PHOENIX
LiDAR SYSTEMS

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

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

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)

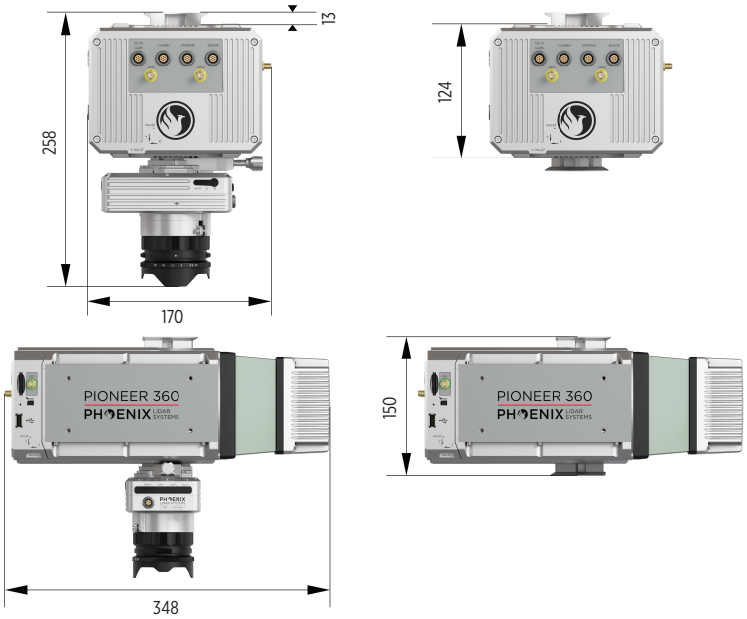
LiDAR SENSOR

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/E²)	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

PIONEER-360 DIMENSIONS (mm)

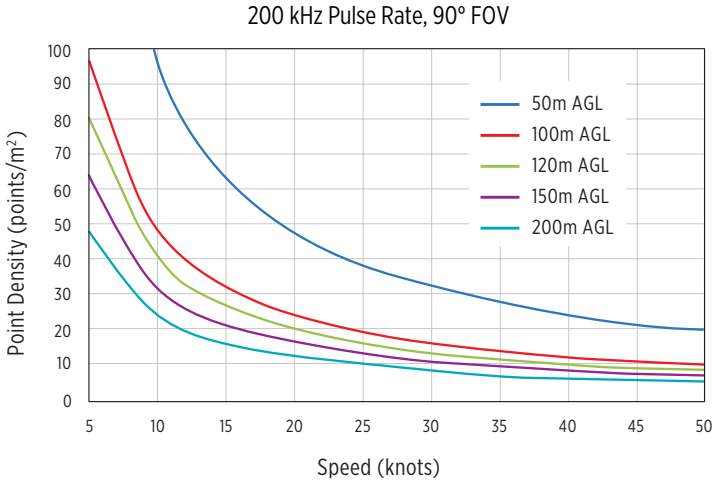


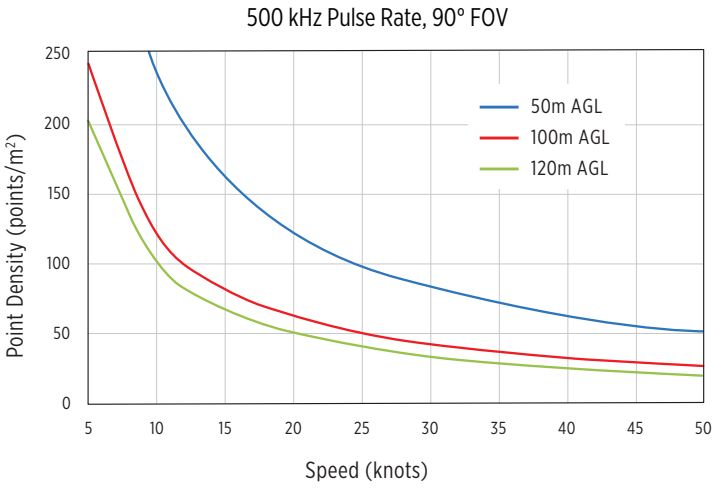
RANGE MEASUREMENT PERFORMANCE

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



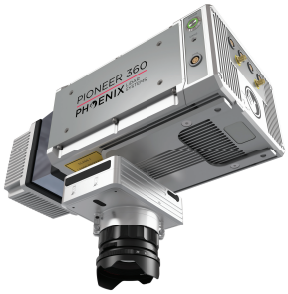


PIONEER-360 ACCESSORIES

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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