

Cisco Model DPQ3925 8x4 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter

The Cisco[®] Model DPQ3925 8x4 DOCSIS 3.0 Wireless Residential Gateway with embedded digital voice adapter (DPQ3925) is a high-performance home gateway that combines a cable modem, two-line digital voice adapter, router, and wireless access point in a single device providing a cost-effective voice and networking solution for both the home and small office. The DPQ3925 provides a faster connection to the Internet by incorporating eight bonded downstream channels along with four bonded upstream channels. These bonded channels can deliver downstream data rates in excess of 340 Mbps and upstream data rates in excess of 120 Mbps. That's up to eight times faster downloads than conventional single-channel DOCSIS[®] 2.0 cable modems.

The DPQ3925 is designed to meet PacketCable[™] 1.5 and DOCSIS 3.0 specifications, as well as offering backward compatibility for operation in PacketCable 1.0 and DOCSIS 2.0, 1.1, and 1.0 networks.

Figure 1. Cisco Model DPQ3925 8x4 DOCSIS 3.0 Wireless Residential Gateway (image may vary from actual product and specification)



Designed for the active digital home or office, the DPQ3925 integrated router features a Dynamic Host Configuration Protocol (DHCP) server, Network Address and Port Translation (NAT/NAPT), and a Stateful Packet Inspection (SPI) firewall. These features allow the user to share a single high-speed public Internet connection as well as share files and folders between devices within the home network by attaching multiple wired and wireless devices in the user's home or office to the wireless residential gateway.

Consumer-friendly features like Wireless Protected Setup (WPS) and user-configured Parental Control can protect the home network from unwelcome intruders and family members from access to undesirable websites.

Features

DOCSIS

- Eight (8) bonded downstream channels with data rates in excess of 340 Mbps
- Four (4) bonded upstream channels with data rates in excess of 120 Mbps
- Designed to meet DOCSIS 3.0 specifications as well as backward compatibility with existing DOCSIS 2.0, 1.1 and 1.0 networks
- Enhanced packet processing technology to maximize performance

Connections

- Four 1000/100/10BASE-T auto-sensing/auto-MDIX Ethernet ports
- High-performance broadband Internet connectivity to energize your online experience
- 802.11n, Single Band 2.4 GHz 2x2 Wireless Access Point (WAP) with four Service Set Identifiers (SSIDs) or optional Dual-Band non-concurrent radio.
- WPS, including a push-button switch to activate WPS for simplified and secure wireless setup
- Two RJ-11 telephony ports for connecting to in-home wiring or directly to conventional telephones or fax machines

Design and Function

- Attractive compact design and versatile orientation to stand vertically, lie flat on the desktop or shelf, or mount easily on a wall
- Dual color LED status indicators on the front-panel provide an informative and easy-tounderstand display that indicates the cable modem operational status
- Rugged electronic components for long-term reliability
- · Color-coded connectors and cables for easy installation and setup

Management

- Software upgradeable by network download
- · Remote manageability using DOCSIS config file, SNMP, and/or XML

Security

- User-configurable Parental Control blocks access to undesirable Internet sites
- Advanced firewall technology deters hackers and protects the home network from unauthorized access

Software and Documentation

• CD-ROM containing user guide

Figure 2. Cisco Model DPQ3925 Front Panel (image may vary from actual product and specification)



Table 1. Front Panel Features

Feature	Description
Indicators	POWER, DS, US, ONLINE, ETHERNET 1-4, USB, WIRELESS LINK, WIRELESS SETUP, TEL1, TEL2, BATTERY
Color	Black, black lens, silver text, green/amber LEDs
Branding	Cisco logo and model number



Figure 3. Cisco Model DPQ3925 Back Panel (image may vary from actual product and specification)

Table 2. Back Panel Features

Feature	Description	
MAC ADDRESS LABEL	Displays the MAC address of the cable modem	
TELEPHONE 1 and 2 Color: Gray	RJ-11 telephone ports connect to home telephone wiring and to conventional telephones or fax machines	
USB Color: Blue	USB 2.0 Type 1 port (factory-option)	
ETHERNET (1 – 4) Connector Color: Yellow	Four RJ-45 Ethernet ports connect to the Ethernet port on your PC or your home network	
CABLE Connector Color: White	F-connector connects to an active cable signal from your service provider	
RESET	Resets the cable modem	
WIRELESS SETUP	Activates WPS, which allows you to add wireless devices to the wireless network of the residential gateway	
RATING LABEL	Includes model number, serial number, and MAC addresses	
POWER Connector Color: Black	Connects the wireless home gateway to the AC power source	
ANTENNA (internal)	(2) internal antennas provide a communication connection for the built-in 802.11n wireless	

Product Specifications

Table 3. Product Specification

Specification	Value
Voice	
Call Signaling Protocol	MGCP/NCS including configurable IPsec encryption
	 Configurable to support RFC 2833 event signaling
	 Supports Bell103 detection: Improves alarm panel and Point of Sale (POS) interoperability by optimizing DSP for Bell103 protocol
	 Software upgradeable to support Session Initiation Protocol (SIP)
	 The following SIP standards are supported
	$_{\odot}$ RFC 2617 HTTP Authentication: Basic and Digest Access Authentication
	 RFC 2833 RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals
	 RFC 2976 The SIP INFO Method
	 RFC 3261 SIP: Session Initiation Protocol
	 RFC 3262 Reliability of Provisional Responses in Session Initiation Protoco
	 RFC 3263 Session Initiation Protocol: Offer / Answer Model with the Session Description Protocol (SDP)
	 RFC 3264 Session Initiation Protocol (SIP): Locating SIP Servers
	 RFC 3265 Session Initiation Protocol (SIP) - Specific Event Notification
	 RFC 3420 Internet Media Type message/sipfrag
	 RFC 3428 Session Initiation Protocol (SIP) for Instant Messaging
	 RFC 3489 STUN - Simple Traversal of User Datagram Protocol (UDP) Through Network Address Translators (NATs)
	 RFC 3515 The Session Initiation Protocol (SIP) Refer Method
	 RFC 3842 A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)
	 RFC 3892 The Session Initiation Protocol (SIP) Referred-By Mechanism
	 RFC 3903 Session Initiation Protocol Extension for Event State Publication
	 Draft-ietf-mmusic-sdescription-09 Session Description Protocol Security Descriptions for Media Streams
	 Draft-ietf-mmusic-sdp-new-24 SDP: Session Description Protocol Replacement for RFC 2327
	 Draft-ietf-sip-replaces-02 The Session Initiation Protocol (SIP) "Replaces" Header
	 Draft-ietf-sip-session-timer-08 The SIP Session Timer
	 Draft-ietf-sipping-cc-transfer-01 Session Initiation Protocol Call Control – Transfer
	 Draft-ietf-sipping-realtimefax-01 SIP Support for Real-time Fax: Call Flow Examples and Best Current Practices
	 Draft-johnston-sipping-rtcp-summary-07 SIP Service Quality Reporting Event
	 Draft-rosenberg-sipping-acr-code-00 Rejecting Anonymous Requests in the Session Initiation Protocol (SIP)
Basic Configuration	SIP Signaling Port (local receive and source port)
(per line)	SIP Registrar
	SIP Proxy
	SIP Outbound Proxy
	• Username
	Password Authentication name
Provisioning Modes	Basic, Secure, Hybrid provisioning
-	Full PacketCable secure provisioning
	 Kerberos support with NVRAM ticket caching
	 Configurable PacketCable-lite (MTA config file provisioning without security)
	 Configurable for non-PacketCable (MTA configuration using DOCSIS config file)

Specification	Value			
Voice (continued)				
Voice CODEC support	Negotiate CODEC to use based on ordered list			
CODECs	 Standard: G.711, T.38 Fax Relay, iLBC and BV16 Software upgradeable to support other CODEC combinations including: G.711 and G.728 G.711 and G.729 G.711 and C.729 a/e G.711 and BV16 and BV32 (High fidelity – near CD quality) G.711 and G.723 G.711 and G.726 			
Line Diagnostics	GR-909			
CODEC Packetization Levels	10, 20, or 30 mS			
CODEC Synchronization	CODEC synchronization to UGS time clock allows slip-free end-to-end sync to PSTN clock (minimizes frame slips that can cause Fax/Analog Modem call failures)			
CODEC Encryption	Configurable to support AES-128 encryption or no encryption modes			
Hearing Impaired Services Support	TDD support including detection of V.18 including Annex A			
Fax and Analog Modem support	DSP based Modem/Fax Tone detection and support for Voice Band Data Mode with auto-CODEC negotiation and auto-control of echo canceller, jitter buffer, and voice activated detection (VAD)			
Jitter Buffer Support	Adaptive dynamically controlled			
Latency Control	Configurable min / max jitter buffer size			
Audio Gain Levels	Independently configurable transmit and receive audio gains			
Silence Suppression	Configurable VAD with comfort noise generation			
Packet Loss Concealment	ANSI T1.521-1999			
Call Connection Quality Monitoring	RTCP, RFC 1889, RFC 1890, SNMP MIB for last-call quality statistics			
Dialing Modes	DTMF and configurable pulse dial support			
DTMF Relay	RFC 2833 including fast (40mS) DTMF Relay for alarm system signaling compatibility			
Layer 2 Quality of Service	 Full PacketCable secure DQOS with GateID including UGS and UGS/AD DQoS-lite support including UGS and UGS/AD 			
Layer 3 Quality of Service	Configurable DiffServe/TOS support for Signaling, RTP, and RTCP flows			
Payload Header Suppression (PHS)	 Supported for RTP and RTCP packet flows to reduce per-call network bandwidth Advanced support for Dynamic Payload Header Suppression using Propane Technology 			
Management	SNMPv3, SNMPv2, SNMPv1, Telnet/SSH with configurable user ID and password, internal log, and external Syslog support			
Echo Cancellation	 G.168 with extended echo tail support 32 mS max tail length 			
VAD	Voice activity detection			
CNG	Comfort noise generation			
Voice band data	Machine tone detection used to auto switch to data optimized CODEC configuration			
T.38 Fax	Supports V.29 and V.17 Modem			

Specification	Value
Voice (continued)	
Call Feature Support	 Caller ID Call Waiting with Caller ID Cancel Call Waiting Call Conferencing (3-way calls) Configurable Hook-Flash Support Distinctive Ringing (Configurable for up to 11 ring patterns per phone line) Ring Splash Stutter Dial Tone Off hook Warning Tone Open Switch Interval support to enhance answering machine compatibility Configurable Star Codes Euro/US Hook-Flash Type Call Transfer Message Waiting Indicator Warm Line Call Forwarding on Busy Call Forwarding No Answer Call Return Redial Call Automatic Redial Other call features available with compliant CMS or gateway
Networking (non-call) Services	 Known Good Proxy Proxy Failover Registration Control UDP, TCP TLS DNS DQoS-lite STUN Static NAT NAT Keep Alive
SIP Header Control	 User-Agent Header Control Server Header Control Accept Language Header Control Proxy Require Header Control FQDN in URI Control To-tag Matching Control Escape Star Character in URI Field
Administrative Features	 Call Data Record Call Statistics Agent Debug Console Logging Debug Logger
Telephone Ring Loading	Full 5 REN support on each phone line (10 REN total)
Ring Signal	Configurable balanced ring with configurable DC offset
Max Phone Line Distance	Supports up to 1000 ft of AWG26 wire (0.4 mm) on each phone line. Supports operation with typical in-home telephone wiring
Country-Specific Telephone Parameters Supported	Australia, United States, Japan, United Kingdom, Germany, France, Belgium, Netherlands, Finland, Italy, Switzerland, Sweden, Denmark, Brazil, Poland, Czech, Hungary, Romania, ETSI 101 909-18
IPV6	Dual IPV4/IPV6 CM and EMTA

Specification	Value			
Residential Gateway				
Gateway Configuration Management	 TR-069 and subset of TR-098 data model (optional) Extensive custom SNMP MIB for the Gateway Provisioning with XML and/or with SNMP HNAP server 1.2+ 			
ICSA (Independent Computer Security Association) Firewall Compliant	 Web filtering: Pop-ups, Cookies, Java & ActiveX scripts Intrusion detection/prevention: WAN ping blocking, IP fragment blocking, Port scan detection, TCP Port Probe, UDP Port Probe DoS Protection: inbound, outbound, WAN interface, LAN interface, SYN flood, Ping of Death, Smurf, Bonk, Jolt, Land, Nestea, Newtear, Syndrop, Teardrop, WinNuke/OOBNuke (Invalid TCP urgent pointer), x1234, Saihyousen, Oshare, ARP flood, TCP Hijacking, Christmas Tree, SYN/FIN (jackal), BackOffice (UDP 32337), NetBus, ICMP Flooding, IP Address, Port Number, MAC address filtering TCP flags, ICMP types fragmentation Connection Creation and Teardown Timestamps and Payload Modification 			
Parental Controls	 Per-User Policies Keyword blocking Domain name blocking Time of day filters MAC Address Filtering 			
Advanced Event Logging	 Filtering Activity Session Tracking User Notification via E-mail Alert and SNMP Traps 			
Routing Features	 NAPT, NAT, and Pass-through (layer 2) Operational Modes RFC3489 (STUN) "Port-restricted cone NAT" behavior RIP v1/v2, with MD5 Static Routes Port Forwarding Port Triggering UPnP IGD 1.0 IPSec Pass-through L2TP Pass-through PPTP Pass-through ALG support: mIRC, PIRCH, MS NetMeeting, Net2phone, AOL and MSN Messenger, Yahoo Messenger, Go2Call, Hotline Server, Visual IRC, CuSeeme, AT&T Instant, Messenger Anywhere, Active Worlds, Buddy Phone Calista IP Phone, Delta Three PC to Phone, Dial Pad, Dwyco Video Conferencing, OrbitRC, Xircon, Netscape Chat, FTP, H.323, ICQ 			
Wireless Access Point	6 or 8 MHz			
802.11 b/g/n	 2x2 2.4 GHz or optional 2x2 2.4 GHz/5 GHz Dual-Band, non-concurrent, wireless access point (2) Internal Antennas Wi-Fi Compliant Security (WPA2-Enterprise, WPA2-PSK, WPA-Enterprise, WPA-PSK, WEP) WMM-QoS (Wireless Multi Media - Quality of Service) WMM Power Save WPS 			
	 Wireless Bridging - WDS (Wireless Distribution System) – allows connection to "Range Extender Products" RADIUS Authentication (Client, EAP-TLS, EAP-TTLS, EAP-PEAP, EAP-MD5) MBSSID (4 SSIDs with unique NAT scopes) Wi-Fi "Hot Spot" support (Static DHCP IP Scope over tunnel) 			

Specification	Value					
RF Upstream						
Operating Frequency Range	5 to 42 MHz					
Fransmitter Frequency Range	5 to 42 MHz					
Jpstream Transmission	4 upstream channels					
Modulation	QPSK, 8 QAM, 16 QAM, 32 QAM, 64 QAM / ATDMA, 128 QAM / SCDMA					
Maximum Data Rate per channel	Modulation	Channel <u>Bandwidth (MHz)</u>	Raw <u>Data Rate (I</u>	Raw <u>Data Rate (Mbps)</u>		
	QPSK	1.6	2.56			
	16 QAM	1.6	5.12			
	QPSK	3.2	5.12			
	16 QAM	3.2	10.2			
	32 QAM	3.2	12.8			
	64 QAM	3.2	15.4			
	16 QAM	6.4	20.5			
	32 QAM	6.4	25.6			
	64 QAM	6.4	30.7			
ndwidth	200 kHz to 6.4 MHz					
aximum Operating Level	Modulation	One Channel	2 Channels	3 or 4 Channels		
TDMA	QPSK	+61 dBmV	+58 dBmV	+55 dBmV		
	8 QAM	+58 dBmV	+55 dBmV	+52 dBmV		
	16 QAM	+58 dBmV	+55 dBmV	+52 dBmV		
	32 QAM	+57 dBmV	+54 dBmV	+51 dBmV		
	64 QAM	+57 dBmV	+54 dBmV	+51 dBmV		
SCDMA	QPSK	+56 dBmV	+53 dBmV	+53 dBmV		
	8 QAM	+56 dBmV	+53 dBmV	+53 dBmV		
	16 QAM	+56 dBmV	+53 dBmV	+53 dBmV		
	32 QAM	+56 dBmV	+53 dBmV	+53 dBmV		
	64 QAM	+56 dBmV	+53 dBmV	+53 dBmV		
	128 QAM	+56 dBmV	+53 dBmV	+53 dBmV		
ectrical						
put Voltage	15 VDC					
ower Consumption	~18 Watts Online					
ata Ports	1000/100/10BASE- USB 2.0: USB Type	T (Auto-negotiate with	n Auto-MDIX): RJ	I-45 Ethernet (4)		
elephony Ports	RJ-11 (2)	\`/				
F	Female F-Type					
	75 ohms					
Dutput Impedance	7.5 011115					

Specification	Value	
Mechanical		
Dimensions (W x D x H)	F-Type connector included:	
	7 in. x 6.25 in. x 2.75 in. (18 cm x 16 cm x 7 cm)	
	F-Type connector not included:	
	7 in. x 5.9 in. x 2.75 in. (18 cm x 15 cm x 7 cm)	
Weight	1 lb. 4.5 oz. (0.582 kg)	
Operating Temperature	32° to 104°F (-0° to 40°C)	
Operating Humidity	0 to 95% RH non-condensing	
Storage Temperature	-4° to 158°F (-20° to 70°C)	
Standards and Approvals		
Designed to meet with the	DOCSIS 3.0, 2.0, 1.1, 1.0, PacketCable 1.5, 1.0	
following standards	IEEE 802.11n	
	WEP, WPA, and WPA2	
	WMM, WPS	
Regulatory Compliance		
Regulatory and Safety Approvals	As required per country where the DPQ3925 will be used	

Ordering Information

Table 4.Ordering Information

Description	Part Number
DPQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4034784
• 802.11n 2x2 2.4 GHz	
100-240 VAC/50-60 Hz internal power supply	
Power cable, North America (polarized)	
No Li-Ion battery provided	
Ethernet cable	
CD-ROM containing user guide	
North America	
DPQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4034785
802.11n Wireless Access Point, single band, 2x2 2.4 GHz	
100-240 VAC/50-60 Hz internal power supply	
Power cable, North America (polarized)	
One (1) 2600 mAh Lithium-Ion battery	
Ethernet cable	
CD-ROM containing user guide	
North America	
DPQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4036669
• 802.11n Wireless Access Point, dual band, 2x2 2.4/5 GHz, non-concurrent	
100-240 VAC/50-60 Hz internal power supply	
Power cable, North America (polarized)	
No Li-Ion battery provided	
Ethernet cable	
CD-ROM containing user guide	
North America	
DPQ3925 DOCSIS 3.0 Embedded Digital Voice Adapter. Includes:	4039762
No 802.11n Wireless Access Point	
100-240 VAC/50-60 Hz internal power supply	
Power cable, North America (polarized)	
No Li-lon battery provided	
Ethernet cable	
CD-ROM containing user guide	
North America (Customer-specific configuration)	

Description	Part Number
DPQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4038586
802.11n Wireless Access Point, single band, 2x2 2.4 GHz	
100-240 VAC/50-60 Hz internal power supply	
Power cable, Europe (non-polarized)	
One (1) 2200 mAh Lithium-Ion battery provided	
Ethernet cable	
CD-ROM containing user guide	
Chile	
DPQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4038046
802.11n Wireless Access Point, single band, 2x2 2.4 GHz	4030040
 100-240 VAC/50-60 Hz internal power supply 	
,	
Power cable, Europe (non-polarized)	
One (1) 2200 mAh Lithium-Ion battery	
Ethernet cable	
CD-ROM containing user guide	
Chile	
PQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4038045
802.11n Wireless Access Point, single band, 2x2 2.4 GHz	
100-240 VAC/50-60 Hz internal power supply	
Power cable, Europe (non-polarized)	
One (1) 2600 mAh Lithium-Ion battery	
Ethernet cable	
CD-ROM containing user guide	
Chile	
PQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4036670
 802.11n Wireless Access Point, dual band, 2x2 2.4/5 GHz, non-concurrent 	
100-240 VAC/50-60 Hz internal power supply	
Power cable, North America (polarized)	
One (1) 2600 mAh Lithium-Ion battery provided	
Ethernet cable	
CD-ROM containing user guide	
North America	
DPQ3925 DOCSIS 3.0 Embedded Digital Voice Adapter. Includes:	4038585
No 802.11n Wireless Access Point	
100-240 VAC/50-60 Hz internal power supply	
Power cable, North America (polarized)	
One (1) 2600 mAh Lithium-Ion battery	
Ethernet cable	
CD-ROM containing user guide	
• CD-ROM containing user guide <i>lorth America</i> (Customer-specific configuration)	
	4035127
PQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4033127
 802.11n Wireless Access Point, dual band, 2x2 2.4/5 GHz, non-concurrent 100.240 VAC/50 50 Hz, 15 VDC / 1.5 A well mount awitching regulated power supply. Australia 	
100-240 VAC/50-60 Hz, 15 VDC / 1.5 A wall-mount switching-regulated power supply, Australia	
No Li-lon battery provided	
Ethernet cable	
CD-ROM containing user guide	
Australia (Customer-specific configuration)	
PQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4039638
 802.11n Wireless Access Point, single band, 2x2 2.4 GHz 	
100-240 VAC/50-60 Hz internal power supply	
Power cable, North America (polarized)	
No Li-Ion battery	
Ethernet cable	
CD-ROM containing user guide	

Description	Part Number
DPQ3925 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4039639
 802.11n Wireless Access Point, single band, 2x2 2.4 GHz 	
100-240 VAC/50-60 Hz internal power supply	
Power cable, North America (polarized)	
One (1) 2600 mAh Lithium-Ion battery	
Ethernet cable	
CD-ROM containing user guide	
North America	

Replacement Components

Table 5. Replacement Components

Description	Part Number
Power Supply	
100-240 VAC/50-60 Hz, 15 VDC / 1.5 A Wall-mount switching-regulated power supply, Australia	4034526
Power Cord	
Power cord, 2 conductors, NEMA 1-15P to C7P, 6 foot, North America (polarized)	186750
Power cord, 2 conductors, CEE7/16 to C7, 6 foot, Europe (non-polarized)	503414
Data Cable	
Ethernet, 1.2 meters	740580
Ethernet, 2.0 meters	4018790
Battery	
2200 mAh Li-Ion, battery, 3 cells	4008300
2600 mAh, Li-Ion battery, 3 cells	4033435
CD-ROM	
CD-ROM with user guide	4034509

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