



**INSPIRED FLIGHT TECHNOLOGIES, INC.**

225 Suburban Rd, STE A, San Luis Obispo, CA 93401

+1 (805) 776-3640 [www.inspiredflight.com](http://www.inspiredflight.com)



**IF800**

**TOMCAT**

**Information Sheet**

Version 1.1, December 2023

# Aircraft Specifications

## Performance

|                                      |  |                               |
|--------------------------------------|--|-------------------------------|
| Max Ascent Speed                     | 5 m/s  | 16 ft/s                       |
| Max Descent Speed                    | 3 m/s  | 10 ft/s                       |
| Max Air Speed                        | 22 m/s   | 49 mph                        |
| Max Wind Resistance                  | 10 m/s, 12 m/s gusts                                       | 19 knot, 23 knot gusts        |
| Max Tilt Angle                       | 30°  |                               |
| Max Angular Velocity                 | Tilt: 300°/s, Yaw: 120°/s                                  |                               |
| Operating Temperature                | -10°C ~ 45°C   | 14°F ~ 113°F                  |
| Ingress Protection                   | IP43, 5%~99% Humidity                                      |                               |
| Service Ceiling (with given payload) | 4.2km (14,000 ft) w/0.0 kg,<br>2.0 km (6,500 ft) w/ 3.0 kg | 3.2 km (10,500 ft) w/ 1.5 kg, |

## Physical Features

|  |                       |                           |
|--|-----------------------|---------------------------|
| Diagonal Size (propeller center to center) | 905 mm                | 35.6 inches               |
| Unfolded Size (flight ready, WxLxH)        | 132 x 114 x 52 cm     | 51.8 x 44.8 x 20.3 inches |
| Folded Size (stow, WxLxH)                  | 36 x 44 x 20 cm       | 14.2 x 17.4 x 7.8 inches  |
| Empty Weight (w/o batteries)               | 4.2 kg                | 9.2 lbs                   |
| Weight w/ Batteries                        | 8.4 kg                | 18.5 lbs                  |
| Max Gross Takeoff Weight                   | 11.4 kg               | 25.1 lbs                  |
| Max Payload Capacity                       | 3.0 kg                | 6.6 lbs                   |
| Transport Case Size (WxLxH)                | 52.8 x 80.7 x 31.7 cm | 20.8 x 31.8 x 12.5 inches |
| Transport Case Weight (w/ aircraft & GCS)  | 18 kg                 | 40 lbs                    |

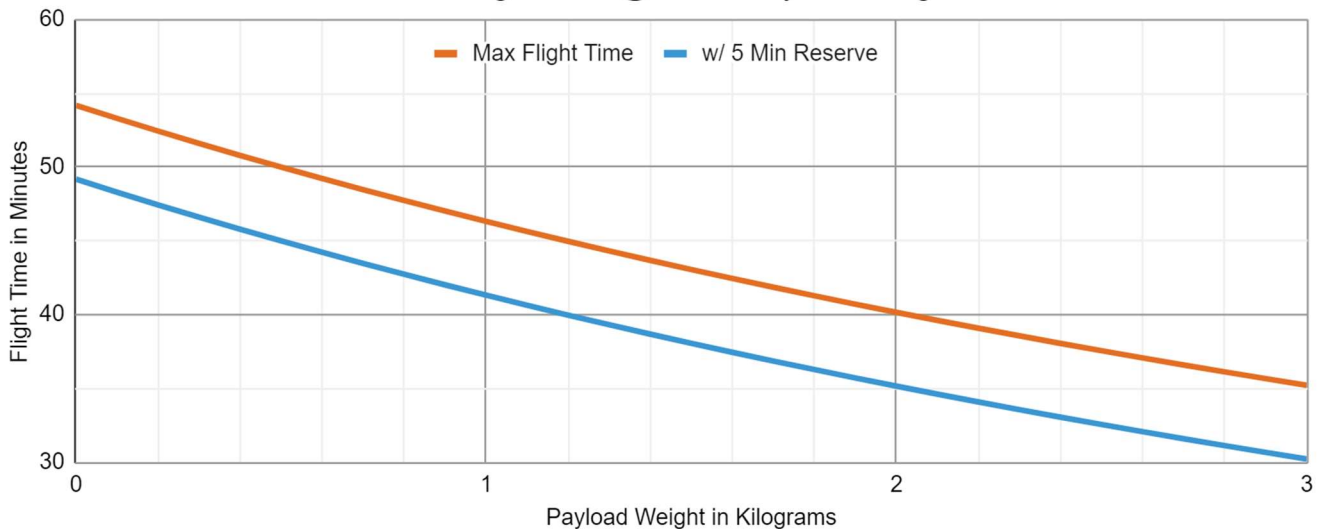
## Flight Stack

|                       |  |
|-----------------------|--|
| Flight Controller     | CubePilot Cube Blue H7                               |
| GNSS / Compass        | CubePilot Here4 (x2)                                 |
| Downward Range Finder | LightWare SF000/B                                    |
| Payload Power Rails   | Battery Voltage, 18v, 12v, 5v,                       |
| Payload Interface     | Ethernet, Serial_1, Serial_2, SBus_Out, PWM_1, PWM_2 |
| Operating Software    | Copter by Ardupilot                                  |

## Flight Modes

|               |   |
|---------------|---|
| Position Hold | Automatically holds altitude and position, manually change position |
| Loiter        | Holds altitude and position, precision manual movements using GPS   |
| Auto          | Executes pre-defined waypoint mission                               |
| RTL           | Auto returns to takeoff location and lands                          |
| Land          | Auto land while maintaining horizontal position                     |
| Altitude Hold | Holds altitude only, failsafe mode if GPS signal lost               |

IF800A Flight Time @ Given Payload Weight



# Ground Control System

## HereLink Blue Live Video GCS

|                     |   |
|---------------------|---|
| GCS Interface       | NW Blue HereLink Blue v1.1 w/ 5" 1000 Nit Touchscreen |
| GCS Software        | QGroundControl (Android)                              |
| Communication Radio | Point to Point LTE                                    |
| Frequency / Power   | 2.4 GHz up to 1 W                                     |
| Signal Range        | 5.5 KM (3 NM)   |
| Encryption          | AES 128   |
| GCS Weight          | 920 g   |



## Vision 2 Blue UAS Authorized GCS

|                     |  |
|---------------------|--|
| GCS Interface       | Vantage Robotics Vision 2 w/ 7" 2000 Nit Touchscreen |
| GCS Software        | Inspired Ground Control (Android)                    |
| Communication Radio | Doodle Labs Mini-OEM                                 |
| Frequency / Power   | 2.4 GHz up to 1 W                                    |
| Signal Range        | 9 KM (5 NM)  |
| Encryption          | AES 128 or 256                                       |
| GCS Weight          | 850 g  |



## IB388 Smart Battery (2x)

|                      |  |
|----------------------|--|
| Nominal Energy       | 387.6 Wh                                 |
| Nominal Voltage      | 22.8 V                                   |
| Nominal Capacity     | 17,000 mAh                               |
| Continuous Discharge | 255 Amps (15C)                           |
| BMS Self Discharge   | To 3.8v/Cell after 72 hrs, ~3% per month |



## IFT Simple Charger

|                       |                         |
|-----------------------|-------------------------|
| Input Voltage         | 100v-240v AC            |
| Max Charge Voltage    | 4.35v/Cell, 26.1v Total |
| Max Charge Rate       | 600w x 2 (1.5C)         |
| Typical Charge Time   | ~50 Minutes             |
| Battery Compatibility | Two IB388               |

# Tomcat Payloads

## ILX-LR1 61MPX Optical Imaging

---

Sony ILX-LR1 Camera, 35mm Full-Frame  
61.0 Mega Pixel Sensor

Sony E-Mount 35mm, 50mm, or 85mm  
Prime Lens Options

Gremsy Pixy-LR Gimbal with Smart Dovetail Adapter  
Payload Weight: 1.6 kg



## Sentera 65R High Res Global Shutter

---

Sentera 65R, 65 Mega Pixel Global Shutter Camera

Optional 27mm or 43mm Lens Options

All in 1 Gimbal/Payload with Smart Dovetail Adapter  
Payload Weight: 800 g



## Centimeter Level Real or Post Time Kinematic Positioning

---

ZED-F9P GPS Receiver on Rover & Base Station

Top Mounted Quick Release Helical Antenna

NTRIP Streaming Base Station

Payload Weight: ~500 g



## Gremsy Vio F1 Optical & Thermal

---

Electro Optical 8.5 Mega Pixel sensor,  
up to 240x combined Zoom

FLIR Radiometric 640x512 60Hz,  
8-14  $\mu\text{m}$  range Sensor, up to 8x zoom

All in 1 Gimbal/Payload with Smart Dovetail Adapter  
Payload Weight: 1.2 kg



## Altum PT Multispectral Imaging

---

5 Imaging Bands including 12 MP high-resolution  
Panchromatic & High Res Thermal

Downwelling Light Sensor Enables Radiometric data  
Smart Dovetail Adapter & Top Mounted Downwell

Payload Weight: 1.1 kg



## 3<sup>rd</sup> Party LiDAR & OEM Mounting Kits

---

Smart Dovetail Kit up to 1.8 kg,  
Mounted on Standard Damping Plate

Smart Dovetail Kit up to 3.0 kg, No Damping

Gremsy S1/T3 Quick Disconnect Kit, No Damping

Top Mounting Antenna Kit, Coax Through Aircraft



