SLAMTEC

# SLAMTEC Aurora S

## Compact AI-Integrated Spatial Perception System

**Data Sheet**

- More Stable
- More Accurate
- More Powerful


Shanghai Slamtec Co., Ltd

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www.slamtec.com

# 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

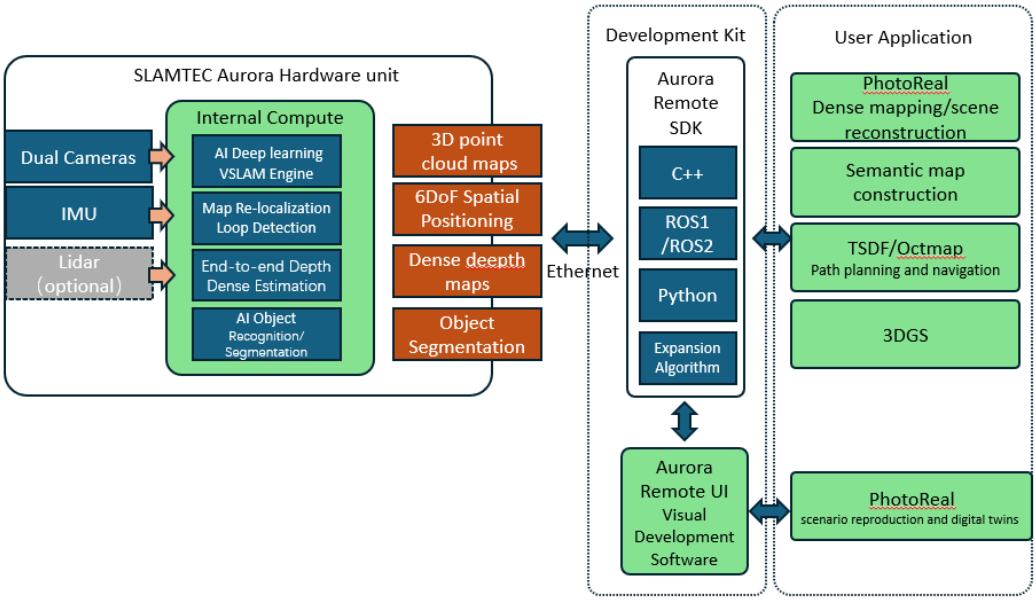
- **Aurora Remote UI:** Visualization software that enables easy scenario reproduction and digital twin applications
- **Aurora Remote SDK**: Comprehensive SDK supporting C++, ROS1/ROS2, and Python for rapid secondary development, enabling customized applications and accelerating downstream product deployment

### 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

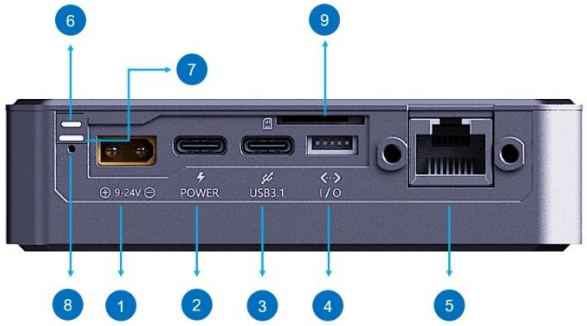
The SLAMTEC Aurora S integrates dual fisheye cameras, an IMU, an LiDAR（optional）, and an onboard processing board into a compact system. It provides real-time 3D point cloud maps, 6DOF spatial positioning, dense depth maps, and object segmentation outputs. With the Aurora Remote SDK, developers can access 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



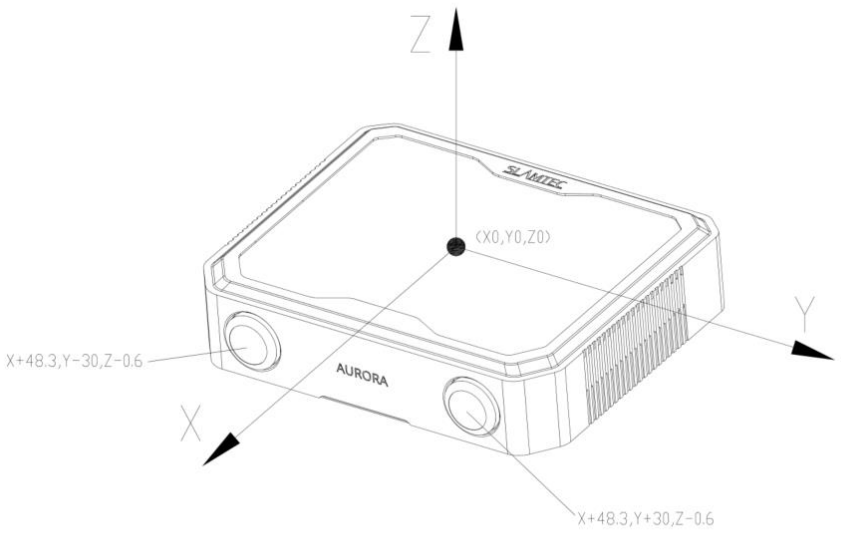

| NO. | category | specification | Parameters/descriptions |
|---|---|---|---|
| **1** | Power Input | XT30PW-M | DC 9-24V |
| **2** | Power Input | USB Type-C | Supports USB PD3.0 protocol power input |
| **3** | Extension Interface | USB 3.1 Gen1 | Supports OTG mode, compatible with Device/Host; |
| **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**

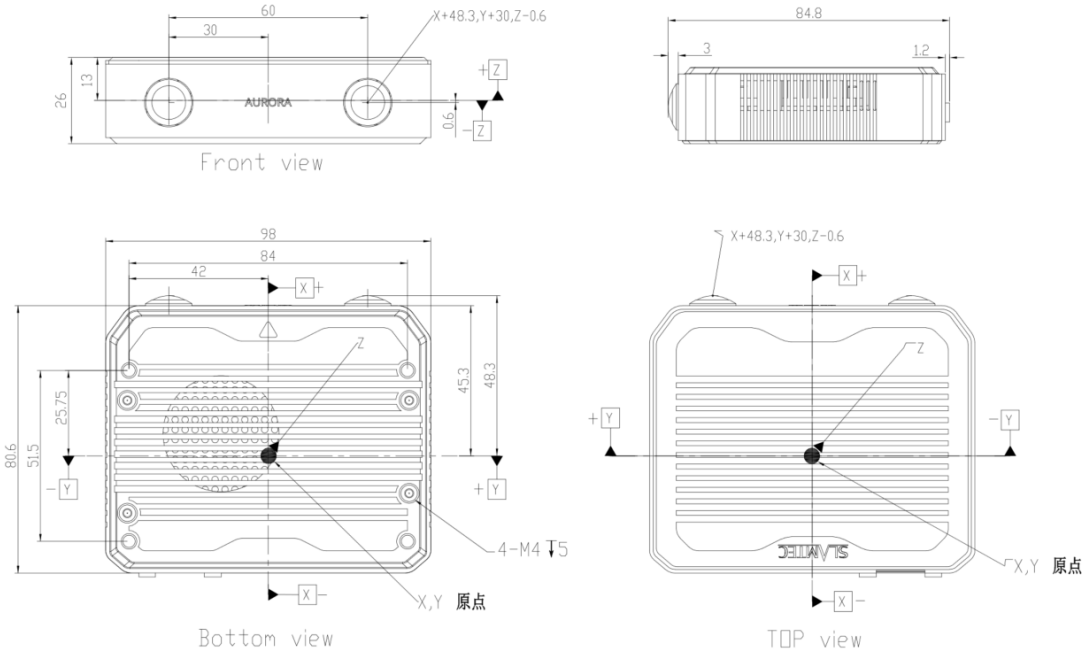
| Indicator status | illustrate |
|---|---|
| White Light Steady On | System running |
| Green Flashing | Boot complete, awaiting initialization |
| Green Light Steady On | Initialization complete, mapping started |
| Red Light Steady On | Device error |

## 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<br>Tripod extension legs, Bracket (with screw),<br>AC650 Driver-Free USB WIFI Adapter,<br>USB OTG Adapter |

## Revision history

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