

TACTIC™

PURE RELIABLE 2.4

TTX610

TTX610

2.4GHz 6-CHANNEL SPREAD SPECTRUM RADIO SYSTEM

2.4GHz 6-CHANNEL RADIO INSTRUCTION MANUAL

The TTX610 airplane radio system uses the advanced 2.4GHz spread spectrum SLT "Secure Link Technology" protocol for solid, interference-free control of R/C models. Ball-bearing gimbals, wired and wireless trainer systems, elevon and V-tail mixes, and a custom stabilization gyro recovery function make the TTX610 great for airplanes of all sizes. Tactic 2.4GHz transmitters are compatible only with Tactic brand receivers and those utilizing the SLT protocol.

SLT™
SECURE LINK TECHNOLOGY

STOP For safe operation and best results, it's strongly recommended to read this manual in its entirety before use! Also read and understand the instructions included with the model. Damage resulting from misuse or modification will void your warranty.

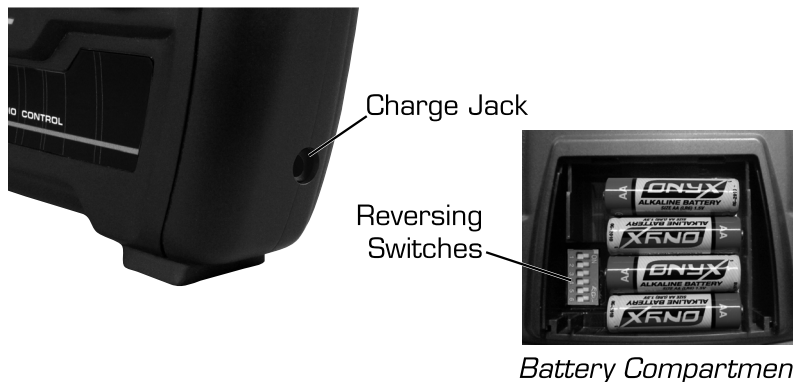


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FEATURES

- Ball-bearing gimbals
- Digital trims
- Power LED with low voltage warning
- Charge jack for optional rechargeable batteries
- Failsafe function in the tiny Tactic 6 channel receiver
- Wired and wireless trainer functions



SLT TECHNOLOGY, Tx-R, AND COMPATIBLE RECEIVERS



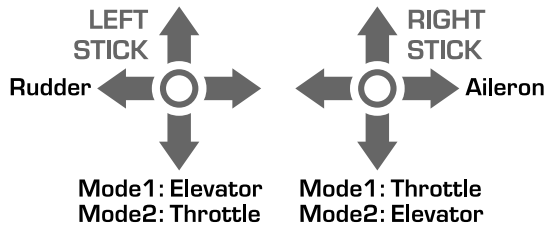
The SLT technology ensures that transmitters emit a strong, clear, frequency-hopping 2.4GHz signal, and that your compatible receiver accepts only your signal. Binding most Tactic brand receivers is as simple as pushing a button. The TTX610 is also compatible with all transmitter-ready aircraft bearing the Tx-R™ logo, and non-Tactic brand receivers having the SLT protocol*.



* Make sure optional receivers have the *genuine SLT protocol* before use with the TTX610.

TTX610 TRANSMITTER (Tx)

NORMAL STICK CONFIGURATIONS



The TTX610 is available in either a “Mode 2” configuration with throttle on the left and elevator on the right, or “Mode 1” configuration with throttle on the right and elevator on the left. Be sure the radio purchased is of the correct mode.

To change between stick modes (mode2 <> mode1), see www.tacticrc.com/transmitters and follow the link for the TTX610 radio to find detailed instructions.

INPUT POWER

Four 1.5V “AA” alkaline batteries or 1.2V rechargeable nickel-cadmium (NiCd) or nickel-metal hydride (NiMH) batteries are required (not included). Do not mix cell types, or old and new cells, etc. See the SERVOS AND ACCESSORIES section on page 12 for optional batteries available at local hobby retailers. Slide open the battery door. Insert all cells with the proper polarity as shown inside the battery holder. Close the battery door.

POWER SWITCH, LED, AND LOW BATTERY ALARM

The red LED should light when the power switch is moved upwards to the “ON” position. The Tx should have adequate power for flight when the LED is on constantly. Flashing of this LED accompanied by beeps means the Tx batteries have weakened and operation of the model should NOT be attempted!



WARNING! Never operate an R/C model with weak Tx batteries! Reduced operational range and/or possible loss of control of the aircraft could result. Replace weak alkaline batteries, or re-charge NiCd or NiMH batteries before attempting a flight! If this alarm activates during flight land the aircraft immediately! Failure to do so could result in destruction of the model and possibly bodily injury!

CHARGE JACK AND CHARGING RECHARGEABLE BATTERIES



WARNING!! Do NOT attempt to recharge alkaline batteries! The charge jack should ONLY be used if rechargeable cells are used in the transmitter. Do not accidentally short circuit the terminals inside the charge jack as permanent damage could result and void the warranty.

The TTX610 includes a built-in charge jack for convenient recharging of NiCd or NiMH batteries, and is compatible with charge leads designed for Futaba® brand transmitters with the center pin being positive polarity. This jack is NOT compatible with charge leads for Hitec®, Airtronics®, JR® or Spektrum® radios. Always make sure to use a charger (not included) which is 100% compatible with the selected battery type.



TTX610 Charge Jack

To use the charge jack, make sure the Tx power switch is in the OFF position. Connect a compatible charge lead (such as TACP0101) to the charger first, then to the Tx charge jack. Follow the instructions included with the charger.



WARNING!! Do not charge batteries at currents greater than 1 amp through this charge jack. Misuse, improper charging, or over-charging of rechargeable cells can result in damage to the cells that could include cell rupture, explosion, or fire!!

FLIGHT CONTROLS

GIMBAL STICKS

Ball-bearing construction allows both sticks to provide the ultimate in smooth, precise control. Stick length can be adjusted for optimum feel and control. Using a 5/64 inch hex wrench, loosen the set screw inside the tip of the stick. Rotate the stick tip counter-clockwise to lengthen or clockwise to shorten the stick. Once the desired stick length is found, tighten the set screw.



AILERON (CH1)

Controls the moveable surfaces at the end of both main wings to rotate the airplane about the “roll” axis (an imaginary line which extends from the airplane’s nose to the tail). The aileron reversing switch must be set so moving the aileron stick to the right will cause the airplane’s right aileron to deflect up, thus causing the right wing to drop and the airplane will bank to the right. Moving the aileron stick to the left will cause the airplane’s left wing to drop and the airplane will bank to the left. This is one important method for turning the aircraft.

ELEVATOR (CH2)

Controls the moveable horizontal surfaces on the airplane’s tail to rotate the airplane about the “pitch” axis (an imaginary line extending through the center of both main wings, from one wing tip to the other wing tip). The elevator reversing switch must be set so that pulling the elevator stick back (towards you) will cause the elevators to deflect up, thus causing the nose of the airplane to rise. Pushing the elevator stick forwards (away from you) will cause the nose of the airplane to drop. When using the ailerons to bank the airplane’s wings, pulling the elevator stick back will help the aircraft maintain altitude and turn the aircraft more quickly.

THROTTLE (CH3)

Controls the speed (R.P.M.) at which the engine or electric motor operates. With the throttle reversing switch in the normal position, pulling the throttle stick back will cause the engine’s speed to decrease. Pushing the throttle stick forward will cause the engine’s speed to increase.

RUDDER (CH4)

Controls the sideways movement of the airplane’s tail and will rotate the airplane about the “yaw axis” (an imaginary line from the top of the airplane’s fuselage to the bottom of the fuselage, located near the center-point of the fuselage). The rudder reversing switch must be set so that moving the rudder stick to the right causes the rudder to deflect to the right, thus causing the nose of the airplane to point to the right. Moving the rudder stick to the left will cause the nose of the airplane to turn left. When using the rudder in conjunction with the ailerons, the airplane’s nose can point into a turn (instead of pointing up and “skidding” through the turn), allowing the airplane to perform tighter, more coordinated turns.

CHANNEL 5

This channel offers two-position non-proportional control and is typically used to control retractable landing gear, controlled by the switch shown on page 3. Rotational servo movement is limited to full clockwise movement and full counter-clockwise movement.

CHANNEL 6

This channel offers three-position non-proportional control, and is often used for control of airplane flaps for full up, center, and full down positions. This switch as shown on page 3 can also be used to change the sensitivity setting of gyros or other accessory items.

DIGITAL TRIMS

One trim lever is included for each of the four main controls, located adjacent to the respective stick. All trims are digital in function, and always rest at mechanical center position. Briefly depressing the lever to either side away from center will cause the respective servo output to finely rotate to one direction. Pressing and holding the trim lever will cause the servo output to move repeatedly. Ideally during a flight, when the main sticks are released and spring back to center position the aircraft should not veer in any direction. If the aircraft veers in a particular direction, click the respective trim lever until the aircraft maintains a straight attitude on its own.

For airplanes with glow engines, the position of the throttle trim lever is helpful for determining the engine's preferred idle point. The throttle trim lever is not active when the main throttle stick is above 50% full throttle.

REVERSING SWITCHES

Inside the battery compartment is a bank of switches, with one reversing switch for each channel. Each switch can reverse the rotational direction of the servo that is connected to that respective channel. This is often a much easier method for changing the direction of a servo's movement as opposed to altering the mechanical connections between the model's surface and the servo. Refer to the model's instructions for specific details.

The switch bank is numbered 1, 2, 3, 4, 5, and 6 for each respective channel. Moving the small switch lever for the respective channel number will change the direction of control for that channel.

DUAL RATE SWITCH

The travel distance of the servos for the aileron, elevator, and rudder channels can be changed at any time by using the switch marked AIL / ELE / RUD D/R, located above the right stick. This switch will change the travel distance of all three channels at the same time (not separately). With the switch in one position, each channel's servo will be capable of rotating through its full travel range (100%). Moving the switch to the opposite position will limit the rotational range of each channel's servo to 60% of its maximum rotational range. Placing the dual-rate switch in one position can allow for better control of the model while on the ground, at low altitudes, or while performing certain maneuvers. Moving the switch to the opposite position can allow for optimum control of the aircraft in mid-flight.

TRAINER FUNCTION

The TTX610 Tx includes both wired and wireless trainer functions.



IMPORTANT! Before flying the model in training situations it's important to make sure all channel reverse settings and trim adjustments on the teacher and student transmitters match! Otherwise, the model could suddenly veer in an unwanted manner when the teacher's trainer switch is activated. Proper matching of the student and teacher's Tx settings should ensure that no unexpected movements occur when the trainer switch is pressed. This is especially true of the throttle control!

WIRED TRAINER

This option allows for connection to another Tx having a trainer jack, and can function as either the teacher or student's Tx. This also allows for connection of the TTX610 to some computer based flight simulators. See the **SERVOS AND ACCESSORIES** section on page 12 for recommended trainer cords. Refer to instructions included with those cords. To properly assign control of the aircraft to the teacher/student when using two Tactic brand transmitters for training, follow these steps in order:

1. Link the teacher's Tx to the receiver inside the aircraft as explained on page 10. Remove power from the Rx, then the Tx.
2. Connect the student's Tx to the teacher's Tx with the appropriate trainer cord.
3. Turn the student's transmitter power switch ON.
4. Turn the teacher's transmitter power switch ON.
5. To transfer control of the aircraft to the student, pull the teacher's trainer switch and hold. Release the switch to immediately return control of the aircraft to the teacher.
6. When the training session has ended and power has been safely removed from the model, disconnect the trainer cord.

WIRELESS TRAINER

This option allows for communication with another Tactic Tx by wireless means, and can function as the teacher or student's Tx. This function is not compatible with other brand radios.

1. Link the teacher's Tx to the receiver inside the aircraft. Remove power from the Rx, then the Tx.
2. The student must use a separate Tactic Tx with wireless trainer function.
3. Place both transmitters within 1 meter of each other, with the throttle stick for each Tx in the idle position.
4. Turn the student's Tx power switch ON.
5. Pull and hold the teacher's Tx trainer switch, and then turn the teacher's Tx power switch ON.
6. The LED on the teacher's Tx will flash 3 times to indicate it has linked to the student's Tx.
7. Release the trainer switch on the teacher's Tx.
8. Once both transmitters are linked together, power can be applied to the Rx to prepare for flight. Make sure both transmitters are kept within 15 feet of each other at all times while training.
9. To transfer control of the aircraft to the student, pull the teacher's trainer switch and hold. Release the switch to immediately return control of the aircraft to the teacher.
10. When the training session has ended and power has been safely removed from the model, turn OFF the power switch of both transmitters. This will break the wireless link between both transmitters. Return to step 1 above to re-establish the wireless link for additional training.

ELEVON and V-TAIL MIXING

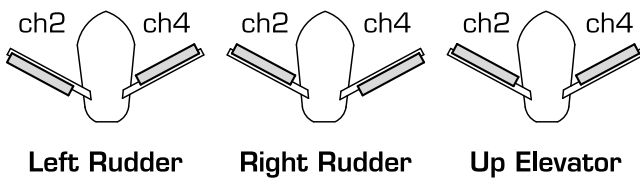
The TTX610 includes elevon and v-tail mixing functions. The default setting for all mixing will be “off”, meaning functionality will be suitable for traditional airplane wings and a normal T-shaped tail. To change the mix setting:



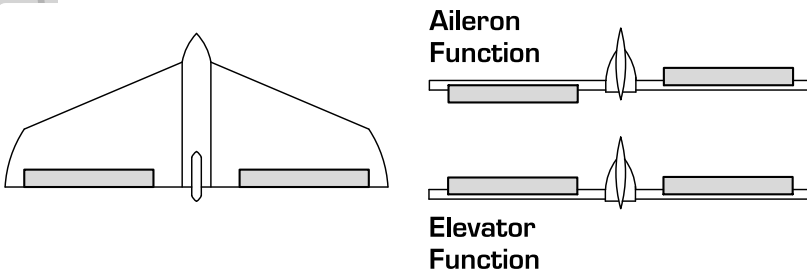
1. With the Tx power switch off, move the right stick to the bottom-right corner, the left stick to the bottom-left corner, and hold in these positions.

2. Turn the Tx power switch ON.

3. The LED should flash. If accompanied by two beeps the **V-tail** mix function has been activated. “V-tail” is a mixture of the elevator and rudder channels. Two servos are used in the tail; one for each control surface. This will control the airplane’s “pitch” and “yaw” axis at the same time. If the elevator and rudder functions appear reversed at the control surfaces it may be necessary to swap the channel 2 and channel 4 servo plug positions in the receiver. If this is the desired mix function move to the next section.



4. To skip the V-tail mix and instead activate the **elevon** (delta wing) mixer, turn the Tx power switch OFF and repeat the above procedure. When the flashing LED is accompanied by three beeps the elevon mixer will be active. “Elevon” is a mixture of the elevator and aileron channels and controls the airplane’s “pitch” and “roll” axis simultaneously. One servo is used for each control surface. If the elevator and aileron functions appear reversed at the control surfaces it may be necessary to swap the channel 1 and channel 2 servos’ plug positions at the receiver.



5. To cancel all mixes, repeat this procedure again. When the flashing LED is accompanied by one beep all mixes will be off.

STABILIZATION GYROS

Optional stabilization gyros can be used to help maintain stable control of an airplane during flight. Gyros can supply feedback to the aileron, elevator, and rudder controls separately. Many gyros also offer the ability to change the sensitivity of the on-board sensors during flight. By connecting a gyro’s input connector to receiver channel 6, the TTX610’s channel 6 switch can be used to change between the gyro’s different sensitivity selections. See the gyro’s instructions for details about all connections and settings.