

Leddar™ Vu8

8-Segment Solid-State LiDAR Sensor Module



Autonomous delivery vehicles



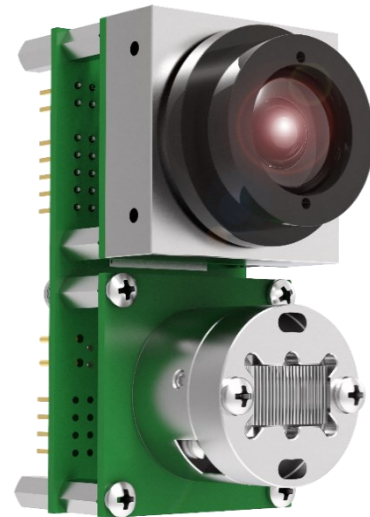
Commercial vehicles



Autonomous shuttles



Industrial vehicles



Overview

The Leddar™ Vu8 solid-state LiDAR sensor offers 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, the 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 144 grams or less, the Leddar Vu8 module uses 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

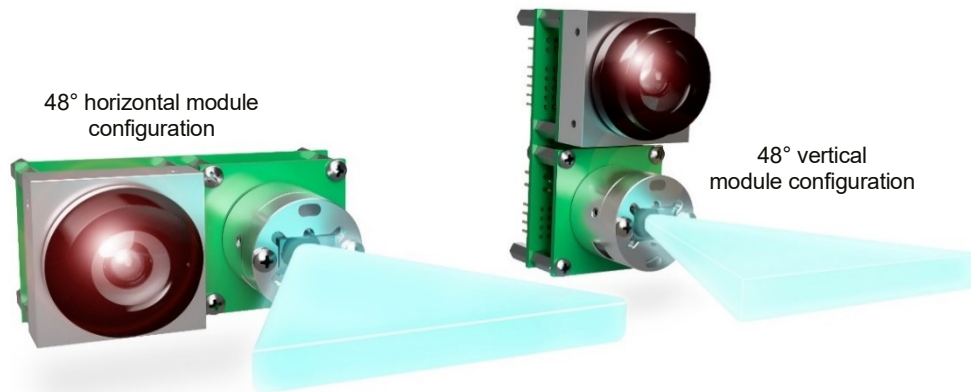
The Vu8 module comes with a software development kit, the Leddar Enabler SDK, which provides a user-friendly application programming interface (API) with .NET and C libraries complete with sample code for Windows and Linux. Two interface configurations are available, SPI or USB-CAN-Serial (UART/RS-485).

Specific Integration Guidelines are also available, providing the technical information required to successfully integrate the Leddar Vu8 module into the user's product.

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.

	Model	Horizontal FoV ¹ (°)	Vertical FoV ¹ (°)	Dimensions (mm, H x W x D)	Weight (g)	Range ² (m)			Interfaces	
						Retroreflector ³	White ⁴	Gray ⁵	SPI	USB, CAN Bus & Serial
Vertical Assembly	VU08-75H0001	16	0.3	70.0 x 35.9 x 71.2	110.3	185	60	38	✓	
	VU08-75H0002	48	0.3	70.0 x 35.9 x 49.6	107.6	118	31	18	✓	
	VU08-75H0003	99	0.3	70.0 x 35.9 x 63.6	128.5	61	12	7	✓	
	VU08-75H0004	16	2	70.0 x 35.9 x 71.2	110.3	121	34	22	✓	
	VU08-75H0005	48	3	70.0 x 35.9 x 49.6	107.6	85	19	13	✓	
	VU08-75H0006	99	3	70.0 x 35.9 x 63.6	128.5	34	9	6	✓	
	VU08-75H0007	16	0.3	70.0 x 35.9 x 71.2	124.9	185	60	38		✓
	VU08-75H0008	48	0.3	70.0 x 35.9 x 49.6	128.6	118	31	18		✓
	VU08-75H0009	99	0.3	70.0 x 35.9 x 63.6	144.1	61	12	7		✓
	VU08-75H0010	16	2	70.0 x 35.9 x 71.2	124.9	121	34	22		✓
	VU08-75H0011	48	3	70.0 x 35.9 x 49.6	128.6	85	19	13		✓
	VU08-75H0012	99	3	70.0 x 35.9 x 63.6	144.1	34	9	6		✓
	Model	Horizontal FoV ¹ (°)	Vertical FoV ¹ (°)	Dimensions (mm, H x W x D)	Weight (g)	Range ² (m)			Interfaces	
						Retroreflector ³	White ⁴	Gray ⁵	USB, CAN Bus & Serial	
Horizontal Assy	VU08-75H0022	16	0.3	35.9 x 70.0 x 71.2	124.9	185	60	38		✓
	VU08-75H0023	48	0.3	35.9 x 70.0 x 49.6	128.6	118	31	18		✓
	VU08-75H0024	99	0.3	35.9 x 70.0 x 63.6	144.1	61	12	7		✓
	VU08-75H0025	16	2	35.9 x 70.0 x 71.2	124.9	121	34	22		✓
	VU08-75H0026	48	3	35.9 x 70.0 x 49.6	128.6	85	19	13		✓
	VU08-75H0027	99	3	35.9 x 70.0 x 63.6	144.1	34	9	6		✓

¹ Typical values.

² Data refresh rates used to achieve these ranges:

Narrow FoV: 0.543 Hz

Medium FoV: 1.085 Hz

Wide FoV: 2.17 Hz

³ Retroreflector reference target corresponds to a 5 cm x 7 cm strip of reflective tape.

⁴ White reference target corresponds to a 20 cm x 25 cm Kodak gray card with 90% reflectivity.

⁵ Gray reference target corresponds to a 20 cm x 25 cm Kodak gray card with 18% reflectivity.

Specifications

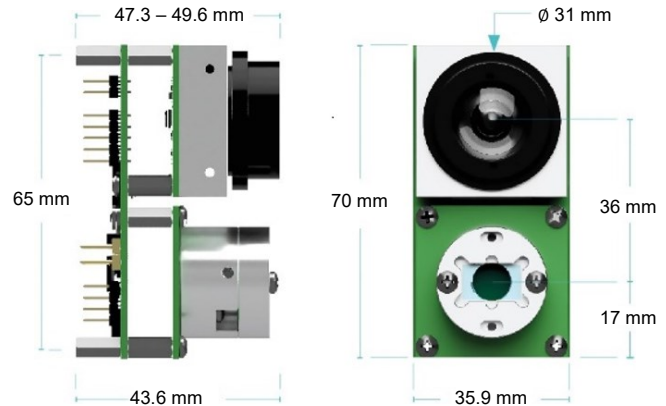
- Number of segments: 8
- Wavelength (nm): 905
- Power supply (VDC): 12 ± 0.6

System Performance

- Accuracy⁷ (cm): ±5
- Regulatory compliance: CE, FCC Class B, RoHS
- Data refresh rate⁸ (Hz): Up to 100
- Distance precision (mm): ±6
- Distance resolution (mm): ±10
- Power consumption (W): 2
- Eye safety: IEC 60825-1:2014 Class 1

⁷ For oversampling of 4 and more.

⁸ Depends on configuration.



Dimensions for medium FoV Vu8 configuration

Environmental Performance

- Operating temperature range (°C): -40 to +85
- Operation, transport and storage relative humidity (%): 5 to 95

Optional Accessories

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

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