en/GimbalCtrl

22

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Inhaltsverzeichnis

1 GimbalCtrl 1/10

2 Connection 2/10
2.1 Connection FlightCtrl 2/10
2.2 Connection AlexMos 2/10

3 Setting AlexMos 3/10

4 Setting KopterTool 4/10
4.1 Nick-Roll-Yaw 4/10
4.2 Switching outputs 4/10

5 GimbalCtrl - LED 6/10

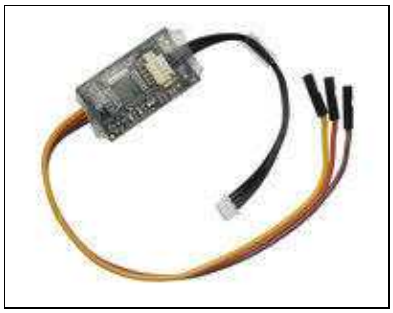
6 I2C-Adapter for 3-axes Gimbal 7/10

7 Angle 8/10

8 LOG-File - TXT-File 9/10

9 Separate supply with two Lipos 10/10

1 GimbalCtrl



The GimbalCtrl controls nick, roll and yaw of an AlexMos Brushless Gimbal.

Optionally, up to 3 switching outputs can be used (e.g. to trigger a photo camera).

During a waypoint flight you can control the angle for nick exactly. The nick- and roll angle will also be recorded in the LOG-File and also in TXT-File.

2 Connection

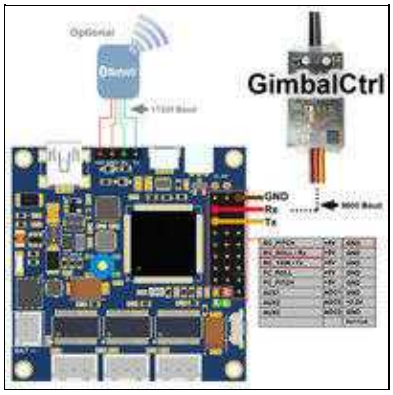
2.1 Connection FlightCtrl

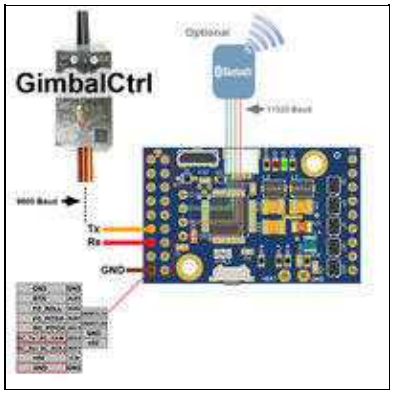
- Connect the GimbalCtrl with the I2C-Bus of your MikroKopter FlightCtrl.

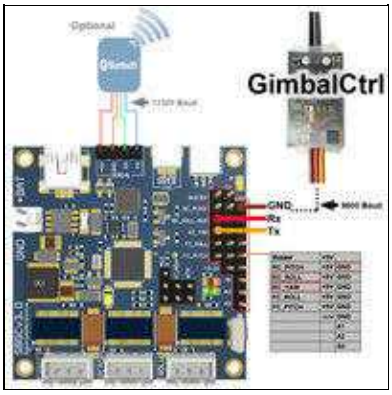


2.2 Connection AlexMos

- On your AlexMos-Board we use the serial "RC"-input (GND, RC_Rx and RC_Tx).
  This has the advantage that you can optionally connect e.g. a Bluetooth connection via the serial input.







3 Setting AlexMos

First you activate the serial RC-input under *RC settings*

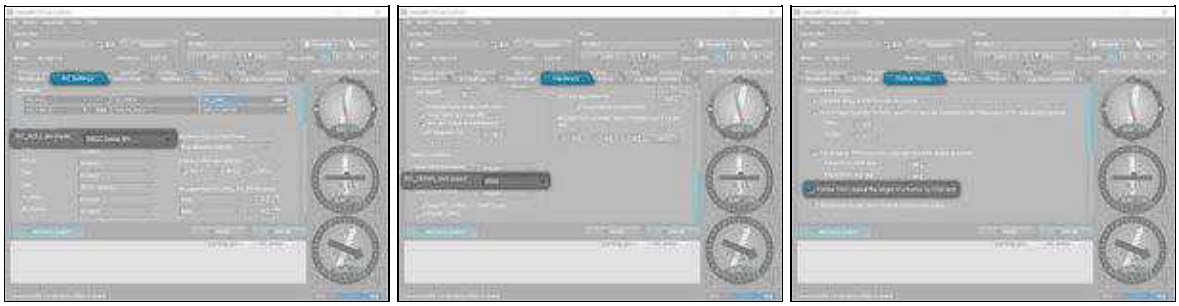
- RC_ROLL pin mode => SBGC Serial API

The GimbalCtrl need a serial speed of 9600 Baud.
This you can set under *Hardware*

- RC_SERIAL_port speed => 9600

The speed for *Main serial port speed* and *UART2 port speed* can stay at 11520 Baud.
If you use e.g. a Bluetooth connection on the normal serial port you can use the fast speed.

For a 3-axes gimbal you have also to activate *FollowYAW* under *Follow mode*.

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4 Setting KopterTool

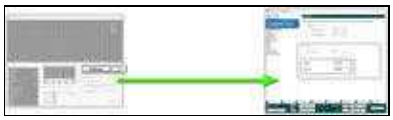
4.1 Nick-Roll-Yaw

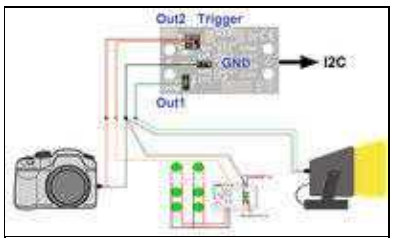


To control the Funktion nick, roll and yaw via the GimbalCtrl you need 3 free channels.

You can setup this channes under *Camera* (nick, roll) and *CamCtrl* (YAW Channel) in the KopterTool.

4.2 Switching outputs





connection example

Optionally, up to 3 switching outputs can be used.

- Out1
  - Pad1 (switch to GND)
  - Pad3 (switch to 3,3V)
- Out2
  - Pad8 (switch to GND)
  - Pad4 (switch to 3,3V)
- Trigger
  - Pad9 (is working parallel with the Output "Out1" in your MikroKopter)

So you can e.g. trigger a camera or running a script in your AlexMos gimbal.

INFO: The switching outputs are max. 100mA loadable !!!
Do you want to switch more load (z.B. LED-Streifen) please use e.g. a ExtensionPCB.

With the KopterTool you can set the switching output Out1/Out2 with a free channel.
(CamCtrl -> Out1/Out2)

The switching output "Trigger" is parallel with the "switching output 1" of your FlightCtrl.

5 GimbalCtrl - LED

the GimbalCtrl has a red and green led:

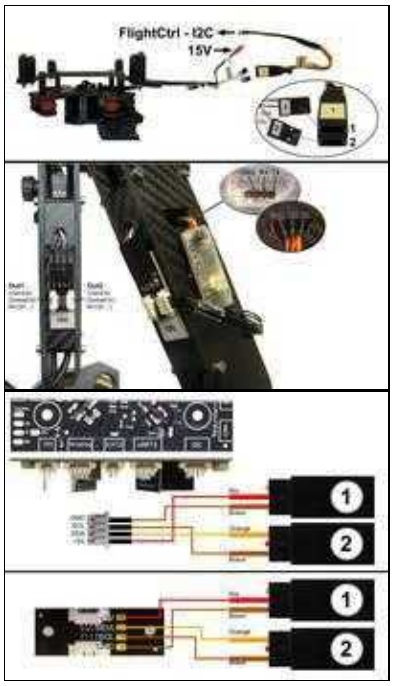
- green LED => ON
- red LED => fast flashing

  => GimbalCtrl is connect via I2C on your FlightCtrl. Brushless Gimbal was not recognized (the connection is wrong, gimbal is OFF ...)

- green LED => flashing slow
- red LED => OFF

  => GimbalCtrl is connect via I2C on your FlightCtrl. Brushless Gimbal was detected.

6 I2C-Adapter for 3-axes Gimbal



On an 3-axes gimbal you can damage external routed cable if you yaw the gimbal.
It the gimbal offers 4 free wires via the sliding contact in the yaw motor you can also route the I2C bus down to the gimbal.

In the example on the right you can see how the I2C bus can be looped through.

To make such an adapter you need:

- - 1x I2C-Bus Splitter
  - 2x Servo cable extension
  - 1x 4pol Molex cabel

If this is done you can use on the gimbal the GimbalCtrl and also the CamCtrl at the same time.

So you use several functions over only a few cables and prevents entanglement while yawing the gimbal.

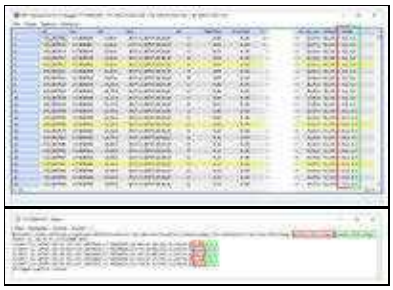
7 Angle



If you control a gimbal with a servo connection, the set angle (in a waypoint flight) is not the real angle. The number you set for the angle is added to the servo value.

With the GimbalCtrl you can set and use now the real angle. So when you set e.g. 90 for the angle, the gimbal will look 90° down.

8 LOG-File - TXT-File



The inclination of the gimbal for nick and roll in degrees is stored continuously in the LOG file in the column *Gimbal*.

In addition, the nick / roll angle is recorded in the extra TXT file for each triggered photo.

9 Separate supply with two Lipos

The GimbalCtrl has a high-impedance protective resistor between the GND terminals. If you use now one Lipo for your copter and a seperate lipo only for your brushless gimbal you have to connect the GND of both lipos together. Otherwise the GimbalCtrl will not work.

Attention: Make sure that the polarity is correct when connecting.