

CISCO EPC3925

8X4 EURODOCSIS 3.0 WIRELESS RESIDENTIAL GATEWAY WITH DIGITAL VOICE ADAPTER



The Cisco Model EPC3925 8x4 EuroDOCSIS 3.0 Wireless Residential Gateway with Embedded Digital Voice Adapter (EPC3925) 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 EPC3925 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 440 Mbps and upstream data rates in excess of 120 Mbps. That's up to eight times faster downloads than conventional single-channel EuroDOCSIS 2.0 cable modems.

FEATURES

- 8 bonded downstream channels with data rates in excess of 440 Mbps
- 4 bonded upstream channels with data rates in excess of 120 Mbps
- Compliant with EuroDOCSIS 3.0, 2.0, 1.1, and 1.0 standards along with EuroPacketCable specifications to deliver high-end performance and reliability
- DOCSIS-5 compliant LED labeling and behavior provides a user- and technician-friendly method to check operational status and act as a troubleshooting tool
- TR-068 compliant color-coded interface ports and corresponding cables simplify installation and setup
- Four 10/100/1000BASE-T Ethernet ports to provide wired connectivity
- High-performance broadband Internet connectivity to energize your online experience
- 802.11n Wireless Access Point (WAP) with four Service Set Identifiers (SSIDs) compatible with 802.11b/g
- 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

PACKAGE CONTENTS

- EPC3925 Cable Gateway
- Power Supply
- Ethernet Cable

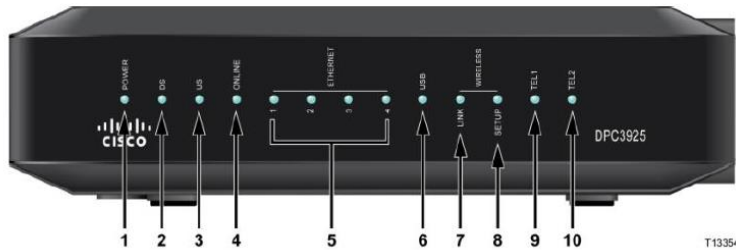


POWER SUPPLY

- 15 V DC
- 1.5 A
- 22.5 W



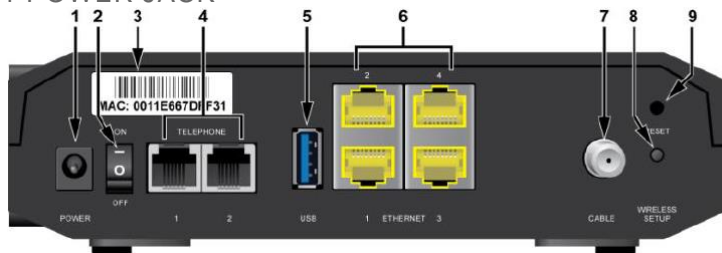
FRONT PANEL



- 1 POWER—ON
- 2 DS—ON
- 3 US—ON
- 4 ONLINE—ON
- 5 ETHERNET PORTS 1-4 ON
- 6 USB—ON
- 7 WIRELESS LINK—ON
- 8 WIRELESS SETUP—OFF
- 9 TEL1—ON
- 10 TEL2—ON

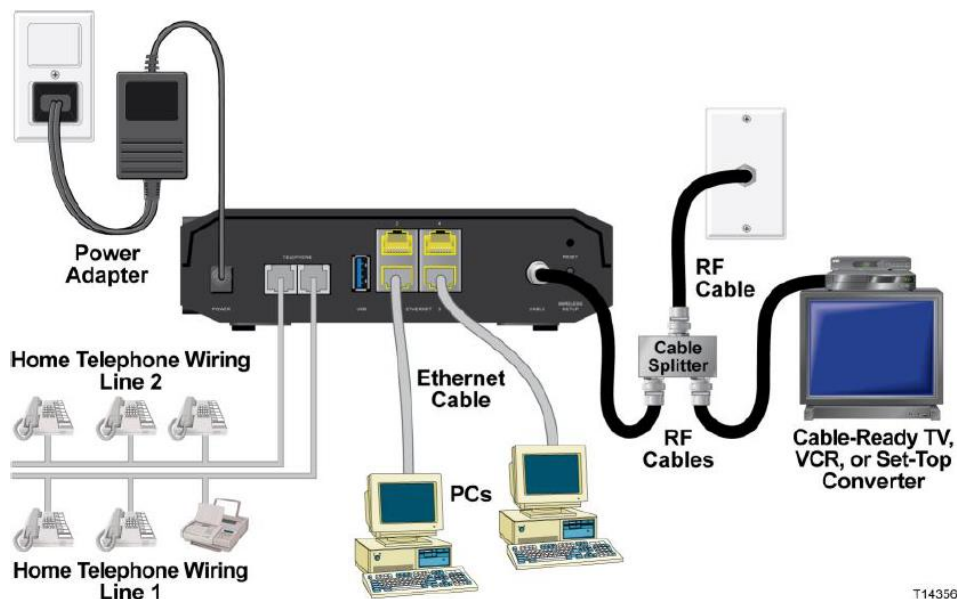
BACK PANEL

1 POWER JACK



- 2 ON/OFF SWITCH
- 3 MAC ADDRESS LABEL
- 4 TELEPHONE PORTS 1 & 2
- 5 USB
- 6 4 ETHERNET PORTS
- 7 CABLE F-CONNECTOR
- 8 WIRELESS SETUP
- 9 RESET

CONNECTION EXAMPLE



T14356

SPECIFICATIONS

VOICE SPECIFICATIONS

Call Signaling Protocol	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> ○ 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 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 (per line)	<ul style="list-style-type: none"> • SIP Signaling Port (local receive and source port) • SIP Registrar • SIP Proxy • SIP Outbound Proxy • Username • Password • Authentication name
Provisioning Modes	<ul style="list-style-type: none"> • Basic, Secure, Hybrid provisioning • Full EuroPacketCable secure provisioning • Kerberos support with NVRAM ticket caching • Configurable EuroPacketCable-lite (MTA config file provisioning without security) • Configurable for non-EuroPacketCable (MTA configuration using EuroDOCSIS config file)
Voice CODEC support	Negotiate CODEC to use based on ordered list
CODECs	<p>Standard: G.711, T.38 Fax Relay, iLBC and BV16 Software upgradeable to support other CODEC combinations including:</p> <ul style="list-style-type: none"> • 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
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	<ul style="list-style-type: none"> • Full EuroPacketCable 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)	<ul style="list-style-type: none"> • 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, Telnet with configurable user ID and password, internal log, and external Syslog support
Echo Cancellation	<ul style="list-style-type: none"> • 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
Call Feature Support	<ul style="list-style-type: none"> • 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 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 style="list-style-type: none"> • Known Good Proxy • Proxy Failover • Registration Control • UDP, TCP • TLS • DNS • DQoS-lite • STUN • Static NAT • NAT Keep Alive
SIP Header Control	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 (0.4mm) 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
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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Per-User Policies • Keyword blocking • Domain name blocking • Time of day filters • MAC Address Filtering
Advanced Event Logging	<ul style="list-style-type: none"> • Filtering Activity • Session Tracking • User Notification via E-mail Alert and SNMP Traps

Routing Features	<ul style="list-style-type: none"> • 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
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WIRELESS ACCESS POINT

802.11 b/g/n	<ul style="list-style-type: none"> • 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)
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RF DOWNSTREAM

Operating Frequency Range	108 to 1002 MHz
Tuner Frequency Range	108 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 8 MHz channel: <ul style="list-style-type: none"> • 55.62 Mbps for 256 QAM and 41.71 Mbps for 64 QAM
Bandwidth	8 or 6 MHz
Operating Level Range	+43 to +73 dB μ V for 64 QAM +47 to +77 dB μ V for 256 QAM
Input Impedance	75 ohms

RF UPSTREAM

Operating Frequency Range	5 to 65 MHz
Transmitter Frequency Range	5 to 65 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 Data Rate (Mbps)			
	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			
Bandwidth								
200 kHz to 6.4 MHz								
Maximum Operating Level	Modulation		1 Channel		2 Channels		3 or 4 Channels	
	QPSK		+121 dBμV		+118 dBμV		+115 dBμV	
	8 QAM		+118 dBμV		+115 dBμV		+112 dBμV	
	16 QAM		+118 dBμV		+115 dBμV		+112 dBμV	
	32 QAM		+117 dBμV		+114 dBμV		+111 dBμV	
	64 QAM		+117 dBμV		+114 dBμV		+111 dBμV	
	SCDMA		QPSK		+116 dBμV		+113 dBμV	
	8 QAM		+116 dBμV		+113 dBμV		+113 dBμV	
	16 QAM		+116 dBμV		+113 dBμV		+113 dBμV	
	32 QAM		+116 dBμV		+113 dBμV		+113 dBμV	
	64 QAM		+116 dBμV		+113 dBμV		+113 dBμV	
	128 QAM		+116 dBμV		+113 dBμV		+113 dBμV	

ELECTRICAL

Input Voltage	15 VDC
Power Consumption (Modem Module)	~17 Watts
Data Ports	GigE (Auto-negotiate with Auto-MDIX): RJ-45 Ethernet (4) USB 2.0: USB Type 2 (1)
RF	Female F-Type
Output Impedance	75 ohms

MECHANICAL

Dimensions (H x D x W)	4.5 cm x 14.5 cm x 17.6 cm (1.8 in. x 5.7 in. x 6.9 in.)
Weight	0.430 kg (15.17 oz.)
Operating Temperature	-0° to 40°C (32° to 104°F)
Operating Humidity	0 to 95% RH non-condensing
Storage Temperature	-20° to 70°C (-4° to 158°F)

STANDARDS AND APPROVALS

Designed to meet with the following standards	EuroDOCSIS 3.0, EuroPacketCable 1.5 IEEE 802.11n WPA2, WPA and WEP WMM, WPS
Regulatory and Safety Approvals	As required per country where the EPC3925 will be used