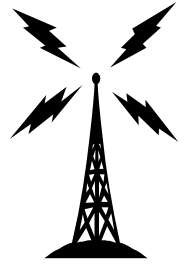


# WIRELESS RF LINK TRANSMITTER MODULE



**Ramsey Electronics Model No.**

**TX433**

*Need a data transmitter or receiver for your remote wireless application? These compact units are perfect for any project; car alarms, door openers, home security, you name it!*

- **Powerful +10 dBm output – up to 600' range!**
- **SAW Resonators for high stability – no drift!**
- **Compact size with low current demand.**
- **433 MHz license free band.**
- **Sensitive superhet receiver with RF LNA.**
- **Automatic tuning – no manual adjustments.**
- **Operates on 5 volts DC.**



### RAMSEY WIRELESS RF LINKS

- TXE433 or 916 Transmitter & Encoder Module
- RXD433 or 916 Data Receiver & Decoder
- RX433 or 916 Data Transmitter
- TX916 Data Transmitter
- RR1 Wired remote repeater
- RRW1 Wireless remote repeater

### RAMSEY TRANSMITTER KITS

- FM10A, FM25B FM Stereo Transmitters
- TV-6 Television Transmitter
- "Cube" TV Transmitters



### RAMSEY RECEIVER KITS

- FR1 FM Broadcast Receiver
- AR1 Aircraft Band Receiver
- SR2 Short-wave Receiver
- AA7 Active Antenna
- SC1 Short-wave Converter
- LC1 Capacitance/ Inductance Meter

### RAMSEY AMATEUR RADIO KITS

- CPO3 Code Practice Oscillator
- DDF1 Doppler Direction Finder
- HR Series HF All Mode Receivers
- QRP Series HF CW Transmitters
- CW700 Micro Memory CW Keyer
- QRP Power Amplifiers

### RAMSEY MINI-KITS

Many other kits are available for hobby, school, Scouts and just plain FUN. New kits are always under development. Write or call for our free Ramsey catalog.

### TX433 WIRELESS TRANSMITTER/ENCODER INSTRUCTION MANUAL

Ramsey Electronics publication No. MTX433 Revision 1.3

First printing: January 2002

---

COPYRIGHT 1996 by Ramsey Electronics, Inc. 590 Fishers Station Drive, Victor, New York 14564. All rights reserved. No portion of this publication may be copied or duplicated without the written permission of Ramsey Electronics, Inc. Printed in the United States of America.

## **THE TX433**

The TX433 wireless RF transmitter uses on/off keying to transmit data to the matching receiver, RX433. The data input “keys” the saw resonator in the transmitter when the input is +3 volts or greater, AM modulating the data onto the 433 MHz carrier. The data is then demodulated by the receiver, which accurately reproduces the original data. The data input is CMOS level compatible when the unit is run on +5 volts.

When driving with a CMOS input, there must be enough level to achieve at least 3V on the data input, 5V is preferable. This is due to the start-up time of the oscillator needing to be fast to accurately reproduce your data. If the voltage is too low, the oscillator will not start fast enough to accurately reproduce your data, especially at higher data rates. Luckily not much drive is needed, so this should be easy since it is 22K ohms of load. Almost any CMOS output will drive this without any problems. There are some CMOS outputs which have very little drive capability which may not work, so testing the voltage at the data input may be a wise choice if you are having problems.

### **ANTENNA CONSIDERATIONS:**

The simplest antenna consists of a piece of wire approximately 6 to 7 inches long. If you desire more range you can try a ground plane antenna or a Yagi such as the Ramsey 400-4 model. The antenna should be tuned for the 433 MHz band for best operation.

Having two Yagi antennas, one for the transmitter and one for the receiver will allow you to extend the range considerably, but since they are directional, this would be best for if your receiver and transmitter are in fixed positions.

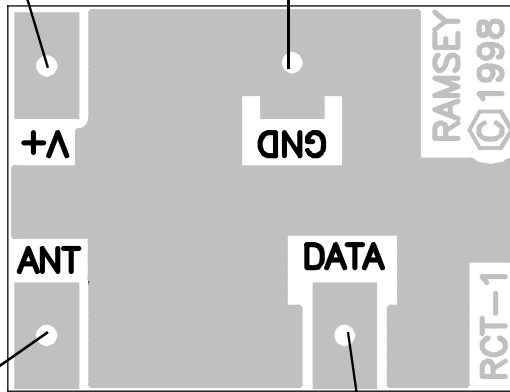
### **PROJECT IDEAS:**

Use the RX/RX pair to transmit RS232 data at rates up to 2400 baud, send statistical PC data from remote computers to display terminals. Also use to send weather data from one point to another. Use with some more circuitry to relay remote control data wirelessly (see the RR1 and RRW1 kits we offer). Use for additional control on remote control vehicles and rockets.



V+: Attach your +5 volt source here.

GND: Attach your power supply ground here.



Antenna: Attach your antenna here.

Data: Input your data here. Data output at RX433 will match data input to transmitter.

NOTES:

## **The Ramsey Kit Warranty**

**Please read carefully BEFORE calling or writing in about your kit. Most problems can be solved without contacting the factory.**

Notice that this is not a "fine print" warranty. We want you to understand your rights and ours too! All Ramsey kits will work if assembled properly. The very fact that your kit includes this new manual is your assurance that a team of knowledgeable people have field-tested several "copies" of this kit straight from the Ramsey Inventory. If you need help, please read through your manual carefully. All information required to properly build and test your kit is contained within the pages!

**1. DEFECTIVE PARTS:** It's always easy to blame a part for a problem in your kit, Before you conclude that a part may be bad, thoroughly check your work. Today's semiconductors and passive components have reached incredibly high reliability levels, and it's sad to say that our human construction skills have not! But on rare occasions a sour component can slip through. All our kit parts carry the Ramsey Electronics Warranty that they are free from defects for a full ninety (90) days from the date of purchase. Defective parts will be replaced promptly at our expense. If you suspect any part to be defective, please mail it to our factory for testing and replacement. Please send only the defective part(s), not the entire kit. The part(s) MUST be returned to us in suitable condition for testing. Please be aware that testing can usually determine if the part was truly defective or damaged by assembly or usage. Don't be afraid of telling us that you 'blew-it', we're all human and in most cases, replacement parts are very reasonably priced.

**2. MISSING PARTS:** Before assuming a part value is incorrect, check the parts listing carefully to see if it is a critical value such as a specific coil or IC, or whether a RANGE of values is suitable (such as "100 to 500 uF"). Often times, common sense will solve a mysterious missing part problem. If you're missing five 10K ohm resistors and received five extra 1K resistors, you can pretty much be assured that the '1K ohm' resistors are actually the 'missing' 10 K parts ("Hum-m-m, I guess the 'red' band really does look orange!") Ramsey Electronics project kits are packed with pride in the USA. If you believe we packed an incorrect part or omitted a part clearly indicated in your assembly manual as supplied with the basic kit by Ramsey, please write or call us with information on the part you need and proof of kit purchase.

### **3. FACTORY REPAIR OF ASSEMBLED KITS:**

To qualify for Ramsey Electronics factory repair, kits MUST:

1. NOT be assembled with acid core solder or flux.
2. NOT be modified in any manner.
3. BE returned in fully-assembled form, not partially assembled.
4. BE accompanied by the proper repair fee. No repair will be undertaken until we have received the MINIMUM repair fee (1/2 hour labor) of \$25.00, or authorization to charge it to your credit card account.
5. INCLUDE a description of the problem and legible return address. DO NOT send a separate letter; include all correspondence with the unit. Please do not include your own hardware such as non-Ramsey cabinets, knobs, cables, external battery packs and the like. Ramsey Electronics, Inc., reserves the right to refuse repair on ANY item in which we find excessive problems or damage due to construction methods. To assist customers in such situations, Ramsey Electronics, Inc., reserves the right to solve their needs on a case-by-case basis.

The repair is \$50.00 per hour, regardless of the cost of the kit. Please understand that our technicians are not volunteers and that set-up, testing, diagnosis, repair and repacking and paperwork can take nearly an hour of paid employee time on even a simple kit. Of course, if we find that a part was defective in manufacture, there will be no charge to repair your kit (But please realize that our technicians know the difference between a defective part and parts burned out or damaged through improper use or assembly).

**4. REFUNDS:** You are given ten (10) days to examine our products. If you are not satisfied, you may return your unassembled kit with all the parts and instructions and proof of purchase to the factory for a full refund. The return package should be packed securely. Insurance is recommended. Please do not cause needless delays, read all information carefully.

Price: \$5.00

Ramsey Publication No. MTX433  
Assembly and Instruction manual for:  
***RAMSEY MODEL NO. TX433***



**RAMSEY ELECTRONICS, INC.**  
590 Fishers Station Drive  
Victor, New York 14564  
Phone (585) 924-4560  
Fax (585) 924-4555  
[www.ramseykits.com](http://www.ramseykits.com)