

## **en/FlightCtrl\_ME\_2\_0**

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# 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.

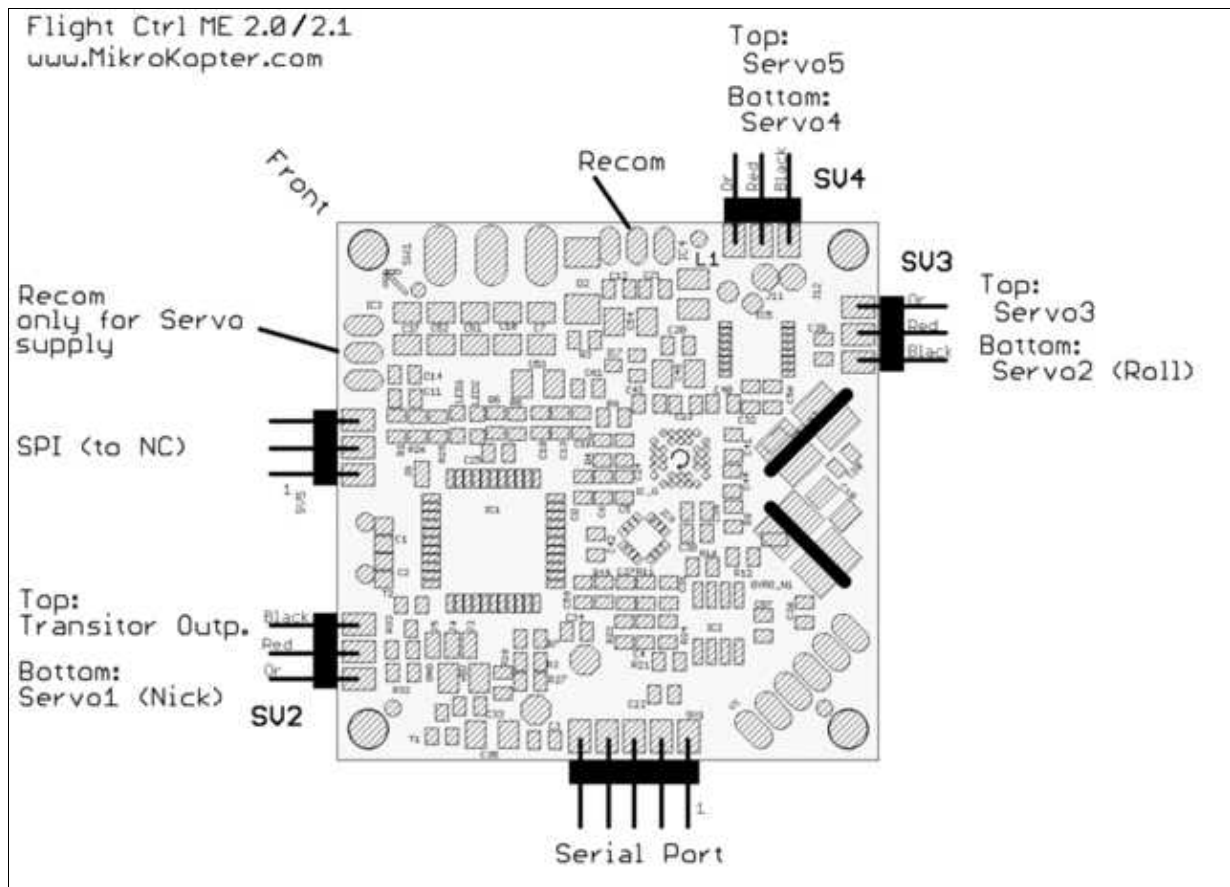
Information on [FlightCtrl](#) ME:

- **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](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)**

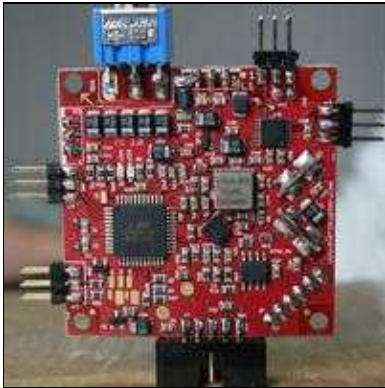
Pin2: Servo5 output

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

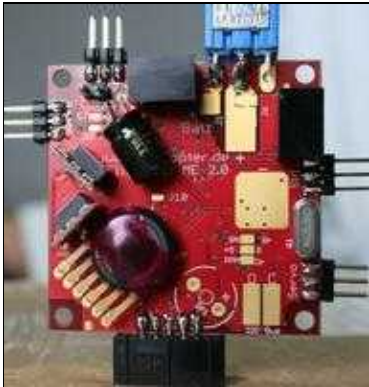
Pin6: GND / Minus

## 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:

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## 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](#)

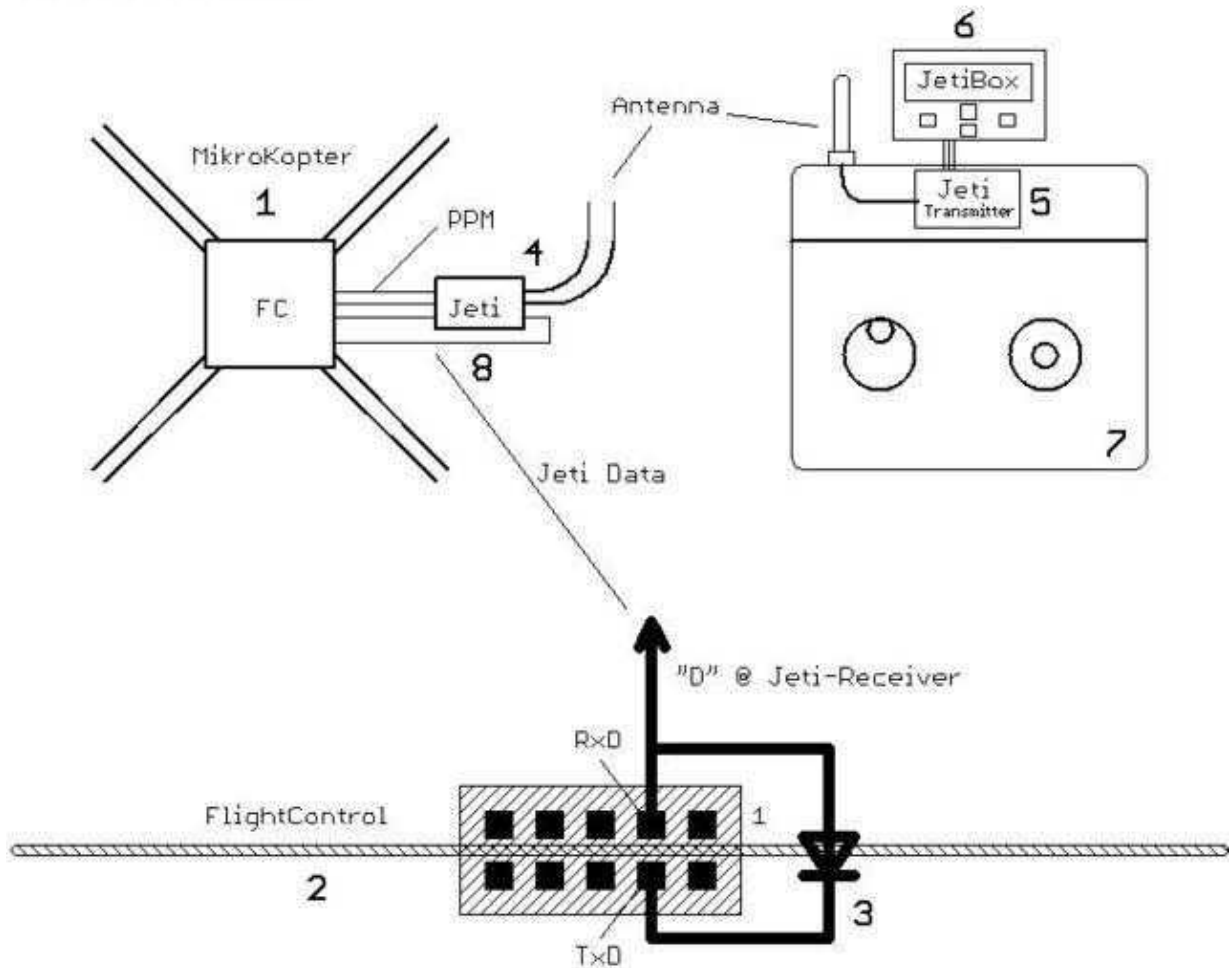
# 7 Connection Data channel

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).

## Jeti data channel from MikroKopter to the JetiBox

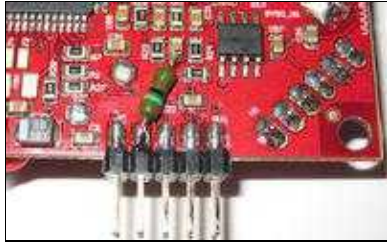


More informations you can find here: [Link](#)

## 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.mikrokoetter.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.mikrokoetter.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 VI.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 VI.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 VI.3 will not replace, but provides an alternative with higher MEMS gyros and servo jitter free outputs dar. "*

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- KategorieMK-Baugruppe/en