

Feature Matrix

1. FTTx ONT

Products & Models	BIPAC 9800VNL	BIPAC 9800NL R2	BIPAC 9800VL	BIPAC 9800VU	BIPAC 9304M	BIPAC 9304V	BIPAC 9310V	BIPAC 9300VNX	BIPAC 9300VU
Point-to-Point over Fiber (EFM ¹ -Fiber)	V	V	V	V					
Point-to-multipoint Gigabit over Fiber (GPON)					V	V	V	V	V
Ethernet switch	4	4	4	4	4	4	4	4	4
LAN ports	10 / 100 / 1000Mbps	10 / 100 / 1000Mbps	10 / 100 / 1000Mbps	10 / 100 / 1000Mbps	10 / 100 Mbps	10 / 100 Mbps	10 / 100 / 1000Mbps	10 / 100 / 1000Mbps	10 / 100 / 1000Mbps
RF Overlay							V		
USB 2.0 port								V	
Outdoor				V					V
802.11n with WPA / WPA2 and Wi-Fi Protected Setup	V	V						V	
Quality of Service	V	V	V	V		V	V	V	V
Firewall	V	V	V	V		V	V	V	V
VoIP (FXS ports)	2		2	2		2	2	2	2
Mini IP-PBX feature ²	V		V	V		V	V	V	V
Remote management ²	TR-069 / SNMP	TR-069 / SNMP	TR-069 / SNMP	TR-069 / SNMP	OMCI ³ / TR-069 / SNMP	OMCI ³ / TR-069 / SNMP	OMCI ³ / TR-069 / SNMP	OMCI ³ / TR-069 / SNMP	OMCI ³ / TR-069 / SNMP

*Note: 1. EFM: Ethernet in the First Mile 2. By request 3. OMCI: ONT Management and Control Interface

2. VDSL2 CPE

Product & Models	BIPAC 8200M	BIPAC 8200	BIPAC 8200N	BIPAC 8620
VDSL2 port	1	1	1	2
VDSL2 profile	8a / b / c / d, 12a / b, 17a, 30a	8a / b / c / d, 12a / b, 17a, 30a	8a / b / c / d, 12a / b, 17a, 30a	8a / b / c / d, 12a / b, 17a
Band plan 997 & 998 Supports 2 / 3 / 4 / 5 / 6 bands	V	V	V	V ¹
Downstream	100Mbps	100Mbps	100Mbps	>150Mbps
Upstream	100Mbps	100Mbps	100Mbps	100Mbps
IPv6		V ²		
TR-069		V ²		
Splitter built-in		V (optional)		
Ethernet switch	10 / 100Mbps	10 / 100Mbps	10 / 100Mbps	10 / 100Mbps
LAN ports	4	4	4	4
Wi-Fi 802.11n			V	
Firewall / Router		V	V	V
CO mode for back-to-back application	V	V		
Target user	Home & SOHO			

*Note: 1. Support 2 / 3 / 4 / 5 bands 2. By request

3. VDSL2 Switch

Product & Models	BiPAC VS2008-P	BiPAC VS2024-P
VDSL2 profile	8a / b / c / d, 12a / b, 17a, 30a	8a / b / c / d, 12a / b, 17a, 30a
Band plan 997 & 998	V	V
Ethernet Interface (RJ45)	10 / 100 / 1000 Mbps	10 / 100 / 1000 Mbps
Giga-SFP slots	2	2
VDSL port	8	24
Built-in POTS splitter	V	V
QoS	V	V
VLAN	V	V



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About Billion

Billion Electric Co. Ltd. (Taiex: 3027, trading as BILLION) was founded in Taiwan in 1973 and has grown to be a leading providers of network equipment and power supply products in the Asia Pacific. With the establishment of the Communication Division, Billion has reinforced its commitment to developing next-generation network equipment and Internet access devices to meet the needs of home users, telecommuters, SOHOs and SMBs around the globe. Billion has received a number of awards for its networking products and has acquired a considerable customer base across Europe, America, the Middle East, Africa and the Asia Pacific. Since March 2009, Billion's Power Division has increased its investment in R&D and manufacturing of Smart Grid business tools. This division was officially renamed the "Power and Energy Management Division" (PEM Division) to emphasize Billion's long-term focus on "Green" product development. With the supply of Smart Grid to reduce carbon emissions resulting in more energy-saving products, Billion aims to contribute to environmental protection and the green planet philosophy. For more information, please visit: www.billion.com and www.smartgrid.com.tw



2011 FTTx Product Solution Guide



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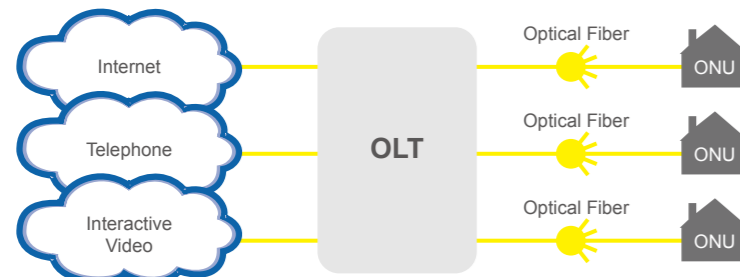


Overview

With the rapid development of information technologies over recent years, user needs have expanded from simple voice to multiplex of voice, video, data and images. An increasing number of users are paying attention to new broadband services that place the highest demands on network bandwidth, QoS, and security. With the development and convergence of core networks, the demand for service flexibility and economy has become crucial and requires operators to offer many types of effective broadband access.

Point-to-Point Fiber is the ultimate broadband technology for the next generation of high speed Internet access. It is an advanced broadband network architecture that uses optical fiber to replace all or part of the usual copper used in current last mile telecommunications. This infrastructure provides the operator with the flexibility to introduce new services and scale existing services without compromising on cost and performance.

The GPON solutions offer a flexible and cost-effective way of delivering advanced high-speed services, especially in high-density residential areas. It provides a migration path to an all-IP network and offers the bandwidth required to deliver convergence voice, video, and data services. Billion GPON and FTTH solutions are field proven and strongly integrated with VDSL solutions, suitable for deployment in transmitting video, data and voice at very high speeds and large volumes to homes and offices.



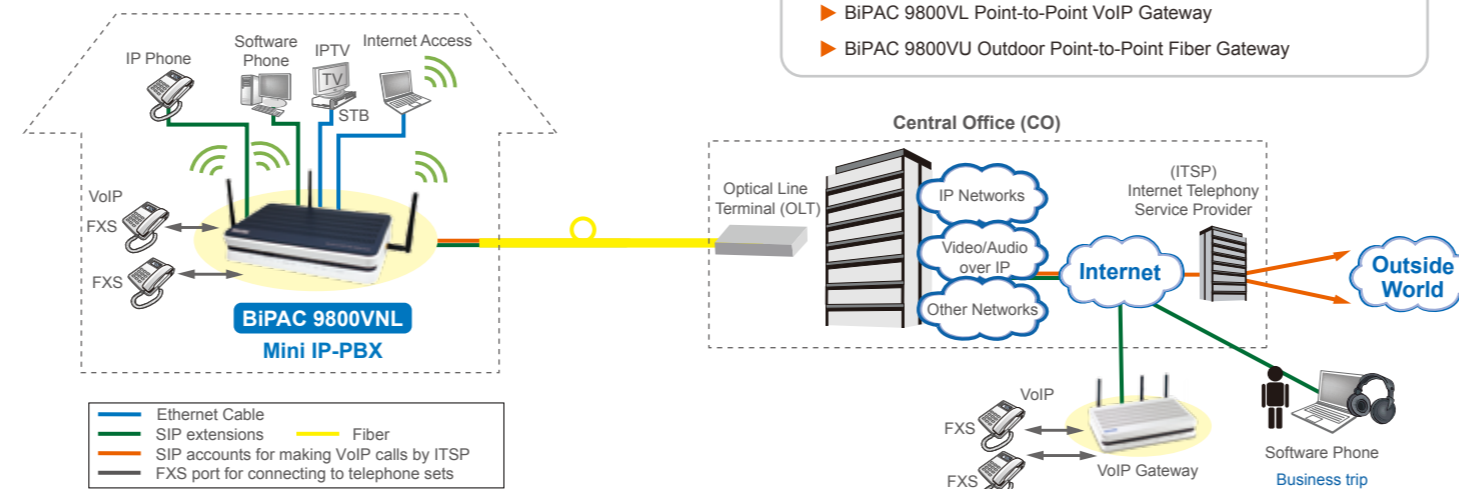
Advantages

- Cost-effective** - Provides a total solution for service delivery infrastructures to leverage the full breadth of your access portfolio and utilizes methods such as Very-high-bit-rate Digital Subscriber Line 2 (VDSL2) and FTTH, and to enable the ultimate flexibility and smooth migration through the first mile.
- Easy maintenance** - Active equipment is removed from the access network, reducing any effect from electromagnetic interference, thunder and lightning, thus, reducing the failure rate of the line and the external equipment. Therefore, operation and maintenance costs are reduced.
- Scalability** - Offers an integrated access platform with more value-added services to meet a diverse range of customer demands as well as guaranteeing low system costs, which delivers a decent return on investment.

Applications

1. Point-to-Point Fiber Applications

The BiPAC 9800 series is designed for point-to-point (P2P) Fiber Gateway-featuring a 4-port Gigabit Ethernet Switch, 2 ports FXS, Firewall and Wi-Fi 802.11n access point. The device can be used for FTTH applications and offers auto sensing 100 / 1000BASE Small Form Factor Pluggable (SFP). Furthermore, the BiPAC 9800 series supports remote management on end-user devices, which can assist Telcos / ISPs to tightly manage the FTTH service delivery.



BiPAC 9800VNL Wireless Point-to-Point Fiber VoIP Gateway

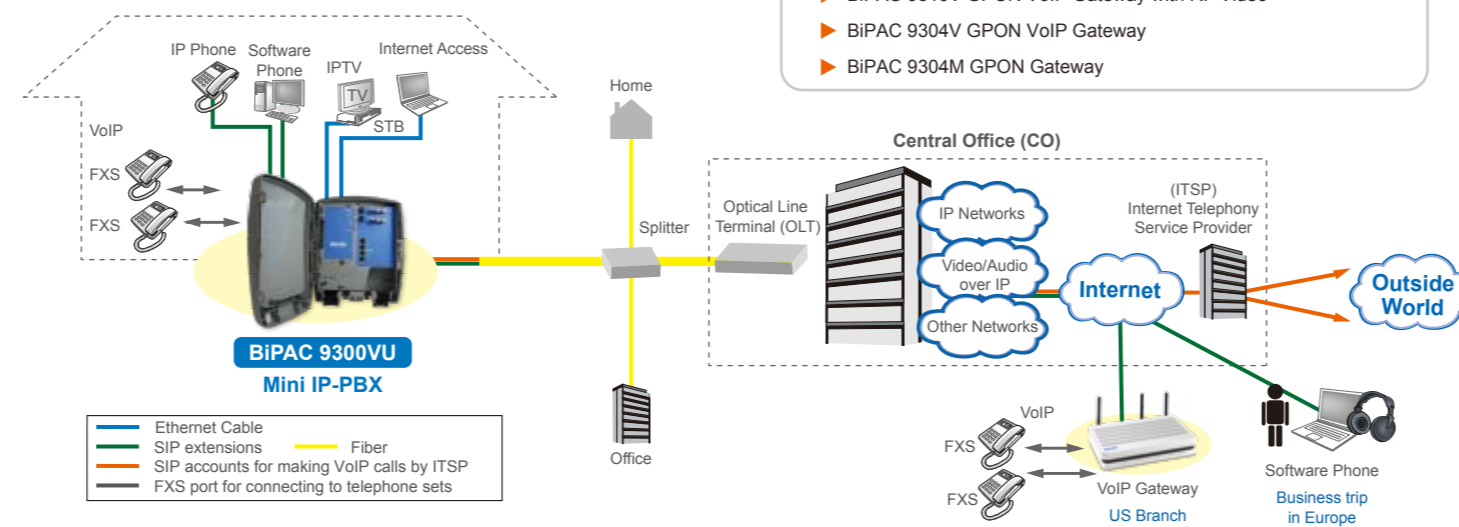
- SFP support auto-sensing 100 / 1000 based fiber connectivity
- 802.11n Wireless AP
- 4 GbE ports
- 2 FXS ports

BiPAC 9800 Series

- ▶ BiPAC 9800VNL Wireless-N Point-to-Point Fiber VoIP Gateway
- ▶ BiPAC 9800NL R2 Wireless-N Point-to-Point Fiber Gateway
- ▶ BiPAC 9800VL Point-to-Point VoIP Gateway
- ▶ BiPAC 9800VU Outdoor Point-to-Point Fiber Gateway

2. GPON Applications

GPON 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 easier and faster than ever before.



BiPAC 9300VU Outdoor GPON Gateway

- ITU-T G.984 GPON compliant
- Mini IP-PBX support and 2 FXS port
- Support OMCI
- Support UPS power supply
- 4 GbE ports

BiPAC 9300 GPON ONT Series

- ▶ BiPAC 9300VNX GPON 3G VoIP Wireless-N Gateway
- ▶ BiPAC 9300VU Outdoor GPON VoIP Gateway
- ▶ BiPAC 9310V GPON VoIP Gateway with RF Video
- ▶ BiPAC 9304V GPON VoIP Gateway
- ▶ BiPAC 9304M GPON Gateway

3. VDSL2 Applications

VDSL, Very-high-bit-rate Digital Subscriber Line, is the next generation of DSL technology. With accelerated data rates, VDSL delivers high transfer speeds for bandwidth consuming applications, such as voice, video-on-demand, and IPTV services. It is an ideal and cost-effective solution to use fiber optic lines as the backbone and a VDSL line as the last mile into the home or office. Then, ISPs and Telco (operators and carriers) can deliver more diversified multimedia services to end customers.

VDSL2 Series

- ▶ BiPAC 8200 VDSL2 Modem / Router
- ▶ BiPAC 8200M VDSL2 Modem
- ▶ BiPAC 8200N VDSL2 Wireless-N Router
- ▶ BiPAC 8620 VDSL2 Dual-Pair Router
- ▶ BiPAC VS2024-P 24-port Gigabit VDSL2 Managed Switch
- ▶ BiPAC VS2008-P 8-Port Gigabit VDSL2 Managed Switch

BiPAC 8200N VDSL2 Wireless-N Router

- Compliant to ITU-T G.994.1 and G.997.1
- Downstream / upstream: 100 / 100Mbps
- 802.11n Wireless AP

BiPAC VS2008-P 8-Port Gigabit VDSL2 Managed Switch

- ITU-T G.993.2 VDSL2 standard
- 8 full-duplex VDSL links
- 2-Port Gigabit TP / SFP combo interfaces
- IEEE 802.1Q Tag-based VLAN

