

8-Port VDSL2 + 2-Port Gigabit TP/SFP Combo Managed Switch



High Performance VDSL2 Data Rate over Existing Phone Lines

PLANET VC-820M is an **8-Port VDSL2 Managed CO Switch** (Central Office) with **2-Port Gigabit TP / SFP combo** interfaces. The VDSL2 CO Switch is perfectly designed for the networking applications of Community, Network service provider, SI (System Integration), IP Surveillance provider and etc. It is based on two core networking technology, Ethernet and VDSL2 (Very-high-data-rate Digital Subscriber Line 2). By co-working with PLANET developed VDSL2 CPE (Customer Premises Equipment) – the VC-23x series CPE, it offers the absolutely fastest data transmission speeds over existing copper telephone lines which provides the ideal solution in the last mile.

Each VDSL2 interface of the VC-820M provides two copper phone ports, one for VDSL2 connection and the other one for POTS (Plain Old Telephone Service) connection. To share the existing phone line with POTS, the VC-820M has built-in POTS splitter that helps the voice over telephone and network data to transmit at the same wire without being interrupted.

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

As the demand of home broadband connections increases for home-communication and entertainment needs, VDSL2 technology is the next step media to support the integration of home services and provide significant faster transmission speed than current cable modems and ADSL technology. The VC-820M applies the EoVDSL (Ethernet over VDSL) to provide up to 100Mbps download capability and brings many Multi-Media services come true on local network:

- » IPTV / HDTV
- » Video Conference / Video Phone
- » Internet Radio / On-Line Music
- » VOD (Video on Demand)
- » On-Line Game
- » Long distance education
- » Voice over IP

The VC-820M gives the excellent bandwidth to satisfy the triple play devices for home entertainment and communication.

Traffic Flow QoS Ensuring for Application Services

The VDSL2 Switch contains robust QoS features such as Port-Based, 802.1p priority and also IP TOS/DSCP. It guarantees the best performance at VoIP and Video stream transmission and empowers the enterprises to take full advantages of the limited network resources.

Selectable VDSL2 Data Rate for Service Differentiation

Through the management interface, the administrator can control the data transmit speed of each VDSL2 interface. Telecom and ISP can immediately and remotely upgrade/downgrade bandwidth service by different demands.

Efficient Management

Afford the current network to grow and expand, the PLANET VC-820M provides **console** and **telnet** command line interface, advanced **WEB** and **SNMP** management interface to fill this kind of demand. With its built-in Web-based management interface, the VDSL2 Switch offers an easy-to-use, platform-independent management and configuration facility. The VDSL2 Switch supports standard Simple Network Management Protocol (SNMP) and can be monitored via any standard-based management software. For text-based management, the VDSL2 Switch can also be accessed via Telnet and the console port. Moreover, the VDSL2 Switch offers secure remote management by supporting Secure Socket Layer (**SSL**) connection which encrypts the packet content at each session. The features above provide an efficient way to manage the devices from the internet environment with no need to add extra secure system either by means of hardware or software.

Robust Layer 2 Features

For efficient management, via WEB interface the VC-820M can be programmed for basic switch management functions such as port speed configuration, Port **link aggregation**, IEEE **802.1Q** VLAN and Q-in-Q VLAN, Port Mirroring, **Rapid Spanning Tree** and ACL security. Additionally, the firmware includes advanced features such as **IGMP snooping**, QoS (Quality of Service), broadcast storm and **bandwidth control** to enhance bandwidth utilization.

Advanced Security

The VDSL2 Switch offers comprehensive Layer 2, Layer 3 and Layer 4 Access Control List (**ACL**) to filter out unwanted traffic. Its protection mechanisms comprises of **RADIUS** and Port-based **802.1X** user and device authentication. Moreover, the VDSL2 Switch provides MAC filter, Static MAC, IP/MAC binding and **Port Security** for enforcing security policies to the edge. The administrators can now construct highly secured corporate networks with considerably less time and effort than before.

KEY FEATURES

VDSL INTERFACE

- 8 x **RJ-11** connectors for **VDSL2** connection
- 8 x **RJ-11** connectors for **telephone/POTS** connection
- Built-in **POTS splitter** for each VDSL port
- Auto-speed function for VDSL2 link (by distance and cable quality)

ETHERNET INTERFACE

- 2 10/100/1000Mbps TP and SFP shared combo interfaces
- Auto-MDI/MDI-X detection on Gigabit RJ-45 port

VDSL2 FEATURES

- Cost-effective VDSL2 link and central management solution
- ITU-T G.993.2 VDSL2 standard
- **DMT** (Discrete Multi-Tone) line coding VDSL
- Up to **100/100Mbps** symmetric data rate
- Copper wiring distance up to 1.4km
- Selectable target data rate and target SNR margin
- Built-in surge protection to against surge damage from high energy spike
- Voice and data communication can be shared on the existing telephone wire simultaneously
- Supports Downstream / Upstream rate control on each port

LAYER 2 FEATURES

- High performance of Store-and-Forward architecture, runt/CRC filtering eliminate erroneous packets to optimize the network bandwidth
- Broadcast / Multicast / Unicast storm control
- Support **VLAN**
 - IEEE 802.1Q Tag-based VLAN
 - Port-Based VLAN
 - Q-in-Q tunneling (VLAN Stacking)
 - GVRP for dynamic VLAN management
 - Private VLAN Edge (PVE / Protected port)
- Link Aggregation
 - IEEE 802.3ad LACP (Link Aggregation Control Protocol)
 - Cisco ether-channel (Static Trunk)
- Spanning Tree Protocol
 - STP, IEEE 802.1D (Classic Spanning Tree Protocol)
 - MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, Spanning Tree by VLAN)
- Port Mirroring to monitor the incoming or outgoing traffic on a particular port

QUALITY OF SERVICE

- 4 priority queues on all switch ports
- Traffic classification:
 - IEEE 802.1p CoS
 - IP TOS / DSCP to 802.1p priority mapping
 - Port-Based priority
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Voice QoS by application source / destination protocol no

MULTICAST

- Supports IGMP Snooping v1 and v2
- IGMP Snooping v2 fast leave
- Querier mode support

SECURITY

- IEEE 802.1x Port-Based network access control protocol
- RADIUS users access authentication
- L2 / L3 / L4 Access Control List (ACL)
- MAC Filtering and Source IP-MAC / Port-Binding
- Port Security for Source MAC address entries filtering

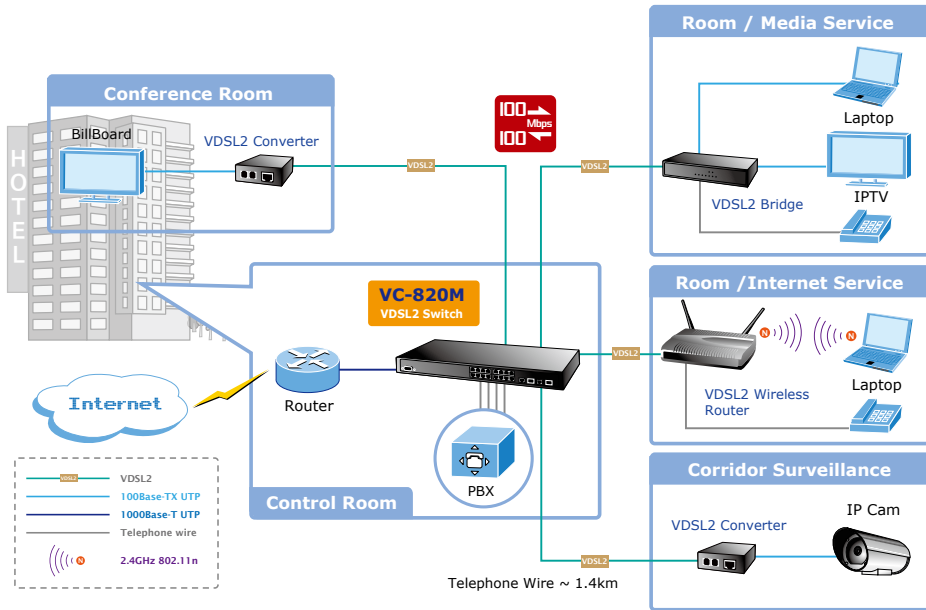
MANAGEMENT

- Switch Management Interface
 - Telnet Command Line Interface
 - Web switch management
 - SNMP v1, v2c, v3 switch management
 - SSL switch management
- DHCP client for IP address assignment
- Link Layer Discovery Protocol (LLDP) for easy network management
- DHCP Option82 and DHCP Relay
- Built-in Trivial File Transfer Protocol (TFTP) client
- Firmware upgrade via TFTP or HTTP
- Configuration upload/download via TFTP or HTTP
- Four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events)
- SNMP trap for interface Link Up and Link Down notification
- Supports Ping function
- Reset button for system management
- 1 RS-232 male DB9 console interface for Switch basic management and setup

APPLICATIONS

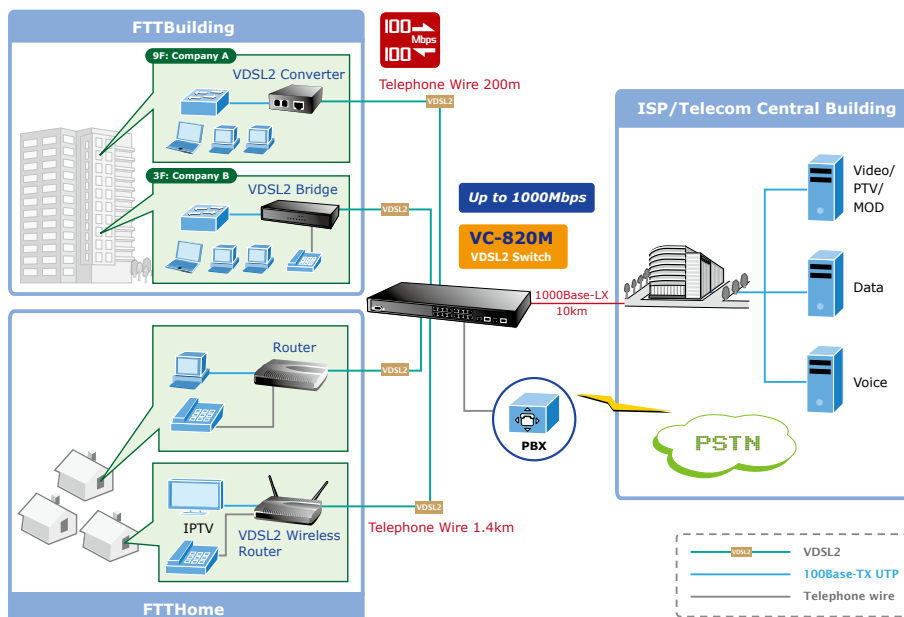
MTU / MDU / Hospitality Solution

IPTV, VOD and digital message broadcasting services are the worldwide hot trends, and more and more service providers have gradually upgraded the client side devices from analog system to digital system gradually. The PLANET VC-820M VDSL2 CO Switch and VC-23x VDSL2 CPEs are the best solution to quickly provide cost-effective and high speed network services by utilizing the existing telephone wire infrastructure. IP network installation is straightforward and requires no new wiring. With enough bandwidth, the up to 100/100Mbps symmetric capability of VC-820M enables many Multi-Media services on local Internet to come true, such as VOD (Video on Demand), Voice over IP, Video phone, IPTV, distance education, and so on. The VC-820M provides excellent bandwidth to satisfy the triple play devices for entertainment and communication. Meanwhile, this kind of infrastructure will minimize the burden on the Internet.



Last Mile of FTTx Deployment

The VC-820M provides up to **100/100Mbps** symmetric data rate within 300m and in long range connections, it provides ultra-high performance to the pervasive telephone line network. With the two build-in mini-GBIC 1000Base-SX/LX SFP (Small Form-Factor Pluggable) interfaces, the deployed distance of VC-820M can be extended from 550 meters (Multi-mode fiber) up to above 10/50/70/120 kilometers (Single-mode fiber). The various distances of SFP and Bidi (WDM) transceivers are optional for customers. The long distance support feature makes the VC-820M be a great and ideal solution for FTTx (Fiber to the Building, Fiber to the Campus or Fiber to the Home) 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.



SPECIFICATION

Product	8-Port VDSL2 + 2-Port Gigabit TP/SFP Combo Managed Switch
Model	VC-820M
Hardware Specification	
VDSL Interface	8-Port VDSL2 , RJ-11 connectors
1000Mbps Copper Ports	8-Port POTS/Telephone , RJ-11 connectors
SFP/mini-GBIC Slots	2 10/100/1000Mbps RJ-45 Auto-negotiation, Auto MDI/MDI-X
Console	2 1000Base-SX/LX/BX, shared with Port-9 and Port-10
Surge Protect	1 x RS-232 Serial Port (DB9, 57600, N, 8, 1)
Switch Architecture	3KV
Switch Fabric	Store-and-Forward
Switch Throughput	5.6Gbps / non-blocking
Address Table	4.16Mpps @64Bytes
Share Data Buffer	8K entries
Maximum Frame Size	256Kbytes
Flow Control	9K Bytes
LED	Back pressure for Half-Duplex IEEE 802.3x Pause Frame for Full-Duplex
Reset Button	System: Power, Status Alert: FAN 1, FAN 2, FAN 3 alert VDSL: VDSL Link/Sync. Gigabit Port: 1000 Link/Active, 100 Link/Active
Dimension (W x D x H)	< 5 sec: System reboot > 10 sec: Factory Default
Weight	440 x 200 x 44 mm, 1U height
Power Requirement	2.9 kg
Power Consumption / Dissipation	100~240V AC, 50-60 Hz
Other	58 Watts maximum / 184 BTU/hr maximum
	Reset Button for system reset and Reset to factory default
VDSL2	
VDSL2 Standard	Comply with ITU-T G.993.1 and G.993.2. Supports provisioning the VDSL optional band (25K to 138K Hz) usage
Band Plan	Selectable band plan for each VDSL line on a per port basis Band plan A: • Profile 998, Annex A of G.993.1; Optimized for symmetric services Band plan B: • Profile 997, Annex B of G.993.1 ; Optimized for asymmetric services
Profile	Selectable spectrum profile of 8a/b/c/d, 12a/b, 17a, and 30a for frequency bands (Annex A, B and C) defined in G.993.2
Encoding	VDSL-DMT
VDSL2 Features	Selectable rate limit control Selectable target SNR (signal to Noise Ratio) mode POTS voices pass through
Layer 2 Function	
Management Interface	Console, Telnet, Web Browser, SSL, SNMPv1 / v2c / v3
Gigabit Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable / enable
Gigabit Port Status	Display each port's speed duplex mode, link status and Flow control status. Auto-negotiation status, trunk status.
Port Mirroring	TX / RX / Both 1 to 1 monitor
Bandwidth Control	Ingress / Egress rate limit control Gigabit Port: • Allow to configure per 128Kbps VDSL2 Port: • Allow to configure per 5Mbps
VLAN	IEEE 802.1Q Tag-based VLAN, up to 256 VLANs groups, out of 4041 VLAN IDs Port-based VLAN GVRP, up to 128 dynamic VLAN groups Q-in-Q tunneling Private VLAN Edge(PVE / Protected port) with two protected port groups

Link Aggregation	Static Port Trunk IEEE 802.3ad LACP (Link Aggregation Control Protocol) Supports 13 groups of 8-Port trunk support																																						
QoS	4 priority queue Traffic classification based on <ul style="list-style-type: none"> • Port priority • 802.1p priority • DSCP/TOS field in IP Packet VoIP QoS by application protocol no.																																						
IGMP Snooping	IGMP (v1/v2) Snooping, up to 256 multicast Groups																																						
Access Control List	IP-Based Layer 3 / Layer 4 ACL Up to 220 ACL rule entries																																						
Security	Port Security (Disable Per Port of MAC Address Learning) Static MAC, MAC Filter, IP/MAC Binding																																						
SNMP MIBs	RFC-1213 MIB-II RFC-2863 Interface MIB RFC-2665 EtherLike MIB RFC-1493 Bridge MIB RFC-2819 RMON MIB (Group 1, 2, 3,9) RFC-2737 Entity MIB																																						
Standards Conformance																																							
Regulation Compliance	FCC Part 15 Class A, CE																																						
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Cables	<ul style="list-style-type: none"> • VDSL2: twisted-pair telephone wires (AWG24 or better) up to 1.4km • 10/100Base-TX: 2-Pair UTP Cat.5, up to 100m (328ft) • 1000Base-T: 4-pair UTP Cat.5E, up to 100m • 1000Base-SX: 50/125µm and 62.5/125µm fiber-optic cable, up to 550m • 1000Base-LX: 9/125µm fiber optic cable, up to 10km 50/125µm and 62.5/125µm fiber-optic cable, up to 550m 																																						
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)																																						

ORDERING INFORMATION

VC-820M	8-Port VDSL2 + 2-Port Gigabit TP/SFP Combo Managed Switch
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RELATIVE PRODUCT

VC-231	Ethernet over VDSL 2 Converter (30a, 1 x RJ-11, 1 x RJ-45)
VC-234	Ethernet over VDSL 2 Bridge (30a, 2 x RJ-11, 4 x RJ-45)
VC-230	Ethernet over VDSL2 Router (4*RJ45, 1*VDSL2, 1*Phone -30a)
VC-230N	802.11n wireless VDSL2 Router (4*RJ45, 1*VDSL2, 1*Phone -30a)
VC-2400MR	24-Port VDSL2 + 2-Port Gigabit TP/SFP Combo Managed Switch
VC-2400MR48	24-Port VDSL2 + 2-Port Gigabit TP/SFP Combo Managed Switch with 48V DC Power

AVAILABLE MODULES FOR MINI-GBIC SFP SLOTS

MGB-GT	SFP-Port 1000Base-T mini-GBIC module
MGB-SX	SFP-Port 1000Base-SX mini-GBIC module
MGB-LX	SFP-Port 1000Base-LX mini-GBIC module
MGB-L30	SFP-Port 1000Base-LX mini-GBIC module - 30km
MGB-L50	SFP-Port 1000Base-LX mini-GBIC module - 50km
MGB-L70	SFP-Port 1000Base-LX mini-GBIC module - 70km
MGB-L120	SFP-Port 1000Base-LX mini-GBIC module -120km
MGB-LA10	SFP-Port 1000Base-LX mini-GBIC module - LC WDM(TX:1310nm), SM, 10km
MGB-LB10	SFP-Port 1000Base-LX mini-GBIC module - LC WDM(TX:1550nm), SM, 10km
MGB-LA20	SFP-Port 1000Base-LX mini-GBIC module - LC WDM(TX:1310nm), SM, 20km
MGB-LB20	SFP-Port 1000Base-LX mini-GBIC module - LC WDM(TX:1550nm), SM, 20km
MGB-LA40	SFP-Port 1000Base-LX mini-GBIC module - LC WDM(TX:1310nm), SM, 40km
MGB-LB40	SFP-Port 1000Base-LX mini-GBIC module - LC WDM(TX:1550nm), SM, 40km