Infinity MR PRO Gimbal Manual

HD AIR STUDIO

Manual: v.01

Table of contents

1. DISCLAIMER & WARNING

The disclaimer shall be read carefully before using the product – InfinityMR PRO
THE PRODUCT IS NOT SUITABLE FOR PEOPLE UNDER THE AGE OF 18.

HD Air Studio is not liable for:

1. Damages caused by the misuse of the product.
2. Damages caused by users under the influence of intoxicants.
3. Health impairments caused by the misuse of the product.
4. Damages caused by using the product in severe weather conditions
5. Damages caused by the wrongful storage of the product.
6. Damages caused by gimbal modification
7. Damages caused by taking gimbal apart
8. Damages caused by changing gimbal software setup

InfinityMR PRO Gimbal warranty does not include damages caused by:

1. Not applying to the manual.
2. Improper usage of the device.
3. Improper storage of the device.
4. Device exploitation resulting from its improper usage.
5. Wear and tear.

2. TECHNICAL OVERVIEW

Gimbal weight	885g/1025g including/excluding Orbit damping system
Supported cameras	Up to 1,3g weight (GH5[1]/GH4/GH3/A7S/A7RII/BMPCC/A6000/A6300 etc.)
Maximum camera size	Height: 104mm; Width: 130-140mm (depending on balancing); Length: approximately 100mm (camera body; depends on balancing and camera lens weight)
Motors	28 poles – built-in magnetic encoders
Operating voltage	13.5-24V (4S LiPo recomended)[2]
Rigid construction – carbon fiber & aluminum	
Different motors on all axes to provide the best torque and stabilization	
Camera IMU housing under the camera shelf	
12 channel Slip Ring with three free channels	
Gimbal comes ready to use out of the box	
Easy and fast balancing with thumbscrews	
Box-shape camera shelf allows to mount AV tx/ HDMI converters etc	
Adjustable multirotor mounting rails with 12mm tube clamps	
100% Europe-based production	

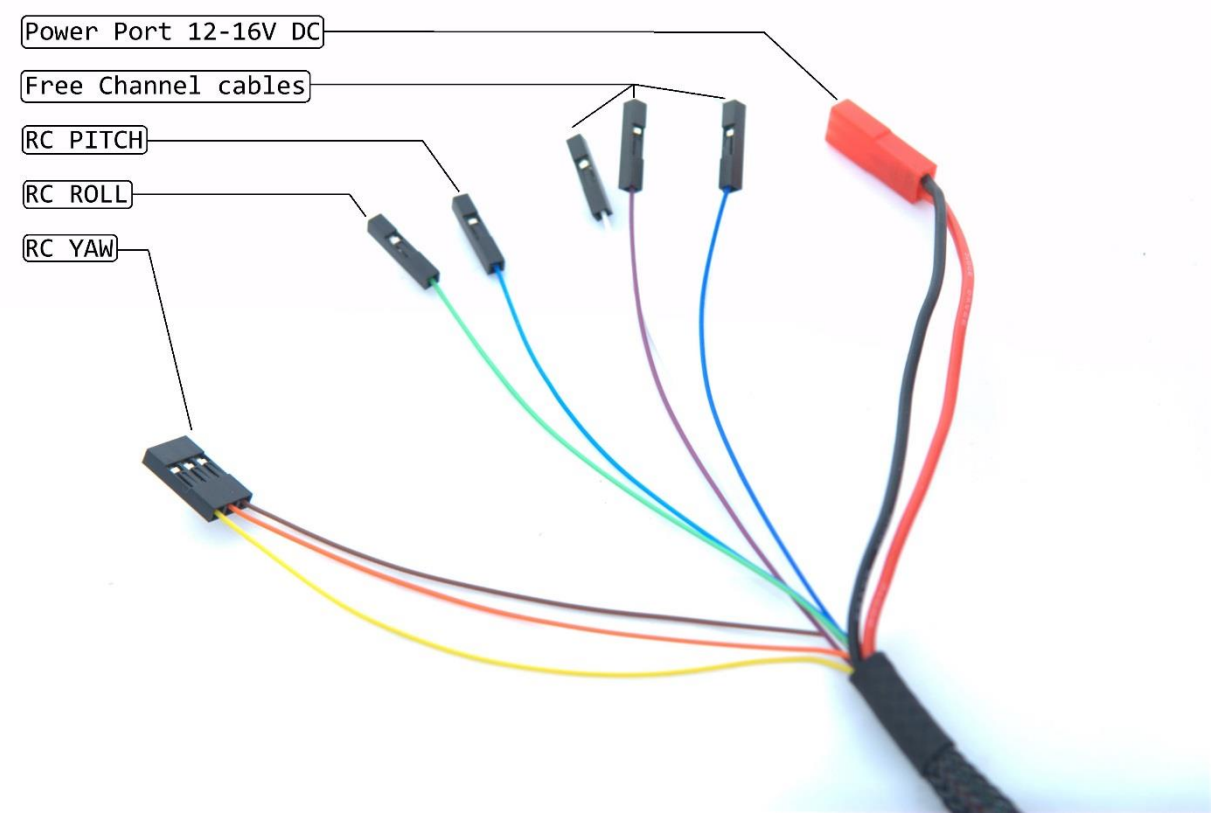
If you use bigger cameras with HDMI output you need to use 90 degrees angle connector.

[1] For Panasonic Lumix GH5 Lens should be heavier then 100g

[2] Using batteries different then 4S might require change of settings

You can order it from our store http://store.hdairstudio.com/

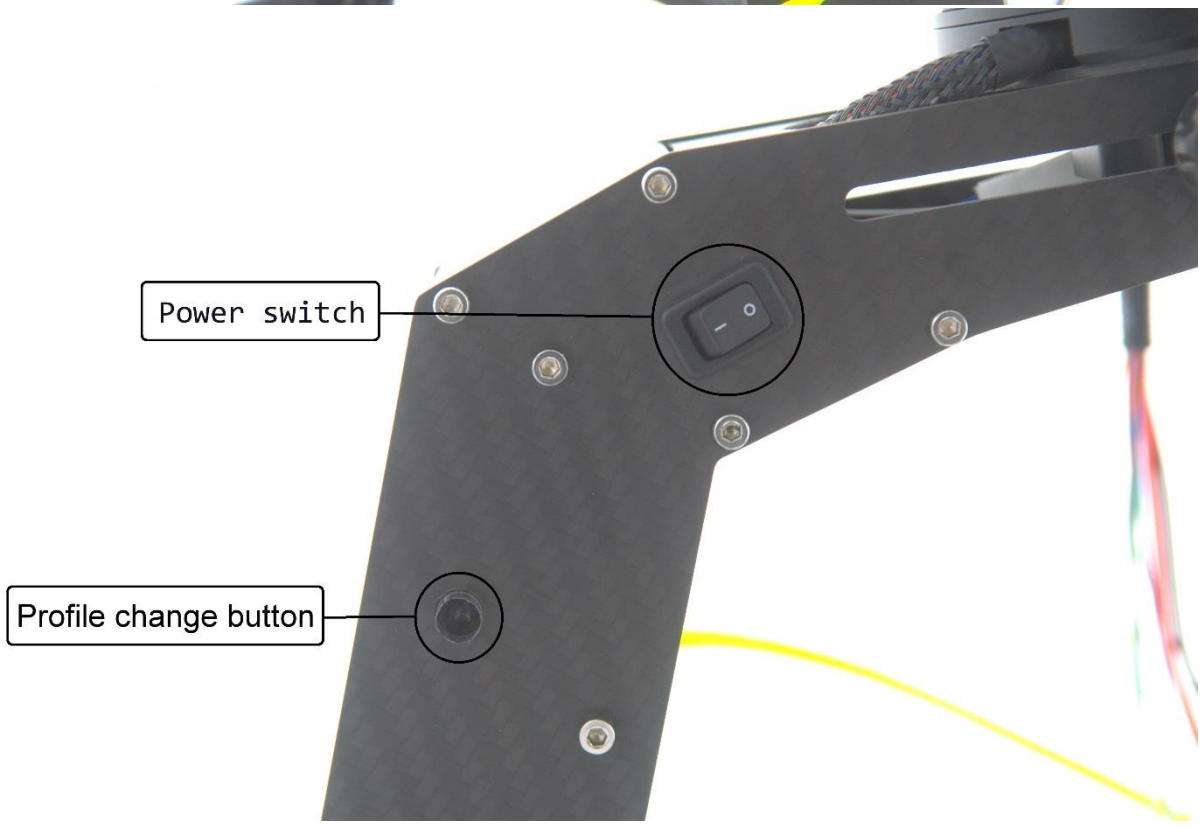
3. GIMBAL OUTPUTS AND CONNECTORS

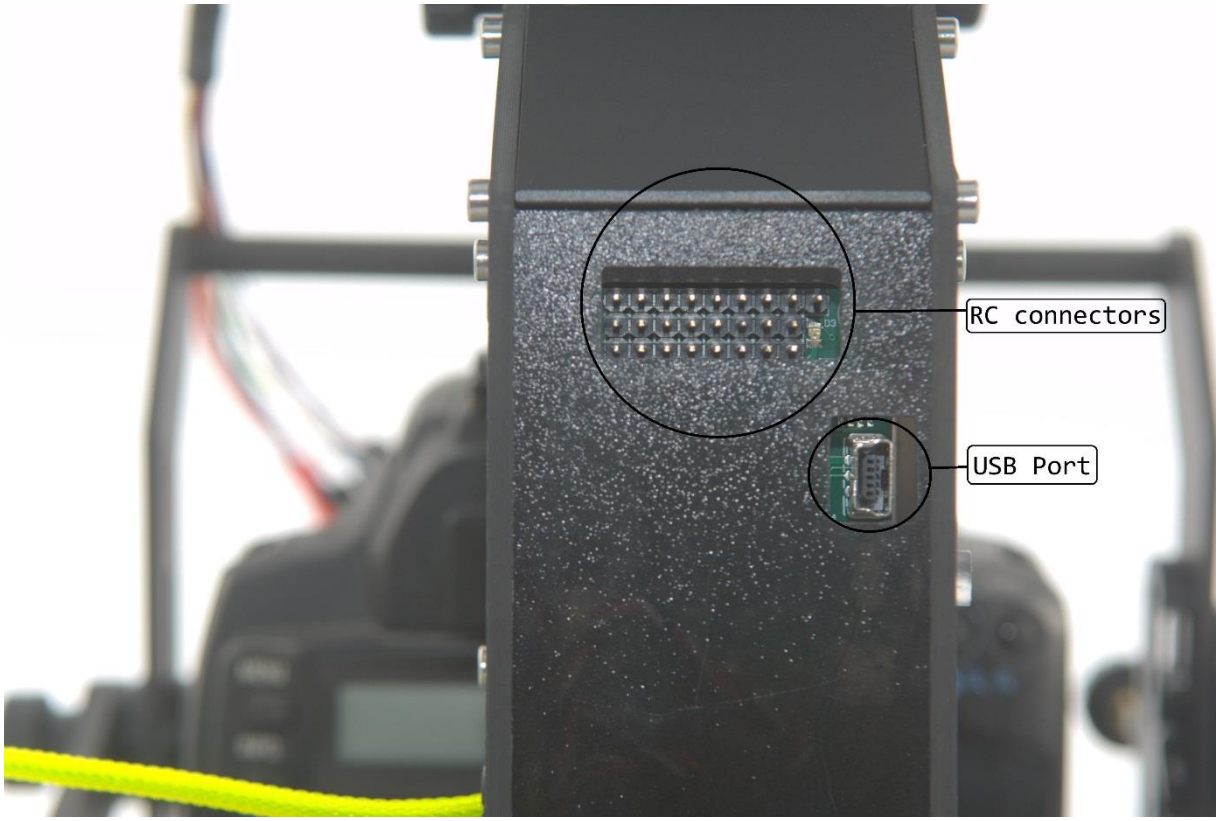


RC yaw :

- Brown – GND
- Red - +5V
- Yellow -Signal

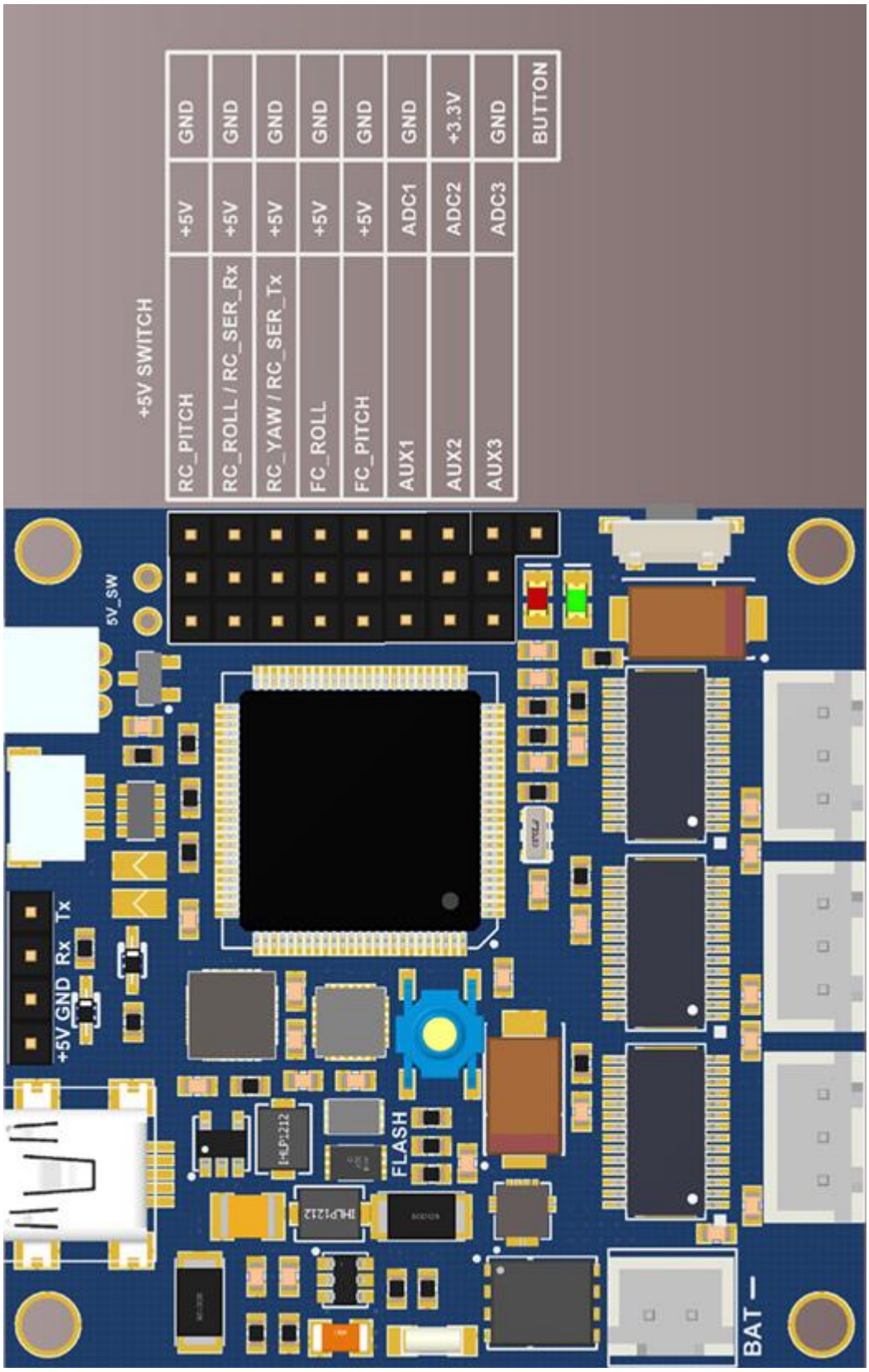

JST Power Port
12-16V
12-16V


Power switch
Profile change button


RC connectors
USB Port

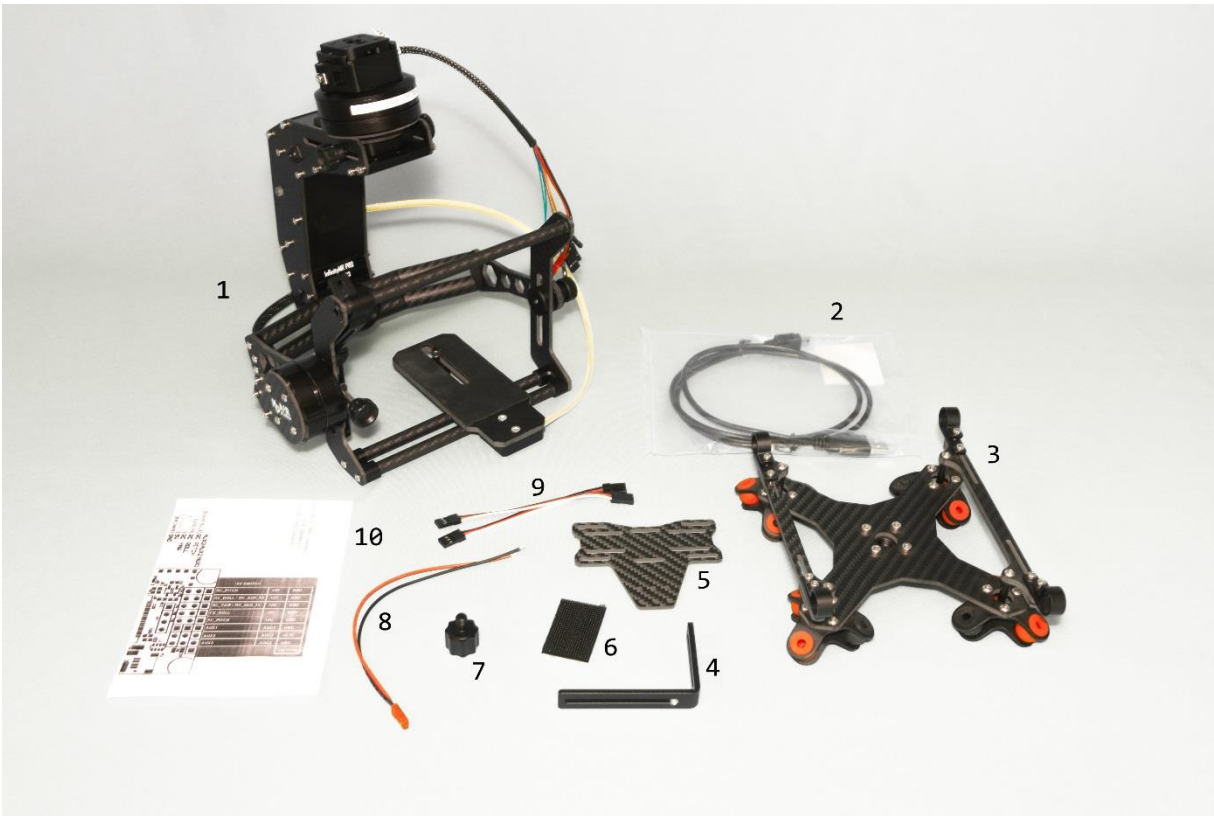

3M dual lock for additional
equipment mount.

4. CONNECTION DIAGRAM



5. BOX CONTENTS

1. Gimbal
2. USB cable
3. "Orbit" damping plate
4. Upper camera support bracket (for smaller cameras)
5. External equipment mount plate
6. 3M dual lock tape
7. Camera bolt
8. JST cable
9. 2x RC cable
10. Wiring diagram



6. MECHANICS ASSEMBLING

For the final mechanics assembling, please connect the Orbit damping plate to the yaw motor.

WARNING ! If you want to use gimbal without quick connector make sure screws are not too long – it may cause damage of the motor.

Use the allen key to tighten screws. Do not use too much pressure. Refer to the following picture.

After mounting the Orbit anti-vibration plate to the yaw motor, connect the gimbal to your multirotor frame. For this you can use 12mm aluminum tube clamps (recommended).

Infiniy MR PRO comes witch quick connector. Top part of quick connector is already screwed onto orbit damping plate.

If you want to use Gimbal on multirotor first install orbit damping plate on your multirotor using 12mm tube clamps. Once damping plate is mounted on multirotor make sure that release clamp is in open position. Slide quick connector (with gimbal) on mounting plate attached to orbit damping plate. Make sure that you slide it properly (both parts of quick connector should line up). Now you can close release clamp. - **Photo 1**

Photo1

Quick release system makes it easier to change from multirotor to hand held or stand (it takes less than a minute).

Mounting plate has few fitting options with typical photo and metric threads see picture below – **Photo 2**

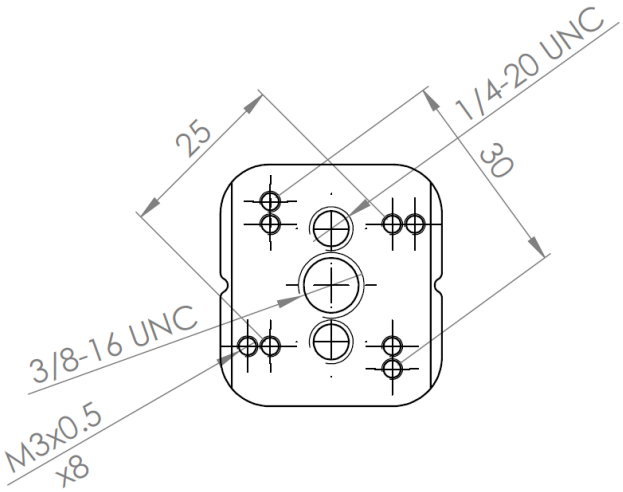


Photo 2

Gimbal is supplied with only one connector but if you need more of them for your other devices you can order them from our store – link below:

http://store.hdairstudio.com/

Infinity MR PRO is equipped with extra plate which can be mounted under Yaw motor. This plate gives you more space to put battery and any additional equipment. **Photo 3**

Photo 3

7. GIMBAL BALANCING

Satisfactory stabilization performance is possible only with a properly balanced gimbal. In order to balance your gimbal in all 3 axes, follow the rules below:

1. Mount the gimbal on your multirotor - it is crucial for a proper balancing and tuning process.
2. Put your multirotor on a stable, level surface.
3. Mount your camera with lens, battery, SD card etc. on the gimbal camera shelf –**Photo 1.**
   a) With your camera mounted on the shelf, find a place where a camera shelf remains levelled to the ground.
4. Unscrew a little thumbscrews to balance the pitch axis - **Photo 2.**
   b) By moving a camera box up and down, find a place where a camera can stay put in every position of the pitch axis (e.g. rotate camera by 30 / 60/90 degrees, if it stays in every position, balancing is made properly).
   c) Once camera is properly balanced place upper support above camera hot shoe. Remove blind/cover from hot shoe and in that place slide in bottom plate of support. Make sure that screws are properly tighten. – **Photo 3**
5. Unscrew little thumbscrew to balance the roll axis.
   a) By moving camera box to the left and to the right, find a place where a camera can stay put in every position of the roll axis (e.g. rotate a camera by 10 / 20/30 degrees, if it stays in every position, balancing is made properly) – **Photo 4**.
6. Unscrew a little thumbscrew to balance the yaw axis.
   a) Tilt your multirotor frame by 20 degrees (left/right or forward/backward)
   b) Hold the gimbal by thumbscrews under the yaw motor. By moving gimbal back and forth, find a place where a gimbal can stay put in every position of the yaw axis (e.g. rotate a camera by 20 / 30/45 degrees, if it remains put in every position, the balancing process was conducted properly) – **Photo 5**.
7. Make sure that all thumbscrews and screws are tighten properly.

Photo 1

Photo 2

Photo 3

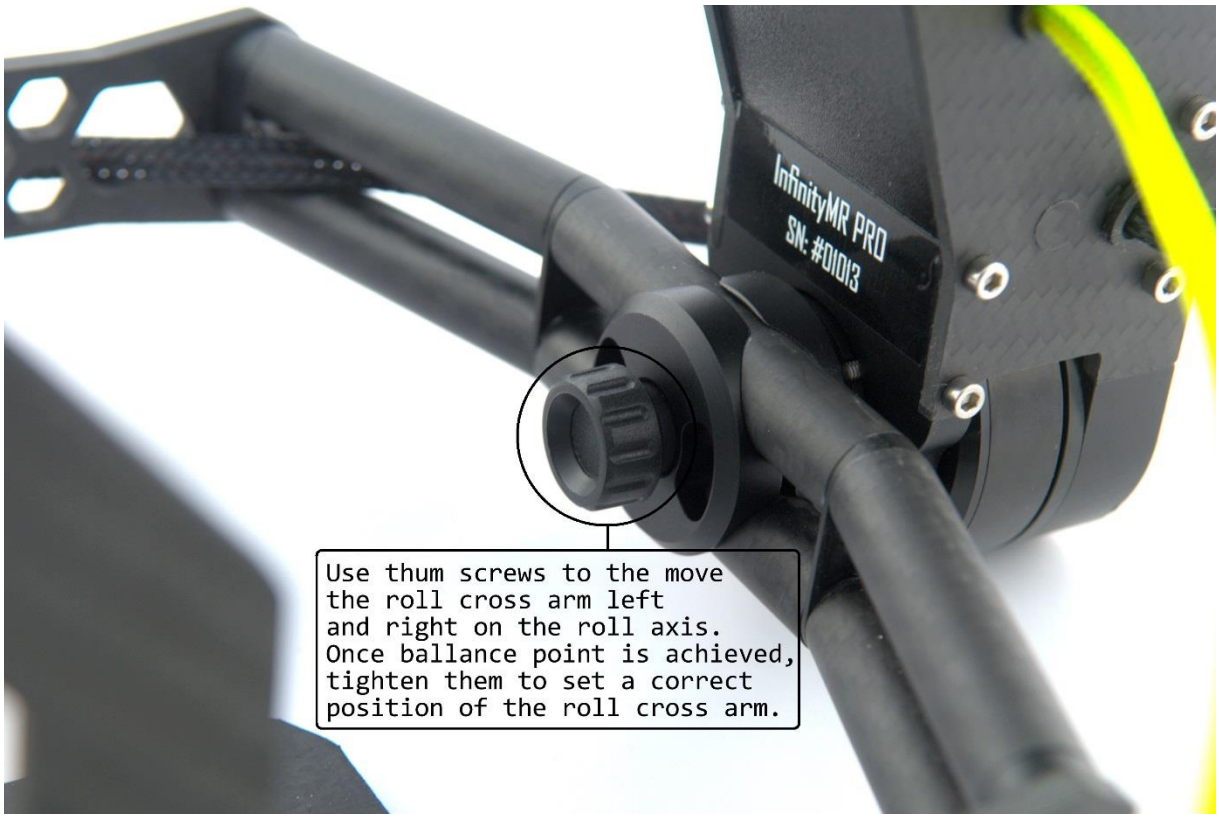


Photo 4

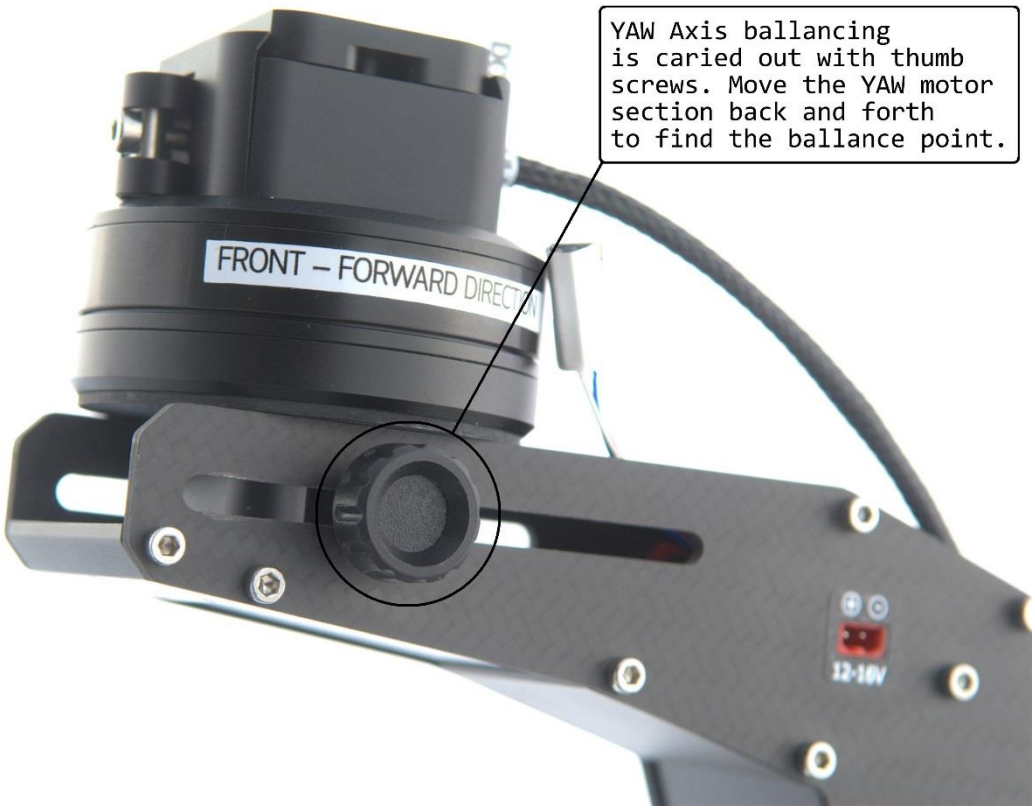

YAW Axis ballancing
is caried out with thumb
screws. Move the YAW motor
section back and forth
to find the ballance point.
FRONT – FORWARD DIRECTION
12-18V

Photo 5

A properly balanced gimbal stays put in every position. The balancing process was conducted properly!

8. ALEXMOS CONTROLLER

InfinityMR PRO is equipped with a well-known AlexMos controller. It is advised that you will get to know AlexMos controller manual before using the InfinityMR PRO gimbal. HD Air Studio does not take responsibility for damages of a product caused by the ignorance of AlexMos manual.

Each InfinityMR PRO gimbal is running on a specially licensed firmware that enables the application of encoders. Every AlexMos board has its unique serial number. In case of damaging a AlexMos controller, it is possible to transfer your encoder license to another controller, but only after reporting the serial number to www.basecamelectronics.com.

All information about AlexMos controller can be found here: www.basecamelectronics.com

Manual for the latest AlexMos controller
https://www.basecamelectronics.com/files/v3/SimpleBGC_32bit_manual_2_6x_eng.pdf

Manual for Encoders and AlexMos:
https://www.basecamelectronics.com/files/SimpleBGC_32bit_Encoders.pdf

9. GETTING STARTED

1. With a camera installed on the gimbal, connect the battery to the gimbal (red JST power plug). HD Air Studio recommends to use a fully charged 4S LiPo battery as power source. [1]
2. Make sure that your gimbal can freely rotate in all axes.
3. Switch on the gimbal by using a power switch.
4. Gimbal will turn on within 1-2 seconds and it is ready to use.
5. Gimbal by default is set to follow mode in the yaw axis (it will follow multirotor move in yaw/pan axis). In order to change that, please refer to AlexMos Controller manual available at www.basecamelectronics.com
6. Gimbal by default can be operated via a standard PWM signal in two axes: pitch/tilt and yaw/pan. To control those two axis, connect your radio control receiver by using two cables coming out the gimbal (RC_PITCH and RC_YAW). RC_YAW cable has 3 wires: white - signal; red - 5V; black – ground. You can use this cable to power your radio control receiver. RC_PITCH cable is only one wire: white – signal.

10. CHANGING ALEXMOS CONTROLLER DEAFAULT SETTINGS

1. Download AlexMos latest GUI configurator form www.basecamelectronics.com web site.
2. Make sure you have installed all necessary drivers on your PC/MAC.
3. Open AlexMos GUI configurator.
4. Make sure that a camera is properly installed on the gimbal. Gimbal has to be installed on a multirotor/drone frame or handheld.
5. Connect USB cable to InfinityMR PRO Gimbal.
6. Power on the gimbal.
7. Connect USB cable to PC/MAC
8. Choose proper USB port from the list available on GUI configurator and press „Connect" button.
9. Now you can change all settings of AlexMos controller.
10. NOTE: To change any setting of AlexMos controller refer to the manual available at www.basecamelectronics.com
11. HD Air Studio recommends not to change any settings in „Encoders" tab without good knowledge of AlexMos controller manual.

[1] 4S 1000mah Lipo battery allows to use a gimbal for 35-90min depending on the camera weight.

II. USING PPM-SUM, FUTABA S-BUS OR DSM2/DSMX RECEIVER

1. To enable the operation of all 3 axes and launch additional features available on AlexMos controller, you can use PPM-SUM, Futaba S-BUS and DSM2/DSMX signal receivers. Connect your receiver using RC_ROLL cable (white wire is a signal wire and should be connected to PPM-SUM, Futaba S-BUS, DSM2/DSMX signal port on your receiver). To power your receiver you can use RC_YAW cable.

2. Open AlexMos GUI configurator and connect USB cable to the gimbal and PC/MAC.

3. Go to „RC Settings" tab in AlexMos GUI configurator.

4. In „Input Mapping" section change „RC_ROLL pin mode" to desired SUM - PPM; Fustaba S-BUS or DSM2/DSMX connection type. – **Photo 1**

5. Now you can choose any radio control virtual channel for each feature you want to enable. – **Photo 2**

    - E.g. If you use Futaba S-BUS, you need to select „Futaba s-bus RC_ROLL pin mode". To operate the ROLL axis you can use RC_VIRT_CH_9; to operate the PITCH axis you can use RC_VIRT_CH_10 and to operate the YAW axis you can use RC_VIRT_CH_11. To operate CMD you can use RC_VIRT_CH_12.

6. After all changes are introduced, press „Write" to save the settings. – **Photo 3**

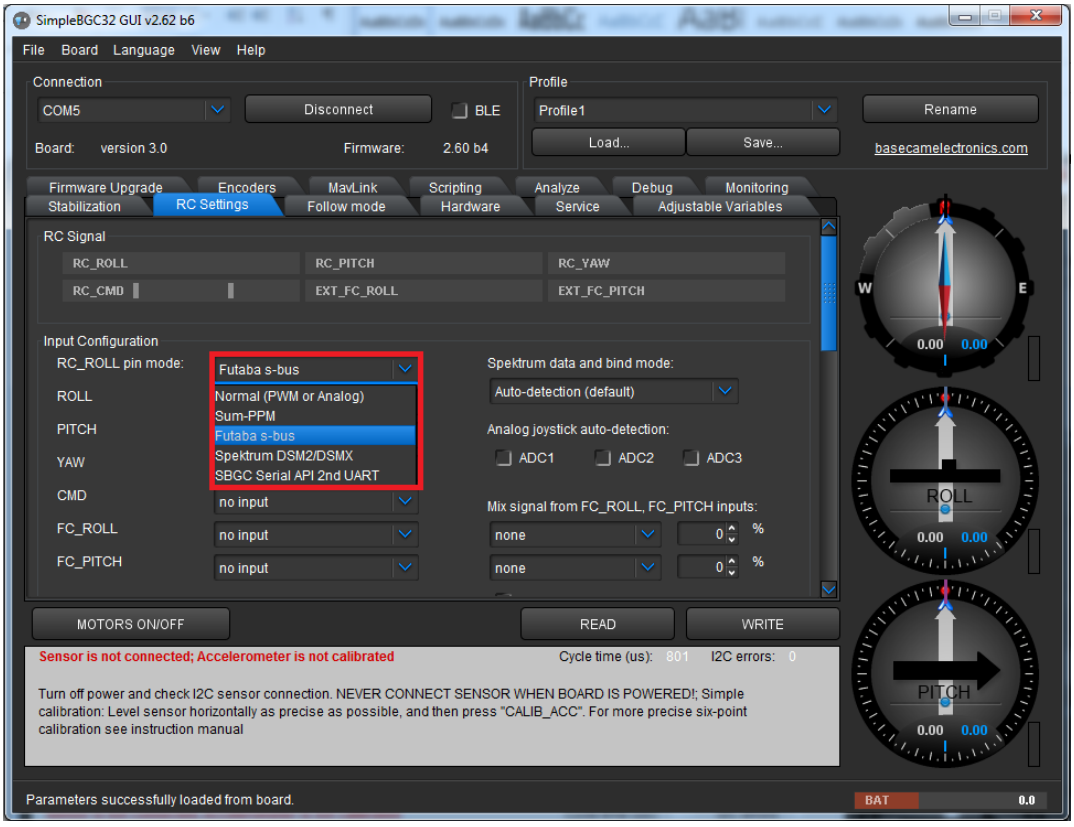


Photo 1

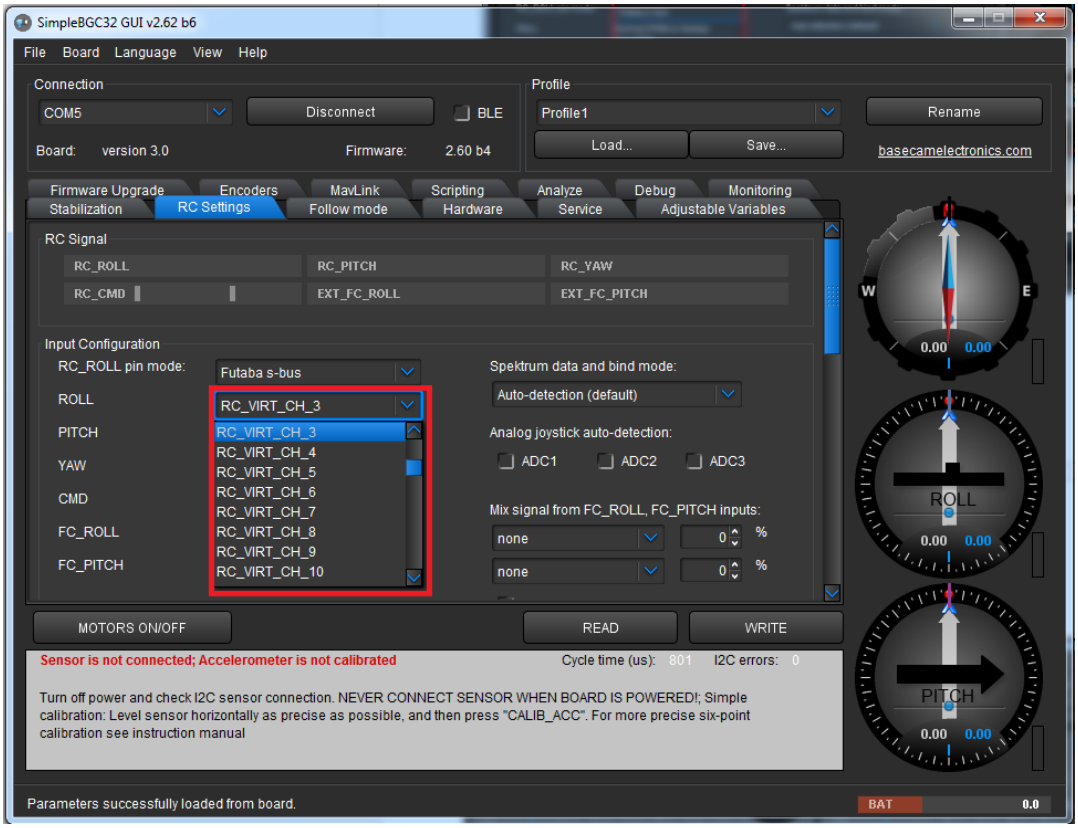


Photo 2

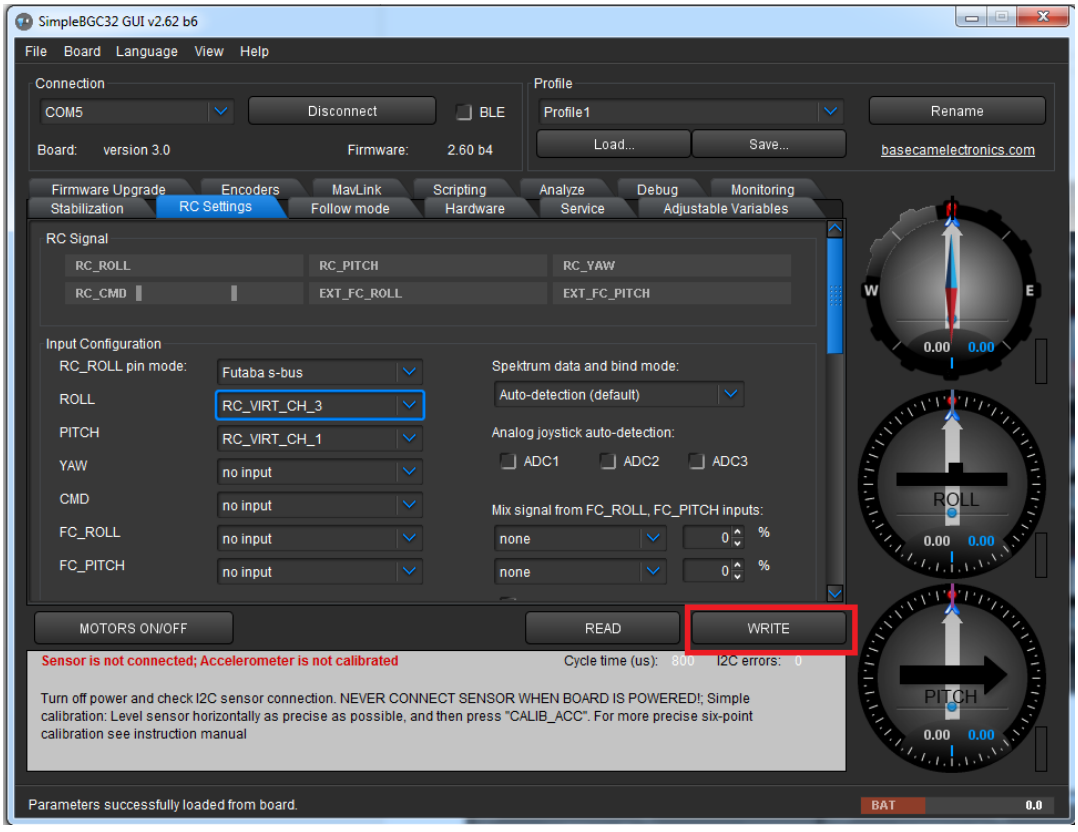


Photo 3

12. TIPS FOR TUNING THE ALEXMOS CONTROLLER WITH ENCODERS

1. For a proper tuning of InfinityMR PRO gimbal please refer to the AlexMos controller manual.

2. Make sure that encoders are calibrated properly. Remember - for tuning encoders you don't need a very good stabilization, big precision is not required. When gimbal is balanced, encoders calibrated, power source connected and powers for motors set, you can enable auto-tuning. Firstly, run auto-tuning for all axes together (the slider should be placed in the middle of scale). After that you can run auto-tuning for each axis separately (start with the pitch, than roll, at the end yaw axis).

3. Any tuning of a gimbal should be conducted with a gimbal mounted to your multirotor with full equipment installed on the gimbal (camera, battery, video, RC).

4. If after auto-tuning, you can still see some small jitters or buzzing it means you might need some manual tweaks of PID values. It is good to refer to AlexMos manual. Notch filters might help to get rid of vibrations.

5. If you notice some problems with a drifting horizon, it is advisable to calibrate the temperature for IMUs. Again, refer to the AlexMos manual. You can also try to set "gyro trust" to 140-160 (that will work just with encoders enabled).

6. If is recommended to use lens support. If you have an option to use a lens that can be clamped with lens support that will make the whole camera shelf even more rigid and will help in the tuning process.

HD AIR STUDIO SUPPORT: support@hdairstudio.com

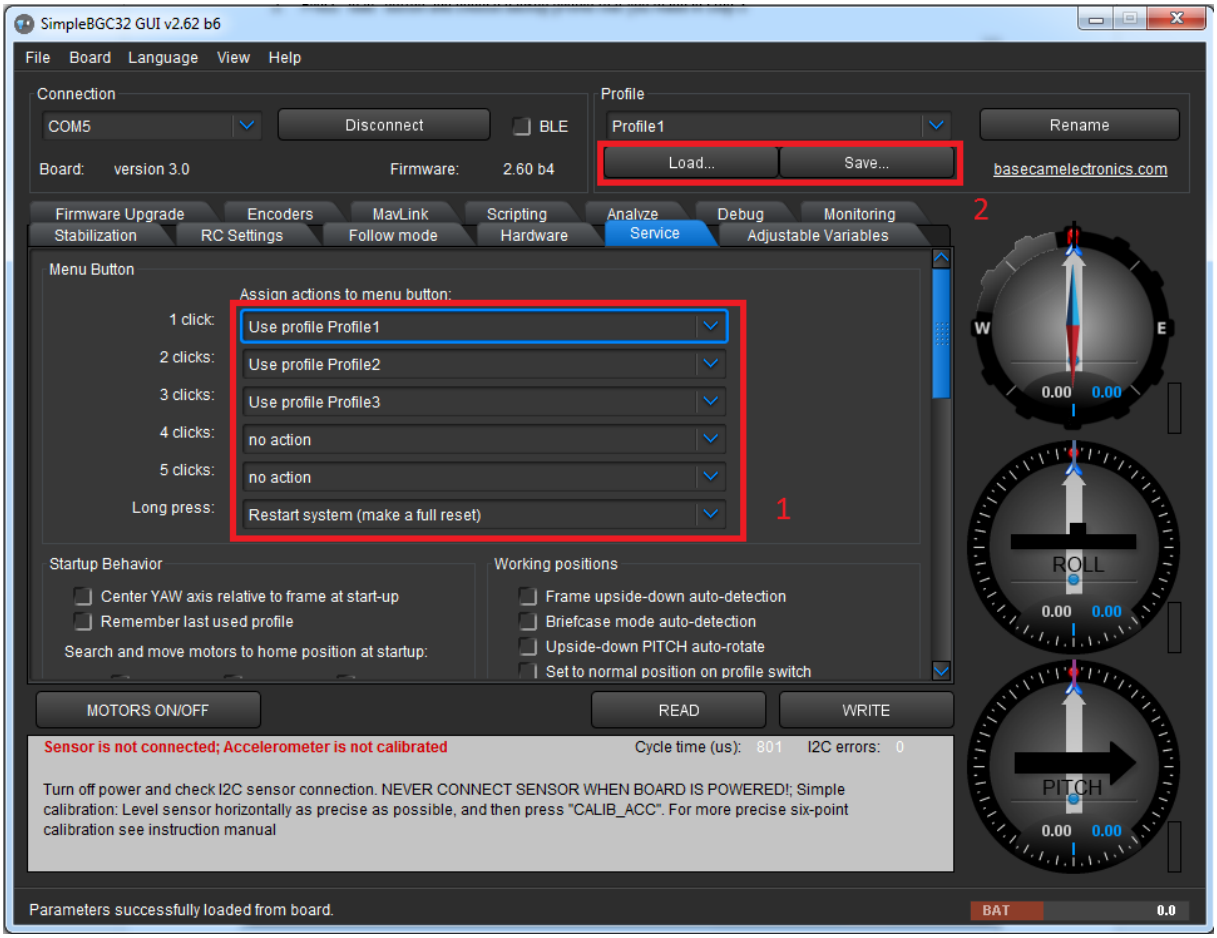
13. PROFILE SETUP

InfinityMR PRO is equipped with button that allows you to change profiles. You can save up to 5 profiles. Each profile allows to set different follow mode or assign any other action from menu. Each profile is applied by number of clicks. Gimbal has 3 profiles set up as Default:

Profile 1 – follow YAW
Profile 2 –follow YAW & PITCH movement (limited angles)
Profile 3 – fixed stabilization (gimbal keeps pointing in one direction)

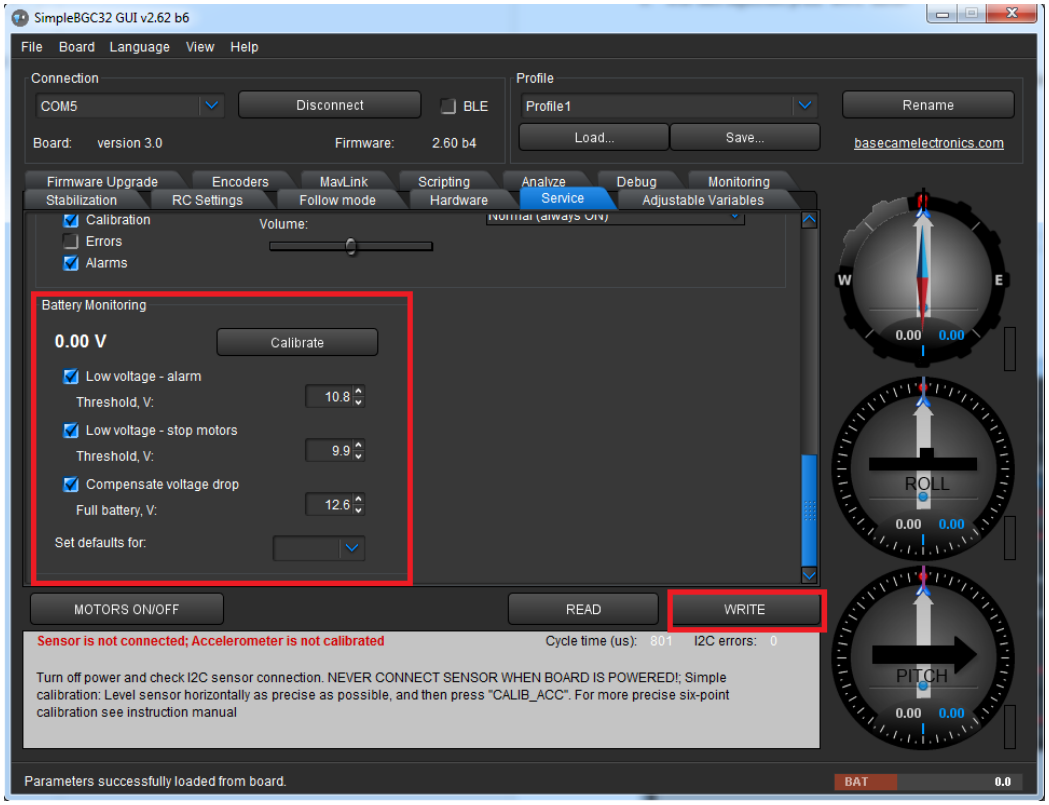
How to set up profile

1. Connect InfinityMR PRO to GUI using USB cable supplied with the gimbal (see chapter 9)
2. Go to "service" tab on GUI and from menu (picture below fig. 1) choose what action you want to assign to the button (ie. 3 clicks – Use profile 3)
3. Press "save" button and write current settings (picture below fig. 2)
4. From profile selection window, choose desired profile (Profile 3)
5. Press "load" button and choose backup profile that you made in step 3 (picture below fig. 2)
6. Now you can change settings as you wish (do not change encoder calibration values !)
7. After all changes press "WRITE" button – now your profile is ready to use

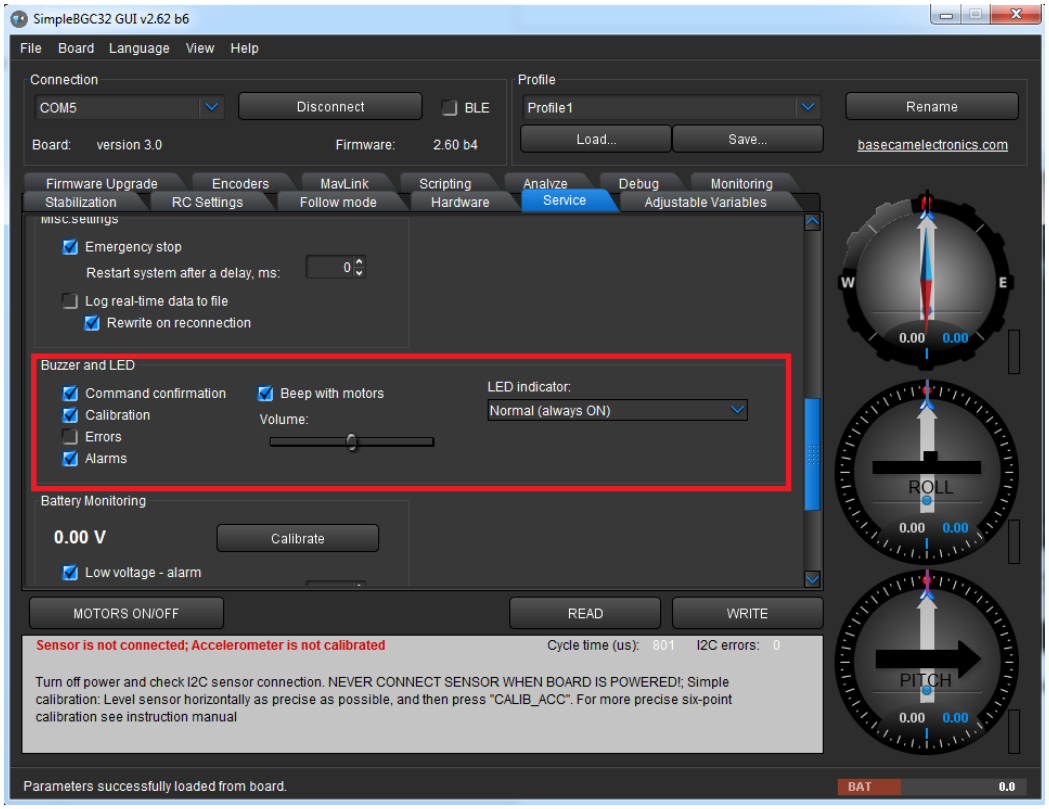


14. ALARMS AND BATTERY MONITORING SETTINGS

1. Connect InfinityMR PRO to GUI using USB cable supplied with gimbal (see chapter 9)
2. Measure voltage level of your battery using multimeter or battery monitor (not supplied)
3. Go to service tab on GUI
4. Turn on InfinityMR PRO and turn off motors by pressing “MOTORS ON/OFF” button (picture below)
5. Choose battery type
6. Compare previously measured voltage to the one that is indicated in the GUI if it is different press “calibrate” button (picture below fig 1)and type in value that you measured (using “.” as a separator). Press “WRITE” button.
7. Now you can set up voltage level for each action (picture below) low voltage alarm and low voltage - stop Motors
8. After each adjustment press “WRITE” button



In BUZZER and LED section (picture below) you can adjust volume level of alarm and choose which action has to be announced by buzzer.

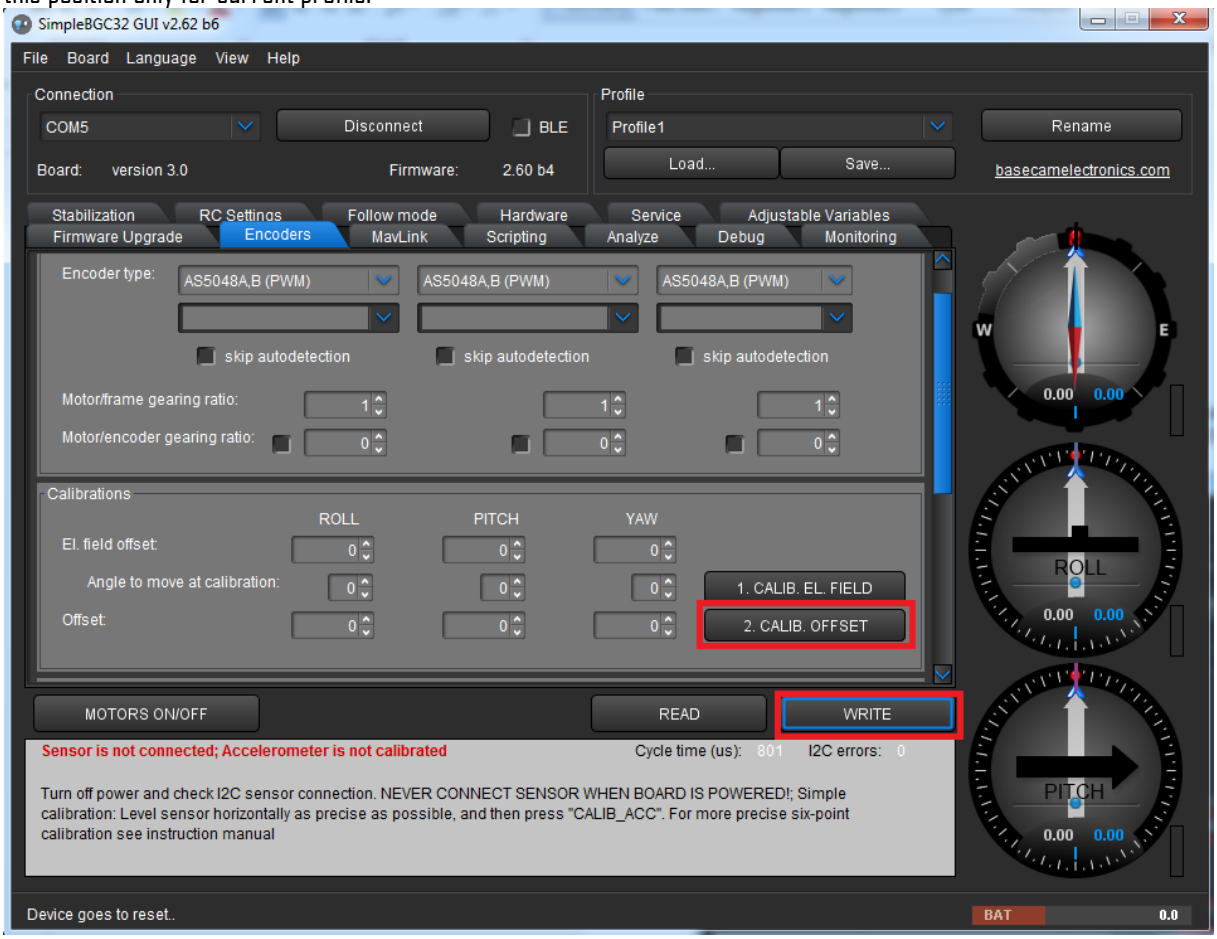


15. OFFSET ADJUSTMENT

If You need to change initial position of camera you can do it in 3 ways:

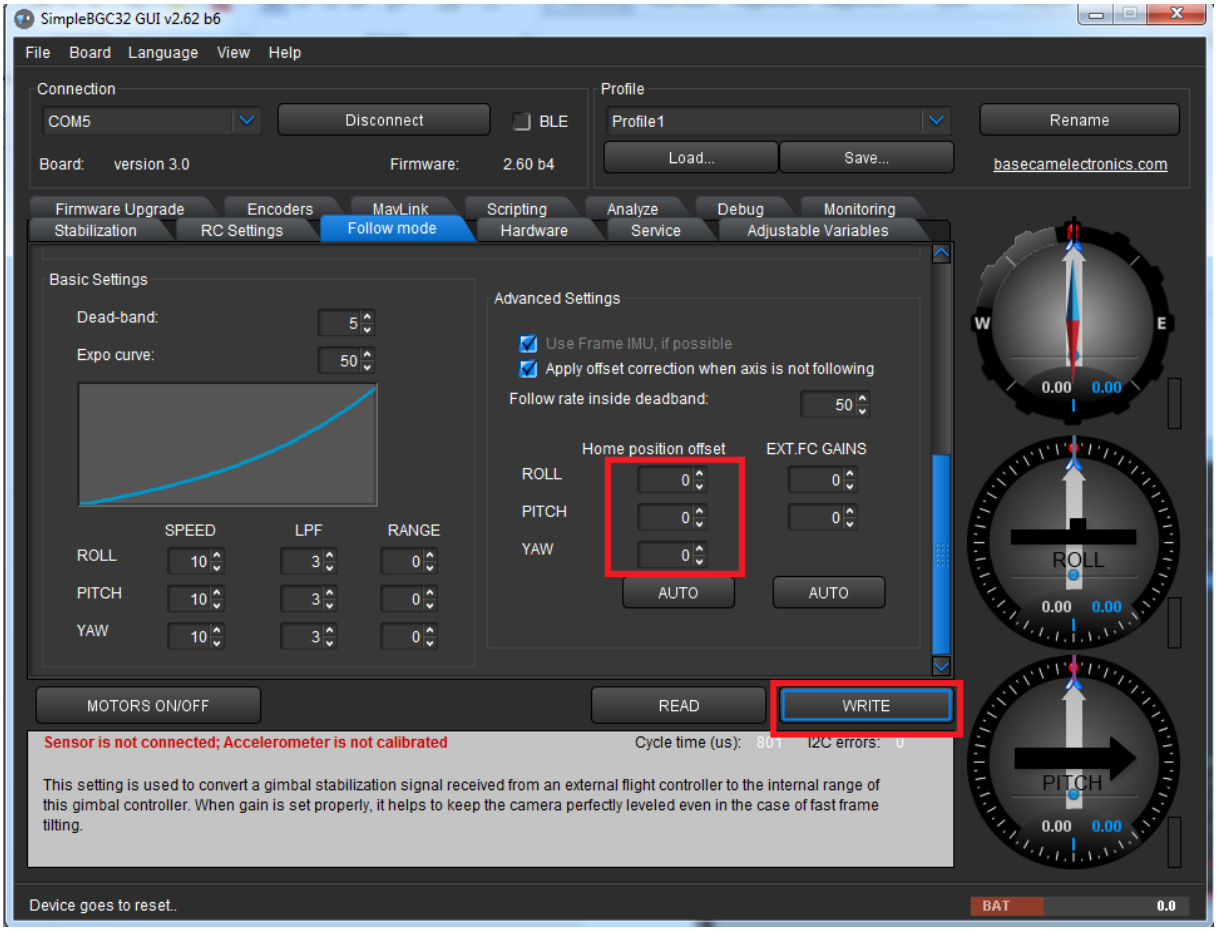
CHANGING OFFSET BY CALIBRATION

Connect InfinityMR PRO to GUI (chapter9). Go to Encoders tab, make sure that motors are switched off. Put camera in desired position and press "2. CALIB. OFFSET" button (picture below). Press "WRITE" button. Your Gimbal will remember this position only for current profile.



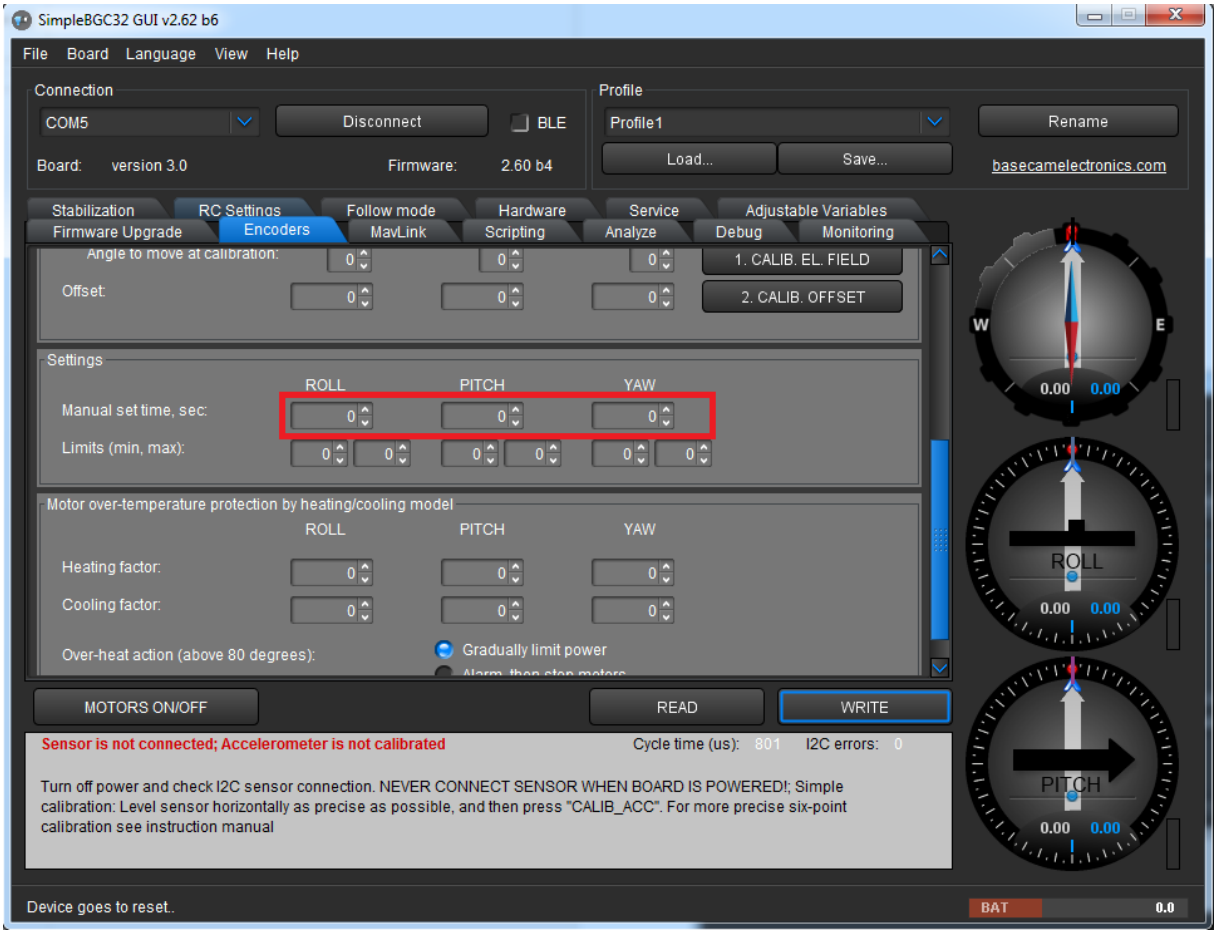
CHANGING OFFSET BY SETTING ANGLE IN FOLLOW TAB

You can set up different offset for each profile that you use. Simply connect IfinityMR PRO to GUI. Go to follow mode tab and in window offset type in angle (degrees) for each axis. Press "WRITE" button. Operation has to be repeated for each profile.



CHANGING POSITION OF CAMERA BY MANUAL SET

InfinityMR PRO is pre-set to remember position of camera after one second for PITCH and YAW axis, and two seconds for ROLL axis. You can adjust those values by connecting to GUI and changing "Manual set time, sec." for each axis. After each adjustment press "WRITE" button.

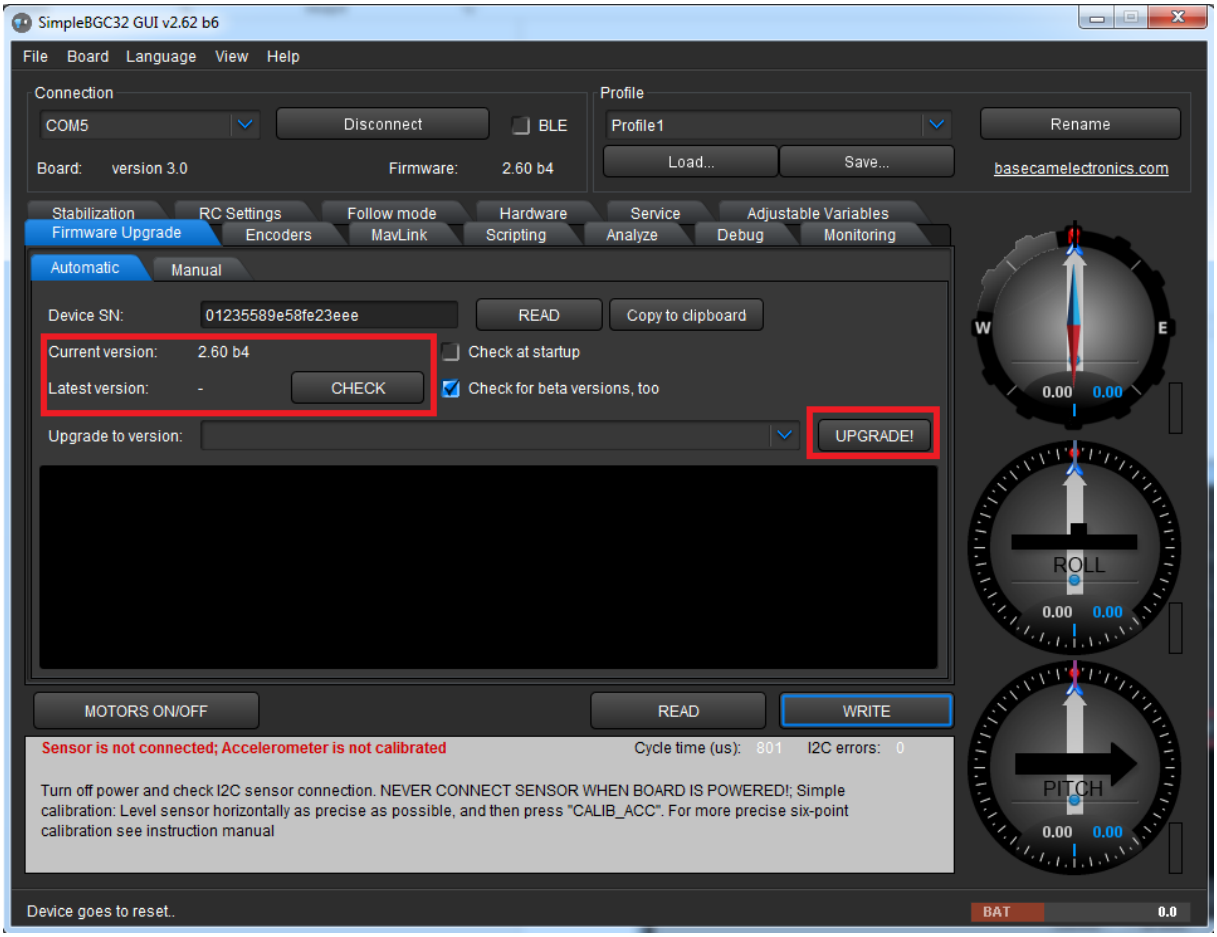


16. SOFTWARE VERSION CHECK AND UPGRADE

Connect InfinityMR PRO to GUI and go to upgrade tab, make sure that you are in automatic sub tab. You can find there your current version. Press "CHECK" to check if there is newer version of software (higher number). Press "UPGRADE" button and update will run automatically.

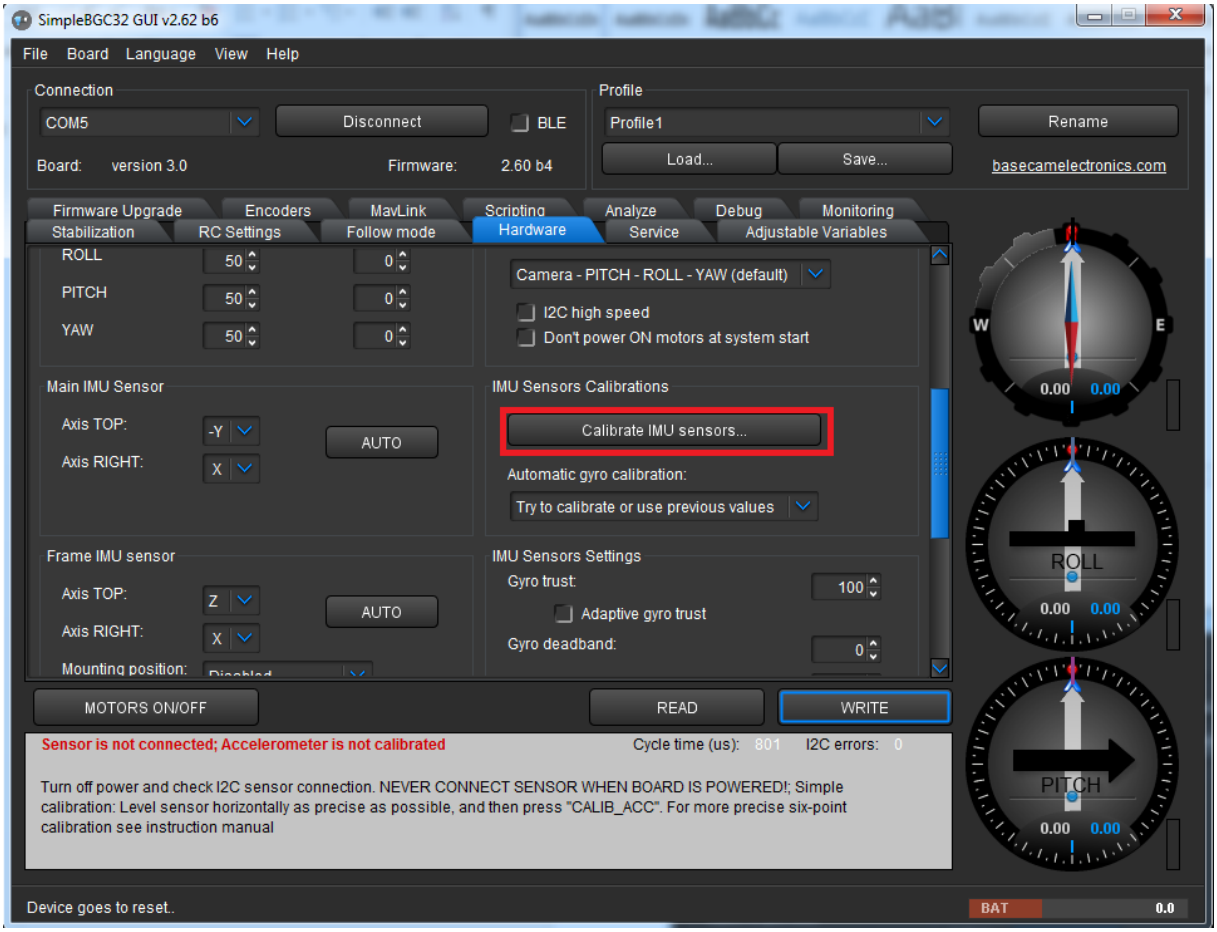
It is not recommended to make manual upgrade of software without reading instruction for AlexMos controller.

After upgrade InfinityMR PRO will be disconnected from GUI automatically - For further work with GUI disconnect USB cable for few seconds and then reconnect.



17. ADVANCED GYRO CALLIBRATION

1. To perform advanced gyro calibration you need to put camera on gimbal and balance it (it`s easier with camera).
2. Connect gimbal to GUI (chapter 9)
3. Go to Hardware tab on GUI and press "Calibrate IMU sensors" button.
4. Calibration of accelerometer by six points you have to start from +Z axis – camera is leveled and axis +Z is highlighted (pic. 1).
5. To calibrate gyroscope, gimbal must be fixed on stable surface – you can check stability on peak meter.
6. Once gimbal is stable and peak meter is on green field press calibrate button (the one on the left side of window).
7. When calibration is done 'ok' marks will appear next to each axis.
8. Repeat this operation for each axis (6 positions from **Photo 1**)
9. Close "sensor calibration helper" window and press "WRITE" button.


SimpleBGC32 GUI v2.62 b6
File Board Language View Help
Connection
COM5
Disconnect
BLE
Board: version 3.0
Firmware: 2.60 b4
Profile
Profile1
Rename
Load...
Save...
basecamelectronics.com
Firmware Upgrade
Encoders
MavLink
Scripting
Analyze
Debug
Monitoring
Stabilization
RC Settings
Follow mode
Hardware
Service
Adjustable Variables
ROLL
PITCH
YAW
50
0
Camera - PITCH - ROLL - YAW (default)
I2C high speed
Don't power ON motors at system start
Main IMU Sensor
Axis TOP: -Y
Axis RIGHT: X
AUTO
IMU Sensors Calibrations
Calibrate IMU sensors...
Automatic gyro calibration:
Try to calibrate or use previous values
Frame IMU sensor
Axis TOP: Z
Axis RIGHT: X
AUTO
Mounting position:
IMU Sensors Settings
Gyro trust: 100
Adaptive gyro trust
Gyro deadband: 0
MOTORS ON/OFF
READ
WRITE
Sensor is not connected; Accelerometer is not calibrated
Cycle time (us): 801
I2C errors: 0
Turn off power and check I2C sensor connection. NEVER CONNECT SENSOR WHEN BOARD IS POWERED!; Simple calibration: Level sensor horizontally as precise as possible, and then press "CALIB_ACC". For more precise six-point calibration see instruction manual
Device goes to reset..
BAT
0.0
W
E
0.00
ROLL
PITCH

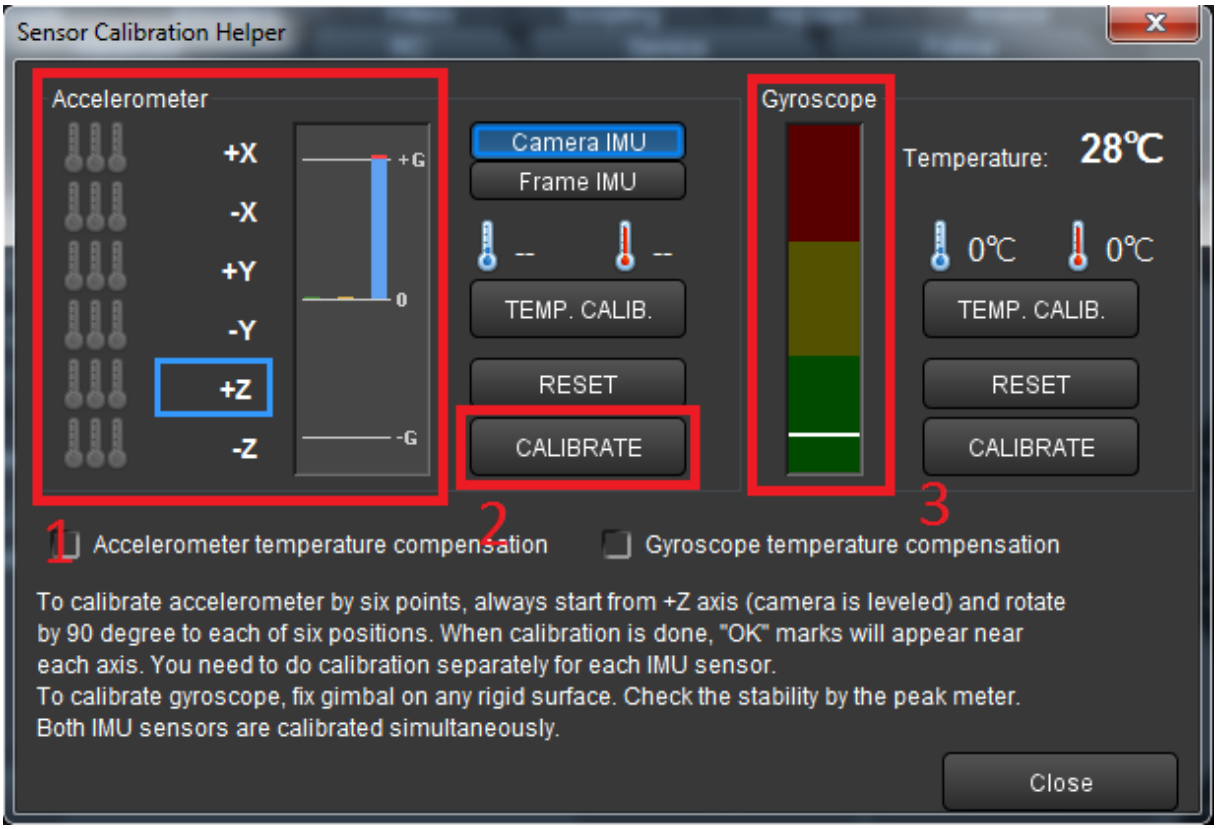

Sensor Calibration Helper
Accelerometer
+X
-X
+Y
-Y
+Z
-Z
+G
0
-G
Camera IMU
Frame IMU
--
--
TEMP. CALIB.
RESET
CALIBRATE
Gyroscope
Temperature: 28°C
0°C
0°C
TEMP. CALIB.
RESET
CALIBRATE
1
2
3
Accelerometer temperature compensation
Gyroscope temperature compensation
To calibrate accelerometer by six points, always start from +Z axis (camera is leveled) and rotate by 90 degree to each of six positions. When calibration is done, "OK" marks will appear near each axis. You need to do calibration separately for each IMU sensor.
To calibrate gyroscope, fix gimbal on any rigid surface. Check the stability by the peak meter.
Both IMU sensors are calibrated simultaneously.
Close

Photo 1

18. TIME-LAPSE SETTINGS (NEW FEATURE !)

To make TIME-LAPSE motion you need to:

1. Connect gimbal to GUI (chapter 9)
2. Go to Firmware Upgrade tab and make sure you have firmware version 2,61 or higher. If you can`t see newer version check for beta version too.
3. Go to Service tab and assign Time lapse motion to menu / profile button - **Photo 1**
4. In Service tab in Time-lapse settings window you can set parameters of time-lapse (time and acceleration). You can set different parameters of time-lapse for each profile. Choose profile than change time-lapse parameters and Write settings for each profile – **Photo2**
5. Once setting are done mount gimbal on stand or handheld (in upside down position).
6. Turn on gimbal and choose Profile with required parameters
7. Set up camera in position that will be final for time lapse
8. With menu/profile button activate time-lapse as assigned in point 3
9. Gimbal starts to beep – point camera in start position – You have only 10 seconds. After that interval time-laps will start automatically.

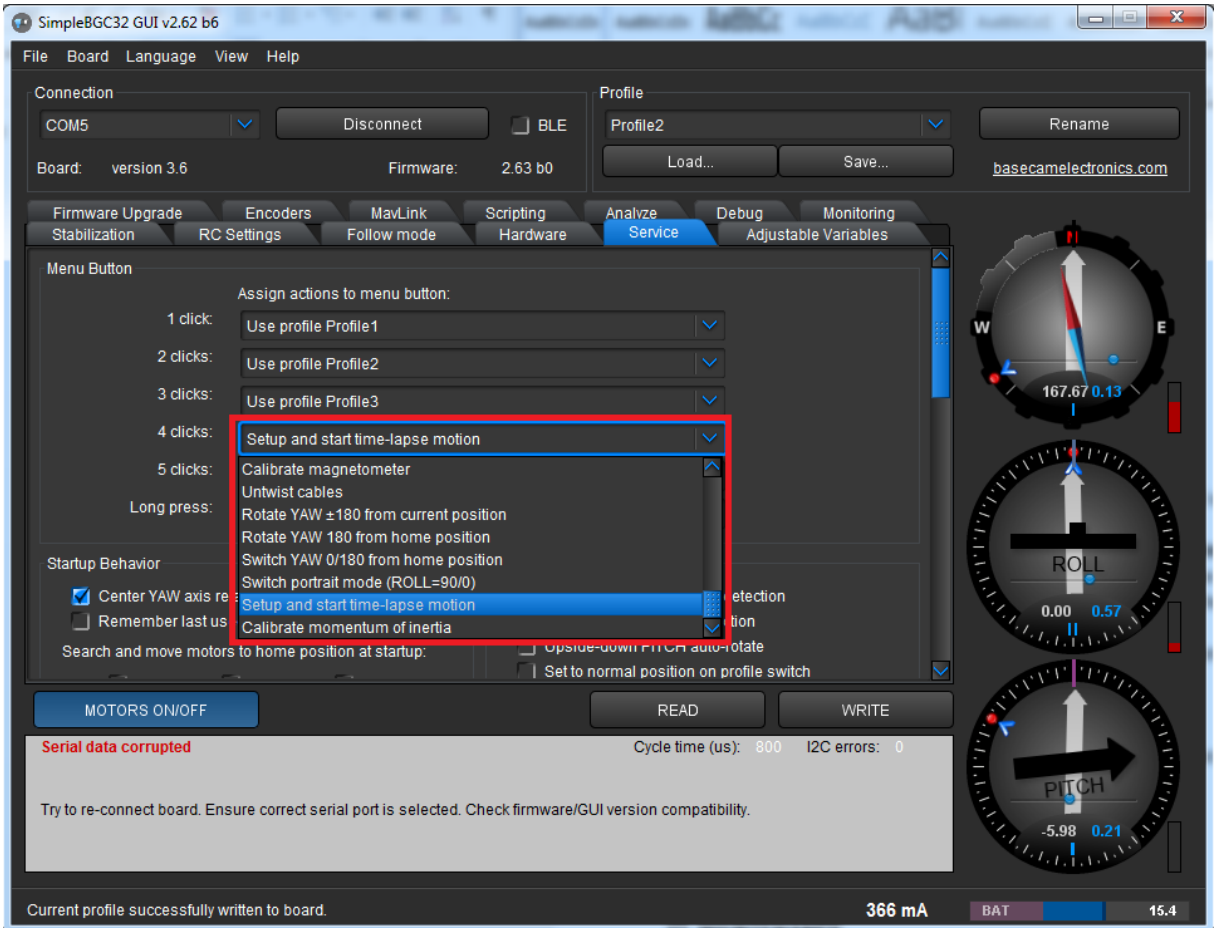


Photo 1

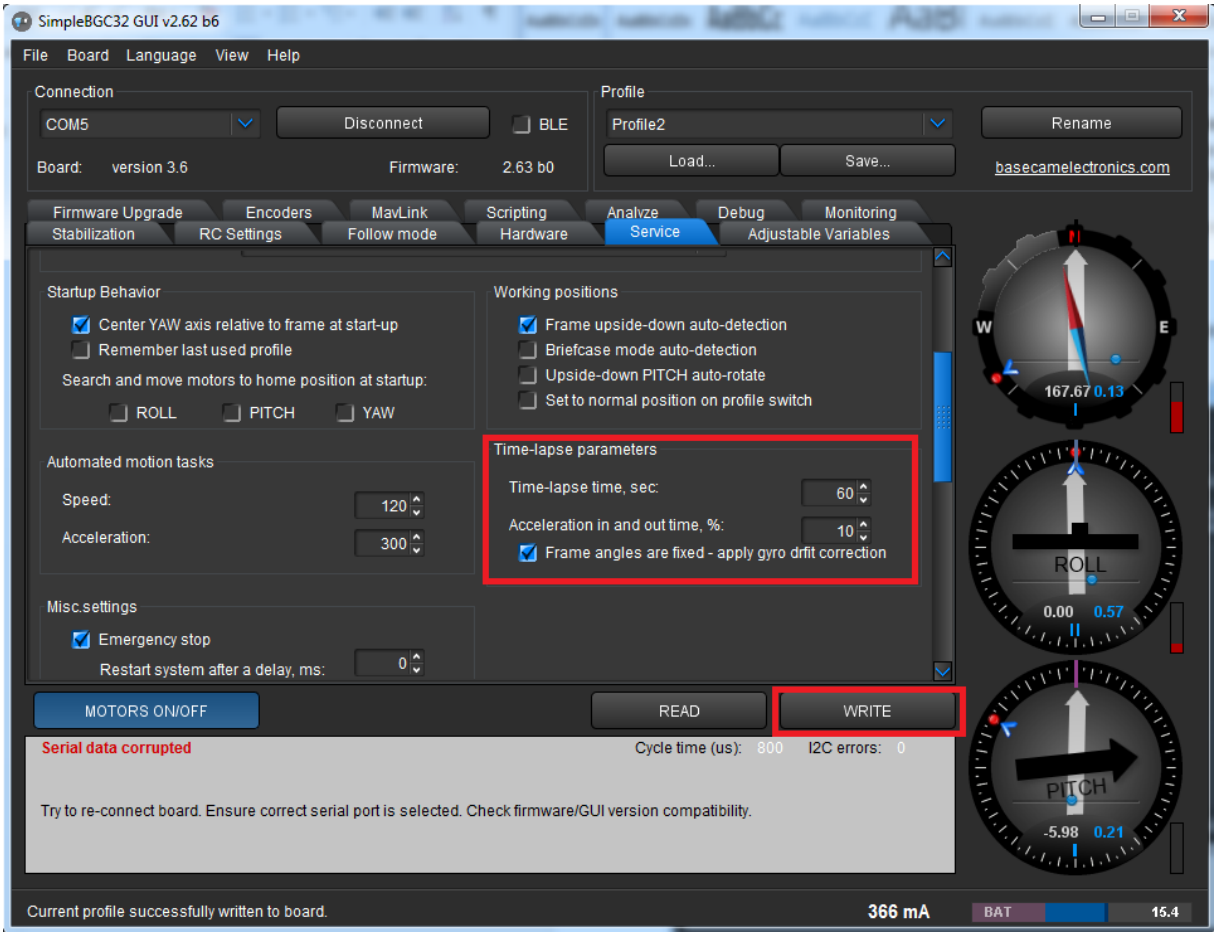


Photo 2

Here you can find link for instructing movies : (coming soon)

19. MAINTENANCE

InfinityMR PRO gimbal is almost maintenance-free, you don't have to do anything else then keeping it clean and dry. There is few tips how can you prevent it from damage.

1. After work in dusty (pollen) conditions clean your gimbal with compressed air and soft cloth
2. Do not try to lubricate bearings and do not try to replace them if you have problem please contact us on support@hdairstudio.com
3. Do not use your gimbal in wet conditions. If gimbal gets wet IMMIDIETLY disconnect battery, dry it with compressed air and leave it for several hours in warm, dry place
4. Remember to check regularly condition of the gimbal (damages, untighten bolts, looses, etc.)
5. It is recommended to run gyro calibration from time to time (especially when you notice horizon drift, or you use the gimbal in different pressure and temperature conditions)
6. Store your gimbal in clean and dry conditions
7. Do not expose your gimbal to extreme temperatures.
8. Keep gimbal away from children

20. FREQUENTLY ASKED QUESTIONS AND TROUBLESHOOTING

1. Horizon drifting – camera slowly turns in roll axis
   - it is advisable to proceed with temperature calibration of the IMU (it is described in AlexMos manual). You can also try to set "gyro trust" to 140-160 (that will work just with encoders enabled).
   - Run advanced gyro calibration (Chapter 16)
   - Switch on gyro calibration at startup (you will find it on basic tab in GUI)

2. Engine buzzing – In some positions you can hear buzzing noise form engines
   - check camera balancing in all axis
   - check if camera lens support is properly applied
   - check movement of camera cage and set it up properly so it can move freely in any angle
     Gimbal goes crazy after switching on Try to restart it and make sure that gimbal doesn't move when you turning it on

3. Gimbal goes "crazy" after powering on
   - Try to restart gimbal and make sure that gimbal doesn't move when you turning it on
   - Check if there is no damage to cables

4. When I use different cameras do I have to change PID values for each one of them ?
   - Many of our customers use Infinity MR PRO without any PID change so it is not necessary
   - We have developed adjusted PIDs for the most popular camera on the market so if you let us know what camera you use we might be able to send you PID values for this camera

5. I have a problem with camera balancing
   - Please follow instruction step by step – method is developed for our gimbals and it should help
   - If there is problem with balancing PITCH axis you might need loosen screws of the clamp holding PITCH motor on carbon fiber pipe. After that try to correct angle of the motor. Once corrected tighten screw and try to balance it again.

6. How Can I change PIDs on my Infinity MR PRO ?
   - Before changing any values or running PID Auto tuning it is highly advised to make backup of your EPROM or jus writing original settings
   - This procedure is described in chapter 10

7. When I try to turn on InfininityMR PRO I can hear single beep (similar to sound confirming profile change) and gimbal is not switching on
   - Check profile change button – it might stay in on (pressed) position. Try to release it – once you press it should click and go up after releasing

8. Gimbal is not switching on (no signal or light on controller)
   - Check voltage of your battery
   - Check correct of JST connector +/-
   - Check Pins in JST connector, they might be bend or pressed in
   - Connect you gimbal to GUI (Chapter8) make sure battery is connected too then turn on "ON/OFF" switch. Go to service tab and check what voltage is indicated. If voltage displayed on GUI is different to measured (by multimeter) on battery You have to Calibrate it.

9. Gimbal suddenly changes angle of camera (receiver is not connected)
   - When you have your gimbal set up to be controlled with S-Bus receiver it is important to have receiver connected. If you have to use it without receiver change RC settings to PWM or set up no input

10. During movement on yaw axis picture from camera is not smooth
    - Tight thumb screws mounting yaw motor
    - Check if there is any loose screws mounting yaw motor

11. How can I make backup of my software ?
    - Connect gimbal to GUI (Chapter 8) click board tab – from this menu choose backup EPROM to file

12. When gimbal is powered on it doesn`t work and only beep sound can be heard
    - Check if your battery is fully charged
    - If battery is ok connect Gimbal to GUI (Chapter8) turn on gimbal, go to service tab and compare voltage (measured on battery with multimeter and indicated by GUI) if it is different calibrate voltage sensor.
    - Connect the gimbal to GUI (Chapter8) Turn on the gimbal, go to service tab and check what voltage level is set up – if it is too high you can adjust it. Check what is minimum voltage recommended for the battery you use.

13. After switching on the gimbal it doesn't go to level position
    - Try calibrate the offset (Chapter13)
    - Try to calibrate Gyroscope
    - Check if you have similar behavior on each profile – if not you will have to set up this profile again or try to calibrate gyro on this profile (Chapter11)

14. Gimbal suddenly starts spinning in yaw axis
    - Connect the gimbal to GUI (Chapter 8) go to basic tab and check NUM. POLES values it should be 16/16/28 for ROLL and PITCH engines with red ring or 22/22/28 for ROLL and PITCH whole black engines if it is different on GUI correct it
    - Connect gimbal to GUI (Chapter 8) go to encoders tab and check if in cooling factor and heating factor you have "0"

15. When turning the gimbal in the YAW axis it also tilts in ROLL axis
    - Run gyro calibration

16. How can I load configuration file ?
    - Connect gimbal to GUI (Chapter 8) go to Board menu and choose "restore EPROM from backup file". Choose your configuration file and load it

17. I tried to change settings and now gimbal is not working.
    - Send us serial number of your gimbal and we will send you backup file – then follow instructions from previous point

18. I took gimbal out of the box, connected battery turned it on and it went mad
    - Before turning on the gimbal always mount camera first
    - Gimbal will not work without camera mounted and balanced properly
    - Turning on the gimbal without camera my cause serious damage to the gimbal which will not be covered by guarantee
19. Sometimes gimbal takes long time to start up, beep sound can be heard and is not powering on

- When powering on, gimbal should be placed on stable surface – then it should turn on normally
- When gimbal starts up it beeps for 3 to 5 seconds – it means that gyro calibration is running at every startup.
- There is possibility to switch off calibration at every startup – to do it you need to connect to GUI (Chapter 9) go to basic tab and mark option "skip gyro calibration at startup".
- When option "skip gyro calibration at startup" option is activated it is important to run this calibration manually.