

Product Specifications

1-Port 1000BASE-X SFP + 1-Port RJ11 VDSL2 Converter

VC-231GF

Version 1.0

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Change History:

Revision:	Date:	Author:	Change List
1.0	2019/6/17	Marc Liao	Initial release

Author:	Marc Liao	Editor:	Marc Liao
Reviewed by:		Approved by:	Kent Kang

1. PRODUCT DESCRIPTION



The VC-231GF, a PLANET **Long Reach Ethernet (LRE)** solution, is a **Single-port Gigabit Ethernet-over-VDSL2 Converter** for connecting ultra-fast **FTTx** deployment with the existing in-building and in-house telephone wire installation.

An Innovative Last Mile Solution Integrated with FTTx and VDSL2

The VC-231GF features one **1000BASE-X SFP** slot for remote optical fiber Ethernet connection and one **RJ11** port with the **VDSL2** technology to provide an excellent bandwidth of up to a total duplex data rate of **300Mbps** and can extend a maximum distance of up to **1.4km (4,593ft)** over existing telephone wire to the in-house VDSL2 router or bridge, which overcomes in-house fiber installation problems.

The VC-231GF realizes ISPs (internet service providers) and SIs (system integrators) to deploy Gigabit Ethernet optical fiber cables in the front of the building or subscriber's house and provide high-speed triple play services over existing telephone wire. They can simply upgrade their current networks without any difficulty. Besides, its compact-sized metal housing makes the installation in a telecom box convenient.

Fiber-Optic Link Capability Enables Extension of FTTx Deployment

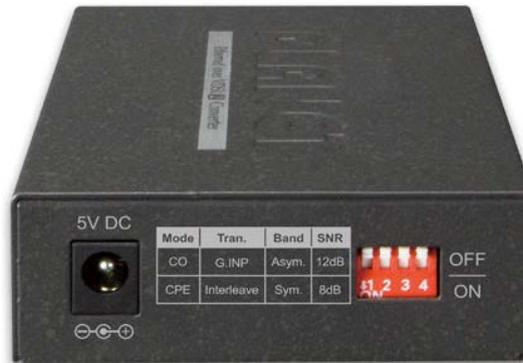
With the built-in 1000BASE-X SFP (small form-factor pluggable) fiber interface, the VC-231GF supports different optic types for network extension and the distance can be up to 120 km through the fiber connection. Thus, building a network solution of FTTH (Fiber to the Home), FTTC (Fiber to the Curb) for ISPs or FTTB (Fiber to the Building) becomes so easy when long-distance deployment is employed.

VDSL2 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. Via the latest VDSL2 (Very-high-data-rate Digital Subscriber Line 2) technology, the VC-231GF offers selectable asymmetric/symmetric data rate 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 25/15Mbps over a long distance of 1km. 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.

Versatile, Flexible and Easy Installation

PLANET Gigabit Ethernet-over-VDSL2 converters come with a Plug and Play design. The VC-231GF offers two operation modes, **CPE** for client side and **CO** for central side. The CPE or CO mode can be adjusted by using a built-in DIP switch.



For point-to-point connection, the VC-231GF's CO mode and the VC-231G's, VC-234G's or VDR-301N's CPE 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.

Implementing with Existing Telephone System

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

2. PRODUCT FEATURES

➤ **Physical Ports**

- One 1000BASE-X SFP interface
- One RJ11 connector for xDSL port with VDSL2 connection

➤ **VDSL2 Features**

- VDSL2 stand-alone transceiver for simple bridge modem application
- Cost-effective bridge function to connect two Ethernet LANs
- 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

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

VDSL Analog Chip	Metanoia MT5311GB	x 1
Gigabit Ethernet Chip	Qualcomm QCA8337N	x 1

3.2 FUNCTIONAL SPECIFICATIONS

Product	VC-231GF
Hardware Specifications	
LAN Port	1 1000BASE-SX/LX SFP interface
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 <ul style="list-style-type: none"> ● 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-SX/LX LNK/ACT: Green 1 VDSL: Green 1 CO: Green 1 CPE: Green
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	188g
Power Requirements	DC 5V, 2A external power
Power Consumption	4.3 watts/14BTU (maximum)
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	1522bytes
System Specifications	
VDSL Compliance	VDSL-DMT <ul style="list-style-type: none"> ■ ITU-T G.993.1 VDSL ■ ITU-T G.997.1 ■ ITU-T G.993.2 VDSL2 (Profile 17a/30a support)

	<ul style="list-style-type: none"> ■ ITU-T G.993.5 G.Vectoring ■ ITU-T G.998 ■ G.INP 	
ADSL Compliance	<p>Capable of ADSL2/2+ standard</p> <ul style="list-style-type: none"> ■ ITU G.992.3 G.dmt.bis ■ ITU G.992.5 G.dmt.bisplus <p>Data Rate: Up to 24Mbps</p>	
Performance* (Downstream/Upstream)	<p>Interleave, Asym, 8dB</p> <p>200M ----> 190Mbps/87Mbps 400M ----> 161Mbps/60Mbps 600M ----> 118Mbps/36Mbps 800M ----> 59Mbps/24Mbps 1000M --> 47Mbps/7Mbps 1200M--> 39Mbps/4Mbps 1400M --> 25Mbps/4Mbps</p>	<p>Interleave, Asym, 12dB</p> <p>200M ----> 178Mbps/84Mbps 400M ----> 143Mbps/53Mbps 600M ----> 99Mbps/32Mbps 800M ----> 48Mbps/22Mbps 1000M --> 41Mbps/5Mbps 1200M--> 33Mbps/3Mbps 1400M --> 23Mbps/3Mbps</p>
	<p>Interleave, Sym, 8dB</p> <p>200M ----> 147Mbps/139Mbps 400M ----> 112Mbps/110Mbps 600M ----> 75Mbps/73Mbps 800M ----> 44Mbps/44Mbps 1000M --> 26Mbps/25Mbps 1200M--> 24Mbps/13Mbps 1400M --> 20Mbps/9Mbps</p>	<p>Interleave, Sym, 12dB</p> <p>200M ----> 135Mbps/127Mbps 400M ----> 96Mbps/96Mbps 600M ----> 61Mbps/59Mbps 800M ----> 40Mbps/40Mbps 1000M --> 23Mbps/18Mbps 1200M--> 22Mbps/9Mbps 1400M --> 16Mbps/7Mbps</p>
	<p>G.INP, Asym, 8dB</p> <p>200M ----> 197Mbps/101Mbps 400M ----> 168Mbps/65Mbps 600M ----> 109Mbps/34Mbps 800M ----> 65Mbps/20Mbps 1000M --> 53Mbps/7Mbps 1200M--> 44Mbps/4Mbps 1400M --> 28Mbps/4Mbps</p>	<p>G.INP, Asym, 12dB</p> <p>200M ----> 185Mbps/89Mbps 400M ----> 148Mbps/54Mbps 600M ----> 95Mbps/32Mbps 800M ----> 58Mbps/14Mbps 1000M --> 46Mbps/6Mbps 1200M--> 37Mbps/3Mbps 1400M --> 25Mbps/3Mbps</p>
	<p>G.INP, Sym, 8dB</p> <p>200M ----> 150Mbps/150Mbps 400M ----> 117Mbps/117Mbps 600M ----> 77Mbps/77Mbps 800M ----> 43Mbps/43Mbps 1000M --> 29Mbps/28Mbps 1200M--> 27Mbps/15Mbps 1400M --> 22Mbps/10Mbps</p>	<p>G.INP, Sym, 12dB</p> <p>200M ----> 140Mbps/140Mbps 400M ----> 97Mbps/97Mbps 600M ----> 60Mbps/60Mbps 800M ----> 35Mbps/35Mbps 1000M --> 26Mbps/21Mbps 1200M--> 25Mbps/11Mbps 1400M --> 18Mbps/8Mbps</p>
Standards Conformance		
Standards Compliance	<p>IEEE 802.3z Gigabit SX/LX 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</p>	
xDSL Compatibility		
VDSL2	<p>VC-231G VC-231GP</p>	

	VC-234G VC-231 VC-820M VDR-301N
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* The performance data above is for reference only. The actual data rate will vary on the quality of the copper wire and environmental factors.

3.3 PHYSICAL SPECIFICATIONS

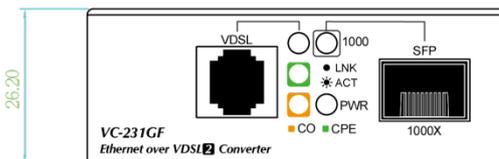
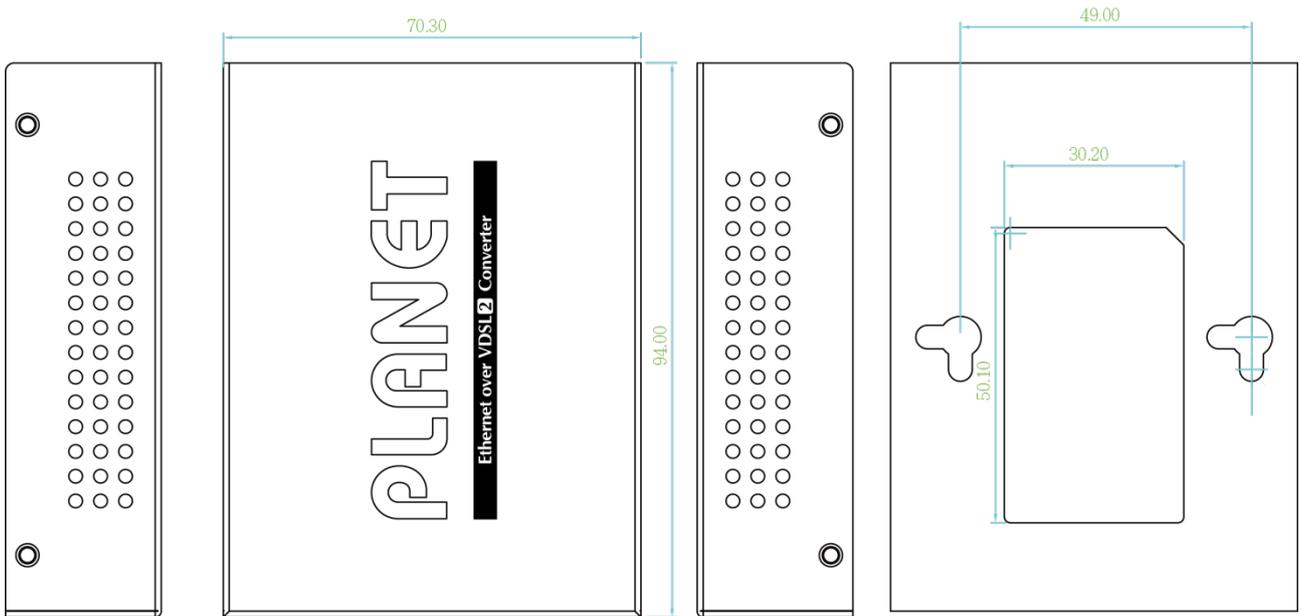
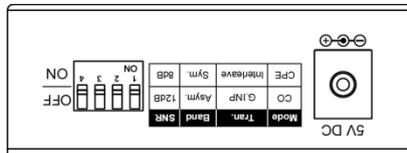
■ **Dimensions**

97 x 70 x 26 mm (W x D x H)

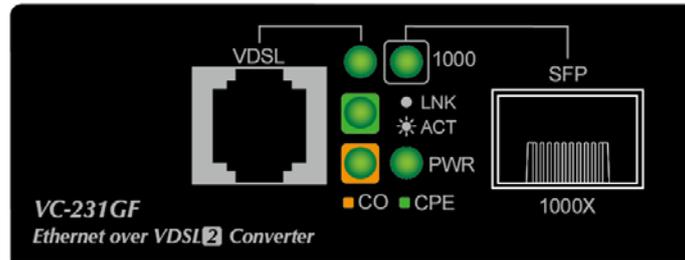
■ **Weight:**

188g

■ **Diagram**



■ **Front View**



■ **LED Indicators**

▶ **System**

LED	Color	Function	
PWR	Green	Lit	Indicates that the VC-231GF has power.
		Off	Indicates that the VC-231GF has no power.

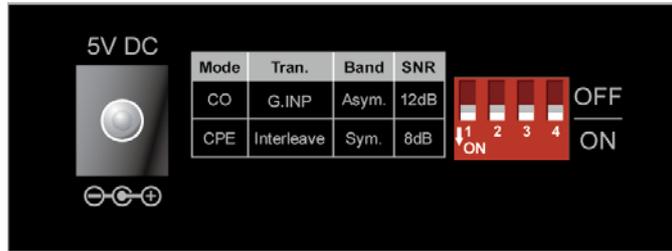
▶ **VDSL**

LED	Color	Function	
VDSL	Green	Lit	Indicates that the VDSL link is established.
		Fast Blink	Indicates that the VDSL link is at training status (about 30 seconds).
		Slow Blink	Indicates that the VDSL link is at idle status.
CO	Green	Lit	Indicates the VDSL2 Bridge is running in CO mode.
CPE	Green	Lit	Indicates the VDSL2 Bridge is running in CPE mode.

▶ **1000BASE-X SFP Port**

LED	Color	Function	
1000	Green	Lit	Indicates that the port is operating at 1000Mbps .
		Blink	Indicates that the VC-231GF actively sending or receiving data over that port at 1000Mbps .
		Off	Indicates that the port is link down .

■ **Rear View**



■ **DIP Switch Setting**

	DIP-1	DIP-2	DIP-3	DIP-4
	Mode	Transmission	Band Profile	SNR Margin
OFF	CO	G.INP	Asymmetric	12dB
ON (default)	CPE	Interleave	Symmetric	8dB

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: 0°C ~ 50 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

Storage:

Temperature: -10°C ~ 70 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATION

Power Requirement:		DC 5V, 2A external power adapter	
Input Voltage:		110V	220V
Power Consumption (System on):	CO	2.4 watts/8.1BTU	2.6 watts/8.8BTU
	CPE	2.6 watts/8.8BTU	2.7 watts/9.2BTU
Power Consumption (Ethernet Full Loading):	CO	4 watts/13BTU	4.1 watts/13/BTU
	CPE	4.1 watts/13/BTU	4.3 watts/14BTU

3.6 REGULATORY COMPLIANCE

FCC Part 15B Class A, CE

3.7 RELIABILITY

MTBF > 50,000Hrs @25 degrees C

3.8 BASIC PACKAGING

VC-231GF x1	User's Manual x 1
	
AC-DC Power Adapter (Input: 5V DC, 2A) x 1	Splitter x 1
	
RJ11 Telephone Wire x 1	
	

3.9 PACKING INFORMATION

Box Dimensions (W x D x H):	280 x 133 x 66 mm
Gross Weight:	586 g
Carton Dimensions (W x D x H):	595 x 375 x 325 mm
Total Weight:	11.71 kg
Quantity:	20pcs in one carton