



LEARN MORE

PIONEER-360

The **PIONEER-360** is a best-in-class universal survey grade LiDAR mapping system. It is the tool of choice for UAV and Mobile applications where there is no room for compromise in data quality. With a beam divergence of only 0.3 mrad, this system is designed for precision and confidence. The **PIONEER-360** supports selectable pulse repetition rates up to 500 kHz and line scan speeds up to 250 lines/second, allowing it to be optimized for various application and data requirements. A quick release system can accommodate a removable high-resolution, light-weight 61 MP camera.

FEATURES

- Narrow beam divergence of 0.3 mrad for superior precision and canopy penetration
- Shot-to-shot precision of <1 cm for survey applications
- Scan speed of 250 lines per second for even x-y point distribution at higher vehicle speeds

PLATFORM

OPERATING TEMPERATURE (MIN/MAX)	0° / +40° C
STORAGE TEMPERATURE (MIN/MAX)	-20° / +50° C
DIMENSIONS w/o CAMERA	348 x 170 x 150 mm
WEIGHT w/o CAMERA	4.4 kg
OPERATING VOLTAGE	12 - 28 VDC
POWER CONSUMPTION	60 W (typical)

LiDAR SENSOR

RANGE MEASUREMENT PRINCIPLE	Time of Flight
MINIMUM RANGE	1.5 m
MAXIMUM RANGE	290 m @ 20% reflectivity, 200 kHz
PULSE REPETITION FREQUENCY	200 kHz, 500 kHz selectable
BEAM DIVERGENCE (1/E ²)	0.3 mrad
WAVE LENGTH	1550 nm
LASER SAFETY CLASSIFICATION	Class 1
LASER WEIGHT	3.5 kg
RANGE RESOLUTION	2 mm
INTENSITY RECORDING	12 bits
MAXIMUM NUMBER OF RETURNS	4 (First, Second, Second Last, Last)
RANGE ACCURACY 1 SIGMA	10 mm
PRECISION SINGLE SHOT	5 mm
FIELD OF VIEW	360°
LINES PER SECOND (SCAN FREQUENCY)	50 - 250 lines/sec

NAVIGATION SYSTEM

CONSTELLATION SUPPORT	GPS + GLONASS + BEIDOU + GALILEO
SUPPORT ALIGNMENT	Kinematic, Single-Antenna or optional Dual-Antenna
OPERATION MODES	Real-time, Post processing optional
ACCURACY POSITION	1 cm + 1 ppm RMS horizontal
IMU GYRO IN-RUN BIAS STABILITY	1.0°/hr to 0.5°/hr options



QUICK SPECS

ABSOLUTE ACCURACY

2-3 cm RMSEz @ 100 m⁽¹⁾⁽²⁾⁽⁴⁾

INTRASWATH PRECISION

2 cm RMSDz @ 100 m⁽¹⁾⁽²⁾⁽³⁾

WEIGHT (including camera)

4.9 kg / 10.8 lbs

LASER RANGE

290 m @ 20% reflectivity, 200 kHz

SCAN RATE

500 kHz, up to 4 returns

APPLICATIONS



OIL & GAS SURVEYING



UTILITIES MAPPING



RAILWAY TRACK MAPPING



AGRICULTURE & FORESTRY MONITORING



CONSTRUCTION SITE SURVEYING



OPEN PIT MINING OPERATIONS



GENERAL MAPPING

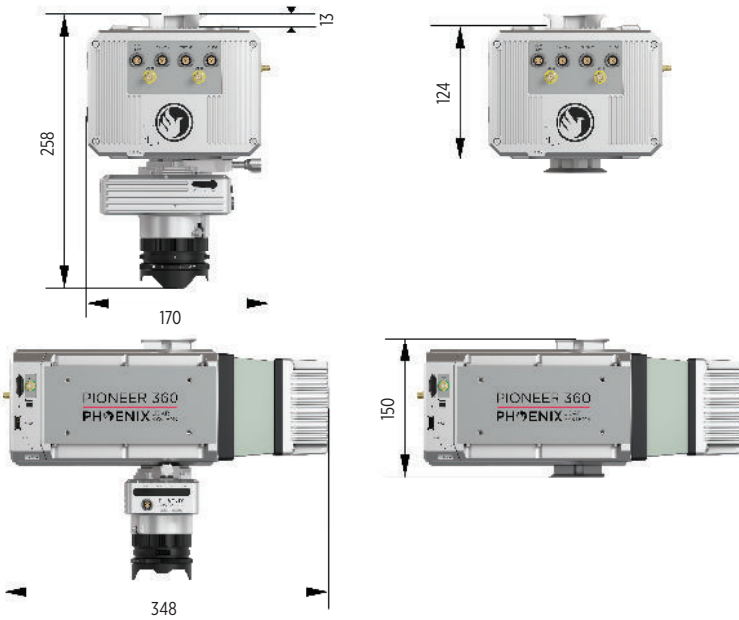
1) Approximate values based on PLS test conditions.

2) Using a 90° downward field of view.

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

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

PIONEER-360 DIMENSIONS (mm)

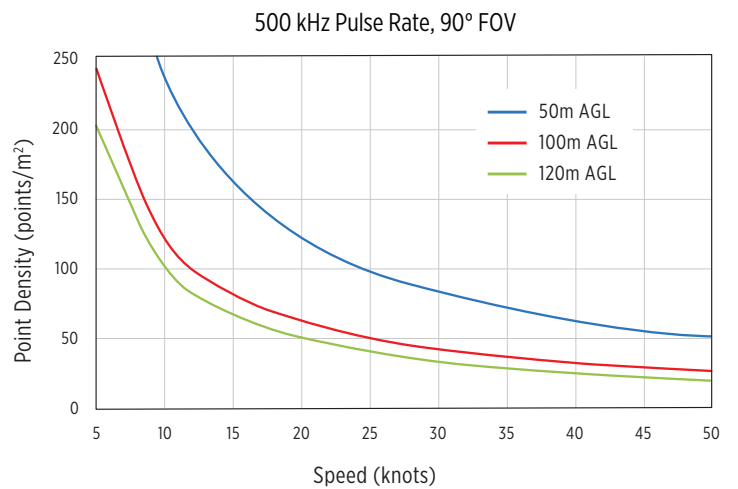
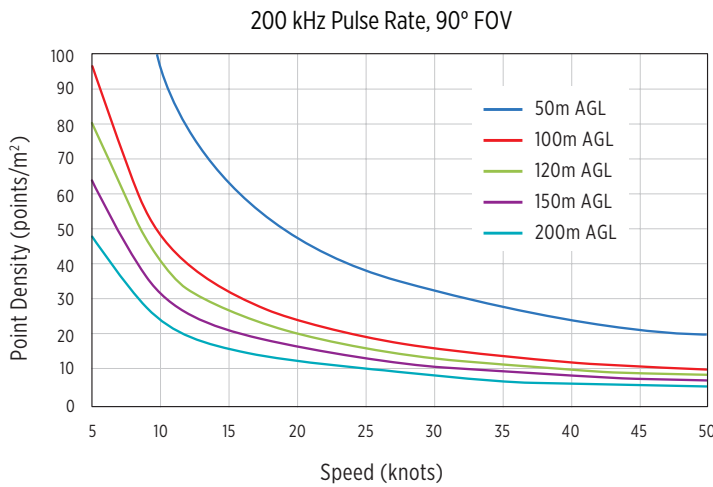


RANGE MEASUREMENT PERFORMANCE

Laser Pulse Repetition Frequency (PRF)	200 kHz	500 kHz
Maximum Measuring Range ⁽¹⁾		
@ 10% target reflectivity	205 m	130 m
@ 20% target reflectivity	290 m	185 m
@ 50% target reflectivity	490 m	250 m
Typical Operating Flight ⁽¹⁾		
@ 10% target reflectivity	130 m	85 m
@ 20% target reflectivity	185 m	120 m
@ 50% target reflectivity	315 m	160 m

⁽¹⁾ Source Teledyne Optech Incorporated

SPEED VS. POINT DENSITY



PIONEER-360 ACCESSORIES



Wheel Sensor



Ground Vehicle Roof Rack Mount



360° Mobile Camera



61 MP Camera



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

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