GigaPro™
p6he

The Calix GigaPro™ p6he (GPR2032H) is a tri-band, outdoor rated, PoE enabled Wi-Fi 6E system. The p6he provides omni-directional coverage and is ideal for urban and rural business grade use cases including municipal parks, athletic fields, small farms, large residential properties, and much more. The p6he features the latest Wi-Fi 6/ 6E technology, utilizing the full 1.2 GHz channel width of the new 6 GHz spectrum boosting capacity and performance for bandwidth demanding applications In addition to supporting wireless data and video services, this intelligent, high-performance system has an 802.3bt, 2.5 GE WAN/LAN interface, allowing it to be powered from a 802.3bt PSE for installation location flexibility and attach directly to devices..

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MULTI-GIGABIT SUBSCRIBER EXPERIENCE

The GigaPro™ p6he is a tri-band, outdoor PoE or locally powered Wi-Fi 6E system that leverages the ultra-wide 6 GHz spectrum. Using a 2.5 Gigabit Ethernet interface on both the WAN and LAN allows broadband service providers (BSPs) to provide and deliver high bandwidth services within the most demanding environments.

With integrated Power over Ethernet (PoE), the p6he can be placed in an optimal location; even without power availability. Coupled with the Calix GigaPro™ Managed Switch (GPR4001XH), the p6he can be powered via an Ethernet cable. In addition, the p6he can also be powered locally (with a traditional power adapter), offering the ultimate location flexibility indoors
or outdoors.

The p6he offers a wide temperature range support from -40° C to 70° C. The hardened design delivers Ingress Protection (IP65) preventing dust and water penetration. For public venues, such as outdoor hotspots or patios, the p6he provides the ideal Wi-Fi coverage.

The GigaPro™ p6he enables business and residential subscribers to receive Multi-Gigabit broadband data, Internet Protocol (IP) video and services. Using the latest Wi-Fi 6/6E technology in the 2.4, 5 and 6 GHz radios, the GigaPro™ p6he incorporates 6x6 streams of Wi-Fi delivery (2x2 @ 2.4 GHz, 2x2 @ 5 GHz and 2x2 @ 6 GHz).

Additionally, with multi-user multiple-input and multiple-output (MU-MIMO) and beamforming, the p6he allows broadband service providers to extend the access network inside or outside small businesses and smart homes, establishing a strategic location for the delivery and control of broadband services to many simultaneous users.

With Wi-Fi being the de facto wireless data communication technology of choice for consumers, Calix engineered the p6he for optimal coverage for outdoor areas with simultaneous tri-band 2.4 GHz, 5 GHz and 6 GHz operation and dynamic beamforming in all spectrums. The p6he provides long range, higher efficiency and less interference compared to earlier generations of Wi-Fi technology.

The p6he supports the entire 6 GHz band of 1.2 GHz spectrum, allowing a fully uncongested 160 MHz channel that offers 1.2 Gbps bandwidth. The system also supports Dynamic Frequency Selection (DFS) channels at 5 GHz which maximizes its transmission capabilities. The p6he easily delivers HD and UHD (ultra-HD) video and data throughout an increasingly video-rich and mobile broadband environment.

The p6he can be provisioned as either a Wi-Fi gateway or a mesh satellite. With a p6he as the Wi-Fi gateway and another p6he system as a satellite extender, service providers can comfortably deliver coverage to residential and business customers for a truly exceptional Wi-Fi experience.

AUTOMATED FREQUENCY CONTROL (AFC)

The p6he is (AFC) certified to use the 6GHz spectrum outdoors enabling increased device capacity and application performance. The Federal Communications Commission (FCC) requires a third-party agency to police the 6GHz spectrum and assign channels to Wi-Fi devices to prevent conflicts with coexisting incumbent providers.

AFC is automatically enabled on the p6he and is pre-provisioned to interface to a Frequency Coordination Service, eliminating the need for broadband service providers to contract the service separately.

GigaPro™ p6he

EASY TO INSTALL, ACTIVATE, AND MAINTAIN

With the GigaPro™ p6he integrated system, Calix has redefined how to install and activate services at a residential or business location. Using the Calix CommandIQ mobile app, 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 Calix Service Cloud (Service Cloud), which allows the BSP to configure, activate and upgrade the p6he quickly from a remote location using in-band management or TR-069. Extensive troubleshooting capabilities, remote software downloads, and easy-to-use service activation features ensure that services are delivered and maintained without expensive truck rolls and hardware upgrades. Employing p6he systems allows BSPs to reduce their operational expenses while effectively delivering the ultimate Wi-Fi experience to their subscribers.

SMARTLIFE® MANAGED SERVICES

Small businesses — such as restaurants and cafes — are looking to offer outdoor dining experiences. While other businesses — such as farms — need to provide connectivity to barns, workshops, and other external buildings. The p6he, as a component of the SmartBiz® managed service, provides an affordable, managed service option for delivering the ultimate high-bandwidth Wi-Fi experience, regardless of whether the system is installed in harsh climates/environments or not.

The p6he is also a key component of the SmartTown™ managed service, which enable BSPs of any size to seamlessly bring critical managed Wi-Fi services to municipal and public spaces at scale. With the temperature-hardened GigaPro™ p6he outdoor Wi-Fi 6E system, BSPs can easily create strategically placed hotspots or broad community-wide Wi-Fi coverage.

UNLIMITED SUBSCRIBER PORTFOLIO

As part of the Unlimited Subscriber family, the p6he uses the world's only hardware independent, modular, standards-based, software platform. With the Unlimited Subscriber family, BSPs can use the containerized architecture to quickly deploy new services that leverage a range of pre-integrated value-added solutions (e.g., enhanced parental controls or home network security). This allows BSPs to generate additional recurring revenue or further differentiate their service, while increasing subscriber satisfaction. Once integrated with the business and operations support systems (B/OSSs), adding additional p6he Wi-Fi systems is simple - taking days instead of weeks.

KEY ATTRIBUTES

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 (DoS) protection
- MAC filtering
- Time/Zone support
- Universal Plug-and-Play (UPnP)

Wi-Fi

- 2.4 GHz, 5 GHz, and 6 GHz simultaneous tri-band
- 6x6 streams (2x2 @ 2.4 GHz, 2x2 @ 5 GHz and 2x2 6 GHz)
- 6 GHz (Wi-Fi 6E), 802.11ax compatible
- 5 GHz 802.11ax (Wi-Fi 6) certified, 802.11a/b/g/n/ac compatible
- 2.4 GHz 802.11ax (Wi-Fi 6) certified, 802.11b/g/ac compatible
- WPA/WPA2/WPA3; WEP 64/128 bit encryption
- PuF (Physical Unclonable Functions)
- WPS push-button
- DL/UL MU-MIMO with beamforming
- 1024 QAM; OFDMA; BSS Coloring
- DCM (Dual Carrier Modulation)
- TWT (Target Wake Time) for IoT clients

Automated Frequency Control

- 6GHz spectrum transmission
- Wireless Industry Association's Frequency Coordination Services integration
- Federal Communication Commission Certified

Wi-Fi Redundant Mesh

- Self-Managed: self-configuration, Airtime fairness
- Dynamic Mesh: load balancing, band/node steering; interference management
- Self-Healing: backhaul failover; diagnostics; events

Interfaces

- 2.5 Gigabit Ethernet WAN/LAN interface; single port of multi- rate 100/1000/2500 BASE-T Ethernet, auto-negotiating for residential IPTV and data services

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
- DiffServ
- Pre-defined QoS on service type
- LAG of GE ports
- MAP-T

IPTV, IGMPv2, future support of IGMPv3

- IGMP Snooping and Proxy
- IGMP Fast Leaves

Gateway Management

- Calix Support Cloud
- TR-069
- Local Home Gateway GUI, access provisionable
- Remote WAN side GUI access
- Default username/password

AC to 12 V DC power adapter

PoE 802.3BT PD

SPECIFICATIONS

Dimensions

- Width: 10.75 in (27.3 cm)
- Height: 3.65 in (9.27 cm)
- Depth: 10.75 in (27.3 cm); 10.9 in (27.69 cm) with cable boots
- Weight: 4.6 pounds (2.1 kg)

WAN Interface

- Single 100/1000/2500 BASE-T Ethernet port, RJ 45 connectors

LAN Interface

- Single 100/1000/2500 BASE-T Ethernet port, RJ 45 connectors

Data

- 2.5 GBT: 328 feet (100 m) CAT6A/7 cable
- Traffic Management and QoS: 802.1Q VLAN; 802.1p voice, video, data, and management priorities; Q-in-Q tagging

Wireless

- Wireless: 2x2 @ 2.4 GHZ, 2x2 @ 5 GHz, and 2x2 @ 6 GHz internal antennas
- 2.4 GHz 802.11 b/g/n/ac/ax
- 2x2 UL/DL MU-MIMO
- 5 GHz 802.11 a/n/ac/ax
- 2x2 UL/DL MU-MIMO, Explicit high-power, dynamic beamforming
- 6 GHz 802.11 ax 2x2
- 2.4 GHz, 5 GHz, and 6 GHz simultaneous
- DCM, TWT, extended GI
- Auto channel selecting and interference detection
- WPS, WPS push button
- Wi-Fi multimedia (WMM)

Remote Management

- TR-069 remote management
- TR-098 Internet Gateway Device Data Model

Environmental

- Operating temperature: ambient temperature, -40° C* to 70° C (-40° F to 158° F)
- Operating and storage relative humidity: 10 to 90 % and 5 to 95% non-condensing respectively
- K.21 enhanced lightning support

Certification and Compliance

- Emissions:
  o FCC Part 15 Class B
  o IC ICES-003 Class B
  o ISPR-22
- Safety:
  o UL 62368 and UL 1697 approved
- IEEE: 802.3, 802.3AB, 802.3U, 802.1p, 802.1Q
- Wi-Fi Alliance Certified 802.11ax (Wi-Fi 6)

Powering and Alarms

- PoE 802.3BT PD
- 2-pin barrel connector
- Input voltage: 12 V DC (nominal), 10 V DC (min.), 15 V DC (max)
- External Power Adapter (20 ft/6 m): 12 V DC, 3A

* If the GigaPro™ p6he is to be deployed in environments with temperatures below -30° C, it is recommended that the system first be started in a warmer environment and run for 10-15 minutes. Once running, the system can function in temperatures down to -40° C/-40° F.

ORDERING INFORMATION

Order Code	Description
System	
100-05678	**p6he (GPR2023H)** Outdoor Gateway, 2.5 GE WAN, 2.5 GE LAN, Tri-band Wi-Fi 6E
System Bundles	
000-01246	**p6he (GPR2023H)** Outdoor Gateway, Tri-band Wi-Fi 6E, 2.5 GE WAN, 2.5 GE LAN, Wall Mount Bracket
000-01249	**p6he (GPR2023H)** Outdoor Gateway, Tri-band Wi-Fi 6E, 2.5 GE WAN, 2.5 GE LAN, Pole Mount Bracket
Mounting Hardware	
100-05833	p6he (GPR2032H) Wall Mount Bracket
100-05837	p6he (GPR2032H) Pole Mount Bracket
Power Adapters/PoE Injector	
100-05789	p6he (GPR2032H) AM power adapter 3 A, 12 V
100-05866	p6he (GPR2032H) Outdoor AM power adapter 3 A, 12 V
100-06005	802.3bt compliant PoE injector, single-port 5GE (one WAN/one LAN) with AC power cord

Note: Calix believes the information in this publication to be accurate as of publication date and is not responsible for error.
Product Specifications are subject to change without notice.