BLADE®

GB200 2-Axis Brushless Gimbal

NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit horizonhobby.com and click on the support tab for this product.

Meaning of Special Language

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.

CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.

WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not use with incompatible components or alter this product in any way outside of the instructions provided by Horizon Hobby, LLC. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

Age Recommendation: Not for children under 14 years. This is not a toy.

Safety Precautions and Warnings

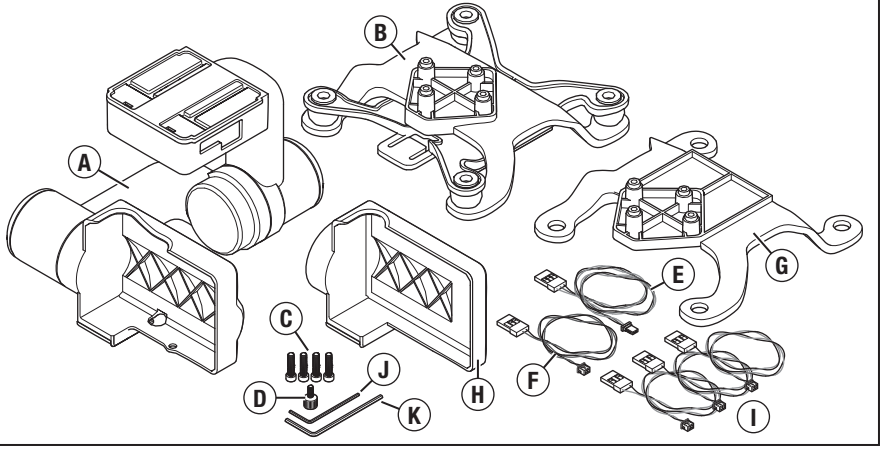
- Always keep a safe distance in all directions around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside your control. Interference can cause momentary loss of control.
- Always operate your model in open spaces away from full-size vehicles, traffic and people.
- Always carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.).
- Always keep all chemicals, small parts and anything electrical out of the reach of children.
- Always avoid water exposure to all equipment not specifically designed and protected for this purpose. Moisture causes damage to electronics.
- Never place any portion of the model in your mouth as it could cause serious injury or even death.
- Never operate your model with low transmitter batteries.
- Always keep the aircraft in sight and under control.
- Always move the throttle fully down at rotor strike.
- Always use fully charged batteries.
- Always keep the transmitter powered on while the aircraft is powered.
- Always remove batteries before disassembly
- Always keep moving parts clean.
- Always keep parts dry.
- Always let parts cool after use before touching.
- Always remove batteries after use.
- Never operate an aircraft with damaged wiring.
- Never touch moving parts.

Table of Contents

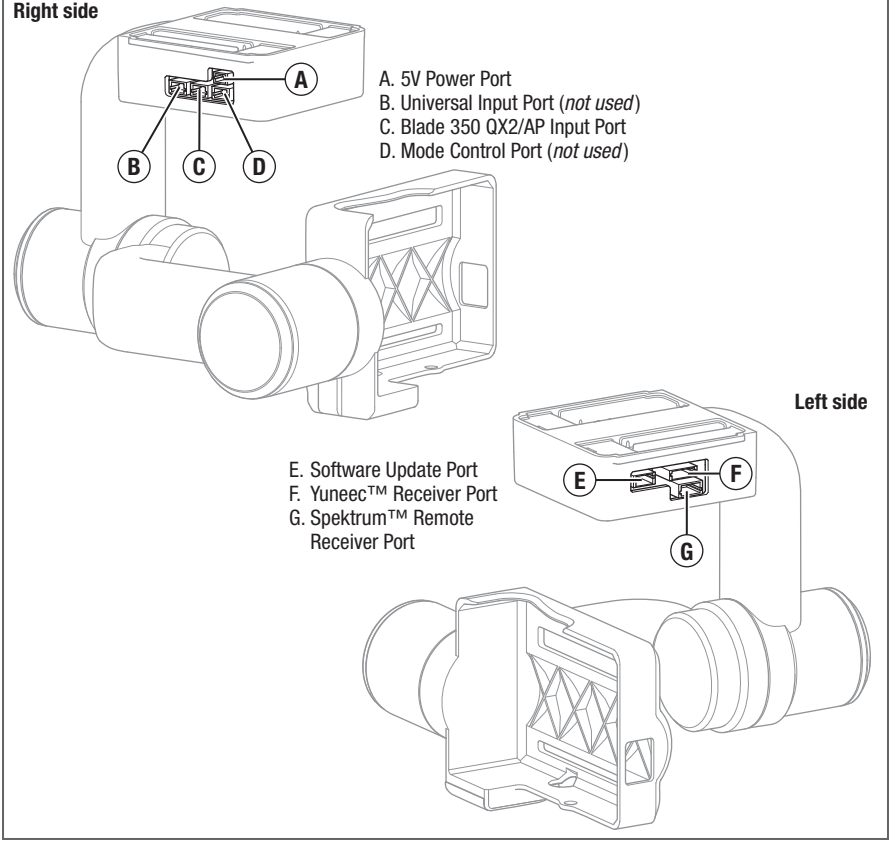
Box Contents 4
Connection Ports..... 5
Installing the Isolation Mount 6
Routing the Wiring 7
Changing the Camera Mount..... 8
Installing the Gimbal 9
Mounting the Camera 10
Gimbal Modes..... 11
Transmitter Programming 11
Using the Gimbal 12
LED Codes..... 12
Troubleshooting 13

Box Contents

A. GB200 2-Axis Camera Gimbal
w/CGO1 compatible mounting plate
B. Assembled isolation mount
C. (4) Mounting Screws
D. Knurled 3mm screw
E. 3-wire harness
F. 2-wire power harness
G. Alternate top mounting plate
H. GoPro® (3/3+) compatible camera mounting plate
I. (3) 2-wire harnesses (not used)
J. Small hex wrench
K. Large hex wrench
Copper foil RF shield (not shown)

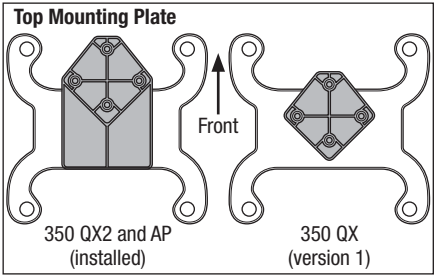


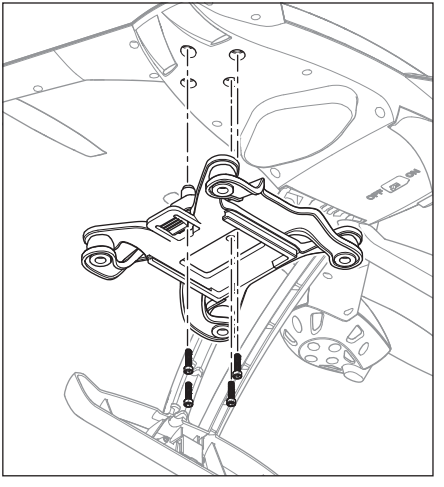
Connection Ports



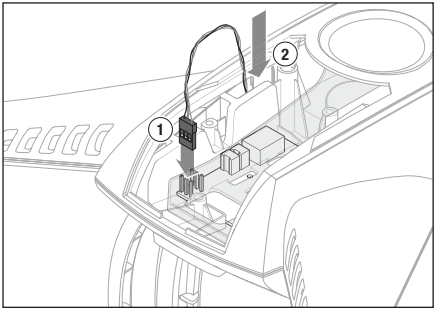
Installing the Isolation Mount

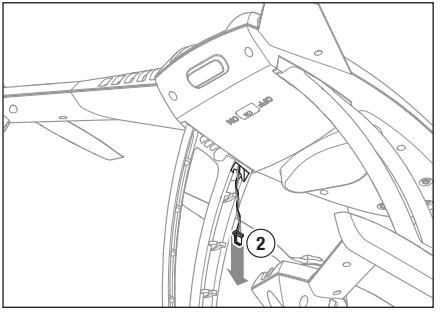
If you are mounting the GB200 on a Blade® 350 QX (version 1), you will need to change the pre-installed top mounting plate before attaching the isolation mount to your airframe. See the illustration at right. Using the large hex wrench provided, install the isolation mount with the 4 included screws. Do not overtighten. Carefully push the lower plate forward to access the front mounting plate hole.





Routing the Wiring





- If you are installing the GB200 on a Blade 350 QX (version 1), use the included 2-wire harness (red and brown).
- If you are installing the GB200 on a Blade 350 QX2 or 350 QX2 AP, use the included 3-wire harness (red, brown and orange).

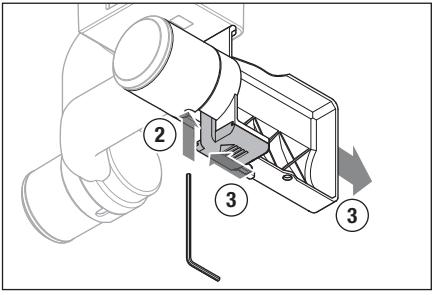
1. Plug the servo connector into the flight control board as shown.
2. Route the JST connector through the hole in the landing gear mount on the bottom of the 350 QX.

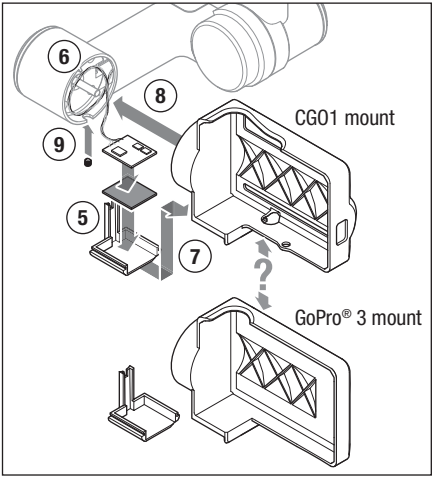
Changing the Camera Mount

GoPro® users

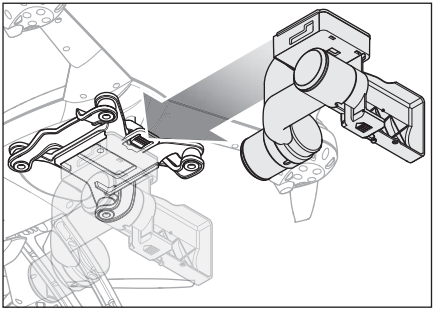
The GB200 comes with the CGO1 camera mount pre-installed. If you are using a GoPro® 3/3+ camera with your gimbal, it is necessary to change the camera mount.

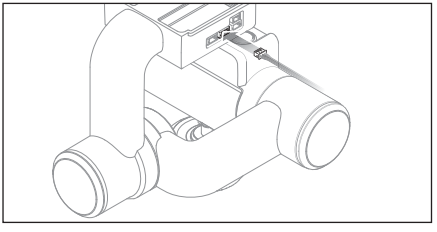
1. Turn the camera mount on the gimbal until the set screw faces the notch in the gimbal arm.
2. Loosen the set screw using the small hex wrench included, as shown.
3. Slide the camera mount away from the gimbal motor while carefully sliding the gyro plate from the camera mount.
4. Carefully remove the gyro board from the gyro plate. Double-stick tape firmly holds the board on the mount.
5. Install the gyro board in the alternate camera mount gyro plate. The plates are not interchangeable.
6. Wrap the gyro board wire harness loosely clockwise one whole turn around the end of the camera mount toward the gimbal motor.
7. Slide the gyro plate onto the camera mount.
8. Slide the camera mount onto the motor shaft, taking care to align the flat on the motor shaft with the set screw on the mounting plate.
9. Insert and tighten the set screw.





Installing the Gimbal





Install the gimbal with the vertical arm to the rear by lining up the tracks of the gimbal and the mount and pushing towards the rear of the plate as shown at left.

To remove the gimbal, push in the restraining clip and pull the gimbal forward from the slot.

Plug the wire routed from the control board to the correct port in the gimbal. See *Connection Ports* for the port layout.

350 QX2 or 350 QX2 AP:

Insert the 3-wire harness into the **Blade 350 QX2/AP Input Port** as shown at the left.

350 QX:

Insert the 2-wire harness into the **Power Port.** The gimbal will stabilize roll and pitch normally, but will have no transmitter control of the pitch axis.

If you wish to have transmitter control of the pitch axis, a seperate remote receiver is required (*see below*).

Using a Remote Receiver for Pitch Axis Control

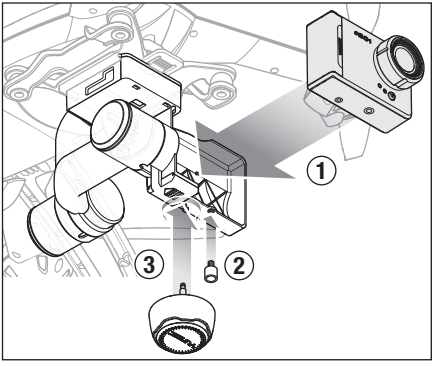
On the original 350 QX quadcopter, the gimbal will automatically level without installation of an optional remote receiver. If transmitter control of the pitch axis is desired, connect a Spektrum Remote Receiver (SPM9645, *sold separately*) to gimbal **port G.** Secure the remote receiver to the upper gimbal body using double-stick tape. Bind the remote receiver while binding the quadcopter receiver to your transmitter. If the gimbal does not respond to the transmitter, re-bind.

Mounting the Camera

IMPORTANT: Consult local laws and ordinances before installing and operating any type of photograph-capable or video recording device in a hobby model aircraft.

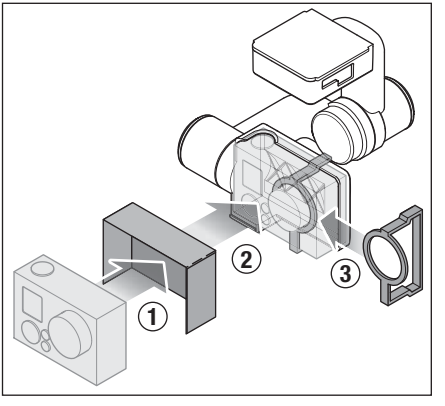
CGO1

1. Slide the camera fully into the gimbal as shown.
2. Install the 3mm screw through the mount and into the camera body as shown.
3. Insert the Wi-Fi antenna through the mount and into the camera body until it clicks. Rotate the antenna 90° in either direction to lock.



GoPro® 3/3+

1. Install the included copper foil shield around the camera body using the included instructions.
2. Slide the camera and shield fully into the gimbal as shown.
3. Slide the rubber strap around the camera body and lens as shown.



Gimbal Modes

Angle Mode (Green LED)

- The gimbal pitch angle corresponds directly to the position of the transmitter control input.
- The gimbal will automatically stabilize in the stopped position.

Velocity Mode (Blue LED)

- The gimbal pitch angle moves away from neutral in the direction of the transmitter control input.
- The farther away from center the transmitter control input is, the faster the gimbal moves in the corresponding direction.
- The pitch angle movement is stopped by centering the transmitter control.
- The gimbal will automatically stabilize in the stopped position.

Transmitter Programming

Transmitter control of the pitch angle of the GB200 is possible with most 7-channel and above Spektrum transmitters.

For the greatest control of the gimbal functions, an 8-channel or higher computer radio is recommended.

To program your transmitter:

- Set channel 7 to a dial, slider or lever for gimbal pitch control.
- Change channel 7 *servo reverse* for the gimbal travel direction you prefer.
- Set channel 8 to a 2-position switch to choose between gimbal modes.
- Change channel 8 *servo reverse* for the switch direction you prefer.

If you are using a DX7S system:

- Angle Mode will be active if you use the signal output from the 350QX2/AP control board.
- Velocity Mode will be active if you use only the power output from the 350 QX/2/AP in conjunction with a remote receiver.

If you are using a DX7 system:

- The DX7 uses a 2-position switch on channel 7. When using this transmitter, the gimbal will default to Angle Mode and will travel to either full up or full down, depending on the position of the channel 7 switch. You can adjust the endpoints in your transmitter to achieve the desired camera angles.

Using the Gimbal

1. Place the quadcopter on a flat and stable surface. Ensure there are no obstructions in the path of the GB200.
2. Switch on your transmitter.
3. Switch on your quadcopter. The GB200 will power on with the quadcopter.

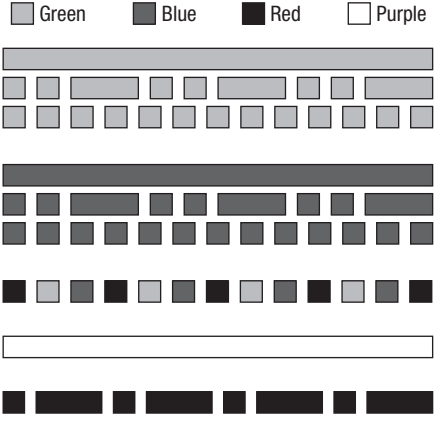
NOTICE: You must have a camera mounted to the GB200 for the gimbal to initialize properly.

After the gimbal initializes, the LED will glow purple for approximately 3 seconds. In those 3 seconds, the camera mount may be rotated up or down by hand to your desired neutral pitch position. When the LED changes to green or blue, the neutral position is set and the GB200 is ready for use.

The gimbal will now compensate for any roll and pitch movements encountered by your quadcopter.

If desired, you may change the pitch angle of the gimbal at any time using your programmed transmitter controls.

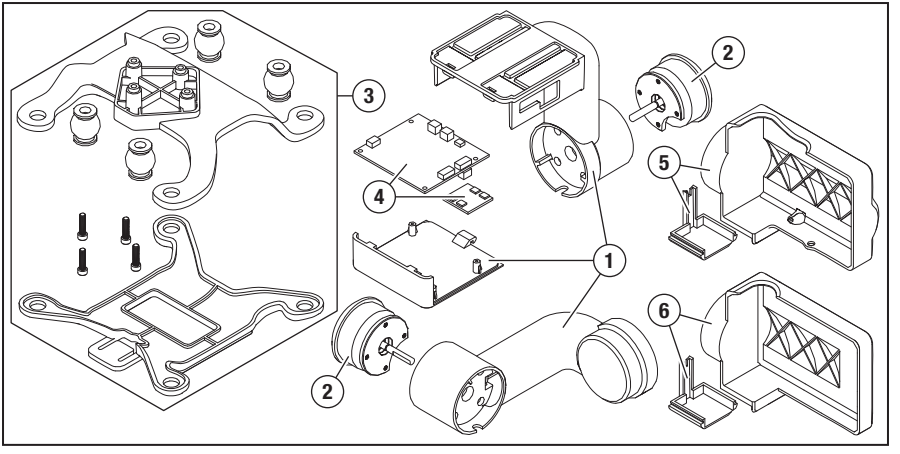
LED Codes



Troubleshooting

Problem	Possible Cause	Solution
The gimbal vibrates after switching ON	Loose camera	Secure the camera in the mount
Gimbal does not respond to control input	Gimbal did not initialize	Keep the quadcopter and gimbal level and immobile for 5 seconds after switching ON
Gimbal is not ON	Incorrect gimbal connections	Correctly connect gimbal
Gimbal does not respond to transmitter	Optional remote receiver is not bound	Re-bind receivers
Gimbal does not respond to control inputs. RED and BLUE LEDs are solid	Incorrect gimbal connections	Correctly connect gimbal
Gimbal is not ON and RED LED flashes slowly	Gimbal gyro board damage	Repair or replace wiring or gyro board
Gimbal LED Flashing RED in Angle or Velocity Mode	Sensor Error	Correctly connect gimbal, repair or replace gimbal wiring or boards

Exploded View



Replacement Parts

#	Part #	Description
1	BLH7904	Gimbal Arms: GB200
2	BLH7905	Gimbal Motors: GB200
3	BLH7906	Gimbal Mount: GB200
4	BLH7907	Gimbal Control Board: GB200

#	Part #	Description
5	BLH7908	Camera mount CGO1: GB200
6	BLH7909	Camera mount Go Pro Hero 3: GB200
	BLH7910	GB200 Brushless Gimbal

Optional Parts

Part #	Description
SPM9645	DSMX Remote Receiver

©2014 Horizon Hobby, LLC.
Blade and the Horizon Hobby logo are registered trademarks of Horizon Hobby, LLC.
The Spektrum trademark is used with permission of Bachmann Industries, Inc. GOPRO® is a registered trademark of Woodman Labs, Inc. in the United States and other countries. Yuneec and CGO1 are trademarks of Yuneec International Co., Ltd.
All other trademarks, service marks or logos are property of their respective owners.
Patents pending.
Created 07/14 46284 BLH7910