

FAIRY



The World's First High-Precision Mid-Range Digital LiDAR

Fairy is the first high-precision, high-definition mid-range digital LiDAR. Powered by RoboSense's innovative chip-based transceiver solution and digital architecture, Fairy features a compact and lightweight design. It boasts an ultra-high precision of 0.5cm, a 360°×32° FOV, and a detection range of up to 150m. The point cloud density of the 96-line version is as high as 1.37 million points per second. With structured point clouds optimized for algorithms, Fairy enables real-time detection of object size, shape, and distance, facilitating 3D mapping, obstacle avoidance, and autonomous navigation for robots with outstanding accuracy.

Leveraging its active illumination technology, Fairy operates independently of ambient light, ensuring stable and continuous performance in nighttime, strong light, rain and fog conditions. This significantly enhances robotic adaptability in complex environments while ensuring highly reliable perception data.

Advantages



96-line or 48-line

#of Lines



0.5cm (1 σ)

Ultra-high precision



<350g

Weight



φ75xH70 (mm)

Compact size



150m

Longest Ranging



IMU

Integrated

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Product Specifications

#of Lines	96 or 48	Wavelength	940nm
Range	80m@10%	Laser safety	Class 1
Maximum range	150m	Accuracy ¹	0.5cm (1σ)
FoV (H*V)	360°×32°	Blind spot	≤0.2m
Angular resolution (H)	0.25°	Angular resolution (V)	0.33°
Frame rate (adjustable)	10Hz	Power consumption	<10W
Points per second (96-line)	~1,370,000 pts/s	Points per second (48-line)	~685,000 pts/s
Ethernet connection	100Base-TX / 100Base-T1	Output	UDP packets over Ethernet
Dimension	φ75mm×H70mm	UDP packet include	3D spatial coordinates, reflectivity, timestamp
Weight (without cabling)	< 350g	Operating voltage	9V ~ 32V
Operating temperature	-40°C ~ +60°C	Storage temperature	-40°C ~ +85°C
Time synchronization	\$GPRMC with 1PPS, PTP&gPTP	Ingress protection	IP67、IP6K9K

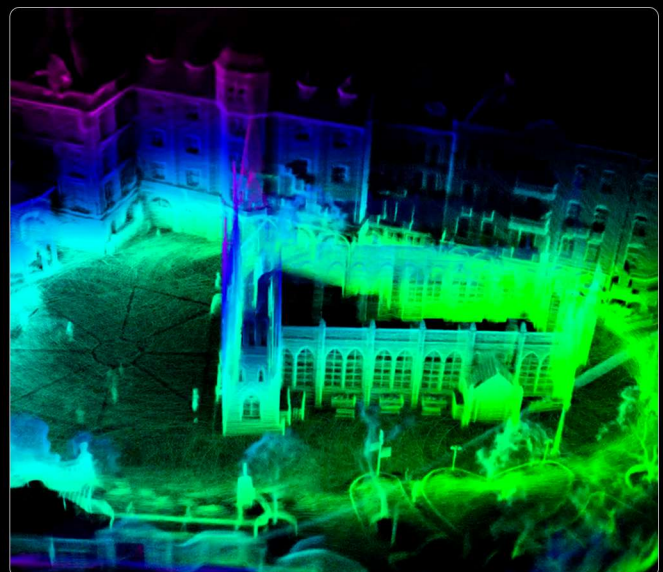
1.Measurement Conditions: 30°C outdoor temperature, 0.5m to 70m range, 50% target reflectivity, average accuracy across channels 25 to 72.

Point Cloud

Fine Perception



3D SLAM



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