

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
- Enhanced 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.

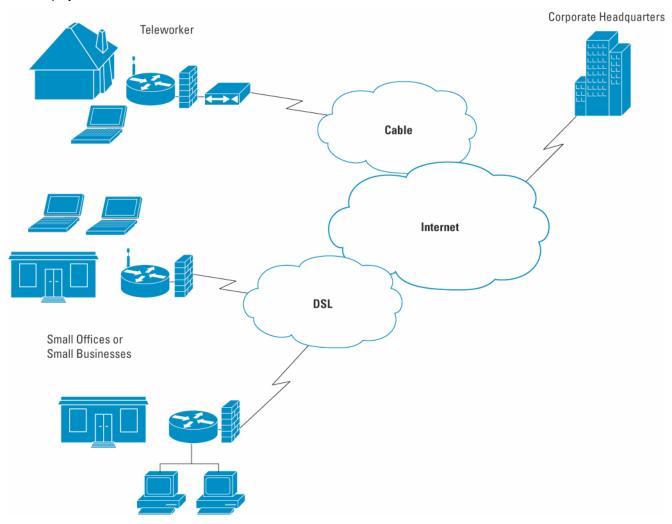
Table 1. Cisco 870 Series Models

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 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 Enterprise Teleworker Architecture 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.

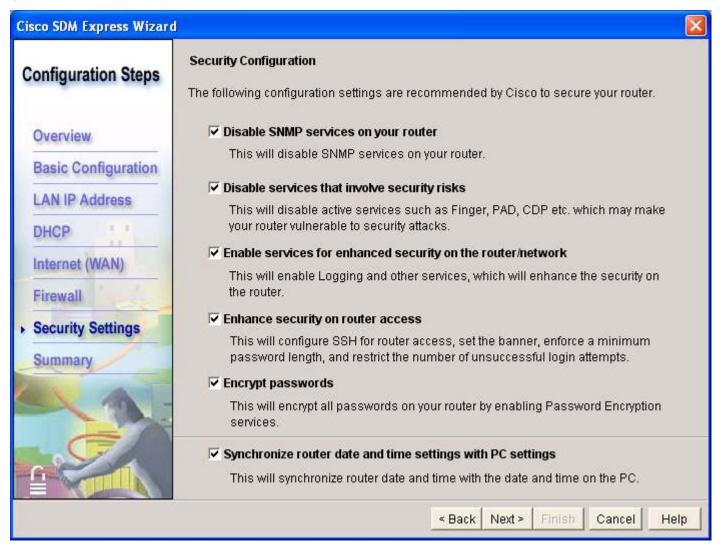
Table 2. Features and Benefits of the Cisco 870 Series

Feature	Benefits
Increased Performance to Run Concurrent Services	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
Enhanced Security*	 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	 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	 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

Feature	Benefits
Cisco SDM and Cisco IOS Software for Remote Management	 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

^{*} Depending on IOS Feature Set selected below in Tables 3, 5, and 6.

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)

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Feature	Description
Routing Protocols and General Router Features	Routing Information Protocol (RIPv1 and RIPv2)
Contra Notice Foliation	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)
	Dynamic DNS Support for Cisco IOS
Recommended Number of Users	20
IPv6 Features (Supported	IPv6 addressing architecture
with Advanced IP services feature set)	IPv6 name resolution
,	IPv6 statistics
	IPv6 translation-transport packets between IPv6-only and IPv4-only endpoints
	• ICMPv6
	IPv6 DHCP
DSL and ATM Features	ATM Variable Bit Rate/real-time (VBR-rt)
(DSL Models Only)	ATM Unspecified Bit Rate (UBR), Constant Bit Rate (CBR), and Variable Bit Rate/non-real-time (VBR-nrt)
	Trivi diapositida bit reate (obre), denotarit bit reate (obre), and variable bit reate/non real time (vbre int)
	ATM Operation, Administration, and Maintenance (OAM) Support for F5 Continuity Check; segment and end-to-

Feature	Description
Security Features	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
	• 10 VPN Tunnels
	Advanced Application Inspection and Control
	E-mail Inspection Engine
	No Service Password Recovery
	HTTP Inspection Engine
	System Logging–EAL4 Certification Enhancements
	Easy VPN Remote Web Based Activation
QoS Features	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	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)

Feature	Description
	Telnet, Simple Network Management Protocol (SNMP), CLI, and HTTP management
	RADIUS and TACACS+
High-Availability Features	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. Cisco IOS Software Features on Cisco 870 Series Routers—WLAN Features (Available with Wireless Option)

Feature	Description
WLAN Hardware	• 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	Maximize throughput or maximize range option
	Software-configurable transmit power
WLAN Security Features	• 802.1X
	802.11i (software-upgradeable in future software release)
	Wi-Fi Protected Access (WPA)
	Cisco LEAP
	• PEAP
	• EAP-TLS
	Static and dynamic Wired Equivalent Privacy (WEP)
	Temporal Key Integrity Protocol (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) (WPA-SOHO)
SSIDs	10
Wireless VLANs	10

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 IOS Software Features on Cisco 870 Series Routers—Advanced IP Services Feature Set (Optional Software Upgrade)

Feature	Description
Routing Protocols	Open Shortest Path First (OSPF)
	Border Gateway Protocol (BGP)
	Enhanced Interior Gateway Routing Protocol (EIGRP)
General Router Features	4 802.1q VLANs on Advanced IP Services IOS image
	Web Content Caching Protocol (WCCP)
	Demilitarized Zone (DMZ)
	ARP-Auto Logoff
Security Features	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)
	Network Admissions Control (NAC)
QoS Features	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)
Multicast Features	Protocol Independent Multicast (PIM) Sparse Mode
	PIM Sparse-Dense Mode
	Auto route processing (Auto-RP)
High-Availability Features	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. Cisco IOS Software Features on Cisco 870 Series Routers—Advanced Enterprise Services 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 (28 MB for Advanced IP Services Feature Set)
Maximum Flash Memory	52 MB
WAN	• 871: 100 MB Ethernet
	876: ADSL over ISDN (ADSL2/ADSL2+)
	877: ADSL over analog telephone lines (ADSL2/ADSL2+)
	878: G.SHDSL (2- and 4-wire support)
	3 Mbps IMIX aggregate performance for Cisco 878
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	2 USB 2.0 ports on Cisco 871 only
Advanced Security Features Such as security tokens	USB 2.0 ports cannot be used for connecting external devices other than those specified for the Cisco 871
ISDN Basic Rate Interface	Only available on:
(BRI) S/T	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
DSL Specifications	ST-Micro DynaMiTe (formerly Alcatel Micro Electronics) ADSL Chipset (20190)
	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+)
	DSL Forum TR-067
	The chipset does not provide interoperability with carrierless amplitude modulation/phase modulation (CAP)-based ADSL lines.

Feature	Specification
Wireless Specifications	
Data Rates Supported	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Receive Sensitivity	802.11b
	-94dBm @ 1 Mbps
	-93dBm @ 2 Mbps
	-92dBm @ 5.5 Mbps
	-90dBm @ 11 Mbps
	802.11g
	-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	Note: Maximum power setting subject to changes by channel & by region depending on regulations
	• 802.11b Average: 80mW (19dBm), Peak: (FCC) 245mW (23.9dBm)
	802.11g Average: 50mW (17dBm)
Immunity	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
Physical Dimensions	Product dimensions:
and Weight	• H x W x D = 2.00 x 10.25 x 8.50 in. (50.8 mm x 260.4 mm x 215.9.9 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
	Optional external PoE adapter dimensions:
	• 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)

Feature	Specification
Power	Product power specifications:
	AC input voltage: 100 to 240 VAC
	Frequency: 50 to 60 Hz
	Maximum output power: 26W
	Output voltages: 5 and 12V
	Optional external Inline PoE adapter specifications:
	AC Input Voltage: 100 to 240 VAC
	Frequency: 50 to 60 Hz
	Maximum output power: 80W
	Output voltage: 48 VDC
Approvals and Compliance	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
Certifications	WiFi
Environmental	Nonoperating temperature: -4 to 149°F (-20 to 65°C)
Operating Range	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)
	-F

DSLAM INTEROPERABILITY

Table 8 lists the Cisco supported DSLAMs (Digital Subscriber Line Access Multiplexer) for the Cisco 870.

Table 8. DSLAM Interoperability

DSLAM	Siemens XpressLink 2.1	Siemens XpressLink 2.1		ECI Hi-Focus		
Chipset	ADSL ISDN	ADSL	ISDN	SHDSL 2	SHDSL 4w	ADSL POTS
	Texas Instruments	ADI	ADI Anaconda	Infineon	Infineon	Analog Devices
876	X	X	X			
877						X
878				X	Х	

DSLAM	Siemens XpressLink 2.0	Alcatel	7300	Lucent \$	Stinger	Cisco 6260
Chipset	ADSL ISDN	ADSL ISDN	ADSL POTS	ADSL ISDN	ADSL POTS	ADSL ISDN
	Texas Instruments	Globespan	Alcatel/ST	Globespan	Globespan	Globespan
876	X	X		X		X
877			X		X	
878						

ADSL2+ SUPPORT

Table 9 lists the ADSL2+ (Asymmetric Digital Subscriber Line 2+) support provided through Cisco IOS Software Release 12.4(4)T.

Table 9. ADSL2+ Support

DSLAM	Linecard	Linecard Chipset	DSLAM Firmware
Alcatel 7300	ADSL2+ POTS	BRCM	L7D6AA47.020
Lucent Stinger	ADSL2+ POTS	GSPN	9.7.1e64
Alcatel 7300	ADSL2+ ISDN	BRCM	L7D6AA47.020

ORDERING INFORMATION

Table 10 lists ordering information for the Cisco 870 Series. To place an order, visit the Cisco Ordering Home Page.

Table 10. 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

Part Number	Product
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
800-ILPM-4	4 port 802.3af capable Inline power module for 870 routers

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

SERVICE AND SUPPORT

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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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