

MK1

Long-Persistence Vertical Takeoff and Landing UAS



The EchoMAV MK1 is a durable, long-range, vertical take-off and landing (VTOL) UAS engineered for simplified deployment. Using a hybrid power plant with on-board charging, only a quick refuel is required between missions. The modular airframe allows for diverse payloads and cost-effective maintenance.

Specifications



LINK RANGE

10 mi (16 km) Handheld
26 mi (42 km) Sector (standard)
100 mi (161 km) Tracking Dish



WINGSPAN/LENGTH

Wingspan: 118 in. (3 m)
Length: 47.5 in. (1.9 m)



WEIGHT

Max. Takeoff Weight: 40 lbs (18 kg)
Typ. Takeoff Weight: 28 lbs (12.7 kg)



FUEL

Pre-mix gasoline, 40:1 gas/oil
Capacity: 1.5 US Gal (5.6 L)



SPEED AND ENDURANCE

Cruise Speed: 40-75 mph (64-120 km/h)
Endurance up to 8 hours



ENVIRONMENTAL

-15° to 120° F (-10° to 50° C)
Can be flown in light rain
Maximum rated wind speed is 35 mph



PAYLOAD

Maximum payload weight: 5 lbs (2.25 kg)
Payload interfaces include Ethernet,
CAN and serial



BATTERY

9,000 mAh 12S on-board Li-Ion battery
Automatically recharged during flight



ALTITUDE

Maximum operating altitude:
15,000 ft (4500 m)

From defense/security to mapping, the MK1 is ready to perform. Contact us at sales@echomav.com to learn more.

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HYBRID POWER SYSTEM

EchoMAV's Hybrid Power System² utilizes a proprietary 2-cycle engine mated to an electric starter/generator. The 2-cycle engine is used for fixed-wing propulsion and charges the internal Li-Ion batteries during flight. The VTOL system is purely electric.

This novel arrangements provides fixed-wing persistence of up to 8 hours and largely eliminates the need to recharge batteries between flights.



COMMUNICATION SYSTEMS

Communication options provide secure and highly-encrypted telemetry and payload data links up to 100 miles.

Ground radio options include handheld (10 mile range), sector (26 mile range, shown right), or a tracking dish system (100 mile range).

The MK1 is compatible with various radio modules including the Persistent Systems' MPU5™, Silvus Streamcaster™, and Doodle Labs™ modules. The MK1 supports LTE and SATCOM for cloud connectivity to our MAVNet web-based Ground Control System.



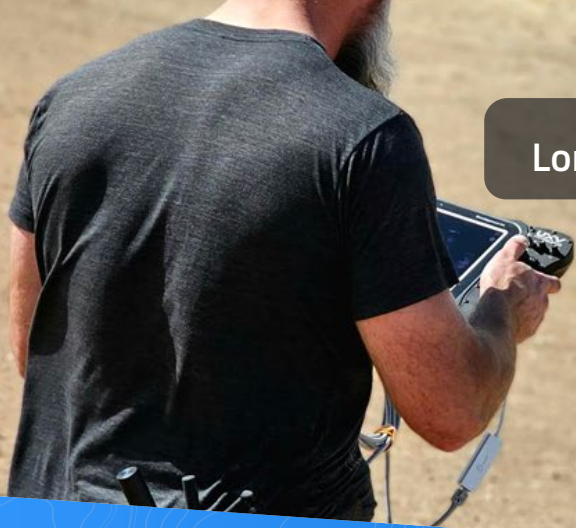
GROUND CONTROL

EchoMAV's 10 inch Ground Control System (GCS) is based on a ruggedized, IP67-rated tablet. It provides intuitive command, control and payload operation. Complex, multi-waypoint missions can be preprogrammed and run autonomously, but manual control is always a button press away.

Designed specifically for the MK1, the GCS provides simple takeoff and landing routines, altitude and failsafe warnings, preflight checks and run-up tests to maximize safety and reliability.

ATAK integration allows you to create and push ATAK targets directly from the GCS.





ADVANCED SURVEILLANCE AND RECONNAISSANCE

EchoMAV's standard EO/IR payload provides an 80x zoom, 360° rotation, and a thermal resolution of 1280x720. Ultra-low latency video is streamed to the GCS and other endpoints using h.265 encoding.

The EO/IR payload works with our GCS software to provide advanced features including click-to-track object tracking, GNSS-based target tracking, target coordinate estimation, field-of-view overlay, joystick control and more.

Optional ISR payloads from Trillium™ are available. Other payloads including LiDAR and mapping are available.

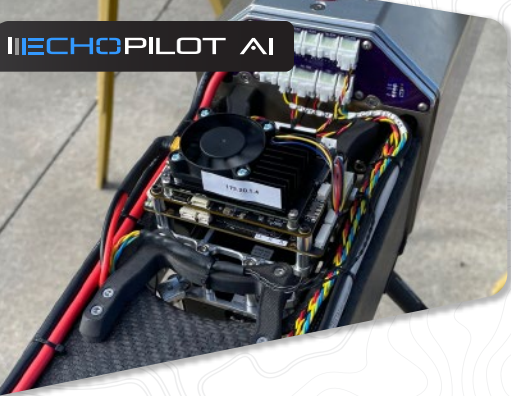


ECHOPILOT AI

ECHOPILOT AI COMPUTE AND PAYLOADS

EchoMAV's EchoPilot AI system combines a redundant flight control system with an Nvidia Jetson companion computer and a RemoteID subsystem. With up to 100 TOPS of on-board compute power, the MK1 is highly future-proof and able to support computer vision, machine learning, artificial intelligence, real-time mapping and many other applications.

The EchoPilot AI in combination with the VTOL capabilities and long persistence of the MK1 make it an ideal platform for a wide range of applications including defense and security, wide-area mapping/monitoring, search/rescue and research/development.



CLOUD CONNECTIVITY

EchoMAV's patented² MAVNet system provides global cloud connectivity over LTE and/or SATCOM. Our proprietary web-based software enables global control and video distribution using only your web browser. The web-based software and cloud connectivity is optional and works in conjunction with our standard Ground Control System hardware and software.

Connection options to the cloud include Cellular/LTE, Starlink™ and Iridium™ SBD (no video is supported over Iridium SBD).



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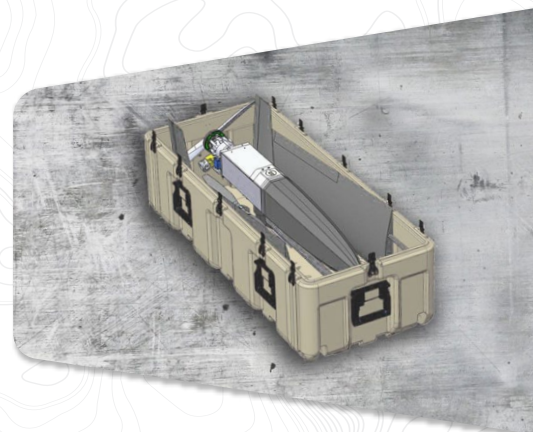
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PORTABLE AND FAST DEPLOYMENT

The MK1 quickly packs into a 48x20x17 inch Pelican™ ISP case for transport. From packed to ready-to-fly in about 5 minutes.

The modular MK1 is constructed using aluminum and carbon fiber components throughout. Spare components are available to support the aircraft over its life cycle.

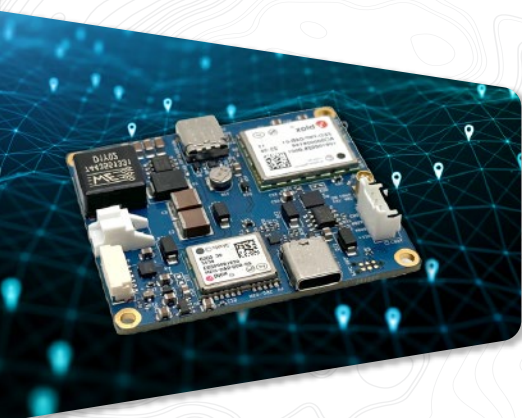


ADVANCED GNSS AND INS

An optional on-board Inertial Navigation System (INS) by VectorNAV™ provides high-stability position information and can continue to provide reliable position estimates even during a temporary loss of GNSS signal.

Centimeter-level, RTK-corrected position accuracy is available with a satellite broadcasted correction signal, which does not require a separate base station (L-band, provided by uBlox PointPerfect, not available in some areas).

An optional 8-channel Controlled Reception Pattern Antenna (CRPA) system is capable of surviving intentional GNSS jamming from multiple simultaneous terrestrial sources.



COMPLIANCE AND SECURITY

The MK1 is proudly engineered and manufactured the USA. The system is NDAA Section 838 compliant. Depending on the communication system configuration, the MK1 is up to FIPS 140-3 compliant.

The MK1 is compliant with FAA Remote ID Rule 89 by supporting OpenDroneID, which implements ASTM F3411.



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¹ The MK1's propulsion system is based on the SuperVolo Hybrid Power System, © Hybrid Project, LLC

² US Patent 11,005,662

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