4-Port Ethernet over VDSL2 Bridge

High Performance Ethernet over VDSL Solution

The PLANET VC-234 is an Ethernet-over-VDSL2 Bridge with high performance. It is designed based on two core networking technology, Ethernet and VDSL2 (Very-high-data-rate Digital Subscriber Line 2). The VDSL2 technology offers absolutely fastest data transmission speed over existing copper telephone lines without the need of rewiring. The VC-234 supports ultra-high performance to the pervasive telephone line network with up to 100/100Mbps asymmetric data rate within 300m and 20/4Mbps for 1.4km long range connections.

Implements with Existing Telephone Copper Wires

The VC-234 is also a Long Reach Ethernet (LRE) Bridge providing 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-234 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-234 into the existing RJ-11 telephone jack and a high-performance VDSL2 network can be connected. The VC-234 is ideal to be used as an Ethernet extender to an existing Ethernet network.

Delivers High-Demand Service Connectivity for ISP / Triple Play Devices

The VC-234 provides excellent bandwidth to satisfy the triple play devices for home entertainment and communication. With the capability of 100/100Mbps symmetric data transmission, the VC-234 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 Ethernet-over-VDSL2 Bridge 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. The VC-234 offers two modes, CPE and CO, for application: CPE mode is used at client side and CO mode is at central side. The CPE or CO mode can be adjusted by using a built-in DIP switch. For point-to-point connection, a CPE mode VC-234 and a CO mode VC-234 must be setup as one pair of converters to perform the connection.

Provides Superior Upstream and Downstream Transmission Performance

The VC-234 also defines symmetric band plan for the transmission of upstream and downstream signals; the band plan performs higher transmission quality in short range for central side (CO) in symmetric mode. In all, when the VC-234 is in profile 17a operation mode, it provides long distance transmit with Ultra-high performance to the pervasive telephone line network, and when the VC-234 is in 30a operation mode, it gives short distance transmits with upstream and downstream transmission giving wire speed performance.
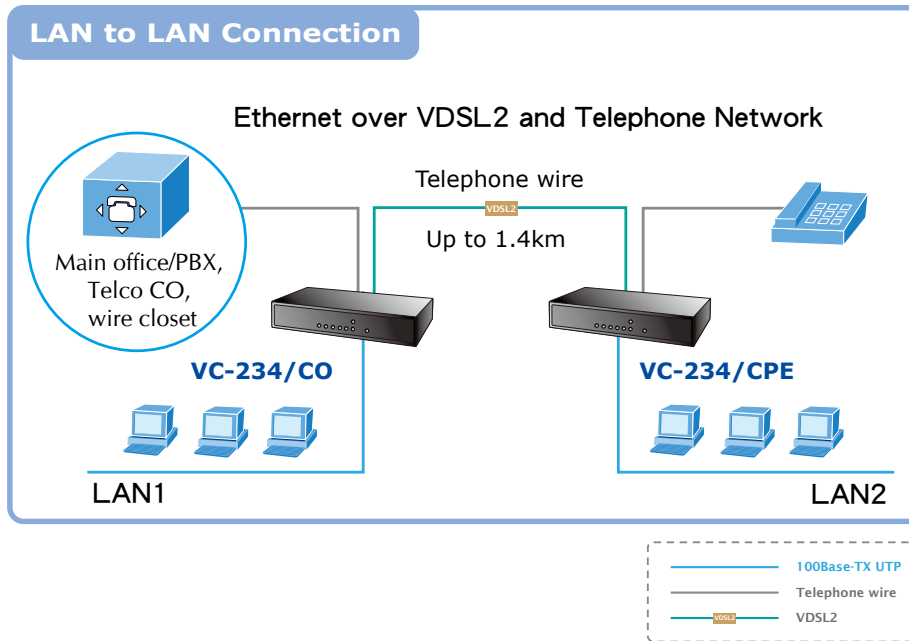
KEY FEATURES

- Cost-Effective VDSL2 **Profile 17a/30a** CO / CPE bridge solution
- One box design, CO / CPE selectable via DIP Switch
- Defines symmetric band plan for the transmission of upstream and downstream signals
- Complies with IEEE 802.3, 10Base-T, IEEE 802.3u, 100Base-TX and IEEE 802.3x, Flow control Ethernet 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
- Four 10/100Mbps RJ-45 port, Auto-Negotiation and Auto-MDI/MDI-X
- Supports up to 1536 bytes packet size, IEEE 802.1Q VLAN tag transparent
- Hardware IGMP Snooping for Multimedia service
- VDSL2 stand-alone transceiver for simple bridge modem application
- Advantage of minimum installation time (Simply as Plug-and-Play)
- Selectable target profile and target SNR margin
- Supports extensive LED indicators for network diagnosis
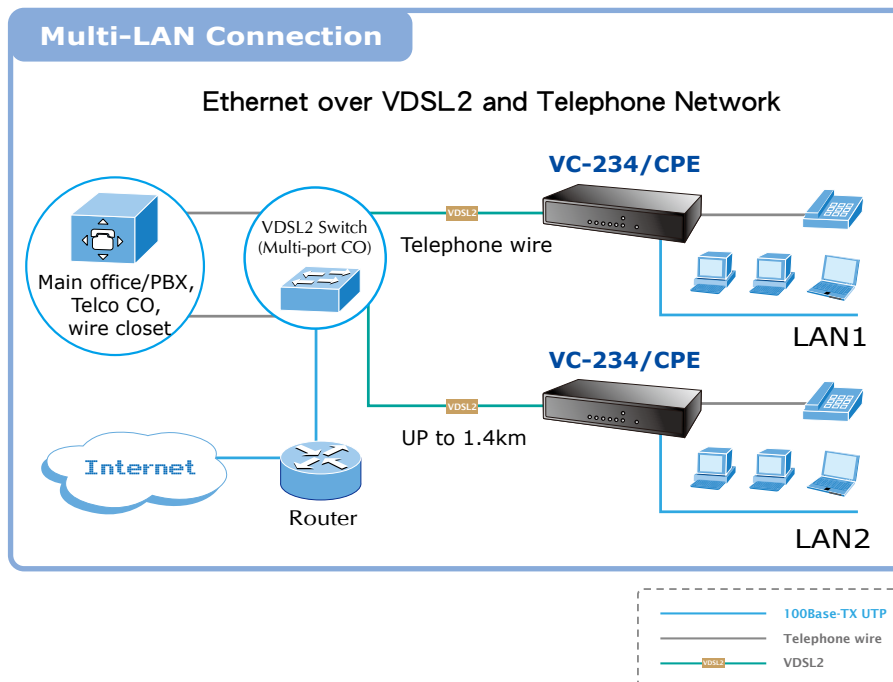
APPLICATIONS

Ethernet Distance Extension

Two VC-234 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 100/100Mbps. The telephone service can still be used while the VC-234 CO/CPE is in operation. The two solutions listed below are typical applications for the Ethernet over VDSL2 Bridge.

LAN to LAN Connection

Ethernet over VDSL2 and Telephone Network

Telephone wire

Up to 1.4km

Main office/PBX, Telco CO, wire closet

VC-234/CO

VC-234/CPE

LAN1

LAN2

100Base-TX UTP
Telephone wire
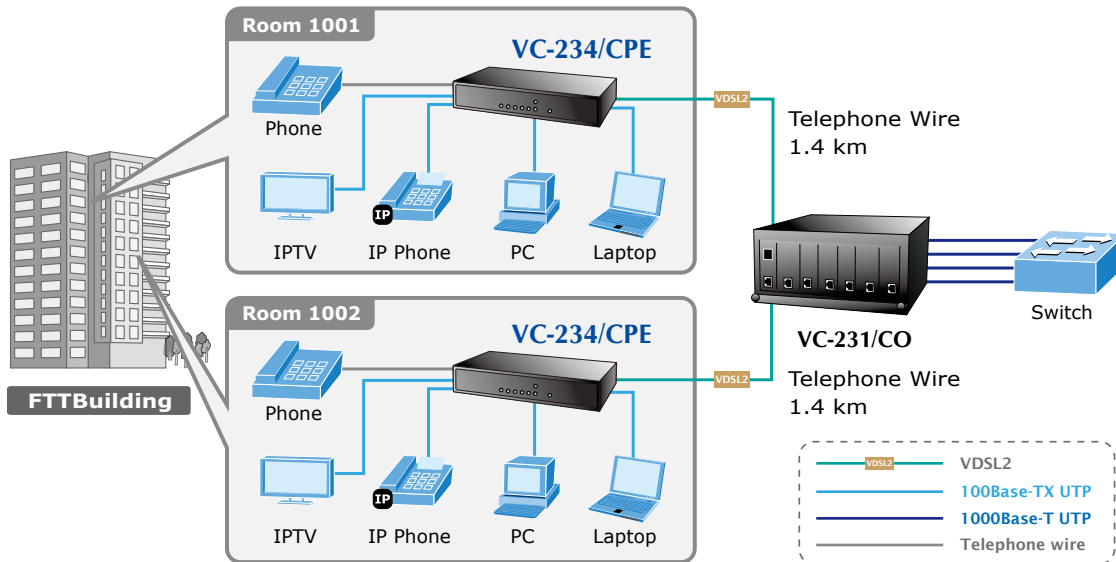VDSL2

MTU / MDU / Hospitality Solution

The VC-234 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 100/100Mbps transmission, Video on Demand, IP telephony and various broadband services can be easily provided.

Multi-LAN Connection

Ethernet over VDSL2 and Telephone Network

VC-234/CPE

VDSL2 Switch (Multi-port CO)

Telephone wire

Main office/PBX, Telco CO, wire closet

Internet

Router

VC-234/CPE

UP to 1.4km

LAN1

LAN2

100Base-TX UTP
Telephone wire
VDSL2

Data Sheet

APPLICATIONS

Last Mile of FTTx Deployment

The VC-234 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' houses. The 10/100Mbps ports of VC-234 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 under 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	4-Port Ethernet over VDSL2 Bridge		
Model	VC-234		
Hardware Specification			
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 & Functionality	• 4 position DIP switch • **CO / CPE** mode select • Selectable **fast** and **interleaved** mode • Selectable target **17a / 30a profiles** • Selectable target **SNR mode**		

Encoding	• VDSL-DMT
	  - ITU-T G.993.1 VDSL
	  - ITU-T G.997.1
	  - ITU-T G.993.2 VDSL2 (Profile 17a/30a Support)		

LED Indicators	One Power 4 for RJ-11/VDSL2 1 for per RJ-45 10/100Base-TX port		
Cabling	Ethernet	10Base-T: 2-pair UTP Cat.3,4,5 up to 100m (328ft) 100Base-TX: 2-pair UTP Cat.5, up to 100m (328ft)	
	VDSL	Twisted-pair telephone wires (AWG24 or better) up to 1.4km	

Performance* (Downstream / Upstream)	17a profile 300m -> 99/70Mbps 400m -> 99/60Mbps 600m -> 90/45Mbps 800m -> 50/28Mbps 1000m -> 40/12Mbps 1200m -> 20/7Mbps 1400m -> 20/4Mbps 30a profile 300m -> 100/100Mbps 400m -> 90/90Mbps 600m -> 69/55Mbps 800m -> 48/9Mbps
Power Requirement	5V DC, 2A
Power Consumption	7.2 Watts/ 24 BTU
Dimension (W x D x H)	155 x 86 x 26 mm
Weight	368g
Environment	
Operating	Temperature: 0 ~ 50 Degree C Relative Humidity: 10 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 Degree C Relative Humidity: 10 ~ 90% (non-condensing)
Switch Specification	
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	0.8Gbps
Throughput (packet per second)	0.59Mpps
Network cables	10/100Base-TX: 2-Pair UTP Cat. 3,4, 5 (100 meters, max.) EIA / TIA-568 100-ohm STP (100 meters, max.)
Standard Conformance	
Regulation Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX ITU-T • G.993.1 (VDSL) • G.997.1 • G.993.2 VDSL2 (Profile 17a/30a)

* The performance data above is for reference only, the actual data rate will vary on the quality of the copper wire and environment factors.

ORDERING INFORMATION

VC-234	Ethernet over VDSL2 Bridge (4*RJ45, 1*VDSL2/RJ11, 1*Phone-17a/30a)