Ethernet over Coaxial Converter

VC-232G
Presentation Outlines

- VDSL2 Introduction
- Product Overview
- Product Map
- Hardware Introduction
- Product Features
- Applications
- Product Comparison
- Appendix
Product Overview
Product Overview

Certainly Yields Higher Performance & Stability

Ethernet over Coaxial

ITU-T G.Vectoring 1.4km max. 200/100 Mbps Bandwidth

DIP Switch for Transmission Mode
Hardware Introduction
Hardware Introduction – **VC-232G**

- **Dimensions (W x D x H):** 97 x 70 x 26 mm
- **Front Panel – LED Indicators and Interface**
  - **Interfaces**
    - 1 x RJ45: 1000Mbps auto-MDI/MDI-X, auto negotiation
    - 1 x BNC: VDSL2 port
  - **LEDs**
    - 1 x PWR: Lights to indicate that the Converter has power.
    - 2 x 100 LED and 1000 LED: To indicate that the port is operating at 10/100Mbps or 1000Mbps.
    - 3 x VDSL LED: To indicate that the VDSL link is established in CO/CPE mode.
Hardware Introduction – **VC-232G**

**Rear Panel**

- 1 DC jack for 5V DC, 2A adapter
- 4-position DIP switch
Diagram of VC-232G
Key Features

- ITU-T 993.5 G.Vectoring
- 200/100Mbps Downstream/Upstream
- CO/CPE Mode for Point-to-Point Applications
- Target Band Plan & SNR
- 0~50 degrees C Operating Temperature
- 1 Gigabit RJ45
- 1 BNC Female Interface

VC-232G
High-performance Ethernet Over VDSL

The VC-232G provides fast access to Internet, up to 200Mbps for downstream data transmission and 100Mbps for upstream data transmission.
Product Features

- CO/CPE mode selectable via DIP switch

VC-232G

VDSL2 CO mode

VDSL2 CPE mode
Product Features

- Selectable band plan -- **Asymmetric** and **Symmetric** via DIP switch
Applications
Applications

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

  ✓ One set of the VC-232G could be used to link two local area networks that are located in different places.
Community/Campus Surveillance and Security over IP

The VC-232G is a switching architecture with one RJ45 port and one BNC Ethernet over Coaxial port. Just plug in the UTP cable of IP camera to Ethernet port and the existing coaxial cable to the BNC connector to easily deploy and extend the distance with signal conversion by transmitting the Ethernet data from the standard coaxial cable.
# Product Comparison

<table>
<thead>
<tr>
<th></th>
<th>VC-232G</th>
<th>VC-202A</th>
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</thead>
<tbody>
<tr>
<td><strong>Product Outlook</strong></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
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<tr>
<td><strong>VDSL Standard</strong></td>
<td>λ ITU-T G.993.2 VDSL2 (Profile 17a/30a)</td>
<td>λ ITU-T G.993.2 VDSL2 (Profile 17a)</td>
</tr>
<tr>
<td></td>
<td>v ITU-T G.993.5 <strong>G.Vectoring</strong></td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>v ITU-T G.998.4  G.INP</td>
<td></td>
</tr>
<tr>
<td><strong>LAN</strong></td>
<td>1 x <strong>1000BASE-T</strong> RJ45</td>
<td>1 x 10/100BASE-TX RJ45</td>
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<tr>
<td><strong>DIP Switch</strong></td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> CO/CPE mode</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> CO/CPE mode</td>
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<td></td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> Symm/Asymmm band plan</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> Symm/Asymmm band plan</td>
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<td></td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 8dB/12dB SNR</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 6dB/9dB SNR</td>
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<td><strong>Performance</strong></td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> Asymmetric</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> Asymmetric</td>
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<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 200m: <strong>200/100</strong>Mbps</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 200m: 100/65Mbps</td>
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<td></td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 800m: 122/40Mbps</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 800m: 100/53Mbps</td>
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<td><img src="https://via.placeholder.com/25" alt="Checklist" /> Symmetric</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> Symmetric</td>
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<td></td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 200m: <strong>150/150</strong>Mbps</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 200m: 100/100Mbps</td>
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<td></td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 800m: 80/80Mbps</td>
<td><img src="https://via.placeholder.com/25" alt="Checklist" /> 800m: 79/80Mbps</td>
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Appendix
Target Markets

- System Integrators
- Hotels, Hospitals
- Enterprises
- ISPs, Telecoms
- IP surveillance

Target Customers

- Extending network infrastructure solution
- Need for more stable transmission through coaxial cables

Recommended Products

- The following are Industrial Switches:
  - VC-202A, IVC-2002
## Appendix

**Related Media Converter Chassis Products**

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC-700</td>
<td>7-slot Media Converter Chassis</td>
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<tr>
<td>MC-1500</td>
<td>15-slot Media Converter Chassis</td>
</tr>
<tr>
<td>MC-1500R</td>
<td>15-slot Media Converter Chassis (AC Power)</td>
</tr>
<tr>
<td>MC-1500R48</td>
<td>15-slot Media Converter Chassis (DC Power)</td>
</tr>
</tbody>
</table>
Activating IP Power
VDSDL2 Introduction
VDSL2 Introduction

◆ What is VDSL2?

✓ VDSL2 (Very-high-data-rate Digital Subscriber Line 2)
✓ VDSL2 is the newest and more advanced standard of DSL.
✓ VDSL2 has been standardized as ITU G.993.2.
✓ VDSL2 (ITU G.993.2) is an enhancement to VDSL (G.993.1).
✓ DMT (Discrete Multi-Tone) line coding
# VDSL2 Introduction

## DSL Standard

<table>
<thead>
<tr>
<th>Family</th>
<th>ITU</th>
<th>Name</th>
<th>Ratified</th>
<th>Maximum Speed Capabilities</th>
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<tbody>
<tr>
<td>ADSL</td>
<td>G.992.1</td>
<td>G.dmt</td>
<td>1999</td>
<td>8Mbps for downstream 1Mbps for upstream</td>
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<tr>
<td>ADSL2</td>
<td>G.992.3</td>
<td>G.dmt.bis</td>
<td>2002</td>
<td>12Mbps for downstream 1Mbps for upstream</td>
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<td>ADSL2plus</td>
<td>G.992.5</td>
<td>ADSL2plus</td>
<td>2003</td>
<td>24Mbps for downstream 1Mbps for upstream</td>
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<tr>
<td>ADSL2-RE</td>
<td>G.992.3</td>
<td>Reach Extended</td>
<td>2003</td>
<td>8Mbps for downstream 1Mbps for upstream</td>
</tr>
<tr>
<td>SHDSL (updated 2003)</td>
<td>G.991.2</td>
<td>G.SHDSL</td>
<td>2003</td>
<td>5.6Mbps for upstream/downstream</td>
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<tr>
<td>VDSL</td>
<td>G.993.1</td>
<td>Very-high-data-rate DSL</td>
<td>2004</td>
<td>55Mbps for downstream 15Mbps for upstream</td>
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<tr>
<td>VDSL2 -12 MHz Long reach</td>
<td>G.993.2</td>
<td>Very-high-data-rate DSL 2</td>
<td>2005</td>
<td>55Mbps for downstream 30Mbps for upstream</td>
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<tr>
<td>VDSL2 - 30 MHz Short reach</td>
<td>G.993.2</td>
<td>Very-high-data-rate DSL 2</td>
<td>2006</td>
<td>100Mbps for upstream/downstream</td>
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<tr>
<td>VDSL2-Vplus</td>
<td>ITU G.993.2 Amendment 1</td>
<td>VDSL2 Annex Q VPlus/35b</td>
<td>2015</td>
<td>300Mbps for downstream 100Mbps for upstream</td>
</tr>
</tbody>
</table>
What is Ethernet Extender?

- The Limitation of Twisted-pair UTP Cable
  - TIA/EIA 568b1: Maximum segment length of 100 meters (328 feet).

A maximum cable length of 100 meters is not able to meet a wide range of IP Surveillance / Wireless AP deployments.
What is Ethernet Extender?

PLANET Ethernet Extender Solution

- Break 100-meter Ethernet limit of UTP cable
- Utilize the existing transmission media:
  - Phone Wire
  - Coaxial Cable
- PLANET Ethernet Extender solution offers the fastest possible data transmission speeds over the existing copper telephone lines or coaxial cable without the need for rewiring.
- It is based on two core networking technologies:
  - Ethernet (IEEE 802.3 and IEEE 802.3u)
  - VDSL2 (Very-high-data-rate Digital Subscriber Line 2)