EchoONE

Powered by Inertial Labs RESEPI

Secure Lightweight Airborne Laser Scanner

PRELIMINARY

The TELEDYNE GEOSPATIAL EchoONE is a secure lightweight airborne laser scanner compatible with WISPR Skyscout and Ranger Pro models. For applications such as land surveying, electric utility vegetation management and asset management, and transportation projects, the EchoONE delivers secure, colorized engineering-grade LiDAR point clouds.

NDAA COMPLIANT / DATA SECURITY

EchoONE is compliant with FY2020 NDAA Sec 848 and FY2023 NDAA Sec 817

- EchoONE is designed, developed and manufactured to be compliant with projects requiring the safety and security of data

LONG-RANGE LIDAR AND CANOPY PENETRATION

Powerful eye-safe laser with 270 m range to 20% reflectivity targets

- Flexibility to map large areas quickly from a high operating altitude, capture narrow electric utility conductors or wires, and penetrate thick vegetation with returns from both tree structure and ground

WIDE-ANGLE PERSPECTIVE

90 deg horizontal field of view with 4 unique +/- 10 deg vertical scan angles

- Wide horizontal field of view maximizes swath reducing flight time
- Vertical field of view captures utility poles and building walls

PRECISE DATA

5 mm lidar ranging accuracy and 1.5 cm georeferenced accuracy

- Low noise data results in crisp, detailed scans for modeling applications in utilities and transportation

ULTRA-LIGHTWEIGHT DESIGN

EchoONE weighs 1.2 kg and is the lightest weight UAV laser scanner with its performance

- Capture larger areas with increased flight time before needing battery swaps
- Compatible with smaller airline transportable UAVs and fewer transportation cases

REALTIME GEOREFERENCED POINT CLOUD

Georeferenced point cloud generated on-sensor in realtime

- Pilot QC review of LAS file to ensure project coverage prior to leaving site
- Realtime API for third-party customized solutions

HIGH-ACCURACY INERTIAL MEASUREMENT UNIT

EchoONE includes the Inertial Labs KERNEL-210 tactical grade IMU

- High accuracy inertial measurements ensure the accuracy and reliability of lidar point clouds when verified to ground control points

INTEGRATED COLORIZATION CAMERA

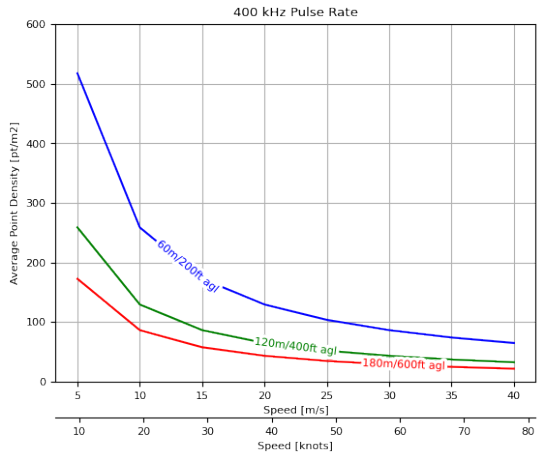
EchoONE includes a 5 MP global shutter camera and optional 61 MP camera

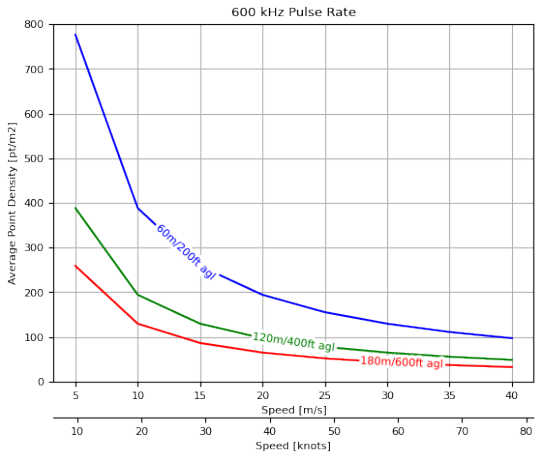
- Colorized point clouds provide additional context not available with intensity alone
- Optional 61 MP allows for simultaneous capture of high-resolution imagery for orthomosaics and inspection

SYSTEM SPECIFICATIONS		
Absolute Accuracy[1]	1.5 cm RMSEz @ 120 m	
Example Area Coverage 30 min, 400 ft/120 m agl 8 m/s, 20% sidelap	695 acres / 281 ha	
LASER		
Laser Pulse Repetition Frequency	400 khz	600 khz
Effective Pulse Repetition Frequency	316 kHz	474 khz
Max. Measuring Range 20% targets[2]	270 m	225 m
Max. Operating Altitude agl, 20% targets[3]	205 m	170 m
Returns	Up to 8 per pulse 0.7 m minimum target separation	
Range Accuracy / Precision, 1sigma[1]	10 mm / 5 mm	
Laser beam divergence 1/e2	0.5 mrad	
Minimum range	3.0 m	
Horizontal Field-of-View	90 deg	
Vertical Scan Lines[5]	-10 deg, -4 deg, +4 deg, +10 deg	
Lines Per Second	Up to 250	
Wavelength	1535 nm	
Laser Product Classification	Class 1 (IEC 60825-1:2014)	
INS		
Constellations	GPS, GLONASS, Galileo, BeiDou, QZSS,NavIC (IRNSS), SBAS, L-Band[4]	
Frequencies	L1, L2, L5[4]	
Pitch / Roll Accuracy	0.03˚ (RTK); 0.006˚ (PPK)	
Heading Accuracy	0.08˚ (RTK); 0.03˚ (PPK)	
CAMERA		
Internal	5 MP Global Shutter, 80 deg FOV	
External	Optional Sony ILX-LR1	

ENVIRONMENTAL	
Operating Temperature	-10C to +50C
Storage Temperature	-40C to +85C
Ingress Rating	IP54
Compliance	NDAA, CE, RoHS, WEEE, REACH
PHYSICAL	
Size	170 mm L x 144 mm H x 110 mm W
Weight	1.2 kg
Power	60 W, 9-50 V
OPERATIONAL	
Communication	WLAN, Wifi
Onboard Storage	512 GB
Removable Storage	USB
SOFTWARE	
Inertial Labs PCMaster Pro	One-click post-processing Post-Processing Inertial Data Colorization Point cloud visualization and measurement Automation tools
Teledyne LMS Pro (Optional)	Multiple Coordinate Reference Systems Lidar System Calibration Boresight Calibration Strip Alignment Control Point Report Visual Quality control tools
OPTIONS	
Gremsy Payload Interface External Sony ILX-LR1 61MP Camera Teledyne LMS Pro	

1. Under Teledyne Geospatial test conditions
2. Nominal, Target size >= laser footprint, perpendicular angle of incidence, 23 km clear visibility
3. Nadir +/- 40 deg, +/-5 deg roll
4. Maximum available, dependent on receiver configuration
5. At Nadir





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