draganFLY INC

# Long-range LiDAR
# System Specifications

## LiDAR

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|---|---|
| Laser | **1550 nm** 0.3 mrad (1/e2) beam divergence |
| Laser Safety | **Class 1** (IEC 60825-1:2014) |
| Number of Returns | **Up to 4** (first 2 and last 2) |
| Range Resolution | **2 mm** |
| Minimum Target Separation | **0.7 m** (discrete) |
| Scanner | **360 deg field of view** I **50-250 lines/second scan speed** |

## LiDAR Capabilities

| Laser Pulse Repetition Frequency (PRF) | 50kHz | 200kHz | 500kHz |
|---|---|---|---|
| Max Range Capacity | | | |
| @ 10% Target Reflectivity | 610 m | 310 m | 195 m |
| @ 20% Target Reflectivity | 750 m | 435 m | 250 m |
| @ 50% Target Reflectivity | 750 m | 740 m | 250 m |
| Typical Operating Altitude | | | |
| @ 10% Target Reflectivity | 390 m | 195 m | 125 m |
| @ 20% Target Reflectivity | 480 m | 275 m | 160 m |
| @ 50% Target Reflectivity | 480 m | 470 m | 160 m |
| Range Accuracy | 10 mm | 5 mm | 5 mm |
| Range Precision | 4 mm | 4 mm | 4 mm |


## Physical & Environmentals

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|---|---|
| Size | **480 mm L** I **160 mm W** I **116 mm H** |
| Weight | **< 6 kg; <5 kg** without camera; **10 kg** total payload including roll cage |
| Ingress | **IP67 Lidar, IP51 Electronics** unrated camera but tested in rain |
| Temperature | **-10C to +40C** operation start in room temperature |
| | **-20C to +40C** operation |
| | **-20C to +50C** storage |
| | **-40C to +75C** inertial and GNSS navigation |
| | **-30C to +60C** support electronics |
| | **-20C to +40C** camera |
| Inertial & GNSS Navigation System | **Applanix APX+30 Air** with Trimble SPS585 Basestation |
| Position Accuracy Post Processed | **0.02 m** horizontal I **0.05 m** vertical |
| Roll & Pitch Accuracy | **0.010 deg** |
| True Heading | **0.025 deg** |
| Velocity | **0.010 m/s** |

# UAV System Specifications

## Draganfly Commander 3 XL

**Operational Characteristics and Limitations:** includes UAV and rollcage mount

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|---|---|
| Maximum Takeoff Weight | **25kg (55lbs)** |
| Maximum Payload Weight | **10kg (22lbs)** |
| Empty Weight | **15kg (33lbs)** |
| Climb Rate | **590.6ft/min (3m/s)** |
| Descend Rate | **590.6ft/min (3m/s)** |
| Maximum Operating Speed | **38 knots (72km/hr)** manual flight |
| Maximum Automated Mission Speed | **38 knots (72km/hr)** |
| Maneuvering Speed | **29 knots (54km/hr)** |
| Maximum Controller Signal Range | **2 km (1.2miles)** do not exceed rated limit |
| Maximum Endurance | **50 minutes** (no payload, ideal conditions) |
| Maximum Endurance | **20 minutes** (full payload, ideal conditions) |
| Service Ceiling (density altitude) | **2438m (8000ft) ASL** |
| Width | **59.5" (151cm)** |
| Length | **64.75" (164cm)** |
| Height | **24" (60cm)** |
| Power Consumption | **2000W** sustained for normal operating conditions |
| | **4000W** peak during maximum expected operating conditions |
| Operating Temperature | **-25C to +38C (-13F to 100.4F)** |
| Maximum Wind Speed | **up to 35km/hr (21mph)** |
| Relative Humidity | **0% to 90% non-condensing** |
| Icing | **Flight prohibited with any known atmospheric icing conditions** |

# Data Processing

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|---|---|
| Hardware Output | **RAW LiDAR I RAWCamera I RAW INS I RAW Basestation I Time Sync** |
| Storage Size | **LiDAR -240 GB I Inertial Nav - 6GB** |
| Data Transfer | **WiFi I Gigabit Ethernet** |
| Inertial Navigation Software | **Applanix POSPac MMS** |
| LiDAR Processing | **Applanix POSPac MMS Lidar QC and Processing** |
| Color Point Cloud Processing | **Optional Global Mapper** |
| Realtime Control | **Draganfly UI Control Software** |

# Camera


| | |
|---|---|
| Camera Option | **Sony A7R4 61MP** |
| Sensor Size | **Full frame 35mm** (35.7 x 23.8 mm) |
| Pixel Size | **28.01 µm** |
| Resolution | **9504 x 6336 px** |
| Lens Field of View | **90 deg** (20 mm focal length) I **54 deg** (35 mm focal length) |
| Ground Sampling Distance 20mm Lens | **5 mm @ 25 m agl I 10 mm @ 50 m agl I 20 mm @ 100 m agl I 24 mm @ 120 m agl** |
| Calibration | **Software Corrected Lens** (parameters provided) |
| Time Synchronization | **Shutter time tagged to GPS time** |