

Heli-Max®

1SQ™

V·CAM



1SQ V·CAM 2.4GHz RTF/ Tx-R Instruction Manual

RTF
READY-TO-FLY

Tx-R
TRANSMITTER-READY

WARNING

Carefully read this manual to learn the safe operation of this model. Before use, if you feel this product is not for you, please return it to your place of purchase.

Heli-Max products are to be used by ages 14 and over.

The instruction manual, warranties and other associated documentation are subject to change without notice. Hobbico assumes no responsibility for inadvertent errors to this manual.

Thank you for purchasing the Heli-Max 1SQ V-cam 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: helihotline@hobbico.com. For the latest technical updates or manual corrections visit the Heli-Max web site at www.helimax-rc.com. If there is any new technical information, changes or important updates to this model a “tech notice” box will appear on the 1SQ V-cam product page. Click the “tech notice” box to learn more about this important update.



When you see this symbol, please pay special attention and heed all warnings regarding the information within.

Please note that we cannot provide you information on the pricing you will find in your local retailer's store for any products.

If you need technical support or have any questions, you can reach us by one of the following means. When contacting us, please include the product you are referring to, its stock number and as much information about your question or issue as possible.

For support outside the U.S. or Canada, please contact the distributor in your country. If unable to contact the appropriate distributor, please contact us. However, we are unable to respond to emails in languages other than English.

Email

Email us at helihotline@hobbico.com. Please try to include as much information as possible when asking your question. Also please be sure to list your full email address (ex: johndoe@aol.com) as well as at least one other means of daytime contact in your email.

Phone

1-217-398-8970 Select option 6.
Available Monday-Friday, 8am-5pm
U.S. Central Time.

Fax

1-217-398-7721 Please be sure to include a daytime telephone number or return fax number so that we can contact you.

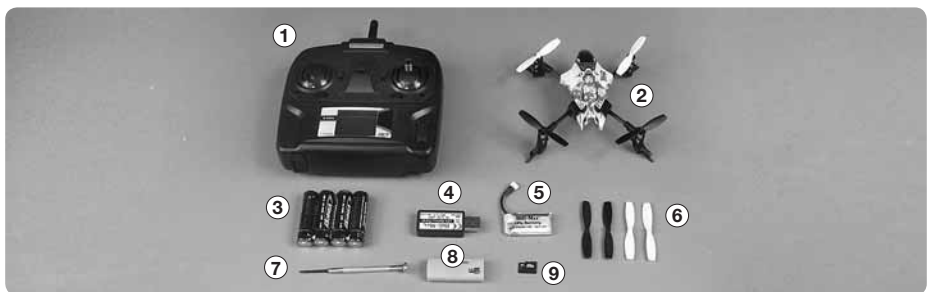
Regular Mail

If you prefer, we can always respond with a regular mailed letter. Simply write to us, including a brief explanation of your problem or question along with the product name you are referring to. Use the Hobby Services address on page 3.

Heli-Max guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. **In no case shall Heli-Max's liability exceed the original cost of the purchased kit.** Further, Heli-Max reserves the right to change or modify this warranty without notice. In that Heli-Max has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user assembled product, the user accepts all resulting liability. If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

To make a warranty claim, **Hobby Services**
 send the defective part 3002 N. Apollo Dr., Suite 1
 or item to Hobby Services Champaign, IL 61822
 at this address. USA

Include a letter stating your name, return shipping address, as much contact information as possible (daytime telephone number, fax number, e-mail address), a detailed description of the problem and a photocopy of the purchase receipt. Upon receipt of the package the problem will be evaluated as quickly as possible.



- | | | |
|--|----------------------------------|---------------------|
| 1. 6-channel 2.4GHz SLT radio | 4. USB LiPo battery charger | 8. Card Reader |
| 2. 1SQ V-Cam with Micro digital camera | 5. 1S 250mAh LiPo battery | 9. 2G Micro SD Card |
| 3. "AA" batteries | 6. Extra set of (4) rotor blades | |
| | 7. Screwdriver | |

Parts needed to complete your Tx-R model

- 6 channel (minimum) SLT or Anylink ready transmitter

Features

- TAGS-FX Sensor Fusion stabilization system
- On board micro digital video camera
- 3D Aerobatic Auto-FLIP feature
- On board micro snap-shot digital picture camera
- USB Micro SD Card reader
- 2G Micro SD removable card
- LED Lights on each of the motor pods
- Tx-R SLT Auto-define programming
- SLT TX460 Transmitter with feature activation buttons

Quadcopter Specifications

Size: 125 mm (4.92") Quadcopter (Diagonal from motor center to motor center)

Motors: 20x7 Coreless Brushed (4)

Empty Weight: 32.9 g (1.16 oz)

Weight RTF: 40.6 g (1.43 oz)

Blade Length: 56 mm (2.20")

Overall Length: 143 mm (5.62")

Height: 41 mm (1.61")

Width: 145 mm (5.70")

Camera Specifications

Memory: Accepts up to 32 G Micro SD card

Size: 40 mm L X 20 mm W X 8 mm H

Codec Video: Motion JPEG, 1280 x 720, 30fps, file extension .avi

Codec Audio: PCM S16 LE, mono

Still Image capture: 1280 x 720, 96 dpi, file extension .jpg

**Operational Warnings**

Failure to follow these safety precautions may result in injury to yourself and others.

- Keep your face and body as well as all spectators away from the rotating blades whenever the battery is connected.
- Keep loose clothing, shirt sleeves, ties, scarfs, long hair or loose objects such as pencils or screwdrivers that may fall out of shirt or jacket pockets

away from the rotors. The spinning blades of a model of this type can cause serious injury.

- When choosing a flying site stay clear of buildings, trees and power lines. AVOID flying in or near crowded areas.
- DO NOT fly close to people or pets. Maintain a safe distance from the quadcopter.
- Do not alter or modify the model; doing so may result in an unsafe or un-flyable model.
- When and if repairs are necessary you must correctly install all components so that the model operates properly on the ground and in the air. Please check the operation of the model before every flight to insure that all equipment is operating and that the model has remained structurally sound.
- Please allow a 10 minute cool down period after each flight so the motor controller and motor can cool down. Failure to do so may cause loss of control due to the controller overheating and shutting down.
- Inspect the rotor blades before each flight for nicks. If any damage is found or if the blades have been damaged, replace the blades before flying the model again.
- After a crash you must inspect all plastic parts on the quadcopter for damage before attempting to fly the model again.



Battery Warnings and Usage Guidelines

Please read and understand the following regarding the usage of Li-Po batteries.

- **NOTE:** Heli-Max Quadcopter battery packs are not cross compatible with Heli-Max NOVUS brand battery packs or chargers.
- Through the use of the included Li-Po battery you have assumed all risk and responsibility regarding a Li-Po battery and its use.
- ALWAYS unplug your battery from either the charger or Quadcopter after use. NEVER store your Quadcopter with the battery plugged into the Quadcopter.
- Do not attempt to charge your battery if it becomes swollen or hot.
- It's best to store your batteries charged and at room temperature. Storing a fully discharged battery may cause irreversible damage to the battery.
- Never disassemble, puncture or modify the battery pack in anyway.
- Never allow the battery temperature to exceed 150° F [65° C].
- If your battery begins to swell or “puff” during charge or discharge or becomes damaged in anyway, stop using it and contact Hobby Services 217-398-0007 to learn the proper way to dispose of your battery.





Charging and Operation Warnings

- Only use the included charger with the included LiPo battery. Do not attempt to use the provided charger with NiCd, NiMH or batteries with other chemistries.
- Do not leave the charger unattended while in use and always charge your battery in a fire-resistant location.
- Disconnect the battery and remove input power from the charger immediately if either becomes hot!
- Do not allow water or other foreign objects to enter the charger. Keep the charger away from moisture and do not submerge in water.
- Please keep all electronic components out of the reach of children!
- **WARNING!!** The charger supplied with the Heli-Max 1SQ Quadcopter contains protective circuitry. If you experience any difficulties while charging the battery, please disconnect the battery from the charger and unplug the charger from the power source. Allow the battery and charger to rest for two hours as this will allow the charge protection circuit to reset. If this issue re-occurs during normal use, please contact technical support for further assistance.



- Plug the flight battery into the end of the USB charger.



- Plug charger into a USB port. A steady red light will glow letting you know the battery is charging. The light will flash slowly when the charge is complete. Remove the battery from the charger. Under normal operating conditions, the battery may take up to 60 minutes to recharge. Never leave the battery attached to the charger after charging is complete.

NOTE: A fast flash indicates a charge error. This is usually an indication that your battery is defective and should be replaced.

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INSTALLING THE MICRO SD CARD

- ❑ Flip the model over and push the SD card into the slot on the side of the camera module. When the card is correctly installed, it will click. To remove the card, simply press on the card again and the inner spring system will help eject the card. Note: The card must be in place to program and capture video or pictures. The V-cam has no internal memory.



RTF
READY-TO-FLY

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PREPARING YOUR RTF MODEL

- ❑ Install 4AA batteries in the transmitter by removing the battery cover from the back of the transmitter and installing the four “AA” batteries. Double-check the polarity of each battery before replacing the battery cover.

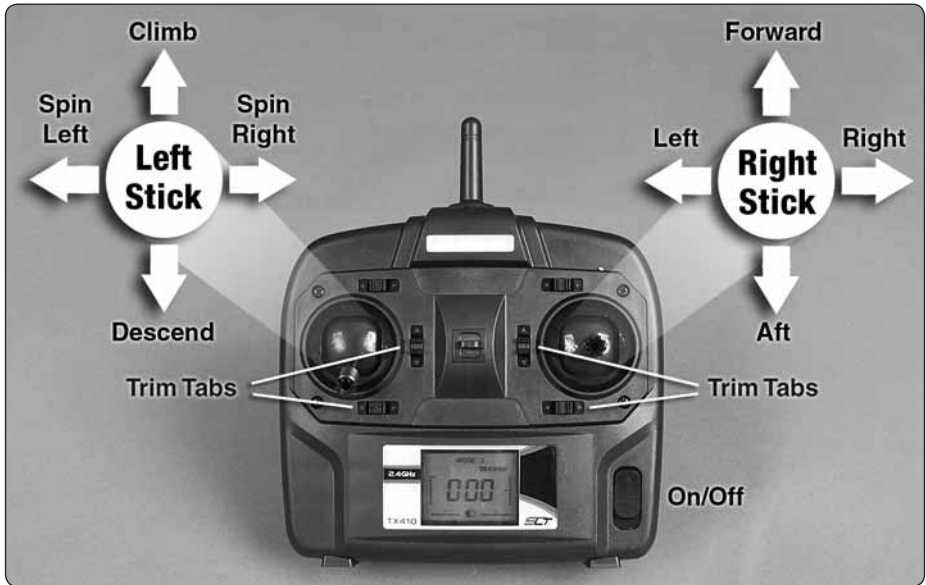


Left Stick to the
Lowest Position

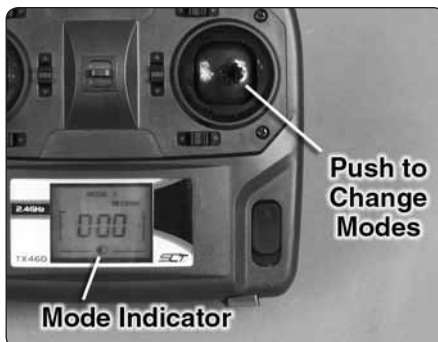
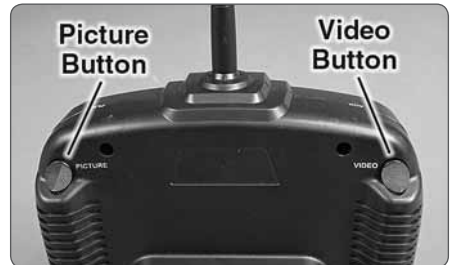
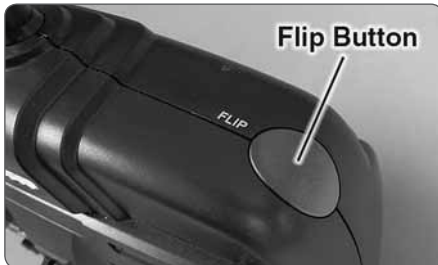


- ❑ Turn the transmitter on and make sure that there is a blue light behind the Heli-Max panel at the top of the transmitter. The LCD screen should be on with a throttle position indicator and other

information. Make sure the electronic trim buttons on the transmitter are centered. Trims are not needed as the Heli-Max TAGS-FX Sensor Fusion system controls all flight centering.

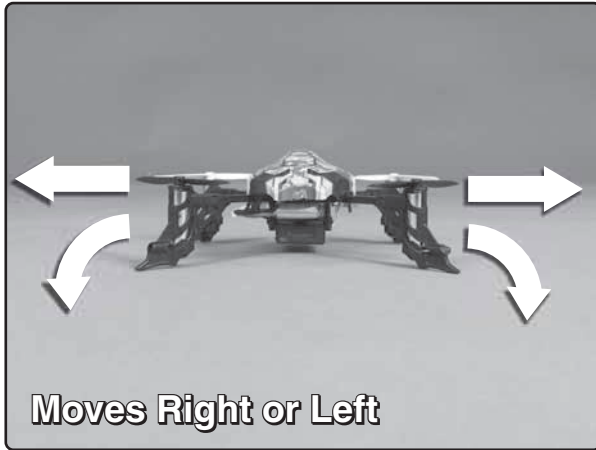
TRANSMITTER CONTROLS

All controls are described with the tail pointing directly toward you. This is the best way to fly in the beginning since it keeps the control inputs oriented the same direction.

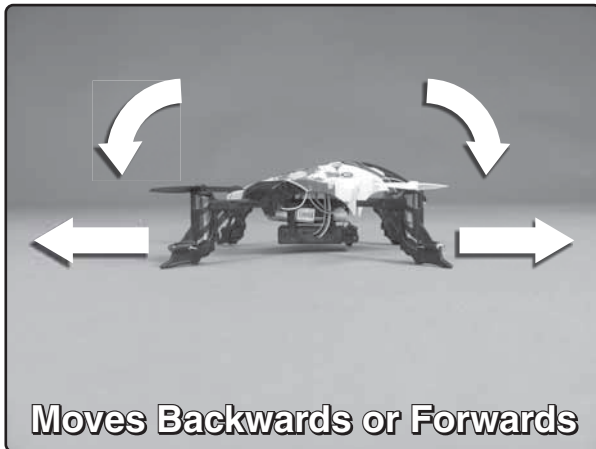


The TX460 transmitter has a dual rate function. This allows two flight modes, one that makes the 1SQ V-cam easier to fly and one that makes the quad more aggressive. To toggle between the two flight modes quickly press down on the right control stick. When the transmitter is in low rates, the ellipse in the lower center of the LCD screen will show a half ellipse and emit a single

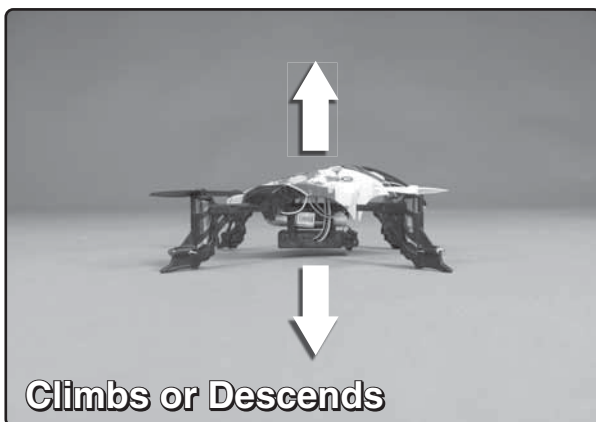
low pitch single beep. For high rates, the ellipse will be complete and the transmitter will emit a single high pitch beep.



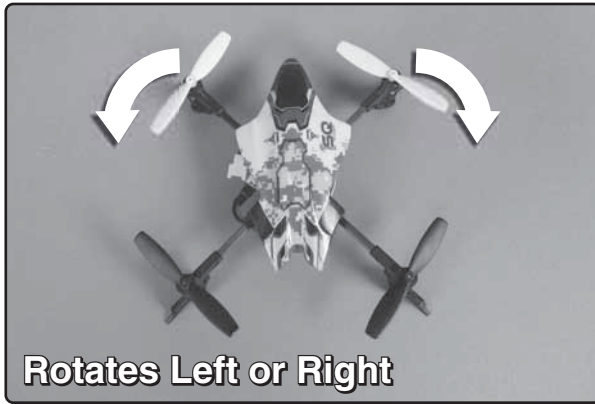
Moving the **right stick right or left** will cause the quad to tilt and start moving that direction.



Moving the **right stick forward or backward** will cause the quad to tilt and start moving that direction.



Moving the **left stick up or down** will cause the quad to climb or descend.



Moving the **left stick left** or **right** will cause the quad to rotate in that direction.

Heli-MAX® *ADJUSTING THE FLIGHT SENSITIVITY*

You can make your 1SQ V-cam fly more aggressively by changing the gyro sensitivity. To do this press and hold the right control stick down so the transmitter will emit a slow beeping sound. While holding the control stick down so the transmitter will continue to beep, move the left control stick up or down to adjust the sensitivity percentage shown on the LCD screen. A higher value will make the 1SQ V-cam fly more aggressively and lower value less aggressively. We have found 35% to 40% a good all-around setting. **WARNING:** If this value gets bumped to 0 your quadcopter will respond very slowly to any right stick input. If the value is set too high the quadcopter will be overly sensitive and might be impossible to fly.

Heli-MAX® *FLIPPING THE V-CAM*

To flip the V-cam, press and hold the flip button. Quickly move the right stick in the direction you want to flip. To maintain altitude, it's a good idea to be climbing before you flip to give the Quadcopter upward momentum.

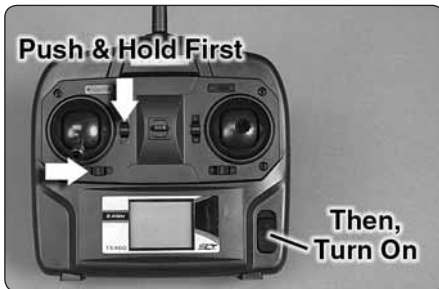
Heli-MAX® *VIDEO AND PICTURE TAKING*

To enter video mode, press the video button once. Press the button again to start taking video. You will see the LED on the side of the V-cam flash when video is being captured. To turn the video off simply press the video button again and the LED will remain steady on. To switch to picture taking mode press the picture button one time to enter picture mode. Press the

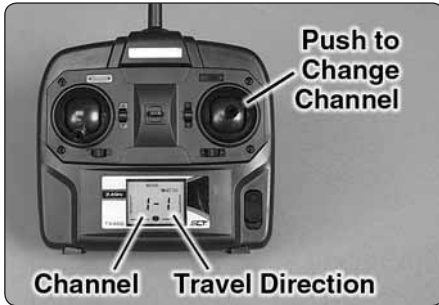
picture button again to take the picture. You will notice that the LED will flash momentarily as the picture is being taken. When the flashing is complete you can take more pictures. You can switch back and forth between Video and Picture but remember you will have to press the appropriate button to re-enter that mode.

Heli-MAX[®] **HELI-MAX TX460 SERVO REVERSING**

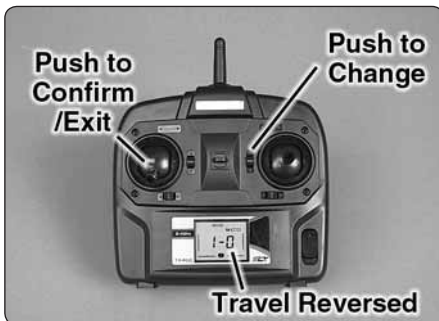
This transmitter features SLT protocol. Therefore, it will bind with other SLT receivers. In those applications, it may be necessary to reverse the servo travel direction as follows:



❑ 1. With the transmitter OFF, push and “hold” the rudder trim button to the right and the throttle trim button down and then turn ON the transmitter



❑ 2. Let go of the trim buttons and you will see 1-1 or 1-0 displayed. The first Digit is the channel number. To change the channel you want to reverse, push down on the right stick. To reverse the travel direction, push the elevator trim button up or down so the second number changes. The V-Cam travel direction settings should be “1” for all channels.



❑ 3. To confirm the change and exit to normal operation, push down on the left stick.

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PROGRAMMING THE Tx-R MODEL



Your 1SQ V-cam uses Tactic's SLT protocol for communication. If using the Anylink with your non SLT protocol radio system you must make sure to follow the proper mapping procedure listed with the Anylink that matches your radio brand. Failing to do so could cause an unsafe condition. How to map your transmitter, as well as a list of compatible transmitters, is included with your Anylink. You can find this and more information on the Tactic website, www.tacticrc.com

To get the most from your V-cam, your transmitter should have assignable switch capabilities and a momentary contact switch, but neither is needed to fly the V-cam. If you have a 7 or more channel transmitter you can command all the features of the V-cam. Truth is, a 6 channel aircraft radio system like the Tactic 600 will work great AND, you will still be able to flip and take video with your V-cam! It's also important to note that even a dial can be used to turn the video on and off.

NOTE: The switch for Flipping, Video and Photo taking must be either channel 5, 6, 7 or 8th of the transmitter. If you have a 6 channel transmitter, you will only be able to define flip and video functions (in that order). To setup all three functions one would need at least a 7 channel transmitter. For example, the flipping feature cannot be skipped to allow a 6 channel transmitter to control video and still pictures.

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LINKING



WARNING: AnyLink must be in Normal Mapping (1 Beep) when Futaba or Hitec[®] transmitters are used with Tx-R aircraft. If using Spektrum[®], JR[®], or Graupner[®] transmitters, AnyLink must be in Alternate Mapping (2 Beeps). (See AnyLink manual.)

All trademarks are the property of their respective owners.

Setup Note: Your radio should be programmed in "Airplane" mode.

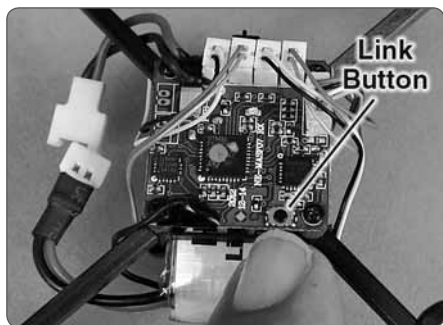
Futabs / Tactic Transmitter Settings	AILE 1	ELEV 2	THRO 3	RUDD 4	AUX 5	AUX 6	AUX 7
Function					Flip	Video	Picture
	Servo Rev	N	N	N	N	N	N
	Travel	100/100	100/100	100/100	100/100	100/100	100/100
Dual Rate		100/80	100/80		100/100		
EXPO		0/-20	0/-20		NULL		
Timer	5 min						

Spektrum / JR Transmitter Settings	AILE 1	ELEV 2	THRO 3	RUDD 4	AUX 5	AUX 6	AUX 7
Function					Flip	Video	Picture
	Servo Rev	R	R	R	R	R	R
	Travel	100/100	100/100	100/100	100/100	100/100	100/100
Dual Rate		100/80	100/80		100/100		
EXPO		0/20	0/20		NULL		
Timer	5 min						

To adjust the sensitivity of the controls, raise or lower the end point (travel) settings.

Connecting the **AnyLink™** module or an **SLT™** compatible transmitter to your heli.

1. Turn on the transmitter. Make sure the throttle is at zero.
2. Place the transmitter close to the model.
3. Remove the canopy and locate the small black link button on the PC board.



4. Press and hold the button for 3 seconds.
5. Release and wait 3~5 more seconds. Your system is now ready!

This procedure is to be used to link the V-Cam receiver to a stock TX460 transmitter, a “SLT ready” transmitter with at least 6 channels, or an Anylink when connected to a compatible transmitter with at least 6 channels.

YOU MUST USE AN OPEN CHANNEL FOR EACH OF THESE FUNCTIONS. The Dual Rate switches cannot be used unless they can be programmed to control a specific channel i.e. 5, 6, 7 or 8. Make sure you have the intended

channels “turned on” and separate switches mapped to those channels before linking the transmitter to the V-Cam. Make sure all these channels are adjusted to maximum endpoints (EPA)!

Programming Order Will Be Flip, Video and Lastly Still Picture

1. Move the transmitter’s throttle stick to the lowest position, all switches back, and dials to full CCW.
2. Power the quad; the LED will glow solid.
3. Press and hold the link button for 3 seconds, then release. The LED will remain solid.
4. Power on the transmitter and move the aileron stick full right. Hold until the LED starts flashing.
5. Two seconds after flashing begins return the aileron stick to center (THE QUAD IS NOW IN SELF DEFINING MODE). The LED will be flickering.
6. Pick a CHANNEL for **flipping**. Flip the switch back and forth 3 or more times to complete. (Note: we like to program the trainer switch for this function).
7. Pick an unused CHANNEL for **Video**. Flip the switch back and forth (or rotate the dial fully lock to lock) 3 or more times to complete.
8. (IF YOU ARE USING A 7 OR MORE CHANNEL TRANSMITTER) Pick an unused CHANNEL for **Picture**. Flip the switch back and forth (or rotate the dial fully lock to lock) 3 or more times to complete.
9. Finally, move the rudder stick full left and hold for 5 seconds, then return the stick to center. You have exited setup mode. The LED will normally flash once when the programming has been accepted. The quad is now bound to the transmitter and you have programmed the (up to) three operation features.

To see a video of this process go to the Heli-Max 1SQ V-cam webpage.

helimax-rc.com



Left Stick to the
Lowest Position



- ☐ Move the left stick to the lowest position and then turn the transmitter on.



Electric motors are very dangerous. Do not work on the model while the flight battery is plugged in as interference may cause the main rotor blades to spin, possibly causing injury to yourself.



- ☐ Install the flight battery by sliding the battery into the bottom of the quad. Make sure the battery is slid all the way to the stop of the battery tray. Connect the battery to the connector.

NOTE: The quad will be “ON” at this point. Place the quad on a flat surface for 2 seconds to calibrate the TAGS-FX.

Your quadcopter has a safe start feature built in that prevents the motors from activating unless the throttle stick has been lowered to the lowest position. If the motors won't run and turn the blades, please make sure the throttle stick is all the way down and leave it there for a couple of seconds. Then try moving the stick up slowly.

Takeoff

If flying outdoors it's important to stick to light winds. If you are taking off and landing in grass, place a rubber mat or pad down on the grass so the small rotating parts don't get hung up in the grass.

Hovering

Once the quad is in the air simply try to keep it in one spot. This will take some practice. Remember that even a light breeze will have an effect on the stability of the quad.

Landing

Level the quad into a steady hover and slowly decrease power until it lands. You might notice as the Quadcopter is ready to touch down it moves around a little. This is normal as the Quadcopter enters ground effect. **Remember to unplug the battery from the Quadcopter after your flight is complete.**



Once you are comfortable with hovering in one place start working on orientations. By this we mean, hover the Quadcopter in all positions, nose to the right, nose to the left and the nose pointing at you (nose-in). Getting good at this fundamental discipline will allow you to progress much faster in some of the more advanced flying maneuvers.

Slow Pirouettes

Moving the left stick (left or right), you can rotate the Quadcopter around 360°, which is called a pirouette.

Forward Flight

Now it's time to work into basic forward flight. Just take the basic hovering maneuvers listed above and slowly fly out farther and faster and always bring the Quadcopter back after one pass. Practice controlled slow flight in close as well. The more time you spend practicing here, the easier things will be later on.

Flips with the 460 Transmitter

Start with plenty of altitude. From an upright hover and gaining altitude, quickly press and hold the flip button and move the cyclic (right) stick of the transmitter to the direction you want the quad to flip. The quad will complete one flip. Once you start getting the hang of it you can start combining flips!

Shooting Video

Press the video button to "enter video mode." If you are using the Tx-R model and have it on a two position switch, you will need to cycle the switch to enter video mode.

Press the video button (Tx-R, Flip the switch) again to start taking video.

Press the video button (Tx-R, Flip the switch) once again to stop taking video.

NOTE: The LED of the camera will flash letting you know you're actively taking video. It's also important to know that if you unplug the main power battery while taking video you will lose that capture.

Taking Photos

Press the photo button to "enter photo mode." If you are using the Tx-R model and have it on a two position switch, you will need to cycle the switch to enter photo mode.

Press the photo button again to take a picture. Note: The camera will take one photo per button press.

NOTE: The LED will flash during the picture capture. When the LED completes flashing the camera is ready to take another picture.

Downloading Video and Pictures From the Camera

Install the Micro SD card into the reader. Plug the reader into the USB port of your computer.

The USB connection will be auto recognized and the files ready to be transferred.

At this point you can copy or transfer your files to your folder structure.



PROBLEM: V-Cam does not react to any stick movements.

Solution: If the LED on the control board is steady, relink the transmitter and the V-Cam.

PROBLEM: Flies with poor power or buzzes.

Solution: One of the props may be bent. Carefully bend it straight.

PROBLEM: With the battery disconnected, you notice that one of the motors spins noticeably slower or feels tight.

Solution 1: The motor may have slid down. Gently push the motor back up into its mount.

Solution 2: The prop may have slid down against the mount. Use a small screwdriver to pry the prop upwards slightly.

Solution 3: If the prop still turns slow, replace that motor boom. This is done by removing the canopy, loosening the screw (9), unplugging the motor, and pulling out the boom. Install the new boom in reverse order.

PROBLEM: The Camera System will not take a photo or start recording a video.

Solution 1: Install the micro SD card if it is not in the slot.

Solution 2: Eject the card and check for any debris on the contacts.

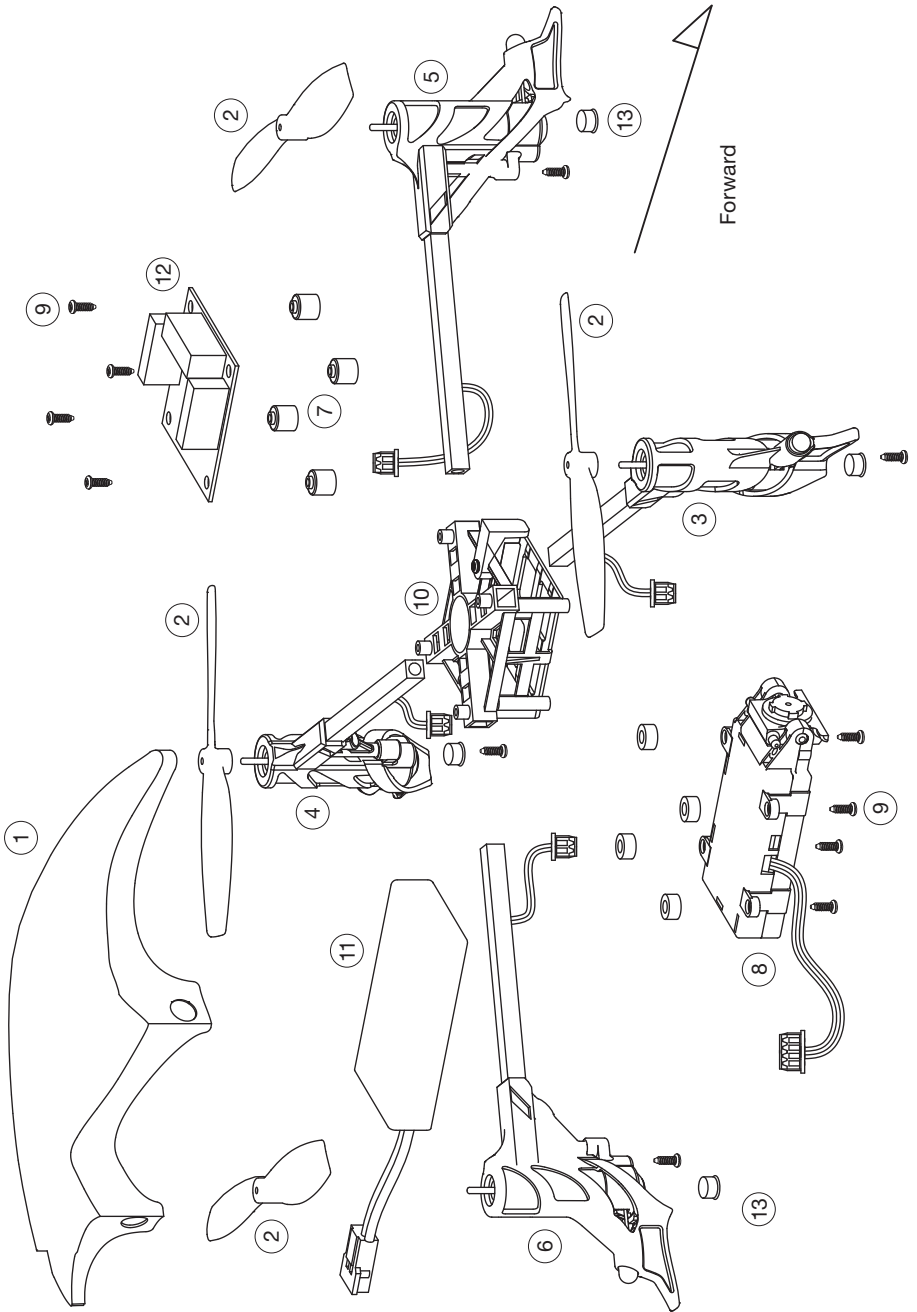
Solution 3: Make sure card is OK by putting the card in the reader and checking on your PC.



The maintenance tips for the 1SQ quadcopter will apply to the V-Cam quadcopter also. The guide can be found at the WWW.Helimax-rc.com in the download section with the other 1SQ files.



Key	Part No.	Description
1	HMXE2211	Canopy White/Black
2	HMXE2210	Rotor Blades
3	HMXE2212	LED Motor Boom Set RF Clockwise
4	HMXE2213	LED Motor Boom Set LR Clockwise
5	HMXE2214	LED Motor Boom Set LF Counter
6	HMXE2215	LED Motor Boom Set RR Counter
7	HMXE2180	Control Board Dampners
8	HMZX0001	Vcam Vid/Pic Camera
9	HMXE2217	Screw Set
10	HMXE2179	Frame Battery Mount
11	HMXP1009	250mAh LiPo Battery
12	HMXM2052	TAGS-FX Control Board
13	HMXE2183	Foot Pads
	HMXJ2000	1SQ V-Cam Transmitter SLT
	HMXP2023	USB Charger
	HMZX0002	USB microSD Card Reader
	HMXE2184	Motor Cover



FCC REQUIREMENT This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions.



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

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

CE COMPLIANCE INFORMATION FOR THE EUROPEAN UNION

Instructions for Disposal of Waste Equipment by Private Users in the European Union: This symbol on the product or its packaging indicates this product must not be disposed of with other household waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point



for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or location where you purchased the product.

Declaration of Conformity:

Product: Heli-Max TX460 2.4GHz 4-Channel Tx Rx

Item number: HMXJ2000 TX460, Equipment class: 1

TX460 transmitter: The objects of the declaration described here are in conformity with the requirements of the specifications listed below, following the provisions of the European 2006/95/EC Low Voltage Directive:

EN 60950-1:2006 Safety

The objects of the declaration described here are in conformity with the requirements of the specifications listed below, following the provisions of the European R&TTE directive 1995/5/EC:

ETSI EN 300 328 V1.7.1 Technical requirements for radio equipment

ETSI EN 301 489-1 V1.8.1, 301 489-17 V1.3.2 General EMC requirements for radio equipment

Hobbico, Inc.
2904 Research Road
Champaign, IL USA 61826



The associated regulatory agencies of the following countries recognize the noted certifications to this product as authorized for sale and use.

UK	DE	DK	BG	SE	FI	GR
EE	LV	LT	PL	CZ	SK	HU
RO	SI	AT	IT	ES	PT	IE
NL	LU	MT	CY			