Meskernel

2026

PRODUCT CATALOG

PROFESSIONAL MANUFACTURER OF LASER RANGING SENSORS

Chengdu Meskernel Integrated Technology Co., Ltd.

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ABOUT MESKERNEL

Chengdu Meskernel Integrated Technology Co., Ltd. is a high-tech enterprise specializing in the R&D and manufacturing of laser measurement chips and sensing systems. Focused on innovation, Meskernel provides precise, compact, and energy-efficient laser sensing solutions for industrial automation, robotics, smart devices, and intelligent infrastructure.

Headquartered in Chengdu, China, the company has nearly 100+ employees, with over 40% dedicated to R&D, ensuring continuous technological advancement. Meskernel is ISO-certified and recognized as a National High-Tech Enterprise and Chengdu Gazelle Enterprise, holding more than 70 core intellectual property rights and delivering reliable, high-performance laser sensing solutions worldwide.

WHY MESKERNEL

20+ Years of Expertise

Dedicated to laser measurement since 2003.

In-house R&D & Manufacturing

Full control from design to production ensure continuous innovation.

Flexible OEM & ODM Solutions

Customizable hardware, firmware, enclouse and interfaces, etc.

Strict Quality Control

End-to-end inspection from material to shipment.

Fast Response & Delivery

Sample orders available in 3 days, supporting rapid project validation and development.

Global Certifications

Comply with CE, RoHS, FCC, and FDA standards.

Cost-Effective Solutions

Optimized balance between performance and cost.

After-Sales Support

Application-Oriented technical assistance.

DEVELOPMENT HISTORY

2003-2014
Technology accumulation and resource integration

2015
First time achieving mass production of silicon-based APD

2016
Launched the fastest speed measurement and ranging module

2017
Launched the smallest ranging module

2018
Launched 1mm high precision ranging module

2019
Launched the lowest power consumption ranging module

2020
Batch shipment of pulse ranging modules

2021
Batch shipment of smartphone ranging modules

2022
Completed laser wind radar prototype verification

2023
Completed high-precision 3D lidar prototype verification

2024
Launched a new generation of SoC phase laser ranging modules(100% independent intellectual property)

2025
Massive production of the new generation SoC phase laser ranging modules

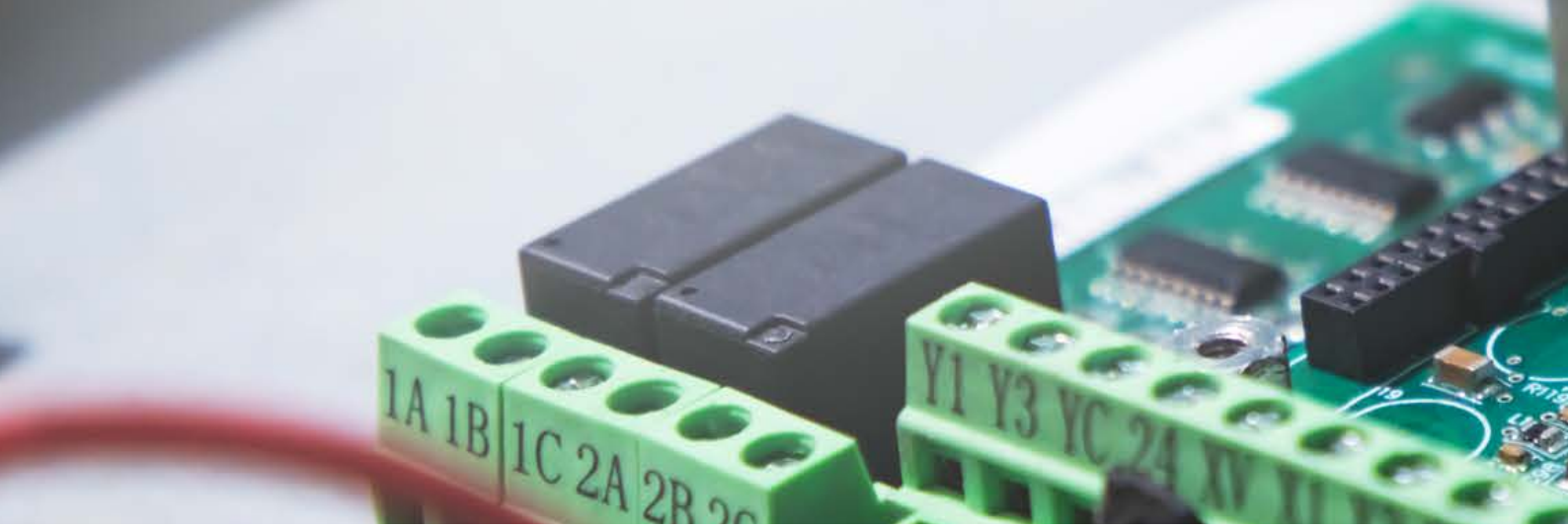
CERTIFICATES

ISO Certificates

CE/RoHS/FCC/FDA

Patented Technologies (39 Invention Patents, 3 Design Patents, and 15 Utility Model Patents)

20 Software Copyrights

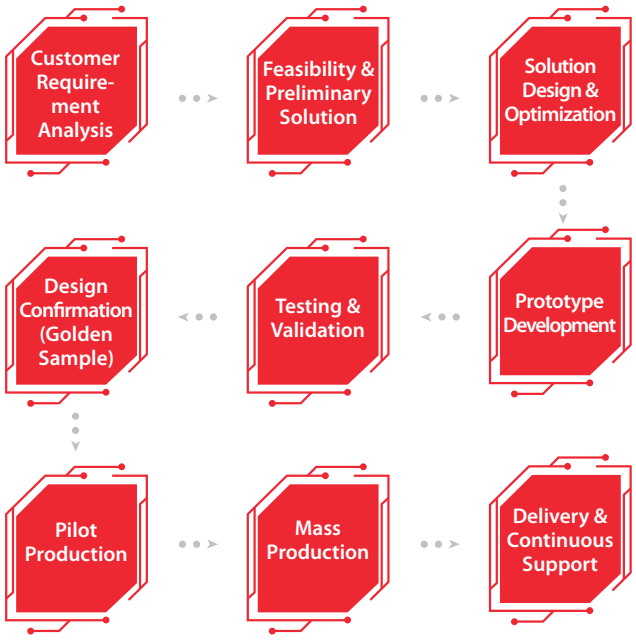


Customization

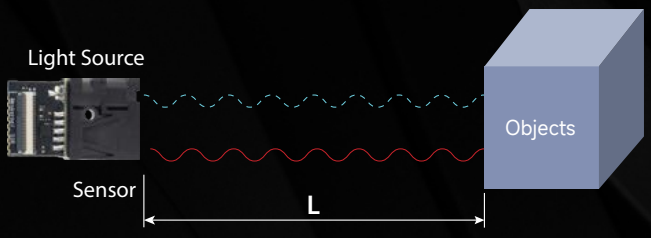
Project Type	Content
Basic Parameters	Measuring range
	Measuring accuracy
	Measuring speed
	Measuring resolution
	Operating temperature range
	Laser class
	Power supply mode (dry cell, lithium battery or DC power supply)
	External interface & connector (FPC or other connector)/direct wire welding
Communication Interface and Protocol	Hardware interface, support TTL/CMOS, USB, RS-485, RS-232, CAN
	Communication baud rate
	Multi-module BUS communication
	Communication protocol: custom ASCII mode, custom HEX mode, MODBUS
	Wireless communication: Bluetooth module, etc.
Enclosure	Tailor the modules' structure to fit for customers' enclosure
	IP protection level IP54, IP65, IP67, IP68
	Environmental adaptability (temperature and humidity control)
Applicable for Laser Distance Meter Module	Display customization
	Keypad quantity and keypad position customization
	Operation logic customization
	Distance measurement related peripherals (communication module, voice and tilt functions, etc.)

Customized Process

The R&D team has been at the forefront of laser ranging technology for many years, with a team size of over 40 engineers and around 70 patents to its name.Many of its innovations have received awards, and the company has been recognized as a Chengdu High-tech Enterprise.



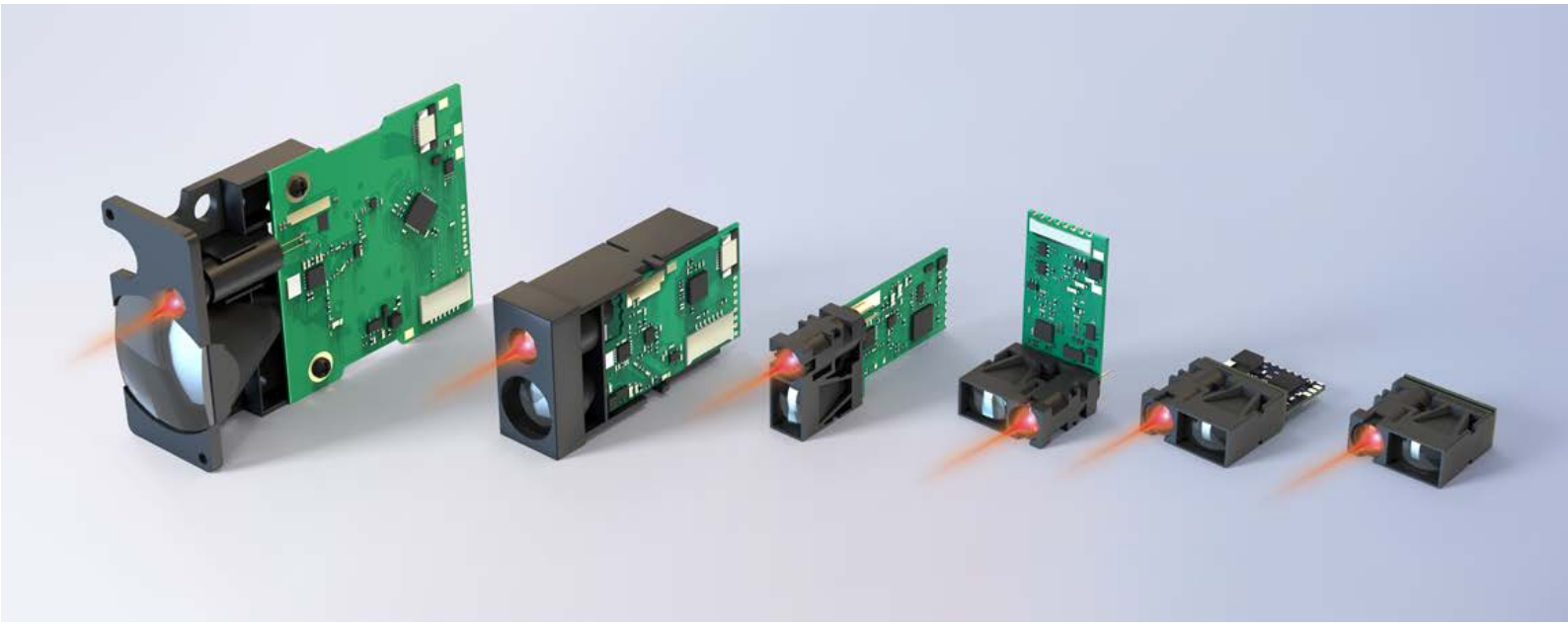
High Precision
Laser Distance Sensor Series



iTOF Distance Measurement Principle

The iToF usually refers to the method of indirectly measuring the time of flight of light by modulating the emitted laser and analyzing the change of the relevant characteristics of the modulated laser after the propagation of a certain distance. This method is most commonly used for the analysis of the phase characteristics of the modulated laser.

The phase information carried by the transmitted modulated laser and the modulated laser received after reflection will be different, and the phase difference can be calculated by analyzing the phase of the transmitted and the received phase. The actual propagation distance of the laser can be calculated by combining the phase difference information and the specified modulation frequency.



Laser Distance Module (Red Laser Beam)

KEY FEATURES

Flexible Distance Range

Wide range coverage – from several meters up to 200m.

High Precision

Millimeter-level accuracy (best ±1mm) for construction, surveying, and industrial measurement.

Visible Laser Beam

The red laser point is visible to the naked eye, making installation and alignment quick and effortless.

Class II Eye Safety

Class II laser complies with international safety standards, ensuring safe operation in public or shared environments.

Flexible Integration

Supports UART, RS232, RS485, CAN, Modbus, I2C, and Analog outputs — easily integrates with most control systems and microcontrollers.

Ideal for Indoor Use

The visible red laser performs reliably in indoor lighting conditions, making it ideal for construction, industrial automation, and smart home applications.

NEWLY RELEASED

LDL-S

Distance	0.03~60/80/100m	**Laser Wavelength**	650-660nm,<1mW
Size	16.57x17.03x7.01mm	**Power Consumption**	<80mA@3.3V
Weight	2g	**Working Temperature**	-10~50℃
Accuracy	±(1mm+D*(1/10000))	**Interface**	USART/RS485/RS232 I2C/Modbus
Frequency	5/30Hz		

LDL-T

Distance	0.03~60/80/100m	**Laser Wavelength**	650-660nm,<1mW
Size	27.87x17.03x7.01mm	**Power Consumption**	<80mA@3.3V
Weight	3g	**Working Temperature**	-10~50℃
Accuracy	±(1mm+D*(1/10000))	**Interface**	USART/RS485/RS232 I2C/Modbus
Frequency	5/30/100Hz		

Crane Positioning

This series can be used in the crane scenarios to effectively detect obstacles, help for precise positioning, and avoid collisions etc.

Rugged Devices

This series supports reliable measurement in harsh environments. Integrated with rugged devices, the red laser ensures clear visibility and accurate distance data for outdoor tasks.

Conveyor Monitoring

This series ensures precise positioning and speed control on conveyors, optimizing efficiency and reducing errors in automated systems.

LDLL

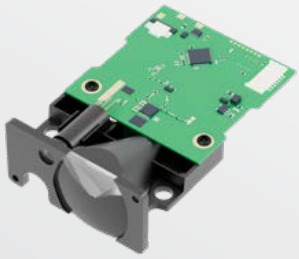
Distance	0.03~10/20/40m	**Laser Wavelength**	650-660nm,<1mW
Size	30.45x17.10x19.47mm	**Power Consumption**	<80mA@3.3V
Weight	4±0.5g	**Working Temperature**	0~40°C
Accuracy	±(3mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/20Hz		

LDL

Distance	0.03~10/20/40m	**Laser Wavelength**	650-660nm,<1mW
Size	42.00x17.10x7.06mm	**Power Consumption**	<80mA@3.3V
Weight	4±0.5g	**Working Temperature**	0~40°C
Accuracy	±(3mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/20Hz		

LDK

Distance	0.03~40/60m	**Laser Wavelength**	650-660nm,<1mW
Size	46.80x26.00x13.00mm	**Power Consumption**	<100mA@3.3V
Weight	9±0.9g	**Working Temperature**	0~40°C
Accuracy	±(3mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/20Hz		



LDJ

Distance	0.03~100/200m	**Laser Wavelength**	650-660nm,<1mW
Size	62.91x40.00x18.00mm	**Power Consumption**	<160mA@3.3V
Weight	14±1.4g	**Working Temperature**	0~40°C
Accuracy	±(3mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/20Hz		

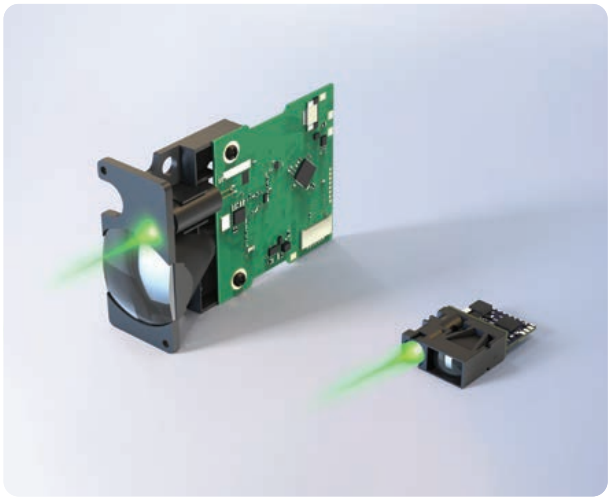
Laser Distance Module (Green Laser Beam)

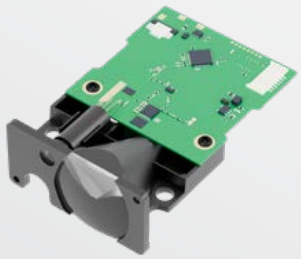
KEY FEATURES

Excellent Visibility in Bright Environments
Significantly brighter and more visible – ideal for easy aiming and targeting outdoors.

Stable Measurement
Accurate on any material – dark, grey, or low-reflectivity.

User-Friendly Indicator
Green beam: natural aiming, quicker setup, better user experience.





LDJG

Distance	0.03~100m	**Laser Wavelength**	510-550nm,<1mW
Size	62.91x40.00x18.00mm	**Power Consumption**	<250mA@3.3V
Weight	14±1.4g	**Working Temperature**	0~40℃
Accuracy	±(5mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/20Hz		

LDLG-T

Distance	0.03~50m	**Laser Wavelength**	510-550nm,<1mW
Size	27.87x17.03x7.01mm	**Power Consumption**	<100mA@3.3V
Weight	3g	**Working Temperature**	-10~50℃
Accuracy	±(2mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	4Hz		

Bridge Displacement Monitoring
Laser distance sensors provide reliable,real-time monitoring of bridge displacement,deflection,and thermal expansion,ensuring structural safety with millimeter-level precision.

Outdoor Measurement
Green laser beam has better visibility, and stronger measuring ability under sunlight.

RTK Positioning
This enables precise positioning with RTK systems. The green laser ensures clear visibility and accurate distance measurement for surveying, UAVs, and construction.

Industrial Enclosed Sensor

KEY FEATURES

Ready-to-Use Mounting
Pre-defined mounting points, easy Integration.

Built-in Alignment Aid
Flat surfaces, easy alignment – just aim and measure.

Splashproof and Dustproof
Resists splashing water and light dust, ideal for industrial workshops.

LDJ-P7/LDJG-P7

Distance	0.03~100/150/200m	**Laser**	Red/Green Laser
Size	122.00x84.00x37.00mm	**Protection Grade**	IP67(Customize)
Weight	446g	**Working Temperature**	-10~50℃
Accuracy	±(3mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/20Hz		

LDJ-P4/LDJG-P4

Distance	0.03~100/150/200m	**Laser**	Red/Green Laser
Size	85.00x62.00x22.00mm	**Protection Grade**	IP54(Customize)
Weight	90g	**Working Temperature**	-10~50℃
Accuracy	±(3mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/20Hz		

LDK-P4/LDKG-P4

Distance	0.03~40/60m	**Laser**	Red/Green Laser
Size	75.00x47.00x21.05mm	**Protection Grade**	IP54(Customize)
Weight	69g	**Working Temperature**	-10~50℃
Accuracy	±(3mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/20Hz		

LDL-TP4

Distance	0.03~40/60/100m	**Laser**	Red Laser
Size	58.00x42.20x17.40mm	**Protection Grade**	IP54(Customize)
Weight	50g	**Working Temperature**	-10~50℃
Accuracy	±(1mm+D*(1/10000))	**Interface**	USART/RS485/RS232/ I2C/Modbus/CAN
Frequency	3/5/20/30/100Hz		

High Frequency Distance Sensor

KEY FEATURES

Ultra-Fast Measurement Speed at Millimeter Accuracy

Selectable frequencies up to 10 KHz. Ideal for high-speed moving targets, real-time positioning and scanning, and dynamic process control.

Wide Measurement Range

0.2 m to 25 m – covers most industrial short- to medium-distance needs. It works reliably on surfaces with ⩾70% reflectivity.

Flexible Baud Rate Options

Selectable auto-baud (fixed at 1 Mbps) or fixed-baud (field-adjustable from 460800 bps to 2 Mbps) .

LDJU

Distance	0.2~25m	**Protection Grade**	IP54/IP67(Customize)
Size	109x40x18mm	**Power Consumption**	<2.5W
Weight	170g	**Working Temperature**	-10~50℃
Accuracy	±(3mm+D*(1/10000))	**Interface**	USART/RS485/RS232
Frequency	1K/3K/5K/10KHz		

Smart Logistics

High-frequency laser distance sensor ensures precise positioning and inventory control, optimizing warehouse automation and robotic handling.

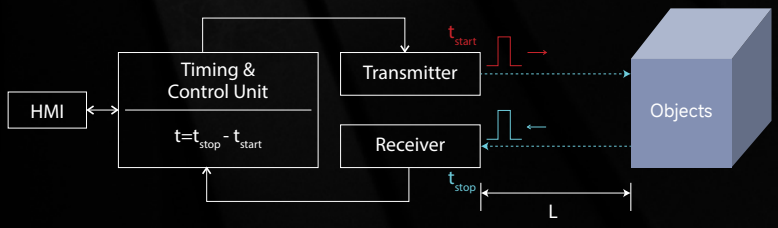
Robotic Arm Integration

High-frequency laser distance sensor enables precise positioning, improving robotic arm accuracy and operational efficiency.

Tunnel Monitoring

High-frequency laser distance sensor provides real-time structural assessment, detecting deformations and ensuring tunnel safety and maintenance.

Long Range
Laser Rangefinder Sensor Series



dTOF Distance Measurement Principle

The dToF is a direct measurement of the time difference between transmitting laser and receiving laser, and inverse calculation of the distance of laser travel according to the speed of light. Based on the speed of light, this method requires the circuit related to the measurement of optical time of flight to have a very high reaction speed to improve the resolution of the measurement of time of flight, so as to improve the final ranging distance resolution. In view of the current technical level of the device, its distance division rate can be centimeter.

TS1224-Mini Laser Rangefinder Module

KEY FEATURES

Ultra-Compact & Space-Saving Design

Max side smaller than a coin, significantly reduces the space required for integration.

Unmatched Signal Reception

High-transmittance glass maximizes signal reception, resulting in clearer, more accurate measurements across longer distances.

Metal Shell Design

Equipped with a metal shell, durable and long-lasting.

TS1224

Distance	5~1500/2000/2500m	**Laser Wavelength**	905nm, Class I
Size	25.72x24.60x13.40mm	**Power Consumption**	330mW@3.3V
Weight	10g	**Working Temperature**	-20~50℃
Accuracy	±1m	**Interface**	UART/RS485/RS232
Frequency	2~5Hz		

TS1224-H

Distance	5~400m	**Laser Wavelength**	905nm, Class I
Size	25.72x24.60x13.40mm	**Power Consumption**	330mW@3.3V
Weight	10g	**Working Temperature**	-20~50℃
Accuracy	±1m	**Interface**	UART/RS485/RS232
Frequency	20Hz		

UAV

TS1224 can be installed in UAV pod. It provides altitude measurement and obstacle detection while the drone is hovering.

Aiming Device

TS1224 provides distance readings to the target, helping users make adjustments for shooting or observation scenarios.

Monitor Camera

TS1224 enhances security monitoring systems with stable distance measurement, real-time monitoring, and smarter intelligence.

PTFS - Square Laser Rangefinder Module

KEY FEATURES

Wide Range & High Frequency

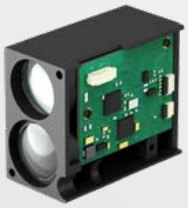
Multiple distance options: 100 m / 400 m / 700 m / 1300 m
Customizable frequency: 50–500 Hz for fast-response scenario.

Easy Integration

Compact square design.
Simple and efficient system integration.

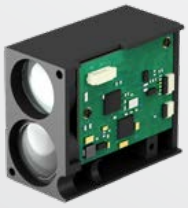
Classic Module Excels in Durability

Add a laser pointer for perfect targeting precise aim.



PTFS-H Red/Green laser pointer optional

Distance	3~100/200/300/400m	**Laser Wavelength**	905nm, Class I
Size	42.79x35.19x21.37mm	**Power Consumption**	330mW@3.3V
Weight	30g	**Working Temperature**	-10~50℃
Accuracy	±1m	**Interface**	UART/RS485/RS232
Frequency	50~500Hz		



PTFS Red/Green laser pointer optional

Distance	3~400/700m	**Laser Wavelength**	905nm,Class I
Size	42.79x35.19x21.37mm	**Power Consumption**	330mW@3.3V
Weight	30g	**Working Temperature**	-10~50℃
Accuracy	±1m	**Interface**	UART/RS485/RS232
Frequency	1~3Hz		

PTFS Red/Green laser pointer optional

Distance	3~1000/1100/1300m	**Laser Wavelength**	905nm,Class I
Size	42.79x35.19x21.37mm	**Power Consumption**	330mW@3.3V
Weight	30g	**Working Temperature**	-10~50℃
Accuracy	±1m	**Interface**	UART/RS485/RS232
Frequency	1Hz		

High-Speed Traffic Monitoring – Camera + Laser Ranging

Mounted on highway gantries,our laser works seamlessly with cameras to deliver accurate, real-time distance and speed measurements of oncoming vehicles,promoting smart transportation.

TC25 - Cylindrical Laser Rangefinder Module

KEY FEATURES

Cylindrical Shape

Cylindrical shape and compact round size , fits perfectly into round mounting holes or brackets

Versatile integration

Effortlessly adapts to sights, gimbals, binoculars, and a wide range of other optical systems.

Built-in Aiming Indicator

Visible pointer – easy aiming, even for invisible lasers.

TC25 Red/green laser pointer optional

Distance	3~1200m	**Laser Wavelength**	905nm, Class I
Size	Φ25x43mm	**Power Consumption**	<330mW@3.3V
Weight	15g	**Working Temperature**	-20~50℃
Accuracy	±1m	**Interface**	UART/RS485/RS232
Frequency	1~3Hz		

Thermal Integration

TC25 enables precise distance measurement with thermal imaging, enhancing target detection, security monitoring, and industrial inspections.

Border Security

TC25 provides accurate distance measurement for border surveillance, enhancing intrusion detection, perimeter monitoring, and threat assessment.

Hunting Equipment

TC25 can be integrated into gunshot devices to help target the preys and even plays an important role in the defense industry where accurate distance of the targets are emphasized.

PTFG-Telescope Laser Rangefinder Module

KEY FEATURES

Long distance

With a maximum range of 3 kilometers , ideal for long-distance outdoor applications.

High-Quality Optics

6 measurement modes: straight, horizontal, vertical, slope, flag sweep, speed.
6x magnification with 23.5mm objective lens.

LCD Dsiplay Screen

Real-time measurement results on the LCD screen enable instant data viewing for quick decisions and adjustments.

PTFG

Distance	5~1500/3000m	**Laser Wavelength**	905nm, Class I
Size	92.00x54.00x33.10mm	**Power Consumption**	<330mW@3.3V
Weight	66g	**Working Temperature**	-10~50℃
Accuracy	±1m	**Interface**	UART/RS485/RS232
Frequency	1~3Hz		

Tree Height Measurement

It provides precise distance and angle data to the treetop and trunk base, enabling the device to calculate tree height.

Golf Rangefinding

It can be used to measure the distance from the ball to the flag, assisting golfers in better adjustment.

Hunting

Designed for hunting applications, it enables precise distance measurement and shot placement assessment, giving hunters dependable real-time data to improve accuracy, decision-making, and overall field efficiency.

PTFS-P4 Industrial Enclosed Sensor

KEY FEATURES

Built-in Visible Laser Indicator

Easy aiming,even when using invisible laser modules.

Ready-to-Mount

No extra fixture design needed, simply insert your sensor and secure it.

Protects Your Sensor

Shielding against physical damage, dustproof and splashproof for stable, accurate operation.

PTFS-P4

Distance	0.5~400/700/1300m	**Laser Wavelength**	905nm,Class I
Size	80x65x32mm	**Power Consumption**	330mW@3.3V
Weight	188g	**Working Temperature**	-10~50℃
Accuracy	±1m	**Interface**	UART/RS485/RS232
Frequency	3Hz/50~500Hz		

Port Berthing Systems

Laser rangefinder sensor enhance vessel safety during docking by providing real time, accurate distance measurements, helping prevent collisions.

Vehicle Speed Measurement

This product provides accurate speed detection on highways, supporting traffic monitoring, law enforcement, and safety management.

Container Security Monitoring

This product enables precise distance measurement for container monitoring, ensuring cargo safety, intrusion detection, and efficient logistics management.

Laser Rangefinder

S80

Distance	0.03~80m	**Laser**	650-660nm,<1mW, Class II
Size	110x32x18mm	**Power Supply**	3.7V 500mAh, Lipo
Accuracy	±3mm	**Material**	Aluminium Alloy
Color	Black		

P100

Distance	0.03~100m	**Laser**	510-550nm,<1mW, Class II
Size	184x135x50mm	**Power Supply**	1.5V 2*AAA Battery
Accuracy	±5mm	**Material**	ABS
Color	Black/Red		

P120

Distance	0.03~120m	**Laser**	650-660nm,<1mW, Class II
Size	184x135x50mm	**Power Supply**	1.5V 2*AAA Battery
Accuracy	±3mm	**Material**	ABS
Color	Black/Red		

CJY007 3-in-1 Laser Tape+ (5m steel Tape)

Distance: 0.03~40m+5m Steel Tape
Size: 83x78x52mm
Accuracy: ±3mm
Laser: 650-660nm, <1mW, Class II
Power Supply: 1.5V 2*AAA Battery
Material: ABS
Color: Black

Venture

Distance: 3-1800/2400m
Size: 146x111x51mm
Accuracy: ±0.5m
Laser: 905nm,<1mW, Class I
Power Supply: CR2 3V Battery
Material: Alluminum Alloy
Color: Black/Dark Green

Hyper

Distance: 3-1200m/1500m/3000m
Size: 105x75x35mm
Accuracy: ±0.5~1m
Laser: 905nm, <1mW, Class I
Power Supply: 3.7V 400mAh, Lipo
Material: ABS
Color: White

JQ40

Distance: 0.03~40m
Size: 100x32x12.6mm
Accuracy: ±3mm
Laser: 650-660nm, <1mW, Class II
Power Supply: 3.7V 200Mah, Lipo
Material: ABS
Color: Black

L120

Distance: 0.03~120m
Size: 100x32x13mm
Accuracy: ±3mm
Laser: 650-660nm, <1mW, Class II
Power Supply: 3.7V 200MAh, Lipo
Material: Aluminium Alloy
Color: Silver

A80 (Bilateral Laser)

Distance: 0.03~80m
Size: 125x30x13mm
Accuracy: ±3mm
Laser: 650-660nm, <1mW, Class II
Power Supply: 3.7V 200MAh, Lipo
Material: ABS
Color: White

Notes

Meskernel

Chengdu Meskernel Integrated Technology Co., Ltd.

Focusing on developing stronger, faster, and more accurate laser measurement kernel

Website

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