CHRONOS CX100

Instruction Manual

Specifications

Length:	10 in (255mm)
Height：	4.5 in (115mm)
Main Rotor Diameter:	8.9 in (225mm)
Weight with Battery:	1.9 oz (55 g)
Main Motor:	Micro coreless (2 installed)
Battery:	250mAh 1S 3.7V LiPo (included)
Charger:	Dual Port 1S 3.7V LiPo DC USB (included)
Transmitter:	4-channel 2.4GHz (included)
On-Board Electronics:	4-in-1 receiver/3 ESCs/mixer/gyro (installed)

Table of Contents

Introduction

The Ares™ [*air-eez*] Chronos CX 100 is the easiest way for anyone to shoot video or take photos while flying an RC heli! The CX 100's factory-installed digital camera is easily operated while flying by just pressing a button on the transmitter. The camera also includes a 2GB MicroSD card with enough memory for you to keep up to 90 minutes of video or hundreds of photos!

Flying the CX 100 is easy too because it features a coaxial, counter-rotating blade design, fully-proportional controls and a computerized gyro that work together to provide maximum stability and maneuverability that will have even first-time pilots hovering like a pro in no time. Plus, the Chronos CX 100's ultra-micro size allows you to fly indoors in nearly any space.

The Chronos CX 100 is an RTF (Ready-To-Fly) aircraft, so the lightweight and durable airframe arrives 100% factory-assembled and everything needed to fly is in the box, including AA batteries for the 4-channel transmitter equipped with 2.4GHz technology, a backlit LCD screen, dual rates and selectable control modes. Also included is a 250mAh 1S 3.7V LiPo battery that's easy to "swap" between flights and a convenient dual-port USB charger that allows you to charge two batteries at once. With nothing extra to buy or assemble, you can be flying and taking videos and photos within minutes of opening the box.

And although the Chronos CX 100 is ready to fly right out the box, please take the time to read through this manual for information on battery safety and charging, flight controls and more before making your first flight. Please also visit our web site at www.Ares-RC.com for additional information including product updates, bulletins, videos and more.

Safety Precautions and Warnings

Failure to use this product in the intended manner as described in the following instructions can result in damage and/or personal injury. A Radio Controlled (RC) airplane/helicopter/quadcopter is not a toy! If misused it can cause serious bodily harm and damage to property.

Keep items that could become entangled away from the propeller/rotor blades, including loose clothing, tools, etc. Be especially sure to keep your hands, face and other parts of your body away from the propeller/rotor blades.

As the user of this product you are solely and wholly responsible for operating it in a manner that does not endanger yourself and others or result in damage to the product or the property of others.

This model is controlled by a radio signal that is subject to possible interference from a variety of sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance from objects and people in all directions around your model as this will help to avoid collisions and/or injury.

- Never operate your model if the voltage of the batteries in the transmitter is too low.
- Always operate your model in an open area away from obstacles, people, vehicles, buildings, etc.
- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable batteries, etc.).
- Keep all chemicals, small parts and all electronic components out of the reach of children.
- Moisture causes damage to electronic components. Avoid water exposure to all electronic components, parts, etc. not specifically designed and protected for use in water.
- Never lick or place any portion of the model in your mouth as it could cause serious injury or even death.

FCC Information

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

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

Chronos CX 100 RTF Contents

Item	Description
Not Available Separately	Chronos CX 100 Ultra-Micro RTF Airframe
AZSH1358M2	Micro 4-Channel LP CX Helicopter Transmitter, Mode 2
Not Available Separately	AA Batteries (6pcs)
AZSH1355.....	250mAh 1-Cell/1S 3.7V 15C LiPo Battery, Micro A Connector
AZSC104CDUSB.....	1-Cell/1S 3.7V LiPo, 0.4A Dual Port DC USB Charger

Required to Complete

The Chronos CX 100 RTF includes everything needed to fly right out of the box. There's nothing extra to buy or provide!

Before the First Flight Checklist

PLEASE NOTE: This checklist is NOT intended to replace the content included in this instruction manual. Although it can be used as a quick start guide, we strongly suggest reading through this manual completely before proceeding.

- ❑ Remove and inspect all contents
- ❑ Plug the dual port DC USB charger into a suitable USB power source
- ❑ Begin charging the LiPo flight battery (connect the helicopter to the charger directly or connect the battery to the charger using the included adapter leads)
- ❑ Install the six (6) AA batteries in the transmitter
- ❑ Familiarize yourself with the controls
- ❑ Turn the transmitter on first then turn the helicopter on
- ❑ Test the controls to confirm proper operation
- ❑ Find a suitable area for flying

Flight Checklist

PLEASE NOTE: This checklist is NOT intended to replace the content included in this instruction manual. Although it can be used as a quick start guide, we strongly suggest reading through this manual completely before proceeding.

- ❑ Always turn the transmitter on first
- ❑ Turn the helicopter on (after the transmitter is turned on)
- ❑ Allow the control unit to initialize and arm properly (on a flat/level surface)
- ❑ Fly the model (take-off from a flat/level surface)
- ❑ Land the model (land on a flat/level surface)
- ❑ Turn the helicopter off (before the transmitter is turned off)
- ❑ Always turn the transmitter off last

LiPo Battery Warnings and Usage Guidelines

IMPORTANT NOTE: Lithium Polymer batteries are significantly more volatile than the alkaline, NiCd or NiMH batteries also used in RC applications. All instructions and warnings must be followed exactly to prevent property damage and/or personal injury as mishandling of LiPo batteries can result in fire.

By handling, charging or using the included LiPo battery you assume all risks associated with LiPo batteries. If you do not agree with these conditions please return the complete product in new, unused condition to the place of purchase immediately.

And although the 250mAh 1-Cell/1S 3.7V 15C LiPo Battery (AZSH1355) included with your Ares™ Chronos CX 100 is intended to be charged safely using the included 104CD 1-Cell/1S 3.7V LiPo, 0.4A Dual Port DC USB Charger (AZSC104CDUSB) you must read the following safety instructions and warnings before handling, charging or using the LiPo battery.

- **You must charge the LiPo battery in a safe area away from flammable materials.**
- **Never charge the LiPo battery unattended at any time. When charging the battery you should always remain in constant observation to monitor the charging process and react immediately to any potential problems that may occur.**
- **After flying/discharging the battery you must allow it to cool to ambient/room temperature before recharging.**
- **To charge the battery you must use only the included 104CD 1-Cell/1S 3.7V LiPo, 0.4A Dual Port DC USB Charger (AZSC104CDUSB) or a suitably compatible LiPo battery charger. Failure to do so may result in a fire causing property damage and/or personal injury. DO NOT use a NiCd or NiMH charger.**
- **If at any time during the charge or discharge process the battery begins to balloon or swell, discontinue charging or discharging immediately. Quickly and safely disconnect the battery, then place it in a safe, open area away from flammable materials to observe it for at least 15 minutes. Continuing to charge or discharge a battery that has begun to balloon or swell can result in a fire. A battery that has ballooned or swollen even a small amount must be removed from service completely.**
- **Store the battery at room temperature, approximately 68–77° Fahrenheit (F), and in a dry area for best results.**

- **When transporting or temporarily storing the battery, the temperature range should be from approximately 40–100°F. Do not store the battery or model in a hot garage, car or direct sunlight whenever possible. If stored in a hot garage or car the battery can be damaged or even catch fire.**

- **Do not over-discharge the LiPo flight battery. Discharging the LiPo flight battery too low can cause damage to the battery resulting in reduced power, flight duration or failure of the battery entirely.**

  LiPo cells should not be discharged to below 3.0V each under load. In the case of the 1-cell/1S 3.7V LiPo battery used to power the Chronos CX 100 you will not want to allow the battery to fall below 3.0V during flight.

  The 4-in-1 control unit features a low voltage cutoff (LVC) that cuts power to the motors completely (regardless of the power level you have set with the left-hand/throttle stick) if the voltage of the battery falls below the 3.0V minimum. If the LVC ever occurs it will be indicated by a blinking red LED on the control unit (the LED mounted in the canopy will also blink). However, to prevent an unexpected loss of power due to triggering the LVC, if you ever find that more than the typical amount of throttle/power is required to hover and/or the helicopter will not ascend/climb even at full power you should land the model and turn it off immediately to prevent over-discharge.

  And while it is possible to power the model up and fly again after the LVC occurs this is NOT recommended. Continued discharging can cause permanent damage to the LiPo battery resulting in reduced power output and/or shortened flight durations during subsequent flights (or failure of the battery entirely).

  Also, it is not recommended that you fly to the LVC every time you fly. Instead you should be aware of the power level of the battery/helicopter throughout the flight, and if at any time the helicopter begins to require more throttle/power than typical to maintain hover, and/or will not ascend/climb even at full power, you should land the helicopter and turn it off immediately. Repeatedly discharging the battery to the LVC can still cause permanent damage to the battery so it's best to use a timer or stop-watch to time the duration of your flights and to stop flying at a reasonable time before the LVC is reached.

  IMPORTANT NOTE: DO NOT LEAVE THE HELICOPTER TURNED ON UNLESS IT IS READY TO BE FLOWN. IF THE HELICOPTER IS LEFT TURNED ON WHEN IT IS NOT IN USE THE LIPO BATTERY WILL BE OVER-DISCHARGED BY THE SMALL AMOUNT OF CURRENT THE ON-BOARD ELECTRONICS AND LEDs CONSUME. It can sometimes take a few hours or even up to a few days to over-discharge the battery this way but doing so will likely cause permanent damage to or failure of the battery entirely (which is not covered under warranty).

Charging the LiPo Flight Battery

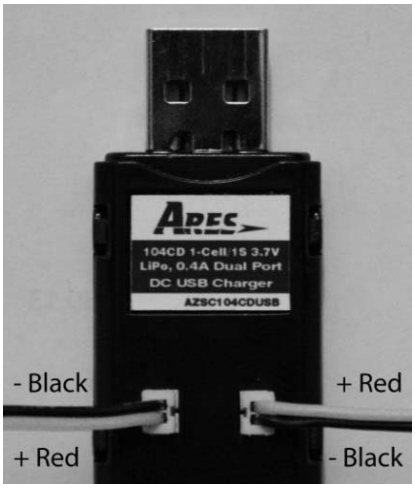
You must charge the included 250mAh 1-Cell/1S 3.7V 15C LiPo Battery (AZSH1355) using only the included 104CD 1-Cell/1S 3.7V LiPo, 0.4A Dual Port DC USB Charger (AZSC104CDUSB) or a suitably compatible LiPo battery charger. Charging the LiPo battery using a non-LiPo battery compatible charger (such as a NiCd or NiMH battery charger), or even a different LiPo battery charger with the incorrect settings, may result in damage to the battery or even fire resulting in property damage and/or personal injury.

And unlike other similar class models, the Chronos CX 100 has been designed so the LiPo flight battery can be charged while it's installed in the helicopter, or the battery can be removed and charged separately (or even 'swapped' with a spare battery that's already been charged separately). The included Ultra-Micro Male to Male Connector Adapter Lead (AZSH1353) can be used to connect the charger to the connector/charge port located on the bottom of the helicopter (just ahead of the ON/OFF switch) to charge the battery while it's installed in the helicopter. Or, the included Micro A Female Connector to Ultra-Micro Male Connector Adapter Lead (AZSH1354) can be used to charge the battery when it's not installed in the helicopter by connecting the battery to the charger directly (it can also be used to charge spare batteries).

Please follow these steps to charge the LiPo flight battery with the included charger:

- Connect the dual port DC USB charger to a suitable 5V USB port on a computer or other device. Another option is to plug the optional 5005PS 100-240V AC to 5V DC USB, 0.5-Amp Power Supply (AZSC5005PS) into a compatible 100-240V AC outlet then to connect the charger to the power supply/AC adapter accordingly. The power supply/AC adapter is powered on when the LED indicator glows solid green.

- To charge the LiPo flight battery while it's installed in the helicopter use the included Ultra-Micro Male to Male Connector Adapter Lead to connect the charger to the connector/charge port located on the bottom of the helicopter. **YOU MUST BE CAREFUL TO ENSURE PROPER POLARITY BEFORE MAKING THE CONNECTIONS by aligning the red color positive (+) wire lead with the 'ON' marking on the bottom of the canopy and by orienting it toward the end of the charger without the USB connector.** And although the ultra-micro connectors are 'keyed' to minimize the risk of a reverse polarity connection, if you force them it is possible to make connection with the incorrect polarity potentially causing damage to the helicopter/control unit, the battery and/or the charger. When the connectors are properly aligned for correct polarity only a minimal amount of pressure should be required to achieve the light 'click' that indicates secure connection.



NOTE: The reference photos show the dual port DC USB charger charging a spare LiPo battery (AZSH1355; sold separately) while charging the battery installed in the helicopter at the same time. You can also purchase an additional Micro A Female Connector to Ultra-Micro Male Connector Adapter Lead (AZSH1354) to charge two batteries that are not installed in the helicopter at the same time.

To charge the LiPo flight battery when it's not installed in the helicopter use the included Micro A Female Connector to Ultra-Micro Male Connector Adapter Lead (AZSH1354) to connect the battery to the charger directly. **YOU MUST BE CAREFUL TO ENSURE PROPER POLARITY BEFORE MAKING THE CONNECTIONS by orienting/aligning the wire leads of the battery and adapter lead so they're 'red to red' and 'black to black'**. **You'll also need to orient the red color positive (+) wire lead toward the end of the charger without the USB connector.** And although the connectors are 'keyed' to minimize the risk of a reverse polarity connection, if you force them it is possible to make connection with the incorrect polarity potentially causing damage to the battery and/or charger. When the connectors are properly aligned for correct polarity only a minimal amount of pressure should be required to achieve the light 'click' that indicates secure connection.

- When the helicopter and/or battery are connected to the charger securely and with the proper polarity the LED indicator will glow solid red (there is an LED indicator for each charge port). The battery will be charging any time the LED indicator is glowing solid red.

- It will take approximately 1.0–1.5 hours to fully charge a mostly or fully discharged (not over-discharged) battery from a suitable power source. And when the battery is fully charged the LED indicator will stop glowing entirely. When the LED indicator is no longer glowing you can disconnect the helicopter and/or battery from the charger/adapted lead as it is now fully charged and ready for use.

NOTE: When using both charge ports at the same time to charge two (2) fully discharged (not over-discharged) batteries, the charge time may increase by approximately 30 minutes per battery (or more) depending on the amount of power available from your source.

NOTE: The LiPo flight battery included with your model will arrive partially charged. For this reason the initial charge may only take approximately 30–45 minutes.

NOTE: It's safer and better for the longevity of the battery to store it only partially charged for any length of time. Storing the battery at approximately 50% charge (which is approximately 3.85V per cell) is typically best, however, it will take some careful management of the charge time and the use of a volt meter to achieve this voltage. If you have the equipment and skills to achieve the 50% charge level for storage it is recommended. If not, simply be sure to not store the battery fully charged whenever possible. In fact, as long as the battery will be stored at approximately room temperature and for no more than a few weeks before the next use, it may be best to store the battery in the discharged state after the last flight (as long as the battery was not over-discharged on the last flight).

Installing the Transmitter Batteries

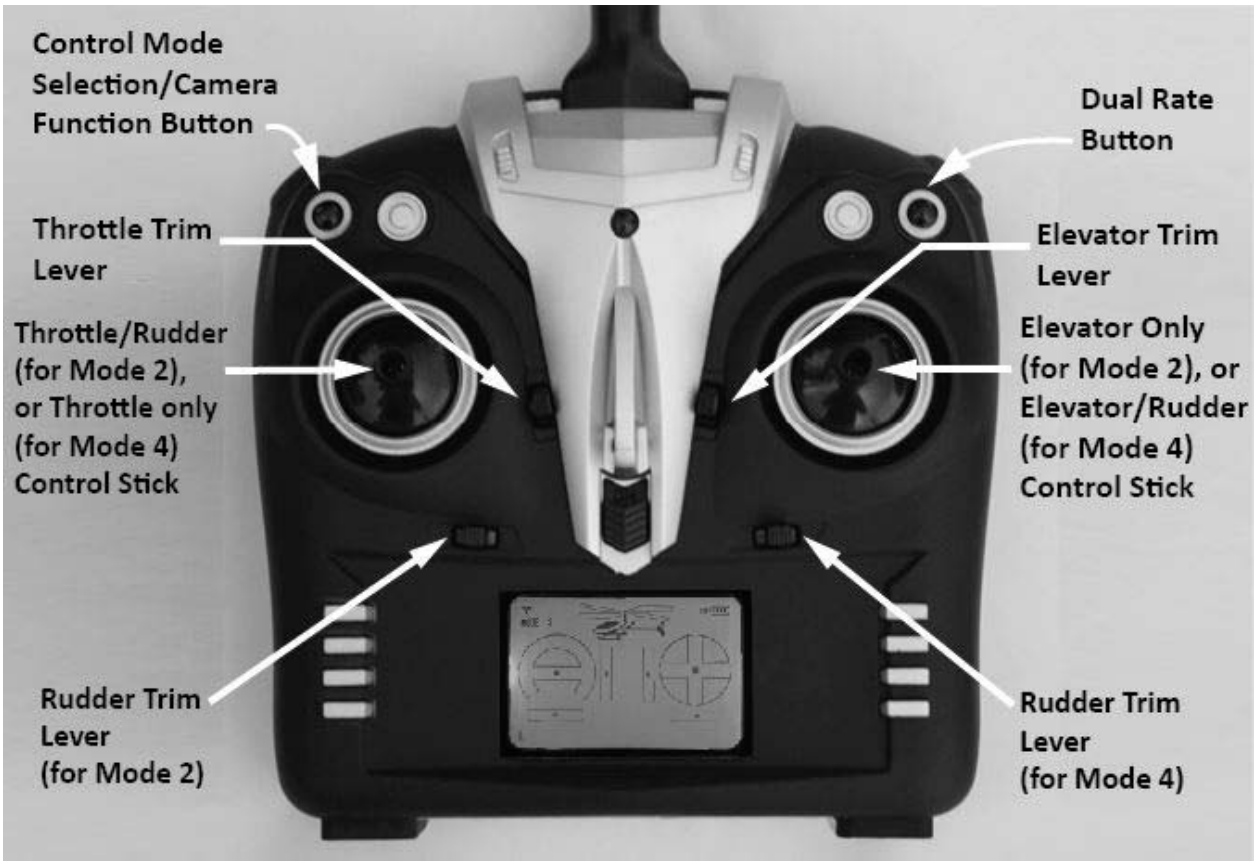
Install the six (6) included AA batteries in the back of the transmitter by first removing the battery compartment cover/door. Ensure proper polarity of the batteries before installing them as noted by the markings molded into the battery compartment, then re-install the compartment cover/door.

Check for proper operation of the transmitter by sliding the power switch to the ON position (slide it upward). The red LED indicator (above the switch) will begin to blink slowly and the LCD screen will power on. This indicates the transmitter is powered on and the AA batteries are installed correctly.

NOTE: The transmitter is equipped with a low voltage battery alarm. If at any time the audible alarm is on it will be necessary to replace the AA batteries with new ones.

Transmitter Details

The Chronos CX 100 includes a Micro 4-Channel LP CX Helicopter Transmitter equipped with 2.4GHz technology, dual rates, digital trims and a backlit LCD screen.

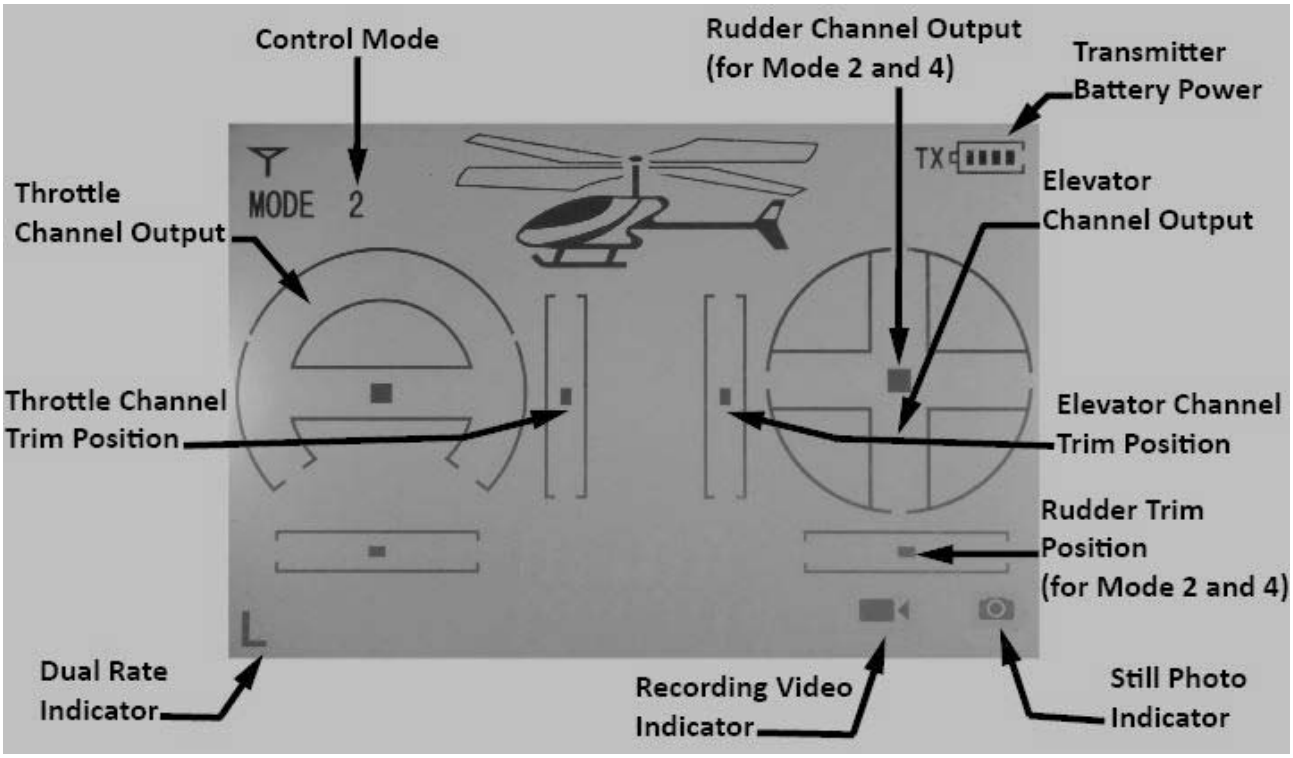


Control Mode Selection and Camera Function Button
The button located near the top left-hand corner of the transmitter has two functions. By pressing the button and holding it down while turning the transmitter on the first function is to select and set the control mode. You can select either Mode 2 or Mode 4 which will determine if the left-hand (Mode 2) or right-hand (Mode 4) stick controls the rudder channel. Please see the 'Transmitter Control Mode Selection' section of this manual for more information.

After the transmitter is powered on the second function of the button is to control the functions of the digital camera. Please see the 'Digital Video/Still Camera' section of this manual for more information.

Dual Rate Button
The button located near the top right-hand corner of the transmitter is used to toggle between the 'Dual Rates' available for the elevator control/channel. Please see the 'Transmitter Dual Rates' section of this manual for more information.

LCD Screen
The unique backlit LCD screen displays a variety of data when the transmitter is powered on:



Battery Power Indicator
This indicator shows the approximate amount of AA battery power remaining for the transmitter. **NOTE:** The transmitter is also equipped with a low voltage battery alarm. If at any time the audible alarm is on it will be necessary to replace the AA batteries with new ones.

Control Mode Indicator

This indicator shows which control mode is currently selected (please see the 'Transmitter Control Mode Selection' section of this manual for more information). The '2' indicator for Mode 2 is located on the left side of the helicopter illustration and the '4' indicator for Mode 4 is located on the right side.

Throttle Channel Output/Stick Position Indicator

This indicator shows the approximate throttle channel output/stick position.

Throttle Channel Trim Position Indicator

This indicator shows the approximate throttle channel trim position. Also, you should always have this set to the middle or lower than the middle position (using the throttle trim lever) to properly arm the 4-in-1 control unit ESCs and to ensure it's possible to stop the motors/rotor blades from spinning completely when the left-hand/throttle stick is in the lowest possible position.

Elevator Channel Output/Stick Position Indicator

This indicator shows the approximate elevator channel output/stick position.

Elevator Channel Trim Position Indicator

This indicator shows the approximate elevator channel trim position.

IMPORTANT NOTE: Although the position of the elevator trim can be changed, because the Chronos CX 100 is equipped with a motor for elevator control the trim has no actual effect on the helicopter.

Rudder Channel Output/Stick Position Indicator (for Mode 2 and Mode 4)

This indicator shows the approximate rudder channel output/stick position.

IMPORTANT NOTE: Although rudder channel control can be set on the left-hand (for Mode 2) or right-hand (for Mode 4) stick, the rudder channel output/stick position is always shown by the same indicator (please see the 'Transmitter Control Mode Selection' section of this manual for more information).

Rudder Channel Trim Position Indicator (for Mode 2 and Mode 4)

This indicator shows the approximate rudder channel trim position. The trim position should be adjusted as needed during flight (using the rudder trim lever located below the left-hand stick for Mode 2 or below the right-hand stick for Mode 4) to ensure the nose of the helicopter does not constantly turn (yaw) left or right when 'hovering' and without any rudder channel/control input.

IMPORTANT NOTE: Although rudder channel control and trim can be set on the left-hand (for Mode 2) or right-hand (for Mode 4) stick, the rudder channel trim position is always shown by the same indicator (please see the 'Transmitter Control Mode Selection' section of this manual for more information).

Dual Rate Status Indicator

This indicator is shows the control rate currently selected; 'L' for low rate and 'H' for high rate (please see the 'Transmitter Dual Rates' selection of this manual for more information).

Recording Video Indicator

This indicator shows when the digital camera is recording video.

Still Photo Indicator

This indicator shows when the digital camera is taking a still photo.

Transmitter Dual Rates

The button located near the top right-hand corner of the transmitter is used to toggle between the 'High' (H) and 'Low' (L) control rates, also known as 'Dual Rates', available for the rudder and elevator controls/channels. You can toggle between the high and low rates by pressing the button, after which you'll feel a 'click' and also hear an audible beep/tone. The selected control rate will be displayed as 'H' for high rate and 'L' for low rate near the bottom left-hand corner of the LCD screen.

IMPORTANT NOTE: The transmitter will automatically default to the 'Low' (L) rate mode each time it's powered on.

The L/low rate mode is typically preferred by (and recommended best for) first-time, low-time and other pilots interested most in a reduced amount of control authority that allows for smoother and more easily controlled hovering and flying.

By pressing the dual rate button while in the L/low rate mode you'll switch to the H/high rate mode. You'll know you've switched to the H/high rate mode after feeling a 'click' and hearing a single beep/tone.

In the H/high rate mode the controls are allowed to reach their maximum values. This mode is typically preferred by experienced pilots interested most in maximum control authority.

If you ever switch to the H/high rate mode you'll know you've switched back to the L/low rate mode by pressing the dual rate button, feeling the click and also hearing a single beep/tone.

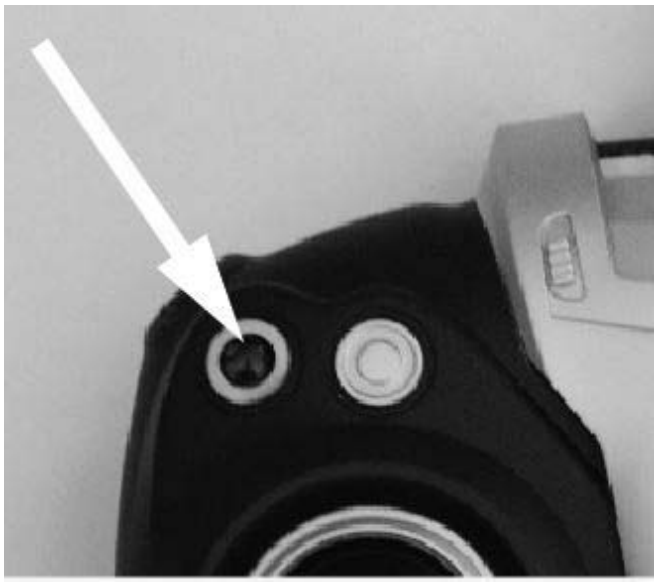
Transmitter Control Mode Selection (Mode 2/Mode 4)

The Micro 4-Channel LP CX Helicopter Transmitter included with the Chronos CX 100 features unique and exclusive software that makes it possible to select and set the 'control mode'. Typically 3-channel RC helicopters include transmitters that are set to 'Mode 4' which places throttle channel control only on the left-hand stick and rudder and elevator channel control on the right-hand stick. However, 4+ channel RC helicopters typically include transmitters that are set to 'Mode 2' which places throttle and rudder channel control on the left-hand stick and elevator channel control (plus the added control/channel of aileron) on the right-hand stick.

IMPORTANT NOTE: If you plan to fly 4+ channel RC helicopters (or even quadcopters and airplanes) in the future we strongly recommend setting the transmitter to Mode 2.

The button located near the top left-hand corner of the transmitter can be used to select and set Mode 2 or Mode 4. By pressing the button and holding it down while switching the transmitter on the mode will change from the one that was previously set (so if the transmitter was set to Mode 2 it will then change to Mode 4). The selected control mode will be displayed as '2' for Mode 2 and '4' for Mode 4 on the left or right side of the helicopter illustration on the LCD screen.

IMPORTANT NOTE: Do not attempt to change the control mode while the helicopter is turned on.



Flight Controls and Trimming

In the event you are not familiar with the controls of the Chronos CX 100 please take the time to familiarize yourself with them as follows and before attempting your first flight:

Mode 2 and Mode 4 Throttle and Elevator Channel Flight Controls

The left-hand stick on the transmitter controls the throttle (climb/descend) channel. When the left-hand stick (also known as the 'throttle' stick) is in the lowest possible position the rotor blades will not spin. Moving the stick upward will increase the RPMs/speed of the rotor blades. Increasing the RPMs/speed of the rotor blades will cause the model to climb.

Decreasing the RPMs/speed of the rotor blades by lowering the left-hand stick will cause the model to descend.

After lifting the model off the ground you can 'hover' by carefully moving the left-hand stick up and down slightly as needed so the model will maintain altitude without climbing or descending.

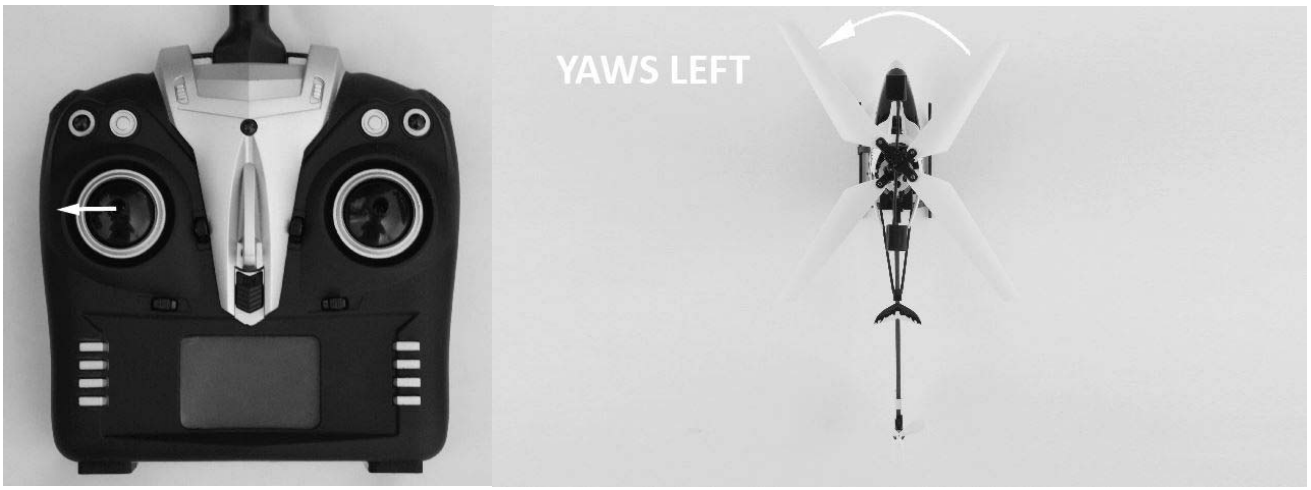
The right-hand stick controls the elevator (pitch fore/aft) channel. Pushing the stick forward will cause the 'tail' motor and rotor blade/propeller to spin in order to pitch the nose of the helicopter downward so it can be flown forward.

Pulling the stick backward will cause the tail motor and rotor blade/propeller to spin in the opposite direction in order to pitch the tail of the helicopter downward so it can be flown backward.

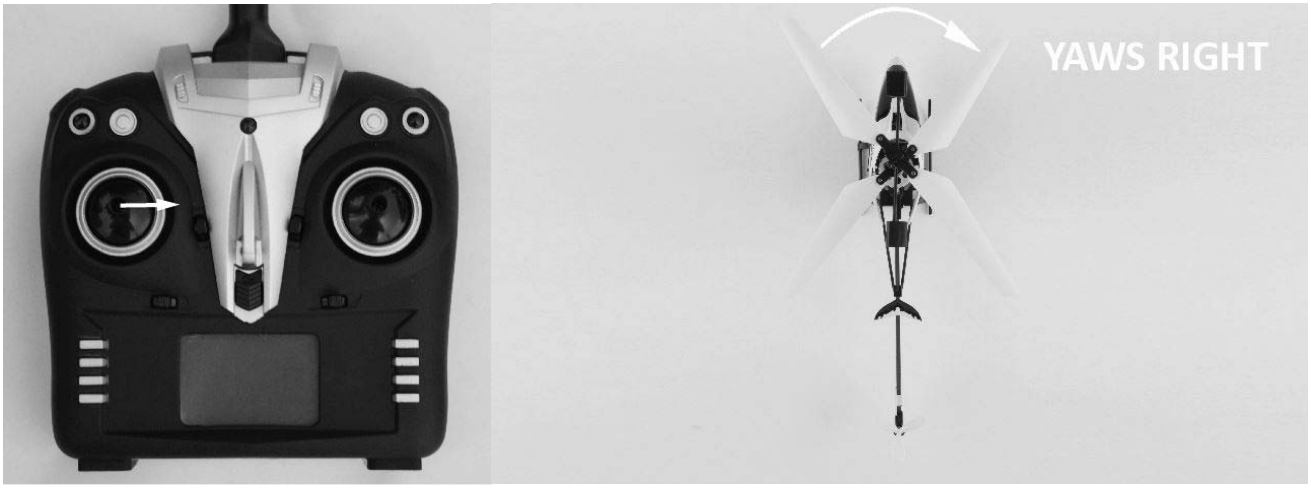
The elevator trim lever is located immediately to the left of the right-hand stick. **And although the position of the elevator trim can be changed, because the Chronos CX 100 is equipped with a motor for elevator control the trim has no actual effect on the helicopter.**

Mode 2 Rudder Channel Control

When the transmitter control mode is set to Mode 2 (please see the 'Transmitter Control Mode Selection' section of this manual for more information), moving the left-hand stick to the left will turn (yaw) the nose of the helicopter to the left about the vertical axis. This is accomplished by increasing the speed of the upper rotor blades and decreasing the speed of the lower rotor blades.



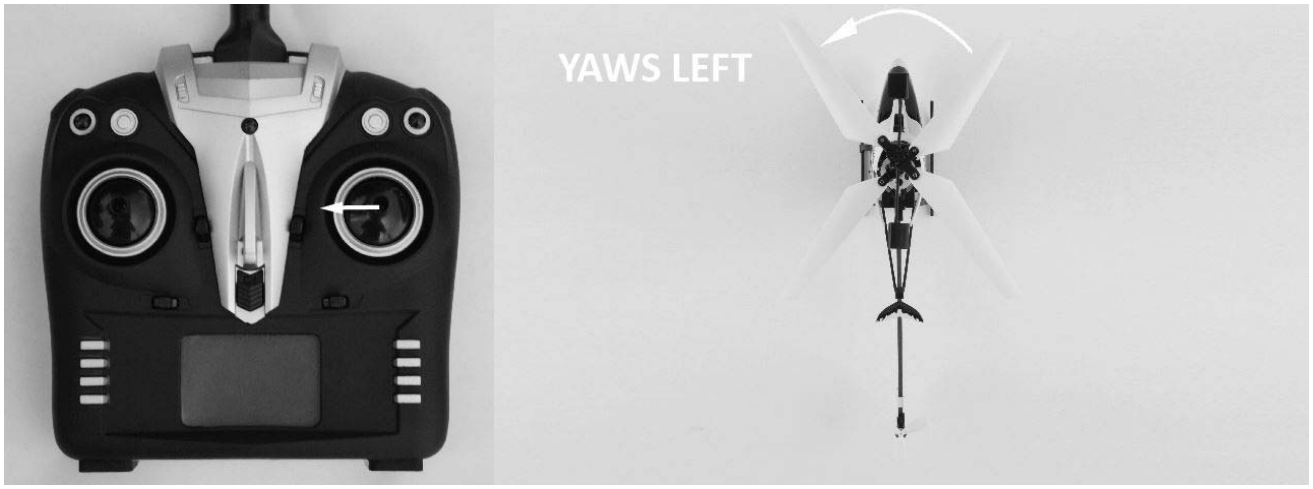
Moving the stick to the right will turn (yaw) the nose of the helicopter to the right about the vertical axis. This is accomplished by increasing the speed of the lower rotor blades and decreasing the speed of the upper rotor blades.



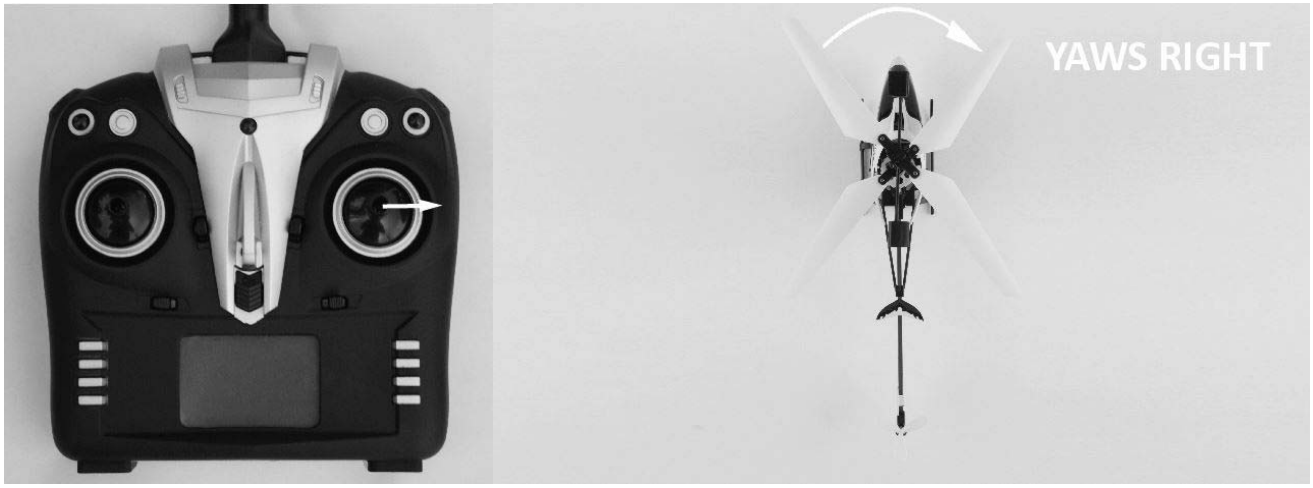
The rudder trim lever (located immediately below the left-hand stick for Mode 2) can be used to help keep the nose of the helicopter from turning (yawing) to the left or right when 'hovering' and without any left-hand stick/rudder control input. For example, if the nose of the helicopter turns to the right when hovering add left rudder trim by pressing the lever to the left until the nose of the helicopter stays as close to 'straight' as possible with no further input.

Mode 4 Rudder Channel Control

When the transmitter control mode is set to Mode 4 (please see the 'Transmitter Control Mode Selection' section of this manual for more information), moving the right-hand stick to the left will turn (yaw) the nose of the helicopter to the left about the vertical axis. This is accomplished by increasing the speed of the upper rotor blades and decreasing the speed of the lower rotor blades.



Moving the stick to the right will turn (yaw) the nose of the helicopter to the right about the vertical axis. This is accomplished by increasing the speed of the lower rotor blades and decreasing the speed of the upper rotor blades.



The rudder trim lever (located immediately below the right-hand stick for Mode 4) can be used to help keep the nose of the helicopter from turning (yawing) to the left or right when 'hovering' and without any right-hand stick/rudder control input. For example, if the nose of the helicopter turns to the right when hovering add left rudder trim by pressing the lever to the left until the nose of the helicopter stays as close to 'straight' as possible with no further input.

And once you're familiar with the primary controls of the helicopter you're almost ready to fly!

Removing and Installing the LiPo Flight Battery

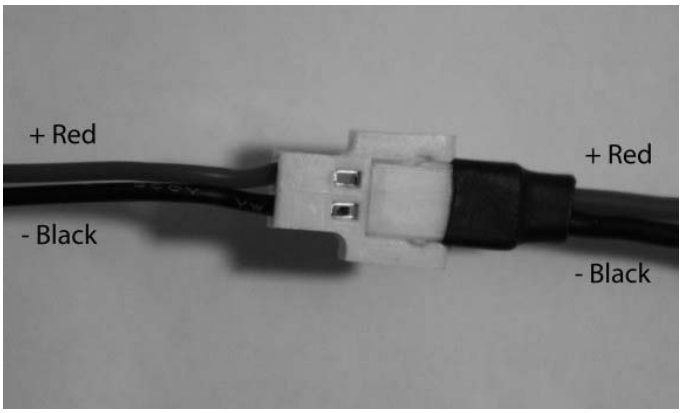
As noted in the 'Charging the LiPo Flight Battery' section of this manual, you can charge the battery while it's installed in the helicopter or you can remove and charge it separately (or 'swap' it with a spare battery that's already been charged separately). To remove the LiPo flight battery you'll first need to remove the canopy. Carefully pull the left and right ends of the canopy off of the mounts then slowly slide it forward to expose the battery, control unit and wire leads.

IMPORTANT NOTE: The LED mounted in the canopy is not intended to be removed. Be careful to not damage the wire leads that connect to the LED when removing (and installing) the canopy. Also, you can disconnect the wire leads and connector from the control unit entirely if preferred (though we DO NOT recommend disconnecting and reconnecting often as it can damage the connectors and/or control unit over time).

Disconnect the LiPo flight battery from the wire leads and connector attached to the control unit, then carefully remove it from the mount (slide it upwards while gripping the sides of the battery, DO NOT pull on the wire leads!). The battery can now be charged separate from the helicopter.

After the LiPo battery has been fully charged it's ready to be installed in the helicopter. Install the battery by sliding it back into the mount with the wire leads oriented upward.

AND AFTER INSTALLING THE BATTERY IN THE MOUNT/HELICOPTER YOU MUST BE CAREFUL TO ENSURE PROPER POLARITY BEFORE CONNECTING IT TO THE 4-IN-1 CONTROL UNIT. By orienting/aligning the wire leads of the battery and control unit so they're 'red to red' and 'black to black' you'll be able to make the connection with correct polarity. Also, before making the connection check to be sure the ON/OFF switch located on the bottom of the helicopter is set to the OFF position.



Also, although the 'Micro A' connectors are 'keyed' to minimize the risk of a reverse polarity connection, if you force them it is possible to make connection with incorrect/reversed polarity potentially causing damage to the control unit and/or battery. When the connectors are properly aligned for correct polarity, connecting them should require only a minimal amount of pressure to achieve the light 'click' that indicates secure connection.

After making a secure connection carefully ‘tuck’ the wire leads and connectors between the control unit and battery.

Re-install the canopy by carefully sliding it over the control unit and battery while also aligning the mounting ‘slots’ inside the canopy with the mounting ‘tabs’ located on the left and right sides of the frame. Then carefully slip the left and right ends of the canopy over the mounts by aligning them with the mounting holes.

Control Unit Initialization and Arming

The Chronos CX 100 is equipped with a compact and advanced 4-in-1 control unit. The control unit is a lightweight combination of a 2.4GHz receiver, three electronic speed controls (ESCs), a mixer and gyro. The control unit is also equipped with an LED that provides various indications.

This checklist includes the steps you must follow to ensure proper initialization, arming and operation of the control unit:

- **Before each flight you must ALWAYS turn the transmitter on BEFORE turning the helicopter on. Never turn the helicopter on before powering the transmitter on first. After each flight you should always turn the helicopter off before turning the transmitter off.**

  IMPORTANT NOTE: It's important that you turn the helicopter on within 20 seconds of turning on the transmitter. Failure to turn the helicopter on within 20 seconds of turning on the transmitter will prevent the transmitter from binding/linking to the receiver/control unit.

- **The left-hand/throttle stick must be set in the lowest possible position in order for the control unit to initialize and arm properly. Failure to lower the stick to the lowest possible position can prevent the ESCs from arming and/or the gyro from initializing properly.**

- **With the throttle stick in the lowest possible position ensure that the stick is 'centered' left to right and that the right-hand stick is 'centered' left to right as well as up and down. DO NOT move the sticks as you turn the transmitter on to avoid changing the proper center/neutral positions of the controls.**

  IMPORTANT NOTE: Moving the control sticks while turning the transmitter on can change the proper center/neutral positions of the controls making it difficult to control the model and impossible to 'trim it out' correctly. And if you ever find this to be the case then simply turn the helicopter off, turn the transmitter off then follow the steps to properly turn on and initialize the transmitter and control unit.

- Turn the transmitter on and confirm that the LED indicator (above the power switch) begins to blink slowly while the LCD screen powers on.

  NOTE: If this will be the first flight, or the first flight following repairs, you should 'center' the rudder channel trim. Use the digital trim lever to determine the center trim position by referencing the LCD screen (please see the 'Transmitter Details' section of this manual for more information).

- After the transmitter is turned on locate the power switch on the bottom of the helicopter then slide it to the 'ON' position. The LED indicator on the control unit (and the LED mounted in the canopy) will begin to blink/flash rapidly then will blink/flash slowly before changing to glow solid red.

  IMPORTANT NOTE: AFTER TURNING THE HELICOPTER ON IT'S IMPORTANT TO NOT MOVE OR ROTATE IT ONCE THE RED LED ON THE CONTROL UNIT BEGINS TO BLINK/FLASH CONFIRMING THAT THE INITIALIZATION PROCESS AND CALIBRATION OF THE GYRO HAS BEGUN. IF YOU DO MOVE/ROTATE THE HELICOPTER TOO MUCH WHILE THE LED IS BLINKING/FLASHING IT MAY AFFECT INITIALIZATION/CALIBRATION OF THE GYRO WHICH COULD REQUIRE SIGNIFICANT RUDDER CHANNEL TRIM ADJUSTMENTS AND/OR PREVENT THE GYRO FROM WORKING DURING THE PENDING FLIGHT. IF THIS HAPPENS YOU MUST TURN THE HELICOPTER OFF AND REPEAT THE INITIALIZATION/CALIBRATION PROCESS.

- **When the LED indicator glows solid red the control unit is initialized and ready for flight. Use caution as the upper and lower rotor blades will now spin when you raise the left-hand/throttle stick!**

In case the LED indicator does not change to glow solid red:

- If the LED indicator on the control unit continues to blink/flash slowly you do not have a positive radio frequency (RF) link between the transmitter and the receiver in the control unit. First, check to be sure the transmitter is powered on and that the LED indicator on the transmitter is glowing solid red. If the transmitter is powered on and functioning properly, turn the helicopter off then turn the transmitter off. Turn the transmitter back on then turn the helicopter on (within 20 second of turning the transmitter on) and now the control unit should initialize and arm properly.

In case the LED indicator does change to glow solid red but you have no control of the main motors/rotor blades:

- If the LED indicator on the control unit changes to glow solid red, but the LED indicator on the transmitter is blinking/flashing and you do not have control of the main motors/rotor blades, you have a positive RF link between the transmitter and the receiver in the control unit but the ESCs/motors did not arm because the left-hand/throttle stick and/or the throttle trim may not be set to the correct position. Check to be sure the left-hand/throttle stick is in the lowest possible position, and that the throttle trim is set to the middle or lower than the middle position, and once in the correct position the ESCs/motors will arm accordingly.

After confirming the control unit is initialized and the ESCs/motors have armed properly your Chronos CX 100 is ready to fly. However, please review the following sections of the manual BEFORE proceeding with the first flight.

Selecting a Flying Area

When you're ready to make your first flight you'll want to select an open indoor area free of people and obstructions. We suggest an area with approximately 10-feet by 10-feet of floor space and 8-foot ceilings when making your first few flights.

After you've properly trimmed the helicopter and become familiar with its handling and capabilities you'll be able to fly in other smaller and less open areas due to its ultra-micro size and excellent controllability.

PLEASE NOTE: The Chronos CX 100 is designed to ONLY be flown indoors.

Flying

Now that you've selected a suitable flying area you're ready to fly! And when making your first flights we suggest following these steps:

- **Increase the speed of the rotor blades until the model begins to lift off by raising the left-hand/throttle stick SLOWLY. DO NOT raise the stick too quickly as the model could climb too fast causing you to lose control and/or make contact with the ceiling or other objects above (this is one of the most common ways most first-time pilots crash).**

- Lift the model off the ground approximately 18-24 inches and concentrate on balancing the left-hand/throttle stick position so the helicopter holds a steady hover altitude. It may also be helpful to make a few short 'hops' to an altitude of just a few inches until you're familiar and more comfortable with the control inputs and trim settings required to maintain a steady hover and altitude. However, keep in mind that when only a few inches off the ground you'll be in 'ground effect' which will cause the helicopter to move around more than it typically would at approximately 18-24 inches of altitude.

- You'll find that it sometimes takes minor throttle adjustments to maintain altitude in hover. Remember to keep these adjustments as minimal as possible as large adjustments could result in a loss of control and/or a possible crash.

- While attempting to establish a low-level hover out of ground effect (approximately 18-24 inches high or higher) you can check to see if any rudder channel trim adjustments are required to help keep the nose of the helicopter from constantly turning (yawing) to the left or right. If you find that the nose of the helicopter constantly drifts left or right it may be best to land the model before making any adjustments using the trim lever (please see the 'Transmitter Details' and 'Flight Controls and Trimming' sections of this manual for more information).

  It's important to continue making rudder channel trim adjustments as needed until the helicopter can hover at an altitude of approximately 18-24 inches (or higher) with very little drifting or directional control input. And while it's not possible to eliminate all drifting completely it is possible to get very close. Also, if this is your first helicopter model it may be best to enlist the help of an experienced helicopter pilot to trim the model for you before making your first flight. A properly trimmed helicopter is much easier and more enjoyable to fly!

- When the helicopter is properly trimmed maintain a stable hover and practice using the rudder and elevator controls to get a feel for how the helicopter responds to various control inputs. Remember to keep the control inputs as minimal as possible to prevent over-controlling the helicopter.

- Continue to practice until you're comfortable hovering the helicopter at approximately 18-24 inches high. Then you can transition to hovering the helicopter at higher altitudes of approximately three to four feet.

- **If at any time during flight you feel like the helicopter is drifting out of/beyond your control, simply release all of the controls except for throttle. Throttle will be needed to maintain altitude, but due to the inherent stability of the coaxial, counter-rotating blade design, releasing all of the other controls will allow the helicopter to return to a stable hover on its own.**

- **Don't be afraid to set the helicopter down on the ground quickly by lowering the throttle stick abruptly when approaching walls or other obstacles to help prevent an impact.**

- **IN THE UNFORTUNATE EVENT OF A CRASH, NO MATTER HOW MAJOR OR MINOR, YOU MUST LOWER THE LEFT-HAND/THROTTLE STICK TO THE LOWEST POSSIBLE POSITION AS QUICKLY AS POSSIBLE TO PREVENT DAMAGE TO THE ESCs OF THE CONTROL UNIT.**

  If you do not lower the left-hand/throttle stick to the lowest possible position in the event of a crash it can result in damage to the ESCs of the control unit which may require replacement of the control unit.

  NOTE: Crash damage is not covered under warranty.

- Once you've gained experience and confidence hovering your helicopter you can attempt more advanced maneuvers including these:

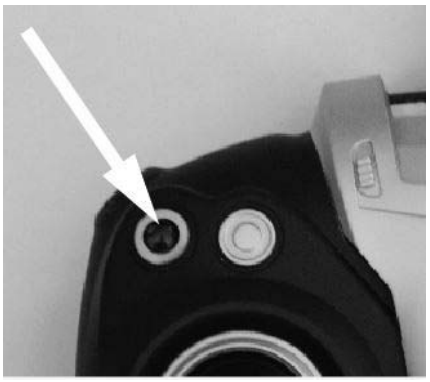
  Forward Flight
  Backward Flight
  Pirouettes
  Skidding Takeoffs
  Skidding Landings
  Spot Landings

Digital Video/Still Camera

The factory-installed Digital Video/Still Camera is easy to operate and allows you to capture video and still photos during flight. The included 2GB MicroSD card can store up to 90 minutes of video or hundreds of photos that are easy to access using the included USB cable.

The following steps outline how to use the digital camera:

- The camera will power on automatically when the helicopter is turned on. However, it will not record video or take still photos until you activate those modes using the camera function button located near the top left-hand corner of the transmitter. Press and quickly release the button to toggle video recording on and off. You can also press and hold the button for a few seconds to take a still photo. **NOTE: You must not be recording video in order to take a still photo.**



- The status LEDs on the camera indicate the following:

  Blue Solid and Continuous Red Blinking/Flashing: The MicroSD card is not installed

  Blue Solid Only: The MicroSD card is installed, the camera is powered on and ready to record video/take still photos

  Blue Solid and Red Solid: The camera is recording video

  Blue Solid and Red Blinks/Flashes One Time: The camera has taken a still photo (you must not be recording video in order to take a still photo.)

- When only the blue color status LED on the camera is glowing solid the MicroSD card is installed, the camera is powered on and ready to record video/take still photos. After pressing the camera function button once the red status LED will also glow solid indicating that the camera is recording video. Pressing the camera function button again will stop the recording and the red status LED will turn off.

  After pressing and holding the camera function button for a few seconds the red status LED will blink/flash one time indicating that the camera has taken a still photo. **NOTE: You cannot take still photos while recording video. You must stop recording video before pressing and holding the camera function button to take a still photo.**

- To access your recorded videos and photos you can remove the MicroSD card and insert it into a compatible USB card reader or slot in your laptop or desktop computer. Or you can leave the MicroSD card installed in the camera and use the included 'Standard-A to Mini-B USB Cable' (AZSH1373) to connect the camera/card to your computer directly.

  To use the included cable carefully insert the Mini-B connector end into the corresponding port on the camera, then plug the Standard-A connector end into a suitable USB port on your laptop or desktop computer. If the system does not automatically prompt you, locate and open the 'Removable Disk/Storage' drive (typically found under 'Computer' on Windows operating systems) associated with the USB port you have the camera/USB cable plugged into. Access your videos by clicking on the 'VIDEO' folder and your still photos by clicking on the 'PHOTO' folder.

  NOTE: The blue status LED will glow solid when the camera/USB cable is connected to a suitable USB port. And because the USB port can provide power to the camera you should always keep the helicopter turned off while you access the videos and photos.

Transmitter and Receiver Binding/Linking

Binding/linking is the process of programming the receiver in the control unit to recognize the Globally Unique Identifier (GUID) code of a single specific transmitter.

The Chronos CX 100 features user-friendly technology that automatically binds/links the receiver to the transmitter by simply turning the transmitter on first then turning the helicopter on within 20 seconds (please see the 'Control Unit Initialization and Arming' section of this manual for more information).

Warranty, Support and Service

90-Day Limited Warranty Term Period:
We warranty that the Product(s) purchased (the "Product") will be free from defects in materials and workmanship when the Product is new (before being used) for the limited warranty term period from the date of purchase by the Purchaser.

If you believe a defect in materials, workmanship, etc. was not apparent when the Product was new and only became evident after the Product was used, please contact your local HobbyTown® store for warranty support and/or service. Note that you must provide your original sales receipt verifying the proof-of-purchase and date thereof.

Provided the warranty conditions have been met within the warranty term period, the components that are found to be defective, incorrectly manufactured or assembled may be repaired or replaced at the sole discretion of HobbyTown. And in the event that your Product needs repair or a replacement part that is not covered by this warranty, your local HobbyTown can assist you with support and in obtaining the genuine replacement part(s) to repair your Product.

If you purchased your Product from a HobbyTown internet site not affiliated with a local store, please consult that site for its support and service policies. You can also find more information at www.HobbyTown.com.

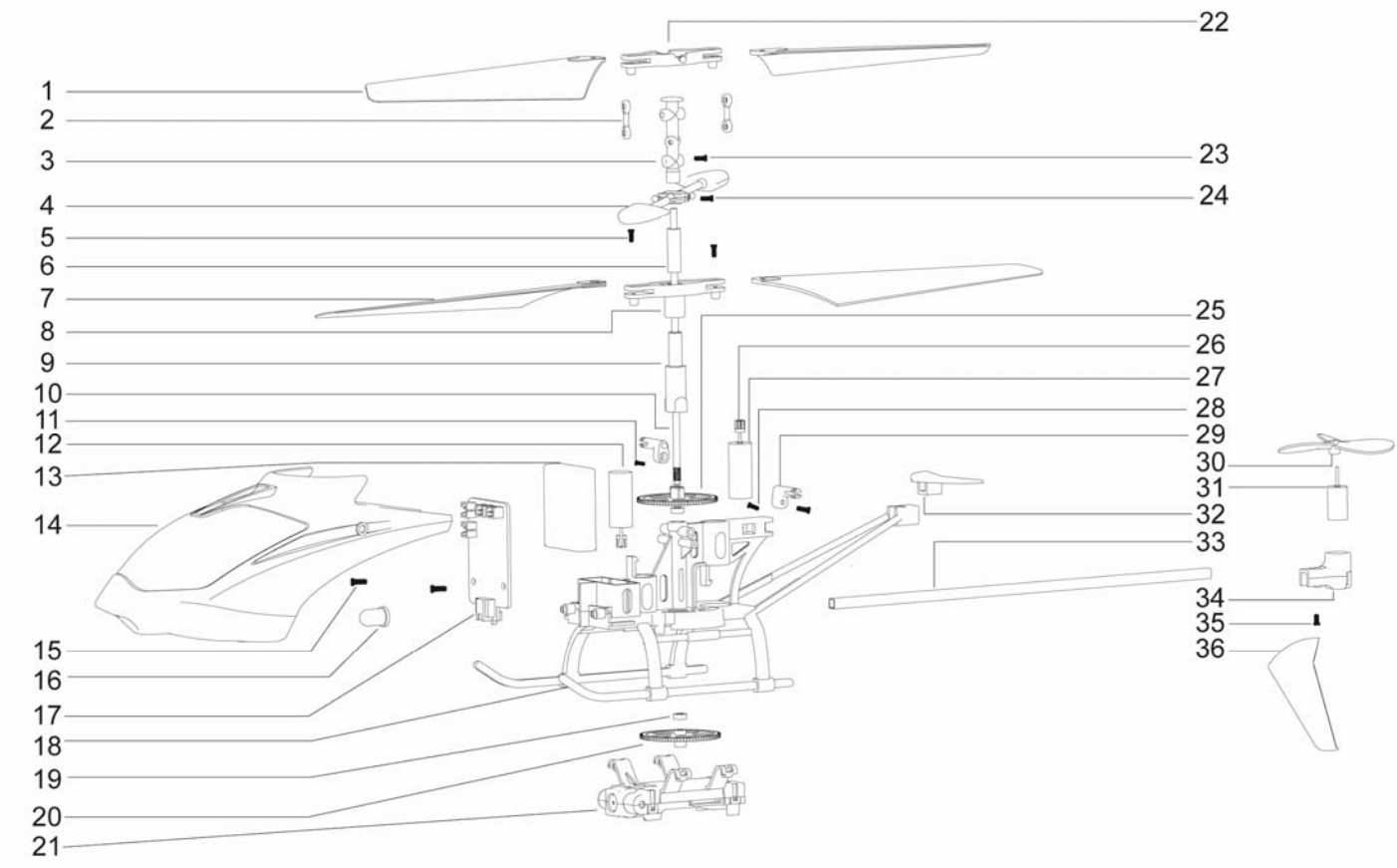
Replacement Parts List

Item Number	Description
AZSC104CDUSB	104CD 1-Cell/1S 3.7V LiPo, 0.4A Dual Port DC USB Charger, Ultra-Micro Connector
AZSH1353	Ultra-Micro Male to Male Connector Adapter Lead
AZSH1354	Micro A Female Connector to Ultra-Micro Male Connector Adapter Lead
AZSH1355	250mAh 1-Cell/1S 3.7V 15C LiPo Battery, Micro A Connector: Chronos CX 100
AZSH1356	4-in-1 Control Unit, Rx/ESCs/Mixer/Gyro: Chronos CX 100
AZSH1358M2	Micro 4-Channel LP CX Helicopter Transmitter, Mode 2: Chronos CX 100
AZSH1359	Main Motor with Pinion Gear: Chronos CX 100
AZSH1360	Main Gear and Inner Shaft Set: Chronos CX 100
AZSH1361	Inner Shaft Bushing (2pcs): Chronos CX 100
AZSH1362	Upper and Lower Rotor Head Set: Chronos CX 100
AZSH1363	Stabilizer Flybar: Chronos CX 100
AZSH1364	Stabilizer Flybar/Upper Main Rotor Blade Linkage (2pcs): Chronos CX 100
AZSH1365	Upper and Lower Main Rotor Blade Set (1 pair each): Chronos CX 100
AZSH1366	Main Frame and Landing Gear/Skid Set: Chronos CX 100
AZSH1367	Canopy Mounts (2pcs): Chronos CX 100
AZSH1368	Hardware/Screw Set: Chronos CX 100
AZSH1369B	Tail Boom, Fins and Motor Set, Blue: Chronos CX 100
AZSH1369R	Tail Boom, Fins and Motor Set, Red: Chronos CX 100
AZSH1370	Tail Rotor Blade/Propeller (4pcs): Chronos CX 100
AZSH1371B	Canopy with LED, Blue: Chronos CX 100
AZSH1371R	Canopy with LED, Red: Chronos CX 100
AZSH1372	Camera (Video/Still) w/2GB MicroSD Memory Card and USB Cable: Chronos CX 100
AZSH1373	Standard-A to Mini-B USB Cable for Camera: Chronos CX 100

Exploded View Parts Listing

Exploded View #	Description (Total Quantity Used)	Included In Item #
1	Upper Main Rotor Blade (2)	AZSH1365
2	Stabilizer Flybar/Upper Main Rotor Blade Linkage (2)	AZSH1362 or AZSH1364
3	Upper Rotor Head/Hub (1)	AZSH1362
4	Stabilizer Flybar (1)	AZSH1363
5	M1.4x6mm Screw (4)	AZSH1362
6	Rotor Head/Shaft Spacer (1)	AZSH1362
7	Lower Main Rotor Blade (2)	AZSH1365
8	Lower Rotor Head (1)	AZSH1362
9	Lower Rotor Head Shaft (1)	AZSH1362
10	Inner Shaft (1)	AZSH1360
11	M1.4x6mm Screw (4)	AZSH1367
12	Main Motor (2)	AZSH1359
13	Battery (1)	AZSH1355
14	Canopy (1)	AZSH1371B or AZSH1371R
15	M1.4x5mm Screw (2)	AZSH1356
16	LED (1)	AZSH1371B or AZSH1371R
17	Control Unit (1)	AZSH1356
18	Main Frame and Landing Gear/Skid Set (1)	AZSH1366
19	Bushing (2)	AZSH1361
20	Lower/Inner Shaft Main Gear (1)	AZSH1360
21	Camera (Video/Still) (1)	AZSH1372
22	Upper Main Rotor Blade Grips (1)	AZSH1362
23	M1.4x4mm Screw (1)	AZSH1362
24	M1.2x11mm Shoulder Screw (1)	AZSH1363
25	Upper/Outer Shaft Main Gear (1)	AZSH1360
26	Pinion Gear (2)	AZSH1359
27	Main Motor (2)	AZSH1359
28	M1.4x4mm Screw (1)	AZSH1369B or AZSH1369R
29	Canopy Mount (2)	AZSH1367
30	Tail Rotor Blade/Propeller (1)	AZSH1370
31	Tail Motor (1)	AZSH1369B or AZSH1369R
32	Horizontal Tail Fin (1)	AZSH1369B or AZSH1369R
33	Tail Boom (1)	AZSH1369B or AZSH1369R
34	Tail Motor Mount (1)	AZSH1369B or AZSH1369R
35	M1.4x3mm Screw (1)	AZSH1369B or AZSH1369R
36	Vertical Tail Fin (1)	AZSH1369B or AZSH1369R

Exploded View



Notes

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Notes

www.Ares-RC.com

Rev 09.20.13