

# T3100 RF Module

## VHF LOW BAND

# Users Guide

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## INTRODUCTION

The T3100 RF module is a VHF LOW Band FM transceiver assembly that operates in 30 - 50 MHz range.

The transceiver module is designed to be installed and operated in the Technisonic Multiband Airborne Radio TDFM-9300/9200 platform. All external power and antenna connections are provided by the TDFM 9300 as well as controls are via the front panel and display from the TDFM 9300.

The RF module is capable of operating on Analog FM, Wide, with maximum transmit power of 10 watts.



FIGURE 1: Overall view of the T3100 RF Module

## NOTES

### ESD CAUTION



This unit contains static sensitive devices. Wear a grounded wrist strap and/or conductive gloves when handling printed circuit boards.

### FCC COMPLIANCE INFORMATION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.



**WARNING:** For compliance with FCC RF Exposure Requirements the mobile transmitter antenna installation shall comply with the following two conditions:

1. The transmitter antenna gain shall not exceed 3 dBi.
2. The transmitter antenna is required to be located outside of a vehicle and kept at a separation distance of 1 m or more between the transmitter antenna of this device and persons during operation.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## TECHNICAL CHARACTERISTICS

### Specification

Model Designation:  
Physical Dimensions:  
Operating Temperature Range:  
Power Requirement:  
Voltage:  
Current:  
Audio Output Power:

FCC ID: IMA-T3100

INDUSTRY CANADA: 120A-T3100

RF Output Power:  
Frequency Range

No. of channels:

### **Transmitter section**

FM Hum and noise in dB (wideband):  
Audio Distortion:  
Frequency Stability in ppm:  
Modulation Limiting:

Spurious Attenuation:  
Harmonic Attenuation:

### **Receiver section**

*Sensitivity* in uV (12dB SINAD):  
*Selectivity* in dB:  
25 kHz Channel  
Intermodulation:  
Spurious Attenuation:  
Image Attenuation  
Hum and Noise  
Audio Distortion  
Antenna Conducted Emission

### Characteristic

T3100  
Approx. (L) 6.75" x (W) 5.0" x (H) 1.25"  
-30° C to +60° C  
28 VDC  $\pm$  5%  
300 mA minimum / 1.2A maximum  
500 mW into 600  $\Omega$

1 or 10 Watts  
30 – 50 MHz TX  
30 – 50 MHz RX  
200 Channels

-40  
<5%  
 $\pm$ 2.5  
Wide band  $\pm$ 5kHz

-90 dB below carrier level  
-60 dB below carrier level

0.35  
-75  
-70  
-90  
-80  
>45  
<5%  
-70dBm

## FCC ID LABELS

Before the T3100 is installed in the TDFM-9300, the FCC/INDUSTRY CANADA label must be applied.



FIGURE 2: T3100 RF Module with FCC/IC Label applied to the bottom

The FCC/Industry Canada label is shown below. Place the label on the bottom of the controller board as shown in Figure 2.



FIGURE 3: T3100 FCC/Industry Canada Label

## INSTALLATION

The T3100 module should be installed in the TDFM 9300 in accordance with TIL document 136569 "TDFM-9300 FINAL ASSEMBLY SSP".

The T3100 is intended to be mounted in the TDFM 9300/9200 chassis and is not visible. Therefore, a second label must be applied to the outside of the TDFM 9300 that contains the following text:

"TDFM 9300 Multiband Transceiver. Contains Module: FCC ID IMA-T3100".

In addition, external labeling for Industry Canada shall be applied to the TDFM 9300 to include the following text: "Contains IC: 120A-T3100".

### **WARNING AND DISCLAIMER**

Changes or modifications not expressly approved by Technisonic Industries could void the user's authority to operate the equipment.

This manual is designed to provide information about the T3100 RF Module. Every effort has been made to make this manual as complete and accurate as possible.

### **WARRANTY INFORMATION**

The Model T3100 Transceiver is under warranty for one year from date of purchase. Failed units caused by defective parts, or workmanship should be returned to:

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