

FLASH 14

14Channel 2.4GHz Aircraft Computer Radio System





Before Using

Before using your transmitter, it is recommended that you read this manual in its entirety to become familiar with the product and its features. Failure to operate this product properly can result in damage to property and or cause serious injury.

Important Notices

Please note that Hitec reserves the right to make production changes during the life of our product lines that may impact the information in this manual. For the most up-to-date information on this and any other Hitec product, visit our web site at www.hitecrcd.com.



This product was designed and intended for use with hobby models designed specifically for radio control only. Hitec RCD disclaims all liability for any damages or injuries resulting from the use of this product for anything other than its intended purpose.



This radio control transmitter is not intended for use by children under 14 years of age. Adult supervision is required for any user under the age of 14.

DISPOSAL OF eWASTE

[insert] This symbol indicates that when this type of electronic device reaches the end of its service life, it cannot be disposed of with normal household waste and must be recycled. To find a recycling center near you, refer to the internet or your local phone directory for electronic waste recycling centers.

STATE OF CALIFORNIA PROPOSITION 65 WARNING:

This product contains chemicals known to the State of California to cause cancer. Use caution when handling this product and avoid exposure to any electronic components or internal assemblies.

Regulatory information

Hitec RCD Inc.

Radio Control Hobby Model Controller

Model Name: FLASH 14

Operating Frequency: 2.4GHz

Power

Adapter: 9Volt 600mAh *We recommend that you turn off the power while charging the battery with the adapter.

Transmitter: 6.6V (2Cell Li-Fe Battery)

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

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

Introduction

Thank you for purchasing the FLASH14 radio by Hitec. Designed for all popular aircraft types, the FLASH 14 delivers lightning fast response with its 8ms frame rate and 4096 step resolution. You can trust Hitec's bi-directional, AFHSS (Advanced Frequency Hopping Spread Spectrum) 2.4GHz technology to guide your sailplane, gas, glow or electric power plane or heli to a safe landing every flight. We are sure you will find the FLASH 8 one of the easiest radios to program. Please review this entire manual to learn how to safely use your new radio. It's a good idea to keep the manual with your FLASH14 at all times.

Features

- 1. Triple Protocol 2.4GHz Transmitter: The FLASH14 can transmit using three different 2.4GHz signals.
 - a. Our original AFHSS bi-directional telemetric 2.4Ghz signal used with the Minima and Optima series receivers.
 - b. Our Low Latency G2 AFHSS 2.4GHz signal used with Maxima series receivers.
 - c. Our original AFHSS bi-directional telemetric 2.4GHz signal used with the G3 receivers(SRX12/MRX3) .
- 2. 3 in 1 Radio: With advanced Acro, Glider and Helicopter programming you have the ability to advance your flying skills without having to upgrade your radio.
- 3. Precise 4096 Resolution: At two to four times the resolution of most transmitters the FLASH 14's 4096 step resolution gives you more precise and crisp servo movement.
- Backlit Graphical LCD screen: Makes it easy to see the programming and telemetry displays.
- 5. Push Button / Jog Dial Programming Interface: So that programming the FLASH 14 is a breeze.
- 6. 8 switch/ 2 digital trim/ 2 slider: 8 switch for allocation and 2 digital trim along with 2 slider allows diverse setting.
- 7. Telemetry Capabilities with our Optima Receiver: Keeps you informed of what's going on in your
- 8. DCS Port (Battery Voltage Power Out): Powers optional accessories such as VR goggles or head tracking units.



Safety Information

Flying models can be dangerous if proper safety precautions are not followed. Here are a few critical safety suggestions to keep you and others safe.

Are you experienced?

Flying models is not an intuitive process. Most accomplished model pilots were taught by another modeler. We encourage you to seek help during your early flight experiences and if required, during the building and radio gear installation process. Unlike some other hobbies, model airplane flying has evolved into a social event. There are approximately 2,500 model aircraft clubs in America. Friendship and help could be right around the corner. Ask your local hobby shop about clubs in your area.

Where to Fly

Having enough land for your own model airport is rare. Most of us fly at club administrated model fields. The local ball field can be tempting but rarely has the space needed and your liability is high should you damage property or hurt an innocent bystander. We recommend you fly at a sanctioned model aircraft field.

Join the AMA

In America, the Academy of Model Aeronautics (AMA) is an organization of model enthusiasts that provides resources and insurance to modelers. The AMA also lobbies the Government concerning legislation that impacts modelers. Visit their web site for more information at www.modelaircraft.org.

> Academy of Model Aeronautics 5151 East Memorial Drive Muncie, Indiana 48302 Toll Free: 800 435-9262

Fundamental Guidelines for Safe Flying

- Model aircraft can be dangerous when operated or maintained improperly.
- DO NOT fly over people or personal property.
- 3. DO NOT fly in adverse weather conditions or high winds.
- 4. The equipment we use in the R/C hobby is sensitive electronic gear. Have receivers checked after a crash before using them in another aircraft.
- 5. DO NOT fly under the influence of alcohol or drugs or if you are feeling ill.
- DO NOT fly near power lines or transmission towers.
- 7. If available use the Fail-Safe function to lower the throttle in case of a signal "lock-out."
- DO NOT fly alone.

Safety Information Regarding Your Radio System

- 1. Make sure you do a range check before flying. If it does not range check satisfactorily, DO NOT fly.
- 2. Know the condition of your batteries. Make sure they are sufficiently charged.
- 3. Make sure all control surfaces respond correctly to the input from the transmitter.
- 4. Be sure that the throttle is off when turning on your airplane.
- Always turn your transmitter on first and turn it off last.
- If the controls don't respond properly during flight, land immediately.

Product Support

FLASH 14 Programming Support

While every attempt was made by the FLASH 14's developers to make the software interface easy and logical, most users will require programming help at some point. There are several "get help" options available to you.

Hitec Customer Service

Help is available from the Hitec office through phone support and e-mail inquiries. The U.S. office is generally open Monday thru Friday, AM 8:00 to PM 4:30 PST. These hours and days may vary by season. Every attempt is made to answer every incoming service call, but should you get voice mail, leave your name and number and a staff member will return your call.

Hitec Web Site

Make plans to visit the Hitec web site on a regular basis at www.hitecrcd.com. There you will find specs and other information about the entire Hitec product line, and soon our FAQ pages will hold valuable information about the FLASH14.

The On-Line Community

One of the benefits of the extensive R/C online community is the vast wealth of archived knowledge available. Hitec sponsors forums on most of the popular R/C web sites where a Hitec staff member or representative answers all manner of product related questions. Bringing together strangers with common interests is proving to be one of the greatest gifts of the internet. If past history is any guide to the future, we are certain forums will be started about the FLASH 14.

Warranty and Non-Warranty Service

All Hitec products carry a two year from date-of-purchase warranty against manufacturer's defects. Our trained and professional service representative will determine if the item will be repaired or replaced. To provide all the necessary information we need to administer your repair, visit our web site at www.hitecrcd.com to download the repair form. Complete the form and send in your item for repair.

> Hitec Service 12115 Paine St. Poway CA 92064 (858)848-6948 service@hitecrcd.com



Steps for Successfully Programming the FLASH14 Radio

Using this Manual

This manual is a valuable resource detailing the programming and operation methods of the FLASH 14 radio. The FLASH 14 manual is divided into seven distinct sections:

- 1. Introductory material that is mandatory reading. This is where you will learn detailed information that will be invaluable to the successful programming of the FLASH14.
- Quick Start Guides.
- 3. System Menus.
- 4. Model Function Menus.
- 5. ACRO And Glider Programming Menu.
- 6. HELI Programming Menu.
- 7. Telemetry Function.

Warning, Caution, Note and Tip Boxes

Throughout the manual, you will see important information inside a labeled box. Take note of this important information.









Warning: This icon alerts you to warnings that relate to your safety and help you avoid causing damage to your equipment.

Caution: This icon indicates that careful attention must be paid.

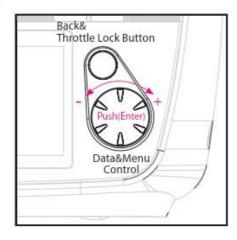
Tip: This icon points out valuable technical information.

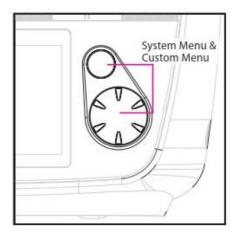
Note: This icon indicates that further information is available.

User Interface

User Interface

The FLASH14 utilizes a jog dial/push button and a back button to access the various functions and input settings in the radio. The jog dial/push button is used to scroll through screens and programming features. Press the jog dial to enter a menu, activate or confirm a setting. Pressing the back button takes you to the previous screen or function. Pressing both the jog dial and back buttons takes you to the System Menu.







Terms and Icons

Glossary of Terms

AFHSS 2.4GHz Signal: Hitec's 2.4GHz R/C signal protocol. Adaptive Frequency Hopping Spread Spectrum.

Telemetry: Data signal from the model, transmitted to the transmitter.

Range Check: A ground check of the signal strength between the transmitter and receiver done before flying.

Link (ID Setting): Link or "binding" a 2.4GHz receiver to its master transmitter.

HPP-22 PC Interface: PC interface accessory for storing model memories and updating firmware.

Icon Identification

MODEL: The model menu contains the model programming for the active model.

ACRO: Menu for fixed wing, glow, gas and some electric models.

GLID: Menu for gliders and some electric models.

HELI: Menu for rotary wing aircraft.

AILE: Aileron for fixed wing menus and the "roll" swash input for helis.

ELEV: Elevator for fixed wing menus and the "pitch" swash input for helis.

RUDD: Rudder for fixed wing menus and the "yaw", or tail rotor input for helis.

INH: Inhibit is used to "turn off" a function.

ACT: Active. "turns on" a function.

NULL: "No switch" selected, the function or feature will be "on" all the time.

AUX: An "open" channel, without a control assigned to it.

J1: Right gimbal, up and down control.

J2: Right gimbal, side to side control

J3: Left gimbal, up and down control.

J4: Left gimbal side to side control.

T1: J1 control trim.

T2: J2 control trim.

T3: J3 control trim.

T4: J4 control trim.

LT: Non setted extra digital trim

RT: Non setted extra digital trim

RS: Right slider control.

LS: Left slider control.



Powering the FLASH14

FLASH14 is composed with Li-Fe 2Cell battery.

FLASH14 is operated under DC 4.8~ 8.4V. It is also capable to use 2 cell Li-Fe or 4 cell NoMH or Li-Po/Li-ION battery.



Make sure you use a charger suitable for the battery pack you are using. It is recommended that you remove the battery from the transmitter when charging it.

Selecting the Battery Type

The standard battery type of FLASH14 is a Li-Fe 6.0V that has setting for low voltage alarm system. If you choose to use a different type of battery you must select the battery type in the System Management menu.

The preset warning thresholds for each type are

LiFe 6.0 Volts NiMh or NiCd 4.3 Volts LiPo 7.0 Volts Alkaline 4.0 Volts

How to connect and charge battery of Flash 14

Battery connection

1. Press along with the 'arrow' mark on the back of the radio to open the battery compartment or close the cover until you hear the click sound.



Be careful when opening the battery cover to prevent any possible injury.



Any excessive force may cause damage to the battery cover. .

- Please check the provided image when connecting the battery to the connector.
- Close the cover to the battery compartment.

Battery charge

Please be sure to fully charge the batter when it is the first time to use or also when you have not used it for a long time



Please be sure to use only the provided Adapter provided in the gift box. Using other non certified charger may lead to damage of the battery(i.e explosion) or may even cause serious damage to the radio.



Please be sure to use the supplied Hitec battery with the supplied Hitec adapter to prevent any possible damage for any battery explosion.

- 1. Please turn off the power of the radio after connecting the supplied battery to the radio..
- 2. As shown on diagram (Next Page), please connect the adapter to the charging port on the side of the radio.

Red LED light shows that the battery is currently charging.



3. The light will be eliminated after 6 to 8hours, when the battery is fully charged.



We do not take any responsibility for any damage of the product due to wrong use of other adapters rather than the Hitec RCD's supplied adapter.



Supplied Li-Fe from Hitec has a built-in protection circuit that may lead to damage of the battery in case of quick charge or quick discharge. Supplied battery must use only Hitec adapter. In addition, Hitec RCD does not cover the service charge on any damages that has been occurred with using any other charging adapters.

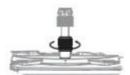
The standard battery type of FLASH14 is a Li-Fe 6.0V that has setting for low voltage alarm system.

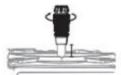
Stick Length Adjustment

Hands come in all sizes so to accommodate everyone we use a two piece stick "top" that can be adjusted to fit a wide variety of users.

Separate the top from the bottom piece and adjust the top piece to the length required. Screw the bottom up against the top piece to "jam" lock everything into position.







Stick Lever Tension Adjustment / Mode Change

Stick Lever Tension Adjustment

User may adjust the tension of the stick to fit one's own preference.

To start, please open the rubber grip on the back of the radio.

After removing the rubber grip, you may find parts in the small hall as shon on.

With using a small allen wrench to turn the screw, you may fix the tension.

Clockwise turn will tighten the tension, while counter clock wise will loosen the tension.



Please use 1.5mm allen wrench.

After adjusting the tension, please put the rubber grip back to its' original place.

Change to 'Mode 1' Configuration

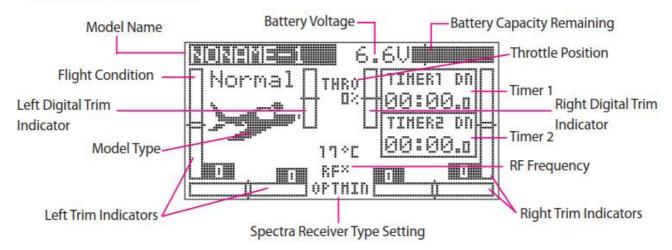
All Flash8 systems sold in US are in 'Mode 2' format. However, you may wish to use Flash14 in 'mode 1' format. There is a menu choice for this option in the Initial Set-Up function menu described on Page 44.

After selecting 'Mode 1' in the Initial Set-Up Menu, you must do the following hardware set-up in order to change the transmitter

- 1. Remove the four rubber grip on the back of the radio.
- Adjust the bolt of the throttle Ratchet.
- 3. Loosen the hex bolt in order to create enough tension of the spring and also for neutrality of the stick.
- 4. Fasten until you do not feel the tension of the spring.
- 5. Please put the rubber grip back to its' original place.



FLASH14 Main Menu





From the main menu, you can quickly access certain settings by scrolling to them and pressing the jog dial.

The following items have the guick access feature:

Model Name to access the Model Select menu.

Spectra Receiver Type to access the Spectra menu.

Time to access the Timers menu.

Transmitter Warnings

The FLASH14 has a few warning alarms that you should be aware of.

Start Up Warnings

High Throttle

If the throttle is positioned above idle during the system "bootup to transmit" process, a warning beep will occur and the following warning screen will be displayed. Warnings !! Throttle High

Condition on Warning

If you have flight conditions and other mixing programmed for the active model and they are switched "on" during the "bootup to transmit" process, a warning sound will occur and the following warning screen will be displayed.

Warnings !!

Flight Condition



Transmitter Warnings cont.

In Flight Warnings

If the transmitter should start a continuous beeping during flight, land immediately and evaluate the cause of the warning. There are two warnings that may occur in flight.

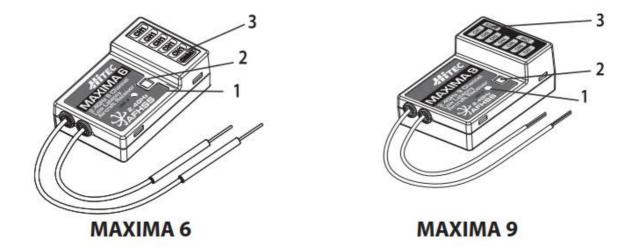
Low Transmitter Battery Warning

When the transmitter battery power falls to a critically low level, a warning sound & Vibration will occur.

Maxima Series Receiver Features



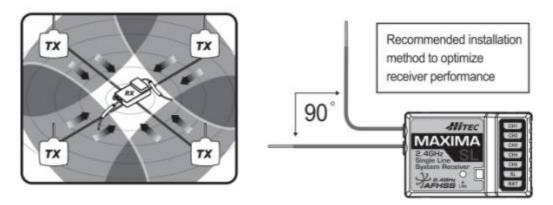
The Maxima series is designed for use with G2 AFHSS radios such as the Aurora 9X and Flash series. USE ONLY Digital SERVOS with the Maxima receivers. Analog servos cannot be used with the Maxima series receivers.



- 1. Function Button: Used for binding the receiver to the FLASH14 and entering the FAIL-SAFE or Hold feature.
- 2. Dual LED Status Indicator: Indicates the set-up process codes and current status of the receiver.
- 3. Channel Output and Battery Input Ports: The ports for battery power input and servos, gyros and other accessories' output ports are located at the side end of the Maxima receivers.
- 4. Low Battery Warning: If the receiver's battery levels fall below 3.6V, the RED LED will flash.
- 5. FAIL-SAFE/Hold Mode Selectable: Servos and other accessories position can be set with a FAIL-SAFE point if power to the receiver is lost.

Maxima Series Receiver Antenna Installation

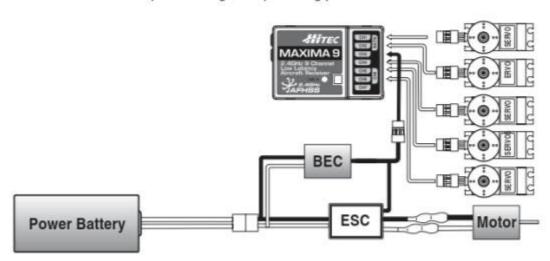
The Maxima receiver series antenna system was created to provide the optimum signal capture capability. Our two antennas must be installed properly. Refer to the illustration below.



Maxima Series Receiver Connection Diagrams

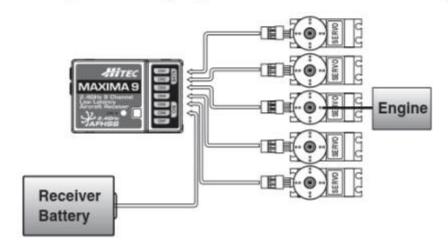
Electric powered aircraft with Electronic Speed Control

Use this method on electric planes using ESC's providing power to the receiver and servo functions.



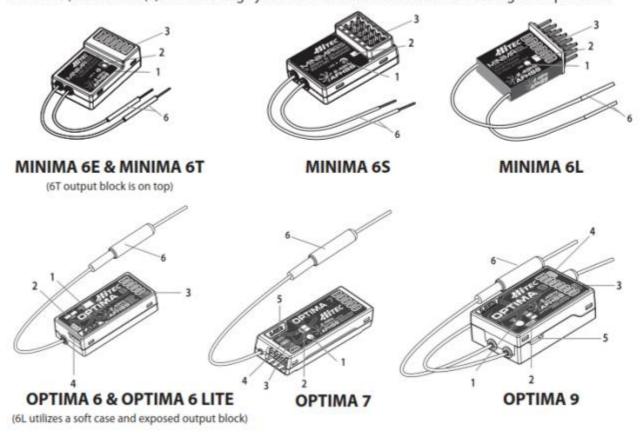
Glow, gas or electric powered aircraft using a separate receiver battery supply.

Follow this connection diagram when using a regulated Li-Po, or 4.8 to 6V receiver battery.



Optima and Minima Series Receiver Features

The following information contains the complete directions on how to use the Optima and Minima series receivers (version 3.00(0). We encourage you to review this information before using these products.



- 1. Function Button: Used for binding the receiver to a module or Hitec 2.4 built-in transmitters, entering the FAIL-SAFE or Hold feature.
- Dual LED: Status Indicator: Indicates the set-up process codes and current status of the receiver.
- 3. Channel Output and Battery Input Ports: The ports for battery power input and servos, gyros and other accessories' output ports are located at the side.
- 4. SPC (Supplementary Power Connection)*: Power the Optima and Minima receivers function with up to a 35V. electric aircraft motor battery.
- 5. Telemetry Sensor and Data Port*: A three pin servo plug connector port is featured on the Optima 8 and Optima 9 (Optima 6 is not applicable.) Using the HPP-22 PC interface accessory, this port serves to facilitate upgrading the device's software and interfacing the optional onboard sensor station.
- 6. BODA (Boosted Omni Directional Antenna) System*: Hitec's exclusive 2.4GHz BODA System will show you another way of using our 2.4GHz systems. The single Omni-directional antenna booster makes it much easier to install the 2.4GHz antenna. Intensive tests have proven that the single BODA system in our 6 & 7 channel systems is better than or equal to our competitor's dual antenna systems while our Optima 9 receiver features a dual BODA system to give the added security that larger models need. Installation is easy and simple, insert the antenna into the supported antenna holder and stick it to the desired spot you wish to install.

Optima and Minima Series Receiver Features

Compatibility:

The OPTIMA & MINIMA receivers are compatible with transmitters using the Hitec AFHSS 2.4 GHz system, such as, Spectra 2.4 module or dedicated built-in module AFHSS 2.4 Hitec transmitters.

FAIL-SAFE/Hold Mode Selectable:

Servos and other accessories can be set with a FAIL-SAFE point, if power to the receiver is lost.

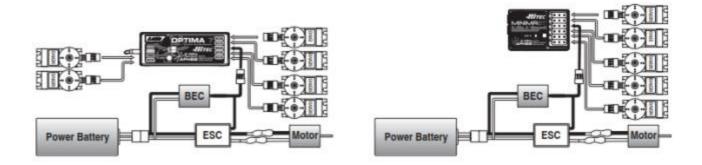
Jumper:

The jumper is installed at the factory and is used when the receiver is powered by an electronic speed control, a commercially available B.E.C. (battery eliminator circuit), dedicated 4.8 to 6V. NiMH battery pack, or regulated Li-Po battery. The jumper is removed when the receiver is powered using the SPC feature.

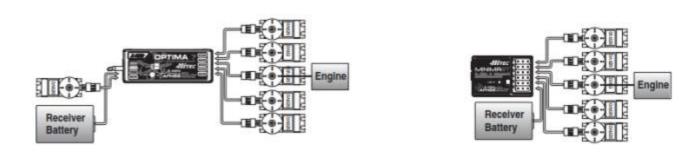
These functions/ features are only for OPTIMA series receivers.

Common Receiver Connection Diagrams

Electric powered aircraft with Electronic Speed Control: This configuration is appropriate for electric planes using ESCs providing power to the receiver and servo functions.



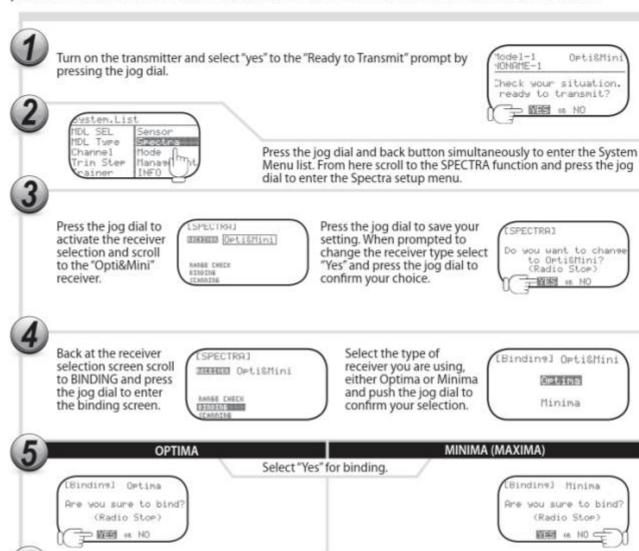
Glow, gas or electric powered aircraft using a separate receiver battery supply: Follow this connection diagram when using a regulated Li-Po, or 4.8 to 6V receiver battery.





Optima and Minima Series Receiver Link (ID-Setting or Bind)

Your Hitec AFHSS system uses a communication protocol that links and binds the Hitec 2.4GHz receiver to your transmitter. Once the receiver and transmitter are "bound", no other transmitter can interfere.





Press and hold the link button on the eceiver and turn on the rower.



Press and hold the link button on the eceiver and turn on the rower.





Release the link button.



Release the Link button, both RED and BLUE LEDs will be blinking rapidly to find the transmitter's signal.



Optima and Minima Series Receiver Link (ID-Setting or Bind) cont.



When the binding is process is completed, it automatically goes to the finish screen. (The BLUE and RED LEDs will be solidly on)

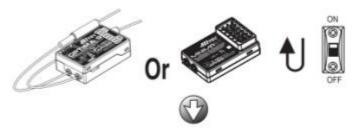
> [Binding] Optima Reboot RX & check all function if correct, press [Finish].

When the LED stops blinking, press the jog dial to get to the next screen. The blue LED will glow solid.

> [Binding] Minina Reboot RX & check all function if correct, press [Finish].



Turn the power to the receiver off, then back on. Check for a solid blue LED light. If it appears then press the jog dial to FINISH the binding process. Make sure all functions are working properly before flying your model.



If all functions work well press the Finish icon on the screen to finish binding

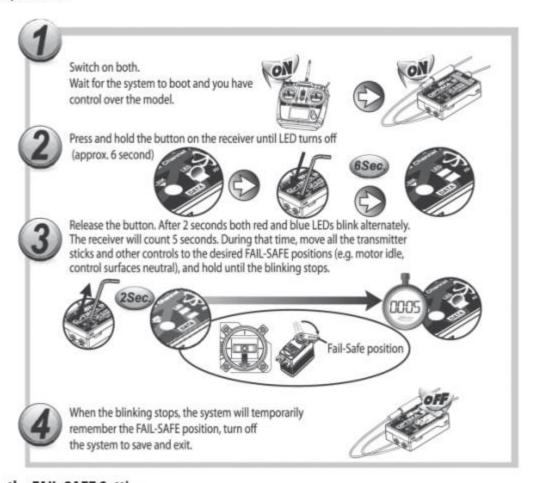




If any function is not working as described, please go back to step 6 and repeat the binding again.

FAIL-SAFE and Hold Mode Setup

If the FAIL SAFE function is set up and used properly but the receiver signal is somehow interrupted, the servos will move to your previously stored FAIL-SAFE setup. If you do not activate the FAIL-SAFE function, the signal is switched off after the HOLD period of 1 sec. This means that the servos become "soft" and remain in their last commanded position under no load (this may equate to full-throttle!), until a valid signal is picked up again. In the interests of safety, we recommend that FAIL-SAFE should always be activated, and the FAIL-SAFE settings should be selected so as to bring the model to a non-critical situation (e.g. motor idle / electric motor OFF, control surfaces neutral, airbrakes extended, aero-tow release open, etc.).



Testing the FAIL-SAFE Setting

Move the sticks to positions other than the FAIL-SAFE settings, and then switch off the transmitter. The servos should now move to the FAIL-SAFE positions previously stored, after the one second HOLD period.

How to turn FAIL-SAFE Off and reactivate the Hold Mode

- a. Switch on the transmitter, then the receiver. Wait for the system to boot and you have control over the model.
- b. Press and hold the receiver function button for 6 seconds and release it. After 2 seconds the red and blue LEDs will blink rapidly.
- c. Immediately press the button once.
- d. FAIL-SAFE Mode is now deactivated and HOLD mode is activated.
- e. Turn the transmitter off, then the receiver off.
- f. Turn the system back on to use it.



Warnings and Precautions

- Don't steer this in the busy street.
- Don't steer this in the rain and on the standing water.
- Don't steer this after drink alcohol.
- Always check the remaining battery power.
- Always power on the Tx first then power on the Rx next to prevent failure.

IC Information

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference, including interference

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence L'exploitation est autorisee aux deux conditions suivantes :

 l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouiliage est susceptible d'en compromettre le fonctionnement.

The antenna(s) used for this device must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

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 marference received, including interference that may cause undesired operation. CAUTION: Changes or modifications not expressly approved by the party responsible for compliance rould soct the user's substitute to operate the equipment.

FCC notice to users and product statements

FCC Information

This device comples with part 15 of the FOC 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.

FCC notification to users

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 when the equipment is operated in a commercial environment. 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, the user is encouraged to try to correct the interference by consulting with a dealer or an experienced technican for technical assistance.

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

European CE notice to users and product statements This product is CE marked according to the provisions of the R & TTE Directive (99/SEC). Hereby, HITECRICO INC. declares that this product is in compliance with the estended requirements and other lelevant provisions of Directive 1999/STEC. For further information, please contact http://www.hitecrod.com or http://www.hitecrod.co.kr

Hitec Service 12115 Paine St. Poway CA 92064 1-858-748-6948 E-mail: service@hitecrcd.com Product Approved to HITEC RCD, INC. Manufacture/Country HTEC RCD, NC/Tite Philippines Production Date

Manufactured by Hitec RCD PHILIPPINES, INC. Lot 6 and 8, Blk. 24, Phase 4 CEPZ, Rosario, Cavite, Philippines