










Catalogue for accessories for drones of microdrones

**Exclusive accessories
for users of drones
from microdrones**

This information is supplied without liability.

Overview

<p>Mobile basestation „Multicontrol“</p> <p>With video receiver and realtime computer analysis of telemetry data</p>	
<p>Camera mount Gravity forced, damped, with servo for tilt</p> <p>Connectionset For trigger and video</p>	
<p>Cameras</p> <p>With microprocessed trigger, prepared for microdrones camera mount</p>	
<p>LiPo charger</p> <ul style="list-style-type: none"> • LiPo-charger „profi“ • LiPo-charger „standard“ • Spower supply <p>Ready for microdrones LiPos</p>	
<p>Software</p> <ul style="list-style-type: none"> • DFA – DroneFlightAnalysis • Geotagging • Waypointnavigation 	
<p>Video receive station</p> <p>For a beamer for example.</p>	
<p>Video cable</p> <p>For cameras with mini-USB-out</p>	

Mobile basestation „Multicontrol“



Mobile basestation „Multicontrol“

With this mobile basestation you can change your own position during the flight without losing the control of video and telemetry data.

Time saving

Save time for install and remove.

High flexibility

You reach effortlessly every place of action, you can change easily your position.

High safe

With the earphones you hear important hints, the telemetry data are every time in range of vision.

Optimum results

The videostream is displaying on a big monitor or on videoglasses.



Multicontrol

A basestation with many advantages

- everytime mobile, also in hard terrain easy-use
- walking with the drone without loose the control
- comfortable and precious handling of sticks
- high-quality video antenna for best receive quality
- monitor with possibility to record the videostream
- possibility to connect more videoequipment
- high wearing comfort with braces
- power supply with a MD-battery (battery not included)
- computer "onboard"

all important telemetry data on PDA-display
acoustic messages of critical and useful values =>
also perspicuous by loud noises
it's possible to fly home if the drone is out of sight
recorded log-file is compatible with "md-cockpit"



Onboard computer (PDA)

Scope of delivery

- **Chassis** with video receiver, video antenna, holder for monitor and PDA, three video outputs, led-voltmeter, holder for crossbelt
- **Monitor** 5,6", 4:3
- **PDA** with software for analysing und displaying of telemetry data
- **Videoglasses**
- **Case**



Mount “Photo”

For example for Olympus E-P1, E-P2 or Panasonic GF1 or Sony NEX-5
(only available for MD4-1000)



The mount is controlled by gravity force. It balanced 2 axis. Damper prevents swing up. The damper will be fitted for the weight of the camera.

With the servo the pilot can set the camera tilt. The automatic tilt correction of the drone have to be set off. The servo can placed on the left or on the right.

Mount “SLR”

For example for Canon EOS 550D
(only available for MD4-1000)



The mount is controlled by gravity force. It balanced 2 axis. Damper prevents swing up. The damper will be fitted for the weight of the camera.

With the servo the pilot can set the camera tilt. The automatic tilt correction of the drone have to be set off. The servo can placed on the left or on the right.

Mount “Video”

For example for Sony HDR-CX305
(only available for MD4-1000)



The mount is controlled by gravity force. It balanced 2 axis. Damper prevents swing up. The damper will be fitted for the weight of the camera.

With the servo the pilot can set the camera tilt. The automatic tilt correction of the drone have to be set off. The servo can placed on the left or on the right.

Connectionset for several cameras

We can deliver a connectionset for several cameras (if possible) to trigger the cam and to transmit the video signal.



Camera Sigma DP1/DP2



The Sigma DP1/DP2 is the Queen of compact cameras. It is the first compact camera with a chip of an SLR.

Sigma use a special, new sensor concept. They arranged the separate colorpixel not side by side, they arranged them among themselves. So the impression of a picture is extrem naturally.

The objective also reaches the quality standard of SLR-class. Picture mistakes are nignligible.

If you want the best quality you have to use Sigma DP1/DP2.

Normally the weight of the camera is too high to use it with MD4-200. We reduce the weight to 200 g (DP2: 217 g).

Highlights

- Sigma Foveon chip
- Up to 14 MPixel resolution
- Recording in RAW-Format possible
- Focal length DP1: 28 mm fix, DP2: 41 mm fix (calculated)
- Weight DP1: 200 g, DP2: 217 g incl. additional components
- Very high quality objektive

To use this camera with the drone we offer a modification with following features:

- Waste components are removed (display, flasher, batteryholder, other parts)
- The trigger is controlled with an additional microprocessor
- The camera gets power from the drone
- We fix a toothed wheel and an axis to put the camera into the microdrones Pentax holder
- Optional we can fix the objektive and remove the infraredfilter

You have to modify some things to the cameraholder. Ask for details. To connect the camera with the drone you only have to plug the two connectors.

Common data

- Weight DP1: 200 g, DP2: 217 g (modified)
- Focal length DP1: fix 28 mm, DP2: 41 mm fix
- Light sensitivity DP1: 4,0, DP2: 2,8
- SDHC memory card support (8 GB and more are possible)
- Gauge: 11,3 x 6,0 x 5,0 (cm)

Photo

- Up to 14 MPixel
- Formats: 3:2

Video

- 320x240 with 30 P/s

Camera Canon S95



The Canon S95 contains the newest technology of chips from Canon: lownoise and light intensity. It takes very good pictures with 10 MPixel resolution with a high light intensity objective. It is very fast. You can get up to one picture per second.

Highlights

- Recording in RAW-Format possible
- 10 MPixel resolution
- Focal length at beginning: 28 mm
- High light intensity objective
- Weight of 200 g (or if you want 147 g weightreduced)
- Optical stabilizer
- Video function

To use this camera with the drone we offer a modification with following features:

- The trigger is controlled with an additional microprocessor.
- We fix a toothed wheel and an axis to put the camera into the microdrones Pentax holder.

Common data

- Weight: 200 g (or if you want 147 g weightreduced)
- Focal length at beginning: 28 mm
- Light intensity: 2,0 to 4,9
- SDHC memory card support (8 GB and more are possible)
- Gauge: 10,0 x 5,8 x 3,1 (cm)

Photo

- 10 MPixel
- RAW Mode
- eff. up to 3 picture per second
- Optical stabilizer

Video

- 640 x 480 30 Bilder/Sekunde

LiPo-charger “profi” with discharge



With this professional charger you can charge, discharge and refresh 2 LiPo batteries in the same time. You can analyse on PC-diagrams each cell into the Lipo to evaluate the state of the battery.

- charges / discharges Li-, Ni- und Pb-batteries
- a wide range of power supply: 10...25 V
- menu in english or german
- software-updates available
- a big, graphical display with a resolution of 128 x 64 pixel
- integrated power boost balancer with high precision
- safe of wrong connection
- user defined presets to use it easily
- display of cell voltage and of difference to the best cell

Prepared for LiPo-batteries of microdrones.

Interfaces

- 5 V-SIO

Types of batteries

- Ni-Cd
- Ni-MH
- Pb
- Li-FePo4
- Li-Ion
- Li-Po

LiPo-charger „standard“

With this charger with integrated balancer you can charge microdrones-LiPo-batteries. You have to connect a power supply 12-15 V, 6 A.

The using is extrem simple: Connect LiPo-battery, connect power supply, wait.



Power supply

With this power supply you can supply the charger for LiPo-batteries: Input: 240 V, output: 13,8 V, 20 A.



Software „DFA“ - DroneFlightAnalysis

Powerful PC-software to manage and analyse flightrecordings

New: With **geotagging** (add geoinformations of the flightrecordings to the pictures)

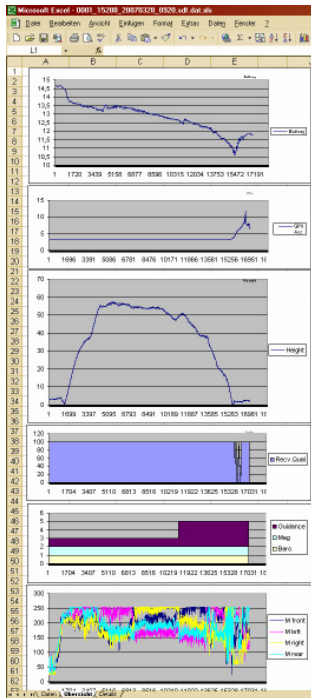
Highlights

- Well arranged and simple to use
- Limitation to important values
- Easy find of defined flights
- Fast cognition of system and user faults
- Analysing of flights in GoogleEarth and Excel
- Geotagging: add geoinformations to the pictures

Managing: List of flightrecordings

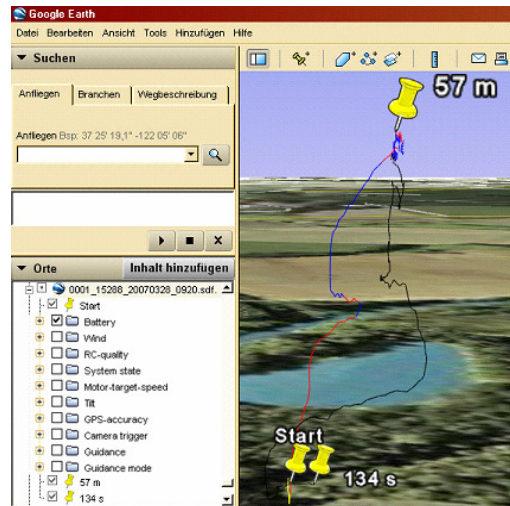
- List of all flights
- Indication of critical values
- Displaying of important maximum values
- Possibility of comments
- Directly start of GoogleEarth
- Directly start of Exceldiagrams

ID	Drohne/Flug	Datum	Uhrzeit	GPS-N	GPS-E	GPS Genauigkeit	Dauer	GM	Akku Start	Akku Min	Höhe Max	RC Ausfall	Temp. Max	Lage Max	Mag/Baro	Bemerkung	
14	0014 16560							13	RC	16,57V	16,57V	2 m	0	25 °C	1	OK	
2	0012 47062	2007-04-27	08:30:55	47,42251	8,36445	6,2 m	12	PH	16,34V	15,93V	1 m	0	26 °C	4	OK	Schneid	
15	0010 00050	2007-06-29	08:42:55	50,53310	8,02932	5,1 m	314	WP	16,28V	14,27V	11 m	0	20 °C	36	OK		
3	0010 00051	2007-06-29	07:45:29	53,10520	8,45039	3,0 m	4	PH	16,61V	16,43V	0 m	0	22 °C	3	OK	Grünberg	
4	0010 00053	2007-07-02	09:17:05	52,92774	8,11312	2,6 m	29	PH	16,16V	15,92V	3 m	0	24 °C	32	OK	Akku Nr. 5	
5	0010 00081	2007-07-19	07:52:55	50,64975	6,80204	3,6 m	29	PH	16,71V	16,30V	0 m	22	26 °C	3	OK		
6	0010 00104	2007-07-25	07:48:36	50,69775	6,88004	18,6 m	5	RC	15,39V	15,27V	0 m	0	22 °C	2	OK	Fischteich	
7	0001 15288	2007-03-28	09:28:24	52,91340	8,42593	11,5 m	194	PH	14,53V	10,52V	57 m	4	24 °C	17	OK	Waldsee	
8	0010 00191	2007-08-08	16:13:04	52,45384	14,0456	2,7 m	5	PH	15,93V	15,24V	0 m	0	25 °C	7	OK		
9	0010 00200	2007-08-17	09:40:00	51,51357	6,95663	14,8 m	3	RC	16,65V	16,57V	0 m	0	22 °C	2	OK	Auftag Spencer	
1	0010 xxxxx	2007-08-01	13:58:52			5,2 m	676	EL	16,44V	13,88V	108 m	1	36 °C	25	OK	Nähe Flughafen	
10	0023 00039	2007-08-23	08:30:40	62,37349	8,90719	2,3 m	7	PH	16,14V	15,69V	0 m	0	21 °C	4	OK		
11	0023 00094	2007-11-04	11:49:50	53,46079	9,84368	3,1 m	23	PH	16,76V	16,65V	0 m	0	42 °C	5	OK		
12	0023 00101	2007-12-12	12:27:42	53,07049	8,59646	4,9 m	30	PH	16,65V	16,38V	1 m	0	11 °C	3	OK		
13	0023 00120						8	RC	16,89V	16,34V	1 m	0	9 °C	1	Mag		



Analysis: Exceldiagrams

- Displaying of important values in a list and in a diagram
- Sheets for an overview, detailview and listview
- Hints to check the diagrams



Analysis: GoogleEarth

- 3D displaying of the flightpath
- Using colors to see detailed values into the flightpath
- Displaying height, duration, start and endposition

Geotagging

- Putting of geoinformations of the flightrecord to the pictures
- GPS-position, height, direction of view, GPS-time/date, GPS-accuracy.

Feld	Inhalt
GPS-Tag-Version	Version 2.2
nördl. oder südl. Breite	Nördliche Breite
Geografische Breite	53° 06' 33.0444"
östl. oder westl. Länge	Östliche Länge
Geografische Länge	8° 27' 01.37448"
Höhe	24 m
GPS-Zeit (Atomuhr)	08:37:04 UTC
Messgenauigkeit	1,909
Bildrichtung	138°
GPS Datum	2008-11-22 UTC

Software „Geotagging“

Geotagging is a function of DFA - DroneFlightAnalysis.

Put flightinformations like GPS-position, flightheight, viewangle, GPS-timecode, GPS-accuracy into the metadata of the taken pictures. You can use it for new pictures or for older pictures. Read more about this in the chapter "DFA – DroneFlightAnalysis“.

Waypointnavigation

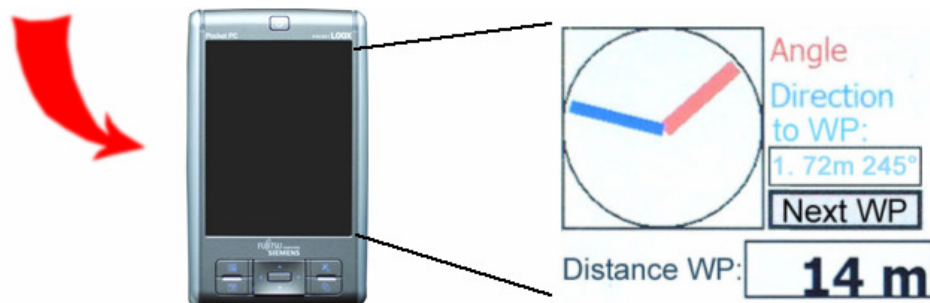
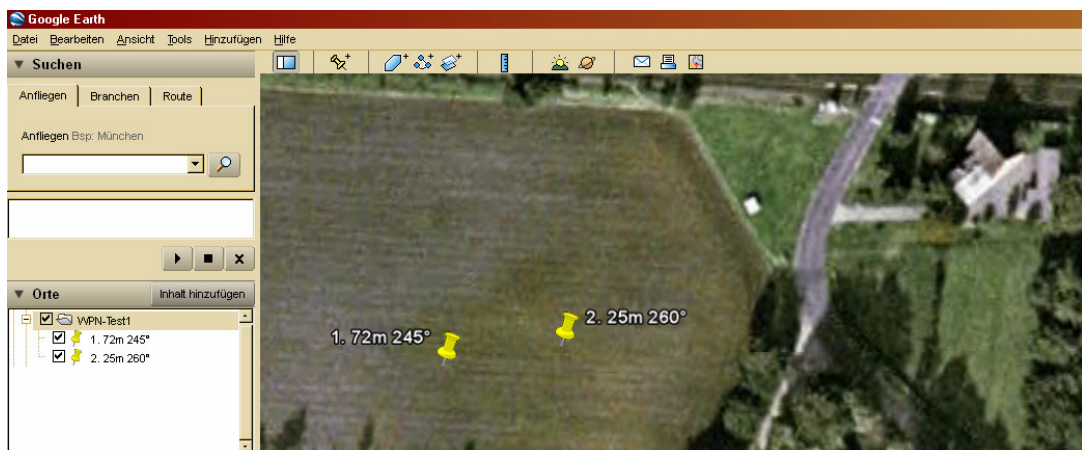
(Software-add-on for mobile basestation)

Do you know the problem: You have to take a picture of a defined position. But how do you reach exactly this position?

For this problem we developed the waypointnavigation. You define waypoints on GoogleEarth, transfer them to the PDA and start the flight. The PDA pilots you per display and acoustical to the next waypoint.

The waypointnavigation don't control the drone. That's your job. The advantage is: You can always change the flightpath, if there is a barrier on the path. You can always change the route, you can make additional stopps to take additional pictures.

To navigate to the waypoint you see the direction and the distance on the display. You can hear a sound that helps you to know if the distance gets lower.



Separate video receiver

With this set you can receive the video data of a microdrones drone MD4-200. So you can install an additional video receive point:

- to show the videostream with a Beamer or a big monitor
- to give it a customer of you
- to give it a team member of you



Video connection cable

With this video cable you can connect the video output of cameras to the microdrones drone. It works with the most cameras with mini-USB-output

