SLAMTEC

SLAMTEC Aurora S

Compact AI-Integrated Spatial Perception System

Data Sheet

- More Stable
- More Accurate
- More Powerful

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Contents

Introduction

The Slamtec Aurora S is SLAMTEC's new-generation compact AI-powered integrated spatial perception system, combining visual perception, inertial measurement unit (IMU), and SLAMTEC's proprietary deep learning vSLAM technology. With a highly integrated, plug-and-play design, it enables high-precision 3D mapping, perception, and spatial localization across diverse indoor and outdoor scenarios. It is widely applicable to fields such as embodied intelligence, industrial automation, digital twins, and low-speed autonomous driving.

Core Functions

- **SLAMTEC AI Deep Learning Engine**
- **Indoor and Outdoor Real-Time 3D Mapping and Localization**
- **6DOF Spatial Positioning:** Provides high-precision real-time position and pose information
- **End-to-end Stereo Depth Estimation:** Real-time generation of dense depth data
- **AI Object Recognition and Segmentation:** Real-time generation of object segmentation maps
- **Expandable LiDAR:** Provides higher-precision 2D mapping

Supporting Software and Development Support

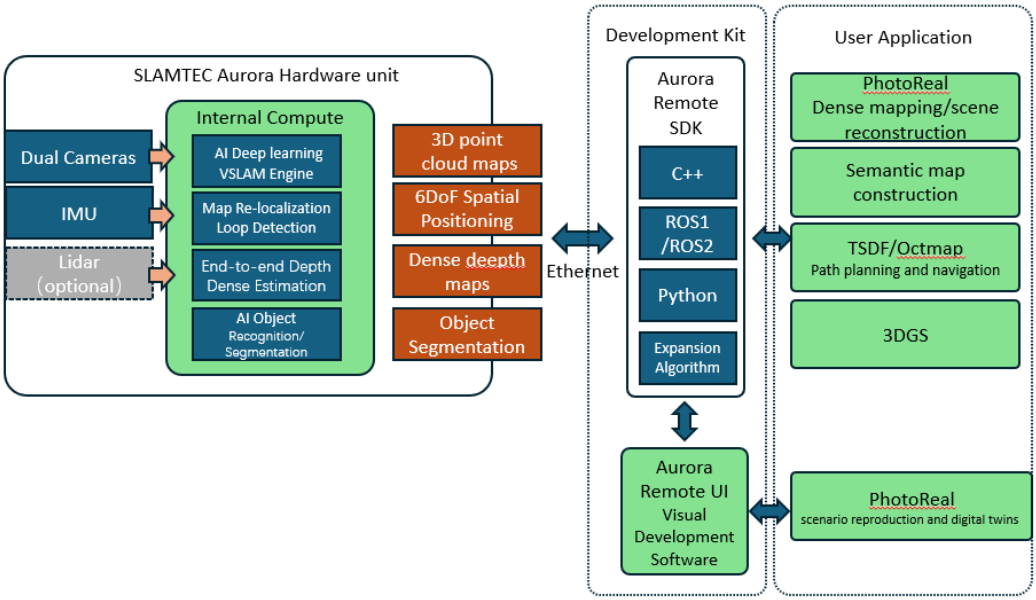
- **Aurora Remote UI:** Visualization software that enables easy scenario reproduction and digital twin applications
- **Aurora Remote SDK**: Comprehensive SDK supporting C++, ROS1/ROS2, and Python for rapid secondary development, enabling customized applications and accelerating downstream product deployment

Feature Overview

- AI Deep Learning vSLAM Engine
- Integrated design with compact size
- Plug-and-play with no external dependencies Universal indoor/outdoor compatibility with strong environmental adaptability

System Components

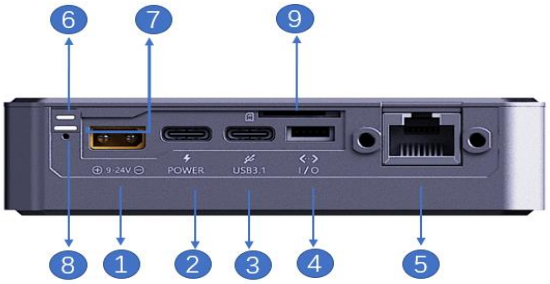
The SLAMTEC Aurora S integrates dual fisheye cameras, an IMU, an LiDAR（optional）, and an onboard processing board into a compact system. It provides real-time 3D point cloud maps, 6DOF spatial positioning, dense depth maps, and object segmentation outputs. With the Aurora Remote SDK, developers can access reliable real-time data to accelerate the development of applications such as dense mapping, scene reconstruction, semantic mapping, path planning and navigation, and 3DGS. The Aurora Remote UI software supports product evaluation and scene reproduction with interactive visualization.



Technical Specifications

Core parameters		Specific indicators
Maximum Mapping Area		>1,000,000 ㎡
Relocation		Global relocation is supported, with an accuracy ± 5cm
Map Management		Supports incremental mapping, map loading and saving
Mapping and Localization mode		Primarily based on deep learning vSLAM, with optional LiDAR fusion
Multi-sensor Synchronization Mechanism		Hardware time synchronization
Camera Specifications		Binocular fisheye, 60mm Baseline, FOV 180°, Global Shutter, RGB
Camera Frame Rate		Typical 15Hz, 10/30Hz can be customized
Dense Depth Camera Function		End-to-end deep learning, robust under strong light and weak texture; >90% detection rate
AI Object Recognition and Segmentation		Supports 18 outdoor scenes and 80 indoor scenes; customizable expansion available
Maximum Tilt Angle	Optional lidar	No requirement without LiDAR; for better 2D mapping, recommended ⩽30°
2D Map Resolution		2cm/5cm/10cm adjustable
LiDAR Measures Range		Up to 40m @ 70% reflectivity
Power Consumption		10W (typical, LiDAR not included)
Operating Temperature		-20℃~50℃
Starting Temperature		⩾0℃
Storage Temperature		-20℃~60℃

Interface Parameters



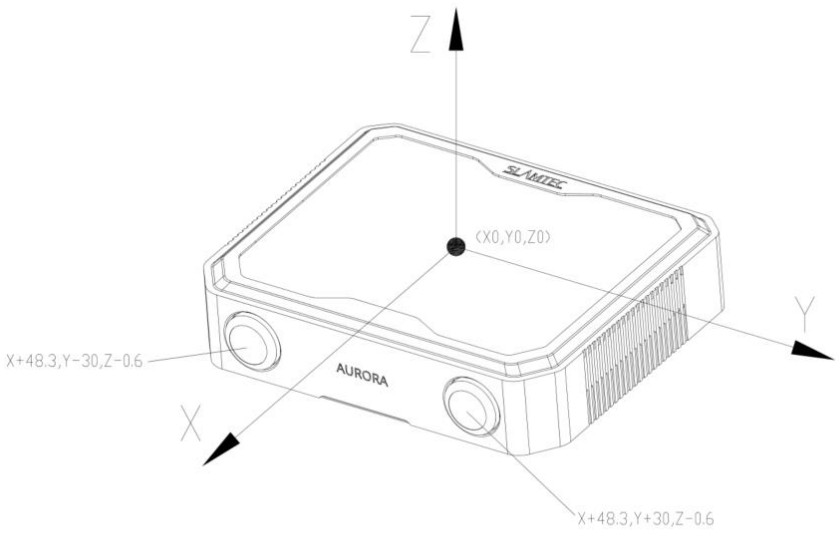
NO.	category	specification	Parameters/descriptions
1	Power Input	XT30PW-M	DC 9-24V
2	Power Input	USB Type-C	Supports USB PD3.0 protocol power input
3	Extension Interface	USB 3.1 Gen1	Supports OTG mode, compatible with Device/Host;
4	I/O Interface	SH1.0-6PWB	6Pin peripheral expansion interface for LiDAR connectivity
5	Data Interface	Ethernet RJ-45	Supports Gigabit Ethernet (1000BASE-T), full-duplex communication; Default IP: 192.168.11.1
6	Run Indicator	White LEDs	Indicates device operating status
7	Status Indicator	Red/green two-color LEDs	Indicates device status
8	Reset Button	-	Press and hold while powering on for 30 seconds to clear configuration; device restarts automatically after reset
9	Storage Expansion	TF card slot	Supports TF card extension for log storage

Status Indicator Light

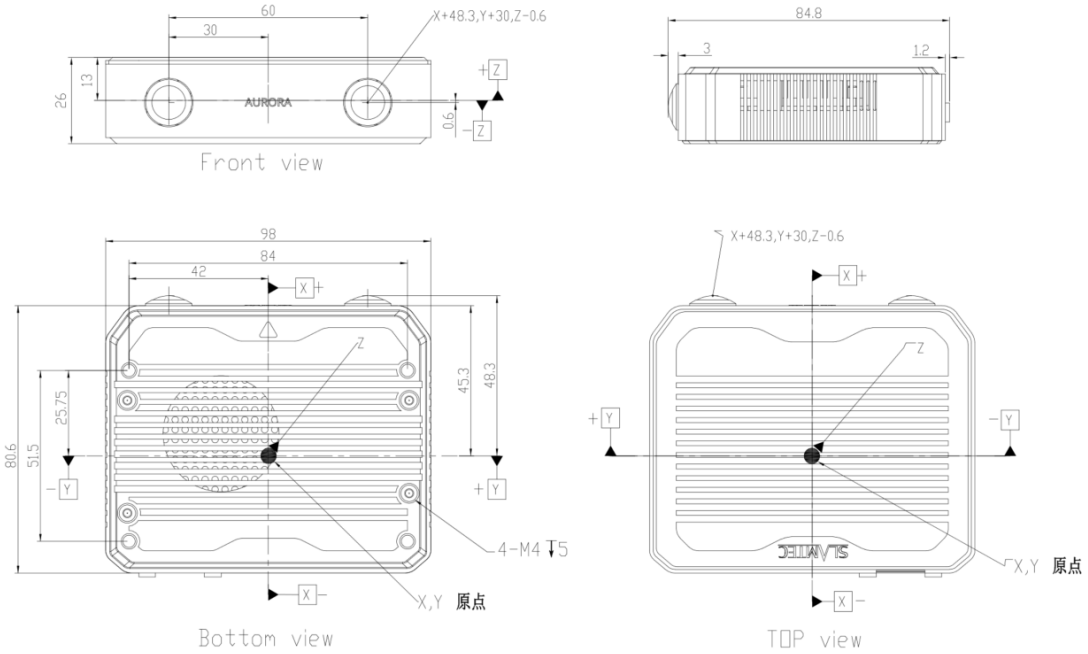
Indicator status	illustrate
White Light Steady On	System running
Green Flashing	Boot complete, awaiting initialization
Green Light Steady On	Initialization complete, mapping started
Red Light Steady On	Device error

Body Coordinate Origin

The position calculated by the SLAM system corresponds to the world coordinates of the device's body coordinate origin. The precise definition of this origin is detailed in the mechanical dimensions diagram.



Mechanical Dimension



Product List

Name	Quantity	Notes
Aurora S A2M2	1	Standard
Adapter	1	Standard
Accessory Kit	1	Optional, additional cost, including Tripod extension legs, Bracket (with screw), AC650 Driver-Free USB WIFI Adapter, USB OTG Adapter

Revision history

Date	Version	Description
2025-09-15	1.0	Initial Version
2025-10-13	1.1	add body coordinate origin