en/MKGPS-V3

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1 MKGPS V3

The MKGPS V3 is a new GPS-Receiver for the Mikrokopter. It can receive and evaluate in parallel also the Russian GLONASS or the Chinese BeiDou satellite system in addition to the usual American GPS satellites. This increases, particularly in areas with inadequate GPS coverage or signal shading (mountains, high-rise buildings), the satellites availability for navigation, considerably.
For suppressing external interference sources (such as video transmitter), the GPS receiver has been equipped with an RF preamplifier and a high-frequency SAW filter.
(**INFO:** MKGPS V3 can be used since software version V2.08 for FlightCtrl and NaviCtrl => Download)

Together with a NaviCtrl:

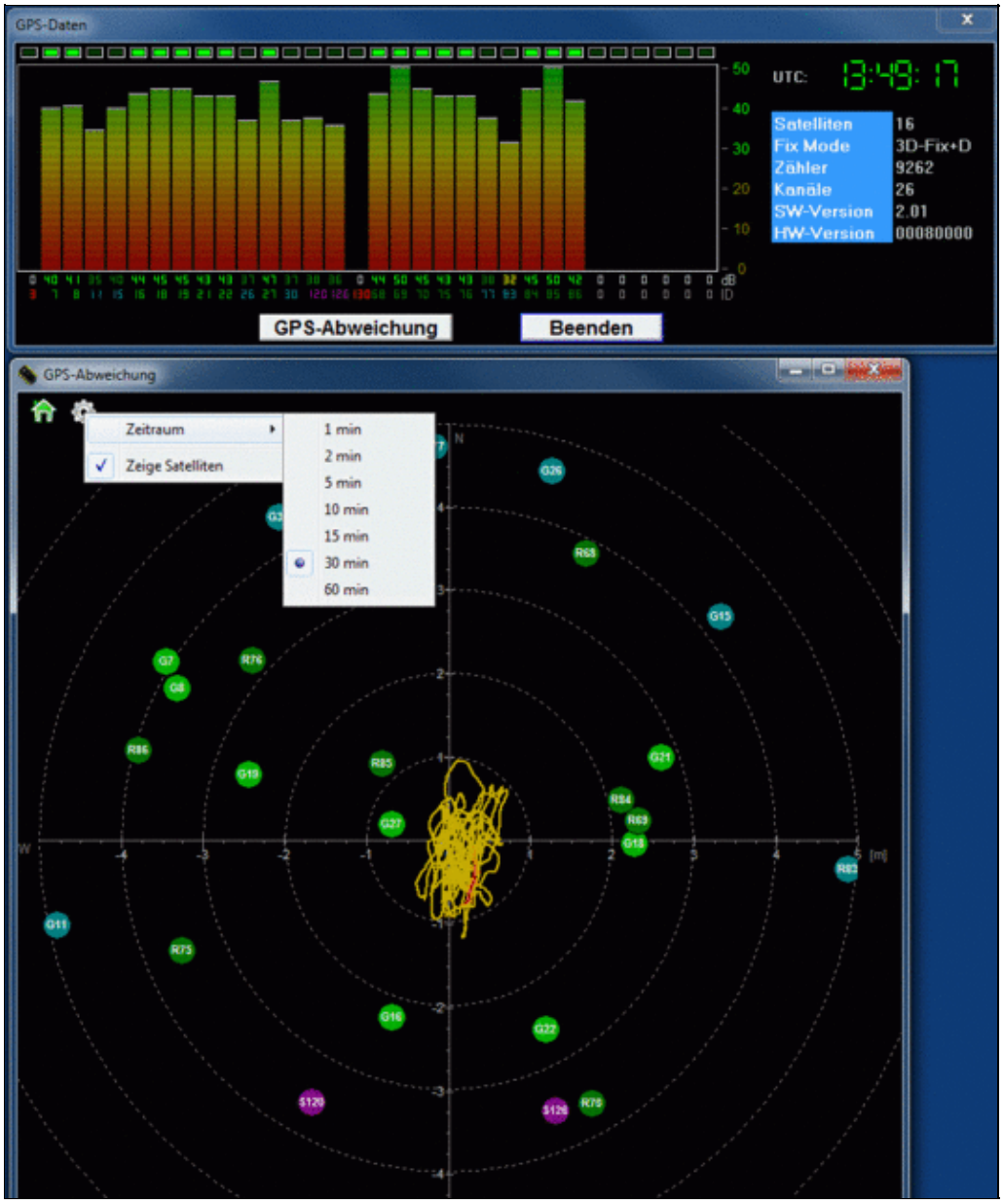
- the position can be held (Position-Hold or PH)
- it can be flown back to the start point (Coming Home or CH)
- heading to WayPoints (Waypoints)
- the flight route can be logged on SD card
- the actual position can be displayed on the 'OSD'-Map in the KopterTool
- distance and speed can be displayed in the Graupner HoTT-Telemetry
- the camera can be focused to a specific point: PointOfInterest (POI)

2 Video: Assembling Set Navigation

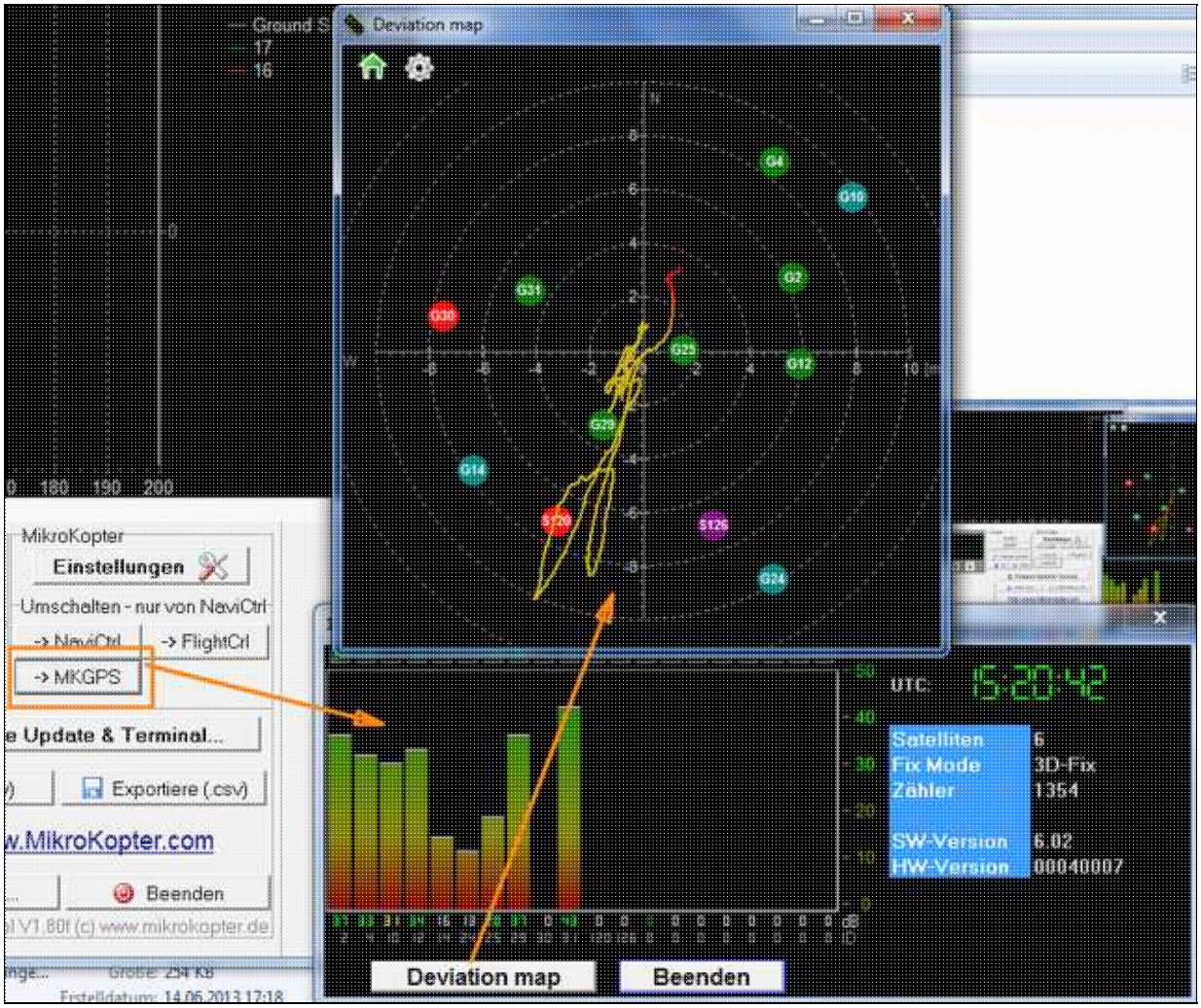
3 Features

3.1 Glonass / BeiDou

The main difference to the old MK GPS V2 is, that besides **GPS** the Russian system **Glonass** and the Chinese **Beidou** system are also supported. In this way a much higher satellite coverage is guaranteed. Especially in areas without adequate GPS coverage (i.e. in valleys), it brings significant improvements.



3.2 GPS Info


Deviation map
MikroKopter
Einstellungen
Umschalten - nur von NaviCtrl
-> NaviCtrl
-> FlightCtrl
-> MKGPS
e Update & Terminal...
Exportiere (.csv)
w.MikroKopter.com
Beenden
UTC
15:20:42
Satelliten 6
Fix Mode 3D-Fix
Zähler 1354
SW-Version 6.02
HW-Version 00040007
Deviation map
Beenden

Via the Koptertool can be displayed:

- the actual GPS divergency (MK need to stand on the ground)
  - ♦ the center position can be moved by right-clicking
- the current signal strength of the satellites
  (Note: outside, at least one satellite should have 50dB signal strength.
  A GPS-Shield is recommended for a better reception.)
- Position of the satellites in the sky:
  - ♦ light-green satellites: Sat. is used with SBAS-correction data for the navigation
  - ♦ dark-green satellites: Sat. is used without SBAS-correction data for the navigation
  - ♦ turquoise satellites: Sat. is not used yet for navigation
  - ♦ red satellites: signal is bad or Sat. is not useable
  - ♦ lila satellites: transmits SBAS-correction data

GPS Navigation-Satellites have the letter "G", SBAS-Satellites "S".
The number is the ID of the satellite (PRN Code).
Details about the satellite is also be shown by moving the mouse over the satellite.

Note: If that is in use, the KopterTool directly accesses the GPS module and the NaviCtrl reports "Error: No GPS Communication"

3.3 Amplifier with SAW Filter

The receiver has been equipped with an RF preamplifier and a high-frequency SAW filter. This filters interferences from video transmitter.

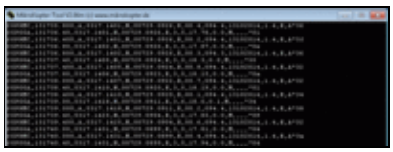
3.4 External Compass

You can glue the external compass from below into the module - the appropriate spot is intended.

4 NMEA

Since the software version 2.00a for the NaviCtrl the **NMEA** format also can be given via the Ublox module. (i.e. for cameras with data-logging)
The data can be taken via the *Debug* connection PIN9 at the NaviCtrl.

IMPORTANT: Only with a plugged in microSD-card (max. 2GB / FAT16) into the NaviCtrl the NMEA data can be used.
A file "settings.ini" will be automatically created from the NaviCtr, that provides the required parameter.
If a microSD-card has been already used in the NaviCtrl, the existing Settings.ini **must** be deleted after a software update, so that a new one can be created with the required parameter.



See also:

- http://www.kowoma.de/gps/zusatzerklaerungen/NMEA.htm
- http://aprs.gids.nl/nmea/

- KategorieMK-Baugruppe/de

LED Status	
CAM or **EXT1** or **EXT2**	**Ereignis**
	Schaltausgang nicht aktiv
	Schaltausgang aktiv