

Cisco Catalyst 2960 Series Switches

Product Overview

Q. What is the Cisco Catalyst 2960PD-8TT-L compact switch?

- A.** The Cisco® Catalyst® 2960PD-8TT-L switch has eight 10/100 Mbps ports and receives power over the Gig uplink port from an upstream power over Ethernet (PoE) switch. The Cisco Catalyst 2960 powered device (PD) switch is ideal for deployments outside the wiring closet such as conference rooms and classrooms with spacing and wiring constraints.

Q. How can the Cisco Catalyst 2960PD-8TT-L compact switch be powered?

- A.** The Cisco Catalyst 2960PD-8TT-L can be powered by another PoE switch, a power adaptor or power injectors that support 802.3af, including AIR-PWRINJ4. The Cisco Catalyst 2960PD-8TT-L switch prioritizes the power adaptor over PoE input when both the power adaptor and the PoE input port are activated. The Cisco Catalyst 2960PD-8TT-L power adaptor and power cord are optional and sold separately

Q. What are the benefits of Power over Ethernet ?

- A.** Power over Ethernet can provide a lower total cost of ownership for deployments that incorporate Cisco IP phones and Cisco Aironet® wireless LAN access points, as well as any IEEE 802.3af compliant end device. Power over Ethernet removes the need for wall power to each PoE-enabled device and eliminates the cost for additional electrical cabling that would otherwise be necessary in IP phone and wireless LAN deployments. PoE switches also eliminate the need for power injectors and PoE mid-spans for powering IP devices.

Q. How many devices can the Cisco Catalyst 2960 Series power?

- A.** The Cisco Catalyst 2960-48PST-L can support 48 PoE ports with total PoE power output capacity at 370W. Taking advantage of Cisco Catalyst Intelligent Power Management, the Cisco Catalyst 2960-48PST-L configuration can deliver the necessary power to support 24 ports at 15.4W, 48 ports at 7.7W, or any combination in between. The Cisco Catalyst 2960-24PC-L can support 24 simultaneous full-powered PoE devices at 15.4W for maximum powered-device support. The Cisco Catalyst 2960-24LT-L can support eight PoE devices at 15.4W.

Q. Can Cisco Catalyst 2960 LAN Base switches support devices that require more than 15.4W?

- A.** No, Cisco Catalyst 2960 LAN Base switches support only up to 15.4W on PoE ports. The Cisco Catalyst 2960-24PC-L can support 24 simultaneous full-powered PoE port at 15.4W for maximum powered-device support. The Cisco Catalyst 2960-24LT-L24 has 24 10/100 ports with 8 simultaneous full-powered PoE ports at 15.4W. For support of higher than 15.4W, Cisco Catalyst 3560-E and 3750-E series switches are recommended.

Q. Does the Cisco Catalyst 2960 Series support standards-based Power over Ethernet?

- A.** Yes. The Cisco Catalyst 2960 Series supports IEEE 802.3af, and it provides investment protection for the installed base of Cisco IP phones and Cisco Aironet wireless LAN access points by also supporting the Cisco pre-standard Power over Ethernet (inline power).

Q. Can the Cisco Catalyst 2960 Series provide power to IEEE 802.3af and Cisco pre-standard Power over Ethernet simultaneously?

A. Yes. It automatically detects the end point to provide the appropriate power without any user intervention.

Q. What are the advantages of Cisco Catalyst 2960 Series Switches with the LAN Base software relative to Cisco Catalyst 2960 Series Switches with the LAN Lite software?

A. Cisco Catalyst 2960 LAN Base switches deliver intelligent services for branch offices and wiring closets. The LAN Base IOS software supports enhanced Layer 2+ security, quality of service (QoS), availability, and scalable management to enable new converged applications. Catalyst 2960 LAN Base switches include both 10/100 Fast Ethernet and 10/100/1000 Gigabit Ethernet connectivity in 8-, 24-, and 48-port configurations.

Cisco Catalyst 2960 LAN Lite switches are for entry-level branch office and wiring closet networks. They simplify the migration from nonintelligent hubs and unmanaged switches to a fully scalable and reliable network. The LAN Lite IOS software supports standard Layer 2 security, QoS, and availability while lowering the network total cost of ownership. Catalyst 2960 LAN Lite switches deliver 10/100 Fast Ethernet connectivity in 24- and 48-port configurations.

All Cisco Catalyst 2960 Series Switches have technical support service options available through Cisco SMARTNet[®] service. All come with a Limited Lifetime Hardware Warranty, and LAN Base and LAN Lite software updates are provided at no additional cost.

Q. What are the advantages of Cisco Catalyst 2960 PoE Series Switches and Cisco Catalyst 3560/3750 PoE Series Switches?

A. The Catalyst 2960 Series PoE switches with intelligent services are ideally suited for small branch offices that can benefit from converged networks. The Catalyst 2960 Series provides enhanced security, scalable management, and unified network services for applications such as unified communications and mobility. The Catalyst 3750 and 3560 with advanced intelligent services are better suited for enterprise and mid-market campus wiring closets as well as large branch offices. The Catalyst 3750 and 3560 Series switches provide investment protection and deliver increased availability and scalability through advanced L3 services, advanced security such as man-in-the-middle attack threat mitigation features, and increased control for applications like Telepresence.

Q. What are Cisco Catalyst 2960 Compact Switches?

A. Cisco Catalyst 2960 Compact Switches are small form-factor switches designed for deployments outside the wiring closet. They have a durable metal shell, no fan for silent operation, easy wall or under-the-desk mounting, a security lock to prevent theft, and an available cable guard to secure the Ethernet cables and switch. Now you can deliver intelligent services such as Network Admission Control for the office workspace, micro branch office, classroom, cruise ship, and other wiring-constrained environments. Table 1 describes the Cisco Catalyst 2960 Compact Switch portfolio.

Table 1. Cisco Catalyst 2960 Compact Switches

Product Name	Part Number	Description
Cisco Catalyst 2960-8TC-S	WS-C2960-8TC-S	8 Ethernet 10/100 ports and 1 dual-purpose uplink (each dual-purpose uplink port has one 10/100/1000 Ethernet port and one Small Form-Factor Pluggable [SFP]-based Gigabit Ethernet port, one port active). 2960 LAN Lite IOS Software support
Cisco Catalyst 2960PD-8TT-L	WS-C2960PD-8TT-L	8 Ethernet 10/100 ports and 1 10/100/1000 PoE Input port (No power supply required) 2960 LAN Base IOS Software support
Cisco Catalyst 2960-8TC-L	WS-C2960-8TC-L	8 Ethernet 10/100 ports and 1 dual-purpose uplink (each dual-purpose uplink port has one 10/100/1000 Ethernet port and one Small Form-Factor Pluggable [SFP]-based Gigabit Ethernet port, one port active) 2960 LAN Base IOS Software support
Cisco Catalyst 2960G-8TC-L	WS-C2960G-8TC-L	7 Ethernet 10/100/1000 ports and 1 dual-purpose uplink (each dual-purpose uplink port has one 10/100/1000 Ethernet port and one SFP-based Gigabit Ethernet port, one port active) 2960 LAN Base IOS Software support

Cisco Catalyst 2960 Compact switches have a magnet included. For rack-mounting, you should purchase the Compact switch rack mount RCKMNT-19-CMPCT=. The cable guard options for Catalyst 2960 Compact Switches are CBLGRD-C2960-8TC= and CBLGRD-C2960G-8TC=.

Q. What are dual-purpose uplinks?

A. A dual-purpose uplink is a combination of one 10/100/1000-TX copper port and one SFP-based Gigabit Ethernet port. One of these two ports can be used at a time. This added uplink flexibility allows cost-effective use of high-density, fiber-uplink-based stacks. Dual-purpose uplinks also offer a full-duplex, gigabit-speed trunk for a Cisco Catalyst 2960 Series Switch stack.

Q. What SFP transceivers are supported on the Cisco Catalyst 2960 Series?

A. Cisco Catalyst 2960 Series Switches support a wide range of SFP transceivers including 1000BASE-SX, 1000BASE-BX, 1000BASE-LX/LH, 1000BASE-ZX, 1000BASE-T, coarse wavelength division multiplexing (CWDM), 100BASE-FX, 100BASE-LX10, and 100BASE-BX. Table 2 lists the SFP transceivers supported.

Table 2. Cisco SFP Transceivers Supported by Cisco Catalyst 2960 Series Switches

SFP Transceiver	Cisco Catalyst 2960 LAN Base Switches	Cisco Catalyst 2960 LAN Lite Switches
GLC-LH-SM=	Yes	Yes
GLC-SX-MM=	Yes	Yes
GLC-ZX-SM=	Yes	No
GLC-T=	Yes*	Yes
GLC-BX-D= GLC-BX-U=	Yes	No
GLC-GE-100FX= GLC-FE-100FX=	Yes*	Yes
GLC-FE-100LX=	Yes	No
GLC-FE-100BX-D= GLC-FE-100BX-U=	Yes	No
CWDM SFPs	Yes	No

*Note: GLC-T and GLC-GE-100FX are not supported on the Cisco Catalyst 2960-8TC-S, 2960-8TC-L and 2960G-8TC-L switches. For 100BASE-FX connectivity, use the GLC-FE-100FX instead for the compact switches.

Q. Do Cisco Catalyst 2960 Series Switches have redundant power supply (RPS) support?

A. Yes. The following Cisco Catalyst 2960 Series Switches have RPS support:

- Catalyst 2960-24TT-L
- Catalyst 2960-24TC-L
- Catalyst 2960-24PC-L
- Catalyst 2960-48PST-L
- Catalyst 2960-24LT-L
- Catalyst 2960-48TT-L
- Catalyst 2960-48TC-L
- Catalyst 2960G-24TC-L
- Catalyst 2960G-48TC-L

A converged voice and data network has the greatest power availability when a Cisco Catalyst 2960 Series Switch is combined with the Cisco RPS 2300 Redundant Power System for protection against internal power supply failures and an uninterruptible power supply (UPS) system to safeguard against power outages. For more information about the Cisco RPS 2300, visit <http://www.cisco.com/en/US/products/hw/routers/ps2883/ps5066/index.html>.

The Cisco Catalyst 2960 Compact Switches and Cisco Catalyst 2960 LAN Lite Switches do not have RPS support.

Q. What are the notable differences between the Cisco Catalyst 2960 LAN Base and LAN Lite switches?

A. Cisco Catalyst 2960 LAN Base switches have several advantages:

- Gigabit Ethernet connectivity in 8-, 24-, and 48-port configurations
- RPS support and support for a wide range of SFP transceivers
- Enhanced security through Layer 2-4 access control lists (ACLs), DHCP Snooping, and more extensive Network Admission Control capabilities such as Web authentication and 802.1x enhancements
- Additional QoS capabilities: The LAN Base IOS supports policing, class and policy maps, differentiated services code point (DSCP), AutoQoS, and configurable queue weights, buffers, and thresholds
- Higher network-level availability with features such as Flex Links and Link State Tracking
- Increased number of VLANs (256) and other enhancements such as IPv6 Host, MLD Snooping, LLDP-MED, RSPAN, MVR, DHCP Option 82, and IP SLA (responder)

Q. What are the similarities between the Cisco Catalyst 2960 LAN Base and LAN Lite switches?

A. Both Cisco Catalyst 2960 LAN Base and LAN Lite Switches support the following capabilities:

- Scalable and highly secure network management: Secure Shell (SSH), Secure Sockets Layer (SSL), Secure Copy Protocol (SCP), and SNMPv3 crypto
- Network management tool support by CiscoWorks, Cisco Network Assistant, and Catalyst Device Manager
- Baseline Network Admission Control and 802.1x MAC Auth Bypass and Protected Port
- Voice VLAN and voice-aware port security, BPDU Guard, and Root Guard

- Standard QoS with Class of Service (CoS) marking, Shaped Round Robin, Weighted Tail Drop, and Strict Priority scheduling
- Link aggregation using Port Aggregation Protocol (PAgP) and 802.3ad LACP
- Complete Spanning Tree Protocol support via 802.1s, 802.1w, and PVST+
- VLAN Trunking Protocol (VTP), Cisco Discovery Protocol v2, and LLDP
- Multicast support in hardware with IGMP Snooping, Filtering, and Querier
- Troubleshooting and monitoring tools such as TDR, SPAN, and UDLD

For a full list of software features supported by the Cisco Catalyst 2960 Series, visit <http://www.cisco.com/go/catalyst2960>.

Q. Can I upgrade or downgrade a Cisco Catalyst 2960 Switch between the LAN Base and LAN Lite IOS images?

A. No. Cisco Catalyst 2960 Series Switches cannot be upgraded from LAN Lite to LAN Base and cannot be downgraded from LAN Base to LAN Lite.

Q. How do I get the cryptography features, and is there an additional charge for them?

A. The features with advanced cryptography (such as SSH, SSL, SCP, and SNMPv3) are packaged in a special “k9” version of the Cisco Catalyst 2960 LAN Base and LAN Lite IOS images. You must go to the Software Download Center on Cisco.com to get the “k9” software versions and upgrade your switches. There is no additional charge for this software version.

Q. Does the Cisco Catalyst 2960 Series support IPv6?

A. Yes. Cisco Catalyst 2960 switches with LAN Base software support IPv6 management and MLD Snooping. The Cisco Catalyst 2960 LAN Lite switches do not support IPv6.

Intelligent Switching

Q. Why do I need intelligence at the edge of my network?

A. Networks have evolved to address four new developments at the network edge:

- Increase in desktop computing power
- Introduction of bandwidth-intensive applications
- Expansion of highly sensitive data on the network
- Presence of multiple device types, such as IP phones and wireless LAN access points

These new demands compete for resources with many existing mission-critical applications. As a result, IT professionals must view the edge of the network as critical to effectively manage the delivery of information and applications. As companies increasingly rely on networks as the strategic business infrastructure, it is important to help ensure their high availability, security, scalability, and control. By adding intelligent functions to the wiring closet, you can deploy networkwide intelligent services that address these requirements in a consistent way from the desktop to the core and through the WAN. Cisco Catalyst Intelligent Ethernet switches can help you realize the full benefits of adding intelligent services to your network. Deploying capabilities that make the network infrastructure highly available to accommodate time-critical needs, scalable to accommodate growth, secure enough to protect confidential information, and capable of differentiating and controlling traffic flows is the basis of further optimizing network operations.

Q. Can you provide more details about how Cisco intelligent switching will help my network?

- A.** New applications are requiring higher bandwidth and the need to differentiate and control the traffic flow. Applications such as enterprise resource planning (ERP; Oracle or SAP, for example), voice (IP telephony traffic), and computer-aided design and manufacturing (CAD/CAM) require priority over less time-sensitive applications such as FTP or Simple Mail Transfer Protocol (SMTP). It is undesirable to have a large file download destined to one port on a switch increasing latency in voice traffic destined to another port on the same switch. This condition is avoided by making sure that voice traffic is properly classified and prioritized throughout the network. Cisco Intelligent Ethernet switches implement superior QoS to help ensure that network traffic is classified and prioritized and congestion is avoided.

Network Security

Q. How do Cisco Intelligent Ethernet switches manage the security needs of a network?

- A.** With the rise in internal threats to a network, Cisco Intelligent Ethernet switches enhance data security through a wide range of features, including SSH Protocol, SNMPv3, ACLs, 802.1x, port security, Private VLAN Edge, Dynamic Host Configuration Protocol (DHCP) Interface Tracker, MAC address notification, and RADIUS/TACACS+. Depending on your security needs, the Cisco Catalyst 2960 Series complements devices such as firewalls, VPNs, and intrusion detection systems (IDSs).

Q. How can I protect unauthorized users from accessing my network?

- A.** The Cisco Catalyst 2960 Series supports the IEEE 802.1x standard, which works in conjunction with a RADIUS server to authenticate users as they access a network. The 802.1x standard is considered port-level security and is commonly used for wireless LANs. Additionally, portions of the network can be restricted by using ACLs. Access can be denied based on MAC addresses, IP addresses, or TCP/UDP ports. ACL lookups are done in hardware and do not compromise forwarding and routing performance. An additional protection method is to use port security, which helps ensure the appropriate user is on the network by limiting access to the port based on MAC addresses.

Q. How can I monitor or track activities in my network?

- A.** IDSs are tailored to monitor and track activities in a network. The Cisco Catalyst 2960 Series can complement this through features such as MAC address notification, which sends an alert to a management station so that network administrators know when and where users came on the network and can take appropriate actions. The DHCP Interface Tracker (Option 82) feature tracks where a user is physically connected on a network by providing both switch and port ID to a DHCP server. DHCP Snooping enables the administrator to keep track of both dynamic and static IP/MAC mapping tables.

Q. How can I protect administration passwords and traffic going to the switch during configuration or troubleshooting?

- A.** To protect administration traffic during the configuration or troubleshooting of a switch (such as passwords or device configuration settings), the best approach is to encrypt the data using both SSH and SNMPv3 to provide encryption of data during Telnet sessions and SNMP sessions.

Network Management

Q. Do Cisco Catalyst 2960 Series Switches support Cisco switch clustering technology?

- A.** Yes. Cisco Catalyst 2960 Series Switches can be managed using Cisco Network Assistant software, which uses Cisco switch clustering technology. Cisco Network Assistant is a PC-

based network management application optimized for LANs of small and medium-sized businesses with up to 250 users. Cisco Network Assistant offers centralized management of Cisco switches, routers, and WLAN access points. It supports a wide range of Cisco Catalyst Intelligent Ethernet switches. Through a user-friendly GUI, users can configure and manage a wide array of switch functions and start the device manager of Cisco routers and Cisco wireless access points. Cisco Network Assistant is available at no cost and can be downloaded from Cisco.com.

Cisco Network Assistant provides an integrated management interface for delivering intelligent services, enabling users to manage their entire LAN with one robust tool. By bringing the simplicity of traditional LAN switching to intelligent services such as multilayer switching, QoS, multicast, and security ACLs, Cisco Network Assistant offers administrators benefits formerly reserved for only the most complex networks. Cisco Network Assistant's Guide mode leads you through the configuration of high-end features and provides enhanced online help for context-sensitive assistance. In addition, a solution wizard provides automated configuration of the switch for video streaming or video conferencing.

Cisco Network Assistant supports standards-based connectivity options such as Ethernet, Fast Ethernet, Cisco Fast EtherChannel® technology, Gigabit Ethernet, and Gigabit EtherChannel connectivity. Because Cisco switch clustering technology is not limited by proprietary stacking modules, stacking cables, or interconnection media, Cisco Network Assistant expands the traditional cluster domain beyond a single wiring closet and lets you combine interconnections to meet specific management, performance, and cost requirements.

Cisco Catalyst 2960 Series Switches can be configured as either command or member switches in a Cisco switch cluster. Cisco Network Assistant also allows you to designate a standby or redundant command switch, which takes the commander duties should the primary command switch fail. Other important features include the ability to configure multiple ports and switches simultaneously, as well as to perform software updates across the entire cluster at once. Bandwidth graphs and link reports provide useful diagnostic information, and the topology map gives network administrators a quick view of the network status.

Positioning

- Q. What are the advantages of Cisco Catalyst 2960 LAN Lite switches relative to Cisco Catalyst 2950 standard image switches?**
- A.** The Cisco Catalyst 2960 LAN Lite switches use a new hardware and software architecture that provides higher reliability and simplifies network deployments and troubleshooting. They increase deployment flexibility with dual-purpose Gigabit uplinks instead of fixed fiber ports, and the LAN Lite IOS provides more consistency with the rest of the Catalyst switching portfolio in its command-line interface. The LAN Lite IOS software provides highly secure management through SSL, SCP, and SNMPv3 and simplifies network deployments and troubleshooting with features such as TDR, IP address DHCP, and Auto-MDIX.

Software Updates

Q. Can I obtain a "no additional cost" Cisco IOS® Software update for the Cisco Catalyst 2960 Series?

- A.** Yes. Cisco offers ongoing Cisco IOS Software updates for certain fixed-configuration and stackable Cisco Catalyst switches at no additional cost. For the life of the product, updates within the Cisco IOS Software package purchased (LAN Lite and LAN Base) will be made available.

Note that upgrades are different from updates. For example, an upgrade from the IP Base package to IP Services package provides significant new function; therefore, this upgrade requires the purchase of a software license upgrade. Updates are incremental software features and bug fixes that are released within a licensed Cisco IOS Software package.

This statement supersedes any previous warranty or software statement and is subject to change without notice.

Q. How do I get a "no additional cost" Cisco IOS Software update for the Cisco Catalyst 2960 Series?

- A.** Visit <http://www.cisco.com>, click "Downloads," and select "Switch Software." Downloading software requires a Cisco.com username and password. If you do not have a Cisco.com username, you can obtain one by clicking "Register" at the top of any Cisco.com Webpage.

Warranty and Service

Q. What is the warranty on the Cisco Catalyst 2960 Series?

- A.** The hardware warranty available on the Cisco Catalyst 2960 Series is the Limited Lifetime Hardware Warranty. This warranty automatically comes with the purchase of eligible Cisco Catalyst products, free of charge. It offers free advanced replacement of products within 10 business days. For more information about the limited lifetime hardware warranty, visit http://www.cisco.com/univercd/cc/td/doc/es_inpk/lh2ben_.htm.

Q. What types of services and support are available for the Cisco Catalyst 2960 Series?

- A.** A full complement of lifecycle services and support is available for the Cisco Catalyst 2960 Series. From implementation to operation and optimization, Cisco offers Technical Support Service delivered either directly or through a Cisco partner.

Technical support service is available through Cisco SMARTnet® and Cisco SMARTnet Onsite support. The Cisco SMARTnet service augments the resources of your operations staff by providing them with access to expertise, both online and on the telephone, and numerous hardware advance replacement options. Cisco SMARTnet Onsite complements the hardware advance replacement feature by adding the services of a field engineer, services that can be critical for locations where internal staff is unable to perform part replacement activities.

Product Information

Q. Where can I find technical and product specifications and other additional information about the Cisco Catalyst 2960 Series?

- A.** For product literature, including data sheets and product specifications, visit <http://www.cisco.com/go/catalyst2960>.



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

CCDE, CCSI, CCENT, Cisco Eos, Cisco HealthPresence, the Cisco logo, Cisco Lumin, Cisco Nexus, Cisco Nurse Connect, Cisco Stackpower, Cisco StadiumVision, Cisco TelePresence, Cisco WebEx, DCE, and Welcome to the Human Network are trademarks; Changing the Way We Work, Live, Play, and Learn and Cisco Store are service marks; and Access Registrar, Aironet, AsyncOS, Bringing the Meeting To You, Catalyst, CCDA, CCDP, CCIE, CCIP, CCNA, CCNP, CCSP, CCVP, Cisco, the Cisco Certified Internetwork Expert logo, Cisco IOS, Cisco Press, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Cisco Unity, Collaboration Without Limitation, EtherFast, EtherSwitch, Event Center, Fast Step, Follow Me Browsing, FormShare, GigaDrive, HomeLink, Internet Quotient, IOS, iPhone, iQuick Study, IronPort, the IronPort logo, LightStream, Linksys, MediaTone, MeetingPlace, MeetingPlace Chime Sound, MGX, Networkers, Networking Academy, Network Registrar, PCNow, PIX, PowerPanels, ProConnect, ScriptShare, SenderBase, SMARTnet, Spectrum Expert, StackWise, The Fastest Way to Increase Your Internet Quotient, TransPath, WebEx, and the WebEx logo are registered trademarks of Cisco Systems, Inc. and/or its affiliates in the United States and certain other countries.

All other trademarks mentioned in this document or website are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0903R)