M5v2 Receiver specifications

Size	1.30 inches x 0.80 inches x 0.58 inches
Weight	0.30 ounces (9 grams)
Type	Dual conversion, super heterodyne
Decoding	Microprocessor-based decoder
Channels	1-5
Modulation	FM / PPM (pulse position modulation)
Ultimate bandpass	±8.5kHz at >55dB down
Usable sensitivity	> -95dBm
3OIP	+9dBm
Operating voltage	+3.5 to +16VDC (limited only by servo requirements)
Legal use	Meets AMA guidelines and FCC 1999 radiation requirements
FCC Information	FCC ID: KH8-T2000. This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: 1) This device may not cause harmful interference, and 2) this device must accept interference received, including interference that may cause undesired operation.
Frequencies	Models 805FM72F and 805FM72J: U.S. RC aircraft channels 11-60 Models 805FM50FJ and 805FM50ACE: 50MHz ham band Models 805FM53FJ and 805FM53ACE: 53MHz ham band

FMA limited warranty

FMA, Inc. warrants this product to be free of manufacturing defects for the term of 90 days from the date of purchase. Should any defects covered by this warranty occur, the product shall be repaired or replaced with a unit of equal performance by FMA or an authorized FMA service station.

Limits and exclusions

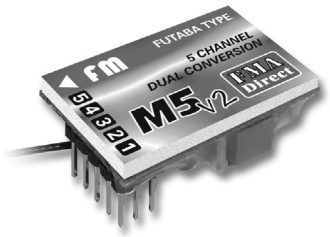
This warranty may be enforced only by the original purchaser, who uses this product in its original condition as purchased, in strict accordance with the product's instructions. Units returned for warranty service to an FMA service center will be accepted for service when shipped postpaid, with a copy of the original sales receipt or warranty registration form, to the service station designated by FMA.

This warranty does not apply to:

- Consequential or incidental losses resulting from the use of this product.
- Damage resulting from accident, misuse, abuse, neglect, electrical surges, reversed polarity on connectors, lightning or other acts of God.
- Damage from failure to follow instructions supplied with the product.
- Damage occurring during shipment of the product either to the customer or from the customer for service (claims must be presented to the carrier).
- Damage resulting from repair, adjustment, or any alteration of the product by anyone other than an authorized FMA technician.
- Installation or removal charges, or damage caused by improper installation or removal.

Call (301) 668-7614 for more information about service and warranty repairs.

050817



M5v2 Sub-Micro Receiver for Aircraft

- Model 805FM72v2F for use with 72MHz negative shift transmitters (Futaba/Hitec)
- Model 805FM72v2J for use with 72MHz positive shift transmitters (JR/Airtronics)
- Model 805FM50v2FJ and 805FM53v2FJ for use with newer (positive shift) ham band (50 or 53MHz) transmitters
- Model 805FM50v2ACE and 805FM53v2ACE for use with older (negative shift) ham band (50 or 53MHz) transmitters

Features

- Full range, full performance. Can be used in aircraft ranging from park flyers to IMAA-legal aircraft to helicopters.
- Available with either negative shift (for Futaba, Hitec transmitters) or positive shift (for JR, Airtronics transmitters).
- Dual conversion, narrow band, PPM.
- Digital filtering improves noise immunity and virtually eliminates servo jitter.
- "Last good frame hold" stabilizes servos for up to 3 seconds after loss of signal due to interference or dropout.
- Improved resolution supports digital and other highly-sensitive servos.

Precautions

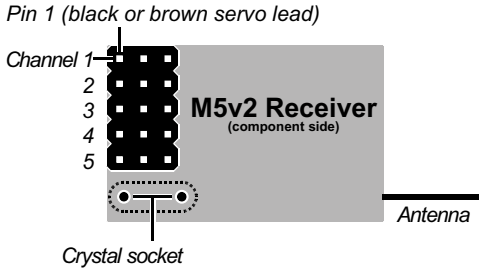
- Follow all instructions in this manual to assure safe operation.
- If you have not assembled and operated a radio controlled model before, obtain help from an experienced modeler. You will need guidance to successfully assemble, test and operate radio controlled models. One of the best ways to obtain help is to join your local radio control club.
- In some areas of the country, you cannot legally operate radio controlled models except at approved fields. Check with local authorities first.
- Observe frequency control. If someone else is operating a radio controlled model on the same channel as your transmitter, **do not turn on your transmitter—even for a short time.** Your transmitter has a channel number marked somewhere on its case. **When a model receives signals from two transmitters on the same channel at the same time, it cannot be controlled and will crash—possibly causing personal injury or property damage.** For safety, most RC flying fields have formal frequency control rules. Follow them carefully.
- Do not operate your radio control transmitter within 3 miles of a flying field. Even at a distance, your transmitter can cause interference.

FMA, Inc. ● 5716A Industry Lane ● Frederick, MD 21704
Sales: (800) 343-2934 ● Technical: (301) 668-7614 ● www.fmadirect.com

Installing the M5v2 Receiver

You must supply:

- Crystal: FMA Quantum or Fortress series dual conversion or Hitec dual conversion (on same channel as your transmitter).
- Battery pack.
- Radio on/off switch harness.
- Servos.



1. Plug in crystal.
2. Plug in servos. Servo channel 1 is farthest from crystal. Black or brown wires on servo connectors go toward outside of receiver.

CAUTION: Failure to observe correct servo and battery polarity voids warranty. Damage may result to both receiver and servos.

CAUTION: Do not use "old style," pre-"Z-type" Airtronics servo connectors. To convert "old style" Airtronics connectors:

- Use an adapter (FMA part number 217AJ), or
- Replace old connector with FMA part number SEASSYJ.

3. Plug battery/switch harness into any unused channel, or use Y harness to connect battery and servo to one channel.
4. Wrap receiver in 3/8" thick (or thicker) foam rubber to isolate it from vibration (recommended: FMA's IMPAD foam, which protects RC electronics much better than standard foams). Failure to protect receiver voids warranty.
5. Secure receiver in aircraft with rubber band or Velcro®.
6. Route antenna.
   - You may cut antenna to as short as 18" without de-tuning receiver. However, range will be reduced. Be sure to range test and cut off a little bit at a time until antenna reaches desired length.
   - If you don't want to cut antenna, you can coil it inside aircraft. Total effective antenna length is diameter of coiled section plus length of straight section. Be sure to range test.
   - Helicopters generate RF noise and heavy vibration. For best reception, route antenna as far as possible from tail boom. One option is to route antenna through nylon pushrod tubing mounted to the skids.

Tip: For park flyers and micro flyers, the Azarr antennas (FMA part numbers M72ANT and M72ULTANT) are the ideal replacements for the stock antenna. FMA also offers servos, aileron extension cables, switch harnesses, Y-harnesses, battery packs, chargers and many other accessories. See your local FMA dealer or visit the FMA Direct web site (www.fmadirect.com).

Range checking

Quick range checking

1. Fully collapse transmitter antenna.
2. Walk away from aircraft about 150 feet (45 meters).
3. Move transmitter sticks. Have someone close to aircraft watch for loss of control.

Rigorous range checking

The procedure described above is only a cursory range check. If you suspect range problems, follow these steps to check your radio system with the receiver out of the aircraft:

1. Place receiver on a non-metallic surface (a cardboard box, for example) to elevate it about 2 feet (60cm) off the ground.
2. Fully extend receiver antenna and position it vertically above receiver (tape antenna to a wooden dowel, for example).
3. Connect one servo to receiver channel 1.
4. Fully collapse transmitter antenna.
5. Turn on transmitter.
6. Connect a battery pack directly to receiver. Do not use a switch harness for this test, since a switch harness may reduce range.
7. Walk away from receiver while moving transmitter stick for channel 1. During this time, have someone watch the servo and note any loss of control.

Line-of-sight ground range should be at least 200 feet (60m) if everything is operating properly.

Note: Over time, all RC transmitters are susceptible to detuning, frequency drift and power reduction. If you suspect your radio system's performance has degraded, carry out the formal range check (above) with the receiver out of the aircraft. If, under these conditions, the radio system experiences failures, there may be a problem with the transmitter, the receiver or another part of the radio system. If you suspect the transmitter is out of tune, FMA can tune it for you. With proof of purchase for an FMA receiver, FMA will tune your transmitter (any brand) at no charge. The only cost is for shipping.

Flying with the M5v2 Receiver

The M5v2's advanced technology rejects nearly all interference and recovers damaged frames. Here's how it responds to loss of signal or overwhelming interference:

- During the first three seconds, the M5v2 keeps the servos* in the positions they were in when it received the last valid frame from the transmitter ("last good frame" hold). This enables the aircraft to tolerate short signal disruptions and dropouts.

- If interference or loss of signal continues for more than three seconds, the M5v2 stops sending control signals to the servos*. This prevents the aircraft from flying away.

*And all other receiver-controlled devices, such as electronic speed controls.