

# Product Specifications

## 1-Port Gigabit Ethernet over Coaxial Converter

### VC-232G

Version 1.0

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#### Change History:

Revision:	Date:	Author:	Change List
1.0	2017/12/18	Calvin Chao	Initial release

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<b>Reviewed by:</b>		<b>Approved by:</b>	Kent Kang

## 1. PRODUCT DESCRIPTION

### High Performance Gigabit Ethernet over Coaxial Solution

To fulfill the needs of long distance and higher speed required Ethernet over Coaxial applications, PLANET Technology offers a new-generation Ethernet over Coaxial Converter, VC-232G. It features one **1000BASE-T RJ45** port and one **BNC** female connector with a compact-sized metal housing, making the placement of the unit convenient. Working well with a pervasive coaxial network, the VC-232G provides an excellent bandwidth of up to a total duplex data rate of **300Mbps** which can extend a maximum distance up to **1.4km**. It is ideal for extending the distance and signal conversion by transmitting the Ethernet data from the coaxial cable to another 100-meter UTP cable for any type of IP network device such as HD IP camera, wireless access point, NVR and digital signage.

### Superior Upstream and Downstream Transmission

The VC-232G is based on the two-core networking technology, **Gigabit Ethernet** and **VDSL2** (Very-high-data-rate Digital Subscriber Line 2). The VC-232G offers a stable yet high-speed point-to-point network access up to a duplex data transmission of 300Mbps. It provides 2 selective transmission modes -- asymmetric mode or **symmetric** mode -- for the transmission of upstream and downstream signals.

- Asymmetric mode – downstream up to **200Mbps** and upstream up to **100Mbps**
- Symmetric mode – downstream up to **150Mbps** and upstream up to **150Mbps**

The symmetric mode provides similar transmission rate on both downstream and upstream. On the other hand, the asymmetric mode performs higher transmission quality in short range. In all, when the VC-232G is in symmetric mode, it provides better upstream performance, and when it is in asymmetric mode, it gives better downstream performance.

### IP Ethernet over Long Distance Existing Coaxial Cables

The VC-232G is also a **Long Reach Ethernet (LRE)** solution which provides a quick replacement and smooth migration solution from existing analog system to full digital system. A normal UTP cable can only be extended up to 100 meters, but with the VC-232G, the distance for Ethernet networking can be extended up to **1,400 meters (4,593ft.)**, which is ideal for the following network applications:

- Long-distance IP network devices
- IP digital signage
- Cable TV to IPTV
- Distance video education
- Electronic billboards
- Other applications

If you have coaxial cable in your existing environment, you can install a pair of the VC-232G very simply without the need to build additional network wires, thus saving costs for network construction.

### Easy and Flexible Installation

The VC-232G offers two operation modes, the client-side CPE and central-side CO, making any network applications easy and flexible. The CPE or CO mode can be adjusted by using the built-in DIP switch. For point-to-point connection, one VC-232G in CPE mode and the other one in CO mode must be set up as a pair of converters to perform the connection. This enables the administrator to efficiently manage the network over coaxial cable, making long-distance transmission better.

## 2. PRODUCT FEATURES

- ITU-T G.993.5 G.vectoring and G.INP
- Upstream/Downstream bandwidth up to 200/100Mbps
- CO/CPE mode selectable via DIP switch
- Selectable target band plan and SNR margin
- Half duplex back pressure and IEEE 802.3x full duplex pause frame flow control
- One BNC connector for VDSL connection
- Uses existing RG6/RG7 coaxial cable
- Used in pairs to extend Point-to-Point connection up to 1.4km
- 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

## 3. PRODUCT SPECIFICATIONS

### 3.1 MAIN COMPONENTS

VDSL Analog Chip	Metanoia MT5311GB	x 1
Gigabit Ethernet Transceiver	RTL8211F-CG	x 1

### 3.2 FUNCTIONAL SPECIFICATIONS

<b>Product</b>	<b>VC-232G</b>	
<b>Hardware Specifications</b>		
<b>TP interface</b>	1 1000BASE-T RJ45 ports**	
<b>VDSL Interface</b>	1 BNC female Ethernet over Coaxial	
	<b>Cabling</b>	Coaxial cable: 75 ohm RG-6/U cable, less than 12Ω/1000 ft RG-59/U cable, less than 30Ω/1000 ft.
	<b>Maximum Distance</b>	Max. 1400m with data transmission (4,593ft.)
<b>Functionality</b>	<b>DIP-1</b>	Select CO or CPE mode
	<b>DIP-2</b>	Select G.INP or Interleaved mode
	<b>DIP-3</b>	Select Band Profile (Asymmetric or Symmetric)

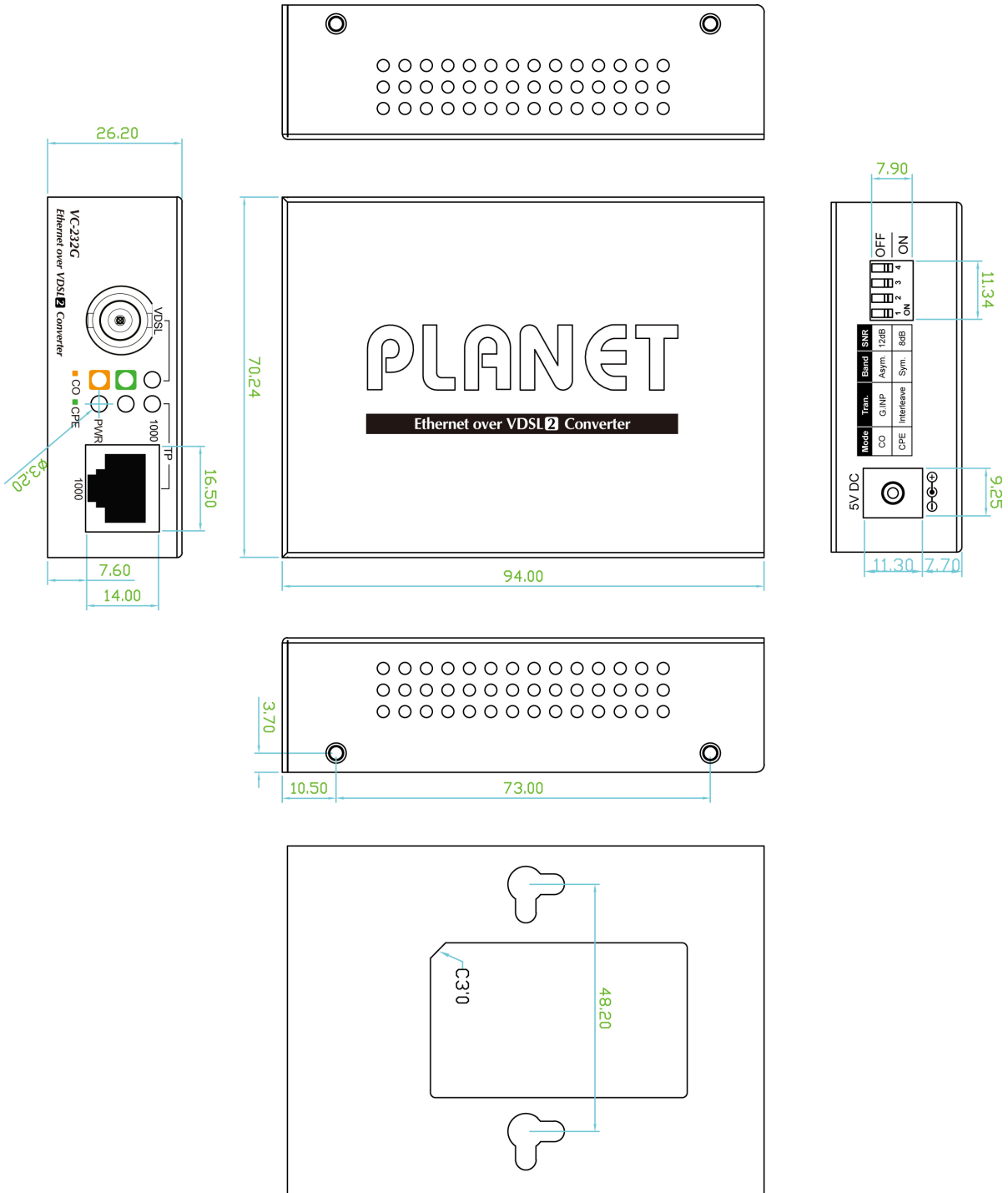
	<b>DIP-4</b>	Select SNR of 12dB or 8dB				
<b>Dimensions (W x D x H)</b>	70 x97 x 26 mm					
<b>Weight</b>	185g					
<b>Power Requirement</b>	DC 5V, 2A external power					
<b>LED Indicators</b>	Power: <b>Green</b> 1000BASE-T LNK/ACT: <b>Green</b> VDSL: <b>Green</b> CO: <b>Green</b> CPE: <b>Green</b>					
<b>Housing</b>	Metal					
<b>System Specifications</b>						
<b>VDSL Compliance</b>	<ul style="list-style-type: none"> <li>● <b>VDSL-DMT</b> <ul style="list-style-type: none"> <li>■ ITU-T G.993.1 VDSL</li> <li>■ ITU-T G.997.1</li> <li>■ ITU-T G.993.2 VDSL2 (Profile 17a/30a Support)</li> <li>■ ITU-T G.993.5 <b>G. Vectoring</b></li> <li>■ ITU-T G.998</li> <li>■ G.INP</li> </ul> </li> </ul>					
<b>Standards Conformance</b>						
<b>Standards Compliance</b>	IEEE 802.3ab Gigabit Ethernet 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 and G.INP ITU-T G.998					
<b>Regulatory Compliance</b>	FCC Part 15 Class A, CE					
<b>Environment</b>						
<b>Temperature</b>	Operating: 0~50 degrees C Storage: -10~70 degrees C					
<b>Humidity</b>	Operating: 5~95% (non-condensing) Storage: 5~95% (non-condensing)					
<b>Performance</b>						
<b>Coaxial Performance</b>	<b>Distance (meter)</b>	<b>Interleave</b> (Upstream/Downstream: Mbps)				
		Asymmetric		Symmetric		
		8dB	12dB	8dB	12dB	
		200m	88/168	78/145	129/131	117/123
		400m	75/160	69/137	117/122	102/102
		600m	59/129	48/118	101/92	88/82
		800m	32/110	26/94	62/73	47/56
	1000m	13/82	12/67	20/52	11/44	
	<b>Distance (meter)</b>	<b>G.INP</b> (Upstream/Downstream: Mbps)				
		Asymmetric		Symmetric		
		8dB	12dB	8dB	12dB	
		200m	95/200	89/181	147/147	138/143
		400m	82/175	71/156	132/135	116/120
		600m	59/151	46/136	108/104	91/89
		800m	37/122	30/102	76/78	58/60
1000m		13/91	8/76	19/55	11/43	
<b>Note:</b> As there are various resistance values in the category of RG-59/U or RG-6/U cable, the actual data rate will vary on the quality of the copper wire and environmental factors.						

\*\*The RJ45 port only supports 1000BASE-T Ethernet.

### 3.3 PHYSICAL SPECIFICATIONS

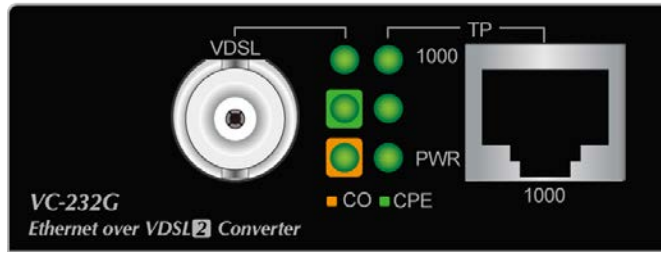
#### ■ Dimensions

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



**Dimensions ( unit = mm )**

■ **Dimensions**



■ **LED definition**

▶ **System**

LED	Color	Function	
PWR	Green	Lit	Indicates that the EoC Converter has power.
		Off	Indicates that the EoC Converter has no power.

▶ **VDSL**

LED	Color	Function	
VDSL	Green	Lit	Indicates that the VDSL connection is established.
		Fast Blink	Indicates that the VDSL connection is at training status (about 10 seconds).
		Slow Blink	Indicates that the VDSL connection is at idle status.
CO	Green	Lit	Indicates the EoC Converter is running in <b>CO</b> mode.
CPE	Green	Lit	Indicates the EoC Converter is running in <b>CPE</b> mode.

▶ **1000BASE-T Port**

LED	Color	Function	
1000	Green	Lit	Indicates that the port is operating at <b>1000Mbps</b> .
		Blink	Indicates that the EoC Converter actively sending or receiving data over that port at 1000Mbps.
		Off	Indicates that the port is <b>link down</b> .

■ **VC-232G Rear Panel**



■ **DIP Switch**

The EoC Converter provides a selectable 4-position DIP switch. Switch them on or off to obtain the best coaxial cable connection over a distance.

DIP	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: 0~50°C

Relative Humidity: 10~90 %( non-condensing)

#### Storage

Temperature: -10~70°C

Relative Humidity: 10~90 %( non-condensing)

### 3.5 ELECTRICAL SPECIFICATION

Power Requirement: 5V DC, 2A

Power Consumption: 3.4 watts/11.6 BTU @ Power On

3.7watts/12.7 BTU @ Full loading

### 3.6 REGULATORY COMPLIANCE

FCC Class A, CE.

### 3.7 RELIABILITY

MTBF > 50,000Hrs @25 degrees C

### 3.8 BASIC PACKAGING

- VC-232G x 1
- AC-DC Power Adapter (Output: 5VDC, 2A ) x 1
- User's Manual x 1

### 3.9 PACKING INFORMATION

Dimensions: 282 (W) x 134 (D) x 66 (H) mm

Weight: TBD (gross weight)

Quantity: 20pcs in one carton