en/MX-20

40

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1 Info

INFO

If you buy the transmitter directly from ***MikroKopter***, all on the transmitter and receiver is already set.

If you buy the transmitter somewhere else you have to to all settings on the transmitter and receiver.

See: Settings

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2 Graupner MC-20 HoTT



(MK-Belegung)

The Graupner MX-20 HoTT is a perfect 12-channel transmitter for the MikroKopter.

Include labeling plates to see where the functions are and ready set you can buy this transmitter in an 'MK-Edition' in our

- Online-Shop.

A suitable setting for the *MikroKopter* can be found under **Download**

The Data:

- 12 channels for switches, buttons and potis
- 2,4GHz transfer technology
- Graupner indicates a range of about 3km (with receiver GR-16 or GR-24)
- Bidirectional communication between transmitter and receiver
- Display of the MikroKopter-Telemetry on the built-in and illuminated LCD
- Language edition of the telemetry values (via connected loudspeaker or head-set)
- 7 switches(2 three-way switches, 3 two-way switches, 2 pushbutton)
- 2 analog Potis
- Built-in DSC-socket for the connection of flight simulators (AeroSim) or a Trainer Mode

3 Download

model memory for MX-20
+ MK-voice file DE/EN

(From Graupner SW version 2v017)



Setting "MK-Easy" for MikroKopter



4 Settings

For "do it yourself" user. In the following steps we show you how to import the model memory in you transmitter and how to bind and set the receiver

How to import the setting in your *MikroKopter* is described here: Import setting (copter)

1.

4.1 Copy model memory + MK-voice file



- In the first step we have to download the model memory, where we already have set all 12 channels for the transmitter and the needed "MK-voice" file for your MikroKopter -> Download

  After we downloaded it we have to unzip the folder and copy model memory and the voice file into the right folders on the microSD-Card (see picture).
  After this id done put the microSD-card back into the transmitter.

2.

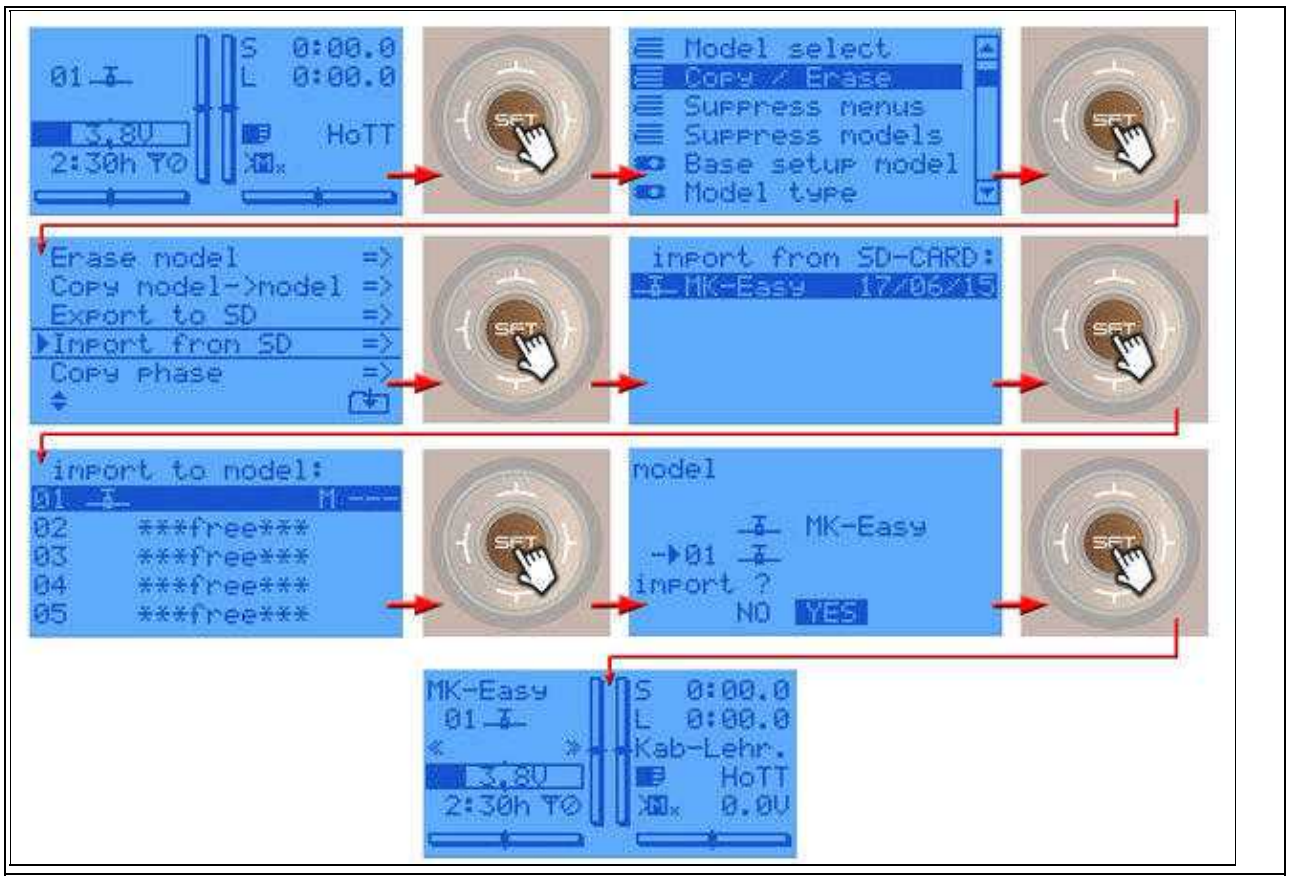
4.2 Import model memory

- In the next step we can import the model memory in the transmitter.

  The steps are:

  - ♦ Switch ON the transmitter
    - ◊ If you see "Please select RF on/off?" -> select "OFF"
  - ♦ With the right "four-way button" select the middle button **SET** to open the Menu
  - ♦ Go down to **Copy/Erase** and press **SET**
  - ♦ Choose **Import from SD** and press **SET**
  - ♦ In the next window select "MK-Easy" and press **SET** again
  - ♦ Under "import to model" select the first place 01 and confirm with **SET**

- We confirm the question "import?" with **YES** and **SET**



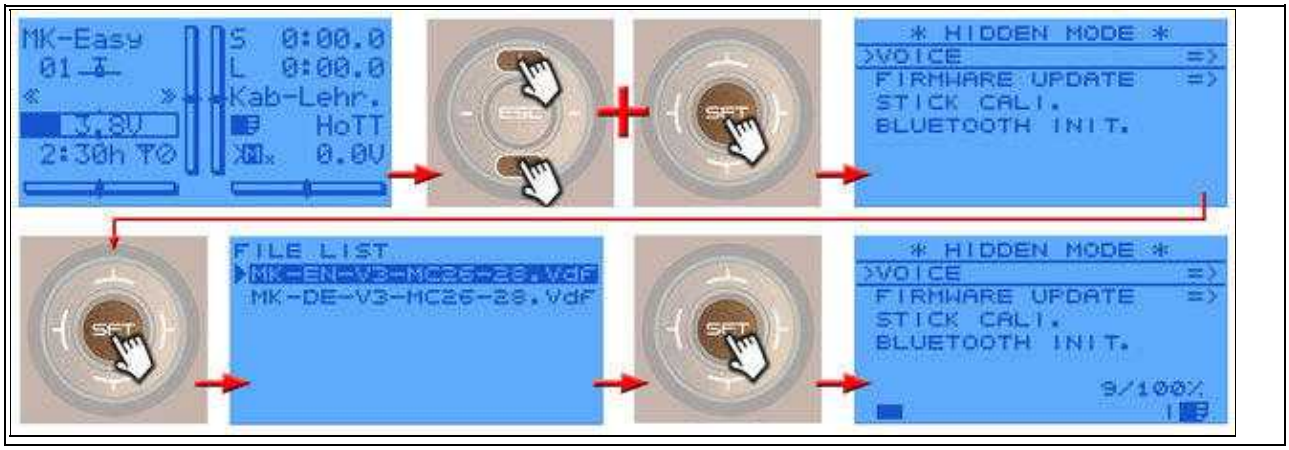
3.

4.3 Import MK-voice file

- Only with the **MK-voice file** you can get the right announce for your MikroKopter via the transmitter

To install the voice file you have to open the "hidden mode":

- On the left "four-way button" (ESC) press the buttons **UP** and **DOWN** at the same time and hold it
- Now press at the right "four-way button" the center button **SET**
- In the "hidden mode" choose **VOICE** and open it with **SET**
- Select the MK-voice file you need (DE/EN) and start the import with **SET**



4.

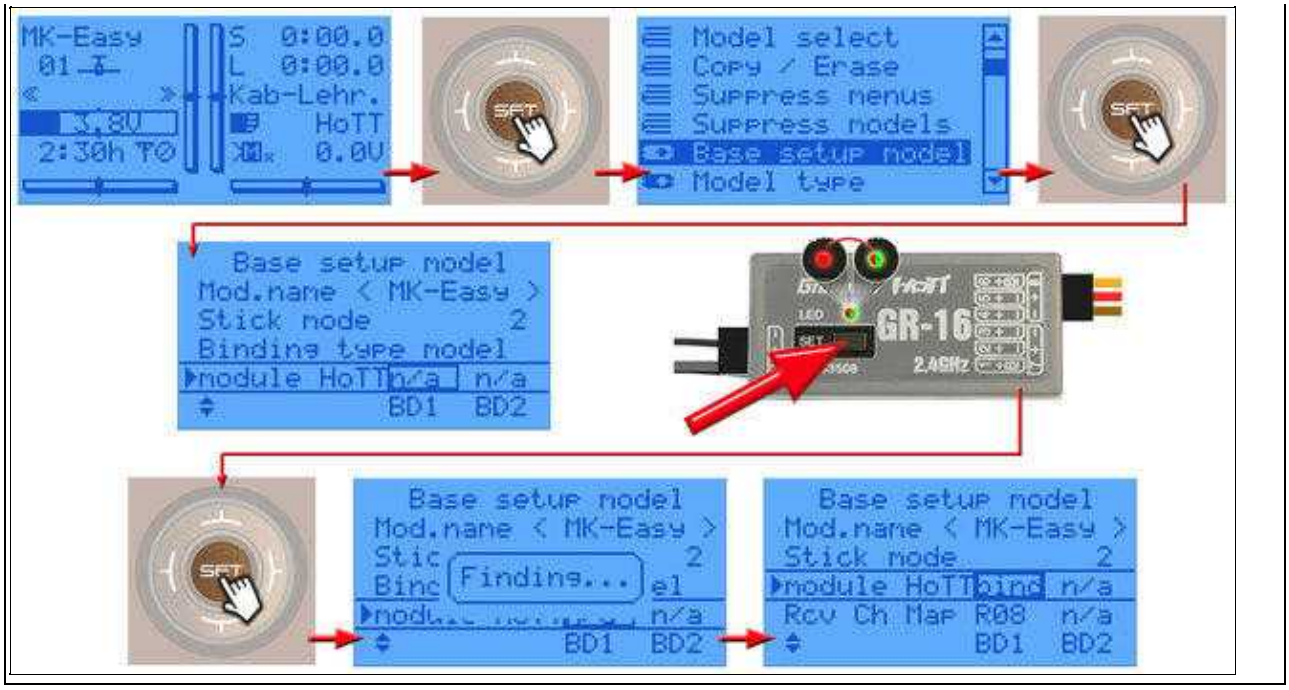
4.4 Bind receiver

- Now we can bind the receiver to the model memory *MK-Easy*.

  To do this the receiver must be connected inthe right way with your copter and the copter must be powered ON with a Lipo.
  (See also: Connect receiver)

  The steps are:

  - ♦ With the right "four-way button" select the middle button **SET** to open the Menu
  - ♦ Go down to **Base setup model** and press **SET**
  - ♦ Go down to "module HoTT" and select the **left n/a**
  - ♦ Now press at the receiver the "SET" button for ~3-4 seconds until the red LED is flashing red/green
  - ♦ Then pres the **SET** button on your transmitter
  - ♦ In the window you see now **Finding...**
  - ♦ When the receiver is properly bound, you see **bind** instead of n/a



- **INFO:**
  The copter will maybe "beep" for the whole time. This will stop when all settings on the receiver are done.

5.

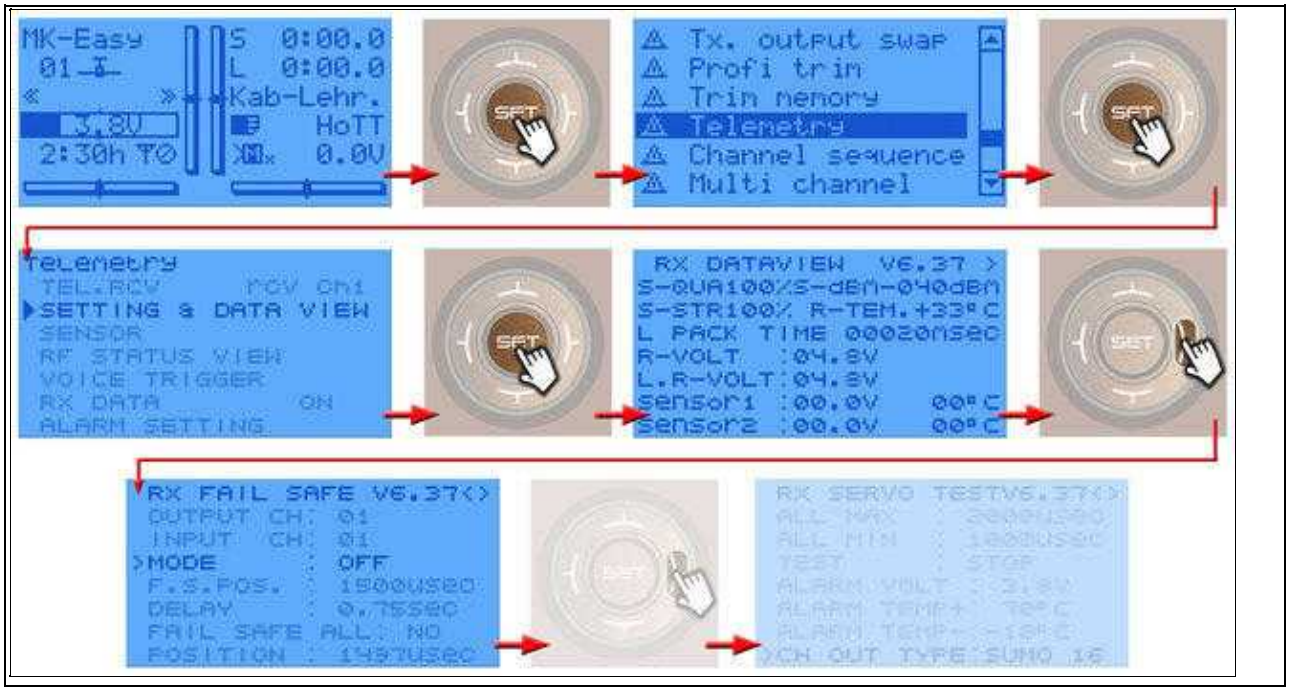
4.5 Deactivate receiver-FS

- In the basic settings the receiver use his own "fail safe". This we have to deactivate.
  (When we not deactivate it and the copter lost the signal, he will fly away with the last received stick positions.)

  That the copter always flies back to the "home position" (when he lost the signal) we have to use the MikroKopter FailSafe.

  To deactivate it we have to do:

  - ♦ With the right "four-way button" select the middle button **SET** to open the Menu
  - ♦ Go down to **Telemetry** and press **SET**
  - ♦ In the telemetry window choose **setting & data view** and press **SET**
  - ♦ In the next menu press the **right** button to open **RX FAIL SAFE**
  - ♦ Here change **MODE** from "HOLD" to **OFF**...



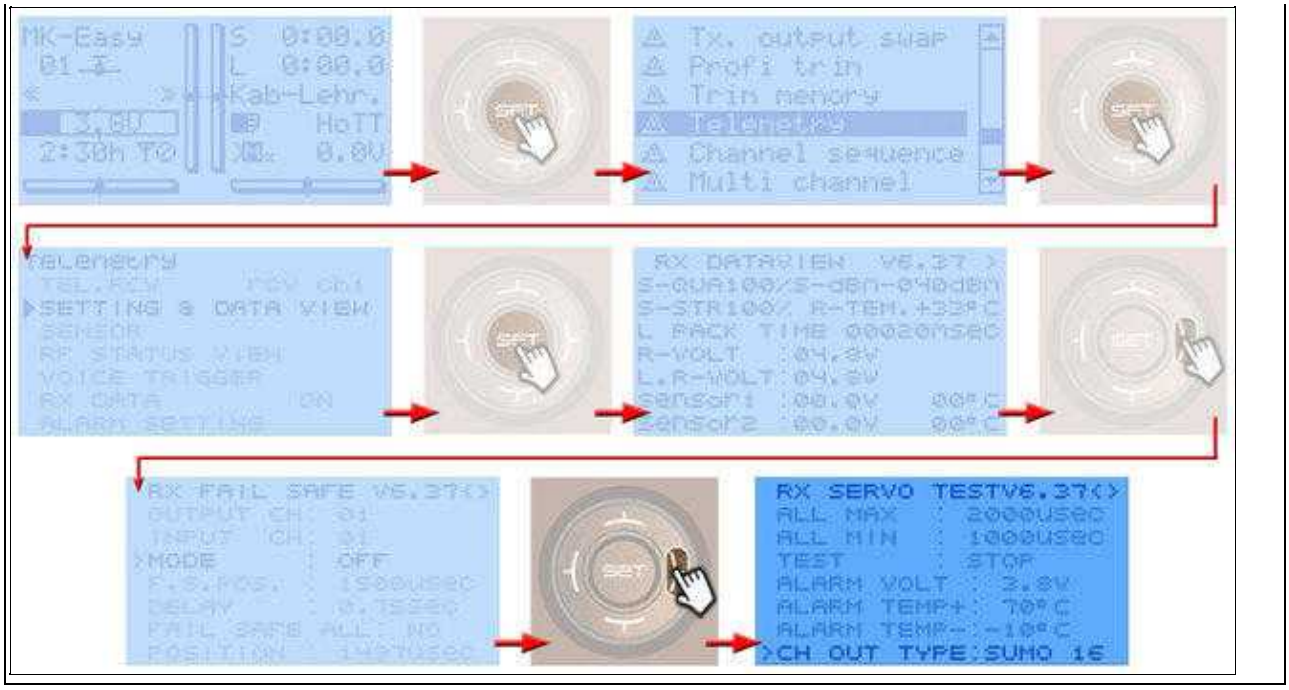
6.

4.6 Activate PPM-Sum signal

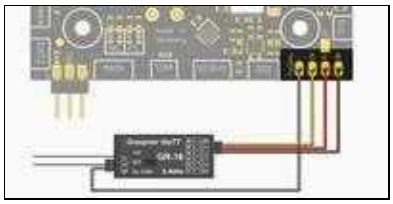
- For the FlightCtrl we need a ppm sum signal. This we can set now.
  As long as this is not set we get fron the copter an error messag ("err7: RC Signal lost") and the copter is beeping the whole time.
  Directly after activating the sum signal the beeping stop and you can use the channels on the copter.

  The steps are:

  - ♦ With the right "four-way button" select the middle button **SET** to open the Menu
  - ♦ Go down to **Telemetry** and press **SET**
  - ♦ In the telemetry window choose **setting & data view** and press **SET**
  - ♦ In the next menu press the **right** button to open **RX SERVO TEST**
  - ♦ Here change **CH OUT TYPE** from "ONCE" to **SUMO 16**...


MX-Easy
Kab-Lehr.
HoTT
Tx. output swap
Profi trim
Trim memory
Telemetry
Channel sequence
Multi channel
SET
Telemetry
SETTING & DATA VIEW
SENSOR
RF STATUS VIEW
VOICE TRIGGER
RX DATA ON
ALARM SETTING
RX DATA VIEW V6.37
RX FAIL SAFE V6.37
OUTPUT CH: 01
INPUT CH: 01
MODE : OFF
DELAY : 0.7SEC
FAIL SAFE ALL NO
POSITION
RX SERVO TEST V6.37
ALL MAX : 2000USEC
ALL MIN : 1000USEC
TEST : STOP
ALARM VOLT : 3.8V
ALARM TEMP+ : 70°C
ALARM TEMP- : -10°C
CH OUT TYPE:SUMO 16

5 Connect receiver



(connect to FlighCtrl V3.0)

The FlightCtrl offers two cables to connect the Graupner HoTT receiver.
The 3-wire PPM-cabel is for the channels and to power up the receiver.
The gray cable is for the telemetry.

You can get different HoTT receivers you can use with the MikroKopter.
Following we describe how to connect the receiver GR-16 and GR-24.
Both receivers can send up to 16 channels via the ppm sum signal.

5.1 Receiver GR-16

The GR-16 HoTT offers 8 servo connections. Via servo out #8 we can get the needed ppm sum signal.
Depending on the used transmitter you can grap here up to 16 channels.
The range is specified by the manufacturer with up to 4000m.

- Connection
  - ♦ Servo out #8 => PPM sum signal (see Activate PPM-Sum signal)
  - ♦ Telemetry connection "T" => Connection for gray cable from FlightCtrl

5.2 Receiver GR-24

The GR-24 HoTT offers 12 servo connections. Via servo out #8 we can get the needed ppm sum signal.
Depending on the used transmitter you can grap here up to 16 channels.
The range is specified by the manufacturer with up to 4000m.

- Connection
  - ♦ Servo out #8 => PPM sum signal (see Activate PPM-Sum signal)
  - ♦ Telemetry connection "T" => Connection for gray cable from FlightCtrl

6 Check function of receiver and channels



If the copter is connected with the computer you can start the KopterTool. With this tool you can check the function of the single channels (under "Channels"). Move a stick, switch etc on your transmitter to see if the channel is acting in the bar.

INFO:

- Choose as receiver *Graupner HoTT*
- Activate "Telemetrie: Speak all events" to hear all messages
- If you move a stick, switch etc., the number above the bar must reach from "0" to "254" and in center position "127"

7 MK Telemetry-Window



In the upper display of your transmitter you can see the MikroKopter-Telemetry. Here you can see:

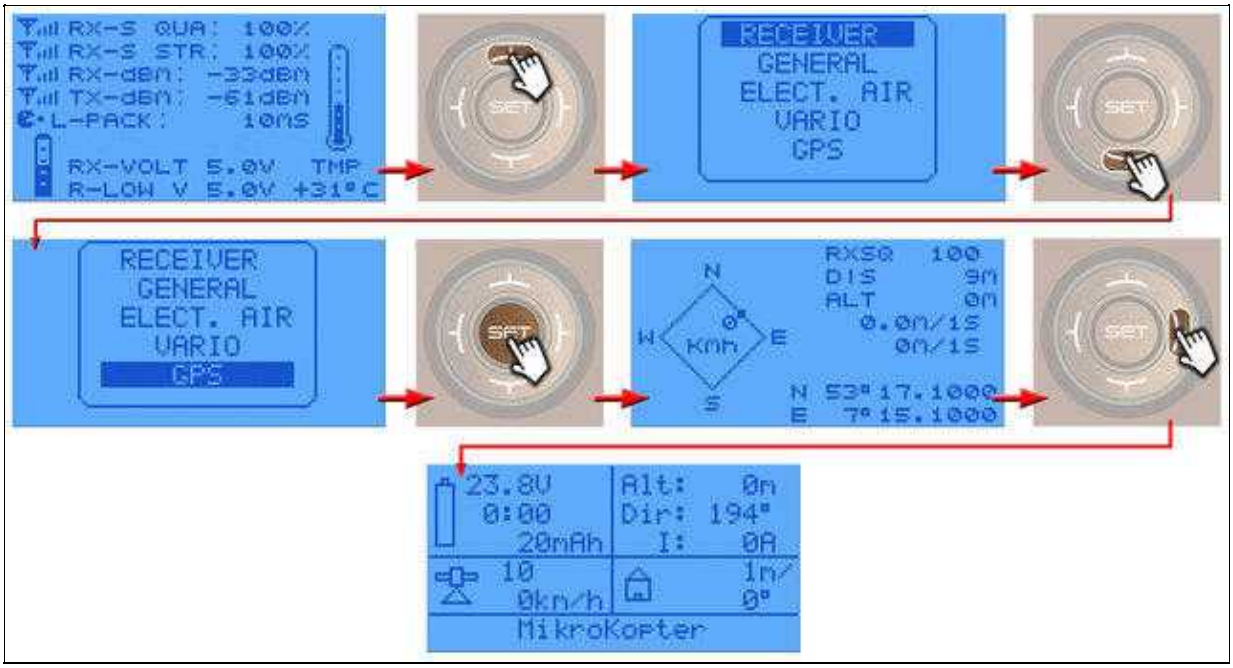
- Top left
  - "V" -> Lipo voltage
  - "0:00" -> Flight time
  - "mAh" -> Already used capacity
- Top right
  - "Alt:" -> Altitude
  - "Dir:" -> Orientation of the copter
  - "I:" -> Current consumption
- Center left
  - Number of reached satellites
  - Airspeed
- Center right
  - Distance to "Homeposition"
  - Direction to "Homeposition"
- Below
  - Status and error messages

If the MK-Telemetrie is not to see in the upper window you can open it as described here:

- With the right "four-way button" select the **upper** button to see the "MK Telemetry-Window"

When you see here a different telemetry window do as described here:

- With the right "four-way button" select the **upper** button again to see the "sensor window"
- Go **'down**' and select the sensor **GPS** and press **SET**
- The Graupner telemetry window is now open
- Pres one time the **right** button to open the "MK-Telemetry"


RX-S QUA: 100%
RX-S STR: 100%
RX-dBm: -33dBm
TX-dBm: -61dBm
L-PACK: 10ms
RX-VOLT 5.0V TMP
R-LOW V 5.0V +31°C
SET
RECEIVER
GENERAL
ELECT. AIR
VARIO
GPS
RECEIVER
GENERAL
ELECT. AIR
VARIO
GPS
SET
N
W
E
S
0°
KMH
RXSQ 100
DIS 9M
ALT 0M
0.0M/1S
0M/1S
N 53° 17.1000
E 7° 15.1000
23.8V
0:00
20mAh
Alt: 0m
Dir: 194°
I: 0A
10
0km/h
1M/
0°
MikroKopter

8 Text-Telemetry

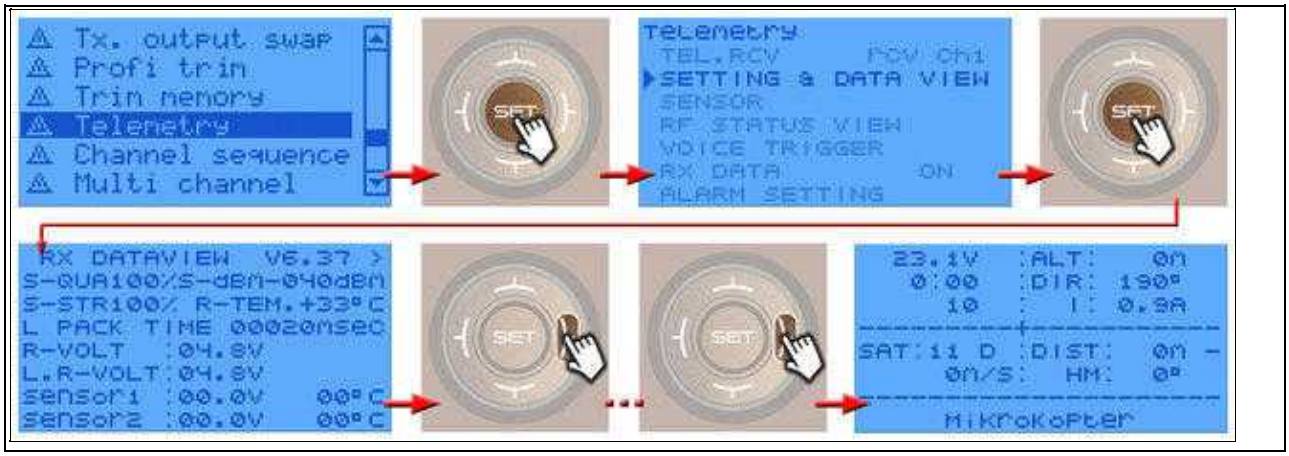


Please note:
If the *Text-Telemetry* is active there is no voice output and the logging is interrupted!

The "Text telemetry" can be opened via the menu "Telemetry".
In this window you can see more informationsHierüber können mehr Telemetriewerte abgefragt werden.

- Top left
  - "V" -> Lipo voltage
  - "0:00" -> Flight time
  - "10" -> Already used capacity
- Top right
  - "Alt:" ->Altitude
  - "Dir:" -> Orientation of the copter
  - "I:" -> Current consumption
- Center left
  - "SAT" -> Number of reached satellites
  - "m/S" -> airspeed
- Center right
  - "DIST:" -> Distance to "Homeposition"
  - "HM:" -> Direction to "Homeposition"
- Below
  - Status and error messages

- How to open it:
  - With the right "four-way button" select the middle button **SET** to open the Menu
  - Go down to **Telemetry** and press **SET**
  - In the telemetry window choose **setting & data view** and press **SET**
  - In the next menu press the **right** button until you see the "Text-telemetry"



If the Text-Telemetry is open you can see more telemetry windows.
To see this windows "click" the Button "left".



9 Telemetry - additional Info

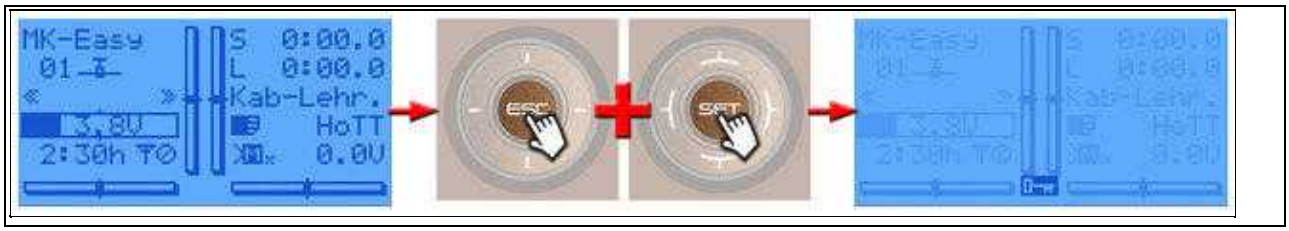
In addition to the described telemetry display you can see some additional information / symbols.

These are as follows:

- '-' = No GPS fix
- '/' = off
- '?' = Coming home, but home Position unknown (goes to PH then)
- 'H' = Coming home
- 'W' = Flying Waypoints
- 'D' = Dynamic Position Hold
- 'P' = Position Hold
- 'm' = Manual controlled
- 'M' = Manual controlled => Display after starting the engines when the copter is still on the ground

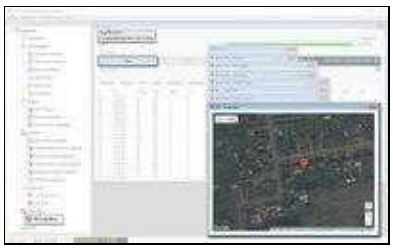
10 Lock the four-way-buttons

Wit´h the "four-way-buttons" you can change the displays or open the transmitter menu. When you will not do this you can lock the buttons.
To lock the buttons press the buttons SET and ESC at the same time. You hear then a beep from the transmitter and in the
lower display a key symbol. To unlock the buttons press SET and ESC again at the same time.



11 Logfile in the transmitter





The telemetry data of the transmitter and also the position data of the copter are stored
on a sd card in the transmitter.
The recording of this data will start with starting of the "flight timer". With our model memory "MK-Easy" this will start automatically when you start the copter (see picture).

Just in case you would loose your copter you can see the last position in this LOG.

In this case you can remove the card from your transmitter and put them in the computer. With the Graupner "*PC Software*" you can open the LOG and see the last position of the copter.

Download: Firmware Upgrade grStudio

!!! IMPORTANT: If your copter will fly away NEVER switch off the transmitter !!!

As long as telemetry data from the Kopter are received, the flight route = position of the Kopter can be followed.

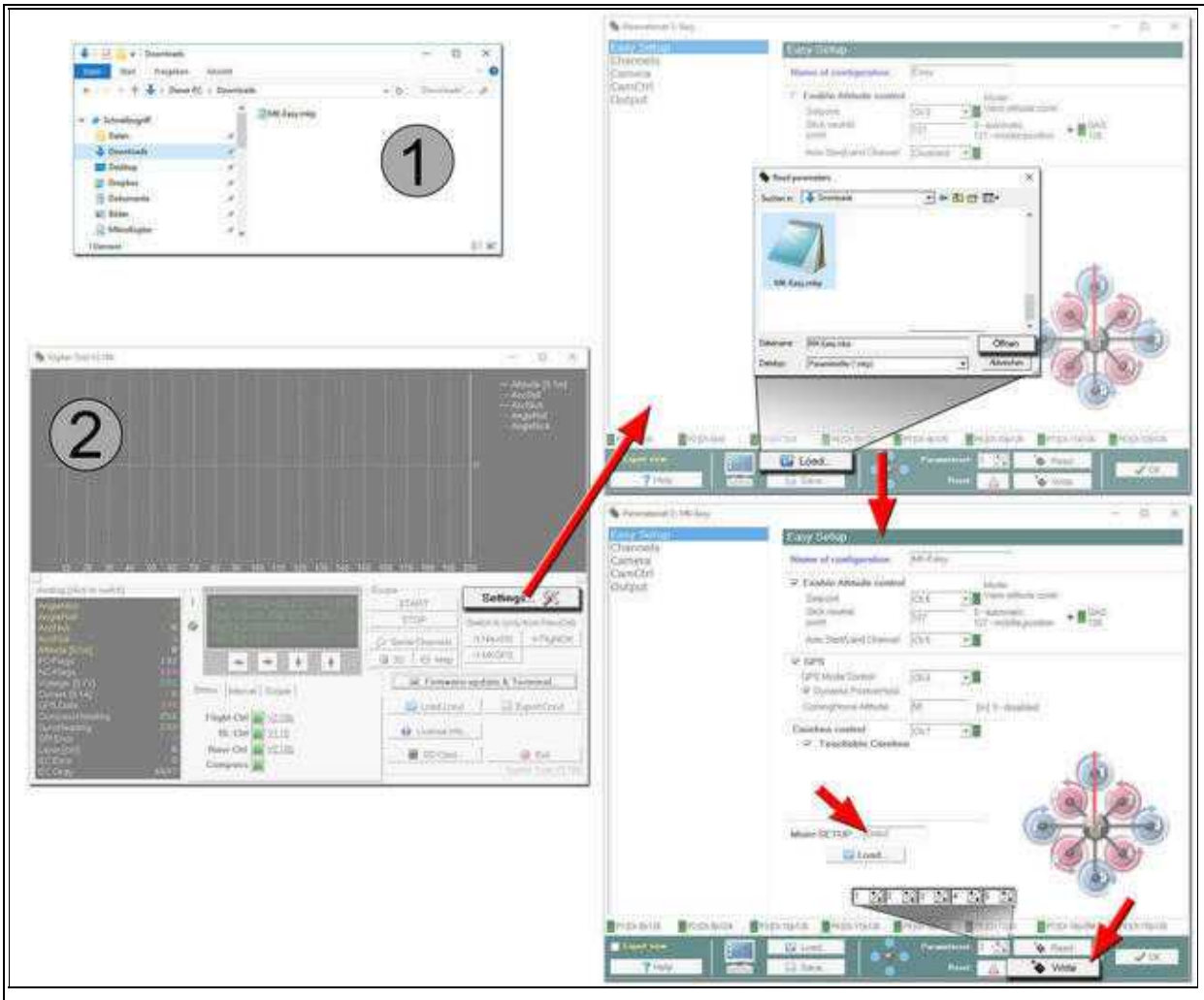
12 Import setting (copter)

The setting is adapted to the model memory of the transmitter. So you can start directly with your MikroKopter and have not to do the settings manually.

The single steps are:

- Download the MK-Setting (Download)
- Connect your MikroKopter with your Computer
- Start the MikroKopter-Tool and open the *Settings*
- Via the button *Load* you can open the setting *MK-Easy*
- The settings are now automatically set and you can see the changes
- If not done -> Choose the right copter type in the *MixerSETUP*
- Now save this setting with the button *Write* in your copter

  (Do the same for all five storage locations in copter)



INFO

If the copter is new and this is the first setup you have also to calibrate the

- ACC (Link)

and the

- Compass (Link)