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## miniRANGER-3 LITE

The **miniRANGER-3 LITE** is designed to provide survey-grade LiDAR data and imagery on an ultra-lightweight platform. Acquire the same level of high accuracy data that the miniRANGER line is known for, now with significantly increased point density. Flexible sensor configuration and a variety of mounting options, including UAV, mobile and backpack, enables surveyors to address nearly any application. With the photogrammetry package, operators of mid-size multirotors can now simultaneously acquire LiDAR data and high resolution 61 MP photogrammetry at up to 100 m operating flight altitude. The **miniRANGER-3 LITE** leverages Phoenix's years of experience and industry leading software platform to provide a seamless user experience.

### FEATURES

- 100 kHz, 200 kHz, and 300 kHz laser pulse repetition rate (PRR) for greater point density at altitude
- Flexible mounting to UAV such as the IF800 and M350 with our custom vibration isolator mounts
- Includes the new weight optimized Air NavBox for increased range & flexibility
- Camera options ranging from dual-oblique to high resolution 61 MP

### PLATFORM

OVERALL DIMENSIONS	Without A6K-Lite: 240 x 130 x 180 mm With A6K-Lite: 300 x 130 x 180 mm
OPERATING VOLTAGE	14 - 28 VDC
POWER CONSUMPTION	Without A6K-Lite: 30 W (typical) With A6K-Lite: 38 W (typical)
OPERATING TEMPERATURE	0° - +40° C
WEIGHT WITH A6K-LITE CAMERA	2.5 kg

### LIDAR SENSOR

LASER PROPERTIES	905nm Class 1 (eye safe)
RANGE MIN	2 m
MAX EFFECTIVE MEASUREMENT RATE	Up to 300,000 meas./sec
HORIZONTAL FIELD OF VIEW	360° at 100/200 kHz reduced power, 180° at 200 kHz, 120° at 300 kHz
ACCURACY	15 mm
MAX MEASURING RANGE p 20% (p 60%)	170 m (290 m)
SENSOR CLASSIFICATION	IP64
WEIGHT	1.55 kg
POWER CONSUMPTION	18 W

### NAVIGATION SYSTEM

CONSTELLATION SUPPORT	GPS + GLONASS + BEIDOU + GALILEO
SUPPORT ALIGNMENT	Kinematic, Dual-Antenna
ACCURACY POSITION	1 cm + 1 ppm RMS horizontal
IMU GYRO IN-RUN BIAS STABILITY	1.0°/hr to 0.5°/hr options

### QUICK SPECS

<b>ABSOLUTE ACCURACY</b> 2-3.5 cm RMSEz @ 75 m <sup>(1)(3)</sup>	<b>WEIGHT</b> 2.2 kg / 4.9 lbs. (2.5 kg with A6K-Lite)
<b>INTRASWATH PRECISION</b> 3 cm RMSDz @ 75 m <sup>(1)(2)</sup>	<b>LASER RANGE</b> 290m @ 60% Reflectivity
<b>DIMENSIONS</b> <b>Without A6K-Lite:</b> 240 x 130 x 180 mm <b>With A6K-Lite:</b> 300 x 130 x 180 mm	<b>SCAN RATE</b> 300k shots/s, up to 5 returns

### APPLICATIONS



OIL & GAS SURVEYING



UTILITIES MAPPING



RAILWAY TRACK MAPPING



AGRICULTURE & FORESTRY MONITORING



CONSTRUCTION SITE SURVEYING



OPEN PIT MINING OPERATIONS



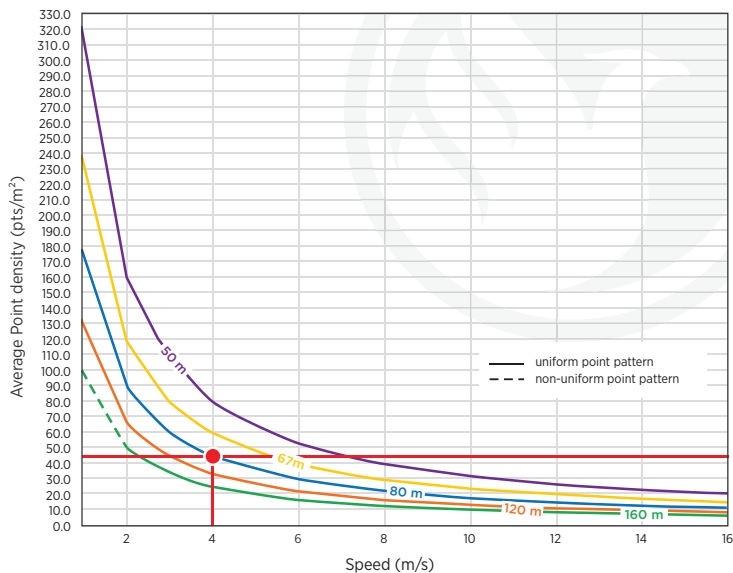
GENERAL MAPPING

1) Approximate values based on PLS test conditions using a 90° downward field of view

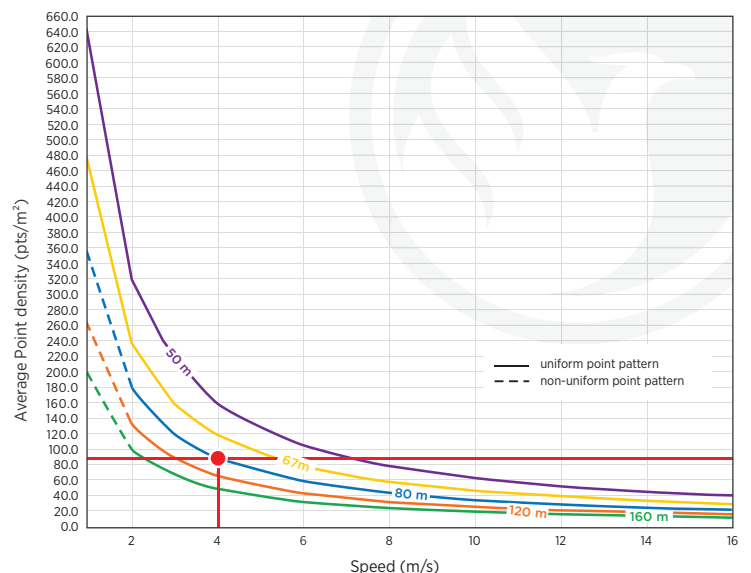
2) Range of elevation values on flat surface with >20% reflectivity at the laser's wavelength

3) Expected RMSEz when following the PLS recommended acquisition & processing workflow and ASPRS check point guidelines

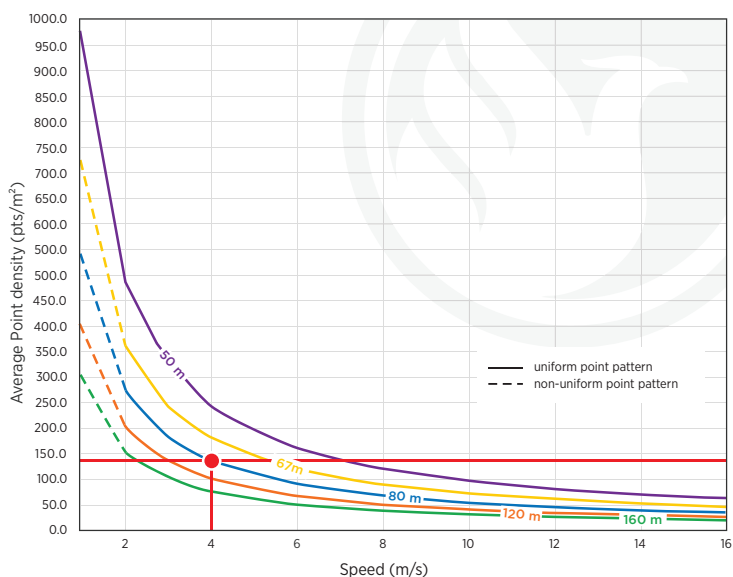
## MAXIMUM MEASUREMENT RANGE VS. POINT DENSITY



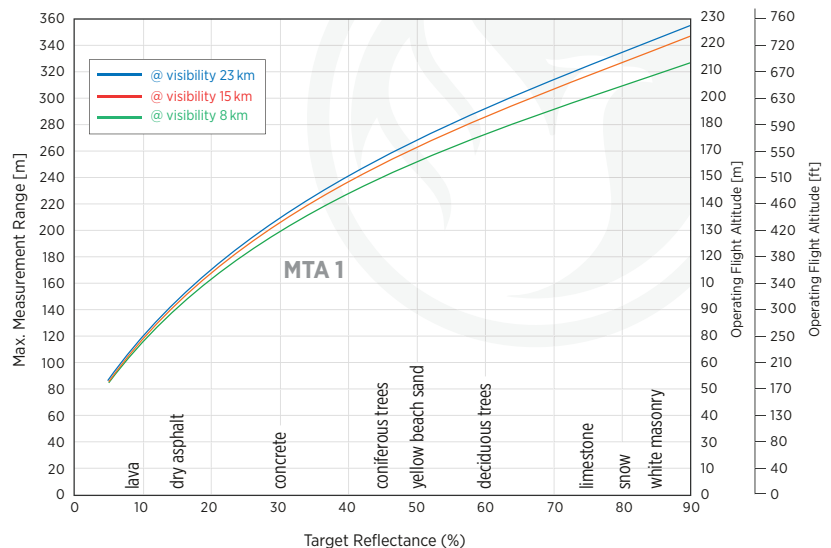
EXAMPLE miniVUX-3UAV at 100,000 pulses/second, range to target = -90 m, speed = 4 m/s RESULTING POINT DENSITY **45 pts/m<sup>2</sup>**



EXAMPLE miniVUX-3UAV at 200,000 pulses/second, range to target = -90 m, speed = 4 m/s RESULTING POINT DENSITY **90 pts/m<sup>2</sup>**



EXAMPLE miniVUX-3UAV at 300,000 pulses/second, range to target = -90 m, speed = 4 m/s RESULTING POINT DENSITY **135 pts/m<sup>2</sup>**



The following conditions are assumed for the Operating Flight Altitude AGL:

- operating flight altitude given at a FOV of +/-45°
  - target size ≥ laser footprint
  - average ambient brightness
- Source: RIEGL Laser Measurement Systems.

## miniRANGER-3 LITE CAMERA OPTIONS



EXPLORE A PHOENIX LiDAR SYSTEM FOR YOUR TEAM, CONTACT US!

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