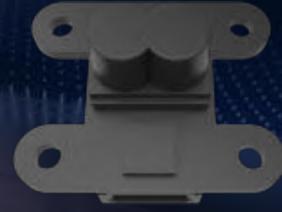


SentiAcu TFS8-L Series

Datasheet



TFS8-L is a lidar developed by SentiAcu that utilizes the single-photon (SPAD) direct time-of-flight (dToF) principle. It offers the advantages of compact size, light weight, and stable performance. The product adopts UART serial communication, ensuring simple operation, flexible installation, and easy expansion.

Technical Specifications

Performance Parameters	
Measurement Range ^①	7.5 m @ 90% reflectance, indoor 7.5 m @ 10% reflectance, indoor 5.0 m @ 90% reflectance, outdoor @ 70 klux 4.3 m @ 10% reflectance, outdoor @ 70 klux
Blind Zone	< 10 cm
Ranging Accuracy ^②	± 6 cm (indoor) ± 8 cm (outdoor @ 70 klux)
Repeatability ^②	< 1 cm @ 1 σ
Distance Resolution	1 mm
Frame Rate	50 Hz
Ambient Light Immunity	70 klux
Optical Performance	
Light Source	Laser
Central Wavelength	940 nm
Field of View (FOV)	< 3°
Mechanical & Electrical Parameters	
Average Power Consumption ^③	15 mA @ 5 V
Supply Voltage	3.5 V - 5.5 V
Operating Temperature	-30 °C - +70 °C
Storage Temperature	-40 °C - +85 °C

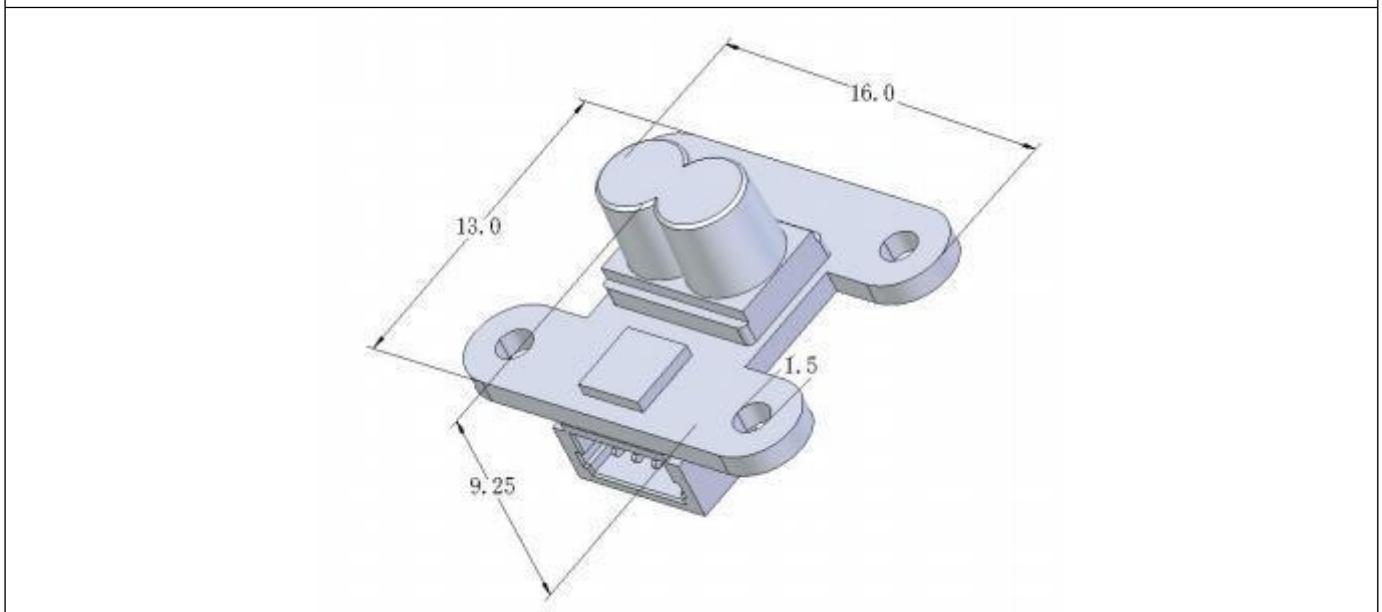


Protection Rating	N/A
Typical Dimensions ^④	13.0 mm × 16.0 mm × 9.25 mm
Typical Weight ^④	< 1 g (excluding cable)

Communication Interface Parameters

Communication Interface	UART
Baud Rate	115200
Data Bits	8
Stop Bits	1
Parity Bit	None

Outline Dimension Diagram (Unit: mm)



Notes:

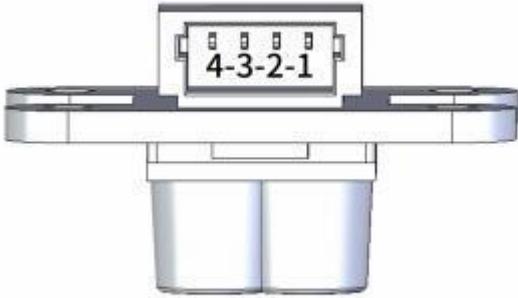
1. Measured when the entire laser spot falls on the target object.
2. Measured indoors with 90% and 10% reflectance targets, with the entire laser spot falling on the target object.
3. Measured at 50 Hz frame rate and 25 °C ambient temperature.
4. Weight and dimensions are typical values for reference only. For detailed tolerance parameters, please consult SentiAcu technical support.

Pin Assignment

Pin Assignment		
PIN	Name	Description
1	TX	UART Transmit Line (Blue)
2	RX	UART Receive Line (Yellow)



3	GND	Ground (Black)
4	VCC	5V Power (Red)



Data Output Protocol

Byte	0	1	2	3	4	5	6	7	8
Description	0x59	0x59	Dist_L	Dist_H	Amp_L	Amp_H	0xFF	0xFF	Check_sum

Dist: In millimeters.

Amp: Signal strength, ranging from 0 to 100. Data reliability decreases significantly when strength falls below 80 and is not recommended for use.

Check_sum: Calculated by summing all bytes from Header to Payload, taking the lower 8 bits.

