# FLYBY ROBOTICS



# MACHINE LEARNING UNMANNED AIRCRAFT

**Made in America**
with US and imported components

# F-11 SERIES | SPECIFICATIONS

## FLYBY ROBOTICS F-11 SERIES

The Flyby Robotics F-11 Series is an American-made medium-lift computational drone platform. 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 100 Trillion Operations Per Second (TOPS), making it the leading choice in providing developer-accessible computational power. With its 1024-core NVIDIA GPU, 32 Tensor Cores, and upgradable onboard SSD storage ranging from 500 GB to 2 TB, the F-11 Series emerges as the definitive platform for aerial machine learning applications. Its design supports a 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)<br>Sony ILX-LR1 (Gimbaled Full-Frame Camera)<br>Gremsy ZIO (4K hybrid 30x zoom, 20x optical, 12x digital)<br>NextVision Raptor (EO-IR, 1280×720 thermal, 20x optical)<br>Supports 12v and 28.8v mapping LiDARs<br>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<br>2680 grams (5.91 lbs) high payload config |

## AUTONOMY

| | |
|---|---|
| On-board AI Module | NVIDIA Jetson Orin NX |
| Ampere GPU | 1024 NVIDIA CUDA cores, 32 Tensor cores |
| AI Performance (Sparse) | <100 trillion operations per second (TOPs) |
| AI Performance (Dense) | >50 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. |
| AI Obstacle Avoidance (AEGIS Upgrade) | 360 degree Ouster OS-1 LiDAR-based obstacle avoidance, effective up to 295' ft fog & night-capable |

## 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 |
| Flight Modes | Position Mode, Sports Mode, Altitude Mode |
| Maximum Speed | 42 km/h (26 mph) Position & Altitude Modes<br>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<br>-20 to 45 C (-4°F to 113° F) at >60% GPU utilization |
| RTK | Dual RTK 1 cm+1 ppm horizontal |
| GNSS | L1/L5 GPS, GLONASS, Beidou and Galileo bands |
| Transmission | Primary: RF Transmission (Herelink Blue or Doodle Labs)<br>Upgradable: Elsight  5G/LTE |
| Remote ID | FAA and EASA compliant |

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



**TOP:** AEGIS Upgrade LiDAR
**BOTTOM:** Gremsy VIO



**BOTTOM:** Sony ILX-LR1



**BOTTOM:** Your Payload of Choice

## LiDAR (F-11 AEGIS UPGRADE)

| | |
|---|---|
| LiDAR Module | Ouster OS1 128 REV7 |
| Form Factor | Modular and Removable (Included w/ F-11A) |
| Detection Range | 170 m (560 ft) at 80% Lambertian reflectivity<br>90 m (295 ft) at 10% Lambertian reflectivity |
| Field of View | Horizontal: 360°<br>Vertical: 45° (+22.5° to -22.5°) |
| Points Output Per Second | 5,242,880 |
| LiDAR Classification | Class 1 eye-safe per IEC/EN 60825-1: 2014 |
| Ingress Protection | IP68 / IP69k |
| Vertical/Range Resolution | 128 channels/0.1 cm |

## 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 |

## QUESTIONS & ORDERS? CONTACT US
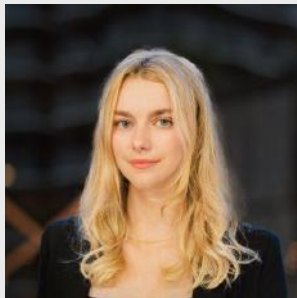


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