



# TEKIN



## FM Micro RECEIVER



**THE TEKIN TFM MICRO RECEIVER IS THE WORLD'S SMALLEST SIZE, LIGHTEST WEIGHT FM R/C RECEIVER. IT FEATURES ADVANCED CIRCUITRY AND A 6-POLE I.F. FILTER FOR OPTIMUM RECEPTION.**

- New Chromium Metal Plated case shielded for an extra measure of protection against noise interference.
- May be mounted next to battery wires or graphite without picking up radiated noise.
- 10-15% increased range.
- Works with existing FM radio systems, such as Airtronics, Futaba, JR, and KO Propo.
- May be used with PCM transmitters by switching to PPM mode.
- Fully compatible with even - and new odd - channels, and 20kHz channel spacing.
- FCC type approved.

THE RECEIVER IS FULLY COMPATIBLE WITH ELECTRONIC SPEED CONTROLS, AND CAN BE PLACED CLOSE TO BATTERIES AND WIRES FOR TIGHT INSTALLATIONS DUE TO THE METALIZED CASE.

### SPECIFICATIONS

**Size**.....1.20" x 1.20" x .57"  
**Weight**.....0.47 oz 13 grams  
**Operating Voltage**.....2.5 - 16.0 volts  
**Reverse Voltage Protection**.....Yes  
**Antenna Length**.....16", 41 cm  
**Adjacent Channel Rejection**.....60 DB or more  
 @ + 8.5 KHz  
**Number of Channels**.....2 or 3  
**RF AGC**.....Yes  
**Temperature Range**.....0 - 70°C  
**Operating Current**.....0.005 amp

#### Available Frequency Bands:

**U.S.A.**.....27 and 75MHz  
**Other countries**.....29, 35, 40MHz

Specifications subject to change without notice

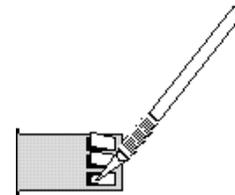
### STEP 1: INSTALL CRYSTAL

Insert the crystal for the radio you're using into the top of the receiver. It can install either way, there is no polarity. Only FM type crystals and transmitters will work properly. You must use the same brand and type crystals in the receiver as your transmitter is designed to use, and the receiver must be on the same frequency band as the transmitter and crystals. The crystal is very fragile. Do not drop it or it can break internally. If there is a rattling sound, the crystal will be bad. The transmit and receive crystals are different and must not be interchanged. Be sure to use only receiver crystals (usually marked RX) in the receiver.

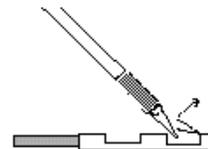
Note; the TFM does not work with KO crystals on the 75 mhz band. In this case only, you may use a set of JR brand crystals in the KO radio.

### STEP 2: RADIO AND PLUGS

If you have a PCM (Pulse Code Modulated) transmitter you must set it to PPM (Pulse Position Modulation) in order to be compatible with the Tekin receiver. There will usually be a switch on the transmitter to perform this. The next step is to match your radio plugs to fit the receiver. The Tekin Micro FM Receiver uses Tekin/Futaba J type plugs. If you have one of these radios, go to step 2. If you have an Airtronics, Sanwa, KO, JR, or other radio then follow the steps, "A", "B" and "C" below to adapt the plug housing.



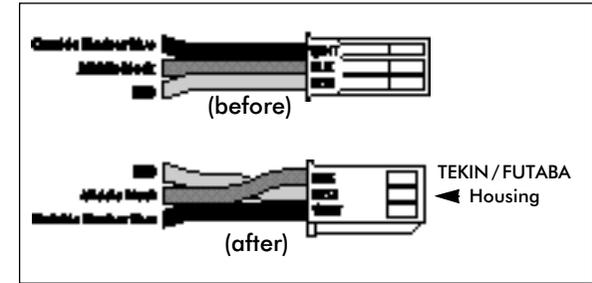
**A.** First of all make sure the battery is disconnected from the radio. Using a small hobby knife, or jeweler's screwdriver, press the 3 metal tabs in slightly in order release the pins from the plastic housing. Do this to all servo and speed control plugs you are going to adapt to the Tekin Receiver (up to 3).



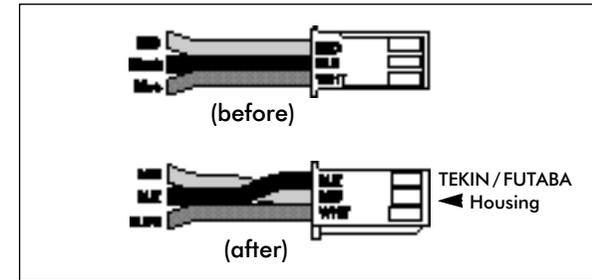
**B.** Using a small hobby knife or jeweler's screwdriver, lift up the metal tabs slightly that you just pressed down.

**C.** Locate the plastic Tekin/Futaba J housings supplied with the receiver and insert the metal connector pins from your servo(s) and speed control into the new plastic housings. **Be sure you insert the correct wires into the correct slot on the housings, or damage to your radio gear may occur.** See drawings on right panel:

### AIRTRONICS/ SANWA



### KO PROPO



**NOTE: If your radio connector pins do not fit the Tekin plastic connector housings you will need to make or obtain adapters.**

### STEP 3: CONNECTIONS

The servo(s) and speed control may now be plugged into the receiver. Channel 1 is for the steering; channel 2 is throttle; and channel 3 is auxiliary or may also be used for a receiver battery. When using a receiver battery (rather than a B.E.C. built into the speed control) there are only 2 channels available for use. If you wish to use 3 channels with a receiver battery pack you must purchase a "Y" adapter cable to connect the receiver battery pack and a servo. If you are only using 2 of the receiver's 3 channel slots, you should install the small plastic cover piece (supplied) over the unused opening, to seal out dirt.

## STEP 4: MOUNTING

Use double sided tape (supplied) to mount the receiver. Usually you do not need to mount this receiver on it's side. In general, mount the receiver and antenna on the side of the chassis away from the motor brushes. Tekin's metal plated case shields the circuits inside the receiver from external noise, so you may mount the receiver as close as 1/8" (3mm) away from battery or motor wires without picking up noise interference. In boats, place the receiver in a watertight compartment. On gas cars, wrap in lightweight foam, and protect from fuel. Select a location that is protected from sharp impacts.

The antenna wire should be installed inside a plastic tube type support or run alongside a rigid fibreglass or graphite mast, using tape or heat-shrink tubing to secure it in place. For maximum range, the antenna should exit the receiver and immediately extend a minimum of 12" (30cm) up into the air. Do not cut or alter the length of the antenna 16" (41cm), or the range will be reduced. For best performance, do not run the antenna wire under the battery pack, along a graphite or metal chassis, or closer than 1/2" (13MM) to a power wire.

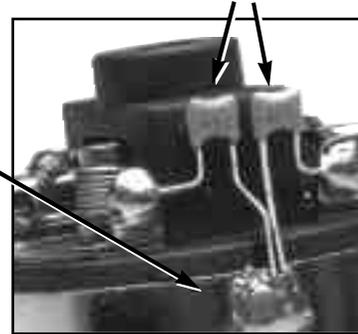
Do not let batteries or other wire connections come in contact with the metal case, or a short circuit could occur.

## STEP 5: MOTOR CAPACITORS

Make sure your motor has at least two .1 uF (labeled 104, supplied) capacitors on it. One capacitor connects from the (+) motor terminal to the center screw tab or motor case, and a second goes from the (-) motor terminal to the center screw tab or case. These are required, and should be soldered in place if not already. Without them you will experience greatly reduced operating range.

Install two .1uf(104) capacitors as shown, from motor terminals to can or center screw.

Scrape away finish for proper solder connection on stock motors.



*This completes the installation portion of the instructions.*

### TROUBLE SHOOTING . . .

- Are the batteries charged and speed control known to be good?  
(Try with a different receiver)
- Are you using the properly matched good crystal pair? Transmit and receive crystals should both be changed as a matched set.
- Are the connector wires and pins installed into the plastic housings properly?

### POOR RANGE . . .

- Transmitter batteries low or weak.
- No capacitors on motor, see step 5
- Receiver antenna broken or not extended
- Receiver close to motor brushes or power wires. Try re-locating receiver. Try mounting receiver on it's side. Try mounting receiver on shock tower of chassis.
- Bad or noisy servo. Replace servo.
- Reflected radio wave, metal roofs, chain link fences, etc. can reflect the transmitter signal, causing a glitch. This will usually happen only at certain spots of some tracks. If a glitch occurs first check to see if someone else is operating on your frequency. If not, try a different spot on the driver's stand.

## U.S.A FREQUENCIES

Channel	27MHz Frequency	Color
1	26,995	Brown
2	27,045	Red
3	27,095	Orange
4	27,145	Yellow
5	27,195	Green
6	27,255	Blue

75MHz			
Channel	Frequency	Channel	Frequency
61	75,410	76	75,710
62	75,430	77	75,730
63	75,450	78	75,750
64	75,470	79	75,770
65	75,490	80	75,790
66	75,510	81	75,810
67	75,530	82	75,830
68	75,550	83	75,850
69	75,570	84	75,870
70	75,590	85	75,890
71	75,610	86	75,910
72	75,630	87	75,930
73	75,650	88	75,950
74	75,670	89	75,970
75	75,690	90	75,990

### TEKIN RECEIVER IDENTIFICATION\*

Frequency Band	Antenna Color
27 MHz	Red
29 MHz	Red
40 MHz	Black
75 MHz	Green

\*Tekin receiver frequency band can be identified by the color of the antenna.

## FCC NOTICE

The receiver has been tested and found to comply with the emission limit requirements for a class B digital device, pursuant to part 15 of the FCC regulations. These limits are designed to provide reasonable protection against harmful interference. This equipment uses, generates, and can radiate radio frequency energy. If this receiver is not installed and used in accordance with the enclosed instructions, it could cause harmful interference to nearby radio communications. If the equipment does cause harmful interference to radio or television or other electronic equipment reception, the following steps may be taken:

- 1) Move the receiver to a new location.
- 2) Increase the distance between the receiver and the other electronic equipment.
- 3) Check with an experienced TV or radio technician.

## LIMITED WARRANTY

TEKIN ELECTRONICS, INC. guarantees this Receiver to be free from factory defects in materials and workmanship for a period of 120 days from date of purchase, verified by sales receipt. This warranty does not cover; suitability for specific application, components worn by use, application of reverse or improper voltage, tampering, water damage, misuse or shipping. Our warranty liability shall be limited to repairing unit to our original specifications. Because we have no control over the installation or use of this product, in no case shall our liability exceed the original cost of the product. We reserve the right to modify the provisions of this limited warranty without further notice. By the act of using this Receiver the user accepts all resulting liability.

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