

# 4-Port Ethernet over VDSL2 Bridge



## High Performance Ethernet over VDSL Solution

The PLANET VC-204 is an Ethernet-over-VDSL2 product with high performance. It is based on two core networking technology, Ethernet and VDSL2 (Very-high-data-rate Digital Subscriber Line 2). The VDSL2 technology offers the absolutely fastest data transmission speeds over existing copper telephone lines without the need of rewiring. The VC-204 supports ultra-high performance to the pervasive telephone line network with up to 100/55Mbps asymmetric data rate within 200m and 25/4Mbps for 1.6km long range connections.

## Implements with Existing Telephone Copper Wires

The VC-204 is also a Long Reach Ethernet (LRE) converter provides four RJ-45 Ethernet ports and two RJ-11 phone jacks, in which one is for VDSL connection and the other one is for POTS (Plain Old Telephone Service) connection. The VC-204 has built-in POTS splitter to share the existing phone line with POTS, therefore it is no need of replacing the existing copper wiring. Just plug the VC-204 into the existing RJ-11 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.

## Delivers High-Demand Services Connectivity for ISP / Triple Play Devices

The VC-204 provides excellent bandwidth to satisfy the triple play devices for home entertainment and communication. With the capability of 100/55Mbps symmetric data transmission, the VC-204 enables many Multi-Media services to work on local Internet, such as VOD (Video on Demand), Voice over IP, Video phone, IPTV, Internet caching server, distance education, and so on.

## Easy Installation

The Converter is plug-and-play design and fully compatible with all kinds of network protocols. Moreover, the operating status of each individual

port and the whole system can be watched via the rich diagnostic LEDs on the front panel. There are two selectable models of the VC-204, one is used at client side (CPE) and the other one is at central side (CO). The CPE or CO mode can be adjusted by using a built-in DIP switch. For point-to-point connection, a CPE mode VC-204 and a CO mode VC-204 must be setup as one pair of converters to perform the connection.

## Provides Superior Upstream and Downstream Transmission

The VC-204 also defines asymmetric (Plan 998) and symmetric (Plan 997) band plans for the transmission of upstream and downstream signals. The featured band plan 997 provides the symmetric transmission on both downstream and upstream. On the other hand, the band plan 998 performs higher transmission quality in short range for central side (CO) in asymmetric mode. In all, when the VC-204 is in symmetric mode, it provides better upstream performance, and when the VC-204 is in asymmetric mode, it gives better downstream performance.

## KEY FEATURES

- Cost-effective VDSL2 CO / CPE bridge solution
- One box design, CO / CPE selectable via DIP Switch
- Defines asymmetric (Plan 998) and symmetric (Plan 997) band plans for the transmission of upstream and downstream signals
- Complies with IEEE 802.3, IEEE 802.3u and IEEE 802.3x standards
- DMT (Discrete Multi-Tone) line coding
- Half duplex Back pressure and IEEE 802.3x Full Duplex Pause frame flow control
- Built-in POTS splitter to share voice and data
- Two RJ-11 connectors for each VDSL port, one for VDSL connection and one for POTS connection
- Voice and data communication can be shared simultaneously based on the existing telephone wire
- Supports up to 1536 bytes packet size, IEEE 802.1Q VLAN tag transparent
- VDSL2 stand-alone transceiver for simple bridge modem application
- Advantage of minimum installation time (Simply as Plug-and-Play)
- Selectable target band plan and target SNR margin
- Supports extensive LED indicators for network diagnostics

**APPLICATIONS**

*Ethernet Distance Extension*

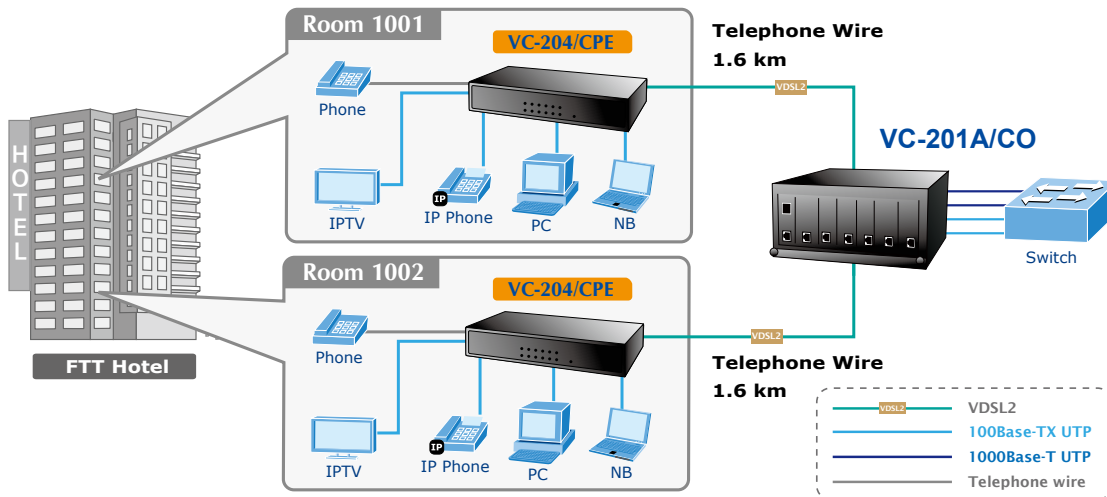
Two VC-204 acting as a standalone pair is good for Ethernet distance extension over existing telephone wires. With just one pair of AWG-24 copper wire, you can easily connect two Ethernet networks together with the data rate of maximum 100/55Mbps. Telephone service can still be used while the modems are in operation. The two solutions listed below are typical applications for the Ethernet over VDSL converter.

*MTU / MDU / Hospitality Solution*

The VC-204 is a perfect solution to quickly provide cost-effective yet high speed network services to multi-unit buildings such as residential buildings (multi-dwelling units) , commercial (multi-tenant units) buildings, hotels or hospitals. By utilizing the existing telephony infrastructure, network installation is straightforward and requires no new wiring. With up to 100/55Mbps transmission, Video on Demand, IP telephony and various broadband services can be easily provisioned.

*Last Mile of FTTx deployment*

The VC-204 is an ideal solution for FTTx (Fiber to the Building, Fiber to the Campus or Fiber to the Node) applications. It supports high bandwidth VDSL2 over existing telephone wires in the "last mile" from the ISP / Telecom / Service provider's fiber node to the buildings and customers' home. The 10/100Mbps port of VC-204 can be directly connected to a PC or to Ethernet devices such as Ethernet Switches or Broadband Routers. It is excellent for phone line network built by Internet because every room or house could use the existing phone line to transmit data through the Internet and the whole building could share the Internet to the wider area network with minimum cost.



**SPECIFICATION**

Product	<b>Ethernet over VDSL2 Bridge</b>																		
Model	<b>VC-204</b>																		
<b>Hardware Specification</b>																			
Ports	10/100Base-TX: 4 RJ-45, Auto-negotiation and Auto-MDI / MDI-X VDSL: 1 RJ-11, female Phone Jack PHONE: 1 RJ-11, Built-in splitters for POTS connection																		
DIP Switch	4 position DIP switch																		
Functionality	<ul style="list-style-type: none"> <li>• CO / CPE mode select</li> <li>• Selectable fast and interleaved mode</li> <li>• Selectable target band plan</li> <li>• Selectable target SNR mode</li> </ul>																		
Encoding	<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 Support)</li> </ul>																		
LED Indicators	<ul style="list-style-type: none"> <li>• One Power</li> <li>• 4 for RJ-11 / VDSL2 WAN : <ul style="list-style-type: none"> <li>- Green, ACT</li> <li>- Green, Sync</li> <li>- Green, CO mode</li> <li>- Green, CPE mode</li> </ul> </li> <li>• 1 for per RJ-45 10/100Base-TX port <ul style="list-style-type: none"> <li>- Green, LNK / ACT</li> </ul> </li> </ul>																		
Cabling Type	<ul style="list-style-type: none"> <li>• 10Base-T: 2-pair UTP Cat.3,4,5 up to 100m (328ft)</li> <li>• 100Base-TX: 2-pair UTP Cat.5, up to 100m (328ft)</li> <li>• VDSL: twisted-pair telephone wires (AWG24 or better) up to 1.6km</li> </ul>																		
Performance	<ul style="list-style-type: none"> <li>• Full VDSL2 bandwidth up to: (Down Stream / Up Stream)</li> </ul> <table border="1"> <thead> <tr> <th>Asymmetric Mode</th> <th>Symmetric Mode</th> </tr> </thead> <tbody> <tr> <td>- 200m -&gt; 100/55Mbps</td> <td>- 200m -&gt; 90/90Mbps</td> </tr> <tr> <td>- 400m -&gt; 90/50Mbps</td> <td>- 400m -&gt; 90/90Mbps</td> </tr> <tr> <td>- 600m -&gt; 70/40Mbps</td> <td>- 600m -&gt; 70/70Mbps</td> </tr> <tr> <td>- 800m -&gt; 60/25Mbps</td> <td>- 800m -&gt; 55/50Mbps</td> </tr> <tr> <td>- 1000m -&gt; 45/15Mbps</td> <td>- 1000m -&gt; 40/35Mbps</td> </tr> <tr> <td>- 1200m -&gt; 35/10Mbps</td> <td>- 1200m -&gt; 30/25Mbps</td> </tr> <tr> <td>- 1400m -&gt; 30/6Mbps</td> <td>- 1400m -&gt; 25/20Mbps</td> </tr> <tr> <td>- 1600m -&gt; 25/4Mbps</td> <td>- 1600m -&gt; 20/15Mbps</td> </tr> </tbody> </table>	Asymmetric Mode	Symmetric Mode	- 200m -> 100/55Mbps	- 200m -> 90/90Mbps	- 400m -> 90/50Mbps	- 400m -> 90/90Mbps	- 600m -> 70/40Mbps	- 600m -> 70/70Mbps	- 800m -> 60/25Mbps	- 800m -> 55/50Mbps	- 1000m -> 45/15Mbps	- 1000m -> 40/35Mbps	- 1200m -> 35/10Mbps	- 1200m -> 30/25Mbps	- 1400m -> 30/6Mbps	- 1400m -> 25/20Mbps	- 1600m -> 25/4Mbps	- 1600m -> 20/15Mbps
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Dimension (W x D x H)	155 x 86 x 26 mm																		
Weight	0.38 kg																		
Power Requirement	5V DC 2A																		
Operating Temperature	0~50 Degree C																		
Storage Temperature	-25~70 Degree C																		
Operating Humidity	10~90%, relative humidity, non-condensing																		
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<b>Switch Specification</b>																			
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																		
Switch fabric	1.6Gbps																		
Throughput (packet per second)	11.9Mpps																		
Network cables	10/100Base-TX: 2-Pair UTP Cat. 3,4, 5 (100meters, max.) EIA / TIA-568 100-ohm STP (100meters, max.)																		
<b>Standard Conformance</b>																			
Regulation Compliance	FCC Part 15 Class A, CE IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX																		
Standards Compliance	ITU-T - G.993.1 (VDSL) - G.997.1 - G.993.2 VDSL2 (Profile 17a )																		

\* The actual data rate will vary on the quality of the copper wire or coaxial cable and environment factors

**ORDERING INFORMATION**

VC-204	Ethernet over VDSL2 Bridge (4*RJ45, 1*VDSL2/RJ11, 1*Phone-17a)
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**RELATED PRODUCTS**

VC-201A	Ethernet over VDSL2 Converter
VC-810S	8-Port VDSL2 + 1-Port Gigabit TP/SFP Web Smart CO Switch