VC-231G

1-Port 10/100/1000T Ethernet to VDSL2 Converter w/ G.vectoring

150/150Mbps Downstream/Upstream, High Performance Gigabit Ethernet over Phone Wire Solution

PLANET VC-231G, a new-generation and high-performance Gigabit Ethernet-over-VDSL2 Converter, works well with a pervasive telephone line network with a symmetric data rate of up to **150/150Mbps (G.INP, Sym, 8dB)** over a distance of 300m and 22/10Mbps 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.

High-performance Ethernet over VDSL2

Via the latest VDSL2 technology, PLANET VC-231G offers high-speed access to Internet, up to 190Mbps for both upstream and downstream data transmissions. With integrated support for the ITU-T's new **G.993.5 vectoring technology**, the VC-231G works in conjunction with vectoring-enabled DSLAMs to remove crosstalk interference and improve maximum line bandwidth across the existing copper infrastructure.

Implementing with Existing Telephone Copper Wires

The VC-231G is also a **Long Reach Ethernet (LRE)** converter providing one RJ45 Ethernet port and one RJ11 phone jack, which is for VDSL2 connection. Use the additional splitter from the package of the VC-231G to share the existing phone line with POTS, thus replacing the existing copper wiring is not necessary. Just plug the VC-231G with the additional splitter into the existing RJ11 telephone jack and a high-performance VDSL2 network can be connected. It is ideal for use as an Ethernet extender to an existing Ethernet network.

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

The VC-231G provides an excellent bandwidth demand for the triple play devices for home entertainment and communication. With the asymmetric data transmission of **190/100Mbps (G.INP, Asym, 8dB)**, the VC-231G 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.vectoring and G.INP
- DMT-based coding technology
- Additional splitter to share voice and dataCO/CPE mode selectable via DIP switch
- Selectable target band plan and SNR margin
- Up to 150/150Mbps bandwidth (in **G.INP**, **Sym**, **8dB** mode)
- 1 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
- One RJ11 connector for VDSL port with VDSL connection
- Voice and data communication can be shared simultaneously based on the existing telephone wire
- IEEE 802.1Q VLAN tag transparency
- VDSL2 standalone transceiver for simple bridge modem application
- Advantage of minimum installation time (Simply by Plug-and-Play)
- Supports extensive LED indicators for network diagnosis
- Co-work with PLANET media converter chassis (MC-700/MC-1500/ MC-1500R/MC-1500R48)
- 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-231G 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 point-to-point connection, a CPE mode VC-231G and a CO mode VC-231G must be set up as one pair of converters to perform the connection.

ADSL2+ Fallback

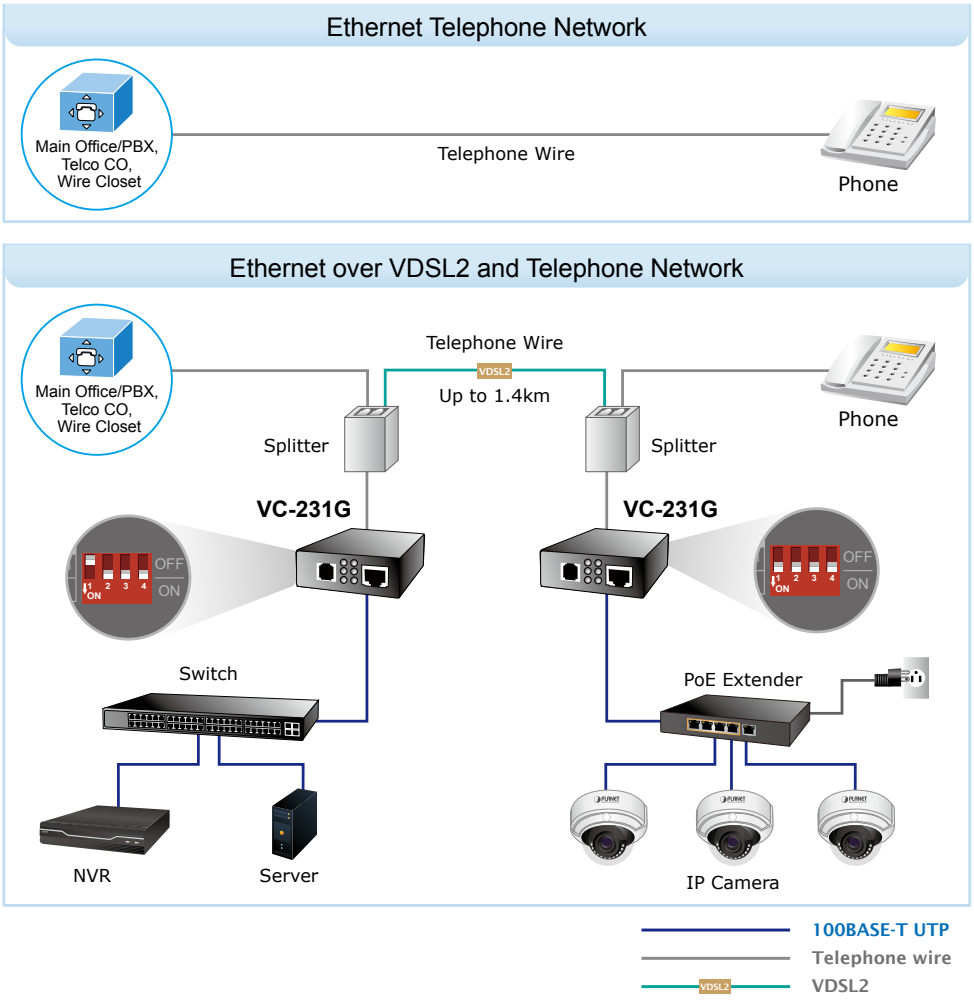
For those ISPs that still provide ADSL broadband service, the VC-231G can support transmission rates up to 24Mbps downstream and 1Mbps upstream with the ADSL2+ technology. The VC-231G establishes a connection with ISP and can be also directly switched over to VDSL2 after the ISP network upgrade.

Applications

Ethernet Distance Extension

Two VC-231G converters can act as a standalone pair which is good for Ethernet distance extension over the existing telephone wires. With just one pair of AWG-24 copper wires, two Ethernet networks can be easily connected to each other with a maximum data transmission rate of 200Mbps. The telephone service can still be used while the VC-231G CO/CPE is in operation. The two solutions listed below are typical applications for the Ethernet over VDSL2 bridge.

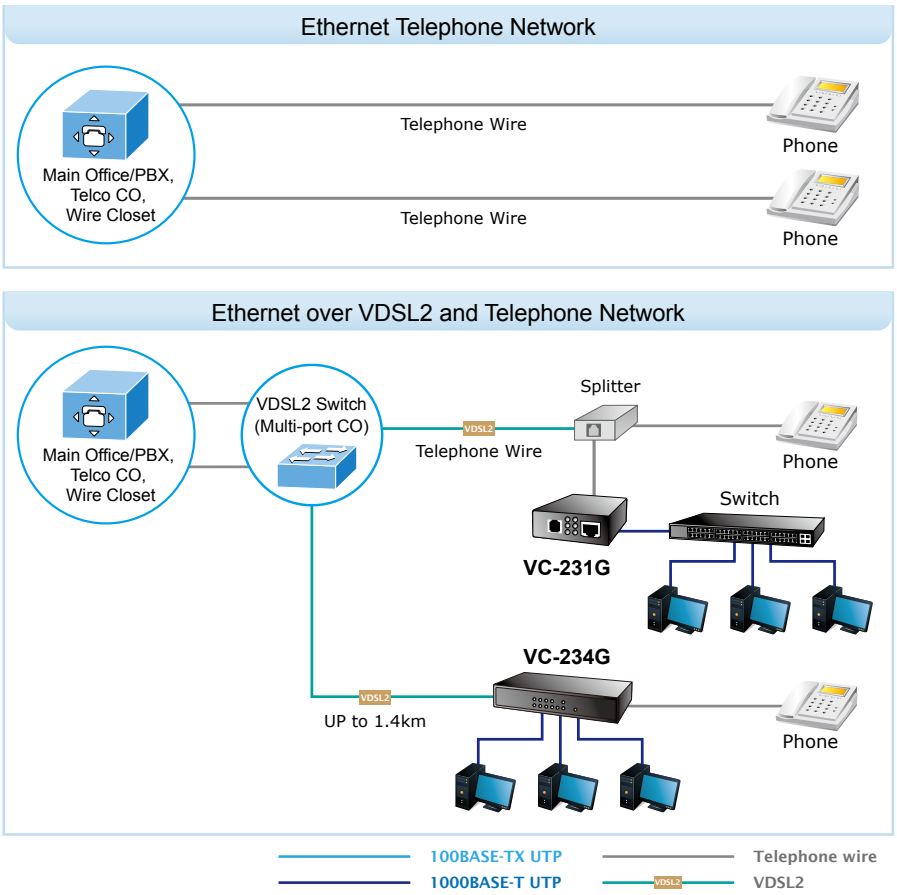
LAN to LAN Connection



MTU/MDU/Hospitality Solution

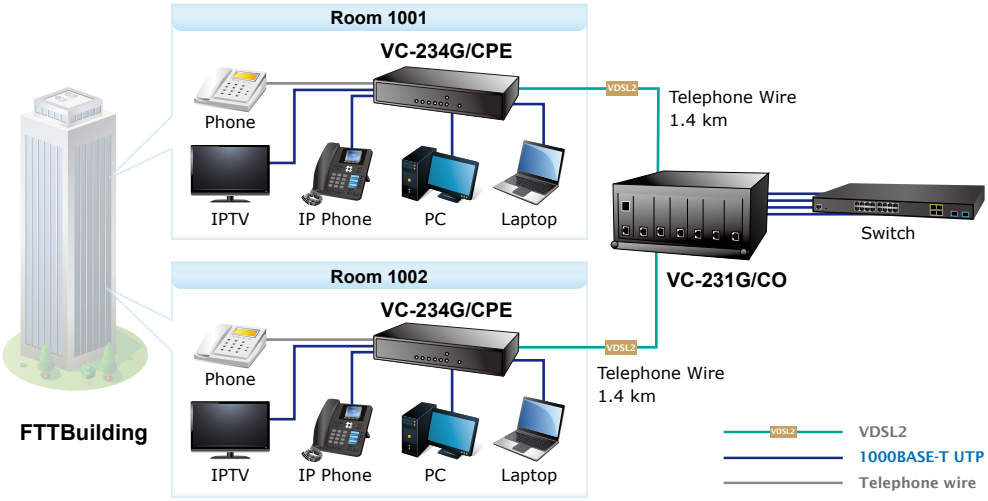
The VC-231G is a perfect solution to quickly providing cost-effective yet high-speed network services to multi-unit buildings such as residential buildings (multi-dwelling units), commercial (multi-tenant units) buildings, hotels and hospitals. By utilizing the existing telephony infrastructure, a new network installation can be easily built, without requiring new wiring. With a transmission rate of up to **190/100Mbps (G.INP, Asym, 8dB)**, VoD, IP telephony and various broadband services can be easily provided.

Multi-LAN Connection



Last Mile of FTTx Deployment

The VC-231G 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 ISP/telecom/service provider’s fiber node to the buildings and customers’ apartments. The 10/100/1000Mbps port of the VC-231G 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-231G	
Hardware Specifications		
LAN Ports	1 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports	
VDSL Port	1 VDSL2 RJ11 female phone jack Twisted-pair telephone wires (AWG-24 or better) up to 1.4km	
Phone Port	Additional splitter for POTS connection	
Dimensions (W x D x H)	97 x 70 x 26 mm	
Weight	184g	
Power Requirements	DC 5V, 2A external power	
LED Indicators	■ 1 power: Green ■ 1 1000BASE-T LNK/ACT: Green ■ 1 100BASE-TX LNK/ACK: Green ■ 1 VDSL: Green ■ 1 CO: Green ■ 1 CPE: Green	
Housing	Metal	
DIP Switch & Functionality	**4-position DIP switch** ■ CO or CPE mode selectable ■ Selectable G.INP and interleaved mode ■ electable 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 ----> 190Mbps/87Mbps 400M ----> 161Mbps/60Mbps 600M ----> 118Mbps/36Mbps 800M ----> 59Mbps/24Mbps 1000M --> 47Mbps/7Mbps 1200M--> 39Mbps/4Mbps 1400M --> 25Mbps/4Mbps	**Interleave, Asym, 12dB** 200M ----> 178Mbps/84Mbps 400M ----> 143Mbps/53Mbps 600M ----> 99Mbps/32Mbps 800M ----> 48Mbps/22Mbps 1000M --> 41Mbps/5Mbps 1200M--> 33Mbps/3Mbps 1400M --> 23Mbps/3Mbps
	Interleave, Sym, 8dB 200M ----> 147Mbps/139Mbps 400M ----> 112Mbps/110Mbps 600M ----> 75Mbps/73Mbps 800M ----> 44Mbps/44Mbps 1000M --> 26Mbps/25Mbps 1200M--> 24Mbps/13Mbps 1400M --> 20Mbps/9Mbps	**Interleave, Sym, 12dB** 200M ----> 135Mbps/127Mbps 400M ----> 96Mbps/96Mbps 600M ----> 61Mbps/59Mbps 800M ----> 40Mbps/40Mbps 1000M --> 23Mbps/18Mbps 1200M--> 22Mbps/9Mbps 1400M --> 16Mbps/7Mbps
	G.INP, Asym, 8dB 200M ----> 197Mbps/101Mbps 400M ----> 168Mbps/65Mbps 600M ----> 109Mbps/34Mbps 800M ----> 65Mbps/20Mbps 1000M --> 53Mbps/7Mbps 1200M--> 44Mbps/4Mbps 1400M --> 28Mbps/4Mbps	**G.INP, Asym, 12dB** 200M ----> 185Mbps/89Mbps 400M ----> 148Mbps/54Mbps 600M ----> 95Mbps/32Mbps 800M ----> 58Mbps/14Mbps 1000M --> 46Mbps/6Mbps 1200M--> 37Mbps/3Mbps 1400M --> 25Mbps/3Mbps

Performance* (Downstream/Upstream)	**G.INP, Sym, 8dB** 200M ----> 150Mbps/150Mbps 400M ----> 117Mbps/117Mbps 600M ----> 77Mbps/77Mbps 800M ----> 43Mbps/43Mbps 1000M --> 29Mbps/28Mbps 1200M--> 27Mbps/15Mbps 1400M --> 22Mbps/10Mbps	**G.INP, Sym, 12dB** 200M ----> 140Mbps/140Mbps 400M ----> 97Mbps/97Mbps 600M ----> 60Mbps/60Mbps 800M ----> 35Mbps/35Mbps 1000M --> 26Mbps/21Mbps 1200M--> 25Mbps/11Mbps 1400M --> 18Mbps/8Mbps
Address Table		
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-231G	1-Port 10/100/1000T Ethernet to VDSL2 Converter (30a profile w/ G.vectoring)

Related Products

VC-234G	4-Port 10/100/1000T Ethernet to VDSL2 Bridge (30a profile w/ G.vectoring)
VC-234	Ethernet over VDSL2 Bridge (4 x RJ45, 1 x VDSL2/RJ11, 1 x Phone-30a)
VC-231	Ethernet over VDSL2 Converter (1 x RJ45, 1 x VDSL2/RJ11-30a)
VC-820M	8-Port VDSL2 + 2G TP/SFP Managed Switch
VDL-2420M	24-Port VDSL2 IP DSLAM + 2-Port Gigabit TP/SFP Combo
IDL-2402	24-Port ADSL2/2+ IP DSLAM
IDL-4802	48-Port ADSL 2/2+ IP DSLAM
MC-700	7-Slot Media Converter Chassis

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