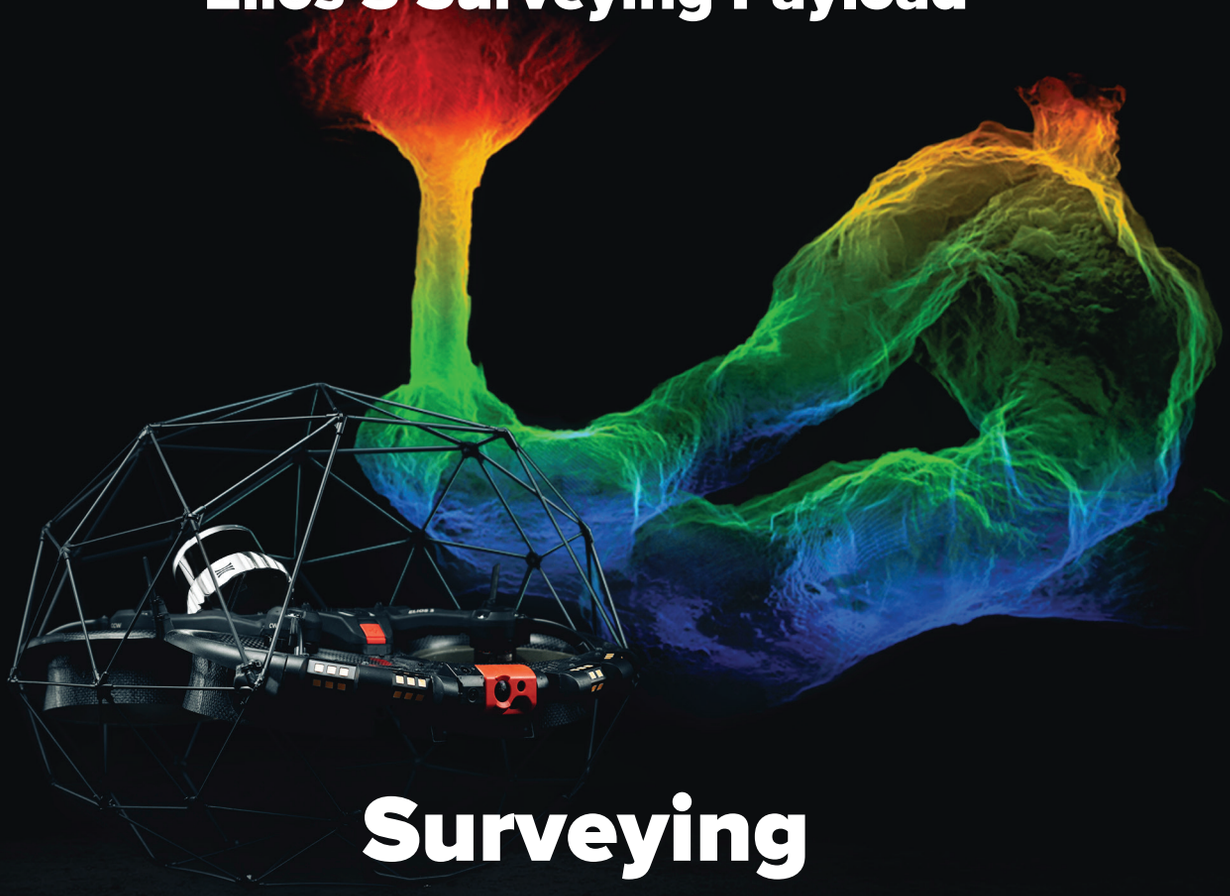
FLYABILITY | FARO

HIGH PRECISION LIDAR DATA

Elios 3 Surveying Payload



Surveying the inaccessible

Beyond safe-access scans

Enter through openings as big as 50x50cm to capture detailed point cloud and visual data beyond the reach of existing data capture solutions.

Uplifted mapping efficiency

Quickly deploy a drone and scan a 300 meters tunnel (close loop) in a single flight, turning days of mapping into a 10-minute job.

Survey-grade accuracy

The Ouster OS0-128 Rev 7 LiDAR sensor and the world's leading FARO Connect SLAM algorithm create detailed 3D maps with centimeter accuracy.

Stunning point clouds

Effortly capture rich, point clouds of the most complex indoors, operating from a safe location. Allowing for precise mapping and analysis.

Elios 3 Surveying Payload

Technical specifications

LIDAR PAYLOAD

Accuracy	From 0.1% drift
Precision	1σ +/- 6mm, 2σ +/- 12mm
Range	Up to 100m
Scanning rate	1,310,720 pts/sec
Photon sensitivity	10x
Configuration	Ouster OS0 128 beams REV 7 sensor[1]
Handheld functionality	✓

1. Specifications for the OSO 128 beams REV 7 sensor are provided by Ouster. Complete specifications of the sensor are available on Ouster's website.

AIRCRAFT WITH SURVEYING PAYLOAD MOUNTED

Modification from nominal specifications

Weight	2465g +/-15g, 5.45lbs +/- 0.53oz
Flight time[1]	9 minutes
Operating Temperature[2]	0° C to 48° C, 32° F to 118° F
Operating Altitude[3]	Min: -3000m, Max: +2700m AMSL Min: -9850ft, Max: +8850ft AMSL
Data Transfer Time	6 minutes[4] for a full time flight including LiDAR data

1. In ideal flight conditions, with a new battery
2. Valid for batteries pre-conditioned between 10°C and 40°C (50°F to 104°F)
3. Additional payloads will further degrade this performance
4. When using USB3.0 cable and USB3.0 port on the computer running Inspector

SOFTWARE REQUIREMENTS

Minimum	Windows 10
	I7 7th Generation (or equivalent)
	AMD Ryzen 7 (1700X) (or equivalent)
	Integrated Graphics
	64GB RAM
	512GB disk (100 GB free space)
	SSD memory
Recommended	Window 10
	I9 12th Generation (or equivalent)
	AMD Ryzen 9 (3900X) (or equivalent)
	NVIDIA GTX 3060
	128GB RAM
	1TB disk (100GB free space)
	M.2 PCIe memory

POST PROCESSING

Software options	Inspector, FARO Connect
Data output format	LAZ, LAS, PLY, TXT, and E57
Georeferencing	Automated GCP target detection

ACCURACY DEEP DIVE

LiDAR's accuracy may vary depending on the geometry of the mapping environment.

		Configuration **Elios 3 & FlyAware**	Configuration **Elios 3 Surveying Payload and FARO Connect**
Structured environments	• Buildings, stockpiles, containment areas • Little to no symmetry • Geometric features • Diameter/distance between walls >2m meters (6.5 feet)	1x 0.5-1% drift	5-10x improvement ~0.1-0.2%
Nominal symmetric environments	• Tunnels, stacks, shafts • Diameter >2m (6.5 feet) • Regular geometric features	1x ~2% drift	5-10x ~0.25-0.5%
Challenging symmetrical environments	• Tunnels, stacks, shafts • Diameter >2m (6.5 feet) • Light geometric features	1x 2-5% drift	2-5x 0.5-2% (50-80% success rate)
Very challenging symmetrical environments	• Tunnels, pipes, stacks, shafts • Diameter <2m (6.5 feet) • Light geometric features	1x 5+% drift	1-2x 2-5% (50-80% success rate)

SURVEYING PACKAGE

Hardware

The surveying payload comes as a package with the Elios 3 drone or as a standalone payload for existing Elios 3 users.

FARO Connect software

This software is meant to ease the processing and management of Elios 3's LiDAR data.

Reflective targets

Perfectly sized for FARO Connect to automatically detect in the SLAM registration workflow.

Training course

Covering everything from best flight practices to processing and registration.