

## **en/MK-USB**

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# 1 General

The MK-USB is a USB adapter to program and parameterize the !Mikrokopter.

Here is on one side with a miniUSB cable connected to the PC. On the other hand, can be connected via two 10-pin male connectors assemblies.

By setting a jumper, the target board can be supplied if required (handy for example when testing individual small components that require only 5V).

## INFO

For programming and parameterization of the [MikroKopter](#) the jumper should be drawn. The copter should be powered by a stabilized power supply (e.g. for first start!) or battery!

On all pre-populated circuit boards ([FlightCtrl](#), [NaviCtrl](#), [MK3Mag](#),...) a bootloader is installed. So it is very easy to update a current software .

A boot loader can not be installed with the MK-USB. If you want to assemble your own circuit board or if you want to repair a damaged IC you can do this with a appropriate Atmega with pre-installed bootloader ([Shoplink](#)).

## 2 Connections

The MK-USB has four ports.

- X1 -> Mini-USB connector - Connection to the PC/Laptop.
- X2 -> Connection [FlightCtrl](#), [NaviCtrl](#) or [BL-Ctrl V3](#)
- X3 -> Connection [MK3Mag](#) or [BL-Ctrl V1.2](#) / [BL-Ctrl 2.0](#) (not installed)
- Jumper 5V -> Jumper to supply the connected module

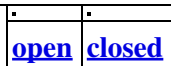
To enlarge ->  
Click on image  
or text



Close the Jumper if you have connect a PCB single.

**INFO:** If the PCB is connected to your copter, power on the copter / PCB with a power supply or the battery.

To enlarge ->  
Click on image or  
text



## 3 Driver - Installation

To use the MK-USB to a computer can be installed for your operating system drivers. If you connect the MK-USB with your PC/Laptop Windows will normally download the needed driver automatically from the internet.

If not you can download here the latest FTDI-driver for Windows, Linux and MAC and install it manually: [YCP-driver](#).

If there is something wrong you can find some more informations below under "Driver assistance".

## 4 Connecting board

To get a connection between the MK-USB and the PCB you have to use the ribbon cable in the right way. The red side of the ribbon cable shows on all PCB's to PIN1:

To enlarge -> Click on image or text

<a href="#">MK-USB</a>	<a href="#">FlightCtrl</a>	<a href="#">NaviCtrl</a>
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## 5 KopterTool

In the [KopterTool](#) the COM port can be adjusted in the terminal window. To open the terminal window "click" on the button **Firmware Update & Terminal**.



After the COM port is set, the green point on the left side should be green. If not click on it. With the button **Debug...** go back to the [KopterTool](#). Now the red LED on the MK-USB should be flashing. ([KopterTool](#) is sending data). If then the copter / PCB is connected the green LED on the MK-USB is also flashing.

# 6 Driver assistance

## 6.1 Windows

After plugging in the MK-USB in the PC / laptop Windows will normally automatically download and install the needed driver. If not download here the FTDI driver and install it manually: [VCP-driver](#).

In the Device Manager under "*Ports (COM & LPT)*" you will then find the COM port for the MK-USB. This COM port number is needed to set it correct in the [KopterTool](#).

**Tip:** You can open the Device Manager through the Control Panel or if you type in >Start >Run "devmgmt.msc".

## 6.2 MK-USB testing under Windows XP (Echo-Test)

For this purpose, the MK-USB pin 1 and 9 from the port x2 (SIO) will be bridged. The easiest way to do this is to plugged in the ribbon cable on the MK-USB (x2/SIO) and placed at the other end plugs into the post a piece of wire in pin 1+9.

To enlarge ->  
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or text

Now you start the Hyper Terminal. Here one should be pin 1+9 bridge to see an echo in his keystrokes. Pin 1 and 9 will be interrupted again, there is no response from keyboard input.

At Echo test should each of the characters entered in Hyperterminal the red and green LED on the MK-USB flash briefly. If pin 1 and 9 is not lit, only the red LED briefly. Windows Vista is the way, no application called Hyperterminal, for example, you can test on Vista The Open Source [TelNet](#) client client "Putty" <http://www.putty.org/> .

*Settings in Hyperterminal:*

ere are selected, the correct COM port of the MK-USB and some minor adjustments are made.

In the dialog "ASCII Setup" should the hook "to spend locally typed characters" in his set, it is by the double appearance of the typed characters, the function of MK-USB unequivocally clear.

The terminal window should look like if Pin 1 and 9 are connected.  
(without a bridge or when the MK-USB is not working correctly, there is no echo, ie no duplicate characters).



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## 6.3 Linux

In the Device Manager can be accessed through the Control Panel or Linux, take the USB FTDI Single Port Serial Driver, which is available in the current kernel. The module is `ftdi_sio.ko` and the symbol `USB_SERIAL_FTDI_SIO`.

The MK-USB adapter should be available under `/dev` are `/ttyUSBx`. The following output should provide "dmesg":

```
ftdi_sio 2-2:1.0: FTDI USB Serial Device converter detected
drivers/usb/serial ftdi_sio.c: Detected FT232RL
usb 2-2: FTDI USB Serial Device converter now attached to ttyUSB0
```

The latest FTDI driver you can download here: [VCP-driver](#).

## 6.4 Mac OS

Under Mac OS X (tested with 10.5.5) the current FTDI-driver installing. With the System Profiler or

```
ls -l /dev/tty.*
```

In a terminal window you can see whether the MK-USB has been recognized.

The output in the terminal window should contain a line in the `/dev/include` `tty.usbserial-xyz`, where `xyz` stands for a cryptic letters and numbers. It looks something like this:

```
crw-rw-rw- 1 root wheel 18, 8 1 Nov 18:05 /dev/tty.usbserial-A7006vgP
```

The latest FTDI driver you can download here: [VCP-Treiber](#).

There is the `/dev/xyz-tty.usbserial` also a corresponding `/dev/xyz-cu.usbserial` the example should be used for the QMK Ground Station: Background: `tty` devices are intended for incoming connections, while `cu` (Calling Unix) devices are designed for outbound connections. If a `tty` device opened, so it waits for an assertion of DCD (handshake), which at the MK MKUSB (other than a handshake supported) results that will be maintained forever.

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- [KategorieMK-Baugruppe/de](#)