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› RadioMaster TX16S MKII V4.0 2.4G 16CH Hall Gimbals Remote Control Transmitter User Manual

RADIOMASTER TX16SMKII-ELRS-M2

RadioMaster TX16S MKII V4.0 Remote Control Transmitter User Manual

Model: TX16SMKII-ELRS-M2

1. INTRODUCTION

The RadioMaster TX16S MKII V4.0 is an advanced 2.4GHz 16-channel remote control transmitter designed for various RC applications. It features high-precision Hall Gimbals and offers compatibility with both EdgeTX and OpenTX firmware, providing extensive customization and control options. This manual will guide you through the features, setup, operation, and maintenance of your TX16S MKII transmitter.

2. PRODUCT OVERVIEW

The TX16S MKII V4.0 transmitter is engineered for ergonomic comfort and robust performance. It includes a vibrant touch display, multiple switches, and precise gimbals for superior control.



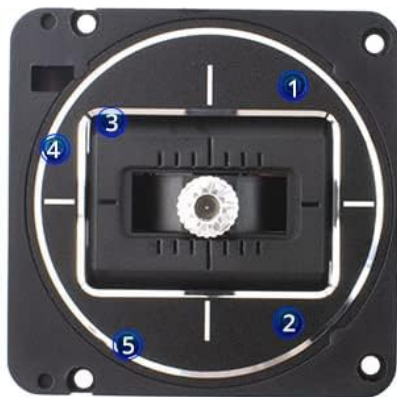
Figure 2.1: Angled view of the RadioMaster TX16S MKII V4.0 transmitter with the screen illuminated.



Figure 2.2: Front view of the RadioMaster TX16S MKII V4.0, showcasing the layout of gimbals, switches, and the display area.

2.1 Component Identification

Familiarize yourself with the various components of your TX16S MKII transmitter using the diagram below:



1/2 STICK TRAVEL LIMITER

Turn clockwise to increase travel, Turn counterclockwise to decrease travel

3 HORIZONTAL AXIS TENSIONER (LEFT-RIGHT)

Turn clockwise to increase stick tension, Turn counterclockwise to decrease stick tension

4 GIMBAL MODE SETTING

Turn clockwise to disable self-centering (Throttle), Turn counterclockwise to enable self-centering (Elevator)

5 VERTICAL AXIS TENSIONER

(Up-Down) Turn clockwise to increase stick tension, Turn counterclockwise to decrease stick tension

Figure 2.3: Detailed diagram identifying key components such as gimbals, switches (S1, S2, SA, SB, SC, SD, SF, SH), trim buttons, power button, 4.3-inch color screen, and navigation buttons.

- **Gimbals:** High-precision Hall Sensor gimbals (V4.0) for smooth and accurate control.
- **Switches:** A variety of 2-position, 3-position, and momentary switches (SA, SB, SC, SD, SF, SH) for assigning various functions.
- **Knobs & Sliders:** S1/S2 knobs with clear center detents and LS/RS sliders for fine adjustments.
- **Display:** 4.3-inch 480x272 color TFT touch display for easy navigation and settings adjustment.
- **Buttons:** SYS, RTN, PAGE+, PAGE-, TELE, MDL, and Menu Wheel for system navigation.
- **Module Bay:** JR compatible module bay for external modules.
- **Audio Jack:** Rear-mounted audio jack for headphone output.
- **USB-C Port:** For charging, data transfer, and firmware updates.

3. KEY FEATURES

- **Advanced Internal Circuitry:** Optimized power supply and charging circuit with integrated reverse polarity protection.

- **Improved USB-C Charging:** Enhanced balance and charge current management for efficient battery charging.
- **V4.0 Hall Gimbals:** Improved centering stability and temperature performance, adjustable without disassembly (Min. 38°, Max. 54°).
- **Ergonomic Design:** Optional high/low grips for improved ergonomics and a re-designed battery cover for better access.
- **Enhanced Controls:** Proven S1/S2 knobs with clear center detents and LS/RS sliders with smoother feel and improved center stops.
- **Firmware Support:** Supports both EdgeTX and OpenTX firmware for extensive customization.
- **Internal Module Options:** Available with either a 4-in-1 multi-protocol module (CC2500, CYRF6936, A7105, NRF2401) or an internal ELRS (SX1280) module.
- **High-Resolution Display:** 4.3-inch IPS color display with 480x272 resolution and precision touch panel.
- **Built-in Dual Speakers:** For clear audio feedback.



Figure 3.1: The TX16S MKII V4.0 supports both EdgeTX and OpenTX firmware, offering flexibility and advanced features.



Figure 3.2: Detail of the new V4.0 Hall Gimbals, highlighting their adjustable travel and precision.



Figure 3.3: Diagram illustrating the adjustment points for stick travel, horizontal axis tension, gimbal mode setting (self-centering), and vertical axis tension on the gimbals.

4. SETUP GUIDE

Follow these steps to set up your RadioMaster TX16S MKII V4.0 transmitter for first use.

1. **Battery Installation:** The TX16S MKII requires a Lithium-ion polymer battery (not included). Open the re-designed battery cover on the back of the transmitter and carefully insert the battery, ensuring correct polarity. Close the cover securely.
2. **Initial Power On:** Press and hold the power button located centrally on the transmitter. The 4.3-inch color display will illuminate, and the system will boot up.
3. **Firmware Update (Recommended):** It is highly recommended to update the transmitter's firmware to the latest version. Connect the transmitter to your computer using a USB-C cable. The TX16S MKII supports offline updates via USB-C/SD card. Refer to the official EdgeTX or OpenTX documentation for detailed update procedures.
4. **Gimbal Calibration:** After initial power-on or firmware updates, it is good practice to calibrate the gimbals to

ensure accurate control. Navigate to the calibration menu on the display and follow the on-screen instructions.

5. **Binding with Receiver:** To control your RC model, the transmitter must be bound to a compatible receiver. The binding process varies depending on the receiver and internal module (4-in-1 or ELRS). Consult your receiver's manual and the EdgeTX/OpenTX documentation for specific binding instructions.

5. OPERATING INSTRUCTIONS

The TX16S MKII V4.0 offers intuitive controls and a powerful operating system for managing your RC models.

5.1 Navigation and Display

The 4.3-inch color touch display is your primary interface for configuring and monitoring your models. Use the touch screen or the menu wheel and associated buttons (SYS, RTN, PAGE+, PAGE-, TELE, MDL) to navigate through menus, adjust settings, and view telemetry data.

5.2 Gimbal and Switch Usage

- **Gimbals:** Control primary flight surfaces (e.g., aileron, elevator, rudder, throttle). The V4.0 Hall Gimbals provide precise and consistent input.
- **S1/S2 Knobs:** Typically used for fine-tuning parameters like gain, volume, or other auxiliary functions.
- **LS/RS Sliders:** Ideal for controlling flaps, landing gear, or other proportional functions.
- **Switches (SA, SB, SC, SD, SF, SH):** Assign these switches to control various functions such as flight modes, arming, timers, or special actions. Refer to your model's setup in EdgeTX/OpenTX for specific assignments.

5.3 Software (EdgeTX/OpenTX)

The TX16S MKII runs on either EdgeTX or OpenTX firmware, both open-source and highly configurable. These firmwares allow you to:

- Create and manage multiple model profiles.
- Configure mixes, curves, and logical switches.
- Set up voice alerts and telemetry warnings.
- Customize the display layout and widgets.

Extensive documentation and community support are available online for both EdgeTX and OpenTX to help you maximize the capabilities of your transmitter.

6. MAINTENANCE

Proper maintenance will ensure the longevity and reliable performance of your TX16S MKII transmitter.

- **Cleaning:** Use a soft, dry cloth to clean the transmitter's exterior. For the screen, use a microfiber cloth specifically designed for electronics. Avoid abrasive cleaners or solvents.
- **Storage:** Store the transmitter in a cool, dry place away from direct sunlight and extreme temperatures. Use a protective case when transporting.
- **Firmware Updates:** Regularly check for and install the latest firmware updates for EdgeTX/OpenTX. Updates often include bug fixes, performance improvements, and new features.
- **Battery Care:** If storing the transmitter for an extended period, ensure the battery is charged to a storage voltage (typically around 3.8V per cell) to prevent degradation.
- **Gimbal Inspection:** Periodically inspect the gimbals for any signs of wear or debris. Keep them clean to

maintain smooth operation.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with your TX16S MKII transmitter.

Transmitter Not Powering On:

Ensure the battery is properly installed and fully charged. Check the battery connections inside the compartment. If using an external power source, verify the connection and power supply.

"No Telemetry Detected" Message:

This message typically indicates a communication issue between the transmitter and receiver. Verify that the receiver is powered on and properly bound to the transmitter. Check the range and ensure there are no obstructions. Ensure both transmitter and receiver firmware are compatible and up-to-date.

Gimbal Input Issues (e.g., erratic movement, no response):

Perform a gimbal calibration through the system menu. Check for any physical obstructions or debris around the gimbals. If the issue persists, inspect the gimbal wiring or contact support.

Display Not Responding to Touch:

Try restarting the transmitter. Ensure the screen is clean and free of moisture or debris. If the issue continues, it may indicate a hardware problem.

Firmware Update Failure:

Ensure you are using the correct firmware file for your specific TX16S MKII version (ELRS or 4-in-1). Verify the USB-C connection is stable. Try a different USB port or cable. Ensure your SD card is properly formatted and inserted.

8. TECHNICAL SPECIFICATIONS

Dimensions:	287 x 129 x 184 mm
Weight:	750 g (without battery)
Transmission Frequency:	2.400 GHz – 2.480 GHz
Internal Module Options:	4-in-1 Multi-protocol (CC2500, CYRF6936, A7105, NRF2401) OR Internal ELRS (SX1280)
Transmission Power (4-in-1):	Max 100 mW (protocol dependent)
Transmission Power (ELRS):	Max 250 mW (adjustable)
Antenna Gain:	2 dB (adjustable)
Operating Current:	400 mA
Operating Voltage:	6.6-8.4 V DC
Remote Control Range:	> 2 km at 22 dbm
Firmware:	EdgeTX
Module Firmware:	Multi-protocol module OR ExpressLRS (ELRS)

Channels:	Up to 16 channels (receiver dependent)
Display:	4.3-inch TFT touch display, 480 x 272 resolution
Gimbal Type:	V4.0 Hall Sensor with aluminum panel (AG01 CNC Hall Sensor optional)
Module Housing:	JR compatible module housing
Update Method:	Supports USB-C/SD card offline update
Battery Type:	Lithium-ion polymer (not included)
Connectivity Technology:	USB-C
Max Supported Devices:	1
Number of Buttons:	16
Max Range (General):	10 Meters (This likely refers to general connectivity, not RC control range)

9. WARRANTY AND SUPPORT

For warranty information and technical support, please contact RadioMaster directly through their official website or authorized distributors. Keep your proof of purchase for any warranty claims. Regular firmware updates and adherence to the instructions in this manual will help ensure the continued reliable operation of your transmitter.

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