

BRC Hobbies

Hubsan X4 Mini Quadcopter (Throttle Left - Mode 2) Setup and Calibration Instructions

1. Introduction

These instructions are provided as a supplementary guide to the supplied instructions to help beginners or those unfamiliar with flying quads or helis gain maximum enjoyment from this remarkable flying machine.

It is unlikely that the X4 will be correctly calibrated and trimmed for neutral flight out of the box! Spending some time in setting it up will provide valuable benefits and may even save you money on spare parts.

Remember that although regarded as a 'toy' in some circles, the X4 is an extremely sophisticated piece of electronic engineering. As such, it is essential that - as with any other radio-controlled aircraft - the transmitter and X4 are calibrated and trimmed accurately to ensure trouble-free operation.

We have flown the X4 extensively ourselves and recommend that before you attempt to fly, you set up both the transmitter and X4 using the following guide.

2. Setting up the Transmitter

Insert four charged 'AAA' size batteries (not supplied) into the transmitter. With the throttle/left stick all the way down (closed) switch the transmitter on - the red power LED will flash.

Place the X4 upside down on a flat, level surface and connect the (charged) flight battery. Leave it alone for a few seconds to initialise. The X4 blue LED 'eyes' will flash. Once the initialisation sequence is complete the 'eyes' will turn to solid blue, the transmitter will 'beep' and the LED will turn to solid red indicating that the transmitter has 'found' the X4 and has entered 'normal' mode.

(Note: If the transmitter LED continues to flash and the word 'Expert' is displayed at the bottom of the LED screen, simply press the right stick vertically down momentarily to toggle the transmitter back to normal mode.)

Transmitter trims

With the throttle/left stick all the way down (closed), set the transmitter trims as follows:

Throttle trim : zero (down/closed)

Pitch/ele, roll/ail and yaw/rud trims : centre (neutral)

The transmitter will issue a 'beep' each time you press a trim button. A high pitched beep is issued when the trim has reached the centre point; the trim position indicators on the LCD screen should be at the bottom for throttle, and in the centre position for pitch, roll and yaw.

Sensitivity/Rates

We have deliberately chosen 'numb' settings to reduce the sensitivity of stick movement. Once the X4 has been set up and calibration complete, you should experiment with the values to achieve your own desired performance expectations.

Set the sensitivity/rate values as follows:

Enter the settings mode (SE) by pressing the transmitter **right** stick down vertically until it clicks. Hold for 1 second. Release the stick when the transmitter 'beeps' and the screen display shows 'SE'. While in 'SE' mode, the X4 will not react to stick inputs.

Yaw/rud sensitivity: Press the throttle/left stick down vertically momentarily. The transmitter will beep and the screen display will show a numerical value (%) and three flashing dots in the bottom left corner. Use the left and right yaw/rud trim buttons to change the value to '40'.

Pitch/ele sensitivity: Press the left stick down vertically again momentarily. The transmitter will beep and the screen display will show a numerical value (%) and three flashing dots on the right hand side. Use the up and down pitch/ele trim buttons to change the value to '30'.

Roll/ail sensitivity: Press the left stick down vertically again momentarily. The transmitter will beep and the screen display will show a numerical value (%) and three flashing dots in the bottom right corner. Use the up and down roll/ail trim buttons to change the value to '30'.

Exit the 'Settings' mode by pressing the right stick down vertically. Hold for 1 second. Release the stick when you hear 3 quick consecutive 'beeps' and the display shows the main screen.

3. Setting up the X4

To ensure that the X4 achieves level flight stability, we recommend calibrating the accelerometers.

With the throttle/left stick all the way down in the closed position, switch the transmitter on.

Place the X4 upright on a hard, level surface and connect the battery. Leave it alone for a few seconds until the 'eyes' stop flashing. The transmitter will 'beep' and the red LED will stop flashing to indicate that the initialisation is complete.

Press the transmitter **right** stick down once vertically and release. You will hear a 'click'. The transmitter red LED will flash and the word 'Expert' will be displayed at the bottom of the screen.

Keeping the throttle closed, move the stick to the **bottom right** position. Move the pitch/roll (ail/ele) stick side to side (left/right) repeatedly - and reasonably quickly - until the X4 blue LEDs blink. This indicates that the accelerometer level calibration is complete.

Keeping the throttle closed, allow the throttle/left stick to return to the centre position. Press the **right** stick vertically down momentarily to toggle the transmitter back to normal mode.

Testing and Re-calibration

Before testing please be aware that any wind or draft will cause the X4 to drift. Try to carry out the calibration procedure in still air. With no wind and properly calibrated the X4 should remain in a steady hover for at least 5-10 seconds before you need to make corrective stick inputs. Once properly calibrated, small amounts of drift can be trimmed out using the trim switches.

Procedure

Apply enough throttle to lift the X4 off the ground to test for drift. Do not move the right stick at this point. If the X4 drifts in any direction, close the throttle and land.

If the X4 drifts **forward** - place a piece of thin card or a few sheets of paper under the **front** the front legs. Repeat the calibration procedure following the steps under **Setting up the X4** and test again for drift.

If the X4 drifts **backward** - place a piece of thin card or a few sheets of paper under the **back** legs. Repeat the calibration procedure following the steps under **Setting up the X4** and test again for drift.

If the X4 drifts **left** - place a piece of thin card or a few sheets of paper under the **left** legs. Repeat the calibration procedure following the steps under **Setting up the X4** and test again for drift.

If the X4 drifts **right** - place a piece of thin card or a few sheets of paper under the **right** legs. Repeat the calibration procedure following the steps under **Setting up the X4** and test again for drift.

If the X4 drifts **forward and right** - place a piece of thin card or a few sheets of paper under the **front/right** leg. Repeat the calibration procedure following the steps under **Setting up the X4** and test again for drift.

If the X4 drifts **forward and left** - place a piece of thin card or a few sheets of paper under the **front/left** leg. Repeat the calibration procedure following the steps under **Setting up the X4** and test again for drift.

If the X4 drifts **backward and right** - place a piece of thin card or a few sheets of paper under the **back/right** leg. Repeat the calibration procedure following the steps under **Setting up the X4** and test again for drift.

If the X4 drifts **backward and left** - place a piece of thin card or a few sheets of paper under the **back/left** leg. Repeat the calibration procedure following the steps under **Setting up the X4** and test again for drift.

4. General tips on flying

The X4 will skid around the floor until it reaches a point above the turbulence created by its spinning props. You will need to lift the X4 to about waist height to find 'clean' air.

Be aware that the X4 needs to be 'flown' to maintain an even hover and stable flight, so continual stick inputs are necessary.

When flying a multi-copter with accelerometers, you must counter the directional movement with reverse stick movements. eg. moving the pitch (right) stick forward, will cause the X4 to fly forwards. To return the X4 to steady hover, you will need to apply back stick momentarily to halt the forward motion.

Do fly the X4 below 5 feet until you are comfortable with the throttle (height) control and the pitch and roll (directional) controls.

Do fly over soft carpet or grass and keep within a 10ft area in front of you with no obstacles until you are comfortable with the X4 flight characteristics.

Do CLOSE THE THROTTLE IMMEDIATELY if you are about to hit the ground or have already crashed. Failure to do this will cause the motor(s) to stall damaging the motor brushes, armature windings and the FET on the flight controller. **Train yourself to make this an automatic response.**

Don't fly too far away initially. Orientation may become a problem with the X4 easily lost against a backdrop of trees, bushes and ground cover.

Do pass this information to your friends and colleagues - it will save us a lot of technical help phone calls!

Do consider buying extra batteries and a charge/conversion lead from our site. Our Hyperion 250 1S (stock no. 405641) is a perfect fit. The conversion lead set is stock no. 407419