

LeddarTech®



Leddar M16

16-Segment Solid-State LiDAR
Sensor Modules

Leddar M16

High-Performance, Cost-Effective Detection and Ranging

Overview

The Leddar™ M16 Sensor Module is an advanced solid-state LiDAR that combines 16 independent active elements into a single sensor, resulting in rapid, continuous and accurate detection and ranging—including lateral discrimination—in the entire wide beam, without any moving parts. The Leddar M16 can be easily integrated into almost any application to add sensing intelligence capability, enabling developers and integrators to make the most of this cutting-edge technology while leveraging its unmatched flexibility.

Choosing Your Configuration

The M16 modules are available in two main configuration types: the classic LED family and the new Laser family.

The M16-LED is the proven Leddar workhorse that our clients have come to value for its versatility and reliability. This module's infrared LED light source provides wide-beam illumination at ranges up to 100 m and is offered in six different field-of-view configurations.

The new M16-LSR uses laser sources to achieve longer ranges, providing narrower and better-defined vertical FOV, — all in a smaller form factor.

Both M16 families are perfectly suited to outdoor operation, provided they are used within an enclosure: solid-state design with no motorized mechanisms, wide operating temperature ranges, all-weather performance and immunity to lighting variations—both day and night.

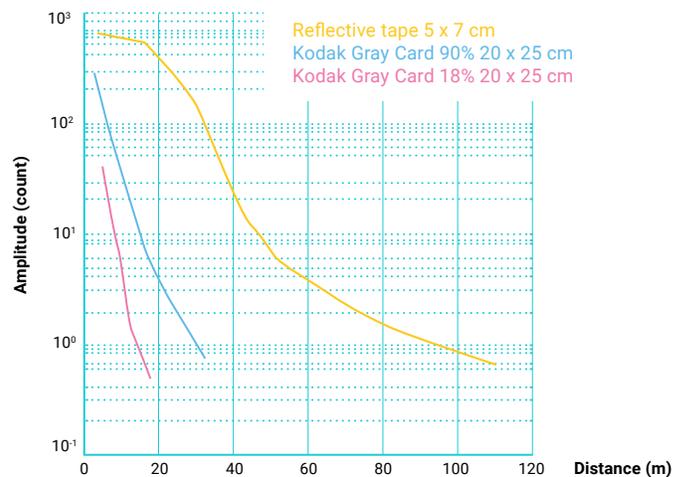
Integration and Interfaces

All M16 modules come with a software development kit, the Leddar Enabler SDK, which provides a user-friendly application programming interface (API) with C libraries, and code examples. Sample code for Windows and Linux are also provided.

Available interfaces for the M16 include: USB, RS-485, CANbus and UART. A 3.81 mm x 8-pin male header is provided for interfacing through a cable harness or terminal block. Also, a USB mini-B connector is provided for use with the Leddar Enabler SDK, and a 2 x 20, 0.050-inch header is provided for custom expansion. Specific information about interface requirements can be obtained by contacting one of our team specialists.

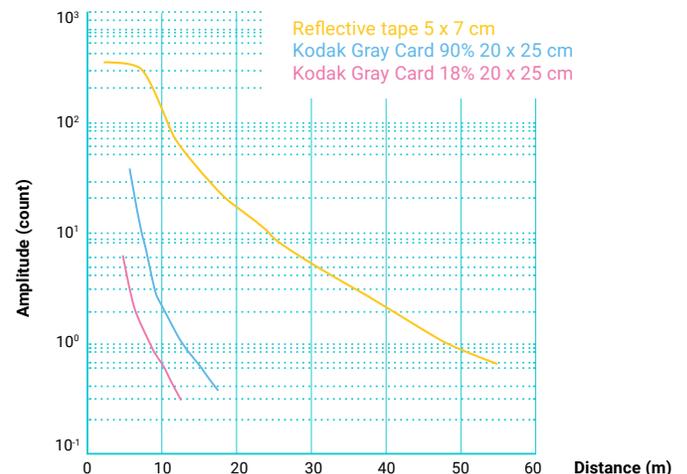
Amplitude vs Distance

Leddar M16-LSR



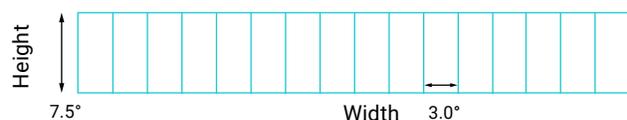
The chart above displays the detection amplitude of a 48° x 0.3° sensor for three reference objects (photographic gray cards and reflective tape) of varying size and reflectivity. Preliminary data, subject to changes.

Leddar M16-LED



The chart above displays the detection amplitude of a 48° x 7.5° sensor for three reference objects (photographic gray cards and reflective tape) of varying size and reflectivity.

FOV Segment Dimensions (Example Of A M16-Led 48° X 7.5°)



Models and Specifications

	Horizontal FOV (°)	Vertical FOV (°)	Dimensions ⁴ (mm)	Weight (g)	Range (@ refresh rate of 6.25Hz) (m)		
					Retro-reflector ¹	White 90% ²	Gray 18% ³
M16-LSR							
M16R-75J0012	19	0.3	71 x 64 x 76	255	165	41	25
M16R-75J0003	19	3.0	71 x 64 x 76	255	110	31	18
M16R-75J0002	36	0.2	74 x 64 x 66	175	146	37	20
M16R-75J0007	48	0.3	62 x 64 x 66	162	105	27	16
M16R-75J0008	48	3.0	62 x 64 x 66	162	81	21	15
M16R-75J0001	48	5.1	62 x 64 x 66	162	75	16	10
M16R-75J0011	48	5.5	62 x 64 x 66	162	91	23	13
M16R-75J0009	100	0.3	62 x 64 x 66	182	35	15	10
M16R-75J0010	100	3.0	62 x 64 x 66	182	30	10	6

M16-LED							
M16D-75B0006	9	1.6	87 x 104 x 66	295	100	35	25
M16D-75B0007	19	3	71 x 104 x 66	255	93	32	21
M16D-75B0009	25	4	60 x 104 x 66	205	85	25	16
M16D-75B0010	36	5	52 x 104 x 66	200	62	17	12
M16D-75B0005	48	6	47 x 104 x 66	175	55	16	10
M16D-75B0008	100	8	63 x 104 x 84	210	25	6	3

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 Gray Card with 90% reflectivity

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

4. Depth x Height x Length

Characteristics	M16-LSR	M16-LED
Wavelength	905 nm	940 nm
Number of segments	16	16
Power supply	12 to 30 V	12 or 24 Vdc (jumper selectable)
Interfaces	USB, RS-485, CAN, UART	USB, RS-485, CAN, UART

System Performance	M16-LSR	M16-LED
Accuracy	±5 cm	
Data refresh rate	Up to 100 Hz	
Distance precision	± 6 mm	
Distance resolution	± 1 cm	
Power consumption	4 W	

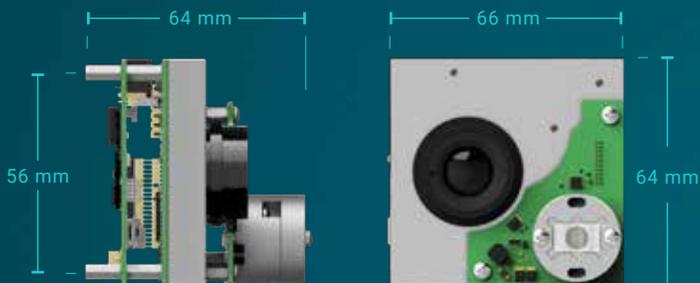
Environmental Performance	M16-LSR	M16-LED
Operating temperature range	-40 °C to 85 °C	
Operation, transport and storage humidity	5% to 95%	

Regulatory Criteria	M16-LSR	M16-LED
FCC Class B	Yes	
RoHS	Yes	
CE	Yes	
Eye Safety	IEC 60825-1: 2014 (class 1)	IEC 62471 2006 criteria: Exempt lamp classification

Leddar M16

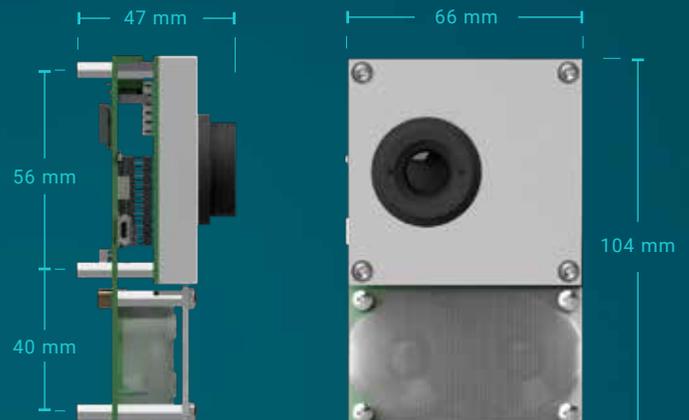
High-Performance, Cost-Effective
Detection and Ranging

Leddar M16-LSR



M16-LSR Typical Dimensions

Leddar M16-LED



M16-LED Typical Dimensions

✓ Leddar M16 Features

- 16 independent segments with simultaneous acquisition
- Multitarget and lateral discrimination capabilities
- Various beam options for optimized field of view (FOV)
- Up to 165 m detection range (541 ft)
- Rapid data acquisition time (up to 100 Hz)

✓ Leddar M16 Benefits

- Proven reliability, even in harsh conditions
- Immune to ambient light variations
- No moving parts, providing ultimate robustness
- Wide operating temperature range
- Easy to integrate with Leddar Enabler SDK
- Low power consumption
- Powered by Leddar technology for superior sensitivity



Leddar® ECOSYSTEM

The Leddar® Ecosystem is comprised of a select group of world-class suppliers that support customers development with the LeddarEngine™ by providing components, such as emitters, receivers, micromirrors, microprocessors and software-development tools. These suppliers are prequalified for integration with LeddarCore® SoCs to ensure maximum design agility and reduced technical risks. The ecosystem provides customers with a faster, safer path to high-volume commercial deployments.



About LeddarTech

LeddarTech is the industry leader behind the most versatile, scalable auto and mobility LiDAR platform based on the unique LeddarEngine. The company is responsible for several innovations in cutting-edge mobility remote-sensing applications, its patented technologies enhancing ADAS/AD capabilities for automobiles, trucks, buses, delivery vehicles, robotaxis and shuttles.



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