

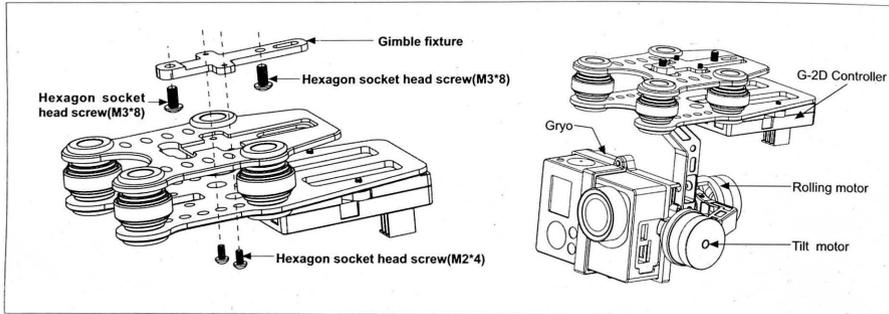
In order to help you learn the G-2D function and master the operation fast, please read the G-2D Gimble instruction thoroughly and then keep it in a safe place for future reference.

1.0 Manual

G-2D gimble is specifically designed for Gopro Hero3 camera by Walkera, adopting aluminum alloy CNC frame, brushless motor, high accuracy intelligent electronic control system. Be utilized to filming and advertising aerial photography etc. High precise and stable frame design to make sure the camera control accurately during high-speed flying and take the best aerial photography pictures and videos.

2.0 Installation Instructions

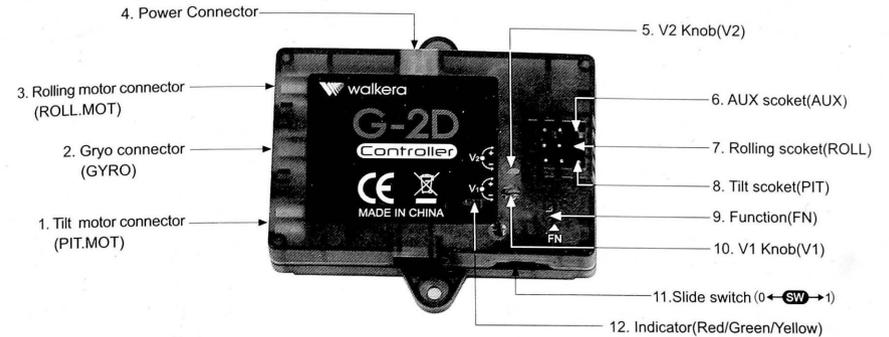
- (1) Use hexagon socket head screw(M3*8) to fix the Gimble fixture under the fuselage.
- (2) Use hexagon socket head screw(M2*4) to fix the Gimble under the mounting bracket.



2.0 Specifications

(1) GOPRO Hero3 AV line out	(2) Power voltage compensation available
(3) Support motor drive side short circuit protection	(4) Support initial Roll and tilt customized
(5) Support stick rate mode and position mode	(6) Regular receiver accepted
(7) Operating voltage: DC 7.4V~28V (recommended 12V, 3S lipo battery)	(8) Operating current: 200mA-500mA(depends on the motor power and voltage supplied)
(9) Operating temperature: -15°C ~ 65°C	(10) Sensor technology: 3-axis MEMS gyro and accelerometer
(11) Max angular rate: 2000° /sec	(12) Max acceleration: 16g
(13) Frequency:2000Hz	(14) Motor driven frequency: 46 KHz (no noise smoothing drive)
(15) Control accuracy: 0.1°	(16) Control range: -45° ~45° (roll)/-135° ~90° (tilt)
(17) Applicable camera : GOPRO Hero3	(18) Size: 100mmx94.5mmx84mm(L x W x H)
(19) Weight: 120g (Camera not included)	(20) Program online update available (UP02 and UP02 adapter requested)

3.0 Function



S/N	G-2D Connector/Socket	Function
1	Tilt motor connector(PIT.MOT)	Connect with Tilt motor
2	Gyro connector(GYRO)	Connect with gyro
3	Rolling motor connector(ROLL.MOT)	Connect with Rolling motor
4	Power connector(POWER)	DC 7.4V~28V (recommended 12 V, 3S lipo battery)
5	V2 knob(V2)	Auxiliary adjusting knob
6	AUX socket(AUX)	AUX output
7	Rolling socket(ROLL)	Used for receiver rolling(AILE) connect
8	Tilt socket(PIT)	Used for receiver tilt(ELEV) connect
9	Function(FN)	Select key when enter into adjusting mode
10	V1 knob(V1)	Auxiliary adjusting knob
11	Slide switch (0 ← SW → 1)	Switch between stick rate mode(position 0) and position mode(Position 1)
12	Indicator(Red/Green/Yellow)	Status indicating

4.0 Instruction without connecting receiver

4.1 Indicator instruction

Red LED flash	Initialization, please don't move the camera mount
Green LED Keeps solid	Initialization finished

4.2 Knob Instruction

V1 knob	Adjusting Tilt Angle (middle point 0° , maximum -135° ~90°)
V2 knob	Adjusting rolling angle(middle position 0° , maximum is -45° ~45°)

Please keep the gimble Horizontal and don't move, once initialization finished, you can adjust the rolling and tilt angle according to the gimble status.

- (1) If you want the gimble forward, please adjust the V1 knob in counterclockwise direction, and vice versa.
- (2) If you want the gimble leftward, please adjust the V2 knob in counterclockwise direction, and vice versa.

5.0 Instruction with Receiver connected

5.1 Indicator instruction

Red LED Flash	Initialization, please don't move the camera mount
Green LED keeps solid	Initialization finished
Red LED keeps solid	Receiver Tilt be connected
Yellow LED keeps solid	Receiver Rolling be connected

5.2 Instruction for knobs

V1 Knob	Tilt range setting(mid-point as start point ,adjust the knob in counterclockwise direction, maximum $-135^{\circ} \sim -90^{\circ}$)
V2 knob	Roll range setting(mid-point as start point, adjust the knob in counterclockwise direction, maximum $-45^{\circ} \sim -45^{\circ}$)

5.3 Instruction for stick mode

- (1) Stick position mode (Slide switch at 1 position): Take the mid-point as start point, you can adjust the V1 knob in counterclockwise direction as needed to set the tilt range(maximum $-135^{\circ} \sim -90^{\circ}$). Adjusting V2 knob to set the rolling range is the same as tilt settings(Maximum $-45^{\circ} \sim -45^{\circ}$). Then the tilt and roll angle will be changed in corresponding to the tilt and roll stick input. Take mid-point as start point, the more you input tilt or roll stick, the more the gimble tilt or roll angle be changed and vice versa. The gimble tilt and roll angle will be 0° when the tilt and roll stick at the mid-point.
- (2) Stick rate mode (Slide switch at 0 position): Take the mid-point as start point, you can also adjust the V1 knob in counterclockwise direction as needed to set the tilt range(maximum $-135^{\circ} \sim -90^{\circ}$). Adjusting V2 knob to set the rolling range is the same as tilt settings(Maximum $-45^{\circ} \sim -45^{\circ}$). Then the tilt and roll change rate will be changed in corresponding to the tilt and roll stick input. Take mid-point as start point, the more you input tilt or roll stick, the fast the gimble tilt or roll change rate be changed and vice versa. The gimble tilt and roll change rate will be 0 when the tilt and roll stick at the mid-point.

6.0 Parameter Adjusting Mode Setting Instructions

Please keep the gimble Horizontal and don't move, once initialization finished, you can adjust the gimble parameters selectively according to your demand under parameter adjusting mode.

6.1 Indicator Instruction under Parameter Adjusting Mode

Enter PAM	Red/Green/Yellow Led flash quickly simultaneously	Enter PAM
Tilt Motor Output Power and Gain Control Adjusting	Red LED flashes quickly/slowly	Enter Tilt Motor Output Power and Gain Control Adjustment
	Yellow Led light off/keeps solid /flash	V1 Gain control knob isn't in the middle/in the middle/under adjusting
	Green Led light off/keeps solid/flash	V2 Output Power knob isn't in the middle/in the middle/under adjusting
Roll Motor Output Power and Gain Control Adjusting	Green LED flashes quickly/slowly	Enter Roll Motor Output Power and Gain Control Adjustment
	Yellow Led light off/keeps solid /flash	V1 Gain control knob isn't in the middle/in the middle/under adjusting
	Red Led light off/keeps solid/flash	V2 Output Power knob is not in the middle/in the middle/under adjusting
Tilt & roll motor Initial angle adjusting	Yellow LED flashes quickly/slowly	Enter into tilt & roll motor Initial angle adjusting
	Red Led light off/keeps solid/flash	V1 initial tilt angle adjusting knob isn't in the middle/in the middle/under adjusting
	Green Led light off/keeps solid/flash	V2 initial Roll angle adjusting knob isn't in the middle/in the middle/under adjusting
Parameter save and PAM EXIT	Green Led keeps solid	Save parameters and Exit PAM

6.2 Enter Into PAM Instructions

Press FN key over 3 seconds, Red/Green/Yellow Led flash quickly simultaneously indicating PAM entered.

6.3 Tilt Motor Output Power and Gain Control Adjusting

- (1) Enter into PAM, press FN key once until red led flashes quickly indicating tilt Motor Output Power and Gain Control Adjusting mode entered.

- (2) Reset V1/V2 knob that means adjusting V1/V2 knob at middle position, yellow/green led keep solid constantly.
- (3) Please wait 3-5 seconds until RED LED flashes slowly, then you can adjust the tilt motor output power and gain control. ①To increase the tilt motor output power, please adjust the V2 knob clockwise properly and Green LED flashing, and vice versa. ②To increase the tilt motor gain, please adjust the V1 knob clockwise properly and Yellow LED flashing and vice versa.

- (4) Press FN key triple until Green led keeps solid, adjusting parameters will be saved and exit PAM.

Principle of Tilt Motor Output Power and Gain Control Adjusting: Under the same load status, the tilt motor gain should decrease when you increase the output power while you can increase the tilt motor gain when the output power decreased. Therefore, you can get more tilt motor gain by decreasing the output power while the output power is enough to make the G-2D more stable. However, the G-2D anti-shaking ability will decrease either when you decrease the motor power.

6.4 Roll Motor Output Power and Gain Control Adjusting instruction

- (1) Enter into PAM, Press FN key twice, Green Led flashes quickly, roll motor output power and Gain Control Adjusting entered.
- (2) Reset V1/V2 knob that means adjusting V1/V2 knob at middle position, yellow/RED led keep solid constantly.
- (3) Please wait 3-5 seconds until Green LED flashes slowly, then you can adjust the Roll motor output power and gain control. If you need to increase the Roll motor output power, please adjust the V2 knob clockwise properly and Red LED flashing, and vice versa.
- (4) Press FN key twice until Green led keeps solid, adjusting parameters will be saved and exit PAM.

Principle of Roll Motor Output Power and Gain Control Adjusting: Under the same load status, the Roll motor gain should decrease when you increase the output power while you can increase the Roll motor gain when the output power decreased. Therefore, you can get more Roll motor gain by decreasing the output power while the output power is enough to make the G-2D more stable. However, the G-2D anti-shaking ability will decrease either when you decrease the motor power.

6.5 Initial tilt & roll motor angle adjusting instruction

- (1) Press FN key triple, Yellow Led flashes quickly indicating initial tilt & roll motor angle adjusting entered.
- (2) Reset V1/V2 knob that means adjusting V1/V2 knob at middle position, yellow/green led keep solid constantly.
- (3) Please wait 3-5 seconds until Yellow LED flashes slowly, then you can adjust the tilt and Roll initial angle(Maximum $-15^{\circ} \sim -15^{\circ}$): ①To increase the tilt motor output power, please adjust the V2 knob clockwise properly and Green LED flashing, and vice versa. ②To increase roll motor initial angle, please adjust the V2 knob clockwise properly to and red led flash, and vice versa.
- (4) Press FN key once until green led light constantly flashing, save parameters and exit PAM.

6.6 Parameters save and PAM exit

Enter into PAM, Press FN key four times until green led keeps solid, adjusting parameters will be saved and exit PAM.

P.S.: Please adjusting V1/V2 knob to middle position after PAM exit.

7.0 Protection Function

- (1) **Motor output short circuit protection:** When the motor output end short circuit, the controller will cut off the motor output automatically to protect the controller not burn. When the short circuit problem be solved, please re-connect the power supply again to unlock the protection.
- (2) **Angle overrun protection:** When the camera overrun, the controller will cut the motor output automatically to protect the wires not twist off under unexpected condition unless problems solved.

8.0 G-2D program upgrade

- (1) The G-2D program can be update online, new program will be released on Walkera website.
- (2) Upgrade tool: UP02 and UP02 adaptor.
- (3) Connect blue single wire plug to G-2D Tilt socket signal position, yellow single wire plug connect to G-2D Roll socket signal position, black single wire plug connect to G-2D Roll socket position of earth wire.

