

SearchWing Drone – Preliminary Datasheet

Release V1, Date: 11.1.2019



The SearchWing Drone is an autonomous unmanned aerial vehicle that searches for boats on the ocean.

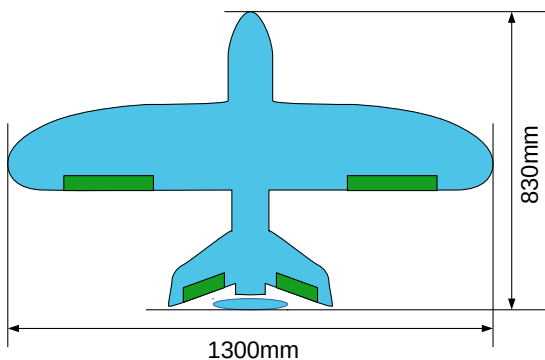
The drone is designed to be operated by the regular crews on the rescue vessels.

The drone takes GPS tagged photos ready for download after landing.

Key Features

- Launch from rescue vessels like Bavaria One, Sea-Watch 3, Professor Albrecht Penck
- Range: 50 km + 40 km reserve battery capacity
- Landing in Water – Retrieval with RIB
- Component cost of plane approx. 700 Euro, excl. laptop and ground equipment

Dimensions + Speed

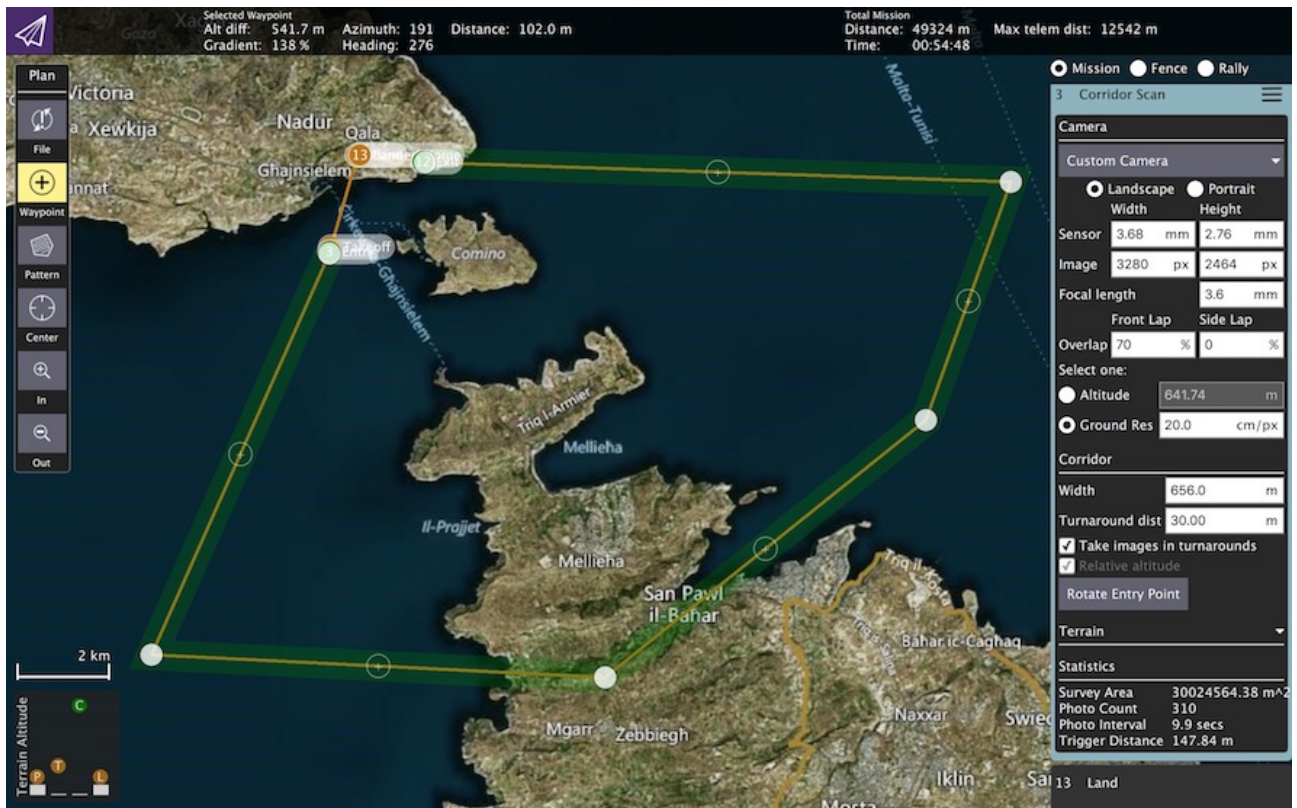


- Wingspan: 1300mm
- Length: 830mm
- Weight: 2,2 kg
- Maximum Speed: 100 km/h
- Cruise Speed: 45 km/h
- Range @ Cruise Speed: 50 km (+ 40km battery reserve)
- 8 Megapixel Camera (3280 x 2464) pixel

Required installation onboard

- 230V Power Supply for Laptop
- 230V Power Supply for accumulator charging equipment
- 868 MHz 5dBi telemetry antenna (819 mm vertical length, 580g) installed outdoor
- GPS Antenna (Cable length 4,5m to laptop) installed outdoor
- Clean water to rinse the plane from salt water
- Optional: 12dBi telemetry antenna (2240mm vertical length, 994g)
- Optional: Access to NMEA0183 Navigation Information for vessel location.

Flight preparation



The flightplan is defined before launch on the laptop and then transferred to the drone via the telemetric link. The drone will follow the flight plan fully autonomously. The batteries are charged via the charge equipment. Batteries can be changed, i.e. during flight the next battery can be charged. The depicted example flight plan with a total flight distance of 50km covers an area of 30 km² at an image ground resolution of 20cm/pixel.

Launch procedure

The SearchWing drone can be launched by hand. For safety and handling reasons a catapult launch is recommended. The catapult is hand operated and has length of 2m. The transport length of the catapult is 1m.

Landing procedure

After the flight plan is finished, the drone returns to the rescue vessel and will circle in a distance of 100m from the vessel at an altitude of 50m. After the landing procedure is triggered, the drone will land in a distance of 10m-30m from the vessel in the water. The SearchWing drone is waterproof and will stay afloat. The drone is then retrieved with the RIB.

Image analysis

The photos are downloaded from the drone to the laptop via Wifi. The images are GPS tagged and can be viewed on the laptop. An example image from Bodensee (without tag) is here:

<https://www.hs-augsburg.de/homes/beckmanf/dokuwiki/doku.php?id=searchwing-flug-virus-20181007>