

RS-LiDAR-Algorithms

RS-LiDAR-Algorithms is a set of perception algorithms that RoboSense specifically developed for the environment perception needs of autonomous vehicles. The purpose is to facilitate client's secondary development and speed up their autonomous driving projects. For easier access to the algorithms, Robosense has integrated the perception algorithms into a hardware named RS-Box.



High Precision Localization

RS-LiDAR-Algorithms comprises high precision real-time localization modules with industry leading localization precision($\leq 20\text{cm}$), to surpass the requirements of autonomous driving.



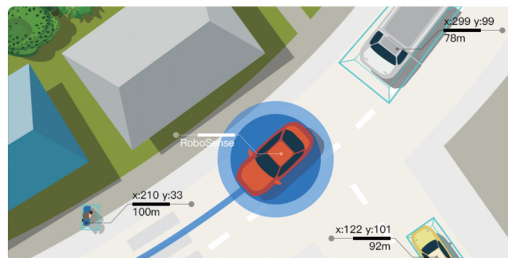
Road Curbs /Driving Area Detection

RS-LiDAR-Algorithms offers modules of road curbs detection and driving area detection to deliver pathfinding functions.



Lane Markings Detection

The lane markings detection module, by analysing the different reflective intensity information contained in the returned laser signals, can precisely extract road sign information including lane markings, road signs, zebra crossing etc.



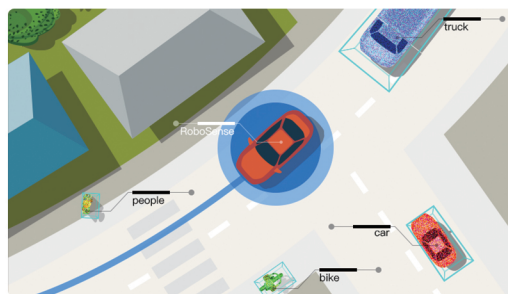
Obstacles Detection

The obstacles detection module can detect and output in real time the location, distance, position, size and shape information of multiple obstacles on road.



Moving Objects Tracking

The moving objects tracking module can estimate and output in real time the moving information of multiple objects including their speed, size and direction to help autonomous cars to forecast their moving trajectories.



Obstacle Classification/Recognition

RS-LiDAR-Algorithms has obstacles classification and recognition modules which can catalogue obstacles into pedestrians, bicycles, automobiles, trucks and more. To promote objects recognition precision, RoboSense has constructed an industry leading LiDAR scene database.



robosense

RoboSense User's Manual



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RS-LiDAR-16

Laser beam: 16 beams

Wavelength: 905nm

Laser class: Class1

Accuracy: $\pm 2\text{cm}$ (typical)

Range: 0.2m to 150m (20% object reflectivity)

Data rate: 288,000pts/s

Field of view (vertical): $+15^\circ$ to -15°

Angular resolution(vertical): 2.0°

Field of view (horizontal): 360°

Angular resolution (horizontal/azimuth): 0.1° to 0.4° (5–20Hz)

Input voltage: 9–32VDC

Power consumption: 9w (typical)

Sensor protection: IP67

Operation temperature: -30°C to $+60^\circ\text{C}$

Dimension: $\phi 109\text{mm} \times 82.7\text{mm}$

Weight: 0.84Kg (without cabling)

Data type: spatial coordinates/intensity



RS-LiDAR-32A

Laser beam: 32 beams

Wavelength: 905nm

Laser class: Class1

Accuracy: $\pm 3\text{cm}$ (typical)

Range: 0.2m to 200m (20% object reflectivity)

Data rate: 576,000pts/s

FOV (vertical): $+15^\circ$ to -15°

Angular resolution(vertical): minimum 0.33°

FOV(horizontal): 360°

Angular resolution(horizontal): 0.1° to 0.4° (5–20Hz)

Input voltage: 9–32VDC

Power consumption: 13.5w (typical)

Sensor protection: IP67

Operation temperature: -30°C to $+60^\circ\text{C}$

Dimension: $\phi 115\text{mm} \times 95.7\text{mm}$

Weight: 0.92kg

Data type: spatial coordinates/intensity



RS-LiDAR-32B

Laser beam: 32 beams

Wavelength: 905nm

Laser class: Class1

Accuracy: $\pm 3\text{cm}$ (typical)

Range: 0.2m to 200m (20% object reflectivity)

Data rate: 576,000pts/s

FOV (vertical): $+15^\circ$ to -25°

Angular resolution(vertical): minimum 0.33°

FOV(horizontal): 360°

Angular resolution(horizontal): 0.1° to 0.4° (5–20Hz)

Input voltage: 9–32VDC

Power consumption: 13.5w (typical)

Sensor protection: IP67

Operation temperature: -30°C to $+60^\circ\text{C}$

Dimension: $\phi 114\text{mm} \times 108.73\text{mm}$

Weight: 1.0kg

Data type: spatial coordinates/intensity

