en/FlightCtrl_ME_2_0

23

LotharF
MikroKopter.de

Inhaltsverzeichnis

1 Overview

The Flight Control ME is a special variant of FlightCtrl with higher quality gyros. These gyroscopes have no temperature drift, so that the MK for example no longer under the "cooling" must calibrate again.

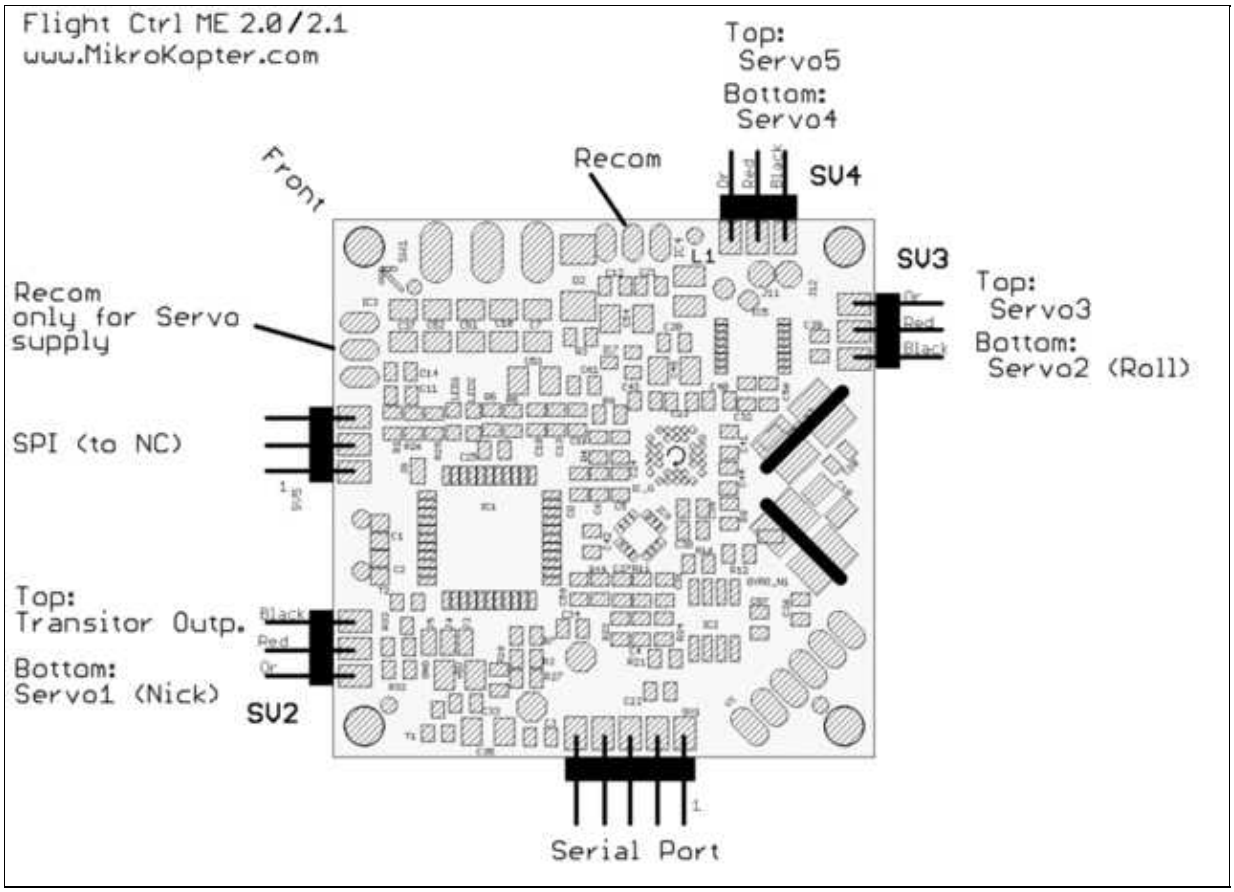
Information on FlightCtrl ME:

- **high quality Gyroscope** in MEMS technology by the manufacturer Analog Devices
- **5 Servo outputs**
- Power supply is now a **Recom switching voltage regulator**
- optional: second voltage supply for servo bestückbar (not included)
- Servos and external lighting connected via pin header
- 4-layer design

2 Schematic

Flight-Contol ME v2.0 Schematic: http://www.mikrocontroller.com/files/Flight-Ctrl_ME_2_0_doc.pdf

3 Connections



3.1 Connector SV2:

Upper row (switching outputs)

Pin1: 100mA switching output (Transistor NPN Open Collector) e.g. for LED lights. Programmable in the Koptertool via J16.

Pin3: +5Volt

Pin5: 100mA switching output (Transistor NPN Open Collector) e.g. for LED lights. Programmable in the Koptertool via J17.

Lower row: Nick-Servo Output

Pin2: Servo1 Output (for Nick-Servo camera stabilizing) Camera-Setting in the Koptertool

Pin4: +5Volt (Voltage stabilizer IC3 needed)

Pin6: GND / Minus

3.2 Connector SV3:

Obere Reihe (Servo 3)

Pin1: Servo3 Output

Pin3: +5Volt (Voltage stabilizer IC3 needed)

Pin5: GND / Minus

Lower row: Roll-Servo output

Pin2: Servo2 Ausgang Camera-Setting in the Koptertool

Pin4: +5Volt (Voltage stabilizer IC3 needed)

Pin6: GND / Minus

3.3 Connector SV4:

Upper row (Servo 5)

Pin1: Servo5 output

Pin3: +5Volt (Voltage stabilizer IC3 needed)

Pin5: GND / Minus

Lower row: (Servo 4)

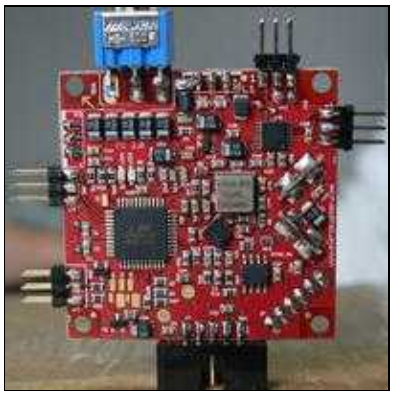
Pin2: Servo5 output

Pin4: +5Volt ((Voltage stabilizer IC3 needed)

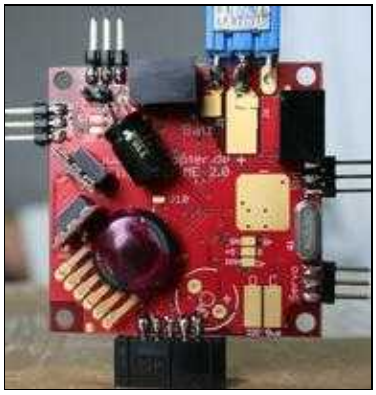
Pin6: GND / Minus

4 Images

- View from above:



- View from below:
- Fully equipped with two Recom voltage regulators and a pressure sensor



- View from the side:


.

- Connection of the RC-Cable (sum-signal)

- Complete views of the super-structure:

.....

5 Commissioning Flight-Ctrl ME (SMD components installed)

The FlightCtrl ME comes with assembled SMD components and needs only a few leaded components to be fitted by hand. (This is the order). The board is already equipped with a bootloader. Tests of the current version of the FlightCtrl have been programmed..

5.1 Remaining Parts to fit

To equip are:

- Capacitor (Electrolytic)
- note polarity
- Buzzer
- note polarity: Plus to the outside of the board
- if a compass is installed, the buzzer should be placed at the end of a boom and fastened with 2 cables (due to magnetic interference)
- Pin header
- Recom IC4 (5V-switching regulator)
- install underneath, if fitted
- Lettering on board edge
- optional: pressure sensor
- install underneath, if fitted
- Metal side towards the ground; plastic side to the board
- optional: Recom IC3 for the servos
- install underneath, if fitted
- Lettering on board edge

5.2 General Wiring

For the wiring of the MikroKopter there is a separate page: electronics wiring

here is also information about the engine running and the addresses of the motors.

5.3 Software-Update

Since the board already has a bootloader, update the software simply by MkUsb possible. Details to update the FlightCtrl are here: MikroKopterTool
The currently Versions are available in our Subversion-Archiv. Finished Hex files are located in each sub-order "Hex Files" of the corresponding versions.

6 Mounting the FlightCtrl ME

The FC ME must be mounted to minimise vibrations. It may still not prevent self-oscillation.

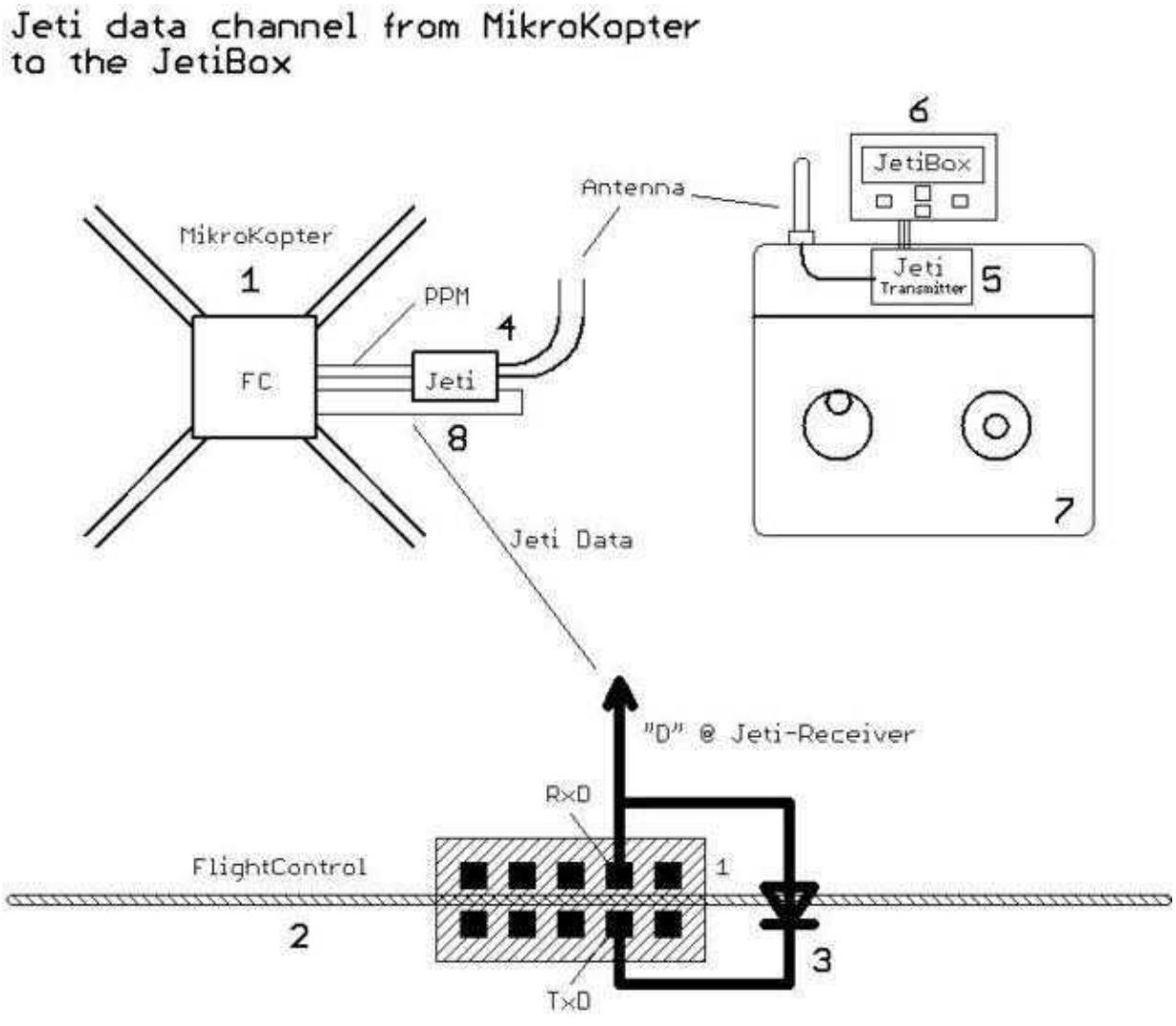
Optimally suitable for the rubber vibration damper

7 Connection Data channel

If you want to use a Jeti transmitter, you can see with the Jetibox the telemetry data of the Kopter.
To use this you need a data cable that you can connect to the Jeti receiver.

To get this data output, where you can connect the data cable, you have to solder a diode (e.g. a 1N4148) to the FlightCtrl V2.0 (or V1.x).

Connect the **anode** to **RxD** and the **cathode** to **TxD**. If this is done you can solder the data cable to the anode (RxD).

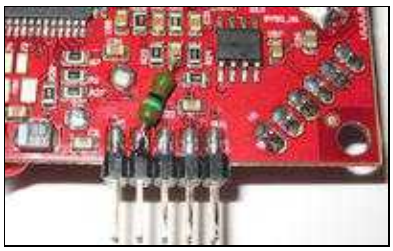


More informations you can find here: Link

8 Altitude - Expanding range at> 1500m

In a flight control up to V2.0, you can adjust the range of the air pressure sensor to a greater height by the FC for a further resistor R21 resistance of 1.5 ohm (1.5 k to 2.7 k) in parallel.

If you have only one leaded resistor:



(The range of a FC2.1 is already adjusted to up to 3000m)

9 Forum quotes

Quote from the Forum: http://forum.mikrokopter.de/topic-post102354.html#post102354

"Temperature drift (living room 25 degrees - in and out temperatures to minus 3 degrees) no longer exists, dizziness, and the times of flights occurred after curve, are a thing of the past.

The FC 2.0 is a coherent and very sophisticated board. While it was safe for Holger and Ingo, who already have very good versions of the FC to beat, but as they say: "Good but you can still improve"

Quote from the Forum: http://forum.mikrokopter.de/topic-post106822.html#post106822

"Why no new controller? A new controller would have only led to innovations first in the current hardware had been built, and the many users of the FC V1.x would then have a long view to the detriment - and that is not in our interest. So we still have a software for the FC and the new V1.x FC ME. The FC-code, we still have a little concerning speed optimized, so that as air again for further functions.

The FC FC ME V1.3 will not replace, but provides an alternative with higher MEMS gyros and servo jitter free outputs dar. "

- KategorieMK-Baugruppe/en