yield the best possible results for Wi-Fi coverage.

Building Materials and Their Effect on Wi-Fi Signals	
Material	Wi-Fi Attenuation
Wood, Drywall, Particle Board, Tile	Low

Glass	Low
Water	Medium
Bricks, Cinder Block	Medium
Plaster, Stucco	High
Concrete	High
Tinted or Low-E Glass (metalized)	Very High
Metal	Very High
Note: The lower the attenuation, the better the performance.	

Installation Variables

Before installing the u10xe GS4237, consider what additional services may be implemented. Various access points are available on the back of the unit which may or may not be used. Prior to determining the unit's final location, you need to account for the following variables:

- Optional: Where will the Ethernet cable be routed?
- Where will the optical fiber be routed?
- What type of building material is used in this facility? Make sure you have the appropriate drills, drill bits and fasteners for routing Ethernet or power cables as they pass through walls and the like.

Unpacking the Device

Each u10xe GS4237 is shipped individually in its own carton and contains the following:

- (1) u10xe GS4237 or u10xe GS4237
- (1) Power Adapter interface cord (wall wart)
- (1) Safety and Regulatory Statements Guide
- (2) Product Identification Labels with Login Credentials

After opening the carton, remove the protective packaging, ensure all components above are present, and prepare for mounting the unit.

Chapter 3 Final Set-up and Testing

Installing SFP+ modules in a u10xe GS4237

The u10xe GS4237 includes an SFP+ socket located inside a compartment at the bottom of the unit, supporting a direct-line connection from the incoming fiber or Ethernet cable (no slack storage inside the unit).

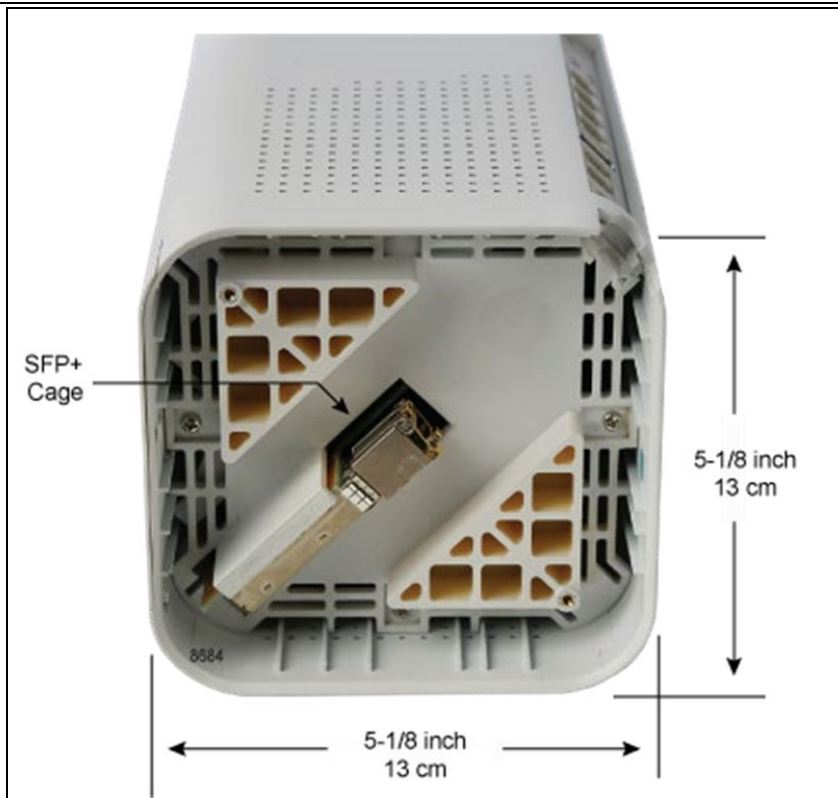
To install SFP+ modules in a u10xe GS4237

To remove the SFP+ access panel

For the u10xe GS4237, the SFP+ cage is molded into the bottom cover of the unit.

- 1.** Remove the bottom panel by unscrewing the two fasteners exposed on the bottom panel.
- 2.** Note that the screws are not captive and they may fall out after unscrewing.
- 3.** Lift the panel straight up until it is free of the main chassis.

u10xe GS4237 with bottom panel removed

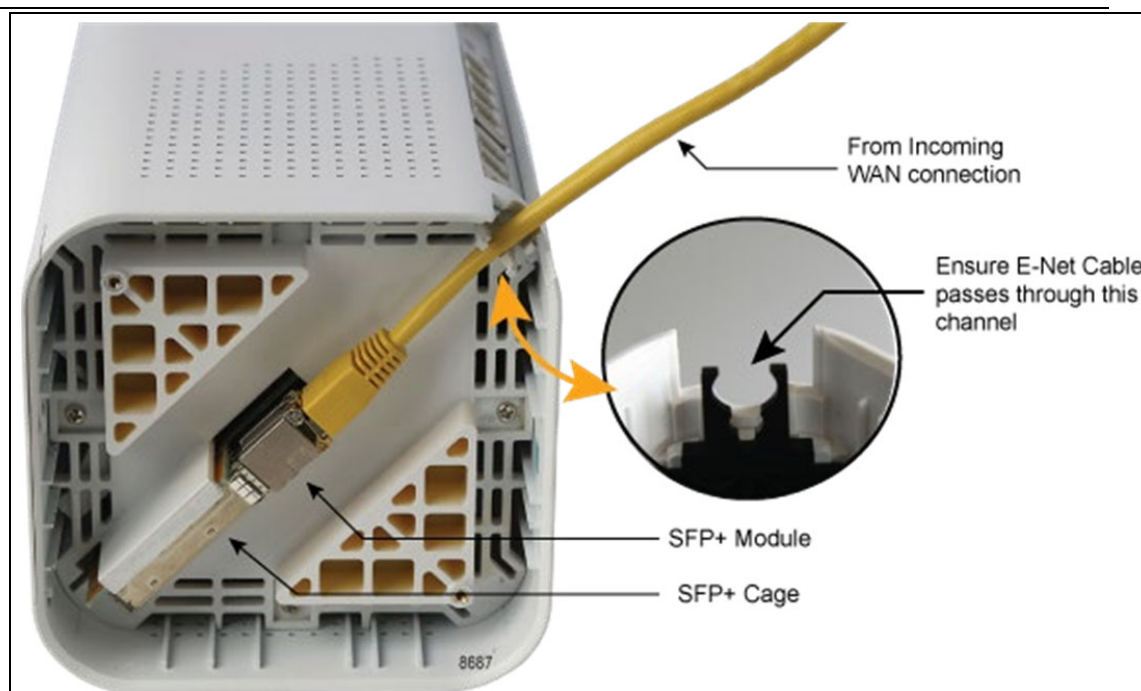


4. Install the appropriate SFP+ module into the cage in the bottom of the unit.

Note: SFP+ cage supports both a fiber interface (SC/APC) or an Ethernet interface (RJ45).

5. Route the cable out to the corner of the unit (directly below the interface panel). Ensure the cable passes through the channel molded into the main chassis of the u10xe GS4237.

Access Panel Removed



6. Re-attach the bottom panel once all cabling has been completed.

Note: The routing of the fiber interface is performed in much the same way save for having a different SFP+ module installed and the fiber used conforms to current requirements.

u10xe GS4237 Reset Behavior

EDGE systems support a variety of system reset functions and provide multiple methods for invoking each of these functions, as described in this topic. These reset functions and behaviors are as follows:

1. Basic reset (reboot): Restarts the router.
2. Configuration reset: Resets the RG configuration settings (those visible to the subscriber/Admin user in the EWI, such as SSIDs, LAN IP scope, etc.) to defaults, but retains operator-configured management settings (those visible only to the Support user in the EWI, such as ACS URL and SPID).
3. Factory reset: Resets the router (and any attached mesh satellites) to factory default settings. A factory reset also removes devices from network management systems, where applicable.

These reset functions can be used as troubleshooting and/or operations tools for reset/removal scenarios, whether the device is deployed as a Residential Gateway or as a subtended WAP or Satellite. Hardware-invoked resets behave differently depending on how long the reset button is pressed, as described below.

Function	Where Performed
1	Hardware: Press Reset button once for 1 second

Basic Reset	Software: EWI > Utilities > Reboot
Configuration Reset ²	Hardware: Press and hold Reset button for 15+ seconds
	Software: EWI > Utilities > Restore Defaults
Factory Reset	Hardware: no option
	Software (for support user only): EWI > Support > Tools > Smart Activate > Factory Reset
Note: For operators with cloud based network management systems, remote resets can be invoked as follows: 1 (https://www.calix.com/content/calix/en/site-prod/library-html/softwareproducts/cloud/nm/support/help/index.htm#88688.htm) System Tools > Reboot (https://www.calix.com/content/calix/en/site-prod/libraryhtml/softwareproducts/cloud/nm/support/help/index.htm#88688.htm) 2 System Tools > Factory Reset (https://www.calix.com/content/calix/en/site-prod/libraryhtml/softwareproducts/cloud/nm/support/help/index.htm#88687.htm) (option actually performs just a configuration reset)	

The table below provides additional notes for each Reset event:

BLAST Reset Behavior			
Reset Type	How Invoked	Expected Behavior	Notes
Basic Reset - Hardware	Press Reset button	- Router or satellite reboots - RG configuration and subscriber's custom settings persist	Pressing the Reset button performs a standard power cycle. All configuration information persists. Device goes off-line for 2-3 minutes while it completes the reboot process.
Basic Reset - Software	EWI > Utilities > Reboot	- Router reboots - RG configuration and subscriber's custom settings persist	Subscriber (Admin user) has access to the EWI to invoke a soft reset. All configuration information persists. Device goes off-line for 2-3 minutes while reboot process completes.
Configuration Reset - Hardware	Press and hold Reset button (10+ seconds)	- Router or satellite reboots - RG configuration and subscriber's custom settings reset to defaults - Service provider applied management settings persist	Reset button must be pressed and held until LEDs flash (after about 10 seconds). Device goes off-line while it completes the reboot process. Residential Gateway (RG) configuration settings include all subscriber-configurable information such as login credentials for Admin user, SSIDs, LAN IP scope, etc., all of which reset to defaults.
Configuration Reset - Software	EWI > Utilities > Restore Defaults	- Router reboots - RG configuration and subscriber's custom settings reset to defaults - Service provider applied management settings persist	Subscriber (Admin user) has access to the EWI to invoke a configuration reset. Device goes off-line while it completes the reboot process. Residential Gateway (RG) configuration settings include all subscriber-configurable information such as login credentials for Admin user, SSIDs, LAN IP scope, etc., all of which reset to defaults.

Factory Reset - Software	EWI > Support Menu > Tools > Smart Activate > Factory Reset	- Router reboots - RG configuration settings reset to factory defaults - Service provider applied management settings reset to factory defaults	Function available only to operators via EWI Support user (not available to subscriber/Admin user). Service provider management settings include all information visible on the EWI Support tab, such as login credentials for Support user, TR-69 ACS URL and login credentials, SPID, etc., all of which reset to defaults.
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Connecting to the Internet

The method by which the u10xe GS4237 or u10xe GS4237 is deployed will impact the internet connection. With power applied to the unit, perform the following steps based on the role this router plays in the network.

Connecting to a residential gateway

If the device is configured as a Residential Gateway, connect an Ethernet Cable to its WAN port from the WAN modem (ONU, cable modem, or DSL modem).

Connecting as a Mesh point

If the device is configured as a MESH point, connect an Ethernet cable from its WAN port to another router or wirelessly connect the two devices.

Additional Comments

- Once your LED turns BLUE, you are connected to the upstream WAN modem.
- At start-up, device Wi-Fi radios are defaulted to on.
- To configure your u10xe GS4237, connect an Ethernet cable between your PC and the LAN port of your device and enter the default IP Address of the device (192.168.1.1) into your browser.
- Wi-Fi radios can be configured using the default settings:
- SSID: Printed on the product label in the gift box. (CXNKxxxxxxxx)
- Number of radios: 3 (2.4 GHz, 5GHz and 6 GHz)
- Wi-Fi Protocol supported: 802.11a/b/n/g/ac/ax
- Credentials: Login and password printed on the product label in the gift box.





Appendix A **Appendix**

Specifications

Specifications		
DIMENSIONS	WIRELESS	CERTIFICATION AND COMPLIANCE
- Width: 4.9 inch (12.2 cm) - Height: 9.9 inch (25.2 cm) - Depth: 9.9 inch (12.2 cm) - Weight: 41 oz. (1.16 kg)	2.4 GHz 802.11 b/g/n/ac/ax 2x2 UL/DL MU-MIMO 5 GHz 802.11 a/n/ac/ax 4x4 UL/DL MU-MIMO, Explicit high power, dynamic beamforming	- Emissions: - FCC Part 15 Class B - IC ICES-003 Class B - Safety: - UL 60950 and UL 1697 approved
WAN INTERFACE	2.4 GHz, 5GHz and 6GHz simultaneous - DCM, TWT, extended GI	IEEE: 802.3, 802.3AB 802.3U, 802.11p, 802.11Q
Interface: SFP+ cage (with options for: - GPON SFP Module 1GE SFP, UTP Copper, RJ-45, 100m, I-Temp 10GE SFP+, UTP Copper, RJ-45, 100m, I-Temp - XGS ONT SFP+ module (future) Active Ethernet SFP module (future)		
INTERFACES	6 GHz 802.11 ax 4x4 UL/DL MU-MIMO, Explicit high power, dynamic beamforming	Wi-Fi Alliance Certified 802.11ax (Wi-Fi 6)
Wireless: 2.4 GHz 2x2, 5 GHz 4x4 and 6 GHz 4x4 internal antennas		
LAN Data/IPTV: Four (4) 10/100/1000 BASE-T Ethernet ports, RJ-45 connection	Auto channel selecting and interference detection	USB-IF Compliance, USB 2.0
WAN: SFP+ cage	WPS, WPS push-button	
USB: USB 2.0 Type A	Wi-Fi multimedia (WMM)	POWERING AND ALARMS
Voice: Two ports supporting Metaswitch; C15; C20 SIP; H.248 and MGCP	REMOTE MANAGEMENT	Single pin and 8-pin
Power: Single pin and 8-pin	TR-069 remote management	Input voltage: 12 VDC (nominal)
DATA	TR-098 Internet Gateway Device Data Model	External Power Adapter: 12 VDC, 3A
Drop Length: 328 feet (100 m) maximum using CAT5 cable for GigE.	ENVIRONMENTAL	Optional Indoor UPS Power Unit: 12V, 7.2 AH, 36W 12V, 20 AH, 75W
Auto MDI/MDIX crossover for 1000Base-TX, 100Base-TX	Operating temperature: Indoor ambient temperature, 0° to 40° C (32° to 104° F)	OOKLA-BASED PERFORMANCE TESTING

10 GBT: 110 feet (30m) CAT6e/7 cable	Operating and storage relative humidity: 10 90 90% and t to 95% non-condensing respectively.	Subscribers can run an Ookla-based performance test from within the Calix CommandIQ® mobile app.
Traffic Management and QoS: 802.11Q VLAN; 802.11p voice, v		Symmetrical speed test results in excess of 2 Gbps are possible with the BLAST u10xe system (when a 10 GigE or GPON SFP module is activated).

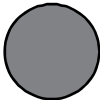
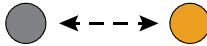
SFP/SFP+ Specifications

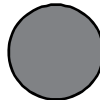
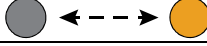
The following table provides key specifications for SFP/SFP+ modules that are compatible with the GigaPoint BLAST u10xe.

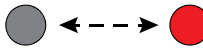
SFP/SFP+ for BLAST u10xe					
Network Type	Receive Wavelength	Transmit Wavelength	Module Type	Maximum Reach	Comments
GPON	1490 nm	1310 nm	ODN Class B+/C+	60 km	
XGS-PON	1577 NM	1270 nm	ODN Class N1/N1/E1/E2	40 km	
1G Active Ethernet	1490 nm	1310 nm	Loss Budget - 12 dB	20 km	Must be paired with Calix P/N 10001792 at the Central Office.
1G Active Ethernet	1490 nm	1310 nm	Loss Budget - 23 dB	60 km	Must be paired with Calix P/N 10001673 at the Central Office.
10G Active Ethernet	1270 nm	1330 nm	Loss Budget - 11 dB	20 km	Must be paired with Calix P/N 10002168 at the Central Office.
10G Active Ethernet	1270 nm	1330 nm	Loss Budget - 25 dB	60 km	Must be paired with Calix P/N 10005723 at the Central Office.
Central Office Paired SFP/SFP+ Modules					
100-01792 - 2x 1GE BIDI CSFP, Dual BIDI Downstream transceiver, Single Mode, 20Km, Tx1490nm, LC, I-Temp					
100-01673 - 1GE BIDI SFP, Single Mode single fiber Downstream transceiver, 60Km, Tx1490nm, LC, I-Temp					
100-02168 - 10GE BIDI SFP+, Single Mode single fiber Downstream transceiver, 20Km, 1270nm, LC, I-Temp					
100-05723 - 10GE BIDI SFP+, Single Mode single fiber Downstream transceiver, 60Km, 1270nm, LC, I-Temp					

LED States - Device Turn-up

The LED's located on the corner of the device provides information on the status and current state of the device. Below, you will find a detailed status of the power-up cycle.

Power Off and Boot-up		
Description	Colors	Indication
OFF - Power is Off - The unit has not been turned on <i>or</i> - There is no power to the unit <i>or</i> - Any auxiliary battery has been discharged and can no longer power the unit.	Off	
Booting Up, SW Upgrade in Process - Unit is in the process of booting up or services/software is being upgraded - Flashing ever 1 second assuming software can control the LED	Off & Orange Cycles @ 1000 msec	
Boot-up Failure - Unit boot-up has failed (assuming software can control the LED).	Off & Red Cycles @ 800 msec	

Unit Status		
Power-up Status	Function	LED Status
Off	Power is off. The unit has not been turned on <i>or</i> There is no power to the unit <i>or</i> The UPS battery has been discharged and there is insufficient power to continue operation. Note: The LED is off.	
Booting Up or SW Upgrade in Process - Unit is in the process of being boot up or service/software is being upgraded - Flashing every 1 second on cyan color - assuming SW can control the LEDs.	Off and Orange (1000 msec) Note: The LED is on.	

Boot-up Failure Unit boot-up failed (if SW can control the LEDs)	Off and Red (800 msec) Note: The LED is on.	
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LED States - WPS Functionality

WPS is enabled upon pressing the WPS button a single time. After pressing the button, the u10xe GS4237 will stay in pairing mode for 120 seconds.

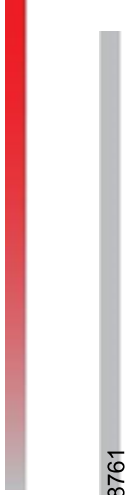
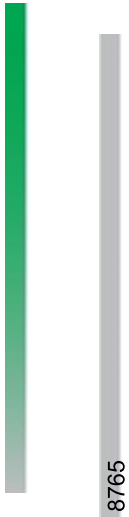
During this time, other Wi-Fi capable devices can be paired to the units Gateway Wi-Fi radios (5 GHz band) by initializing a similar WPS function on the other satellite thereby creating an association with the Gateway SSID and the mesh satellite. When the Gateway and the mesh satellite are successfully paired, they will have the same primary SSID (2.4 and 5 GHz).

Sequence of WPS operation

1. Press WPS button a single time (3+ seconds in a 10-second window).
2. The device Gateway enters pairing mode (up to 120 seconds).
3. If another device is found, the u10xe GS4237 pairs with the device.
4. If no device is found, the u10xe GS4237 will exit pairing mode after 120 second.

Note: WPS LED behavior takes priority even if Alexa is in use during the pairing period.

WPS Status			
Power-up Status	Function	LED Appearance	LED Status
Unit booting up	Unit is in the process of booting up or service/software is currently being upgraded. LEDs flash every second assuming software can control the LEDs. Note: If the unit is connected via WIRED backhaul, ignore pairing and signal strength behavior and proceed to step 6 below.	Alternating on/off at 1000 m/sec per cycle	

Boot-up Failure	Unit boot-up failed (assume failure occurs after software has taken control of the LEDs)	Alternating on/off at 800 m/sec per cycle	
WPS Pressed, Pairing Attempt Started	WPS is enabled upon pressing the WPS a single time. The u10xe GS4237 will stay in pairing mode for 120 seconds. During this time, other Wi-Fi capable devices can be paired to the device Gateway Wi-Fi radios (5.0 GHz band) by initializing a similar WPS function on the other units mesh satellite thereby creating an association with the Gateway SSID and the mesh satellite. When the Gateway and the mesh satellite are successfully paired, they will have the same primary SSID (2.4 and 5.0 GHz). WPS LED behavior takes priority even if Alexa is used during the pairing period.	LED bar begins flashing at 500 m/sec intervals and continues for 120 seconds.	
Gateway Not Found	If no device is found after the initial 120 second time-out, the WPS/Strength LED bar shifts from the blinking green to solid red.	LED bar remains red for another 60 seconds, then reverts to the "No Internet failure status.	

After pairing, monitor gateway status	After pairing is complete (60 seconds after the signal strength has been displayed), the light bar indicates the gateway status as being on-line.	If the Mesh is connected via WIRED Ethernet and if boot-up was successful, the light bar indicates the actual gateway status (single top LED is lit). Refer to LED Stats -u10xe GS4237 Turn-up (on page 26) for additional information	
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Warning:

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC regulations restrict the operation of this device to indoor use only.

The operation of this device is prohibited on oil platforms, cars, trains, boats, and aircraft, except that operation of this device is permitted in large aircraft while flying above 10,000 feet.

Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or Communications with unmanned aircraft systems.

IMPORTANT NOTE:**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 46cm between the radiator & your body.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil contient des émetteurs / récepteurs exempts de licence qui sont conformes au (x) RSS (s) exemptés de licence d'Innovation, Sciences et Développement économique Canada. L'opération est soumise aux deux conditions suivantes:

- (1) Cet appareil ne doit pas provoquer d'interférences.
- (2) Cet appareil doit accepter toute interférence, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

For indoor use only.

Pour une utilisation en intérieur uniquement.

Devices shall not be used for control of or communications with unmanned aircraft systems.

Les appareils ne doivent pas être utilisés pour contrôler ou communiquer avec des systèmes d'aéronefs sans pilote.

Operation shall be limited to indoor use only.

Le fonctionnement doit être limité à une utilisation en intérieur uniquement.

Operation on oil platforms, automobiles, trains, maritime vessels and aircraft shall be prohibited except for on large aircraft flying above 3,048 m (10,000 ft).

L'exploitation sur les plates-formes pétrolières, les automobiles, les trains, les navires maritimes et les aéronefs est interdite, sauf sur les gros aéronefs volant au-dessus de 3,048 m (10,000 pi).

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 26cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé.

Cet équipement doit être installé et utilisé avec un minimum de 26 cm de distance entre la source de rayonnement et votre corps.