FLYBY ROBOTICS

MACHINE LEARNING UNMANNED AIRCRAFT

Made in America
with US and imported components

FLYBY ROBOTICS F-11 SERIES

The Flyby Robotics F-11 Series is an American-made medium-lift programmable drone with large ML compute capability. Crafted to serve industrial, public safety, and defense sectors, the F-11 Series is engineered to provide a stable foundation for heavy machine learning applications, precision aerial data capture, and developer-configurable autonomy.

At the heart of the F-11 Series is its integrated Nvidia Orin NX GPU, offering unprecedented processing power of 157 Trillion Operations Per Second (TOPS), making it the leading choice in providing accessible computational power. With its 1024-core NVIDIA GPU, 32 Tensor Cores, 16 GB RAM, and upgradable onboard SSD storage ranging from 500 GB to 2 TB, the F-11 Series is the definitive platform for aerial machine learning applications. Its design supports >5 lb payload capacity and features versatile interface ports including USB 3.0, Ethernet, and Flight Controller Telemetry, all within a weather- and thermal-resistant airframe, ensuring operational readiness under any conditions.

PRECISION ENGINEERING. EXTENDED FLIGHT. ADAPATIVE SENSOR SUPPORT

Precision is at the forefront of the F-11 Series. On-board dual Ublox F9P RTK receiver modules provide the F-11 Series with RTK capabilities offering centimeter-level position accuracy. With a flight time of up to 50 minutes, supported by dual hot-swappable smart batteries, the F-11 Series delivers operational efficiency and minimal downtime. Designed for flexibility, the F-11 Series supports a wide range of sensor payloads from ultra-high zoom visual to high-resolution thermal cameras to LiDAR. The F-11 Series' open software architecture and physical adaptability provide streamlined integration of any user-desired payloads.

NDAA COMPLIANCE

Committed to systems security, the Flyby F-11 Series is assembled in America with an NDAA-compliant supply chain. Users may select between the F-11E, compliant with 2020 NDAA Sec 848, or F-11D, compliant with 2023 NDAA Sec 817.

F-11 SERIES | SPECIFICATIONS

PAYLOADS

Available Payloads	Gremsy VIO (Sony Block 4K, FLIR Boson 640, and laser range finder) Sony ILX-LR1 (Gimbaled Full-Frame Camera) Gremsy ZIO (4K hybrid 30x zoom, 20x optical, 12x digital) NextVision Raptor (EO-IR, 1280×720 thermal, 20x optical) Supports 12v and 28.8v mapping LiDARs Contact us for additional payloads
Maximum Gross for Takeoff	11,600 grams (25.57 lbs)
Usable Payload Capacity	2300 grams (5.07 lbs) base config 2680 grams (5.91 lbs) high payload config

MACHINE LEARNING

On-board AI Module	NVIDIA Jetson Orin NX 16 GB
GPU	1024 NVIDIA CUDA cores, 32 Tensor cores
CPU	8-core Arm Cortex-A78AE v8.2 64-bit CPU
AI Performance	157 trillion operations per second (TOPs)
Custom On-Edge ML Applications	Contact us for custom apps, developer support ready. This is what we built the F-11 Series for.

AIRCRAFT GENERAL INFO

Unfolded L x W Dimensions	832 mm x 767 mm
Folded L x W Dimensions	397 mm x 365 mm
Folded Height (w/o Landing Gear)	226 mm
Default Landing Gear Height	314 mm height from ground, 358 mm length
Default Flight Modes	Position Mode, Sports Mode, Altitude Mode
Maximum Speed	42 km/h (26 mph) Position & Altitude Modes 70 km/h (43 mph) Sports Mode
Flight Time (No Payload)	50 mins
Operating Temperature	-20 to 49 C (-4°F to 120° F) at <60% GPU utilization -20 to 45 C (-4°F to 113° F) at >60% GPU utilization
RTK	Dual RTK u-blox NEO-F9P 1 cm+1 ppm horizontal
Ingress Protection	IP 43 (certification pending)
Transmission	F-11E: Herelink Blue 2.4 GHz F-11D: Doodle Labs 2.4 GHz F-11D: Doodle Labs Helix M1-M6 with EW-resistant RF
RF Controller	F-11E: Herelink Blue Controller F-11D/F-11D Helix: UXV SRoC Controller
Flight Controller	ArduPilot (default) & PX4 (custom order)

F-11 SERIES MOUNT OPTIONS:
Payload: 12x M3 Mounting Hardpoints
Data: 2x Ethernet Ports, 2x USB 3.0
Type A Ports, 1x FC Telem2 (10-pin
Conn Plug)
Power: 3x XT-30 (12v, 28.8v, 42-50v V-batt)

BOTTOM: Sony ILX-LR1

TOP: Ouster OS-1 LiDAR
BOTTOM: Gremsy VIO F1

BOTTOM: Your Payload of Choice

POWER PLANT & BATTERY

Number of Motors	4
Motor Kv	170
Max RPM	8000
Propeller Diameter	533 mm (21 in)
Propeller Material	Carbon Fiber Reinforced Nylon
Number of Batteries Per Aircraft	2
Battery Capacity	9000 mAh
Battery Life Cycle	300 cycles
Operating Temp	-20 to 50 C (-4°F to 122° F)
Cell Chemistry	Li-Ion

GITBOOK

DEVELOPER DOCUMENTATION

https://docs.flybydev.com/quickstart

QUESTIONS & ORDERS? CONTACT US

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