

## 844G and 854G GigaCenters | ANSI



### DESCRIPTION

The Calix 844G and 854G GigaCenters are next generation residential premises service delivery platforms that extend the access network into the home and act as a strategic location for control of the gigabit experience. Supporting broadband connectivity within the home and managing subscriber voice, data and video services, this intelligent, high-performance service platform integrates a 2.5 GPON optical interface with switching and routing functions that manage premises network traffic at speeds up to 1 Gbps. The GigaCenter service interfaces include: carrier class wireless networking with 802.11ac Wi-Fi and four Gigabit Ethernet (GE) ports for IPTV video and data services, two integrated voice lines supporting carrier grade VoIP and network-based TDM voice circuits, a USB port for home networking services, and an option for RF video.

**GIGABIT SUBSCRIBER EXPERIENCE:** The 844G and 854G GigaCenters are integrated access and gateway solutions that deliver advanced network management and software features to unleash the gigabit experience throughout a subscriber's home. The GigaCenter service delivery platform terminates a GPON fiber optic link at the subscriber's premises and provides carrier class Wi-Fi and Gigabit Ethernet interfaces for customer multi-media devices. The 844G and 854G GigaCenters enable residential subscribers to receive gigabit broadband data, IP video, and VoIP or TDM based voice on a single fiber. Using the latest 802.11ac 5GHz technology incorporating 4x4 multi-user multiple-input and multiple-output (MU-MIMO) and beamforming, the 844G and 854G GigaCenters allow service providers to extend the access network inside the home and establish a strategic location for the delivery and control of broadband services. A USB port is available for home networking with other Ethernet appliances. The GigaCenter family also includes the option of RF signaling for broadcast video services over existing Hybrid Fiber Coax (HFC) networks.

Calix engineered the 844G and 854G GigaCenters for optimal whole-home coverage with simultaneous dual-band 2.4GHz and 5GHz operation and dynamic beamforming at 5GHz. For maximum performance, the GigaCenter supports high-power 2x2 MIMO spatial diversity at 2.4GHz and 4x4 MU-MIMO at 5GHz. The 844G and 854G GigaCenters support the entire 5GHz band including DFS channels and can be provisioned to support 80MHz bandwidth at 5GHz. The GigaCenter solution delivers HD video and data throughout a subscriber's home with control and management of an increasingly video-rich and mobile broadband environment.

**EASY TO INSTALL, ACTIVATE, AND MAINTAIN:** With the 844G and 854G GigaCenters, Calix has redefined how to install and activate residential services at a subscriber's premises. Using the Calix Smart Activate feature 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. Calix also provides the innovative Compass software portfolio, including Consumer Connect, which allows the service provider to configure, activate and upgrade the GigaCenter quickly from a remote location using in-band management or TR-069. Extensive troubleshooting capabilities, remote software downloads, and easy-to-use service activation ensure that services are delivered and maintained without needless truck rolls and hardware upgrades. Employing GigaCenters allows service providers to reduce their operational expenses while effectively delivering the gigabit experience to their subscribers.

**TRUE CARRIER GRADE VOICE SOLUTION:** The 844G and 854G GigaCenters deliver a truly agile and responsive service platform with lifeline voice in the event of local AC power loss. A carrier grade 120-240 VAC, 50-60 Hz AC to 12 VDC Uninterruptible Power Supply (UPS) provides battery backup of voice services compliant to Telcordia GR-909. The 844G and 854G GigaCenters can monitor battery status, battery charge and battery life, and report results through the Calix Management System (CMS).

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## KEY ATTRIBUTES

- Standards-based Full Service Access Network (FSAN), ITU-T GPON compliant
- Home Gateway:
  - Layer 2 bridge and Layer 3 routing for High Speed Internet (HSI) data and IPTV video services
  - DHCP server options
  - DHCP (IPoE) and PPPoE network connections
  - Network Access Translation (NAT), public to private IP addressing
  - Configurable IP address schemes, subnets, static-IP addresses
  - DNS server
  - Bridge port assignment and data traffic mappings
  - Port forwarding
  - Firewall and security
  - Application and website filtering
  - Selectable forwarding and blocking policies
  - DMZ hosting
  - Parental controls, time of day usage
  - Denial of service
  - MAC filtering
  - Time/Zone support
  - Universal Plug-and-Play (UPnP)
- Wireless:
  - 2.4GHz and 5GHz, simultaneous dual-band
  - 5GHz 802.11ac certified, 802.11a/g/n compatible
  - 2.4GHz 802.11n certified, 802.11b/g compatible
  - WPA/WPA2
  - WPS push-button
  - WEP 64/128 bit encryption
  - Eight SSIDs per band with factory default SSIDs
  - MAC filtering
- Two voice lines:
  - FXS ports, ANSI
  - Carrier grade SIP, H.248, MGCP VoIP
  - TDM GR-303/TR-08 Mode II/GR-57, GR-08 (TR-08 Mode I) voice services
- Four Gigabit Ethernet (GE) interfaces:
  - Symmetrical 1 Gbps bandwidth for residential IPTV and data services
  - Multi-rate 10/100/1000 BaseT Ethernet, auto-negotiating
- USB port:
  - USB 2.0 - Type A configured as a host interface
- RF video bandwidth to 1 GHz for extended digital programming
- Supports multiple data service profiles
- Traffic management and Quality of Service (QOS):
  - 802.1Q VLANs
  - 802.1p service prioritization
  - Q-in-Q tagging
  - Multiple VLANs
  - Rate limiting
  - DiffServ
  - Pre-defined QOS on service type
- IPTV, IGMPv2, IGMPv3:
  - IGMP Snooping and Proxy
  - IGMP Fast Leaves
- Complete OAM&P support via Calix Management System (CMS)
- Gateway Management:
  - TR-069
  - Local Home Gateway GUI, access provisionable
  - Remote WAN side GUI access
  - Default username/password
  - Set-up persistence, factory reboot support
- Indoor mounting:
  - Wall and Structured Wiring Enclosure (SWE) mount with fiber management
  - Desktop mounting stand
- Optional voice lifeline service power source with in-home battery backup and alarm monitoring
- AC to 12 VDC power adapter available for non-lifeline services.

# SPECIFICATIONS

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### DIMENSIONS

Width: 7.9 in (20.0 cm)  
Height: 10.6 in (26.9 cm)  
Depth: 1.8 in (4.6 cm)  
Weight: 28 oz. (.8 kg)

### PON CHARACTERISTICS

Max. split: 64 GPON  
Max. reach: 58 km (36 miles) with C+/FEC  
Maximum Optical Distribution Network (ODN) Attenuation:  
GPON Class B+, 28 dB  
GPON Class C+, 32 dB  
1490 ± 10 nm optical receiver:  
-27.0 to -8.0 dBm  
1310 ± 20 nm optical transmitter:  
0.5 to 5.0 dBm

### INTERFACES

Wireless: 2.4GHz 2x2 and 5GHz 4x4 internal antennas  
Telephony: Two RJ-11 connectors  
Data/IPTV: Four 10/100/1000 BaseT Ethernet ports, RJ-45 connectors  
USB: USB 2.0 Type A  
RF Video: F-connector, 75 Ohms  
PON: Single 9/125 μm (single mode) fiber, SC/APC connector, minimum 50 dB return loss  
Power: 8-pin connector

### TELEPHONY

General: SIP, H.248, MGCP or TDM Gateway (GR-303, GR-57, TR-08 Mode I, TR-08 Mode II)  
Number of lines: 2  
RENs per line: 5 maximum  
RENs per unit: 10 maximum  
Drop length: Maximum 500 feet (152.4 m)  
DSO Output: 23.5 mA

### DATA

Drop length: 328 feet (100 m) maximum using CAT5 cable  
Auto MDI/MDIX crossover for 1000BASE-TX, 100BASE-TX, and 10BASE-T ports  
Traffic Management and QOS: 802.11Q VLAN; 802.11p voice, video, data and management priorities; Q-in-Q tagging; Rate limiting

### WIRELESS

2.4GHz 802.11 b/g/n  
2x2 MIMO, high-power  
5GHz 802.11 a/g/n/ac  
4x4 MU-MIMO, implicit/explicit dynamic beamforming  
2.4GHz and 5GHz simultaneous  
8 SSIDs per band (2 SSID subscriber default)  
Auto channel selecting and interference detection  
WPS, WPS push button  
Wireless Security: Wi-Fi protected access (WPA/WPA2) WEP, MAC address filtering  
Wi-Fi multimedia (WMM)

### VIDEO-ANALOG RF OUTPUT

Bandwidth: 54 to 550 MHz  
Return loss: 10 dB minimum  
Signal strength (with AGC range):  
18 ± 2 dBmV  
Flatness: ± 1.0 dB  
Tilt: 1.0 dB ± 1.0 dB from 54 to 550 MHz

### VIDEO-DIGITAL RF OUTPUT

Bandwidth: 550 to 1003 MHz  
Return loss: 8 dB minimum  
Signal strength (within AGC range):  
12 ± 2 dBmV  
Flatness: ± 1.5 dB  
Tilt: 4.0 dB ± 1.0 dB from 550 to 1003 MHz  
Modulation Error Ratio (MER): 33 dB

### VIDEO-DIGITAL RF INPUT

Optical Input (GPON)  
Wavelength: 1555 ± 5 nm  
Signal strength at 3.5% OMI (within AGC range):  
-6.0 to 2.0 dBm

### REMOTE MANAGEMENT

OAM&P via CMS  
TR-069 remote management  
TR-064 CPE management  
TR-098 Internet Gateway Device Data Model

### ENVIRONMENTAL

Operating temperature: Indoor ambient temperature, 0° to 40°C (32° to 104° F)  
Operating/storage relative humidity: 8 to 95 % non-condensing  
Altitude: -200 to 10,000 feet (-61 to 3,048 m) above sea level

### CERTIFICATION AND COMPLIANCE

Emissions:  
FCC Part 15 Class B, IC ICES-003 Class B  
CISPR-22  
Safety:  
UL 60950 and UL 1697 approved  
IEEE: 802.3, 802.3AB, 802.3U, 802.11p, 802.11Q  
Wi-Fi Alliance Certified  
802.11ac and 802.11n



USB-IF Compliance  
USB 2.0



### POWERING AND ALARMS

8-pin connector with 7-conductor power and alarm cable  
Input voltage: 12 VDC (nominal), 10 VDC (min.), 15 VDC (max)  
External Power Adapter: 12 VDC, 2.5 A  
Residential battery backup source: UPS mounted at subscriber's residence  
Battery backup time rated capacity: 8 hours based on Telcordia GR-909 calculation methods using recommended UPS.

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ORDERING INFORMATION

## 844G and 854G GigaCenters | ANSI

### Calix 844G and 854G GigaCenters

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100-04011..... 844G-1 GigaCenter, 2 POTS, 4 GE, Dual Wi-Fi, 1 USB -UPS Power Interface  
100-04013..... 854G-1 GigaCenter, 2 POTS, 4 GE, Dual Wi-Fi, 1 USB, 1 RF -UPS Power Interface

### Calix 844G and 854G UPS and UPS Cords

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100-04068..... Indoor UPS, 12V 7.2AH 36W, Black - AM Type B Grounded  
100-03893..... Indoor UPS Power Cord, 7 pin UPS to 8 pin ONT Male, 1M Black  
100-03894..... Indoor UPS Power Cord, 7 pin UPS to 8 pin ONT Male, 3M Black  
100-03895..... Indoor UPS Power Cord, Un-terminated to 8 pin ONT Male, 6M Black

