2.4GHz Telemetric AFHSS
ADAPTIVE FREQUENCY HOPPING SPREAD SPECTRUM

2.4GHz 7 Channel Digital Radio Control System

ECLIPSE 7 PRO 2.4GHz

2.4GHz Telemetric AFHSS ADAPTIVE FREQUENCY HOPPING SPREAD SPECTRUM

INSTRUCTION MANUAL Ver 1.0

TABLE OF CONTENTS

What's New?

Many of you have owned or used earlier model Hitec transmitters. Here are four "new" Hitec transmitter features that set the Eclipse 7 Pro apart from all other Hitec products.

1. Signal Protocol
Using Hitecs AFHSS 2.4GHz module to link with Hitec Optima AFHSS 2.4GHz receivers.
2. Gimbals
Feel the silky smooth action of the new four ball bearing supported gimbals in the Eclipse 7 Pro. These new gimbals were created to give you the smoothest action demanded by the highest performance aircraft.
3. Switch Assignments
During the model programming steps you will be asked to select what stick, switch or slider controls the features you want to use with your model. This gives you unlimited flexibility to choose the most comfortable and practical way for you to use the Eclipse 7 Pro..

4. Channel and Control Assignments
The Eclipse 7 Pro will automatically select the channel and control assignments based on the model you have. There is the option to change them if you wish, allowing you a wider choice of receivers that can be used with the Eclipse 7 Pro..

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 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 person. 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 provide resources and insurance to modelers. The AMA also lobbies the Government concerning legislation that impact modelers.

Visit their web site for more information, www.modelaircraft.org.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, Indiana 47302
Toll Free : 800 435-9262

Fundamental Guidelines for Safe Flying
1. Don't fly over people or personal property.
2. Make sure you do a range and pre-flight check on your aircraft.
3. Check for others flying on your frequency. (No need with 2.4GHz)
4. Know your batteries condition. Keep them charged.
5. 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.
6. Use the Fail-Safe function in AFHSS mode to lower the throttle in case of a signal "lock-out".
7. Don't fly alone.

Hitec 2.4GHz System Set-up

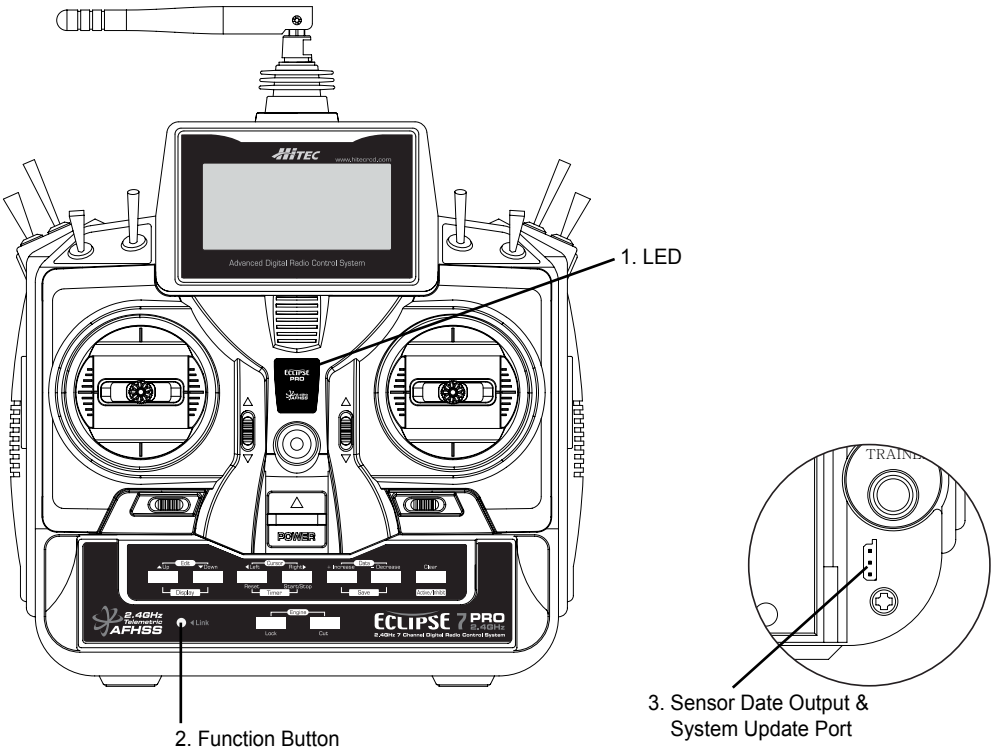
2.4GHz Module Features

The following contains the complete instructions on how to use the Optima 2.4GHz series receivers and Eclipse 7 Pro set for a trouble free 2.4GHz signal. We encourage you to review this information before using these products.

1. Dual Blue and Red Status indicator LED's
Indicates the set-up process codes and use status..

2. Function Button
Used for Linking(ID -Setting) the Eclipse 7 Pro to a receiver, entering the power down mode for range checks and the Nomal / Scan Mode set-up.

3. Sensor Data Output and System Upgrade Connector Port
A 3 pin servo plug connector port is featured on back side of Eclipse 7 Pro . Using the HPP-22 PC interface accessory this port serves to facilitate upgrading the devices software and downloading information from Optima 7,9 receiver if using optional onboard sensor station..



Hitec 2.4GHz System Set-up

Optima Series Receiver Features

As of this writing, there are three Optima 2.4GHz receivers that are compatible with the Eclipse 7 Pro .The Optima 6, Optima 7 and the Optima 9 channel products are loaded with a variety of functions that are sure to deliver a satisfying R/C experience.

1. Telemetry Sensor and System Port
A three pin servo plug connector port is featured on the Optima 7 and 9 ch receivers. Using the HPP-22 PC interface acces sory this port serves to facilitate upgrading the devices software and interfacing the optional onboard sensor station.

2. Function Button
Used for Linking(ID-Setting) the receiver to a Eclipse 7 Pro , entering Fail-Safe / Hold mode setup function.

3. Dual LED Status Indicator
Indicates the set-up process codes and use status

4. SPC Supplementary Power Connection
Power the Optima receiver function with up to a 35V. motor battery. Details about the SPC system can be found on page 9.

5. Channel Output and Battery Input Ports
The ports for battery power, servos, gyros and other accessories are located at each end of the streamlined Optima receivers.

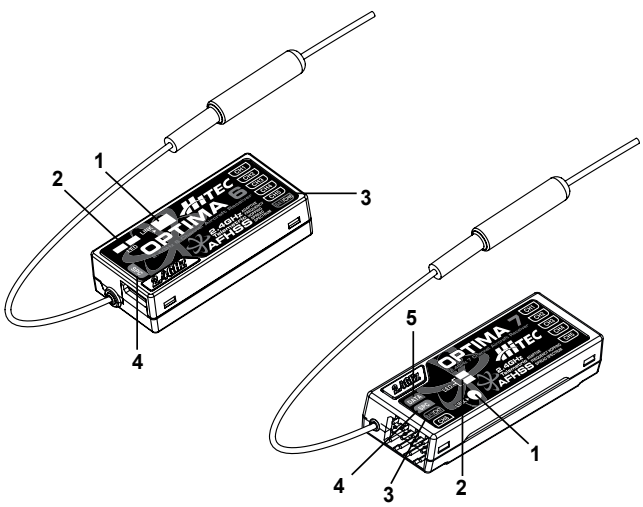
6. Jumpers
The jumper is installed at the factory and is used when the receiver is powered by an electronic speed control, a commercially available B.E.C. (battery eliminator circuit), dedicated 4.8 to 6V. NiMH battery pack, or *2S Li-Po/Io/Fe batteries. The jumper is removed when the receiver is powered using the SPC feature as described in more detail on page 9.
(*Verify your servos are rated for use with these higher voltage batteries or use a regulator.)

Normal / Scan Mode Selectable
Select between two operational signal types. See page 6 for details.

FAIL-SAFE Option
Servos and other accessories may be programmed with a FAIL-SAFE point in the event power to the receiver is interrupted. See page 7 for details..

Onboard Receiver Battery Warnings
Know when your on-board battery is low with direct telemetry feedback to your transmitter. See page 8 for details.

1. Function Button
2. Dual LED Status Indicator
3. Channel Output and Battery Input Ports
4. SPC (Supplementary Power Connection)
5. Telemetry Sensor and System Port

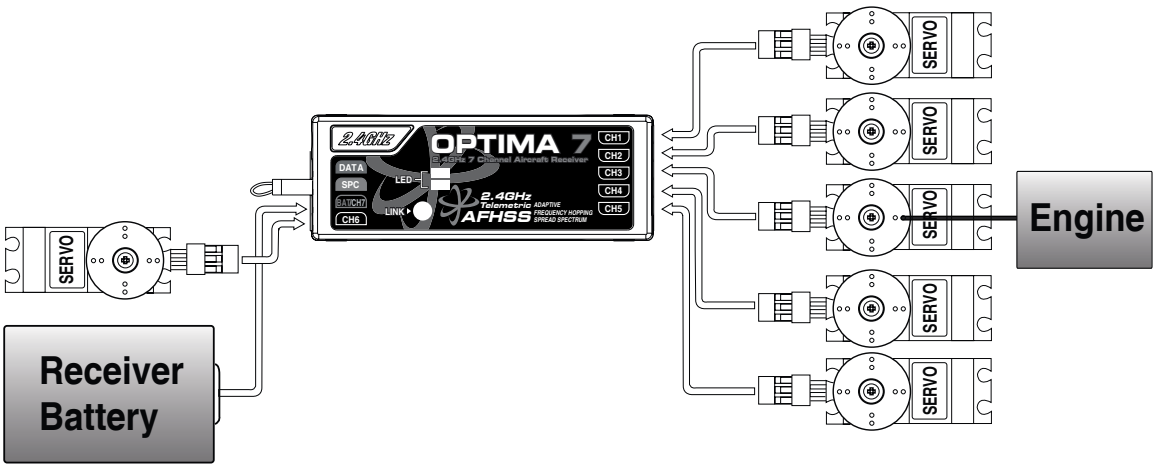


Hitec 2.4GHz System Set-up

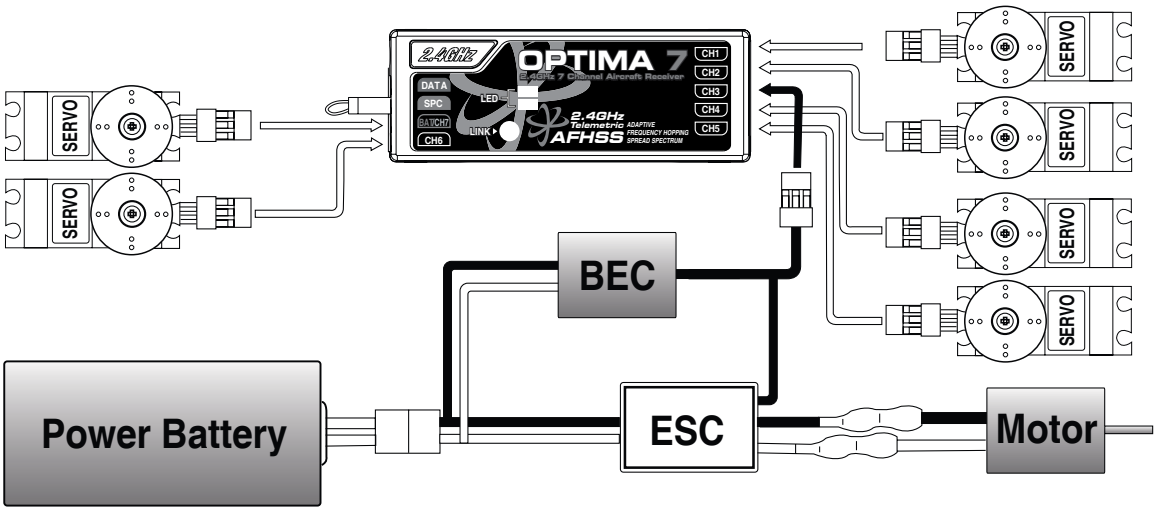
Optima Receiver Connection Diagrams

Glow, gas or electric powered aircraft using a separate receiver battery supply.
Follow this connection diagram when using a dedicated 4.8 to 6V. NiMH battery pack, or *2S Li-Po/Io/Fe batteries

Warning Verify your servos are rated for use with these higher voltage batteries or use a regulator.



Electric powered aircraft with Electronic Speed Control
Use this method on electric planes using ESC's providing power to the receiver and servo functions

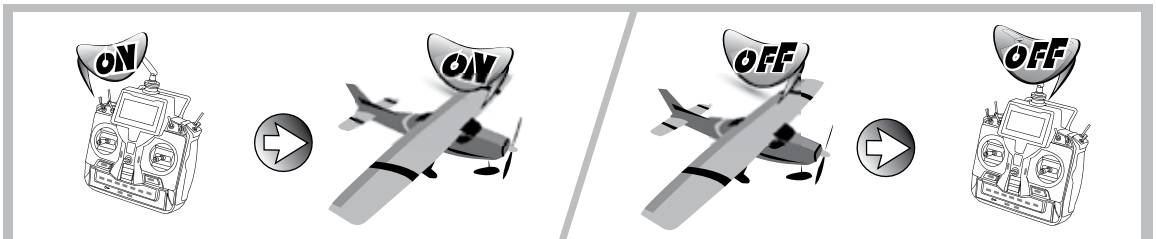


Optional BEC shown in diagram is used if the servo power requirements exceed that which the ESC provides.

Set-up Use of the Hitec 2.4GHz System

General Use Guidelines

To turn the system on and off, use the following sequence at all times



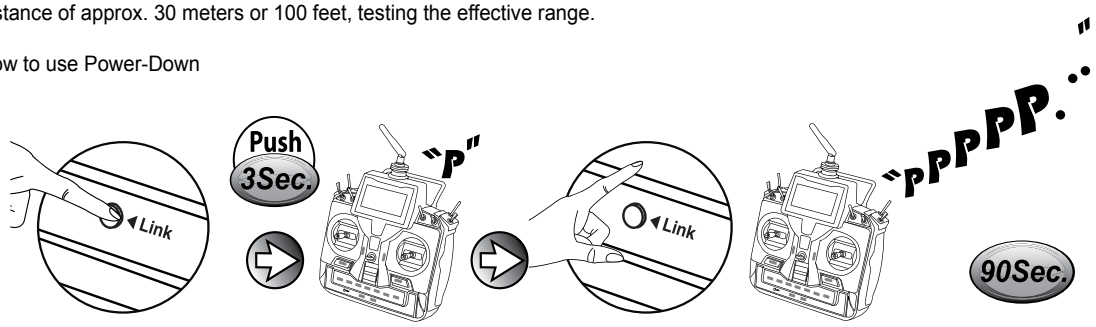
Turning On -Turn on the transmitter, then turn on the receiver. Turning Off -Turn off the receiver, then turn off the transmitter.

Range Check Function

It is critical that before each flight session you perform a range check that confirms the signal between the receiver and transmitter is appropriate. Unlike the FM/PPM or PCM signal radios, 2.4GHz systems use a fixed shorter, stubby transmitter antenna, so called rubber duck antenna. So the traditional method of range check, lowering the transmitter antenna, is not applied.

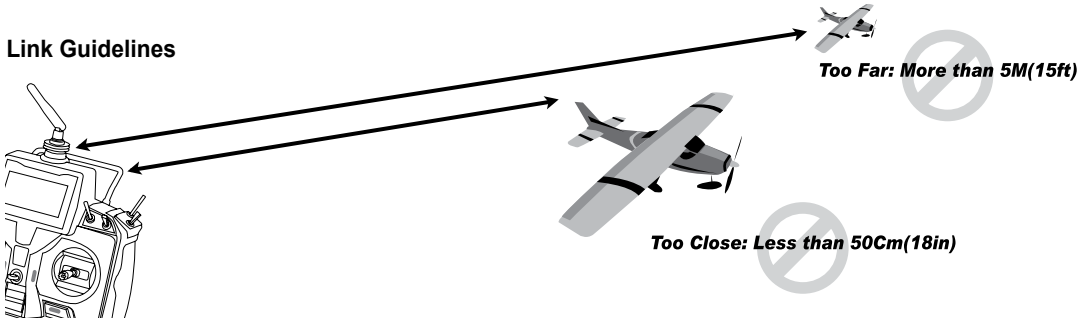
The Hitec 2.4GHz System uses a power-down mode to reduce the transmitter signal strength.
Once the power-down mode is activated it runs for about 90 seconds, effectively shortening the range to 30 meters, or 100 feet. During this power-down mode that you should walk away from the secured aircraft carrying the transmitter to a minimum distance of approx. 30 meters or 100 feet, testing the effective range.

How to use Power-Down



Warning
- Before each flying session, confirm the radio system is working properly.
- Before the engine or motor is started, turn on the system as explained above.
  Then make sure all the servos and control surfaces are working properly.
  If any control surface is not moving properly, do not fly the aircraft until the problem is solved.
- If you are unable to accomplish a successful range check of 30 meters or 100 feet,
  DO NOT ATTEMPT TO FLY.

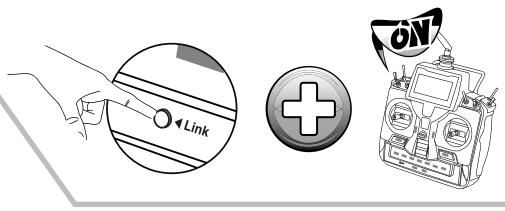
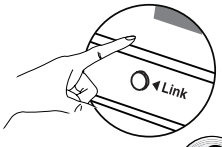
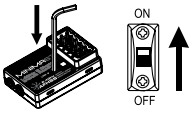
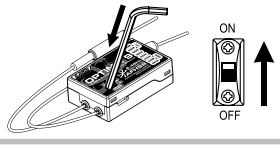
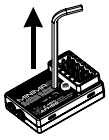
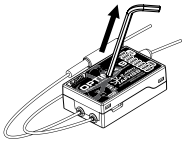
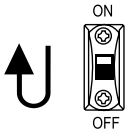
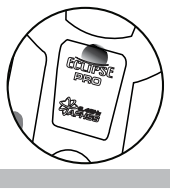
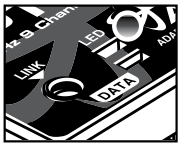
Link Guidelines



Note
- Link must be done within 15ft.(5m) of the transmitter and receiver.
- Transmitter and receiver need to be at least 18in.(50cm) from each other to link properly.

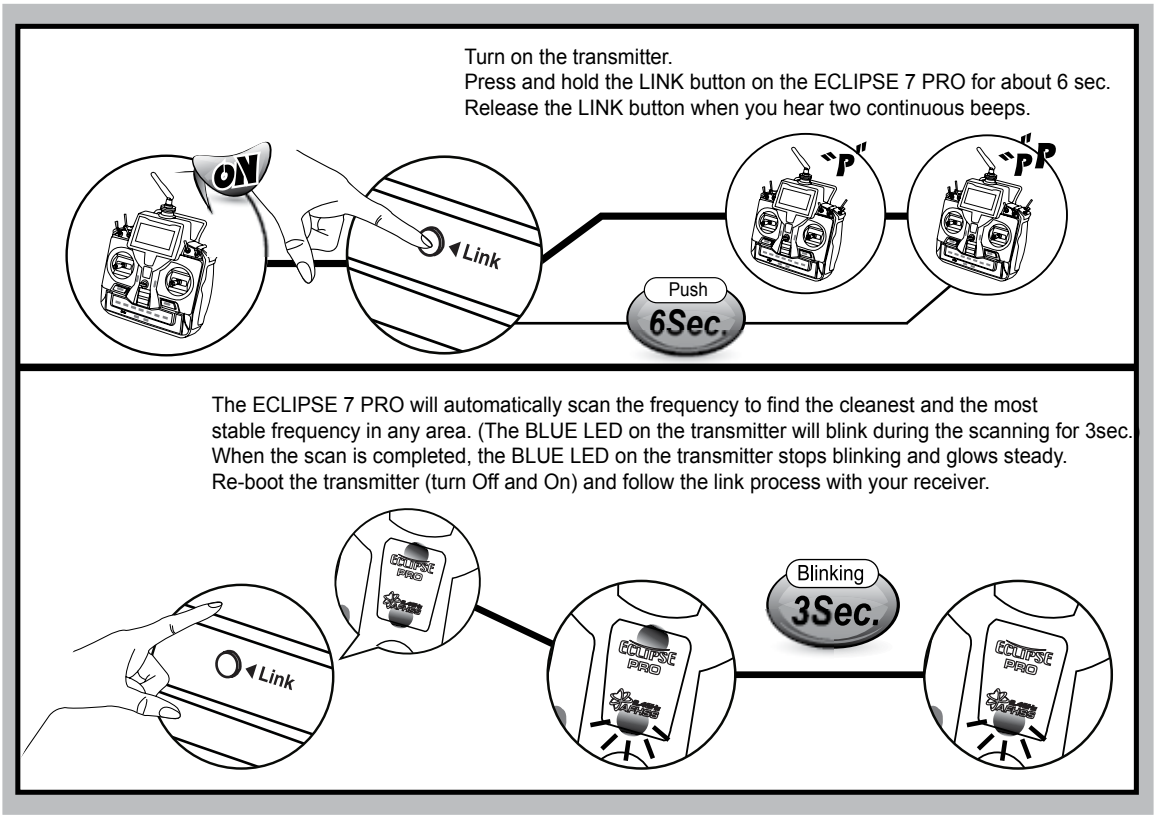
Set-up Use of the Hitec 2.4GHz System

ID-Setup A.K.A, Link or Bind

Non-telemetry RXs (MINIMA & MICRO Series)	Telemetry RXs (OPTIMA Series)
1 Press and hold the Link button, and turn on the transmitter.	
2 Release the link button. 	
3 Check if BLUE LED is blinking. If RED LED is blinking, press the link button for 2 sec., so that LED changes to the BLUE. 	**3** Check if RED LED is blinking. If BLUE LED is blinking, press the link button for 2 sec., so that LED changes to the RED. 
4 Press and hold the link button on Receiver and turn on the power. 	
5 Both RED, BLUE LEDs will blink rapidly to find the transmitter signal. Release the link button when RED LED on receiver glows steady. 	**5** Release the link button. 
6 When the link is completed, BLUE LED Transmitter will blink. 	**6** When the link is completed, BLUE LED Transmitter will blink while RED LED Transmitter glows steady. 
7 To save the setting, please reboot (Turn Off & On) both transmitter and receiver. 	
When they are turned on again, RED LED Transmitter and BLUE LED on the receiver will glow steady.  	When they are turned on again, you can hear continuous beep sound. Both RED LEDs transmitterand receiver will glow steady in normal status.  "pppp" 

Set-up Use of the Hitec 2.4GHz System

SmartScan Function



Note

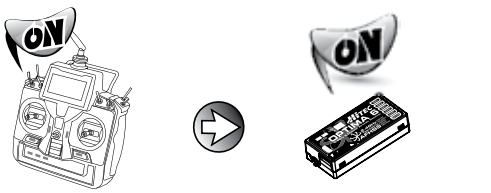
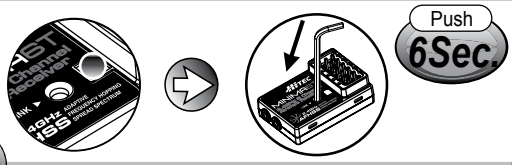
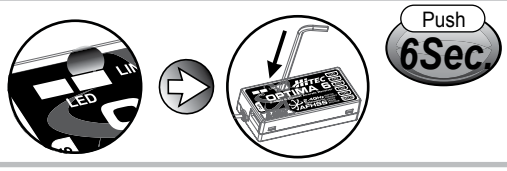
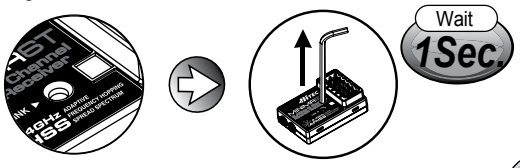
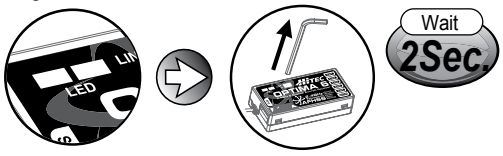
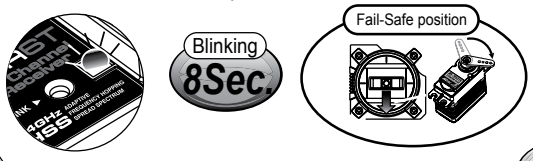
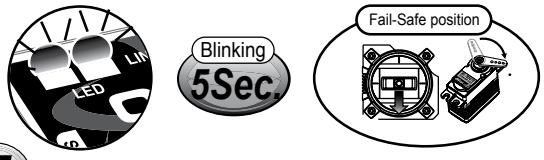
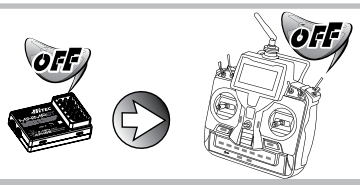
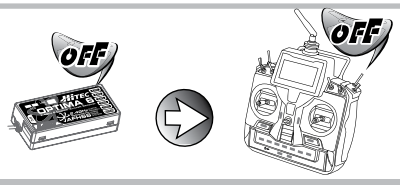
After "Scanning," you need to do the link process again for all your receivers as receivers need new frequency hopping codes from the Spectra 2.4 module.

FAIL-SAFE and Hold Mode

If you use the FAIL-SAFE function, and set it up properly, should the receiver signal somehow be interrupted or interference were to occur, the servos will move to your pre-set FAIL-SAFE point you previously stored in the receiver during the FAIL-SAFE set-up process.
If FAIL-SAFE has not been activated, 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).

Set-up Use of the Hitec 2.4GHz System

FAIL-SAFE Setup

Non-telemetry RXs (MINIMA & MICRO Series)	Telemetry RXs (OPTIMA Series)
1 Switch on both. Wait for the system to boot and control over the model.	
	
2 Push the link button for 6 sec.	
	
3 Release the link button when LED is turned off. You will see that both RED & BLUE LEDs will start blinking.	**3** Release the link button when LED is turned off. You will see that both RED & BLUE LEDs will start blinking.
	
4 Both RED & BLUE LEDs will blink alternately for 8sec. During that time, move concerned transmitter sticks to the desired FAIL-SAFE positions.	**4** Both RED & BLUE LEDs will blink alternately for 5sec. During that time, move concerned transmitter sticks to the desired FAIL-SAFE positions.
	
5 BLUE LED will glow steady once the setting process is completed during above 8sec.	**5** RED LED will glow steady once the setting process is completed during above 5sec.
	
6 Turn off both transmitter and receiver to save the Fail-Safe position. Now, Fail-Safe process is completed.	
	

Set-up Use of the Hitec 2.4GHz System

FAIL-SAFE Setup

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, release the button. After 2 more seconds both red and blue LEDs blink rapidly.
c. From the moment you release the button, the receiver will count 5 seconds during that time move all the transmitter sticks and other controls to the desired FAIL-SAFE positions (e.g. motor idle, control surfaces neutral), and hold them there.
d. After 5 seconds the system will save the FAIL-SAFE position. Relax all the control sticks.
e. Turn off the receiver, then the transmitter.
f. Turn on the system to use it. FAIL-SAFE is now activated.

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 HOLD period (1 sec.) has elapsed.

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 and release it.
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..

Warning If FAIL-SAFE is deactivated, the FAIL-SAFE position settings are also deleted!
The FAIL-SAFE settings should be checked every time before you run the engine/motor.)

Range Check Function

It is critical that before each flight session you perform a range check that confirms the signal between the receiver and transmitter is appropriate. Unlike the FM/PPM or PCM signal radios, 2.4GHz systems use a fixed shorter, stubby transmitter antenna so the traditional method of range checking your system by lowering the transmitter antenna will not work.
We instead use a power-down mode to reduce the transmitter signal strength. Once the power-down mode is activated it runs for about 90 seconds, shortening the effective range 100 feet (30 m). During this power-down mode that you should walk away from the secured aircraft carrying the transmitter to a distance of approx. 30 meters, testing the effective range

How to use Power-Down

a. Press the button on the module for 3 seconds, then both the blue and red LEDs will turn on with single beep sound. Release the button. The 90-second countdown starts from the time the button released.
b. Walk away from the secured aircraft carrying the transmitter to a distance of approx. 100 feet (30 m), testing the ef fective range.
c. To exit the power-down mode before the 90 seconds, press the button again to escape.

Warning If you are unable to accomplish a successful range check of 90 feet, **DO NOT ATTEMPT TO FLY.**

Telemetry System

Currently there is a direct feedback telemetry function available in your Hitec 2.4 system. Plans are to have many more devices available in the future.
Check the Hitec website at www.hitecrcd.com for more up-to-dated information.
The Hitec Eclipse 7 Pro and Optima Series receivers feature full telemetry capabilities (except Optima 6) and include a Low Receiver Battery Warning as a basic function.

Set-up Use of the Hitec 2.4GHz System

Low Battery Warning

The 2.4GHz system will automatically recognize the receiver battery voltage among 4 and 5 cell NiMH or NiCd batteries and warns you, and also 2S LiPo/lo/Fe battery packs can be used with battery warning level customization.

- When battery level is high(4cell > 4.5V, 5cell > 5.6V): The red module LED glows constantly.
- When battery level is low(4cell < 4.5V, 5cell < 5.6V): Blue LED glows constantly and the red LED will blink fast. You will hear a continuous loud beep from the module as a low receiver battery warning. Upon hearing the alarm, we advise you to bring back the aircraft and land at once.

Note

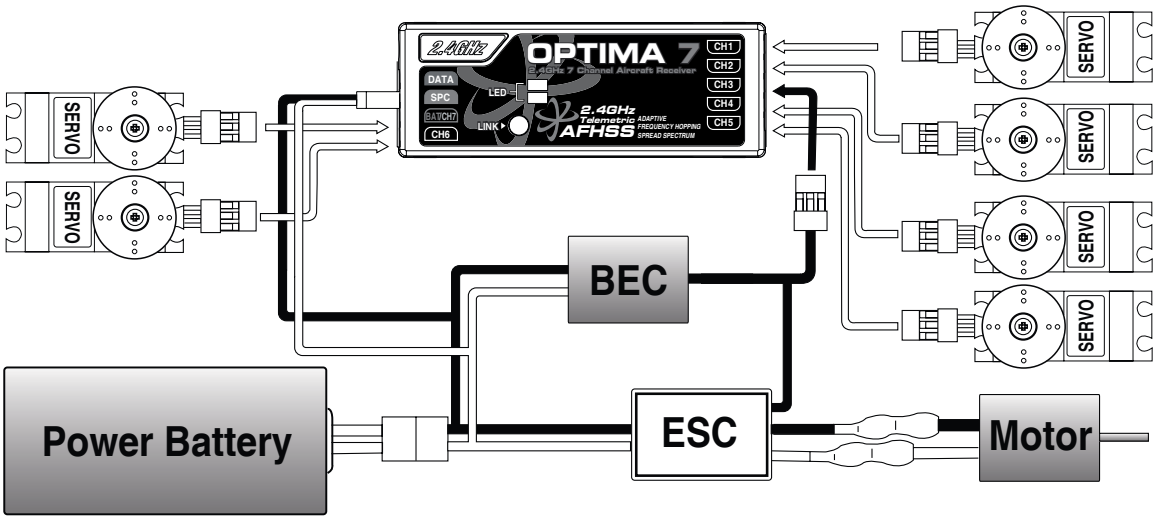
That you can adjust RX battery voltage warning level in B.WAR menu. Also via HPP-22 warning level can be adjusted.

SPC (Supplementary Power Connection) System

Hitecs exclusive optional receiver power system allows you to directly power the receiver from the main motor power battery of an electric powered aircraft. Up to 35 Volts can be fed directly into the receiver to power JUST THE RECEIVER FUNCTION. It will not power the servos. Almost all servos will burn-up if more than 6 Volts are used over a short period of time.

Note

some Hitec servos are rated to be used at 7.4Volts. You will still need to supply power for your servos with a four or five cell NiMH receiver battery, 2 cell Li-Po and regulator set-up, or a commercially available BEC.
The SPC system was partially created to be integrated into future Hitec telemetry system devices.
Note Check the Hitec web site for more information on the availability of telemetry systems in the future.



Charge the Batteries!

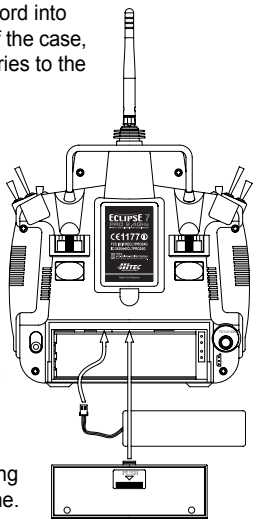
Charging the Eclipse 7 Pro Ni-MH Batteries

Connect the transmitter charging cord into the charging socket (on the rear of the case, left side) and airborne Ni-MH batteries to the receiver connector on the charger.

Connect the receiver battery to the charging cord.

Plug the charger into a wall socket.

The charger's LEDs should light, indicating charging current is flowing. The batteries should be left on charge for about 15 hours. Try to charge the batteries with the charger supplied with your system exclusively. The use of a fast-charger may damage the batteries by overheating anddramatically reduce their lifetime.



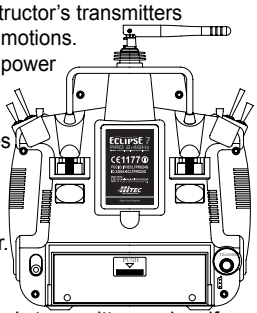
Note If you need to remove or replace the transmitter battery,do not pull on its wires to remove it. Instead, gently pull on the connector's plastic housing where it plugs in to the transmitter. The battery must be removed to charge it properly with a "peak" charger.

Operating With A Trainer Cord

An optional training cord is available from your dealer. The cord may be used to help a beginning pilot learn to f ly easily by allowing a second transmitter, operated by an experienced instructor, to be connected to this system. The instructor may override the beginning pilot at any time to bring the model back under safe control. For training

To use the trainer cord:

Set up both the student's and instructor's transmitters to have identical trim and control motions. Plug it into each transmitter, with power switched off. The trainer jack is on the back of the transmitter. Turn the connector until its notches line up and it fits without having to be forced.



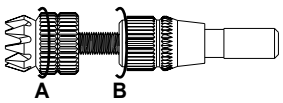
Turn on the instructor's transmitter. DO NOT turn on the student transmitter power.
Move the controls on the instructor's transmitter, and verify each control moves the proper direction.
Now verify that the student's trims and control travels match the instructor's by using the trainer switch (the momentary Trainer switch on the top left of the transmitter case) and switching back and forth while leaving the control sticks and trims alone, then moving the control sticks.

The instructor's transmitter has normal control over the model unless the trainer switch is pulled, passing control to the student's transmitter. If the student loses control, the instructor can quickly "take over" by releasing the trainer switch and controlling the model.

Other Adjustments

Adjustable length control sticks

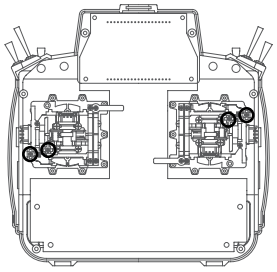
You may change the length of the control sticks to make your transmitter more comfortable to hold and operate.



To lengthen or shorten your transmitter sticks, first unlock the stick tip by holding locking piece B and turning stick tip A counterclockwise. Next, move the locking piece B up or down (to lengthen or shorten).
When the length feels comfortable, lock the position by turning locking piece B counterclockwise.

Stick lever tension adjustment

You may adjust the stick tension of your sticks to provide the "feel" that you like for flying. To adjust your springs, you'll have to remove the rear case of the transmitter. Using a screwdriver, remove the six screws that hold the transmitter rear cover into position, and put them in a safe place. Place some padding under the front of the transmitter and place it face-down on the pad. Gently ease off the transmitter rear cover and move it to the right side of the transmitter, carefully turning it as you would turn the page of a book. Now you'll see the view shown. Using a small cross-point screwdriver, rotate the adjusting screw for each stick for the desired spring tension. The tension increases when the adjusting screw is turned clockwise, and decreases for counterclockwise motion. When you are satisfied with the spring tensions, you may close the transmitter. Very carefully reinstall the rear cover. When the cover is properly in place, tighten the six screws.



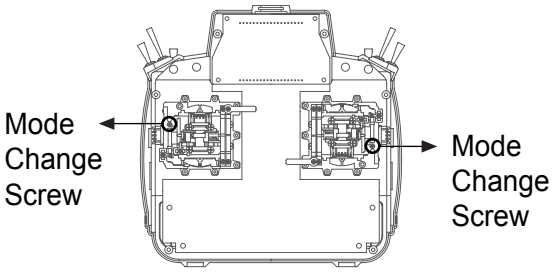
O Tension Adjust Screw

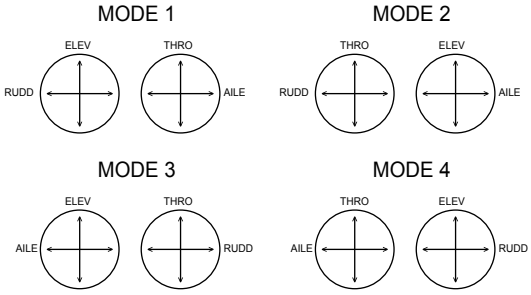
Ratchet change

Some pilots, especially those flying helicopters, prefer a "softer" or "smoother" ratchet action on the throttle stick. An alternate ratchet that provides a smoother ratcheting action is included as an accessory with your Eclipse 7 Pro system. To change the throttle ratchet, remove the back of the transmitter case as directed above in the "stick lever tension adjustment" section. Then, unscrew the ratchet retaining screw, remove the old ratchet, and replace with the new one. Tighten the retaining screw gently but firmly. Then, replace the transmitter rear cover.

Factory Service Repair Information

Changing the Eclipse 7 Pro transmitter's mode
If you wish to change current system's Mode from the factory installed (Mode 2 —►1, 3 or 4)
Please remove the Transmitter Battery first, after that remove all backside screws carefully, and then lift back case gently.
In order to change mode , please adjust Tension Screws and Mode Screws according to below figures."





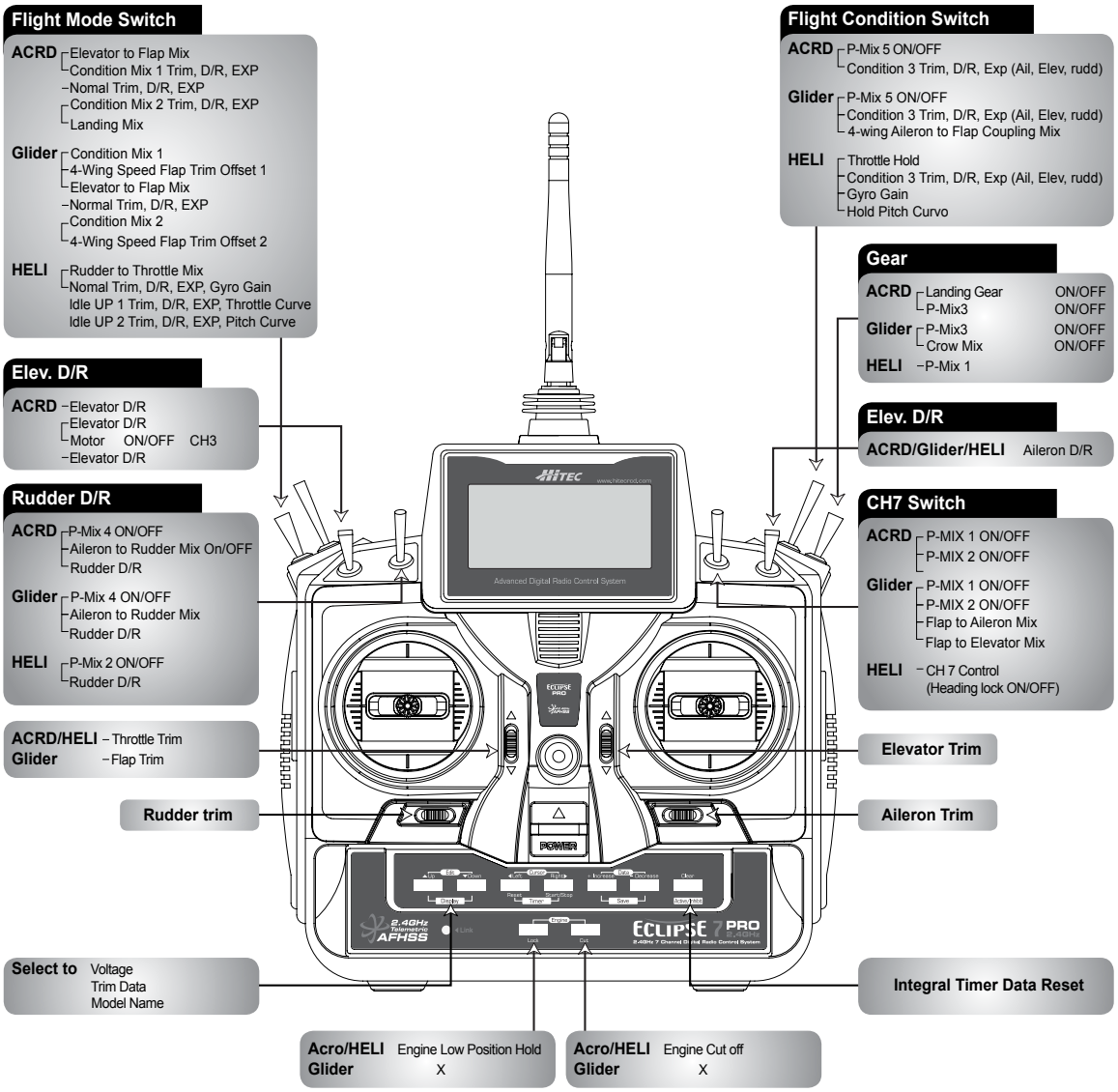
Factory Service Repair Information (for U.S.& Canada only)
Please read the warranty card supplied with your system, and return it so your system will be under warranty.
Before you decide to have your system repaired, if there is no apparent physical damage, read this instruction manual again and check to be sure that you are operating the system as it is supposed to be operated. If you are still having trouble, pack up your system in its original shipping materials and send it to the factory or the nearest authorized Hitec R/C Service Center.
Be sure to include a note in your package that describes the trouble in as much detail as possible, including:
Symptoms of the problem in as much detail as you can provide, including any unusual mounting conditions or equipment orientation
A list of items you are sending, and what you want to be repaired.
Your name, address, and telephone number
If you have any questions regarding this product, please consult with Hitec's service center. The address and telephone numbers of our service center is given below.
Telephone inquiries are accepted from 8:00 AM to 4:30 PM weekdays (closed on holidays).

Hitec-RCD, Inc.
12115 Paine St.
Poway, CA 92064
TEL: 1-858-748-6948
FAX: 1-858-748-1767

Web site: **http://www.hitecrcd.com**

Eclipse 7 Pro "Mode2" Control and Switch Assignments

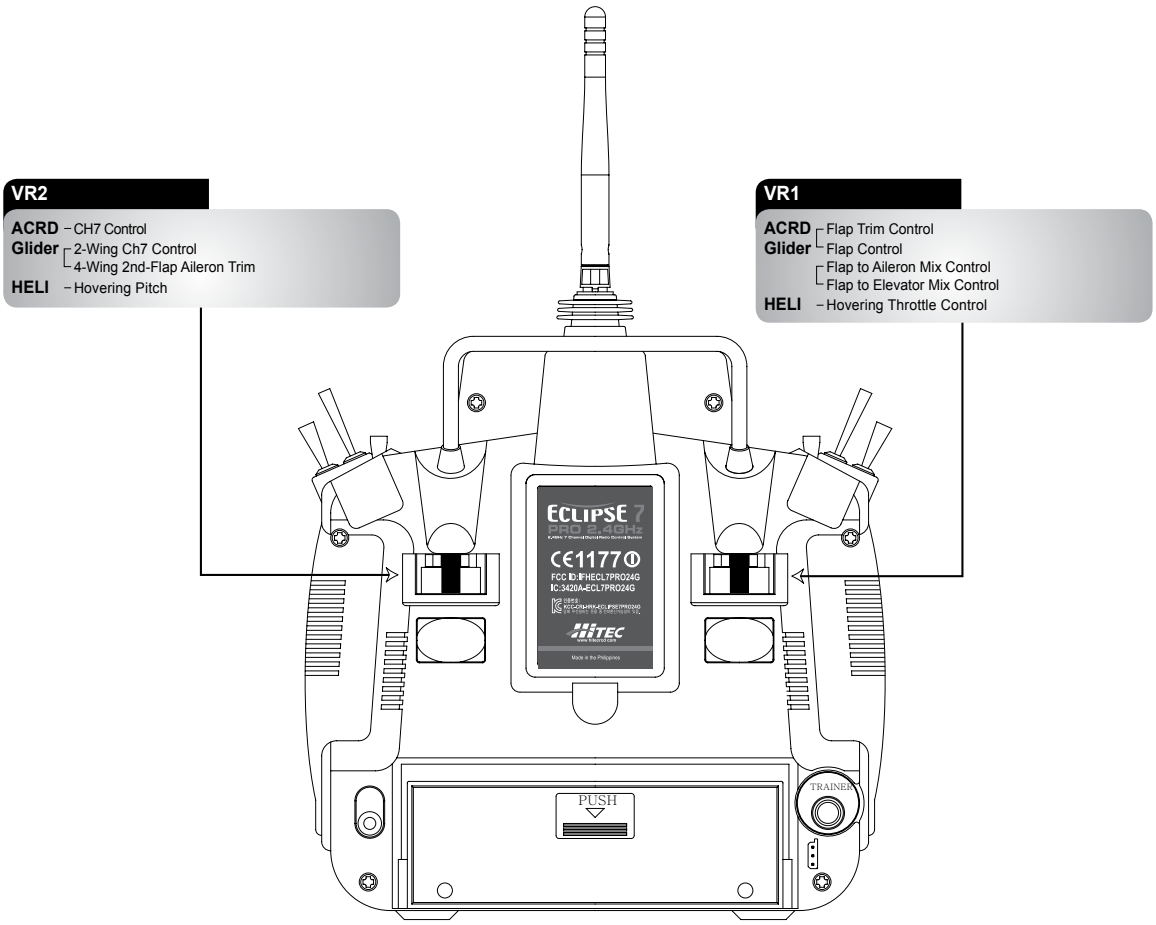
ECLIPSE 7 PRO MODE 2 TYPE
SWITCH CONFIGURATION LIST FRONT



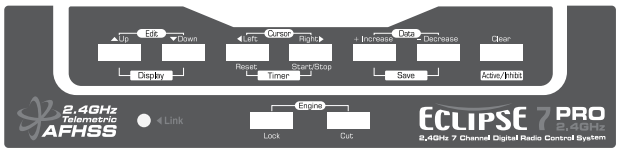
This figure shows the assignments for a Mode 2 system as supplied by the factory in North America.
Note that some of the functions will not operate until activated in the mixing menus.

Eclipse 7 Pro "Mode2" Control and Switch Assignments

ECLIPSE 7 PRO MODE 2 TYPE
SWITCH CONFIGURATION LIST REAR



Transmitter Input Buttons



The buttons are used for different things as follows:

1.The Edit/Display Up & Down buttons (1)allow you to move up and down within the model menus, and move within the regular display. select options within a particular function, and control the timer function.

2.The Data +Increase & -Decrease buttons (3)allow you to increase or decrease the numerical settings for a function.

3.The Clear Active/Inhibit button (4)resets numbers, and turns functions on and off.

4.The Engine Lock button (5)holds the throttle channel while other channels may respond to the transmitter.

5.The Engine Cut button (6)closes the throttle so that you can kill the engine without touching the trim lever. You'll learn how to use these buttons in the setup sections that follow

6.The link button Can be used for that link process between ECLIPSE 7 PRO to a Optima or Minima series receivers, entering the power down mode for range checks, and the Normal/Scan Mode set-up

Receiver - Servo Connection List

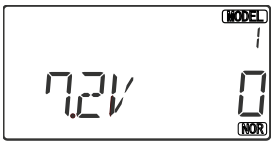
The table below shows the hookups that should be used for each of the model types. Note that some functions shown will not operate until they are activated in the transmitter.

Receiver channel	Aircraft (ACRO)	Glider (GLID)	Helicopter (HELI)
1	aileron or right aileron or right flaperon (FLPN) or right elevon (ELVN)	right aileron(or rudder for rudder-elevator models)	roll or swash servo 1 (120') or swash servo 1 (140') or swash servo 1 (180')
2	Elevator or V-tail right side (VTAL) or left elevon (ELVN) or left Elevator(AILV)	elevator or V-tail right side (VTAL)	Elevator or swash servo 2 (120') or swash servo 2 (140') or swash servo 2 (180')
3	throttle	spoiler, throttle (on-off controlled by Gear switch)	throttle
4	rudder or V-tail left side (VTAL)	rudder or V-tail left side (VTAL)	yaw
5	landing gear	left aileron	gyro sensitivity
6	flap (controlled by VR1) or left flaperon (FLPN) or left aileron	right flap (4WNG) or single flap (2WNG)	pitch or swash servo 3 (120') or swash servo 2 (140') or swash servo 2 (180')
7	optional, controlled by VR2 or right Elevator(AILV)	left flap (4WNG) or proportional channel, controlled by VR2 (2WNG)	optional, controlled by Gear switch

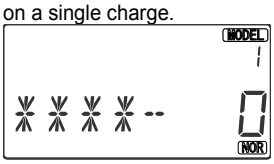
The servo response varies with the selected function. Standard options are shown first.

Telemetry system Information

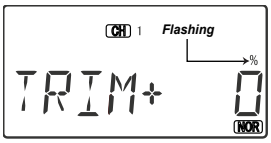
When you first turn on your transmitter, the first screen shown below appears on the LCD display. Before flying, or even starting the engine, BE SURE that the model number appearing in the higher right of the display matches the model that you are about to fly!
If you don't, reversed servos and incorrect trims will lead to an immediate crash.
You can scroll up and down through the startup screen by pressing one of the two Edit keys (the two keys on the far left). If you press timer or engine cut or lock keys, you go directly to those functions regardless of the display.



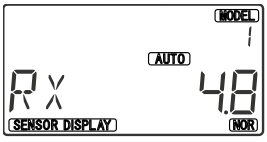
This screen appears at startup. The model memory number is shown by state in figures. Battery voltage is shown in the bottom left, and operating time is on the lower right. You can reset the operating time display by hitting the Clear button (the one on the farthest right).
Do this after each charge to keep track of your operating time on a single charge.



Pressing the Down button gives the Model Name display you can check the current Model name by this screen

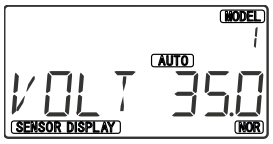


Pressing the Down button gives the Trim display (different numbers may appear depending on the model type). To see where the trim for a certain channel is, you have to move it! Be sure to move it back to where it was. Note that the CH3 trim only moves downward, so if you need more engine RPM, set up idle with the trim at -25% so you can increase it if needed.



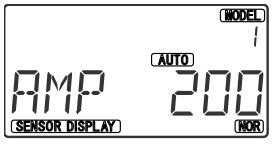
Pressing the Down button gives the Telemetry information display when you use Optima series receivers(Hitec Telemetry capable receivers)
you can check receiver voltage by in lower right of the display. Display can be shown 0v to 35v
You can check all Telemetry information by select to Auto or Normal. If you select Auto ,by pressing Cursor right ,display will showing all Telemetry information in every 2sec rotationally . If you select Normal , you have to select what you want to see the Telemetry information by pressing the Cursor .

VOLT



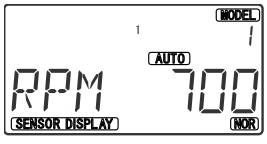
BLUE with HTS-VOLT which attached receiver or Electric powered aircraft's main battery. Voltage value appears in lower right in the display as you see left diagram . voltage range is 0v to 99.9v. (If you not use HTS-SS, Numeral 0 will appear in lower right of the display)

AMP

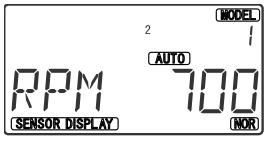


You can check Current of your battery using HTS-SS BLUE with HTS-C50/C200 which attached receiver or Electric powered aircraft's main battery. Current value appears in lower right in the display . As you see left diagram. Current range is 0 to 200.(If you not use HTS-SS, Numeral 0 will appear in lower right of the display)

RPM

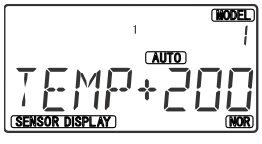


You can check the RPM of your aircraft using HTS-SS BLUE with HTS-RPM .
Hitec have two types of RPM sensors, one is O-RPM(Optical RPM Sensor ,Optimized Heli), the other is M-RPM(Magnetic RPM Sensor, all aircraft using props). RPM value appears in lower right in the display .As you see above diagram, you can see the small numeral 1, this information coming from HTS-SS BLUE RPM Sensor first slot. Real RPM value can be calculated by X100 displaied value. Ex) if you see 700 in the display, actual RPM is 70,000 .



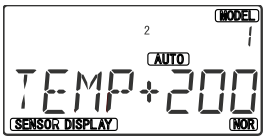
As you see to left diagram, this information coming from HTS-SS BLUE RPM sensor second slot.
You can see small numeral 2 in the display
This is showing second RPM sensor information.

TEMPERATURE

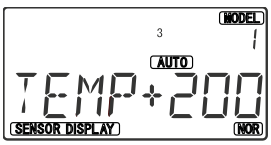


You can check the temperature of your aircraft's engine , muffler , ESC , batteries and etc. that using HTS-SS BLUE, HTS-SS with HTS-TEMP(You can use maximum 4 temperature sensors). Temperature value appears in lower right in the display .As you see left diagram, you can see the small numeral 1, this information coming from HTS-SS BLUE, HTS-SS Temperature sensor first slot. Temperature range is -40 to 200 .

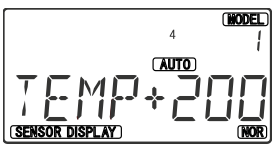
Telemetry system Information



As you see to left diagram, this information coming from HTS-SS BLUE ,HTS-SS temperature sensor second slot.
You can see small numeral 2 in the display This is showing second TEMP sensor information.

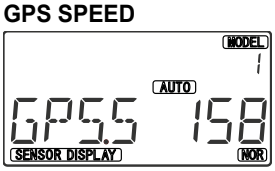


As you see to left diagram, this information coming from HTS-SS BLUE ,HTS-SS temperature sensor third slot.
You can see small numeral 3 in the display This is showing third TEMP sensor information.



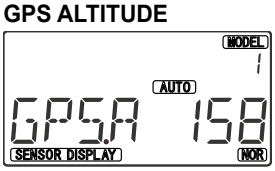
As you see to left diagram, this information coming from HTS-SS BLUE ,HTS-SS temperature sensor fourth slot.
You can see small numeral 4 in the display
This is showing fourth TEMP sensor information.

GPS SPEED



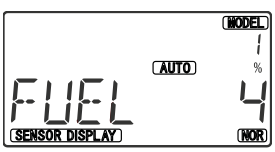
You can check the Speed of your aircraft using HTS-SS BLUE, HTS-SS with HTS-GPS . GPS Speed value appears in lower right in the display . GPS Speed range is 0 to 999 Km/h.

GPS ALTITUDE



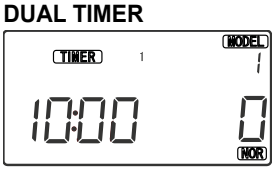
You can check the Altitude of your aircraft using HTS-SS BLUE, HTS-SS with HTS-GPS. GPS Altitude value appears in lower right in the display. GPS Altitude range is 0 to 999m

FUEL

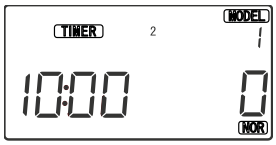


you can check the fuel amount of your model using HTS-SS with HTS-FUEL, fuel level can be checked by appears numeral 0 to 4.(this function only can use HTS-SS. HTS-SS BLUE cannot provide this function)

DUAL TIMER

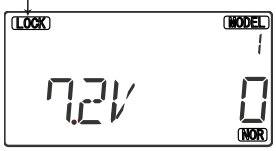


Pressing the two Timer button at the same time that gives the Timer display .you can start the timer pressing Start button . Stop and Reset also same function as like key name.
You can find out first TIMER of the DUAL TIMER that seeing small numeral 1 in the display . you may move to second TIMER pressing UP or Down button.



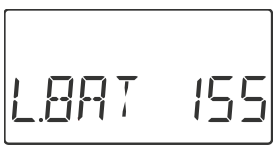
left diagram shows second TIMER of the DUAL TIMER

LOCK indicator



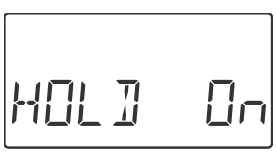
Pressing the Lock buttonlocks the throttle servo and holds it where you last commanded it. This may be used as a safety feature when you are carrying the model and transmitter to ensure you don't accidentally give throttle. It is shown by the LOCK indicator

Warning Displays



The LOW BATTERY warning is displayed when the transmitter battery voltage drops below 6.6 volts, and a beeper sounds. The operating time is still shown on the right. If you reset this each time you charge the system, you will have a good idea of how long you can safely operate.
WHEN THE BEEPER SOUNDS, LAND YOUR MODEL AS SOON AS POSSIBLE BEFORE LOSS OF CONTROL DUE TO A DEAD TRANSMITTER BATTERY

The IDLE ON warning is displayed when the transmitter is powered up with the Idle-up switch on in the helicopter mode only.
You can turn this off by moving the Flt. Mode switch back. For your safety, the transmitter will not broadcast until this alarm is ended.



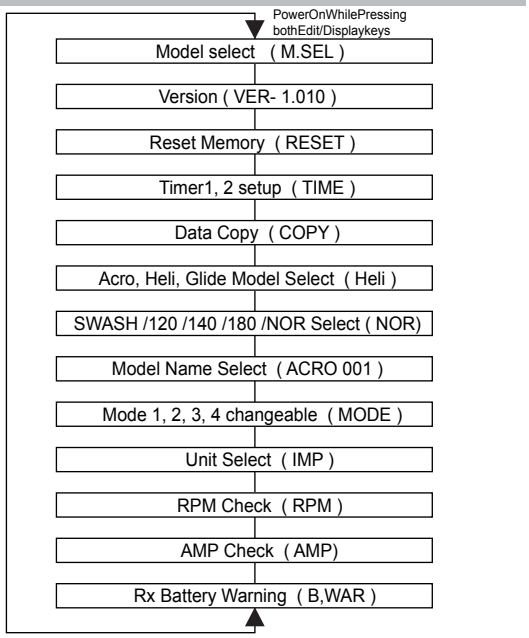
The HOLD ON warning is displayed when the transmitter is powered up with the Throttle hold switch on in the helicopter mode only when throttle hold values are programed. You can turn this off by moving the Flt. Cond. Switch back. For your safety, the transmitter will not broadcast until this alarm is ended.

Model Setup Functions

This section describes the model setup functions that are used to choose all of the operating features of a particular model memory. These functions are used to select the model memory, the model type (from airplanes, gliders, and helicopters), set the Timer, and other useful functions. These functions are used to set up a new model or a new model memory, to switch between memories, and to change transmit shift.

Map of Basic Menu Functions

M.SEL Model select
VER- 1.010
RESET Reset Memory
TIME Timer1, 2 setup
COPY Data Copy
ACRO Acrobatic model mode
HELI Helicopter model mode
GLID Glider model mode
2WING Two Servo Wing (GLID only)
4WING Four Servo Wing (GLID only)
NOR Normal swashplate (HELI only)
120` 120` swashplate (HELI only)
140` 140` swashplate (HELI only)
180` 180` swashplate (HELI only)
**** Model Name (four Letters + Up to three numbers)
MODE Mode 1, 2, 3, 4 changeable
IMP Unit Select
RPM RPM Check
AMP AMP Check
B,WAR Rx Battery Warning



Model Setup Functions

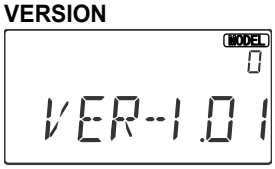
MODL – Model Select

. Your Eclipse 7 PRO system can store up to sixteen independent sets of model data in its memory. The Model Select (MODL) function allows you to choose from any of the seven sets of model data.
You can assign a four-character name to each model memory. The model names are not visible when you wish to switch memories. There are several ways to keep track of which model is in each memory. You may attach a small piece of white tape to the transmitter and write the model's name along with the model setup number (and its channel number), or you may use a notebook, or label the model with its memory number prominently near its on-off switch inside the fuselage.

Choosing a model memory to load

1. Start with the transmitter switched off.
2. Turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). This gets you into the model select (M.SEL) menu.
3. Select the desired model number by pressing the Cursor Right or Left button. At this time, the selected model number will blink on and off.
4. Switch power off.
5. Switch power back on. The previously-selected model number is indicated by the arrow above the model numbers in the display.

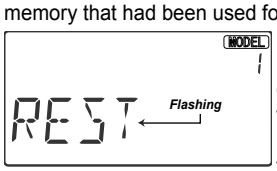
VERSION



Left diagram shows current software version of Eclipse 7 Pro. The software can be upgraded by using HPP-22 device.

RESET –Data Reset

The Reset function is used to clear out an existing set of model data within a single model memory, the current one. This function resets all data to the factory default values, and may be used to get a "fresh start" so that you may begin with a clear memory before you input new model settings into a memory that had been used for another model.

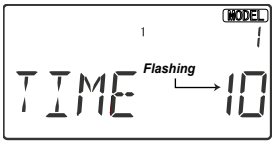


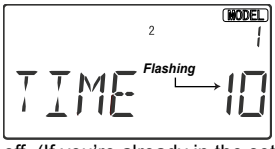
Resetting the memory
1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys(the two keys on the far left).
The model select (M.SEL) menu will be displayed.
2. Press the Up or Down arrow key until you get into the Reset (REST) menu.
This display has the word "REST" flashing on and off.
(If you're already in the setup menus, you can just press the Up or Down arrow key to get here.)
3. IF YOU ARE SURE YOU WANT TO RESET and clear out the current model memory, press both the +Increase and -Decrease Data keys at the same time. The transmitter

Model Setup Functions

will beep twice to indicate a successful reset.
4. Press the Up or Down arrow keys to get to another setup menu, or switch power off.
5. Switch power back on. You may now set up the details of your model in the Edit mode.
CAUTION: WHEN YOU COMMAND RESET, YOU'LL ERASETHE MEMORY YOU'RE IN AND LOSE ANY PROGRAMMINGYOU HAVE ENTERED. DON'T DO THIS UNLESS YOU ARE
POSITIVE YOU WANT TO FLUSH OUT THAT MEMORY ANDSTART FROM SCRATCH WITH THE FACTORY DEFAULTSETTINGS.

TIME – Timer Function Setup

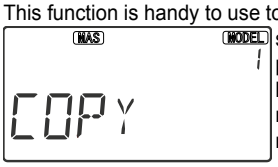




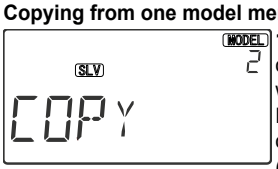
1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys(the two keys on the far left). The model select (M.SEL) menu will be displayed
2. Press the Up or Down arrow key until you get into the Reset (TIME) menu. The word "TIME" will flashing on and off. (If you're already in the set-up menus, you can just press the Up or Down arrow key to get here.)
3. To change the number of minutes shown, press the +Increase and -Decrease Data keys until you see the amount you desire. You may select from 0 to 60 minutes.
4.Pressing the cursor will bring you to get second timer .
5. Press the Up or Down arrow keys to get to another setup menu, or switch power off.
6. Switch power back on. You may now set up the details of your model in the Edit mode.

COPY-Copy Model

The COPY function is used to copy the model data stored in the current model memory into another model memory. This function is handy to use to start a new model that's similar to one you have already programmed, and is also handy for copying the current model data into another model memory as a backup.



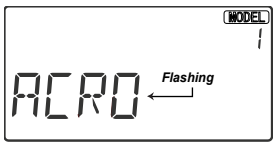
Copying from one model memory to another

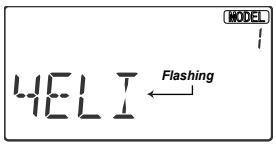


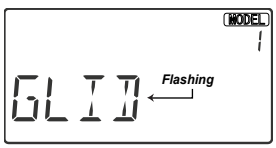
1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The model select (M.SEL) menu will be displayed.
2. Press the Up arrow key. This gets you into the model copy (COPY) menu. (If you're already in the setup menus, you can just press the UP or Down arrow key to get here.)
3. The source model memory (the memory that will be duplicated) is the current one, indicated by the numeral (located higher right)
. To select your destination model number, press the Left or Right Cursor keys. The selected destination memory number is shown by the flashing numeral .
4. Press the +Increase and -Decrease Data keys at the same time. The transmitter beeps twice rapidly, indicating the copy has been completed. THIS WILL ERASE ALL THE OLD SETTINGS IN THE SLAVE MODEL MEMORY, SO BE SURE YOU'RE IN THE CORRECT MODEL BEFORE YOU COPY MODEL!
5. Switch power off.
6. Switch power back on. If you wish to go to the newly saved memory, repeat step 1.

ACRO, HELI, GLID - Model Type Select

This function is used to select the type of model to be programmed in the current model memory. You may select from aircraft (ACRO), gliders (GLID), and helicopters (HELI). If you select glider or helicopter types, you will need to set the wing type (for a glider) or the swash type (for a helicopter). These settings are covered below.







Selecting the Model Type
1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The model select (M.SEL) menu will be displayed.
2. Press the Down arrow key. This gets you into the type select menu. The current model type will be flashing on and off. (If you're already in the setup menus, you can just press the Up or Down arrow key to get here.)
3. If the model type you want is displayed, you're done. [If you wish to change the wing type or swash type in the GLID and HELI model settings, see the sections below.]
4. If you wish to change the model type from that displayed, press on the Left or Right Cursor buttons until the model type you want, either ACRO,GLID, or HELI, appears.
5. To select your desired model type, press both the +Increase and -Decrease Data keys simultaneously. Two beeps tell you that the new model type is now registered. THIS WILL ERASE ALL THE OLD SETTINGS IN THE MODEL MEMORY, SO BE SURE YOU'RE IN THE CORRECT MODEL MEMORY BEFORE YOU CHANGE MODEL TYPE!
6. Press the Up or Down arrow keys to get to another setup menu, or switch power off.
7. Switch power back on. You may now set up the details of your model in the Edit mode.

Model Setup Functions

Wing & Swashplate Type Selection

If you are using the glider (GLID) or helicopter (HELI) setting menus, you must tell the Eclipse 7Pro system what type of model you are using. In the case of a glider, you have to specify whether it has two (2WNG) or four (4WNG) wing servos (most slope gliders use two wing servos, and competition gliders use four wing servos, two each for outboard and inboard ailerons and flaps). Helicopters may have one servo each for blade angle, roll and pitch(NOR) or they may use three servos in concert on the swash to provide these functions (120', 140`,180'). Note that these menus will not be available unless you have selected the GLID or HELI model types.

Selecting the Wing or Swashplate Type

1. Select the GLID or HELI model type in the Model Type Select menus (see above).

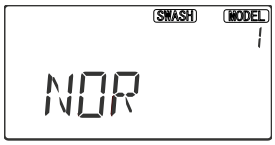
2. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The model select (M.SEL) menu will be displayed.

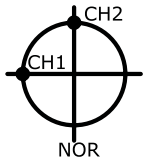
3. Press the Up or Down arrow keys: In the GLID mode, you'll enter the wing setup menu, and WING will be highlighted: If you're in HELI mode, SWASH will be highlighted and you can select from three swashplate types: NOR, 120',140` and 180'

If you're happy with the wing or swash type that is displayed, go on to the next step. If you wish to change the wing or swashplate type from that displayed, press on the Left or Right Cursor buttons until the wing/swash type you want appears. CAUTION: if you change types, you may lose settings in the menus.

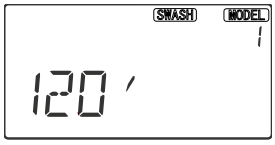
4. Press the Up or Down arrow keys to get to another setup menu, or switch power off.

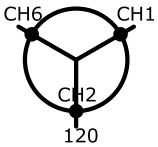
5. Switch power back on. You may now set up the details of your model in the Edit mode.



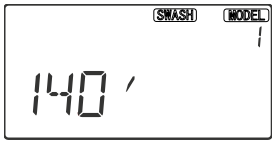


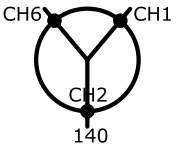
NOR
(CH6=PITCH)



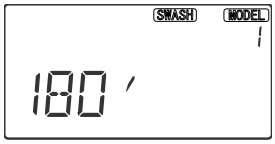


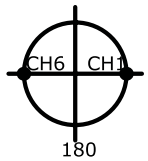
120





140



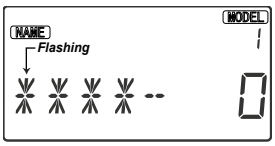


180
(CH2=ELEV)

Model Setup Functions

Model Name

The Model Name function is used to create an alphanumeric name which is stored in the model memory along with the rest of the model settings. You will find it useful to help keep track of multiple models. The model name can be four alphabetic characters, along with up to three numbers following.
The letters may be used to abbreviate the model's name, and the numbers may be used for the memory number, or you may wish to store that model's channel number so you can remember easier.



Inputting a Model Name
1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The model select (M.SEL) menu will be displayed, with "stars" to represent letters to be chosen.
2. Press the Up or Down arrow key until you get into the model name menu. You'll see the display as shown to the right.

The first character of the name will be flashing on and off. (If you're already in the setup menus, you can just press the Up or Down arrow key to get here.)
3. To change the first character, press the +Increase and -Decrease Data keys until you see the character you desire. You may select from the upper case letters A ~ Z, , +, -, /, and the numbers 0 ~ 9.
4. Press the Right Cursor key to move to the next character.
5. Press the +Increase and -Decrease Data keys until you see the character you desire.
6. Repeat the previous two steps to input the third and fourth characters of the display.
7. Press the Right Cursor key to move to the number displays on the right.
8. Press the +Increase

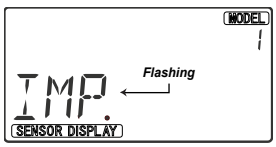
and -Decrease Data keys until you get to a number that you like. This can be any number from 0 to 199.
9. Press the Up or Down arrow keys to get to another setup menu, or switch power off.
10. Switch power back on. You may now set up the details of your model in the Edit mode.

Mode – Mode Select

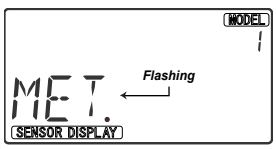
1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The Mode select (MODE) menu will be displayed . You can change the Mode 2 to Mode 1, Mode 2 to Mode 3 or 4.
but If you want to change mechanically , please send this Eclipse 7 Pro to service center. This change procedure only can change the software of Eclipse 7 Pro.

2.Press the Up or Down arrow keys to get to another setup menu, or switch power off.
3. Switch power back on. You may now set up the details of your model in the Edit mode.

MET(Metric), IMP(Imperial) – Unit Select

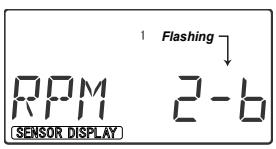


1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The Imperial select (IMP) menu will be displayed .

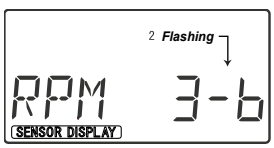


2. Press the Right or Left Cursor key to select MET or IMP .
* Metric = °C m Km
* Imperial = °F ft mile
3. Press the Up or Down arrow keys to get to another setup menu, or switch power off.
4. Switch power back on. You may now set up the details of your model in the Edit mode.

RPM - RPM Check



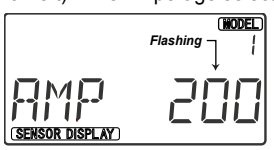
1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The RPM select (RPM) menu will be displayed . you can check aircraft RPM using RPM sensor (You can use maximum 2 RPM sensors).



2. To change the propeller(prop), press the +Increase and -Decrease Data keys until you see the type of prop you desire. There are 3 kinds of props- 2-b (blades) ,3-b , 4-b.
3. Press the Right Cursor key to select RPM1 or RPM2 .
4. Press the Up or Down arrow keys to get to another setup menu, or switch power off.
5. Switch power back on. You may now set up the details of your model in the Edit mode

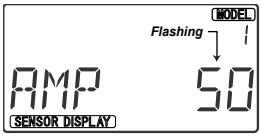
AMP- Amperage Check

1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The Amperage select (AMP) menu will be displayed



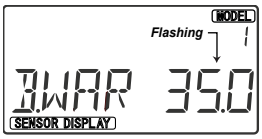
2. Press the Right Cursor key to select 50 or 200
This numerals means AMP. 50 is 50AMP.
3. Press the Up or Down arrow keys to get to another setup menu, or switch power off.

Model Setup Functions



4. Switch power back on. You may now set up the details of your model in the Edit mode.

B,WAR - Rx Battery Warning



1. With the transmitter switched off, turn on your transmitter while pressing both of the two Edit keys (the two keys on the far left). The B.WAR select (B.WAR) menu will be displayed . this is very useful for knowing the battery recharging timing.

2.To change the Battery warning point, press the +Increase and
-Decrease Data keys until you see the voltage value you desire.
Set up range is from 4v to 35v.

AIRCRAFT (ACRO) MENU FUNCTIONS

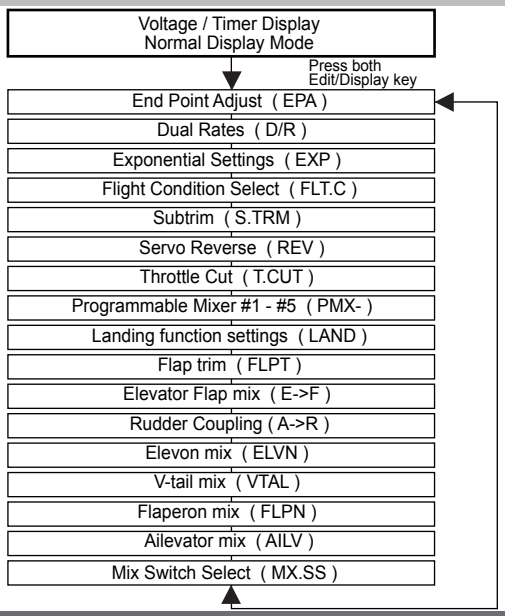
This section describes the menu functions for fixed-wing aircraft, provides a detailed setup example, and then describes the functions individually. Functions relating specifically to gliders and helicopters may be found in the following sections.

ACRO Functions Map

Simple Aerobatic Airplane Transmitter Setup

EPA End Point Adjust (servo travels)
D/R Dual Rates
EXP Exponential Settings
FLT.C Flight Condition Select
S.TRM Subtrim
REV Servo Reverse
T.CUT Throttle Cut (engine shut off)
PMX1-5 Programmable Mixer #1 - #5 (five total)
LAND Landing function settings
FLPT Flap trim
E->F Elevator Flap mixing
A->R Rudder Coupling
ELVN Elevon mixing (tailless models)
VTAL V-tail mixing
FLPN Flaperon (combined flaps & ailerons)
AILV Ailevator (2Elevon Aileron mixing)
MX.SS Mix Switch Select

Aircraft Trimming Chart



Simple Transmitter Setup – Aerobatic Airplane (ACRO)

The following pages will take you step-by-step through the setup process for a sport or aerobatic airplane in the ACRO menu. Going through this complete section will help you learn how to use your system quickly and easily. If you need to set up a helicopter or glider, please refer to the quick setup instructions in the helicopter and glider sections.

AIRCRAFT SETUP INSTRUCTIONS (AEROBATIC PLANE)

The aircraft setup procedure presented below uses an aerobatic model as an example and assumes that there are two aileron servos, one in each wing. You can use a similar procedure to set up your own model; your setting's numbers and percentages will probably be different.

If your model only has one aileron servo, skip the instructions referring to flaperon.

1. Be sure that all of your servos are plugged into the proper receiver channels:

CH1 – Right aileron **CH4** – Rudder **CH7** – Optional
CH2 – Elevator (Left Elevator) (Right Elevator)
CH3 – Throttle **CH5** – Gear **CH6** – Left aileron

2. We recommend that you do this programming exercise with the servos installed in the model and connected to the respective control surfaces. This will enable you to immediately see the effect of each programming step.

3. Turn on your transmitter while holding down the two Edit keys (the two keys on the far left). This gets you into the model select (M.SEL) menu. Press the Cursor Right button to move to a new model memory. The selected model memory you select is indicated by the little flashing arrow pointing down. Memory #2 is shown here.

4. Press the Up arrow until the word ACRO appears, flashing on and off. If it does, you're ready to proceed on to the next step. If not, press the Left or Right Cursor keys until it appears. You must press both Data keys to "Save" the setting, after which the radio will beep twice. This is how you select the type of model you wish to use, either ACRO, HELI, or GLID.

5. WARNING: selecting a different model type will erase the settings in the model memory. BE SURE you're in the correct model memory before selecting a new model type, or you might accidentally erase a model you're using. (The other memories will not be affected.)

6. Press the Down arrow once. This gets you into the model name mode (note the words "MODEL" and "NAME" in the upper left of the display).

7. Now you can select four letters to identify your model. With the first of the four letters flashing, press the Data +Increase or -Decrease key to change the letter that is displayed. Stop when the first letter is the one you want.

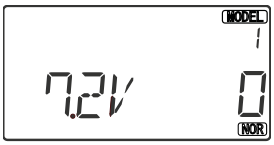
8. Press the Right Cursor key once to get to the second letter. Repeat the previous step to choose the second letter.

9. Repeat two more times to fill out the remaining two letters. If you like, you can hit the right cursor button one more time and select a number between 0 and 999 for

Simple Transmitter Setup – Aerobatic Airplane (ACRO)

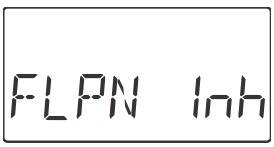
further identification. It can be handy to use this to store the plane's channel number.

1O. Press the Up arrow twice. This gets you into the Timer menu (TIME). If you want, you can use the Data +Increase or -Decrease keys to select the amount of time you want the stopwatch to count down.

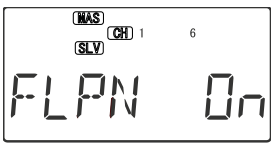


11. This completes the initial part of the setup. Now, we'll go ahead and customize the ACRO settings for your model. Switch transmitter power OFF.

12. Now turn power ON.
The transmitter should display the model number and battery voltage as shown. The number on the right is the elapsed time, which will vary depending on how long the transmitter has been left on.



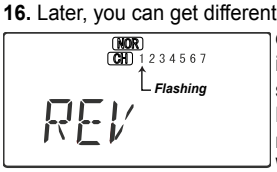
13. Press both Edit keys to get to the regular programming menu. The end-point adjust menu.(EPA) should appear. Press the Down arrow three times to get to the flaperon menu (FLPN). The display should show that it is inhibited (INH).



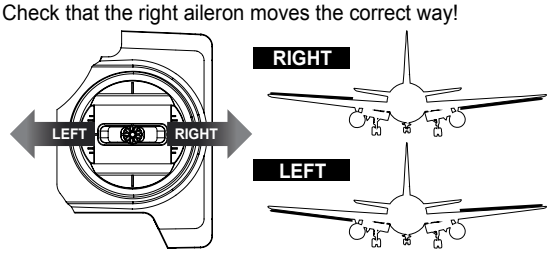
14. Turn on the Flaperon function by pressing the Active/Inhibit button (Clear) until "On" appears in the display.

15. Be sure that you connect the right aileron servo to receiver CH1 and the left aileron servo to receiver CH6.

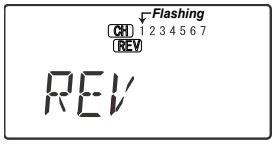
16. Later, you can get differential by adjusting the up and down motion of the two servos in the FLPN menu. Now we'll set the servo throw directions. Now check that each servo moves the proper direction. We'll use the Reversing function if they don't. Go to the Reversing menu (REV) by hitting the Downarrow.



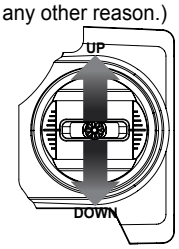
17. We'll start by setting the right aileron servo direction. This is channel 1, and the 1 should be flashing for this command. When you move the right-hand stick to the right, the aileron on the right wing should move upwards, and the aileron on the left should move downward. Check that the right aileron moves the correct way!

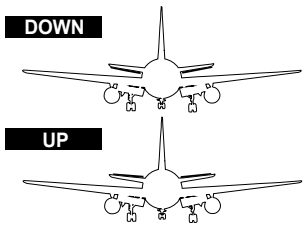


18. If it does not, activate the opposite direction for the CH1 aileron servo by pressing the Active/Inhibit (Clear) key. Each press switches from Reversed to Normal and from Normal to Reverse. In the display, NOR for Normal is chosen when the little triangle is above the channel number, and REV for Reverse is chosen when flashing numeral the channel number. Move the right-hand stick again and verify the right aileron moves in the right directions. The display shows Channel 1 reversed.



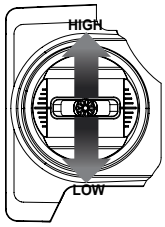
19. Next we'll set the direction of the elevator servo, channel 2. When you move the right-hand stick towards the BOTTOM of the transmitter, the elevator should move up. Check to make sure it moves in the proper direction! (More planes are crashed due to reversed controls than for any other reason.)





20. If the elevator control moves in the wrong direction, move over to Channel 2 by pressing the Cursor Right key. Now the '2' should be flashing in the display. Activate the opposite direction for the elevator servo by pressing the Active/Inhibit (Clear) key. Move the right-hand stick up-and-down again and verify the elevator moves the right direction.

21. Now we'll set the direction of the throttle servo. When you move the left-hand stick towards the BOTTOM of the transmitter, the throttle should close, meaning that the hole in the carburetor should close. Check to make sure that the throttle lever on the engine moves in the proper direction!



HIGH Throttle :
carburetor fully opened
LOW Throttle :
carburetor at idle position (not fully closed)

22. If the throttle servo moves in the wrong direction, move over to Channel 3 by pressing the Cursor Right key. Now the 3 should be flashing in the display. Activate the opposite direction for the throttle servo by pressing the Active/Inhibit (Clear) key. Verify the throttle stick makes the servo move the carburetor opening in the correct direction.

23. Now we'll set the direction of the rudder servo. When you move the left-hand stick towards the CENTER of the transmitter (to the right), the trailing edge or rear rudder should move to the right. Check to make sure!

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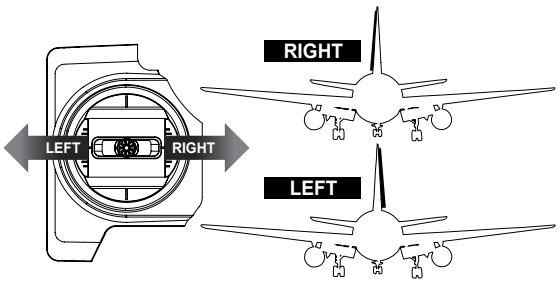
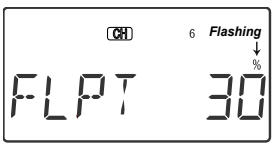
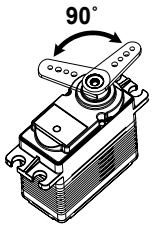


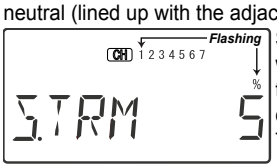
If the rudder moves in the wrong direction, move over to Channel 4 by pressing the Cursor Right key. Now the '4' should be flashing in the display. Activate the opposite direction for the rudder servo by pressing the Active/ Inhibit (Clear) key. Move the left-hand stick left-and right again and verify the rudder moves the right direction.
If your model has retracts, set the correct response direction when commanded by the Gear switch, using the same procedure. If you're using a second aileron servo, you'll now set the left aileron servo direction (otherwise skip this and the next step). This is channel 6, and the '6' should be flashing for this command. When you move the right-hand stick to the right, the aileron on the left wing should move downwards. Check that the left aileron moves the correct way! If it does not, activate the opposite direction for the left aileron servo using the above procedures. Move the right-hand stick again and verify the left aileron moves in the proper directions.



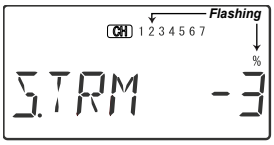
Press the Up or Down arrow keys to the Flap Trim function (FLPT), and input a percentage of FLPT value using the Data -Decrease key(default is 30).
This temporarily disables the flap knob (VR1) so that you can set aileron neutrals without regard to the flap knob position. Later we'll turn it back on.
24. Before we set the servo neutrals, we need to be sure that all the trims are centered. Press both Edit keys to get to the main menu, where voltage and time are displayed. Press the Up arrow until the word TRIM appears.
By moving each of the four trim levers around, you can see their positions, and move them back to zero for the next step.
25. Once you have centered all the trims, unscrew the screws holding the servo arms onto the elevator, aileron, and rudder (we'll set the throttle travel later). You will want to place the servo arms on the output shaft so they are near neutral - that is, about 90 to the servo case sides or, if the servo is mounted sideways, 90 to the pushrod (sideways mounting is not recommended) This way you won't run out of subtrim authority. Remove all the arms that are in the way or interfere with your pushrods.



Adjust the clevises on each servo pushrod to get the position of each control to be as close as you can to neutral (lined up with the adjacent portion of wing or tail).



Setting Subtrims. Now we'll adjust all the subtrims to electronically set the desired neutral locations. To do so, go back to the programming menu by pressing both Edit keys, then press the Up or Down arrow key repeatedly until STRM appears.
26. Set the right aileron subtrim first. If the channel 1 is not flashing, press one of the Cursor
Left or Right buttons until it is (see figure). Then, adjust the subtrim amount by adding or subtracting with the Data +Increase or -Decrease keys. When you reach a place where the right aileron matches up with the fixed portion of the wing, you are done. If you can't get both to match up, then set the subtrim back to zero and mechanically adjust the clevis to get as close as you can, then readjust the subtrim if necessary.
27. Note 1: you should NOT use subtrims instead of mechanically adjusting the pushrods to be close. This is because you can reduce the travel of the servo, especially if you have to set the subtrim near 100%. As we stated before, get the pushrods close mechanically first, then use the subtrim adjustment to get it just right.
28. Note 2: if you mess up the number you've entered or find the percentage the wrong direction, you can get back to zero quickly by pressing the Active/Inhibit (Clear) button.



29. Repeat the subtrim adjustment with the elevator servo (CH2). First set the pushrod length mechanically to get as close to neutral as possible, then set the subtrim to get the elevator lined up to be parallel with the stabilizer portion. For full-flying surfaces, use an incidence meter or another method to get the incidence angle recommended by the kit manufacturer or model designer.
30. For the throttle, we recommend not setting a subtrim at this time. You will use the trim tab on the transmitter for setting your idle RPM. To shut off the motor you will use the Engine Cut function. In this way, you don't lose your carefully-set idle position.
31. Most people set up their engines to idle with the throttle trim near center, so that there is room for changes due to humidity and other factors.
32. The Eclipse 7 Pro provides a special throttle trim function which allows the throttle trim lever to work at low throttle levels, but disables it at high throttle.
33. Repeat the subtrim adjustment with the rudder (CH4), gear (CH5), 2nd aileron channel (CH6), and the CH7 function if used. As before, first set them mechanically, then adjust the electronic settings. Be sure you have selected the appropriate channel number each time.

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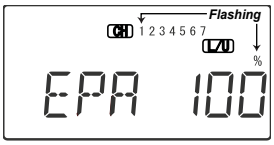
34. Servo EPA (End Point Adjustment). Now we'll go through and set the servo travels for each channel. This is both helpful and important, because you can set the throw of each servo, in each direction, so that there is no binding. Binding is important because it causes very high current drain, and can lead to a battery dying prematurely. Another use for the EPA function is to adjust the model's total throws to match the recommended control motions specified on the plans or instructions by the model's designer.

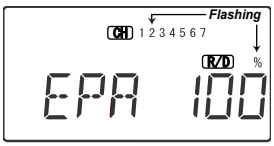


35. To set travels, get to the EPA menu by pressing one of the Up or Down Edit buttons repeatedly until EPA appears. In sequence, we'll set right aileron right travel, right aileron left travel, up and down elevator travels, right and left rudder travels, open and closed throttle positions, and left aileron travels.

36. When you reach the EPA menu, you'll see the screen as shown. If you select The channel 1 (numeral 1 will be flashing) right aileron, the percent symbol will be flashing, and you'll notice that you can change the L/U indicator to R/D (or vice versa) by moving the aileron (right) stick. You are about to see that this is how you set the travel directions independently for each stick motion.

37. To set the RIGHT aileron motion, move the aileron stick all the way to the right and hold it. The letters "R/D" should appear next to the flashing percent sign, meaning you are setting either Right or Down travel (with ailerons it's right or left only, but the display is set up to use the same indicators for elevator and throttle, thus the dual meanings for the letters). Now if your servo is stalled or binding, you'll hear a buzzing sound. Hit the minus -Decrease Data key until the buzzing stops. If the servo is not buzzing, leave the setting at 100%. If you can, choose a location for the pushrod on the servo arm so that the throw is adjusted in the 90-100% range.

38. To set the right aileron's LEFT motion, move the aileron stick all the way to the left and hold it. The letters "L/U" should appear next to the flashing percent sign . Again listen and hit the -Decrease Data key until the buzzing stops. If the servo is not buzzing, leave the setting at 100%. (Remember, you're only setting the right aileron travel. You set the other aileron's travel in channel 6's EPA.)



39. To set the UP elevator motion, press on the Right Cursor key until the channel 2 will flashing. Now move the right stick all the way to the transmitter bottom and hold it. The letters "L/U" should appear next to the flashing percent sign. Again listen for a buzzing sound to indicate the servo is stalling, and hit the -Decrease Data key until the buzzing stops. If the servo is not buzzing, leave the setting at 100%.

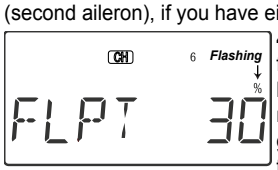
40. Repeat the previous step for DOWN elevator by moving the stick all the way to the top of the transmitter, full "down" elevator. Check for binding and adjust the percentage as before.

41. To set the throttle position at IDLE, first return to the regular display and set the throttle trim to -25%. Then go back to the EPA menu and press the Right Cursor key until the channel number 3 will be flashing. Now move the throttle stick all the way to the transmitter bottom and hold it. The letters "L/U" should appear next to the flashing percent sign. Listen for a buzzing sound to indicate servo stalling, and hit the -Decrease Data key until the buzzing stops. Change the setting to nearly but not completely - close the throttle (engine idle). Later you may increase or decrease this number so you can't accidentally shut off the engine using the trim tab.

42. To set the FULL throttle position, move the throttle stick all the way to the transmitter top and hold it. The letters "R/D" should appear next to the flashing percent sign. [Notice that the Eclipse 7 Pro transmitter thinks of throttle stick positions to the reverse of the way it seems, in that with the throttle stick fully forwards - "up" towards the transmitter top, is the Down position.] Listen for a buzzing sound to indicate the servo is stalling, and hit the -Decrease Data key until the buzzing stops. If the servo is not buzzing, leave the setting at 100% or change your linkage as necessary to fully open the throttle.

43. To set the RIGHT rudder motion, press the Right Cursor key until the channel 4 will be flashing. Now move the left stick all the way to the transmitter right and hold it. The letters "R/D" should appear next to the flashing percent sign. Listen for a buzzing sound to indicate the rudder servo is stalling, and hit the Data -Decrease key until the buzzing stops. If the servo is not buzzing, leave the setting at 100%. You may wish to increase or decrease this number depending on how strongly the model reacts when the rudder is deflected. Now move the stick to the left side, and repeat the setting procedure for left rudder.

44. In the same manner as described above, be sure to set EPA values for channels 5 (landing gear) and 6 (second aileron), if you have either.



45. If you wish to have the flaps operate with the CH6 knob, go back to the FLPT menu and input a number greater than zero. Adjust the number to get the desired amount of flap travel as you turn the knob.

46. If you wish to have differential aileron travel, this can be done in the flaperon menu. First, we'll reduce the down travel on the right aileron. Press the Right Cursor key until the channel numeral 1 and MAS will flashing Hold the aileron stick to the left and press the -Decrease Data key until the number is smaller. 50-75% is a good starting point. Watch to be sure you're setting the down travel on the right aileron.

47. Next, we'll reduce the down travel on the left aileron. Press the Right Cursor key until the channel numeral 1 and SLV will flashing

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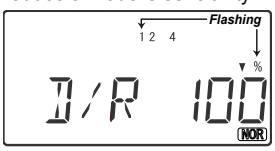
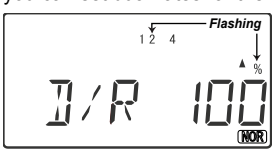
This time, hold the aileron stick to the right and press the - Decrease
Data key until the number is the same as you chose for the other side.

48. Aileron Dual Rate setting. You can use the dual rate function to reduce the aileron and elevator travel in flight by flipping switches. Dual rates are typically used to reduce a model's sensitivity.



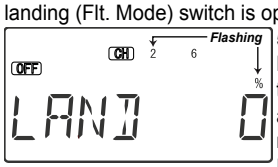
49. Get to the D/R menu by pressing one of the Up Down Edit buttons repeatedly until D/R appears, as shown.

50. The aileron dual rate setting automatically affects both ailerons if the flaperon function is active. To set the aileron dual rate, move by pressing the Right Cursor key until the Numeral 1 will be flashing (the arrow depends on the position of the Ail D/R switch above the right stick.) Now move the aileron D/R switch up or down, noticing the position of the arrow. You can set two dual rates, one for each switch position. If you set them, be sure to note which switch position turns them on.
51. By pressing the Data +Increase or -Decrease keys, you can add or subtract from the numerical value displayed. Note that you may pick a value anywhere from 0% to 125% (125% is larger than the normal amount, so if you do this be careful not to exceed servo travel limits and cause stalling or excess current drain). If you quickly want to get back to the default 100%, press the Clear key. We suggest using an initial value of 75%.
52. NOTE: If you set any of the dual rates to 0%, you will have ZERO CONTROL AUTHORITY and LOSE CONTROL OF YOUR AIRCRAFT when the switch is in that position. DON'T DO IT!
53. Also note that the flight mode indicator NOR signal will appear in the display
This tells you that you have set the dual rates for the NOR mode, and if you activate other flight modes, you can set dual rates for them as well.

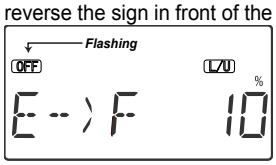


54. Elevator dual rate setting: press the Right Cursor key one time to get the numeral 2 to flash. Now set the elevator dual rates in the same way you set the ailerons in the previous step.

55. Rudder dual rate setting: press the Right Cursor key one time to get the numeral 4 to flash. Now set the rudder dual rates in the same way you set the ailerons and elevator in the previous steps.
56. Note that you can have different dual rate values in each of the different flight conditions. When you activate flight conditions, be sure to set dual rates for each one if you desire.
57. Landing setup. You can get an airbrake effect by flipping a switch to raise or lower both flaperons and add elevator to keep it trimmed. This high-drag configuration makes the landing approach steeper to help make safe landings in small fields. This is an on-off function, not proportional.
58. With landing mode on, it is possible to lose some aileron effectiveness. Be sure to test the landing settings at altitude before trying it on a landing approach. You should spend some time fine-adjusting the elevator travel so that there is minimal trim change when the landing (Flt. Mode) switch is operated.



59. Press one of the Up Down Edit buttons until the LAND window appears, as shown. The landing mode is OFF unless the Flt. Mode switch is fully forward.
60. The numeral 2 should be flashing. Now press the Data +Increase key to change the percentage shown. You may input the amount of offset for the elevator at this time. This should be set from -7% to -10%. Don't use too much or it could crash your model.
61. Press the Cursor Right key one more time, and you may now input the CH6 setting. The rates may vary considerably for different models, but for initial settings you might try the flap rate around 50-55%. You may want flaps to droop or rise, depending on the model type.
62. E->F Mixing: you may couple elevator to flaps for tighter corners in the elevator-to-flap mixer. Get to the E->F menu, then activate it by pressing the Clear key. Press the Right Cursor key to get the percent symbol to flash. Now you may input the percentage of mixing with the Data +Increase key. Start out with 10-20% and increase it until the corners in your loops are square enough. If the flaps don't drop when you pull up elevator, reverse the sign in front of the mix percentage (change the + to a - or vice versa).



63. Be sure to input a mixing percentage for each side of the elevator stick motion.

64. Programmable mixers: now take advantage of your system's advanced custom programming capabilities. You may use up to five programmable mixers (PMX1 through PMX5) to get rid of unwanted tendencies (for example, rolling or tucking during knife-edge flight.
65. For tucking during knife-edge, you want to apply a little up elevator when you are using full rudder to sustain knife-edge. Thus, we want the master channel to be rudder, and the slave to be elevator.
66. To program this mixing, first get to the PMX1 window. Press one of the Edit Up/Down keys until you see PMX1 displayed. Then press the Active/Inhibit (Clear) key to activate it (a flashing ON or OFF will appear, depending on the position of the CH. 7 switch, which turns mixer #1 on and off).
67. Next, press the Cursor Right key twice to select the master channel (MAS flashes on and off), then press the Data +Increase key until the channel numeral 4 will be appear,

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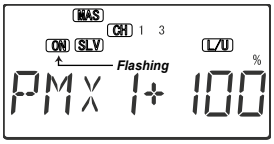
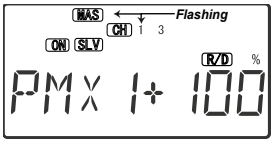
indicating CH4 (rudder) is the master channel.
Press the Cursor Right key once (SLV flashes on and off), then press the Data +Increase key until the channel numeral 2 will be appear, indicating CH2 (elevator) is the slave channel. And then, press Cursor three times to get next step.

68. Now, you'll define the mixing percentage. Notice that the mixer starts with 100% on both sides, which is WAY too much. Move the rudder stick to one side and press the Clear button, zeroing the percentage. Move it to the other side and repeat. Now both sides are set to zero percent.

69. If your model tucks during knife-edge, you'll want to input up elevator for rudder going both directions. Move the rudder stick to the right and press the Data +Increase until you can see which way the elevator moves; if incorrect, press the Data -Decrease key until the plus sign changes to a minus sign. Repeat this by moving the rudder stick to the other side. You'll end up with a plus sign for one rudder direction, and minus for the other direction. Start with only 5-10% mixing on both sides until you know how much you need from actual test flying.



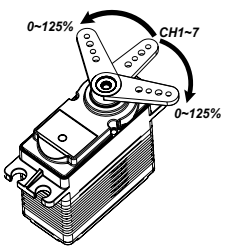


70. Be sure you understand how to use the CH. 7 switch to turn PMX1 on and off, since you won't want this mixing on during normal flight, only during knife-edge. Later, after you fly the model you may fine-tune the amount of elevator travel so that the pitching tendency is eliminated. You can define another mixer to handle adding aileron cor rections during knife-edge. In this case, you'll have the same percentage sign on both sides of the rudder. This introduction just scratches the surface of the capabilities of your Eclipse7 system. Please read the manual so you'll know what other features you can take advantage of. The sky's the limit - we know you'll enjoy using your Eclipse 7Pro system!

Airplane Model Function Descriptions

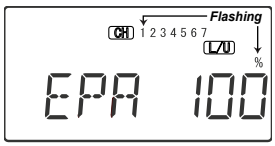
EPA – End Point Adjust

The EPA function is used to set (or limit) the travel of each servo, and may be set anywhere from 0% and 125% for each travel direction. Reducing the percentage settings reduces the total servo throw in that direction.



The EPA function is normally used to prevent any servos from binding at the ends of their travel.
If you change the EPA setting to 0%, you will not have any servo response in that direction, and will probably crash.

Setting EPA values on your system:



1. Enter the programming mode by pressing the two Edit Up Down keys (the two keys on the far left) at the same time. You should pop right into the EPA screen, but if you do not, press either Edit Up Down key until you see EPA displayed.
The channel numeral 1 will be flashing for ailerons and the percent symbol will be flashing, and you'll notice that you can change the L/U indicator to R/D (or vice versa) by moving the aileron (right) stick. In the next steps you will see how you set the travel directions independently for each stick (or knob or gear switch) motion.

2. To set the RIGHT aileron servo travel, move the aileron stick all the way to the right and hold it. The letters "R/D" should appear next to the flashing percent sign, meaning you are setting either Right or Up travel (with ailerons it's right or left only, but the display is set up to use the same indicators for elevator and throttle, thus the dual meanings for the letters). Now if your servo is stalled or binding, you'll hear a buzzing sound. Hit the Data -Decrease key until the buzzing stops. If the servo is not buzzing, leave the setting at 100%. Later, depending on how rapidly the model rolls, you can use aileron dual rates to reduce the sensitivity.

3. To set the LEFT aileron motion, move the aileron stick all the way to the left and hold it. The letters "L/U" should appear next to the flashing percent sign. Again listen and hit the Data -Decrease key until the buzzing stops. If the servo is not buzzing, leave the setting at 100%.

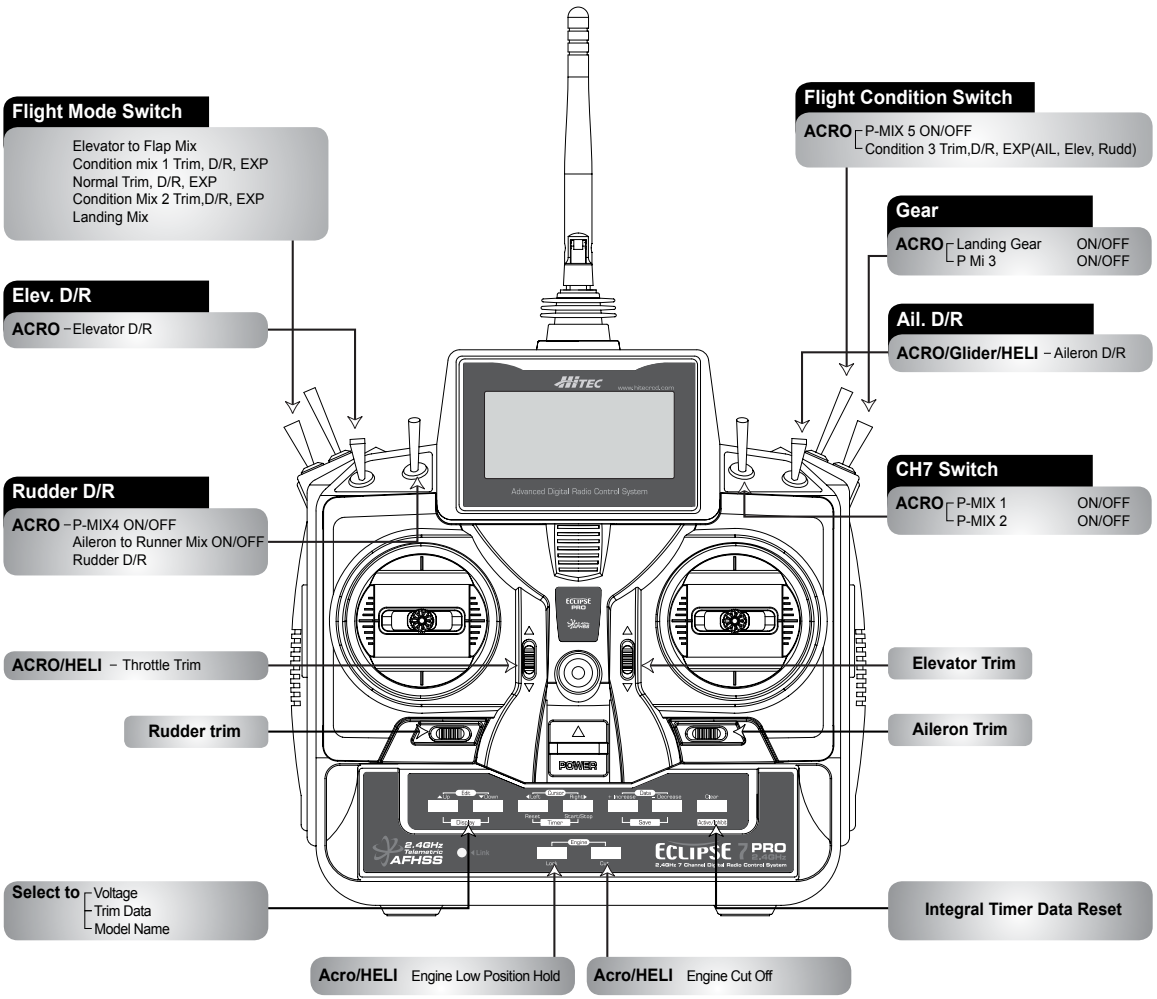
4. To set travel volumes for other channels, press the Cursor Right key to select the channel you wish to change. The active channel numeral will be flashing. Repeat these steps with each channel in sequence, taking care to set the travel for both directions.
You may set each channel separately, anywhere in between 0% and 125%, and if you wish to rapidly return to the default 100% setting, press the Active/Inhibit (Clear) key.

5. Return to the regular operating mode by pressing the two Edit Up Down keys simultaneously.
Congratulations! You've successfully programmed your system!

D/R - Dual Rates

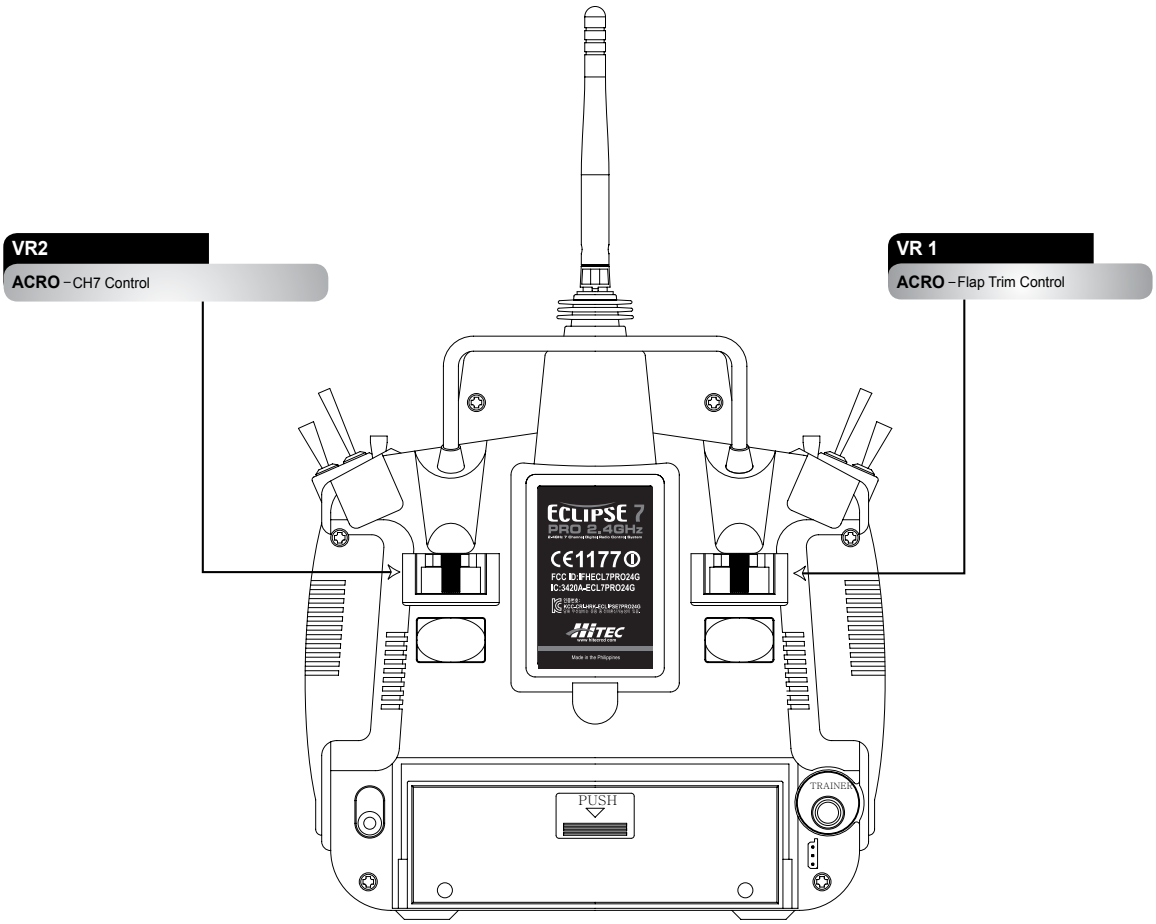
If this is your first computer radio, you may have never been introduced to dual rates before. Dual rates are used because most models respond more rapidly to control inputs while they're flying at higher speeds, and it is possible to be really gentle with the controls and yet still over-control. Dual rates are used to adjust the transmitter so that a control actuated at high speed will not cause a radical response, so they are very useful for beginning pilots as well as experts. Dual rates are invoked by flipping the dual rate switches on the transmitter.
The Eclipse 7 Pro has three dual rate switches, one each for

Eclipse 7 Pro Aircraft Controls and Switch Assignments



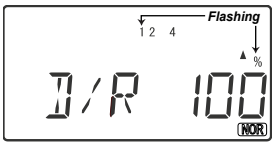
American version.
Note that some of the functions will not operate until activated in the mixing menus.

Eclipse 7 Pro Aircraft Controls and Switch Assignments



Simple Transmitter Setup – Aerobatic Airplane (ACRO)

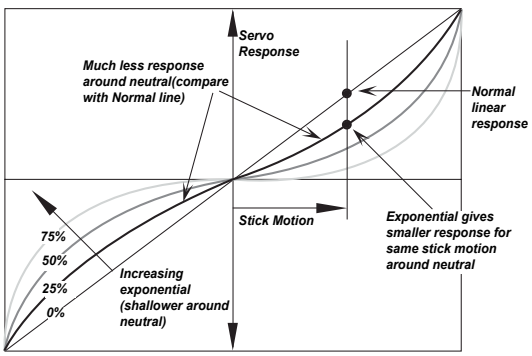
ailerons, elevator, and rudder. The aileron dual rate switch is located over the right-hand stick; the elevator dual rate switch is located over the left-hand stick, and the rudder dual rate switch is to the right of the elevator switch. The amount of travel reduction or increase may be set anywhere between 0 and 125%.
Note: If you set the dual rate amount to zero, you will get no response from that channel, which may cause a crash.
If you have flight conditions active, you can select different amounts of dual rates for each flight condition.
Inputting Dual Rate Values



1. Get to the D/R screen with the Edit Up Down keys.
2. The active channel number is indicated by flashing numbers. The arrow's position depends on the position of that channel's dual rate switch. In the figure, the aileron (CH1) dual rate setting at the D/R switch's higher position is being programmed.
3. Use the Data +Increase or -Decrease key to choose the amount of dual rate for that switch position. You may set the travel for both sides of the switch simply by flipping the switch to the other position (the arrow will also switch sides). If you wish to return to the original 100% value, press the Active/Inhibit (Clear) key.
4. Press the Cursor Right key to move to another channel you wish to input dual rate settings.
5. Repeat the first three steps for the dual rate settings on the remaining channels. Note that you can leave one side of the dual rate switches alone. This can be used for exponential settings (see next function).
6. Return to the regular operating mode by pressing the two Edit Up Down keys simultaneously.

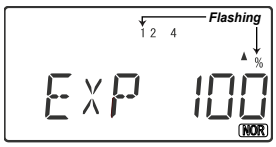
EXP – Exponential

You may be new to exponential settings. "Exponential" refers to a mathematical function where the curve grows steeper the further away from center it gets. Expo is a way to get the effect of dual rates without having to flip a switch. The figure below will help explain this concept.



You will notice that exponential has a smooth curve. For this reason it is possible to have low sensitivity at low stick angles (like dual rates), and yet have full motion at full stick deflection. The Eclipse 7 Pro allows you to have two different values of exponential, chosen by the same dual rate toggle switches on the transmitter, described earlier. You might want to set a dual rate at one switch position with zero exponential, and an exponential value with 100% dual rate at the other. Then you can switch between them in flight and decide which you like better. Later, you can combine both dual rate settings and exponential on a single switch setting. There are really two kinds of exponential, "positive" and "negative." Negative exponential is the one shown in the graph and the type most commonly used, where servo movement is softer around neutral. Positive exponential is where the servos are very sensitive around neutral and soft at extremes. It is sometimes used for helicopter tail rotors.
The Eclipse 7 Pro allows you to set exponential for ailerons, elevator, and rudder. If you have flight conditions active, you can select different amounts of expo for each flight condition.

Setting Exponentials



1. Enter the programming mode by pressing the two Edit Up Down keys (the two keys on the far left) at the same time.
Press either Edit Up Down key until the EXP menu appears, as shown.
2.To set exponential for channel 1, to make numeral 1 flashing by
pressing the Cursor Right or Left keys repeatedly .
.Now switch the appropriate switch up or down, noticing the position of the arrow. You can set two values of exponential,
one for each switch position. By pressing the Data +Increase or -Decrease keys, you can add or subtract from the numerical value displayed. Note that you may pick a value anywhere from -100% to +100%.
If you quickly want to get back to the default 0%, press the Active/Inhibit (Clear) key. You should understand that you won't see changes in your model's servo response unless you move the sticks. To get a feel for how exponential works, just hold partial stick and switch the Expo on and off (one side of the switch should be set to zero expo). You'll see how it affects the servo travel.
3. The values you set for exponential are highly dependent on both the model and pilot's preference. We normally recommend a start value of about -10% to -20%, and many test flights, slowly increasing the number until things are "right". Obviously this depends on the pilot and model so go ahead and fly with Expo programmed on one of the flight condition switches so it can be turned on and off during flight. Or don't use it at all if you don't like it - it's not for everyone.
4. Repeat this procedure for the expo settings on the other remaining channels .
5. Return to the regular operating mode by pressing the two Edit Up / Down keys simultaneously.

Simple Transmitter Setup – Aerobatic Airplane (ACRO)

FLT.C - Flight Condition Menu

Flight conditions are special functions which allow you to switch certain settings in the Eclipse 7 Pro transmitter in order to tailor it to different conditions of flight.

For example, you might have a scale model which is very sluggish at lower speeds (such as takeoff and landing) yet is very sensitive at higher speeds. Or, it may need lots of rudder trim at lower speeds, but not at higher speeds.

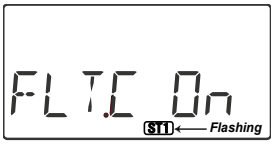
Flight conditions allow you to choose between up to three different individual sets of trims, dual rate settings, and exponential values. You make the change when either the Flt. Mode 3-position switch or Flt. Cond. switch is flipped. The Eclipse 7 Pro provides three flight conditions in addition to the normal one (NOR), denoted ST1, ST2, and ST3 (you will see these indicators in the display). Flight conditions are a very unusual feature for a system in the class of the Eclipse 7 Pro and they are normally found only on systems costing far more. As you learn to use them, you will really appreciate them.

The priority of the conditions (when all three are activated) is as follows: ST3 > (ST1, ST2) > NOR. In other words, whenever ST3 is turned on, it has priority over the other conditions. If ST3 is not on, both ST1 and ST2 override NOR, which is only active if all the others are turned off.

This is better understood if you look at the table below:

Flt.Mode Switch	Flt.Cond Switch	ActiveFlightCond.	Comments
Anyposition	Forward	ST3	ST3overridesall
Forward	Back	ST2	ST2activeifST3off. LANDalsoon.
Back	Back	ST1	ST1activeifST3off. (E->Fon)
Center	Back	NOR	Defaultcondition

Choosing Flight Conditions



1. Get to the FLT.C screen with the Edit Up Down keys. The display will indicate "Inh" and, depending on the positions of the two controlling switches, one of the condition displays on the bottom (ST1, ST2, or ST3) may be flashing.

2. Select the desired flight condition from the third column of the table above, and move the two switches to the positions shown on the same row of the table. The active condition indicator on the bottom right of the display will flash.

3. Activate the selected flight condition by pressing the Active/Inhibit (Clear) key. The letters "Inh" will change to "On". Note that you cannot activate ST1 or ST2 if the Flt. Cond switch is Forward, even if ST3 is currently inhibited.

4. Repeat this procedure to activate each desired flight condition. You can activate up to three conditions (besides the normal one, which is always on). In this display, you can tell if you are in the NOR mode if the display indicates "Inh" and ST1, ST2, and ST3 are NOT flashing.

5. Verify that the desired flight conditions operate when the appropriate switch combination is selected by looking at the flashing displays.

6. Now that you have activated one or more flight conditions, you can have new sets of dual rates, exponential values, and trims. Trims are defined by the trim levers on the transmitter, but you can define the values of D/R and Expo using the programming menu. Use the Edit Up Down key to move to the D/R menu.

7. With D/R indicated in the display, be sure the flight condition switches are in the desired position by checking to see which is flashing. Then input the desired D/R value for the active condition. Note that you can define two rates each flight condition – each position of the Dual Rate switches has their own value.

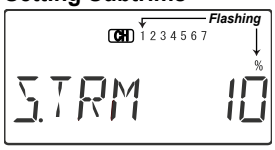
8. Again use the Edit Up Down keys to get to the Expo menu, and set up a desired value of expo for each flight condition. Again, you can only select one exponential value for each flight condition.

9. Return to the regular operating mode by pressing the two Edit Up Down keys simultaneously. If you move to the TRIM menu with the Edit Up Down key, the flight condition indicators are shown in the lower right of the screen, to tell you which is active. You can change the trims in one flight condition, and they are stored separately and called up when you switch between them. That's really cool!

STRM- Subtrim Settings

The Subtrim window is used to make small adjustments or corrections in the neutral position of each servo, independent of the trim levers. The recommended procedure is to zero out both the trims (see settings menu) and the subtrims (this menu). Then, one mounts the servo arms and sets up linkages so that the neutral position of each control surface is as close to where it should be as possible, with the arm 90 to the pushrod. Finally, small amounts of subtrim are used to make fine corrections. We recommend that you try to keep all of the subtrim values of as small as possible. Otherwise, when the subtrims are large values, the servo's full range of travel may be restricted.

Setting Subtrims



1. Use the Edit Up Down keys to call up the STRM window.
2. Press the Cursor Right or Left key until flashing the channel you wish to adjust (the figure shows subtrim adjustment for CH1).
3. Adjust the neutral position using the Data +Increase or -Decrease keys. You may adjust between -100% and +100%. If you want to reset the value back to zero, press the Active/Inhibit (Clear) key.
4. Repeat steps 2 and 3 for each channel to be adjusted in turn.
5. Return to the regular operating mode by pressing the two Edit Up Down keys simultaneously.

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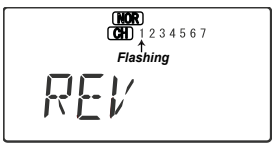
REV - Servo Reversing

The servo reverse function may be used when you need to change the direction that a servo responds to a control stick motion. When you use this function, BE SURE THAT YOUR CONTROL IS MOVING THE CORRECT DIRECTION. If you are using any preprogrammed mixers such as flaperon, be sure to set correct travels in the REV menu setting up the preprogrammed function.Reversing Servos



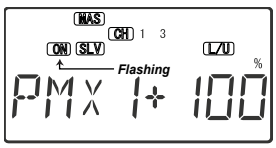
1. Get to the REV screen with the Edit Up Down keys.
2. Use the Data +Increase or -Decrease key to select the channel you wish to reverse. The active channel number will flash.
3. Toggle between normal (N) and reverse (R) with the Active/Inhibit (Clear) key. In the normal travel, highlighted NOR sign will appear in the display, while the reversed travel , highlighted REV sign will appear in the display (the Figures shows 1 channel reversed).
4. Repeat this procedure for each channel needing to be reversed.
5. Return to the regular operating mode by pressing the two Edit Up Down keys simultaneously.

T.CUT - Throttle Cut (Engine Shut off) Function

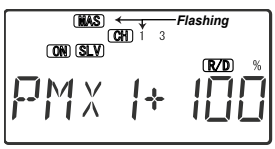
The Throttle Cut function provides you an easy way to stop the engine by simply pressing a button with the throttle stick at idle, which commands the throttle servo to move a prescribed amount. The throttle servo moves to the selected cut position when the Cut button is pressed and the throttle stick is below 50%. Above 50% throttle, the cut button has no effect. The activation direction may be chosen by the owner.
Setting up the Throttle Cut function
1. Get to the T.CUT screen with the Edit Up Down keys.
2. Place the throttle at its idle position (towards bottom of transmitter). Use the Data -Decrease key to select the amount of motion of the throttle servo you wish - normally

you want to completely close the carburetor, but be careful not to choose too much travel which will stall the servo. You may see the servo move when you press the Active/Inhibit (Clear) button. A maximum of 72% may be chosen, but only use the amount you need to fully close the carburetor without stalling the servo.
3. Return to the regular operating mode by pressing the two Edit Up Down keys simultaneously
PMX1 to PMX5 - Programmable Mixes 1, 2, 3, 4, & 5
Your Eclipse 7 PRO system contains FIVE separate programmable
mixers (PMX1 - PMX5) with unique capabilities.
You may use mixing to correct unwanted tendencies of the aircraft during aerobatics. Each one of these mixers may be programmed to do things that are not built-in programs. This makes them useful for all sorts of different things. Note that the mixers must be turned on by flipping a switch - if you need them to be on all the time, you must not touch that switch. The elevator dual-rate switch in its down position turns on mixers (if they've been activated). The method to be used to program mixers is given for Mixer #1, but the other mixers may be programmed in an identical fashion. You can use both PMXs to create a custom dual elevator function, where you use two servos for your elevator control, one for each side, the second plugged into an unused receiver channel and mixed from elevator (if you do this, you must be careful to keep the mixer on at all times). Or you may also use the mixers for correcting unwanted flying tendencies, like automatically applying a bit of rudder with throttle to account for torque/P-factor effects, to a corrective elevator motion during knife-edge flight to correct for an undesired tucking tendency (the latter is described in the ACRO model setup section and below).

Using the Programmable mixers



1. Call up the mixer screen by repeatedly pressing one of the Edit Up Down keys until a PMX window appears. The default is for the function to be inhibited. To activate, press the Active/Inhibit (Clear) key. This will cause the INH display to change to a display showing 100%, Master and Slave indicators, and a flashing ON or OFF depending on the position of the mixer's on-off switch.



2. Now you'll select the Master channel for the mixing, the channel that causes the mixing to occur. Press the Cursor Right key twice to get the master channel (MAS will be appear), then press the Data +Increase or -Decrease keys to move the number of the desired master channel, 1 - 7.
3. Next you'll put in the Slave channel, the one that is affected by motion of the master channel. Press the Cursor Right key to get slave channel (SLV will be appear), then press the Data +Increase or
-Decrease keys to move the number of the desired slave channel.

4. And you can call up Trim On menu by pressed Cursor Right key. In Trim On, if you change master channel trim value, slave channel value will be changed based on P.MIX value.
5. Now we'll input the mixing percentage, which tells how much the slave channel responds to the master channel. Press the Cursor Right key three times to cause the percent(%) sign
to the right of the large number to flash on and off.
Note that you can set the percentage for the mixer on each side of the master channel's control's motion by moving the master channel's control back and forth.

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The motion of the master channel's control is also indicated by the R/D (= Right/Down) or L/U (= Left/Up) indicator in the window.

6. Hold the master channel's control to one side, and then use the Data +Increase or -Decrease key to change the percentage for the mixer. Verify that you get the proper motion of the slave channel when you move the master. If you don't get a response to the master movement, check that the mixer is turned on with its on -off switch (either the Ch. 7 switch, or the Rudd D/R switch). Change the percentage if the amount of travel is incorrect. If you want to set the percentage to ZERO, press the Active/Inhibit (Clear) key.

7. Move the master control to the other side of its travel and then repeat the actions in the previous step to set the amount of mixing on the other side. Use the Data +Increase or -Decrease key to change the percentage for the mixer until you get the response you want for the second side.

[Knife-Edge Example : for a model that tucks under during knife-edge flight, set up a mixer with Master = 4(Rudder), and Slave = 2 (elevator). You want to get up elevator mixed in for either direction of full rudder. Therefore, you'll set plus mixing on one side of the rudder stick, and minus mixing on the other side. Normally only 5% to 10% mixing is needed to solve this problem.

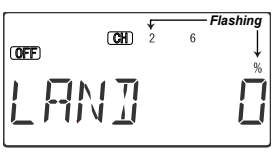
PMIX Switches

MixerNo.	MixerOnWhen...	Available menus
1	CH7SwitchForward	ACRO,GLID
2	CH7SwitchForward	ACRO,GLID
3	GearSwitchForward4	ACRO,GLID,HELI
4	RudderSwitchForward	ACRO,GLID,HELI
5	FltConditionSwitchForward	ACRO,GLID

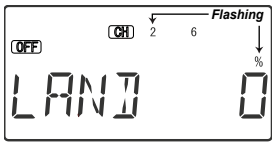
Land - Landing Function

The LAND function simultaneously moves the flaps and the elevator to defined positions to help make steep descents or limit airspeed in dives. The controls move to the defined positions by flipping the Flt. Mode switch fully forward. If your model has a single flap servo on CH6, the flap is dropped. If flaperons are active, you'll want to raise both to prevent tip-stalling with some up-elevator to compensate, but you may want to experiment with small values of down flaperons to slow the model down.
Use the elevator offset to maintain pitch trim when the landing function is turned on.

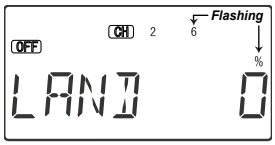
Setting up Landing function



1. Use the Edit Up Down arrow keys to select the LAND window. Depending on the position of the landing switch, the display will show OFF or ON. The Flt. Mode switch turns on LAND when all the way forward.



2. First the amount of elevator offset is programmed. The numeral 2 will be flashing (representing elevator). You may adjust the amount of travel with the Data +Increase and Decrease keys.
You may use anywhere between -100% and +100%, but a small value of +10% or less is the recommended starting value. Be careful as this has a very powerful effect on the model's trim. Press the Active/Inhibit (Clear) key if you wish to reset to 0%.

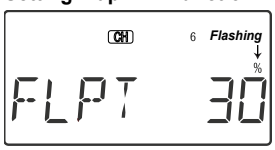


3. To get to the flap travel setting, press the Cursor Right key. the channel numeral 6 will be flashing, indicating the flap channel. You may input any desired flap travel with the Data +Increase and -Decrease keys. The default is 0%, and you may set this anywhere from -100 to +100% (check that there is no binding with large flap deflections and aileron commands). With flaperons, large motions should also be avoided because of reduced aileron effectiveness. You may return to the 0% settings by hitting the Active/Inhibit (Clear) key.
Note: At first, be very cautious using the LAND function when you are flying slowly, as there could be a loss of roll authority. Check out how it works at high altitude first.

FLPT - Flap Trim Function

The Flap Trim function is used to specify the amount of flap travel produced by motion of the flap control (the CH6 knob). With flaperons active, it may controls the motion of both ailerons.

Setting Flap Trim function

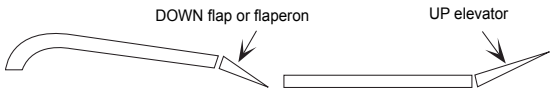


1. Use the Edit Up Down arrow keys to select the FLPT window.
2. Pressing the Data +Increase or -Decrease key to input your desired flap motion setting. The 30% default value produces "reasonable" travel for many models, but you must try it out on your own model to be sure. A 100% setting causes extreme travel and is not recommended. You may want to set it to a smaller number, say 10% for starters. If you wish to return to the default 30% setting, press the Active/Inhibit (Clear) key. You can toggle through the settings 0%, 30%, and 100% by continuing to press this (Clear) key. Setting it to 0% disables the flap knob, but the flaps will still respond to mixing functions such as E->F and to the Landing function.

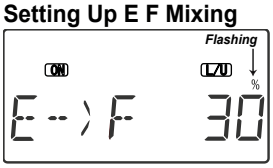
E->F - Elevator -> Flap Mixing
Elevator-to-flap mixing makes the flaps drop or rise when ever you pull on the elevator stick. It is used to make tighter "pylon" turns or squarer corners in maneuvers.
Elevator-to-flap mixing is set up so that the flaps droop (are lowered) when up elevator is commanded.
Notice that this mixing function works with the flaperon setting. If flaperon mixing (FLPN) AND E->F mixing are activated,

Simple Transmitter Setup – Aerobatic Airplane (ACRO)

when you pull up elevator, BOTH ailerons will droop.
This function is turned on with the Flt. Mode switch fully Back.



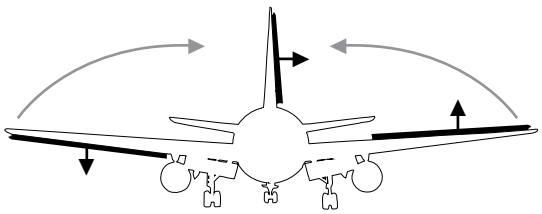
Setting Up E F Mixing



1. Press one of the Up Down Edit buttons until the E->F window appears. The default is for the function to be inhibited. To activate, press the Active/ Inhibit (Clear) key. This will cause the INH display to change to a number display, and either ON or OFF will be flashing depending on the position of the Flt. Mode switch (fully aft turns it ON).
2. Press the Cursor Right key to get the percent sign flashing, then press the Data +Increase and -Decrease keys to increase or decrease the amount of mixing.
Check the direction the flaps move with elevator stick: with up elevator, the flaps should droop downwards, and for down elevator they should come up. In other words, they should move opposite the elevator motion. If they don't, use the Data +Increase and -Decrease keys to change the sign in front of the percentage number. You should probably start with a smaller number (say 20% or so) and slowly increase it to learn how the model reacts. Remember the position of the Flt. Mode switch turns this function on and off (fully back turns it ON).

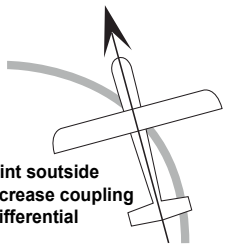
A->R - Aileron -> Rudder Mixing

Aileron-to-rudder mixing is a function which causes the rudder to move automatically with the motion of the aileron stick. This is done because when ailerons are used to command a turn, the down-moving aileron has more drag than the up-moving one, so the plane's fuselage tries to yaw against the turn. Adding rudder mixing cures this problem by making the fuselage point straight into the oncoming air stream (this is also called "coordinating the turn").

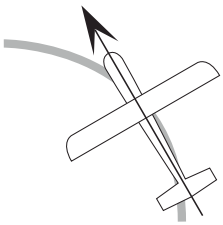


The slower the model flies, the more mixing is needed, and the faster it moves, the less is needed. It is ideal to make slow-flying scale models fly realistically.
The amount of coupling is highly dependent on the model configuration.
Usually only a small amount of rudder is needed. It will also help to set up some aileron differential using the EPA menus.

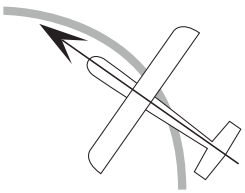
A good starting point is to limit the ailerons' down motion to 50% to 75% of the up-moving aileron's motion. The aileron to rudder mixing function is turned on and off by the Rudder D/R switch.



**Nose Point soutside
Circle increase coupling
and/or differential**

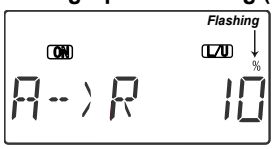


**Coordinated turn
fuse lines up with turn direction
(don't change anything!)**



**Nose Points inside circle
Toomuch coupling or differential
Reduce one or both.**

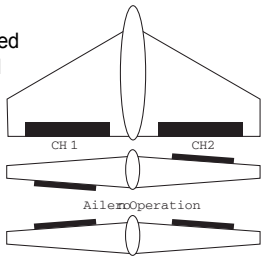
Setting Up A->R Mixing (Rudder Coupling)



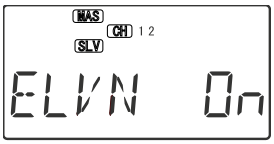
1. Press one of the Up Down Edit buttons until the A->R window appears, as shown. The default is for the function to be inhibited, as shown.
To activate, press the Active/ Inhibit (Clear) key.
The letters "INH" will turn to "100," and either the ON indicator or the OFF indicator will be flashing,depending on the position of the Rudder D/R switch.
2. Press the Cursor Right key once, and the Percent sign will be flashing. Move the aileron stick all the way to the right, and adjust the R/D mixing amount by pressing the Data +Increase or -Decrease key. You may set any amount between 0 and 100% (an initial value of 10-20% is suggested). To return to the initial 0% value, press the Active/Inhibit (Clear) key.
3. Move the aileron stick all the way to the left, and adjust the L/U mixing amount in the same way. To return to the initial 0% value, press the Active/Inhibit (Clear) key.

Simple Transmitter Setup – Aerobatic Airplane (ACRO)

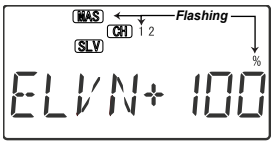
ELVN - Elevon Mixing



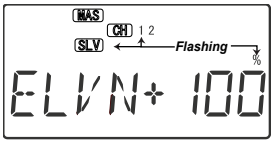
The Elevon function should be used with delta wings, flying wings, and other tailless aircraft whose layouts combine the aileron and elevator functions, and requires one servo for each elevon. Connect the right elevon to receiver CH1 and the left elevon to CH2.
The amount of aileron and elevator response can be adjusted independently. However, if you program in too much elevator or rudder travel, the servos may reach their travel limits before full stick motion has occurred. The default values for this mixer are 100%, but you may want to keep the travel settings at 50% or below because most elevon planes are very sensitive, and adjust the control linkages to get the travel you desire. Note that you cannot use either flaperon or V-tail mixing when elevon mixing is active.
Setting up elevon mixing
1. The right elevon should be plugged into CH1, and the left elevon should be plugged into CH2.
2. Press one of the Up Down Edit buttons repeatedly to select the ELVN window.



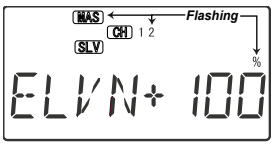
3. To activate, press the Active/Inhibit (Clear) key. The letters “INH” will turn to “On.”



4. Press the Cursor Right key once ,Now you’ll input the amount of aileron stick response on the right(CH1) elevon. Now the MAS(Master) and numeral 1 will be flashing, and you may adjust the amount of right elevon travel with the Data +Increase and -Decrease keys. 50% is a good starting point. As before, change the sign and use -50% if it travels the wrong way with aileron stick.

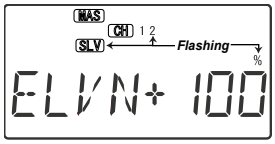


5. Now you’ll input the amount of aileron stick response on the left (CH2) elevon by pressing the Cursor Right key once. Now the SLV and numeral 1 will be flashing, and you may adjust the amount of left elevon travel with the Data +Increase and -Decrease keys. 50% is a good starting point. Change the sign if travel needs to be reversed.



6. Press the Cursor Right key once, to get to the elevator travel setting menu. Highlighted MAS sign and Numeral 2 Will be flashing that represents elevator master channel, and the percent indicator will blink on and off.

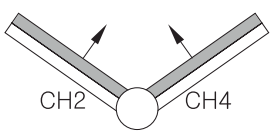
7.Press the Cursor Right key once, to get to the elevator travel setting menu. Highlighted SLV sign and Numeral 2 Will be flashing that represents elevator slave channel, and the percent indicator will blink on and off.



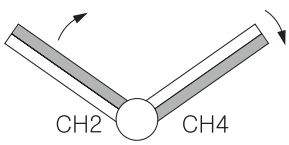
8. Move the elevator stick all the way to the back (full up position): both elevons should move upwards like elevators. If the left (CH2) elevon moves down, change its travel direction by pressing the Active/Inhibit (Clear) key to get 0% quickly, then pressing the Data -Decrease key until you reach -50%.
9. If the right (CH1) elevon moves down with up elevator stick, change its travel direction by pressing the Cursor Right key (the numeral 1 will be flashing), then press the Data -Decrease key until you reach -50%. Otherwise, continue.

VTAL - V-Tail Mixing

V-tail mixing is used with V-tail aircraft so that both elevator and rudder functions are combined for the two tail surfaces, called “ruddervators.” The response to both elevator and rudder inputs can be adjusted independently.
However, if you program in too much elevator or rudder travel, when both rudder and elevator are commanded the servos may reach their travel limits before full stick motion has occurred. Therefore, you should keep the travel settings at 50% or below and adjust the control linkages to get the travel you desire. Note that you can not have both V-tail and elevon mixing active at the same time.



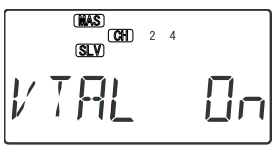
Up Elevator



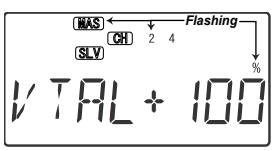
Right Rudder(view from rear)

Setting up V-Tail mixing

1. The right ruddervator should be plugged into CH2, and the left ruddervator should be plugged into CH4.
2. Press one of the Up Down Edit buttons repeatedly to select the VTAL window. The INH indicator will show.



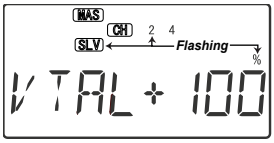
3. Press the Active/Inhibit (Clear) key to activate the V-tail function. The display will show On.



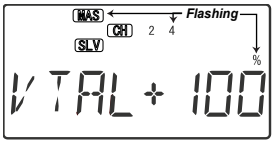
4. Press the Cursor Right key once, to get to the elevator setting menu. Highlighted MAS sign and Numeral 2 will be flashing that representing elevator master channel, indicating the right (CH2) ruddervator, and the percent indicator will blink on and off. Move the elevator stick all the way to the back (full up position): both ruddervators should moveupwards. If the right (CH2) ruddervator moves down,

Simple Transmitter Setup – Aerobatic Airplane (ACRO)

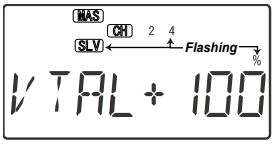
change its travel direction by pressing the Active/Inhibit (Clear) key, then pressing the Data -Decrease key until you reach -50%.



5. If the left (CH4) ruddervator moves down with up elevator stick, change its travel direction by pressing the Cursor Right key (the numeral 2 and SLV (Slave) will be flashing), the Active/Inhibit (Clear) key (sets 0%), then press the Data -Decrease key until you reach -50%. Otherwise, continue.



6. Now you'll input the amount of rudder stick response on the left (CH4) ruddervator by pressing the Cursor Right key once. Now the numeral 4 and MAS will be flashing, and you may adjust the amount of right ruddervator travel with the Data +Increase and -Decrease keys. 50% is a good starting point. Press Active/Inhibit (Clear) key if you wish to reset to 0%.

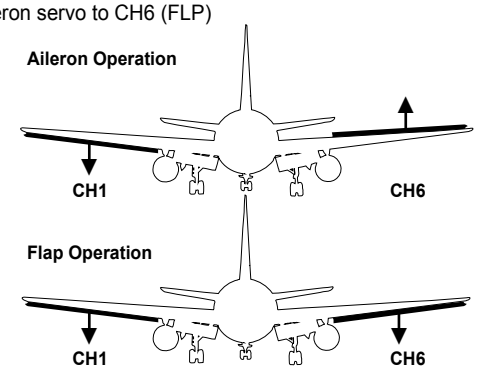


7. Now you'll input the amount of rudder stick response on the right (CH2) ruddervator by pressing the Cursor Right key once. Now the numeral 4 SLV will be flashing, and you may adjust the amount of left ruddervator travel with the Data +Increase and -Decrease keys. 50% is a good starting point. Press Active/Inhibit (Clear) key if you wish to reset to 0%).

8. Remember to be sure not to have so much travel as to cause binding when both elevator and rudder are commanded simultaneously.

FLPN - Flaperon Mixing

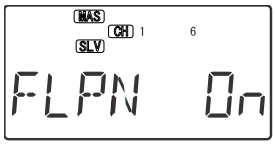
The Flaperon mixing function uses two servos to individually control two ailerons, combining the aileron function with the flap function. Both ailerons can be raised and lowered simultaneously for a flap effect. Of course, aileron function, where the two controls move in different directions, is also performed. The down travel of the left and right ailerons can be adjusted, so you can also get a differential effect. (Left and right flap travel are adjusted individually in the EPA menu.)
To take advantage of the flaperon mixing function, you'll need to connect the right aileron servo to CH1 (AIL) and the left aileron servo to CH6 (FLP)



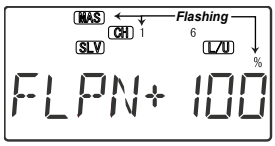
You can combine the flaperon function with the landing function (LAND), to get steeper descents without building up airspeed. This is very convenient for making short approaches on small fields. Note that you cannot have both flaperon and elevon mixing active at the same time.

Setting up the Flaperon function

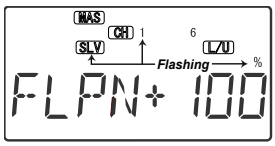
1. The right flaperon servo should be plugged into CH1, and the left flaperon servo should be plugged into CH6.
2. Press one of the Up Down Edit buttons repeatedly to select the FLPN window. The INH indicator will show.



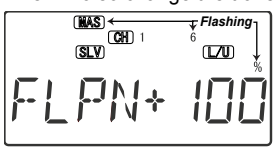
3. Press the Active/Inhibit (Clear) key to activate the flaperon function. This will show the On indicator.



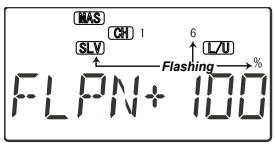
4. Press the Cursor Right key once. Highlighted MAS sign and numeral 1 will be flashing that representing right aileron master channel, and the percent indicator will blink on and off. If the right (CH1) flaperon moves the wrong way, change its travel direction by holding the stick to the right, pressing the Active/Inhibit (Clear) key, then pressing the Data -Decrease key until you reach -100%. which tells us we're setting the right (CH1) flaperon servo. Move the aileron stick all the way to the right, and check that both flaperons move the right direction.
This will also change the travel for the left stick motion.



5. Press the Cursor Right key once. Highlighted SLV sign and numeral 1 will be flashing that representing right aileron slave channel, and the percent indicator will blink on and off.
If the left (CH1) flaperon moves the wrong way, change its travel direction by holding the stick to the right, pressing the Active/Inhibit (Clear) key, then pressing the Data -Decrease key until you reach -100%. which tells us we're setting the left (CH1) flaperon servo. Move the aileron stick all the way to the right, and check that both flaperons move the right direction
This will also change the travel for the left stick motion.



6. If the left (CH6) flaperon moves correctly with aileron stick, go to the next step. If not , please check again above 4 and 5 steps.



7. Now you'll input the amount of flap response on the flaperons. The flap motion is commanded by the VR1 knob to the left back of transmitter, and both flaperons should move the same direction when you move the knob. Press the Cursor Right key one time, so the Numeral 6 and MAS wil be flashing that indicating flaps are now the master channel, indicating left (CH6) flaperon.

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Now you may adjust the amount of left flaperon travel with the Data +Increase and -Decrease keys. Press Active/Inhibit (Clear) key if you wish to reset to 0% You may need to choose negative values to get the control to travel the correct direction.

8. Now you'll input the amount of flap knob response on the right (CH1) flaperon by pressing the Cursor Right key once. Now the numeral 6 and SLV will be flashing, and you may adjust the amount of right flaperon travel with the Data +Increase and –Decrease keys.

9. You may wish to set aileron differential. Aileron differential means that each aileron has more travel in the 'up' direction than the 'down' direction. Normally the down travel is reduced to about half of the up travel, especially on slower-flying models. Press the Cursor Right key two times, so the little arrows move over and under the 1 indicating aileron stick is again the master channel. The arrow under the 1 indicates the right (CH1) flaperon. Move the stick to the LEFT and press the Data -Decrease key until you get to 50-75%. If you need even more differential, you can choose as low as 0% down, and the ailerons will move up only. This is preferred over reducing the up travel, which reduces the roll rate.

10. You must repeat this procedure for the left flaperon also. Press the Cursor Right key one time, so the little arrow moves under the 6 indicating the left (CH6) flaperon. Move the stick to the Right and as before, press the Data -Decrease key until you get to 50-75%.

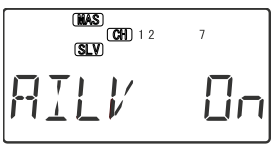
AILV Ailevator (2Elevon Aileron mixing)

Ailevator Mix

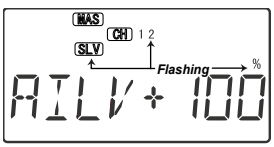
Elivator can be controlled by two servos. When the aileron move ,elevator surface can be moved like aileron.
This function cannot be use V-TAIL or ELEVON together .

1. The right elevator servo should be plugged into CH7, and the left elevator servo should be plugged into CH2.

2. Press one of the Up Down Edit buttons repeatedly to select the AILV window. The INH indicator will show.

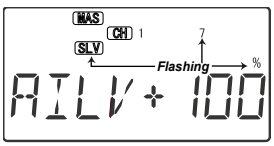


3. Press the Active/Inhibit(Clear) key to activate the Ailevator function. This will show the On indicator.



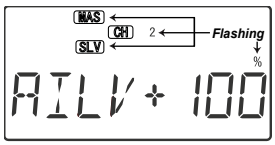
4. Press the Cursor Right key once. Highlighted SLV sign and numeral 2 will be flashing that representing left elevator slave channel, and the percent indicator will blink on and off.

if the aileron stick move left or right (surface move up ordown), elevator working direction should be same as like left aileron.



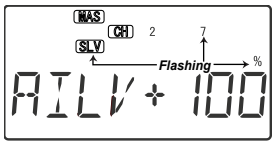
5. Press the Cursor Right key once. Highlighted SLV sign and numeral 7 will be flashing that representing right elevator slave channel, and the percent indicator will blink on and off.

if the aileron stick move left or right (surface move up or down), elevator working direction should be same as like right aileron.



6. Press the Cursor Right keyonce. Highlighted MAS, SLV sign and numeral 2 will be flashing that representing left elevator direction, and the percent indicator will blink on and off.

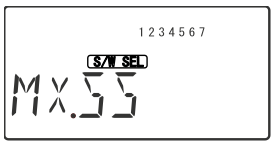
Move the elevator stick all the way to the back(full up position): CH2 elevator should move upwards. change its travel direction by pressing the Active/Inhibit (Clear) key,and then adjust amount of travel by pressing Data +Increase and -Decrease keys



7. Press the Cursor Right key once, Highlighted SLV sign and numeral 7 will be flashing that representing right elevator moving direction. Move the elevator stick all the way to the back (full up position): CH7 elevator should move upwards. change its travel direction by pressing the Active/Inhibit (Clear) key, and then adjust amount of travel by pressing Data +Increase and -Decrease keys

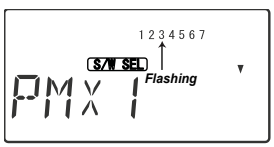
MX.SS Mix Switch Select

Mixing Switch assign.
you can re-assign current mixing switch for your convenience.



1.To set the MX.SS ,get to the MX.SS screen with the Edit Up Down keys (press at the same time. and then search MX.SS by pressing Edit Up or Down re peatedly). In the display has to be exactly the same as like right diagram, (all switches must be positioning on normal)

2. Pressing the Cursor Right to change the assign new Mix Switch for your convenience .(refer to page ???- Default) Current mixing switch will be showing by flashing channel numeral and highlighted On or Off sign.



3.You can be assigned new mixing channel by pressing Data +Increase, -Decrease keys or toggle switch . also you can check the new assigned switch which being set (by numeral flashing) or On or Off status..

4.To go to next switch assigning, current new assigned switch have to be OFF. Current assigned switch is On, cannot move next switch to assign.

Ex) After assigned PMX 1 switch, and then press Cursor Right in order to move PMX 2 . at this time , PMX 1 Switch has to be OFF. If PMX 1 switch is ON , we cannot move next switches .

Aircraft Flight Trimming Chart

The following chart may be used to systematically set up and trim a model for straight flight and aerobatic maneuvers. Please note that for best results, trimming should be done in near-calm conditions. Before you decide to make a change, be sure to try the test several times before making adjustments. If any changes are made, go back through the previous steps and verify that they are not also affected. If they are, make further adjustments as necessary.

To test for	Test Procedure	Observations	Adjustments
1. Control neutrals	Fly the model straight and level	Use the transmitter trims for hands-off straight & level flight.	Change electronic subtrims or adjust clevises to center transmitter trims.
2. Control throws	Fly the model and apply full deflection of each control in turn	Check the response of each control * Aileron high-rate: 3 rolls in 4 seconds; low-rate: 3 rolls/6 sec *Elevator high-rate: to give a smooth square corner; low-rate gives approx. 130 ft diameter loop *Rudder: high-rate 30-35 for stall turns; low rate maintains knife-edge	Change EPA (for high rates), and Dual Rate settings (for low rates) to achieve desired responses.
3. Decalage	Power off vertical dive(crosswind if	A. Model continues straight down B. Model starts to pull out (nose up)? C. Model starts to tuck in (nose down)?	A. No adjustment B. Reduce incidence C. Increase incidence
4. Center of Gravity	Method 1: Roll into near vertical-lybanked turn. Method 2: Roll model inverted	A1. Nose drops B1. Tail drops A2. Lots of forward stick (down elevator) required to maintain level flight B2. No forward stick (down elevator) required to maintain level flight, or model climbs	A. Add weight to tail B. Add weight to nose
5. Tip weight (coarse adjustment)	Fly model straight & level upright. Check aileron trim maintains level wings. Roll model inverted, wings level. Release aileron stick.	A. Model does not drop a wing. B. Left wing drops. C. Right wing drops.	A. No adjustment B. Add weight to right tip. C. Add weight to left tip.
6. Side Thrust & Warped Wing	Fly model away from you into any wind. Pull it into a vertical climb, watch for deviations as it slows down.	A. Model continues straight up. B. Model veers left C. Model veers right D. Model rolls right	A. No adjustment B. Add right thrust C. Reduce right thrust D. Put trim tab under left wing tip *
7. Up/Down Thrust	Fly the model on normal path into any wind, parallel to strip, at a distance of around 100 meters from you (elevator trim should be neutral as per Test 3). Pull it into a vertical climb & neutralize elevator	A. Model continues straight up B. Model pitches up (goes toward top of model) C. Model pitches down (goes toward bottom of model)	A. No adjustment B. Add down thrust C. Reduce down thrust
8. Tip weight (fine adjustment)	Method 1: fly the model as per Test 6 and pull into a reasonably small diameter loop (one loop only) Method 2: fly the model as per Test 6 and then push into an outside loop (one only, fairly tight)	A. Model comes out with wings level B. Model comes out right wing low C. Model comes out left wing low	A. No adjustment necessary B. Add weight to left tip C. Add weight to right tip

Aircraft Flight Trimming Chart

To test for	Test Procedure	Observations	Adjustments
9. Aileron differential	Method 1: fly model toward you & pull into a vertical climb before it reaches you. Neutralize controls, then half-roll the model. Method 2: fly model on normal pass and do three or more rolls Method 3: fly the model straight and level and gently rock the aileron stick back and forth	A. No heading changes B. Heading change opposite to roll command (i.e. heading veers left after right roll) C. Heading change in direction of roll command A. Roll axis on model centerline B. Roll axis off to same side of model as roll command (i.e. right roll, roll axis off right wing tip) C. Roll axis off to opposite side of model as roll command A. Model flies straight ahead without yawing B. Model yaws away from roll command (i.e. right roll, yaw left) C. Model yaws towards roll command (i.e. right roll, yaw right)	A. Differential settings OK B. Increase differential C. Decrease differential A. Differential settings OK B. Increase differential C. Decrease differential A. Differential settings OK B. Increase differential C. Decrease differential
10. Dihedral	Method 1: Fly the model on normal pass and roll into knife-edge flight; maintain flight with top rudder (do this test in both left & right knifeedge flight) Method 2: Apply rudder in level flight	A. Model has no tendency to roll B. Model rolls in direction of applied rudder C. Model rolls in opposite direction in both tests	A. Dihedral OK B1. Reduce dihedral B2. Use mixer to produce aileron opposing rudder travel (start with 10%) C1. Increase dihedral C2. Mix ailerons with rudder direction 10% A. Elevators in correct
11. Elevator alignment (for models with independent elevator halves)	Fly the model as in Test 6 and pull up into an inside loop. Roll it inverted and repeat the above by pushing it up into an outside loop.	A. No rolling tendency when elevator applied B. Model rolls in same direction in both tests - halves misaligned. C. Model rolls opposite directions in both tests. One elevator half has more throw than the other (model rolls to side with most throw).	A. Elevators in correct alignment B. Either raise one half, or lower the other C. Reduce throw on one side, or increase throw on the other.
12. Pitching in knife-edge flight	Fly the model as in Test 10	A. There is no pitch up or down B. The nose pitches up (the model climbs to its top side) C. Nose pitches down (model dives to its bottom side)	A. No adjustment needed B. Alternate cures: 1) move CG back; 2) increase incidence; 3) droop ailerons; 4) mix down elevator with rudder C. Reverse 'B' above

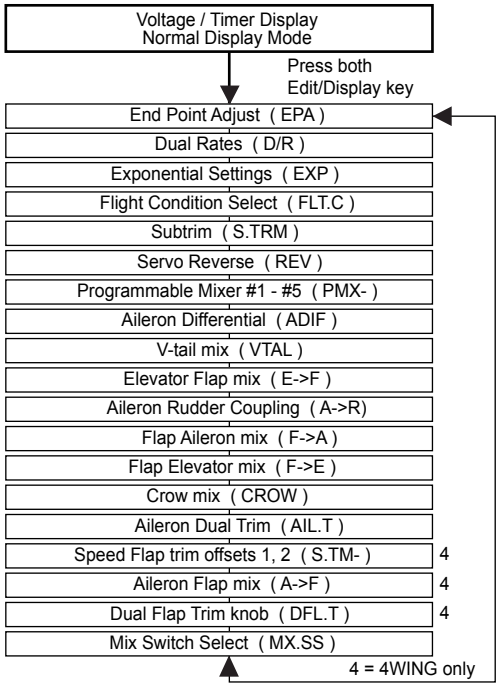
*Trim tab is 3/16" x 3/4" x 4" trailing edge stock, placed just in front of aileron on bottom, pointed end forward.

Glider(GLID) Menu Function

The following section describes how to use the glider-specific menu functions (model type GLID). Descriptions of the other functions are contained in the aircraft (ACRO) section. There are two different glider modes in the Eclipse 7Pro system. You set them up in the Model Setup menus (see page ??). 4WNG refers to a glider with four wing servos. 2WNG refers to a model with two wing servos for flaperons, but this setup also applies to models with an additional flap or spoiler servo in CH6

Glider Functions Map

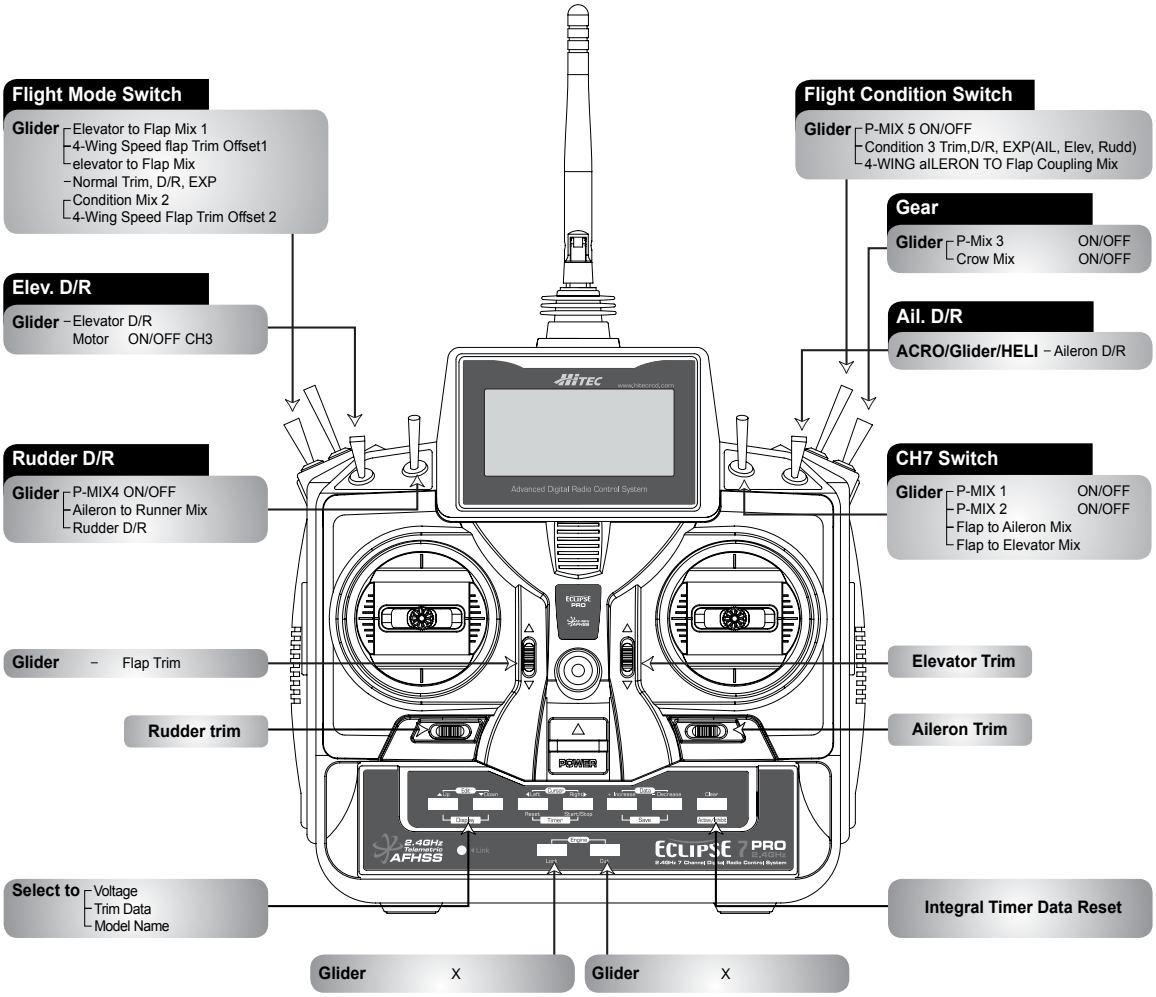
Glider Setup Example
EPA End point adjust
D/R Dual Rates
EXP Exponential
FLT.C Flight Condition
S.TRM Subtrim
REV Servo Reverse
PMX1-5 Programmable Mixer
ADIF Aileron Differential
VTAL V-Tail
E->F Elevator Flap mixing
A->R Aileron Rudder Coupling
F->A Flap Aileron mixing
F->E Flap Elevator mixing
CROW Crow mixing (airbrakes)
AIL.T Aileron Dual Trim
S.TM1, 2 Speed Flap trim offsets 1, 2 (GLID4)
A->F Aileron Flap mixing (GLID4)
DFL.T Dual Flap Trim knob (GLID4)
MX.SS Mix Switch Select



Useful Control & Switch Information

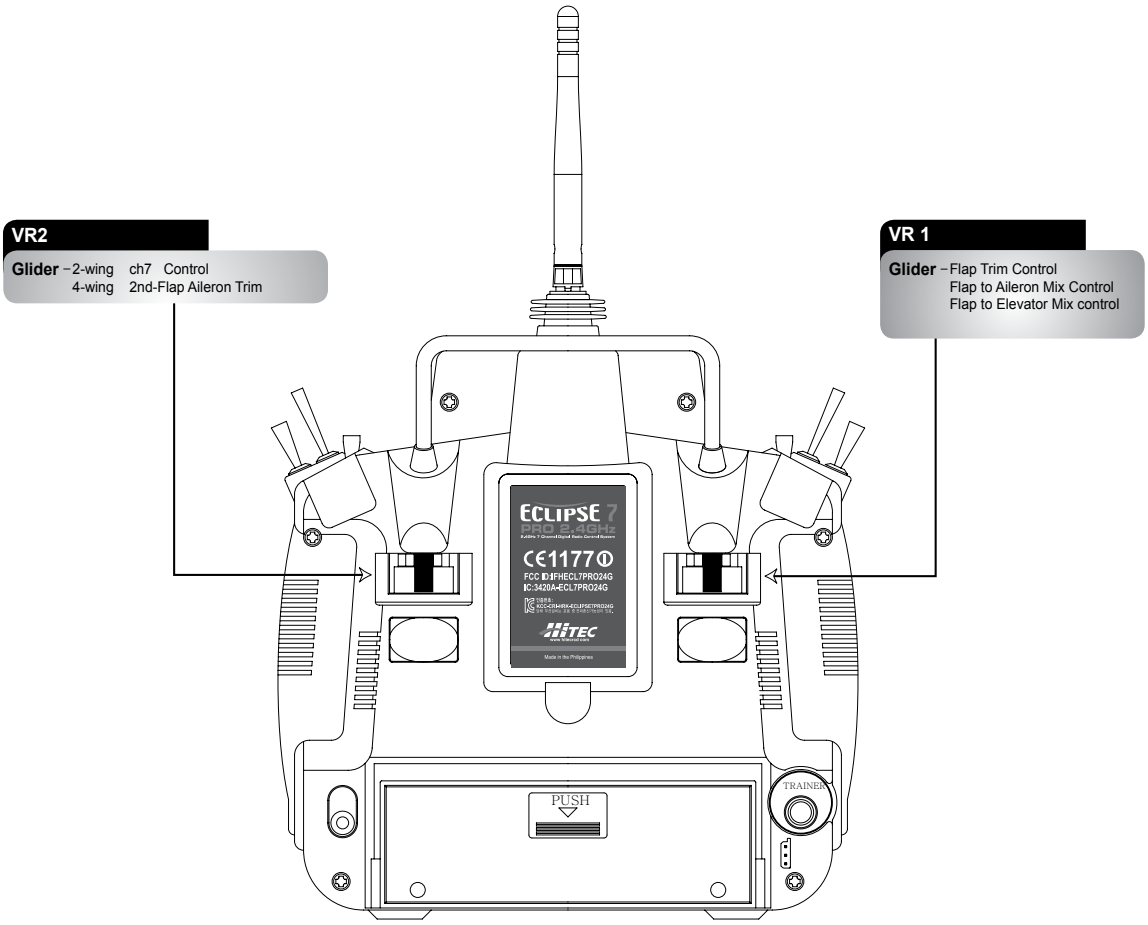
GEAR switch Back = CROW Off
VR1 controls camber (flap motions) Flt. Condition switch Back= A->F Off
VR2 controls receiver CH7 and sets DFL.T Flt. Mode switch Back (“speed”)= E->F On, S.TM1
CH7 switch Forward = F->A On, F->E On Flt. Mode switch Forward (“launch”) = S.TM2 On

Eclipse 7 Pro Glider Controls and Switch Assignments



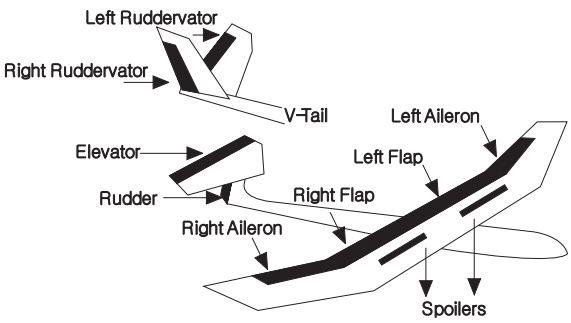
This figure shows the assignments for a Mode 2 system as supplied by the factory for the North American version. Note that some of the functions will not operate until activated in the mixing menus.

Competition Glider Quick Setup Instructions

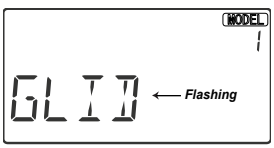


Competition Glider Quick Setup Instructions

The following example shows how the Eclipse 7 PRO may be programmed for the "typical" high-performance six-servo sailplane, shown below. Six servos are used for right and left ailerons, right and left flaps, elevator, and rudder.
If the model happens to have a V-tail, all the functions are the same, except for the response of the two tail controls. The channel 3 output on the receiver toggles with Elevator D/R switch and may be used for motor on/off. If you are programming a model with two wing servos, skip the steps labeled "4WNG only." Your model's settings will be dependent on the setup and linkages. Ask an experienced pilot for assistance setting up.



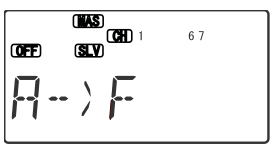
1. Before you begin, be sure that all of your aileron and flap servos are plugged into the proper receiver channels:
CH1 - Right aileron
CH2 - Elevator
CH3 - Motor on/off or spoiler
CH4 - Rudder
CH5 - Left Aileron
CH6 - Right Flap (4WNG only)
CH7 - Left Flap (4WNG only)
2. Enter the SETUP mode by turning on the transmitter while pressing the two Up Down Edit buttons simultaneously. You will be in the model setup (MSEL) menu.
3. Make sure you're in a clear memory. If necessary, use the Cursor Right button to move to a new model memory. The selected model memory is indicated by the MODEL numeral
flashing . Power down if you've
chosen a new memory, then power up as in previous step.



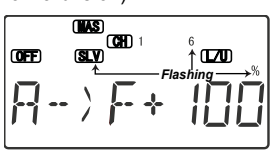
4. Press the Up arrow until the word GLID appears, flashing on and off. If it does, you're ready to proceed on to the next step. If not, press the Left or Right Cursor keys until it
appears. You must press both Data keys to "Save" the setting; when you do this, there will be two beeps. This is how you select the type of model you wish to use.
WARNING: selecting a different model type will erase the settings in the model memory. BE SURE you're in the correct model memory before selecting a new model type, or you might accidentally erase a model you're using! (The other memories will not be affected.)

5. Now it's time to select the wing type. Select 2WNG for models with two aileron servos, and 4WNG for models

with two ailerons and two flaps. Press the Up arrow until you see the word "WING" in the upper right of the display. The wing type in the lower left will be flashing.
.
6. Press the Down arrow once. This gets you into the model name mode (note that the words "MODEL" and "NAME" appear in the upper left of the display).
7. Now you can select four letters to identify your model. With the first of the four letters flashing, press the Data +Increase or -Decrease key to change the letter that is displayed. Stop when the first letter is the one you want.
8. Press the Right Cursor key once to get to the second letter. Repeat the previous step to choose the second letter.
9. Repeat two more times to fill out the remaining two letters. If you like, you can hit the right cursor button one more time and select a number between 0 and 999 for further identification. It can be handy to use this to store the plane's channel number.
10. Press the Up arrow until to get you into the Timer menu (TIME). If you want, you can use the Data +Increase or -Decrease keys to select the amount of time you want the stopwatch to count down.
11. This completes the initial part of the setup. Now, we'll go ahead and customize the GLID settings for your model. Switch transmitter power OFF.
12. Turn the transmitter on. When you do, you will find that channels 1 and 5 act as ailerons. Channels 6 and 7 will only move when the flap knob (VR1) is moved.
13. Now check that each servo moves the proper direction. Move the aileron, elevator, and rudder sticks. Be sure that the channels go the proper direction. If not, go to the Reversing menu (REV) by hitting the Down arrow. Follow the procedures in the ACRO setup example, for details.



14. (4WNG only) Move to A ->F by pressing the Up Down Edit buttons. Activate it by pressing the Active/Inhibit (Clear) key ('On' or 'Off' will be flashing
depending on the position of the Flt condition switch: forward is on).



15. (4WNG only) Next, move the aileron stick and be sure that both flaps move the same directions as the ailerons. If they do, move on to the next step. If
they don't, reverse them in the REV menu. Check again that the flaps now move with the ailerons.
16. (4WNG only) Reduce the rate that the ailerons mix to the flaps by pressing the Cursor Right key until the percent sign flashes. You can independently set the up

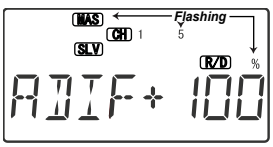
Competition Glider Quick Setup Instructions

and down travel for each flap, which is handy for models which have hinging that prevents motion in one direction We suggest that you set the mixing rate to 50% on all four settings. You can increase this later if you find you need more maneuverability.

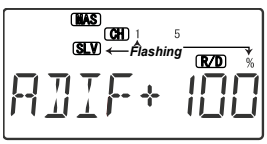
17. Now all the servos should function properly for different stick motions. When you move the right-hand stick to the right, the servos on the right wing should move the controls upwards, and the servos on the left should move the left wing controls downward. Rudder and elevator should also respond properly.
Spend some time getting the correct motions in this step. If you try to do it later within the different mixing functions, you will get all messed up!

18. Now we'll input values for aileron differential. Press one of the Up Down Edit buttons to get to ADIF. The function is already activated, but it's set to 100% on both sides, zero differential.

19. The display shows highlighted MAS sign and numeral 1 flashing together . This means that we are programming the aileron stick input into the right aileron servo, CH1.



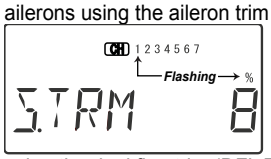
. Normally, we want to have more up aileron travel than down travel. Hold the aileron stick to the right but leave the percentage setting at 100%. Now move the aileron stick to the left and use the Data -Decrease key to drop it to 60-70%.



20. Now we'll repeat the previous step for the left aileron. Press the Cursor Right key once, so that the SLV and numeral 5 will be flashing. Now we'll set the differential on the second aileron. Holding the aileron stick to the left, we leave the percentage setting at 100%. Now move the aileron stick to the right and use the Data -Decrease key to drop it to 70% or so. Now, when you move the aileron stick, each aileron will go up more than down.

21. Move to the full-wing camber control (F->A) menu, and activate by pressing the Active/Inhibit (Clear) key. For this function, we recommend using a setting of 100% so the motion of all four wing servos is the same. It is important to have flap and aileron horns that are the same length, but if they differ (hopefully in pairs) it is possible to make some corrections here. The camber changing
is done by turning the knob on the left back of the transmitter (VR1 flap knob, on the left back of the transmitter). The default settings for Flap Aileron mixing are such that you get equal motion above and below the neutral camber position. There is a neutral point setting command in this menu, which can be reached by pressing the Cursor Right key inside of the F->A menu. However, we recommend not using this command. It does move the flap neutral position relative to the aileron neutral. Note that the motion dictated by the Camber knob (VR1 knob) goes into both positive and negative camber from the neutral point, unless you set the F A offset (see previous step).

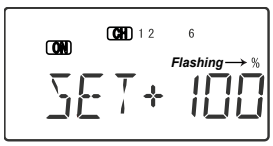
22. Center the camber knob, also known as the VR1 knob, on the left back of the transmitter. Be sure to center all of the trims, and get all of the servo arms to be near neutral. Use the clevises to get as close as you can. This way you won't run out of subtrim authority. You can make fine adjustments to the positions of the two outer ailerons using the aileron trim (AIL.T) function in the



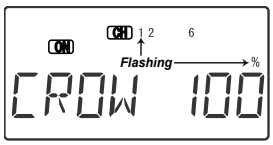
programming menu. Now, you can set the neutral position of the two inboard flaps (CH6 and CH7) relative to each other using the dual flap trim (DFL.T) knob (VR2). Then use the subtrims (STRM) to set all the remaining controls the desired neutral locations.

Note you can set the neutrals for the ailerons and flaps by using the wing beds (if they're foam wings) or matching up with the rest of the wing. Don't use the fuselage airfoil as these are often far from parallel from one side to the other. Set the elevator incidence per the manufacturer or plans, and the rudder should be centered.

23. Set up the crow (also referred to as "butterfly") function for precise spot landings. The ailerons reflex (go up), and the flaps drop with movement of the throttle stick. Turn on by locating the CROW menu with the Up Down Edit keys, then pressing the Active/Inhibit (Clear) key. The On or Off display will be flashing, depending on the Gear switch.



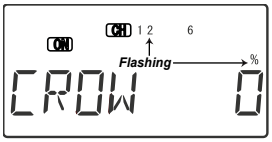
24. First set the CROW function activation point. Hit the Cursor Left key one time to get to the offset setting menu. Now move the throttle stick all the way up. Enter that position by pressing the Clear Active/ Inhibit key.



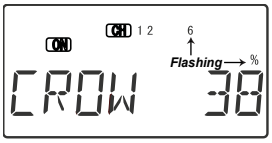
25. Next, set up the throws for the ailerons. Hit the Cursor Right key two times to get to the aileron setting menu (the Numeral 1 and percentage sign will be flashing).
Use the Data +Increase or -Decrease keys to input some percentage of aileron motion. Move the throttle stick downwards and be sure the ailerons go UP with crow. If they don't, change the sign in front of the setting number. You'll probably want a fair amount, but not all, of aileron travel. Start with about 50%. Be sure not to use full travel, so you'll have roll authority while on approach in full crow command. Notice that you set the throw for both ailerons at the same time: this is the reason to have identical control arm lengths and neutral positions.

Competition Glider Quick Setup Instructions

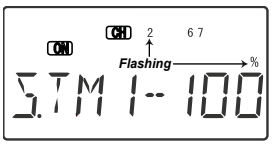
26. Now you may set up the throw for the elevator, but it usually doesn't take much, and too much will be uncontrollable. We suggest you set this amount after you've flown and know how much elevator motion is needed to trim. Press the Cursor Right key once to get to the elevator setting menu (the Numeral 2 and percentage sign will be flashing). Set the desired number with the Data +Increase or -Decrease keys. For starters, use



zero or very little elevator compensation until you fly and determine what is needed: if the model pitches up with crow, add down elevator compensation and if it pitches down wards, add some up compensation. Make only small changes in compensation because it has a big effect on trim. Refer to the sailplane trimming chart for more details.



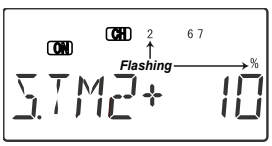
27. (4WNG only) Now set up the throws for the flaps as desired. Press the Cursor Right key once to get to the flap setting menu (the Numeral 6 and percentage sign will be flashing). Set the desired number with the Data +Increase or -Decrease keys. Move the throttle stick and be sure the flaps go DOWN with crow. If they don't, change the sign (this may depend on servo orientation). You'll probably want as much flap motion as possible - 90 is great if you can get it. Like the ailerons, you set both flap offsets at the same time.



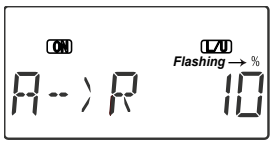
28. (4WNG only) Then, using Subtrims, fine tune to get neutral flaps on both sides. Use EPAs to get 90 flap travel (or the amount of travel that you'd like) at full crow. It may be helpful to use long servo arms on the flap servos to increase their effective throw.

29. (4WNG only) You can use the S.TM1 (launch) preset for high launches.

You can set the two flaps (CH6 and CH7) to drop for more lift, and trim with elevator (CH2). Increase the up- elevator preset in small increments until the plane launches as steeply as you like, or add down elevator if the model weaves back and forth or is hard to control (remember to use the rudder stick, or rudder coupling, during the launch). A well-trimmed model may actually have some down elevator mixed in for launching. Remember that to get the S.TM1 function to turn on, you have to flip the Flt. Mode switch Back.



30. (4WNG only) You may also set up the speed mode presets (S.TM2) for high speed cruise between thermals. Reflex the entire trailing edge a very small amount -10% or even less all the way across is recommended for starters. The trailing edge should raise no more than 1/16" (1.5 mm), or you'll gain more drag than penetration ability.



31. If desired, add aileron rudder coupling (A->R) for coordinated turns. This setting is highly dependent on the model configuration. Usually only a small amount of rudder is needed, especially if a large amount of differential is present, so start out with 10-15%.

Carefully observe the direction of the fuselage relative to the thermal turn the model is making. If the nose points towards the inside of the circle, the coupling is too high, and if it points towards the outside of the circle, you need more coupling. When everything is set properly, the fuselage will be tangent to the thermal turn circle (see page ?? for more details). While you are flying, watch for trim changes during launch and crow control actions and set the compensations to cancel them out. You may wish to refer to the sailplane trimming chart presented earlier.

Glider Model Function Descriptions

EPA - End point adjust

See ACRO instructions on page 27

D/R - Dual Rates

See ACRO instructions on page 27

EXP - Exponential

See ACRO instructions on page 30

FLT.C - Flight Conditions

See ACRO instructions on page 31. There are three FLT.C settings available in the GLID menus. Note that in addition to the FLT.C features described there, you can also use the STM.1 and STM.2 subtrim offset functions to program different controls move to new positions. Together, these can be used to set up launch and speed control positions and offsets for sailplanes. The trim lever for the flap stick controls the neutral position of both flaps if 4WNG is on. In the GLID menus with the 4WNG option on, the flight condition menus allow you to offset the trim positions inputted by the trim levers for channels 1, 2, 4, and 6. The Speed Flap Trim offset functions allow you to also offset the position of the elevator servo (CH2) and the dual flap servos (CH6 and CH7). Speed Flap Trim offset functions are described later.

STRM – Subtrim

See ACRO instructions on page 31.

REV - Servo Reversing

See ACRO instructions on page 32.

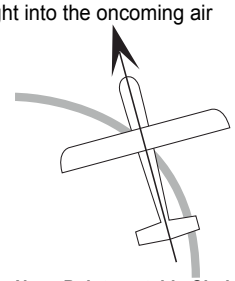
PMX1 to PMX5 - Programmable Mixing Functions

See ACRO instructions on page 32.

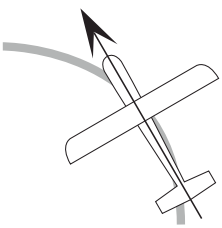
Glider Model Function Descriptions

ADIF - Aileron Differential

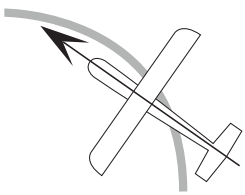
Ailerons are used to roll or bank the glider's wing, but making a roll or turn has a price. A wing that generates lift also generates a drag component called induced drag, meaning that drag is induced as a by-product of the lifting wing. This means that the wing that is lifting more is also dragging more, and the resulting drag difference causes the fuselage of the model to yaw away from the desired turn direction, exactly the wrong thing to have happen. This causes even more drag, which can really hurt a glider's performance. There are two ways to reduce the yaw of the fuselage, differential (ADIF) and rudder coupling (A->R). Both should be used together, but you only find ADIF in the glider menus. Aileron differential causes the ailerons to automatically move with more UP than DOWN motion, which helps to reduce induced drag. It helps, along with rudder-coupling, to make the fuselage point straight into the oncoming air stream (this is also called "coordinating the turn").
The amount of differential is highly dependent on the model configuration. A good starting point is for the down aileron to move 50% to 75% as much as the up-moving aileron.



Nose Point soutside Circle increase coupling and/or differential

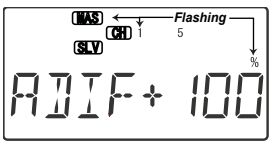


Coordinated turn fuse lines up with turn direction (don't change anything!)



Nose Points inside circle Toomuch coupling or differential Reduce one or both.

Setting Up Differential



1. Press one of the Up Down Edit buttons repeatedly to select the ADIF window. To begin with, the function is already activated, but it's set to 100% on both sides so there is no differential.
2. MAS and the numeral 1 will be flashing together, showing that CH1 is the affected channel. To set the differential for the right aileron (CH1) down travel, hold the aileron stick to the left side (display shows L/U), and press the Data Decrease key (the right aileron moves down when left aileron stick is commanded). Continue reducing the percentage until you reach about 60% to 70%.
3. Make sure that the up travel for the first aileron (CH1) stays at 100% by holding the aileron stick to the right side (display shows R/D) and verifying that the display shows 100%.
4. Press the Cursor Right key once, to get to the left aileron (CH5) setting menu. SLV and the numeral 5 will be flashing together, showing that CH5 is the affected channel.
5. Move the aileron stick to the right (display shows R/D), and press the Data Decrease key reducing the percentage until you reach about 60% to 70%.
6. Make sure that the up travel for the second aileron (CH5) stays at 100% by holding the aileron stick to the left side (display shows L/U) and verifying that the display shows 100%.
7. If for some reason you want a 0% setting, press the Active/Inhibit (Clear) key. This is the maximum amount of differential you can get, but will reduce the roll rate if selected.

VTAL - V-Tail Programming

See page 37

E->F - Elevator Flap mixing

See ACRO instructions on page 35. The GLID mode E->F function is turned on with the Flt. Mode switch fully Back. Also, the Elevator-Flap mixing does not provide full trailing-edge motion on gliders even if the F->A mixing function is activated - only the center flaps are coupled.

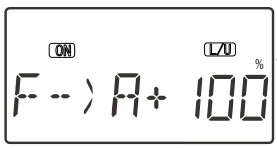
A->R - Aileron Rudder mixing

See page 36

F->A - Flap Aileron mixing

Flap Aileron mixing (F-> A) is used to make both ailerons move together as flaps when the camber changing/ flap knob VR1 is moved . This allows full-span camber changing on models with either two ailerons and one flap (2WNG) or two ailerons and two flaps (4WNG). It is on only if the Ch. 7 switch is forward, and functions at the same time as flap->elevator mixing (see next menu).

Setting Up Flap->Aileron Mixing



1. Locate the flap->aileron mixing function by scrolling to the F->A menu with the Up Down Edit keys. The default is for it to be inhibited (Inh). Press the Active/Inhibit (Clear) key so that the '+100%' display is shown, meaning the ailerons follow the flaps 100%. Depending on the position of the Ch. 7 switch, either 'On' or 'Off' will be flashing.
2. Press the Cursor Right key once, to get to the percent setting menu. Press the Data +Increase or -Decrease keys to adjust the amount of mixing to suit.
3. Move the flap knob so the R/D display changes to L/U, or vice versa, and repeat the setting adjustment for that side of the travel. You can set an input on each side of the flap knob.
4. If you want to zero out the amount of mixing on one side of the knob's travel, press the Active/Inhibit (Clear) key.

5. If you want to change Set position, press the Cursor Right key to change the position of Flap control channel (VR1) which value you need, and then press Clear key.

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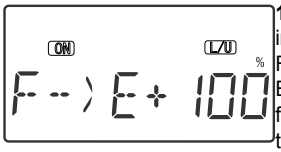
6. You can observe the effect of flap->aileron mixing on the aileron servos when the function is turned on with the Ch. 7 switch, and you move the flap knob (VR1) back and forth.

F->E - Flap Elevator mixing.

Flap Elevator mixing (F->E) is used to make the elevator move to maintain trim when the camber-changing/ flap knob VR1 is moved. It functions at the same time as flap->aileron mixing (see previous menu). F->E mixing is on only if the Ch. 7 switch is forward

Setting Up Flap->Elevator Mixing



1. Get to the flap->elevator mixing function by locating the F->E menu with the Up Down Edit keys. The default is for it to be inhibited (Inh). Press the Active/Inhibit(Clear) key so that the '+100%' display is shown, meaning the elevator follows the flaps 100%. Depending on the position of the Ch. 7 switch, either 'On' or 'Off' will be flashing.

2. Press the Cursor Right key once, to get to the percent setting menu. Press the Data +Increase or -Decrease keys to adjust the amount of mixing to suit. You probably want to select a number like 10% or less, since the elevator is very powerful as a trimming device.

3. Move the flap knob so the R/D display changes to L/U, or vice versa, and repeat the setting adjustment for that side of the travel. You can set an input on each side of the flap knob.

4. If you want to zero out the amount of mixing on one side of the knob's travel, press the Active/Inhibit (Clear) key.

5. If you want to change Set position, press the Cursor Right key to change the position of Flap control channel (VR1) which value you need, and then press Clear key.

6. You can observe the effect of flap->elevator mixing on the elevator servo when the function is turned on with the Ch. 7 switch, and you move the flap knob (VR1) back and forth.

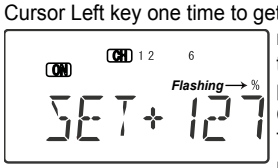
CROW - Crow mixing (airbrakes)

The Crow mixing function is useful for increasing the drag of a model during landing approaches, which makes the approach steeper and slower, making landings shorter and easier. This is especially useful for sailplanes, where applying down elevator to steepen the glide also speeds things up and makes landings very difficult. Crow is activated by the flap (throttle) stick position. Ailerons, elevator, and flaps are the three controls that are commanded by crow function, which is also called "butterfly" in the sailplane world. The idea of the crow function is to simultaneously raise the ailerons (which reduces the wing's lift), and drop the flaps (to regain the lift lost by the up aileron movement). Elevator motion may also be also commanded if needed to prevent a trim change induced by the flap and aileron motion. Normally, crow is set up so that the maximum control movements (Maximum drag) occur at "low" throttle stick position (towards the bottom of the transmitter). The Gear switch must be forward for Crow to operate.

Setting Up Crow Mixing

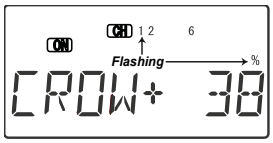
1. Start by locating the CROW menu with the Up Down Edit keys. Either the ON or OFF display will be flashing, depending on the position of the Gear switch (forward is on).

2. First set the CROW function activation point. Hit the Cursor Left key one time to get to the SET menu. Now



move the throttle stick all the way up. Enter that position by pressing the Clear Active/Inhibit key. The display should read a number around +125%.

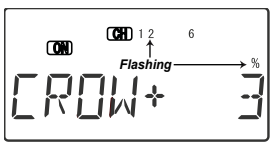
3. Make sure CROW is ON by moving the Gear switch forward. Verify by looking at the flashing indicator.



4. Next, set up the throws for the ailerons. Press the Right key two times to get to the aileron setting menu (the numeral 1 and percentage sign will be flashing in the display).

Press the Data +Increase or -Decrease keys to adjust the amount of UP aileron motion. Move the throttle stick all the way down and be sure the ailerons go UP. If they don't go up, but go down instead, press the Clear Active/Inhibit key and then press the other Data key to achieve the desired up aileron travel (this may depend on servo orientation). You'll probably want a fair amount, but not all, of aileron travel. Be sure not to use full travel, so you'll have roll authority while on approach in full crow command. Notice that you set the throw for both ailerons at the same time: this is the reason to have identical control arm lengths and identical neutral positions.

5. Now press the Right key to get to the elevator compensation menu (the numeral 2 and percentage sign will be flashing in the display). Press the Data +Increase or



-Decrease keys to set up the throw for the elevator as desired. Move the throttle stick and be sure the elevator goes UP with crow. If it goes down, press the Clear Active/Inhibit key and then press the other Data key to achieve the desired up elevator travel (this may depend on servo orientation). For starters, use zero or very little up elevator compensation until you fly and determine what is needed: if the model pitches up with crow, add down elevator compensation and if it pitches downwards, add some up compensation. Make only small changes in compensation because it has a big effect on trim. Refer

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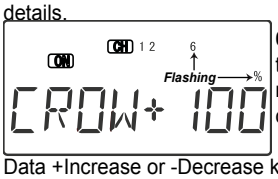
to the sailplane trimming chart on page 51 for more details.



6. Now press the Right key to get to the flap setting menu (the numeral 6 and percentage sign will be flashing in the display). Press the Data +Increase or -Decrease keys to set up the throws for the flaps as desired. Move the throttle stick and be sure the flaps go down with crow. If they don't go down, but go up instead, press the Clear Active/Inhibit key and then press the other Data key to achieve the desired down flap travel (this may depend on servo orientation). You'll probably want as much flap motion as possible - 90 is great if you can get it. Like the ailerons, you set both flap offsets at the same time.

7. If you can't get enough travel, go to the EPA menu and be sure CH6 and CH7 are set as high as possible to get 90 flap travel. Of course, you can reduce them to get the amount of travel that you'd like at full crow, but this is better done in the Crow menu as given in the previous step. It may be helpful to use long servo arms on the flap servos to increase their effective throw.

Remember to try your crow setup out at higher altitudes to verify that the trim doesn't change rapidly. If you want to steepen the descent, increase the flap downward deflection while increasing the up aileron movement.

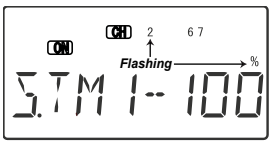
Caution: when setting up crow, do not call for too much aileron "up" travel, or you'll lose roll authority, and this occurs at a crucial time, when your model is flying relatively slowly on a landing approach. Always make changes in small increments, don't try to do it "all at once."

S.TM1, 2 - Speed Flap Trim offsets (Camber mix) 1, 2 (4WNG only)

Speed Flap Trim Offsets, together with flight conditions, are a way to set up gliders with four wing servos(4WNG). They do not appear in the two wing servo (2WNG) menu. Speed Flap Trim offsets are used to offset the positions of the elevator servo (CH2) and the inboard flaps (CH6 and CH7) by flipping the Flt. Mode switch.

Together with the Flight Condition menus (FLT.C), you can command any position of the inboard flaps, ailerons, and elevator by flipping the Flt. Mode switch, and without using Speed Flap Trims. Speed Flap Trim offset #1 is On when the Flt. Mode switch is fully back, and is commonly used for the "speed" mode, where the trailing edge is reflexed. Speed Flap Trim offset #2 is On when the Flt. Mode switch is fully forwards, and is commonly used for setting up offsets needed for good launches.

Setting Up Speed Flap Trim Offsets



1. Start by locating the S.TM1 menu with the Up Down Edit keys, then pressing the Active/Inhibit (Clear) key. Either the 'Off' or the 'On' display will be flashing, depending on the position of the Flt. Mode switch. Also, the indicators for CH2, CH6, and CH7 will appear at the top of the display.

2. First, you'll set the elevator (CH2) function offset amount. Make sure S.TM1 is ON by moving the Flt. Mode switch fully back. Verify it's on by looking at the flashing On indicator. Hit the Cursor Right key one time, and a small arrow will appear over the numeral 2.

3. Next, set up the elevator (CH2) motion. Press the Data +Increase or -Decrease keys to adjust the amount of elevator offset. Use a small amount at first, as the elevator is very effective.

4. Now set up the throws for the CH6 flap. Hit the Cursor Right key one time, and the numeral 6 and percentage sign will be flashing. Now use the Data +Increase or -Decrease keys to adjust the amount of CH6 flap offset.

5. Next set up the throws for the CH7 flap. Hit the Cursor Right key once, and the small arrow will move over the numeral 7. Use the Data +Increase or -Decrease keys to adjust the amount of CH7 flap offset.

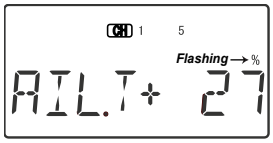
6. Locate the S.TM2 menu by pressing the Up Edit key, and then press the Active/Inhibit (Clear) key to turn it on. Either the 'Off' or the 'On' display will be flashing, depending on the position of the Flt. Mode switch.

7. Repeat the previous instructions for the second set of inputs for elevator, CH6, and CH7.

AIL.T - Aileron trim

either two or four wing servos. It provides a simple way to adjust the position of the outboard wing controls (CH1 and CH5) without resorting to the Speed Flap Trim menu. When you adjust the Aileron Trim setting, you move the two outboard wing controls together - they go upwards or downwards together. In models with four wing servos, you can use Aileron Trim together with the Dual Flap Trim function (see below) to set any position of the wing controls without using subtrims.

Using Aileron Trim



1. Turn on Dual Aileron Trim by locating the AIL.T menu with the Up Down Edit keys.

2. Adjust the percentage to neutralize them relative to each other with the DATA keys

A->F - Aileron Flap mixing (4WNG only)

To roll a sailplane, we must increase the lift on one wing and reduce lift on the other. The model will of course roll towards the wing with reduced lift. For minimum drag when turning, we want to have the way the lifting is done vary smoothly along the span (i.e. zero at the root and maximum at the tips). Unfortunately, to do this requires a control surface that tapers from zero at the root to maximum at the tip. Since this is impractical, we mix from the ailerons to the flaps as shown below, so the inner ailerons don't move as far as the outer ones. This is an approximation of the ideal lift for rolling, and will reduce the drag created while banking the wings.

It's more efficient to use both inboard and outboard wing controls to make a turn. For a left turn, the left ailerons go up, the right ones go down. The length of the arrows is proportional to the control movement (notice that

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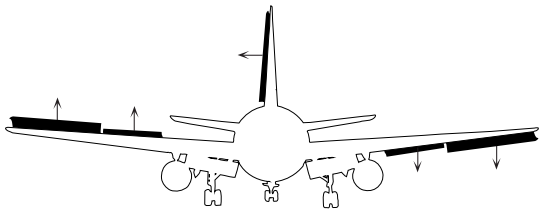
inboard ailerons are programmed to move a smaller angle). Rudder coupling is also shown and may be programmed with the R->A mixing function.



(VIEW FROM BEHIND)

Aileron->Flap mixing is turned on and off with the Flt. condition switch. You can adjust the amounts of up and down mixing independently, which is nice if your model's flaps are hinged on the bottom and they cannot move up past a certain point.

Using Aileron->Flap Mixing

1. Turn on Aileron->Flap mixing by locating the A->F menu with the Up Down Edit keys. The default is for it to be inhibited (Inh). Press the Active/Inhibit (Clear) key so that to activate of Flap Mixing.

2. First, you'll set the aileron (CH1)->CH6 function mixing amount. Make sure A->F is On by moving the Flt. condition switch fully back. Verify it's on by looking at the flashing On indicator. Hit the Cursor Right key one time, and SLV with the numeral 6 will be flashing .

3. To set the UP mix amount for the right flap, hold the aileron stick to the right side (display shows R/D), and press the Data Decrease key. Continue reducing the percentage until the servo stops buzzing. If there's no buzzing, you can start with about 50%. If your model has bottom-hinged flaps, you can get to 0% quickly by pressing the Active/Inhibit (Clear) key.

4. Now set the Down mix amount for the right flap (CH6). Holding the aileron stick to the left side (display shows L/U), use the Data Decrease key to reduce the percentage to about 50%.

5. Now we'll do the same for the second flap servo (CH7). Press the Cursor Right key once, to get to the left flap (CH7) setting menu. A small arrow is displayed under the numeral 7, showing that CH7 is the affected channel. Move the aileron stick to the right (display shows R/D), and press the Data Decrease key reducing the percentage until you reach about 50%.

6. Set the up mix amount for the second flap (CH7) as you did for the first flap servo. Hold the aileron stick to the left side (display shows L/U) and press the Data Decrease key to reduce the percentage to about 50%. Again, if your model has bottom-hinged flaps, you can get to 0% quickly by pressing the Active/Inhibit (Clear) key.

DFL.T - Dual Flap Trim (4WNG only)

Dual Flap Trim is a trimming function for gliders with four wing servos, and does not appear in the two wing servo (2WNG) menu. It provides a simple way to adjust the position of the inboard flaps (CH6 and CH7) without resorting to the subtrim menu. When you activate Dual Flap Trim, you can turn the right-hand knob (VR2, located right back of transmitter) to move the two inboard flaps against each other - one goes upwards, the other goes downwards. Together with the Flap/Camber control knob (VR1), you can set any position of the inboard flaps without using subtrims.

Using Dual Flap Trim

1. Turn on Dual Flap Trim by locating the DFL.T menu with the Up Down Edit keys. The default is for it to be on. If you wish to disable the dual flap trim, press the Active/Inhibit (Clear) key so that the 'inh' display is shown.

2. Turn the VR2 knob one way or the other and observe the response of both inboard flap servos. Adjust the knob to neutralize them relative to each other. If you inhibit this function, they'll return to their original positions

Sailplane Trimming and Adjusting

The following chart gives procedures that may be followed when trimming a new sailplane. The flights should be made in near-calm conditions, and repeat them several times before making adjustments. If any changes are made, go back over the previous steps and verify, or further adjust as necessary. One of the most critical steps is the center-of-gravity (CG)/decalage testing (Step 3). Decalage is a fancy term describing the relative angle difference between the wing and horizontal tail. Although the control neutrals have been set in Step 1, there are differing combinations of elevator trim and CG that produce stable flight. In general, by moving the CG back you get better performance and you reduce the stability, making the model more difficult to fly and requiring more attention from the pilot. Moving the CG back lessens the download on the model's tail, which means the wing and tail are working more together and less against each other as they do with a forward CG. Many contest flyers use a CG position located between 35 and 40% of the mean wing chord, which is near the back limits for stability (the mean chord is just about the same as the average chord, which is calculated by dividing the area by the wing span). How you set your model up really depends on your preferences. A nose-heavy model will be easier to fly but will lack the performance of the back-CG model. You should also set differential and/or rudder coupling carefully. Incorrect settings will result in needless increased drag, and may be checked fairly easily. If you practice keeping the fuselage straight while gently rocking the wings back and forth, you'll learn how to coordinate turns and won't need coupled rudder any more. You can also learn about the proper amount of differential or rudder coupling by studying the figures of the model circling in the "coordinating turns" section, Chapter 5. Too much differential can make the model sluggish when entering or exiting turns and banks. Setting up butterfly can be tricky. The reader is referred to the section earlier in this chapter which describes the instructions contained in the chart's line 4, 5, and 6. Whatever you do, be sure to spend a lot of time trimming

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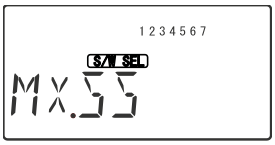
your sailplane. If you have a nearby slope, practice flying on very light lift days, where you can just barely keep the model airborne. It is under these conditions that you learn whether your model is really trimmed properly.

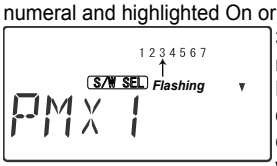
MX.SS Mix Switch Select

Current Mixing switches can be assigned to new other switches for user convenience.



1.To set the MX.SS ,get to the MX.SS screen with the Edit Up Down keys (press at the same time. and then search MX.SS by pressing Edit Up or Down repeatedly). In the display has to be exactly the same as like right diagram, (all switches must be positioning on normal)

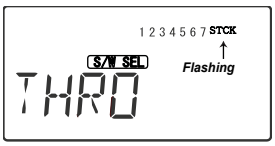
2. Pressing the Cursor Right to change the assign new Mix Switch for your convenience .(refer to page 37- Default) Current mixing switch will be showing by flashing channel numeral and highlighted On or Off sign.



3. You can be assigned new mixing channel by pressing Data +Increase, -Decrease keys or toggle switch . also you can check the new assigned switch which being set (by numeral flashing) or On or Off status..

4. To go to next switch assigning, current new assigned switch have to be OFF. Current assigned switch is On, cannot move next switch to assign.

Ex) After assigned PMX 1 switch, and then press Cursor Right in order to move PMX 2 . at this time , PMX 1 Switch has to be OFF. If PMX 1 switch is ON , we cannot move next switches .



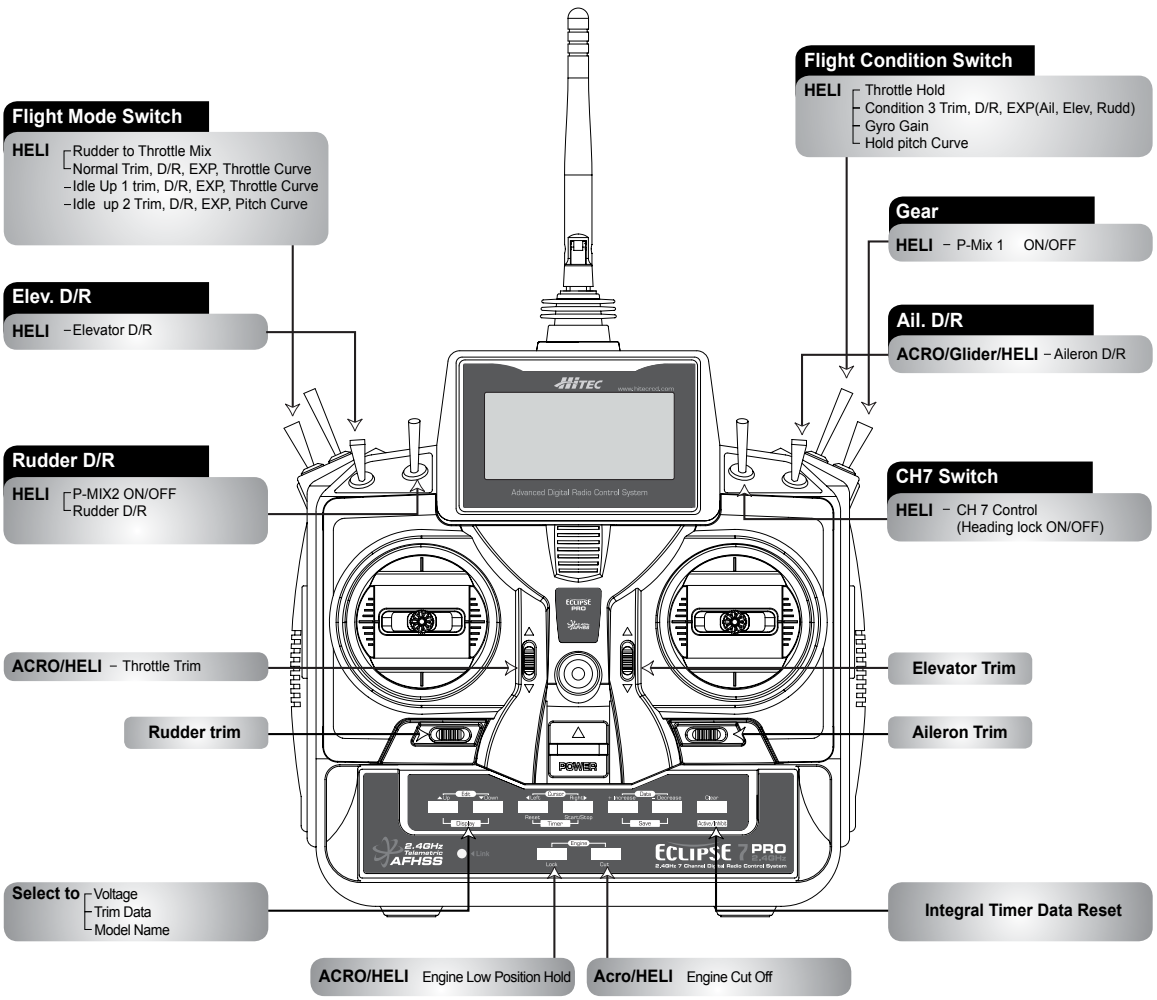
5. Pressing the Cursor Right to find THRO function. This is only can use in Glider type. Current 3CH function (Motor On/Off or Spoiler) can be assigned by throttle Stick or other switches . if you want to assign this function to throttle stick, STICK sign in the display have to be flashing(being select) . You can select STICK sign through pressing the DATA + , DATA- key. If you assigned this function to throttle stick , you cannot find SET function in the CROW menu.

SAILPLANE TRIMMING CHART

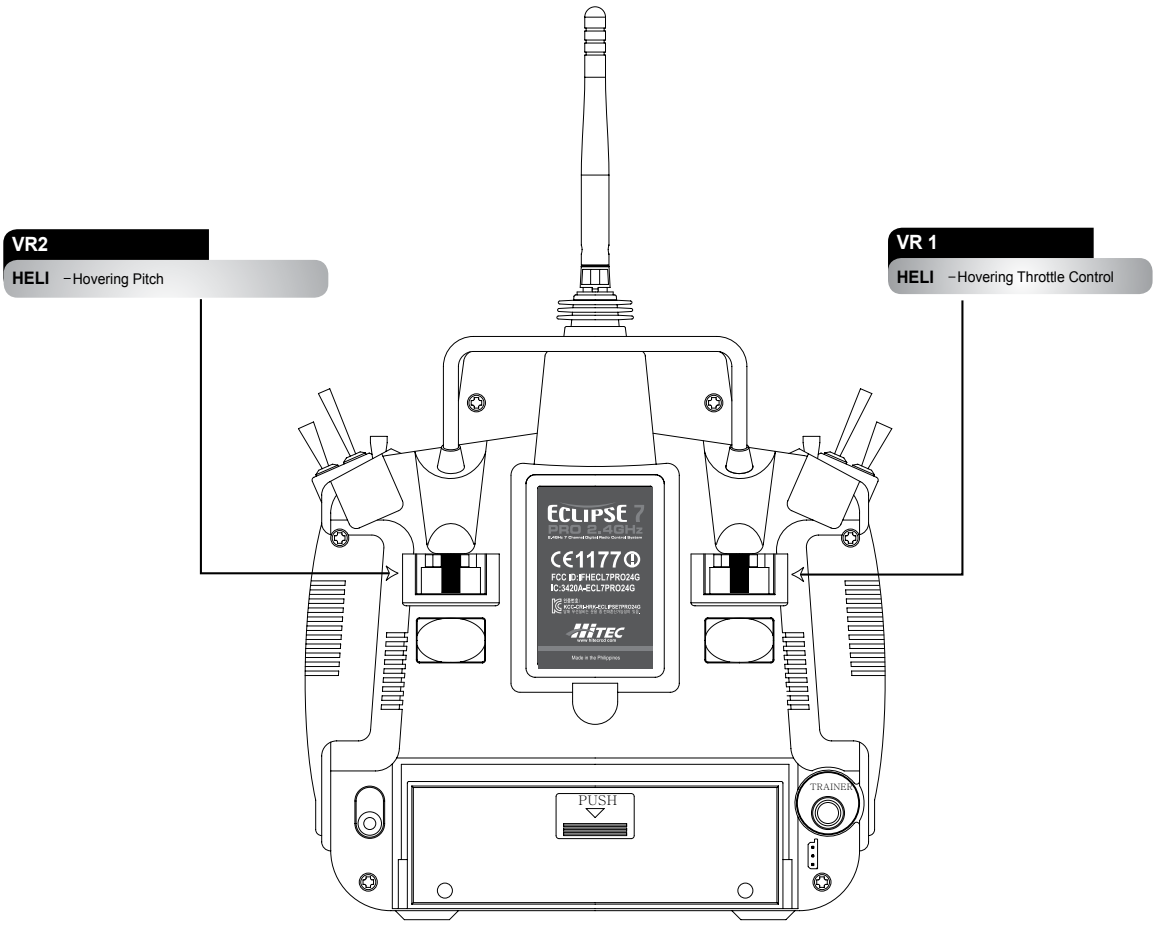
To test for	Test Procedure	Observations	Adjustments
1. Model Control Neutrals	Fly the model straight and level	Adjust the transmitter trims for hands-off straight & level flight, no camber control.	Change electronic subtrims and/or adjust clevises to center transmitter trims.
2. Control Throws Note: be sure all aileron & flap horn pairs have matching angles	Fly the model and apply full deflection of each control in turn. Camber control in neutral (setup 6 & 9).	Check the model's response to each control input. Set flaps for as much down flap as possible in glide path control (90 is good) <5 reflex needed.	Aileron & elevator rates: set for desired authority Rudder: set for max. throw Set flap motions in Steps 4, 5, & 9.
3. Decalage & Center of Gravity (Note: this is a trial and error test procedure, depends on desired handling characteristics. Back CG = less stability but better performance)	Trim for level glide. Enter 45 dive (across wind if any) and release controls. CAUTION: beware of airspeed & flutter.	A. Does the model continue its dive without pulling out or diving? B. Does the model start to pull out (nose up)? C. Does the model start to tuck (dive more nose down)?	A. No adjustment B. Reduce incidence (add down elevator) and/or reduce nose weight C. Increase incidence (add up elevator or add nose weight)
4. Glide Path Control Settings - Pitch Trim Note: be sure all aileron & flap horn pairs have matching angles.	Fly the model and slowly apply full deflection of glide path control (airbrake stick). Observe any pitch changes.	A. Nose drops, up elevator required for level flight B. No pitch change C. Tail drops, down elevator required to maintain level flight	A. Several options: 1) more up elevator mix; 2) reduce aileron reflex*; 3) increase flap motion* B. No adjustment C. Reverse of A
5. Glide Path Control Settings - Elevator Delays	Rapidly apply full glide path, observe initial pitching response	A. Nose drops B. No pitch change C. Nose rises	A. Increase elevator delay % B. No adjustment C. Reverse of A
6. Glide Path Control Settings - Roll Response	Fly the model and apply full glide path control. Observe any roll motion.	A. Model rolls to right when glide path control (airbrake stick) activated B. No roll motion C. Model rolls to left	A. Mix in less right & more left aileron reflex with airbrake motion B. No adjustment C. Reverse of A
7. Differential/Coupled Rudder setting	Fly the model and apply alternating left & right aileron commands. Observe path of fuselage line.	A. Model yaws to right with left aileron and vice versa B. Fuselage traces straight line C. Model yaws to left with left aileron and vice versa	A. Increase differential and/or amount of rudder coupling B. No adjustment C. Reduce differential and/or amount of rudder coupling
8. Camber (full wing aileron & flap droop or reflex) setting	Put the model in a straight glide passing in front of you. Apply camber control.	A. Model slows down & stalls or sinks rapidly B. Model slows slightly C. Model speed unchanged	A. Reduce amount of droop &/or add elevator compensation B. No change needed C. Reverse of A
9. Launch Settings (Part 1)	Switch to Launch mode. Launch the model & observe climb angle and required control inputs	A. Shallow climb angle; lots of up elevator required B. Model climbs steeply with little control input needed C. Too steep climb, weaves back & forth, down elev. required	A. Move towhook rearwards small amount, increase up elevator preset a little, or add camber B. No adjustment C. Reverse of A
10. Launch Settings (Part 2)	Switch to Launch mode. Launch the model & observe climb angle and required control inputs	A. Model banks left on tow B. Model climbs straight ahead with no roll input needed C. Model banks right on tow D. Model tip stalls to one side	A. Reduce left ail & flap droop or increase right ail / flap droop B. No adjustment C. Reverse of A above D. Check droop same on both sides. Increase aileron or decrease flap droop
11. Speed Settings	Switch to speed mode (entire TE reflexed slightly, <1/16"/1 mm)	A. Nose drops B. No pitch change C. Tail drops	A. Increase up elevator preset B. No adjustment C. Reverse of A
12. Elevator-to-Camber Coupling Setting	Fly model at high speed, bank & pull up	A. Model keeps speed and comes about rapidly B. Model slows down	A. Increase down flap or leave alone B. Reduce amount of down flap

*Note: Swept wing planeform may cause opposite reactions, so experiment until proper behavior is attained.

Eclipse 7 Pro Helicopter Controls and Switch Assignments



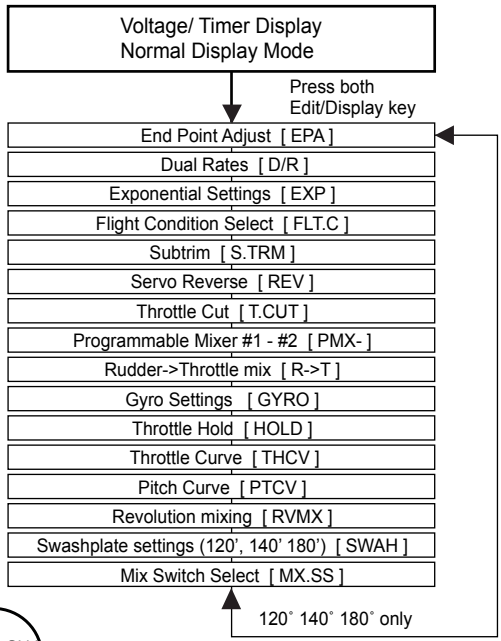
Eclipse 7 Pro Helicopter Controls and Switch Assignments



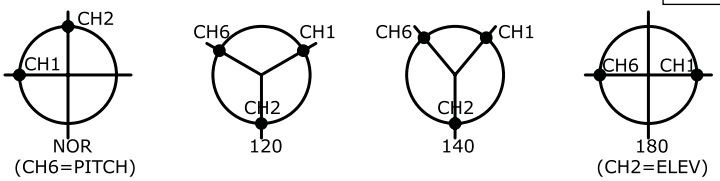
Eclipse 7 Pro Helicopter (HELI) Programming

Eclipse 7 Pro Helicopter (HELI) Programming
This section describes how to use the Eclipse 7 Pro helicopter functions (model type HELI). Descriptions of the other functions, such as endpoints, dual rates, expo, etc., are contained in the aircraft (ACRO) section. The HELI menu provides three flight conditions in addition to the normal one (NOR). ST1 may be used for forward flight and mild aerobatics, ST2 may be used for inverted, and ST3 is used for autorotation.

Helicopter Functions Map
Helicopter Setup Example
R->T Rudder->Throttle mixing
GYRO Gyro Settings
HOLD Throttle Hold
THCV Throttle Curve
PTCV Pitch Curve
RVMX Revolution mixing
SWAH Swashplate settings (120', 140' 180')
MX.SS Mix Switch Select
Hovering Pitch Adjusting knob
Hovering Throttle Adjusting knob
Helicopter Trimming Chart



The Eclipse 7Pro system comes with three choices for the helicopter's swashplate arrangement, which may be found in the setup menu: normal (NOR), 120 (120'), 140(140')and 180 (180'). NOR is the standard swashplate where one servo each performs the collective pitch, elevator, and aileron functions. 120 ,140 and 180 are intended for three-servo swashplates needing special mixing to get the servos to properly provide the required pitch, elevator, and aileron functions.



Helicopter Setup Instructions

The following example shows how the Eclipse 7 Pro may be programmed for a helicopter model. Your model's settings will be dependent on the setup and linkages. If you're not sure about the settings for your particular model, please ask an experienced pilot for assistance.

The helicopter setup procedure presented below uses a standard helicopter setup, one servo each for ailerons and elevator. You can use a similar procedure to set up your own model; your setting's numbers and percentages will probably be different.

1. In the helicopter, install each servo and hook up the aileron, elevator, throttle, rudder, and pitch pushrods to the servos in accordance with the model's instructions or plans. Be sure that all of your servos are plugged into the proper receiver channels:

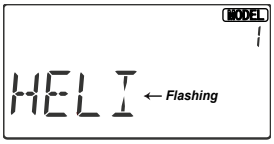
CH1 - Aileron
CH2 - Elevator
CH3 - Throttle
CH4 - Rudder
CH5 - Gyro
CH6 - Pitch
CH7 - Aux. or heading hold control

If your model uses 120 , 140 or 180 swash programming, plug in the servos as indicated in the table on page ??. We recommend that you do this programming exercise with the servos installed in the model and connected to the respective control surfaces. This will enable you to immediately see the effect of each programming step.

2. Model Memory. Turn on your transmitter while holding the two Edit Display keys. This gets you into the model select (M. SEL) menu. Press the Cursor Right button to move to a new model memory. The model number of the model memory you selected will be flashing
. The figure shows Memory #1.

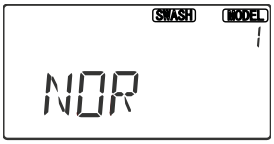
3. Model Type. Press the Down arrow five times. The word ACRO will appear, flashing on and off. Press the Left or

Helicopter Setup Instructions

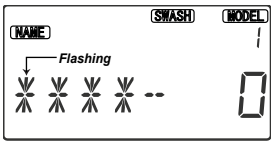


Right Cursor keys until HELI appears. You must press both Data keys to “Save” the setting. This is how you select the type of model you wish to use, either ACRO, HELI, or GLID.

WARNING: selecting a different model type will erase the settings in the model memory. BE SURE you’re in the correct model memory before selecting a new model type, or you might accidentally erase a model you’re using.



4. Swash Type. Now it’s time to select the swash type. Select NOR for helis with independent aileron, elevator, and pitch servos; 120’ for models using 120 swashplates; 140’ for models using 140 swashplates and 180’ for models with 180 swashes. Press the Down arrow until you see the word “SWASH” in the upper right of the display. The swash type in the lower left will be flashing. You must press both Data keys to save the swash type.

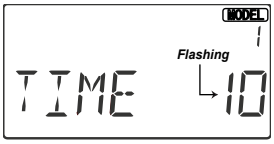


5. Name your model. Press the Down arrow once. This gets you into the model name mode (note the words MODEL and NAME in the upper left of the display).

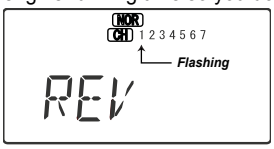
6. Now you can select four letters to identify your model. With the first of the four letters flashing, press the Data +Increase or -Decrease keys to change the letter that is displayed. Stop when the first letter is the one you want.

7. Press the Right Cursor key once to get to the second letter. Repeat Step 5 to choose the second letter.

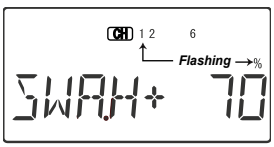
8. Repeat the previous steps two more times to fill out the remaining two letters. If you like, you can hit the right cursor button one more time and select a number between 0 and 999 for further identification.



9. Set the stopwatch. Press the UP arrow four times. This gets you into the Timer menu (TIME). Use the Data Increase and Decrease keys to select the amount of time you want the stopwatch to count down. This is handy to keep track of engine running time so you don’t run out of gas.

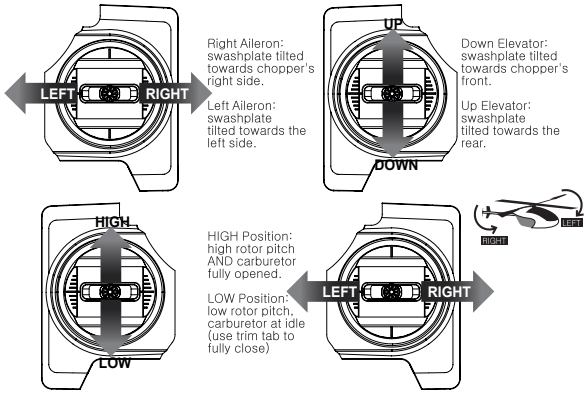


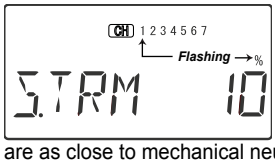
10. This completes the initial part of the setup. Now, we’ll go ahead and customize the settings for your model. Switch transmitter power OFF.



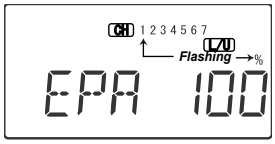
11. Servo Directions. Switch transmitter power back on and check the proper direction of throw for each servo. Use the reversing function [REV] to reverse channels as necessary to get proper throw directions.

12. If you’re using 120’ ,140’or 180’ swash types, please use the swashplate (SWAH) menu, page 61, to adjust these responses.





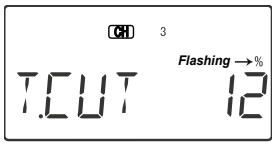
13. Servo Neutrals. First, be sure the hovering pitch and hovering throttle knobs are centered. Set up all linkages so that all servos are as close to mechanical neutral as possible. Then, use the Subtrim (STRM) window to make fine adjustments on the servo neutrals.



14. Servo Travel. Use the EPA command to limit servo travels to prevent binding.

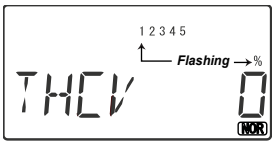
15. Collective Pitch. The collective pitch angle (controlled by CH6 on a conventional helicopter) should vary from -2 to +10 with full stick motion, depending on the flight condition. We recommend setting the hovering pitch (pitch with throttle stick at center) to +4.5 . Adjust servo arms and EPA values to get the desired travel at the end points, measuring with a pitch meter.

16. Engine travel. On the regular display menu, enter a value of -25% for throttle trim. Use the EPA menu to set up the carburetor pushrod so that at full throttle there is no binding, and so the engine idles smoothly at low throttle.



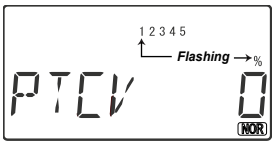
17. Throttle Cut. Enter the throttle cut (T.CUT) menu and enter a value of -25% or so. Press the Cut button and be sure that the carburetor fully closes, which will shut off the engine. Don’t pick too large a number, or binding may occur.

Helicopter Setup Instructions



18. Throttle Curve. You can use the Throttle Curve (THCV) menu's five-point setting curves to fine-tune the engine servo's response. Adjust the throttle position for hover to get the desired head RPM. You can change the curve values to make a steeper curve near idle and shallower curve past hover. See the THCV menu description on page 58 for more details.
If your instructions don't give any suggested values, you may start with the following settings:
Throttle Curve NOR

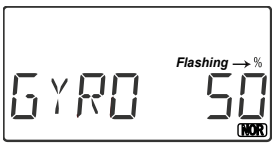
Point	1 (low)	2	3	4	5 (high)
%	0	26	45	72	100



19. Pitch Curve. You can use the Pitch Curve(PTCV) menu's five-point setting curves to make finer adjustments to the endpoints and the middle of travel of the pitch servo. Your model's instructions may provide suggested values for the blade pitch angles. If not, you may want to start with the following:
Pitch Curve NOR

Point	1 (low)	2	3	4	5 (high)
%	0	+5	+6.5	80	+10.0

20. Revolution mixing (RVMX) uses the tail rotor to suppress the torque reaction of the main rotor due to changes in collective pitch. It is disabled whenever Idle-Up or Throttle Hold are activated. RVMX may be set on either side of the stick (note the letters R/D and L/U displayed). Adjust RVMX mixing for both travel directions as described in the trimming instructions on page 62.



21. Gyro settings. You can select an independent value of gyro gain for each flight condition by using the GYRO menu. Select the desired flight condition, then use the Data keys to choose the desired value. The gyro must be plugged into CH6. This function will only work with dual rate heading hold gyros.
22. Aerobatic Setups and Flight Conditions. Your Eclipse 7 Pro system has three built-in flight condition menus in addition to the normal (NOR) hovering mode.
Two -- ST1 and ST2 -- are typically used for aerobatics, including 540 stall turns, looping, and rolling stall turns.
ST3 is used for "throttle hold" so that the throttle servo is disengaged during autorotation. These functions are switched on as follows:
NOR: ON when Flt. Mode Switch is back.
ST1: ON, when Flt. Mode Switch centered
ST2: ON when Flt. Mode Switch is forward.
ST3: ON when Flt. Cond Switch is forward.
As these functions are switched on or off, ST3 will override all the others, followed by ST2 and ST1, which will override NOR. Regular settings (NOR) occur when the others are off. Dual rates, exponentials, throttle and pitch curves, revolution mixing, and gyro gain may be independently selected for each condition. Here are some suggested starting settings if your instructions do not provide any:

Throttle Curve ST1

Point	1 (low)	2	3	4	5 (high)
%	50	38	50	75	100

Throttle Curve ST2

Point	1 (low)	2	3	4	5 (high)
%	100	50	38	50	100

Pitch Curve ST1

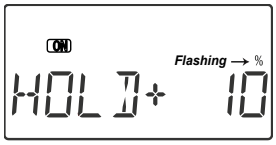
Point	1 (low)	2	3	4	5 (high)
%	-4 deg	+0.5	+6.0	+7.5	+9.0

Pitch Curve ST2

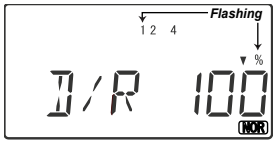
Point	1 (low)	2	3	4	5 (high)
%	-9 deg	- 6.0	0	6.0	9 or 10.0

Pitch Curve ST3 (HOLD)

Point	1 (low)	2	3	4	5 (high)
%	-4 deg	--	+6.5	--	+12



23. Throttle Hold Setting. Throttle hold (HOLD) commands the throttle to a preset position near idle and disconnects it from pitch when activated. Move to the HOLD menu and move the Flt. Cond. switch forward position. Set the hold position to maintain engine speed safely above idle without engaging the main rotor clutch.

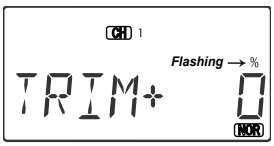


24. Dual Rate Settings. If you find that your aileron and elevator controls are too sensitive, you may set dual rates to reduce them. Use the dual rate (D/R) window to adjust them to the desired amount of response when the switch is flipped.
This is only a brief introduction to the setup procedure for helicopters. Be sure to browse through the pages following this example to see the details about the menus for helicopters.

Menu Descriptions - Helicopter

Flight Conditions

Your Eclipse 7Pro system's HELI menu provides three flight conditions in addition to the normal one (NOR). Within each condition, you may program an independent set of dual rates, exponentials, throttle and pitch curves, revolution mixing, and gyro gain. In the HELI menus, these are automatically called up whenever you switch to a new condition. (In ACRO and GLID, you have to activate them manually.) NOR is intended for hovering flight. ST1 may be used for forward flight and mild aerobatics, ST2 may be used for inverted, and ST3 is used for autorotations as it includes a throttle hold feature which disengages the throttle servo from collective commands. These conditions are activated whenever the model memory is chosen to be HELI type.
These flight conditions are switched on as follows:
NOR: ON when Flt. Mode Switch is back.
ST1: ON, when Flt. Mode Switch centered
ST2: ON when Flt. Mode Switch is forward.
ST3: ON when Flt. Cond Switch is forward.



As these functions are switched on or off, ST3 = HOLD has highest priority, followed by ST2 and ST1. Regular settings (NOR) occur when all of the others are off. You can see which condition your transmitter is currently in by viewing the display. The current condition is the one flashing on and off in the lower right of the TRIM display.

EPA - End point adjust

See ACRO instructions on page 27.

D/R - Dual Rates

Refer to ACRO instructions on page 27.

EXP - Exponential

See the ACRO instructions on page 30.

STRM - Subtrim

Refer to the ACRO instructions on page 31.

REV - Servo Reverse

See ACRO instructions on page 32.

T.CUT - Throttle Cut

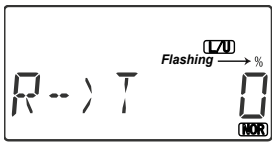
Described in the ACRO instructions on page 32.

PMX1, PMX2 - Programmable Mixing

See ACRO instructions on page 32. There are two programmable mixers in the helicopter menus. PMIX-1 is operated with the Gear switch and PMIX-2 is selected with the Rudder D/R switch.

R->T - Rudder Throttle Mixing

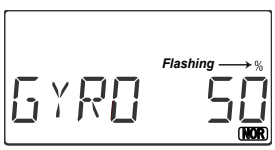
Rudder Throttle (R->T) mixing is used to maintain rotor speed so that altitude is kept constant when the rudder stick is operated in hover. The reason for this mixing is that when rudder is commanded, the tail rotor consumes a little more power, which reduces the power at the main rotor and the helicopter drops or climbs. For helicopters with normal rotor rotation, commanding right rudder (which requires more power) should also increase throttle slightly, while using left rudder (requires less power) should decrease the throttle slightly. R->T mixing is handy for hovering but may also be used in 540 stall turns, hovering eights, nose-in circles, Top Hats, Pirouettes, and other aerobatics.
Setting Up Rudder-> Throttle Mixing



1. Press one of the Up Down Edit buttons repeatedly to select the R->T window. The function is activated by switching the Flt. Mode switch all the way back. It's set to 0% on both sides so there is no differential.
2. To set the mixing amount for the left rudder, hold the rudder stick to the left side (display shows L/U), and press the Data Decrease key. Continue reducing the percentage until you reach about 10%. If for some reason you want a 0% setting, press the Active/ Inhibit (Clear) key.
3. Input the mixing amount for right rudder by moving the rudder stick to the right (display shows R/D), and press the Data Increase or Decrease key to reach about 10%.
4. Note that R->T mixing may only be set up in the NOR Menu

GYRO - Gyro settings

Gyro settings are used to automatically control the gyro's gain in different flight modes. It may be set to different values in NOR, ST1, ST2, and ST3 flight modes, allowing you to pick the gain you need for each circumstance. The Gyro settings control the output at receiver CH7.
Using Gyro Settings



1. Press one of the Up Down Edit buttons repeatedly to get to the GYRO menu. To begin with, the function is already activated, but it's set to 50% in all four flight modes.
2. To set the mixing amount for the normal (NOR) flight condition, flip the Flt. Mode switch all the way back. NOR will be flashing on and off. Set the percentage to yield the desired gyro gain (this is usually a high-gain setting). If for some reason you want a 0% setting, press the Active/Inhibit (Clear) key.
3. Flip the Flt. Mode switch to its center position. ST1 will be appear instead of NOR . Set the percentage to yield the desired gyro gain in this flight condition (this will usually be a lower-gain setting for reduced damping in stunts).
4. Flip the Flt. Mode switch all the way forward. ST2 will be appear . Set the percentage to yield the desired gyro gain.
5. Now flip the Flt. Cond. switch fully forward. You may now input a setting for ST3.
6. Make some test flights to try these settings out. Take note of when more gain is need, and when less gain is needed. You can adjust all of the gyro settings in each flight condition to suit your machine.
Note: this function only works with dual rate heading hold gyros.

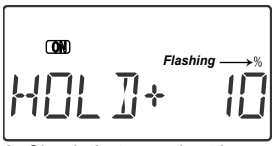
HOLD - Throttle Hold

Menu Descriptions - Helicopter

The Throttle Hold function moves the engine throttle servo to a selected position near idle, and disengages it from the throttle stick. It is commonly used during autorotation, and activated with the Flt. Cond. switch on the right rear of the transmitter. You can set the throttle position to be held over a -50 to +50% range centered about the throttle idle position. Activating throttle hold also disables revolution mixing (RVMX).

Setting Up Throttle Hold

1. Press one of the Up Down Edit buttons until the H0LD window appears. The default is for the function to be inhibited. To activate the throttle hold function, press the Data -Decrease key. This will cause the INH display to change to a -4% value with an ON or OFF display, depending on the Flt. Cond. switch's position.

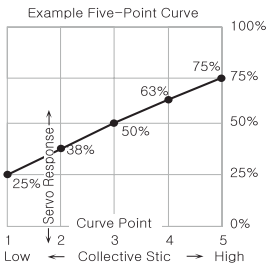


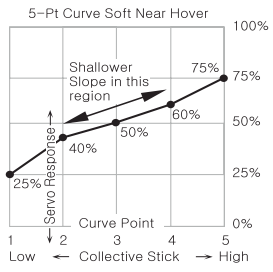
2. Now you can adjust the throttle hold position with the Data +Increase or -Decrease keys, anywhere between -50 and +50% (To inhibit this feature, press the Active/Inhibit (Clear) key).

3. Check that your throttle goes to the desired hold position by flipping the Flt. Cond. switch one way and the other. Adjust the number as needed. Be sure to choose an engine speed that's fast enough to keep the engine from accidentally quitting but slow enough to not engage the main rotor clutch.

THCV - Throttle Curve

The throttle & pitch curves are tied to the position of the collective stick, and are specified at five points labeled 1 through 5 below. These "curves" are really straight lines connecting the settings at the five points, and are defined by assigning servo movement percentages to five positions of the left stick: lowest = Point 1, the 1/4-up stick position = Point 2, half-stick = Point 3, 3/4 position = Point 4, and top position = Point 5. With the numbers as input as shown, the servo would move 50% of full travel to one side at low collective stick position, and 50% of full travel to the other side at high stick position. You can get a linear response by making the five settings line up as shown above. But if you want another shape, you're free to do it. You can "flatten out" or "soften" the curve around hover as shown here. This is handy for making the control less sensitive around hover.

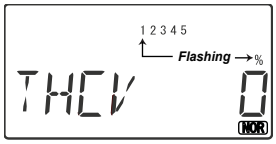




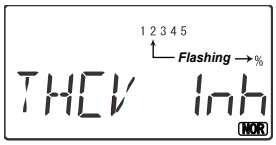
Setting Up The Throttle Curve

1. Press one of the Up Down Edit buttons until the THCV window appears. The default is for a linear curve, a straight line from 0 to 100% passing through 50% at hover (center, point 3).

2. Be sure you're in the desired flight condition by moving the Flt. Mode and Flt. Cond switches to their proper position. Remember, you can input separate, independent throttle curve settings for each flight condition (except for ST3, throttle hold)! Also, be sure to center the hovering throttle knob.



3. You begin at set point #1, idle. Numeral 1 should be flashing in the display, and a value of 0% should be shown. Press the Data +Increase or -Decrease key to change the setting to your desired value.

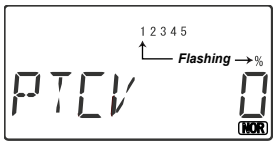


4. When you're finished with Point 1, move to the next point with the Cursor Right key. The numeral 2 should be flashing that indicates you are setting the value for Point 2. Note that the function is inhibited (Inh) to start with. If you leave it, you get a straight line from points 1 to 3. Otherwise, you can change this setting with the Data +Increase or -Decrease keys. You can inhibit THCV point 2 or 4 by pressing the clear key.

5. Repeat this procedure for Points 3, 4, and 5 by pressing the Cursor Right key, then adjusting as desired with the Data +Increase or -Decrease keys.

6. When you've completed the settings for the first flight condition (NOR), test fly your model. When you're satisfied with the settings, use them as a basis for the other flight conditions. Flip the switches as necessary to get into the new conditions, verify on the display that you are in the desired flight condition, then set all the five points in by going through the steps given previously

PTCV - Pitch Curve



Like the throttle curve described above, pitch curves are tied to the position of the collective stick, and are specified at five points labeled 1 through 5 below. Setup instructions are the same as those for throttle curve, except that you may also input a curve for the throttle hold/ST3 flight condition. You can get a linear response by making the five settings line up as shown above. But if you want another shape, you're free to do it. You can "flatten out" or "soften" the curve around hover, which is handy for making the control less sensitive there.

Inputting The Pitch Curve Values

1. Press one of the Up Down Edit buttons until the PTCV window appears. The default is for a linear curve,

Menu Descriptions - Helicopter

a straight line from 0 to 100% passing through 50% at hover (center).
2. Be sure you're in the desired flight condition by moving the Flt. Mode and Flt. Cond switches to their proper position. Remember, you can input separate, independent throttle curve settings for each flight condition!
3. You begin at set point #1, idle.

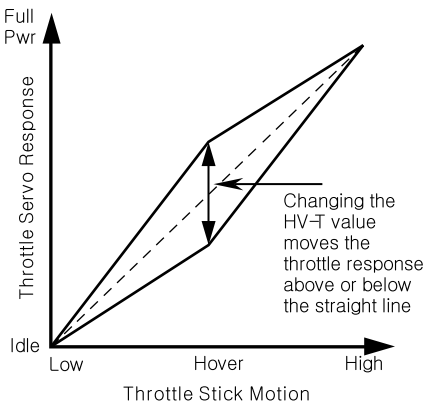
The numeral 1 will be flashing in the display, and a value of 0% should be shown.
Press the Data +Increase
or -Decrease key to
change the setting to your desired value.
4. When you're finished with Point 1, move to the next point with the Cursor Right key. Flashing Numeral 2 indicates you are setting the value for Point 2.
Note that the function is inhibited (Inh) to start with.

MX.SS Mix Switch Select

See page 39

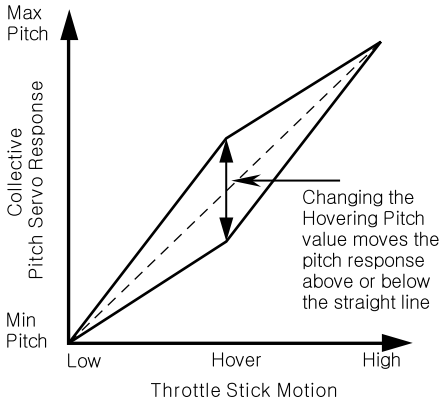
Hovering Throttle Adjustment Knob (VR 1)

The Hovering Throttle Knob may be used to adjust the throttle servo's position around hover without affecting main rotor pitch.
It's handy to make up for changes in rotor speed caused by variations in temperature, humidity, or other conditions. To change the hovering throttle setting, simply move the Hovering throttle Knob (VR 1) to get the desired setting. As shown in the figure, moving the lever has the largest effect in the hovering region and leaves the endpoints alone. Center this lever before you set neutrals or input throttle curves.



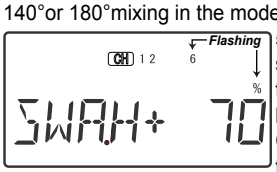
Hovering Pitch Adjustment Knob (VR 2)

The Hovering Pitch Knob may be used to trim the collective pitch servo(s) near hover without affecting throttle. Like hovering throttle, it's handy to make up for changes in rotor speed caused by variations in temperature, humidity, or other conditions. You can adjust the hovering pitch value simply by moving the Hovering pitch Knob (VR 2). Like hovering throttle, this lever only works near hover and tapers off at either
end of throttle. Center this lever before you set neutrals or input throttle curves.

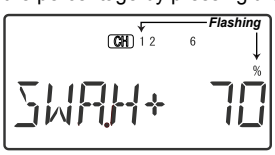


Setting Up The Swashplate

1. Consult your model's setup instructions. If three servos are needed to move the swashplate in a 120°140°or 180° CCPM set-up, go to the model setup instructions (page 21) and select the 120°140°or 180° swash type.
2. With all the servos hooked up, and the transmitter and receiver turned on, move the throttle/collective stick up and down. The swash should move up and down with no rotations. Move the aileron stick left and right. The swash should tilt left and right without pitching or rising. Move the elevator stick. The swash should tilt fore and aft with no rotations. If there are rotations when collective is moved, or the swash moves up and down with aileron or elevator, you need to adjust the settings in the swash menu.
3. If the servos do not all respond in the same direction for collective or opposite directions for aileron and elevator, you will need to reverse one or more of them in the reversing menu (REV). It may take a little trial and error trying different combinations of normal and reverse rotation to get the servos to respond properly. Don't worry about the direction they respond, just that they all move the same for collective and tilt for aileron and elevator.
4. Call up the swash screen by repeatedly pressing one of the Up Down Edit buttons until the SWAH window appears. The function is automatically active when you select 120', 140°or 180°mixing in the model setup menu.



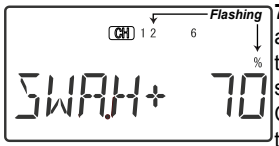
5. If all the servos raise the swash with increasing collective, go to the next step. If they lower the swash, press the Cursor Right key twice to get to the collective setting menu (the numeral 6 will be flashing). Now press the Data -Decrease key until the sign is reversed in front of the percentage value. Now the swash should properly respond to collective. If you've done the wrong thing, you can reset the percentage by pressing the Active/Inhibit (Clear) key.



6. If all the servos tilt the swash to the right with right aileron stick, go to the next step. If they tilt the swash to the left, press the Cursor Right key once

Charge the Batteries!

to get to the aileron setting menu (the numeral 1 will be flashing). Reverse the sign in front of the percentage with the Data -Decrease key.
Now the swash should properly respond to aileron.



7. If all the servos tilt the swash aft with up elevator stick, go to the next step. If they tilt the swash forwards, press the Cursor Right key once to get to the elevator setting menu (the numeral 2 will be flashing). Now press the Data -Decrease key until the sign is reversed in front of the percentage value. Now the swash should properly respond to elevator.
8. Double check that all three functions, collective, aileron, and elevator, produce the desired result on the swashplate. Do not set any SWAH values to 0% or you will disable the response to that control!

Setting Up The Revolution

1. Call up the revolution mixing screen by repeatedly pressing one of the Up Down Edit buttons until the RVMX window appears. The function is active with 0% mixing turned on. Put the throttle stick to its idle position.

2. Now press the Data +Increase key. This will increase the percentage of RVMX mixing for the low side of throttle. You may set a value of 0% to 100% for this side. If you wish to return the mixing percentage to the default 0% value, press the Active/Inhibit (Clear) key.
3. Move the throttle stick to a position above half-throttle, and change the percentage number to suit.
4. Now verify that the rudder responds both the correct direction and amount for travel on both sides when throttle is commanded.
5. Set up the RVMX values for the other flight conditions (ST1, ST2) by flipping the Flt. Mode (SW-3) switch and repeating these procedures

Helicopter Flight Trimming Chart

This procedure assumes helicopter is trimmed for hovering. Trimming must be done in near-calm conditions. Repeat tests several times before making adjustments. If any changes are made, go back over the previous steps and verify, or further adjust as necessary.

To test for...	Test Procedure	Observations	Adjustments
1. RVMX mixing - Up settings (Part 1)	Fly the model straight and level into the wind at 100 ft altitude, lower pitch to 0°	Observe rotation as helicopter descends A. No rotation B. Model rotates counterclockwise C. Model rotates clockwise	A. None B. Add right rudder trim C. Add left rudder trim
2. RVMX mixing - Up settings (Part 2)	Bring the helicopter into hover, add full pitch and ascend 75 ft	Observe rotation as helicopter ascends A. No rotation B. Model rotates counter-clockwise C. Model rotates clockwise	A. None B. Increase UP RVMX mix C. Decrease UP RVMX mix
3. RVMX Down mixing settings	Begin Down RVMX mixing with same number as UP mix. From inverted flight (top of loop, or mid-point of roll, or inverted part of split-S), add full negative pitch	Observe rotation as helicopter ascends A. No rotation B. Model rotates clockwise C. Model rotates counterclockwise	A. No adjustment B. Increase Down RVMX mix C. Decrease Down RVMX mix

Adjusting Hovering Pitch and Hovering Throttle

RPM	Stick	Primary Corrective Action
High	Below 1/2	Decrease hovering throttle
Low	Below 1/2	Decrease hovering pitch
Perfect	Below 1/2	Decrease hovering throttle, decrease hovering pitch
High	1/2 stick	Increase hovering pitch, decrease hovering throttle
Low	1/2 stick	Decrease hovering pitch, increase hovering throttle
Perfect	1/2 stick	Don't touch a thing!
High	Above 1/2	Increase hovering pitch
Low	Above 1/2	Increase hovering throttle
Perfect	Above 1/2	Increase hovering pitch, increase hovering throttle
Want more	Keep 1/2	Decrease hovering pitch, then increase hovering throttle
Want less	Keep 1/2	Increase hovering pitch, then decrease hovering throttle

2.4GHz
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AFHSS
ADAPTIVE FREQUENCY HOPPING
SPREAD SPECTRUM

2.4GHz 7 Channel Digital Radio Control System

ECLIPSE 7 PRO 2.4GHz

Telemetry Data Display
on Backlit LCD Screen

Highly Sensitive
8 Ball-Bearing Gimbals

High Intensity LED Indicator
for Module & System Status

Back-mounted Sliders
for Easy Access

CE

HITEC

CE1177
2.4GHz Band for use in :
AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, GB, GR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, FR

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