

### LiDAR

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   50-250 lines/second scan speed

### LiDAR Capabilities

Laser Pulse Repetition Frequency (PRF)    50kHz    200kHz    500kHz

	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 & Environmental

Size	480 mm L   160 mm W   116 mm H
Weight	6 kg   9.4 kg total payload including roll cage
Ingress	IP67 Lidar, IP51 Electronics unrated camera but tested in rain
Temperature	-20C to +40C operation; start system in room temperature -20C to +50C storage -40C to +75C inertial and GNSS navigation -30C to +60C support electronics -20C to +40C camera

### Positional Capabilities

Inertial & GNSS Navigation System	Applanix APX+30 Air with Trimble SPS585 Basestation
Position Accuracy Post Processed	0.02 m horizontal   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

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



## Data Processing

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

## Camera

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

