RIEGL inside

LiDAR Mill COMPATIBLE

UAV   VEHICLE   BACKPACK

miniRANGER-LITE

The **miniRANGER-LITE** is a system that features an impressive recommended AGL of up to 75 meters, filling a major AGL gap in the ultra-lightweight UAV LiDAR market. With the photogrammetry package, operators of mid-size multirotors, like the DJI M600 Pro, can now simultaneously acquire survey-grade LiDAR data and high resolution 24 MP (up to 61 MP if required) RTK photogrammetry at up to 100 m operating flight altitude.

FEATURES

» Includes the new weight optimized Air NavBox for increased range & flexibility

» Flexible mounting to drones such as DJI M600 and M300 with our custom vibration isolator mounts

» High resolution 61 MP camera option available

PLATFORM

OVERALL DIMENSIONS (SENSOR)	Without A6K-Lite: 240 x 130 x 180 mm With A6K-Lite: 300 x 130 x 180 mm
OPERATING VOLTAGE	12 - 28V DC
POWER CONSUMPTION	Without A6K-Lite: 30W (typical) With A6K-Lite: 38W (typical)
OPERATING TEMPERATURE	-10° - +40° C
WEIGHT WITH A6K-LITE CAMERA	2.5 kg

QUICK SPECS

Absolute Accuracy
2-3.5 cm RMSEz @ 75 m [1] [3]

Intraswath Precision
3 cm RMSDz @ 75 m [1] [2]

PP Attitude Heading RMS Error
0.019°

Weight
2.2 kg / 4.9 lbs.
(2.5 kg with A6K-Lite)

Dimensions
Without A6K-Lite:
240 x 130 x 180 mm

With A6K-Lite:
300 x 130 x 180 mm

Laser Range
250 m @ 60% Reflectivity

Scan Rate
100 k shots/s, up to 5 returns

LiDAR SENSOR

LASER PROPERTIES	905 nm Class 1 (eye safe)
RANGE MIN	3 m
MAX EFFECTIVE MEASUREMENT RATE	100,000 meas./sec
HORIZONTAL FIELD OF VIEW	360°
ACCURACY	15mm one Sigma @ 50 m
MAX MEASURING RANGE ρ 20% (ρ 60%)	150 m (250 m)
SENSOR CLASSIFICATION	IP64
WEIGHT	1.55 kg
POWER CONSUMPTION	18 W (typical)

APPLICATIONS

Oil & Gas Surveying

Utilities Mapping

Railway Track Mapping

Agriculture & Forestry Monitoring
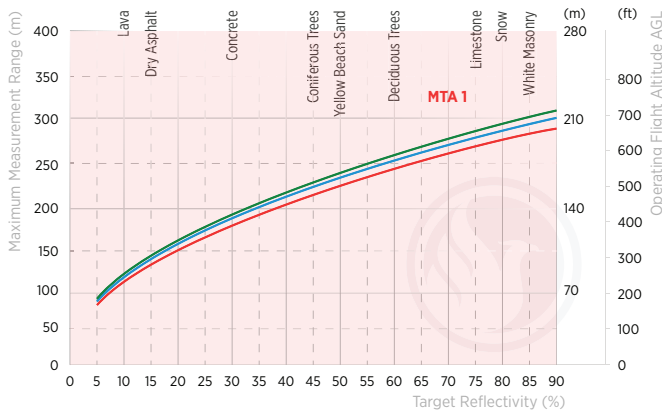
Construction Site Surveying

Open Pit Mining Operations

General Mapping

NAVIGATION SYSTEM

CONSTELLATION SUPPORT	GPS + GLONASS + BEIDOU + GALILEO
SUPPORT ALIGNMENT	Kinematic, Single-Antenna
OPERATION MODES	Real-time, Postprocessing optional
ACCURACY POSITION	1 cm + 1 ppm RMS horizontal
PP ATTITUDE HEADING RMS ERROR	0.019°

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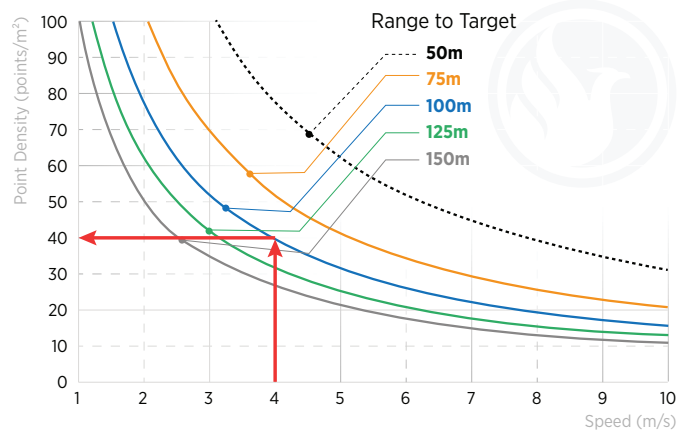3) Expected RMSEz when following the PLS recommended acquisition & processing workflow and ASPRS check point guidelines

MAX MEASUREMENT RANGE & POINT DENSITY miniRANGER-LITE

Left chart axis labels: Maximum Measurement Range (m) / Operating Flight Altitude AGL

Material labels: Lava, Dry Asphalt, Concrete, Coniferous Trees, Yellow Beach Sand, Deciduous Trees, Limestone, Snow, White Masonry

MTA 1

X-axis: Target Reflectivity (%)

MTA 1
No ambiguity / one transmitted
pulse "in the air"

— @ visibility **23km**
— @ visibility **15km**
— @ visibility **8km**

Right chart: Point Density (points/m²) vs Speed (m/s)

Range to Target
- 50m
- 75m
- 100m
- 125m
- 150m

EXAMPLE
miniRanger at 100k pulses/s
Range to target = 100 m, speed 4 m/s

Resulting Point Density **40 pts/m²**

The following conditions are assumed for the Operating Flight Altitude AGL

- ambiguity resolved by multiple-time-around (MTA) processing and flight planning
- target size ≥ laser footprint

- average ambient brightness
- operating flight altitude given at a FOV of +/-45°

Source: RIEGL Laser Measurement Systems.

miniRANGER-LITE SAMPLE DATA
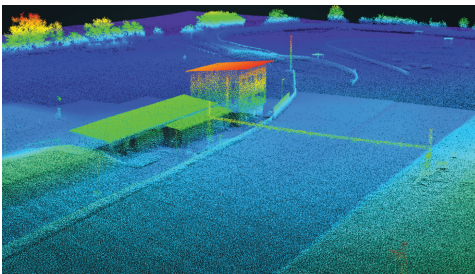
PHOENIX SOFTWARE SUITE

FP **SE**

Phoenix LiDAR Systems provides a proprietary complete software suite for streamlined mission planning, acquisition, georeferencing, data fusion, analysis & export.

Explore the effects that different parameters have on your data before you fly. Estimate your data quality and reduce costs by experimenting with various flight paths, altitudes, and other variables using the **Phoenix FlightPlanner**.

Streamline your LiDAR acquisition and post-processing with **SpatialExplorer**. Real-time point clouds and detailed navigation feedback enable in-field QA/QC to ensure operators and pilots have the feedback they need to collect the best data. This desktop software then gives you full control over each step of data processing. LiDARSnap and CameraSnap provide industry leading results for datasets from airborne, mobile, or other platforms. Analytic tools then transform your highly accurate data into actionable products and automatically generated quality reports.

SAVE TIME, GROW YOUR BUSINESS

LM

Automated Post-Processing in the Cloud

Meet **LiDARMill**, the first cloud-based LiDAR post-processing platform that enables surveying teams to take advantage of precision laser mapping without investing in expensive post-processing software and training.

Processing your LiDAR data in the cloud has never been easier. View your data, track project status, and invite clients to view point clouds – all from your LiDARMill dashboard with faster turnaround times and lower overhead costs.

LiDARMill can be customized to serve any size organization, from small survey teams to government departments with heavy post-processing requirements. Contact sales@phoenixlidar.com for pricing and packages.

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

PhoenixLiDAR.com | sales@phoenixlidar.com | USA +1.323.577.3366