E1R

High-performance solid-state LiDAR

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Overview

E1R, for the field of robotics, is the first high performance and solid-state LiDAR of E platfrom, equipped with 2D VCSEL chip and RoboSense's self-developed SPAD-SoC chip. Utilizing a 2D electronic scanning solution, the E1R boasts exceptional performance, compactness, reliability, anti-interference capabilities, and cost-effectiveness.

The E1R supports functionalities such as robotic mapping, navigation, recognition, and 3D obstacle avoidance. It fully meets the short-range and wide-area detection needs of global service robots, Autonomous Mobile Robots (AMRs), industrial robots, and AGV, enabling intelligent robots to operate around the clock in various working conditions.

Advantages

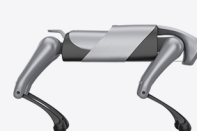|		
Ultra-wide detection area	Small blind spot and long ranging	Ultra-high cloud point imaging
Ultra-high frame rate	Compact and slim	Automotive-grade design
Self-developed SPAD-SoC chip	VCSEL chip, supporting 2D electronic scanning	Super cost effectiveness

Application

Autonomous Delivery Robot	Autonomous Cleaning Robot	Legged Robot
Self-driving Forklift	Robotic Lawn Mower	Humanoid Robot

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Deploy Recommendations
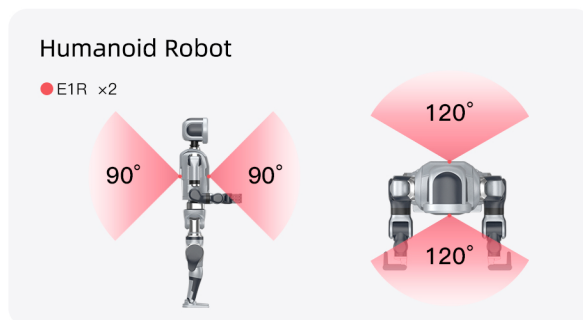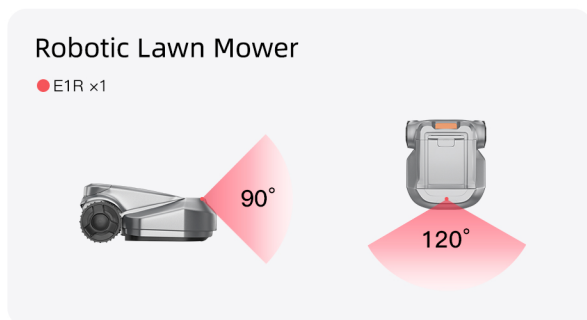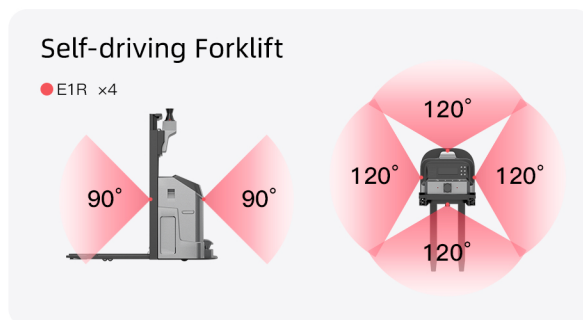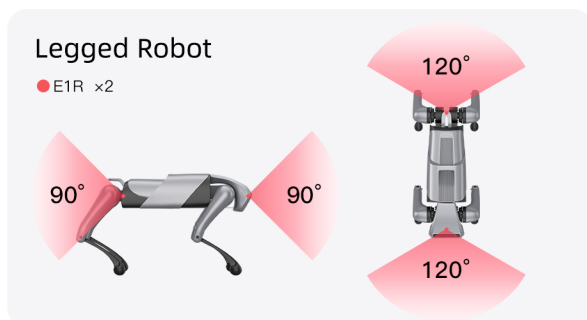
In high-speed scenarios, vertical direction perception and blind areas elimination, reduct cost, satisfy L4 intelligent driving's needs of obstacle avoidance.

Autonomous Cleaning Robot
● E1R ×4

90° 90° | 120° 120° 120° 120°

Autonomous Delivery Robot
● E1R ×4
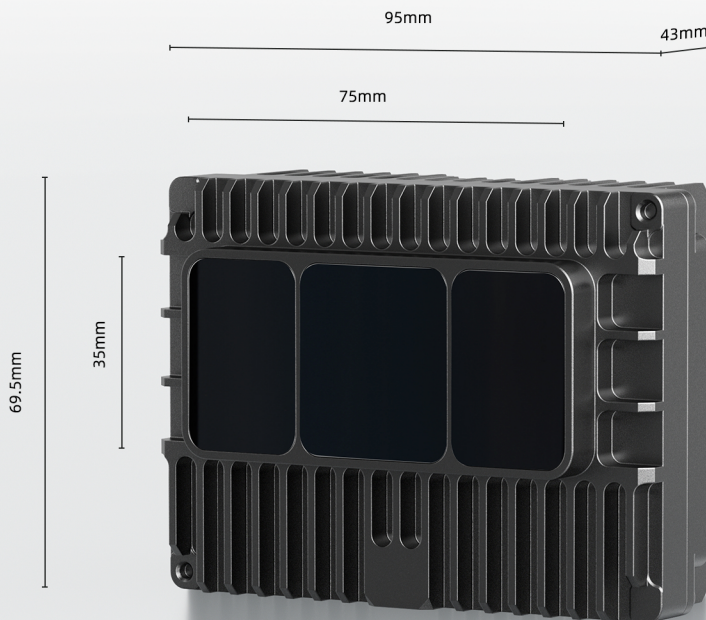
90° 90° | 120° 120° 120° 120°
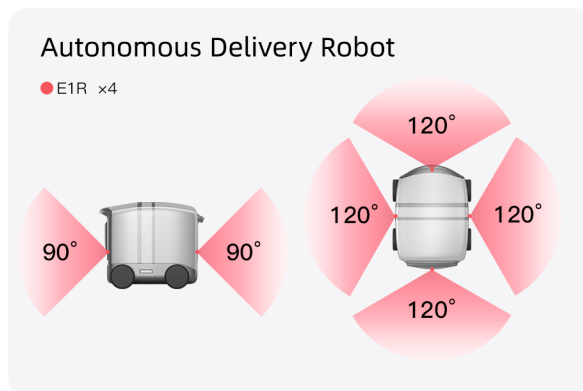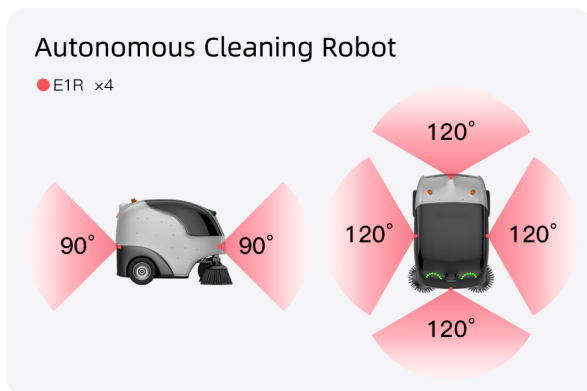
In low to medium-speed scenarios, it supports all-weather, multi-environment output of high-precision point clouds, supports functionalities such as robotic mapping, navigation, recognition, and 3D obstacle avoidance.
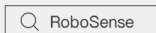
Legged Robot
● E1R ×2

90° 90° | 120° 120°

Self-driving Forklift
● E1R ×4

90° 90° | 120° 120° 120° 120°

Robotic Lawn Mower
● E1R ×1

90° | 120°

Humanoid Robot
● E1R ×2

90° 90° | 120° 120°

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Product Specifications

Wavelength	940nm	Channel	144
Range	75m (30m@10%)	Laser safety	Class 1 Eye Safety
Blind spot	≤0.1m	Accuracy	±5cm
FOV (H)	120°	FOV (V)	90°
Angular resolution (H)	Average 0.625°	Angular resolution (V)	Average 0.625°
Frame rate (adjustable)	10Hz, 20Hz, 30Hz	Power consumption	<10W
Points per second (single return mode)	270,000 pts/s (10Hz) 540,000 pts/s (20Hz) 810,000 pts/s (30Hz)	Points per second (dual return mode)	540,000 pts/s (10Hz) 1,080,000 pts/s (20Hz) 1,620,000 pts/s (30Hz)
Dimensions (H×W×D)	69.5×95×43mm	Window dimensions (H×W×D)	35×75×7mm
Weight (without cabling)	330±20g	Operating voltage	9 - 16V
Working temperature	-40℃ ~ +85℃	Storage temperature	-40℃ ~ +105℃
Time synchronization	gPTP	Ingress protection	IP67、IP6K9K

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