

# Leddar™ Pixell

## Cocoon LiDAR for Autonomous Vehicles



Robotaxis



Autonomous  
Delivery  
Vehicle



Commercial  
Vehicles



Autonomous  
Shuttle



Industrial  
Vehicles



### Overview

Introducing the Leddar Pixell, a 3D flash LiDAR with 180-degree field of view (FoV) specifically designed for ADAS and autonomous driving applications. Powered by the LCA2 LeddarEngine™, the Leddar Pixell provides reliable detection of pedestrians, cyclists and other obstacles in the vehicle's surrounding and is optimized for use in perception platforms that are meant to enhance detection capabilities of vulnerable road users (VRU). The robust, solid-state Pixell compensates for the limitations of mechanical scanning LiDARs used for geo-positioning which generate blind areas that can reach several meters. The Pixell enables a comprehensive detection cocoon that surrounds the vehicle, enhancing detection coverage.

### 3D Cocoon LiDAR Technology

Using the latest in 3D Flash LiDAR technology, the Pixell provides more scene coverage than most scanning LiDARs, which drastically reduces dead zones. Thanks to the Pixell's wide horizontal FoV, four sensors will cover the entire vehicle surroundings and provide redundancy coverage in its corners. Data provided by Leddar Pixell allow for object tracking and identification of possible collisions based on object position, velocity, and directionality, without overwhelming the vehicle's CPU with massive amounts of unnecessary data.

### Superior Robustness and Reliability

Deployments of detection systems on road vehicles require highly durable technologies to ensure high MTBF and to minimize downtime and operational expenditures, all the while providing reliable and secure vehicle operations.

Based on a robust, 100% solid-state LiDAR design with no moving parts for superior reliability, the road-ready Leddar Pixell delivers superior lifespan which makes it ideally suited for autonomous vehicles deployments.

- 100% Solid State
- Vibration and Shock Resistant
- Wide Operating Temperature Range
- IP67 Enclosure
- Impact-Resistant Windows
- Automotive-Grade Connectors

### LeddarEngine™ at the Core

The Pixell has been designed using the state-of-the-art LCA2 LeddarEngine, the powerful LiDAR core for automotive and mobility applications, leveraging LeddarTech's patented signal acquisition and processing and highly integrated LiDAR SoC.

## Leddar Pixel Key Features

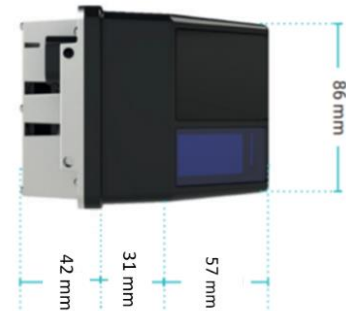
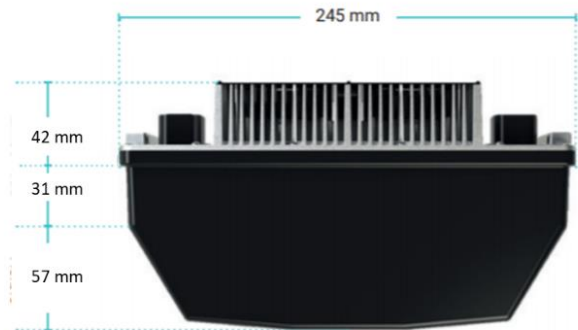
- 96 horizontal and 8 vertical segments providing 768 independent surfaces with simultaneous acquisitions
- 3D flash illumination technology providing 8 times more vertical coverage than most scanning LiDARs
- Pedestrian detection range of up to 32 meters
- 100% solid state, vibration and shock resistant
- IP67 enclosure with impact-resistant windows and automotive-grade connectors
- Wide operating temperature range

## Main Applications

- Proximity Detection
- Collision Avoidance
- Blind Spot Coverage
- Navigation

## Specifications \*

Field of View <sup>a</sup> (°)	Horizontal: 177,5 ± 2,5 Vertical: 16,0 ± 0,5
Surface size (°)	Horizontal: 1,9 Vertical: 2,0
Range <sup>a</sup> (m)	Pedestrian <sup>b</sup> : 32 10% reflectivity <sup>c</sup> : 20 50% reflectivity <sup>c</sup> : 45 80% reflectivity <sup>c</sup> : 56
Accuracy <sup>d</sup> (cm)	±5
Precision (1 sigma / standard deviation)	SNR >250: ± 0,2 cm SNR 100: ± 0,6 cm SNR 12: ± 4,8 cm
Operating Wavelength (nm)	905
Power Input (VDC)	11 to 52
Power Consumption <sup>e</sup> (W)	20
Communication Interface	Automotive Ethernet 100Base-T1
Frame Rate (Hz)	20
Time Synchronization Input Sources	- IEEE1588-2008 precision time protocol - External PPS (no embedded data)
Operating Ambient Temperature (°C)	-30 to +65
Weight (Kg)	2,1



	Certification Compliance
Shock	IEC 60068-2-27:2008
Vibrations	IEC 60068-2-6:2007
Laser Safety	IEC EN 60825-1 Laser Safety Class 1 US 21CFR1040: Complies with FDA performance standards for laser products
CE Mark	Compliant
EMC	IEC/EN 61000-4-2,3,4,6,8 IEC/EN 61000-6-2,3
ROHS	Compliant

Please refer to the instruction manual for more information on Leddar Pixel performances and limitations.

\* Environmental conditions, weather and reflectivity level of elements in the scene may affect sensor performances.

- a. Typical specification.
- b. Euro NCAP Pedestrian, 50% reflectivity.
- c. Full pixel coverage.
- d. Non saturated signal, without crosstalk for non-merged events.
- e. Nominal power consumption at 20°C.

**LeddarTech**®

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