



ODIN1 Lite

Designed for Embodied AI agents

ODIN1 Lite

Spatial Memory Solution for Embodied AI Agents



1. Product Overview

ODIN1 Lite is a spatial memory solution developed specifically for embodied intelligent agents. Compared to ODIN, it is lighter and more compact. It adapts to quadruped robots, humanoid robots, and mobile platforms, with a rugged design for physical environments.

2. Key Capabilities

Spatial Awareness

Depth and color sensing

Spatial Memory

Localization and mapping

Lightweight Design

Compact 274 g device

3. Core Functions



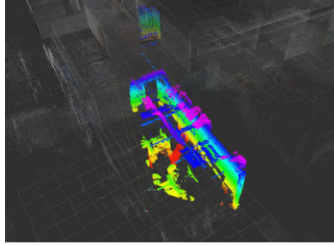
Compact & Rugged

Impact-resistant construction for physical environments. Stable positioning through collisions and complex conditions.



Auto-Exposure dToF

Adaptive exposure as distance changes, supporting grasping, obstacle avoidance and navigation.



Laser-Enhanced Odometry

Robust 3D localization in low-light or degraded environments, without GPS or wheel odometry.



Ecosystem

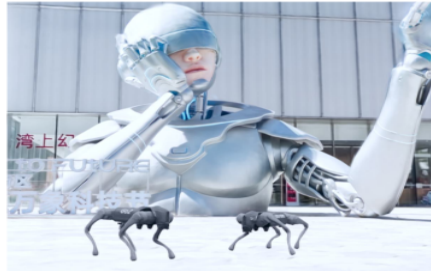
MindCloudX.AI pipeline for sensing, training and deployment with continuous data accumulation.

4. Capture | Train | Deploy Workflow



Capture

Capture real-time depth and color information to generate live 3D and high-precision spatial data.



Train

Upload data to MindCloudX AI. Export Mesh, 3DGS and other formats for Isaac Sim and other platforms.



Deploy

Generate lightweight relocalization maps from spatial data for quadrupeds, wheeled robots and humanoid platforms.

Closed-loop workflow: spatial capture, training environment preparation and robotic deployment.

5. Technical Specifications

5.1. dToF Depth Module

Parameter	Specification / Value
Depth Sensor Resolution	240 × 180
Measuring Range (Max)	25 m (82 ft) @ 10% reflectivity (<50 klux); 50 m (165 ft) @ 90% reflectivity (<500 lux)
Measuring Range (Min)	15 cm (6 in)
Point Frequency	Up to 430,000 pts/s
Distance Accuracy	±3 cm (1.18 in) @ 1 σ [1]
Field of View (H × V)	120° × 90°
Angular Resolution	0.5° × 0.5°
Laser Wavelength	940 nm
Laser Safety Class	Class 1 Eye-Safe
Frame Rate	Up to 10 FPS

5.2. RGB Camera Module

Parameter	Specification / Value
Resolution	1280 × 1088
Exposure Mode	Global Shutter
Field of View	121° H × 106° V × 151° D

[1] Indoor test environment; standard deviation calculated from 20 consecutive frames on 80% Lambertian reflectance panel. At 5 m: ±3 cm @ 1 σ ; 5–30 m: 1 σ accuracy <1%.

5. Technical Specifications (Continued)

5.3. Device Parameters

Parameter	Specification / Value
Built-in SLAM Positioning Accuracy	2 cm (0.78 in) + 0.2% [2]
Weight	274 g
Dimensions (L × W × D)	Approx. 69 × 69 × 58/66 mm (including connector)
Power Consumption	Rated 11 W, Peak 24 W
Protection Rating	IP66
Shock Resistance	50 G × 5 ms
Operating Voltage	9–24 V
Operating Temperature	-4°F to -149°F (as stated in source)
Storage Temperature	-4°F to -176°F (as stated in source)

5.4. Data Output

Output	Format / Details
Point Cloud	True Color / Raw Point Cloud
Image	Raw RGB Image
IMU	High-Frequency Raw Data
Pose	High-Frequency Rotation and Position Data

5.5. MindCloud Platform Features

Global optimization; generation of MESH texture files; export in mainstream 3D formats such as .las, .obj, .e57 and .usd; seamless integration with NVIDIA Omniverse.

[2] Laboratory conditions. Temperature values were copied from the supplied ODIN1 Lite specification and require verification before publication.