Cisco Model EPC2202 EuroDOCSIS 2.0 Cable Modem with Embedded Digital Voice Adapter

The Cisco® Model EPC2202 EuroDOCSIS 2.0 Cable Modem with Embedded Digital Voice Adapter (EPC2202) is a high-speed cable modem with an embedded digital voice adapter. The EPC2202 features two RJ-11 telephone ports for voice service along with a 10/100BASE-T Ethernet port and a USB 1.1 port for high-speed data connectivity.

The EPC2202 is designed to meet EuroPacketCable™ 1.5 and EuroDOCSIS® 2.0 specifications as well as being backward compatible with EuroDOCSIS 1.1 and EuroDOCSIS 1.0 networks. The EPC2202 uses advanced line-interface technology to provide multi-country, toll-quality, telephone service using existing in-home wiring. The EPC2202 supports 10 REN total, 5 REN loading on each phone line.

Figure 1. EPC2202 EuroDOCSIS 2.0 Wireless Residential Gateway with Embedded Digital Voice Adapter (image may vary from actual product and specification)

The EPC2202 fully supports the CODECs specified in EuroPacketCable 1.5. Additional CODECs are available through a software upgrade that includes a high-fidelity CODEC option for toll-quality plus service. Standard VoIP call signaling is compliant with EuroPacketCable's (MGCP/NCS) specifications. Software upgrades are available to support Session Initiation Protocol (SIP) call signaling.

Features

- Two-line embedded digital voice adapter for wired telephony service
- Expanded tuning range, 88-930 MHz
- Toll-quality, high-compression, and high-fidelity (exceeding toll quality) CODEC options
- Attractive, compact design that allows for vertical, horizontal, or wall-mounted placement
- Front panel LEDs provide visual feedback of real-time operational status
- 10/100BASE-T auto-sensing/auto-MDIX Ethernet port
- USB 1.1 data port (optional)

Figure 2. EPC2202 Front Panel (image may vary from actual product and specification)

Table 1. Front Panel Features

Feature	Description
Indicators	POWER, DS, US, ONLINE, LINK, TEL1, TEL2
Color	Black, green LEDs, silver text
Branding	Cisco logo and model number

Figure 3. EPC2202 Back Panel (image may vary from actual product and specification)

Table 2. Back Panel Connections

Feature	Description
POWER Connector Color: Black	Connects the modem 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
ETHERNET Connector Color: Yellow	RJ-45 Ethernet port connects to the Ethernet port on your PC or your home network
USB Connector Color: Blue	USB 1.1 port connects to the USB port on your PC
REBOOT EMTA	Power cycles the modem
CABLE Connector Color: White	F-connector connects to an active cable signal from your service provider

Product Specifications

Table 3. Product Specifications

Specification	Value
Voice Specifications	
Call Signaling Protocol	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 • 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	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)
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
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

Specification	Value
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	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)	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	G.168 with extended echo tail support
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 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, United Kingdom, Germany, France, Belgium, Netherlands, Finland, Italy, Switzerland, Sweden, Denmark, Brazil, ETSI 101 909-18
RF Downstream	
Frequency Range	108 to 930 MHz
Demodulation	64 QAM or 256 QAM
Maximum Data Rate	41.71 Mbps for 64 QAM 55.62 Mbps for 256 QAM
Bandwidth	8 MHz
Operating Level Range	+43 to +73 dBµV for 64 QAM +47 to +77 dBµV for 256 QAM
Input Impedance	75 ohms

Specification	Value
RF Upstream	
Frequency Range	5 to 65 MHz 5 to 85 MHz (option)
Modulation	QPSK 8 QAM 16 QAM 32 QAM 64 QAM 128 QAM TCM
Maximum Data Rate	5.12 Mbps for QPSK 10.2 Mbps for 16 QAM 30.0 Mbps for A-TDMA and SCDMA
Bandwidth	200 kHz to 6.4 MHz
Operating Level Range (all values +/- 0.5 dBµV)	
TDMA	QPSK +68 to +118 dBµV 8 QAM +68 to +115 dBµV 16 QAM +68 to +115 dBµV 32 QAM +68 to +114 dBµV 64 QAM +68 to +114 dBµV
SCDMA	QPSK +68 to +113 dBµV 8 QAM +68 to +113 dBµV 16 QAM +68 to +113 dBµV 32 QAM +68 to +113 dBµV 64 QAM +68 to +113 dBµV 128 QAM +68 to +113 dBµV
Output Impedance	75 ohms
Other	
Input Voltage	12 VDC
Power Consumption (Modem Module)	4.68 Watts
Data Ports	Ethernet 10/100BASE-T (Auto-sensing with Auto-MDIX), USB 1.1 Type 2 (1)
RF	Female “F” type
Mechanical	
Dimensions (W x D x H) (approximate)	Not including “F” connector: 15 cm x 12.2 cm x 3.8 cm (5 7/8 in. x 4 3/4 in. x 1 1/2 in.)
Weight (approximate)	0.25 kg (8.9 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 Standards	EuroPacketCable 1.5, 1.0 EuroDOCSIS 2.0, EuroDOCSIS 1.1, EuroDOCSIS 1.0
Regulatory and Safety Approvals	As required per country where the EPC2202 will be used

Ordering Information

Table 4. Ordering Information

Model	Description	Part Number
2 Voice Ports		
Model EPC2202	EPC2202 EuroDOCSIS 2.0 Cable Modem with Embedded Digital Voice Adapter. Includes: • 220-230 VAC / 60 Hz, 12 VDC/1 A wall mount linear-switching power supply for Europe • Ethernet and USB data cables • CD-ROM containing user guide ***Europe***	4025508
Model EPC2202	EPC2202 EuroDOCSIS 2.0 Cable Modem with Embedded Digital Voice Adapter. Includes: • 100-240 VAC / 60 Hz, 12 VDC/1 A wall mount switching regulated power supply for Europe • Ethernet and USB data cables • CD-ROM containing user guide ***Europe (Customer-specific configuration)***	4029168
Model EPC2202	EPC2202 EuroDOCSIS 2.0 Cable Modem with Embedded Digital Voice Adapter. Includes: • 230-240 VAC/60 Hz, 12 VDC/1 A wall mount linear-switching power supply with UK-style power connector • Ethernet and USB data cables • CD-ROM containing user guide ***United Kingdom (Customer-specific configuration)***	4025509
Model EPC2202	EPC2202 EuroDOCSIS 2.0 Cable Modem with Embedded Digital Voice Adapter. Includes: • 220 VAC / 60 Hz, 12 VDC/1 A wall mount linear-switching power supply for Europe • No USB port • Ethernet cable • CD-ROM containing user guide ***China***	4039335

Replacement Components

Table 5. Replacement Components

Description	Part Number
Power Supplies	
Class 2 Linear Switching	
220-230 VAC / 50-60 Hz, 12 VDC /1 A wall-mount linear-switching power supply with Euro-style connector	4020995
230-240 VAC / 50-60 Hz, 12 VDC /1 A wall-mount linear-switching power supply with UK-style connector	4021323
Class 2 Switching Regulated	
100-240 VAC / 50-60 Hz, 12 VDC /1 A wall mount switching regulated power supply, Euro-style connector	4022057
Data Cables	
Ethernet, 1.2m	740580
USB, 1.0m	740579
CD-ROM	
CD-ROM with user guide	4025495

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