



DHS-3212V/DHS-3224V

DHS-3212V with 12 VDSL ports and DHS-3224V with 24 VDSL ports, stackable to 6 units per stack.

Stackable VDSL Switch With Gigabit Ethernet Interfaces

The DHS-3212V/DHS-3224V Stackable VDSL Switches leverage the extraordinary bandwidth promise of VDSL technology, the next step in the delivery of new high-speed Internet applications to home and office users. As CO (central office) devices, these switches provide VDSL access to the CPE (consumer premise equipment) such as the Bridge Remote Units from the subscribers in the multi-unit, multi-tenant buildings. These switches connect to the service provider's public optical network (PON) through their Gigabit Ethernet fiber interfaces. The DHS-3212V/DHS-3224V thus provide the last-mile connection by extending the public high-bandwidth network to people living and working in business parks, apartments, dormitories, campus and hospitals.

High-speed Internet Access

With VDSL, you can now have smooth delivery of streaming media, video conferencing, media-rich Web surfing and intensive data exchange. VDSL operates over the copper wires in your phone line in much the same way that ADSL does, but at as high as 15Mbps downstream and 15Mbps upstream. This compares with 8Mbps downstream and 800Kbps upstream for the highest ADSL G.dmt full rate.

Preserving Existing Infrastructure

The DHS-3212V/DHS-3224V switches preserve users' existing infrastructure by delivering data at multi-megabit asymmetrical throughput per port to the subscribers side over any twisted-pair wires.

Proven Performance at 1,500 Meters

The switches deliver VDSL speeds at extended cable distance coverage. Proven distance is 1,050 meters (3,000 feet) on the ordinary phone line or Cat. 3 wiring. Depending on the quality of the cable (Cat. 4 or 5 or better), your data throughput can be up to 5Mbps at 1,500 meters, 10Mbps at 1,200 meters, and 15Mbps at 1,050 meters.

Scalable Expansion

The switches are stackable to 6 units per stack, giving your installation the flexibility of scalable expansion. 2 port density selections are available:

- DHS-3212V with 12 VDSL ports
- DHS-3224V with 24 VDSL ports

Ethernet Connection

Both switches provide an open slot for installation of an optional Ethernet port module. Port modules available for selection include:

- **DHS-321GL 100BASE-LX** module supporting 5 km fiber cable distance. This module provides a Gigabit port to connect the switch to a public optical network.
- **DHS-321FX 100BASE-FX** module supporting 2 km fiber cable distance. This module provides a Fast Ethernet fiber port that can be used to cascade together stacks of VDSL switches located in different buildings.
- **DHS-321FL 100BASE-FX** module supporting 15 km fiber cable distance. This module provides a Fast Ethernet fiber port that can be used to cascade together stacks of VDSL switches located in different buildings.
- **DHS-321TX 10BASE-T/100BASE-TX** module. This module provides a Fast Ethernet twisted-pair port that can be used to cascade VDSL switches that are closely clutched together. This port can also connect to a management station to configure and monitor the traffic going through DHS-3212V/DHS-3224V stack.

Complete FTTH/FTTB Solution

The DHS-3212V/DHS-3224V Stackable VDSL Switches are part of D-Link's total solution for Fiber to the Home/Fiber to the Building that takes advantage of the VDSL-over-Ethernet technology. This solution includes:

- **DEV-301** Bridge Remote Unit
- **DEV-304** Bridge Remote Unit with built-in 4-port Fast Ethernet switch
- **DHS-24SP** VDSL to POTS Multi-port Splitter

Features

- High-speed public optical network access to multi-unit, multi-tenant buildings
- Up to 15Mbps asymmetrical throughput
- Up to 1.5 km distance on any twisted-pair wiring, including the phone line
- 12 to 24 VDSL ports per switch
- Scalable expansion of up to 6 switches per stack
- 802.1p priority queues and per-port bandwidth control for QoS
- 802.1Q VLANs for complete tenant-to-tenant isolation, plus performance enhancement
- Multicast with IGMP snooping brings on-line video application to the home
- Power back-off algorithm support
- 802.1x and other advanced access security
- SNMP and Web-based management & RMON monitoring
- Local loopback & far-end loopback test capability

DHS-3212V/DHS-3224V

Technical Specifications

Stackable VDSL Switch

VDSL Bridge Remote Unit

Device

Device Ports

DHS-3212V:

- 12 VDSL ports (1 RJ-21 (Telco-50) connector)
- 1 stacking port (2 IEEE 1394 connectors)
- 1 open slot (for Ethernet connection)
- 1 RS-232 console port (DB-9 connector)

DHS-3224V:

- 24 VDSL ports (1 RJ-21 (Telco-50) connector)
- 1 stacking port (2 IEEE 1394 connectors)
- 1 open slot (for Ethernet connection)
- 1 RS-232 console port (DB-9 connector)

LED Indicators

- Power
- VDSL Link
- Ethernet link/Act
- Ethernet 10Mbps, 100Mbps speeds

VDSL

Standard

ETSI VDSL

Function Support

- Built-in ISDN/POTS splitter
- Sleep mode operation
- Power back-off algorithm

Symmetrical Data Transfer Rates

- 5Mbps @ 1,500 m (5,000 ft) distance from line terminal
- 10Mbps @ 1,200 m (4,000 ft) distance from line terminal
- 15Mbps @ 1,050 m (3,500 ft) distance from line terminal

Switch Functions

Quality of Service (QoS)

- Packet prioritization (per port):
 - Priority bits (IEEE 802.1p standard) in MAC destination & source addresses
 - 4 priority queues
- Bandwidth control (per port)

Multicast

- IGMP Snooping

VLAN

- IEEE 802.1Q Tagged VLAN
- Port-based VLAN
- Number of VLANs: 255 per device

Spanning Tree

- IEEE 802.1D standard

Performance

Switch Fabric

- 8.8 Gbps switch fabric
- 6.6 mpps (million packets per second)

Transmission Method

Store-and-forward

MAC Address Table

8K entries (per device)

RAM Buffer

8MBytes per device

MAC Address Learning

- Dynamic entries: automatic update
- Static entries: user-defined

Address Aging (Max Age)

300 seconds

Packet Filtering/Forwarding Rates (half duplex)

- Ethernet: 14,880 pps per port
- Fast Ethernet: 148,810 pps per port
- Gigabit Ethernet: 1,488,100 pps per port

Configuration & Management

Management Methods & Standards

- SNMP v.1
- Web-based (via web browser)
- RMON monitoring
- Telnet (1 session)

Management Access Security

- Multiple user access right
- Connection timeout
- IP filtering (based on IP address list)
- IEEE 802.1x access authentication

MIBs

- MIB-II (RFC 1213)
- Bridge MIB (RFC 1493)
- RMON MIB (RFC 1757)
- 802.1P/Q VLAN MIB (RFC 2674)
- IGMP MIB (RFC 2833)
- D-Link enterprise MIB

RMON Groups

1, 2, 3, 9 (Alarm, Statistics, History, Event)

IP Number Self-identification

- DHCP client
- Bootp client

Event Reporting

- Log file support

Firmware Upgrade

- TFTP support

Physical & Environmental

Power Input

100 - 240VAC 50/60Hz

Internal universal power supply

Dimensions

441 mm (W) x 387 mm (D) x 44 mm (H)

19-inch standard rack-mount width, 1 U height

Weight

6 kg

Operating Temperature

0° - 40° C

Storage Temperature

-25° - 55° C

Humidity

10% - 95% non-condensing

Emission (EMI) Certification

- FCC Class A
- CE Class A
- BSMI Class A
- C-Tick

Safety Certification

UL/CUL

Optional Modules

DHS-321GL Gigabit Fiber Port Module

- IEEE 802.3z 1000BASE-LX standard
- 1 Gigabit fiber port (SC connector)
- Full duplex support
- IEEE 802.3x Flow Control
- Supported cable: 9/10 micron single-mode fiber (5 km max.)
- LED report: Link/Act

DHS-321FX Fast Ethernet Fiber Port Module

- IEEE 802.3u 100BASE-FX standard
- 1 100Mbps fiber port (SC connector)
- Full duplex support
- IEEE 802.3x Flow Control
- Supported cable: 50, 62.5/125 micron multi-mode fiber (2 km max.)
- LED report: Link/Act

DHS-3212V/DHS-3224V

Technical Specifications

Stackable VDSL Switch

DHS-321FL Fast Ethernet Fiber Port Module

- IEEE 802.3u 100BASE-FL standard
- 1 100Mbps fiber port (SC connector)
- Full duplex support
- IEEE 802.3x Flow Control
- Supported cable: 9/10 micron single-mode fiber (15 km max.)
- LED report: Link/Act

DHS-321TX 10/100Mbps Twisted-pair Port Module

- IEEE 802.3 10BASE-T/802.3u 100BASE-TX standards
- 1 auto-sensing 10/100Mbps port
- Full/half duplex support with ANSI/IEEE 802.3 NWay auto-negotiation
- IEEE 802.3x back pressure in half-duplex
- Auto MDI/MDI-X
- Auto-correction of twisted-pair Rx reverse polarity
- 10BASE-T cables:
 - UTP Cat. 3, 4, 5 (100 m max.)
 - EIA/TIA-568 150-ohm screened twisted-pair (STP) (100 m max.)
- 100BASE-TX cables:
 - UTP Cat. 5 (100 m max.)
 - EIA/TIA-568B 150-ohm screened twisted-pair (STP) (100 m max.)
- LED report:
 - 10/100Mbps speed
 - Link/Act



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Ordering Information

Stackable VDSL Switch

DHS-3212V	12 VDSL ports (1 Telco 50 connector), 1 open slot
DHS-3224V	24 VDSL ports (1 Telco 50 connector), 1 open slot

VDSL POTS Splitter

DHS-24SP	24 port splitters (3 Telco-50 connectors)
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Optional Ethernet Modules

DHS-321GL	1 1000BASE-LX Gigabit fiber port
DHS-321FX	1 100BASE-FX Fast Ethernet fiber port
DHS-321FL	1 100BASE-FL Fast Ethernet fiber port
DHS-321TX	1 10BASE-T/100BASE-TX Fast Ethernet twisted-pair port

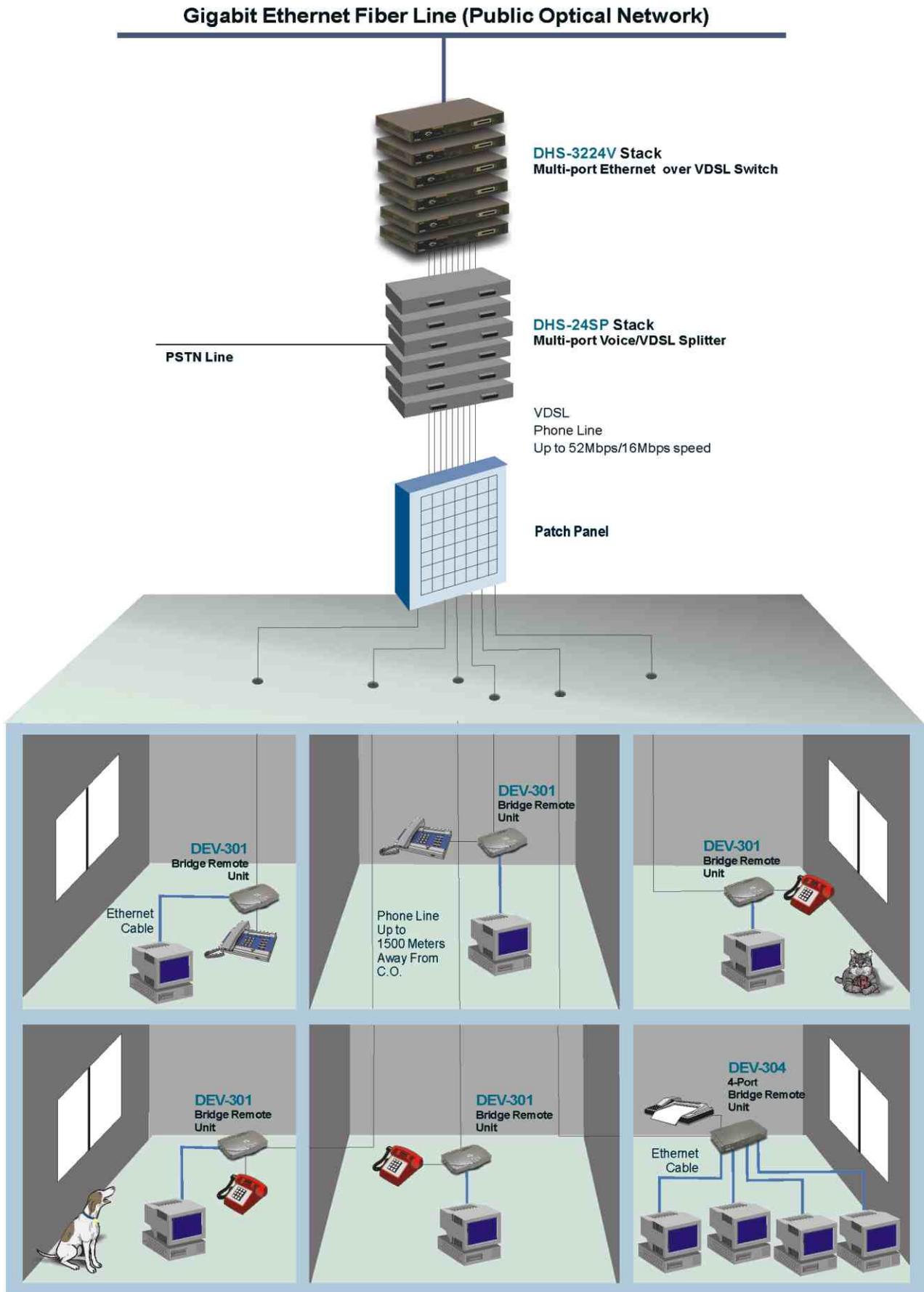
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VDSL Switch Deployment in Multi-Unit, Multi-Tenant Building.