

# TM8252 System Integrator Radio

## Introduction

The TM8252 is the first Tait MPT trunked mobile radio designed specifically to support system integrators in developing business solutions for the rapidly growing mobile data market.

Developed to cater for the most demanding integrators, the TM8252 provides a comprehensive solution for MPT 1327 trunked systems – as well as full conventional functionality including 1500 channels and advanced signalling.

Based on a state-of-the-art Digital Signal Processor (DSP) and supporting MAP27 data as standard, the TM8252 represents the latest thinking in software flexibility. It is one of the most customisable mobile radios on the market.

The TM8252 offers the same robust RF features and rugged construction as all radios in the TM8000 range.



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## Key Features

- Built-in MAP27 support
- Third-party control head capable
- Expansive internal options area
- Multiple auxiliary ports
- Programmable I/O and audio tap points
- Built in 1200-baud FFSK data modem
- Direct Connect GPS

- Built in CTCSS/DCS
- Rugged construction – IP54, MIL-STD 810 C, D, E, F
- Windows-based programming application

## Software Options

- MDC-1200 encode
- High speed data

## Data Capabilities

The TM8252 has a MAP27 interface as standard, with no additional hardware required. This makes the radio a cost-effective building block in end-to-end radio communication solutions.

Suited to the latest mobile data applications, the TM8252 includes a built-in 1200-baud FFSK data modem as well as easy connection to external modems using one of three interface ports. The internal high-speed data modem can be activated when the radio is in conventional mode.

## Advanced System Integration Capabilities

System integrators are given maximum design flexibility through multiple ports for auxiliary connectors and large areas reserved for options boards.

To assist with integration, the TM8252 supports a range of TM8000 hardware and software customisation tools known as 3DK Developer's Kits. These enable new radios to be cost-effectively added to existing systems – through porting custom hardware interfaces, or to facilitate software control of the radio.

## Options Boards

A range of options boards are available for use with the TM8252 – these can be mounted in the large space allocated within the radio body. This location allows easy access to the signals commonly required for interfacing, and can be configured using the Windows-based programming software.

The following options boards are currently available:

- line interface board
- options extender board
- RS232 board
- applications target board.

The TM8000 applications target board enables developers to write software for the board to experiment with applications and solutions. The options extender board enables third party equipment to be connected to a TM8252 via the external options connector.

## Direct Connect GPS

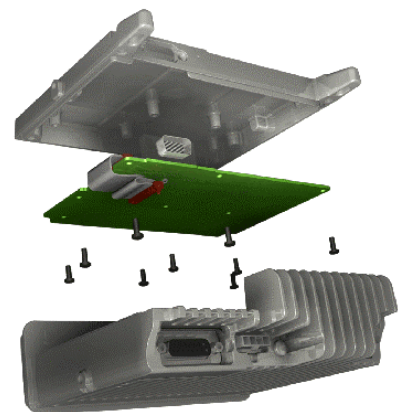
Direct Connect GPS is a software feature provided as standard on the TM8252, enabling connection of an external GPS antenna/receiver via one of the three serial ports. It also allows location information to be retrieved from other radios. Key benefits of this include:

- no extra cost for additional external processing equipment
- operators are free to choose their own AVL provider
- Published protocol description document
- Ability to be polled from another TM8000 product.

## Applications

The TM8252 System Integrator radio can be used for a wide range of applications in various industries, or supplied as part of a Tait end to end solution.

- **Public Safety:** This radio can form the basis of an embedded security system designed to enhance normal in-vehicle communications. It can be used via MPT trunked networks or in conventional mode to access a wide range of systems and interoperable channels. It can also provide vehicle tracking whilst the vehicle's voice radio is being used for communications during a high-speed chase.
- **Utilities:** The Direct Connect GPS option enables high-value asset tracking to be implemented, including anti-theft alarms.
- **Transportation:** Bus or transit operators need cost-effective data transmission to and from vehicles, and also require location information. The TM8252 can be used as the radio core for a complete voice and data solution, making it ideal to meet the needs of AVL-based real time passenger information (RTPI) systems.



## Specifications

Performance figures, unless otherwise stated, are typical figures measured in accordance with ETSI 300-086.

### General

<b>Frequency Ranges</b>	<b>VHF</b> <b>UHF</b>	<b>High Power</b> 136-174MHz 400-470MHz 450-520MHz	<b>Standard</b> 66-88MHz 136-174MHz 175-225MHz 216-266MHz 400-470MHz 450-530MHz
<b>Frequency Stability</b>	+/-1.5ppm		
<b>Channel Capacity</b>	4 MPT 1327 Networks 1500 Conventional Channels		
<b>Power Supply</b>	10.8-16VDC		
<b>Channel Spacing</b>	12.5/20/25kHz		
<b>Channel Increment</b>	7.5/12.5/15/25/30kHz		
<b>Dimensions (LxWxH)</b>	25W 185 x 182 x 70mm (7.3 x 7.2 x 2.8in) 40/50W 205 x 182 x 70mm (8.1 x 7.2 x 2.8in)		
<b>Weight</b>	25W 1.5kg (53oz) 40/50W 1.7kg (59oz)		
<b>Operational Temperature</b>	-30°C to +60° (-22°F to +140°F)		
<b>RF Connector</b>	25/40/50W 50 Ohm BNC/Mini UHF		
<b>Interface Connectors</b>	3 Interface Connectors with Serial Ports		

### Environmental Standards

Standard -	MIL-STD-810F*	Method	Procedure
	Low Pressure	500.4	2
	High Temperature	501.4	1, 2
	Low Temperature	502.4	1, 2
	Temperature Shock	503.7	1
	Solar Radiation	505.4	1
	Rain	506.4	3
	Humidity	507.4	1
	Salt Fog	509.4	1
	Dust	510.4	1
	Vibration	514.5	1
	Shock	516.5	1, 5

\* Also meets similar superseded MIL-STD-810 C, D & E standards

## Transmitter

<b>Power Output</b>	<b>50W VHF</b> <b>40W UHF</b> <b>25W</b>	50W, 25W, 15W, 10W 40W, 20W, 15W, 10W 25W, 10W, 5W, 1W
<b>Modulation Limiting</b>		+/-2.5kHz 12.5kHz +/-4kHz 20kHz +/-5kHz 25kHz
<b>FM Hum &amp; Noise</b>		-38dB 12.5kHz -43dB 25kHz
<b>Conducted/ Radiated Emissions</b>		-70dbc
<b>Audio Response</b>		300Hz-3kHz Flat or pre-emphasized
<b>Audio Distortion</b>		3% at 1kHz 60% modulation (typical)
<b>Transmit Rise Time</b>		10ms
<b>Duty Cycle</b>		20% at 40/50 – 33% at 25W

## Receiver

<b>Sensitivity</b>	<b>VHF/UHF</b> <-118dBm(0.28µV) for 12dB SINAD
<b>Intermodulation</b>	67dB
<b>Selectivity</b>	
12.5kHz channel	75dB
20kHz	70dB
25kHz channel	65dB
<b>Spurious Response Rejection</b>	72dB
<b>Hum &amp; Noise</b>	
12.5kHz channel	-40dB
25kHz channel	-43dB
<b>Audio Response</b>	300Hz –3kHz Flat or de-emphasized
<b>Audio Distortion</b>	3% at 1 kHz 60% modulation (typical)

Specifications are subject to change without notice and shall not form part of any contract. They are issued for guidance purposes only. For further information please check with your nearest Tait office or authorised dealer.

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