



# Engineering Unmanned Aircraft Systems



## SwissDrones Operating AG

We are a young high tech company based in Sevelen, Switzerland specialized in the development and production of unmanned helicopters (VTOL RPAS, vertical take off and landing, remotely piloted aircraft system) for civil purposes.

Our highly qualified personnel with outstanding expertise in engineering, manufacturing, aviation, geoinformatics and in the film and photo industry, as well as in operating RPAS is able to offer tailor-made solutions for the specific needs of our customers.

In addition to the unmanned helicopter, we offer customers a complete solution by providing the VTOL RPAS including specialized equipment as required, operating the VTOL RPAS by a professional pilot if needed and the customized end product.

## VTOL RPAS „DRAGON 50“

Our VTOL RPAS DRAGON 50 is a multi purpose, single engine unmanned helicopter system below 150 kg maximum take off weight, that can be operated within or beyond visual line of sight.

It is designed to carry different payloads such as cameras, sensors or spraying equipment.

Due to the intermeshing rotor system a tail rotor is not required thus resulting in a higher empty weight/payload ratio compared to other helicopter systems. Our DRAGON 50 therefore, is able to lift a remarkable payload of up to 50 kg.

Ready to fly in 15 minutes. Only a 2-person crew is needed. Easy to be transported in the back of a SUV. Easy sensor integration.

**SWISSDRONES**  
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## DRAGON 50 Performance

|                      |   |
|----------------------|---|
| Rotary system        | Flettner double rotor system (4 blades)         |
| Rotor diameter       | 2 x 2.80m                                       |
| Engine               | Turbine   |
| Fuel                 | Diesel / Jet A1                                 |
| Dimensions L x W x H | 2.17m x 0.70m x 0.98m                           |
| Empty weight         | 35 kg   |
| Payload              | 50 kg   |
| MTOW                 | 85 kg   |
| Max. fuel capacity   | Main tank 13 lt. + add. tank 20 lt. (2 x 20 lt) |
| Max. time of flight  | 1 hr (main tank) and 4 hrs (with add. tanks)    |
| Service ceiling      | up to 10'000 feet MSL (ISA conditions)          |
| Max. Airspeed        | 100 km/h  |

## Ground Control Station (GCS)

Weight: 25 kg  
Dimensions L x W x H: 600 x 530 x 230 mm  
Temperature range: -10 to +70 degree Celcius  
Pelicase IP67 hard-case  
2 daylight readable monitors: 17" and 8.5"  
Built-in speakers and microphone  
2 joysticks with hall sensors for flight and gimbal control  
Industry keyboard, illuminated  
Redundant power supply: operating 3 hrs. in battery use

Live available data: RPM, temperature, coordinates, altitude, fuel level, flight plan, accuracy, height level, heading, energy, voltage, course, satellite reception / signal strength, ground speed, vertical speed  
Data link: Customized frequency 400 – 450 Mhz / Frequency hopping, Range 50 km (VLOS)



## Autopilot

Auto-start, auto-landing, mission flight, coming home function, heading, direct waypoint, change mission within mission, possible to set 256 waypoints.

### Features

- Attitude stabilization and velocity control
- Integrated GPS / inertial navigation
- Built-in data logger and telemetry capability
- Programmable hardware for rapid customization
- Built-in payload interfaces
- Built-in vibration isolation suspension

### GPS Receiver module

- Novatel OEMV1 Receiver
- Provides optional differential GPS
- Position accuracy: 1.8m RMS
- Inertial measurement unit 3 gyroscopes, 3 accelerometers
- Piezoresistive pressure sensor: 300 – 1100 mbar

## Avionics

Avionic box with integrated autopilot system, rectifier, charge controller and three voltage regulators for the extern voltage supplies.

- Output voltage: 1x 12.1V, 1x 24V (adjustable internally)
- Output current:  $\leq 16A$
- Integrated generator
- On-board battery: Li-Fe 27.6V
- Output voltage redundancy for flight controller
- Remaining flight time in case of generator failure: 50 minutes
- Case built with aircraft aluminium
- Screw plugs

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