

Touchstone® T1/E1 MTA

Commercial Services Modem CSM571A



Applications

The Touchstone® Commercial Services Modem (CSM571) is a Media Terminal Adapter (MTA), which provides T1/E1 interconnections for private line and Private Branch Exchanges (PBXs) over HFC networks to Small-to-medium businesses. It also provides Ethernet/IP connectivity. The CSM571 supports one T1/E1 interface, one 100 Base-T Ethernet port and a high performance DOCSIS 2.0 cable modem, all in a single convertible desk top or wall mountable package.

Circuit Emulation and Pseudo-wire Emulation Edge-to-Edge (PWE3)

The Touchstone CSM571 T1/E1 Multimedia Terminal Adapter (MTA) intelligently transports T1/E1 traffic along with the Ethernet data traffic over DOCSIS channels. The T1/E1 traffic is packetized using the latest state-of-the-art standards for Pseudo-wire Emulation Edge-to-Edge (PWE3) circuit emulation technology which is based on Metro Ethernet Forum (MEF-8) and CableLabs Business Services Over DOCSIS (BSoD) standards.

Advanced Quality of Service Features

Quality of service (QoS) is preserved for the circuit emulated T1/E1 traffic with no degradation of performance. The Touchstone CSM571 supports IP TOS bit marking as well as VLAN tags for priority labeling according to 802.1p&Q specifications. Circuit Emulation packets are assigned a dedicated VLAN ID and 802.1p bits.

Toll Quality Voice

The CSM571 PCM transports uncompressed traffic thus maintaining Toll Quality features. By controlling delay and jitter, the Touchstone CSM571 T1/E1 MTA provides the same quality as the TDM networks, but at a fraction of the cost. The CSM571 enables MSOs to provide Full or Fractional E1/T1 services while reliably maintaining signaling and timing to meet G.823 and G.824 jitter requirements.

Flexible Timing modes

The CSM571 supports various clocking modes suitable for telephony and leased line applications and may be configured in several modes: for loopback or for Internal or Recovery (adaptive) timing. With its onboard Oven Controlled Crystal Oscillator, the CSM571 assures a tight clock performance for Adaptive Clock Recovery. The Touchstone CSM571 T1/E1 MTA also supports direct timing wherever a DOCSIS symbol clock is used.

Extensive System Management Capability

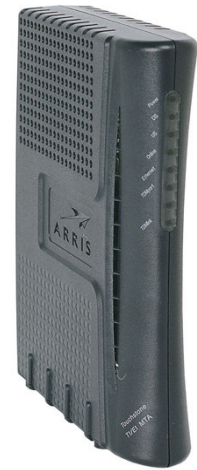
For business services performance, Network Operations Centers (NOCs) require advanced provisioning, performance monitoring, and diagnostic capabilities. The CSM571 MTA supports standard SNMP for provisioning, monitoring and troubleshooting. Among the many capabilities, the CSM571 MTA supports standard IETF PWE3 MIBs, DS1 (RFC 3895) DS0 bundle MIB (RFC 2494) and privet MIB. Alarms ES, SES, CV, UAS, LOS, LOF, AIS, OOF, RDI, RAI, BER tests and more.

Other advanced performance monitoring capabilities include internal logging of accumulated last-96 records of 15-minute interval, which enables operators to monitor and troubleshoot network events even before errors are presented. Advanced SNMP capabilities enables traps to be sent based on pre-configured threshold. Syslog capabilities enable operators to monitor and record events from the customer premises equipment (CPE) devices. The CSM571 also provides a friendly web interface for monitoring and statistics

The CSM571 MTA supports both CLI manual and automated configuration file downloads through its DHCP, TFTP boot processes. Configuration files may be created using CLI scripts or TLV files on a centralized server to be accessed by the CSM571.

Centrally Upgradeable, Future proof solution in CPE

The CSM571 may be upgraded remotely by placing new firmware load in a centralized server. The CSM571 may be configured to automatically check and upgrade itself while still maintaining set configurations. This remote upgrade capability ensures that the CSM571 will provide a long term solution compatible with the associated customer equipment.



- Both T1/E1 and Ethernet connectivity over HFC networks
- DOCSIS 1.1/2.0 compliance
- Based on CableLabs TDM Emulation over DOCSIS (BSoD)
- Standard based layer 3 circuit emulation 'Structure-Agnostic TDM over Packet (SAToP) and Circuit emulation over Packet Switched Networks (CESoPSN)
- Standard based layer 2 Circuit Emulation Services over Ethernet (CESoE)
- Dual Power inlet for backup
- Desk mount or wall-mountable
- Full T1/E1: Structured / unstructured (transparent) operation
- Fractional T1/E1 (n x DS0)

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Specifications

Physical:	Operating Temperature °F (°C) 41 to 104 (5 to 40)
	Operating Relative Humidity (Min.-Max.) (Non condensing).....5-85%
	Storage Temperature °F (°C).....-40 to 158 (-40 to 70)
	ColorDark gray
	Dimensions (H x W x D) in. (cm).....8.6 x 2 x 7.5 (21.85 x 5.1 x 19.0) - excluding F-connector
	Weight lbs (kg) ~ 1.0 lbs (0.45)
	Diagnostic LEDs TDM Link, TDM Port, Ethernet, Online, US, DS, Power
Interfaces:	RF Interface External 'F' type connector
	Data Interfaces (bridged)..... 10/100 Base-T Ethernet RJ-45
	T1/E1 Interface..... RJ-45 (Balanced 120 Ω/TIA-968-A)
	Input Power DC (nominal) / (Redundant inlet) 12 VDC, 2mm connector
	Power Consumption (maximum)..... 15 Watts
T1/E1:	T1/E1ITU-T Rec. G.703, G.704, G.706, G.732, G.823, G.824, ANSI T1.403-1995
	Synchronization..... Internal Clock, Adaptive, Line Timed, Direct timing
	Maximum Loop Length to CPE..... 1500 ft (457M) of 26 AWG (0.4 mm) wire
	Line code B8ZS, AMI, HDB3
	Framing Unframed, Framed, ESF, D4, PCM31, PCM30
RF Downstream:	Frequency Range (MHz) (North America)..... 88 – 860
	Modulation (QAM) 64 or 256
	Data Rate (Mbps) (Max.) up to 42.88
	RF Input Sensitivity Level (dBmV) -15 to 15
	Bandwidth 6 MHz
RF Upstream:	Frequency Range (MHz) 5-42
	Modulation QPSK, 8 QAM, 16 QAM, 32 QAM, 64 QAM & 128 QAM (S-CDMA only)
	Data Rate (Mbps) (Max.) up to 30.72
	RF Output Level (dBmV) +8 to 54 dBmV (32 QAM, 64 QAM)
	A-TDMA: +8 to 55dBmV (8 QAM, 16 QAM)
 +8 to 58 dBmV (QPSK)
	S-CDMA: +8 to +53 dBmV (all modulations)
	Automatic Level Adjust Yes
	Gain Control Range (dB) 50
	Frequency Stability (kHz) ±5
	Output Impedance (Ohms) 75
Standards:	DOCSIS 2.0 Complaint UL® 60950,
	IETF RFC 3916, RFC 4197, RFC 4553, FCC Part 15 Class A,
	ANSI T1.403-1995, T1.231-1993, CE
	ITU-T Rec G.826 AT&T TR-62411, TR-54016
	IETF RFC 2494, RFC 2495, RCF 1213 IETF, RFC 3895, RFC 3418, RFC 2863
	IEEE 802.3, MEF-8,

Ordering information

Part Number	Description
622170	Touchstone T1/E1 MTA CSM 571A/NA, DOCSIS 2.0 Compliant, 110V AC Power Supply & NEMA 1-15 NA plug
622171	Touchstone T1/E1 MTA CSM571A/CE, DOCSIS 2.0 Compliant, 220V AC Power Supply & CEE7 European Style Plug
622172	Touchstone T1/E1 MTA CSM571B/CE, Euro-DOCSIS 2.0 Compliant, 220V AC Power Supply & CEE7 European Plug

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