ZICZNT PAVO2-LS-50H

ZICZNT SIMINICS PAVO2-LS-50H 100Hz 50m TOF Lidar Sensor User Manual

Model: PAVO2-LS-50H

Brand: ZICZNT

1. Introduction

The PAVO2 is a high-performance Lidar product from SIMINICS, integrating advanced innovative technologies. It offers long-distance measurement, high speed, and high point cloud density, making it an excellent choice for autonomous navigation, security, and intelligent transportation.

The PAVO2 features a scanning frequency of up to 100 Hz and a working range of up to 50 meters. With an advanced emission system, it achieves an angular resolution of 0.08° at 50 Hz, enabling precise identification of small targets at long distances. Its integrated multi-echo function effectively identifies objects in dusty, rainy, and foggy environments, adapting to complex outdoor applications.

This image shows the SIMINICS PAVO2 Lidar sensor and highlights its key features: 50m range, 280° aperture angle, 0.08° angular resolution, 100Hz scanning frequency, IP67 protection, and suitability for outdoor use.

2. Specifications

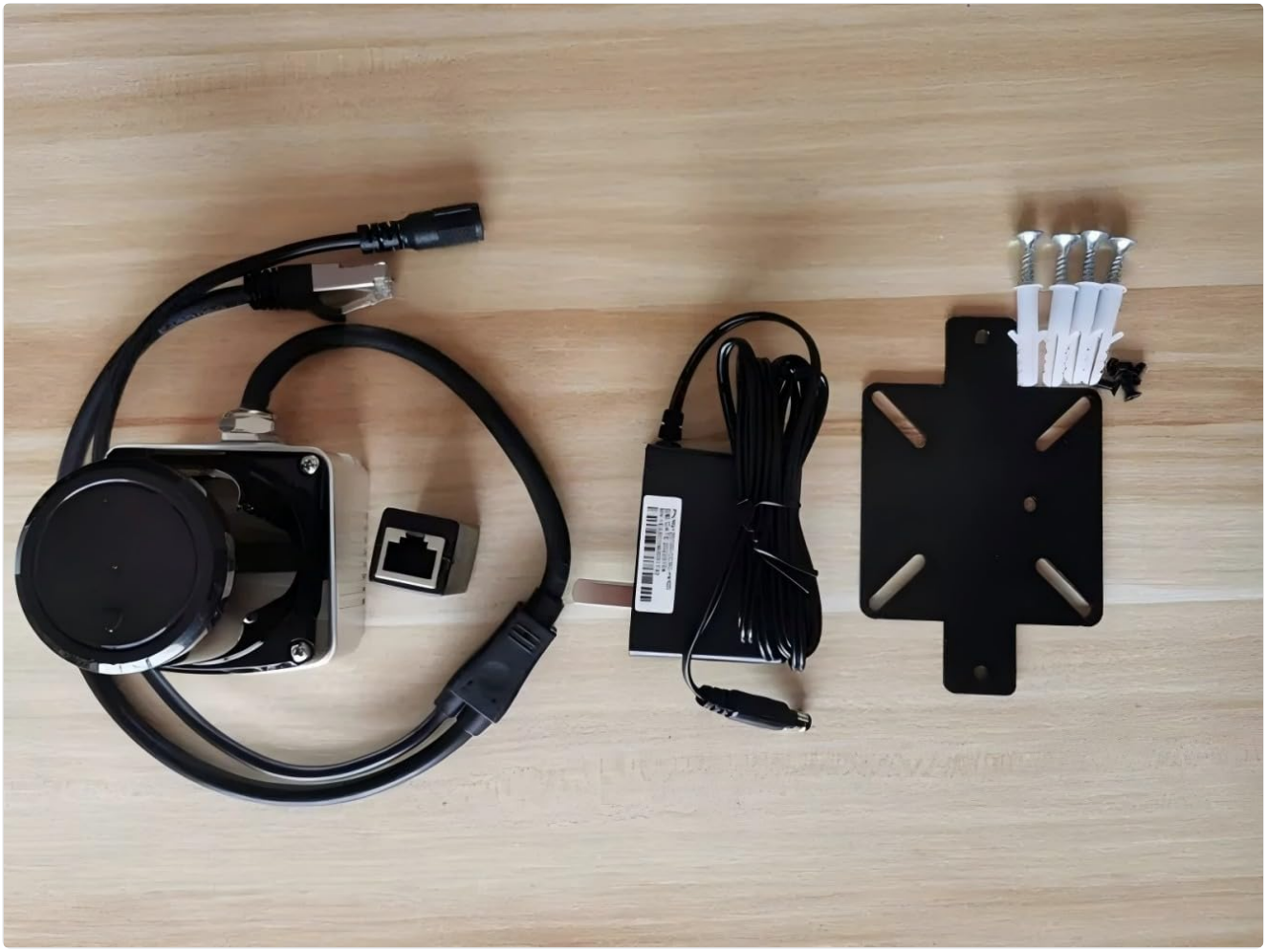
This section details the technical specifications of the PAVO2 Lidar sensor.

Category	Parameter	PAVO2-LS-50H	PAVO2-LS-50HC	PAVO2-LS-50HP
Information	Product Name	2D LIDAR sensor for measurement PAVO 2		
	Model	PAVO2-LS-50H	PAVO2-LS-50HC	PAVO2-LS-50HP
Measurement	Working range	0.05 m - 50 m		
	Accuracy	±20mm		
	Accuracy (near field)	±10mm		
	Aperture angle	280°	360°	280°
	Vertical FOV	±0.5°		
Scanning	Scanning frequency	25Hz/50Hz		100Hz
	Angular resolution	0.08°/0.16°/0.32°		0.32°
Optoelectronic	Power supply	9V-26V		
	Current	0.25 A/12 V		
	Laser	905nm, CLASS 1		
Others	Data Interface	Ethernet 100BASE-TX		
	Initial time	<20s		
	Environment	>80,000 LUX		
	Working Temp	-30°C ~ 75°C		
	Humidity	<80%		
	Work Life	5 years		
	Protection	IP67		
	Size	60*60*80mm		
	Weight	250 g		

This image displays a detailed table of technical parameters for the PAVO2 Lidar sensor, including product name, model variants, measurement ranges, accuracy, optical and electrical parameters, and environmental specifications.

3. Setup and Installation

This section provides instructions for setting up and installing your SIMINICS PAVO2 Lidar sensor.



The image displays the complete set of components for the PAVO2 Lidar sensor. It includes the main sensor unit, connection cables (Ethernet and power), a power adapter, a mounting bracket, and screws for installation. Ensure all components are present before proceeding with installation.

1. **Unpack Components:** Carefully unpack all components and verify them against the packing list. Ensure the sensor unit, power adapter, Ethernet cable, mounting bracket, and screws are all present.
2. **Mount the Sensor:** Use the provided mounting bracket and screws to securely attach the PAVO2 sensor to a stable surface. Ensure the sensor has a clear line of sight for its intended scanning area and is positioned to avoid obstructions.
3. **Connect Power:** Connect the power adapter to the sensor's power input port. Then, plug the power adapter into a suitable electrical outlet. The sensor operates on a 9-32V wide voltage input.
4. **Connect Data Interface:** Connect one end of the Ethernet cable to the sensor's Ethernet port and the other end to your network switch, router, or control system's Ethernet port. The sensor provides UDP packets via 100M Ethernet.
5. **Power On:** Once all physical connections are secure, apply power to the sensor. The sensor should initiate its startup sequence.
6. **Initial Time Synchronization:** The sensor supports PTP/gPTP synchronization for rapid robot integration. Refer to your system's documentation for proper synchronization setup to ensure accurate timestamping of data.

4. Operating Instructions

This section outlines the basic operation of the SIMINICS PAVO2 Lidar sensor.

The PAVO2 Lidar sensor is designed for continuous operation once properly installed and powered. It outputs 3D coordinates, reflectivity, and timestamp data via UDP packets over Ethernet.

4.1 Data Output

The sensor provides real-time point cloud data. This data can be processed by your control system for various applications such as autonomous navigation, obstacle avoidance, and environmental mapping. Ensure your receiving software is configured to correctly interpret the UDP data stream.

4.2 Scanning Frequency

The PAVO2 can achieve a scanning frequency of up to 100 Hz. The angular resolution is 0.08° at 50 Hz. Adjust your system's data acquisition rate accordingly to match the sensor's output capabilities.

4.3 Multi-Echo Function

The integrated multi-echo function allows the sensor to effectively identify objects in challenging environments like dust, rain, and fog. This feature enhances reliability in complex outdoor scenarios by providing multiple returns for a single laser pulse.

This image illustrates a typical 3D point cloud output from the PAVO2 Lidar sensor, showing how it maps its environment with discrete data points. This data is crucial for applications requiring precise spatial awareness.

5. Maintenance

Proper maintenance ensures the longevity and optimal performance of your PAVO2 Lidar sensor.

- **Cleaning:** Regularly clean the sensor's optical window with a soft, lint-free cloth. Use a mild cleaning solution if necessary, but avoid abrasive materials or harsh chemicals that could scratch the lens or damage the housing.
- **Environmental Protection:** The sensor has an IP67 protection rating, making it resistant to dust and water immersion up to 1 meter for 30 minutes. However, avoid prolonged exposure to extreme conditions beyond its specified operating temperature range (-30°C to 75°C) and humidity (<80%) to prevent potential damage.
- **Firmware Updates:** Check the manufacturer's website (SIMINICS or ZICZNT) periodically for any available firmware updates. Follow the provided instructions carefully for any update procedures to ensure your sensor has the latest features and bug fixes.
- **Cable Inspection:** Periodically inspect all cables (power and Ethernet) for any signs of wear, damage, kinks, or loose connections. Replace damaged cables immediately to prevent intermittent operation or electrical hazards.

6. Troubleshooting

This section provides solutions to common issues you might encounter with your PAVO2 Lidar sensor.

6.1 No Power

- **Check Power Connection:** Ensure the power adapter is securely connected to both the sensor's power input and a functional electrical outlet.
- **Verify Power Supply:** Confirm that the power supply provides the correct voltage (9-32V) and sufficient current as specified in the technical parameters.

6.2 No Data Output

- **Check Ethernet Connection:** Ensure the Ethernet cable is securely connected to both the sensor's Ethernet port and your network device (e.g., PC, router, control unit).
- **Verify Network Configuration:** Confirm that your network settings (IP address, subnet mask, gateway) are correctly configured for communication with the sensor. Consult your network administrator or system

documentation.

- **Software Configuration:** Ensure your receiving software or robot control system is correctly configured to interpret UDP packets from the sensor, including port numbers and data formats.

6.3 Inaccurate Readings

- **Clean Optical Window:** Dust, dirt, moisture, or smudges on the optical window can significantly affect measurement accuracy. Clean it gently as described in the Maintenance section.
- **Environmental Factors:** While the multi-echo function helps, extremely dense fog, heavy rain, or highly reflective surfaces can still impact measurement accuracy and range. Consider environmental conditions during operation.
- **Mounting Stability:** Ensure the sensor is securely mounted and not subject to vibrations, movement, or misalignment that could lead to inconsistent or inaccurate readings.

7. Dimensions

Detailed dimensions of the PAVO2 Lidar sensor for integration planning.

This image provides detailed technical drawings of the PAVO2 Lidar sensor, illustrating its dimensions from top, front, side, and isometric views. All measurements are in millimeters, crucial for precise integration into systems.

8. Applications

The SIMINICS PAVO2 Lidar sensor is versatile and suitable for a wide range of applications due to its high performance and robust design.

- **Autonomous Navigation:** Provides precise environmental mapping and localization data for autonomous robots, drones, and vehicles.
- **Obstacle Avoidance:** Detects obstacles in real-time, enabling safe navigation and collision prevention in dynamic environments.
- **Intelligent Transportation:** Used in smart city infrastructure for traffic monitoring, pedestrian detection, and intelligent intersection management.
- **Security:** Enhances surveillance and perimeter protection systems by detecting intrusions and monitoring activity in designated areas.
- **Interactive Projection:** Enables interactive experiences by detecting user presence and movement, allowing for dynamic projection mapping and human-computer interaction.
- **Factory Safety Protection:** Utilized in industrial settings for creating safety zones, monitoring AGV (Automated Guided Vehicle) paths, and preventing collisions with machinery and personnel.

This image showcases six different application scenarios for the PAVO2 Lidar sensor: safety protection in factories, mobile service robots, AGVs (Automated Guided Vehicles), automatic vehicles, security systems, and intelligent transportation systems. Each illustration demonstrates the sensor's utility in diverse environments.

9. Warranty Information

The SIMINICS PAVO2 Lidar sensor comes with a standard manufacturer's warranty. Please refer to the official ZICZNT or SIMINICS website for the most current and detailed warranty terms and conditions, as these may vary by region and purchase date.

Typically, the warranty covers defects in materials and workmanship under normal use for a specified period from the date of purchase. It does not cover damage caused by misuse, accidents, unauthorized modifications, operation outside the specified environmental conditions, or improper installation.

For warranty claims, it is essential to retain your proof of purchase. Contact customer support with your product model (PAVO2-LS-50H) and purchase details to initiate a claim.

10. Customer Support

For technical assistance, troubleshooting, or further inquiries regarding your SIMINICS PAVO2 Lidar sensor, please contact our customer support team. We are committed to providing comprehensive support to ensure your satisfaction.

- **Manufacturer:** SIMINICS
- **Brand:** ZICZNT
- **Website:** www.siminics.com (Please visit the official website for the most up-to-date contact information and resources.)
- **Email:** support@siminics.com (General support email, check website for specific regional contacts.)
- **Phone:** Refer to the official website for regional contact numbers and operating hours.

When contacting support, please have your product model (PAVO2-LS-50H), serial number (if applicable), and a detailed description of your issue readily available to help us assist you more efficiently.