

Autonomous Airborne Mapping Solution

Applications

- Powerline mapping
- Pipeline monitoring
- Construction site monitoring
- Mine monitoring
- Stockpile surveying
- Small-area surveying
- Archaeology and cultural heritage documentation

Experience the efficiency and automation of Eclipse with Optech LMS, the only fully integrated pre-processing software on the market that processes both lidar and image data simultaneously to standard output formats, for direct ingestion into third-party post-processing systems.



Autonomous Lidar and Imagery Data Collection

The Teledyne Optech Eclipse is an autonomous airborne system focusing on operator-less data collection on low-cost platforms. Eclipse is designed specifically for the efficient data collection of smaller project areas and corridor applications, requiring only a pilot for navigation.

Eclipse combines an eye-safe, high-performance, 1.5-micron laser with a high-accuracy automatic imaging system for effortless collection of high-resolution lidar data and imagery via its innovative sensor motion detection system. Lidar and image data are captured on a single removable SSD cartridge for fast and efficient data transfer to Optech Lidar Mapping Suite (LMS).

- Fully autonomous airborne collection system for operator-less data collection on low-cost platforms
- Automatic data logging using a proprietary sensor motion detection system
- Completely integrated active and passive imaging system that simultaneously records high-resolution image data to the same removable drive as the lidar data
- Class 1 eye-safe laser for freedom of operation in all environments
- Survey-grade accuracy
- Minimum of 4 points/m² from 1000 m (3300 ft) AGL
- Up to 7 returns for improved vertical density
- Fully-electronic camera with no moving parts to maximize reliability
- Rotating polygon scanner for parallel scan lines and even point distribution
- Intuitive and simple planning software with integrated digital globe map engine
- Single unified workflow that downloads, calibrates, boresights, qualifies, quantifies and outputs both lidar and raw image datasets
- No operational training required

Optech ECLIPSE Technical Specifications

Parameter	Specification
Automatic Mapping System	
Performance envelope ^{1,2,3,4}	50 - 1000 m AGL nominal
Laser wavelength	1.5 μm
Laser classification	FDA/IEC Class 1
Laser pulse repetition rate	450 kHz (effective 300 kHz)
Elevation accuracy ^{2,3}	<3 - 7 cm, 1 σ
Horizontal accuracy ^{2,3}	1/3500 × altitude, 1 σ
Position and orientation system	Applanix AP20 (AP40 optional)
Range capture	Maximum 7 range measurements per pulse
Intensity capture	Intensity measurements for all corresponding range measurements (maximum 7 per pulse)
Minimum target separation distance	<0.7 m
Range precision ⁵	<0.01 m, 1 σ
Scanner type	Rotating polygon
Scan FOV	60°
Scan lines per second	100
Image capture	High-resolution interline RGB camera
Sensor format	6600 × 4400 pixels
Pixel size	5.5 μm
Shutter	Fully electronic and maintenance-free
Lens	35 mm
Capture rate	1 FPS
Data storage	Removable 1 TB SSD (SATA VI); 4 hours minimum
Vibration isolation mounts	Included
Power	28 VDC nominal at <200 W or 8 amps
Operating temperature	0 to +45°C
Storage temperature	-30 to +85°C
Relative humidity	0 - 95% non-condensing
Dimensions and weight	Sensor(s): 355 × 328 × 290 mm; 167 × 110 × 100 mm; 30 kg Footprint: 515 × 378 × 296 mm Controller: 470 × 880 × 300 mm; 6.5 kg

1. Target reflectivity ≥20%.

2. Dependent on selected operational parameters assuming nominal FOV of up to 60° in standard atmospheric conditions (i.e. 23-km visibility) and using Optech LMS Professional software suite

3. Angle of incidence ≤30°

4. Target size ≥ laser footprint

5. Under Teledyne Optech test conditions, 1 σ