PRODUCT DATASHEET

# 812G and 813G GigaHubs| ANSI

## DESCRIPTION

The Calix 812G and 813G GigaHubs are next generation premises service delivery platforms that support broadband connectivity to the home. These high-performance devices integrate a 2.5 GPON optical WAN interface with switching and routing functions that manage premises network traffic at speeds up to 1 Gbps. The GigaHub service interfaces include: four gigabit Ethernet (GE) ports for IPTV video and data services, and two integrated voice lines supporting carrier grade VoIP and network-based TDM voice circuits. Options include integrated 2.4 GHz 802.11n Wi-Fi, and USB port for connecting services.

***GIGABIT SUBSCRIBER EXPERIENCE:*** The 812G and 813G GigaHubs are integrated access and gateway solutions that deliver advanced network management and software features to unleash the gigabit experience. The GigaHub premises service delivery platforms terminate a GPON fiber optic link at the subscriber's premises and provides gigabit Ethernet interfaces and wireless connectivity for customer multi-media devices. The 812G and 813G GigaHubs enable residential subscribers to receive gigabit broadband data, IP video, and VoIP or TDM based voice on a single fiber. Using bridged or home gateway features and option for 802.11n 2.4 GHz Wi-Fi allows 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 .interconnecting with USB client devices and other Ethernet appliances. The GigaHub 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 812G and 813G GigaHubs, 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 management via CMS and Consumer Connect, which allows the service provider to configure, activate and upgrade the GigaHubs 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 broadband services are delivered and maintained without needless truck rolls and hardware upgrades. Employing GigaHubs allows service providers to reduce their operational expenses while effectively delivering the gigabit experience to their subscribers. With powerful cloud enhanced Flow and Wi-Fi Advisor software, service providers are able to gain meaningful insights into their usage trends to improve network efficiency, to diagnose wireless issues and provide resolutions to increase subscriber satisfaction.

***TRUE CARRIER GRADE VOICE SOLUTION:*** The 812G and 813G GigaHubs 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 812G and 813G GigaHubs 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 single-band
  - 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
- 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 and 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.

S P E C I F I C A T I O N S

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### DIMENSIONS

Height: 7.9 in (20.0 cm)
Width: 5.9 in (15.0 cm)
Depth: 1.5 in (3.8 cm)
Weight: 14 oz. (.4 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 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
PON: Single 9/125 $\mu$m (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)
DS0 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: 802.11nQ VLAN; 802.11np voice, video, data and management priorities; Q-in-Q tagging; Rate limiting

### WIRELESS

2.4GHz 802.11 b/g/n
2x2 MIMO, high-power
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)

### REMOTE MANAGEMENT

OAM&P via Calix Management System (CMS)
TR-069 remote management
TR-064 CPE management
TR-098 Internet Gateway Device Data Model
TR-104 Provisioning Parameters for VoIP CPE

### ENVIRONMENTAL

Operating temperature: Indoor ambient temperature, 0° to 40°C
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, 802.11np, 802.11nQ
Wi-Fi Alliance Certified 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, 1.5 A
812G Typical Power: 5.5 W, Max Power: 8 W
813G Typical Power: 12.5 W, Max Power: 15 W
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. Contact Calix for recommended UPS

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**Calix 812G and 813G GigaHubs**

| | |
|---|---|
| 100-04257 | 812G-1 GigaHub, 2 POTS, 4 GE, 1 USB -UPS Power Interface |
| 100-04259 | 813G-1 GigaHub, 2 POTS, 4 GE, 2.4 GHz Wi-Fi, 1 USB -UPS Power Interface |

**Calix 812G and 813G UPS and UPS Cords**

| | |
|---|---|
| 100-04068 | Indoor UPS, 12V 7.2AH 36W, Black - AM Type B Grounded |
| 100-04337 | Indoor UPS, 12V 7.2AH 36W, Black - AM Type B Floating |
| 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 |

**Calix 812G and 813G Power Adapter**

| | |
|---|---|
| 100-04125 | Power Adapter CPA5 12V 2.5Amp -AM Type A w/ 8-pin connector |
| 100-04141 | Power Adapter CPA5 12V 2.5Amp -EU Type C w/ 8-pin connector |

**Sales Packages - Calix 812G and 813G with Power Adapter**

| | |
|---|---|
| 000-00901 | 812G-1 GigaHub, 2 POTS, 4 GE -AM Type A Power Adapter w/ 8-pin connector |
| 000-00902 | 812G-1 GigaHub, 2 POTS, 4 GE -EU Type C Power Adapter w/ 8-pin connector |
| 000-00908 | 813G-1 GigaHub, 2 POTS, 4 GE, 2.4GHz WiFi, 1 USB -AM Type A Power Adapter w/ 8-pin connector |
| 000-00909 | 813G-1 GigaHub, 2 POTS, 4 GE, 2.4GHz WiFi, 1 USB -EU Type C Power Adapter w/ 8-pin connector |