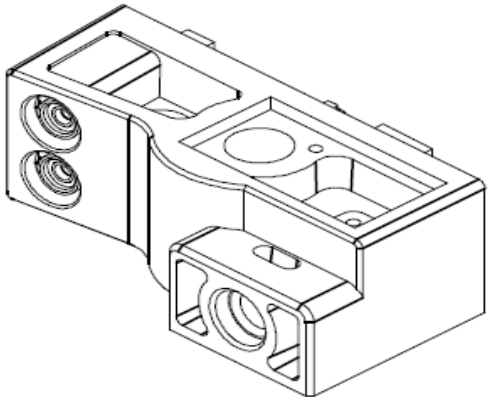
Laser Distance Sensor



ADS-LDS8501D is a laser sensor for distance measurement. The light source used is an infrared laser of wavelength 850nm with laser class 1 eye safety classification. Another 650nm Laser is pointer with laser class 2 eye safety classification. The measuring range is from 15 cm to 6 m. Due to the small size of laser beam, this distance sensor provides superior spatial resolution than traditional obstacle sensor using ultrasonic technology. It is ideal for educational robotics applications and new product development.

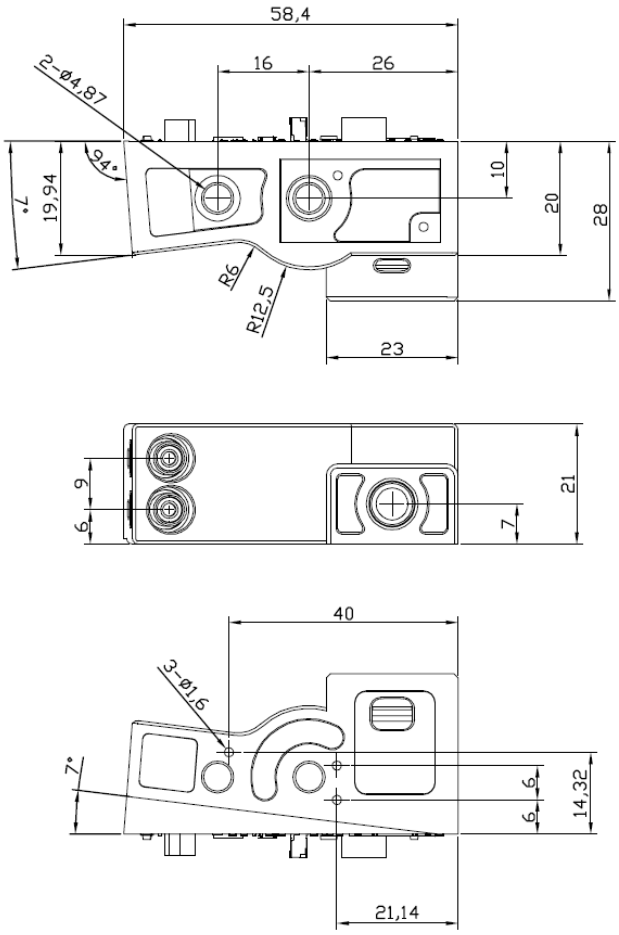
A. Recommended Operating Condition

Product name		Laser Distance Sensor
Model		ADS-LDS8501D-01
Light source	IR Laser	Semiconductor laser diode (λ=850nm) Laser power : less than 0.7mW Laser safety Class 1
	Red Laser	Semiconductor laser diode (λ=650nm) Laser power : less than 1mW Laser safety Class 2
Power voltage		5VDC ±5%
Power consumption		100 mA or less
Detection range		20 cm ~ 6 m (Distance)
Accuracy		Distance 20 ~ 400cm： ±1% of measurement Distance 400 ~ 600cm： ±3% of measurement
Measuring speed		0.5 msec
Interface		UART
Dimension (W×D×H)		59 ×33 ×21.5 mm

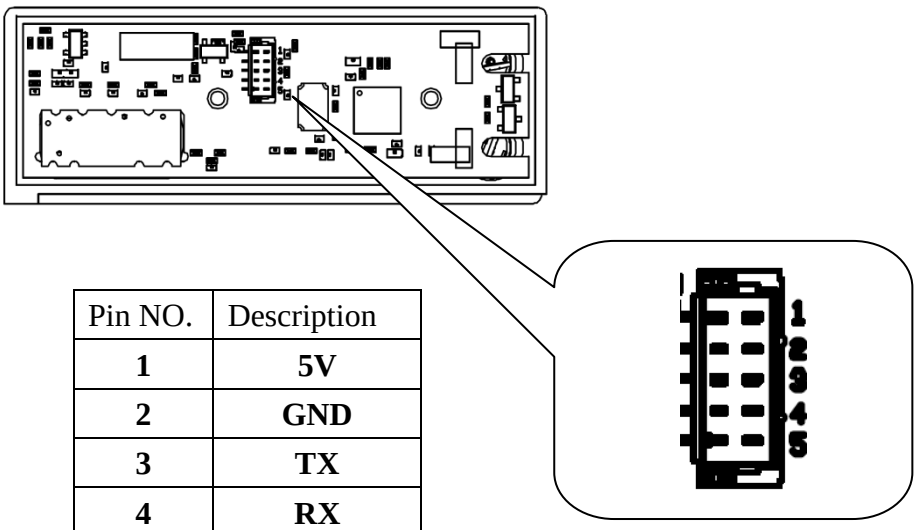
Important Notice : This sensor is designed for indoor use only.

B. Appearance dimensions

(Unite: mm)



C. I/O Pin description



Pin NO.	Description
1	**5V**
2	**GND**
3	**TX**
4	**RX**
5	**NC**

D. Communication Format

Serial communication	
Baud	115200 bps
Paity	None
Data bits	1 bit
Stop bit	2 bit

Continuous Measuring										
DC Power	5V									
	turn on									
LDS	Initiate	Check	Signal level (H)	Signal level (L)	Signal width (H)	Signal width (L)	Distance (H)	Distance (L)	check	End
1th 2th ⋮	0xA5 0xA5 ⋮	0x00 0x00 ⋮	8bit ⋮	8bit ⋮	8bit ⋮	8bit ⋮	8bit ⋮	8bit ⋮	0x00 0x00 ⋮	0xFF 0xFF ⋮

Signal level	
Don't Care	15~12th bit
Value	11~0th bit

Signal width	
Don't Care	15~10th bit
Value	9~0th bit

Distance	
Don't Care	15~14th bit
Value	13~0th bit

Red laser turn on/off						
Master (PC/MCU)	Initiate	command				
	0xA5	0x90				
Slave (SLRF)	Red laser turn on changed to off or Red laser turn off changed to on					