

Introduction

Thank you for purchasing the Hitec Laser digital proportional radio control system. The Laser is loaded with easy to use features and built with modern solid-state components for unsurpassed reliability and performance. It is important that you read and understand this manual before you attempt to operate your system.

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System Specifications

1. Transmitter

A. Features

- Ergonomically designed 4 channel FM transmitter.
- High quality precision gimbals with adjustable length and tension.
- Servo reversion on all 4 channels.
- ATV (Adjustable Travel Volume) CH1, CH2.
- V-tail and Elevon mixing.
- Trainer system (Hitec/Futaba compatible).
- Easy to read LED battery indicators.
- Premium 9.6v Nicad rechargeable battery pack
- Neck strap attachment.
- Carrying handle

B. Layout

- (Show drawing and point to features)

C. Specifications

- Operating system: Two stick
- Power supply: 9.6V (8 cell) Nicad battery
- Current drain: 150mA
- Output power: 500mw
- Modulation: PPM (FM)

D. Servo Reversing

- The Laser 4 FM transmitter is equipped with servo reversing on all 4 channels.
- (Show Illustration)
- (Note: Leaving the switch in the middle will cause the radio to work erratically so please make sure that the switches are all pushed to the furthest end.)

E. A.T.V. (Adjustable Travel Volume)

- CH 1 & CH 2 only
- This function adjusts the servo overall throw from left to right on CH 1 and up and down on CH 2.
- The rate setting is from 30% -110%

(Show Illustration)

F. Mixing

- The Laser 4 is equipped with mixing for V-tail (CH2 & CH4) or Elevon (CH1 & CH2) for use with flying wing or V-tail type aircraft.

(Show Illustration)

G. Control Stick Adjustment

- The length of the non-slip control sticks can be adjusted to suit the requirements of the user.
- See Illustration.

(Show Illustration)

H. Gimble Tension Adjustment

- The unique open-stick assembly provides fully adjustable stick tension to adjust the “feel” of the sticks in your hands.
- Turning the adjustment counter clockwise will reduce or “soften” the stick tension while turning it clockwise will increase or “stiffen” the tension.
- See Illustration.

(Show Illustration)

I. Trim Levers

- The trim levers associated with each control stick are used to correct (trim out) the tracking of the aircraft.
- (Caution) Make sure the trims will move the surface past neutral when moved to their extremes. This will assure you have adequate trim control
- During the initial test flight, note the positions of the control surfaces that required trim.
- Next, center the trims and turn the receiver off. Now adjust the control linkage on the plane so the surfaces are in the same position before the trim levers are re-centered.
- Turn on the radio and receiver and recheck the control surfaces to ensure that all the corrections were applied in the proper direction.

2. Receiver

A. Features

- 8 Channels
- Dual conversion
- Narrow Band
- Crystal Interchangeable

B. Layout

(Show picture)

- Channel #1: Aileron or rudder (If aircraft does not have ailerons)
- Channel #2: Elevator
- Channel #3: Throttle
- Channel #4: rudder (If plane has ailerons)
- Channel #5: Gear (Laser 6 only)
- Channel #6: Flaps (Laser 6 only)
- Channel #7: Not used
- Channel #8/Batt: Battery

C. Specifications

- Power supply: 4.8 – 6 volts
- Current drain: 22mA
- Dimensions: 2.3"x 1.4"x 0.8"
- Weight: 1.34 oz (34 grams)
- Range: Line of sight to 3,500 ft.
- Operating voltage: 3.7 – 7.0 volts

D. Installation

- Always wrap receiver in the supplies protective foam padding.
- Do not coil the antenna.
- When turning on the system always turn the transmitter on first and off last.
- See aircraft manufacturers instructions for proper airborne radio system location.

3. Servos

A. Features

- Indirect drive
- Custom IC
- SMT (Surface Mount Technology) construction
- Precision gear train

B. Layout

- (Show illustration)
- Black wire: Negative
- Red wire: Positive
- Yellow wire: Signal

C. Specifications:

- Control system: + Pulse width control (1550uS/N)
- Operation angle: 45 degree (one side) 90 degree total throw
- Power Supply: 4.8V – 6.0V
- Current drain: 8mA (Idle)
- Output torque: 42 in/oz (4.8V) 49 in/oz (6V)
- Operating speed: .19sec/60deg. (4.8V) .16sec (6V)
- Dimensions: 1.6"x 0.8"x 1.4"
- Weight: 1.7 oz (49grams)

D. Installation

(Show illustration)

- Connect the servos, battery and switch harness
- See aircraft manufacturers instructions for proper location.

4. Charging Specifications

A. Transmitter/Receiver battery

- The initial charge on your system should be at least 24 hours to insure a full charge.
- Subsequent charges should be at least 12 - 20 hour.
- It is best to put you system (TX and RX) on charge the night before you plan to use it.
- To charge your batteries first make sure your transmitter and receiver are off; then connect the wall chargers outputs to the charging jack on the transmitter and the charge receptacle on the switch harness or directly to the battery. Make sure the green (TX) and red (RX) light comes on. If it does not check for proper connection and/or power to the outlet.
- Be careful not to leave your transmitter on charge for more than 24 hours to prevent any damage to the battery or charger.
- Always charge your system before you go out to fly.