

# **en/MK-QuadroXL**

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This page as an **PDF-Document**? Click on that Symbol and wait a little moment... --->

MikroKopter - QuadroKopter XL

-  [deutsch](#)
-  [français](#)



See also: [assembly Overview](#)

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## Info

Please read this manual **carefully!** This can avoid misunderstandings !  
Technical knowledge is recommended! Wrong soldering can cause damage!

**⚠** For the first test you should use a regulated power supply and **not** the Lipo (battery) !  
Wrong soldering or short circuit can destroy the electronics ! Use a power supply of 12V/500mA.

## Rigger

### Mounting the Motor

**⚠** Before you mount the three motor cables into the riggers, you have to check and mount the Motor.  
All motors are tested but please check if there is no short circuit between the motor cables and the motor housing.

The motors are mounted with two screws. to avoid losing the motors, use a little drop of [Threadlocker](#).

**⚠** ATTENTION: The screws should be screwed firmly. However, the screw thread in the motor could be overtorqued if too much power!

**i** The threads on the motor (above/below left/right) have different distances!

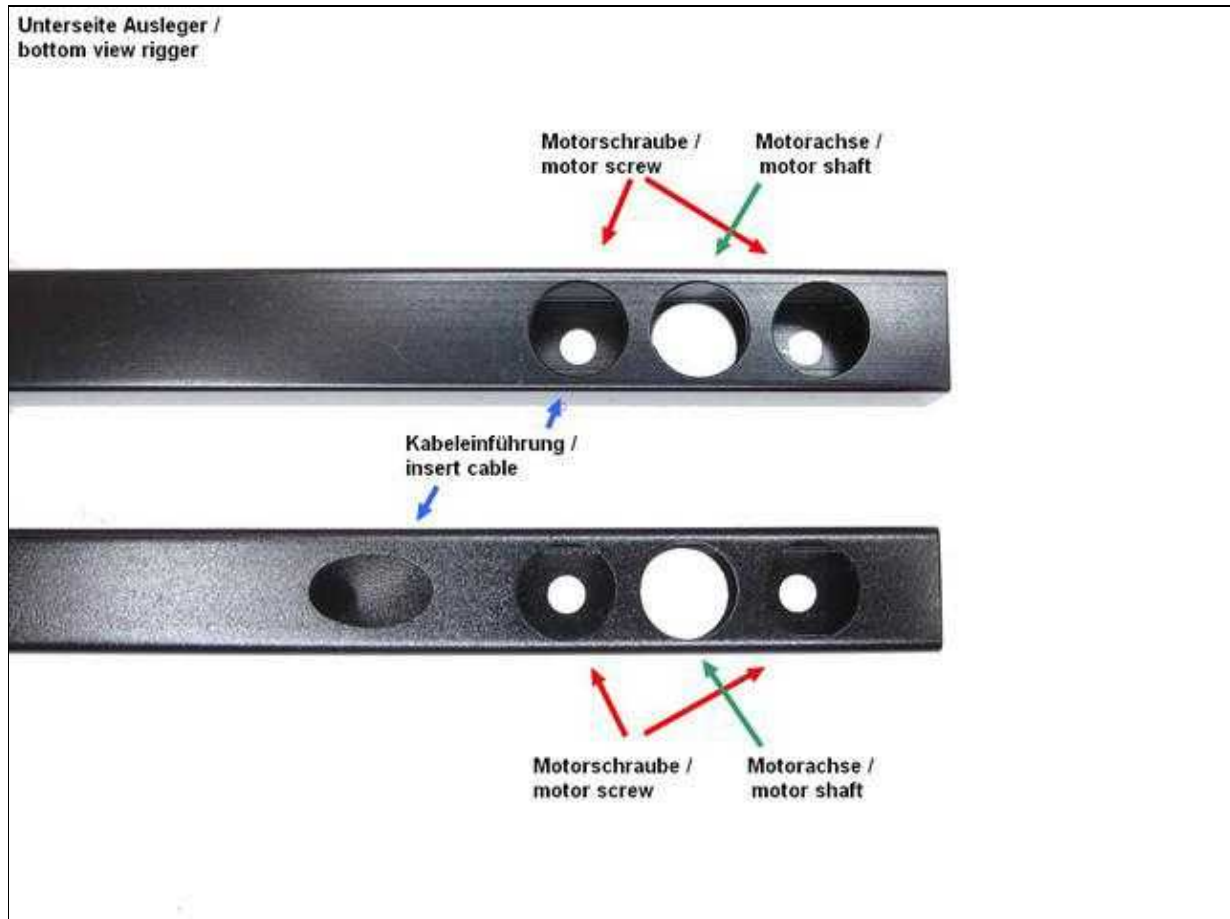


## install the motor-, LED-cables

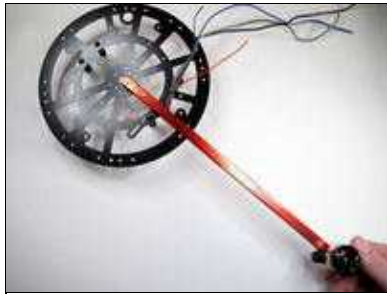
Also mount the red and one black 0,5mm cable (in suitable length) into the riggers wich obtain a LED-stripe or a buzzer.

Please be carefull while installing the cables.

Insert the cable like you see below.



⚠ The cable of the Motor comes out of the hole on the left side of the rigger! (see picture)

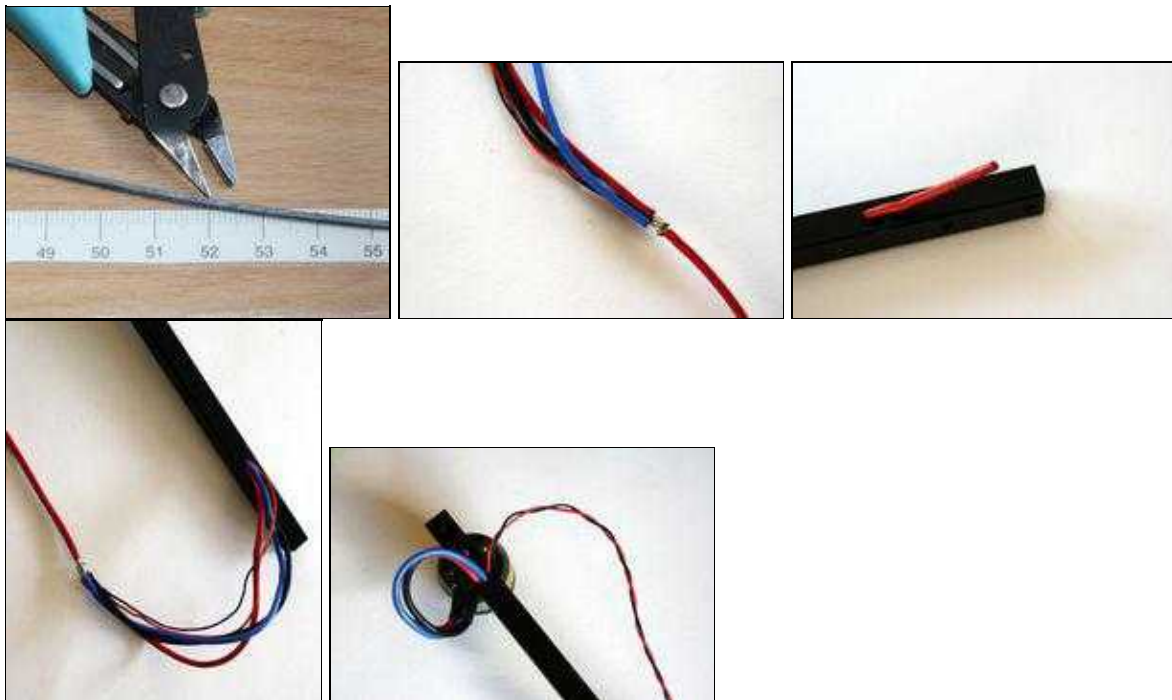


Example picture

📌 *Tips:*

- Stick or solder wires together before pulling them through the hole.
- if needed, attach a string to the wires and pull that through first.

⚠ Attention: If you connect the motorcables, it is difficult to turn the motor!



## Propeller Mount

The three screws of the propeller mount should be firmly screwed. In this case use a suitable screwdriver! Later you can mount the propeller like the picture show.

**Example: MK3538 Motor**



## mounting and connecting the LED-strip

**⚠ COMMENT:** The color of the LED-strip of the Set can vary. Here we describe it with red and blue LED! The LED-strips of different colors can look equal. Before assembly, the color can be determined by applying a voltage. Therefore a power supply (12V) or a 9V battery that can be used.

**⚠** A LED-strip consists of **6 LED's** (it could be, that you have to cut a strip)

On the red rigger at the front you can put the red LED-strip. Then put the blue LED-strip on the black riggers. Now you can solder the red and black Silicone cable (0.5mm<sup>2</sup>) in the right polarity ("+" red / "-" black) to the LED-strip .

Finally the LED-strip can be shrinked with the transparent shrink hose.

### Example of the lighting

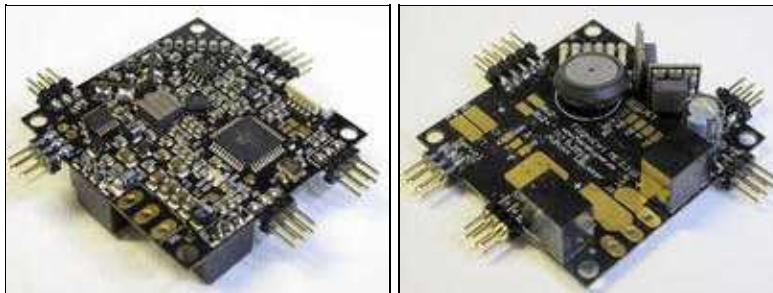
	Red	Blue
Kopter		
Quadro	rigger 1	rigger 2,3,4
Hexa	rigger 1	rigger 3,5
Okto	rigger 1	rigger 4,6





## Flight Ctrl. 2.1

The [FlightCtrl](#) is already fitted with all needed components.



**i** The FCV2.1 can be connected to the powerboard via the molex cable.

When using the Molexkabel between [FlightCtrl](#) and powerboard, you **don't** have to solder the I2C bus, the buzzer and the power cable to the [FlightCtrl](#).

Only the power cable for the receiver still has to be soldered to the [FlightCtrl](#).

The buzzer is connected directly to the appropriate solder points of the powerboard (Buzzer / -).

The I2C-bus and the voltage supply are provided from the power distribution via the Molex.

Alternatively, the FC V2.1 can be connected with individual cable to the power distributor. But then you don't have to use the Molexcable.

**⚠** When mounting the [FlightCtrl](#), the printed arrow shows to the rigger No.1 (red rigger). The PCB populated side facing up.

## layout / wiring FC ME 2.1

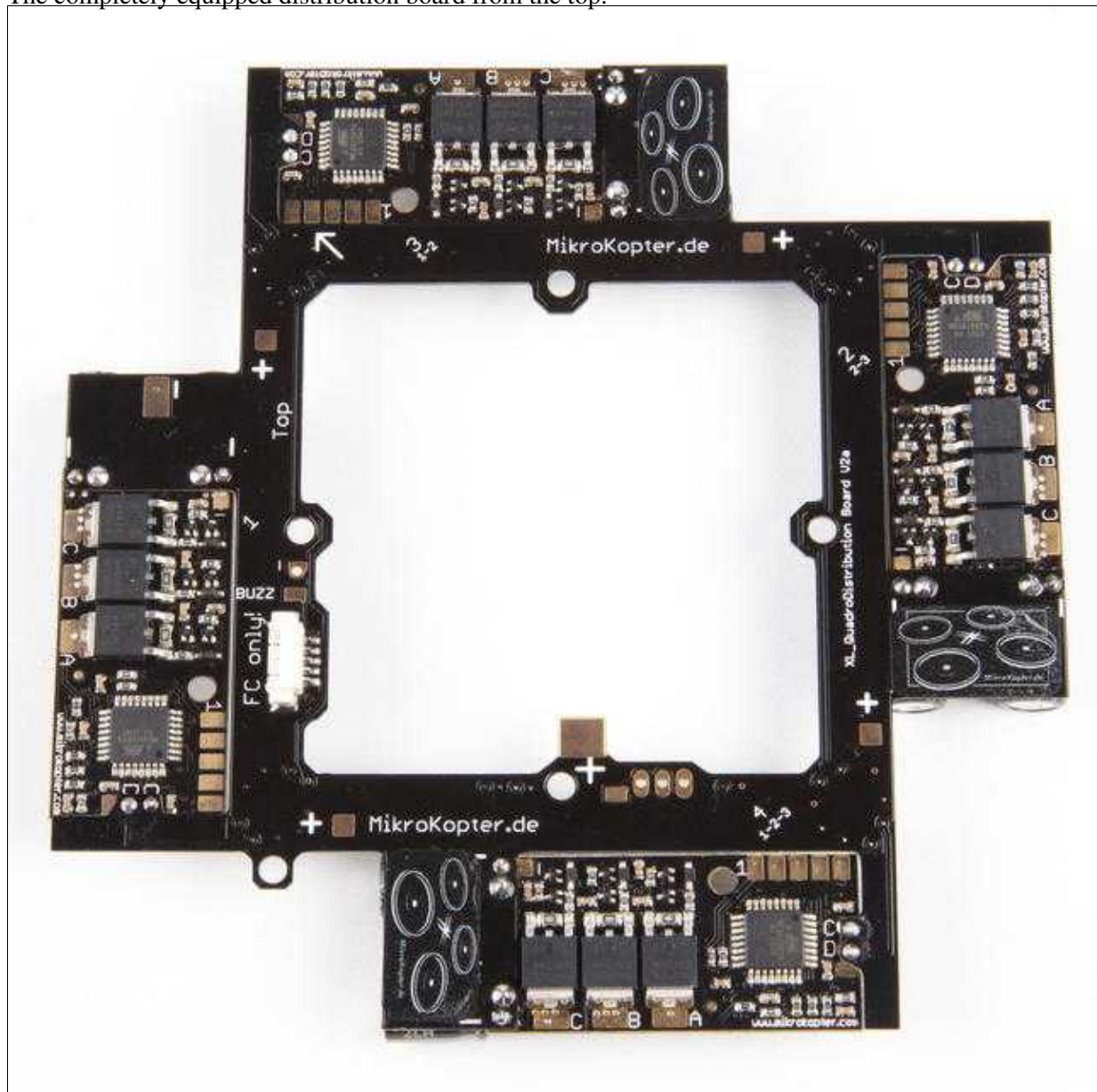
Describes how a receiver is connected to the [FlightCtrl](#): [FlightCtrl 2.1](#)

**⚠** In the XL-Set you have a mounted powerboard. How to mount the powerboard with BL-Ctrl you can read [here](#).

## Powerboard

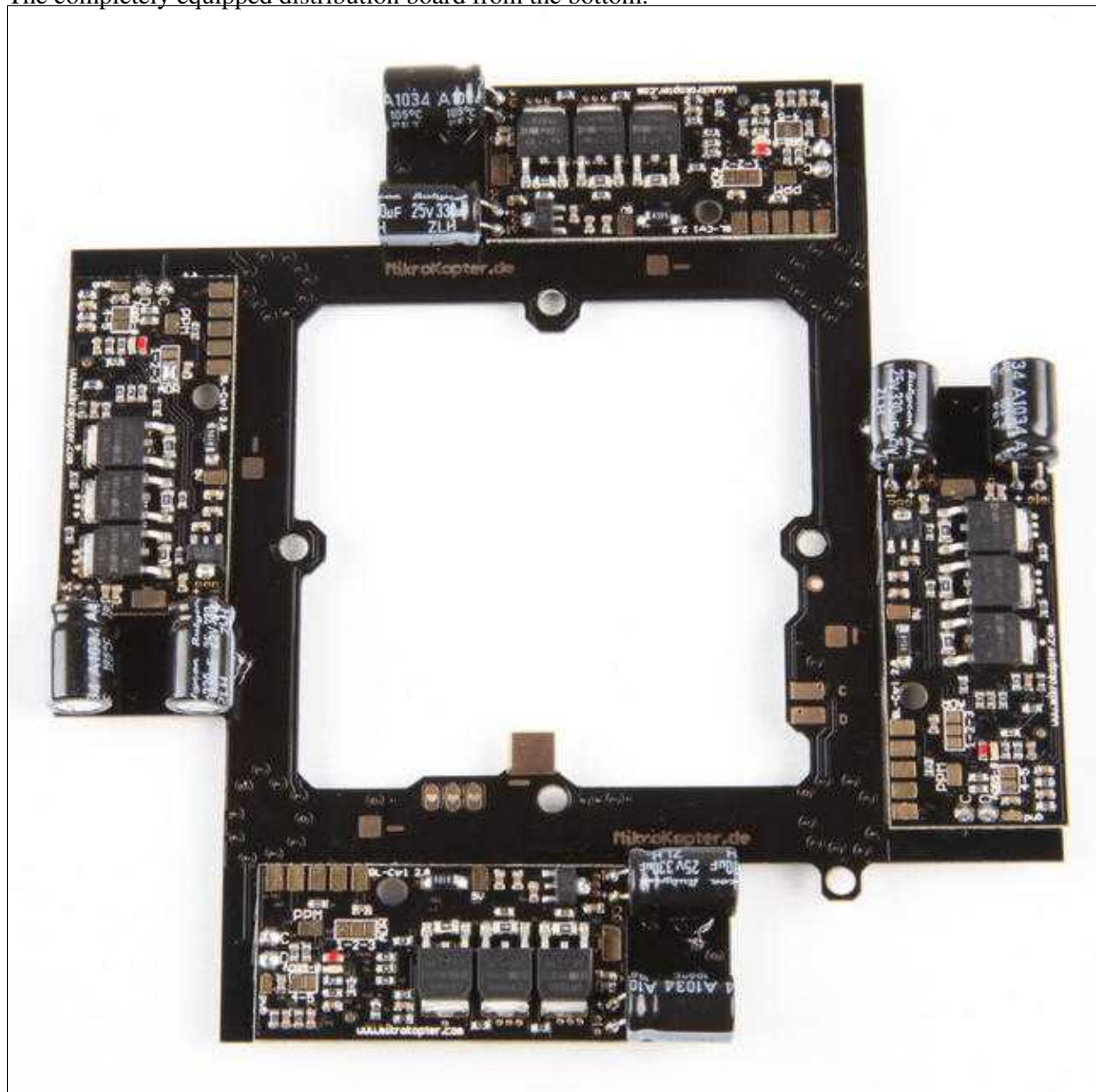
## Power Distributor - Top

The completely equipped distribution board from the top.



## Power Distributor - Bottom

The completely equipped distribution board from the bottom.



## Supply

### Connect the batterie cable

On the large "+" and "-" solder pads connect the cable for the Lipo. With a cable tie the cable can be fixed to the power distributor.

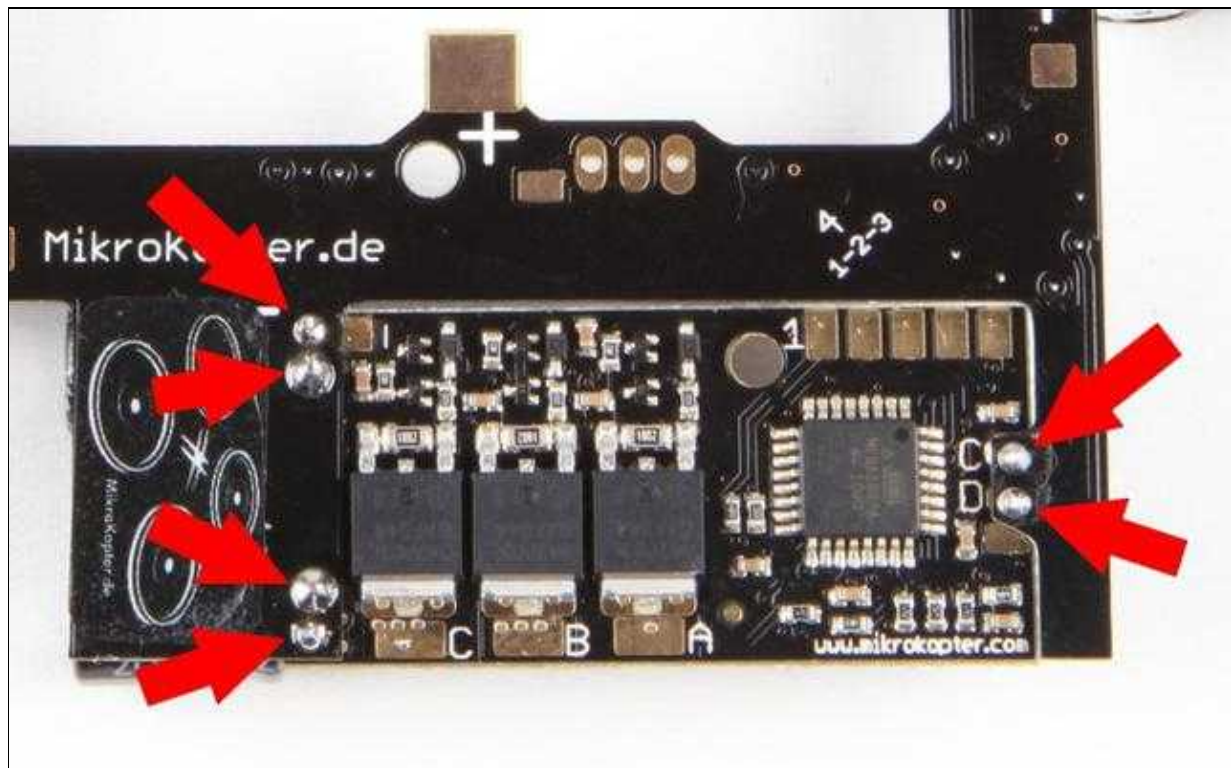
- Plus = red
- Minus = black

⚠ do not mix plus and minus here!



## Check for short circuit

The contacts (red arrows) are measured with a multimeter. You may not contact or short circuit with each other or have to plus or minus.

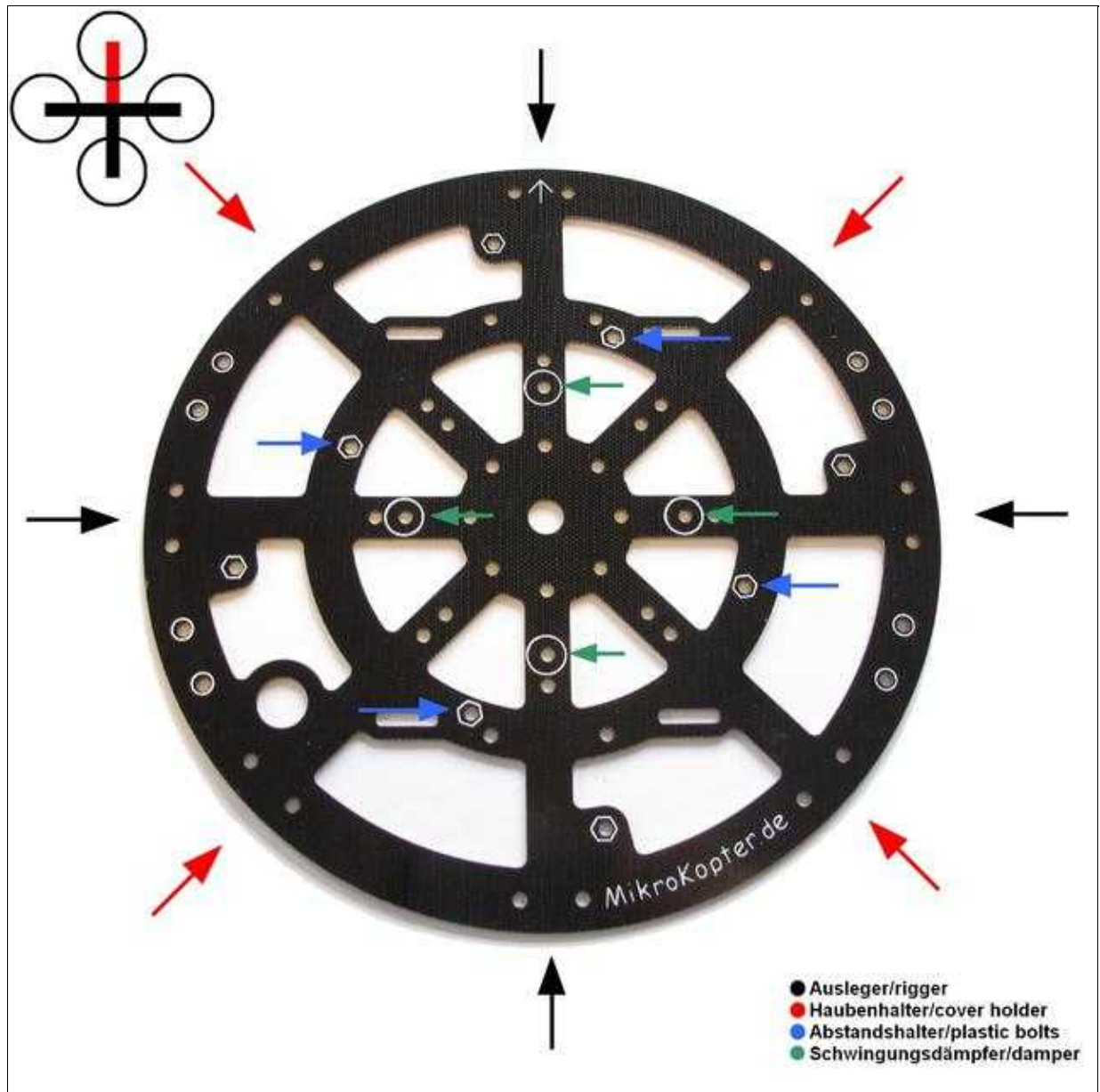


## Assembling Centerplate

The two Centerplates are keeping the riggers and the electronics together.

- ⚠ The printed side of the Centerplate always shows up. The arrow always points forward.
- ⚠ The red arm is front. The rigger, starting with the red one, clockwise from 1-3-2-4.

### Example



At the top centerplate the four spacers (M3x8 or M3x10) are assembled first. Later, the power distributor is mounted on this spacers. Insert the four spacers with the thread into the centerplate and secured with a nut. In the next step, the lower and the upper centerplate (with the spacers), can be mounted with the cover holder. Therefore you need 2x plastic screws (M3x16) / plastic nuts (M3).

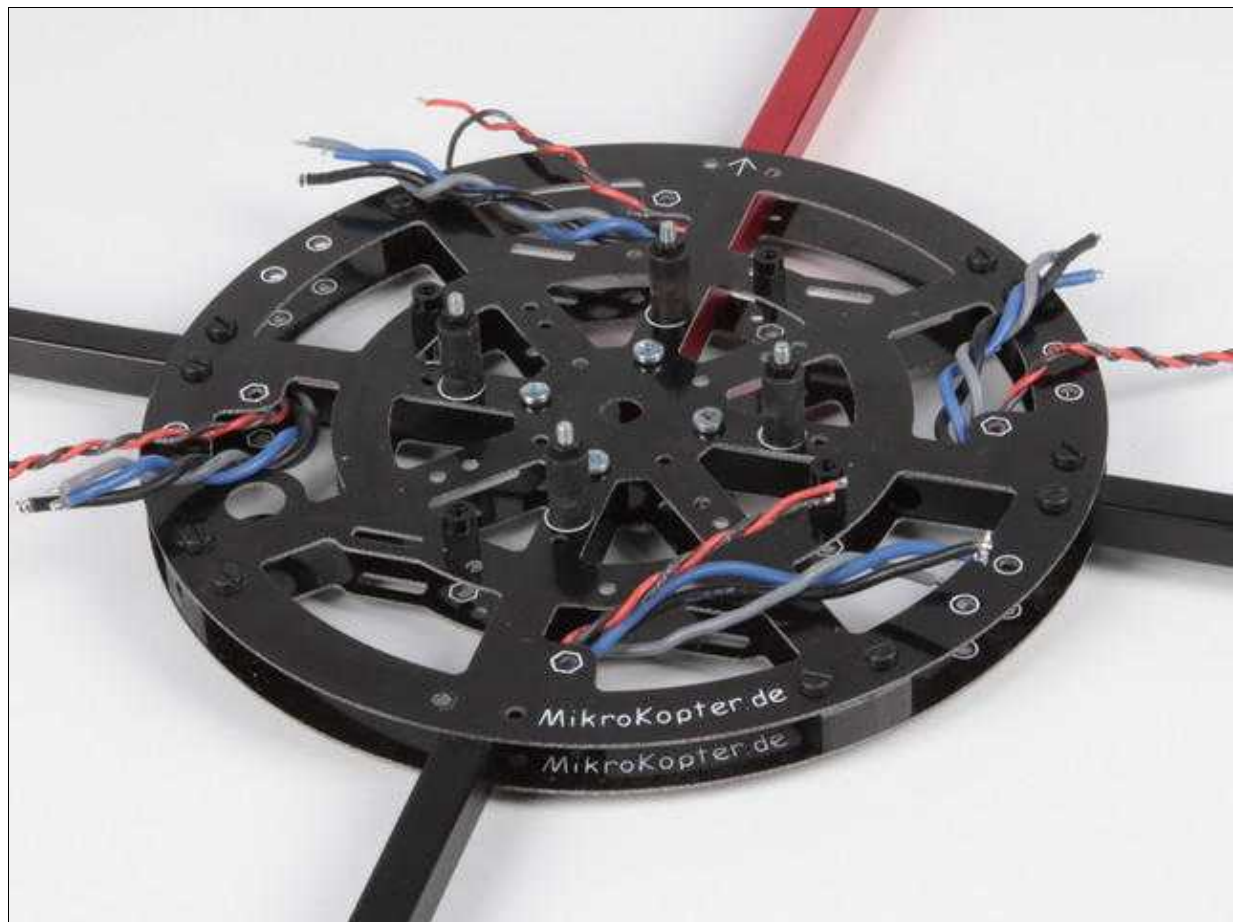


Now you can mount the rigger. These are bolted to a metal screw in the center of the centerplate. A second metal screw is inserted from the bottom and secured with a rubber damper (M3x15). Those objectives are later attached to the [FlightCtrl](#). On the rubber damper is still one each M3 plastic nut **or** a spacer (M3x10) screws to the [FlightCtrl](#) give a little more distance.

Those objectives are later attached to [FlightCtrl](#).

On the outer ring of the centerplate, the left and right arm will be attached with two plastic screws(M3x16) / hex nut (M3).

At the front and rear rigger the [FlexLander-XL](#) can be installed with metal screws. If you want e.g. rather the [HiLander-26](#) use, the front and rear arm can attached with plastic screw.

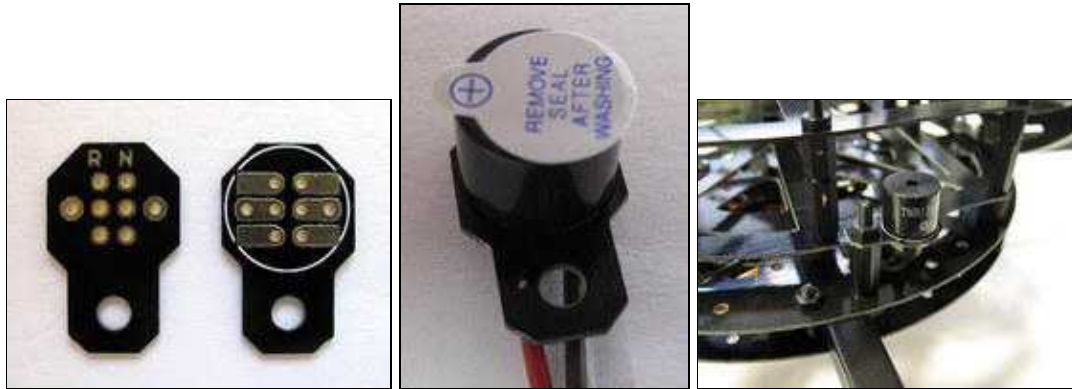


## Wiring of the buzzer cable

### assembly with buzzer adapter

The buzzer can also be mounted with the buzzer adapter to the Kopter. But take care that the Buzzer is not mounted too close to the [FlightCtrl](#).

This could disturb the compass!



**i** We recommend to mount the Buzzer on a 15mm plastic spacer bolt like on the picture. Do not mount it on the Lipo holder. In case of a crash it could cut the cable to the Buzzer.

How to mount the buzzer adapter: [Buzzer Adapter](#)

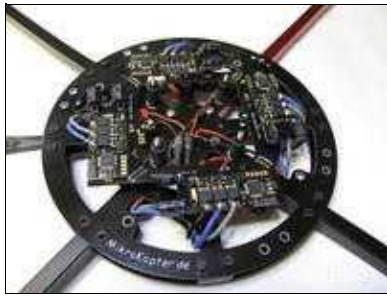
## Assembly Powerboard

The Lipo cable is inserted through the Center Plate. Later you can fix it with a cable tie.



After the power board was screwed to the four spacers, the motor cable can be solder. The result:

**i** The arrow of the powerboard shows to the red rigger!



. <=Quadro

### Info:

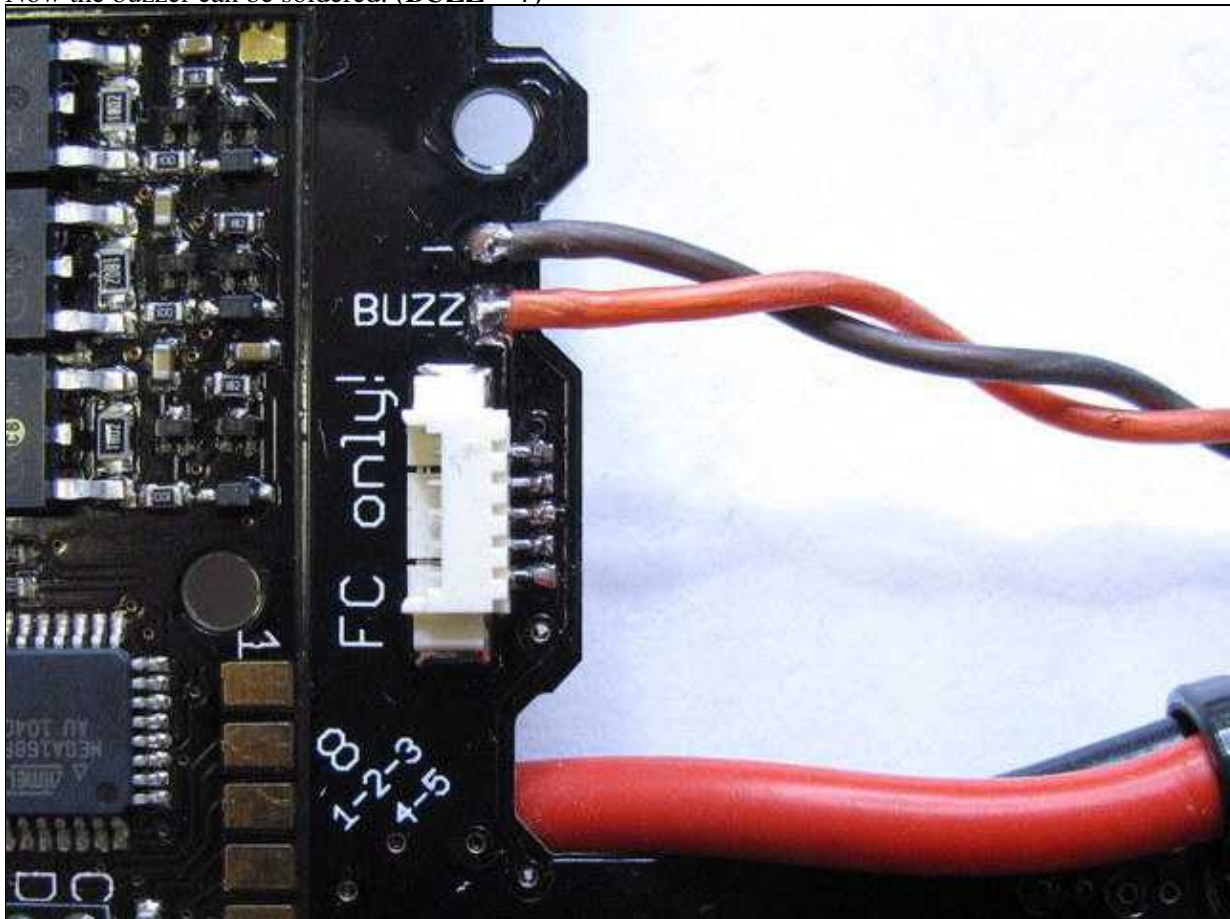
Motor connection A = **gray**, B = **blue**, C = **black** cable in **clockwise rotation**.

Motor connection A = **blue**, B = **gray**, C = **black** cable in **anticlockwise direction**.

If you use motors with different colored cables are tested, the direction of rotation. To change the direction it is enough to replace two cables.

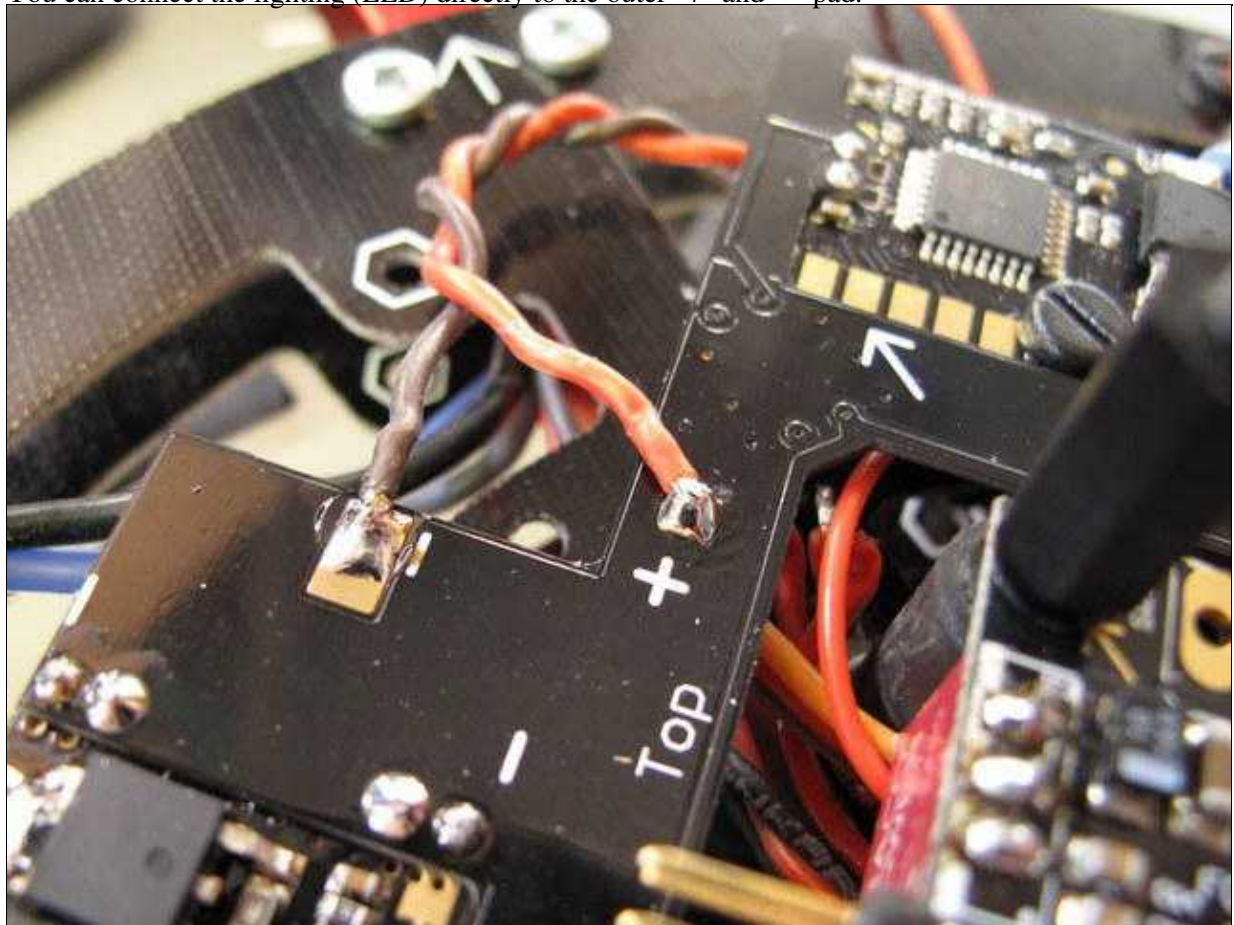
## Buzzer

Now the buzzer can be soldered. (**BUZZ = +**)



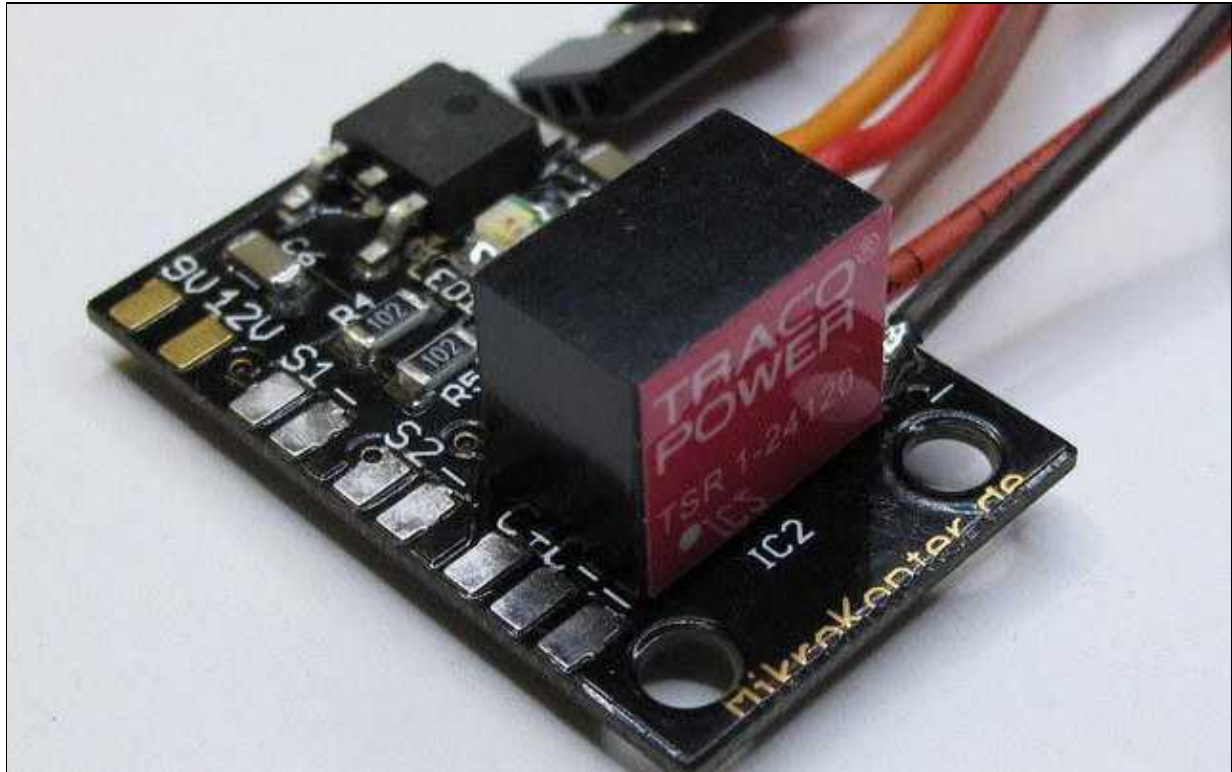
## Lighting

You can connect the lighting (LED) directly to the outer "+" and "-" pad.



## Lighting switchable

If you want to switch the lights, the optional ExtensionPCB can be used for this purpose. The connection is described here:: [ExtensionPCB](#)



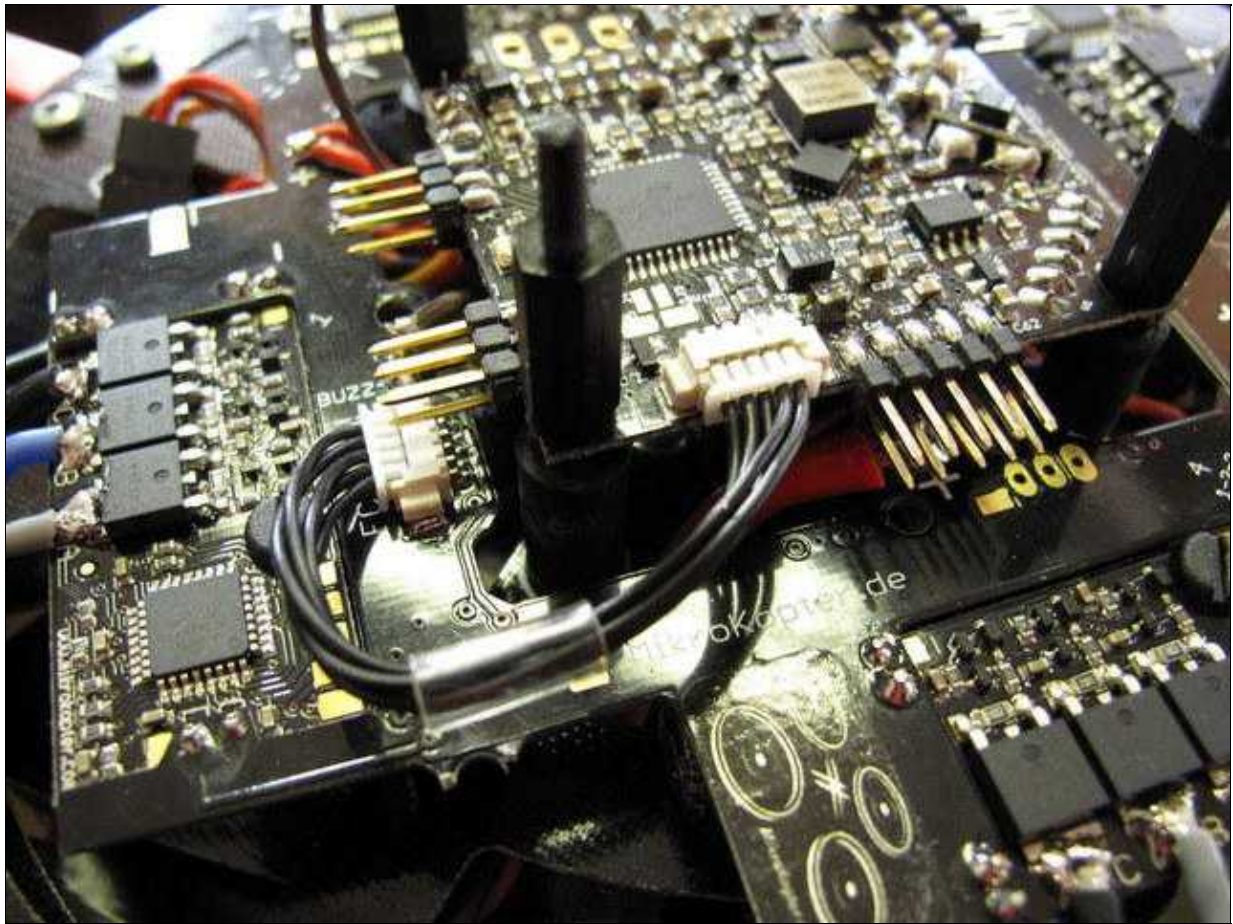
## Lipoholder

The [Lipoholder](#) can be mounted on four bolts of the cover holder.



## connect the FC

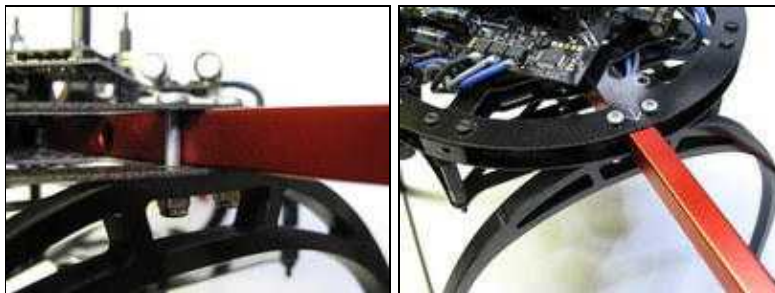
The [FlightCtrl2.1](#) will be connected later with the Molex-cable.



⚠ The printed arrow on the [FlightCtrl](#) must point to the one on the rigger No.1 (red rigger) !

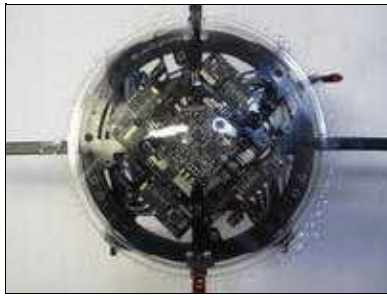
## Mounting FlexLanderXL

The [FlexLander XL](#) be mounted with supplied screws on the Center Plate.



## mount transparent cover

Put the [cover](#) over the riggers for marking. You can fix it by a tape. Please note that the upper part of the cover is a square. Put one edge of this square towards rigger Nr.1



 Example mounting on a quadroKopter. On a [HexaKopter](#) [OktoKopter](#) the sequence is identical!

Now mark the position of the rigger with a pencil.



Now it can be cut with scissors and cut the protruding edge.



The transparent cover is then attached and secured with a screw. For this you can drilling with a 2mm drill to the cover and the cover holder.



If you use the new version of the cover holder you can use the recess on it.

**Attention:** The recess should be shown up! A matching bolt is located on each motor.



⚠ The transparent cover should be painted in any color from the **inside**. This will save the light-sensitive altitude sensor from malfunction. This can happen, if sun's rays strike on the sensor directly.

## Cooling hole in the cover

If you use payload > ca. 700g or you fly in high temperatures, a cooling hole (2cm) in the cover might be useful to avoid heat accumulation.



## First start

Now the Kopter is ready assembled and soldered. The next step is now to check and set the Kopter and the function of the transmitter.

For this we use the KopterTool.

Where you can get the KopterTool and what you have to check/set is explained in simple steps.

Here we go to the easy "steps": [Initial startup](#)

## safety

A Kopter can be dangerous. Safety comes first, so read carefully:

- [SafetyFirst](#)
  - [Safety references of LiPos](#)
- 

- [KategorieAnleitung](#)