Cisco Model EPC2203 EuroDOCSIS 2.0 Cable Modem with Embedded MTA

The Cisco® Model EPC2203 Cable Modem (EPC2203) is a high-speed cable modem with an embedded media terminal adapter (EMTA). The EPC2203 features single line or two RJ-11 telephone ports for Voice over Internet Protocol (VoIP) service along with a 10/100BASE-T Ethernet port and a USB 1.1 port for high-speed data connectivity.

The EPC2203 also features Dual Mode. This feature allows the service provider to deploy the EPC2203 in networks that use DOCSIS® 6 MHz downstream modulation.

The EPC2203 is designed to meet EuroPacketCable™ 1.0 and EuroDOCSIS™ 2.0 specifications and is backward compatible with EuroDOCSIS 1.1 and EuroDOCSIS 1.0 networks. The EPC2203 uses advanced line interface technology to provide multi-country toll-quality telephone service using existing in-home wiring. The EPC2203 supports 10 REN total, 5 REN loading on each phone line.

Figure 1.   Cisco Model EPC2203 EuroDOCSIS 2.0 Cable Modem with EMTA (image may vary from actual product and specification)

The EPC2203 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

Standards Support

- Designed to meet EuroDOCSIS 2.0 specifications

- Backward compatible with EuroDOCSIS 1.1 and 1.0 networks

- Designed to meet EuroPacketCable 1.5 and EuroPacketCable 1.0 specifications

- Support for up to 64 users (1 USB port user and up to 63 users on user-supplied Ethernet hubs)

Connections

- 10/100BASE-T auto-sensing/auto-MDIX Ethernet port

- USB 1.1 client port (optional)

VoIP Support

- Cable modem with an Embedded MTA that provides two lines of voice services

- Toll-quality, high-compression, and high-fidelity (exceeding toll quality) CODEC options

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

- Front panel LEDs provide visual feedback or real-time operational status

- TR-068-compliant color-coded connectors and cables for easy installation and setup

- Both vertical and horizontal installation options

- Rugged electronic components for long-term reliability

Management

- Software upgradeable by network download

- Remote manageability using SNMP V1/V2 and V3

Software and Documentation

- CD-ROM containing user guide

Figure 2. Cisco Model EPC2203 Front Panel shown with non-battery enclosure (image may vary from actual product and specification)

Table 1. Front Panel Features

Feature	Description
Indicators	POWER, DS, US, ONLINE, LINK, TEL 1, TEL2
Color	Black textured, dark gray housing, white text, green LEDs

Figure 3. Cisco Model EPC2203 Back Panel shown with non-battery enclosure (image may vary from actual product and specification)

Table 2. Back Panel Features (non-battery enclosure)

Feature	Description
POWER Connector Color: Black	Connects the EMTA to the DC output of the AC power adapter that is provided with your EMTA (units shipping to the EU have power connectors with integrated power switch)
POWER SWITCH	Turns power on and off to the device (power switch provided on all products carrying the CE mark)
TELEPHONE Connector Color: Gray	RJ-11 telephone ports connect to home telephone wiring, conventional telephones, or fax machines
ETHERNET Connector Color: Yellow	10/100BASE-T RJ-45 Ethernet port connects to the Ethernet port on a PC or IP set-top
USB (option) Connector Color: Blue	USB 1.1 port connects to the USB port on your PC
REBOOT EMTA	Resets the EMTA
CABLE Connector Color: White	F-connector connects to an active cable signal from your cable service provider
MAC ADDRESS LABEL	Displays the MAC address of the cable modem

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 voice activation 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

Specification	Value
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 (0.4 mm) 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, ETSI 101 909-18
High Speed Data	
Simultaneous Access	Bridged Ethernet and USB data ports
Cable Modem Access Protection	Software based standby feature disables bridging to the WAN when enabled
Max CPE	Configurable up to 64 CPE devices (1 USB and 63 Ethernet)
RF Downstream	
Input Frequency Range	108 to 862 MHz
Demodulation	64 QAM or 256 QAM
Maximum Data Rate	41.4 Mbps for 64 QAM and 55.2 Mbps for 256 QAM, 8 MHz channel
Bandwidth	8 or 6 MHz

Specification	Value
Operating Level Range	+43 to +73 dBµV for 64 QAM
	+47 to +77 dBµV for 256 QAM
Input Impedance	75 ohms
RF Upstream	
Frequency Range	5 to 65 MHz
Modulation	QPSK
	8 QAM
	16 QAM
	32 QAM
	64 QAM ATDMA
	128 QAM SCDMA
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 dBmV)	**EuroDOCSIS Mode**
TDMA QPSK	+68 to +118 dBµV
8QAM	+68 to +115 dBµV
16QAM	+68 to +115 dBµV
32QAM	+68 to +114dBµV
64QAM	+68 to + 114 dBµV
SCDMA QPSK	+68 to +113dBµV
8QAM	+68 to +113 dBµV
16QAM	+68 to +113 dBµV
32QAM	+68 to +113 dBµV
64QAM	+68 to +113 dBµV
128QAM	+68 to +113 dBµV
Electrical	
Input Voltage • Standard enclosure	12 VDC
Power Consumption (normal operation)	< 4.1 watts, on-hook
	< 7 watts, both lines off-hook
Data Ports	One (1) RJ-45 Ethernet port, 10/100BASE-T (auto-sensing with auto-MDIX)
	One (1) USB 1.1 Type B
RF	One (1) Female "F" type
Output Impedance	75 ohms
Telephone / Fax	Two (2) RJ-11 supporting single-line and multi-line pinout; see **Ordering Information** for additional details
Mechanical	
Dimensions (W x D x H) • Standard Housing	(Including "F" connector) 15 cm x 13.5 cm x 3.5 cm (5.9 in. x 5.3 in. x 1.4 in.)
Weight (approximate) • Standard Housing	0.29 kg (10.1 oz)
Operating Temperature	32˚ to 104˚F (-0˚ to 40˚C)
Operating Humidity	0 to 90% RH non-condensing
Storage Temperature	-4˚ to 140˚F (-20˚ to 60˚C)
Standards and Approvals	
Designed to meet with the following standards	**EuroPacketCable 1.0** EuroDOCSIS 2.0, EuroDOCSIS 1.1

Specification	Value
Regulatory Compliance	
Regulatory and Safety Approvals	As required per country where the EPC2203 will be used

Ordering Information

Table 4.   Ordering Information

Description **2-line VoIP, Standard Housing No Battery Capability**	Part Number
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 230 VAC / 50 Hz, 12 VDC / 1 A wall-mount style linear-switching power supply for Europe • Ethernet and USB cables • CD-ROM containing user guide and USB drivers	4011095
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 100-240 VAC / 50-60 Hz, 12 VDC / 1 A desktop style switching-regulated universal power supply with detachable power cord • Power cord, Europe • Ethernet and USB cables • CD-ROM containing user guide and USB drivers	4013276
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 230-240 VAC / 50 Hz, 12 VDC / 1 A wall-mount style linear-switching power supply for the UK • Ethernet and USB cables • CD-ROM containing user guide and USB drivers	4014659
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 230 VAC / 50 Hz, 12 VDC / 1 A wall-mount style linear-switching power supply, Europe • No Ethernet or USB cables ***Customer-specific configuration***	4014719
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 230 VAC / 50 Hz, 12 VDC / 1 A wall-mount style linear-switching power supply, Europe • No Ethernet or USB cables ***Customer-specific configuration***	4022364
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 230 VAC / 50 Hz, 12 VDC / 1 A wall-mount style linear-switching power supply, Europe • Ethernet and USB cables • (2) TEA, RJ-11 to 3-port ISDN adapter • USB port plug • Customer specific branding label • CD-ROM containing user guide and USB drivers ***Customer-specific configuration***	4025303

Description	Part Number
2-line VoIP, Standard Housing No Battery Capability	
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 100-230 VAC / 50 Hz, 12 VDC / 1 A wall-mount style switching-regulated universal power supply, Europe • Ethernet and USB cables • CD-ROM containing user guide and USB drivers *Customer-specific configuration*	4022764
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 220 VAC / 50 Hz, 12 VDC / 1 A wall-mount style linear-switching power supply • Ethernet cable • No USB cable • CD-ROM containing user guide *China*	4039336
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 2-line VoIP, one (1) RJ-11 connector on rear panel • Bulk Pack • No power supply (order & ship separately) • No USB or Ethernet cable • CD-ROM containing user guide and USB drivers *Europe (Customer-specific configuration)*	4036645
2-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 230 VAC / 50 Hz, 12 VDC / 1 A wall-mount style linear-switching power supply, Europe • Ethernet and USB cables • CD-ROM containing user guide and USB driver *Europe (Customer-specific configuration)*	429169
Description	**Part Number**
1-Line VoIP, Standard Housing No Battery Capability	
1-Line VoIP Cable Modem with EMTA for International markets. Includes: • EuroPacketCable 1.0 / EuroDOCSIS 2.0 • Standard housing (no battery backup capability) • 1-line VoIP, one (1) RJ-11 connector on rear panel • 230-240 VAC / 50-60 Hz, 12 VDC / 1 A wall-mount linear-switching power supply, Europe • Bulk Pack • No USB port • No USB or Ethernet cable • CD-ROM containing user guide and USB drivers	4017723

Replacement Components

Table 5. Replacement Components

Description	Part Number
AC Power Supplies, 12 VDC	
12 VDC High Efficiency Linear-Switching, Class 2	
230 VAC / 50-60 Hz, 12 VDC /1 A wall-mount linear-switching power supply for Australia	4018797
230 VAC / 50-60 Hz, 12 VDC /1 A wall-mount linear-switching power supply with Euro style connector	4015453
230-240 VAC / 50-60 Hz, 12 VDC /1 A wall-mount linear-switching power supply with BS-1363 United Kingdom style 3-pin connector	4018794
230 VAC / 50-60 Hz, 12 VDC /1 A wall-mount linear-switching power supply (bulk pack), Europe	4036794
12 VDC Universal Switching Mode, Class 2	
100-240 VAC / 50-60 Hz, 12 VDC / 1 A wall-mount universal switching-regulated power supply	4022057
100-240 VAC / 50-60 Hz, 12 VDC / 1 A desktop style universal switching-regulated power supply with detachable power cord (power cord not included, order power cord separately)	4021485
Power Cords, Class 2	
Power cord, 2 conductor, European, Euro plug CEE7/16 to C7	503414
Power cord, 2 conductor, United Kingdom, BS1363 to C7	1002798
Cables	
Ethernet cable, 1.2m	740580
Ethernet cable, 2m	4018790
USB cable	740579
User Guide and USB Drivers	
CD-ROM with user guide and USB drivers	4029640

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