GigaSpire BLAST u6x/u6xw Installation Guide

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Part # 220-01214 Rev 10

Contents

About this Guide

This document provides general installation practices for the Calix GS4227 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.

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 Communications Commission (FCC) 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area may cause harmful interference; the user will be required to correct the interference at his expense.

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.
	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.

GigaSpire BLAST Overview (u6x, u6xw)

The Calix GS4227 and GS4227W 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 GS4227 and GS4227W 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 GS4227 and GS4227W models. In the GS4227, the SFP+ connections are accessible by removing a side panel of the device. For the GS4227W, the SFP+ connections are accessible by removing the bottom cover of the unit.

u6xw SFP+ Mount - GS4227W	u6x SFP+ Mount - GS4227
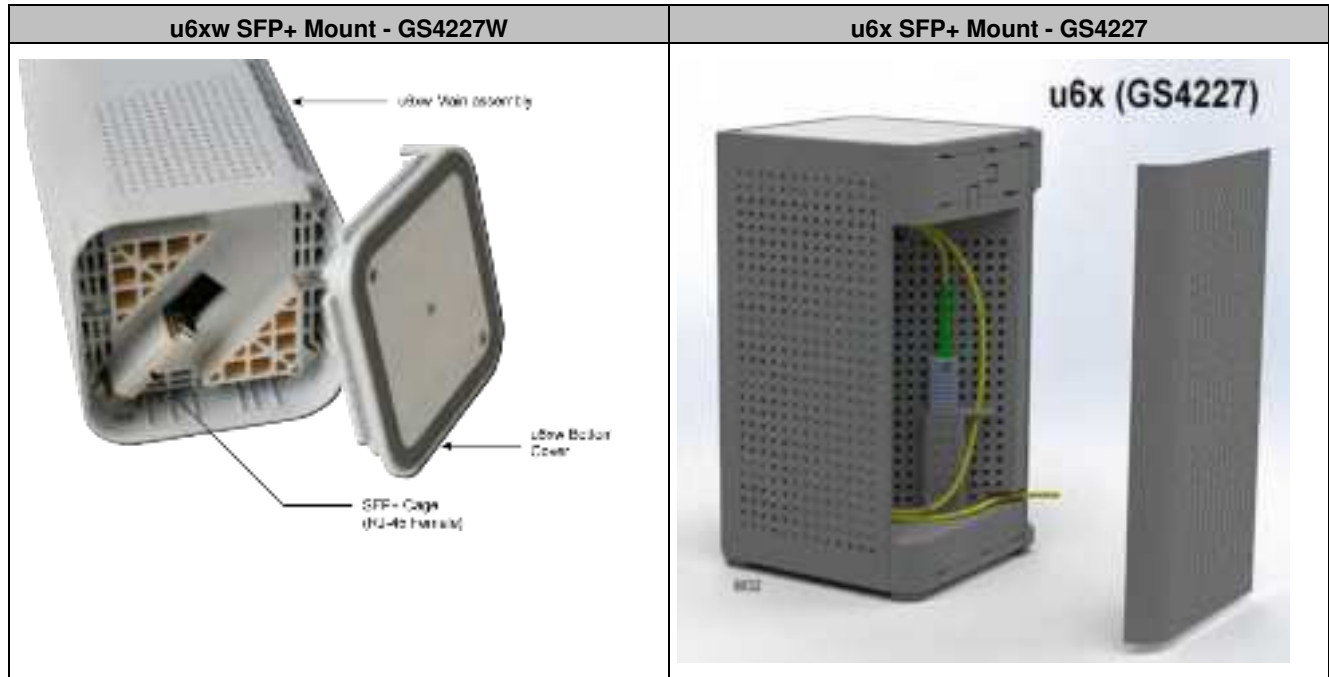
On the LAN side, Wi-Fi and four (4) Gigabit Ethernet interfaces are available for customer multi-media devices. The GS4227 enables residential subscribers to receive Gigabit broadband data, Internet Protocol (IP) video, and voice (POTS) services. Using the latest 802.11ax technology in both the 2.4 and 5 GHz radios, the GS4227 incorporates 6x6 streams of Wi-Fi delivery (2x2 @ 2.4 GHz and 4x4 @ 5 GHz). In addition, with multi-user multiple-input and multiple-output (MU-MIMO) and beamforming, the GS4227 allows service providers to extend the access network inside the home and establish a strategic location for the delivery and control of broadband services.

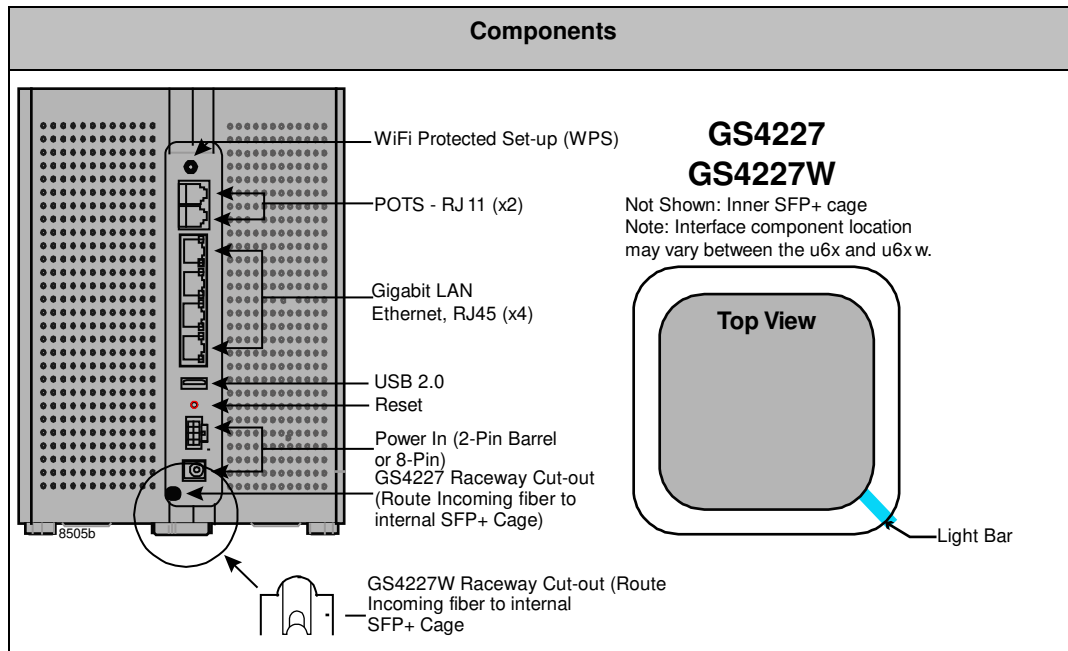| Product Name	BLAST GS4227/GS4227W
Ethernet WAN (10/100/1000)	No
Ethernet WAN (100/1000/2500)	No
WAN: SFP+ Cage (Up to 10 GBT)	Yes
LAN	GE 1-4
Wi-Fi - 2.4 GHz	2x2 802.11ax (Wi-Fi 6)
Wi-Fi - 5 GHz	4x4 802.11ax (Wi-Fi 6)
Voice Recognition	No
Bluetooth	No
Security	PuF
LTEN/A	m2
Housing - u6x	4.9" L x 4.9" W x 9.9" H
Housing - u6xw	5.1" L x 5.1" W x 10.1" H
	6.4" Diagonal (corner to corner)

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 dual-band 2.4 GHz and 5 GHz operation and dynamic beamforming in both spectrums. Leveraging the latest Wi-Fi 6 features, the GS4227 and GS4227W provides longer range, higher efficiency, and less interference compared to earlier generations of Wi-Fi technology. These devices also support 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 GS4227 and GS4227W 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 GS4227/GS4227W 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.

GS4227/GS4227W Components

In addition to having a removeable side cover or bottom cover exposing the SFP+ cage, the interfaces shown below are available on this model.

Components

WiFi Protected Set-up (WPS)

POTS - RJ 11 (x2)

Gigabit LAN
Ethernet, RJ45 (x4)

USB 2.0
Reset

Power In (2-Pin Barrel
or 8-Pin)
GS4227 Raceway Cut-out
(Route Incoming fiber to
internal SFP+ Cage)

8505b

GS4227W Raceway Cut-out (Route
Incoming fiber to internal
SFP+ Cage

GS4227
GS4227W

Not Shown: Inner SFP+ cage
Note: Interface component location
may vary between the u6x and u6x w.

Top View

Light Bar

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.

These devices have been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules and Regulations. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this guide, may cause harmful interference to radio and television communications.

Hazardous Materials

There are no hazardous materials identified for the GS4227/GS4227W.

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-BLASTU4X, IC ID 4009A-GS4227W	EN 61000-3-3
FCC ID 2ABLK-BLASTU4X, FCC ID 2ABLK-GS4227W	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	

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, 2 A 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:

GS4227/GS4227W

- Input voltage: 12 VDC (nominal)
- 10 VDC (min.), 15 VDC (max)
- External Power Adapter: 12 VDC, 2 A

 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. GS4227 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:

GS4227/GS4227W - 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.
- 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 GS4227 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 GS4227/GS4277W with the provided 8-pin 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.
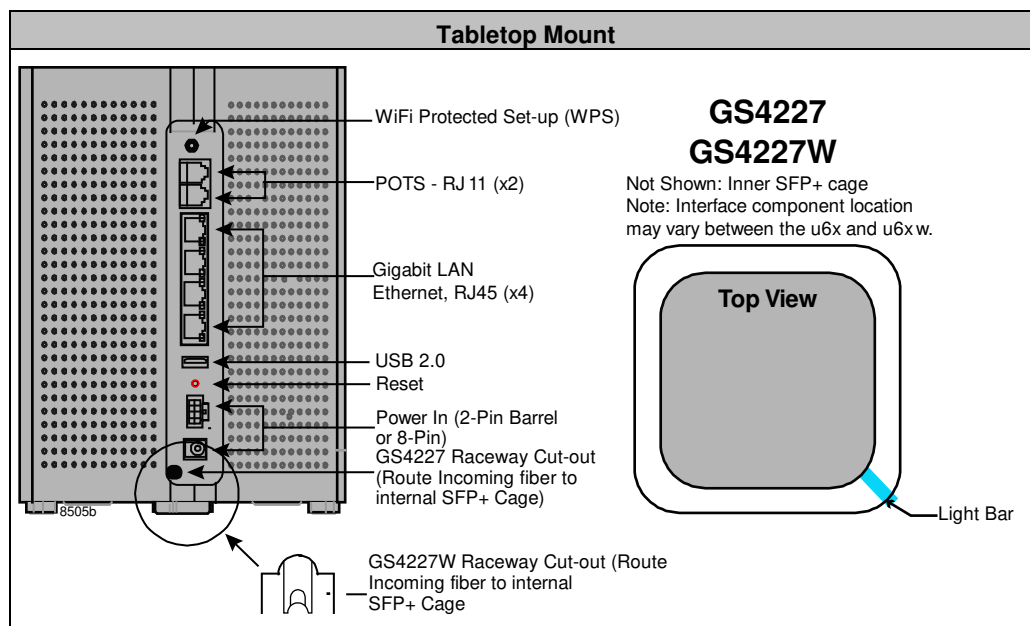
Chapter 2

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 GS4227 or GS4227W 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 GS4227/GS4227W, 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.

All cables used to connect peripherals must be shielded and grounded. Operation with cables connected to peripherals that are not shielded and grounded may result in interference to radio and television reception.

Unpacking the Device

Each GS4227 is shipped individually in its own carton and contains the following:

- (1) GS4227 or GS4227W
- (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.

Tabletop Dimensions

Dimensions for tabletop mounting of a GS4227 or GS4227W are included here for reference.

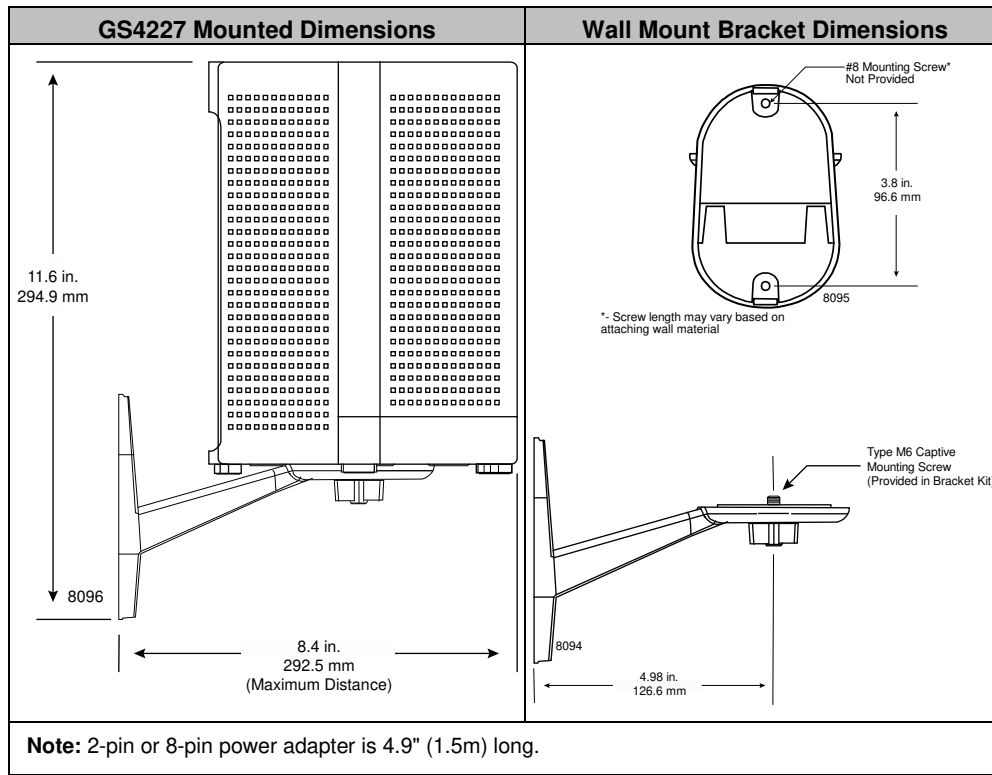**Note:** 2-pin or 8-pin power adapter is 4.9" (1.5m) long.
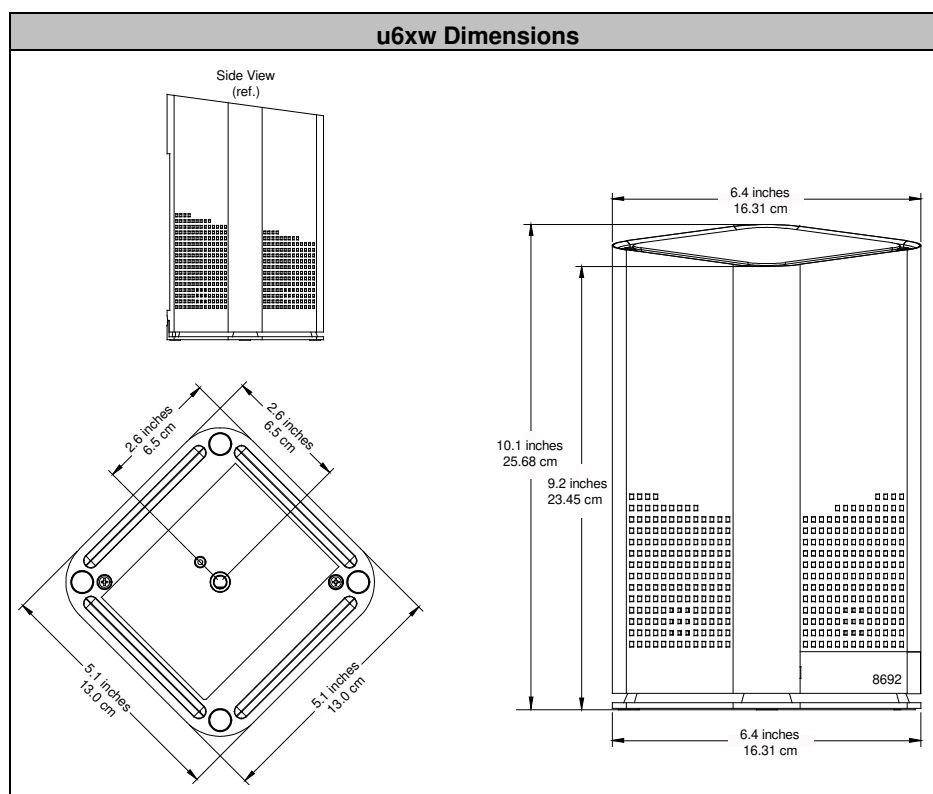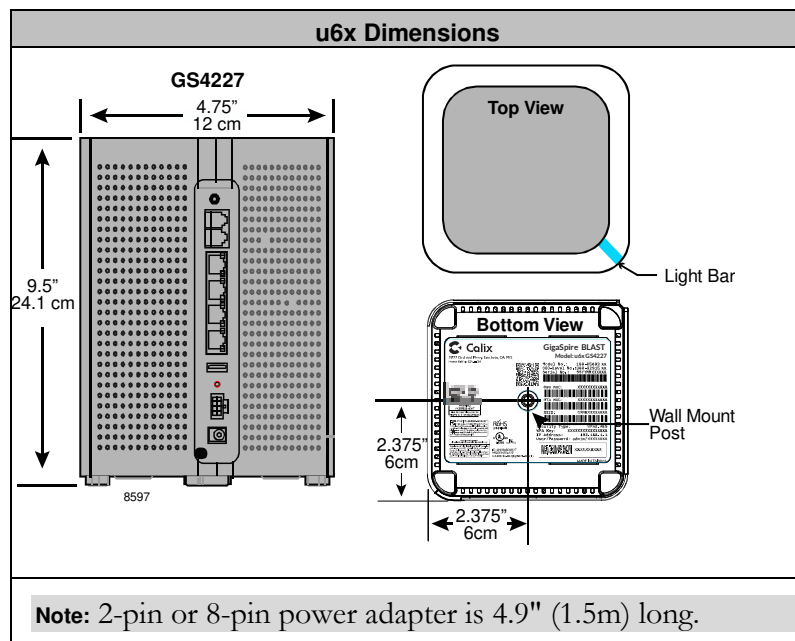
Wall Mounting Dimensions

Dimensions for wall mounting of a GS4227 are included here for reference.

Note: For wall-mounted installations, the bracket shown below is not included as standard. Bracket kits are available from Calix shipped as a 10-pack.

Note: Dimensions shown below are consistent with the u6x BLAST device. For the GS4227W, dimensions are the same except for over-all height (approximately 1" higher).

GS4227 Mounted Dimensions	Wall Mount Bracket Dimensions
11.6 in. 294.9 mm 8096 8.4 in. 292.5 mm (Maximum Distance)	#8 Mounting Screw* Not Provided 3.8 in. 96.6 mm 8095 *- Screw length may vary based on attaching wall material Type M6 Captive Mounting Screw (Provided in Bracket Kit) 8094 4.98 in. 126.6 mm

Note: 2-pin or 8-pin power adapter is 4.9" (1.5m) long.

Tabletop Mounting the GS4227/GS4227W

Any Calix GS4227 can be mounted flat on a tabletop, in a tower configuration. Four (4) rubberized feet are pre-installed on the bottom of the unit to provide a non-skid surface when placing the GS4227 on a table or shelf.

Keep the following information in mind when considering tabletop mounting:

• Due to component placement inside the chassis, do not remove the rubber feet that are installed on the bottom of the unit. Locate the GS4227/GS4227W on the desktop in a location that is unlikely to be bumped or jostled.

• Make sure that the Ethernet cable (if used) and power supply wiring attached to the device are secured properly and out of harm's way.

Note: Once the GS4227 is connected and turned up, Wi-Fi network parameters are persisted in memory. For this reason, if power is lost to the GS4227/GS4227W, it will be re-discovered on the network automatically, without intervention.

Wall Mounting the GS4227/GS4227W

The Calix GS4227/GS4227W can be wall mounted using the optional wall mount bracket. This model includes a 6mm captive receptacle built into the base for attaching to the captive M6 screw assembled into the wall mount bracket.

Keep the following information in mind when considering wall mounting:

- Locate the device on the wall in a location that is unlikely to be bumped or jostled.
- Make sure that the Ethernet cable(s) (if used), fiber pigtails, and power supply wiring attached to the device are secured properly and out of harm's way.

Note: Once the device is connected and turned up, Wi-Fi network parameters are persisted in memory. For this reason, if power is lost to the device, it will be re-discovered on the network automatically, without additional intervention.

To wall mount the GS4227/GS4227W

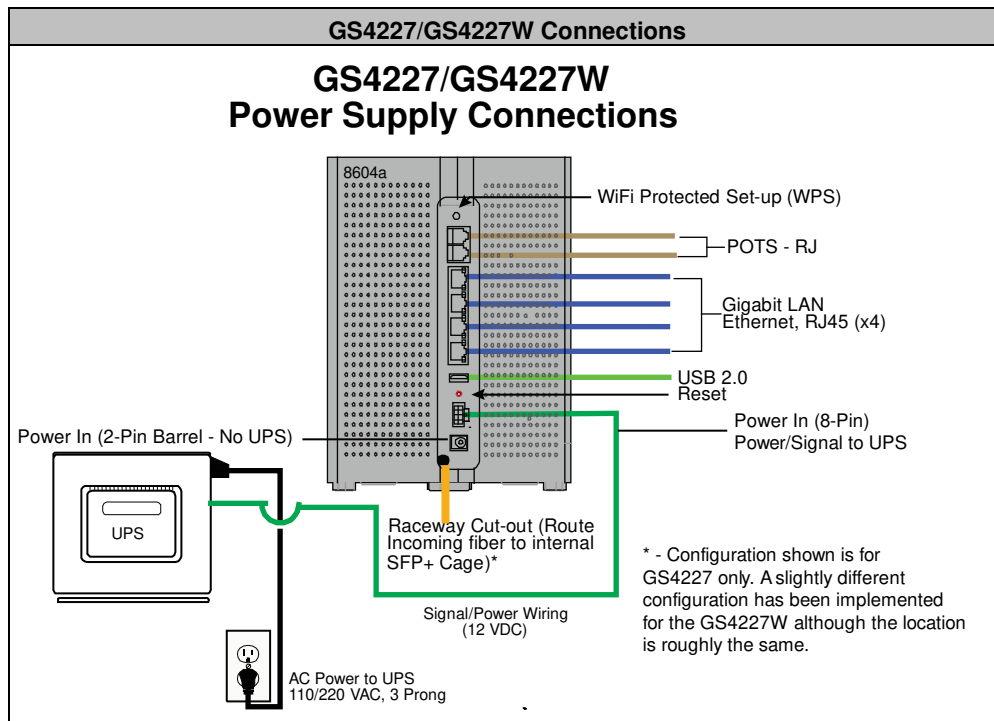**Typical Wall Mount Location**

1. Find a suitable location for attaching the wall mount bracket to the wall. Be mindful of the power source, fiber source, and Ethernet cable requirements when determining a mounting location.

2. Using the wall mount bracket as a template, mark the two screw locations on the wall, making sure the bracket is level.

> **Note:** The holes of the bracket are designed to accommodate a #8 screw (not provided). Depending on the material you are attaching to, use a screw of sufficient length and strength to support the unit once attached to the bracket.
>
> **Note:** If attaching to sheet rock or gypsum board, it is recommended that a wall anchoring system be used to ensure the bracket is securely attached to the wall.

3. Drill holes in the wall and attach the bracket using two #8 screws.

4. Thread the unit on to the bracket using the captive M6 screw on the bracket.

5. Attach Ethernet cable(s) to the BLAST and route them to the appropriate upstream/downstream devices.

6. Attach the power supply wiring to the BLAST and route to the power source.

7. Secure all wiring conforming to local code.

GS4227/GS4227W Connections

GS4227/GS4227W Power Supply Connections

8604a

- WiFi Protected Set-up (WPS)
- POTS - RJ
- Gigabit LAN Ethernet, RJ45 (x4)
- USB 2.0
- Reset
- Power In (8-Pin) Power/Signal to UPS
- Power In (2-Pin Barrel - No UPS)
- UPS
- Raceway Cut-out (Route Incoming fiber to internal SFP+ Cage)*
- Signal/Power Wiring (12 VDC)
- AC Power to UPS 110/220 VAC, 3 Prong
- * - Configuration shown is for GS4227 only. A slightly different configuration has been implemented for the GS4227W although the location is roughly the same.

Additional Mounting Considerations

The options for mounting a GS4227 system are many. From a best practice's standpoint, keep the following in mind:

- We recommend mounting the device as high as possible for Wi-Fi performance reasons. However, this deployment scenario still mandates that an AC power outlet is located within the power cord distance of the Wi-Fi source. If installing in a greenfield environment (initial installation), plan on placing the unit within 4 feet of the power supply. As an alternative, longer power cords are available to extend the distance between the unit and the power supply.

- Keep cabling neat and well secured wherever possible. A tidy installation allows for increased safety and an overall neater appearance. Common tools used for this purpose include cable ties and velcro straps for routing cable out of the way. Also, custom made wall plates are often used where most of the cabling is hidden behind a wall.

Example Wiring Scenario 1 - Custom Plate
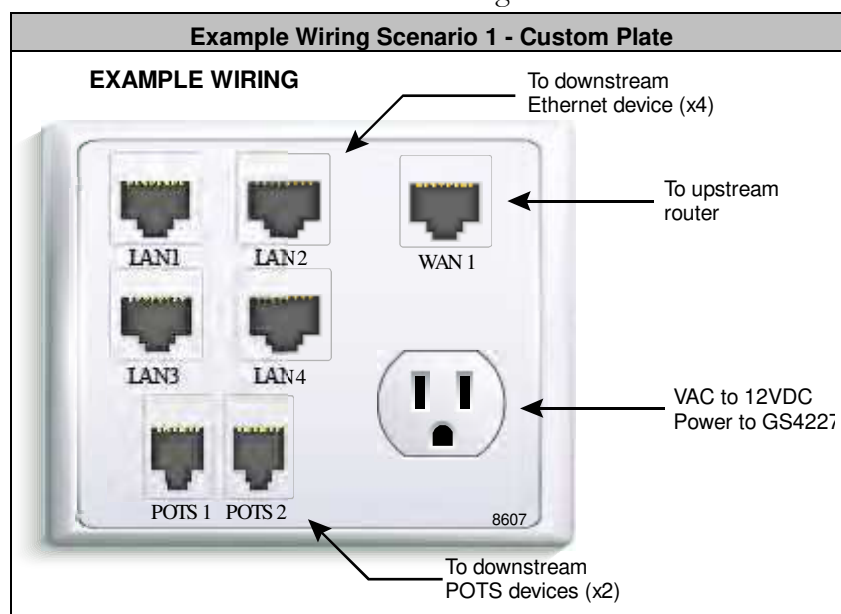
With so many options available for deployment, your network architecture is no doubt going to be different from other subscribers. The diagram directly below is one of hundreds of options. This example provides the following:

- A Local Convergence Point (LCP) for bringing fiber into the home. In this case, a Residential Gateway is located near the services panel in a climate-controlled utility room or storage room that can be locked with limited access by others.

- A customized interface panel (see above) for providing LAN, WAN, and POTS ports pre-wired near the unit. This allows for short cable runs and an overall cleaner deployment reducing clumsy and ill-terminated cable runs.

- A BLAST device mounted near the ceiling on the optional Wall Mount Bracket. This device provides Wi-Fi radios inside the home in a location that provides the optimal Wi-Fi signal throughout the home. The unit also provides a mechanical hub for deploying additional Ethernet ports or POTS ports in the home.

- In this deployment, a UPS is not being used and as such, only the 2-pin barrel connector is needed for powering the device.
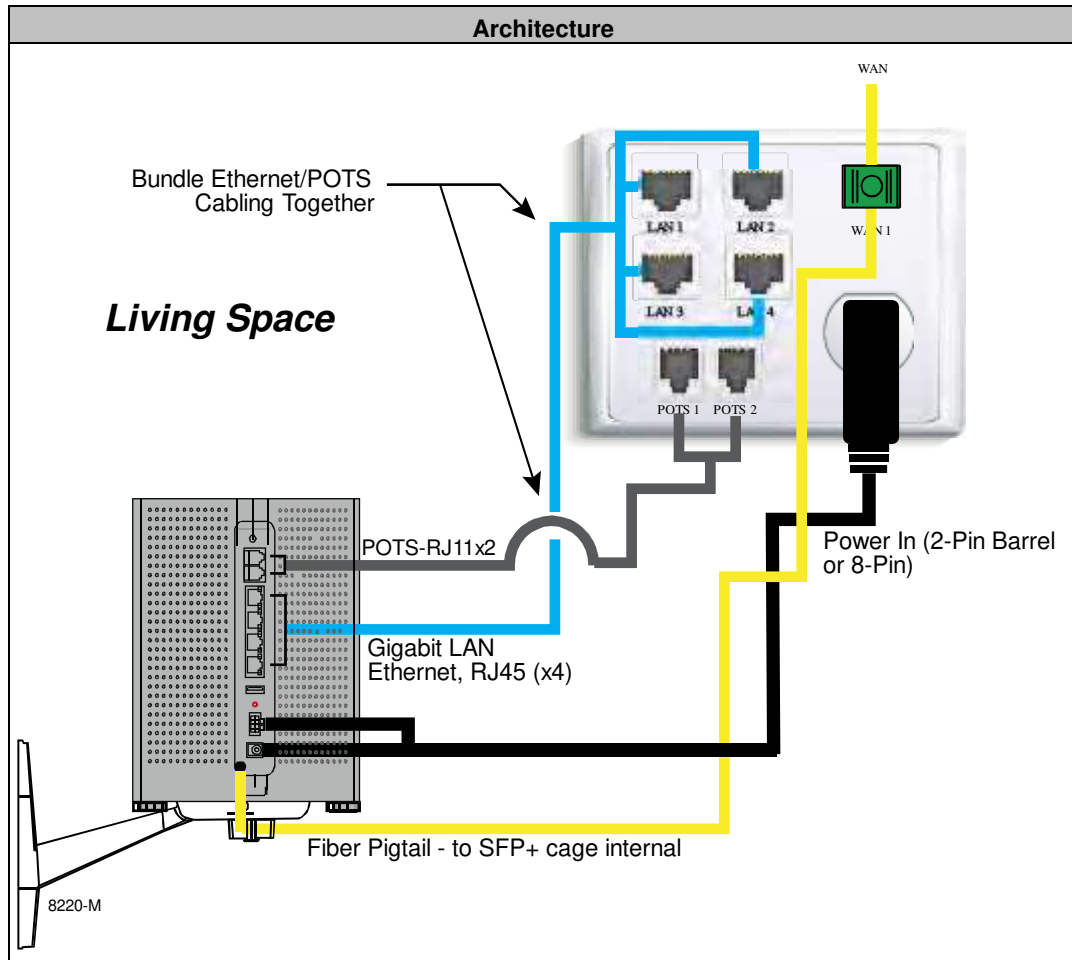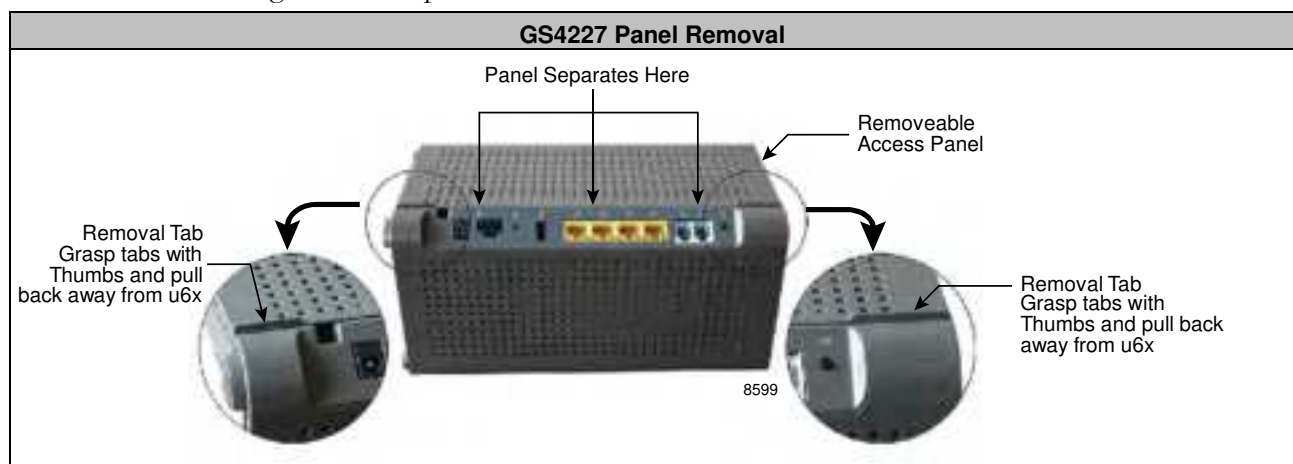
Final Set-up and Testing

Installing SFP+ modules in a GS4227 (u6x)

Both the GS4227 and GS4227W includes an SFP+ slot inside the unit itself. Accepting up to a 10Gb SFP module, the cage is safely tucked away inside the unit however the location of the SFP+ cage is different for each model. . In addition to the SFP+ cage itself, strategically located guides allow you to wrap the incoming fiber or Ethernet cable around any of several posts and raceways in the unit.

To install SFP+ modules in a GS4227 (u6x)

To remove the SFP+ access panel

1. Refer to the image directly below to get a sense as to what pieces are involved in removing the access panel.

GS4227 Panel Removal

Panel Separates Here

Removeable Access Panel

Removal Tab Grasp tabs with Thumbs and pull back away from u6x

Removal Tab Grasp tabs with Thumbs and pull back away from u6x

8599

2. Grasp the GS4227 as shown below and place your thumbs on the removal tabs located on both ends of the panel.

3. Apply even pressure to both tabs and begin sliding the panel back towards you.

   Note: The panel may be quite tight during the removal process. Applying firm but even pressure will get the panel to slide backward.
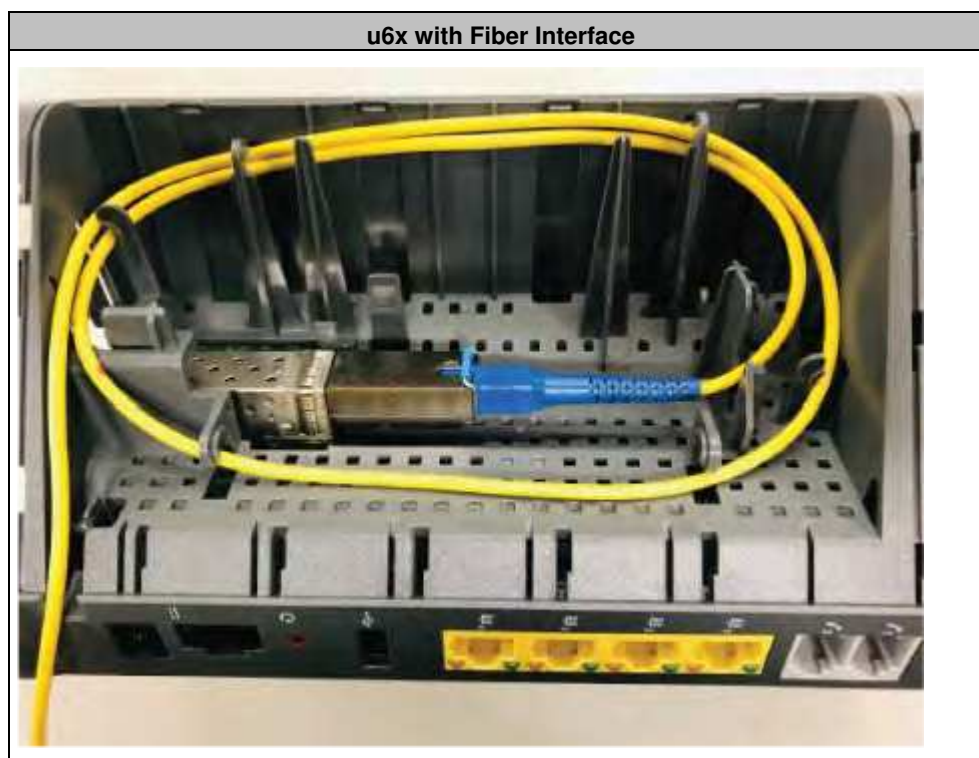
4. Slide the panel back until you hear a solid "click" (about 1/4").

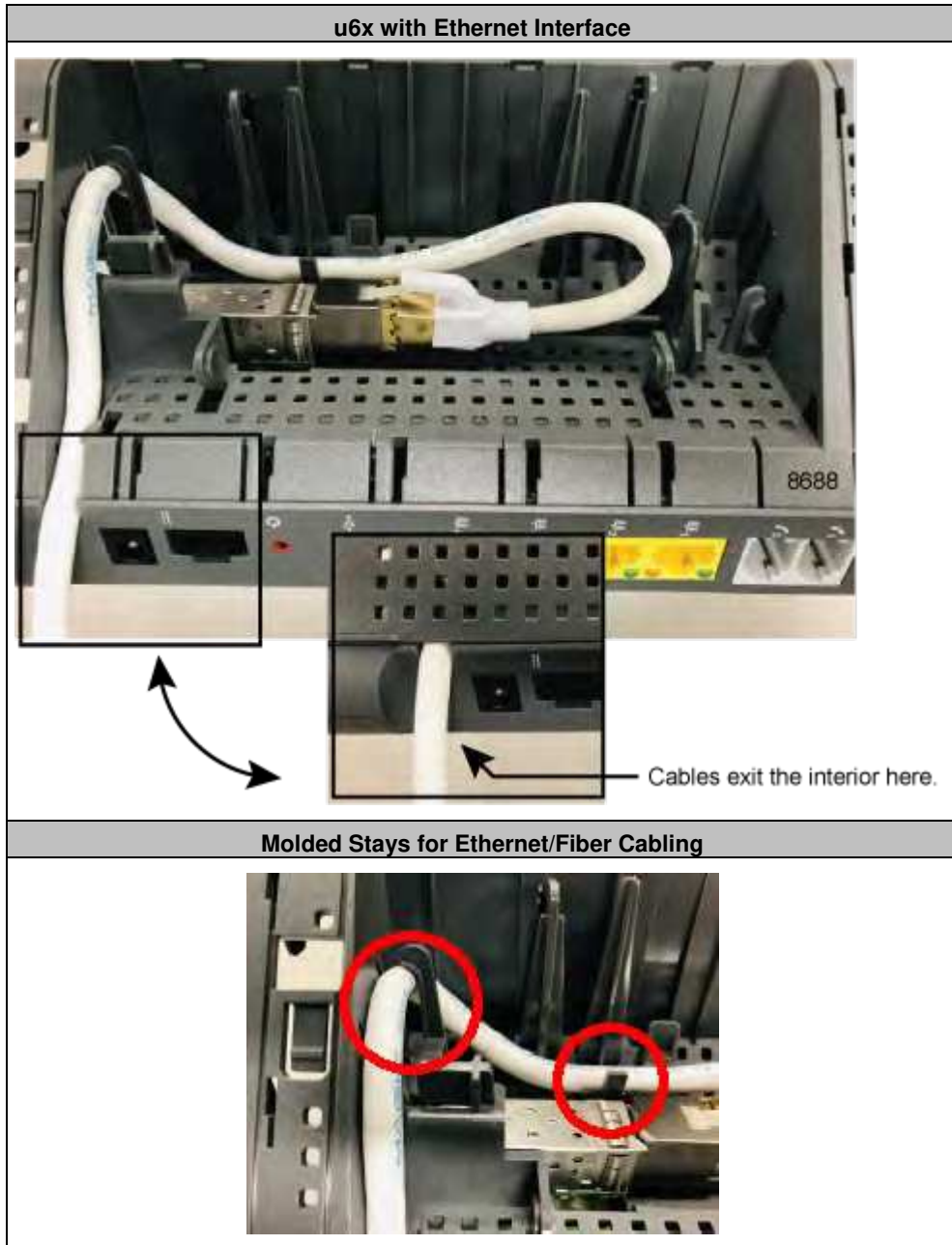5. Grab the opposite end of the panel and lift straight up to remove.

Removing the Side Panel

Using thumbs, grasp side panel tabs and pull back evenly towards yourself until it "clicks". Grab back of panel and lift straight up to remove.

Side Panel Tab

Side Panel Tab

8600
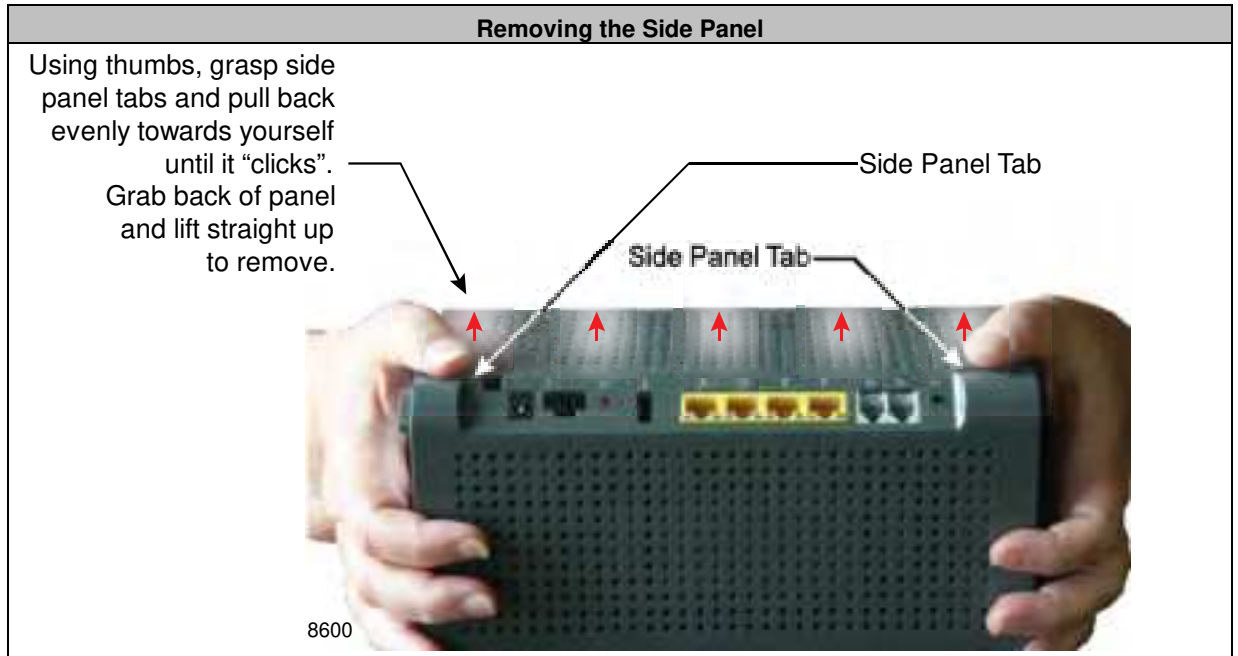
6. Once removed, locate the SFP+ cage and insert the SFP+ module into the slot.

7. Install a fiber pigtail into the SFP+ cage and route it around the pigtail stays making sure the pigtail does not exceed required bend radius specifications.

8. As the pigtail exits the GS4227 inner cavity, make sure it uses the fiber access detent as it exits the unit.

9. Reinstall the access panel once you are assured that the SFP+ module is correctly installed and is providing a path to the network.

Access Panel Removed

Fiber Access Detent (Fiber Exit Point)

Fiber Pigtail Stays

SFP+Cage

8601
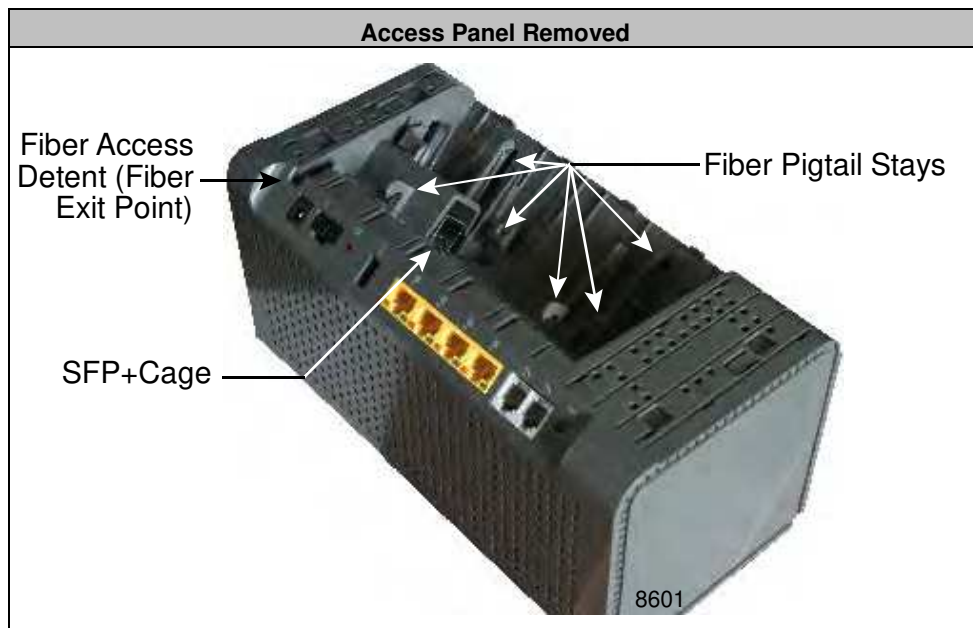
Example deployments using Ethernet or Fiber

u6x with Fiber Interface

u6x with Ethernet Interface

Cables exit the interior here.

Molded Stays for Ethernet/Fiber Cabling

Installing SFP+ modules in a GS4227W (u6xw)

The GS4227W includes an SFP+ slot inside the unit itself. Accepting up to a 10Gb SFP module, the cage is safely tucked away inside the unit. In addition to the SFP+ cage itself, strategically located guides allow you to wrap the incoming fiber or Ethernet cable around any of several posts and raceways in the unit.

To install SFP+ modules in a GS4227W (u6xw)

To remove the SFP+ access panel

For the GS4227W, 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.

GS4227W with bottom panel removed
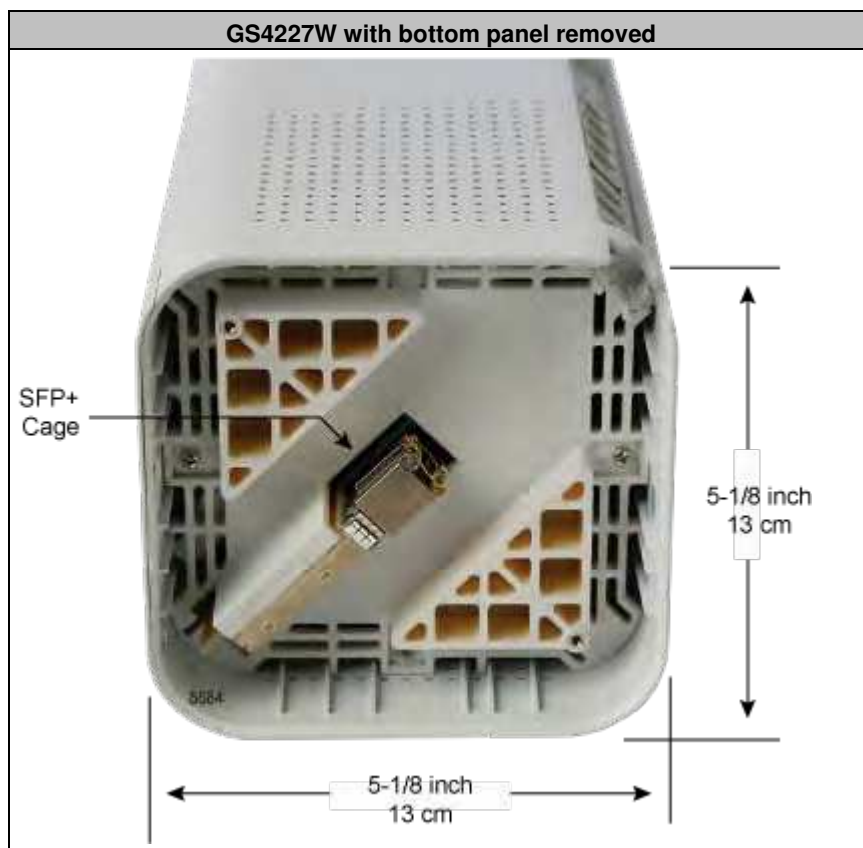
4. Install the appropriate SFP+ module into the cage in the bottom of the unit.

   Note: SFP+ cage supports both a fiber interface (SC/APC) or an Ethernet interface (RJ-45).

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 GS4227W.

Access Panel Removed

From Incoming
WAN connection

Ensure E-Net Cable
passes through this
channel

SFP+ Module

SFP+ Cage

9687
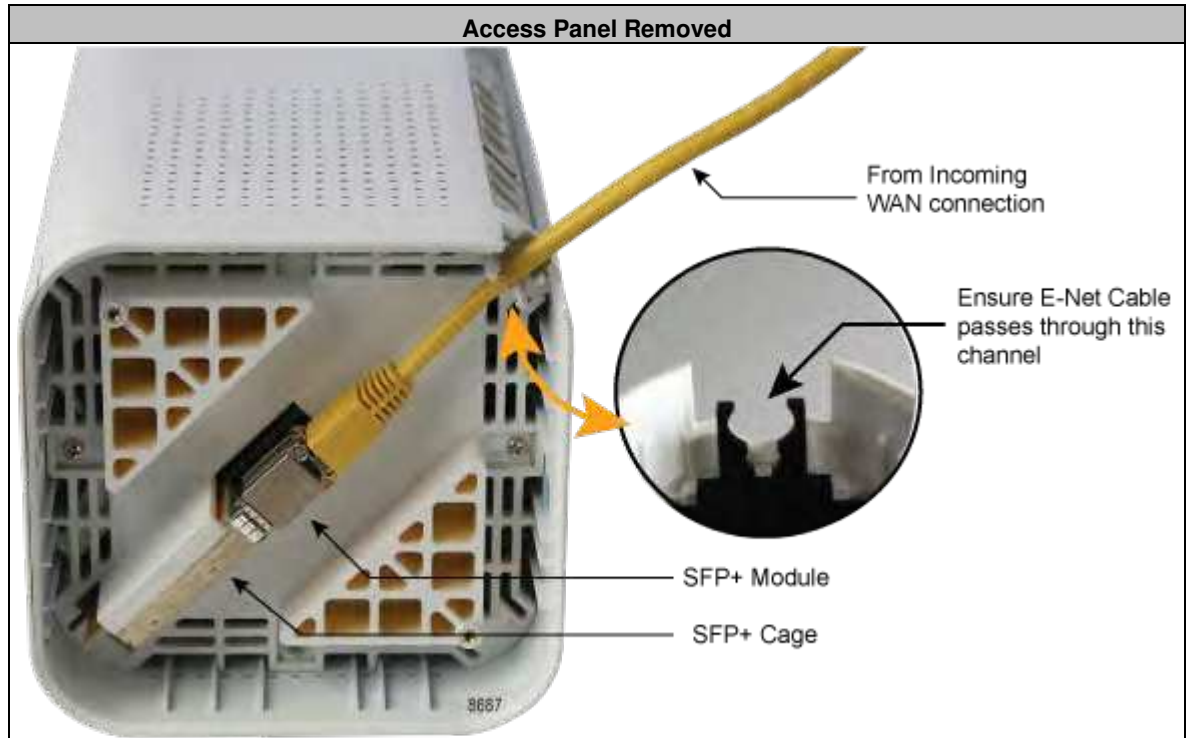
6. Re-attach the bottom panel once all cabling has been completed.

> **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.

GS4227/GS4227W 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
Basic Reset[1]	Hardware: Press Reset button once for 1 second
	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/software-

products/cloud/nm/support/help/index.htm#88688.htm) System Tools > Reboot

(https://www.calix.com/content/calix/en/site-prod/libraryhtml/software-

products/cloud/nm/support/help/index.htm#88688.htm)

2 System Tools > Factory Reset (https://www.calix.com/content/calix/en/site-prod/libraryhtml/software-

products/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.

Powering the GS4227/GS4227W - No UPS

The information below describes the powering of any system that **does not** include a UPS.

To power up the device

1. Locate the 12 VDC Power Adapter.

2. Attach one end (2-pin barrel connector) to the rear of the GS4227 or GS4227W.

3. Plug the other end into any available 110/220 VAC wall outlet.

4. The unit begins its start-up sequence.

BLAST Power Connection

8602

8-pin UPS
Power Interface

2-pin Barrel
Power Interface
(No UPS)

Fiber Pigtail Passthrough
Port
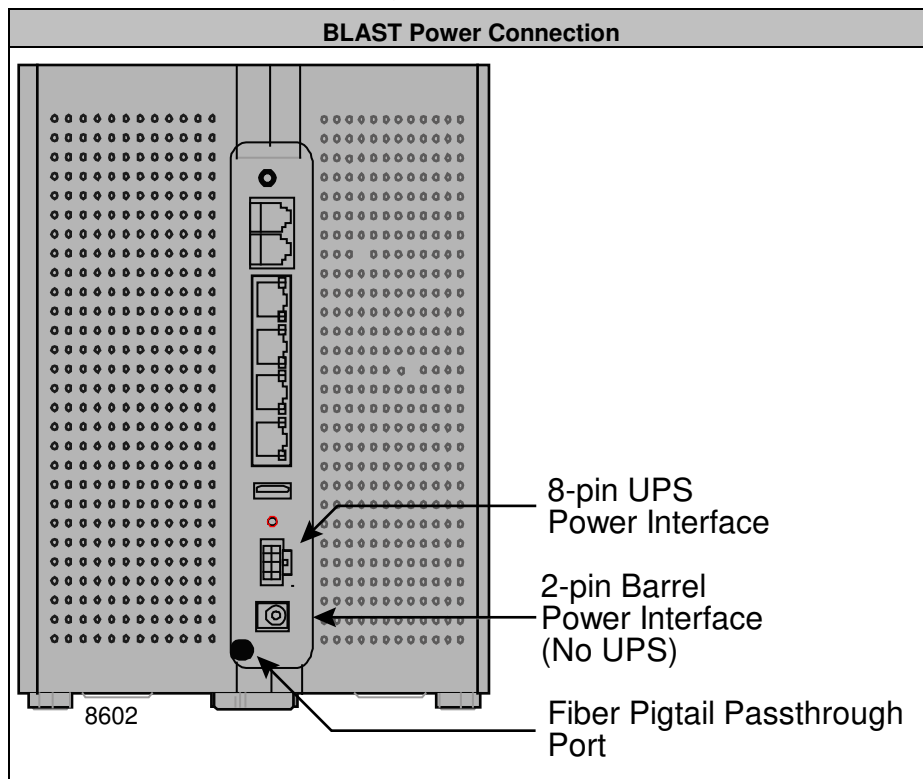
(Optional) Mounting the UPS

Prior to putting the device into service, the UPS must be mounted to ensure the low voltage power cord that is connected between the UPS and the BLAST device is long enough to span the distance between the two devices.

Depending on your configuration, power cords of varying lengths may be included:

- The AC power cord that runs from the UPS to the AC wall outlet is 8-feet long. Make sure an AC outlet is available within that distance.

- The power/signal cord that runs from the UPS to the unit is available in any of the following configurations based on model.

Any GS4227 or GS4227W incorporating a UPS (Sold Separately)

- Connectorized Power and Signal Cable - An 8-pin (device end) to 8-pin terminal block (UPS end) cable available in 3-foot (1 meter) or 10-foot (3 meters) lengths.

- Connectorized Power and Signal Cable - An 8-pin (device end) to dressed and tinned (un-terminated) cable available in 20-foot (6 meter) length.

Mounting the UPS

⚠ **WARNING!** High voltage electrical and pressurized natural gas lines may be present. Make sure you fully understand the locations of these and all other utility connections before drilling through any surface.

⚠ **CAUTION!** The UPS is designed for indoor installation and must be installed in a location with adequate airflow.

Make sure the UPS is not installed under water pipes which may leak or drip from condensation.

Reference: The UPS must be located less than 50 feet (15.2 meters) from the device when using an 18 AWG Type I power cord or less than 70 feet (21.3 meters) from the GS4227 when using 16 AWG Type II power cord.

1. Unpack the UPS and associated hardware from the carton.

2. Find a suitable location for the UPS and prepare mounting screws per the mounting hole pattern shown below.

UPS Dimensions
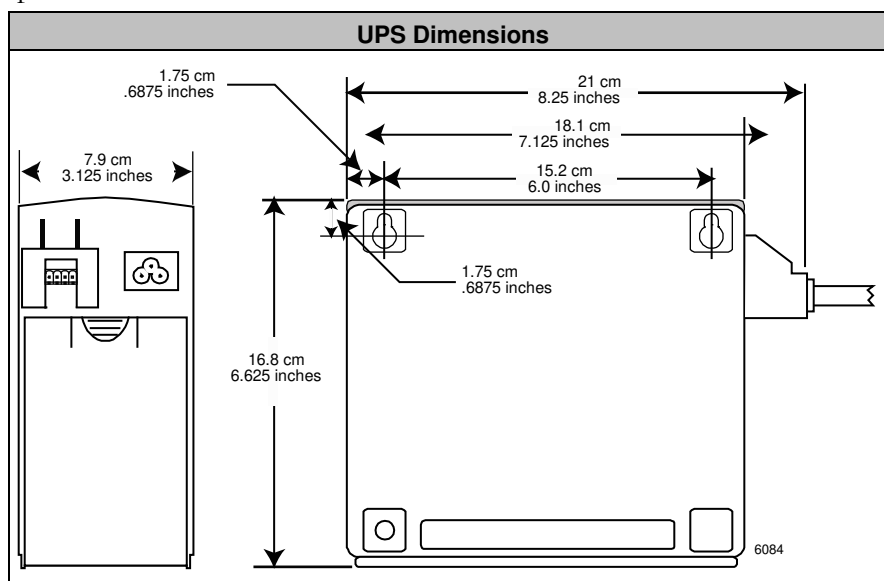
1. Pre-drill mounting holes (to accept an 8-32 pan head screw - not provided) of the appropriate size.

> **Important:** Make sure the material you are mounting the UPS to is of enough strength to support its weight of 7.16 pounds (3.25 kgs).

2. Insert a screw into each hole, leaving 3/16-inch (.48 cm) of the screw protruding from the wall.

3. Align the key slots on the top of the UPS with the screws and slide the unit down into place.

4. If the UPS is not snug after test fitting the mounting screws, remove the UPS and tighten the mounting screws slightly to allow for a tighter fit.
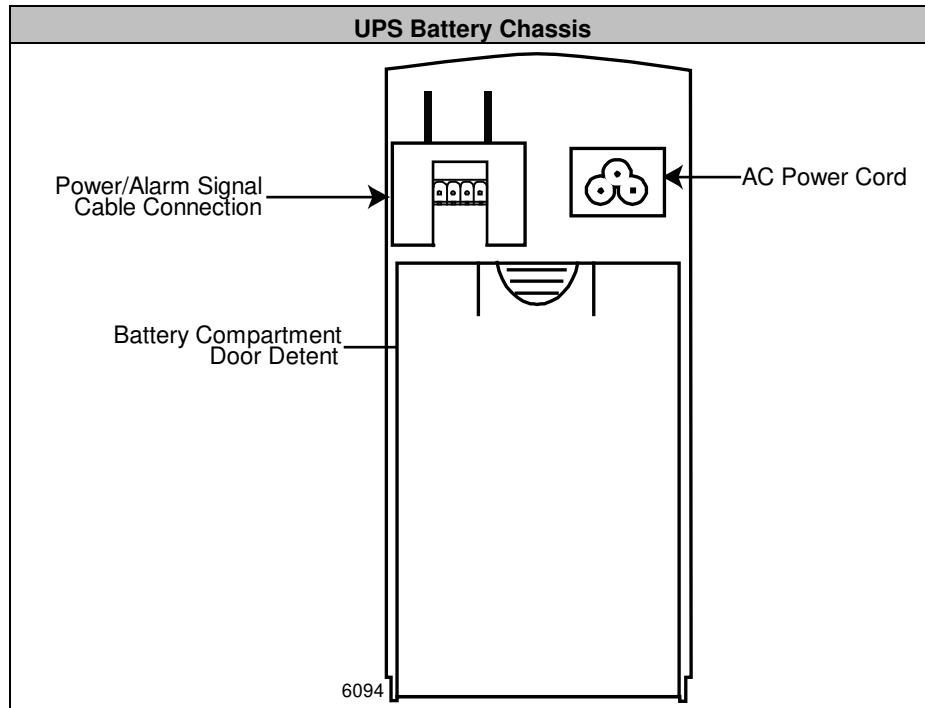
5. Unpack the battery and slide it into the UPS housing.

6. Attach the battery leads to the battery (red to red, black to black).

7. Re-install the battery cover.

Connecting to the Internet

The method by which the GS4227 or GS4227W 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 GS4227/GS4227W, 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: 2 (2.4 GHz and 5 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

Specifications

DIMENSIONS	WIRELESS	CERTIFICATION AND COMPLIANCE
• Width: 4.9 inch (12.2 cm)	• 2.4 GHz 802.11 b/g/n/ac/ax	• Emissions:
• Height: 9.9 inch (25.2 cm)	• 2x2 UL/DL MU-MIMO	FCC Part 15 Class B
• Depth: 9.9 inch (12.2 cm)	• 5 GHz 802.11 a/n/ac/ax	IC ICES-003 Class B
• Weight: 41 oz. (1.16 kg)	• 4x4 UL/DL MU-MIMO, Explicit high power, dynamic beamforming	• Safety:
WAN INTERFACE	• 2.4 GHz and 5 GHz simultaneous	UL 60950 and UL 1697 approved
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)*	• DCM, TWT, extended GI	• IEEE: 802.3, 802.3AB 802.3U, 802.11p, 802.11Q
INTERFACES	• Auto channel selecting and interference detection	• Wi-Fi Alliance Certified 802.11ax (Wi-Fi 6)
• Wireless: 2.4 GHz 2x2 and 5 GHz 4x4 internal antennas	• WPS, WPS push-button	Wi Fi 6 CERTIFIED
• LAN Data/IPTV: Four (4) 10/100/1000 BASE-T Ethernet ports, RJ-45 connection	• Wi-Fi multimedia (WMM)	• USB-IF Compliance, USB 2.0
• WAN: SFP+ cage	**REMOTE MANAGEMENT**	HI-SPEED CERTIFIED USB

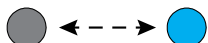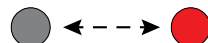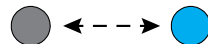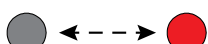|		**POWERING AND ALARMS**
• USB: USB 2.0 Type A	• TR-069 remote management	
• Voice: Two ports supporting Metaswitch; C15; C20 SIP; H.248 and MGCP	• TR-098 Internet Gateway Device Data Model	• Single pin and 8-pin
• Power: Single pin and 8-pin	**ENVIRONMENTAL**	• Input voltage: 12 VDC (nominal)
DATA	• Operating temperature: Indoor ambient temperature, 0° to 40° C (32° to 104° F)	• External Power Adapter: 12 VDC, 3A
• Drop Length: 328 feet (100 m) maximum using CAT5 cable for GigE.	• Operating and storage relative humidity: 10 90 90% and t to 95% non-condensing respectively.	Optional Indoor UPS Power Unit: • *12V, 7.2 AH, 36W* • *12V, 20 AH, 75W*
• Auto MDI/MDIX crossover for 1000Base-TX, 100Base-TX		**OOKLA-BASED PERFORMANCE TESTING**
• 10 GBT: 110 feet (30m) CAT6e/7 cable		• 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, video, data and management priorities; Q-in-Q tagging.		• Symmetrical speed test results in excess of 2 Gbps are possible with the BLAST u6x 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 u6x.

SFP/SFP+ for BLAST u6x/u6xw					
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 100-01792 at the Central Office.
1G Active Ethernet	1490 nm	1310 nm	Loss Budget - 23 dB	60 km	Must be paired with Calix P/N 100-01673 at the Central Office.
10G Active Ethernet	1270 nm	1330 nm	Loss Budget - 11 dB	20 km	Must be paired with Calix P/N 100-02168 at the Central Office.
10G Active Ethernet	1270 nm	1330 nm	Loss Budget - 25 dB	60 km	Must be paired with Calix P/N 100-05723 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 BLAST 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 *or* • There is no power to the unit or • 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 & Cyan 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 *or* There is no power to the unit *or* The UPS battery has been discharged and there is insufficient power to continue operation. Note: All four LED's are 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 Cyan (1000 msec) Note: All four LEDs are on.	
Boot-up Failure • Unit boot-up failed (if SW can control the LEDs)	Off and Red (800 msec) Note: All four LEDs are on.	

LED States - WPS Functionality

WPS is enabled upon pressing the WPS button a single time. After pressing the button, the GS4227/GS4227W will stay in pairing mode for 120 seconds.
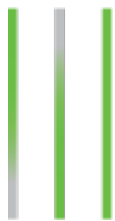
During this time, other Wi-Fi capable devices can be paired to the units Gateway Wi-Fi radios (5 GHz band) by initializing a similar WPS function on the other satellite thereby creating an association with the Gateway SSID and the mesh satellite. When the Gateway and the mesh satellite are successfully 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 GS4227 pairs with the device.

4. If no device is found, the GS4227 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 GS4227/GS4227W 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.	

Display Signal Strength (Positioning)	Displays signal strength after any one of the following conditions are met (after IP address has been obtained): • Successful pairing completed • Re-start completed (and previous pairing with gateway has been restored) • Re-association of the link with the gateway after lost link (gateway was powered down the restored)	If pairing succeeds: • If the unit is too close to the gateway but still connected, top LED will light steady green. • If the unit is too far from the gateway, bottom LED will light steady green. • When at the ideal location, the entire light bar (all 4 LEDS light steady green) • **Note:** After 60 seconds, the light bar begins to reflect gateway status (not shown)	
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 - GS4227 Turn-up (on page 26) for additional information	

Calix Safety and Regulatory Statements - GigaSpire

NOTE: This *Safety and Regulatory Statements Guide* applies to all GigaSpire devices that may or may not include a Wi-Fi radio. Disregard any statements made here if the feature or function is not present on any particular model.

Before you Begin

IMPORTANT SAFETY INSTRUCTIONS

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

- Read all the instructions listed here and/or in the user manual before you operate this device. Give attention to all safety precautions. Retain the instructions for future reference.
- Always use caution when handling live electrical connections.
- Do not install electrical equipment in wet or damp conditions.
- Ensure that the power source for the system is adequately rated to assure safe operation and provides current overload protection.
- Do not allow anything to rest on the power cable, and do not place this product where people will stand or walk on the power cable.
- To avoid electric shock caused by over-voltage from the PSTN, DO NOT connect the POTS port on this unit directly to any external PSTN line.
- **Children:** Do not allow children to play with the GigaSpire. It contains small parts that could become detached and create a choking hazard.
- This unit must only be used with the certified power adapter model inside the package, which complies with the requirement of a limited power source.
- Installation of this device must be in accordance with national wiring codes and conform to local regulations and electrical codes.
- Do not use any accessories other than those approved by the manufacturer or your service provider. Use of non-original or non-approved accessories may result in loss of performance, damage to the product, fire, electric shock or injury, and may violate regulations. The warranty does not cover product failures that have been caused by use of non-original or non-approved accessories.
- It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the device by local lightning strikes and other electrical surges.
- The minimum distance between the user and/or any bystander and the radiating structure of the transmitter varies based on the country where it is deployed. For US deployments, 27 cm is the minimum distance while Canada requires a minimum of 33 cm.
- The pluggable external power supply provided with the unit should be mounted indoors. If other power supplies are employed, they should be LISTED ITE with a Limited Power Source (LPS) output or LISTED with a National Electric Code (NEC) Class 2 output.
- All installation methods shall be in accordance with national and local regulations and practices. The wiring method should include the use of Listed wire/cable acceptable for the application per the National Code, and should be one that an Authority Having Jurisdiction (AHJ) can approve per the Code.
- For US products, no wiring to the product should be exposed in lengths beyond 140 feet, as the circuits should avoid exposure to accidental contact with lightning and power conductors in accordance with NEC Article 725-57 (NEC 2005). The installer should also consider Articles 210, 240, 250, 770, and 810 of the NEC.

ENVIRONMENTAL CONDITIONS

- Maximum environmental values during use:
- Temperature: 0° C to +40° C (32° to 104° F), Humidity: 10% to 90% RH, non-condensing, -200 to 10,000 feet altitude.

REQUIRED SAFETY STATEMENTS

- **Potentially Explosive Atmosphere**: Do not use the GigaSpire in an area where a potentially explosive atmosphere exists.
- **Atmosphère potentiellement explosive:** N'utilisez pas le GigaSpire dans un endroit où existe une atmosphère potentiellement explosive.
- **Intended Use:** This product is classified as telecommunication equipment not intended for direct purchase by the public.
- This product is designed and approved for use in an indoor location only.

> ⚠️ **CAUTION!** Use of any controls, adjustments, or procedures other than those specified herein may result in hazardous radiation exposure.

- **Utilisation prévue:** Ce produit est classé comme équipement de télécommunication non destiné à l'achat direct par le public. Ce produit est conçu et approuvé pour utilisation en intérieur uniquement.

> ⚠️ **MISE EN GUARDE !** L'utilisation de contrôles, réglages ou procédures autres que ceux spécifiés dans ce manuel peut entraîner une exposition dangereuse à des rayonnements.

- Connect the power supply cord only to an AC power outlet that meets GigaSpire specifications.
- Never alter the AC power cord. If necessary, have the correct outlet installed by a qualified electrician or call your service provider for assistance.
- To reduce the risk of damage to the electric cord, remove it from the outlet by holding onto the AC power adapter rather than the cord.
- Make sure the cord is positioned so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.

> ⚠️ **WARNING!** Do not use any other power adapter except the one that accompanies this unit or a power supply identified in the list below. Use of another adapter could result in damage to the unit. To prevent electrical shock, please do not open the cover. The following power adapter is qualified for use with this GigaSpire.

This GigaSpire must be powered by
Amigo AMS157-1203000FU or equivalent
UL Listed LPS power source rated at:
Input: 100-240 VAC, 50-60 Hz, 1A Max
Output: Nominal 12 VDC, 3A Max, 36W Max

ALIMENTATION ÉLECTRIQUE

- Connectez le cordon d'alimentation uniquement à uneprise d'alimentation CA conforme aux spécifications GigaSpire.
- Ne modifi ez jamais le cordon d'alimentation CA. Si nécessaire, faites installer la bonne prise par un électricien qualifi é ou appelez votre fournisseur de servicepour obtenir de l'aide.
- Pour réduire le risque d'endommager le cordon électrique, retirez-le de la prise en le tenant par la fiche moulée de l'adaptateur secteur plutôt que par le cordon.
- Assurez-vous que le cordon est positionné de sorte qu'il ne puisse pas marcher dessus, trébucher ou subir
- d'autres dommages ou contraintes.

> ⚠️ **Attention !** N'utilisez pas d'autre adaptateursecteur que celui qui accompagne cet appareil ou une alimentation électrique autre que celle identifiée dans la liste ci-dessous. L'utilisation d'un autre adaptateur pourrait endommager l'appareil. Pour éviter les chocs électriques, n'ouvrez pas le couvercle. L'adaptateur électrique suivant est qualifié pour être utilisé avec le GigaSpire.

L'adaptateur électrique suivant est qualifié
pour être utilisé avec le GigaSpire
Ce GigaSpire doit être alimenté par un adaptateur
Amigo AMS157-1203000FU ou une source d'alimentation équivalente certifiée UL LPS de capacité:
Entree: Input: 100-240 VAC, 50-60 Hz, 1A Max,
Sortie: Valeur nominale 12 VDC, 3A Max, 36W Max

Federal Communications Commission (FCC)

INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

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 technician for help.

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

CAUTION: This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedures.

ADDITIONAL CONSIDERATIONS

The country code selection is for non-US models only and is not available on any US models. Per FCC regulations, all Wi-Fi products marketed in the US must be fixed to US operational channels only.

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 a minimum distance of 27cm between the radiator & your body.

Industry Canada Requirements - English

The manufacturer declares that this product is in conformity with the requirements and other relevant provisions of the following Canadian standards:

- CAN ICES-3 (B)/NMB-3(B)
- This device complies with ISED's licence-exempt RSS standards. Operation is subject to the following two conditions:
  (1) This device may not cause interference, and
  (2) This device must accept any interference, including interference that may cause undesired operation of the device.

CAUTION:

(i) 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;

MHz and that these radars could cause interference and/or damage to LE-LAN devices.

RADIATION EXPOSURE STATEMENT

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 33cm between the radiator & your body.
For indoor use only.

Industrie Canada Exigences - français

Le présent appareil est conforme aux CNR d' ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

- CAN-ICES-3 (B)/NMB-3(B)
- Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisee aux deux conditions suivantes :
  - (1) L'appareil ne doit pas produire de brouillage, et
  - (2) L'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

AVERTISSEMENT

- (i) Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont reserves uniquement pour une utilisation a l'interieur afin de reduire les risques de brouillage prejudiciable aux systemes de satellites mobiles utilisant les memes canaux;

DECLARATION D'EXPOSITION AUX RADIATIONS

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 33 cm de distance entre la source de rayonnement et votre corps.
Pour une utilisation en intérieur uniquement.

European Union

DISPOSING OF AND RECYCLING YOUR PRODUCT

WEEE Directive: Requirement according to WEEE directive 2012/19/EU
Disposal of old electrical and electronic equipment (Applicable in the European countries with separate collection systems).

This symbol on the product indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. Calix offers take-back and recycling services for products in many locations around the world. Customers are advised to contact the local Calix representative for further information.

CALIX, INC. AND THE ENVIRONMENT

At Calix Inc., we understand and a re committed to reducing any impact our operations and products may have on the environment. To minimize this impact, Calix Inc. designs and builds its products to be as environmentally friendly as possible, by using recyclable, low toxic materials in both products and packaging.

ROHS COMPLIANCE

This equipment meets the requirements detailed in the European RoHS Directive 2011/65/EU.

For Radio Equipment Only

You must set the correct country code with the set WLAN country-code command to avoid violating local radio spectrum laws. This command sets the selectable channel range and transmit power level so that a WLAN connection can be established. For more information about country codes, see the hardware guide for your device.

This device complies with the essential requirements of the Radio Equipment directive: 2014 / 53 / EU. The following test methods have been applied to prove presumption of conformity with the essential requirements of the Radio Equipment directive: 2014 / 53 / EU:
EN 300 328 (2.4 GHz), EN 301 893 (5 GHz) EN 62311:2008, EN 50385, EN 301489-1, EN 301489-17, EN62368-1.

FREQUENCIES	MAX POWER	INDOOR/OUTDOOR
2400-2483.5	100 mW	Indoor
5150-5250	200 mW	Indoor
5250-5350	200 mW	Indoor
5470-5725	1000 mW	Indoor

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RADIATION EXPOSURE STATEMENT

The minimum distance between the user and/or any bystander and the radiating structure of the transmitter is 20 cm.

			NOTICE OF WIRELESS RADIO LAN USAGE IN THE EUROPEAN COMMUNITY
BE	BG	CZ	This device is restricted to *indoor use* when operated in the European Community using channels in the 5.15-5.35 GHz band to reduce the potential for interference.
DK	DE	EE	
IE	EL	ES	This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France where restrictive use applies. This device may not be used for setting up outdoor radio links in France and in some areas, the RF output power may be limited to 10 mW EIR P in the frequency range of 2454 –2483.5 MHz. For detailed information, the end-user should contact the national spectrum authority in France.
FR	HR	IT	
CY	LV	LT	
LU	HU	MT	
NL	AT	PL	
PT	RO	SI	This equipment may be operated in AL, AD, BE, BG, DK, DE, FI, FR, GR, GW, IS, IT, HR, LI, LU, MT, MK, MD, MC, NL, NO, AT, OL, PT, RO, SI, SM, SE, RS, SK, ES, CI, HU, CY
SK	FI	SE	
UK	LI	IS	
NO	TR	CH	

Usage Notes

• To remain in conformance with European National spectrum usage regulations, frequency and channel limitations will be applied on the products per the country where the equipment is deployed.
• Access points will support DFS (Dynamic Frequency Selection) and TPC (Transmit Power Control) functionality as required when operating in 5 GHz within the EU.

5 GHz Wireless Frequency and Channel Operation in EEC Countries

The table below provides a list of allowable frequency ranges and channels in various EEC countries.

Allowable 802.11a Frequencies and Channels	Countries
5.15-5.25 GHz (Channels 36, 40, 44, 48)	Liechtenstein
5.15-5.25 GHz and 5.725-5.875 GHZ (Channels 36, 40, 44, 48, 149, 153, 157, 161, 165, 169)	Austria
5.15-5.35 GHz (Channels 36, 40, 44, 48, 52, 56, 60, 64)	France
5.15-5.35 and 5.47-5.725 GHz (Channels 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140)	Denmark, Germany, Iceland, Finland, Netherlands, Norway, Poland, Sweden, Slovenia, Luxembourg, U.K., Ireland, Slovak, Switzerland, Hungary, Italy
5.15-5.35 GHz and 5.725-5.875 GHz (Channels 36, 40, 44, 48, 52, 56, 60, 64, 149, 153, 157, 161, 165, 169)	Czech Republic

License Information

OPEN SOURCE SOFTWARE UTILIZATION NOTICE

The GigaSpire family uses Open Source software programs. Such software programs are made available subject to certain third-party terms and conditions.

The fact that you are about to begin using or have purchased this product requires that you be informed of the use of these software packages and or libraries and in some cases, the third-party terms and conditions applicable to such software. This information can be found on the manufacturer's support portal. Refer to the appropriate software release notes for additional information on Open Source software programs used by this product.

Declaration of Conformity

Language	Declaration of Conformity
български [Bulgarian]	С настоящото Calix Inc. Това декларира тази Wireless Broadband Терминал за достъп е в съответствие с Директива 2014/53 / ЕС. Пълният текст на ЕС декларацията за съответствие е достъпна онлайн от сайта на декларациите на Calix (https://www.calix.com/declarations).
hrvatski [Croatian]	OOvime Calix Inc. To izjavljuje ovaj bežični širokopojasni pristup terminala u skladu s Direktivom 2014/53 / EU. Puni tekst izjave o sukladnosti za EU je dostupan online od kaliks web deklaracije (https://www.calix.com/declarations).
English	Hereby, Calix Inc. declares that this Broadband wireless Access Terminal is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available online from the Calix Declarations site (https://www.calix.com/declarations).
český [Czech]	Tím Calix Inc. Která deklaruje toto Wireless Broadband Access Terminal je v souladu se směrnicí 2014/53 / EU. Úplné znění EU prohlášení o shodě je k dispozici online na webové stránce prohlášení kalichu (https://www.calix.com/declarations).
Deutsch [German]	Hiermit Calix Inc. Das erklärt der Wireless Broadband Access Terminal in Übereinstimmung mit der Richtlinie 2014/53 / EU. Der vollständige Wortlaut der EU-Konformitätserklärung wird online von den Calix Website Erklärungen zur Verfügug (https://www.calix.com/declarations).
Eesti [Estonian]	Käesolevaga Calix Inc. See kinnitab seda traadita lairibaühenduse Terminal on kooskõlas direktiivi 2014/53 / EL. Tervikteksti ELi vastavusdeklaratsiooni on saadaval võrgus Calix veebilehel deklaratsioonid (https://www.calix.com/declarations).
español [Spanish]	Por la presente, Calix Inc. Que declara esta Terminal de banda ancha de acceso inalámbrico está en conformidad con la Directiva 2014/53 / UE. El texto completo de la declaración de conformidad de la UE está disponible en línea desde el sitio web Declaraciones de Calix (https://www.calix.com/declarations).
Ελληνική [Greek]	Δια του παρόντος, Calix Inc. Αυτό δηλώνει αυτό το Wireless Terminal Ευρυζωνική πρόσβαση είναι σε συμμόρφωση με την οδηγία 2014/53 / ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ είναι διαθέσιμα στο διαδίκτυο από την ιστοσελίδα Calix Δηλώσεις (https://www.calix.com/declarations).
français [French]	Par la présente, Calix Inc. Cet accès qui déclare haut débit sans fil terminal est conforme à la directive 2014/53 / UE. Le texte intégral de la déclaration de conformité C'est disponible en ligne à partir des déclarations de site Calix (https://www.calix.com/declarations).
Italiano [Italian]	Con la presente, Calix Inc. Che dichiara questo terminale di accesso wireless a banda larga è conforme alla Direttiva 2014/53 / UE. Il testo integrale della dichiarazione di conformità UE è disponibile online dal sito Dichiarazioni Calix (https://www.calix.com/declarations).
Latvijas [Latvian]	Ar šo, Calix Inc. Tas paziņo, šis bezvadu platjoslas piekļuves termināls atbilst Direktīvas 2014/53 / ES. Pilns teksts ES atbilstības deklarācijas ir pieejama tiešsaistē no Calix tīmekļa deklarācijas (https://www.calix.com/declarations).
Lietuvos [Lithuanian]	Šiuo dokumentu Calix Inc Tai deklaruoja tai bevielis plačiajuostės prieigos terminalas atitinka Direktyvos 2014/53 / ES. Visą tekstą ES atitikties deklaracija galima rasti internete nuo CALIX svetainės deklaracijas (https://www.calix.com/declarations).
Magyar [Hungarian]	Ezáltal Calix Inc. Hogy kijelenti ezt Wireless Broadband Access Terminal irányelvnek megfelelően 2014/53 / EU. A teljes szöveg az EU-megfelelőségi nyilatkozat elérhető online az Calix honlapján Nyilatkozatok (https://www.calix.com/declarations).
Polski [Polish]	Niniejszym, Calix Inc. Deklaruje, że ten Szerokopasmowy dostęp bezprzewodowy terminal jest zgodny z dyrektywą 2014/53 / UE. Pełny tekst deklaracji zgodności UE jest dostępna on-line ze strony internetowej calix deklaracji (https://www.calix.com/declarations).
português [Portuguese]	Por este meio, Calix Inc. Que declara esta Terminal de Acesso de Banda Larga sem fios está em conformidade com a Directiva 2014/53 / UE. O texto completo da declaração UE de conformidade está disponível online a partir de declarações do Web site da Calix (https://www.calix.com/declarations).
român [Romanian]	Prin prezenta, Calix Inc poate declara că acces de bandă largă fără fir Terminal este în conformitate cu Directiva 2014/53 / UE. Textul integral al declarației de conformitate UE este disponibilă online din calix declarațiile site-ul (https://www.calix.com/declarations).
slovenščina [Slovenian]	S tem lahko calix Inc. razglasi že širokopasovnega brezžičnega dostopa Terminal je v skladu z Direktivo 2014/53 / EU. Celotno besedilo izjave EU o skladnosti je na voljo na spletu na spletni strani izjavami calix (https://www.calix.com/declarations).
slovenský [Slovak]	Týmto Calix Inc. môže vyhlásiť tento que Broadband Wireless Access Terminal je v súlade so smernicou 2014/53 / EÚ. Úplné znenie vyhlásenia o zhode EÚ je k dispozícii online na webovej stránke vyhlásenie kalichu (https://www.calix.com/declarations).

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