Tower Top Amplifier System
700/800MHz
High-selectivity Tower Top Amplifier system for 796-824MHz
TA7982 Series

The TA7982 Series Tower Top Amplifier system is a full-featured, high performance system utilizing a quadrature-coupled Low Noise Amplifier (LNA) design to improve the performance of a network site. The TTA system comprises two components; the Tower Top Amplifier (TTA), and a Receiver Multicoupler/TTA Controller unit (RxMUX).

TOWER TOP AMPLIFIER

The Tower Top Amplifier is designed and built for ease of mounting to varying size tower legs using commonly available fasteners with a compact and integrated precision milled high selectivity low loss preselector, reducing the TTA profile and hence tower loading. Two independent LNA's, with an auto by-pass mode and constant monitoring provide system redundancy, resilience and improved availability. Low noise linear amplifiers provide excellent Inter-Modulation (IM) performance ensuring maintained integrity of received signals across a wide signal

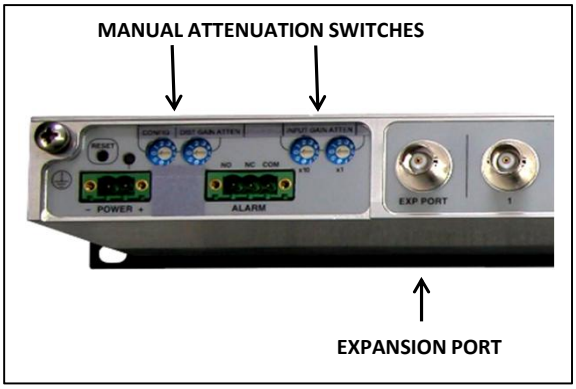
The precision milled and integrated TTA preselector provides >110dB of selectivity before the TTA LNA and RxMUX active circuitry. A comprehensive microprocessor-controlled status and fault monitoring system provides continuous monitoring and switching of the redundant LNAs.

Ease of installation and configuration via user-friendly switches or an on-board web server and GUI interface, reduces installation setup time. Unique "auto-gain" feature provides an additional level of failure tolerance. Test port functionality facilitates the Motorola 5 step plan for commissioning and Performance Logging ensures that ongoing optimum system performance is measurable. Front and rear panel LED indicators and Form-C relay fault reporting with the simplicity of local or remote system status diagnostics via the Ethernet port greatly assists in determining network health and pro-active maintenance. The RxMUX features selectable in-line Post filter connections to facilitate additional filtering. Expansion capability is provided by using the expansion port on the RxMUX and the RFI Expansion Multicouplers.

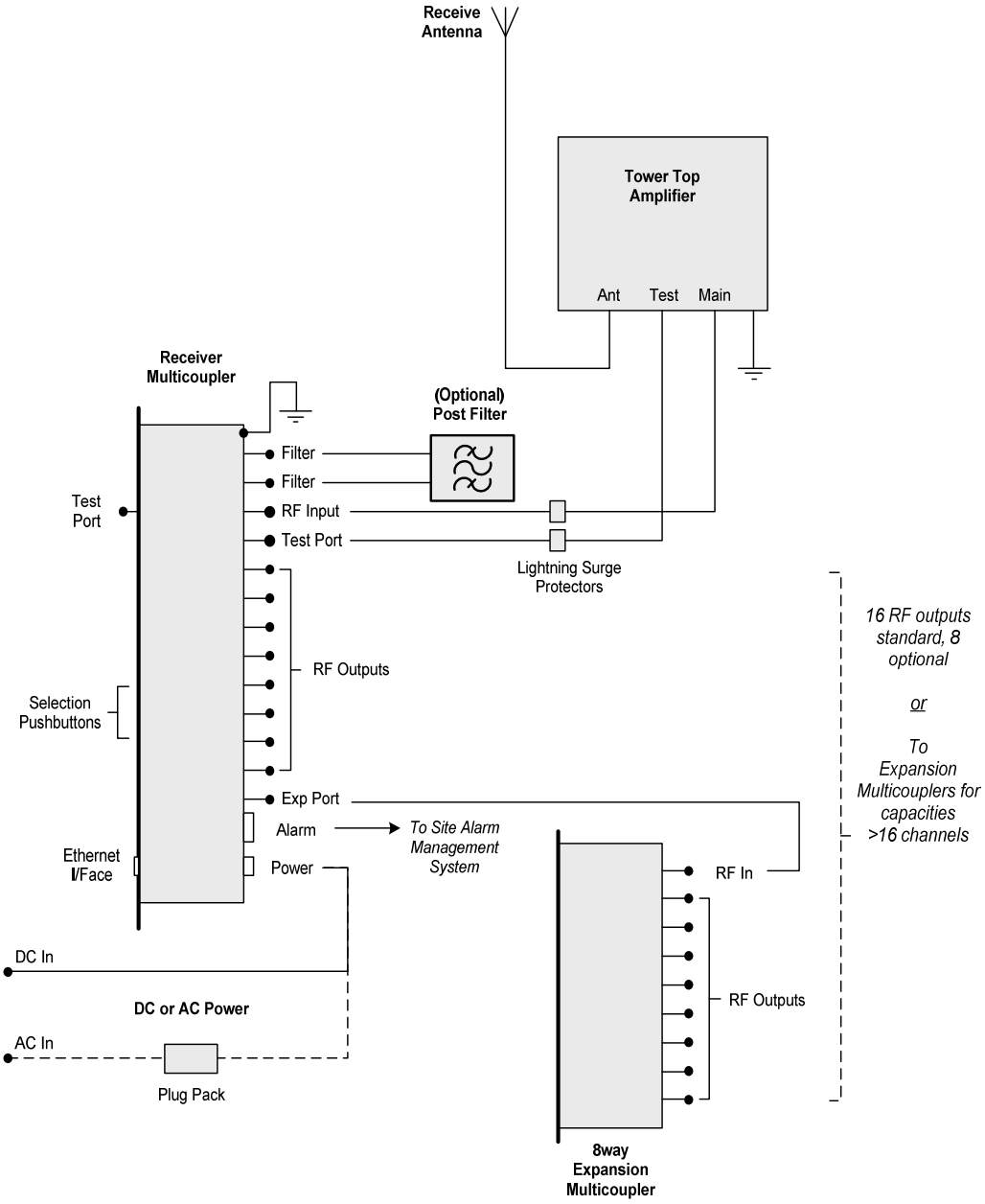
RxMUX / TTA CONTROLLER

Features

- Integrated precision milled pre-selector filter in TTA
- 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 RxMUX front panel controls
- User-friendly webserver Graphical User Interface (GUI)
- Auto-Gain and Auto-Changeover modes
- Compact and light weight TTA for minimal tower loading
- Form-C contacts for fault reporting through an alarm management system
- 12VDC, 24VDC, 48VDC or 90-264VAC versions available



TYPICAL 7/800MHz APPLICATION DIAGRAM



TTA UNDER VIEW

Rx MULTICOUPLER / TTA CONTROLLER FRONT VIEW

REAR VIEW

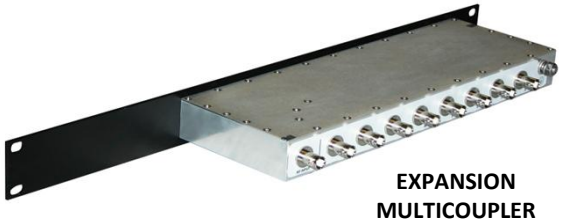
System Specification

Specifications:	TA7982 Series
Frequency Band	700/800MHz
Frequency Range	796-824MHz
Preselector Selectivity	>110dB @ 776MHz, >110dB @ 851MHz
Amplifier (LNA) Type	Quadrature
TTA System Net Gain	Adjustable via Switches or webserver GUI
Number of RF Outputs	8, 16, 24, 32 expandable to 128-Way
System Noise Figure	<3.5dB (note 1)
Test Port	Included
Isolation of Test Port	30dB +/-2dB
50ohm Termination Testing	Included
Bypass Test Mode	Included
Net Weight	TTA / RxMux 8-Way 13.2lbs, TTA / RxMux 16-Way 15.6lbs
Ship Weight	TTA / RxMux 8-Way 18lbs, TTA / RxMux 16-Way 23.3lbs

Note 1. Noise figure takes into account 6dB cable loss between TTA and RxMUX

Available Options

- Optional 12, 24 or 48VDC & 90-264VAC
- Expandable to 16, 24, 32 or up to 128-Way
- Post Band Pass Filters - wide range available



EXPANSION MULTICOUPLER

Tower Top Amplifier

Specifications:	Model TA7982-0100-10-00
Frequency Band	700/800MHz
Frequency Range	796-824MHz
Preselector Selectivity	>110dB @ 776MHz, >110dB @ 851MHz
Amplifier (LNA) Type	Quadrature
Redundant LNA	Yes
Gain	25dB (typ)
LNA Noise Figure	<1.5dB (1.2dB typ.)
3rd Order IIP	>15dBm
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 (20kA IEC 61000-4-5 8/20uS)
Operating Temperature	-22°F to 140°F / -30°C to +60°C
Extended Operating Temperature	-22°F to 158°F / -30°C to +70°C
Mounting	Universal bracket to suit hose clamps, bolts, U-bolts (316 S/Steel)
Enclosure	IP-rated NEMA-4 Weather Resistant Housing
Weight	8.5lbs (incl mounting bracket / excluding fasteners)
Dimensions (W x H x D)	9.8" x 6.3" x 3.55" (TTA Only) 9.8" x 10.1" x 4.7" (with Universal Brackets)

Receiver Multicoupler / TTA Controller

Specifications:	RX6996-34xx-34-yyB
Frequency Range	698-960MHz
Number of RF Outputs	8 or 16 (expandable 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 OIP3	>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)
Distribution Gain Attenuator	4dB (in 1dB 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 Phoenix style (locking)
Communications	TCP/IP Ethernet
Communications Connector	RJ45
Indicators	Front and Rear Panel LEDs
Power Requirements	12VDC nom. (10-18VDC floating) @ 2.5A (typ.)
AC Power Supply Option	Supplied with 90-264VAC 50/60Hz PSU
DC Connector	2pin Pheonix style (locking)
Earthing	M6 Stud and M5 Screw provided
Operating Temperature Range	32°F to 122°F / 0°C to +50°C
Mounting	1RU 19in Rack Mount
Weight	4.7lbs (8way) / 7.6lbs (16way)
Dimensions (W x H x D)	19" x 1.75" x 5.9" (8-Way) / 19" x 3.5" x 5.9" (16-Way)

Ordering information

Motorola E-CAT Number	RFI Part Number	Description
DSTA798201001000	TA7982-0100-10-00	TTA01, Fully Redundant Amp, 796-824MHz (TTA only)
DSRX6996340834ACB	RX6996-3408-34-ACB	RMC01, 8 Port MCU with TTA Controller, 698-960MHz, 8-Way, BNC, AC, 1RU
DSRX699634083448B	RX6996-3408-34-48B	RMC01, 8 Port MCU with TTA Controller 698-960MHz, 8-Way, BNC, 48VDC, 1RU
DSRX6996341634ACB	RX6996-3416-34-ACB	RMC01, 16 Port MCU with TTA Controller 698-960MHz, 16-Way, BNC, AC, 1RU
DSRX699634163448B	RX6996-3416-34-48B	RMC01, 16 Port MCU with TTA Controller 698-960MHz, 16-Way, BNC, 48VDC, 1RU
DSRX0696300831B	RX6096-3008-31B	Multicoupler Expansion, 8 Port, 60-960MHz, BNC, 1RU