

# TRB9200 Specifications

## General Specifications

Frequency Range:	Band A2 to A3: 30-50 Mhz Band A to B: 66-88 Mhz Band C to Q2:135-532 Mhz Band R2, R3: 746-794 Mhz Band R to X: 805-960 Mhz
Switching Bandwidth:	10-35 MHz band dependent
Channel Spacing:	25 kHz or 12.5 kHz
RF Channels:	255
Power Supply:	13.8VDC +/-20%
Temperature Range:	-10C to +60C
Duty Cycle:	100% continuous
Dimensions (W x D x H):	483mm x 330mm x 89mm
Weight:	9 kg
Antenna Connection:	TX: N-type RX: BNC

## Receiver

Sensitivity (12 db SINAD):	< -117 dBm (0.3 uV)
Intermodulation:	> 80 dB
Blocking:	> 100 dB
Frequency Stability:	2.5 ppm, 1.5 ppm or 1 ppm
Disc Output Bandwidth:	DC to greater than 3 kHz
Audio Output Bandwidth:	300 Hz to 3 kHz
Audio Output Level:	+6 to -15 dBm @ 600ohm(unbal)
Audio Distortion:	< 2%
De-emphasis:	6 dB per octave (+1, -3 dB)
Current Drain Receive:	450 mA typical (TX VCO off)

## TRB9200 Series Model Variants

TRB9210	Basic model with full performance but with a fixed channel operation.
TRB9220	As per TRB9210, with Multichannel operation. Channel selector and monitor speaker mounted on front panel.
TRB9230	As per TRB9220, with a programmable systems options board. This adds common systems features such as Tone keying, Race, Omnibus and Glide tone RSSI voting, making the TRB9230 a suitable direct replacement for many systems applications.

## Transmitter

RF Power 30-870 Mhz:	5 to 50 Watts programmable
Frequency Stability:	20ppm, 2.5ppm, 1.5ppm or 1ppm
TX spurious:	< -90 dBc
Deviation Limiting:	2.5kHz / 5kHz programmable
Data I/P Mod Bandwidth:	DC to 3.4 kHz
Audio Input Bandwidth:	300 Hz to 3 kHz
Audio Input Level:	+6 to -15 dBm @ 600ohm (Unbal)
Audio Distortion:	< 2%
Pre-emphasis:	6 dB per octave (+1, -3 dB)
Current Drain Transmit:	< 11 A

## Compliance

Minimum design performance to exceed:	AS4295-1995
	EN 300 086
	EN 300 113
	EN 301 489
	FCC Part 90
	TIA/EIA-603
	BAPT 225 ZV 1/2098 (German Softkeying)
	CEPT T/R 24-01 E, Sept 1998
	CE Marking, R & TTE Directive 99/5/EC
	RFS25, 26, 32

Consult TMC Radio regarding current type approvals.



A.C.N. 099 952 977  
 1270 Ferntree Gully Road, Scoresby, VIC 3179 Australia  
 Telephone: +61 3 9730 3800  
 Facsimile: +61 3 9730 3968  
 Email: [orderdesk@tmcradio.com](mailto:orderdesk@tmcradio.com)  
 Website: [www.tmcradio.com](http://www.tmcradio.com)  
 We now produce Simoco Radios. ©TMC Radio 2003

# TMC Radio TRB9200 SERIES

## PROFESSIONAL BASE STATION REPEATERS



## The Radio System Solution

The TRB9200 series packs more power and performance into a compact 2RU case than any other Base Station/Repeater in its class.

With advanced modular construction techniques, you will be assured of reliable and long lasting performance.



Designed & Manufactured in Australia

TNM-DS-E-0021 Issue 1 7/03. Due to our policy of continuous improvement of our products and services, technical specifications and claims, correct at the time of going to print, may be subject to variation without prior notice. TMC Radio Pty Ltd has endeavoured to ensure that the information in this document is correct and fairly stated, but does not accept liability for any error or omission. Download this datasheet or other brochures and specifications from our web site at: [www.tmcradio.com](http://www.tmcradio.com)

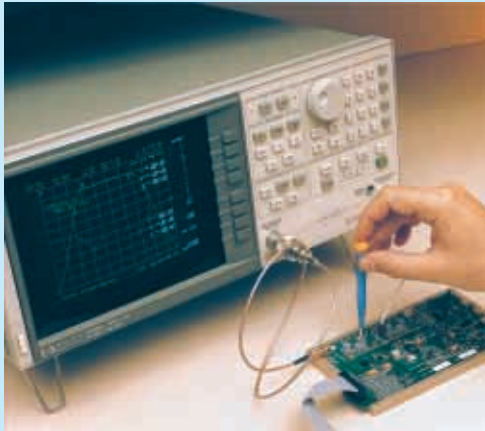
# TMC Radio TRB9200 Series Professional Base Station Repeaters

## Performance

The TRB9200 series advanced design uses the latest component technology to achieve superior performance in high RF environments.

The sensitive receiver features a wide switching bandwidth and, at the same time, maintains good blocking, intermodulation and adjacent channel performance.

The broadband transmitter exciter module has very low spurious emission levels, and is followed by an efficient RF power amplifier. The optimised PA heatsink design results in lower transmitter temperature rise during continuous operation.



## Reliability

Reliability is designed into the TRB9200 and effective manufacturing quality control carries this into the finished product.

Rugged machined module housing construction and extensive use of surface mount technology provides outstanding reliability under the harshest conditions.

## Construction

The TRB9200 is a compact lightweight transceiver housed in a 2RU height (89 mm) fully welded steel case. The unit conforms to the 19" rack mounting standard. The module construction has been designed for international EMC/EMI rules compliance and all RF modules are individually screened.

## Features

- Complementing the wide RF switching bandwidth (up to 35 MHz) the TRB9200 has an exceptional frequency coverage between 30 MHz and 960 MHz.
- Per channel programmable operating parameters, including: frequency, power, CTCSS/DCS, RF mode and channel bandwidth.
- Networking function permits multistation monitoring and control through a single RS232 port.
- An extended low frequency RX discriminator and TX modulator response (DC to 3.4 kHz) permits the use of the TRB9200 in paging and other data applications.
- Fast mute action, combined with fast TX and controlled soft key up, makes the TRB9200 ideal for many trunking and data systems.
- Functionally independent TX and RX mean that crossbanding is easily accomplished.
- A non-predictive CTCSS decoder will recognise any valid tone and transmit a user associated TX tone.
- Continuously rated at full operating power, the TRB9200 has a thermally controlled high MTBF fan ensuring cooler PA operation.
- Low current consumption on both TX and RX.
- 255 RF channel capability with operating channels optionally selectable from rear inputs, front panel switch, internal DIP switch or via RS232 port.
- An automatic PA protection circuit reduces the output power at high VSWR and high temperature.
- Advanced fractional synthesizer design.
- Fully configurable by hardware and software for special applications.
- Channel scan function and base morse ID.



## User Interface

RF, analog and digital signal line accessibility at the rear panel means that the TRB9200 is a versatile transceiver which can be used in systems configured to your requirements. For trunking applications, special system control functions are included.

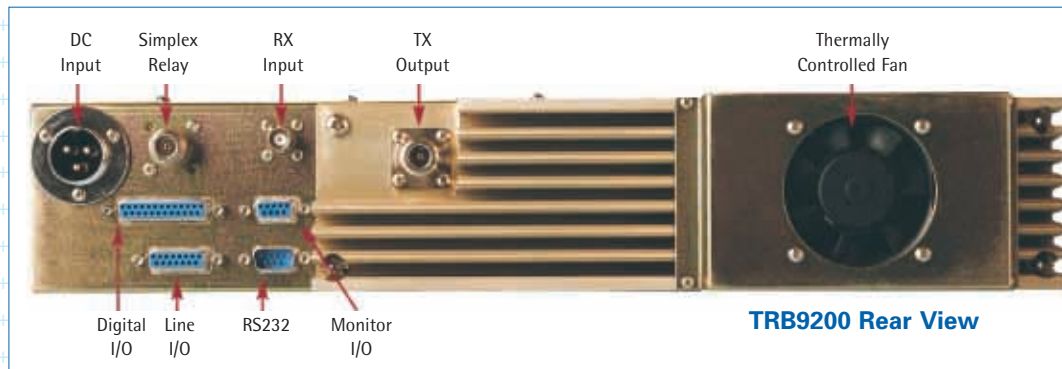
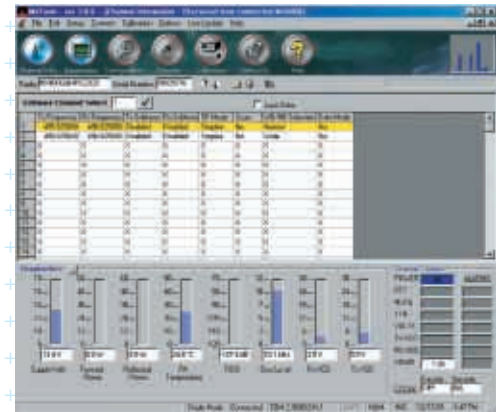
The base station is serially programmable on a per channel basis using the MXTTOOLS programming software. This software utility also permits remote monitoring, control and diagnostics of the TRB9200.

Parameters such as PTT, Mute/squelch, Alarms, Digital I/O etc. can also be monitored or controlled independently. Real time measured analog parameters include: CTCSS decoded frequency, CTCSS encoded frequency, Forward and Reflected RF power, PA temperature, RSSI, RX and TX VCO volts, Discriminator output audio level and DC supply volts.

## Applications

Typical applications for the TRB9200 series include:

- Conventional professional mobile radio base stations and repeaters. A simplex option is available with an internally mounted changeover relay. In full duplex mode the TRB9200 is suitable for link applications.
- RF transceiver for trunked systems. The DC modulator permits operation in a wide variety of trunking systems.
- Simulcast and wide area systems using external reference oscillator I/P.
- Paging transmitter. The standard TRB9200 will accept a digital signal for transmission of POCSAG data.
- Mobile data systems. Fast TX and RX response times reduce message overhead and increase data throughput. Low group delay distortion permits data rates to 19.2kbps.



## Options

The TRB9200 has the following options:

- CTCSS encoder/decoder.
- Programmable 12.5/25 kHz channel spacing.
- Front panel speaker, mic socket and channel change.
- Balanced and isolated line VF I/O with E/M.
- Full duplex DCS/DPL operation.
- Simplex changeover relay.
- Low RX standby current option.
- VF delay for noiseless mute function.
- -30°C temperature frequency stability.
- Several voting and tone-keying options.

Contact TMC Radio for other applications.