

# Tower Top Amplifier System

## 700/800MHz Diversity Receive or Dual-Receiver

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

TA7982 Series



The TA7982 Series Diversity Receive (or Dual-Receiver) 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 the following components; a fully-redundant set of Tower Top Amplifiers (TTAs) mounted together using a Dual TTA Mounting Kit, and fully-redundant Receiver Multicoupler/TTA Controllers (RMCs).

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

A comprehensive microcontroller status and fault monitoring system in each of the RMCs provides continuous monitoring and switching of the TTA's 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.

#### Features:

- Suits Diversity Receive and Dual-Receiver systems
- Fully redundant for increased fault-tolerance and system availability
- Convenient migration path from single receiver systems
- TTA selectivity (>110dB) prior to all active circuitry
- Extensive circuit monitoring and alarm management
- Test Ports and Functionality supports testing and commissioning
- User-friendly webserver Graphical User Interface (GUI)
- Auto-Gain, Auto-Mode, Gain Boost, Auto-Bypass and Auto-Recover functions
- Compact and light weight dual TTA mounting for reduced tower loading
- SNMP, SMTP (Email) and Form-C relay contacts for fault reporting
- 12VDC, 24VDC, 48VDC or 90-264VAC versions available



Tower Top Amplifiers



Receiver Multicouplers

Model TA7982-0200-10-00 / RX6996-34xx-45-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
3rd Order IIP	>13dBm @ 25dB TTA gain
TTA System Net Gain	Adjustable via Switches or webserver GUI
Number of RF Outputs	8, 9, 16, or expandable to 128
System Noise Figure	<3.5dB typ
Test Port	Included
Isolation of Test Port	33dB +/-2dB
50ohm Termination Testing	Included
Bypass Test Mode	Included
Net Weight	13kgs / 28.6lbs for TTAs/RMCs (8way) 14.1kgs / 31.0lbs for TTAs/RMCs (16way)
Ship Weight	17kgs / 37.4lbs (8way) 21.1kgs / 46.4lbs (16way)

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Model TA7982-0200-10-00	Dual Tower Top Amplifiers
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 units - 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	8.6kgs / 19lbs
Dimensions (W x H x D)	256x256x240mm / 10.1x10.1x9.45" (with Dual TTA Kit and Universal Brackets)

RX6996-34xx-45-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 0.5dB steps)
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	4 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	2RU 19in Rack Mount
Weight	4.2kgs / 9.4lbs (8way) 6.9kgs / 15.2lbs (16way)
Dimensions (W x H x D)	483x88.9x150mm 19x3.5x5.9"

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#### Ordering Information

RFI Part Number	Description
TA7982-0200-10-00	Diversity Receive (or Dual-Receiver) TTA, 794-824MHz, c/w Dual TTA Mounting Kit
RX6996-3408-45-12B	Receiver Multicoupler/TTA Controller 698-960MHz, 2 x 8way, BNC, 10-18VDC, TTA Control & Auto C/O, 2RU
RX6996-3408-45-24B	Receiver Multicoupler/TTA Controller 698-960MHz, 2 x 8way, BNC, 18-36VDC, TTA Control & Auto C/O, 2RU
RX6996-3408-45-48B	Receiver Multicoupler/TTA Controller 698-960MHz, 2 x 8way, BNC, 36-60VDC, TTA Control & Auto C/O, 2RU
RX6996-3408-45-ACB	Receiver Multicoupler/TTA Controller 698-960MHz, 2 x 8way, BNC, AC, TTA Control & Auto C/O, 2RU complete with 2 x RXTA0000-3460US-AC 90-264VAC/48VDC Plug Pack Power Supplies
RX0696-3008-31B	If used, Qty 2 sets required Receiver Multicoupler Expansion Unit, 60-960MHz, 2 x 8way, BNC, 1RU
PF7982-1003-31N	If used, Qty 2 required Receiver Multicoupler Optional Post Filter 794-824MHz, 3MHz BW, N, 1RU c/w RG142 coax cables
PF7982-1006-31N	If used, Qty 2 required Receiver Multicoupler Optional Post Filter 794-824MHz, 6MHz BW, N, 1RU c/w RG142 coax cables
PF7982-1010-31N	If used, Qty 2 required Receiver Multicoupler Optional Post Filter 794-824MHz, 10MHz BW, N, 1RU c/w RG142 coax cables
PF7982-1015-31N	If used, Qty 2 required Receiver Multicoupler Optional Post Filter 794-824MHz, 15MHz BW, N, 1RU c/w RG142 coax cables
PF7982-1018-31N	If used, Qty 2 required Receiver Multicoupler Optional Post Filter 794-824MHz, 18MHz BW, N, 1RU c/w RG142 coax cables
RXTA0000-3460AU-AC	If used, Qty 2 required 90-264VAC 50/60Hz 48VDC Plug Pack Power Supply c/w 1.5m IEC cable with AU plug
RXTA0000-3460US-AC	If used, Qty 2 required 90-264VAC 50/60Hz 48VDC Plug Pack Power Supply c/w 1.5m IEC cable with US plug
RXTA0000-3460UK-AC	If used, Qty 2 required 90-264VAC 50/60Hz 48VDC Plug Pack Power Supply c/w 1.5m IEC cable with UK plug

#### TYPICAL 7/800MHz APPLICATION DIAGRAM

