proto X SLT™

CONTENTS

Proto-X SLT Nano Quadcopter
USB Charge Cord
LiPo Flight Battery
2.4GHz Controller
Spare Blades (2 black, 2 gray)

READ THROUGH THIS MANUAL BEFORE OPERATING.

SPECIFICATIONS

Size: 1.97" [50 mm] (distance between diagonal motors)
Flying Weight: 0.4 oz [11.1 g]
Blade Length: 1.2" [30 mm]
Length: 1.9" [48 mm]
Height: 0.9" [23 mm]
Width: 1.9" [48 mm]
Battery: 3.7V 100mAh LiPo
Flight Time: Approximately 5 minutes

REQUIRES

Four AAA 1.5V alkaline batteries
USB Output Jack
Phillips head screwdriver

ESTES Control

Thank you for purchasing the Proto-X SLT Quadcopter. We are certain you will get many hours of enjoyment out of this model. If you should have any questions or concerns please feel free to contact us at Hobby Services.

SAFETY PRECAUTIONS

Follow these safety precautions when operating this or any model helicopter.

- Adult supervision required.
- Changes or modifications to this product not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.
- Do not touch the spinning blades or fly over another person's head. Keep your face and body as well as all spectators away from the rotors whenever the battery is connected.
- Stay clear of buildings, trees and power lines. AVOID flying in or near crowded areas. DO NOT fly close to people, children or pets.
- Maintain a safe pilot-to-helicopter distance while flying.
- Your Proto-X SLT quadcopter should not be considered a toy, but rather a small, working model. If not operated correctly, the model could possibly cause injury to you or spectators and damage to property.
- Do not alter or modify the model, as doing so may result in an unsafe or unflyable model.
- You must check the operation of the model before every flight to ensure that it is structurally sound.

90-DAY LIMITED WARRANTY

PLEASE DO NOT RETURN YOUR PRODUCT TO THE STORE

Proto-X will repair or replace factory defects for 90 days from the date of purchase. This warranty specifically does not cover crash damage, misuse or abuse. To make a warranty claim, please contact our product support team at ***1-217-398-8970 option 6*** or e-mail us at ***helihotline@hobbico.com***

If requested by Product Support, please send your defective product to:

Hobby Services
3002 N Apollo Dr., Suite #1
Champaign, IL 61822

Please include a note about the problem, your contact information, and a copy of the receipt.

This warranty applies only if the product is operated in compliance with the instructions and warnings provided with each model. Proto-X assumes no liability except for the exclusive remedy or repair of parts as specified above. Proto-X SLT shall not be liable for consequential or incidental damages. Some states do not allow the exclusion of consequential or incidental damages so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

FCC STATEMENT AND INDUSTRY CANADA NOTICE

1. This device complies with Part 15 of the FCC Rules and RSS-210 of Industry Canada. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Remark: This device is in accordance with the digital device grade B limitation and the 15th regulation of FCC. This limitation requires reasonable anti-interference protection around the residence. The device can transmit radio wave during use and can interrupt the mobile communication without proper installment. Interruption will occur for special device. If the device do interrupt the radio or television, please turn the device off then turn it on to adjust. Below are some resolution for your reference:

- Move the receiving antenna
- Enlarge the distance between the device and receiver
- Try to not connect the device and the receiver on the same circuit
- Ask for professional help from experts

3. This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of Industry Canada.

BATTERY PRECAUTIONS

This Proto-X SLT Nano Quadcopter uses a lithium polymer (LiPo) battery. Follow these precautions to ensure safe and trouble-free operation.

- Only use the included charger with the flight battery.
- Do not attempt to use this charger with NiCd or NiMH battery packs.
- Do not attempt to use a damaged battery.
- This product contains a LiPo battery. Must be recycled or disposed of properly.

- Disconnect the battery from the charger and carefully move the battery to a fireproof location if the battery begins to swell or smoke!
- Do not leave the charger unattended while charging. Disconnect the battery and unplug the charger immediately if either becomes hot! However, it is normal for the charger to get warm.
- Never allow the battery temperature to exceed 140° F [60° C].
- Never disassemble or modify pack wiring in any way or puncture cells.
- Do not place the charger or any battery on a flammable surface or near combustible materials while in use.
- Never charge inside a vehicle.
- Always disconnect the battery and remove the charger from the USB port when not in use.
- Do not attempt to charge a battery if it is swollen or hot.
- Land your model immediately when the low-battery LEDs flash. Recharge the battery before attempting another flight. A dangerous situation can occur when attempting to recharge an over-discharged battery!
- ALWAYS keep a supply of sand handy when charging. Dumping sand on the battery will extinguish a LiPo chemical fire.
- ALWAYS KEEP OUT OF REACH OF CHILDREN.

LiPo

CARE AND MAINTENANCE

- Always remove the batteries from the controller and the quadcopter when it is not being used for a long period of time.
- Clean the quadcopter with a damp cloth.

SAFETY CHECK

Before operation, please make sure the batteries for the controller and the quadcopter have enough charge for flying.

❑ Carefully check the rotor blades for damage. Broken or premature parts failure may result in a dangerous situation.

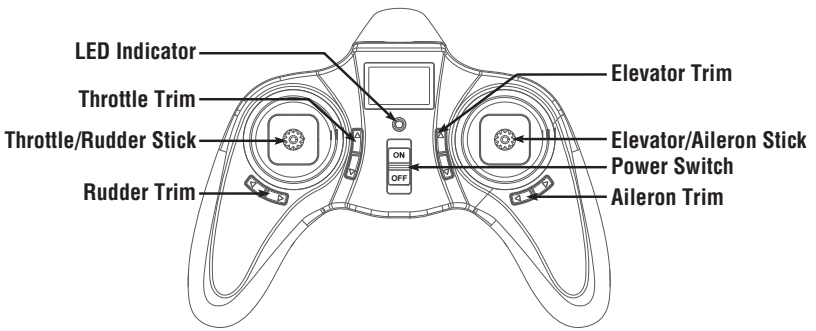
❑ Before turning on the controller, please check that the throttle stick is in the lowest position.

❑ Always turn on the controller first, and then connect the battery to the quadcopter to start flying.

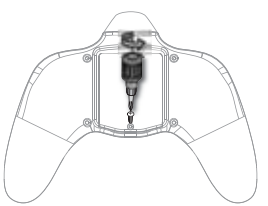
❑ Always unplug the battery first and then turn off the controller after the flight has ended.

❑ Beginners should find a large area free from obstacles (such as a gymnasium or a large basement with a tall ceiling). If the winds are calm, experienced pilots may also be able to fly the Proto-X SLT outdoors.

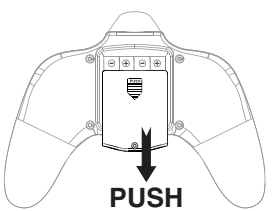
CONTROLLER



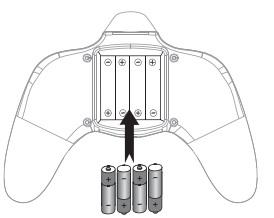
INSTALL BATTERIES



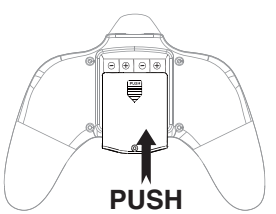
1. Remove the screw



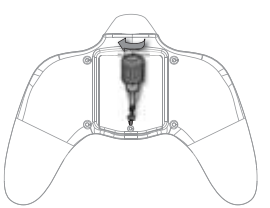
2. Take off the cover



3. Install alkaline batteries according to the proper polarities



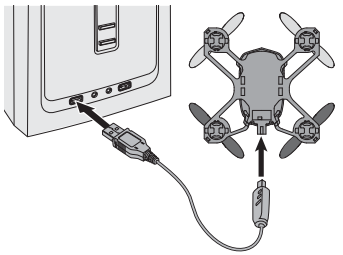
4. Re-install the cover



5. Re-install the screw

CHARGING THE FLIGHT BATTERY

The quadcopter must be powered off before charging.



Plug the charger into a USB port on your computer or USB AC adapter and connect the quadcopter. The connector for the quad will only fit one way. Do NOT force the plug onto the connector at the back of the quadcopter.

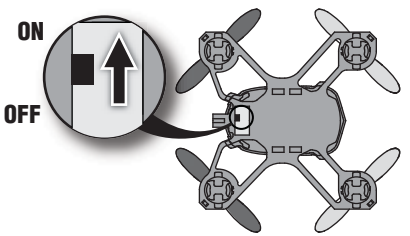
The RED LED on the charger will be on while the battery is being charged. When the charge cycle is complete, the LED will turn off.

- NEVER leave the quadcopter unattended while the battery is charging.
- DO NOT allow the device powering the charger to shut down while the battery is charging.
- ALWAYS unplug the battery when the charge cycle is completed.

POWER-ON (FAIL-SAFE) PROCEDURE

Your Proto-X SLT Nano Quadcopter is fitted with a Power-On fail-safe. This is designed to ensure that the motor will not start unless it detects a suitable radio-control signal when the LiPo battery is connected. The correct Start-Up sequence is as follows:

1. Move the throttle stick to the lowest position.
2. Turn on the controller.
3. Turn on the quadcopter with the switch on the bottom of the frame near the connector for the charger. Set the quad on a level surface.



FLIGHT CONTROLS

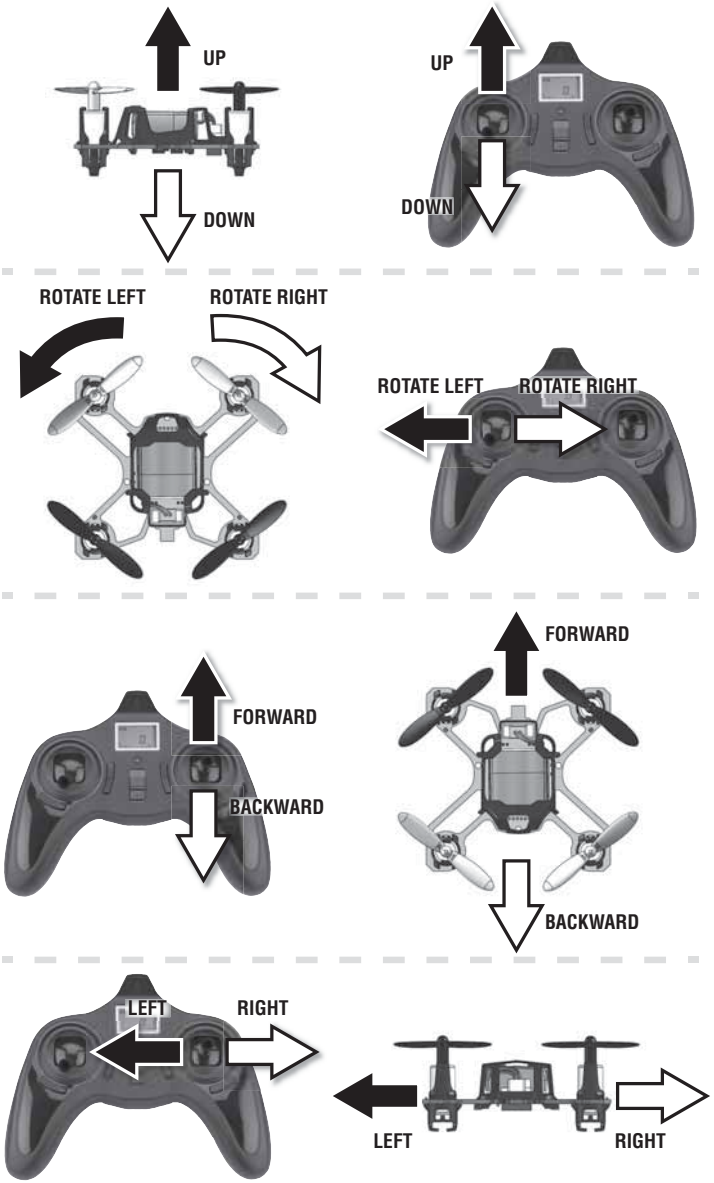
NOTE: *The grey propellers and BLUE LEDs are on the FRONT of the quadcopter. The black propellers and RED LEDs are at the REAR of the quadcopter.*

CAUTION: *ALWAYS move the controls slowly!*

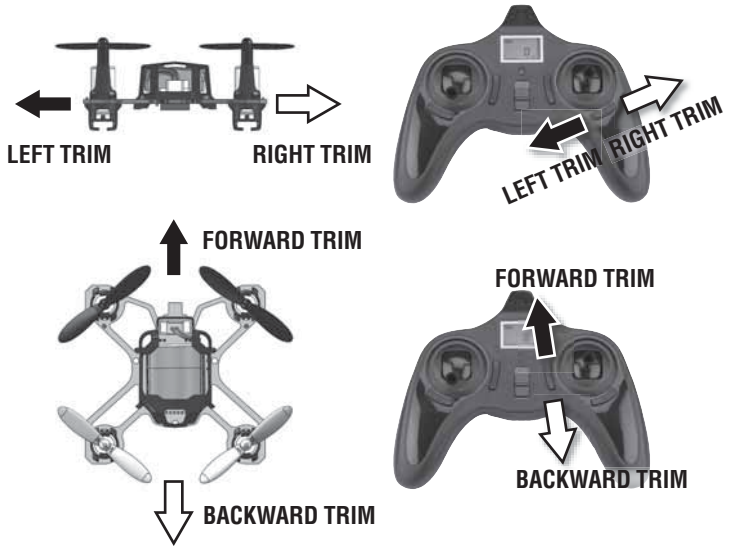
Be ready to use a little extra throttle to maintain altitude during maneuvers.

If you see that the quadcopter is going to crash (or has already crashed), move the throttle control to 0% as quickly as possible to avoid causing damage to the motors or control board.

When the battery voltage begins to run low, the LEDs on the quadcopter will flash. This is a warning to land before the built-in low-voltage cut-off reduces power to the motors.



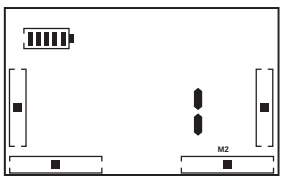
FLIGHT TRIM ADJUSTMENT



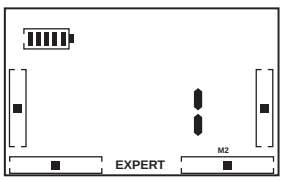
It is normal for the Proto-X SLT to drift slightly. However if it drifts in any direction consistently press the trim button opposite the movement as many times a needed to eliminate the drift.

FLIGHT MODES

The default flight mode is the standard mode and the LED on the controller below the display will be GREEN. In this mode, the Proto-X SLT is the most stable.



To adjust the controller to EXPERT mode (most sensitive controls) press down on the right stick one time. The display will now have the word “EXPERT” at the bottom of the screen and the LED below the display will flash GREEN and RED.



Flip maneuvers can only be performed in EXPERT mode.

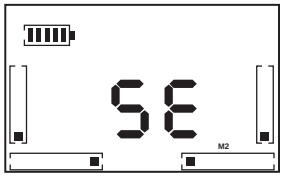
To return to normal flight mode, quickly press down on the right stick again.

LEDN ON/OFF

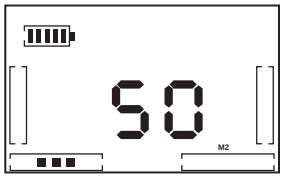
The LEDs on the quadcopter can be toggled off and on by holding down the throttle trim button for 2 seconds.

SENSITIVITY ADJUSTMENTS

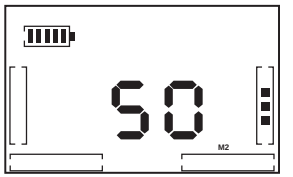
To adjust the sensitivity of the controls in the standard flight mode, press down the right stick and hold it until the display shows the letters SE. Release the right stick.



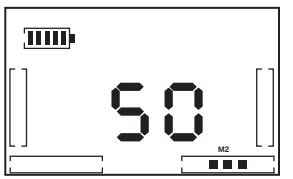
Yaw/Rudder Sensitivity: Push down on the left stick quickly. There will be 3 dots flashing in the lower left corner of the display below the rudder trim graph. The default setting is 50%. Use the rudder trim buttons to raise or lower the value.



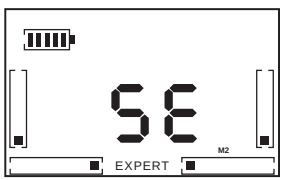
Pitch/Elevator Sensitivity: Push down on the left stick again. The 3 dots will move to the right side of the screen next to the elevator trim graph. The default setting is 50 and the elevator trim buttons should be used to raise or lower the value.



Roll/Aileron Sensitivity: Push down on the left stick again. The 3 dots will move to the lower right side of the display below the aileron trim graph. The default setting is 50 and the aileron trim buttons should be used to raise or lower the value.



Expert Settings: The settings can be changed for the expert settings using the same procedure. Enter the SE mode and quickly press down on the right stick to change from the normal to the expert mode.



Default Expert Settings:
Yaw/Rudder – **90**
Pitch/Elevator – **100**
Roll/Aileron – **100**

To exit the setting adjustment mode, press down and hold the right stick assembly until the display returns to normal.

360° AERIAL FLIPS (Expert Mode Only)

Tip: *Perform the flip while gaining altitude.*

Quickly push the stick halfway one direction and then quickly push to the opposite direction.

TROUBLESHOOTING

PROBLEM: The quadcopter will not respond to the controller.
SOLUTION: (1) Charge or change the battery on the quadcopter (2) Make sure that the throttle is at 0% and the throttle trim at or below center. (3) Turn off the quadcopter for a minute and turn it back on. (4) Relink the controller and quadcopter – See *Linking the Quadcopter and Controller* instructions on page 7.

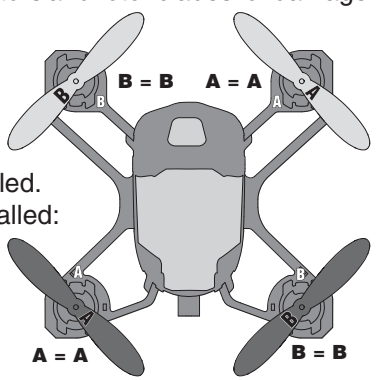
PROBLEM: Red controller LED light flashing after binding.
SOLUTION: Replace with new AAA batteries.

PROBLEM: Gyro not working properly.
SOLUTION: (1) Battery voltage low. (2) Re-bind. (3) Land on to the ground for 3 seconds and take off again.

PROBLEM: Unable to Flip.
SOLUTION: (1) Not enough power. (2) Press the elevator/aileron (right) joystick one time to enter the expert (flip) mode.

PROBLEM: Quadcopter is shaking.
SOLUTION: Check the canopy, chassis, motors and rotor blades for damage.

PROBLEM: Will not take off.
SOLUTION: Rotor blades incorrectly installed.
Check that the rotor blades are properly installed:



PROBLEM: Quadcopter is always drifting to one direction.
SOLUTION: Calibrate the sensors.

1. Turn on the controller and the quadcopter. Place the quadcopter on a flat surface.
2. Hold the left stick to the lower right. At the same time, quickly move the right stick left and right several times until the blue LEDs flash.

Test the model to see if it will hover without drifting. If the model is still drifting, try putting a thin piece of cardboard under the motor or motors in the same direction that the quadcopter is drifting. Perform the sensor calibration procedure again.

SLT SETUP

The Proto-X SLT Nano Quadcopter can be used with other SLT controllers. If your controller has programmable settings or if it uses an ANYLINK/ANYLINK2 adapter, please use these settings as a guide to get started.

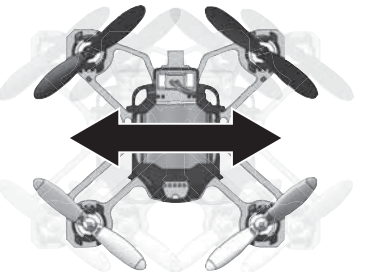
Tactic® TX650/Futaba®	AILE	ELEV	THRO	RUDD
	1	2	3	4
Type	AIRPLANE			
Servo Reverse	N	N	N	N
Travel Adjustment	100%	100%	100%	100%
Dual Rates (D/R)	100/50	100/50		100/50
Exponential (EXPO)	–25	–25		–25
Throttle Curve	0	25 50 75		100
Timer (TIMR)	5 Min			

Spektrum® w/Anylink2™	AILE	ELEV	THRO	RUDD
	1	2	3	4
Type	AIRPLANE			
Servo Reverse	R	R	R	R
Travel Adjustment	100%	100%	100%	100%
Dual Rates (D/R)	100/50	100/50		100/50
Exponential (EXPO)	+25	+25		0
Throttle Curve	0	25 50 75		100
Timer (TIMR)	5 Min			

Note: *The LEDs cannot be toggled On/Off with an SLT controller. The quadcopter can be flipped when the controller is on high rates.*

LINKING THE QUADCOPTER AND CONTROLLER

The Proto-X SLT uses Wavelink™ technology to link it to the controller. If all four blue LEDs are flashing and the quadcopter will not respond to any commands, use the following procedure.



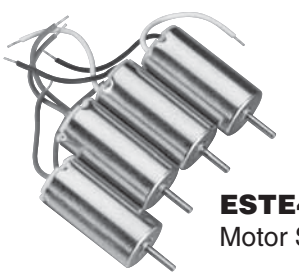
1. Turn off the controller but leave the Proto-X SLT on.
2. Turn on the controller.
3. Immediately pick up the quadcopter and wave it side to side for two seconds. Move the quadcopter at a moderate speed at least 12 inches in each direction.
4. Place the quadcopter on a level surface. The blue LEDs will flash on one side then the other while the quadcopter is linking to the transmitter. The LEDs will become steady when the quadcopter is linked to the controller.

SPARE/OPTIONAL PARTS

ESTE4615
Rotor Blade Set (4)

ESTE4616
USB Charge Cord

ESTE4618
LiPo 1S 3.7V 100 mAh



ESTE4617
Motor Set (4)

ESTE4622
Display Case
(Optional)

protoquad.com

ESTE49** Mnl