



Ideal Use Cases

- Fixed Line Broadband
- Last Mile Connectivity
- Self-Installation Service Offerings
- Business Continuity
- Home & SOHO Environments

Active Ethernet Fiber 11ac Gateway with VoIP

The BEC 9900VA is a point-to-point Active Ethernet Fiber Gateway – featuring a combo WAN, 3-port Gigabit Ethernet Switch, VoIP, Firewall and Wi-Fi 802.11ac access point. The combo WAN interfaces enables BEC 9900VA to support fiber-to-the-home (FTTH) applications via an optical Small Form Factor Pluggable (SFP) or use RJ-45 Ethernet interface for up-linking any kind of broadband connectivity. Furthermore, it supports remote management on end-user devices, which is available upon request for Telcos/ISPs projects to tightly manage the internet service delivery. BEC 9900VA is equipped with built-in 3-port Gigabit Switch which enables amazingly fast LAN transmissions for bandwidth-consuming applications such as video streaming and file sharing. The integrated 802.11ac Wireless Access Point ensures that the BEC 9900VA offers faster wireless speeds (up to 2Gbps) while its 6 external antennas maximize wireless signals. The two RJ-11 FXS ports for connecting with regular telephones allowing users to make economical VoIP calls. BEC 9900VA automatically adopts the optimal connection to deliver smooth and constant signal reception even if obstacles are present. Users can easily enjoy high bandwidth applications such as High Definition IPTV services without changing their home network.

FTTH and Wired Broadband Services Ready

The BEC 9900VA can be used for a point-to-point fiber access network. Since the Fiber WAN interface allows faster rates over even longer distances, it can support Telcom operators or ISPs to provide high quality and reliable Internet broadband services to either business users or home users. The 3-port Gigabit Switch incorporated into the BEC 9900VA enables users to easily connect to multiple computers or wired-Ethernet devices and enjoy blistering LAN transfer rates for multimedia applications such as interactive gaming, IPTV video streaming and real-time audio.

New Experience with Wi-Fi Speed and Coverage

With the next wireless generation, 802.11ac, integrated in the BEC 9900VA, the router delivers fast Wi-Fi speeds of up to 2Gbps. The 9900VA supports a link rate up to 300Mbps in 2.4GHz frequency range & 1700Mbps in 5GHz range and is also backward compatible with existing 802.11 a / b / g / n wireless equipment in the network. The Wireless Protected Access (WPA-PSK/WPA2-PSK) and Wireless Encryption Protocol (WEP) features enhance the level of transmission security and access control over Wireless LAN. BEC 9900VA also supports the Wi-Fi Protected Setup (WPS) standard for easy and secure establishment of a wireless home network. If the user's network requires wider coverage, the built-in Wireless Distribution System (WDS) repeater function expands the wireless network without needing any external wires or cables.

Integrated SIP VoIP and Advanced Telephony Features

BEC 9900VA is compliant with SIP standard (RFC3261) and supports SIP registrar. This device integrates with two FXS ports by connecting with two standard analog telephones to receive or place calls over VoIP accounts. This unit offers much more great features, Call Waiting, Conference Call, Return Call, etc. The unique Speed Dial Plan provides custom hotkeys of frequently used phone numbers. This state-of-the-art feature is ideal for users who do not need a landline service, delivering high quality, free communication between offices and customers. Making online call is just as easy as dialing an extension number.



High Performance and Network Resilience

- Offers Combo 1000BASE SFP & Ethernet WAN
- Automatic Failover/Failback (SFP & EWAN) for network resilience and reliable connectivity
- 3-Port Gigabit Auto-MDI/MDI-X Switch

Superior Wireless Technology

- Simultaneous Dual Band Wi-Fi (2.4GHz & 5GHz) with high-power design
- Wi-Fi Hotspot with Captive Portal
- Supports Wi-Fi Multimedia (WMM) wireless QoS
- Carrier-Grade Wi-Fi, WPA2/AES and MSSID with isolation
- Multiple Operation Modes: Access Point, Bridge and Repeater
- Wi-Fi EasyMesh support (Future Release)

VoIP and Advanced Telephony Functionality

- SIP RFC3261 standard with 2 RJ-11 FXS interfaces
- Supports Phone Services via SIP up to 2 separate accounts
- Supports G.711 A / μ law, and G.729 Audio CODEC standards
- Supports FAX Transmission: T.38 fax relay & G.711 pass-through

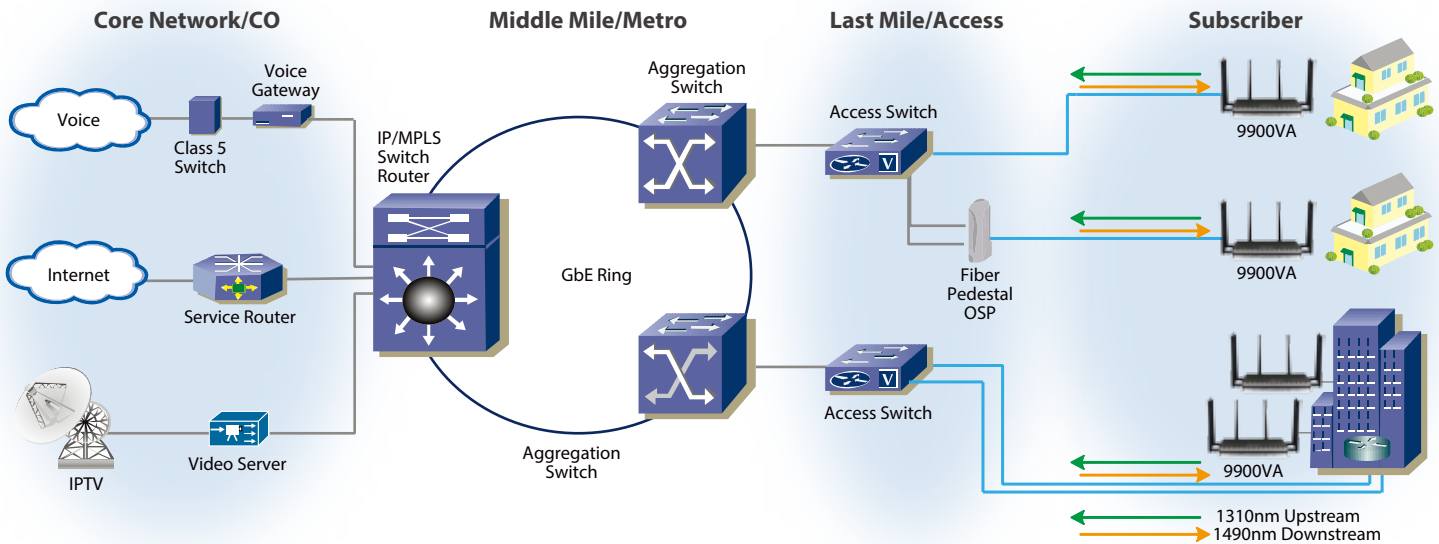
Firewall

- Built-in NAT Firewall
- Stateful Packet Inspection (SPI)
- Prevents DoS attacks including Land Attack, Ping of Death, etc.
- VPN pass-through

Management

- Web-based GUI for remote and local management
- SNMP v1, v2, v3, MIB-I and MIB-II support
- TR-069 remote management

Application Diagram



Features & Specifications

Availability and Resilience

- Dual-WAN ports (SFP & Ethernet WAN)
- Load balancing - Maximizing bandwidth of outbound traffic
- Auto failover between SFP and EWAN

SFP Specifications

- IEEE 802.3ab 1000Base-T
- IEEE 802.3z 1000Base-SX / LX4G

Network Protocols and Features

- IPv4, IPv6, IPv4 / IPv6 dual stack
- IP Tunnel IPv6 in IPv4 (6RD)
- IP Tunnel IPv4 in IPv6 (DS-Lite)
- NAT, static routing and RIP-1/2
- Universal Plug and Play (UPnP) compliant
- Dynamic Domain Name System (DDNS)
- Virtual server and DMZ
- SNTP, DNS relay, IGMP proxy and IGMP snooping for video service
- MLD proxy and MLD snooping for video service
- Supports port-based Virtual LAN (VLAN)

Firewall

- Built-in NAT Firewall
- Stateful Packet Inspection (SPI)
- Prevents DoS attacks including Land Attack, Ping of Death, etc.
- Access Control
- IP Filtering, MAC Filtering, URL Filtering

Quality of Service Control

- Traffic prioritization based-on IP protocol, port number, and IP address

USB Application Server

- Storage: FTP server and Samba server

Dynamic Routing Protocols (Optional)

- BGP and OSPF

Carrier Grade Wireless LAN

- Compliant with IEEE 802.11 a/b/g/n/ac standards
- 2.4GHz & 5GHz frequency range
- 20/40-MHz channel bandwidth
- Up to 300Mbps (2.4GHz) & 1700Mbps (5GHz) wireless data phy rate
- 64/128 bits WEP supported for encryption
- Wireless security with WPA-PSK, WPA2-PSK, Mixed WPA/WAP2-PSK, (TKIP/AES), 802.1x/Radius
- AP, Client Bridge and WDS Operational Modes
- Multiple SSID (4 SSIDs), BSSID
- Wireless MAC filtering
- Wireless Client Isolation
- Wi-Fi Hotspot with Captive Portal
- Dynamic, Wi-Fi client rate-limiting
- Wi-Fi EasyMesh (Future Release)

VoIP

- Compliant with SIP standard (RFC3261)
- Audio Codec: G.711 A-Law, G.711 μ-Law, G.729
- DTMF Method: In-band/out-of-band (RFC 2833), SIP Info
- Caller ID Generation: DTMF, FSK
- FAX Transmission: T.38 Fax Relay, G.711 Pass-through
- Silence Suppression, Voice Activity, Detection(VAD), Comfort Noise Generation (CNG), G.168 Echo Cancellation, Packet Loss Concealment, Call Waiting, Conference Call
- Speed Dial, Return Call, Redial, Don't Disturb
- Call Detailed Records(CDR)

VPN/Tunneling (Optional)

- IPSec, OpenVPN, PPTP, L2TP VPN Tunneling
- GRE (up to 8 tunnels)
- Embedded PPTP / L2TP / IPSec / OpenVPN Client and Server
- IKE Key Management
- MPPE Encryption for PPTP
- IPSec DES, 3DES and AES encryption

Management

- Quick Installation Wizard
- Web-based GUI for remote and local management
- Firmware upgrade and configuration data upload and download via web-based GUI
- Supports DHCP server/client/relay
- TR-069 supports remote management
- SNMP v1, v2, v3, MIB-I and MIB-II support
- Syslog monitoring

Hardware Specifications

Physical Interface

- Wi-Fi: (6) external female RP-SMA connectors
- Power On/Off button
- Power jack
- Optical SFP 1000BASE port
- Gigabit Ethernet LAN: 3-port auto-crossover (MDI/ MDI-X) switch
 - 1 x Versatile Port (LAN1 / WAN)
- USB 2.0: (1) port
- Wireless On/Off and WPS push button
- Reset button
- VoIP: (2) RJ-11 FXS phone ports
- LED indicators
 - Power / SFP / Ethernet 1 ~ 3 / USB / 2.4G & 5G / WPS / VoIP 1 & 2 / Internet

Physical Specifications

- Dimensions: 9.04"(W) x 1.69"(H) x 6.10"(D) (229.5 mm x 43 mm x 155 mm)

Power Requirements

- Input: 15V DC, 1.6A

Operating Environment

- Operating temperature: 32° to 104° F (0° to 40° C)
- Storage temperature: -4° to 158° F (-20° to 70° C)
- Humidity: 20 ~ 95% non-condensing