

OPTIONALLY PILOTED AIRCRAFT (OPA) SYSTEM



L-3 Unmanned Systems is pleased to offer the Mobius™ optionally piloted aircraft (OPA) system. The aircraft is designed to fulfill a wide range of unmanned ISR and RSTA missions. The aircraft can also be flown in a manned configuration providing flexibility for operations, training, and R&D. Open architecture across the entire system design assures maximum operational flexibility.

Mobius has been designed for low- and medium-altitude, long-endurance ISR. Provisions have been made for carriage and release of external stores. Alternate engine configurations include Lycoming's IO-540 for increased top end speed or the turbo-supercharged TSIO-360 for increased altitude capability.

All components incorporate either commercial or MILSPEC standards to provide maximum component interoperability and to minimize integration schedule and cost. The aircraft is currently configured with L-3 Wescam's high-performance MX-15 EO/IR FMV payload, L-3 Unmanned Systems' flight control system and Communications Systems West's mini-TCDL Data Link.



MX-15 EO/IR FMV

The Aircraft

Based on a proven, FAA-certificated design (Experimental R&D Certificate), the carbon-composite aircraft overcomes many of the operational and logistical limitations of more classic, glider-like designs found in nearly all of today's unmanned aircraft. The bullets (at right) summarize the Mobius™ airframe design benefits.

Key Aircraft Features

- Increased cross-wind takeoff and landing performance (25+ kts demonstrated)
- Increased rate-of-climb and descent (1200 fpm / 6000 fpm)
- Increased maneuverability and g-loading rated to +9 G's
- Wider range of speeds (70 - 215 kts)
- Higher useful payload / total weight ratio (1000 lbs load / 3000 lbs GTOW)
- FAA-certified, general aviation powerplant (Lycoming 180hp IO-360)

**UNMANNED SOLUTIONS;
L-3 UNMANNED SYSTEMS.**



Unmanned Systems

MOBIUS™

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The Command & Control System

For unmanned, semi- or fully-autonomous operations, Mobius uses L-3's flight control system installed in a redundant configuration. With a higher level of autonomy, using tightly coupled inner and outer control loops, Mobius is able to conduct self-contained, hands-free take-off and landings without the need for any ground-based hardware or tedious pre-programming of intermediate departure and approach waypoints. The Ground Control Station (GCS) is comprised of ruggedized, military hardened computers with STANAG-4586 interoperability and L-3's MissionTEK™ software. The man-machine interface uses common, Windows™-based, intuitive keyboard and mouse commands, minimizing training requirements. The system is designed to integrate with L-3's two primary remote video terminals, ROVER and Video Scout.



Flight Control Computer



ROVER RVT



VideoScout Remote Video Exploitation Terminal Ex RVT

The Datalink

Command and control signals for Mobius are transmitted via a tactical common datalink (TCDL) radio set. As the U.S. military standard for secure, anti-jam, anti-spoof, encrypted communications, L-3's mini-TCDL implementation provides maximum capability in a minimal footprint. It can be configured as either a surface or airborne terminal on the fly, and can be matched with a variety of antenna and power amplifier options to meet virtually any application that calls for wideband data throughput. Currently configured on Mobius for line-of-sight operations out to 100nm, provisions have been made for both beyond-line-of-sight SATCOM and relay configurations.



Mini-TCDL

The Open Architecture

Both the flight avionics and core GCS components employ an open-architecture that is platform, payload and datalink agnostic. L-3 Unmanned Systems has demonstrated this system on 16 distinct platforms, 11 payloads, 9 GCS and 8 datalinks with a demonstrated average integration time of 4 months. This provides the Mobius system with unprecedented configuration flexibility.



Aircraft by: IBEDI

Mobius OPA Specifications

Length/Wingspan/Height	18.5' x 26.7' x 7.5'
Weights	- 1365 lbs Empty - 1000 lbs Payload Capacity - 3000 lbs MGTOW - 500 lbs Each Wing
Payload Volume	~35 cu. ft.
Fuel Capacity	- 110 gal. - 192 gal. (w/Auxiliary Internal Tanks)
Runway Requirements @ Sea Level	T/O Distance: - 2000 ft. Nominal - 4600 ft. MGTOW Landing Rollout: 2500 ft.
Speeds	- Minimum Loiter - 70-90 kts - Cruise - 160-180 kts - Dash - 215 kts - Vne - 375 kts
Service Ceiling	- 24,000 ft. lightly loaded - 15,000 ft. MGTOW
Climb/Descent	- Climb - 1200 fpm - Descent - 6000 fpm
Endurance	- 18-24 Hours

Mini TCDL (Data Link)

Symmetric and Asymmetric Data Rates	- Up to 45 Mbps with Ranges of Up To 150 nm
Software	- Control GUI Including Router Configuration - Video Display - MPEG 2 - H.261
Antenna	- Supports Both Omni and Directional Antenna Systems
CDL Specification	- Annex A&B Compliant
Interface	- Dual Ethernet 10/100 Base-T - NTSC/RS170, PAL - Wideband Network Router - 28 VDC Power

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L-3. Headquartered in New York City, L-3 Communications is a prime contractor in aircraft modernization and maintenance, C³ISR (Command, Control, Communications, Intelligence, Surveillance and Reconnaissance) systems and government services. L-3 is also a leading provider of high technology products, subsystems and systems.

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