

# F Series-4D FMCW LiDAR

## LiDAR on a Chip Integration

Integrate lasers, detectors, beam steering, and other optical components into a silicon photonics chip, achieving a fully solid-state solution.

## Velocity Detection

Achieve velocity for 4D point cloud Based on Doppler effect.

## Anti-Interference

Narrow linewidth lasers with 100kHz, combined with coherent detection technology, the system reduces the risk of interference from the environment or other LiDAR systems significantly.



## High SNR and Excellent Performance

Achieve ultra-long-range detection of up to hundreds of meters and ultra-high resolution.

## No High-Reflection Expansion

A high dynamic range and clear distinction between high-reflection and low-reflection targets.


## Excellent Environments Performance

IP67 rating, excellent performance in worse weather conditions such as rain, snow, and fog.

## ■ Product Introduction

The F series products are FMCW 4D LiDAR based on silicon photonic integration technology. The product can provide four-dimension point cloud data, including distance and velocity, which can suppress ambient light and multi-LiDAR interference, improve the perception accuracy and robustness of autonomous driving and ADAS effectively.

## ■ Specifications

Product Number		 <b>F1</b>	
Sensor		Si Photonics FMCW PIC	
Optics	Light Wavelength	1550nm	
	Number of Lines	128 (adjustable)	
Performance	Working Distance	150m @10%	
	MAX Working Distance	250m	
	FoV (H*V)	120°×25°	
	Resolution (H*V)	0.1°×0.1°	
	Distance Accuracy	5cm (1σ)	
	Velocity Accuracy	0.2m/s	
	Frame Rate	10Hz	
Function	Output Data	Point Clouds, Velocity	
	Time Synchronization	gPTP, PTP, NTP	
Interface	Operating Voltage	9-32V (DC)	
	Power Consumption	<45w	
	Data Transmission Interface	1000M Base T1 Ethernet	
	Ambient Light Resistance	≥100kLux	
	Linkage of Multi-devices	Support Linkage of Multi-devices	
Physics	Operating Temperature	-40℃~85℃	
	Storage Temperature	-40℃ ~ 105℃	
	Eye Safety	Class 1	
Protection Class		IP67、IP6K9K	

For more product details, please visit [www.luminwave.com](http://www.luminwave.com)

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## ■ Applications



Ghost Probe



Dooring Accident



Dust/Mist Misjudgment



High Reflection Expansion



Ambient Light Interference



Static Small Objects Recognition



Self-Localization within Tunnels



Longer Detection Distance

## About LuminWave

Founded in 2018, LuminWave Technology is the world's leading provider of LiDAR, 3D Camera and perception solutions, specializing in development, manufacture and sales of LiDAR, 3D sensors products. Headquartered in Hangzhou (China), it has already set up several R&D Centers and Customer Service network in Xi'an (China), Los Angeles (USA).

The founders of LuminWave are experts in MIT Photonics and seasoned engineers, boasting significant industry experience as well as proficiency in FMCW, ToF technologies, and the capability to develop both 3D sensing hardware and software, along with perception algorithms.

LuminWave Technology has developed a variety of high-performance FMCW LiDAR and industrial 3D cameras products and solutions, widely used in autonomous driving, smart logistics, robotics.

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