The TX RX Systems Auto Quad Tower-Top Amplifier (TTA) system is a high performance, quadrature-coupled low noise amplifier (LNA). The TTA increases receive sensitivity, improves receiver noise figure and can make all the difference in mission critical communications.

The TTA operates independently, monitoring LNA current and automatically switching to a redundant LNA if needed. Status reporting is accomplished via AISG compliant telemetry between the controlling processor in the Tower Box and the base control unit. The base control unit has an on board AISG modem which does not require the use of an external data cable. This telemetry does not interfere with RF Signals in any way and communicates the LNA currents, temperature and operational status to the base control unit LCD display. Test modes and manual switching between LNA’s is also accomplished by way of the telemetry system.

The TTA consists of two components: the tower top amplifier mounted close to the antenna and the receiver multicoupler. In order to reduce the size of the TTA and simultaneously provide 120 dB of isolation to a TX carrier, filtering has been split between the TTA and the base unit.

FEATURES

► All tower top ports protected by internal surge suppressors
► Two independent Quadrature Coupled LNA’s in the tower top assembly provides the redundancy needed to ensure maximum uptime
► Microprocessors continuously monitor amplifiers and will switch tower top LNA’s if needed
► Ethernet
► Multiple Real-Time Status and Alarm Annunciation Methods:
  - Secure SNMP (v3.0) Trap Messaging (compatible with most SNMP Managers)
  - Form-C contacts
  - Front Panel Status Indicators
► Wind loading is reduced due to the smaller enclosure size
► Available with a 16 port receive multicoupler unit
► Expandable as needed to 32, 40 or 48 ports

APPLICATIONS

The TTA is designed to increase the performance of a Base Transceiver Station (BTS) while ensuring reliable communications for critical Public Safety applications. This increase in sensitivity can make up for the imbalance between mobile and handheld users in critical systems.
SYSTEM SPECIFICATIONS

Frequency Bands 700-800 MHz, 900 MHz
Net Gain 15.0 Typ.
Rejection 110 dB min. at 776 and 851 MHz
Noise Figure 2.9 dB Typ.
Total Power Dissipation 17W

TOWER TOP AMPLIFIER SPECIFICATIONS

Frequency Bands
700/800 MHz 792-824 MHz
900 MHz 896-902 MHz
Preselector Included Yes
Preselector Frequency Range 792–824 MHz, 896-902 MHz
Type of Amplifier Quadrature Coupled (Redundant)
Amplifier Switching Automatic
Type of Amplifier Switching Solid State RF Switch
TTA Gain (Input to output of TTA) 22.5 dB Typ.
LNA OIP3 > 42 dBm Typ.
Return Loss of all RF Ports > 14 dB
Power Requirements Power derived from Rx Cable
Operating Temperature Range -30° C to +60° C
Amplifier Redundancy Automatic change - over
Lightning Protection Impulse suppressor on all external ports
Test Port Included Yes
Coupling Test Port (Test in/Amp in) 30dB
50 Ohm Termination Test Controlled by base unit
Type of RF Test Switching Solid State RF Switch
Bypass Test Mode Controlled by base unit
Enclosure Weather resistant Housing, Designed to NEMA Standards
700/800 Dimensions/Net Weight 8.84” x 5.77” x 6.04”/8 lbs
900 Dimensions/Net Weight 7.25”x11.25”x11.25”/14.28 lbs

BASE UNIT SPECIFICATIONS

Multicoupler Unit (MCU)
Frequency Band 792-824 MHz, 896-902 MHz
Net Gain or Loss (RMC in to Rx out) +1 dB Typ
Number of Output Ports 16 expandable to 48
TTA Connector N-Female
Receiver Connector BNC-Female
Rx-Rx Port Isolation (Min) >20 dB
Test Port Input (Front of RMC) BNC-Female
Test Port Output (Rear of RMC) N- Female
Net Gain Electronic Attenuator 15 dB in 0.5 dB steps (6 dB default)
Alarm Contacts Form-C contacts
Ethernet Port RJ45 (front panel access)
Power Requirements 90-240 VAC @ 50/60 Hz or -48 VDC
Operating Temp Range 0°C to +50°C
Enclosure Standard EIA 19” Rack Mounting
700/800 Dimensions/Net Weight 1 RU x 19” x 14”/9 lbs
900 Dimensions/Net Weight 1.75”x19”x12.25”/13 lbs

OPTIONAL PRODUCTS

Model Numbers Description
89-83F-03-03 792-806 MHz, 3 MHz Bandwidth Preselector
89-83F-03-06 792-806 MHz, 6 MHz Bandwidth Preselector
89-83F-03-09 792-806 MHz, 9 MHz Bandwidth Preselector
89-83F-03-14 792-806 MHz, 14 MHz Bandwidth Preselector
89-86A-03-03 806-824 MHz, 3 MHz Bandwidth Preselector
89-86A-03-05 806-824 MHz, 5 MHz Bandwidth Preselector
89-86A-03-10 806-824 MHz, 10 MHz Bandwidth Preselector
89-86A-03-14 806-824 MHz, 14 MHz Bandwidth Preselector
89-86A-03-15 806-824 MHz, 15 MHz Bandwidth Preselector
89-86A-03-18 Receive Multicoupler, 8 Port Expansion Kit
75-83K-01 Expansion Kit, 16-32 Port, 792-902 MHz
75-83K-02 Expansion Kit, 16-40 Port, 792-902 MHz
75-83K-03 Expansion Kit, 16-48 Port, 792-902 MHz
91-00-123 TTA Mounting Bracket Kit

TX RX Systems Inc.
8625 Industrial Pkwy, Angola, NY 14006
716.549.4700 | Sales@txrx.com | www.txrx.com

TTA Filtering

A steep skirted TEM bandpass filter in the tower box augmented by a ceramic filter in the base unit provide a selective 32 MHz system window.

Model Numbers Description Power Req
434B-83H-01-T TTA, Mini AutoQuad, 792-824 MHz, tower top box only
434B-83H-01-M-110 Multicoupler Unit (MCU) 16-port, 792-824 MHz, used with 434B-83H-01-T AC
434B-83H-01-M-48 Multicoupler Unit (MCU) 16-port, 792-824 MHz, used with 434B-83H-01-T -48
434B-94D-01-T TTA, Mini AutoQuad, 896-902 MHz, tower top box only
434B-94D-01-M-110 Multicoupler Unit (MCU) 16-port, 896-902 MHz, used with 434B-94D-01-T AC
434B-94D-01-M-48 Multicoupler Unit (MCU) 16-port, 896-902 MHz, used with 434B-94D-01-T -48

TTA will function up to 70°C without shutting down however, the specifications are not guaranteed outside the rated temperature range.