

TM3202

**TOUCHSTONE® DOCSIS® 3.0
UPGRADEABLE 32X8 TELEPHONY MODEM**



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) <i>Storage above 77°F (25°C) reduces battery life</i> |
| Battery Telemetry (TM3202G only) | AC Fail, Battery Low, Battery Missing, Replace Battery |
| Diagnostic LEDs | Power, US/DS, Online, Tel1, Tel2, Battery (TM3202G only) |

Interfaces

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|-------------------------|---|
| 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

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|--------------------------------------|--|
| 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

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|-----------------------------------|--|
| 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

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|-------------------------------|--|
| 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 <i>Max raw DOCSIS rate; actual throughput is less due to overhead, configuration, and RF conditions</i> |

GENERAL SPECIFICATIONS

RF Upstream (continued)

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|--------------------------------------|---|
| 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. |
|--------------------------------------|---|

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|---------------------------|-----|
| Automatic Level Adjust | Yes |
| Frequency Stability (KHz) | ±5 |
| Output Impedance (Ohms) | 75 |

Standards

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|-------------------------------------|------------------------------------|--|
| 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. |

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