Touchstone® DOCSIS® 3.0 Upgradeable 32x8 Telephony Modem

TM3202

ARRIS

PRODUCT OVERVIEW:

The Touchstone® DOCSIS® 3.0 32x8 Embedded Multimedia Terminal Adaptor (E-MTA) TM3202 delivers two lines of primary line Voice over IP (VoIP), up to 1 Gigabit per second high speed data access, and multiple battery pack options to support telephony service during power outages. Designed as a customizable solution for advanced users, the TM3202 enables both home and small businesses the speed and performance achievable with 16x4, 24x8, or 32x8 bonded channels, along with industry-leading ARRIS voice and battery back-up features. With the TM3202, cable operators can maintain competitive position against VDSL and fiber to the home services by offering subscriber data services as high as 1 Gbps.

Touchstone® DOCSIS® 3.0 Upgradeable 32x8 Telephony Modem
TM3202

GENERAL SPECIFICATIONS

Physical

Operating Temperature °F (°C)	32 to 104 (0 to 40)
Operating Relative Humidity (Min-Max)	5-95% (non-condensing)
Storage Temperature °F (°C)	-40 to 158 (-40 to 70)
Dimensions (H x W x D) in. (cm) (excluding F-connector)	**TM3202A:** 7.1x1.8x7.1 (18.1x4.6x18.0) **TM3202G:** 9.1x2.2x7.0 (23.1x5.5x17.9) **TM3202G w/ 8-cell:** 9.7x2.2x7.0 (24.7x5.5x17.9)
Unit Weight in lbs (kg)	**TM3202A:** 1.11 (0.50) **TM3202G:** 1.39 (0.63) – not including battery
Battery Pack Weights in lbs (kg)	**4-Hr Pack:** Li-ion 2.2 AH Capacity, 0.25 (0.11) **8-Hr Pack:** Li-ion 4.4 AH Capacity, 0.50 (0.22) **12-Hr Pack:** Li-ion 6.6 AH Capacity, 0.75 (0.33) **16-Hr Pack:** Li-ion 8.8 AH Capacity, 1.0 (0.44)
Battery Storage Temperature °F (°C)	-4 to 140 (-20 to 60) *Storage above 77°F (25°C) reduces battery life*
Battery Telemetry (TM3202G only)	AC Fail, Battery Low, Battery Missing, Replace Battery
Diagnostic LEDs	Power, US/DS, Online, Tel1, Tel2, Battery (TM3202G only)

Interfaces

RF Interface	External 75 ohm 'F' type connector
Data Interface	10/100/1000 Base-T Ethernet RJ-45
Telephony Interface	Two (2) RJ-11 jacks
Battery Interface	Custom male connector, rectangular, 2mm
Input Voltage (nominal)	115 VAC, 60 Hz

Telephony

Supervisory Voltage	48 VDC nominal
Maximum Loop Length to CPE	1500 ft (457M) of 26 AWG (0.4 mm) wire
Ringing Load Capacity	10 REN total; 5 per line
Provisionable High Loop Current Mode	Yes (40mA constant current source)
Telcordia™ GR 1089 Tested	Yes
Programmable Country Interface	Yes (support for multiple country templates)

RF Downstream

Frequency Range (MHz)	108-1002 (edge-to-edge)
Bonded Channels	Up to 32
Tuner Configuration	Full capture tuning range
Modulation (QAM)	64 or 256
Data Rate (Mbps, Theoretical)	Up to 1000 (limited by GigE interface)
RF Input Sensitivity Level (dBmV)	-15 to +15
Carrier Bandwidth	6 MHz
MoCA® Immunity Filter	Yes

RF Upstream

Frequency Range (MHz)	5-42 (A/NA, G/NA) or 5-85 (A/NA-85 versions)
Bonded Channels	Up to 8
Modulation	QPSK, 8QAM, 16QAM, 32QAM, 64QAM, 128QAM (S-CDMA only)
Modulation Bandwidth (KHz)	**TDMA:** 200, 400, 800, 1600, 3200, 6400 **S-CDMA:** 1600, 3200, 6400
Data Rate (Mbps, Theoretical)	up to 240 *Max raw DOCSIS rate; actual throughput is less due to overhead, configuration, and RF conditions*

GENERAL SPECIFICATIONS

RF Upstream *(continued)*

RF Output Level (dBmV – one channel)	**TDMA:** +17-61 (QPSK); +17-58 (8QAM, 16QAM); +17-57 (32QAM, 64QAM) **S-CDMA:** +17 to +56 (all modulations) ***Note1****: A-TDMA max output reduced 3dB when transmitting 2 channels (6dB when transmitting 3+ channels). Extended US power compensates at higher bonding levels to ensure max output does not drop below +54dBmV.* ***Note2****: S-CDMA max output reduced 3dB when transmitting 2 or more channels.*
Automatic Level Adjust	Yes
Frequency Stability (KHz)	±5
Output Impedance (Ohms)	75

Standards

DOCSIS 3.0 Certified	UL® 60950 / CB	RoHS / WEEE
PacketCable 1.0, 1.5, 2.0 Compliant	FCC Part 15 Class B / ICES-003	G.711, 64 kbps, µ-law and A-law encoded speech
IEEE 802.3, 802.3ab	Telcordia™ GR-1089 Lightning/Surge	Enhanced codecs: G.722, G.726, G.728, G.729E
RFC3261 Legacy SIP	Telcordia™ GR-63 NEBS	T.38 Fax Relay
ITU-T K.21		

ORDERING INFORMATION

Part #	Description
1000032	TM3202A/NA, DOCSIS 3.0 E-MTA, Ships in 32x8 Configuration, 2-Lines VoIP, Not Battery Capable, 115VAC 60Hz, NA Power Cord, 1x GigE, No USB, RoHS, Quick Start Guide, and Ethernet cable.
1000110	TM3202A/NA-85, DOCSIS 3.0 E-MTA, Ships in 32x8 Configuration, 5-85 MHz Upstream, 2-Lines VoIP, Not Battery Capable, 115VAC 60Hz, NA Power Cord, 1x GigE, No USB, RoHS, Quick Start Guide, and Ethernet cable.
1000035	TM3202G/NA-0, DOCSIS 3.0 E-MTA, Ships in 32x8 Configuration, 2-Lines VoIP, Battery Capable (no battery included), 115VAC 60HZ, NA Power Cord, 1x GigE, No USB, RoHS, Quick Start Guide, and Ethernet cable.
1000036	TM3202G/NA-8, DOCSIS 3.0 E-MTA, Ships in 32x8 Configuration, 2-Lines VoIP, Battery Capable (ships w/ one 4-cell Li-Ion pack for up to 8 hours of standby power), 115VAC 60HZ, NA Power Cord, 1x GigE, No USB, RoHS, Quick Start Guide, and Ethernet cable.
1000037	TM3202G/NA-16, DOCSIS 3.0 E-MTA, Ships in 32x8 Configuration, 2-Lines VoIP, Battery Capable (ships w/ one 8-cell Li-Ion pack for up to 16 hours of standby power), 115VAC 60HZ, NA Power Cord, 1x GigE, No USB, RoHS, Quick Start Guide, and Ethernet cable.