

# UHF Narrow band transceiver module

# **TEL2RADIO457**

Version 1.2

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# User Guide – TEL2RADIO457

## GENERAL DESCRIPTION & FEATURES

### Features

FCC Part 90 (transmitter) and Part 15 compliant (receiver)  
10 mW output power  
Single channel 457.6 MHz  
High sensitivity receiver  
FM narrow band modulation

### Applications

Telemetry systems

### General description

The TEL2RADIO457 is a RoHS compliant FCC approved embedded industrial Narrow band FM radio transceiver.

## SPECIFICATIONS

### General specification

\* All values are specified with 50 ohm terminal and at 25 °C +/- 10 °C and are typical unless otherwise noted.  
Communication method One-way  
Operating frequency range MHz 457.6 MHz band  
Operation temperature range °C -10 to 60 No dew condensation  
Storage temperature range °C -30 to 70 No dew condensation  
Aging rate ppm +/- 1 / year TX freq., RX Lo freq. -1 1  
Initial frequency tolerance ppm +/- 5 TX/RX freq.  
Dimensions 36mm x 36mm x 5mm  
Weight 25g

### Electrical specification

Common to TX/RX  
Channel span 12.5kHz  
Number of channels 1  
Maximum Data rate bps 2400  
Antenna impedance is 50 (Nominal)  
Operating voltage 3.0V to 3.6V.  
TX consumption current 36mA @ 10mW VCC=3.0V  
RX consumption current 24mA VCC=3.0V

### Transmitter

RF output power 10mW (maximum)  
Deviation kHz  $\pm$  2.1

### Receiver

Max. Input level 10dBm  
Sensitivity -120dB

### Data Port

The Data port is design for digital signals only and the maximum data rate is 2400 baud.  
A logic 0 is any voltage less than 0.8volt and a logic 1 is any voltage above 2.4volts up to 3.6volts. The input impedance of this port is >1Mohm.

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## PIN DESCRIPTION

### Receiver/Transmitter

GND

DI/DO – Digital input (receiver) DO (transmitter)

VCC

Antenna connected via SMA connector and RF Screened cable

## ANTENNAS

A 1/4 wave antenna with a gain of less than 2.1dBi suitable for 457Mhz operation should be used with the TEL2RADIO457 Radio module to ensure correct and reliable operation.

**Notice: Use the antenna recommended as other antennas may invalidate compliance with the regulatory standards.**

## Regulatory compliance information

**WARNING: This module needs to have a License to comply with FCC Rules, please contact the IMC Group for further 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.

### Caution:

Any changes or modifications not expressly approved by the party responsible for product compliance could void the user's authority to operate the equipment.

### Caution Exposure to radio frequency radiation:

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

### Labeling:

**The IMC Group Ltd** transmitter/Receiver module TEL2RADIO457 labeled as below.

### FCC ID:

The proposed FCC ID label format is to be placed on the module. If FCC ID is not visible when the module is installed into the system, the label should be placed on the outside of final host system "Contains FCC ID:

**N20TEL2RADIO456**".

### IC ID:

The proposed IC ID label format is to be placed on the module. If IC ID is not visible when the module is installed into the system, "Contains **IC: 10310A-T2RADIO456**" shall be placed on the outside of final host system.

## Cautions

As the radio module communicates using electronic radio waves, there are cases where transmission will be temporarily cut off due to the surrounding environment and method of usage. The manufacturer is exempt from all responsibility relating to resulting harm to personnel or equipment and other secondary damage.

Do not use the equipment within the vicinity of devices that may malfunction as a result of electronic radio waves from the radio module.

The manufacturer is exempt from all responsibility relating to secondary damage resulting from the operation, performance and reliability of equipment connected to the radio module.

Communication performance will be affected by the surrounding environment, so communication tests should be carried out before actual use.

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Ensure that the power supply for the radio module is within the specified rating. Short circuits and reverse connections may result in overheating and damage and must be avoided at all costs.

Ensure that the power supply has been switched off before attempting any wiring work.

The case is connected to the GND terminal of the internal circuit, so do not make contact between the '+' side of the power supply terminal and the case.

Do not use this equipment in vehicles with the windows closed, in locations where it is subject to direct sunlight, or in locations with extremely high humidity.

The radio module is neither waterproof nor splash proof. Ensure that it is not splashed with soot or water. Do not use the equipment if water or other foreign matter has entered the case.

### **Warnings**

Do not take a part or modify the equipment.

Do not remove the product label (the label attached to the upper surface of the module.) Using a module from which the label has been removed is prohibited.

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

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## **REVISION HISTORY**

N/A