

Planck *Shearwater* Intelligent Drone System

Planck Aerosystems Shearwater® is a highly capable small unmanned aerial system for maritime and mobile drone operations. Shearwater features fully autonomous operation, including push-button precision takeoff and landing from moving vehicles or vessels. Shearwater can be operated by a lightly-trained user with no piloting skills.



Features

- Autonomous high-precision vision-based GPS-denied takeoff, landing, and position-hold relative to stationary or moving platforms
- Minimal operator training required; no piloting skills required
- Minimal installed hardware
- Uses standard open interfaces for compatibility with third-party systems

Specifications

Size	700mm quadcopter
Speed	45 knots max
Endurance	27 minutes
Range	9 NM (17 km); video transmission range is less
Wind tolerance	24 knots
Sensor payload	HD imagery & video; Optional infrared (IR), LIDAR
Total payload capacity	1 kg
Autonomous landing accuracy	< 10 cm on stationary or moving platforms
Vessel speed	18 knots (for autonomous landing)
Sea state tolerance	3 (for autonomous landing)
Landing descent rate	35 cm/sec
Operating system	Linux
Software interface protocol	MAVLink
User interface	Planck PilotHouse™ Android app, or any MAVLink-compatible GCS (Mission Planner, QGroundControl, Tower)



Options

Shearwater is sold as a complete drone system, or as a software-hardware upgrade for existing drones. Planck offers several different system configuration options. Custom development, integration, and flight services are also available.

Autonomous Precision Landing: Planck precision takeoff and landing technology can be purchased as a software license or a hardware module to be retrofitted onto most VTOL UAS.

Intelligent Computer Vision: Planck intelligent computer vision technology includes automatic detection and tracking of user-defined objects of interest, such as humans, vehicles, vessels, kelp, birds, and marine mammals, and real-time mapping, georegistration, and orthomosaicing of imagery. This technology can be purchased as a software license or a hardware module to be retrofitted onto most VTOL UAS.

Automatic Securing: Planck offers a motorized landing pad for Shearwater that automatically secures the drone within seconds after landing, and automatically releases the drone just before takeoff. The motorized landing pad ensures that Shearwater can stay on-station and ready for deployment regardless of vehicle/vessel motion.

Automatic Recharging: Planck offers an energized landing pad for Shearwater that automatically recharges the drone's batteries while it is on the pad.

Heavy-Lift Airframe: Shearwater software is compatible with many different drone airframes, including heavy-lift aircraft such as the DJI S100, which has a payload capacity of 6.5 kg.

Shearwater Tether: Planck offers a variant of the Shearwater system with a power tether for long-duration missions. Shearwater Tether can maintain precise position-hold during flight operations from moving vehicles and vessels.