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


PoE Plus High Performance Gigabit Ethernet over Phone Wire Solution

The VC-231GP, a PLANET **Long Reach Ethernet (LRE)** solution, is a **Single-port Gigabit Ethernet-over-VDSL2 Converter with PoE injector** function that is installed at a remote location connecting and injecting power to a PoE IP camera, PoE wireless AP, or PoE IP VoIP phone/door phone. It is integrated with three advanced technologies:

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

The VC-231GP works with PLANET VDSL2 converters or multiple-channel VDSL2 switches to be able to simultaneously transmit Ethernet data over a distance of up to **1.4km (4,593ft)** over phone wire. 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. Users have the ability to grow the structure of the current networks simply with even more flexibility.
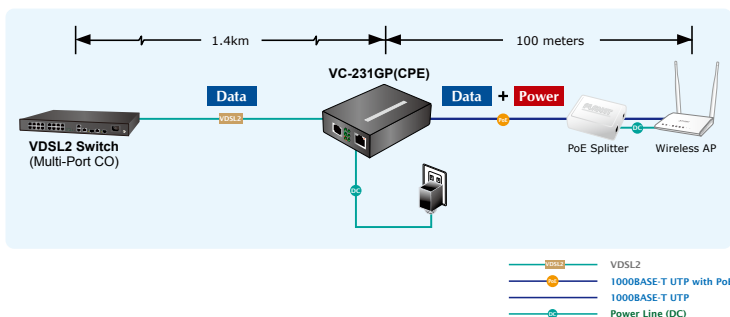
IEEE 802.3at Power over Ethernet Plus

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.

Physical Ports

- 1-port 10/100/1000BASE-T RJ45 with IEEE 802.3af/802.3at PoE Injector
- 1 RJ11, connector for xDSL port with VDSL2 or ADSL2+ connection

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 52V 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

- VDSL2 stand-alone transceiver for simple bridge modem application
- Cost-effective bridge function to connect two Ethernet LANs
- Point-to-multipoint application: Compatible with PLANET and third-party VDSL2 IP DSLAM for last-mile solution
- Point-to-point application: LAN to LAN extension over phone wire
- Up to 150/150Mbps bandwidth (in G.INP, Sym, 8dB mode)
- Voice and data communication can be shared simultaneously based on the existing telephone wire with distance up to 1.4km
- ITU-T G.993.2 VDSL2 standard
- ITU-T G.993.5 G.Vectoring and G.INP
- DMT-based coding technology
- CO/CPE mode selectable via DIP switch
- Selectable target band plan (symmetric and asymmetric) and SNR margin
- Supports IEEE 802.1Q VLAN tag transparency

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

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

Via the latest VDSL2 technology, the VC-231GP offers selectable asymmetric/symmetric band profile capability. It 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 21/11Mbps over a long distance of 1.4km. PLANET Gigabit Ethernet over VDSL2 series offers absolutely the fastest data transmission speed over the existing copper telephone lines without the need of rewiring.

Versatile, Flexible and Easy Installation

PLANET Gigabit Ethernet-over-VDSL2 converters come with a plug-and-play design. The VC-231GP offers two operation 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.
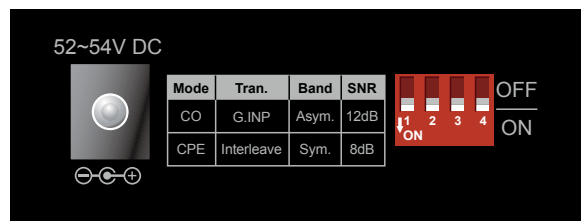
For point-to-point connection, the VC-231GP in the CPE mode and the VC-231G or VC-234G in the CO mode must be set up as one pair of converters to perform the connection. It gives administrators the ability to reply a fresh local Intranet in various locations by utilizing the original network structure without additional costs.
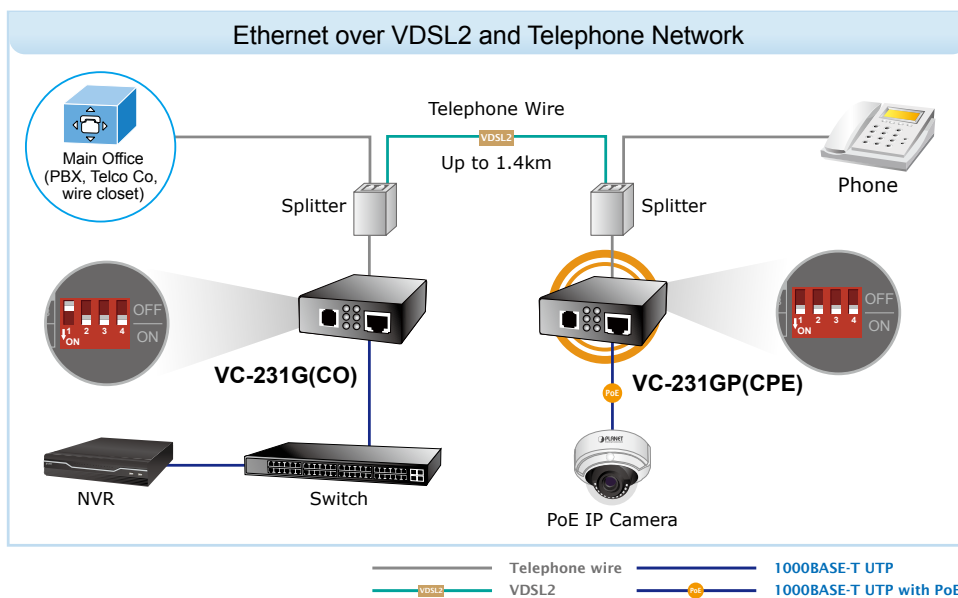
Stable and Reliable DSL Data Connection

With the 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 System

Use the additional splitter from the package of the VC-231GP to share the existing phone line with POTS, thus replacing the existing copper wiring is not necessary. Just plug the VC-231GP 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.

ADSL2+ Fallback

For those ISPs that still provide 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 connection with ISP and can be also directly switched over to VDSL2 after the ISP network upgrade.

Applications

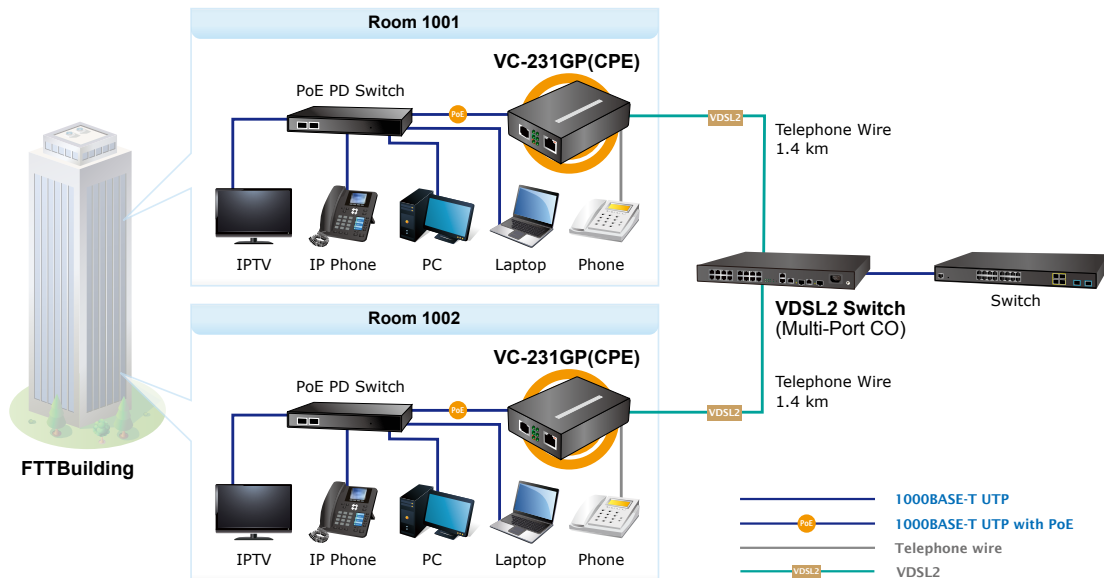*Point-to-Point Application -- LAN to LAN Connection*

Two sets of the VC-231G/VC-231GP could be used to link two local area networks that are located in a different place. Through the normal telephone line, the **150/150Mbps** (G.INP, Sym, 8dB) symmetric backbone can be set up, but one VDSL2 Bridge must be Master **(CO mode)** and the other one is Slave **(CPE mode)**.
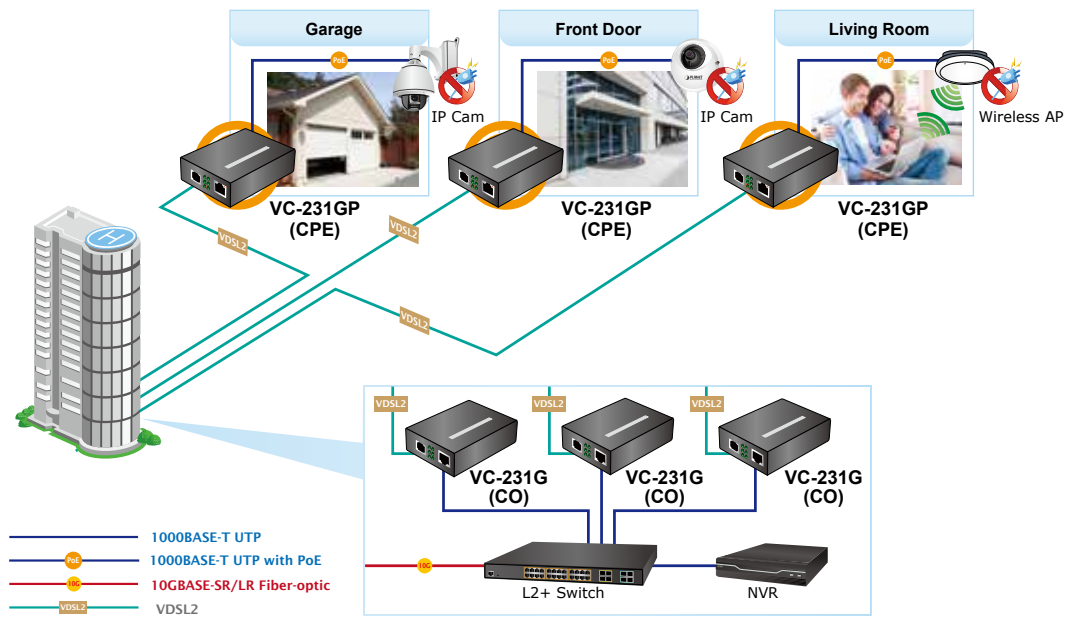
Point-to-Multipoint Application -- Connect to IP DSLAM

To build a local Internet in apartments, hotels and campuses and hospitality environments, it requires:

■ The multi-port VDSL2 IP DSLAM or VDSL2 switch (for example, PLANET VC-820M) operates as a **CO Master** and needs to be placed in the wiring center (MDF room) and connects to the telephone line system.

■ On the other hand, it needs to install one or many **CPE Slaves** (the VC-231GP) on the individual client side and connect to the multi-port Master through the telephone lines.

Specifications

Product	VC-231GP	
Hardware Specifications		
LAN Port	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	
Phone Port	Additional splitter for POTS connection	
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	
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 1 PoE-in-use: Amber	
ESD Protection	6KV DC	
Enclosure	Metal	
Installation	Wall mount or DIN rail with optional kit	
Dimensions (W x D x H)	97 x 70 x 26 mm	
Weight	206g	
Power Requirements	DC 54V, 0.74A external power	
Power Consumption (VDSL2 + Ethernet + PoE)	CO Mode: 32.4 watts/110BTU CPE Mode : 32 watts/109BTU	
Power Over Ethernet		
PoE Standard	IEEE 802.3at PoE+ PSE	
PoE Power Output Budget	DC 52V, 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	2K entries	
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex	
Maximum Packet Size	1522 bytes	
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/90Mbps 400M ----> 163Mbps/64Mbps 600M ----> 110Mbps/34Mbps 800M ----> 73Mbps/18Mbps 1000M --> 49Mbps/10Mbps 1200M --> 39Mbps/8Mbps 1400M --> 25Mbps/6Mbps **Interleave, Sym, 8dB** 200M ----> 149Mbps/141Mbps 400M ----> 116Mbps/115Mbps 600M ----> 72Mbps/70Mbps 800M ----> 45Mbps/44Mbps 1000M --> 26Mbps/16Mbps 1200M --> 26Mbps/12Mbps 1400M --> 29Mbps/12Mbps	**Interleave, Asym, 12dB** 200M ----> 177Mbps/83Mbps 400M ----> 145Mbps/57Mbps 600M ----> 92Mbps/31Mbps 800M ----> 59Mbps/15Mbps 1000M --> 44Mbps/10Mbps 1200M --> 32Mbps/6Mbps 1400M --> 22Mbps/3Mbps **Interleave, Sym, 12dB** 200M ----> 136Mbps/129Mbps 400M ----> 100Mbps/101Mbps 600M ----> 58Mbps/57Mbps 800M ----> 42Mbps/36Mbps 1000M --> 23Mbps/12Mbps 1200M --> 23Mbps/10Mbps 1400M --> 17Mbps/11Mbps

| Performance*
(Downstream/Upstream) | **G.INP, Asym, 8dB**
200M ----> 192Mbps/93Mbps
400M ----> 159Mbps/64Mbps
600M ----> 106Mbps/37Mbps
800M ----> 68Mbps/19Mbps
1000M --> 49Mbps/8Mbps
1200M --> 29Mbps/8Mbps
1400M --> 26Mbps/6Mbps | **G.INP, Asym, 12dB**
200M ----> 177Mbps/85Mbps
400M ----> 144Mbps/51Mbps
600M ----> 87Mbps/29Mbps
800M ----> 55Mbps/15Mbps
1000M --> 40Mbps/8Mbps
1200M --> 38Mbps/8Mbps
1400M --> 26Mbps/4Mbps |
| | **G.INP, Sym, 8dB**
200M ----> 150Mbps/150Mbps
400M ----> 114Mbps/113Mbps
600M ----> 69Mbps/69Mbps
800M ----> 49Mbps/39Mbps
1000M --> 27Mbps/24Mbps
1200M --> 26Mbps/12Mbps
1400M --> 21Mbps/11Mbps | **G.INP, Sym, 12dB**
200M ----> 136Mbps/133Mbps
400M ----> 97Mbps/102Mbps
600M ----> 54Mbps/56Mbps
800M ----> 40Mbps/35Mbps
1000M --> 24Mbps/22Mbps
1200M --> 24Mbps/9Mbps
1400M --> 18Mbps/12Mbps |

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 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 support) ITU-T G.993.5 G.Vectoring & G.INP ITU-T G.998

xDSL Compatibility

VDSL2	VC-231G VC-234G VC-234 VC-231 VC-820M VDR-301N

Ordering Information

VC-231GP	1-Port 10/100/1000T 802.3at PoE+ Ethernet to VDSL2 Converter (30a profile w/G.Vectoring)

Related Products

VC-231G	1-Port 10/100/1000T Ethernet to VDSL2 Converter (30a profile w/G.Vectoring)
VC-234G	4-Port 10/100/1000T Ethernet to VDSL2 Bridge (30a profile w/G.Vectoring)
VC-231	Ethernet over VDSL2 Converter (1 x RJ45, 1 x VDSL2/RJ11-30a)
VC-234	Ethernet over VDSL2 Bridge (4 x RJ45, 1 x VDSL2/RJ11, 1 x Phone-30a)
VC-820M	8-Port VDSL2 + 2G TP/SFP Managed Switch

VC-231GP