



DATA SHEET

CISCO 870 SERIES INTEGRATED SERVICES ROUTERS FOR SMALL OFFICES

The Cisco® 870 Series Integrated Services Routers extend the high-performance Cisco Integrated Services Router capabilities of running secure concurrent services, including firewall, VPNs, and WLANs, at broadband speeds to small offices. Easy deployment and centralized management features enable the Cisco 870 Series to be deployed in small office or teleworker sites as part of an enterprise network, by small to medium business customers for secure WAN and WLAN connectivity, or used by service providers to offer business-class broadband and WLAN services.

PRODUCT OVERVIEW

Cisco 870 Series of integrated services routers are fixed-configuration routers that support multiple types of DSL technologies, broadband cable, and Metro Ethernet connections in small offices (Figures 1 and 2). They provide the performance needed to run concurrent services, including firewall, intrusion prevention, and encryption for VPNs; optional 802.11b/g for WLAN networking; and quality of service (QoS) features for optimizing voice and video applications. In addition, the Cisco Router and Security Device Manager (SDM) Web-based configuration tool simplifies setup and deployment (Figure 3), and centralized management capabilities give network managers visibility and control of the network configurations at the remote site.

Cisco 870 Series integrated services routers offer:

- High performance for broadband access in small offices
- Advanced security, including:
 - Stateful Inspection Firewall
 - IP Security (IPSec) VPNs (Triple Data Encryption Standard [3DES] or Advanced Encryption Standard [AES])
 - Intrusion prevention system (IPS)
 - Antivirus support through Network Admission Control (NAC) and enforcement of secure access policies
- 4-port 10/100 managed switch with VLAN support
- Secure WLAN 802.11b/g option with use of multiple antennas
- Easy setup, deployment, and remote management capabilities through Web-based tools and Cisco IOS® Software

Figure 1. Cisco 871 Integrated Services Router



Table 1 lists the routers that currently make up the Cisco 870 Series.

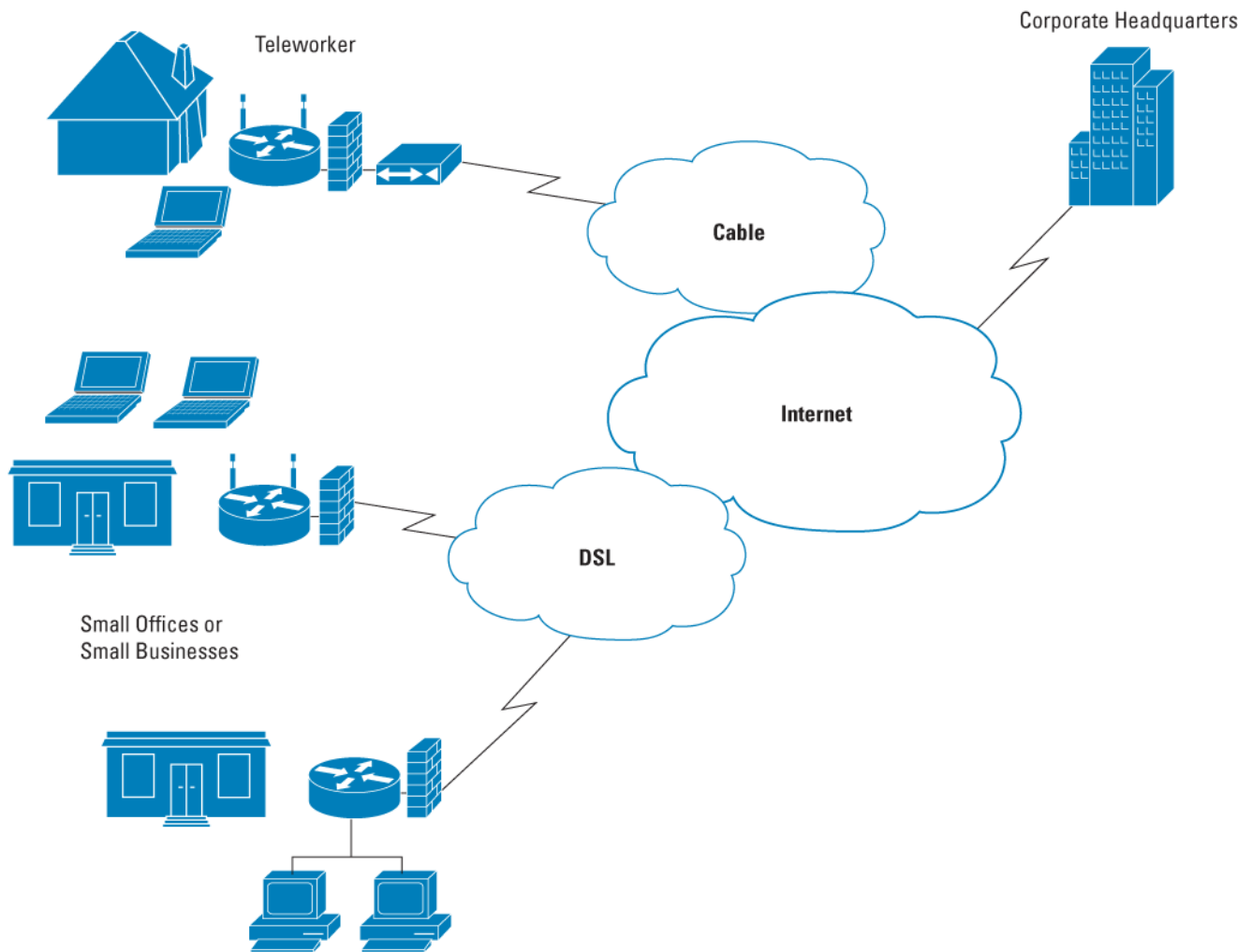
Table 1. Cisco 870 Series Models

Models	WAN Interface	LAN Interfaces	802.11b/g Option	Integrated ISDN Dial Backup
Cisco 871	10/100 Mbps Fast Ethernet	4-port 10/100 Mbps managed switch	Yes (Cisco 871W)	—
Cisco 876	Asymmetric DSL [ADSL] over ISDN	4-port 10/100 Mbps managed switch	Yes (Cisco 876W)	Yes
Cisco 877	ADSL	4-port 10/100 Mbps managed switch	Yes (Cisco 877W)	—
Cisco 878	G.SHDSL	4-port 10/100 Mbps managed switch	Yes (Cisco 878W)	—

The Cisco 870 Series is ideal for small remote offices and teleworkers that need to be connected to larger enterprise networks. When extending corporate networks to numerous remote sites, network resources must remain secure while giving users access to the same applications found in a corporate office. This applies to both data and voice applications, where IP phones can be used to extend a corporate voice extension to the remote office. When users require WLAN access, visibility and control of network security is even more critical at the remote site. The Cisco 870 Series meets this need with a single device that combines integrated 802.11b/g capabilities with security features such as Wi-Fi Protected Access (WPA), including authentication with IEEE 802.1X with Cisco Extensible Authentication Protocol (LEAP) and Protected EAP (PEAP), and encryption with WPA Temporal Key Integrity Protocol (TKIP). (See Wireless Solution overview and Security Data Sheet for more information).

Service providers and value-added resellers can take advantage of the Cisco 870 Series to provide a true business-class broadband service. Business customers are using broadband access to connect to the Internet or to connect offices together, and require a platform that incorporates security without sacrificing performance. Many of these customers are connecting computers in offices through WLANs; having a single device for both WAN and WLAN access provides a new option for managed services. These customers also require a higher level of support to keep their networks up and running. Services with these customers should be simple to set up, while allowing a level of remote management and troubleshooting to more quickly address support inquiries. The Cisco 870 Series meets the requirements of small offices and managed services providers.

Figure 2. Deployment Scenarios



APPLICATIONS

The Cisco 870 Series is ideally suited to be deployed where a small office is going to be connected to a larger network, most often with a secure VPN connection. These types of offices can include the following:

- **Small Remote Office**—Connects users in a small remote office, such as insurance agents, lawyer offices, or sales offices. When connecting to the main office, VPN encryption and integrated security such as firewall, and intrusion prevention protect the network at every perimeter. IT managers can centrally manage the remote site to quickly troubleshoot any network issues. For added reliability, customers can also use dial backup, through an external modem, should the primary broadband link fail. Integrated secure WLAN connectivity simplifies the number of devices that need to be managed at the remote site.
- **Teleworking**—The Cisco 870 Series is ideal for corporate teleworkers who may have a mix of broadband connection types to choose from. A platform such as the Cisco 870 Series gives IT managers a standard platform to manage at the employee's home office. QoS features in the Cisco 870 Series allow an IP phone to be connected to the router, giving voice traffic precedence over data applications. Integrated WLAN support in the Cisco 870 Series helps ensure that if wireless connectivity is to be used, it can be done securely. (See Cisco Business Ready Teleworker Solutions for more information.)

- **Remote Call Center Agent**—Similar to teleworking applications, this solution extends the Cisco IP Contact Center solution for telephone call center agents to remote sites. With a high-quality, secure connection through the Cisco 870 Series, the call center agent can be dispersed away from costly call center facilities while maintaining secure and productive voice and data access in their home. (See Cisco Call Center Solutions for more information.)
- **Retail VPN**—Retail stores migrating from dialup connections for point of sales transactions can use the Cisco 870 Series to take advantage of low-cost broadband access with the required security to effectively use these public networks. Multiple devices and applications can then be added to the store network to take advantage of the increased bandwidth and also incorporate optional WLAN support to enable secure mobility and enhance productivity.
- **Managed Services**—Service providers and value-added resellers can use the Cisco 870 Series as a platform to offer differentiated business class security and WLAN services for small to medium business customers.

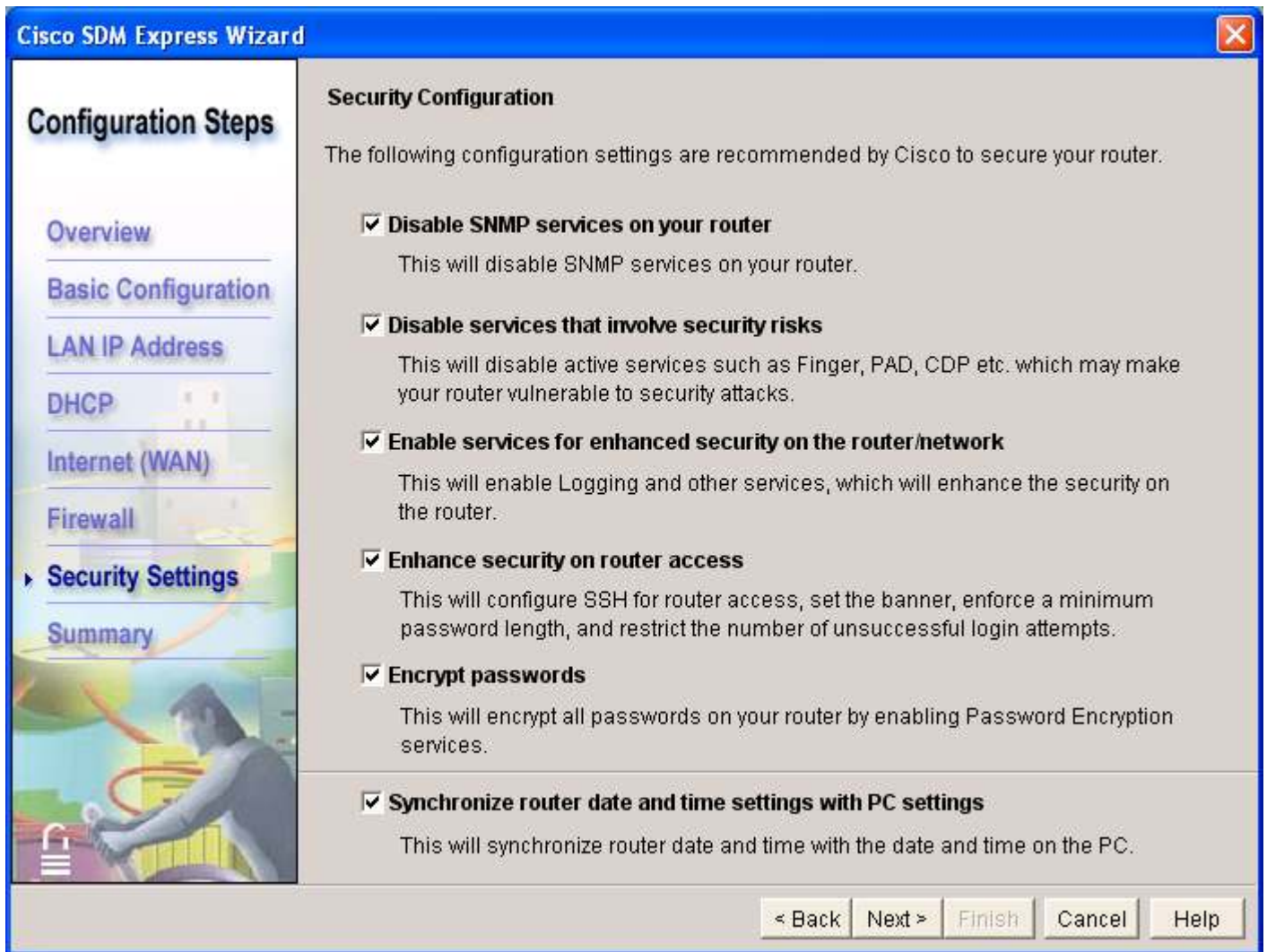
FEATURES AND BENEFITS

Table 2 lists the features and benefits that the Cisco 870 Series provides.

Table 2. Features and Benefits of the Cisco 870 Series

Feature	Benefits
Increased Performance to Run Concurrent Services	<ul style="list-style-type: none"> • The performance in a Cisco 870 Series router allows customers to take advantage of broadband network speeds while running secure, concurrent data, voice, and video services
Advanced Security	<ul style="list-style-type: none"> • Integrated Stateful Inspection Firewall for network perimeter security, high-speed IPSec 3DES and AES encryption for data privacy over the Internet, IPS, and antivirus support through NAC to enforce security policy in a larger enterprise or service provider network
4-port 10/100 Mbps Managed Switch	<ul style="list-style-type: none"> • Allows multiple devices to be connected in a small office, with the ability to designate a port as network DMZ • Optional external PoE adapter for powering IP phones, to avoid individual power supplies or power injectors • VLANs allow for secure segmentation of network resources
Optional 802.11b/g WLANs with Support for Multiple Antennas	<ul style="list-style-type: none"> • Broadband router with secure WLAN in a single device • Diversity antennas for optimizing coverage in a small office • Options for replaceable external antennas, to get wireless coverage in areas away from where the router is located
Cisco SDM and Cisco IOS Software for Remote Management	<ul style="list-style-type: none"> • Using smart wizards and task-based tutorials, Cisco SDM helps resellers and customers quickly and easily deploy, configure, and monitor a Cisco access router without requiring knowledge of the Cisco IOS® Software command-line interface (CLI) • Dial backup and out-of-band management allow IT managers to remotely manage the router at small office and teleworker sites • Cisco Configuration Express Service supports factory-loaded configurations for high-volume deployments • Support for the Cisco CNS 2100 Series Intelligence Engine enables plug-and-play installations with centralized configuration management

Figure 3. Cisco SDM



SUMMARY

Cisco 870 Series integrated service routers combine increased network performance with advanced security to allow small office customers to get the most from their broadband connections. With models supporting different broadband technologies such as DSL, cable, and Metro Ethernet, the Cisco 870 Series can be deployed at any small office location. Optional integrated 802.11b/g wireless capabilities provide true business-class WAN and WLAN access in a single solution. With Cisco 870 Series enterprise IT managers and service providers can take advantage of a solution that can be easily set up at the remote site and then be centrally managed to reduce ongoing operational costs.

PRODUCT SPECIFICATIONS

Tables 3–8 list software and hardware features of Cisco 870 Series routers.

Table 3. Cisco IOS Software Features on Cisco 870 Series Routers---Advanced Security Feature Set (Default)

Feature	Description
Routing Protocols and General Router Features	<ul style="list-style-type: none"> • Routing Information Protocol (RIPv1 and RIPv2) • Layer 2 Tunneling Protocol (L2TP) • Cisco Express Forwarding (CEF) Port Address Translation (PAT) • RFC 1483/2684 • Point-to-Point Protocol over ATM (PPoA) (DSL models only) • PPP over Ethernet (PPPoE) • 802.1d Spanning Tree Protocol (STP) • Dynamic Host Control Protocol (DHCP) server/relay/client • Access control lists (ACLs) • Generic routing encapsulation (GRE)
Number of Users Supported	20
IPv6 Features	<ul style="list-style-type: none"> • IPv6 addressing architecture • IPv6 name resolution • IPv6 statistics • IPv6 translation-transport packets between IPv6-only and IPv4-only endpoints • ICMPv6 • IPv6 DHCP
DSL and ATM Features (DSL Models Only)	<ul style="list-style-type: none"> • ATM Variable Bit Rate/real-time (VBR-rt) • ATM Unspecified Bit Rate (UBR), Constant Bit Rate (CBR), and Variable Bit Rate/non-real-time (VBR-nrt) • ATM Operation, Administration, and Maintenance (OAM) Support for F5 Continuity Check; segment and end-to-end loopback; and Interim Local Management Interface (ILMI) support • 10 virtual circuits
Security Features	<ul style="list-style-type: none"> • Stateful Inspection Firewall • Bridging firewall (Cisco 871 only) • NAT transparency • Firewall support for skinny clients • Hardware-accelerated 3DES for IPsec • Hardware-accelerated AES for IPsec • Cisco Easy VPN Client and Server • IPsec 3DES termination/initiation • IPsec passthrough • Point-to-Point Tunneling Protocol (PPTP) passthrough • L2TP passthrough • 802.1X • Secure HTTP (HTTPS), FTP, and Telnet authentication proxies

Feature	Description
QoS Features	<ul style="list-style-type: none"> • Weighted Fair Queuing (WFQ) • Class-Based WFQ (CBWFQ) • Low-Latency Queuing (LLQ) • Class-Based Traffic Shaping (CBTS) (Cisco 871 only) • Class-Based Traffic Policing (CBTP) (Cisco 876, 877, and 878 only) • Class-Based QoS MIB • Prefragment before encryption • TX ring adjustment • VC bundling • Policy-based routing (PBR) • Per-VC queuing • Per-VC traffic shaping
Management Features	<ul style="list-style-type: none"> • Cisco SDM • Management of LAN switch ports • Cisco Configuration Express • Cisco CNS 2100 Intelligence Engine support • DSL firmware update from Flash • Cisco Service Assurance Agent (SAA) • Telnet, Simple Network Management Protocol (SNMP), CLI, and HTTP management • RADIUS and TACACS+
High-Availability Features	<ul style="list-style-type: none"> • Virtual Router Redundancy Protocol (VRRP) (RFC 2338) • Hot Standby Router Protocol (HSRP) • Out-of-band management with external modem through virtual auxiliary port • Dial backup with external modem through virtual auxiliary port • ISDN S/T port for out-of-band management (Cisco 876 and 878 only)

Table 4. WLAN Features (Available with Wireless Option) of the Cisco 870 Series

Feature	Description
WLAN Hardware	<ul style="list-style-type: none"> • 802.11b/g • Automatic rate selection for 802.11b/g • RP-TNC connectors for field-replaceable external antennas (antenna options for extended coverage) • Antenna diversity • Indoor range: 1 Mbps at 320 ft • WECA interoperability • Default antenna gain: 2.2 dBi • PoE (optional external adapter for Inline power) for IP phones or external wireless access points
WLAN Software Features	<ul style="list-style-type: none"> • Maximize throughput or maximize range option • Software-configurable transmit power

Feature	Description
WLAN Security Features	<ul style="list-style-type: none"> • 802.1X • Cisco LEAP • EAP-TLS • Static and dynamic Wired Equivalent Privacy (WEP) • TKIP/SSN (Temporal Key Integrity Protocol/Simple Security Network) encryption • MAC authentication/filter • User database for survivable local authentication using LEAP • Configurable limit to the number of wireless clients • Configurable RADIUS accounting for wireless clients • PSK (Pre Shared Keys) • Wi-Fi Protected Access (WPA) • 802.11i (software-upgradeable in future software release)

CISCO IOS SOFTWARE ADVANCED IP SERVICES FEATURE SET (OPTIONAL SOFTWARE UPGRADE)

The Advanced IP Services software image has all the features of the Advanced Security software image, with the addition of the following features. The Advanced IP Services software image requires an additional 4MB of Flash memory. Cisco 870 series routers that are ordered with the Advanced IP Services image will ship with the extra 4MB of Flash by default at no additional cost.

Table 5. Cisco Advanced IP Services Software Image for the Cisco 870 Series

Feature	Description
Routing Protocols	<ul style="list-style-type: none"> • Open Shortest Path First (OSPF) • Border Gateway Protocol (BGP) • Enhanced Interior Gateway Routing Protocol (EIGRP)
General Router Features	<ul style="list-style-type: none"> • 3 802.1q VLANs for wired and wireless LANs • Web Content Caching Protocol (WCCP) • Demilitarized Zone (DMZ)
Security Features	<ul style="list-style-type: none"> • Intrusion detection system/intrusion prevention system (IDS/IPS) • Dynamic Multipoint VPN (DMVPN) (multipoint GRE and Next Hop Resolution Protocol [NHRP]) • Lock and Key • URL filtering: Websense and N2H2 • Digital certificates (PKI)
QoS Features	<ul style="list-style-type: none"> • Priority and custom queuing • Class-Based Weighted Random Early Detection (CBWRED) • Network-Based Application Recognition (NBAR) • Link Fragmentation and Interleaving (LFI) • Resource Reservation Protocol (RSVP) • RTP Header compression [Real Time Protocol] • Differentiated Services (DiffServ) • QoS Preclassify & Pre-fragmentation • Class-Based Marking (CBM)

Feature	Description
Multicast Features	<ul style="list-style-type: none"> • Protocol Independent Multicast (PIM) Sparse Mode • PIM Sparse-Dense Mode • Auto route processing (Auto-RP)
High-Availability Features	<ul style="list-style-type: none"> • Multigroup HSRP (MHSRP)

The Advanced Enterprise software image has all the features of Advanced IP Services and Advanced Security software images, with the addition of the below features.


Table 6. Advanced Enterprise Cisco IOS Software Feature Set (Optional Software Upgrade on Cisco 876 Only)

Feature	Description
High-Availability Features	Integrated dial backup for ADSL using ISDN S/T port

Table 7. Hardware Specifications

Feature	Specification
Default DRAM	128 MB
Maximum DRAM	256 MB
Default Flash Memory	24 MB
Maximum Flash Memory	52 MB
WAN	<ul style="list-style-type: none"> • 871: 100 MB Ethernet • 876: ADSL over ISDN (ADSL2/ADSL2+ hardware ready) • 877: ADSL over analog telephone lines (ADSL2/ADSL2+ hardware ready) • 878: G.SHDSL (2- and 4-wire support) • 3 Mbps IMIX aggregate performance
LAN Switch	Managed 4-port 10/100BASE-T with autosensing MDI/MDX [Media Device In/Media Device Cross Over] for autocrossover
802.11b/g WLANs	Optional on all models
Console Port	RJ-45
USB 2.0 Ports For Advanced Security Features Such as security tokens	<ul style="list-style-type: none"> • 2 USB 2.0 ports on Cisco 871 only • USB 2.0 ports cannot be used for connecting external devices other than those specified for the Cisco 871
ISDN Basic Rate Interface (BRI) S/T	Only available on: <ul style="list-style-type: none"> • Cisco 876 for out-of-band management and dial backup • Cisco 878 for out-of-band management
LEDs	PPP, VPN, ADSL, G.SHDSL, WLAN, LAN
External Power Supply	Universal 100 to 240 VAC
Inline PoE	Optional external adapter for inline PoE for IP phones or external wireless access points

Feature	Specification
DSL Specifications	<p>ST-Micro DynaMiTe (formerly Alcatel Micro Electronics) ADSL Chipset (20190)</p> <ul style="list-style-type: none"> • T1.413 ANSI ADSL DMT issue 2 • G.992.1 ITU G.DMT support • G.992.3 ITU G.hs ADSL type negotiation • G.992.3 (ADSL 2)/G.992.5 (ADSL2+) hardware ready (support through future software release upgrade) • DSL Forum TR-067 <p>The chipset does not provide interoperability with carrierless amplitude modulation/phase modulation (CAP)-based ADSL lines.</p>
WIRELESS SPECIFICATIONS	
Data Rates Supported	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Receive Sensitivity	<p>802.11b</p> <ul style="list-style-type: none"> -94dBm @ 1 Mbps -93dBm @ 2 Mbps -92dBm @ 5.5 Mbps -90dBm @ 11 Mbps <p>802.11g</p> <ul style="list-style-type: none"> -92dBm @ 6 Mbps -90dBm @ 9 Mbps -89dBm @ 12 Mbps -87dBm @ 18 Mbps -85dBm @ 24 Mbps -81dBm @ 36 Mbps -76dBm @ 48 Mbps -73dBm @ 54 Mbps
Maximum Transmit Power	<p>Note: Maximum power setting subject to changes by channel & by region depending on regulations</p> <p>802.11b Average: 80mW (19dBm), Peak: (FCC) 245mW (23.9dBm)</p> <p>802.11g Average: 50mW (17dBm)</p>
Immunity	<ul style="list-style-type: none"> • IEC 61000-4-2:1995 Immunity to Electrostatic Discharges • IEC 61000-4-3:1995 Immunity to Radio Frequency Electromagnetic Fields • IEC 61000-4-4:1995 Immunity to Electrical Fast Transients • IEC 61000-4-5:1995vImmunity to Power Line Transients (Surges) • IEC 61000-4-6:1996 Immunity to Radio Frequency Induced Conducted Disturbances • IEC 6100-4-8: 1003 Immunity to Power-Frequency Magnetic Fields (N/A for most of Cisco equipment) • IEC 61000-4-11:1995 Immunity to Voltage Dips, Voltage Variations, and Short Voltage Interruptions

Feature	Specification
Physical Dimensions and Weight	<p>Product dimensions:</p> <ul style="list-style-type: none"> • H x W x D = 2.00 x 10.25 x 8.50 in. (50.8 mm x 260.4 mm x 215.9 mm) (nonwireless models) • H x W x D = 2.00 x 10.25 x 9.13 in. (50.8 mm x 260.4 mm x 231.9 mm) (wireless models with antenna connectors, excludes antennae) • Weight: 2.10 lb (0.954 kg) maximum <p>Optional external PoE adapter dimensions:</p> <ul style="list-style-type: none"> • H x W x D = 1.13 x 4.00 x 10.25 in. (28.9 x 101.6 x 260.4 mm) (cables included) • H x W x D = 1.13 x 4.00 x 4.25 in. (28.9 x 101.6 x 108 mm) (cables not included) • Weight = 0.32 lb (0.143 kg)
Power	<p>Product power specifications:</p> <ul style="list-style-type: none"> • AC input voltage: 100 to 240 VAC • Frequency: 50 to 60 Hz • Maximum output power: 26W • Output voltages: 5 and 12V <p>Optional external Inline PoE adapter specifications:</p> <ul style="list-style-type: none"> • AC Input Voltage: 100 to 240 VAC • Frequency: 50 to 60 Hz • Maximum output power: 80W • Output voltage: 48 VDC
Approvals and Compliance	<ul style="list-style-type: none"> • UL 1950/ CSA 950-95, Third Edition • IEC 950:Second Edition with Amendments 1, 2, 3, and 4 • EN60950: 1992 with Amendments 1, 2, 3, and 4 • CS-03, Canadian Telecom Requirements • FCC Part 68 U.S. Telecom Requirements • AS/NZS 3260:1996 with Amendments 1, 2, 3, and 4 • ETSI 300-047 • TS 001 with Amendment 1 • EMI • AS/NRZ 3548:1992 Class B • CFR 47 Part 15 Class B • EN60555-2 Class B • EN55022 Class B • VCCI Class II • ICES-003, Issue 2, Class B, April 1997S • IEC 1000-3-2
Certification	

Feature	Specification
Environmental Operating Range	<ul style="list-style-type: none"> • Nonoperating temperature: –4 to 149°F (–20 to 65°C) • Nonoperating humidity: 5 to 95 percent relative humidity (noncondensing) • Nonoperating altitude: 0 to 15,000 ft (0 to 4570m) • Operating temperature: 32 to 104°F (0 to 40°C) • Operating humidity: 10 to 85%, relative humidity (noncondensing) • Operating altitude: 0 to 10,000 ft (0 to 3000m)

ORDERING INFORMATION

Table 8 lists ordering information for the Cisco 870 Series. To place an order, visit the [Cisco Ordering Home Page](#).

Table 8. Ordering Information

Part Number	Product
CISCO871-K9	Cisco 871 Ethernet to Ethernet Router
CISCO871W-G-A-K9	Cisco 871 Ethernet to Ethernet Wireless Router; U.S./Americas
CISCO871W-G-E-K9	Cisco 871 Ethernet to Ethernet Wireless Router; Europe
CISCO871W-G-J-K9	Cisco 871 Ethernet to Ethernet Wireless Router; Japan
CISCO876-K9	Cisco 876 ADSL over ISDN Router
CISCO876W-G-E-K9	Cisco 876 ADSL over ISDN Wireless Router
CISCO877-K9	Cisco 877 ADSL Router
CISCO877W-G-A-K9	Cisco 877 ADSL Wireless Router: U.S./Americas
CISCO877W-G-E-K9	Cisco 877 ADSL Wireless Router; Europe
CISCO878-K9	Cisco 878 G.SHDSL Router
CISCO878W-G-A-K9	Cisco 878 G.SHDSL Wireless Router; U.S./Americas
CISCO878W-G-E-K9	Cisco 878 G.SHDSL Wireless Router; Europe

Note: For Cisco 870 Series wireless router part numbers, the following letters are associated with specifications meeting wireless regulations in the following regions: A=Americas (FCC regulatory domain), E = Europe, J = Japan

TO DOWNLOAD SOFTWARE

To download Cisco IOS Software, visit the [Cisco Software Center](#).

To download the latest Cisco SDM software, visit: <http://www.cisco.com/go/sdm>

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FOR MORE INFORMATION

For more information about Cisco 870 series secure broadband and wireless routers, contact your local account representative or visit:

<http://www.cisco.com/go/870>



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