

# Tower Top Amplifier System

## 700/800MHz

### High-selectivity Tower Top Amplifier system for 794-824MHz

TA7982 Series – suits Motorola TTA01/RMC01 deployments



The TA7982 Series Tower Top Amplifier is a full-featured, high performance system that can improve a base station repeater site's receiver sensitivity and network performance. The system comprises two components; the Tower Top Amplifier (TTA), and a Receiver Multicoupler/TTA Controller unit (RMC).

The small size of the TTA unit reduces tower loading and includes a milled preselector that provides >110dB of selectivity before the TTA LNA and RMC active circuitry. Two independent quadrature LNAs in the TTA, each powered by separate power supplies, provide low noise figure and excellent IM performance, and redundancy to improve system resiliency and availability.

A comprehensive microprocessor-controlled status and fault monitoring system provides continuous monitoring and switching of the redundant LNAs. Front panel switches, front panel indicators, and a Form-C relay provide system configuration and fault status functions. The RMC features selectable inline Post Filter connections, and Bypass, Terminated and Test Port functionality is also included to support testing and commissioning. Auto-gain, Auto-Mode, Gain-Boost, Auto-Bypass and Auto-Recover functionality, diagnostics and communication management are also available via an on-board webserver GUI.



Tower Top Amplifier



Receiver Multicoupler

#### Features:

- TTA selectivity (> 110dB) prior to all active circuitry
- Redundant TTA quadrature LNA circuits
- Extensive circuit monitoring and alarm management
- Test Ports and Functionality supports Motorola 5 Step Plan
- Convenient RMC front panel controls
- User-friendly webserver Graphical User Interface (GUI)
- Auto-Gain, Auto-Mode, Gain Boost, Auto-Bypass and Auto-Recover functions
- Compact and light weight TTA for reduced tower loading
- SNMP, SMTP (Email) and Form-C relay contacts for fault reporting
- 12VDC, 24VDC, 48VDC or 90-264VAC versions available

Model TA7982-0100-10-00 / RX6996-34xx-44-xxB	System Specification
Frequency Band	700/800MHz
Frequency Range	794-824MHz (reduced passband widths available using RMC post filter)
Preselector Selectivity	>110dB @776MHz, >110dB @ 851MHz
Amplifier (LNA) Type	Redundant Quadrature (TTA), Quadrature (RMC)
3rd Order IIP	>13dBm @ 25dB TTA gain
TTA System Net Gain	Adjustable via Switches or webserver GUI
Number of RF Outputs	8, 9, 16, 24, 32 (expandable to 128) Way
System Noise Figure	<3.5dB
Test Port	Included
Isolation of Test Port	30dB +/-2dB
50ohm Termination Testing	Included
Bypass Test Mode	Included
Net Weight	6kg / 13.2lbs for TTA / RxMUX (8way) 7.1kgs / 15.6lbs for TTA / RxMUX (16way)
Ship Weight	8.2kgs / 18lbs (8way) 10.6kgs / 23.3lbs (16way)

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Frequency Band	700/800MHz
Frequency Range	794-824MHz
Preselector Selectivity	>110dB @776MHz, >110dB @ 851MHz
Amplifier (LNA) Type	Quadrature
Redundant LNA	Yes
Gain	25dB (typ)
LNA Noise Figure	<1.5dB (1dB typ.)
Return Loss (All Ports)	>14dB
Test Port	Included
50ohm Termination Testing	Included
Bypass Test Mode	Included
RF Connectors (All Ports)	N-type (female)
Power Requirements	Power derived from "Main" port coaxial cable
Lightning Protection	Integrated in unit - Multiple-strike 20kA IEC 61000-4-5 8/20uS and 3kA 10/350uS slow pulse
Operating Temperature	-30°C to +60°C / -22°F to 140°F
Extended Operating Temperature	-30°C to +70°C / -22°F to 158°F
Mounting	Universal Brackets to suit hose clamps, bolts, U-bolts (316 S/Steel)
Enclosure	IP-rated NEMA-4 Weather Resistant Housing
Weight	3.8kgs / 8.5lbs
Dimensions (W x H x D)	236x160x90mm / 9.8x6.3x3.55" (TTA Only) 236x256x120mm / 9.8x10.1x4.7" (with Universal Brackets)

RX6996-34yy-34-xxB	Receiver Multicoupler / TTA Controller
Frequency Range	698-960MHz
Number of RF Outputs	yy = "08" = 8 ports yy = "16" = 16 ports (expandable up to 128)
Expansion Port	Yes
Net Gain	0 to 4dB (-19 to +11 available)
Amplifier Type	Quadrature
Amplifier Noise Figure	<2.5dB (1.9dB typ.)
Amplifier 3OIP	>45dBm (48dBm typ.)
RF Port Return Loss (All Ports)	>14dB
Main and Test Port Connectors (rear)	N-type (female)
RF Outputs Connectors (rear)	BNC-type (female)
Expansion Port Connector (rear)	BNC-type (female)
In-line Post Filter Connectors (rear)	BNC-type (female)
Test Port (front)	BNC-type (female)
Input (Reserve) Gain Attenuator	15dB (in 1dB steps in early models, in 0.5dB steps in later models)
Distribution Gain	4dB (in 0.5dB steps)
Lightning Protection	Internal surge protection to supplement building entry point protection
Alarms Contacts	Form-C contacts (n.o./n.c. 1A 60V)
Alarm Connector	3pin Pheonix style (locking)
Communications	TCP/IP Ethernet
Communications Connectors	2 x RJ45
Indicators	Front and Rear Panel LEDs
Power Requirements (model dependent)	xx = "12" 12VDC nom. 10-18VDC floating) @ 2.5A (typ.) xx = "48" 48VDC nom. 36-60VDC floating) @ 0.7A (typ.) xx = "AC" 90-264VAC 47-63Hz
DC Connector	2pin Pheonix style (locking)
Earthing	M6 Stud and M5 Screw provided
Operating Temperature Range	0°C to +50°C / 32°F to 122°F
Mounting	1RU (8way) / 2RU (16way) 19in Rack Mount
Weight	2.1kgs / 4.7lbs (8way) 3.45kgs / 7.6lbs (16way)
Dimensions (W x H x D)	483x44.45x150mm / 19x1.75x5.9"

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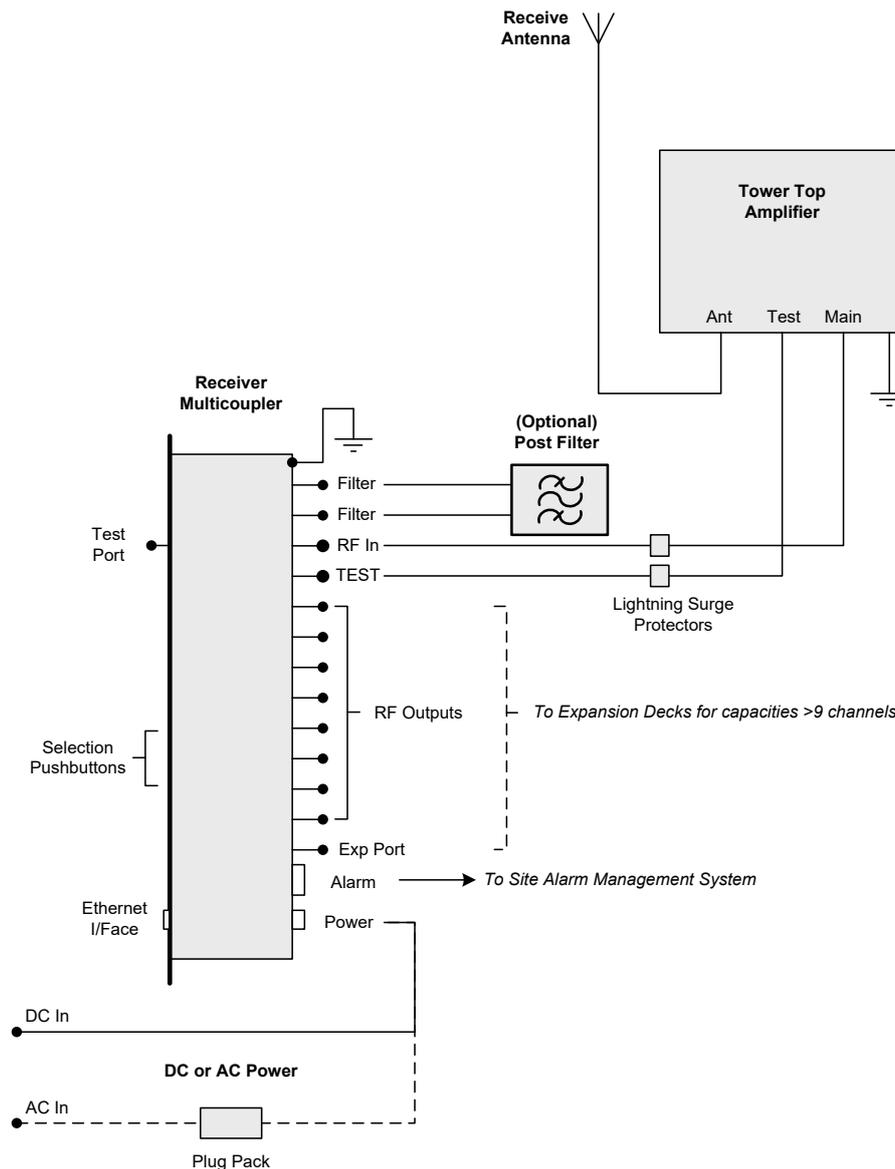
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## Ordering Information

Motorola E-CAT Number	RFI Part Number	Description
DSTA798201001000	TA7982-0100-10-00	Tower Top Amplifier 794-824MHz, c/w Universal Mounting Brackets
DSRX699634083412B	RX6996-3408-34-12B	Receiver Multicoupler/TTA Controller 698-960MHz, 8way, BNC, 10-18VDC, TTA Control & Auto C/O, 1RU
DSRX699634083424B	RX6996-3408-34-24B	Receiver Multicoupler/TTA Controller 698-960MHz, 8way, BNC, 18-36VDC, TTA Control & Auto C/O, 1RU
DSRX699634083448B	RX6996-3408-34-48B	Receiver Multicoupler/TTA Controller 698-960MHz, 8way, BNC, 36-60VDC, TTA Control & Auto C/O, 1RU
DSRX6996340834ACB	RX6996-3408-34-ACB	Receiver Multicoupler/TTA Controller 698-960MHz, 8way, BNC, AC, TTA Control & Auto C/O, 1RU complete with RXTA0000-3460US-AC 90-264VAC/48VDC Plug Pack Power Supply
DSRX0696300831B	RX0696-3008-31B	Receiver Multicoupler Expansion Unit, 60-960MHz, 8way, BNC, 1RU
DSPF7982100331N	PF7982-1003-31N	Receiver Multicoupler Optional Post Filter 794-824MHz, 3MHz BW, N, 1RU c/w RG142 coax cables
DSPF7982100631N	PF7982-1006-31N	Receiver Multicoupler Optional Post Filter 794-824MHz, 6MHz BW, N, 1RU c/w RG142 coax cables
DSPF7982101031N	PF7982-1010-31N	Receiver Multicoupler Optional Post Filter 794-824MHz, 10MHz BW, N, 1RU c/w RG142 coax cables
DSPF7982101531N	PF7982-1015-31N	Receiver Multicoupler Optional Post Filter 794-824MHz, 15MHz BW, N, 1RU c/w RG142 coax cables
DSPF7982101831N	PF7982-1018-31N	Receiver Multicoupler Optional Post Filter 794-824MHz, 18MHz BW, N, 1RU c/w RG142 coax cables
DSRXTA00003460AUAC	RXTA0000-3460AU-AC	90-264VAC 50/60Hz 48VDC Plug Pack Power Supply c/w 1.5m IEC cable with AU plug
DSRXTA00003460USAC	RXTA0000-3460US-AC	90-264VAC 50/60Hz 48VDC Plug Pack Power Supply c/w 1.5m IEC cable with US plug
DSRXTA00003460UKAC	RXTA0000-3460UK-AC	90-264VAC 50/60Hz 48VDC Plug Pack Power Supply c/w 1.5m IEC cable with UK plug

## TYPICAL 7/800MHz APPLICATION DIAGRAMS



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#### TYPICAL 7/800MHz APPLICATION DIAGRAM

