

Touchstone® Telephony Modem TM502A



Application

The Touchstone Telephony Modem TM502A delivers two lines of primary line Voice over IP (VoIP) along with High-Speed Data Access.

Setting the Standard for VoIP Subscriber Premise Equipment

ARRIS is the market leader in subscriber premises equipment for cable telephony with deployments of millions of lines of proprietary constant-bit rate (CBR) Cornerstone® Voice Port® units and DOCSIS®/PacketCable® compliant Touchstone Embedded Media Terminal Adaptors worldwide.

The Touchstone TM502A continues ARRIS cable telephony leadership by incorporating 5th generation DOCSIS silicon with updated telephone line interfaces while maintaining the feature set of the widely deployed ARRIS Cornerstone and Touchstone TM402 line interfaces. Each line interface continues to support a 5 REN per line ringing capacity and 48 VDC nominal battery feed. Each line interface also supports advanced features such as selectable ringing waveforms, “boost” loop current, loop voltage management for alarm systems, and template or SNMP provisioned telephony channel settings.

The Touchstone TM502A supports enhanced telephony features include Automatic Gain compensation for Tones and Signals (FSK/CAS), provisioned fixed or dynamic jitter buffers, and G.168 compliant echo cancellation. Advanced signal processing methods provide RFC 2833 compliant DTMF relay, T.38 Fax transmission, three-way calling, call waiting, and caller ID.

ARRIS Touchstone Telephony Modem Offers World Class Features to Deliver the Highest Quality Voice Service

Do not put your trust in reference designs that cannot deliver the performance and requirements for your telephony service. ARRIS R&D experience ensures that the quality and performance of all Touchstone Telephony Modems are consistently maintained at the highest level. When it comes to high-speed data service, subscribers will accept occasional lock-ups or momentary loss of connectivity that may require them to reboot their cable modem. Telephony customers demand 99.999% availability!

All ARRIS Touchstone Telephony Modems support a wide variety of class features including three-way calling, call waiting, caller ID, Emergency 911 and regulatory requirements for wiretap under CALEA legislation.

Environmentally Friendly ARRIS “Green”

With European Restriction of Hazardous Substances (RoHS) directive quickly approaching, ARRIS is pleased to provide the industries first E-MTA that exceeds the RoHS directive. Beyond the present European directive to remove lead and other heavy metals, ARRIS has increased our focus by removing other environmentally impacting materials from the packaging, cables, etc... Please contact your sales representative for more information.



- **DOCSIS 2.0 based and PacketCable 1.0 complaint design provides a solution for the long-term**
- **Toll quality voice supplies a superior subscriber experience**
- **Remotely upgradeable, Touchstone design provides a long-term solution in CPE**
- **Increased CPE compatibility with Boost Current and Automatic Gain compensation for Tones and Signals (FSK/CAS)**
- **Multiple Protocol Support: PacketCable (NCS) and Session Initiated Protocol (SIP)**



Specifications

Physical:	Operating Temperature °F (°C)..... 41 to 104 (5 to 40) Operating Relative Humidity(Min.-Max.) 5-85%(Non condensing) Storage Temperature °F (°C).....-40 to 158 (-40 to 70) Color.....Dark gray Dimensions (H x W x D) in. (cm) 7.3 x 1.9 x 7.1 (18.5 x 4.8 x 18.0): - excluding F-connector Weight lbs (kg) 1.06 (0.48) Diagnostic LEDs Power, DS, US, Online, Link, Telephone 1, and Telephone 2
Interfaces:	RF Interface External 'F' type connector Data Interfaces (bridged) 10/100 Base-T Ethernet RJ-45 Telephony Interface 2 RJ-11 Input Power (nominal)..... 100-240 VAC 50/60 Hz
Telephony:	Supervisory Voltage48 V dc nominal Maximum Loop Length to CPE 1500 ft (457M) of 26 AWG (0.4 mm) wire Ringing Load Capacity 10 REN total Provisionable High Loop Current Mode YES Telcordia™ GR 1089 (Lightning and Power Surge) Tested..... YES Programmable Interface for Worldwide Applications Yes (supports multiple country templates)
RF Downstream:	Frequency Range (MHz)..... 88-860 Modulation (QAM)..... 64 or 256 Data Rate (Mbps)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)..... A-TDMA: +8 to 54 dBmV (32 QAM, 64 QAM) +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:	Codec: G.711, 64 kbps, μ and A-law encoded speech RFC3261 SIP: Session Initiated Protocol Enhanced codec support (G.726, G.728, G.729) UL® 60950 T.38 Fax Relay FCC Part 15 Class B PacketCable Compliant CE DOCSIS 2.0 Based

Ordering Information

Part Number	Description
717943	Touchstone TM502A/NA (DOCSIS 2.0, NSC based, 110V Power Supply & NEMA 1-15 NA Plug)
717944	Touchstone TM502A/CE (DOCSIS 2.0, NSC based, 220V Power Supply & CEE7 European Style Plug)
718008 (*)	Touchstone TM502A/NA-SIP (DOCSIS 2.0, SIP based, 110V Power Supply & NEMA 1-15 NA Plug)
TBD (*)	Touchstone TM502A/CE-SIP (DOCSIS 2.0, SIP based, 220V Power Supply & CEE7 European Style Plug)

(*) The ARRIS SIP capability has been interoperability tested and ready for commercial deployment with the following SIP Proxy servers: Nortel, Cisco, CedarPoint, Seimens, Asterisk. Due to large number of brands on the market today with varying implementations of the SIP protocol, ARRIS cannot guarantee full interoperability with all vendors. Please contact your sales representative for the latest list of compatible SIP Proxy servers. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice. ARRIS, the ARRIS logo, Cadant®, D5™, Touchstone®, Cornerstone®, Keystone™, C4®, C3™, CXM™ Regal®, MONARCH®, Digicon® and TeleWire Supply® are all trademarks of ARRIS International, Inc. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and the names of their products. ARRIS disclaims proprietary interest in the marks and names of others. © Copyright 2006 ARRIS International, Inc. All rights reserved. Reproduction in any manner whatsoever without the express written permission of ARRIS International, Inc., is strictly forbidden. For more information, contact ARRIS.
26 April 2007