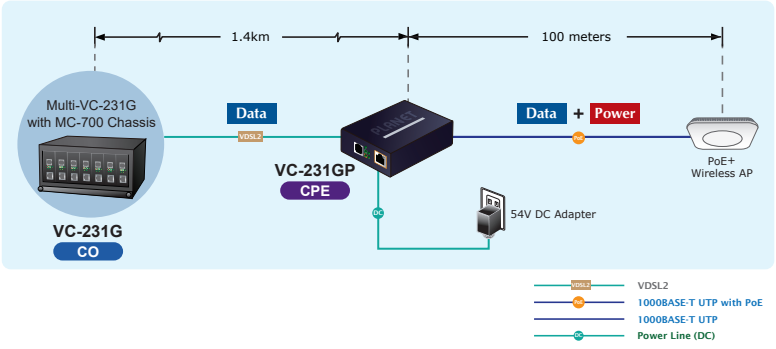
1-Port 10/100/1000T 802.3at PoE+ Ethernet to VDSL2 Converter

200/200Mbps Downstream/Upstream, High-performance Gigabit Ethernet over Phone Wire Solution

PLANET VC-231GP, a new-generation and high-performance **Single-port Gigabit Ethernet-over-VDSL2 Converter with PoE injector** function and the brand-new VDSL2 Super Vector 35b profile, works well with a pervasive telephone line network with a symmetric data rate of up to **200/200Mbps (G.INP, Sym, 8dB)** over a distance of **200m** and **11/9Mbps** 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.

The VC-231GP forwards the Ethernet data and provides a maximum of **30-watt** power output over an additional 100m UTP cable to a remote IP device complied with **802.3af/at PoE** PD (powered device) for network deployment, such as PoE IP camera, PoE wireless AP, or PoE IP VoIP phone/door phone. Users have the ability to grow the structure of the current networks simply with even more flexibility with following three advanced technologies:

- VDSL2/ADSL2+ Digital Subscriber Line technologies
- Gigabit Ethernet
- IEEE 802.3at Power over Ethernet Plus



Physical Port

- 1-port 10/100/1000BASE-T RJ45 with IEEE 802.3af/802.3at PoE Injector
- One RJ11 female phone jack for VDSL2 Transmission

Power Over Ethernet

- Complies with IEEE 802.3at/af PoE Plus end-span PSE
- Supports PoE power up to 30.8 watts per PoE port
- Provides DC 54V power over RJ45 Ethernet cable to PD with Ethernet port
- Auto-detects IEEE 802.3at/af equipment and protects devices from being damaged by incorrect installation
- Remote power feeding up to 100m
- IEEE 802.3at/af splitter devices compatible

VDSL2 Features

- ITU-T G.993.2 VDSL2 Profile 17a/30a/35b
- ITU-T G.993.5 G.vectoring and G.INP
- DMT-based coding technology
- Additional splitter to share voice and data
- CO/CPE mode selectable via DIP switch
- Selectable target band plan and SNR margin
- Up to 200/200Mbps bandwidth (in G.INP, Sym, 8dB mode)
- Voice and data communication can be shared simultaneously based on the existing telephone wire
- Used in pairs to extend Point-to-Point connection up to 1.4km

Layer 2 Features

- Complies with IEEE 802.3, 10BASE-T, IEEE 802.3u, 100BASE-TX, IEEE 802.3ab 1000BASE-T Ethernet standards
- High-performance Store and Forward architecture, broadcast storm control and runt/CRC filtering eliminate erroneous packets to optimize the network bandwidth
- Integrated address look-up engine, supporting 1K absolute MAC addresses
- 1522bytes packet size
- Automatic address learning and address aging
- IEEE 802.1Q VLAN transparency

High-performance Ethernet over VDSL2

Via the latest VDSL2 technology, PLANET VC-231GP offers high-speed access to Internet, up to 200Mbps for both upstream and downstream data transmissions. With integrated support for the ITU-T's new **G.993.5 vectoring technology**, the VC-231GP 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-231GP is also a Long Reach Ethernet (LRE) converter providing one RJ45 Ethernet port and one RJ11 phone jack, which is for VDSL2 connection. An additional splitter from the package of the VC-231GP can be used to share the existing phone line with POTS, eliminating the need to replace the existing copper wiring. The VC-231GP can be connected to the additional splitter through the existing RJ11 telephone jack, enabling a high-performance VDSL2 network connection. It is ideal for use as an Ethernet extender within an existing Ethernet network.

Hardware and Installation

- Compact size, wall-mountable design; ideal solution for space-limited locations
- Advantage of minimum installation time (Simply by Plug and Play)
- Metal case, good for heat sinking
- Supports extensive LED indicators for network diagnosis
- Additional POTS splitter to share voice and data
- Supports 6KV DC Ethernet ESD protection

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

The VC-231GP provides an excellent bandwidth demand for the triple play devices for home entertainment and communication. With the asymmetric data transmission of **281/59Mbps (G.INP, Asym, 8dB)**, the VC-231GP 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.

IEEE 802.3at Power over Ethernet Plus

The PoE in-line power following the **IEEE 802.3at Power over Ethernet Plus** standard makes the VC-231GP able to deliver Gigabit speed Ethernet data and up to 30 watts of power to remote PoE PDs over one Cat.5E/6 Ethernet cable. The VC-231GP provides more flexibility in power requirements for all kinds of PDs at affordable installation costs.

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-231GP 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, the VC-231G in the CPE mode and the VC-231G in the CO mode must be set up as one pair of converters to perform the connection.

ADSL2+ Fallback

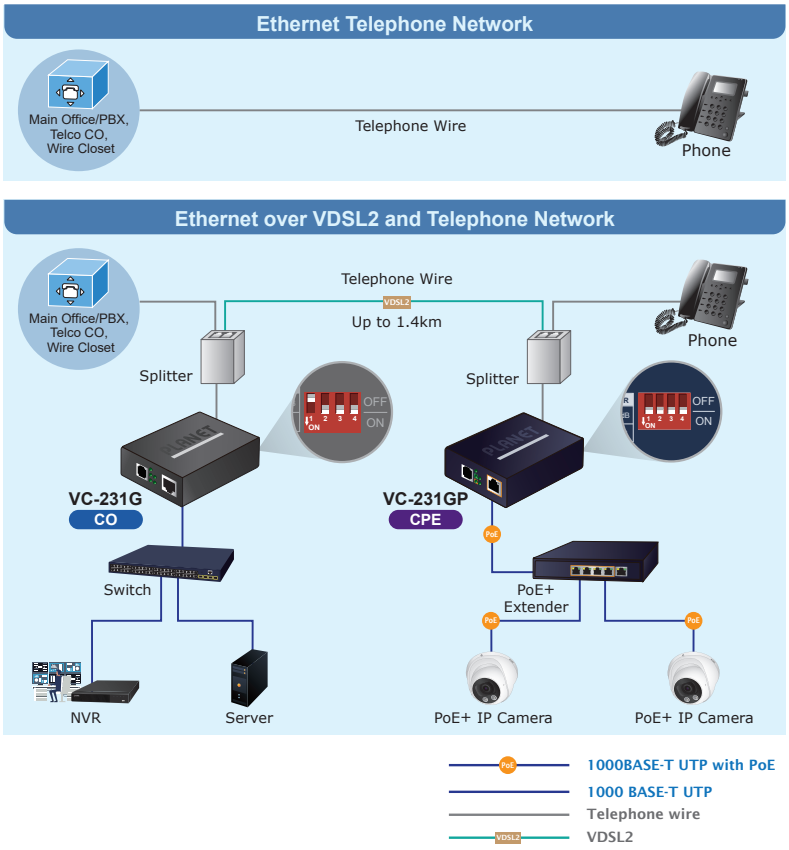
For those ISPs providing ADSL broadband service, the VC-231GP can support transmission rates up to 24Mbps downstream and 1Mbps upstream with the ADSL2+ technology. The VC-231GP establishes a stable connection with an ISP and can be switched to VDSL2 after the ISP upgrades its network.

Applications

Ethernet Distance Extension

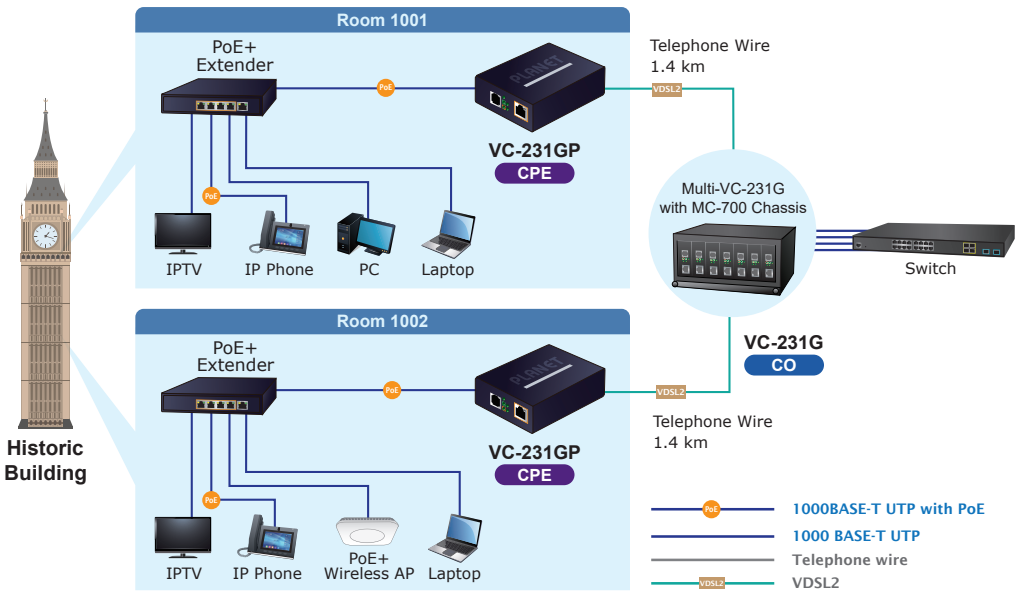
Two VC-231GP converters can act as a standalone pair which is good for Ethernet distance extension over the existing telephone wires. With just one pair of AWG-24 copper wires, two Ethernet networks can be easily connected to each other with a maximum data transmission rate of 200Mbps. The telephone service can still be used while the VC-231GP 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-231GP 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 281/59Mbps (G.INP, Asym, 8dB), VoD, IP telephony and various broadband services can be easily provided.



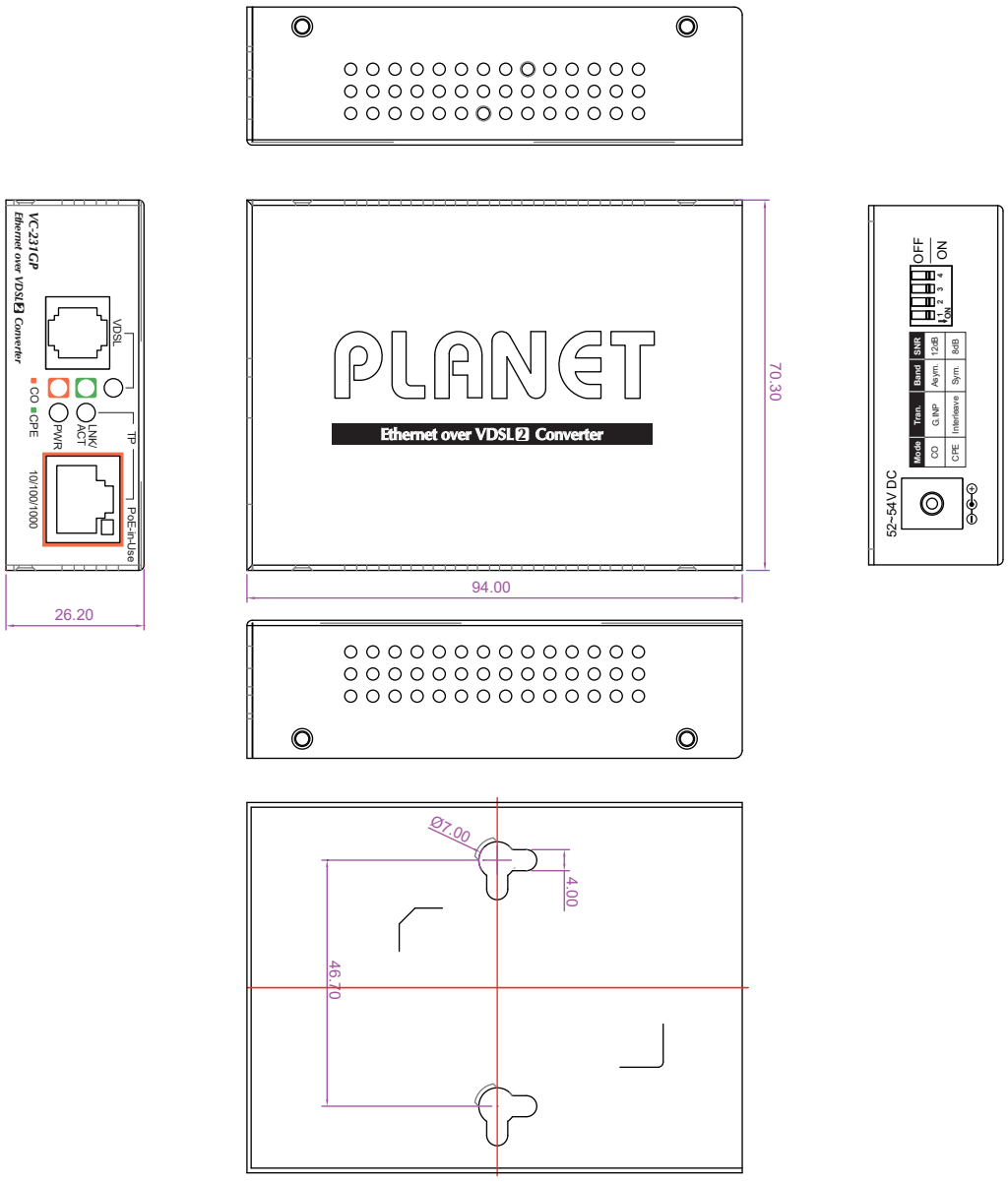
Specifications

Product	VC-231GP
Hardware Specifications	
Hardware Version	2
LAN Ports	1 10/100/1000BASE-T RJ45 auto-MDI/MDI-X port
VDSL Port	1 VDSL2 RJ11 female phone jack Twisted-pair telephone wires (AWG-24 or better) up to 1.4km
DIP Switch & Functionality	4-position DIP switch ■ **CO** or **CPE** mode selectable ■ Selectable **G.INP** and **interleaved** mode ■ Selectable target **Band plan** ■ Selectable target **SNR mode**
Phone Port	Additional splitter for POTS connection
Dimensions (W x D x H)	94 x 70.3 x 26.2 mm
Weight	214g
Power Requirements	DC 54V, 0.74A external power
Power Consumption	34.5 watts/117BTU
LED Indicators	■ 1 x power: Green ■ 1 x 10/100/1000BASE-T LNK/ACT: Green ■ 1 x 10/100/1000BASE-T PoE-in-Use: Amber ■ 1 x VDSL: Green ■ 1 x CO: Green ■ 1 x CPE: Green
Housing	Metal
Power over Ethernet Specifications	
PoE Standard	IEEE 802.3at PoE+ PSE
PoE Power Output Budget	DC 54V, 30 watts
PoE Power Supply Type	End-span
Power PIN Assignment	1/2(+), 3/6(-)
Switch Specifications	
Switch Processing Scheme	Store-and-Forward
Address Table	1K entries
Maximum Packet Size	1522bytes
Standards Conformance	
VDSL Compliance	**VDSL**-DMT ■ ITU-T G.993.1 VDSL ■ ITU-T G.997.1 ■ ITU-T G.993.2 VDSL2 (Profile 17a/30a/35b 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
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.1p Class of Service IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus ITU-T G.993.1 VDSL ITU-T G.997.1 ITU-T G.993.2 VDSL2 (Profile 17a/30a/35b support) ITU-T G.993.5 G.Vectoring & G.INP ITU-T G.998
Regulatory Compliance	FCC Part 15B Class A, CE
Environment	
Temperature	Operating: 0~50 degrees C Storage: -10~70 degrees C
Humidity	Operating: 5~95% (non-condensing) Storage: 5~95% (non-condensing)

Performance

	Distance (meter)	Interleave (Downstream/Upstream: Mbps)			
		Asymmetric		Symmetric	
		8dB	12dB	8dB	12dB
RJ11 Performance* (Downstream/Upstream)	200m	254/56	234/53	178/160	163/144
	400m	197/51	174/46	145/122	104/104
	600m	112/40	88/36	81/72	67/58
	800m	77/29	56/24	48/47	36/36
	1000m	32/7	28/6	18/17	16/15
	1200m	27/2	23/5	14/14	13/12
	1400m	18/1	15/1	12/6	9/4
	Distance (meter)	G.INP (Downstream/Upstream: Mbps)			
		Asymmetric		Symmetric	
		8dB	12dB	8dB	12dB
	200m	281/59	246/56	192/168	169/144
	400m	208/53	180/47	153/127	133/104
	600m	112/42	84/36	87/72	69/56
	800m	76/30	56/22	51/48	40/34
	1000m	32/9	27/6	18/17	16/14
	1200m	27/4	23/3	14/14	12/12
	1400m	24/2	21/2	11/9	9/6
	* The performance data above is for reference only. The actual data rate will vary on the quality of the copper wire and environmental factors.				

Dimensions



Dimensions (W x D x H): 94x70.3x26.2mm

Ordering Information

VC-231GP	1-Port 10/100/1000T 802.3at PoE+ Ethernet to VDSL2 Converter (35b profile w/G.vectoring)

Related Products

VC-231	Ethernet over VDSL2 Converter (1 x RJ45, 1 x VDSL2/RJ11-30a)
VC-231G	1-Port 10/100/1000T Ethernet to VDSL2 Converter (35b profile w/G.vectoring)
VC-232G	1-Port 10/100/1000T Ethernet over Coaxial Converter (35b profile w/G.vectoring)
VC-234	Ethernet over VDSL2 Bridge (4 x RJ45, 1 x VDSL2/RJ11, 1 x Phone-30a)
VC-234G	Ethernet over VDSL2 Bridge (4 x RJ45, 1 x VDSL2/RJ11, 1 x Phone-30a w/G.vectoring)

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