

Leddar™ Vu8

8-Segment Solid-State LiDAR Sensor Module



Autonomous delivery vehicles



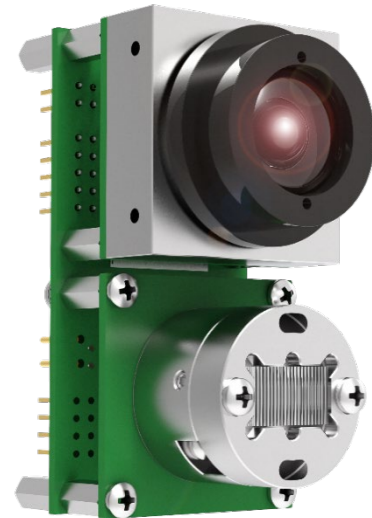
Commercial vehicles



Autonomous shuttles



Industrial vehicles



Overview

The Leddar Vu8 solid-state LiDAR sensors offer affordable detection and ranging performance in a small, robust form factor over distances up to 185 meters.

Leveraging LeddarTech's unique expertise in LiDAR detection and ranging, every Vu8 sensor contains our proprietary Leddar technology. The patented Leddar signal processing algorithms efficiently acquire, sequence, and digitally process light signals, significantly improving solid-state LiDAR sensitivity, immunity to ambient light variations, and performance in inclement weather.

This unique built-in processing ability allows for rapid delivery of accurate measurements and extends range and measurement capabilities. Additionally, it provides superior lateral discrimination, as well as the critical capability to detect and track multiple objects simultaneously in the sensor's field of view (FoV).

Vu8 Configurations

Weighing only 128.5 grams or less, the Leddar Vu8 modules use a fixed light source, which significantly increases the sensor's robustness and cost efficiency as compared to any mechanical scanning LiDAR solution.

The Vu8 leverages powerful laser illumination (Class 1, eye-safe) and a wide FoV separated into eight distinct detection segments within a single sensor, resulting in rapid, continuous, and accurate detection and ranging of objects—including lateral discrimination—along the entire length of the wide beam, without any moving parts.

The Vu8 source assembly consists of a 905 nm laser emitter combined with diffractive optics, providing a wide illumination beam that is available in various combinations of horizontal and vertical FoV configurations. The receiver assembly includes eight independent detection elements with simultaneous multi-object measurement capabilities supported by powerful Leddar signal processing algorithms.

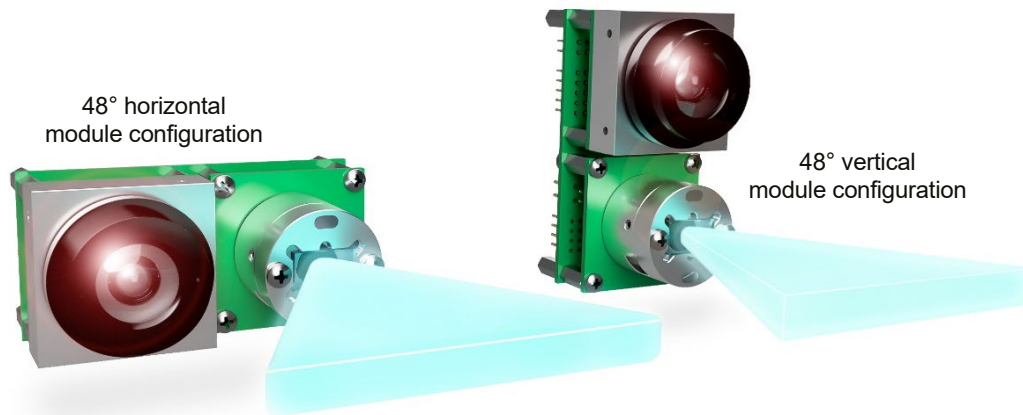
Integration and Interfaces

All Vu8 modules come with a software development kit, the Leddar Enabler SDK, which provides a user-friendly application programming interface (API) with .NET and C libraries complete with sample code for Windows and Linux. Two interface configurations are available, SPI or USB-CAN-Serial (UART/RS-485).

Leddar Vu8 Features

- Detection range up to 185 meters
- Compact and lightweight design
- Eight independent segments with simultaneous acquisition and lateral discrimination capabilities
- Fast data refresh rate (up to 100 Hz)

Configurations and Specifications



Leddar Vu8 solid-state LiDAR comes in various sensor configurations for flexible integration into your application.

Configuration	Vu8 - Narrow FoV		Vu8 - Medium FoV		Vu8 - Wide FoV		
Horizontal FoV ¹ (°)	16		48		99		
Vertical FoV ¹ (°)	0.3	2	0.3	3	0.3	3	
Dimensions (mm, H x W x D)	70.0 x 35.9 x 71.2		70.0 x 35.9 x 49.6		70.0 x 35.9 x 63.6		
Weight ² (g)	110.3		107.6		128.5		
Range ³ (m)	Retroreflector ⁴	185	121	118	85	61	34
	White target ⁵	60	34	31	19	12	9
	Gray target ⁶	38	22	18	13	7	6

Specifications

- Number of segments: 8
- Wavelength (nm): 905
- Power supply (VDC): 12 ± 0.6
- Interface options: SPI
USB, CAN, serial (UART/RS-485)
- Eye safety: IEC 60825-1:2014 Class 1

System Performance

- Accuracy⁷ (cm): ±5
- Data refresh rate⁸ (Hz): Up to 100
- Operating temperature range (°C): -40 to +85
- Distance precision (mm): ±6
- Distance resolution (mm): ±10
- Power consumption (W): 2

Optional Accessories

- SPI to USB cable
- 12 V power supply
- Starter kit, including mounting brackets, screws, power supply, and cables

¹ Typical values.

² SPI carrier model.

³ Data refresh rates used to achieve these ranges:

Narrow FoV: 0.543 Hz

Medium FoV: 1.085 Hz

Wide FoV: 2.17 Hz

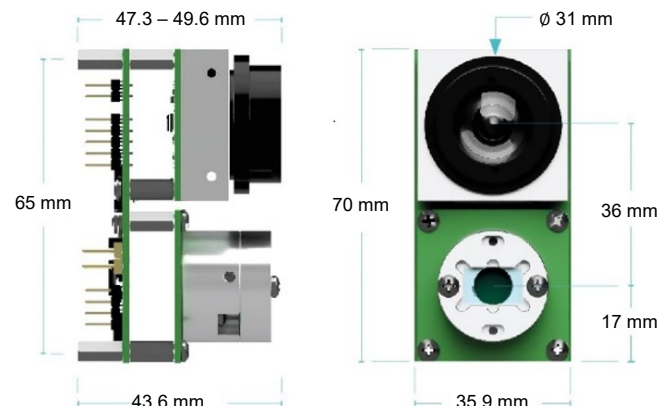
⁴ Retroreflector reference target corresponds to a 5 cm x 7 cm strip of reflective tape.

⁵ White reference target corresponds to a 20 cm x 25 cm Kodak gray card with 90% reflectivity.

⁶ Gray reference target corresponds to a 20 cm x 25 cm Kodak gray card with 18% reflectivity.

⁷ For oversampling of 4 and more.

⁸ Depends on configuration.



Dimensions for medium FoV Vu8 configuration

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