

Application

Building upon the success of the market leading Touchstone Telephony Modem TM502 design, ARRIS is pleased to introduce the Touchstone Telephony Modem TM504G. The TM504G delivers four lines of primary line Voice over IP (VoIP) along with High-Speed Data Access. The Touchstone Telephony Modem TM504G uses a single battery slot with two battery pack options to support telephony service during extended power outages.

World Class Features to Deliver the Highest Quality Voice Service

The Touchstone TM504G continues ARRIS cable telephony leadership by incorporating the widely deployed TM502 telephone interfaces and call features. Each line interface provides a 48VDC nominal battery feed with 5 REN per line ringing capacity. Configuration options for loop current, loop voltage management, and ringing waveform are available for each line interface.

Enhanced telephony features include auto-adapting FSK/CAS tone levels, 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.

Continued Leadership in Battery Technology

The Touchstone TM504G utilizes the same battery options as available in the TM502G. The 2-cell, Li-Ion battery pack coupled with ARRIS industry leading power management allows the TM504G to support up to 4 hours of battery backup. For more demanding applications, the 4-cell pack is available that provides up to 8 hours of battery backup.

Both lithium-ion battery packs provide 6 to 10 years of service life versus the 3 to 5 years typical of a sealed lead acid (SLA) battery. The lithium-ion batteries are easy to install, allowing for customer battery replacement.

PacketCable & Session Initiation Protocol Support

All Touchstone Telephony Modems support PacketCable (NCS) and Session Initiation Protocol (SIP) protocols. Both signaling protocols are based on the same architecture which allows ARRIS to maintain similar capabilities between software loads (i.e., provisioning, management, web interface). In addition, the available SIP signaling software provides Quality of Service (QoS) consistent with PacketCable Multimedia QoS methods.

- **DOCSIS® 2.0 and PacketCable™ 1.1/1.5 compliant design**
- **Long-life lithium-ion battery technology minimizes operational expense**
- **Simplified interoperability through PacketACE™ configuration file editor**
- **Increased CPE compatibility with Boost Ringing and FSK/CAS Auto-Tuning**
- **Software configurable battery management and reporting allows customization of operation parameters**
- **Multiple Protocol Support: PacketCable (NCS) and Session Initiation 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)
 ColorDark gray
 Dimensions (H x W x D) in. (cm)8.6 x 2.1 x 7.1 (21.8 x 5.3 x 18.0) -
 Weight lbs (kg)No battery included: 1.2 (0.54)
 Battery: 4 Hour Back-up Option (-4)
 Backup Capacity Lithium-ion 2.2 Ah
 Battery Dimensions in. (cm)....1.2 x 1.85 x 3.1 (3.0 x 4.7 x 7.9)
 Weight lbs (kg) 1.5 (0.66)
 Battery:8 Hour Back-up Option (-8)
 Backup Capacity Lithium-ion 4.4 Ah
 Battery Dimensions in. (cm)..1.2 x 1.85 x 5.7 (3.0 x 4.7 x 14.5)
 Weight lbs (kg): 1.7 (0.77)
 Battery Storage Temperature °F (°C) -4 to 140 (-20 to 60)
 Note: Storage above 77°F (25°C) will significantly reduce life of the battery and not recommended.

Diagnostic LEDs Power, DS, US, Online, Link,
 Telephone 1, Telephone 2, Telephone 3,
 Telephone 4, Battery

Interfaces: RF InterfaceExternal 'F' type connector
 Data Interfaces (bridged) 10/100 Base-T Ethernet
 (RJ-45 connector)
 Telephony Interface .. 4 lines; RJ-14 ("Line 1/2"), RJ-11 ("Line 2"),
 RJ-14 ("Line 3/4"), RJ-11 ("Line 4")

Input Power (nominal) 100-240 VAC 50/60 Hz

Telephony: Supervisory Voltage..... 48 V dc 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
 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) (Max.) 30 or 42
 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
 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)
 RF Output Level (dBmV) 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, and A-law encoded speech
 Enhanced codec software support (G.726, G.728, G.729E)
 T.38 Fax Relay
 DOCSIS 2.0 based
 PacketCable 1.0 & 1.5 based
 RFC3261 SIP: Session Initiation Protocol
 UL® 60950, FCC Part 15 Class B, CE

Ordering Information

Code	Description
721022	Touchstone TM504G/NA-0 DOCSIS 2.0 / PacketCable 1.0/1.5 Complaint E-MTA. Integrated 100-240 VAC, 50/60 HZ Power supply w/ 12 foot power cord with NEMA 1-15 pass-through power plug. Includes Quick Install Guide, Ethernet Cable, and CD-ROM with Users Guide. NO battery included
721023	Touchstone TM504G/NA-4 DOCSIS 2.0 / PacketCable 1.0/1.5 Complaint E-MTA Includes 1, 2-cell, Li-Ion Battery Pack for up to 4 hours of battery back-up. Integrated 100-240 VAC, 50/60 HZ Power supply w/ 12 foot power cord with NEMA 1-15 pass-through power plug Includes Quick Install Guide, Ethernet Cable, and CD-ROM with Users Guide.
721024	Touchstone TM504G/NA-8 DOCSIS 2.0 / PacketCable 1.0/1.5 Complaint E-MTA Includes 1, 4-cell, Li-Ion Battery Pack for up to 8 hours of battery back-up. Integrated 100-240 VAC, 50/60 HZ Power supply w/ 12 foot power cord with NEMA 1-15 pass-through power plug Includes Quick Install Guide, Ethernet Cable, and CD-ROM with Users Guide.
721025	Touchstone TM504G/CE-0 DOCSIS 2.0 / PacketCable 1.0/1.5 Complaint E-MTA Integrated 100-240 VAC, 50/60 HZ Power supply w/ 12 foot power cord with CEE 7/16 "Euro" Power Plug. Includes Quick Install Guide, Ethernet Cable, and CD-ROM with Users Guide. NO battery included
721026	Touchstone TM504G/CE-4 DOCSIS 2.0 / PacketCable 1.0/1.5 Complaint E-MTA Includes 1, 2-cell, Li-Ion Battery Pack for up to 4 hours of battery back-up. Integrated 100-240 VAC, 50/60 HZ Power supply w/ 12 foot power cord with CEE 7/16 "Euro" Power Plug Includes Quick Install Guide, Ethernet Cable, and CD-ROM with Users Guide.
721027	Touchstone TM5024/CE-8 DOCSIS 2.0 / PacketCable 1.0/1.5 Complaint E-MTA Includes 1, 4-cell, Li-Ion Battery Pack for up to 8 hours of battery back-up. Integrated 100-240 VAC, 50/60 HZ Power supply w/ 12 foot power cord with CEE 7/16 "Euro" Power Plug Includes Quick Install Guide, Ethernet Cable, and CD-ROM with Users Guide.
718003	One 2-Cell, 2.2 Ah, Li-Ion Battery Pack for TM502/504G
718004	Kit of 60, 2-Cell, 2.2 Ah, Li-Ion Battery Packs for TM502/504G
718005	One 4-Cell, 4.4 Ah, Li-Ion Battery Pack for TM502/504G
718006	Kit of 30, 4-Cell, 4.4 Ah, Li-Ion Battery Packs for TM502/504G

Battery back-up times are typical and can be influenced by the age of the battery, the charging state, storage conditions and operating temperature as well as factors such as data activity and length of active telephone calls. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.

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