



UNIDAR TECHNOLOGIES

Beyond Limits. Beyond Measure.

Product Portfolio & Core LiDAR Solutions

Five Core Product Lines Overview

Product Lines

Establishing a consistent product roadmap based on platform, range, wavelength, mission profile, and market entry point.

Product Line	Primary Platform	Measurement Capability	Core Spec.	Primary Mission	Market Entry Point
Drone Altimeter	Multi-rotor / Industrial Drones	0.1–120 m Altitude Range	905 nm / ± 3 cm / <25 g	Takeoff/landing, altitude hold, terrain following	Drone OEM Module
Drone LiDAR	Multi-rotor / Industrial Drones / Large UAV Mission Carriers	0.1–120 m Scanning	1D / 905 nm / ≥ 50 kHz	Maritime inspection, infrastructure inspection	Mission-oriented UAV Perception
Long-Range Rangefinder	Electro-Optical (EO/IR) Pods / Ground Observation	30–10,000 m Range	1.5 μ m / 1–10 Hz / <120 g	Surveillance, target localization, forward observation	Multi-sensor EO/IR Gimbals / Counter-UAS (C-UAS)
CubeSat LiDAR	CubeSat / Small Satellites	≥ 25 km Ranging & Altimetry	532/1064 nm / 1 kHz / 2U	Rendezvous & proximity operations, altimetry, target ranging	Small Satellite Payloads
Underwater LiDAR	Vessels / Coastal / Airborne Platforms	≤ 50 m Depth	532/1064 nm / 1 kHz / 2U	Bathymetry, seabed mapping, harbor waters	Hydrographic Survey / Ocean Monitoring

Product Portfolio Logic: Short-range high-frequency perception, mission-oriented scanning, long-range surveillance, spaceborne ranging, and underwater bathymetry—forming a comprehensive sensing matrix.

Product 1: Specification & Positioning

Drone Altimeter

Compact, low-power, real-time altitude feedback module tailored for UAV underbelly integration.

Core Specifications

905 nm
Wavelength

0.1–120 m
Range

±3 cm
Accuracy

>10 kHz
Data Rate

<25 g
Weight

<1 W
Power Consumption

RS232
Interface

<43×35×46 mm
Dimensions



Compact Laser Altimeter Module

Product Positioning

- Near-Ground Altitude Measurement
- Takeoff & Landing Assistance
- Low-Altitude Altitude Hold & Terrain Following
- Ready for Rapid Integration into Industrial Drones



Demo : 1 m / 35 m / 120 m Height Measuring

Product 1: Applications

Drone Altimeter

Used for low-altitude flight safety and automated control; ideal for integration by platform manufacturers or system integrators.

1 自動起降 / 精準降落

提供高度資訊，提升起降穩定性與安全性



3 避障 / 高度維持

偵測下方障礙物，協助高度維持與避障



2 地形跟隨 / 低空貼地飛行

即時感知地形高度，維持穩定飛行高度



4 GNSS 受限環境 / 室內外近距作業

在無 GPS 環境中，提供穩定高度參考



1

Takeoff & Landing

2

Terrain Following

3

Obstacle Avoidance

4

GNSS-Denied

Product 2: Specification & Positioning

1D Drone LiDAR

Scanning altitude and distance perception module supporting maritime and aerial inspection missions.

Core Specification

1D Scan
Scan Type

905 nm
Wavelength

0.1–120 m
Range

±3 cm
Accuracy

≥50 kHz
Data Rate

≥90°
FoV (H/V)

0.1°
Angular Resolution

100 MHz Base-T1
Interface

140×73.7×74 mm
Dimensions

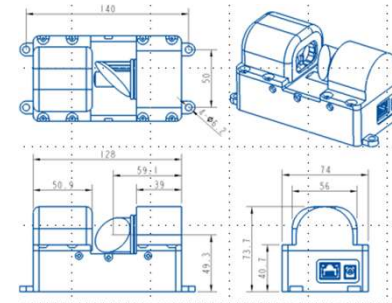
<300 g
Weight



Proprietary Drone LiDAR Module

Positioning

- Superior to altimeters for surface-area / scanning perception)
- Maritime surveillance and low-altitude inspection missions
- Payload for large mission-oriented UAVs
- 100BASE-T1 for high-reliability connection



Product 2: Applications

Targeting maritime, inspection, SAR, and disaster response to build mission-tailored drone perception solutions.

1D Drone LiDAR

無人機光達應用 (1)

海事與巡檢應用



1D 掃描 | 905 nm | 0.1-120 m

① 海岸巡防



② 港口巡檢



③ 小艇搜尋 / 海面監測



④ 橋梁巡檢



⑤ 輸電線 / 塔架巡檢



⑥ 風機 / 太陽能設施巡檢



Maritime / Inspection: Coastal Patrol, Port Inspection, Vessel Search, Bridge and Energy Facility Inspection

無人機光達應用 (2)

救災、搜救與海事延伸應用



1D 掃描 | 905 nm | 0.1-120 m

① 海上搜救



② 海岸災害監測



③ 港區安全 / 夜間巡查



④ 山區搜救



⑤ 土石流 / 崩塌調查



⑥ 洪水 / 地震災後評估



Disaster Relief / Search and Rescue (SAR): Maritime Search and Rescue, Mountain Search and Rescue, Disaster Monitoring, Landslide and Flood Assessment

Product 3: Specification & Positioning

Long-Range Rangefinder

Long-range, low repetition rate, and high precision; ideal for surveillance, positioning, and target range measurement.

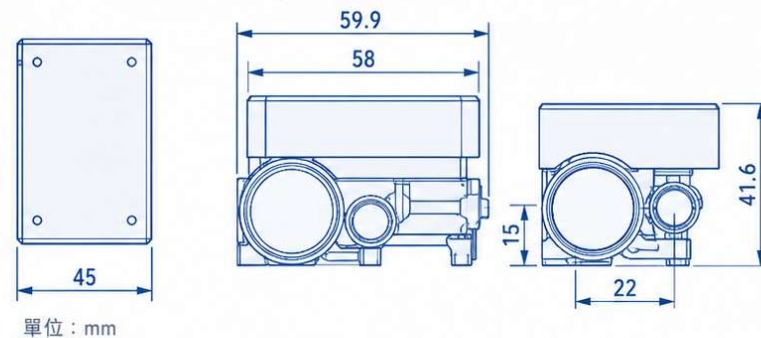
10km 雷射測距儀模組

長距離目標監視與量測

波長	1.5 μ m
重複率	1-10 Hz
測距範圍	30-10,000 m
精度	± 5 cm (≤ 100 m) / $\pm 0.05\%$ (> 100 m)
尺寸	< 45 mm $\times$ 41.6 mm $\times$ 59.9 mm
重量	< 120 g
功耗	< 2 W
介面	RS232/422



適合整合於三光光電球與地面觀測系統



單位：mm

Product 3: Applications

Long-Range Rangefinder

Mission value defined by repetition rate and product positioning: suitable for surveillance / target measurement; not suitable for high-frequency scanning tasks.

任務價值與適用性

長距離、高精度，適合監視與目標量測；不適合高頻掃描型任務



✓ 適合任務



✗ 不適合任務 (因重複率僅 1-10 Hz)



長距離雷射測距儀重點在監視、定位與距離量測，而非高頻掃描。

Product 4: Specification

CubeSat LiDAR

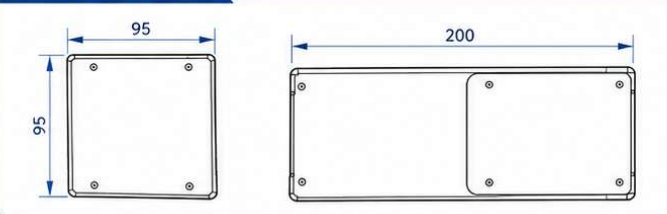
Long-range, high-precision space ranging and altimetry module for small satellite platforms.

2U 25km CubeSAT LiDAR 規格總覽

	類 型	測高光達
	雷射波長	532 / 1064 nm
	資料率	≥ 1 kHz
	視場角	10°(H) × 10°(V)
	角解析度	0.05°(H) × 0.05°(V)
	量測距離	≥ 25 km
	精 度	≤ 50 mm (1 σ)
	尺 寸	< 95 mm × 95 mm × 200 mm
	重 量	< 1500 g
	功 耗	< 30 W
	介 面	Ethernet



尺寸示意圖 (mm)



25 km
最遠量測距離



1 kHz
高資料率



2U
CubeSAT 標準尺寸



Dual Wavelength
532 / 1064 nm



小型化、高精度、適用於太空載具測距與測高任務



Product 4: Applications & Key Capabilities

CubeSat LiDAR

From terrain/sea-ice altimetry to rendezvous, proximity operations, and in-orbit target ranging, supporting small satellite mission perception.

CubeSAT 光達應用場景

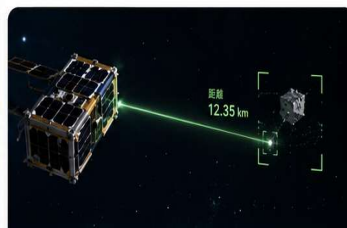
適用於太空測高、交會接近、目標測距與軌道任務感知



地形 / 海冰測高



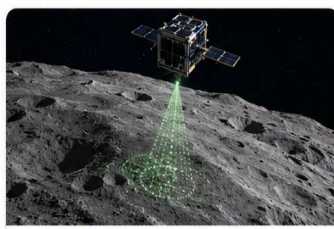
衛星交會與接近



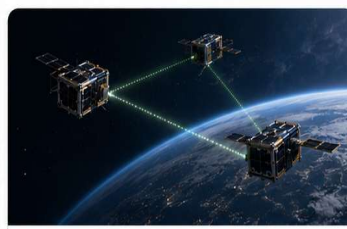
在軌目標測距



太空碎片監測



月球 / 小天體探測



編隊飛行感知

* 規格參考：測距範圍 ≥ 25 km，數據率 ≥ 1 kHz，角度分辨率 $0.05^\circ(H) \times 0.05^\circ(V)$ ，精度 ≥ 50 mm (1 σ)

Space Applications

任務價值與關鍵能力

高精度、長距離、小型化，支援 CubeSAT 太空量測任務



2U 25km CubeSAT LiDAR



長距離測距 (≥ 25 km)

強大雷射能量與高靈敏接收能力，實現 25 公里以上精確距離量測。



高精度測高 (≤ 50 mm)

高穩定度與精密訊號處理，達成 ≤ 50 mm (1 σ) 的高精度測高。



雙波長量測 (532 / 1064 nm)

綠光與近紅外雙波長設計，提升穿透能力與目標辨識效能。



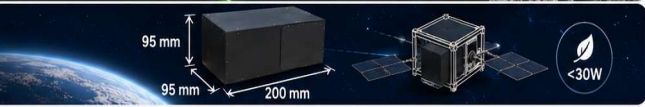
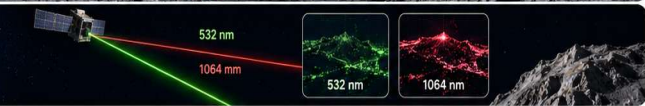
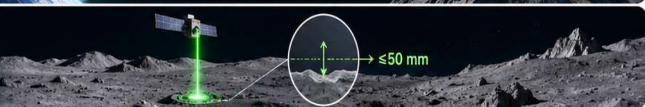
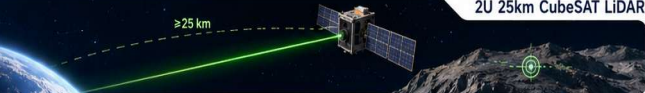
小型化與低功耗 (2U / <30 W)

2U 標準機構設計，體積小、重量輕，功耗低於 30W，適合小型衛星平台。



Ethernet 系統整合

支援 Ethernet 介面，便於與星載電腦及任務系統整合。



適合小型衛星平台執行測高、交會接近與目標量測任務

Mission Values & Key Capabilities

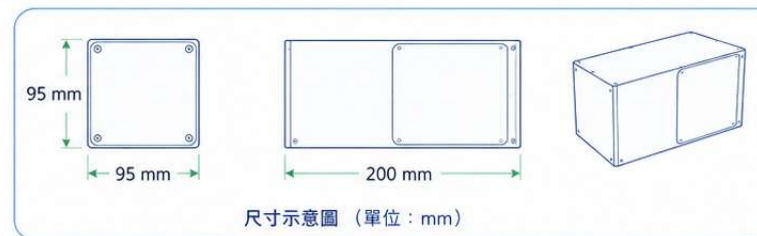
Product 5: Specification

2U Underwater LiDAR

Dual-wavelength (532/1064 nm) system supporting water surface positioning and subsurface bathymetric mapping down to ≤ 50 m depth.

2U Underwater LiDAR 規格總覽

	類型		水下光達
	雷射波長		532 / 1064 nm
	資料率		≥ 1 kHz
	視場角		10°(H) × 10°(V)
	角解析度		0.05°(H) × 0.05°(V)
	量測深度		≤ 50 m
	精度		≤ 50 mm (1 σ)
	尺寸		< 95 mm × 95 mm × 200 mm
	重量		< 1500 g
	功耗		< 30 W
	介面		Ethernet



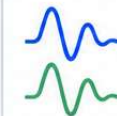
50 m
量測深度
 ≤ 50 m



1 kHz
高速資料率
 ≥ 1 kHz



2U
標準機架高度
2U 設計



Dual Wavelength
532 / 1064 nm

Product 5: Applications

2U Underwater LiDAR

Focus areas: Shallow-water bathymetry, port and fairway sounding, river & lake depth surveys, and coastal ecological monitoring.



Underwater LiDAR 應用場景



1 淺海地形測繪



2 港口 / 航道測深



3 河川 / 湖泊水深調查



4 珊瑚礁 / 沿岸生態監測



5 水下目標搜尋與障礙辨識



6 養殖區 / 水域環境監測





Thank you

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