BILLION™

▲ **BiPAC 9300VNX Front Panel**

▲ **BiPAC 9300VNX Rear Panel**

BiPAC 9300VNX

GPON 3G VoIP Wireless-N Gateway

The BiPAC 9300VNX is a next-generation Gigabit Passive Optical Network (GPON) integrated access device (IAD). It uses BroadLight's BL2348 embedded System-on-Chip solution and is fitted with a 4-port Gigabit Ethernet Switch and Wi-Fi 802.11n access point. It is a cost-effective solution for point-to-multipoint; fiber-to-the-premises network architecture in which passive optical splitters are used to allow a single optical fiber to serve multiple premises. Compliant with the ITU-T G.984 GPON standards, the device supports maximum downstream rates up to 2.5Gbps and upstream rates up to 1.25Gbps. With this technology, users can enjoy high-speed GPON services and bandwidth-consuming multimedia applications such as interactive gaming, video streaming and real-time audio much easier and faster than ever before. Uniquely, the gateway can be used as a mini IP-PBX supporting up to 20 user accounts for SIP extensions. The BiPAC 9300VNX also has two RJ-11 FXS ports for connecting to regular telephones, allowing users to make economical VoIP calls. The BiPAC 9300VNX supports the ONT Management and Control Interface (OMCI), which ensures that Billion's GPON ONT router is easy to configure, activate and manage remotely from an Optical Line Terminal (OLT). By reducing call-outs, deployment and support costs of the ONT device are greatly reduced. The BiPAC 9300VNX offers dual WAN interface for GPON and 3G connections. Load balancing provides the ability to distribute the outgoing traffic across the two connections, and meet growing business needs requiring more bandwidth and network scalability. The auto fail-over feature ensures maximum connectivity and minimum interruption by quickly and smoothly connecting to a 3G network in the event that your fiber optical line fails. These features are perfect for office situations where constant connection is paramount.

Mini IP-PBX for VoIP calls

The BiPAC 9300VNX is compliant with SIP standard (RFC3261) and supports SIP registrar. The unique feature of the gateway is that it can be used as a mini IP-PBX that supports up to 20 user accounts for SIP extensions and 2 SIP accounts for making economical VoIP calls provided by Internet Telephony Service Providers (ITSP). This router integrates two FXS ports allowing users to make or receive phone calls over the Internet simply by connecting the device to their existing telephone set. This state-of-the-art feature is ideal for SOHO users, delivering free communication between branch offices and client sites. Making VoIP calls is just as easy as dialing an extension number!

OMCI remote management

In order to meet the ITU-T G.984.4 requirements for OMCI (ONT Management Control Interface), and defined compatibility and message transfer between OLT and ONT, and Management Information Base (MIB) physical device management, the BiPAC 9300VNX uses OpenCon's OMCI management. This tool is field-proven and interoperable with other GPON Systems with OMCI capabilities for both OLT and ONT equipment. OpenCon's OMCI management has been thoroughly tested to consistently meet ITU-T G.984.4 and is approved by the Full Service Access Network (FSAN) Group.

Optimal Wireless Speed and Coverage

With an integrated 802.11n Wireless Access Point, the router delivers up to 6 times the speed and 3 times the wireless coverage of an 802.11b / g network device. It supports a link rate up to 300Mbps and is also compatible with 802.11b/g equipment. 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. The router also supports the Wi-Fi Protected Setup (WPS) standard, allowing users to establish a secure wireless network by simply pushing a button. 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.

GPON:
• ITU-T G.984 GPON compliant
• Supports bandwidth maximum downstream rates up to 2.5Gbps and upstream rates up to 1.25Gbps
• Supports transmission distance up to 20km
• Dual-wavelength: Tx at 1310nm and Rx at 1490nm

Management:
• Supports OMCI (ONT Management and Control Interface) remote management
• TR-069

VoIP:
• Voice over IP compliant withSIP standards
• Two FXS ports for connecting to regular telephones
• Supports FAX Transmission: T.38 fax relay, G.711 pass-through
• Supports mini-IP PBX Features

Wireless 802.11n:
• Draft 802.11n wireless and delivers up to 300Mbps link rate
• 802.11n Wireless AP with WPA-PSK / WPA2-PSK supported
• Supports Wi-Fi WMM prioritization

Firewall:
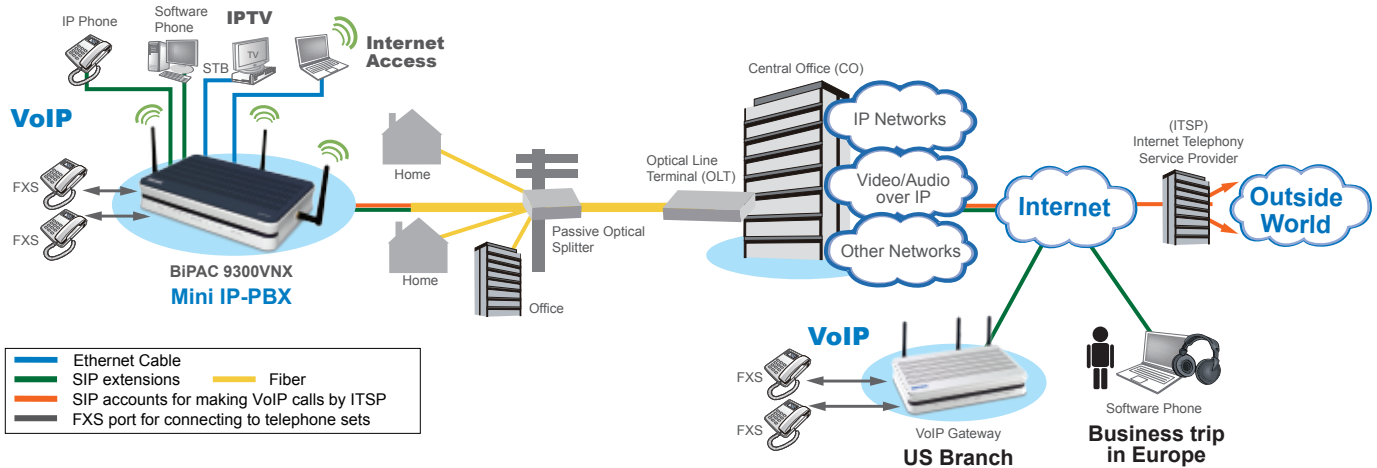• SOHO Firewall Security with DoS Prevention and SPI

QoS:
• Quality of Service control for traffic prioritization and bandwidth management
• Supports IPTV applications[*2]

• Easy Sign-On (EZSO)
• Dual WAN interface for GPON and 3G connections with load balancing / auto fail-over features

Ideal for:
• Home, SOHO and Office users

Powering communications with **Security**

Legend:
- Ethernet Cable
- SIP extensions
- Fiber
- SIP accounts for making VoIP calls by ITSP
- FXS port for connecting to telephone sets

Features & Specifications[1]

GPON Compliance
- GPON Compliance
- Compliant with ITU-T G.984 GPON standards
- G.984.1 General characteristics
- G.984.2 Physical Media Dependent (PMD) layer specifications
- G.984.3 Transmission convergence layer specifications
- G.984.4 Management and control interface

Network Protocols and Features
- 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 and IGMP proxy

Firewall
- Built-in NAT Firewall
- Stateful Packet Inspection (SPI)
- DoS attack prevention including IP Spoofing, Land Attack, Smurf Attack, Ping of Death, TCP SYN Flooding, etc.
- Packet Filtering - port, source IP address, destination IP address, MAC address
- URL Content Filtering - string or domain name detection in URL string

Quality of Service Control
- Supports the DiffServ approach
- Traffic prioritization and bandwidth management based-on IP protocol, port number and address

IPTV Applications[2]
- IGMP proxy and snooping for video service
- Virtual LAN (VLAN)
- Quality of Service (QoS)

Wireless LAN
- Compliant with IEEE 802.11n draft 2.0, 802.11g and 802.11b standards
- 2.4GHz - 2.484GHz frequency range
- Up to 300Mbps wireless operation rate
- Wi-Fi Protected Setup (WPS) for easy setup
- 64- / 128-bit WEP supported for encryption
- Wireless Security with WPA-PSK / WPA2-PSK support
- WDS repeater function support

VoIP
- Compliant with SIP standard: RFC3261
- Two RJ-11 FXS ports for connecting to regular telephones
- Supports two SIP accounts for connecting to Internet Telephony Service Provider (ITSP)
- Supports SIP extensions
- Supports G.711 A/μ law, and G.729 Audio CODEC standards
- Supports FAX Transmission: T.38 fax relay, G.711 pass-through
- Supports Telephony Features: silence suppression, Voice Activity Detection (VAD), Comfort Noise Generation (CNG), G.168 echo cancellation, packet loss concealment
- Supports mini-IP PBX Features: Call Waiting, Call Transfer, Call Hold, Call Forward, Speed Dial, Direct Inward Dialing (DID), Do Not Disturb (DND), Caller ID, Call Detail Record, Call blocking[3], 3-way conference[3], Meeting Room[3]
- Adaptive jitter buffer support
- DTMF: In-band/out-of-band (RFC2833) / SIP INFO

Management
- Quick Installation Wizard and Auto-scan for GPON settings
- Web-based GUI for remote and local management
- Firmware upgrades and configuration data upload and download via web-based GUI
- Embedded Telnet server for remote and local management
- SNMP v3, MIB-I and MIB-II support
- Supports DHCP server / client / relay
- OMCI supports remote management
- TR-069

Hardware Specifications
Physical Interface
- WLAN: detachable antenna
- WAN: SC/APC GPON port
- Telephone: 2-port FXS
- LAN: 4-port Gigabit auto-crossover (MDI/MDI-X) Switch
- USB 2.0 host port[4] (BiPAC 9300VNX only)
- Factory default reset button
- WPS button
- Power jack
- Power switch

Physical Specifications
- Dimensions: 9.04" x 6.10" x 1.69" (229.5 x 155 x 43mm)
- Power Requirements: Input: 15V DC, 1.6A

Operating Environment
- Operating temperature: 0 to 40 °C
- Storage temperature: -20 to 70 °C
- Humidity: 20 to 95% non-condensing

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