

**/// Safety data sheet.**

[www.ascotec.de/aerial-imaging](http://www.ascotec.de/aerial-imaging)



**/// The AscTec Falcon 8 for professional aerial imaging.**

**Ascending Technologies – manufacturer and innovator of micro UAVs.**

With more than 1000 multicopters sold worldwide, the company is highly experienced. You are kindly invited to profit from the expertise of the long-standing technology leader in unmanned aerial vehicles (UAV).

**The AscTec Falcon 8 is the most advanced flight system of its classification.**

High quality standards are held during the production process, to ensure our products are reliable and safe. Our customers are registered to a database, allowing us to provide them with the newest software and hardware updates.

**Date & version:** 01.01.2014 – V3.0

**Product designation:** AscTec Falcon 8

**Producer:** Ascending Technologies GmbH

**Address:**

Ascending Technologies GmbH  
Konrad-Zuse-Bogen 4 /// 82152 Krailling  
Germany

**/// Summary**

This safety data sheet contains all relevant information about the flight system to apply for a take-off permission.

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**1. Technical data**

**Flight system**

Type	V-Form Octocopter
Size	770 x 820 x 125 mm
Engines	8 electrical, brushless (sensorless) motors with 100W maximum power each
Rotor diameter	8" (~20 cm)
Number of rotors	8
Rotor weight	~6 g
Empty weight	~ 940 <sup>1</sup> g /// ~ 980 <sup>2</sup> g
Max. take off weight	2 <sup>1</sup> kg /// 2.2 <sup>2</sup> kg
Flight time	12–22 min.
Range	1 <sup>3</sup> km
Tolerable wind speed	12 <sup>4</sup> m/s /// 15 <sup>5</sup> m/s

**~ Max. airspeed**

Manual mode	16 m/s
Height mode	16 m/s
GPS mode	3 m/s /// 6 <sup>6</sup> m/s
Max. climb rate:	
Manual mode	6–10 m/s
Height mode	3 m/s
GPS mode	3 m/s
Max. sink rate:	
Manual mode	6–10 m/s
Height mode	3 m/s
GPS mode	3 m/s

**Wireless Communication**

2 independent (diversity) control/data links	2.4 GHz DSSS link 10–63 mW
1 analogue diversity video receiver	5.8 GHz 25 or 100 mW

**~ Max. payload [g]**

<b>Standard<sup>1</sup></b>	
with PP 6250	600
with PP 8300	500
with TP 8000	500
<b>High-Performance-Option<sup>2</sup></b>	
with PP 6250	750
with PP 8300	650
with TP 8000	650

**Available & former payload options**

AscTec Camera Mount<sup>7</sup>

**Digital cameras**

Sony Alpha 7 & Alpha 7R  
Sony Alpha NEX-7  
Sony Alpha NEX-5(N)  
Panasonic Lumix TZ61/41  
Panasonic Lumix DMC-LX7/5/3  
Sigma DP1 Merrill

**Camcorder**

Sony PJ780VE  
Sony CX410VE  
Sony CX730E

**Thermal & infrared cameras**

Inspection payload CX410/TZ61/41  
NIR Tetracam ADC Micro  
NEC F30  
FLIR TAU 320/640

**Battery types [mAh]**

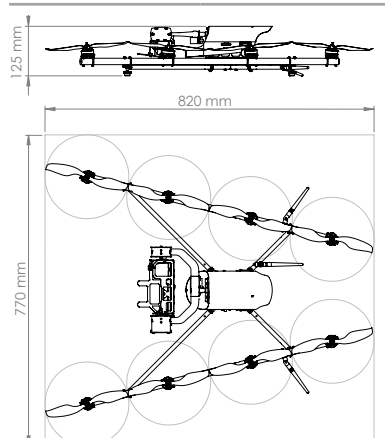
PP 6250, 3 Cells LiPo battery	6250
PP 8300, 3 Cells LiPo battery	8300
TP 8000, 3 Cells LiPo battery	8000

**Certification**

CE  
RoHS

<sup>1</sup> Standard (available until 2013) /// <sup>2</sup> High Performance Option (new standard since 2014) /// <sup>3</sup> Recommended: line of sight (~250 m) /// <sup>4</sup> GPS mode /// <sup>5</sup> Manual mode /// <sup>6</sup> GPS based video mode /// <sup>7</sup> mandatory for all digital-, thermal- and infrared cameras as well as camcorder.

**Size**



## 2. Safety features

**/// Safety with Redundancy: The AscTec AutoPilot mounted in our AscTec Falcon 8 continuously monitors all 8 motors.** Should one of the motors become defective, it will be identified and compensated. The difference in flight performance is marginal and the flight system remains stable.

When a motor becomes defective, a visual and an acoustical warning signal are given and emitted from the Mobile Ground Station. With the notification all the pilot has to do is bring the flight system back and land in a safe spot.

**/// Resistant to external magnetic disturbances:** The AscTec Falcon 8 is the only system in the world with the ability to compensate for disturbances in the earth's magnetic field. This allows for precise navigation in GPS mode. The system holds its exact position – regards to what the magnetic compass leads.

**/// All flight data saved via Blackbox:** All pilot inputs and status information of the system is saved in a datalogger at a rate of 10Hz onto a SD card. Checksums and timestamps prevents any form of manipulation. The flight system will not start without the flight logger being active.

**/// 3 Emergency modes:** The pilot can choose one of three emergency modes to determine the automatic landing in case link loss: "Direct landing", "Comehome straight" (at its current height) or "Comehome high" (at max. mission height). As soon as the link is reestablished you may take control again and continue the flight.

**Technical data such as GPS Position, height, speed, battery voltage, transmission link & GPS quality or wind strength are all available on the Mobile Ground Station.**

**/// Expanded battery function control:** The cells voltage of the battery is constantly monitored for old and defect cells.



New standard: AscTec Falcon 8 incl. High Performance Option.

**/// Redundant live telemetry:** Two completely independent digital data links are responsible for the transmission of all commands and telemetry data. The failure of one of these links has no influence on the control of the flight system. The AscTec Falcon 8 is very dependable, it can everything from multi-path-effects to interferences around built up areas such as cities or industrial estates.

**/// Sensor data verification:** During starting all important sensor and system parameters values from the AscTec Falcon 8 are from the moment it is switched on assessed. Should a value be out of the acceptable range, the starting sequence will be stopped. **The user will be signaled from the Mobile Ground Station with a visual and acoustic warning.**

## 3. Operation

**/// The AscTec Falcon 8 is remotely controlled with the Mobile Ground Station.** All relevant flight data is displayed live to the pilot from the Mobile Ground Station.

Mobile Ground Station, video goggles, high quality preview monitor & Independent Camera Control.



The pilot can control the system, change flight modes, change settings, perform waypoint navigation and activate panorama functions directly from the Mobile Ground Station. All digital cameras or camcorders and sensor options offered with the

AscTec Camera Mount are entirely integrated with the flight system. The main functions of the payloads can be directly controlled with the Mobile Ground Station. The pilot can manually trigger the camera or initiate the automatic photographic panorama functions.

An option is available for a second camera man to be equipped with a gamepad and video goggles connected to the Mobile Ground Station for independent camera control.

Software updates and preplanned flights from the flight planning software AscTec Navigator can be loaded onto the AscTec Falcon 8 via a USB interface.

The Mobile Ground Station has 5 modules:

- ▼ **Remote Control "Futaba FX-30":** Features the all-important control sticks, switches and buttons. It powers the status display and acts as a carrier between the transmitters and status display.
- ▼ **Status Display:** To show the most important flight data. It gives the pilot visual and acoustical signals, for example warning of poor GPS reception, the wind is becoming too strong or system critical values (battery voltage, calibration and so on).
- ▼ **2 Digital diversity data links:** All data and telemetry data is sent via two independent redundant 2.4Ghz channels.
- ▼ **Video receiver:** Used to receive the 5.8Ghz analogue video signal from the AscTec Falcon 8.
- ▼ **HD video monitor:** Shows the camera view from the AscTec Falcon 8.

The information on this safety data sheet is valid for all AscTec Falcon 8 flight systems, with the Version 2.0 installed (high level & low level processor software).

Do you have questions in regards to our products? Or would like to have more information? Test fly a Falcon 8  
We are looking forward to your enquiries, please send your enquiries to: [team@ascotec.de](mailto:team@ascotec.de) or call +49 89 5560790.