# en/MikroKopterTool

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

MikroKopter-Tool

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- français

See also: Link

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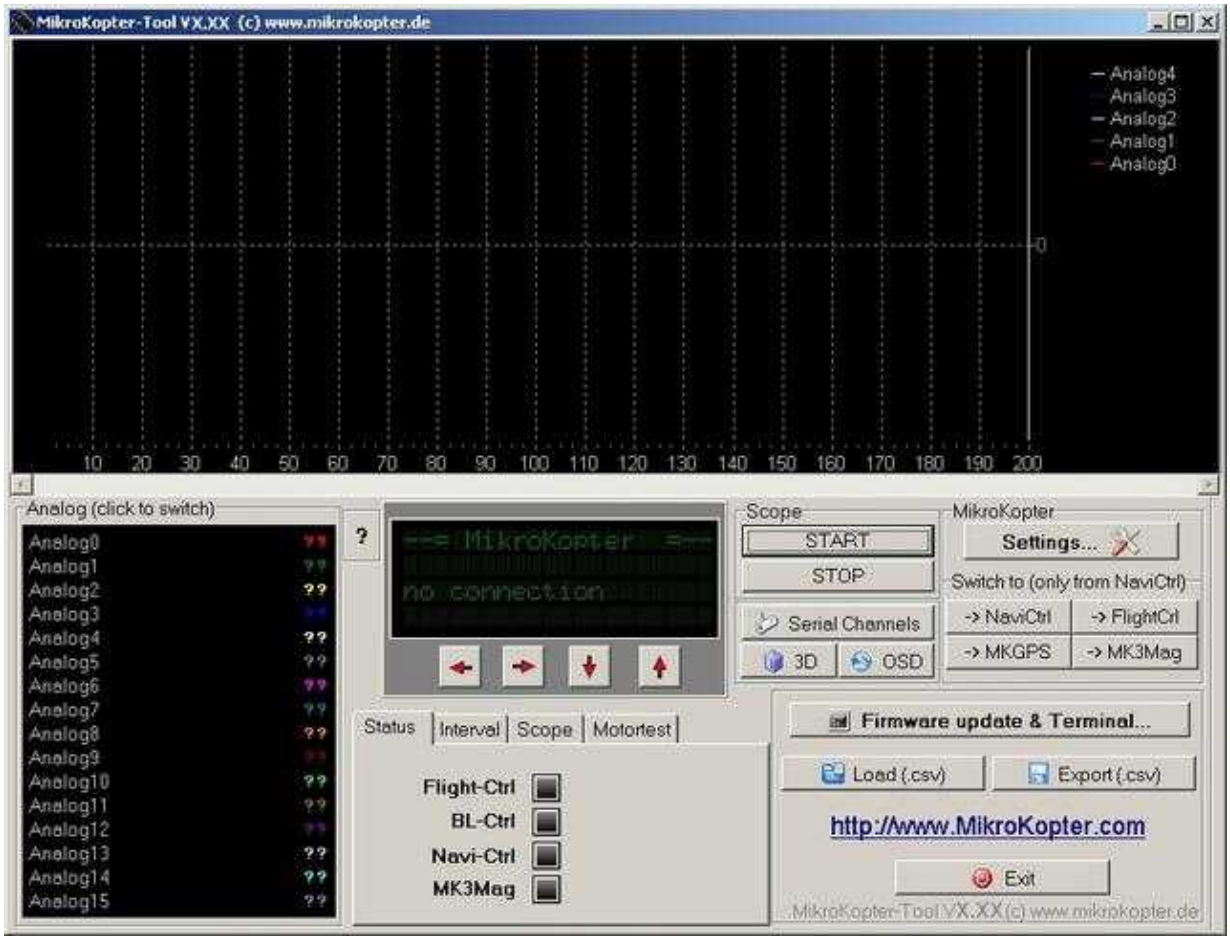
# MikroKopter-Tool

The MikroKopter tool, short KopterTool is a Windows-program with the settings on all MikroKopter-components such as FlightCtrl, NaviCtrl, MK3Mag, MK-GPS.
Supported Windows versions are 98/2000/XP/Windows7 (eventually need admin rights to be awarded).

Win7: Do not copy the MK-Tool to Program Files !

To use a Windows-program like the KopterTool on a **MAC**, you need on your MAC a program like e.g. Darwine or WineBottler.




## Download

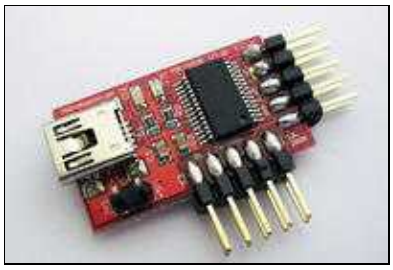
The KopterTool will not be installed. It is as .zip-file available and can be used directly after unpacking. The actual version you can get here: **Download**

Win7: Do not copy the MK-Tool to Program Files !

## Connecting preparation

In front of the first start of the KopterTool and to set the individual components, the MK-USB have to be installed on the PC.

How you can connected and set up the MK-USB to the PC can be found here: MK-USB



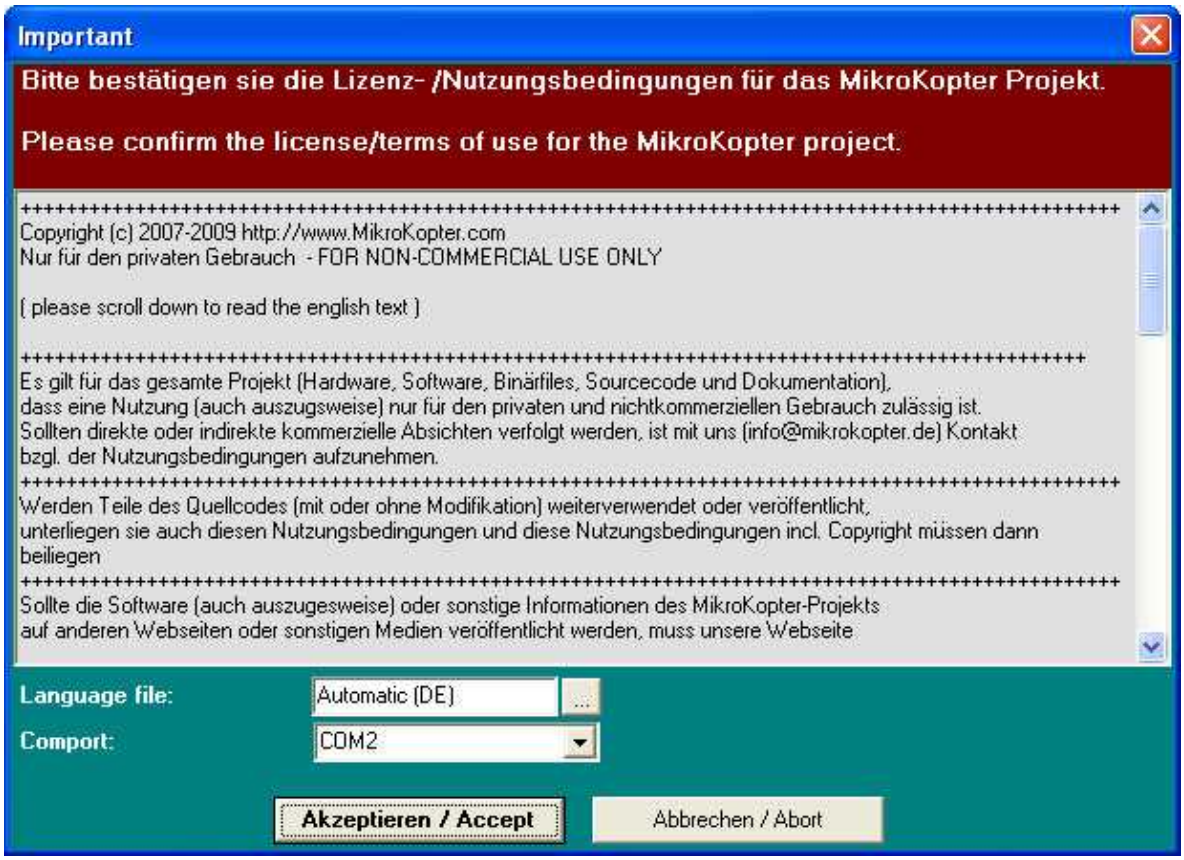
(Alternatively, the SerCon be used for the connection. This, however, requires a **correct** COM port.
A COM-USB adapter can **not** be used !!)

- If there is no MK-USB (or Sercon) connected to the PC, you cant open/use the KopterTool!
  Also if there is no item (FlightCtrl, NaviCtrl, etc.) connect, you can't use the settings.

## First start of KopterTool

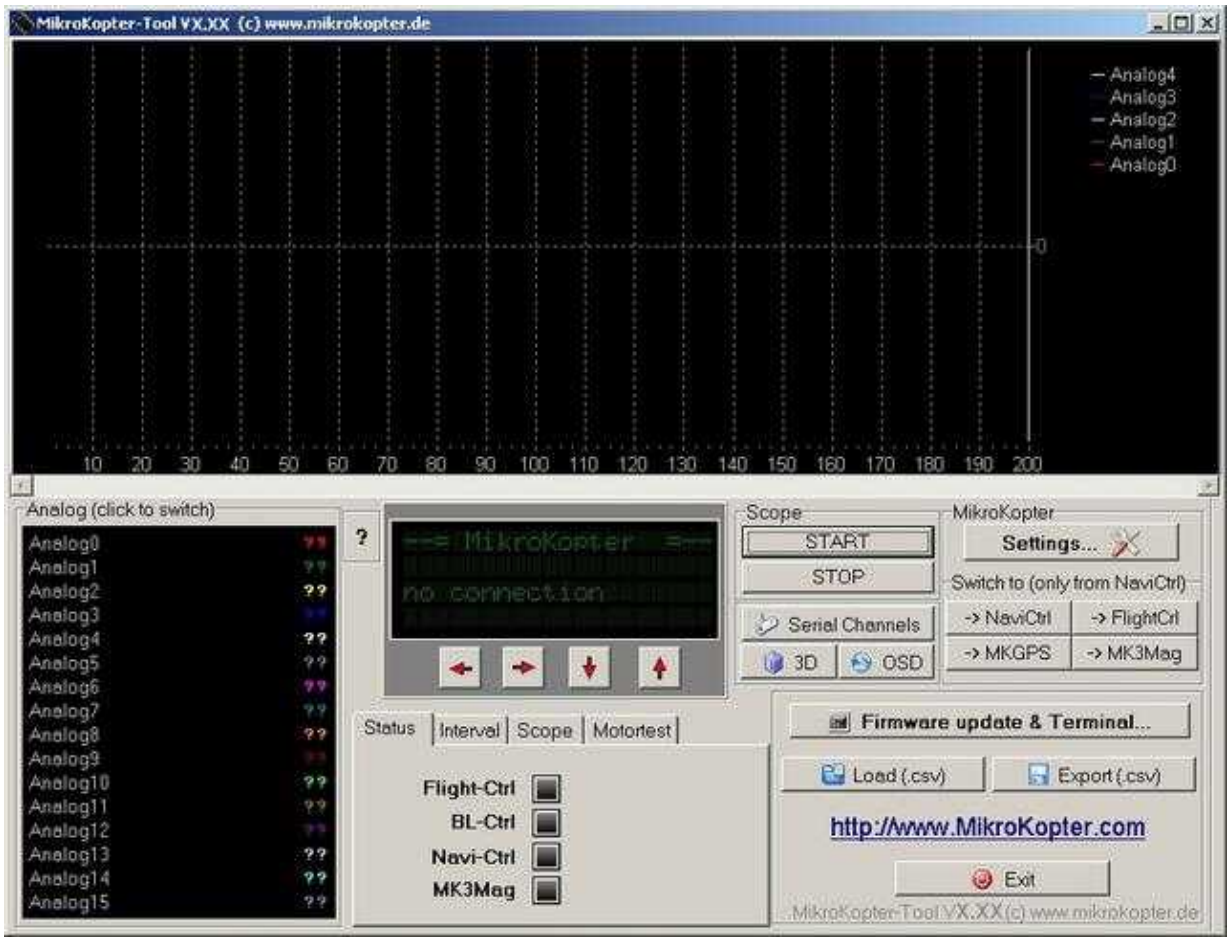
After the MK-USB is set and connected to the PC the KopterTool can be open.

At the first start you see the license window:



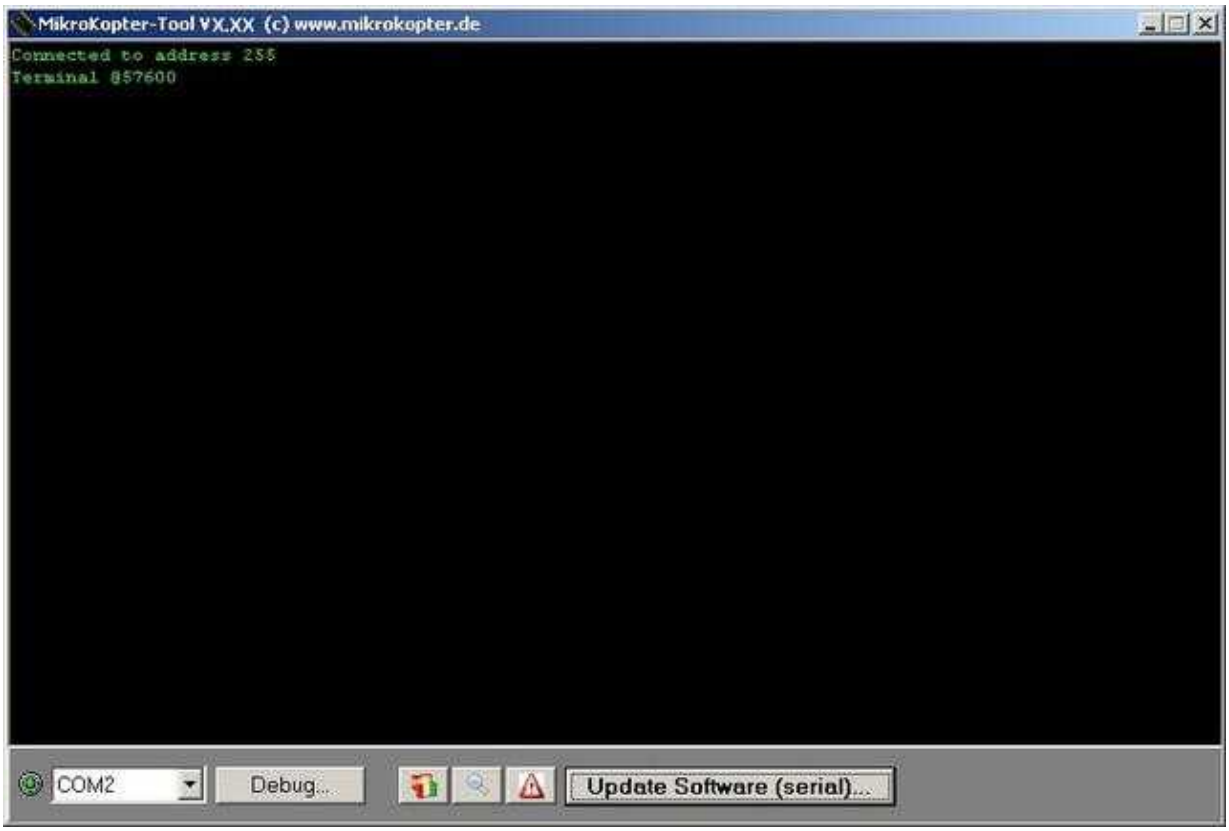
This window displays the license agreement to use the tool MikroKopter. Also you can chose the language and the COM-port.
The COM port should be set to the MK-USB.
(Which COM port is assigned to the MK-USB, you can control in the *Windows Device Manager* under *COM and LPT ports*.)

With a "click" on ***Akzeptieren / Accept*** you accepted the license conditions, the default language setting and the COM port.
Now you see the start window of the KopterTool:



(View without attached board)

- If an incorrect COM port is set, it can be set new in the terminal window of the KopterTool.
  You can access the terminal windows by pressing the button **Firmware update & Terminal** in the KopterTool.
  Left down the COM port can be set.




(With a "click" on the button **Debug...** you can go back to the main window.)

## Connection of modules

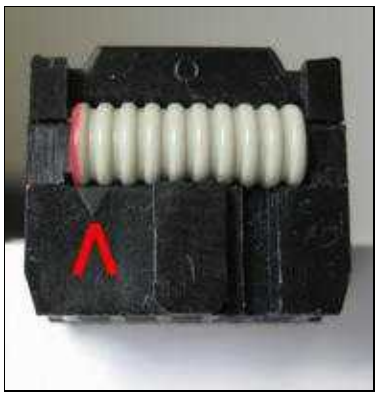
After completion of a new Kopter the FlightCtrl can be connected to the MK-USB.
The FlightCtrl and also the other (connected) components (such as NaviCtrl, MK3Mag, etc.) can be programmed now.

**Connection to the Kopter:**

- **Flight-Ctrl** single installed =>
  - **MK-USB** is connected to the 10-pin connector **"Ext"** of the Flight-Ctrl.

  **Flight-Ctrl and GPS system** (NaviCtrl, MK3Mag, MK-GPS) installed =>
  - **MK-USB** is connected to the 10-pin connector **"Debug" of the NaviCtrl.**

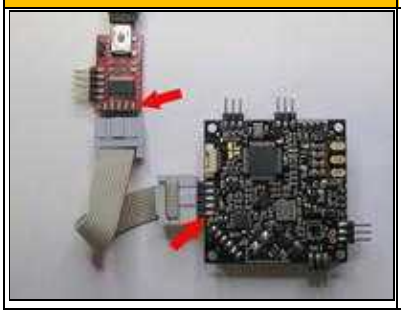
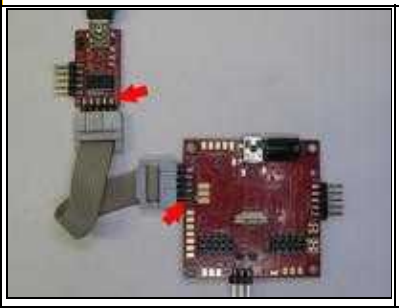
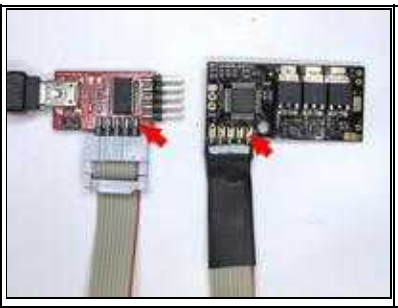
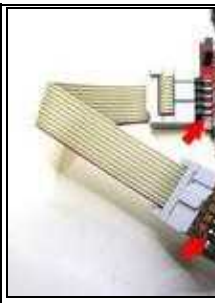
The 10-pin ribbon cable must be connected from terminal "1" (red-marked side) to the terminal "1" of each board !
The contact "1" is marked on the boards with a print.



**Important:**
If the ready copter is connected, the jumper should be open at the MK-USB and supplied by a lipo or a regulated power supply.

**Especially for first operation it is highly recommended to use the regulated power supply because if errors occur the components will be not destroyed.**

Here are some examples of how to connect the modules to the MK-USB.

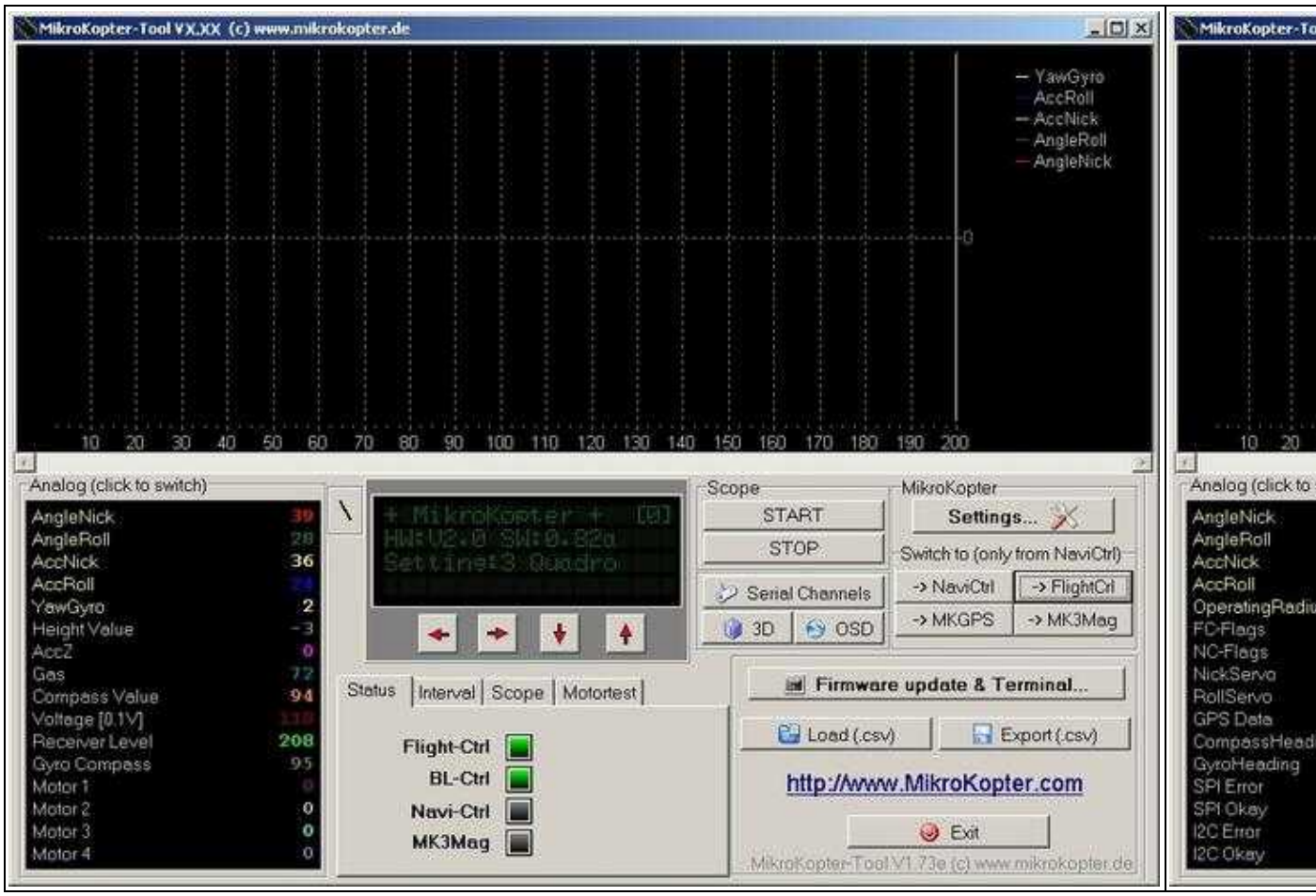
| The red arrows mark each pin "1" | | | |
|---|---|---|---|
|  |  |  |  |
| FlightCtrl: | NaviCtrl: | BL-Ctrl: | MK3Mag: |

Are the boards, as shown in the pictures, individually connected, the jumper to supply power to the components should be closed on the MK-USB.

## First Connection

Depending on whether the Kopter is connected to the FlightCtrl or when using the GPS system on the NaviCtrl, the startup screen should look like this:

| Kopter with FlightCtrl, BL-Ctrl and Receiver. | opter with Fl |
|---|---|




# Choosing Assemblies/Settings

## Assemblies

The different assemblies (FlightCtrl, NaviCtrl, MK3Mag, GPS-Modul) will be selected via the button. The function of the individual modules can be displayed in the Scope and the analog display in the main window of the KopterTool.

**A description of each displayed information you will find here: SwitchTo...**

## Settings

All settings to the Kopter are made on Settings.

If all modules are connected together the settings for all components are made centrally.
To turn into the "Settings..." you **must** choose the *FlightCtrl*.

**A description of the settings**
**and the different tabs you will find here:**
**MK-Parameter...**

If you open the "Settings..." first time, you will see the EasySetup.
Here you can set the Kopter easy and fast.

**A description of the EasySetup**
**and the different tabs you will find here:**
**EasySetup...**

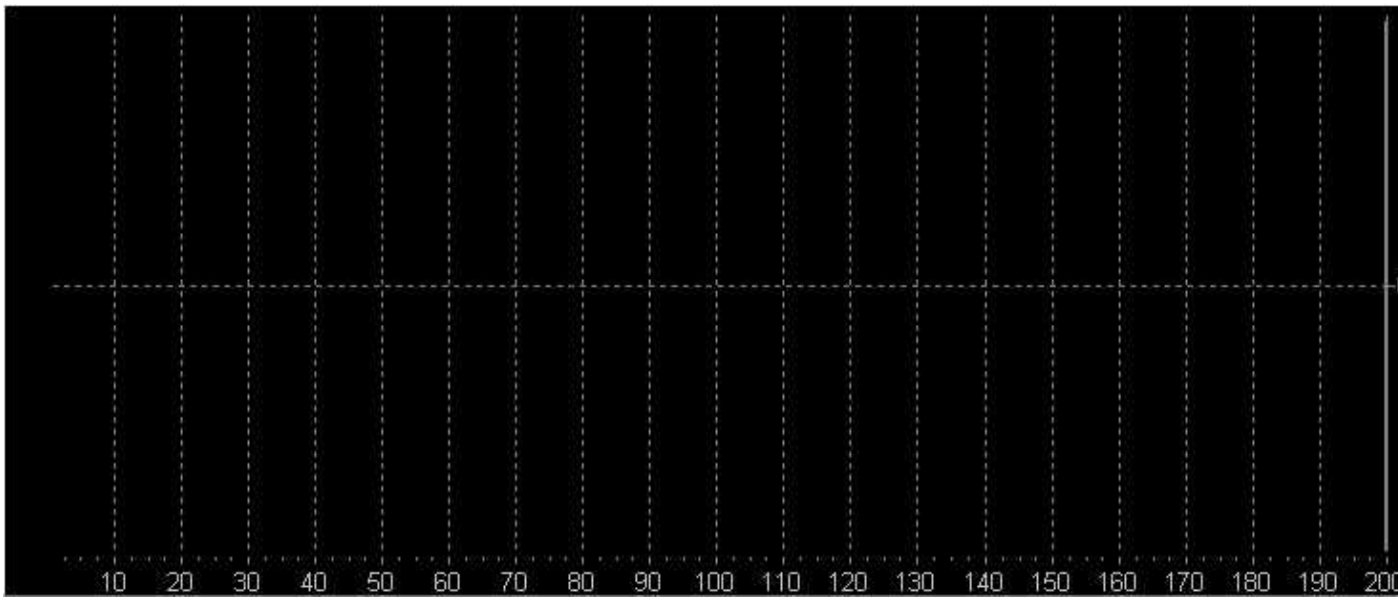
**INFO**

If you select the Settings and see this window...

... then the KopterTool Version is not compatible to the software version on the FlightCtrl and/or NaviCtrl.
Then you should update the FlightCtrl / NaviCtrl with the latest software version. (Update)
(Alternatively, it could also be used an older version of KopterTool.)

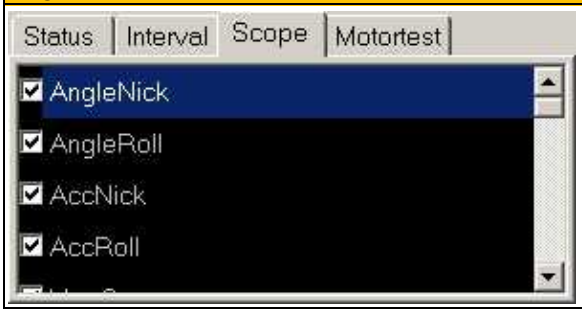
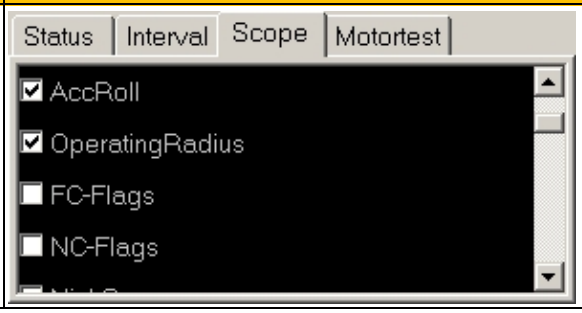
# Scope

In the Scope window the functions of the modules are checked. You can determine by selecting the individual functions which scope is displayed.




## Scope Selection

A klick on **Scope** open the selection window.
Here, the individual functions can selected to be displayed in the scope. Depending on the selected module various functions can be selected.

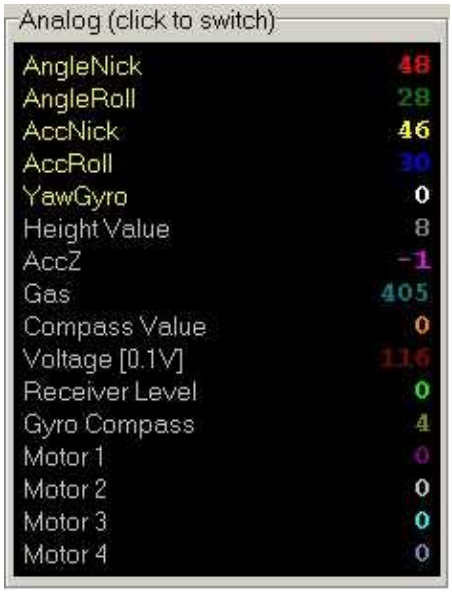
| FlightCtrl | NaviCtrl | MK3Mag |
|---|---|---|
|  |  | |







Also you can select on the analog display the value you need with a "right click" of the mouse on it. This will then change the font color of the selected value.
Here are the first 5 values are selected:

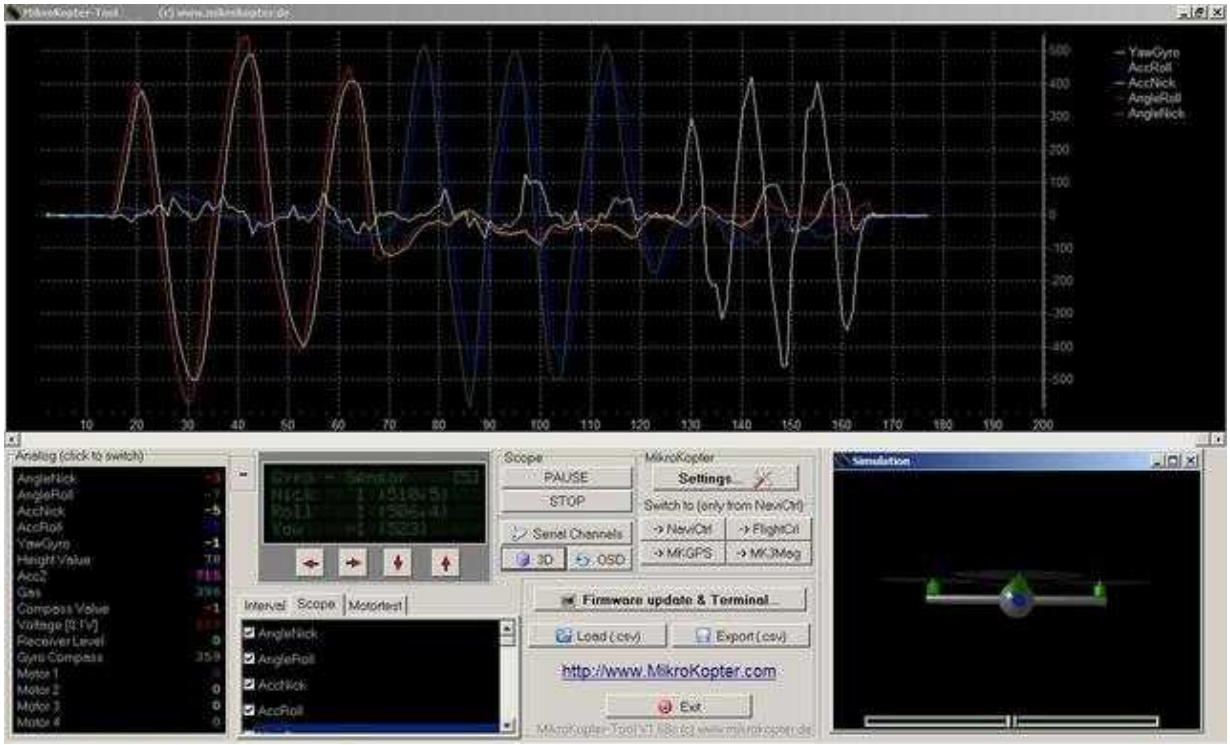



## Scope Start/Stop

The scope on the scope window will be started and stoped by pushing the buttons START and STOP.

## Scope Window

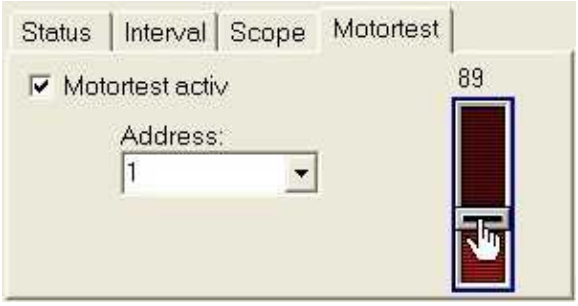
On the right side the scope lines are listed. Depending on which module is selected / connected, different values are chosen.
By double-clicking the Scope window it can be increased. Even areas in the scope window can be highlighted by marking with the "mouse".



**Example:** FlightCtrl display for Nick, Roll, Yaw. To get the scope lines, the FlightCtrl must be inclined in the direction of it's corresponding talk: nick / turn!

# Motortest

To test the function of each Motor, you can use the "Motortest".
To open this Motortest "click" on "Motortest".




The procedure:

- Activate ***Motortest activ***.
- Under ***Address*** choose the Motor to test.
- Give slowly gas with the ***slider***.
- After the Motortest deactivate ***Motortest activ***.

**Attention**: For the test engine, the propeller should be removed. If propellers are mounted, the Kopter can lift of.

# Serial-3D-OSD

## Serial

With the button ***SerialChannels*** the following window opens up. Here you can use and set up more channels.

- To use these additional serial channels, some conditions are necessary.
  - ♦ - The Kopter must be hooked up to the PC/Laptop over an additional connection (Wi232 or Bluetooth)
    - In example: a joystick must be connected to the PC and set up.

- The KopterTool must be open to use the function.

⚠ The serial channels do **not** replace the transmitter! A normal transmitter / receiver must be used anyway.

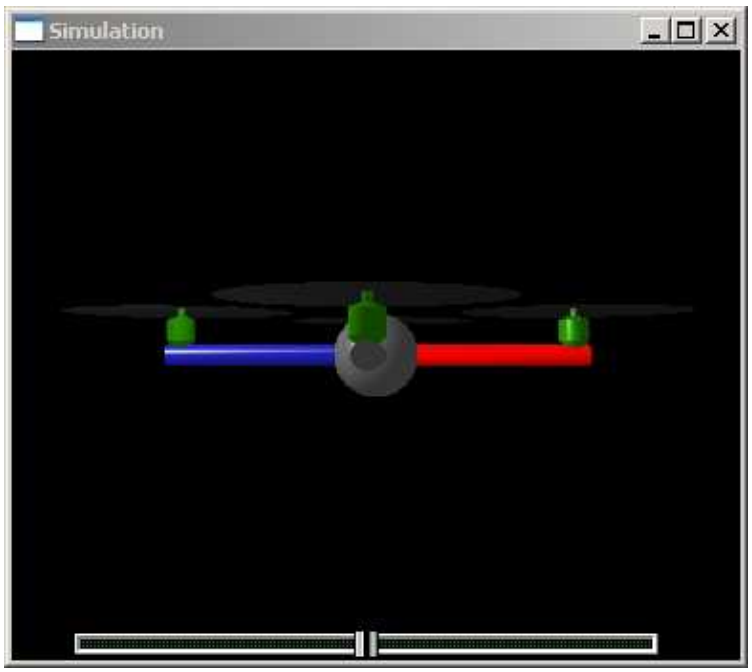
With the button ***SerialChannels*** the following window opens up. Here you can use and set up more channels.

To each channel (Ch1: ... Ch12:) functions can be asigned to the joystick. Those you can choose under ***Axes***, ***Buttons*** or ***POV***.

So that the functions are transferred to the copter it must have a hook at the bottom **"sending the serial channels are active"** to be set.
To each channel now a FUNCTION / POTI can be assigned. This can be done in the Settings: Channels.

## 3D

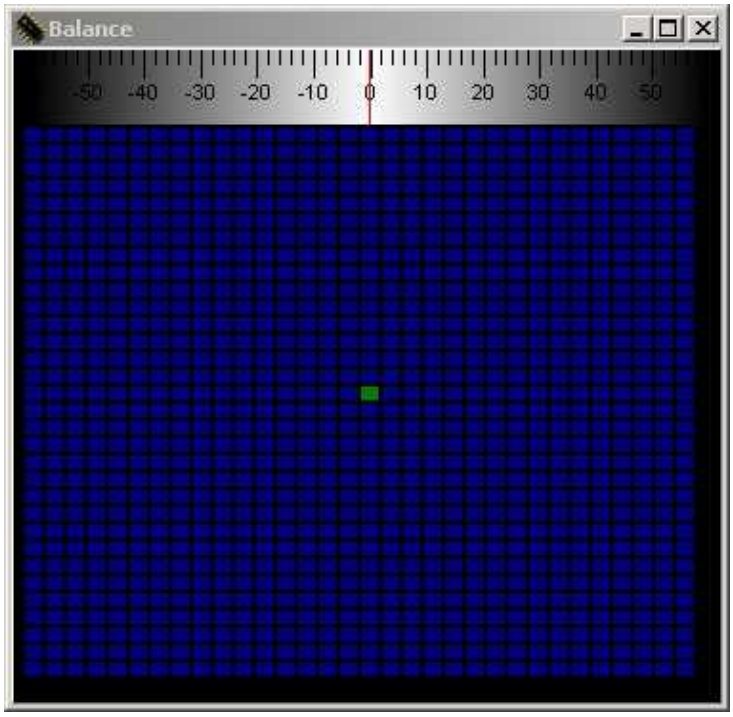
After a click on the **3D Button** the simulation of the Kopter bwill be displayed.



With this function you can display the function of the Gyros visually. The behavior of the 3D-Model is exact the same as the original.
Over the variable regulator underneeth the display you can turn the 3D-Model.
(Info: It is normal if the 3D-display moves very slowly and a little bit jerky into one direction)

## Button FlightCtrl

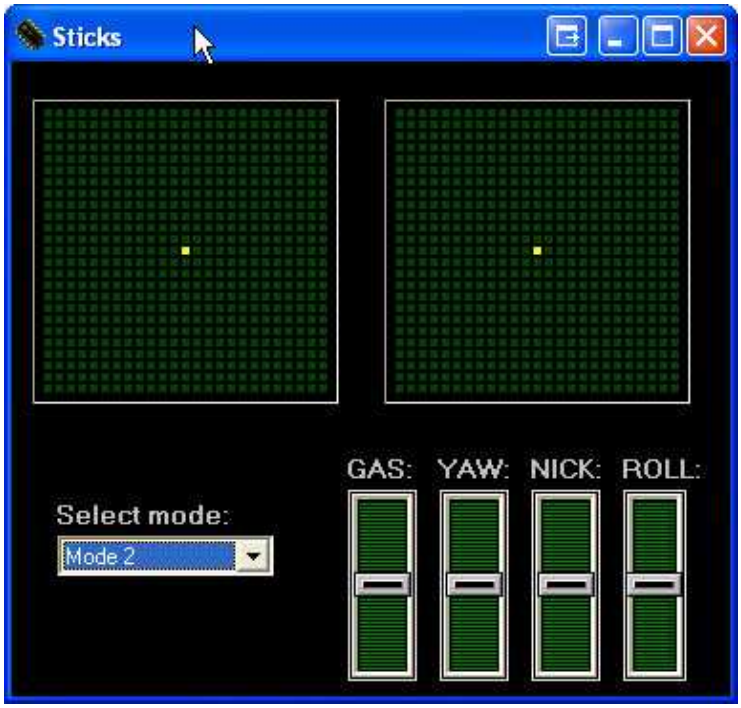
If the button "FlightCtrl" was pushed before the additional balance-display will be shown in the 3D-display.




With the displayed center of gravity you can control while hovering if the Kopter has the center of gravity right in the middle or on a different spot.
To control and to check that you should connect the Kopter with the PC i.e. over a Bluetooth Module or a Wi232.
Throughout an unfavorable assembly of parts it is possible that the center of gravity is not in the middle. Is that the case the dot is moving into the appropriate direction.
Is the center of gravity is not in the middle but pushed into one direction the engines must work with more power to balance the Kopter .
Particularly interesting: Yaw (upper scale). Here you can see if the Kopter wants to yaw still in one direction. That happen if the motors or the frame are not straight assembled.
In that case the Kopter must regulate continuously the direction to be straight. Even here more power is needed and the desired yaw falls more slowly in one direction.

## Button NaviCtrl

If the "NaviCtrl" was pushed before the additional Sticks-display will be shown in the 3D-display.

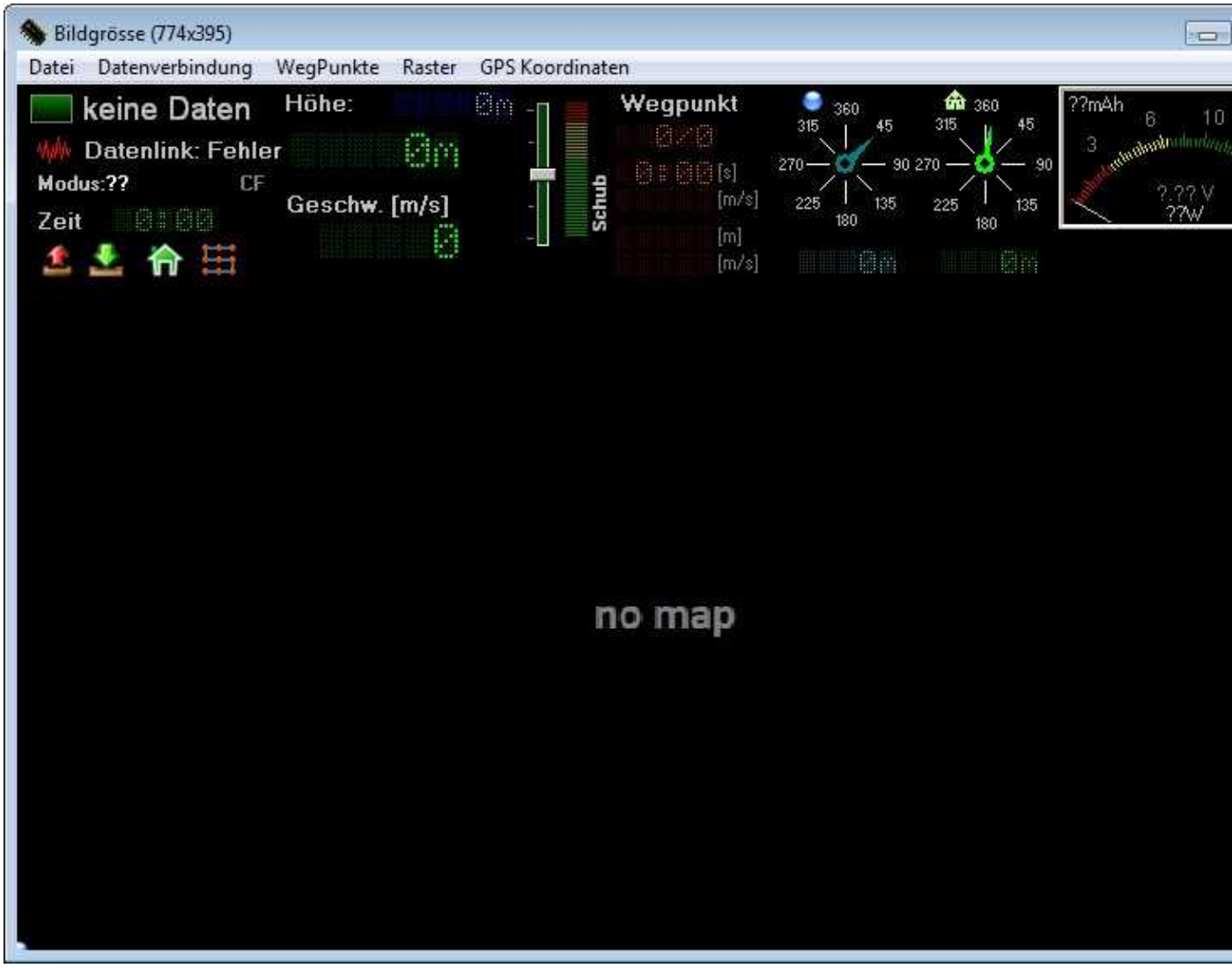



With this display you can check the function and the position of both control-sticks. Here you need to set in the display the used Mode on your transmitter (Mode 1-4).
If you move now the control-sticks you will see the identical movements and peaks in the display.

## OSD

With the **OSD-display** multiple functions can be used.

In the upper display, in example, the height of the Kopter, the speed, battery level, distance to the start point, etc. can be displayed.
In the lower field maps can be loaded. The position of the Kopter can be displayed. Also, waypoints can be entered and the Kopter can fly automatically.


Bildgrösse (774x395)
Datei
Datenverbindung
WegPunkte
Raster
GPS Koordinaten
keine Daten
Datenlink: Fehler
Modus:??
CF
Zeit
Höhe:
Geschw. [m/s]
Schub
Wegpunkt
[s]
[m/s]
[m]
[m/s]
??mAh
no map

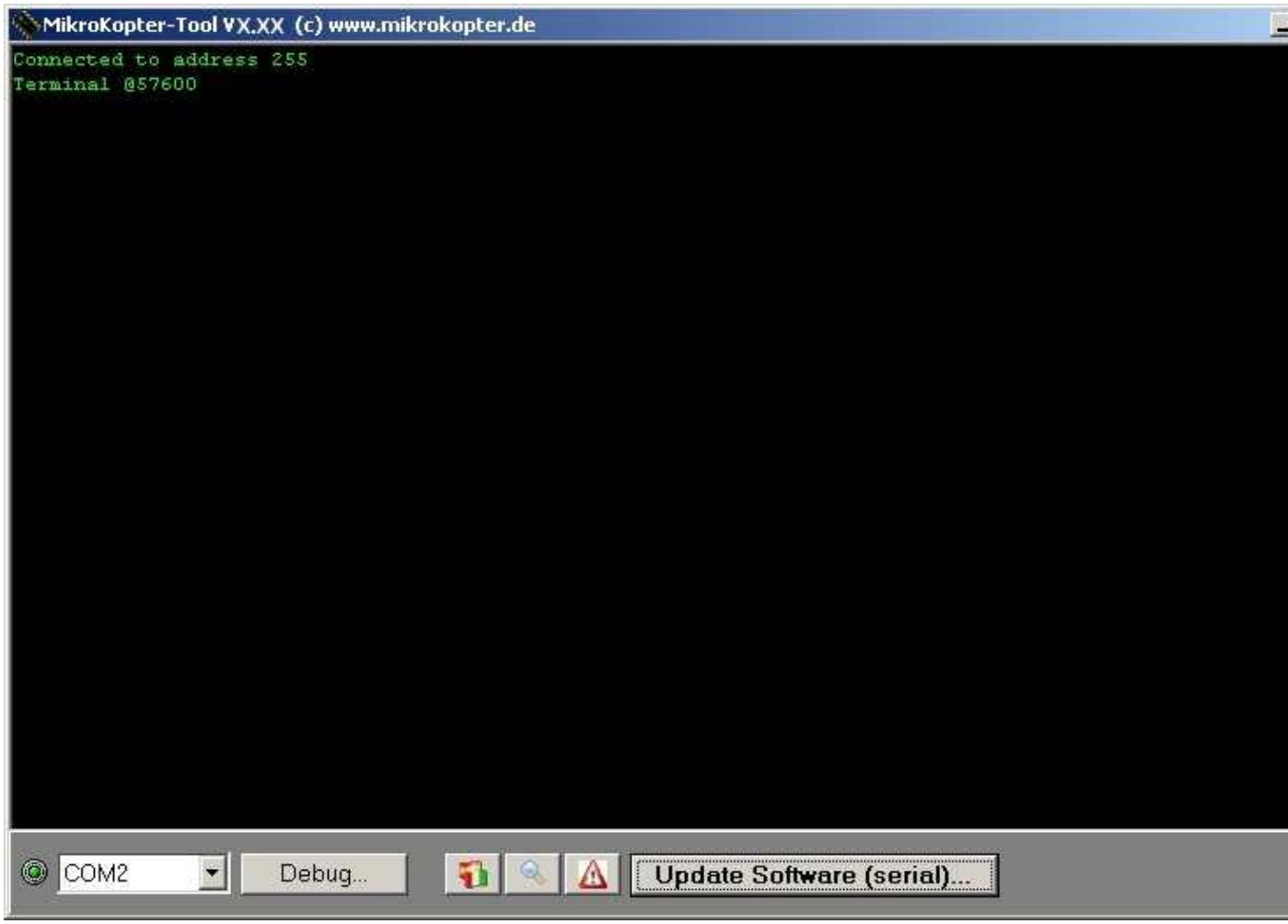
For the on-screen display ( OSD ) a data connection is required for the Kopter. This can be done via Bluetooth or Wi232.
For a waypoint-flight the radius is limited to 250mtr!

**Informations how to use the OSD for e.g. load a map, waypoint setting, POI setting or many other functions can be found here:**
**KopterTool OSD...**

# Terminal-Window

The Terminal Window will open through a click on ***Firmware update & Terminal***.

The Terminal Window.



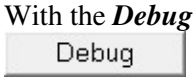
## COM-Port

Here you can set up the COM-Port for the MK-USB.
Only if this is correct set up you will have a connection between the MikroKopter (or individual components) and the KopterTool.

With the green dot on the left side of the COM port, the COM port can be ended and been restarted.
Is the dot green, the COM-PORT is "ON".

## Debug

With the ***Debug*** button you can switch back to the KopterTool Main-Window.




## Choose language

In the first time the KopterTool is set up automatically by the detected PC speech.

If you decide to have a different language for the KopterTool you need to click on the button to set it up.

In the next window that opens you can choose the language you need. With ***Restart*** the KopterTool starts with the new language.

- **More languages**
  In the program directory you will find the language files as "language_XX.dat". (XX = country code) This is a simple text file that can be edited with a text editor. Everyone can even modify the files or translate a new language.

  The format is quite simple:

  ```
  english text = translated text¶
  e.g.¶
  Communication timeout! = Délai de communication trop long¶
  ```

  The best thing is for a new language to use an existing language file, renames it and start the compilation. If there is no translation for a word in the file, it automatically displays the text English.

  Anyone who wants can send us new language files, and in the next release it will be taken over...

## Latest Software download

The latest software for the individual components of the Mikrokopter can be downloaded with the KopterTool.
A click on the loupe opens the necessary window.

**An explaination of the download you will find here:**
**Software Download...**

## Latest Software update

After the actual software is downloaded you can place it into the necessary module (FlightCtrl, NaviCtrl, etc.)
You need to click on the button ***Update Software (serial)...***

**An information about the Update you can find here:**
**Software Update...**

## Reset - EEPROM initializing

To reset the modules (FlightCtrl, NaviCtrl, etc.) back to the standard settings, you can do it on a click of the button with the red triangle.

There are two options for this in the KopterTool:

**Option 1:**

- Each setting has this red triangle. If you "click" on this, only the selected setting and the channel setting reverts to the default settings.

**Option 2:**

- If you open the terminal window and "click" on this red triangle, you will reset all settings to the default setting. Only the channel settings will stay as the are.

- After a "BIG" Software Updates you should initialize the EEPROM like you see in "Option 2". Since this usually have altered much of the default values you should **not** store old settings. Here, the settings should be set more new.

  Of course, then you should calibrate the ACC and the compass once again.

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- KategorieAnleitung KategorieTools