INNOMEDIA

EMTA9528-2B

DOCSIS™ 3.0 CABLE MODEM INTEGRATED VOIP TERMINAL ADAPTER

TWO-PORT EMBEDDED MTA FOR BUSINESS CUSTOMERS

Equipped with an internal backup battery, and a gigabit LAN port, InnoMedia's EMTA9528-2B offers business friendly, feature-rich, primary line VoIP solutions supporting PacketCable 1.5 NCS and PacketCable 2.0 with DOCSIS™ 3.0 ready cable modem with 8x4 downstream/upstream channel bonding.

Key Benefits

Ideal solution for cable operators to deliver telephony and high-speed broadband internet services

8 downstream channel bonding and 4 upstream channel bonding for high speed data rates
- >300 Mbps downstream and 120 Mbps upstream high speed data service

Business environment friendly
- PBX (Ground start/loop start & OSI)
- FAX (T.38 and G.711 fallback)
- House wiring with foreign voltage - detection
- Credit card reader transaction

PacketCable 1.5 provisioning and NCS signaling

PacketCable 2.0 provisioning and SIP signaling

Internal battery backup for primary line services
- 4 hours of talk time and 8 hours of standby time
- Intelligent internal batteries with telemetry

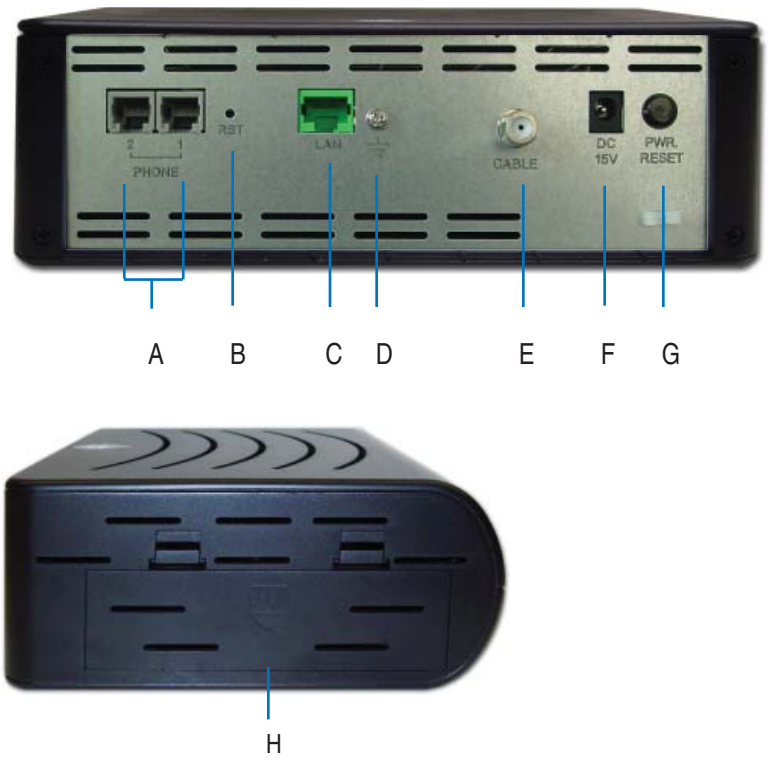
Designed for DOCSIS™ 3.0 cable networks, InnoMedia's EMTA9528-2B is an embedded 2 voice port voice eMTA device that offers MSO's an excellent opportunity to deliver revenue generating telephony and broadband services to their customers. It has rich set of telephony business features including ground start/loop start and OSI 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.

Additionally, EMTA9528-2B supports PacketCable 1.5 NCS Signalling and PacketCable 2.0 SIP Signalling. It also supports PacketCable 1.5 and 2.0 provisioning, 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.

The EMTA9528-2B is equipped with an internal battery supporting up to 4 hours of continuous talk time for 4 both telephone lines and 8 hours standby time to offer primary line voice services. An Internal Battery LED indicates when the internal or external battery is in-use, charging, fully charged, faulty or bad.

EMTA INTERFACE

A. Phone 1-2
B. RST
C. LAN Port
D. External Ground
E. Cable Interface
F. 15V DC Power
G. Power Reset Button
H. Battery Compartment



SPECIFICATIONS

Product Interfaces

Category	Specification
Service Provider Interface	DOCSIS™ Standard CATV coaxial cable, 75 Ohms “F” type connector
Telephone Interface	2 FXS Voice Ports
User Data Interface	Gigabit Ethernet (RJ-45) LAN Port

Software Specifications

Category	Specification
Protocols	PacketCable 1.5 NCS; RFC 2833; MGCP 1.0; PacketCable 2.0 SIP
Speech Codec Capabilities	G.711, G.726(32k), G.728, G.729A, G.722, iLBC, and T.38 Fax
Signal Processing	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

SPECIFICATIONS cont.

Cable Modem Technical Specifications

- DOCSIS™ 3.0 compliant
- Bandwidth of up to 320 Mbps downstream (8 downstream channel bonding) and 120 Mbps upstream (4 upstream channel bonding)

Cable Transmit/Receive Specifications

Item	Downstream	Upstream
Operating Frequency Range	DOCSIS™: 88-1002 MHz Euro-DOCSIS™: 108-1002 MHz	**DOCSIS™:** 5-42 MHz **Euro-DOCSIS™:** 5-65 MHz
Modulation	QPSK, 64/256 QAM	QPSK, 8/16/32/64/128, 256 QAM
Modulation Rate	**DOCSIS™:** 5.056941/5.360537 Msym/sec **Euro-DOCSIS™:** 6.952 Msym.sec	**TDMA:** 160/320/640/1280/2560/5120 Ksym/sec **S-CDMA:** 1280/2560/5120 Ksym/sec
Data Rate	Up to 320 Mbps (8 channel bonding)	Up to 120 Mbps (4 channel bonding)
Bandwidth Frequency	96MHz	**TDMA:** (200*N KHz) N = 1, 2, 4, 8, 16, 32 **S-CDMA:** 1600, 3200, 6400 kHz
Frequency Channel	HRC, IRC, STD	
Signal Level	**DOCSIS™:** -15 to +15 dBmV **Euro-DOCSIS™:** -17 ~ +13 dBmV (64 QAM) -13 ~ +17 dBmV (256 QAM)	**TDMA:** +17 ~ +61 dBmV (QPSK) +17 ~ +55 dBmV (8 QAM, 16 QAM) +17 ~ +57 dBmV (32 QAM, 64 QAM) **S-CDMA:** +17 ~ +56 dBmV (all modulation)

Other Cable Modem Specifications

Security	Security with X.509 Authentication RSA protected Key Exchange 56 bits DES Data Encryption
DOCSIS™	Compliant to DOCSIS™ 2.0/3.0
Protocol	TCP/IP, UDP, ARP, ICMP, DHCP (Client and Server), SNMP, TFTP, TOD, BOOTP, SYSLOG
MIBs support (SNMP v1/v2c/v3)	RFC 1907 (Systen group and SNMP MIB), RFC 2233 (Interface group), RFC 2011 (ICMP group and IP Group), RFC 2013 (UDP group), RFC 2665 (Ethernet MIB), RFC 1493 (Bridge MIB), RFC 2670 (RF MIB), RFC 2669 (Cable Device MIB), RFC 3083 (BPI-MIB), RFC 2012 (TCP-MIB), USB MIB, All other required DOCSIS™ 3.0 MIBs

SPECIFICATIONS cont.

Physical Specifications

Category	Specification
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	Dual Li-ion batteries providing 4 hrs Talk Time / 8 hrs Standby Time
Power Supply	AC 100~240V/50~60Hz (DC 15V @ 3.0 Amps)
Dimensions	2.5 in (H) x 7.8 in (W) x 6.0 in (D) / 63.5 mm (H) x 198 mm (W) x 152 mm (D)
Approval	UL, FCC Part15B
Operating Temperature	32°F to 104°F (0°C to 40°C)
Storage Temperature	-4°F to 140°F (-20°C to 60°C)
Operating Humidity	Up to 80% RH
Storage Humidity	Up to 80% RH

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 v.1.0 08/12