

INNOMEDIA

EMTA 3528-4e

CABLE MODEM INTEGRATED VOIP TERMINAL ADAPTER

FOUR-PORT EMBEDDED MTA FOR SMALL BUSINESS CUSTOMERS

InnoMedia's EMTA 3528-4e is a DOCSIS™ 2.0 ready 4-port VoIP device designed for cable operators to offer high quality primary line voice services to business customers.

KEY BENEFITS

Ideal Solution for Cable Operators to Deliver Telephony and Broadband Internet Services to Small Business Customers

Business environments friendly

- PBX (Ground start/Loop start)
- FAX (T.38 and G.711 fallback)
- House wiring with foreign voltage detection
- Credit Card reader transaction

High data throughput

PacketCable™ Basic provisioning

QoS Features Ensure PSTN Voice Quality Service

CLASS Feature Support with Call Agents or Softswitches



Designed for DOCSIS 2.0 cable networks, InnoMedia's EMTA 3528-4e is an embedded 4 voice port MTA device that offers MSO's an excellent opportunity to deliver new revenue generating telephony services to their business customers. It has rich set of business features including ground start and loop start for business PBX's, foreign voltage detection to allow house wiring and prevent accidental connection of house wires to live PSTN, T.38 and G.711 fallback fax support, reliable Bell103/212A modem transmission for credit card reader information transaction, and RJ11 DC open loop for loss of voice link indication to allow alarm triggering.

EMTA 3528-4e also supports PacketCable provisioning, 16 SIDS, and a wide variety of call features including

Caller ID, Call Waiting, Call Forwarding, Call Return, Caller ID Blocking, Call Trace, Automatic Callback, as well as device based 3-way calling. It sustains downlink data throughput of 29 Mbps with 4 voice ports in conversation. The EMTA 3528-4e has a UPS port to connect to external UPS batteries to allow service provider to offer primary line voice services.



EMTA INTERFACE

- A. Power
- B. UPS port
- C. Cable interface
- D. USB port
- E. LAN port
- F. RJ-11 ports



SPECIFICATIONS

Product Interfaces

Category	Specification
Service Provider Interface	DOCSIS Standard CATV coaxial cable, 75 Ohms "F" type connector
Telephone Interface	4 FXS Voice Ports
User Data Interface	10/100 BaseT Ethernet (RJ-45); 9-pin serial diagnostic interface; USB v1.1

Telephony Specifications

Category	Specification	
Protocols	PacketCable NCS 1.0; RFC 2833; MGCP 1.0; SIP*	
Speech Codec Capabilities	G.711, G.726 (No compression & simple compression) G.728, G.729E (High quality high complexity codecs) G.723.1, G.729A (Low bit rate codecs)	
Signal Processing	G.168 Echo cancellation FAX (T.38 and G.711 fall-back) Caller ID FSK signal regeneration Line reversal Ground Start/Loop Start	Loop Back FXS voltage drop when CA or RF fails Pulse Dialing Foreign voltage detection
Approval	FCC Part15B	
Tones	Ring back tone Recorder tone Dial tone Ring splash Off hook warning tone Caller ID generation & call waiting tone	Busy tone 5 distinct rings Confirmation tone Stutter tone Message waiting indicator (MWI) Configurable ring frequency
DTMF Tone	DTMF tone detection and generation	
Announcements	Play out any voice stream sent by Call Agent controlled announcement server	
OAM&P	Access components implemented: TFTP, FTP, HTTP 1.0, SNMP, Telnet, DHCP & DNS Works with any SNMP (v.1-3) -based EMS Offers web-based access as well as TFTP-based remote software downloads or upgrades	
QoS	TOS, DQoS (MGCP only)	

* Check for availability

SPECIFICATIONS

Cable Modem Technical Specifications

Cable Receiver Specifications	
Specification	ITU-T J.83 Annex B
Modulation	64-QAM, 256-QAM
Symbol Rate	5.056941 Msps (64-QAM), 5.360537 Msps (256-QAM)
Data Rate	26.97 Mbps (64-QAM), 38.81 Mbps (256-QAM)
Channel Bandwidth	6 MHz
Frequency Range	88 MHz to 860 MHz (Standard, HRC, and IRC plans)
Channel Scanning Time	2.5 minutes (maximum)
Input Level	-15 dBmV to +15 dBmV
Impedance	75 Ohms
C/N required for 10-8 BER	C/N \geq 23.5 dB (64-QAM) C/N \geq 30.0 dB (256-QAM, at Rx Level between -6 to +15 dBmV) C/N \geq 33.0 dB (256-QAM, at Rx Level between -15 to -6 dBmV)

Cable Transmitter Specifications		
Category	DOCSIS 1.0/1.1	DOCSIS 2.0 Advanced TDMA
Modulation	QPSK, 16-QAM	QPSK, 8-QAM, 16-QAM, 32-QAM, 64-QAM
Freq. Range (KC-220)	5 MHz to 42 MHz	5 MHz to 42 MHz
Freq. Range (KC-220E)	5 MHz to 65 MHz	5 MHz to 65 MHz
Power Range (QPSK)	+8 to +58 dBmV	+8 to +58 dBmV
Power Range (16-QAM)	+8 to +55 dBmV	+8 to +55 dBmV
Symbol Rate (Msps)	0.16, 0.32, 0.64, 1.28, 2.56	0.16, 0.32, 0.64, 1.28, 2.56, 5.12
Data Rate (Mbps)	0.32 to 10.24	0.32 to 30.72
Bandwidth	200 kHz to 3.2 MHz	200 kHz to 6.4 MHz
FEC	Reed-Solomon, T=0 to 10	Reed-Solomon, T=0 to 16
Interleaving	None	RS byte, block length may be adjusted dynamically to equalize interleaving depths
Equalization	8 T-spaced taps	24 T-spaced taps
Preamble	QPSK or 16-QAM Length \leq 1024 bits	QPSK-0 (Normal) and QPSK-1 (High Power) Length \leq 1536 bits (\leq 768T)
Spurious emission	Sufficient for 16-QAM	Generally 6 dB tighter to support 64-QAM
DOCSIS 2.0 SCDMA		128-QAM Trellis-Coded-Modulation (TCM)

Network Layer Specifications	
Downstream Performance	>10 Mbps
Upstream Performance	> 3000 packets per second (with concatenation) > 300 packets per second (without concatenation) [CMTS Limited]
Upstream Concatenation	Supported
SNMP Versions	SNMP v1/v2c, SNMP v3
IGMP Type	Supports both DOCSIS version 1.0 and 1.1
CPE devices supported	31
Filtering	Ethernet, LLC, and IP filtering, configurable
IP Filtering Rules	32
LLC Filtering Rules	16

SPECIFICATIONS cont.

Physical Specifications

Category	Specification	
Power Consumption	Talk	DC 12V @ 1.2 Amps (24W), loop current ≤ 32 mA
	Idle	DC 12V @ 0.7 Amps (8.4W)
Loop Current	For load of 520Ω, SNMP-settable to 23 mA (default) or 32 mA (max.)	
Ring Voltage	> 40 VRms @ 2000 ft. 5 REN max. per port 24 AWG loop	
On Battery	6 hrs Talk Time / 12 hrs Idle Time using 12V 8 Amp-Hr. Battery	
Power Supply	AC 100~240V/50~60Hz (DC 12V @ 2 Amps)	
Dimensions	9.76 in (H) x 6.89 in (W) x 1.57 in (D) / 248 mm (H) x 175 mm (W) x 40 mm (D)	
Operating Temperature	32°F to 104°F (0°C to 40°C)	
Storage Temperature	-4°F to 158°F (-20°C to 70°C)	
Operating Humidity	Up to 95% RH	
Storage Humidity	5 to 95% RH	

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