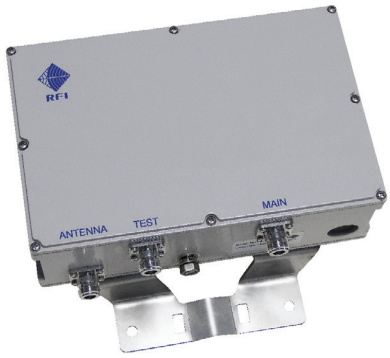
Tower Top Amplifier System
900MHz
High-selectivity Tower Top Amplifier system for 896-902MHz
TA8990 Series – suits Motorola TTA03/RMC03 deployments

The TA8990 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 three components; the Tower Top Amplifier (TTA), a Receiver Multicoupler/TTA Controller unit (RMC), and a Post Filter (PF).

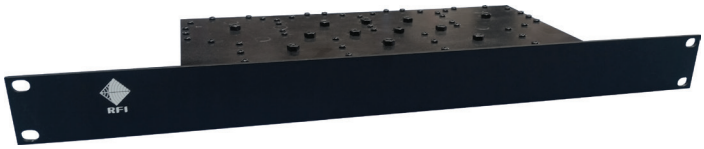
The small size of the TTA unit reduces tower loading and includes a milled preselector that provides a high level of selectivity before the TTA LNA and RMC circuitry. Two independent quadrature LNAs in the TTA, each powered by separate power supplies, provide low noise figure and excellent IM performance, 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



Post Filter

Features:

- For use in ESS systems
- Excellent selectivity 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 TA8990-0100-10-00 / RX6996-3001-36-xxB / PF8990-1006-31N	System Specification
Frequency Band	900MHz
Frequency Range	896-902MHz
Preselector Selectivity	>120dB @ ≤869MHz, >90dB @ ≤894MHz, >120dB @ ≥928MHz
Amplifier (LNA) Type	Redundant Quadrature (TTA), Quadrature (RMC)
TTA 3rd Order IIP	>13dBm @ 25dB TTA gain
TTA System Net Gain	Adjustable via Switches or webserver GUI
Number of RF Outputs	1
System Noise Figure	<3.0dB
Test Port	Included
Isolation of Test Port	30dB +/-2dB
50ohm Termination Testing	Included
Bypass Test Mode	Included
Post Filter	896-902MHz
Net Weight	7.3kgs / 16.0lbs for TTA / RMC / Post Filter
Ship Weight	8.4kgs / 18.5lbs for TTA / RMC / Post Filter

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Model TA8990-0100-10-00	Tower Top Amplifier
Frequency Band	900MHz
Frequency Range	896-902MHz
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)

RX6996-3001-36-xxN	Receiver Multicoupler / TTA Controller
Frequency Range	698-960MHz
Number of RF Outputs	1
Net Gain	-10dB (-10dB to -25dB)
RF Port Return Loss (All Ports)	>14dB
Main and Test Port Connectors (rear)	N-type (female)
RF Outputs Connectors (rear)	N-type (female)
In-line Post Filter Connectors (rear)	BNC-type (female)
Test Port (front)	BNC-type (female)
Test Port Connector (rear)	N-type (female)
Input (Reserve) Gain Attenuator	15dB (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
Weight	2.0kgs / 4.5lbs
Dimensions (W x H x D)	483x44.45x150mm / 19x1.75x5.9"

PF8990-1006-31	Post Filter
Frequency Range	896-902MHz
RF Connectors (all Ports)	N-type (female)
Operating Temperature	-30ºC to +60ºC / -22ºF to 140ºF
Mounting	1RU
Weight	2.0kgs / 4.4lbs
Dimensions (W x H x D)	483x44.75x150mm / 19x1.75x5.9"

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Ordering Information

Motorola E-CAT Number	RFI Part Number	Description
DSTA899001001000	TA8990-0100-10-00	Tower Top Amplifier 896-902MHz, c/w Universal Mounting Brackets
DSRX699630015612N	RX6996-3001-56-12N	Receiver Multicoupler/TTA Controller 698-960MHz, 1way, N, 10-18VDC, TTA Control & Auto C/O, complete with PF8990-1006-31N Post Filter and RG142 coax cables, 2RU
DSRX699630015624N	RX6996-3001-56-24N	Receiver Multicoupler/TTA Controller 698-960MHz, 1way, N, 18-36VDC, TTA Control & Auto C/O, 1RU complete with PF8990-1006-31N Post Filter and RG142 coax cables, 2RU
DSRX699630015648N	RX6996-3001-56-48N	Receiver Multicoupler/TTA Controller 698-960MHz, 1way, N, 36-60VDC, TTA Control & Auto C/O, 1RU complete with PF8990-1006-31N Post Filter and RG142 coax cables, 2RU
DSRX6996300156ACN	RX6996-3001-56-ACN	Receiver Multicoupler/TTA Controller 698-960MHz, 1way, N, 36-60VDC, TTA Control & Auto C/O, 1RU complete with PF8990-1006-31N Post Filter and RG142 coax cables, 2RU
DSRX699630013612N	RX6996-3001-36-12N	Receiver Multicoupler/TTA Controller 698-960MHz, 1way, N, 10-18VDC, TTA Control & Auto C/O, 1RU
DSRX699630013624N	RX6996-3001-36-24N	Receiver Multicoupler/TTA Controller 698-960MHz, 1way, N, 18-36VDC, TTA Control & Auto C/O, 1RU
DSRX699630013648N	RX6996-3001-36-48N	Receiver Multicoupler/TTA Controller 698-960MHz, 1way, N, 36-60VDC, TTA Control & Auto C/O, 1RU
DSRX6996300136ACN	RX6996-3001-36-ACN	Receiver Multicoupler/TTA Controller 698-960MHz, 1way, N, AC, TTA Control & Auto C/O, complete with RXTA0000-3460US-AC 90-264VAC/48VDC Plug Pack Power Supply, 1RU
DSPF8990100631N	PF8990-1006-31N	Receiver Multicoupler Post Filter 896-902MHz, 6MHz BW, N, complete with RG142 coax cables, 1RU
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 900MHz APPLICATION DIAGRAM