

Scout X4

deVention

- Auto Takeoff
- Fly Around Object mode
- Hyper IOC mode
- GPS telemetry
- Altitude hold mode
- One key Return To Home
- Retractable Landing Gear
- 5.8G video down link

Match with DEVO F12E Radio Quick Start Guide and Systems Flowchart

● Specifications:

Main Rotor Dia. : 233mm

Overall (L x W x H): 335 x 335 x 275mm

Weight: 1770g(Battery included)

Takeoff Weight: <2270g

Transmitter: DEVO F12E

Receiver: DEVO-RX707(CE) / RX709(FCC)

Brushless Motor: WK-WS-34-002

Brushless ESC: WST-16AH (R/G)

Main Controller: FCS-X4

Battery: 22.2V 5400mAh Li-Po

Ground Station: GCS

2.4G Bluetooth Datalink: BT-2401NA(FCC) / 2401B(FCC)
BT-2402NA(CE) / 2402B(CE)

● Flight Time: Non-Load 25minutes, Loaded Gimbal and Camera 20minutes.

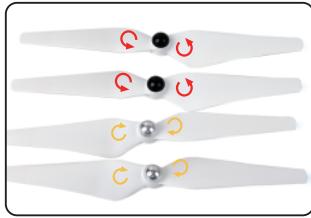
● M1/M3 rotate in clockwise, motors are the levogyrate thread.

● M2/M4 rotate in counterclockwise, motors are the dextrogyrate thread.

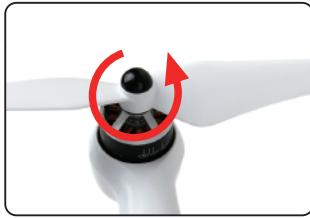
● To install propellers, screw in the opposite direction of the arrows. Unscrew in same direction as arrows.



1.0 Installing Propellers



1.1 Install "forward" propellers (clockwise arrow marks), then "rear" propellers (counter-clockwise arrow marks).



1.2 Match the arrows on the propellers to the arrows on the arm next to each motor. Screw each propeller onto the motor, secure by hand, no need for tools.



1.3 Propellers and skid landing gear installed.



1.4 Propellers installed (no gear assembly).

2.0 Restore or assemble the landing skids/binding the radio

2.1 Landing skids assembled(restoration/code binding)

The Landing gear is shipped in the retracted position. **DO NOT try to extend the landing gear by pulling on it.**

The landing gear will deploy the first time the system is powered. Follow instructions carefully:



2.1.1 Install the fully charged battery. DO NOT turn on the battery until later.

*Please check the charger manual for charging instructions.



2.1.2 Turn the X4 on its back with the belly and retractable legs facing up.
MAKE SURE nothing is blocking the legs.



2.1.3 Put all the function switches to the 0 position, put all trims/knobs to the Mid position, move the throttle to the lowest position, then turn on the radio.



2.1.4 Immediately after switching on the radio/while the radio is booting up, slide ON the X4 power switch and then press the power button for 3-5 sec. until the green LED lights illuminate. The landing gear will then automatically unfold.



2.1.5 Turn the X4 to the upright position. The Red LED light should stop flashing within 1 minute.

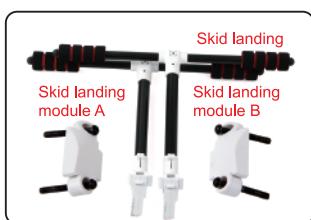
The DEVO F12E and X4 have successfully connected to each other when the red LED is no longer flashing.

* This process is called "ID binding"



2.1.6 After the successful binding place the aircraft on a stable surface.

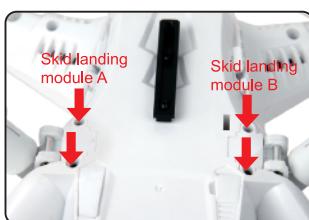
2.2 Landing skids unassembled(assemle landing skids/code binding)



2.2.1 Unpack the 2 landing gears, skid landing modules A/B, and M2.5x20 screws.



2.2.2 Place the landing gears into the gears slots.



2.2.3 Screw down the landing gear modules A/B using the M2.5x20 screws.



2.2.4 Landing skid installation finished.



2.2.5 Put all the function switches to the 0 position, put all trims/knobs to the Mid position, move the throttle to the lowest position, then turn on the radio.



2.2.6 Put the aircraft into the horizontal position, slide the power switch ON, then press the power button for 3-5 seconds until the green power indicator lights up.



2.2.7 Within 1 minute the red LED light will stop flashing, indicating that the code binding is finished.

3.0 Compass Calibration

IMPORTANT: Make sure all TRIMs are in the center position, the trim value should be "0", and the motors are locked.

The aircraft should NOT be flashing RED. By default, the motors will automatically be locked after the ID binding process.

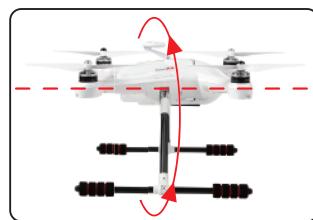
For more details about locking and unlocking motors, see points 6 & 7.



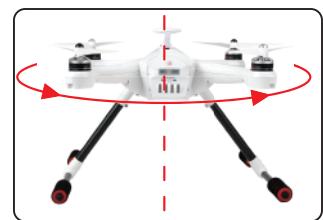
3.1 Enter the calibration mode. Do this by moving both sticks DOWN and to the middle position at the same time. The aircraft will start a blinking fast RED.



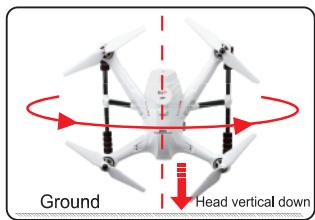
3.2 FORWARD rotation. Smoothly rotate the aircraft forward in 90 degree increments, pausing for 1 second every 90 deg. (0 / 90 / 180 / 270 / 360)



3.3 CLOCKWISE rotation. Rotate the aircraft around the roll axis smoothly in 90 deg increments. Pausing 1 second for each 90 deg. (0 / 90 / 180 / 270 / 360)



3.4 HORIZONTAL rotation. Rotate the aircraft around the YAW axis smoothly in 90 deg increments. Pausing 1 second each 90 deg. (0 / 90 / 180 / 270 / 360)



3.5 NOSE DOWN rotation. Rotate the aircraft facing nose down. smoothly in 90 deg increments. Pausing 1 second each 90 deg. (0 / 90 / 180 / 270 / 360)



3.6 Place the aircraft in normal position. The rapid RED blinking will stop. This indicates that the calibration is finished. Disconnect the battery to save the settings.

IMPORTANT: The first couple of flights, you may experience the aircraft drifting,

This is normal, please continue to fly the aircraft manually, while the system refines the calibration. After 5-10 minutes land, lock the motors, to save the improved settings.

Notice: The slight drifting may continue for a couple of batteries, you will notice significant improvement in GPS Hold & stability after 4-5 batteries.

Notice: Always perform the calibration away from electric fields and metal surfaces.

Trivia: Different brands have different calibration processes, the process is typically referred to as "the Calibration Dance".

4.0 G-3D 3-axis brushless Gimbal installation

IMPORTANT: REMOVE the battery from the X4 while you install the gimbal

The gimbal is a high-performance electromechanical design and should be handled with great care. AVOID using force when installing.



4.1 Prepare the G-3D gimbal, M3x12 screw, spring.



4.2 Slide the gimbal onto the quick mount rail from front toward the rear of the aircraft as far as possible.



4.3 Install the springloaded M3x12mm "finger screw" at the front of the gimbal, to secure the gimbal.



4.4 Connect the 9pin white data cable to the "complex data port" on the bottom of the X4, then connect the cable to the back of the G-3D gimbal.



4.5 Make sure that the gimbal moves freely in all directions.
The G-3D gimbal is now successfully installed.

5.0 Installing the iLook+ 1080p camera with 5.8ghz video link



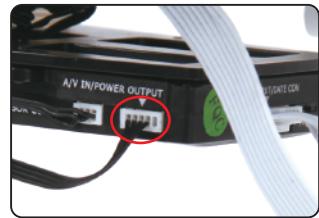
5.1 Screw the short "mushroom" antenna into the camera, use the included wrench to gently secure the antenna, do not use force.



5.2 Release the two M2x4 screws securing the camera mounting bracket.



5.3 Install the camera into the gimbal with the M2x4 screws (make sure that there is a gap between the bracket and camera lens).



5.4 Connect the camera's power cable to the power port on the G-3D gimbal controller.



5.5 The iLook+ camera is now successfully installed into the G-3D gimbal.

6.0 Motor Unlock

After binding the DEVO F12E to the X4, Check that all trims are neutral, the throttle stick is ALL the way Down with the display indicating 0% throttle. Check that ALL switches are in the UP position.

Note that you can not start the motors in the GPS hold mode.

Gently push the throttle stick down and move the rudder (YAW) stick to the left side. (on mode 2 radios throttle and rudder is the same stick)

You will see the RED indicator LED turn on, indicating that

motors are unlocked.

Be very careful at this point, as pushing the stick up will start the motors.

You can test by pushing the stick up a little, the motors should start. For your safety, the motors will dis-arm again after 10seconds.



Mode 1(throttle stick on the right)



Mode 2(throttle stick on the left)

7.0 Motor Lock

Lock the motors by moving the throttle stick all the way down and the rudder (YAW) stick all the way to the right.

The RED LED light will go out when the motors are disarmed.

TEST: push the throttle stick up a little, the motors will not start when locked.

NOTICE:

* The motors are LOCKED by default after successful binding.

* Motors can NOT be unlocked or locked in GPS-hold mode.

if you land in GPS mode, move the "MIX" switch to position "0" before locking the motors, make sure you wait until the X4 is safely

on the ground before changing the switch to "0" (manual) while changing, make sure to keep the throttle DOWN to prevent motors start.



Mode 1(throttle stick on the right)

Mode 2(throttle stick on the left)

8.0 DEVO F12E- quick guide to control functions

	Left stick	THRO/RUDD stick
Mode 2 (Throttle stick on the left)	Right stick	ELEV/AILE stick
	Left trim	THRO trim
	Right trim	ELEV trim
Mode 1 (Throttle stick on the right)	Left stick	ELEV/RUDD stick
	Right stick	THRO/AILE stick
	Left trim	ELEV trim
	Right trim	THRO trim

(0) Manual Mode	(1) GPS-hold Mode	(2) Return TO Home
MIX Switch to "0"	MIX Switch to "1"	MIX Switch to "2"
You NEED to memorize these settings		



9.0 GPS indicator lights

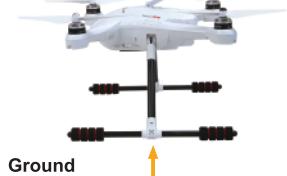
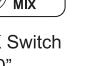
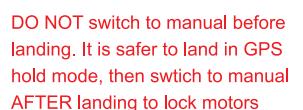
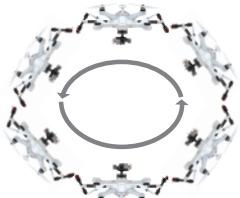
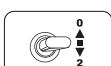
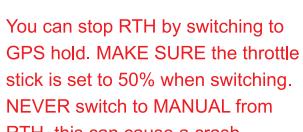
GPS Satellites	<6	6	7	8	9	10	11	12	13
The blue LED status	No blinking	Blinking once	Blinking 2 times	Blinking 3 times	Blinking 4 times	Blinking 5 times	Blinking 6 times	Blinking 7 times	Blinking 8 times

IMPORTANT: For SAFE flight in GPS flight mode: the BLUE indicator light should at least "double" blink, (two blinks at a time)

It is highly recommended to wait for "triple blink" 8 satellites before starting the flight.

NEVER attempt to AUTO-START with less than "triple blinks"

10.0 Operation Instruction

Model (is the nose direction)	Mode 1	Mode 2
THROTTLE Up/down 		
PITCH Forward/backward Scout X4 nose move up/down 		
ROLL (lean) Left / right 		
YAW (turn) Left / right 		
AUTO Take Off You should have triple blink = 8sats for this feature. ARM/UNLOCK motors in manual mode 	 MIX Switch to "0"  move throttle down 	 MIX switch to "1" position  RUDD D/R switch to "1" position
GPS hold mode In this mode, maneuver by moving the controls, and simply let go of the controls and the X4 will hold its position. NOTE: You must CENTER the throttle stick for altitude hold 	 MIX switch to "1" position 	
ROUND FLY mode This mode is used for making circles around an object of interest. RADIUS is set in the F12E menu by adjusting Position 2 value for AUX3 	 MIX switch to "1" position  Move FMOD switch to "2" The Round Fly will start	 Move FMOD switch to "0" The Round Fly will stop
RETURN TO HOME Activating this feature will cause the Scout X4 to climb to 15m and fly to the starting location and proceed to land. 	 Throttle stick neutral  MIX switch to "2" position	

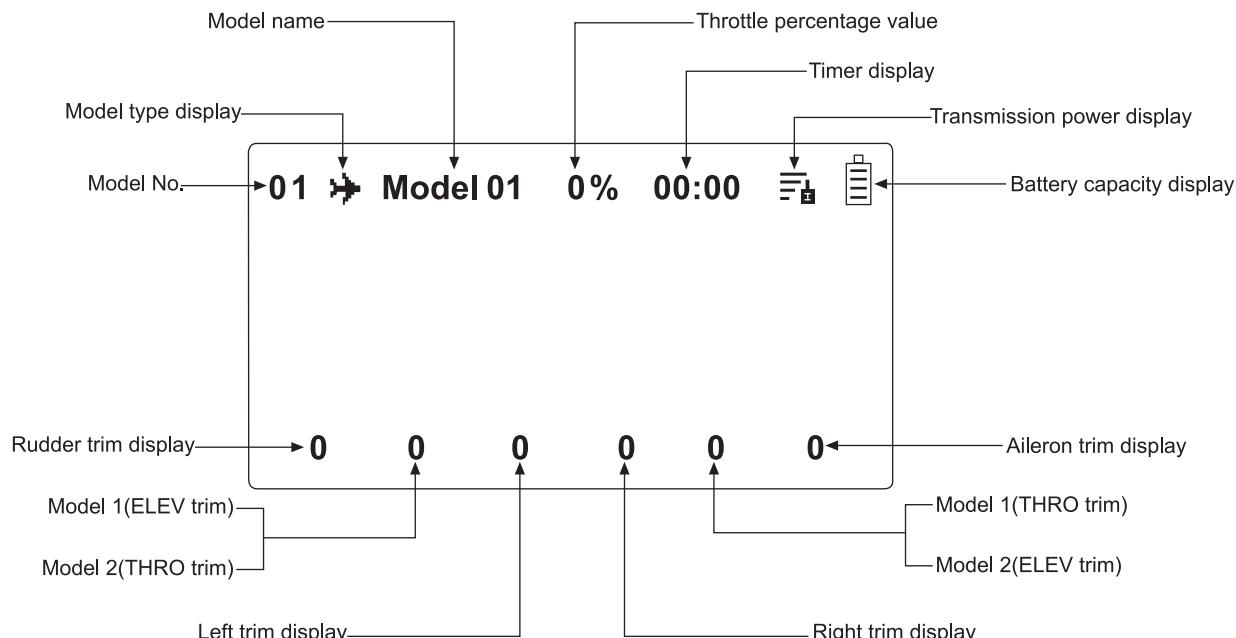
11.0 DEVO F12E Radio function setup and operation instructions

Function	Switch	Transmitter setting	Instructions
AUTO Take Off	RUDD D/R	Model Menu ↓ Device Output ↓ Flap ↓ RUDD D/R ↓ Active	Place aircraft on level ground → Unlock Motors → Move throttle stick to lowest position → Set MIX switch to "0" Position → Set RUDD D/R switch to "1" Position IMPORTANT: ONLY use this function with BLUE TRIPLE blink = 8 or more satellites, AUTO take off with less satellites may result in a crash. AFTER completing auto-take-off, you can take control by moving the throttle stick to 50%, then flip the RUDD D/R switch to "0" position.
GPS hold mode	MIX SW	Model Menu ↓ Device Output ↓ Gear ↓ MIX SW ↓ Active	"0" position: Manual mode "1" position: GPS hold mode "2" position: Return To Home MIX switch to "1" position → Throttle stick return neutral NEVER use this mode with less than 8 satellites locked, you should see BLUE TRIPLE BLINK. Before switching mode, always put the throttle stick to middle position (50%). IF the GPS signal degrades, the X4 will automatically enter "Altitude hold mode" note in this mode it will drift, but will hold its altitude. After flying 50% of the battery, do NOT switch from GPS mode to Manual, this may cause a sudden drop / crash. You can land in GPS mode, after landing, keep the throttle stick DOWN and switch to manual, then lock the motors.
Round Fly Mode	FMOD	Model Menu ↓ Device Output ↓ AUX3 ↓ FMOD SW ↓ Active	"0" Position: OFF "1" Position: Not in use "2" Position: activate Round Fly This mode require 8 satellites locked, you should see BLUE TRIPLE BLINK. Before activating the round-fly mode, you should be in "GPS hold mode" always put the throttle stick to middle position (50%) The default roundfly radius is 5 meters (15 feet), You can change the Round Fly radius by editing the AUX 3 EPA (End Point Adjustment) on the F12E transmitter, for details on editing EPA settings, see the F12E instruction manual. After having changed the setting, you should turn FMOD switch to "0" position to save the data, then return to "2" position to read the new Roundly radius.
Return TO Home	MIX SW	Model Menu ↓ Device Output ↓ Gear ↓ MIX SW ↓ Active	"0" position: Manual mode "1" position: GPS hold mode "2" position: Return To Home Throttle stick return neutral → MIX switch to "2" position The Return To Home mode, will only work when you have a solid GPS lock, it is recommend that you avoid flying if GPS lock is missing. After engaging Return to Home mode, leave the throttle stick at 50% (centered) DO NOT touch any switches on the F12E radio. To REGAIN control of the Scout X4, make sure the throttle is centered, then flip the MIX switch to position "1". In an emergency such as losing the control link between the F12E and the Scout X4, the Failsafe system will automatically start RTH. You may not be able to interrupt an emergency RTH, simply let the aircraft continue until it lands.

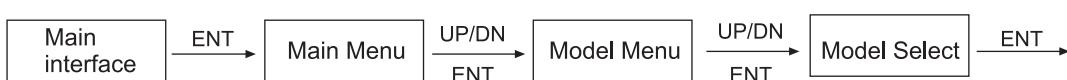
Function	Switch	Transmitter setting	Instructions
Hyper IOC Mode	ELEV D/R	Model Menu ↓ Device Output ↓ AUX2 ↓ ELEV D/R ↓ Active	 <p>IOC or Intelligent Orientation Control mode means that the aircraft's flight direction is only relative to the original take-off point (where you armed the motors). REGARDLESS of the actual aircraft heading, in this mode you can fly past something and pan the aircraft to frame your shot, without having to worry what direction the aircraft is facing.</p> <p>ELEV D/R switch "0" position: IOC OFF "1" position: IOC ON</p> <p>The IOC mode requires a strong GPS lock, you should have triple blinks on the blue GPS indicator light.</p> <p>IOC is inactive if the Scout X4 is less than 10 meter (30 feet) from the original take-off position. (point where you armed the motors)</p> <p>Fly the Scout X4 manually beyond 10 meters using the GPS mode, then activate the IOC mode, the Scout X4 will now fly IOC until you change the mode, you can pan freely for video shots, when you push the stick right or left, the Scout X4 will move sideways relative to the original take-off position. Pushing the pitch stick up will push the Scout X4 away from you, pulling the stick back brings the Scout X4 back to the starting point. When flying in IOC mode, you can make the Scout X4 return to the starting point simply by pulling the stick toward you.</p> <p>WARNING: The IOC turns off when the aircraft gets closer than 10meters to the take off point. Be prepared for this, as the system will switch back to GPS hold mode at that point. This switch can cause confusion if the pilot are not prepared.</p>
Extend/Retract of Landing Gear	GEAR	Model Menu ↓ Device Output ↓ AUX4 ↓ GEAR SW ↓ Active	<p>"0" Position: Extend landing Gear "1" Position: Retract landing Gear</p> <p>NOTE: REMEMBER your landing gear, it is easy to forget the landing-gear when flying FPV. It's not a good idea to land on your camera. When activating the RTH (Return To Home) system, either by the pilot or by the failsafe system, the Scout X4 will automatically extend the landing gear to protect your camera and make sure the Scout X4 lands safely.</p> <p>You can not change the landing gear after the Scout X4 has been automatically extended for landing. You must land and then lock / unlock motors.</p>

12.0 DEVO F12E Radio Setting

12.1 Boot Screen(Main interface)



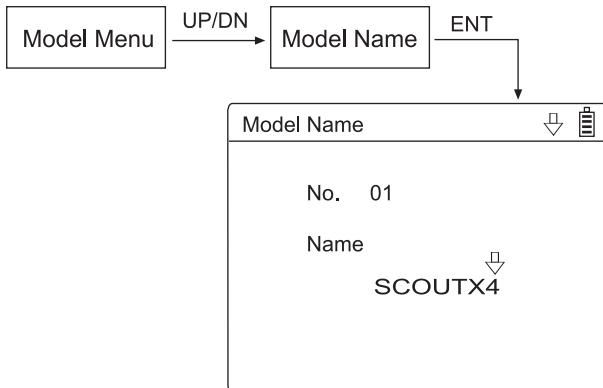
12.2 Model Select



Press the UP or DN button to select the stored model number. For example "Model 01", press EXT to return back to the "Model Menu" after finished.

Model Select	
✓ 01	Model 01
02	Model 02
03	Model 03
04	Model 04
05	Model 05
06	Model 06
07	Model 07
08	Model 08

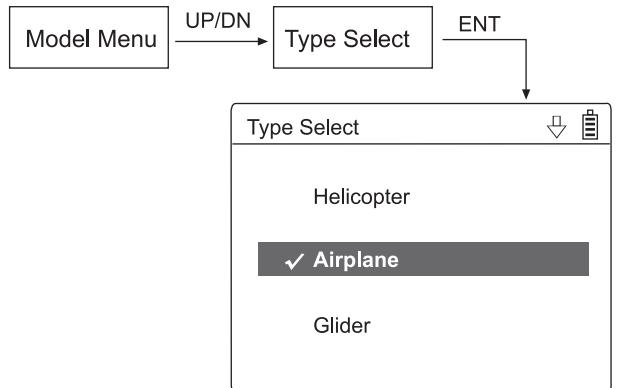
12.3 Model Name



Press UP or DN button to select the characters which need to be changed, Name model "SCOUTX4".

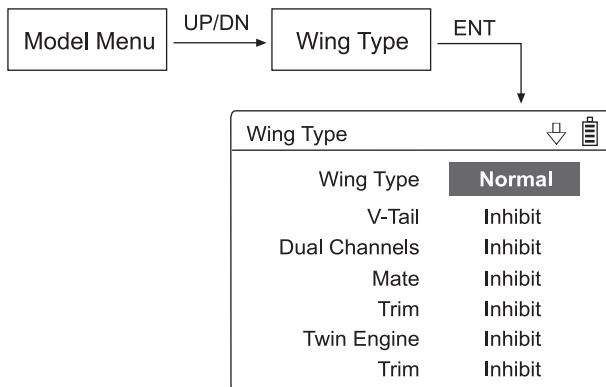
Press EXT to return to the "Model Menu".

12.4 Type Select



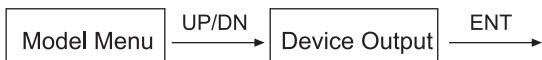
Select the model type with the R or L button, and ENT to confirm and return to the "Model Menu".

12.5 Wing Type



Press R or L to select "Normal", then press EXT to return to the "Model Menu".

12.6 Device Output

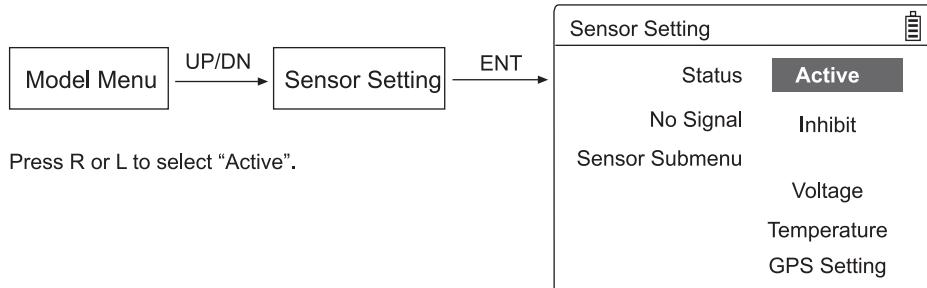


Press EXT to return to the "Model Menu" after finished.

Device Output	
Gear	MIX SW
	Active
Flap	RUDD D/R
	Active
AUX2	ELEV D/R
	Active
AUX3	FMOD SW
	Active

Device Output	
AUX4	GEAR SW
	Active
AUX5	AUX5 KB
	Active
AUX6	AUX6 KB
	Active
AUX7	AILE D/R
	Active

12.7 Sensor Setting



(1) Voltage Setting

Press UP or DN to select Voltage in the Sensor Setting. Press ENT to enter the Voltage interface.

Voltage	
Internal: V0	Inhibit
External: V1	Active
	21.4V
External: V2	Inhibit

Internal shows the Radio battery voltage.

External shows the aircraft battery voltage.

Scout X4 default setting is 21.4V, Fly the copter back ASAP if you get a warning!

(2) GPS Receive Setting

Press UP or DN to select the GPS setting on the Sensor Setting interface, then press ENT to enter the GPS Setting interface.

GPS Setting	
Altitude Type	Relative
Speed Unit	Km/h
Date Type	DD-MM-YY
Time Zone	UTC+08:00

(2.1) Altitude Type setting:

Press R or L to select Absolute or Relative.

(2.2) Speed Unit setting:

Press R or L to select Km/h or Knot.

(2.3) Date Type setting:

Press R or L to select DD-MM-YY\ MM-DD-YY\ YY-MM-DD.

(2.4) Time Zone:

Press R or L to select Time Zone, then press EXT to return to the "Main Menu".

12.8 Reverse Switch

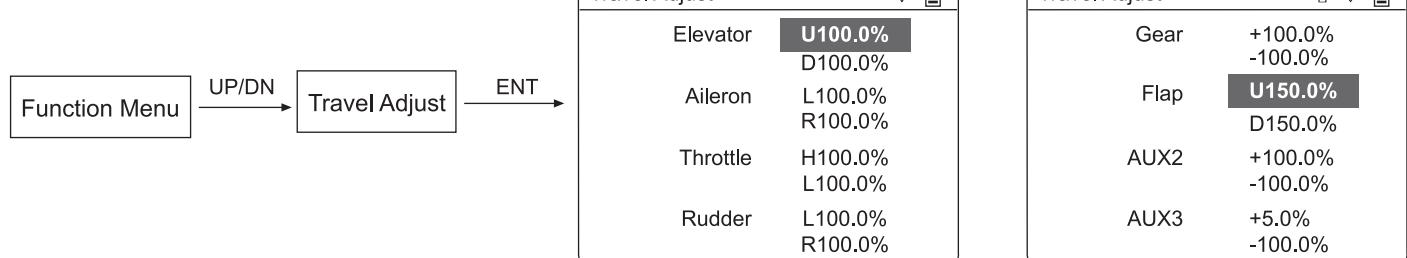


Reverse Switch	
Elevator	Normal
Aileron	Normal
Throttle	Normal
Rudder	Normal
Gear	Normal
Flap	Normal
AUX2	Normal
AUX3	Normal

Reverse Switch	
AUX4	Normal
AUX5	Normal
AUX6	Normal
AUX7	Normal

Press EXT to return back to the "Function Menu" after finished.

12.9 Servo Travel Adjust

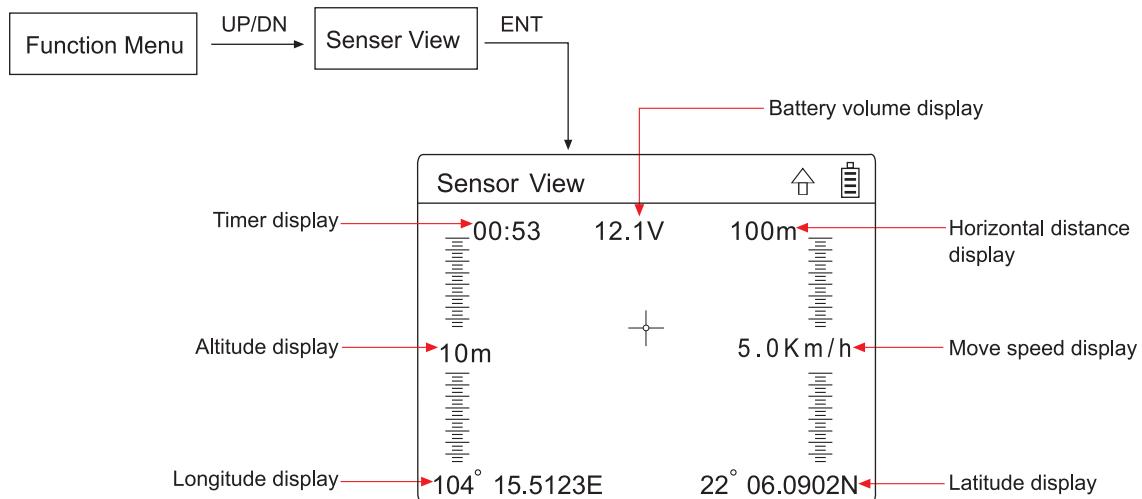


Press UP or DN to select Flap channel, Press R or L to set as **U150.0% and D150.0%**.

Press UP or DN to select AUX3 channel, press R or L to set **+5.0%(5 means Roundfly radius is 5 meters) and -100.0%**, then press EXT to return Function Menu.

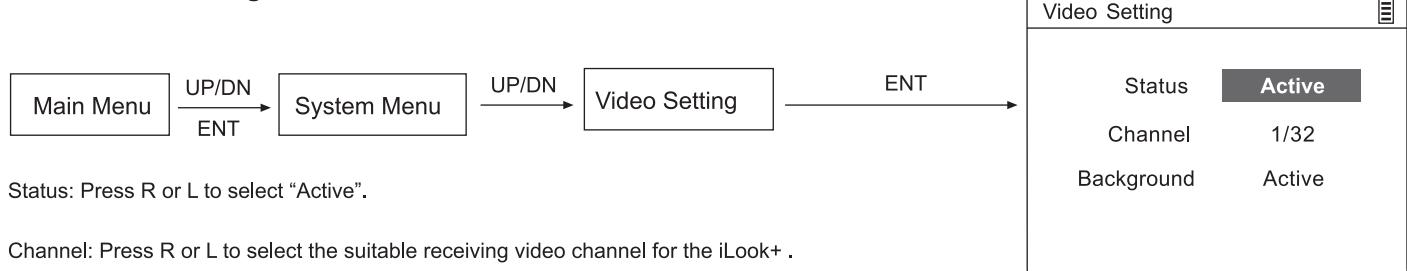
Travel Adjust	
AUX4	+100.0% -100.0%
AUX5	+100.0% -100.0%
AUX6	+100.0% -100.0%
AUX7	+100.0% -100.0%

12.10 Senser View

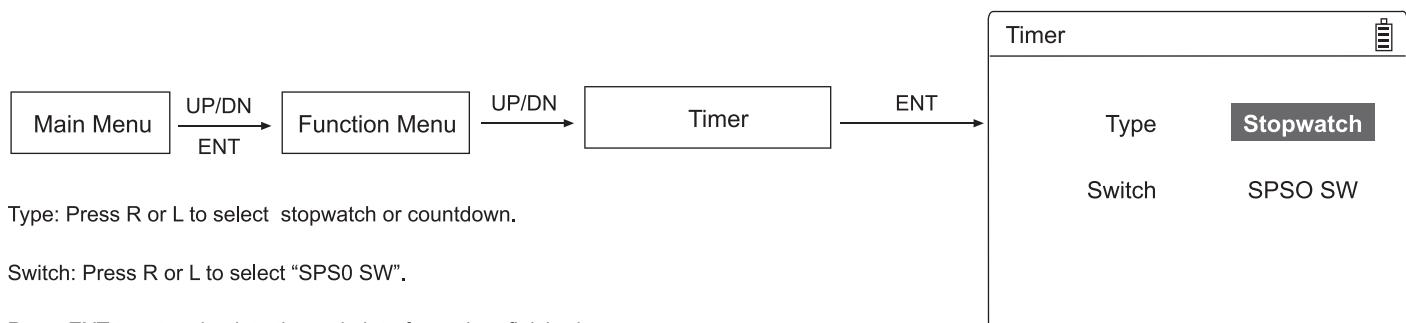
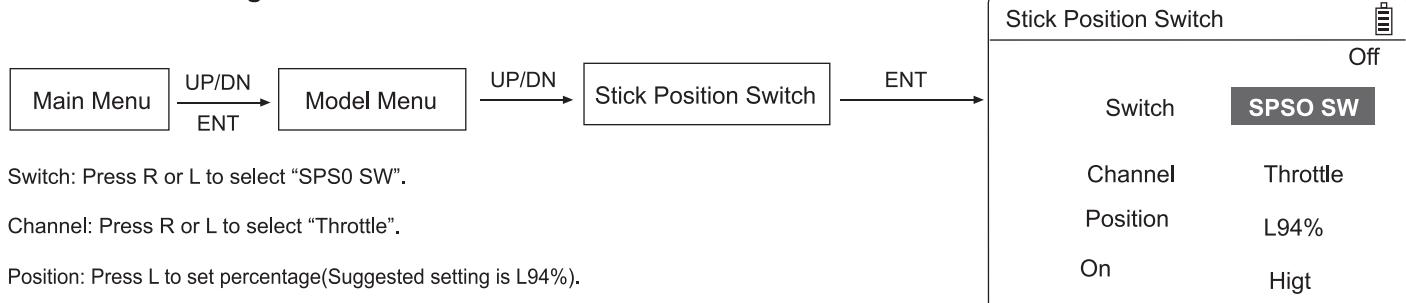


Press R or L to select viewport display. When the image is set as the background, Information will be displayed on the image.

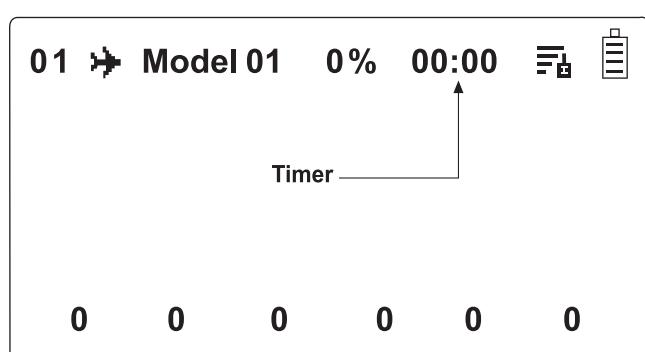
12.11 Video Setting



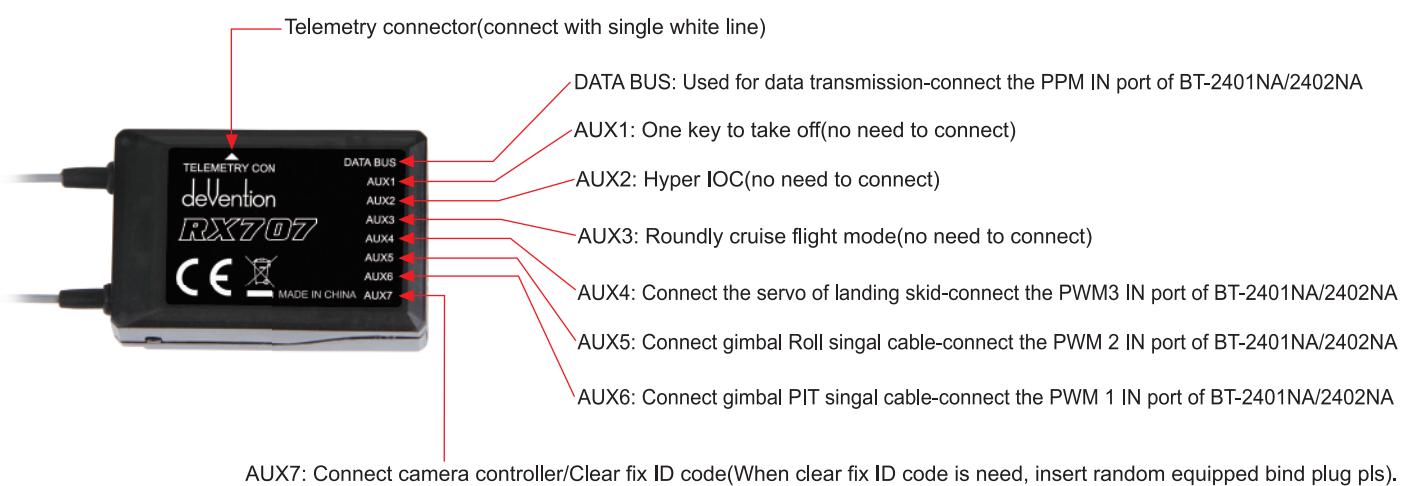
12.12 Timer Setting



Usage: Toggle the throttle up to L94% to start the time, toggle the throttle down to L94% to stop the time, press DN to reset.

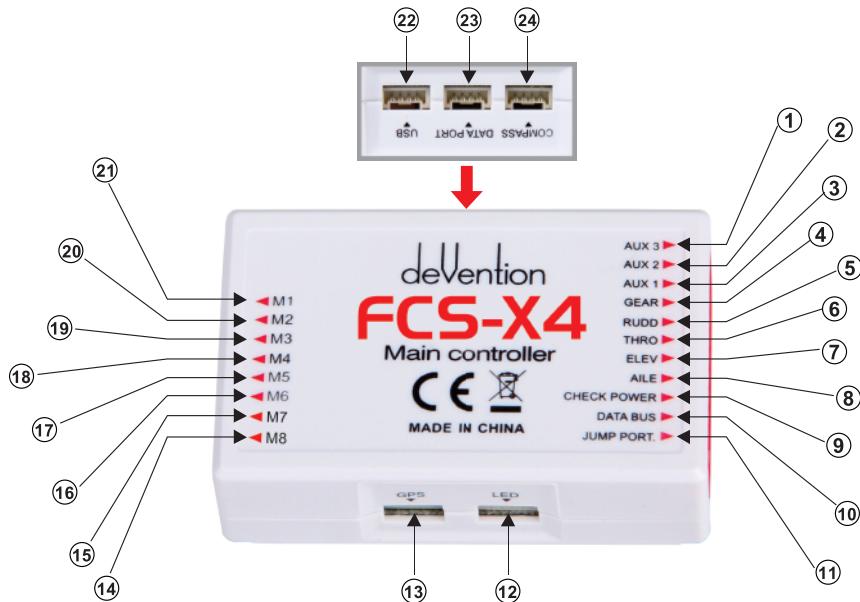


13.0 DEVO RX707(CE)/RX709(FCC) Receiver guideling



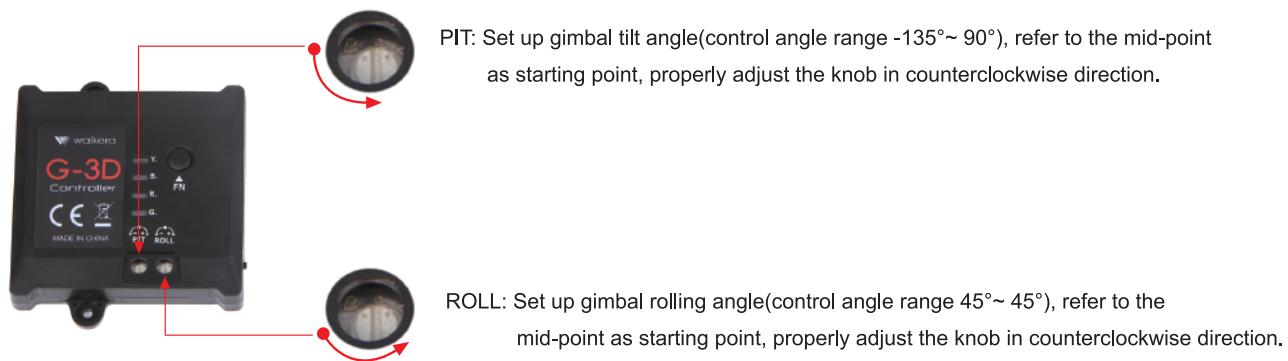
Attention: DEVO RX707(CE) and DEVO RX709(FCC) have the same ports.

14.0 FCS-X4 Main controller guideline



(1)	To roundly cruise flight mode	(9)	To check voltage(connect with power board)	(17)	Connect with fifth way brushless ESC
(2)	To hyper IOC	(10)	Used for data transmission-connect the PPM OUT port of BT-2401NA/2402NA	(18)	Connect with forth way brushless ESC
(3)	To one key to take off	(11)	Jumper port, when regular receiver is used, insert random equipped bind plug.	(19)	Connect with third way brushless ESC
(4)	Control Mode Switch	(12)	To link LED	(20)	Connect with second way brushless ESC
(5)	To control Rudder	(13)	To link GPS module(red white blue black four color cable)	(21)	Connect with first way brushless ESC
(6)	To control Throttle	(14)	Connect with eighth way brushless ESC	(22)	Upgrade channel
(7)	To control Elevator (forward & backward)	(15)	Connect with seventh way brushless ESC	(23)	Data communication port
(8)	To control Aileron (leftward & rightward)	(16)	Connect with sixth way brushless ESC	(24)	To link Compass (red black double color cable)

15.0 Instruction for knobs of G-3D gimbal



16.0 iLook+ Camera Setting

16.1 Pictures illustration



16.2 Specifications

(1) Video

- a. Video Resolution: 1920 x1080 Full HD
- b. FPS: 30
- c. Micro High Speed SD card: Max 64G
- d. Imaging Sensor: 3,000,000 Pixels
- e. Video Format: MOV
- f. Photo: 4032x3024 Pixels

(2) 5.8G wireless

- a. 5.8G wireless image transmission
- b. FCC Output Power≤200mW
- c. CE Output Power≤25mW
- d. CE Bind B section: 8 channels
- e. FCC Bind B section: 4 channels



16.3 iLook+(FCC/CE) camera transmitting channel selection

8 different channels can be selected. You can choose the best frequency channel according to the image quality as bellow:

Channel	1	2	3	4	5	6	7	8
Frequency	5866MHz	5847MHz	5828MHz	5809MHz	5790MHz	5771MHz	5752MHz	5733MHz
code position (off/on)								

Note: Only transmitting channels 2, 4, 6, 8 are available for the iLook/iLook+(FCC).

16.4 Video and Photo user guide

Warm tips:

- (1) A micro SD card must be inserted into the iLook+ camera before connecting the power, and should be removed after disconnecting the power.
(A high speed SD card is recommended.)
- (2) Insert the MICRO SD card, and power on the camera. The red indicator lights indicate that the camera is initialized, The red light turned off indicates that the camera is in standby mode and initialization is complete.
- (3) Insert MICRO SD card, and power on the camera. The red indicator light blinking rapidly means the SD card needs to be formatted. First, switch to position and then press the shutter for 5 sec. to format the card.

(1) Video instruction

(1.1) Radio Operation

Switch	Transmitter setting	Instructions
AILE D/R	Model Menu ↓ Device Output ↓ AUX7 ↓ AILE D/R ↓ Active	<p>(1) It's crucial to turn the switch of iLook+ to " " position.</p> <p>(2) Start video: turn the AILE D/R switch from "0" position to "1" position, wait for 1-2 seconds, then return to the "0" position, the camera will start recording (the red indicator keeps flash with an interval of 0.5 second). The red indication of video status can be seen on the transmitter.</p> <p>Stop video: turn the AILE D/R switch from "0" position to "1" position, wait for 1-2 seconds, then return to the "0" position, the camera will stop recording (the red indicator light turns off along with the red indicator light on transmitter).</p> <p>(3) You must stop recording to store the video on the SD card. The video will not be stored if you turn off the power without stopping the recording.</p>

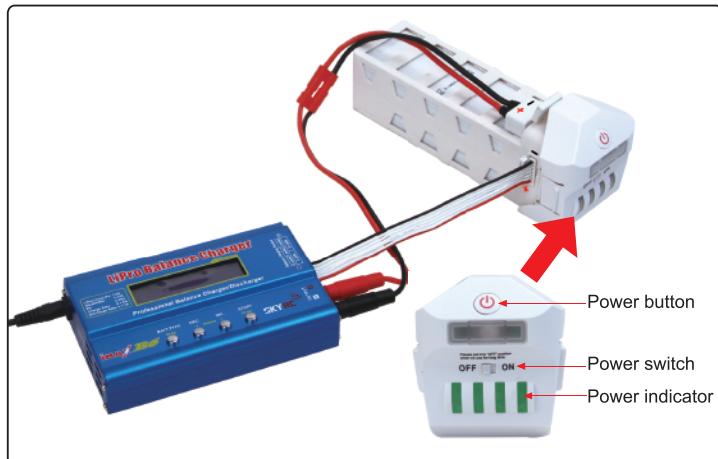
(1.2) Manual Operation

Turn the Video/Photo Swich to , press the shutter button once, to start recording (the Red indicator flashes for 0.5sec interval); Press the shutter button again, to stop recording(The Red indicator light turns off).

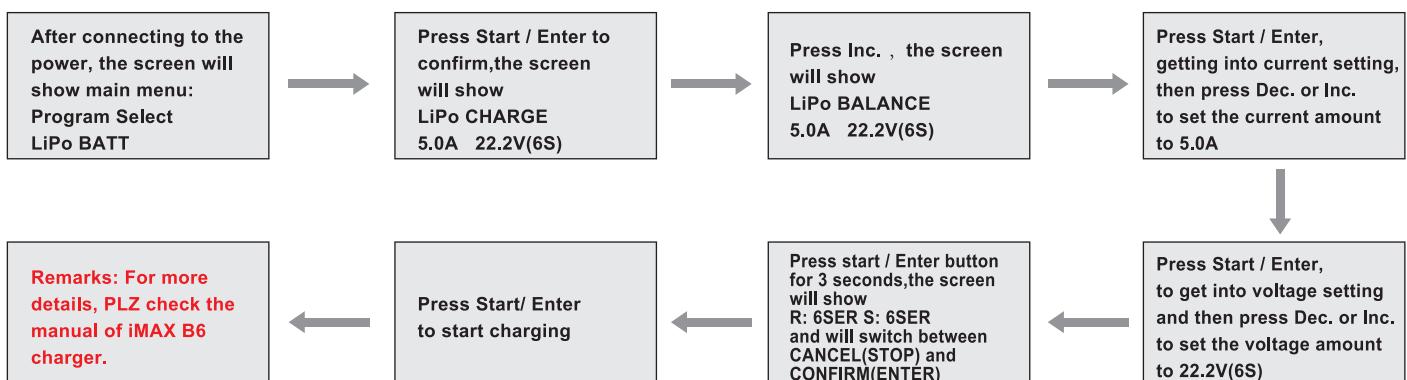
(2) Photo instruction

Turn the video/photo switch to , Press the shutter button once, to take a photo (The Red indicator blinks once and then stays unlit). Press the shutter button again, to take another photo.

17.0 Connect charger instruction



The operation instructions are as follows:



deVention

Tel.: (8620) 8491 5115 8491 5116

Fax.: (8620) 8491 5117

Email: heli@walkera.com
info@walkera.com

Add.: Taishi Industrial Park, Dongchong Town
nansha District, 511475 Guangzhou

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Web:www.walkera.com