

Leddar™ Vu8

8-Segment Solid-State LiDAR Sensor Module



Autonomous
Delivery Vehicle



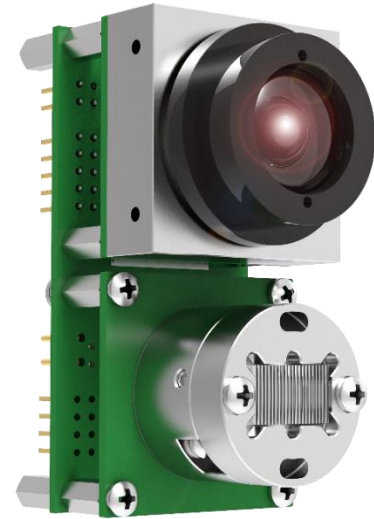
Commercial
Vehicles



Autonomous
Shuttle



Industrial
Vehicles



Overview

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

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, Leddar Vu8 modules use a fixed light source, which significantly increases the sensor's robustness and cost-efficiency as compared to any 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 horizontal FOV configurations from 20 to 100 degrees (each available in different vertical FOVs). The receiver assembly includes eight independent detection elements with simultaneous multi-object measurement capabilities supported by powerful Leddar signal processing algorithms.

Integration and Interfaces

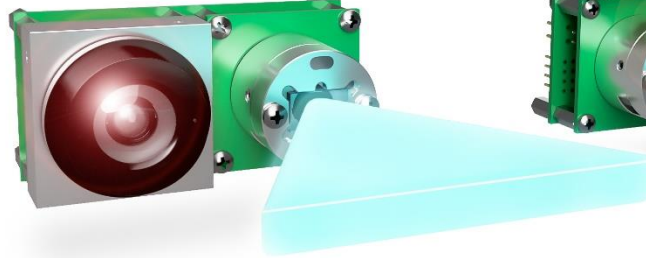
All Vu8 modules come with a software development kit, the Leddar Enabler SDK, which provides a user-friendly application programming interface (API) with .NET and C libraries complete with code examples and sample code for Windows and Linux. Two interface configurations are available: SPI or USB-CAN-Serial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

Leddar Vu8 Features

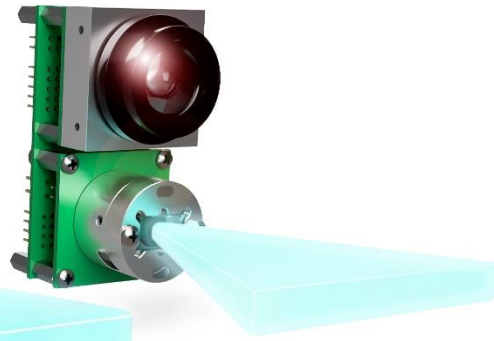
- Detection range up to 185 meters (607 feet)
- Compact and lightweight
- Multiple independent segments with simultaneous acquisition and lateral discrimination capabilities
- Rapid refresh rate up to 100 Hz

Configurations and Specifications

48° Horizontal Module Configuration



48° Vertical Module Configuration



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

Configurations	Vu8 - Narrow FOV		Vu8 - Medium FOV		Vu8 - Wide FOV		
Horizontal FOV¹	16°	16°	48°	48°	99°	99°	
Vertical FOV¹	0.3°	2°	0.3°	3°	0.3°	3°	
Dimensions (H X W X D)	70.0 mm x 35.9 mm x 71.2 mm		70,0 mm x 35.9 mm x 49.6 mm		70.0 mm x 35.9 mm x 63.6 mm		
Weight (For SPI Carrier Model)	110.3 g		107.6 g		128.5 g		
Range⁵	Retro-Reflector ²	185 m	121 m	118 m	85 m	61 m	34 m
	White Target ³	60 m	34 m	31 m	19 m	12 m	9 m
	Gray Target ⁴	38 m	22 m	18 m	13 m	7 m	6 m

1. Typical value

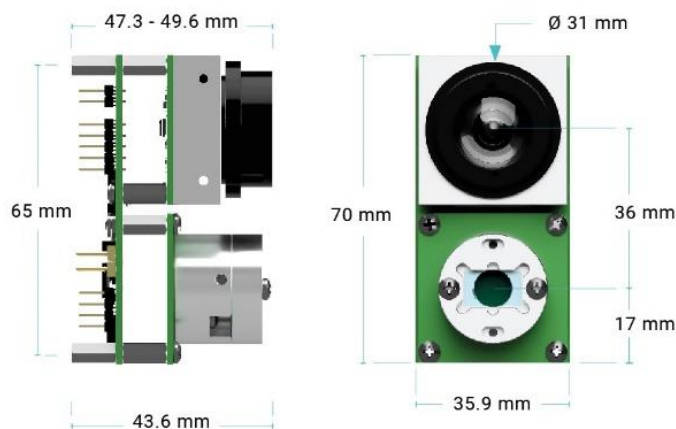
2. Retro-reflector reference target corresponds to a 5 cm x 7 cm band of retro-reflective tape

3. White reference target corresponds to a 20 cm x 25 cm Kodak Gray Card with 90% reflectivity

4. Gray reference target corresponds to a 20 cm x 25 cm Kodak Gray Card with 18% reflectivity

5. Data refresh rates used to achieve the ranges are:

- Narrow FOV: 0.543 Hz;
- Medium FOV: 1.085 Hz;
- Wide FOV: 2.17 Hz.



Dimensions for medium FOV Vu8 configuration

Characteristics

- **Number of segments** 8
- **Wavelength** 905 nm
- **Power supply** 12 VDC \pm 0.6 VDC
- **Interface options** 1) SPI 2) USB, CAN, serial (UART/RS-485)
- **Ocular safety** Fulfills the requirements of IEC 60825-1:2014 (Third Edition); Class 1 laser product

System performance

- **Accuracy** 5 cm
- **Data refresh rate⁶** Up to 100 Hz
- **Operating temperature range** -40 °C to +85 °C
- **Distance precision** 6 mm
- **Distance resolution** 10 mm
- **Power consumption** 2 W

Optional Accessories

- **SPI to USB cable**
- **Leddar Vu8 12 V power supply**
- **Starter kit, which includes mounting brackets, screws, power supply and cables**

⁶ Depends on configuration

LeddarTech[®]

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