Industrial 1-Port BNC/RJ11 to 4-Port Gigabit Ethernet Extender

IVC-234GT
Presentation Outlines

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

- 12~48V DC Redundant Power
- DIP Switch for Transmission Mode
- BNC Female/RJ11 Connector
- IP30 Slim-type Case
- 4 x 10/100/1000T
- Operating Temperature: -40°C to 75°C

IVC-234GT
Product Positioning

- Control Center
- Mall
- Warehouse
- SMB
Product Map

**PLANET VDSL2 Product Line**

- **VC-231G**
  - 1 RJ11 + 1 RJ45
  - G.Vectoring

- **VC-234G**
  - 2 RJ11 + 4 RJ45
  - G.Vectoring

- **VC-232G**
  - 1BNC + 1 RJ45
  - G.Vectoring

- **IVC-234GT**
  - 1BNC/1RJ11 + 4 RJ45
  - G.Vectoring
  - -40~75°C

- **VC-820M**
  - 8 x VDSL2
  - 2 x Gigabit LAN

- **VDR-301N**
  - 1 RJ11 + 5 RJ45
  - G.Vectoring
  - 11n 300Mbps

- **VC-201A**
  - 2 RJ11 + 1 RJ45

- **VC-202A**
  - 1 BNC + 1 RJ45

- **VC-201A**
  - 2 RJ11 + 1 RJ45
  - -40~75°C

- **IVC-2002**
  - 1BNC, 1 RJ11
  - 4 RJ45

- **VC-233**
  - 1 RJ11 + 1 RJ45
  - -40~75°C

- **VC-233G**
  - 1BNC + 1 RJ45
  - G.Vectoring

- **VC-201A**
  - 2 RJ11 + 1 RJ45

- **VC-202A**
  - 1 BNC + 1 RJ45
Hardware Introduction
Hardware Introduction

- **Dimensions (W x D x H):** 32 x 135 x 87.8 mm

- Dual DC Power Input
- Fault Alarm
- VDSL2, CO and CPE Modes

- 4-way DIP Switch

- 4 10/100/1000BASE-T RJ45 Ports

- 1 BNC Female/RJ11 for VDSL Connection
Product Overview

- Top View of IVC-234GT

1. 12~48V DC, 24V AC Power 2 Input Pin
2. Fault Alarm
3. 12~48V DC, 24V AV Power 1 Input

- Redundant 12~48V DC, 24V AC
Diagram of **IVC-234GT**

*Dimensions (unit = mm)*
Key Features

- ITU-T 993.5 G.Vectoring
- CO/CPE Mode for Point-to-Point Applications
- Target Band Plan & SNR
- -40~75 degrees C Operating Temperature
- 4 Gigabit RJ45
- 1 BNC Female/RJ11 Interface
High-performance Ethernet Over VDSL

The IVC-234GT 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
Product Features

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

**Asymmetric Band Plan**
- 100/200Mbps

**Symmetric Band Plan**
- 150/150Mbps

IVC-234GT
Product Features

- **Redundant Power Design**
  - PWR1 & PWR2 **12V DC~48V DC, 24V AC** redundant power input
  - 1A@24V relay alarm for power down and port down
  - Reverse power polarity protection
  - Connective removable terminal block for primary and backup power
Applications

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

  One set of the IVC-234GT could be used to link two local Area networks that are located in different places.

LAN to LAN Connection

![LAN to LAN Connection Diagram](image-url)
Applications

Applications of IP Surveillance

LAN 1
- L2+ Switch
- IVC-234GT (CPE)
- NVR

LAN 2
- IVC-234GT (CO)
- IP Cameras

Ethernet over Coaxial

Up to 1200m

VD5L2 Coaxial Cable
1000BASE-T UTP
Product Comparison
## Product Comparison

<table>
<thead>
<tr>
<th></th>
<th>IVC-234GT</th>
<th>IVC-2002</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Outlook</strong></td>
<td></td>
<td></td>
</tr>
<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>ν ITU-T G.993.5 <strong>G.Vectoring</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ν ITU-T G.998.4 <strong>G.INP</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LAN</strong></td>
<td>4 x <strong>10/100/1000T</strong> RJ45</td>
<td>4 x 10/100TX RJ45</td>
</tr>
<tr>
<td><strong>DIP Switch</strong></td>
<td>■ CO/CPE mode</td>
<td>■ CO/CPE mode</td>
</tr>
<tr>
<td></td>
<td>■ G.INP/Interleaved mode</td>
<td>■ Fast/Interleaved mode</td>
</tr>
<tr>
<td></td>
<td>■ Symm/Asymm band plan</td>
<td>■ Symm/Asymm band plan</td>
</tr>
<tr>
<td></td>
<td>■ 8dB/12dB SNR</td>
<td>■ 6dB/9dB SNR</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td>Asymmetric</td>
<td>Asymmetric</td>
</tr>
<tr>
<td></td>
<td>■ 200m: <strong>185/89</strong>Mbps</td>
<td>■ 200m: 100/65Mbps</td>
</tr>
<tr>
<td></td>
<td>■ 800m: 66/17Mbps</td>
<td>■ 800m: 94/51Mbps</td>
</tr>
<tr>
<td></td>
<td>Symmetric</td>
<td>Symmetric</td>
</tr>
<tr>
<td></td>
<td>■ 200m: <strong>144/140</strong>Mbps</td>
<td>■ 200m: 95/99Mbps</td>
</tr>
<tr>
<td></td>
<td>■ 800m: 29/40Mbps</td>
<td>■ 800m: 71/70Mbps</td>
</tr>
</tbody>
</table>
Sales Targets

◆ Target Markets
  ✓ System Integrators
  ✓ Hotels, Hospitals
  ✓ Enterprises
  ✓ ISPs, Telecoms
  ✓ IP Surveillance

◆ Solutions for Customers
  ◆ Extension of network infrastructure
  ◆ More stable transmission through coaxial cables is guaranteed.

◆ Recommended Products
  ✓ The following are products with VDSL solutions
  ✓ VC-231G, VC-234G, VC-231, VC-234, VDR-301N, VC-820M
  ✓ VC-232G,
## Related CO and CPE Products

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC-231G</td>
<td>1-Port 10/100/1000T Ethernet to VDSL2 Converter</td>
</tr>
<tr>
<td>VC-234G</td>
<td>4-Port 10/100/1000T Ethernet to VDSL2 Bridge</td>
</tr>
<tr>
<td>VC-232G</td>
<td>1-Port Gigabit Ethernet over Coaxial Converter</td>
</tr>
<tr>
<td>VC-231</td>
<td>1-Port Ethernet over VDSL2 Converter</td>
</tr>
<tr>
<td>VC-234</td>
<td>4-Port Ethernet over VDSL2 Bridge</td>
</tr>
<tr>
<td>VDR-301N</td>
<td>802.11n Wireless VDSL2 Bridge/Router</td>
</tr>
<tr>
<td>VC-820M</td>
<td>8-Port VDSL2 + 2G TP/SFP Managed Switch</td>
</tr>
</tbody>
</table>
Available DIN-rail Power Supplies for IVC-234GT:

- **PWR-40-24** 40W 24V DC Industrial DIN-rail Power Supply (Voltage Adj. Range: 24~30V)
- **PWR-60-24** 60W 24V DC Industrial DIN-rail Power Supply (Voltage Adj. Range: 24~30V)
- **PWR-75-24** 75W 24V DC Industrial DIN-rail Power Supply (Voltage Adj. Range: 24~30V)
Activating IP Power
VDSDL2 Introduction
VDSL2 Introduction

What is VDSL2?

VDSL2 (Very-high-bit-rate Digital Subscriber Line 2) or ITU G.993.2 can provide up to 100 Mbps for up- and downstream data rates, whereas ADSL2+ is limited to up to 24 Mbps downstream and 1 Mbps upstream. This shows VDSL2 provides data transmission faster than ADSL2+. 
## VDSL2 Introduction

### DSL Standard

<table>
<thead>
<tr>
<th>Family</th>
<th>ITU</th>
<th>Name</th>
<th>Ratified</th>
<th>Maximum Speed Capabilities</th>
</tr>
</thead>
<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>
</tr>
<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>
</tr>
<tr>
<td>ADSL2plus</td>
<td>G.992.5</td>
<td>ADSL2plus</td>
<td>2003</td>
<td>24Mbps for downstream 1Mbps for upstream</td>
</tr>
<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 and downstream</td>
</tr>
<tr>
<td>VDSL</td>
<td>G.993.1</td>
<td>Very-high-bit-rate DSL</td>
<td>2004</td>
<td>55Mbps for downstream 15Mbps for upstream</td>
</tr>
<tr>
<td>VDSL2 -12 MHz Long reach</td>
<td>G.993.2</td>
<td>Very-high-bit-rate DSL 2</td>
<td>2005</td>
<td>55Mbps for downstream 30Mbps for upstream</td>
</tr>
<tr>
<td>VDSL2 - 30 MHz Short reach</td>
<td>G.993.2</td>
<td>Very-high-bit-rate DSL 2</td>
<td>2006</td>
<td>100Mbps for upstream and downstream</td>
</tr>
<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-bit-rate Digital Subscriber Line 2)