

CISCO EPC3212

8X4 EURODOCSIS 3.0 CABLE MODEM WITH EMBEDDED DIGITAL VOICE ADAPTER



The Cisco Model EPC3212 is a high-speed cable modem with an embedded digital voice adapter. The EPC3212 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 440 Mbps. That's up to eight times faster 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
- Enhanced packet processing technology to maximize performance
- Two-line embedded digital voice adapter for wired telephony service
- Expanded tuning range, 108-1002 MHz
- Toll-quality, high-compression, and high-fidelity (exceeding toll quality) CODEC options
- Bridged 10/100/1000 Mbps Ethernet port with Auto-negotiate and Auto-MDIX and USB 2.0 data port
- Support for up to 64 users (1 USB port user and up to 63 users on user-supplied Ethernet hubs)
- Software upgradeable by network download
- Remote manageability using SNMP V1/V2 and V3

PACKAGE CONTENTS

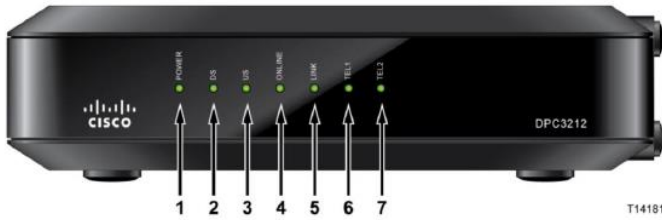
- EPC3212 Cable Modem
- Power Supply
- Ethernet Cable

POWER SUPPLY

- 15 V DC
- 1 A
- 15 W



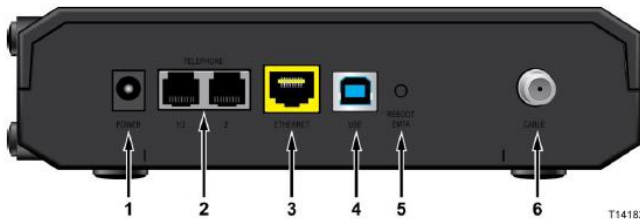
FRONT PANEL



- 1 POWER
- 2 DS (Downstream)
- 3 US (Upstream)
- 4 ONLINE
- 5 LINK
- 6 TEL 1
- 7 TEL 2

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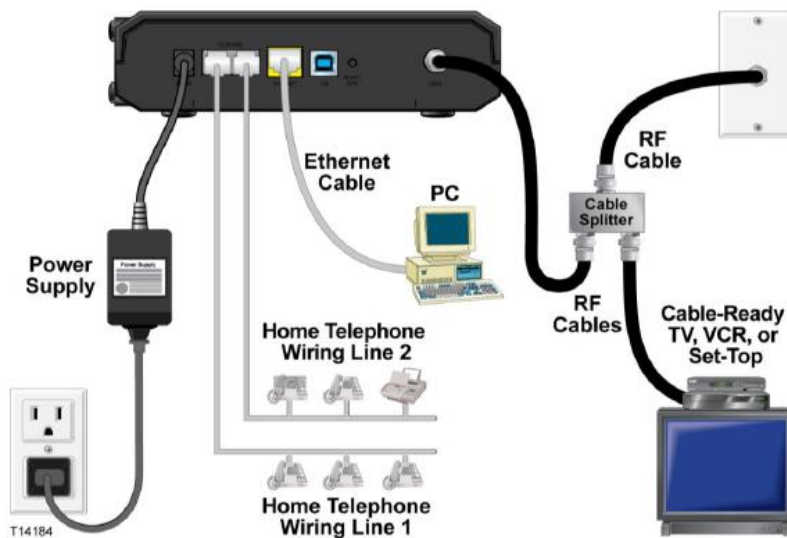
BACK PANEL



- 1 POWER
- 2 TEL 1/TEL 2
- 3 ETHERNET
- 4 USB
- 5 REBOOT EMTA
- 6 CABLE - F-Connector

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CONNECTION EXAMPLE



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SPECIFICATIONS

VOICE SPECIFICATIONS

Call Signaling Protocol	<p>MGCP/NCS including configurable IPsec encryption. Configurable to support RFC2833 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</p> <ul style="list-style-type: none"> • RFC 2617 HTTP Authentication: Basic and Digest Access Authentication • RFC 2976 The SIP INFO Method • RFC 3261 SIP: Session Initiation Protocol • RFC 3262 Reliability of Provisional Responses in Session Initiation Protocol (SIP) • RFC 3263 Session Initiation Protocol (SIP): Locating SIP Servers • RFC 3264 An Offer/Answer Model with Session Description Protocol (SDP) • RFC 3265 Session Initiation Protocol (SIP)-Specific Event Notification • RFC 3420 Internet Media Type message/sipfrag • RFC 3428 Session Initiation Protocol (SIP) Extension for Instant Messaging • 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 (SIP) Extension for Event State Publication • Draft-ietf-mmusic-sdp-new-24 SDP: Session Description Protocol (Replacement for RFC 2327) • Draft-ietf-sipping-cc-transfer-01 Session Initiation Protocol Call Control – Transfer • Draft-ietf-sip-session-timer-08 The SIP Session Timer • Draft-ietf-sipping-realtimefax-01 SIP Support for Real-time Fax: Call Flow Examples and Best Current Practices • Draft-ietf-mmusic-sdescription-09 Session Description Protocol Security • Descriptions for Media Streams • Draft-ietf-sip-replaces-02 The Session Initiation Protocol (SIP) "Replaces" Header
Provisioning Modes	<p>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)</p>
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 <p>Note: Other codec combinations can be downloaded as required.</p>
CODEC Packetization Intervals	10, 20, and 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 VAD
Jitter Buffer Support	Adaptive dynamically controlled
Latency Control	Configurable min / max jitter buffer size
Audio Gain Levels	Independently Configurable Tx and Rx audio gains
Silence Suppression	Configurable VAD with comfort noise generation
Packet Loss Concealment	ANSI T1.521-1999
Call Connection Quality Monitoring	RTCP, RFC1889, RFC1890, SNMP MIB for last call quality statistics

Dialing Modes	DTMF and configurable pulse dial support
DTMF Relay	RFC2833 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
Management	SNMPv3, SNMPv2, and SNMPv1, Telnet/SSH with configurable user ID and password, internal log, and external Syslog support
Echo Cancellation	G.168 with extended echo tail support
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
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	United States, Japan, United Kingdom, Germany, France, Belgium, Netherlands, Finland, Italy, Switzerland, Sweden, Denmark, Brazil, Australia, Poland, Czech Republic, Hungary, Romania, ETSI 101 909-18

RF DOWNSTREAM

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: 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

RF UPSTREAM

Frequency Range	5 to 65 MHz				
Modulation	QPSK, 8 QAM, 16 QAM, 32 QAM, 64 QAM / ATDMA, 128 QAM / SCDMA				
Bandwidth	200 kHz to 6.4 MHz				
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		10.24	
	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		30.72		
Maximum Operating Level	TDMA	Modulation	1 Channel	2 Channels	3 or 4 Channels
		QPSK	+121 dB μ V	+118 dB μ V	+115 dB μ V
		8 QAM	+118 dB μ V	+115 dB μ V	+112 dB μ V
		16 QAM	+118 dB μ V	+115 dB μ V	+112 dB μ V
		32 QAM	+117 dB μ V	+114 dB μ V	+111 dB μ V
	64 QAM	+117 dB μ V	+114 dB μ V	+111 dB μ V	
	SCDMA				
		QPSK	+116 dB μ V	+113 dB μ V	+113 dB μ V
		8 QAM	+116 dB μ V	+113 dB μ V	+113 dB μ V
		16 QAM	+116 dB μ V	+113 dB μ V	+113 dB μ V
		32 QAM	+116 dB μ V	+113 dB μ V	+113 dB μ V
		64 QAM	+116 dB μ V	+113 dB μ V	+113 dB μ V
		128 QAM	+116 dB μ V	+113 dB μ V	+113 dB μ V

OTHER

Input Voltage	15 VDC / 1 A
Power Consumption (Modem Module)	~9.6 Watts
Data Ports	Ethernet 10/100/1000BASE-T (Auto-sensing with Auto-MDIX): RJ-45 Ethernet (1) USB 2.0: USB Type B (1)
RF	Female "F" type
Impedance	75 ohms

MECHANICAL	
Dimensions (W x D x H) (approximate)	Not including "F" connector: 17.6 cm x 14.5 cm x 5.0 cm (6.9 in. x 5.7 in. x 1.96 in.)
Weight (approximate)	~0.39 kg (13.7 oz)
Operating Temperature	0° to 40°C (32° to 104°F)
Operating Humidity	0 to 90% RH non-condensing
Storage Temperature	-20° to 60°C (-4° to 140°F)
STANDARDS AND APPROVALS	
Designed to Comply with the Following	EuroPacketCable 1.5, 1.0 EuroDOCSIS 3.0, 2.0, 1.1, 1.0
Regulatory and Safety Approvals	As required per country where the EPC3212 will be used