4-Port 10/100/1000T Ethernet to VDSL2 Bridge w/G.vectoring

High Performance Gigabit Ethernet over Phone Wire Solution

PLANET VC-234G, a new-generation and high-performance Gigabit Ethernet-over-VDSL2 Converter, works well with a pervasive telephone line network with a symmetric (downstream/upstream) data rate of up to **150/150Mbps (G.INP, Sym, 8dB)** over a distance of 300m and 20/12Mbps over a long distance of 1.4km. It is based on the two-core networking technology, **Gigabit Ethernet** and **VDSL2** (Very-high-data-rate Digital Subscriber Line 2). The VDSL2 technology offers absolutely the fastest data transmission speed over the existing copper telephone lines without the need of rewiring.

With integrated support for the ITU-T's new **G.993.5 vectoring technology**, the VC-234G works in conjunction with vectoring-enabled DSLAMs to remove crosstalk interference and improve maximum line bandwidth across the existing copper telephone infrastructure.

Implementing with Existing Telephone Copper Wires

The VC-234G is also a **Long Reach Ethernet (LRE)** Bridge providing four RJ45 Ethernet ports and two RJ11 phone jacks, in which one is for VDSL connection and the other one is for POTS (Plain Old Telephone Service) connection. The VC-234G has a built-in POTS splitter to share the existing phone line with POTS; therefore, there is no need to replace the existing copper wiring. Just plug the VC-234G into the existing RJ11 telephone jack and a high-performance VDSL2 network can be connected. The VC-234G is ideal to be used as an Ethernet extender to an existing Ethernet network.

Delivering High-demand Service Connectivity for ISP/Triple Play Devices

The VC-234G provides excellent bandwidth to satisfy the triple play devices for home entertainment and communication. With the capability of **200/100Mbps (G.INP, Asym, 8dB)** asymmetric data transmission, the VC-234G enables many multi-media services to work on the local Internet, such as VoD (video on demand), voice over IP, video phone, IPTV, Internet caching server, distance education, and so on.

- ITU-T G.993.5 G.Vector and G.INP
- DMT-based coding technology
- Built-in POST splitter to share voice and date
- One RJ11 connector for VDSL port with VDSL connection
- One phone connector for telephone connection
- Voice and data communication can be shared simultaneously based on the existing telephone wire
- CO/CPE mode selectable via DIP switch
- Selectable target band plan and SNR margin
- Up to **200/100Mbps (G.INP, Asym, 8dB)** bandwidth
- 4 10/100/1000BASE-TX LAN ports
- Complies with IEEE 802.3, 10BASE-T, IEEE 802.3u, 100BASE-TX and IEEE 802.3x, flow control Ethernet standards
- Half duplex back pressure and IEEE 802.3x full duplex pause frame flow control
- Supports IEEE 802.1Q VLAN tag transparency
- VDSL2 stand-alone transceiver for simple bridge modem application
- Advantage of minimum installation time (Simply Plug-and-Play)
- Supports extensive LED indicators for network diagnosis
- Compact in size and easy to install

Easy and Flexible Installation

The Ethernet-over-VDSL2 Converter comes with a Plug-and-Play design and is fully compatible with all kinds of network protocols. Moreover, the operating status of each individual port and the whole system can be watched via the rich diagnostic LEDs on the front panel. The VC-234G offers two modes, CPE and CO, for application -- CPE mode is used at client side and CO mode is at central side. The **CPE** or **CO** mode can be adjusted by using a built-in DIP switch. For the point-to-point connection, a CPE mode and a CO mode must be set up as one pair of converters to perform the connection.

ADSL2+ Fallback

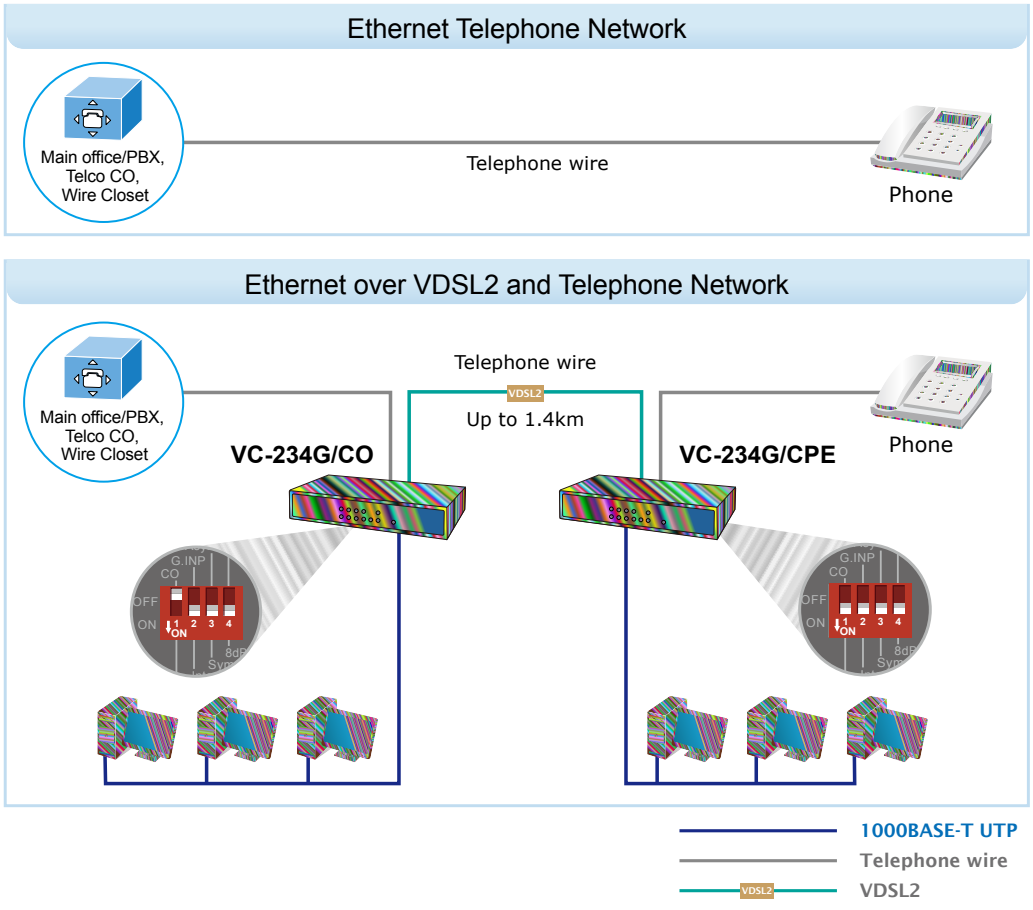
For those ISPs that still provide ADSL broadband service, the VC-234G can support a downstream rate of up to 24Mbps and an upstream rate of 1Mbps with the ADSL2+ technology. The VC-234G can also be directly switched over to VDSL2 after the network upgrade.

Applications

Ethernet Distance Extension

Two VC-234G devices, acting as a standalone pair, are good for Ethernet distance extension over the existing telephone wires. With just one pair of AWG-24 copper wires, you can easily connect two Ethernet networks together with a maximum data rate of 200Mbps. The telephone service can still be used while the VC-234G CO/CPE is in operation. The two solutions listed below are typical applications for the Ethernet over VDSL2 Bridge.

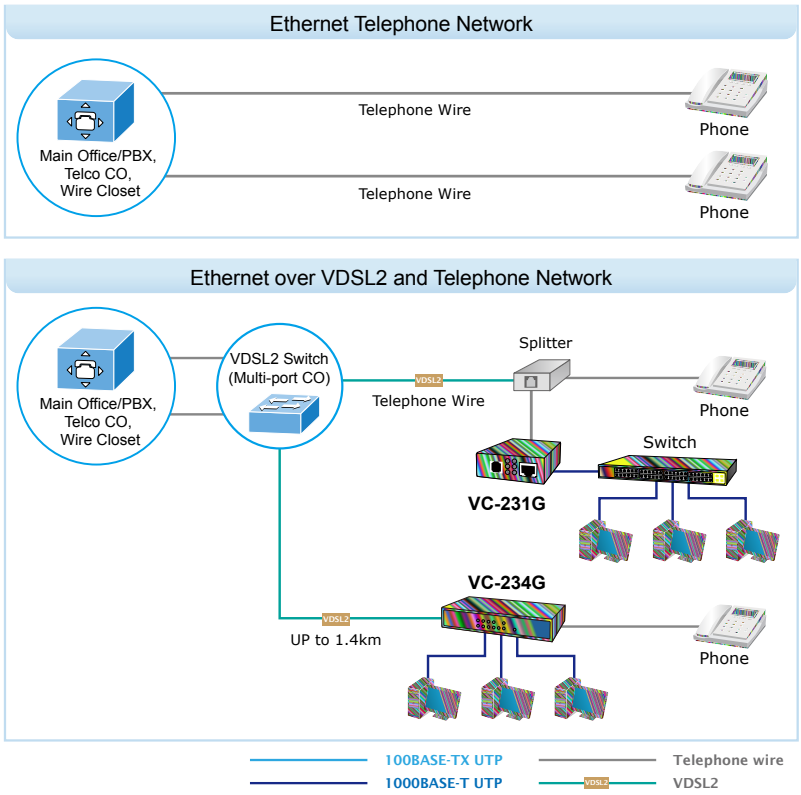
LAN to LAN Connection



MTU/MDU/Hospitality Solution

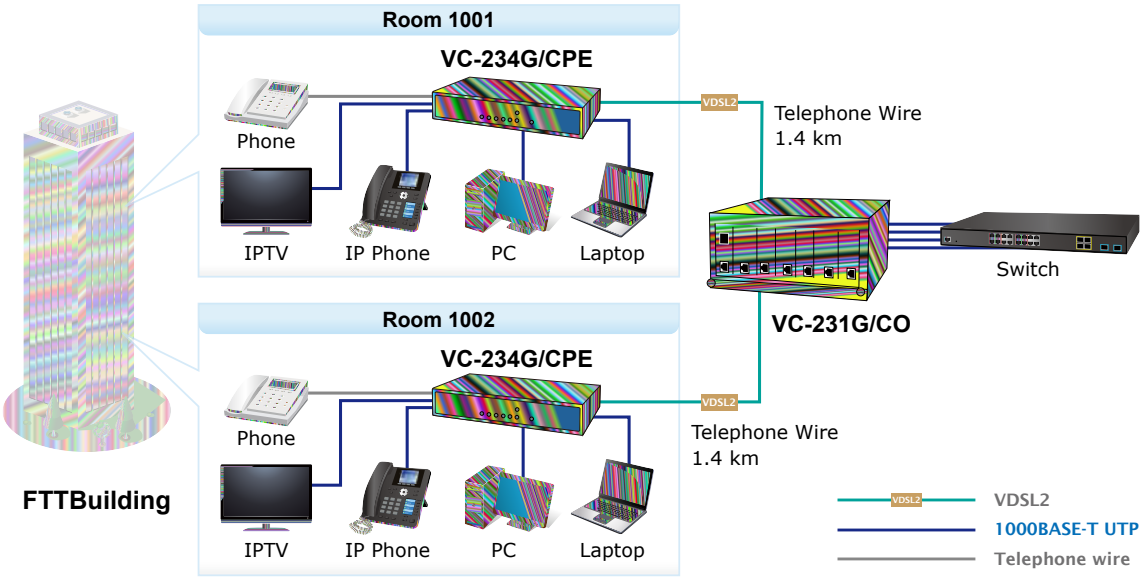
The VC-234G is a perfect solution to quickly providing cost-effective yet high-speed network services to multi-unit buildings such as residential buildings (multi-dwelling units), commercial (multi-tenant units) buildings, hotels and hospitals. By utilizing the existing telephony infrastructure, network installation is straightforward and requires no new wiring. With up to **240/120Mbps (G.INP, Asym, 8dB)** transmission, VoD, IP telephony and various broadband services can be easily provided.

Multi-LAN Connection



Last Mile of FTTx Deployment

The VC-234G is an ideal solution for FTTx (Fiber to the Building, Fiber to the Campus or Fiber to the Node) applications. It supports high-bandwidth VDSL2 over the existing telephone wires in the “last mile” from the telecom or Internet service provider’s fiber node to the buildings and customers’ apartments. The 10/100/1000Mbps port of the VC-234G can be directly connected to a PC or Ethernet devices such as Ethernet switches or broadband routers. It is excellent for phone line network built under Internet because every room or house can use the existing phone line to transmit data through the Internet and the whole building can share the Internet to the wider area network at a minimum cost.



Specifications

Product	VC-234G	
HHardware Specifications		
LAN Ports	4 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports	
VDSL Port	1 VDSL2 RJ11 female phone jack Twisted-pair telephone wires (AWG24 or better) up to 1.4km	
Phone Port	1 RJ11, built-in splitter for POTS connection	
Dimensions (W x D x H)	154.6 x 86.0 x 26.3 mm	
Weight	350g	
Power Requirements	5V DC, 2A external power	
LED Indicators	■ 1 power: Green ■ 4 1000BASE-T LNK/ACT: Green ■ 4 100BASE-TX LNK/ACK: Green ■ 1 VDSL: Green ■ 1 CO: Green ■ 1 CPE: Green	
Housing	Metal	
DIP Switch & Functionality	**4-position DIP switch** ■ **CO/CPE** mode select ■ Selectable **G.INP** and **interleaved** mode ■ Selectable target **Band plan** ■ Selectable target **SNR mode**	
Switch Specifications		
Switch Processing Scheme	Store-and-Forward	
Address Table	2K entries	
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex	
System Specifications		
VDSL Compliance	► VDSL-DMT ■ ITU-T G.993.1 VDSL ■ ITU-T G.997.1 ■ ITU-T G.993.2 VDSL2 (Profile 17a/30a Support) ■ ITU-T G.993.5 **G.vectoring** ■ ITU-T G.998 ■ G.INP	
ADSL Compliance	► Capable of **ADSL2/2+** standard ■ ITU G.992.3 G.dmt.bis ■ ITU G.992.5 G.dmt.bisplus ► Data Rate: Up to 24Mbps	
Performance* (Downstream/Upstream)	**Interleave, Asym, 8dB** 200M ----> 193Mbps/89Mbps 400M ----> 164Mbps/69Mbps 600M ----> 112Mbps/39Mbps 800M ----> 70Mbps/14Mbps 1000M --> 46Mbps/7Mbps 1400M --> 21Mbps/4Mbps	**Interleave, Asym, 12dB** 200M ----> 180Mbps/80Mbps 400M ----> 145Mbps/57Mbps 600M ----> 95Mbps/32Mbps 800M ----> 60Mbps/13Mbps 1000M --> 39Mbps/6Mbps 1400M --> 18Mbps/2Mbps
	Interleave, Sym, 8dB 200M ----> 142Mbps/139Mbps 400M ----> 116Mbps/118Mbps 600M ----> 70Mbps/73Mbps 800M ----> 50Mbps/40Mbps 1000M --> 24Mbps/24Mbps 1400M --> 10Mbps/6Mbps	**Interleave, Sym, 12dB** 200M ----> 137Mbps/129Mbps 400M ----> 99Mbps/102Mbps 600M ----> 54Mbps/61Mbps 800M ----> 41Mbps/35Mbps 1000M --> 22Mbps/19Mbps 1400M --> 7Mbps/3Mbps
	G.INP, Asym, 8dB 200M ----> 200Mbps/100Mbps 400M ----> 170Mbps/68Mbps 600M ---->113Mbps/37Mbps 800M ----> 70Mbps/18Mbps 1000M --> 51Mbps/7Mbps 1400M --> 24Mbps/2Mbps	**G.INP, Asym, 12dB** 200M ----> 185Mbps/90Mbps 400M ----> 150Mbps/60Mbps 600M ----> 94Mbps/36Mbps 800M ----> 61Mbps/14Mbps 1000M --> 44Mbps/6Mbps 1400M --> 21Mbps/1Mbps
	G.INP, Sym, 8dB 200M ----> 150Mbps/150Mbps 400M ----> 120Mbps/126Mbps 600M ----> 73Mbps/78Mbps 800M ----> 48Mbps/43Mbps 1000M --> 27Mbps/26Mbps 1400M --> 10Mbps/5Mbps	**G.INP, Sym, 12dB** 200M ----> 142Mbps/136Mbps 400M ----> 103Mbps/110Mbps 600M ----> 57Mbps/65Mbps 800M ----> 38Mbps/36Mbps 1000M --> 14Mbps/13Mbps 1400M --> 8Mbps/3Mbps

***Note: As there are various resistance values in the category of RJ11 cable, the actual data rate will vary on the quality of the copper wire and environmental factors.**

Standards Conformance	
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3x Full-duplex flow control IEEE 802.1p Class of Service ITU-T G.993.1 VDSL ITU-T G.997.1 ITU-T G.993.2 VDSL2 (Profile 17a/30a support) ITU-T G.993.5 G.Vectoring & G.INP ITU-T G.998

Ordering Information

VC-234G	4-Port 10/100/1000T Ethernet to VDSL2 Bridge -- 30a profile w/G.vectoring, RJ11

Related Products

VC-231G	1-Port 10/100/1000T Ethernet to VDSL2 Converter -- 30a profile w/G.vectoring, RJ11
VC-234	Ethernet over VDSL2 Bridge (RJ45 x 4, VDSL2/RJ11 x 1, Phone-30a x 1)
VC-231	Ethernet over VDSL2 Converter (RJ45 x 1, VDSL2/RJ11-30a x 1)
IDL-2402	24-Port ADSL2/2+ IP DSLAM
IDL-4802	48-Port ADSL 2/2+ IP DSLAM
VDL-2420MR	24-Port VDSL2 IP DSLAM
VC-820M	8-Port VDSL2 + 2G TP/SFP Managed Switch

PLANET Technology Corporation

11F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
Tel: 886-2-2219-9518 Fax: 886-2-2219-9528
Email: sales@planet.com.tw www.planet.com.tw