

# Cisco Model DPC3925 8x4 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter

The Cisco® Model DPC3925 8x4 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter (DPC3925) is a high-performance home gateway that combines a cable modem, two-line digital voice adapter, router and 802.11n wireless access point in a single device providing a cost-effective voice and networking solution for both the home and small office. The DPC3925 provides a faster connection to the Internet by incorporating eight bonded downstream channels along with four bonded upstream channels. These bonded channels 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 DPC3925 supports 10 REN total, 5 REN loading on each phone line.

The DPC3925 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 DPC3925 8x4 DOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter (image may vary from actual product and specification)



Designed for the active digital home or office, the DPC3925 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**

Compliant with DOCSIS 3.0, 2.0, 1.1, and 1.0 standards along with PacketCable 1.5, 1.0 specifications to deliver high-end performance and reliability

### Connections

- 1000/100/10BASE-T Ethernet ports to provide wired connectivity
- · High performance broadband Internet connectivity to energize your online experience
- 2.4 GHz or 2.4/5 GHz nonconcurrent 802.11n Wireless Access Point (WAP) with four Service Set Identifiers (SSIDs)
- WPS, including a push-button switch to activate WPS for simplified and secure wireless setup
- Two-line or single-line RJ-11 telephony ports for connecting to in-home wiring or directly to conventional telephones or fax machines

### **Design and Function**

- · Quick Links for making home network changes
- Dual color LEDs provide a user-friendly method to check real-time operational status
- Attractive, compact design and versatile orientation to stand vertically, lie flat on the desktop or shelf, or mount easily on a wall
- TR-068 compliant color-coded interface ports and corresponding cables simplify installation and setup

### Management

- User-configurable Parental Control blocks access to undesirable Internet sites
- Advanced firewall technology deters hackers and protects the home network from unauthorized access
- · Allows automatic software upgrades by your service provider

### **Software and Documentation**

· CD-ROM containing user guide

Figure 2. Cisco Model DPC3925 Front Panel (image may vary from actual product and specification)



Table 1. Front Panel Features

Feature	Description		
Indicators	ower, DS, US, Online, Ethernet, USB, Wireless Link, Wireless Setup, TEL1, TEL2		
Color	Black housing, black lens, silver text		
Branding	Cisco logo and model number		

Figure 3. Cisco Model DPC3925 Back Panel (image may vary from actual product and specification)



Table 2. Back Panel Features

Feature	Description	
POWER Connector Color: Black	Connects the wireless home gateway to the DC output of the AC power adapter	
POWER SWITCH	Turns power on and off to the device (power switch provided on all products carrying the CE mark)	
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	Type A USB 2.0 host port (USB port is a factory-installed option that may not be included in all versions of the product.)	
ETHERNET (1 – 4) Connector Color: Yellow	Four RJ-45 Ethernet ports connect to the Ethernet port on your PC or home network	
CABLE Connector Color: White	F-connector connects to an active cable signal from the 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	
ANTENNA (internal)	(2) internal antennas provide a communication connection for the built-in 802.11n wireless	

# **Product Specifications**

 Table 3.
 Product Specifications

Specification	Value
Voice	
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 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 Protocol 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 3428 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 3815 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-ieff-mmusic-sdescription-09 Session Description Protocol Security Descriptions for Media Streams Draft-ieff-mmusic-sdescription-09 Session Description Protocol Replacement for RFC 2327 Draft-ieff-sip-replaces-02 The Session Initiation Protocol (SIP) "Replaces" Header Draft-ieff-sip-ipping-realtimefax-01 SIP Support for Real-time Fax: Call Flow Examples and Best Current Practices
	<ul> <li>Draft-johnston-sipping-rtcp-summary-07 SIP Service Quality Reporting Event</li> <li>Draft-rosenberg-sipping-acr-code-00 Rejecting Anonymous Requests in the Session Initiation Protocol (SIP)</li> </ul>
Basic Configuration (per line)	<ul> <li>SIP Signaling Port (local receive and source port)</li> <li>SIP Registrar</li> <li>SIP Proxy</li> <li>SIP Outbound Proxy</li> <li>Username</li> <li>Password</li> <li>Authentication name</li> </ul>
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 G.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 Cancel 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 Unconditional 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	<ul> <li>Known Good Proxy</li> <li>Proxy Failover</li> <li>Registration Control</li> <li>UDP, TCP</li> <li>TLS</li> <li>DNS</li> <li>DQoS-lite</li> <li>STUN</li> <li>Static NAT</li> <li>NAT Keep Alive</li> </ul>
SIP Header Control  Administrative Features	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  Call Data Record Call Statistics Agent
Telephone Ring Loading	Debug Console Logging     Debug Logger  Full 5 REN support on each phone line (10 REN total)
	Configurable balanced ring with configurable DC offset
Ring Signal  Max Phone Line Distance	Supports up to 1000 ft of AWG26 wire (0.4mm) 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				
ICSA (Independent Computer Security Association) Firewall Compliant	<ul> <li>IP Address and Port Number</li> <li>TCP flags, ICMP types, fragmentation</li> <li>Connection Creation and Teardown</li> <li>Timestamps</li> <li>Payload Modification</li> </ul>			
Parental Controls	<ul> <li>Content Filtering with Per-User Policies</li> <li>Domain Block/Deny</li> <li>Keyword Blocking</li> <li>Java X Applet Blocking</li> <li>Per-User MAC Address Filtering</li> </ul>			
Advanced Event Logging	Filtering Activity Session Tracking User Notification via E-mail Alert and SNMP Traps			
DOS attack protection	<ul> <li>Replay Attack Protection</li> <li>Malformed Packet Protection</li> <li>SYN Flooding</li> <li>TCP Hijacking</li> <li>LAND Attack</li> <li>WinNuke/OOBNuke (Invalid TCP urgent pointer)</li> <li>Christmas Tree</li> <li>SYN/FIN (jackal)</li> <li>BackOffice (UDP 32337)</li> <li>NetBus</li> <li>Smurf</li> <li>Tear Drop</li> <li>ICMP Flowding</li> <li>Ping of Death</li> <li>TCP Port Probe</li> <li>UDP Port Probe</li> <li>New Tear</li> <li>Nestea</li> <li>SYNdrop</li> <li>Jolt</li> <li>Boink</li> <li>Bonk</li> </ul>			
Routing Features	<ul> <li>NAPT, NAT, and Pass-through (layer 2) Operational Modes</li> <li>RIP v1/v2</li> <li>Static Routes</li> <li>Port Forwarding</li> <li>Port Triggering</li> <li>UPnP IGD 1.0</li> </ul>			

Specification	Value	
Residential Gateway (con	tinued)	
ALG Support	• FTP	
	Real Audio	
	• H.323	
	• ICQ	
	IPSec Pass-through	
	L2TP Pass-through	
	PPTP Pass-through	
	• TFTP	
	• 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	
Wireless Access Point		
802.11n	2x2 2.4 GHz Single Band wireless access point or 2x2 2.4/5 GHz Dual Band     3x2 2x4/5 GHz Dual Band	
	non-concurrent wireless access point	
	(2) Internal Antennas     Wil Fi Complicat (AVDAC WDAC POK WDA WDA POK WED)	
	Wi-Fi Compliant (WPA2, WPA2-PSK, WPA, WPA-PSK, WEP)      WMM OoS (Wireless Multi Media, Quality of Service), WMM Power Seven	
	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)	
RF Downstream		
Operating Frequency Range	88 to 1002 MHz	
Tuner Frequency Range	88 to 1002 MHz	
Tuner	(2) Frequency agile block tuners, 32 MHz bandpass each	
Demodulation	8 demodulators, 4 per tuner, each demodulator; 64 QAM or 256 QAM	
Maximum Data Rate	8 downstream channels, each 6 MHz channel	
	42.88 Mbps for 256 QAM and 30.34 Mbps for 64 QAM	
Bandwidth	6 MHz	
Dariuwiuiii		
Operating Level Range	-15 to +15 dBmV	

Specification	Value				
RF Upstream					
Operating Frequency Range	5 to 42 MHz, 5 to 65 MHz or 5 to 85 MHz				
Transmitter Frequency Range	5 to 42 MHz, 5 to 65 MHz or 5 to 85 MHz				
Upstream 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 Bandwidth (MHz)	Raw <u>Data Rate (</u>	Mbps)	
	QPSK 16 QAM	1.6 1.6	2.56 5.12		
	16 QAIVI	1.0	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		
Bandwidth	200 kHz to 6.4 M	Hz			
Maximum 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	
CCDMA	QPSK	+56 dBmV	. 52 dDm//	, F2 dD m)/	
SCDMA	8 QAM	+56 dBmV	+53 dBmV +53 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	
Electrical					
nput Voltage	15 VDC				
Power Consumption	~ 15.1 Watts				
(DC, in modem module)					
Data Ports	GigE (Auto-nego USB 2.0: USB Ty	tiate with Auto-MDIX): R /pe 2 (1)	J-45 Ethernet (4	)	
RF	Female F-Type				
Output Impedance	75 ohms				
Mechanical					
Dimensions (W x D x H)	With F-Type connector: 5.9 in. x 5.6 in. x 1.5 in. (15.1 cm x 14.2 cm x 3.8 cm) Without F-Type connector: 5.9 in. x 5.2 in. x 1.5 in. (15.1 cm x 13.2 cm x 3.8 cm)				
Weight	10.3 oz. (0.294 kg)				
Operating Temperature	32° to 104°F (-0° to 40°C)				
Operating Humidity	0 to 95% RH non-condensing				
	-4° to 158°F (-20° to 70°C)				

Specification	Value	
Standards and Approvals		
Designed to meet with the following standards	DOCSIS 3.0, 2.0, 1.1, 1.0, PacketCable 1.5 IEEE 802.11n WEP, WPA, and WPA2 WMM, WPS	
Regulatory Compliance		
Regulatory and Safety Approvals	As required per country where the DPC3925 will be used	

# **Ordering Information**

 Table 4.
 Ordering Information

Description	Part Number
5-42/88-1002 MHz Diplex Filter	
16 MB Flash x 64 MB DRAM Memory Configuration (Standard Configuration)	
DPC3925 DOCSIS 3.0 8x4 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4033836
<ul> <li>802.11n Wireless Access Point, Single Band, 2x2, 2.4 GHz</li> </ul>	
USB 2.0 host port	
<ul> <li>100-240 VAC/50-60 Hz, 15 VDC/ 1.5 A Desktop switching-regulated power supply with detachable power cord</li> </ul>	
Power cord, North America (non-polarized)	
Ethernet cable	
CD-ROM containing user guide and USB driver	
North America	
DPC3925 DOCSIS 3.0 8x4 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4037935
802.11n Wireless Access Point, Single Band, 2x2, 2.4 GHz	
USB 2.0 host port	
<ul> <li>100-240 VAC/50-60 Hz, 15 VDC/ 1.5 A Desktop switching-regulated power supply with detachable power cord</li> </ul>	
Power cord, Argentina (non-polarized)	
Ethernet cable	
CD-ROM containing user guide and USB driver	
Argentina	
DPC3925 DOCSIS 3.0 8x4 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4039150
<ul> <li>802.11n Wireless Access Point, Single Band, 2x2, 2.4 GHz</li> </ul>	
USB 2.0 host port	
<ul> <li>100-240 VAC/50-60 Hz, 15 VDC/ 1.5 A Desktop switching-regulated power supply with detachable power cord</li> </ul>	
Power cord, North America (non-polarized)	
Ethernet cable	
CD-ROM containing user guide and USB driver	
Columbia (Customer-specific configuration)	
DPC3925 DOCSIS 3.0 8x4 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4038584
802.11n Wireless Access Point, Single Band, 2x2, 2.4 GHz	
No USB host port	
• 100-240 VAC / 50-60 Hz, 15 VDC / 1.5 A Wall-mounted switching-regulated power supply, UK	
• Ethernet cable	
CD-ROM containing user guide	
Singapore	

Description	Part Number
DPC3925 DOCSIS 3.0 8x4 Wireless Residential Gateway with Embedded Digital Voice Adapter. Includes:	4039448
802.11n Wireless Access Point, Single Band, 2x2, 2.4 GHz	
USB 2.0 host port	
100-240 VAC/50-60 Hz, 15 VDC/ 1.5 A Desktop switching-regulated power supply with detachable power cord	
Power cord, 2-conductor, Brazil (non-polarized)	
Ethernet cable	
CD-ROM containing user guide and USB driver	
Brazil	

### **Replacement Components**

 Table 5.
 Replacement Components

Description	Part Number			
Power Supply - Class 2 Switching Regulated				
100-240 VAC/50-60 Hz, 15 VDC / 1.5 A desktop-style switching regulated power supply with detachable power cord (order power cord separately)	4034524			
Power Supply - Class 2 Linear Switching				
100-240 VAC / 50-60 Hz, 15 VDC / 1.5 A wall-mount switching regulated power supply, UK	4034527			
Power Cord				
Power cord, 2 conductors, NEMA 1-15 to C7, North America (polarized)	4026134			
Power cord, 2 conductors, Argentina (non-polarized)	4012938			
Power cord, 2 conductors, CEE7/16 to C7, INMETRO, Brazil (non-polarized)	4009115			
Data Cable				
Ethernet cable, 1.2 meters	740580			
CD-ROM				
CD-ROM with user guide	4034508			



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