

md4 - 1000



microdrones GmbH



.. your eye in the sky



The system md4-1000 is a AUMAV (Autonomous Unmanned Micro Aerial Vehicle) designed to perform tasks in the field of documentation, coordination, exploration, surveying, communication, inspection and observation.

A modular payload concept allows the md4-1000 as well to carry a most diverse range of imaging, video and other sensor systems. The flight characteristics in general remain quite similar to its little sister md4-200: But in comparison the md4-1000 carries five times the payload and is able to fly not only faster, higher and farther away but also over much longer spans of time. Controlling it is still as easy as the md4-200 in spite of its sheer power.



The Base Station concentrates all information relevant to the flight using our application software mdCockpit. You have the complete telemetry data and of course the video image taken by the drone right at your fingertips.

Technical Specifications

Climb rate	7.5m/s
Cruising speed	15.0m/s
Peak thrust	118N
Vehicle mass	approx. 2650g (dep. on configuration)
Recommended payload mass	800g
Maximum payload mass	1200g
Maximum take-off weight	5550g
Dimensions	1030 mm from rotor shaft to rotor shaft
Flight time	up to 70 minutes (dep. on load/wind/battery)
Battery	22.2V, 6S2P 12.2Ah or 6S3P 18.3Ah LiPo

Operational Conditions

Temperature	0 - 40°C
Humidity	max. 80%
Wind tolerance	steady pictures up to 6m/s
Flight radius	1000m on RC, with Waypoint even more
Ceiling altitude	up to 1000m
Take-off altitude	up to 4000m ASL

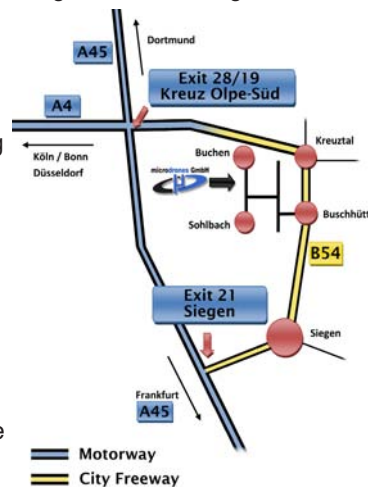
		Flight time in minutes																							
Config.	Cameras	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63	66	70	
md4-200 4S	Daylight	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Dawn	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Pentax (Still)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Lumix (Video)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Thermoimaging	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
md4-1000 6S2P	Daylight	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Dawn	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Pentax (Still)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Lumix (Video)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Thermoimaging	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	up to 500g	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
md4-1000 6S3P	Daylight	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Dawn	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Pentax (Still)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Lumix (Video)	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Thermoimaging	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

The flight batteries are assembled out of solitary Lithium-Polymer cells, "LiPos" in short. "S" means, that cells are connected in series. "P" is standing for a parallel connection.

Visit us

Coming from Köln, Dortmund or Düsseldorf turn at the junction "Olpe-Süd" into the federal highway B54n towards "Kreuztal". If you are approaching from Frankfurt, leave the motorway at the exit "Siegen" also turning into the B54n towards "Kreuztal".

Leave the highway after driving for approximately 10km at the exit "Kreuztal Buschhütten". Having taken the exit drive downhill and then keep to your right. At the next major intersection turn left towards "Sohlbach". Follow the road to its end and there turn right towards "Buchen". After approximately 700m you will find us on the left side of the road.



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English

microdrones GmbH

Gutenbergstr. 86 • D-57078 Siegen
 Phone: +49 (0)271 7700 38-0 • Fax: +49 (0)271 7700 38-11
 www.microdrones.com • info@microdrones.com

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Our microdrones are miniaturised VTOL-aircraft (Vertical Take Off and Landing). They can fly by remote control or autonomously with the aid of our GPS Waypoint navigation system.

Thanks to the unique AAHRS (Attitude, Altitude and Heading Reference System) even completely inexperienced pilots can learn to fly the drone in a very short time. Usually a beginner is able to control the drone after less than one hour of training.



Depending on attached payload, battery and environmental conditions like wind speeds and ambient temperature the system can achieve flight durations of up to 70 minutes. Using the optional video goggles you can perform flights exceeding your visibility range.

The four brushless motors work without a gear and therefore emit extremely low noise (< 68 dBA, hovering in a distance of 3m) being very efficient at the same time.

Users

- photographers
- journalists
- media agencies
- archeologists
- surveyors
- architects / real-estate brokers
- pollution control
- meteorology / environment studies
- fire fighters / police / security
- movie making / television
- sporting events



Applications

- documentation
- coordination
- communication
- inspection
- observation

... and everything else you can imagine!

Mobility



Cameras



There are several high resolution cameras available for still photography and videography as well as lightweight cameras suitable for daylight, dawn and heat/thermoimaging. All payloads known from the md4-200 can also be used with the md4-1000.

Base Station

The Base Station set is mounted inside a sturdy suitcase which will reliably protect the equipment.

The Base Station includes a diversity video receiver, downlink receiver, framegrabber and as an option a set of video goggles.

The power is supplied by either a 110V/230V mains line for stationary use or 12V on-board line for use in proximity of a car. A battery enables it to operate in the field for more than 10 hours.

With a notebook computer the pilot has video and telemetry of the drone right at the fingertips. A recording of the flight data can be copied and distributed easily.



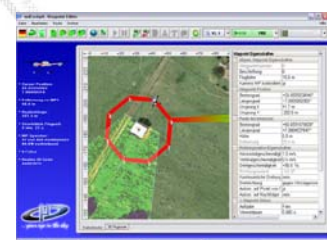
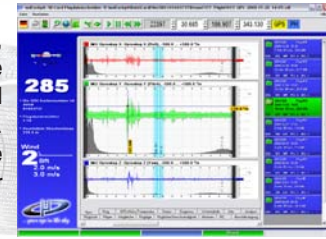
Software

mdCockpit is an application designed for Microsoft™ Windows™. It combines all the functions you are going to need to plan, monitor and analyse your flights:



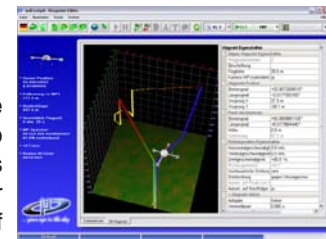
The **Downlink Decoder** receives the telemetry of the drone and permanently displays all important data regarding battery voltage, position, altitude, attitude, flight duration, velocity, flight path, distance from point of

origin, ambient temperature, motor revolutions, remote control inputs, operational status and many other details. All the data is saved by the flight recorder system for later analysis, as well.



The **Waypoint Editor** provides the means to create detailed flight plan programs that the drone can execute autonomously.

In addition to the mere route there are numerous photo features like i.e. taking photos for a panoramic view or circling around a given point of interest.



The planned flight is displayed in 3D and can be exported to GoogleEarth™ if required.

The Downlink Decoder is able to display the drone's position in a map even during non-Waypoint flights, if a map view is available for the current region of operation.