

COMPACT FIXED-BEAM LIDAR SENSOR MODULE

Multi-object, wide-beam optical detection and ranging over 8 segments



LeddarVu is a new solid-state LiDAR platform that combines the benefits of a compact architecture with superior performance, robustness and cost-efficiency.



LeddarVu Benefits

- Compact form factor (190 cm³)
- Fixed beam, no moving parts
- Proven reliability, even in harsh conditions
- Immune to ambient light
- Modular platform for flexible integration and customization
- Best cost/performance ratio

Vu8 Module Features

- Detection range up to 215 meters (~700 ft.)
- Compact and lightweight (~75 g)
- Multiple independent segments with simultaneous acquisition and lateral discrimination capabilities
- 20°, 48° and 100° beam width options, for optimized field of view
- Rapid refresh rate up to 100 Hz

LeddarVu - The new platform for next-gen Leddar sensors

LeddarVu brings a whole new dimension to sensing applications with an optimized modular design that offers a better range, a smaller form-factor and greater flexibility of integration than any other sensor module. Leveraging LeddarTech's unique expertise in LiDAR detection and ranging, every optical sensor built on the LeddarVu platform inherits the unique added value of Leddar, which is better sensitivity, immunity to ambient light and robust performance in inclement weather, and powerful signal processing.

Conceived to follow the evolution of the next generations of LeddarCore ICs, the LeddarVu platform fosters the development of highly differentiated and affordable solutions powered by optimized Leddar configurations.

Vu8 – 8 segments LiDAR sensor module

Vu8, the first Leddar sensor module built on the LeddarVu platform, leverages powerful class-1 laser illumination and 8 independent active detection elements into a single sensor, resulting in rapid, continuous and accurate detection and ranging of objects — including lateral discrimination — in the entire wide beam, without any moving parts. Detecting targets up to 215 m and weighting only 75 grams, the Vu8 uses a fixed laser light source, which significantly increases the sensor's robustness and cost-efficiency compared to any scanning LiDAR solution.

Vu8's source assembly combines the IR Laser emitter with a dominant wavelength of 905 nm and diffractive optics, providing a wide illumination beam which is available in three horizontal and two vertical field of view options. The receiver assembly includes 8 independent detection elements with simultaneous multi-object measurement capabilities and hosts the powerful Leddar signal processing algorithms. Vu8's carrier board hosts the electrical and communication interface of the module. Two interface configurations are available: SPI or USB-CAN-Serial (UART/RS-485).

Software Development Kit (SDK)

The Leddar Enabler SDK provides a user-friendly application programming interface (API) with .Net and C libraries and code examples. Sample code for both Windows and Linux, as well as MATLAB integration examples, are also provided.

Configurations		Vu8 - 020		Vu8 - 048		Vu8 - 100	
Horizontal FoV		20°		48°		100°	
Vertical FoV		0.3°	3°	0.3°	3°	0.3°	3°
Dimensions		70 mm x 35.2 mm x 67.5 mm		70 mm x 35.2 mm x 45.8 mm		73 mm x 40 mm x 65 mm	
Weight (for SPI carrier model)		110.3 g		107.6 g		128.5 g	
Range	Retro-Reflector ¹	215 m	121 m	118 m	85 m	61 m	34 m
	White Target ²	60 m	34 m	31 m	19 m	12 m	9 m
	Grey Target ³	38 m	22 m	18 m	13 m	7 m	6 m

- 1 Retro-reflector reference target corresponds to a 5 cm x 7 cm band of retro-reflective tape
 2 White reference target corresponds to a 20 cm x 25 cm Kodak Greycard with 90% reflectivity
 3 Grey reference target corresponds to a 20 cm x 25 cm Kodak Greycard with 18% reflectivity

Characteristics

Number of segments 8

Beams 20°, 48°, 100°

Vertical FoV options 0.3°, 3°

Wavelength 905 nm

Power supply 12 VDC

Interface options SPI, USB, CAN, Serial (UART/RS-485)

Ocular safety Fulfills the requirements of IEC 60825-1:2014 (Third Edition); Class I laser product (certification pending)

System performance

Accuracy 5 cm

Data refresh rate up to 100 Hz¹

Operating temperature range -40°C to +85°C

Distance precision 6 mm

Distance resolution 10 mm

Power consumption 2 W

¹ Depends on configuration

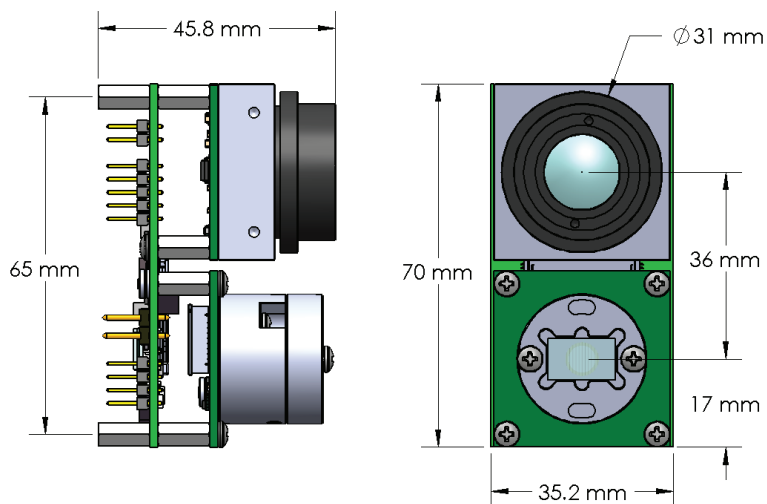
Ordering Information

VU8 - XXX - YYY - ZZ		
Select Vertical FOV:	030 = 3°	Select Carrier Board:
003 = 0.3°		01 = SPI
		02 = USB, CAN, Serial
Select horizontal FOV :	020 = 20°	
	048 = 48°	
	100 = 100°	

Optional Accessory:

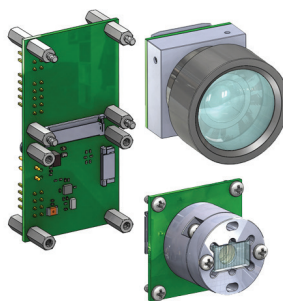
- SPI to USB cable (ACC-CBL-USBSPI)
- LeddarVU 12V power supply (ACC-CBL-12DC)

Dimensions



Dimensions for 48° configuration

Modular architecture



Sensors built on the LeddarVu platform offer a high degree of modularity. This capability to develop various optical and mechanical design combinations provides unique integration flexibility and makes it possible to customize the sensor's specifications to the requirements of specific end-markets.