Cisco Catalyst 2960 Series Switches with LAN Base Software: Enhanced Network Security, Availability, and Manageability for Medium-Sized Businesses

The Cisco® Catalyst® 2960 Series Switches with LAN Base software are a family of fixed-configuration, standalone Ethernet switches that support enhanced switching services, IP communications, and wireless networking for medium-sized businesses. These switches provide the performance, availability, and manageability that modern office environments demand, as well as the intelligence to support state-of-the-art business applications and security services.

The Cisco Catalyst 2960 Series with LAN Base software can provide:

- Fast Ethernet and Gigabit Ethernet connectivity to the desktop to deliver superior application performance
- Power over Ethernet (PoE) to provide 15.4W simultaneously on all PoE ports
- Advanced security capabilities, including identity services and sophisticated access control to protect your critical assets
- Quality-of-service (QoS) intelligence to support delay-sensitive IP voice and video applications and optimize bandwidth in your network
- Redundancy and resiliency features to protect the availability of your critical applications at all times
- Simple, scalable management with the option to use command line interface (CLI) or the GUI-based Cisco Network Assistant with Cisco SmartPorts interfaces
- Scalability to continually accommodate new applications and services as your business evolves
- Limited lifetime warranty and free Cisco IOS® Software updates

Figure 1 shows Cisco Catalyst 2960 Series Switches with LAN Base software.

Figure 1. Cisco Catalyst 2960 Series Switches with LAN Base software

Configurations

Table 1 highlights the various configurations available in Cisco Catalyst 2960 Series Switches with LAN Base software.

Table 1. Configurations Available for Cisco Catalyst 2960 Series Switches with LAN Base Software

Product Name (SKU)	Description
Compact Switches	The Cisco Catalyst 2960 compact switches have a small form factor that makes them ideal for classrooms, conference rooms, and other deployments outside the wiring closet.
Cisco Catalyst 2960PD-8TT-L	8 Ethernet 10/100 ports and one 10/100/1000 PoE input port; compact size with no fan
Cisco Catalyst 2960-8TC-L	8 Ethernet 10/100 ports and 1 dual-purpose uplink port; compact size with no fan
Cisco Catalyst 2960G-8TC-L	7 Ethernet 10/100/1000 ports and 1 dual-purpose uplink port; compact size with no fan
Desktop Switches with Fast Ethernet Connectivity	These 24- or 48-port switches provide an outstanding wiring closet solution for delivering Fast Ethernet connectivity to the desktop. This model is ideal for medium-sized businesses that require support for features such as QoS, virtual LANs, or advanced security features.
Cisco Catalyst 2960-24TT-L	24 Ethernet 10/100 ports and 2 fixed Ethernet 10/100/1000 uplink ports
Cisco Catalyst 2960-48TT-L	48 Ethernet 10/100 ports and 2 fixed Ethernet 10/100/1000 uplink ports
Cisco Catalyst 2960-24TC-L	24 Ethernet 10/100 ports and 2 dual-purpose uplink ports
Cisco Catalyst 2960-48TC-L	48 Ethernet 10/100 ports and 2 dual-purpose uplink ports
Desktop Switches with PoE Connectivity	The 2960-24LT-L model offers an ideal solution for businesses that chiefly require scalable desktop connectivity but also need limited PoE. By integrating 8 PoE-capable ports into a 24-port Fast Ethernet switch, this model can provide desktop connectivity for a small office while supporting several wireless access points, IP phones, or IP-based closed-circuit TV cameras. The 2960-24PC-L and 2960-48PST-L provide fiber uplink connectivity and 24 or 48 ports of 10/100 PoE. This model is ideal for businesses deploying larger wireless environments and IP-based voice and video systems.
Cisco Catalyst 2960-24LT-L	24 Ethernet 10/100 ports (PoE supported on 8 ports) and 2 fixed Ethernet 10/100/1000 uplink ports
Cisco Catalyst 2960-24PC-L	24 Ethernet 10/100 PoE ports and 2 dual-purpose uplink ports
Cisco Catalyst 2960-48PST-L	48 Ethernet 10/100 PoE ports and 2 fixed Ethernet 10/100/1000 uplink and 2 SFP uplink ports
Desktop Switches with Gigabit Connectivity	These models offer 24 or 48 ports of 10/100/1000 connectivity, providing an ideal high-speed backbone for server connectivity or for desktop connectivity in environments that support high-bandwidth applications such as high-definition video and imaging systems.
Cisco Catalyst 2960G-24TC-L	24 Ethernet 10/100/1000 ports, 4 of which are dual-purpose
Cisco Catalyst 2960G-48TC-L	48 Ethernet 10/100/1000 ports, 4 of which are dual-purpose

Features and Benefits

Cisco Catalyst 2960 Series Switches with LAN Base software provide:

- **Exceptional performance**: Today's workers run multiple resource-intensive applications, placing higher demands on networks than ever before. Within the space of just a few minutes, for example, a single worker might join an online multimedia conference, send a 10-MB spreadsheet to meeting participants, broadcast a marketing video for the team to evaluate, and query a sales application for the latest real-time data. The Cisco Catalyst 2960 Series supports speeds of up to 1000 Mbps to the desktop, providing the bandwidth you need to meet rigorous application demands, alleviate bottlenecks, and boost application performance--enhancing the productivity of your employees while increasing the return on your existing infrastructure and application investments.
- **Power over Ethernet**: Cisco Catalyst 2960 Series Switches simplify the deployment of solutions such as wireless LANs, IP telephony systems, and IP video surveillance cameras by delivering simultaneously full 15.4W for up to 24 ports simultaneously. This capability eliminates the need for separate power supplies for Ethernet-powered devices, as well as the costs of running additional cable and circuits. The switches also provide intelligent, integrated PoE management features that give you greater visibility into and control over your power usage and streamline interoperability in multivendor networks.
- **Cisco Energywise Technology**: Cisco EnergyWise is an innovative architecture embedded in the Cisco Catalyst 2960 switches that enables the measurement of power consumption in the network infrastructure and network attached devices. The network discovers Cisco EnergyWise manageable devices, monitors their power consumption, and takes action based on business rules to reduce power consumption. Cisco EnergyWise helps to manage power consumption resulting in company-wide optimized power delivery and reduced energy costs. Together, Cisco EnergyWise technology and Catalyst switches help reduce Greenhouse Gas (GhG) emissions, optimize power consupmtion and increase energy cost savings.
- **Enhanced security**: Modern businesses face both more serious security threats and more demanding regulatory compliance requirements than ever before. The Cisco Catalyst 2960 Series with LAN Base software provides a wide range of security features to protect your business' important information, keep unauthorized users off the network, guard privacy, and protect against network downtime due to security breaches. Key features, including:
  - An enhanced version of the Cisco Identity-Based Networking Services (IBNS) solution, which employs the 802.1x standard to provide advanced authentication, access control, and security policy administration provides users access to designated priviledges Access control lists (ACLs) to restrict sensitive portions of the network and guard against network attacks by keep unauthorized users off the network
  - Port-level security features, to limit access to designated addresses
  - Dynamic Host Configuration Protocol (DHCP) snooping to identify and block spoofing from untrusted sources
  - MAC address notification features to monitor the network and allow administrators to track where and when users enter the network

- Secure encryption of administrative and network management traffic to protect against eavesdropping and tampering and comply with regulatory requirements such as the Payment Card Industry (PCI) standard

- **Improved availability and scalability**: The Cisco Catalyst 2960 Series with LAN Base software provides the redundancy and advanced QoS features you need to help ensure that your employees stay connected and productive at all times. This intelligence allows your network to more easily accommodate new technology deployments and continually deliver optimal performance, even as your business and applications evolve. Important high-availability and scalability features include:
  - Spanning Tree Protocol enhancements that support increased redundancy and improved convergence times in the event of a link outage, as well as efficiently optimizing the extra capacity inherent in a redundant design
  - Advanced QoS intelligence to classify and prioritize traffic, reducing network congestion and bottlenecks
  - Support for the Cisco Redundant Power System (RPS) 2300 solution to provide transparent power backup of redundant switches
  - Voice-aware 802.1x port security, which can block malicious data traffic on a port without affecting voice traffic
- **Advanced QoS intelligence**: The Cisco Catalyst 2960 Series with LAN Base software supports advanced QoS traffic shaping and policing features that give you optimal flexibility in classifying and prioritizing the traffic on your network. For example, you can prioritize traffic from mission-critical applications such as enterprise resource planning (ERP) and voice systems over less delay-sensitive traffic, reducing network congestion and ensuring baseline performance for the most essential applications. The switches also support rate-limiting features that allow you to allocate guaranteed bandwidth to specific applications and users in increments as small as 1 Mbps. Administrators can easily configure these features through tools such as automatic QoS (Auto QoS), which detects Cisco IP phones and automatically configures the switch for the appropriate QoS.
- **Superior manageability**: The Cisco Catalyst 2960 Series with LAN Base software provides several management options. The Express Setup feature and the Cisco Network Assistant management tool provide intuitive, scalable management features to help you easily deploy and operate your network.. Express Setup feature allows you to set up the switch with a web-based brower eliminating need for CLI. Using the Cisco Network Assistant’s PC-based simple graphical interface, wizards, and Cisco SmartPorts tools, you can quickly configure all your Cisco switches, routers, and wireless access points in your network. Cisco Network Assistant includes the Cisco Troubleshooting Advisor, which identifies cabling problems, common configuration errors, and other potential problems in the network and recommends corrective action. For more extensive management, the switches also support configuration and integration with Simple Network Management Protocol (SNMP)-based network management platforms, such as the CiscoWorks LAN Management Solution (LMS).

Product Specifications

Table 2 lists the hardware specifications for the Cisco Catalyst 2960 Series Switches with LAN Base software. Table 3 lists the power specifications for the switches, Table 4 provides the management and standards support, and Table 5 gives information on the switches' safety certifications and compliance.

Table 2. Hardware Specifications for the Cisco Catalyst 2960 Series Switches

Description	Specification
Performance	• 16-Gbps switching fabric (Catalyst 2960PD-8TT-L , Catalyst 2960-8TC-L, Catalyst 2960-24TT-L, Catalyst 2960-24TC-L, Catalyst 2960-24LT-L, Catalyst 2960-24PC-L, Catalyst 2960-48PST-L, Catalyst 2960-48TT-L, Catalyst 2960-48TC-L) • 32-Gbps switching fabric (Catalyst 2960G-8TC-L, Catalyst 2960G-24TC-L, Catalyst 2960G-48TC-L) • Forwarding rate based on 64-byte packets: ◦ Cisco Catalyst 2960PD-8TT-L: 2.7 Mpps ◦ Cisco Catalyst 2960-8TC-L: 2.7 Mpps ◦ Cisco Catalyst 2960-24TT-L: 6.5 Mpps ◦ Cisco Catalyst 2960-24TC-L: 6.5 Mpps ◦ Cisco Catalyst 2960-24LT-L: 6.5 Mpps ◦ Cisco Catalyst 2960-24PC-L : 6.5 Mpps ◦ Cisco Catalyst 2960-48TT-L: 10.1 Mpps ◦ Cisco Catalyst 2960-48TC-L: 10.1 Mpps ◦ Cisco Catalyst 2960-48PST-L: 13.3 Mpps ◦ Cisco Catalyst 2960G-8TC-L: 11.9 Mpps ◦ Cisco Catalyst 2960G-24TC-L: 35.7 Mpps ◦ Cisco Catalyst 2960G-48TC-L: 39.0 Mpps • 64 MB DRAM • 32 MB flash memory • Configurable up to 8000 MAC addresses • Configurable up to 255 Internet Group Management Protocol (IGMP) groups • Configurable maximum transmission unit (MTU) of up to 9000 bytes, with a maximum Ethernet frame size of 9018 bytes (jumbo frames) for bridging on Gigabit Ethernet ports and up to 1998 bytes for bridging of Multiprotocol Label Switching (MPLS) tagged frames on both 10/100 and 10/100/1000 ports
Connectors and cabling	• 10BASE-T ports: RJ-45 connectors, 2-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling • 100BASE-TX ports: RJ-45 connectors, 2-pair Category 5 UTP cabling • 1000BASE-T ports: RJ-45 connectors, 4-pair Category 5 UTP cabling • 1000BASE-T Small Form-Factor Pluggable (SFP)-based ports: RJ-45 connectors, 4-pair Category 5 UTP cabling • 1000BASE-SX, -LX/LH, -ZX, -BX and CWDM SFP-based ports: LC fiber connectors (single/multimode fiber) • 100BASE-LX, -BX, -FX: LC fiber connectors (single/multimode fiber)
Power connectors	• Customers can provide power to a switch by using either the internal power supply or the Cisco RPS 675. The connectors are located at the back of the switch. • Note: The Catalyst 2960-8TC-L and Catalyst 2960G-8TC-L do not have RPS ports. • Internal power supply connector is an autoranging unit. that supports input voltages between 100 and 240VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet. • Cisco RPS connector: ◦ Offers connection for an optional Cisco RPS 2300 (model PWR-RPS2300) that uses AC input and supplies DC output to the switch. Only the Cisco RPS 2300 should be attached to the redundant-power-system receptacle. ◦ Offers a 2300W redundant power system that supports up to 6 external network devices and provides power to 2 failed devices at a time. ◦ Automatically senses when the internal power supply of a connected device fails and provides power to the failed device, preventing loss of network traffic.
Indicators	• Per-port status: Link integrity, disabled, activity, speed, full duplex • System status: System, RPS, link status, link duplex, link speed

Dimensions (H x W x D)	• Cisco Catalyst 2960PD-8TT-L: 1.73 x 10.6 x 6.2 in. (4.4 x 27 x 15.7 cm) • Cisco Catalyst 2960-8TC-L: 1.73 x 10.6 x 6.4 in. (4.4 x 27 x 16.3 cm) • Cisco Catalyst 2960-24TT-L: 1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm) • Cisco Catalyst 2960-48TT-L: 1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm) • Cisco Catalyst 2960-24TC-L: 1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm) • Cisco Catalyst 2960-24LT-L: 1.73 x 17.5 x 13 in. (4.4 x 44.5 x 33.2 cm) • Cisco Catalyst 2960-24PC-L: 1.73 x 17.5 x 13 in. (4.4 x 44.5 x 33.2 cm) • Cisco Catalyst 2960-48PST-L: 1.73 x 17.5 x 13 in. (4.4 x 44.5 x 33.2 cm) • Cisco Catalyst 2960-48TC-L: 1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm) • Cisco Catalyst 2960G-8TC-L: 1.73 x 10.6 x 8.1 in. (4.4 x 27 x 20.5 cm) • Cisco Catalyst 2960G-24TC-L: 1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm) • Cisco Catalyst 2960G-48TC-L: 1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm)
Weight	• Cisco Catalyst 2960PD-8TT-L: 3 lb (1.4 kg) • Cisco Catalyst 2960-8TC-L: 3 lb (1.4 kg) • Cisco Catalyst 2960-24TT-L: 8 lb (3.6 kg) • Cisco Catalyst 2960-48TT-L: 8 lb (3.6 kg) • Cisco Catalyst 2960-24TC-L: 8 lb (3.6 kg) • Cisco Catalyst 2960-24LT-L: 10 lb (4.5 kg) • Cisco Catalyst 2960-24PC-L: 12 lb (5.4 kg) • Cisco Catalyst 2960-48PST-L: 12 lb (5.4 kg) • Cisco Catalyst 2960-48TC-L: 8 lb (3.6 kg) • Cisco Catalyst 2960G-8TC-L: 3 lb (1.4 kg) • Cisco Catalyst 2960G-24TC-L: 10 lb (4.5 kg) • Cisco Catalyst 2960G-48TC-L: 12 lb (5.4 kg)
Environmental ranges	Normal Operating Conditions: • -5ºC to +45ºC, up to 5,000 feet (1500 m) • -5ºC to +40ºC, up to 10,000 feet (3000 m) • -5ºC to +35ºC, up to 13,000 feet (4000 m) Short-Term* Exceptional Operating Conditions: • -5ºC to +55ºC, at sea level • -5ºC to +50ºC, up to 5,000 feet (1500 m) • -5ºC to +45ºC, up to 10,000 feet (3000 m) • -5’C to +40’C, up to 13,000 feet (4000 m) * Not more than the following in a 1-year period: 96 consecutive hours, or 360 hours total, or 15 occurrences. For the Catalyst 2960G-8TC-L, reduce the high range temperature by 5°C
Acoustic noise	• ISO 7779: Bystander position operating to an ambient temperature of 25°C • Cisco Catalyst 2960PD-8TT-L: 0 dBa (no fan) • Cisco Catalyst 2960-8TC-L: 0 dBa (no fan) • Cisco Catalyst 2960-24TT-L: 40 dBa • Cisco Catalyst 2960-48TT-L: 40 dBa • Cisco Catalyst 2960-24TC-L: 40 dBa • Cisco Catalyst 2960-24LT-L : 48 dBa • Cisco Catalyst 2960-24PC-L : 48 dBa • Cisco Catalyst 2960-48PST-L: 48 dBa • Cisco Catalyst 2960-48TC-L: 40 dBa • Cisco Catalyst 2960G-8TC-L: 0 dBa (no fan) • Cisco Catalyst 2960G-24TC-L: 41 dBa • Cisco Catalyst 2960G-48TC-L: 43 dBa
Mean time between failures (MTBF)	• Cisco Catalyst 2960PD-8TT-L: 737,065 hrs • Cisco Catalyst 2960-8TC-L: 615,549 hrs • Cisco Catalyst 2960-24TT-L: 407,707 hrs • Cisco Catalyst 2960-48TT-L: 339,743 hrs • Cisco Catalyst 2960-24TC-L: 402,926 hrs • Cisco Catalyst 2960-24LT-L : 311,781 hrs • Cisco Catalyst 2960-24PC-L : 243,277 hrs • Cisco Catalyst 2960-48TC-L: 336,409 hrs • Cisco Catalyst 2960G-8TC-L: 485,576 hrs • Cisco Catalyst 2960G-24TC-L: 313,828 hrs • Cisco Catalyst 2960G-48TC-L: 221,432 hrs

Table 3. Power Specifications for the Cisco Catalyst 2960 Series Switches with LAN Base Software

Description	Specification
AC input voltage and current	• DC input, 48 VDC, 0.3A (Cisco Catalyst 2960PD-8TT-L) • (For AC input, use PWR-A= sold separately) • 100-240VAC (autoranging), 0.5-0.25A, 50-60 Hz (Cisco Catalyst 2960-8TC-L) • 100-240VAC (autoranging), 0.8-0.4A, 50-60 Hz (Cisco Catalyst 2960G-8TC-L) • 100-240 VAC (autoranging), 3.0-1.5A, 50-60 Hz (Cisco Catalyst 2960-24LT-L) • 100-240 VAC (autoranging) 8.0-4.0A, 50-60 Hz (Cisco Catalyst 2960-24PC-L) • 100-240 VAC (autoranging) 5.0-2.0A, 50-60 Hz (Cisco Catalyst 2960-48PST-L) • 100-240VAC (autoranging), 1.3–0.8A, 50–60 Hz (Cisco Catalyst 2960-24TT-L and Catalyst 2960-24TC-L and Catalyst 2960-48TT-L and Catalyst 2960-48TC-L) • 100-240VAC (autoranging), 3.0–1.5A, 50–60 Hz (Cisco Catalyst 2960G-24TC-L and Catalyst 2960G-48TC-L)
Power rating	• Cisco Catalyst 2960PD-8TT-L: 11W • Cisco Catalyst 2960-8TC-L: 0.035 kVA • Cisco Catalyst 2960-24TT-L: 0.05 kVA • Cisco Catalyst 2960-48TT-L: 0.075 kVA • Cisco Catalyst 2960-24TC-L: 0.05 kVA • Cisco Catalyst 2960-24LT-L: 0.175 kVA • Cisco Catalyst 2960-24PC-L: 0.470 kVA • Cisco Catalyst 2960-48PST-L: 0.5 kVA • Cisco Catalyst 2960-48TC-L: 0.075 kVA • Cisco Catalyst 2960G-8TC-L: 0.05 kVA • Cisco Catalyst 2960G-24TC-L: 0.075 kVA • Cisco Catalyst 2960G-48TC-L: 0.140 kVA
DC input voltages (RPS input)	• (No RPS input for Cisco Catalyst 2960PD-8TT-L , Catalyst 2960-8TC-L, and Catalyst 2960G-8TC-L) • Cisco Catalyst 2960-24TT-L: +12V at 5A • Cisco Catalyst 2960-48TT-L: +12V at 5A • Cisco Catalyst 2960-24TC-L: +12V at 5A • Cisco Catalyst 2960-24LT-L: +12V at 8.3A, -48V at 2.7A • Cisco Catalyst 2960-24PC-L: +12V at 11.25A, -48V at 7.8A • Cisco Catalyst 2960-48PST-L: +12V at 4A, -48V at 7.8A • Cisco Catalyst 2960-48TC-L: +12V at 5A • Cisco Catalyst 2960G-24TC-L: +12V at 10.5A • Cisco Catalyst 2960G-48TC-L: +12V at 10.5A

Table 4. Power Specifications for Cisco Catalyst 2960 LAN Base Switches

Power Consumption							
Description	**WS-C2960-24T-L**	**WS-C2960-8TC-L**	**WS-C2960-24TC-L**	**WS-C2960-48TC-L**	**WS-2960PD-8TT-L**	**WS-C2960-24TT-L**	**WS-C2960-48TT-L**
5% Throughput							
Measured Power Consumption	**21W**	**11W**	**24W**	**36W**	**N/A**	**26W**	**38W**
Measured Output BTU	**71**	**37**	**82**	**122**	**N/A**	**86**	**130**
100% Throughput							
Measured Power Consumption	22W	12W	27W	39W	11W	28W	42W
Measured Output BTU	75	39	90	133	38	93	141
5% Throughput (with 50% PoE loads)							
Measured Power Consumption	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Measured Output BTU	N/A	N/A	N/A	N/A	N/A	N/A	N/A
100% Throughput (with maximum possible PoE loads)							

Measured Power Consumption	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Measured Output BTU	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 5. Power Specifications for Cisco Catalyst 2960 LAN Base Switches

Power Consumption						
Description	**WS-C2960-24PC-L**	**WS-C2960-24LT-L**	**WS-C2960-48PST-L**	**WS-C2960G-8TC-L**	**WS-C2960G-24TC-L**	**WS-C2960G-48TC-L**
5% Throughput						
Measured Power Consumption	43W	34W	63W	20W	65W	114W
Measured Output BTU	144	114	214	68	219	388
100% Throughput						
Measured Power Consumption	45W	36W	67W	22W	72W	123W
Measured Output BTU	151	121	227	75	244	419
5% Throughput (with 50% PoE loads)						
Measured Power Consumption	Switch Power: 237W	Switch Power: 98W	Switch Power: 262W	N/A	N/A	N/A
	PoE Power: 185W	PoE Power: 62W	PoE Power: 187W			
Measured Output BTU	Switch output:: 175	Switch output:: 122	Switch output:: 253	N/A	N/A	N/A
100% Throughput (with maximum possible PoE loads)						
Measured Power Consumption	Switch Power: 433W	Switch Power: 162W	Switch Power: 460W	N/A	N/A	N/A
Measured Output BTU	PoE Power:	PoE Power:	PoE Power: 339W	N/A	N/A	N/A
	357W	119W				
	Switch output:: 171	Switch output:: 66	Switch output:: 208			

Note: All power consumption numbers were measured under controlled laboratory conditions and are provided as an estimate.

The wattage rating on the power supply does not represent actual power draw. It indicates the maximum power draw possible by the power supply. This rating can be used for facility capacity planning. For PoE switches, cooling requirements are smaller than the actual power consumption as a significant portion of PoE loads are dissipated in the end points.

Non PoE Power Consumption

100% Throughput Switch Power consumption

The numbers indicate the power consumed by a typical switch under normal conditions. Normal conditions signify a temperature of 25 Degrees Celsius, atmospheric pressure in the range of 860 to 1060 mbar and relative Humidity between 30 to 75%. Typically such power draws are only seen when encountering a 100% traffic load made up entirely of 64 byte packets on the switch and the uplinks.

5% Throughput Switch Power consumption

The numbers indicate the power consumed by a typical switch under normal conditions. Normal conditions signify a temperature of 25 Degrees Celsius, atmospheric pressure in the range of 860 to 1060 mbar and relative Humidity between 30 to 75%. The numbers below indicate a 5% traffic load on the switch and its uplinks.

PoE Power Consumption

100% Throughput Switch Power consumption (no PoE loads)

The numbers indicate the power consumed by a typical switch under normal conditions. Normal conditions signify a temperature of 25 Degrees Celsius, atmospheric pressure in the range of 860 to 1060 mbar and relative Humidity between 30 to 75%. Typically such power draws are only seen when encountering a 100% traffic load made up entirely of 64 byte packets with no PoE loads on the switch and uplinks.

Measured 5% Throughput Switch Power consumption (no PoE loads)

The numbers indicate the power consumed by a typical switch under normal conditions. Normal conditions signify a temperature of 25 Degrees Celsius, atmospheric pressure in the range of 860 to 1060 mbar and relative Humidity between 30 to 75%. The numbers below indicate a 5% traffic load on the switch and its uplinks.

100% Throughput Switch Power consumption (with maximum PoE loads)

The numbers indicate the power consumed by a typical system (the switch and the corresponding PoE loads) under normal conditions. Normal conditions signify a temperature of 25 Degrees Celsius, atmospheric pressure in the range of 860 to 1060 mbar and relative Humidity between 30 to 75%. Typically this power draw is realized when a switch is running 100% traffic load of 64 byte sized packets on all its ports and uplinks and also drawing 100% PoE load.

5% Throughput Switch Power consumption (with 50% PoE loads)

The numbers indicate the power consumed by a typical system (the switch and the corresponding PoE loads) under normal conditions. Normal conditions signify a temperature of 25 Degrees Celsius, atmospheric pressure in the range of 860 to 1060 mbar and relative Humidity between 30 to 75%. The numbers below indicate a 5% traffic load and 50% PoE load on the switch and its uplinks.

Table 6. Management and Standards Support for the Cisco Catalyst 2960 Series Switches with LAN Base Software

Description	Specification	
Management	• BRIDGE-MIB • CISCO-CABLE-DIAG-MIB • CISCO-CDP-MIB • CISCO-CLUSTER-MIB • CISCO-CONFIG-COPY-MIB • CISCO-CONFIG-MAN-MIB • CISCO-DHCP-SNOOPING-MIB • CISCO-ENTITY-VENDORTYPE-OID-MIB • CISCO-ENVMON-MIB • CISCO-ERR-DISABLE-MIB • CISCO-FLASH-MIB • CISCO-FTP-CLIENT-MIB • CISCO-IGMP-FILTER-MIB • CISCO-IMAGE-MIB • CISCO-IP-STAT-MIB • CISCO-LAG-MIB • CISCO-MAC-NOTIFICATION-MIB • CISCO-MEMORY-POOL-MIB • CISCO-PAGP-MIB • CISCO-PING-MIB • CISCO-POE-EXTENSIONS-MIB • CISCO-PORT-QOS-MIB • CISCO-PORT-SECURITY-MIB • CISCO-PORT-STORM-CONTROL-MIB • CISCO-PRODUCTS-MIB • CISCO-PROCESS-MIB • CISCO-RTTMON-MIB • CISCO-SMI-MIB • CISCO-STP-EXTENSIONS-MIB • CISCO-SYSLOG-MIB	• CISCO-TC-MIB • CICSO-TCP-MIB • CISCO-UDLDP-MIB • CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB • CISCO-VLAN-MEMBERSHIP-MIB • CISCO-VTP-MIB • ENTITY-MIB • ETHERLIKE-MIB • IEEE8021-PAE-MIB • IEEE8023-LAG-MIB • IF-MIB • INET-ADDRESS-MIB • OLD-CISCO-CHASSIS-MIB • OLD-CISCO-FLASH-MIB • OLD-CISCO-INTERFACES-MIB • OLD-CISCO-IP-MIB • OLD-CISCO-SYS-MIB • OLD-CISCO-TCP-MIB • OLD-CISCO-TS-MIB • RFC1213-MIB • RMON-MIB • RMON2-MIB • SNMP-FRAMEWORK-MIB • SNMP-MPD-MIB • SNMP-NOTIFICATION-MIB • SNMP-TARGET-MIB • SNMPv2-MIB • TCP-MIB • UDP-MIB
Standards	• IEEE 802.1D Spanning Tree Protocol • IEEE 802.1p CoS Prioritization • IEEE 802.1Q VLAN • IEEE 802.1s • IEEE 802.1w • IEEE 802.1x • IEEE 802.1AB (LLDP) • IEEE 802.3ad • IEEE 802.3af • IEEE 802.3ah (100BASE-X single/multimode fiber only) • IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports • IEEE 802.3 10BASE-T specification • IEEE 802.3u 100BASE-TX specification • IEEE 802.3ab 1000BASE-T specification • IEEE 802.3z 1000BASE-X specification	• 100BASE-BX (SFP) • 100BASE-FX (SFP) • 100BASE-LX (SFP) • 1000BASE-BX (SFP) • 1000BASE-SX (SFP) • 1000BASE-LX/LH (SFP) • 1000BASE-ZX (SFP) • 1000BASE-CWDM SFP 1470 nm • 1000BASE-CWDM SFP 1490 nm • 1000BASE-CWDM SFP 1510 nm • 1000BASE-CWDM SFP 1530 nm • 1000BASE-CWDM SFP 1550 nm • 1000BASE-CWDM SFP 1570 nm • 1000BASE-CWDM SFP 1590 nm • 1000BASE-CWDM SFP 1610 nm • RMON I and II standards • SNMPv1, SNMPv2c, and SNMPv3

Table 7. Safety Certifications and Compliance for Cisco Catalyst 2960 Series Switches with LAN Base Software

Description	Specification
Safety Certifications	• UL 60950-1, First Edition • CUL to CAN/CSA 22.2 No. 60950-1, First Edition • TUV/GS to EN 60950-1, First Edition • CB to IEC 60950-1 with all country deviations • AS/NZS 60950-1, First Edition • CE Marking • NOM (through partners and distributors)
Electromagnetic Compatibility Certifications	• FCC Part 15 Class A • EN 55022 Class A (CISPR22) • EN 55024 (CISPR24) • AS/NZS CISPR22 Class A • CE • CNS13438 Class A • MIC • GOST • China EMC Certifications
Environmental	Reduction of Hazardous Substances (ROHS) 5
Telco	Common Language Equipment Identifier (CLEI) code
Warranty	Limited lifetime warranty

Ordering Information

Table 6 gives ordering information for the Cisco Catalyst 2960 Series Switches.

Table 8. Ordering Information for the Cisco Catalyst 2960 Series Switches with LAN Base Software

Description	Specification
WS-C2960PD-8TT-L	• 8 Ethernet 10/100 ports and one 10/100/1000 PoE input port • Power adapter (PWR-A=) and power cord sold separately • Compact size with no fan; magnet included • LAN Base image installed
WS-C2960-8TC-L	• 8 Ethernet 10/100 ports and 1 dual-purpose uplink (dual-purpose uplink port has one 10/100/1000 Ethernet port and 1 SFP-based Gigabit Ethernet port, 1 port active) • Compact size with no fan; magnet included • LAN Base image installed
WS-C2960-24TT-L	• 24 Ethernet 10/100 ports and two 10/100/1000TX uplinks • 1 RU fixed-configuration • LAN Base image installed
WS-C2960-48TT-L	• 48 Ethernet 10/100 ports and two 10/100/1000TX uplinks • 1 RU fixed-configuration • LAN Base image installed
WS-C2960-24LT-L	• 24 Ethernet 10/100 ports with 8 PoE ports and two 10/100/1000TX uplinks • 1 RU fixed-configuration • LAN Base image installed
WS-C2960-24PC-L	• 24 Ethernet 10/100 PoE ports and 2 dual-purpose uplinks • 1 RU fixed-configuration • LAN Base image installed
WS-C2960-48PST-L	• 48 Ethernet 10/100 PoE ports and 2 10/100/1000 uplinks and 2 SFP uplinks • 1 RU fixed-configuration • LAN Base image installed

WS-C2960-24TC-L	• 24 Ethernet 10/100 ports and 2 dual-purpose uplinks (each dual-purpose uplink port has one 10/100/1000 Ethernet port and 1 SFP-based Gigabit Ethernet port, 1 port active) • 1 RU fixed-configuration • LAN Base image installed
WS-C2960-48TC-L	• 48 Ethernet 10/100 ports and 2 dual-purpose uplinks (each dual-purpose uplink port has one 10/100/1000 Ethernet port and 1 SFP-based Gigabit Ethernet port, 1 port active) • 1 RU fixed-configuration • LAN Base image installed
WS-C2960G-8TC-L	• 7 Ethernet 10/100/1000 ports and 1 dual-purpose uplink (dual-purpose uplink port has one 10/100/1000 Ethernet port and 1 SFP-based Gigabit Ethernet port, 1 port active) • Compact size with no fan; magnet included • LAN Base image installed
WS-C2960G-24TC-L	• 20 Ethernet 10/100/1000 ports and 4 dual-purpose uplinks (each dual-purpose uplink port has one 10/100/1000 Ethernet port and 1 SFP-based Gigabit Ethernet port, 1 port active) • 1 RU fixed-configuration • LAN Base image installed
WS-C2960G-48TC-L	• 44 Ethernet 10/100/1000 ports and 4 dual-purpose uplinks (each dual-purpose uplink port has one 10/100/1000 Ethernet port and 1 SFP-based Gigabit Ethernet port, 1 port active) • 1 RU fixed-configuration • LAN Base image installed
PWR-RPS2300	Cisco Redundant Power System 2300 and blower, no power supply
BLNK-RPS2300=	Spare bay insert for Cisco Redundant Power System 2300
CAB-RPS2300-E=	Spare RPS2300 cable for Cisco Catalyst 2960-24PC-L and 2960-24LT-L switches
CAB-RPS2300=	Spare RPS2300 cable for Cisco Catalyst 2960 switches except Catalyst 2960-24PC-L and 2960-24LT-L switches
BLWR-RPS2300=	Spare 45CFM blower for Cisco Redundant Power System 2300
C3K-PWR-750WAC=	Cisco Catalyst 3750-E/3560-E/RPS 2300 750WAC power supply spare
PWR-A=	Power adapter for Cisco Catalyst 2960PD-8TT-L compact switch
CBLGRD-C2960-8TC=	Cable guard for Cisco Catalyst 2960-8TC compact switch
CBLGRD-C2960G-8TC=	Cable guard for Cisco Catalyst 2960G-8TC compact switch
RCKMNT-19-CMPCT=	Rack-mount kit for Cisco Catalyst 2960-8TC and Catalyst 2960G-8TC compact switches
RCKMNT-1RU=	Spare rack-mount kit for Cisco Catalyst 2960 Series
RCKMNT-REC-1RU=	1 RU recessed rack-mount kit for Cisco Catalyst 2960 Series
GLC-LH-SM=	1000BASE-LX/LH SFP transceiver module for MMF and SMF, 1300-nm wavelength
GLC-SX-MM=	1000BASE-SX SFP transceiver module for MMF, 850-nm wavelength
GLC-ZX-SM=	1000BASE-ZX SFP transceiver module for SMF, 1550-nm wavelength
GLC-T=	1000BASE-T SFP transceiver module for Category 5 copper wire Not supported on the Cisco Catalyst 2960-8TC and Catalyst 2960G-8TC compact switches
GLC-BX-D=	1000BASE-BX10 SFP transceiver module for single-strand SMF, 1490-nm TX / 1310-nm RX wavelength
GLC-BX-U=	1000BASE-BX10 SFP transceiver module for single-strand SMF, 1310-nm TX / 1490-nm RX wavelength
GLC-GE-100FX=	100BASE-FX SFP module for Gigabit Ethernet ports, 1310-nm wavelength, 2 km over MMF Not supported on the Cisco Catalyst 2960-8TC and Catalyst 2960G-8TC compact switches
GLC-FE-100FX=	100BASE-FX SFP module for 100-Mb ports, 1310-nm wavelength, 2 km over MMF
GLC-FE-100LX=	100BASE-LX10 SFP module for 100-Mb ports, 1310-nm wavelength, 10 km over SMF
GLC-FE-100BX-D=	100BASE-BX10-D SFP module for 100-Mb ports, 1550-nm TX /1310-nm RX wavelength, 10 km over single-strand SMF
GLC-FE-100BX-U=	100BASE-BX10-U SFP module for 100-Mb ports, 1310-nm TX/1550-nm RX wavelength, 10 km over single-strand SMF
CWDM-SFP-1470=	Cisco CWDM SFP 1470 nm; Gigabit Ethernet and 1G/2G FC (gray)
CWDM-SFP-1490=	Cisco CWDM SFP, 1490 nm; Gigabit Ethernet and 1G/2G FC (violet)
CWDM-SFP-1510=	Cisco CWDM SFP, 1510 nm; Gigabit Ethernet and 1G/2G FC (blue)
CWDM-SFP-1530=	Cisco CWDM SFP, 1530 nm; Gigabit Ethernet and 1G/2G FC (green)

CWDM-SFP-1550=	Cisco CWDM SFP, 1550 nm; Gigabit Ethernet and 1G/2G FC (yellow)
CWDM-SFP-1570=	Cisco CWDM SFP, 1570 nm; Gigabit Ethernet and 1G/2G FC (orange)
CWDM-SFP-1590=	Cisco CWDM SFP, 1590 nm; Gigabit Ethernet and 1G/2G FC (red)
CWDM-SFP-1610=	Cisco CWDM SFP, 1610 nm; Gigabit Ethernet and 1G/2G FC (brown)
CAB-SM-LCSC-1M	1m fiber single-mode LC-to-SC connectors
CAB-SM-LCSC-5M	5m fiber single-mode LC-to-SC connectors

Service and Support

To help you realize the most value from your Cisco network investments, Cisco provides award-winning technical support services. With a Cisco technical services contract, you can gain access to Cisco technical experts, as well as industry-leading Cisco tools and resources to help you increase your operational efficiency, control costs, and maintain optimal network performance and reliability.

To support your Cisco Catalyst 2960 Series Switches, you can choose from the following options:

- Cisco SMARTnet® Service: Cisco SMARTnet Service is an award-winning technical support service that provides direct, anytime access to Cisco engineers, as well as extensive technical resources. The service provides rapid issue resolution, flexible device-by-device coverage, and premium service options to help you improve your operational efficiency and get the most from your Cisco investment.
- Cisco Smart Care Service: The Cisco Smart Care Service combines technical support and maintenance for your entire Cisco network with ongoing network monitoring and proactive network assessments. These proactive monitoring and assessment capabilities increase your visibility into the health and security of your network, protect the availability of your critical applications, and reduce the time and effort required to ensure your network is running optimally. Delivered by your local Cisco certified partner, the service combines the complementary strengths of Cisco and its certified partners to provide you with a superior service experience.
- Cisco Smart Foundation Service: Designed specifically for small and medium-sized businesses, the Cisco Smart Foundation Service provides easy, cost-effective network support to improve operational reliability, contain costs, and protect investments in Cisco networking solutions. The technical service offering provides access to Cisco technical engineers who are specially trained to assist small businesses that do not have a dedicated networking staff. The service also includes advance hardware replacement, operating system software maintenance, and access to the Cisco Smart Foundation Service client and Web portal.

A Superior Foundation for Your Business Network

As your employees, your customers, and your overall business profitability increasingly depend on the availability of your network applications, you need a secure, scalable network foundation that can meet continually evolving demands. The Cisco Catalyst 2960 Series Switches with LAN Base software provide the security, availability, and intelligent feature set to support even the most demanding medium-sized businesses, both today and in the future.

For More Information

For more information about the Cisco Catalyst Express 2960 Series Switches with LAN Base software, visit: http://www.cisco.com/go/catalyst2960.

For more information about Cisco products, contact:

- United States and Canada (toll free): 800 553-6387
- Europe: 32 2 778 4242
- Australia: 612 9935 4107
- Other: 408 526-7209
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