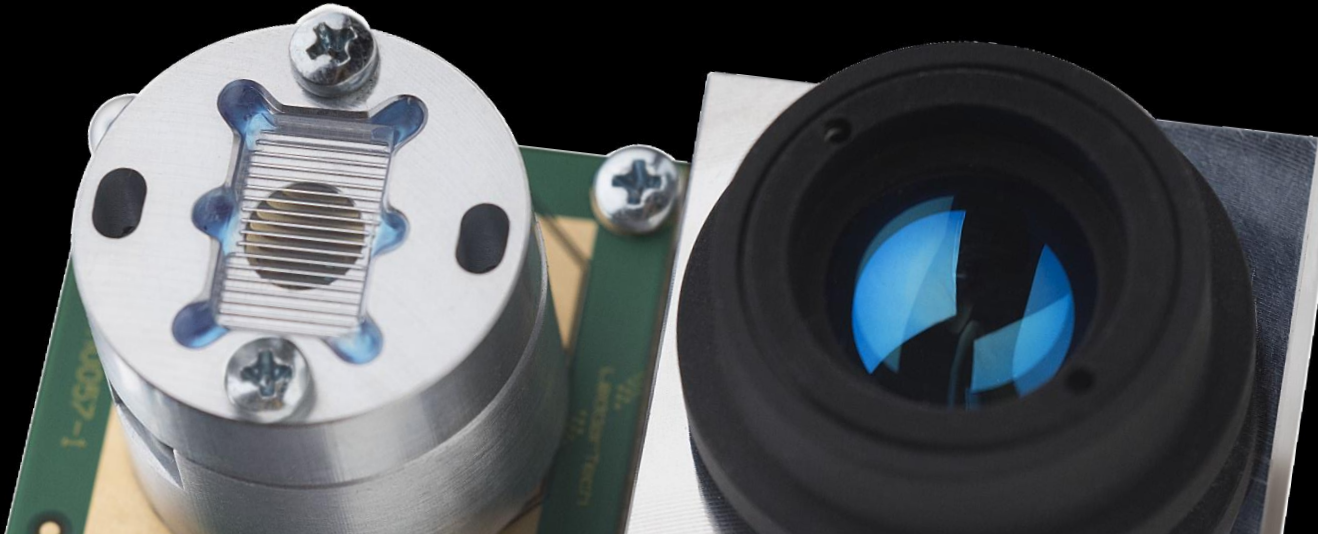


LeddarTech[®]

MASTERING LIDAR SENSOR TECHNOLOGY



LeddarVu

The new generation of Leddar modules

Featuring the New Vu8 Modules



LEDDARVU OVERVIEW

LeddarVu is a brand-new Leddar sensor platform

- Bringing improved performance levels in a smaller, more flexible, more affordable format

LeddarVu answers market needs for

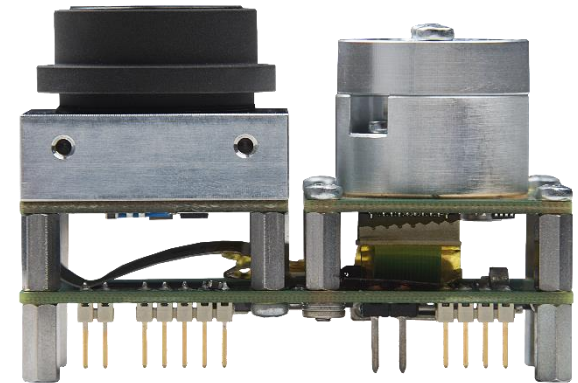
- a more affordable LiDAR solution
- a strong level of performance
- solid-state robustness
- a compact form factor

LeddarVu is “powered by LeddarCore”

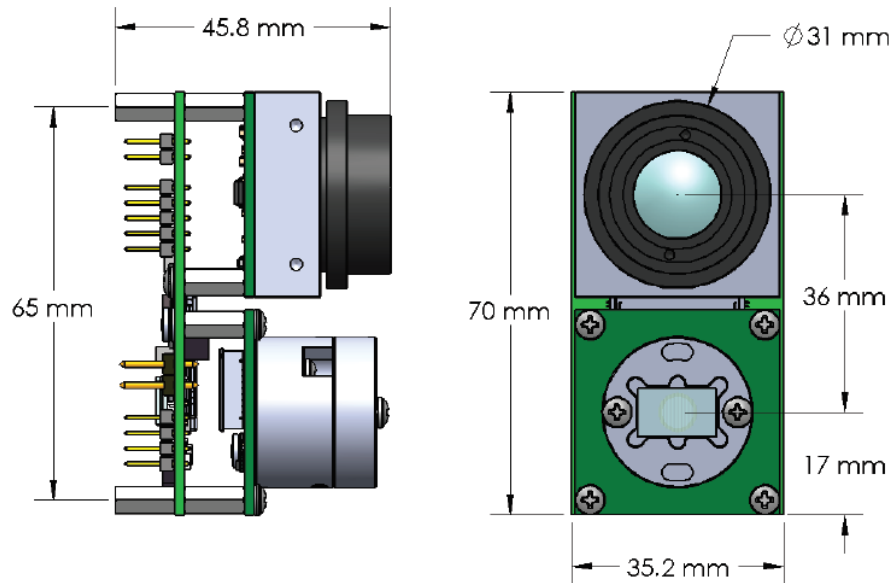
- Benefiting from the same advanced signal processing capabilities as all Leddar sensors

LEDDARVU: KEY POINTS

1. The small, affordable solid-state LiDAR
2. Fixed-beam, no moving parts
3. Advanced multi-segment, multi-object detection with Leddar technology
4. Long range, wide FOV configurations
5. Modular platform design
 - *a new, versatile LiDAR platform providing the flexibility of a modular design which facilitates the engineering of custom modules optimized for your application.*
 - *Engineered to integrate actual and future LeddarCore ICs*



LEDDARVU: THE SMALL, AFFORDABLE SOLID-STATE LIDAR



Dimensions for 48° configuration

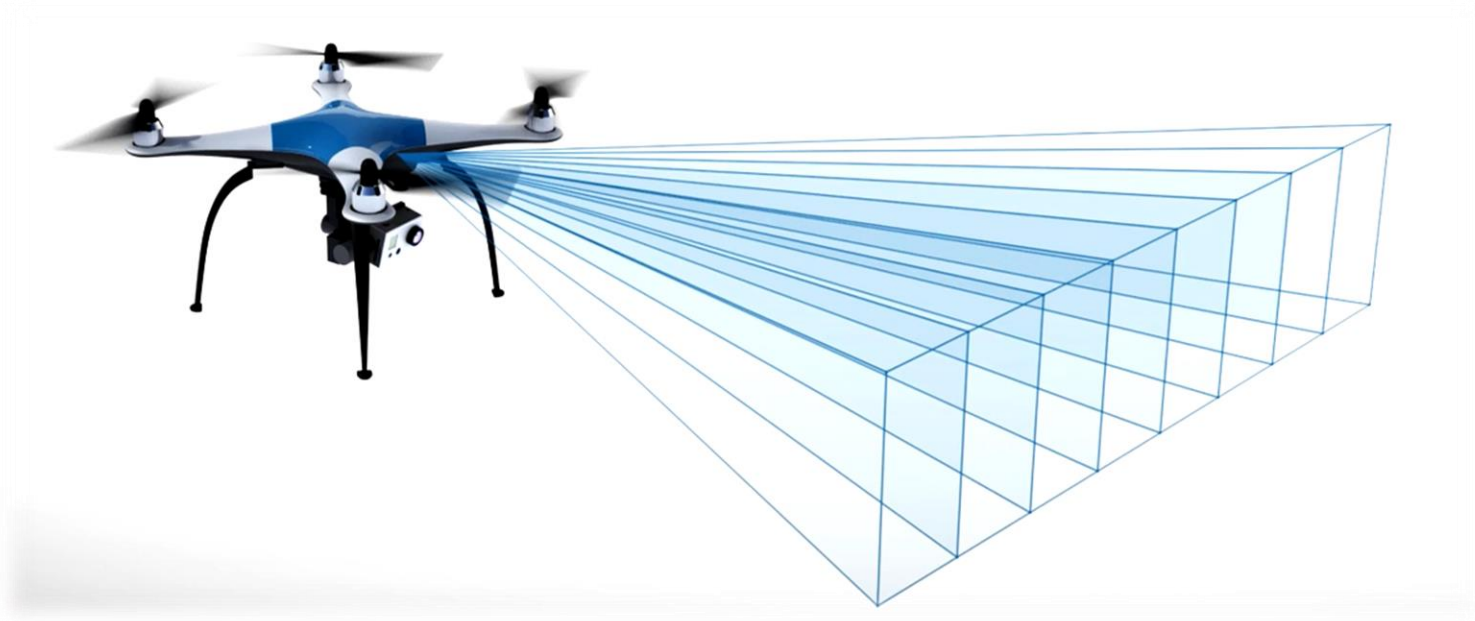
65% smaller, 58% lighter (Vs. existing Leddar modules)

LEDDARVU: HIGHER PERFORMANCE, LOWER PRICE POINT



- Distance range up to 200m
- Half the power consumption
- Powered by Leddar patented algorithms and digital signal processing
- List price from 475\$

LEDDARVU: ROBUST SOLID-STATE DESIGN, NO MOVING PARTS



- Superior robustness and reliability of solid-state
- Diffuse light source providing constant, wide-beam illumination
- Multi-element detector enabling precise measurements over a large field of view

LEDDAR TECHNOLOGY: 3 KEY DIFFERENTIATORS

1 Sensitivity

- ✓ Up to 25x higher than competing technologies
 - Increased range (up to 5x)
 - Lower power consumption
 - Lower cost
 - Fixed diffuse illumination
 - Smaller optics
 - Improved ocular safety

2 Immunity to noise

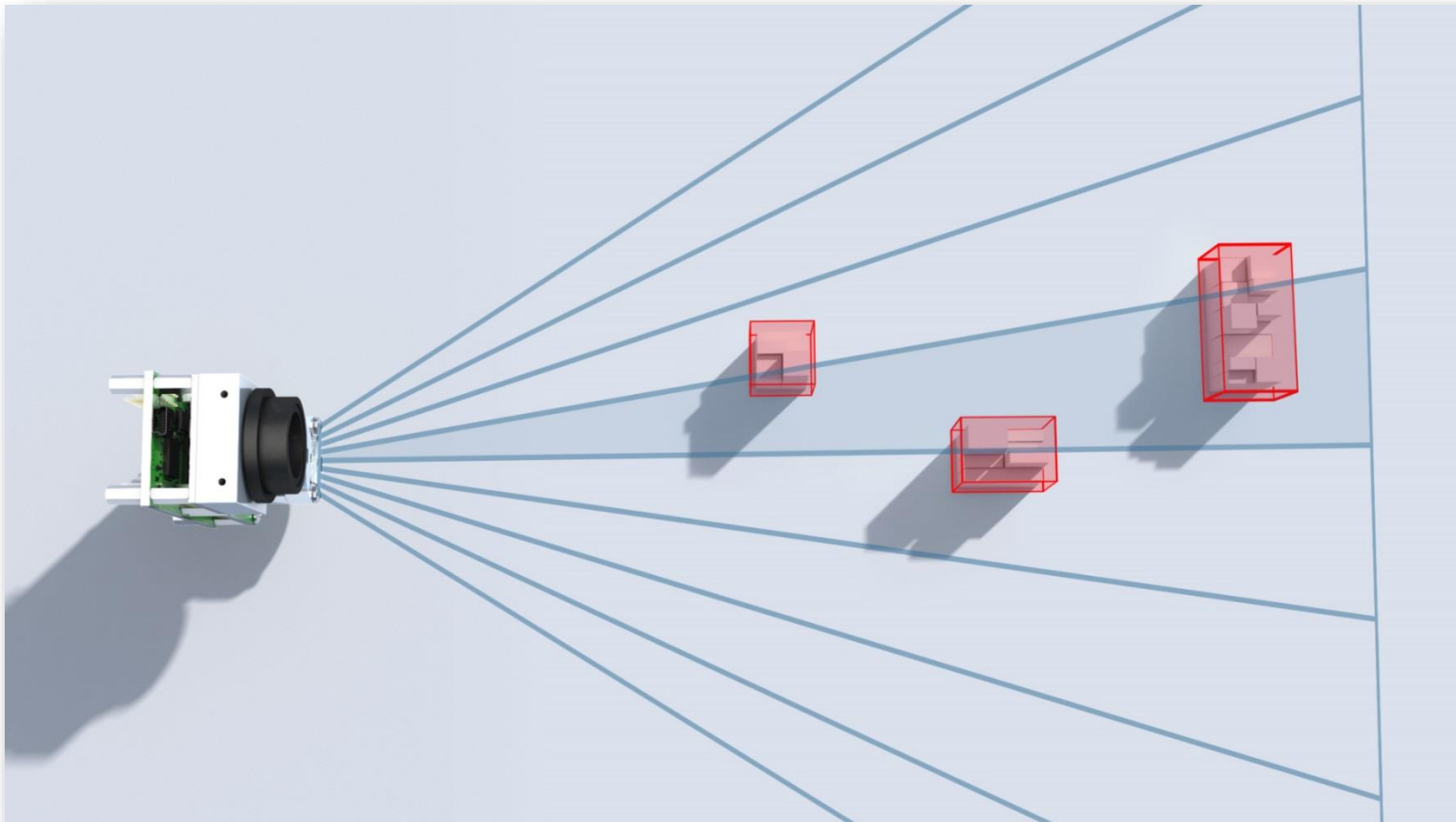
- ✓ Superior performance in strong ambient light and direct sunlight
- ✓ No performance degradation from sensors' overlapping fields of view
- ✓ High robustness to inclement weather (rain, fog, snow, etc.)

3 Signal Processing

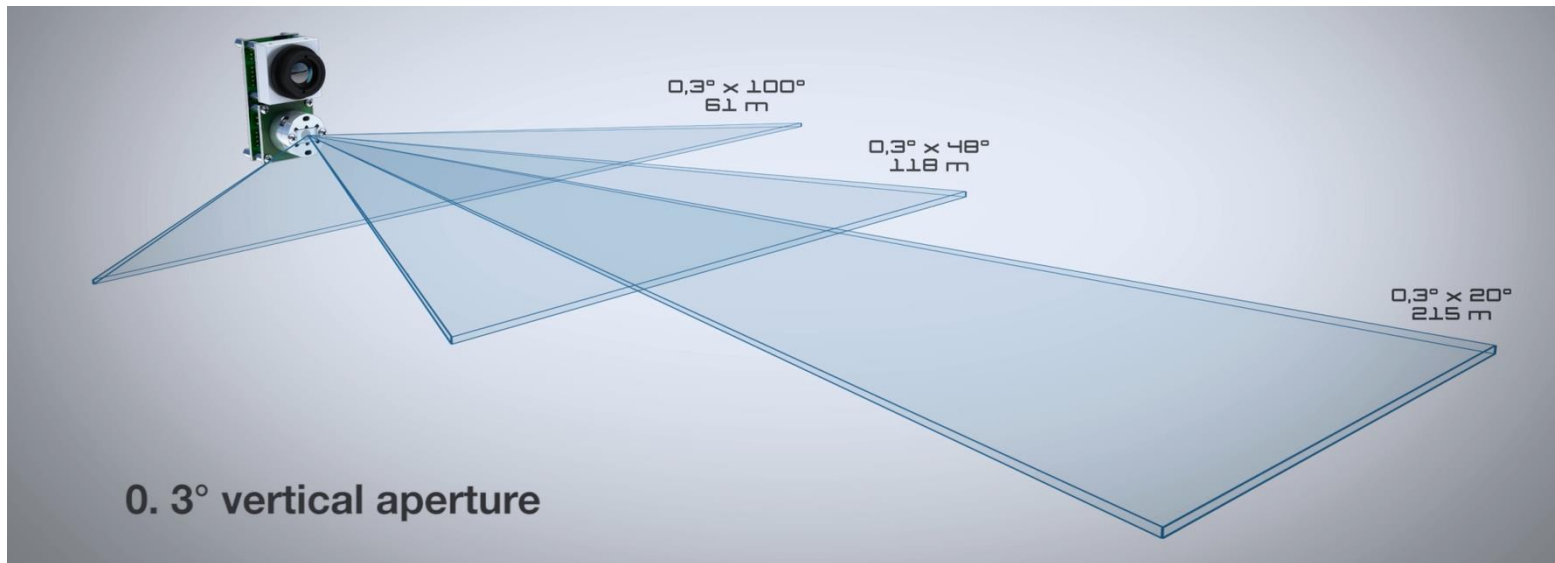
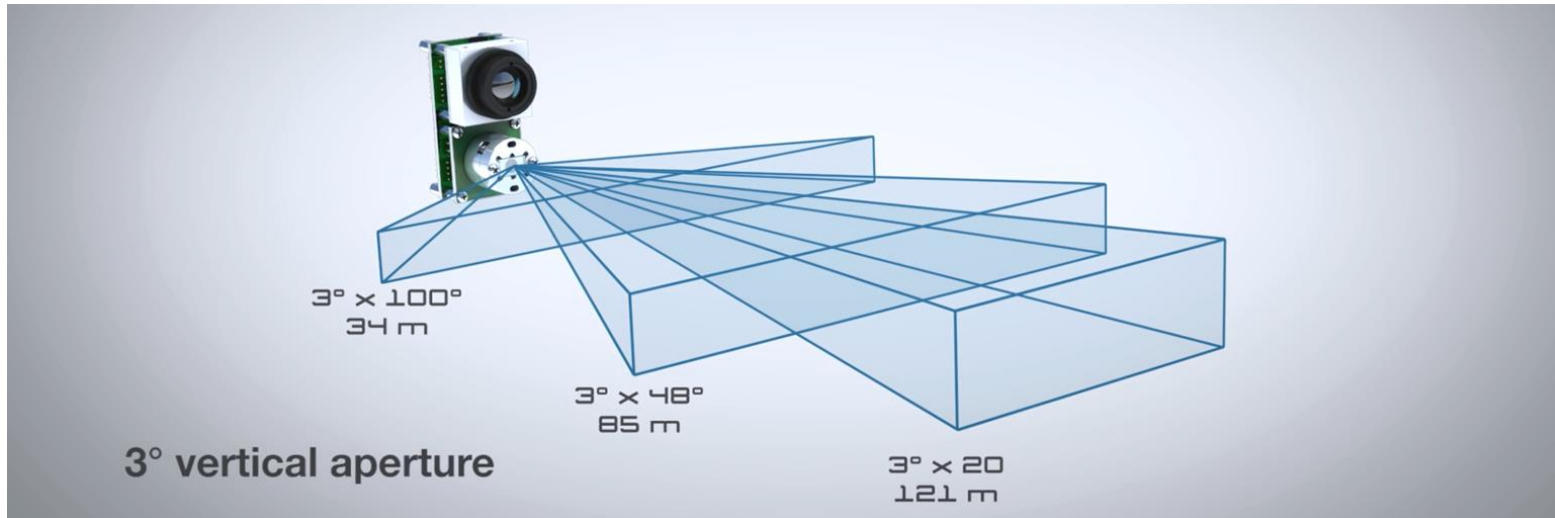
- ✓ Measurement of natural and reflective targets independently of distance
- ✓ No range ambiguation (typical 1500 m separation)
- ✓ High dynamic range (80-100 dB, 60 dB more than comparable products)
- ✓ Multiple object discrimination in each segment (down to 15 cm separation)
- ✓ Extended application-level capabilities

LEDDARVU: ADVANCED TARGET DEMERGING

- Multiple, simultaneous object discrimination and measurement in each segment
- Enables high detection performance over wide FoV with no moving parts

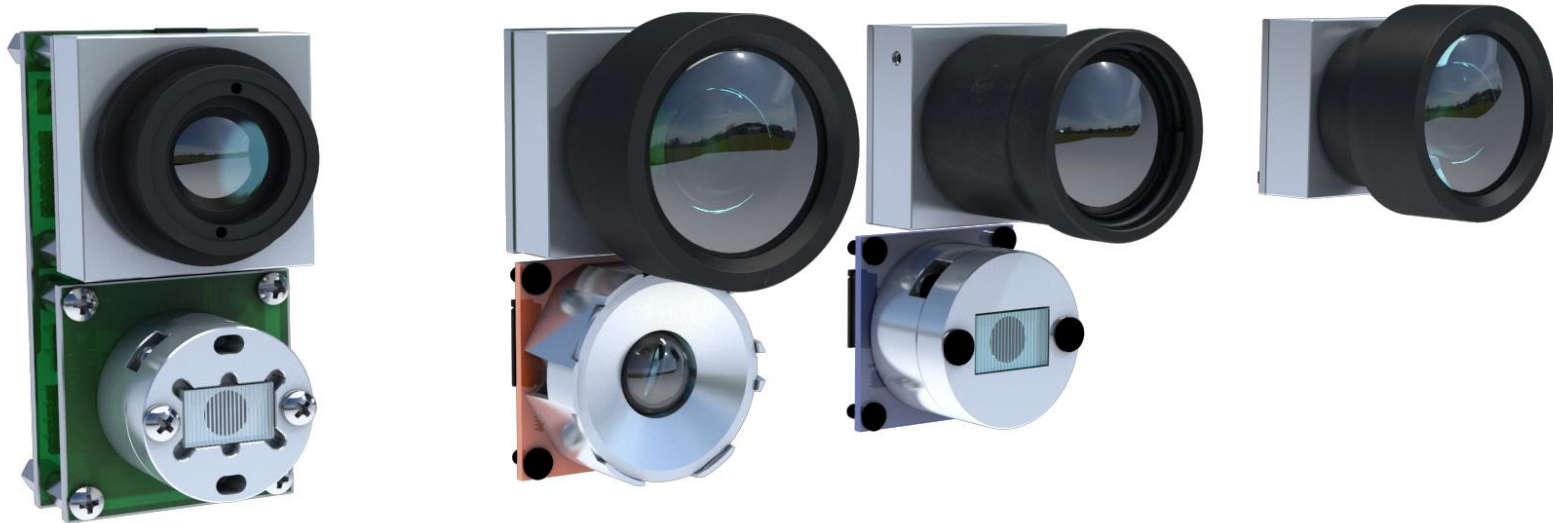


LEDDARVU: LONG RANGE, WIDE FOV CONFIGURATIONS



Note: Representation of the Vu8 sensor module configurations, which are available today.

LEDDARVU: MODULAR PLATFORM FOR OPTIMAL FLEXIBILITY



- Design based on three distinct boards: source, receiver, and carrier board
- Multiple configurations and specification sets can be achieved by swapping these building blocks* and leveraging various components from different suppliers
- Engineered to integrate actual and future LeddarCore ICs for an evolutive product roadmap

* Module reconfiguration or customization must be performed at the factory and represent a “custom solution” project

LEDDARVU: MODULAR PLATFORM FOR OPTIMAL FLEXIBILITY



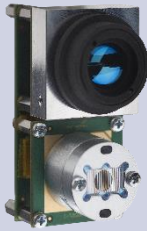


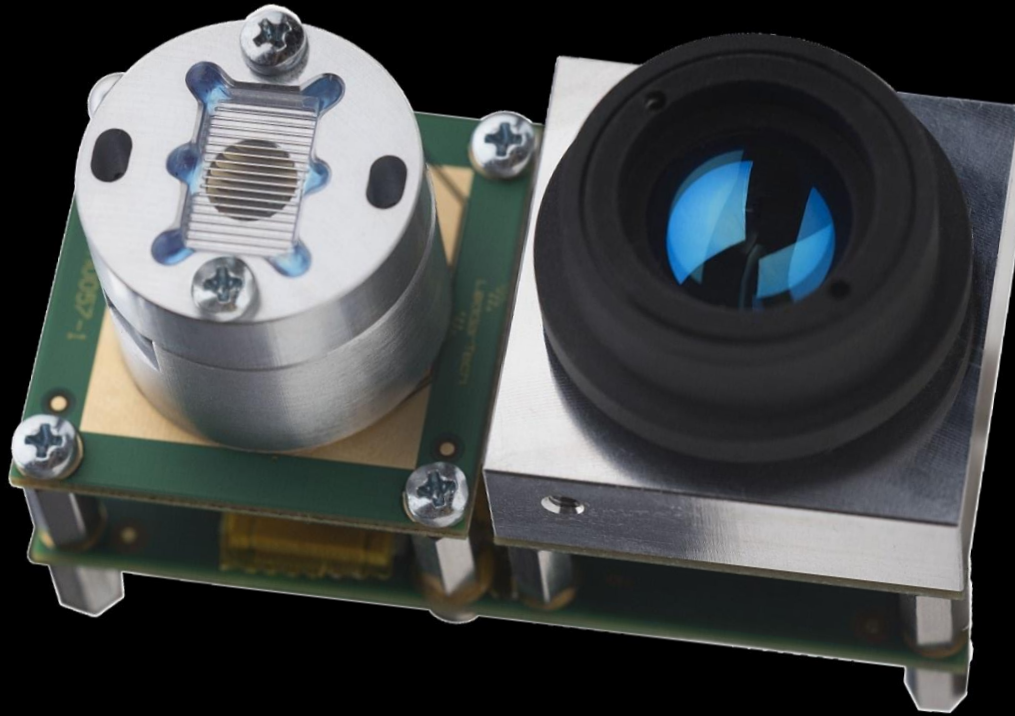
Flexible mechanical integration

- Access to custom configurations*, such as specific emitter/receiver placement or integration of carrier board into the client's design, makes LeddarVu a highly flexible solution.

*Support for modular integration falls under "custom solutions" projects

LEDDARTECH PRODUCT FAMILIES

Type	Family	
ICs		LeddarCore®
Single-Segment Modules		LeddarOne®
Multi-Segment Modules		Leddar®, LeddarVu®



Vu8

NEW PRODUCT OVERVIEW

Introducing Vu8, the first module based on the new LeddarVu platform

Vu8 SPECIFICATIONS

Configurations		20° Beam		48° Beam		100° Beam	
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		80 g		75 g		97 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

*Note: always refer to the latest spec sheet available online at LeddarTech.com for the most up-to-date specifications

Vu8 POSITIONING INSIDE LEDDARTECH OFFERING

- **Compared to the M16, the Vu8 has the following differentiators:**
 - Lower price point
 - Longer range (comparable to M16 Laser prototype)
 - Less detection segments (8 Vs. 16)
 - Two vertical FoV options (Vs. one for the M16)
 - Smaller (65% smaller than M16, including lenses)
 - Lighter, with less than half the weight (75g Vs. 180g)
 - Half the power consumption (2W vs. 4W)
 - SPI interface available
 - 12 VDC power supply only
 - Possible modularity

SPECIFICATION COMPARISON TABLE: Vu8 VS. M16

	Vu8	M16
Number of segments	8	16
Beam width options	20°, 48°, 100°	9°, 18°, 24°, 34°, 45°, 95°
Vertical FoV options	0,3°, 3.0°	7.5°
Detection range	Up to 215 meters (700 ft.) ¹	Up to 100 meters (325 ft.) ²
Accuracy	5 cm	
Interfaces	2 carrier board models available: - SPI - USB, CAN, Serial (UART/RS-485)	USB, RS-485, CAN, UART
Wavelength	905 nm	940 nm
Data refresh rate	Up to 100 Hz ³	6.25 Hz to 100 Hz ³
Operating temperature range	-40°C to +85°C	
Ocular safety	Fulfills the requirements of IEC 60825-1:2014 (Third Edition); Class I laser product (certification pending)	Meets IEC 62471:2006 - Exempt lamp classification
Distance precision	6 mm	
Distance resolution	10 mm	
Power consumption	2 W	4 W
Power supply	12 VDC	12 or 24 VDC (jumper - selectable)
Dimensions	73 mm x 35,2 mm x 45 mm ¹	104 mm x 66mm x 48mm ²
Weight	75 g	180 g

1. With 0.3° by 20° degree beam, reflective target

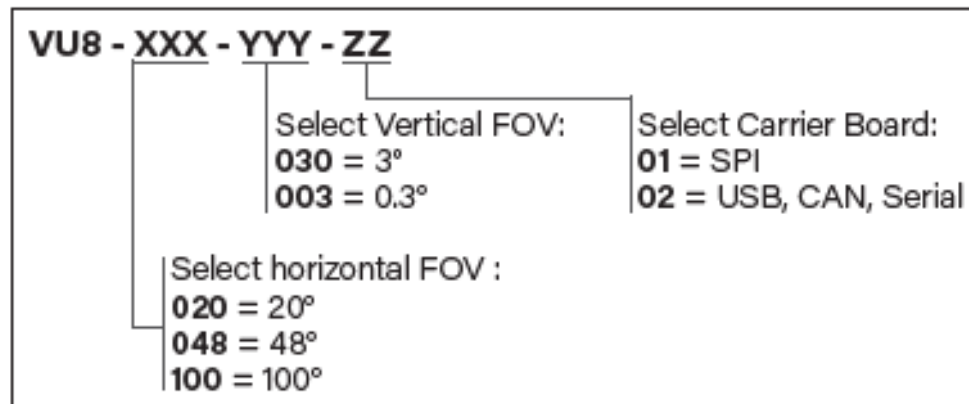
2. for 45 degree beam configuration

3. Depends on configuration

VU8 PRICING AND ORDERING INFORMATION

- The Vu8 modules are available today in various field of view options at a list price from \$475 (SPI version), with discount quantities available.
- A Vu8 starter kit (STK) is available from the [LeddarTech online store](#)
 - STK Includes SPI > USB cable OR micro USB cable, depending on the selected interface, and a 12VDC power supply

Ordering Information



Optional Accessory:

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

Vu8 SOFTWARE

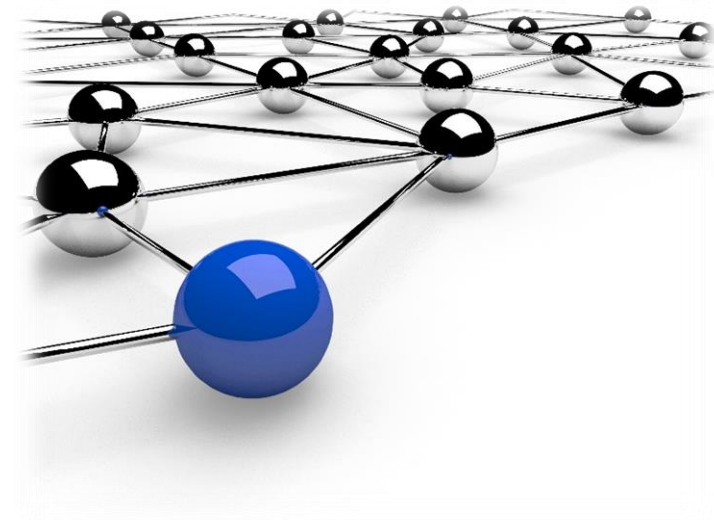
LeddarConfigurator

- A new version will be available
- Users have to select the “Vu8 Module” option in the connection window

SDK

- Updated LeddarC and LeddarNET with Vu8 compatibility

Note: LeddarConfigurator and the SDK operation with the SPI versions of the Vu8 requires the SPI to USB cable provided by Leddartech





Vu8 PRIMARY TARGET APPLICATIONS

Collision Avoidance

- Industrial and heavy-duty vehicles
ex: forklift, tractors, cranes, dump trucks, large construction and mining equipment, etc.
- Drones – commercial and industrial UAS
- AGVs/UGVs– unmanned vehicles

ATMS (Advanced Traffic Management Systems)

- Vehicle & human detection and counting
- Tolling, vehicle classification
- Traffic flow management
- Speed enforcement

Industrial and surveillance applications requiring range and wide FoV

Vu8 TARGET APPLICATIONS :

INDUSTRIAL AND HEAVY-DUTY VEHICLE COLLISION AVOIDANCE



Key LeddarVu benefits:

- **COST**
- **RANGE**
- **ROBUSTNESS**
- **ALL-WEATHER PERFORMANCE**

Vu8 TARGET APPLICATIONS :

DRONES – COMMERCIAL AND INDUSTRIAL UAS COLLISION AVOIDANCE



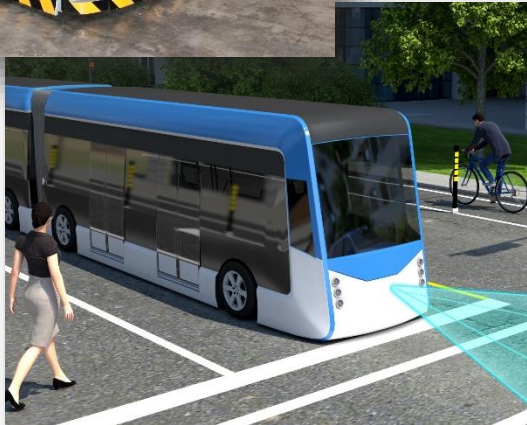
Key LeddarVu benefits:

- **SIZE, WEIGHT**
- **COST**
- **RANGE**
- **RESOLUTION/TARGET DEMERGING
(VS ULTRASOUND)**
- **EASE OF INTEGRATION / MODULAR**
- **IMMUNITY TO AMBIENT LIGHT**

The smallest, lightest LiDAR for drone sense-and-avoid!

Vu8 TARGET APPLICATIONS :

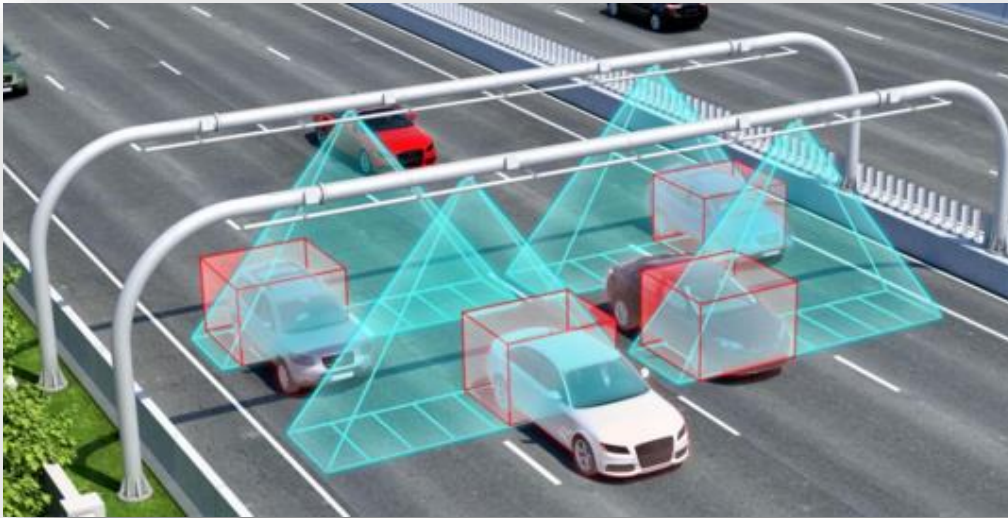
AGV/UGV – UNMANNED GROUND VEHICLE NAVIGATION & COLLISION AVOIDANCE



Key LeddarVu benefits:

- **SIZE, WEIGHT**
- **COST**
- **RANGE**
- **EASE OF INTEGRATION / MODULAR**
- **ROBUSTNESS**
- **IMMUNITY TO AMBIENT LIGHT**
- **ALL-WEATHER PERFORMANCE**

Vu8 TARGET APPLICATIONS : ATMS (ADVANCED TRAFFIC MANAGEMENT SYSTEMS)

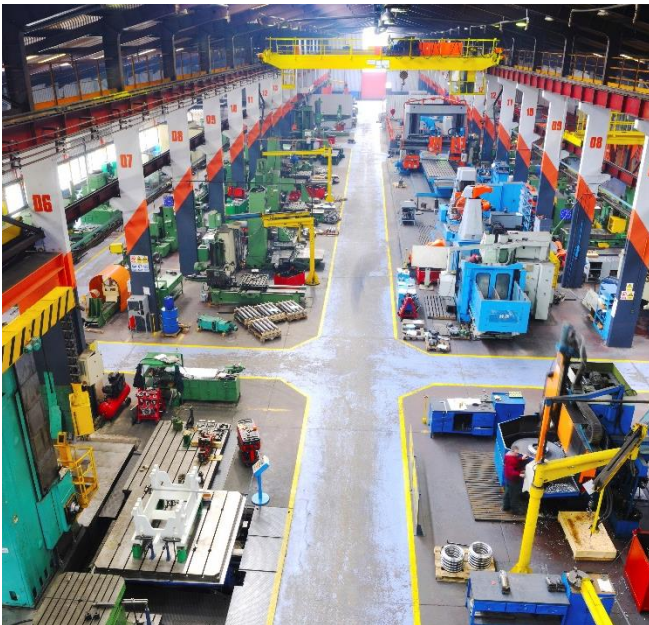


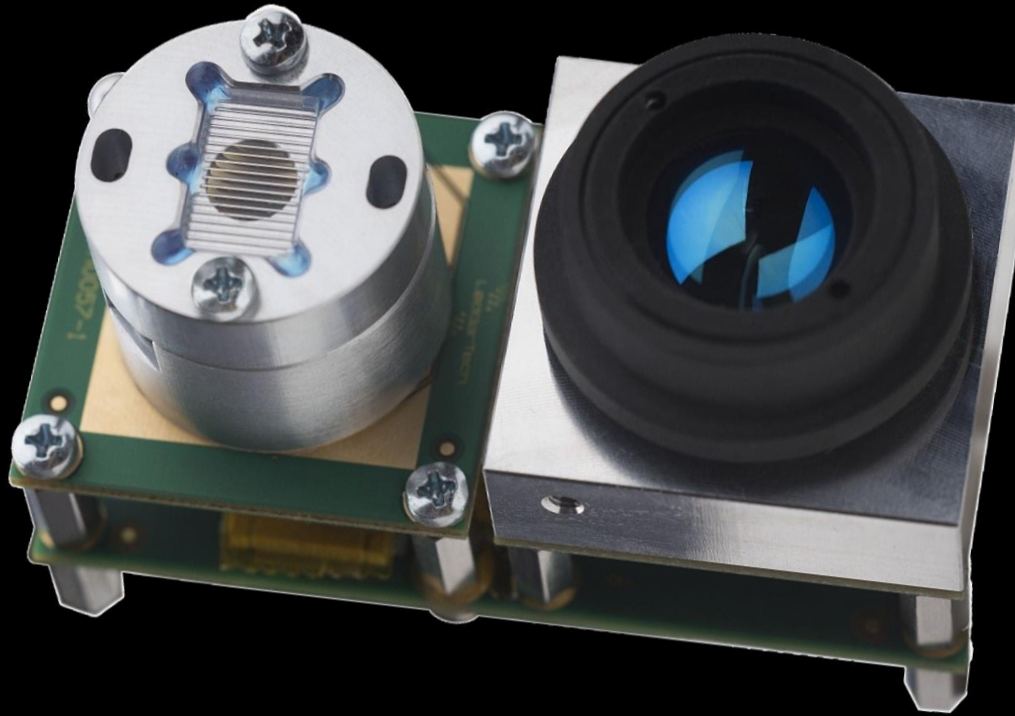
- *Vehicle / human detection & counting*
- *Tolling, vehicle classification*
- *Traffic flow management*
- *Speed enforcement*

Key LeddarVu benefits:

- **COST**
- **RANGE**
- **ROBUSTNESS**
- **RESOLUTION / TARGET DEMERGING / MULTI-TARGET DETECTION**
- **IMMUNITY TO AMBIENT LIGHT**
- **ALL-WEATHER PERFORMANCE**

Vu8 TARGET APPLICATIONS : INDUSTRIAL AND SURVEILLANCE APPLICATIONS REQUIRING RANGE AND A WIDE FIELD OF VIEW





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