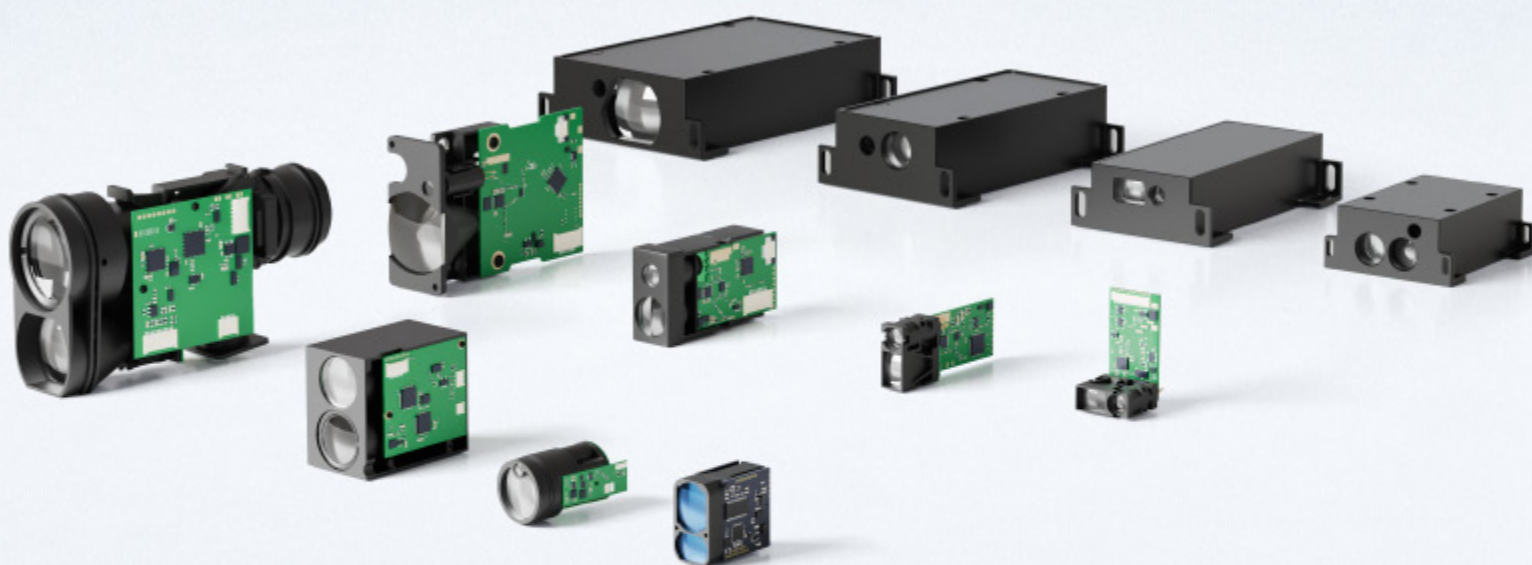




2024-2025 PRODUCT CATALOG

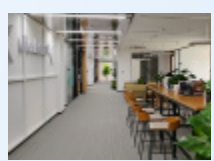
Phase Laser Distance Module
Pulse Laser Distance Module
Laser Rangefinder



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 that specializes in researching, developing, designing, and producing laser measurement (Sensing) core chips and systems. The product line is primarily focused on laser distance sensors, which are known for the **high accuracy, compact size, low power consumption, stable performance, and reasonable pricing**.

These products have gained widespread recognition and trust from customers both domestically and internationally. Meskernel is based in Chengdu Sichuan China and currently has more than **100 employees**, including more than **40 R&D engineers**.

The company has achieved the status of National High-tech Enterprise, Sichuan Province Specialized and Special New Enterprise, Sichuan Province Chengdu Continuous Gazelle Enterprise, and Chengdu Enterprise Technology Center, in addition to holding over **70 intellectual property rights**.

Why Meskernel

➤ Extensive Experience

Devoted to laser distance measurement for more than 20 years.

➤ TUV Certified Factory

TUV certified, with scale around 7000 m².

➤ Multiple Patent Certifications

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

➤ Strong OEM&ODM Customize Capability

More than 40+ R&D technical engineers.

➤ Quality Inspection

Strict quality inspection from incoming material to shipment.

➤ Fast Delivery

Regular sample order can be delivered within 3 days.

➤ Fast Response

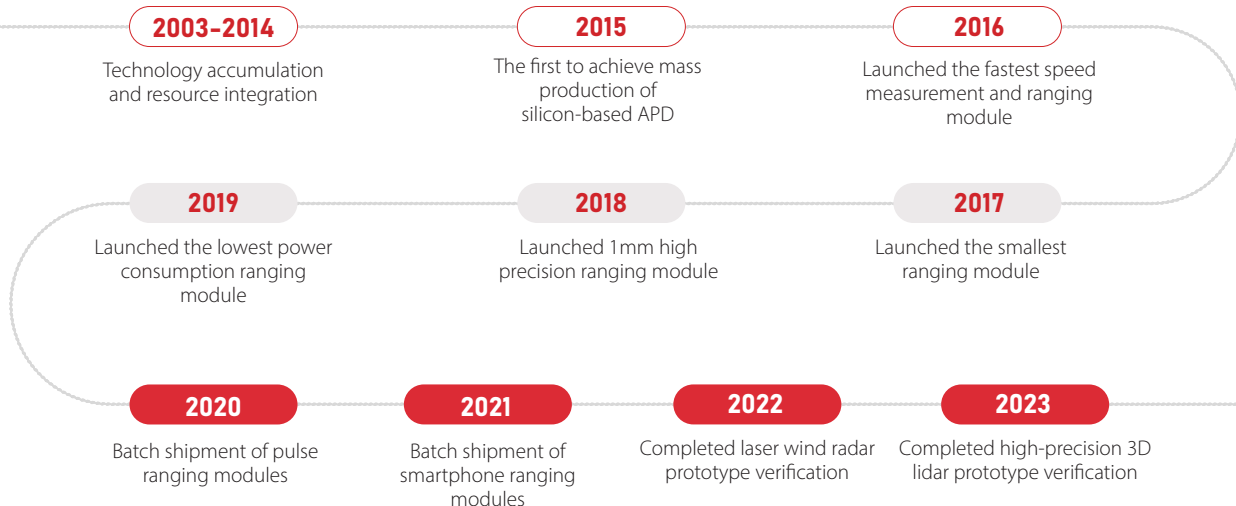
7*24 prompt technical guidance provided.

➤ Reasonable Price

Cost-effective solution.



Development History



CERTIFICATES

ISO Certificates



CE/RoHS/FCC/FDA



Patented Technologies (32 Invention Patents, 3 Design Patents, and 15 Utility Model Patents)

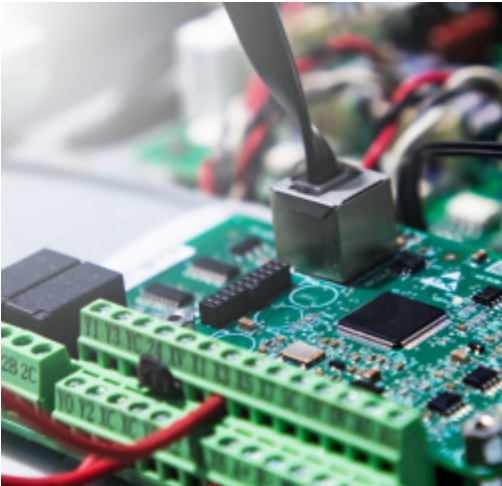
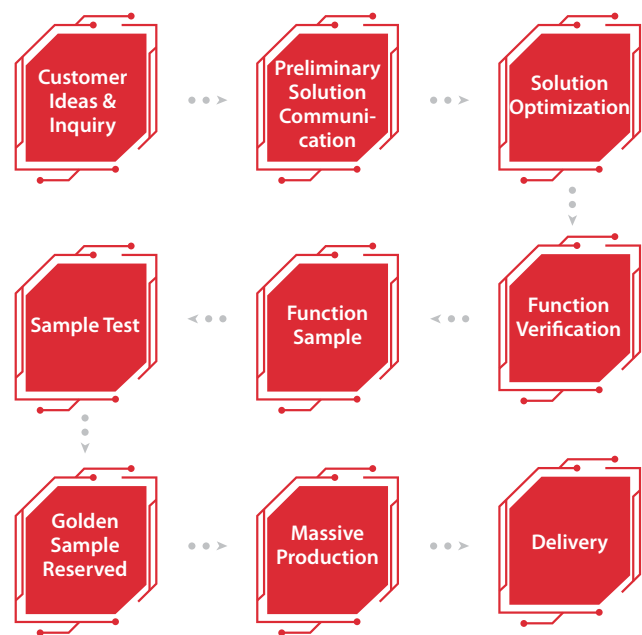


20 Software Copyrights



OEM&ODM Customize Capability

OUR CUSTOM 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 the innovations have been awarded as the Chengdu High-tech Enterprise Certificates

CUSTOMIZATION PROJECTS

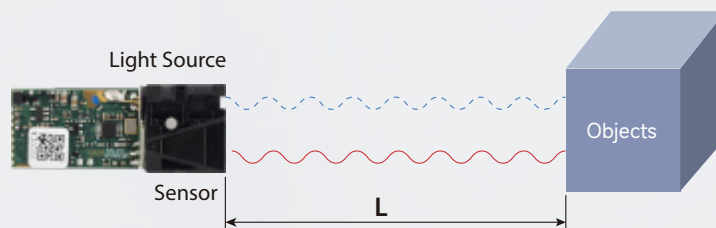
Project Type	Contents
Basic Parameters	Measuring range
	Measuring accuracy
	Measuring speed
	Measuring resolution
	Operating temperature range
	Laser class
	Power supply mode (dry cell, lithium battery or DC power supply)
	External interface&connector (FPC or other connector)/direct wire welding
Communication 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 customer's enclosure
	IP protection level IP54, IP65, IP67, IP68
	Environmental adaptability (temperature and humidity control)
Applicable for laser Distance meter module	Display customization
	Keypad number and keypad position customization
	Operation logic customization
	Distance measurement related peripherals (communication module, voice and tilt functions, etc.)

High Precision Laser Distance Sensor Series

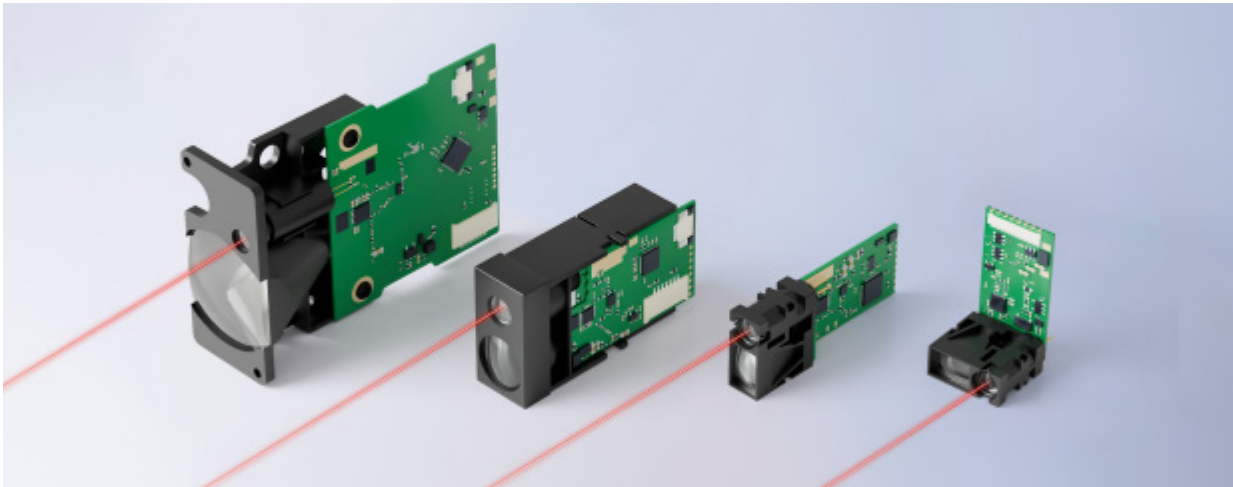
ITOF Distance Measurement Principle

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.



Phase Laser Distance Module (Red Laser Beam)



Key Features

Wide Distance Options

Wide range of selectable distances, making it suitable for various applications.

Fast Response Speed

Rapid data acquisition capabilities, completing distance measurements within milliseconds.

Multiple Communication Interfaces

Supports various communication interfaces and protocols, including RS232, RS485, Bluetooth, Modbus and UART, facilitating integration with existing control or data.

High Measurement Precision

With precision typically in the millimeter range, this sensor meets the high accuracy requirements of applications such as geodetical and construction engineering scenarios.

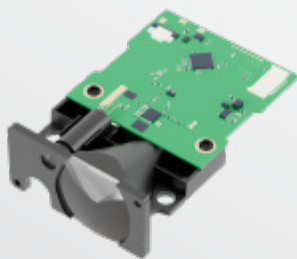
Stable Performance

The sensor maintains a narrow range of data fluctuations and exhibits very low repeatability error.

Non-Contact Measurement

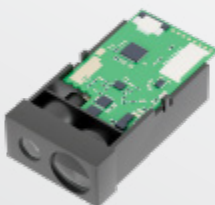
The sensor is capable of non-contact measurement, suitable for detecting moving objects, high or low-temperature objects, liquids, and irregularly shaped objects.

Product Model



LDJ



Distance	0.03~100/150/200m (70% reflection rate)	Frequency	3~20Hz
Size	62.91x40.00x18.00mm	Laser Wavelength	610~690nm,<1mW
Weight	14±1.4g	Power Consumption	<160mA@3.3V
Accuracy	±(3mm+D*(1/10000))	Working Temperature	0~40°C
		Interface	TTL/RS485/RS232



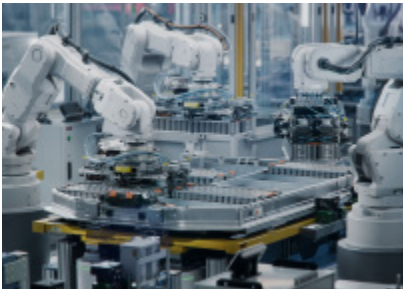
LDK

Distance	0.03~40/60m (70% reflection rate)	Frequency	3~10Hz
Size	46.80x26.00x13.00mm	Laser Wavelength	610~690nm,<1mW
Weight	9±0.9g	Power Consumption	<100mA@3.3V
Accuracy	±(3mm+D*(1/10000))	Working Temperature	0~40°C
		Interface	TTL/RS485/RS232

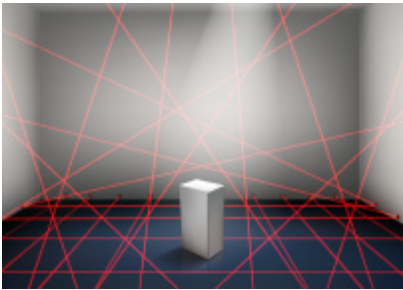


	LDL			
	Distance	0.03~10/20/40m (70% reflection rate)	Frequency	3~20Hz
	Size	42.00x17.10x7.06mm	Laser Wavelength	610~690nm,<1mW
	Weight	4±0.5g	Power Consumption	<80mA@3.3V
	Accuracy	±(3mm+D*(1/10000))	Working Temperature	0~40°C
			Interface	TTL/RS485/RS232
	LDLL			
	Distance	0.03~10/20/40m (70% reflection rate)	Frequency	3~20Hz
	Size	30.45x17.10x19.47mm	Laser Wavelength	610~690nm,<1mW
	Weight	4±0.5g	Power Consumption	<80mA@3.3V
	Accuracy	±(3mm+D*(1/10000))	Working Temperature	0~40°C
			Interface	TTL/RS485/RS232

Main Application Cases



Automation
This series are widely used in industrial automation to measure distances, detect target positions, navigate, avoid obstacles, etc.



Recreation & Entertainment
This series enhance security by detecting unauthorized access near exhibits and can track visitor movements.



Industrial Monitoring
This series are non-contact tools essential for industrial monitoring, used in elevator, paper, and silos, etc.



Geographical Surveying
This series can monitor tunnel/railway deformation, river levels/floodgate positions for water outflow, and aid forestry investigations.



Warehouse Solution
This series are used in AGVs for precise positioning and navigation, ensuring accurate movement and operational efficiency.



Construction
This series are helpful in measuring distances, heights, and levels of buildings or objects on construction sites.

Phase Laser Distance Module (Green Laser Beam)

Key Features

Better Visibility

510~550nm are more visible to the human eyes. Less affected by ambient light.

Higher Penetration

It can penetrate the water and can be used in underwater scenes—high reliability in challenging environment.

Longer Range and Stability

Interacts differently with various surfaces. Providing more accurate readings on certain materials' surfaces, which makes it good for outdoor use.



Product Model

	LDJG			
	Distance	0.03~100/150/200m (70% reflection rate)	Frequency	3~20Hz
	Size	62.91x40.00x18.00mm	Laser Wavelength	510~550nm,<1mW
	Weight	14±1.4g	Power Consumption	<250mA@3.3V
	Accuracy	±(5mm+D*(1/10000))	Working Temperature	0~40°C
	LDKG			
	Distance	0.03~60m (70% reflection rate)	Frequency	3~10Hz
	Size	46.80x26.00x13.00mm	Laser Wavelength	510~550nm,<1mW
	Weight	9±0.9g	Power Consumption	<150mA@3.3V
	Accuracy	±(5mm+D*(1/10000))	Working Temperature	0~40°C
	Interface			
	TTL/RS485/RS232			

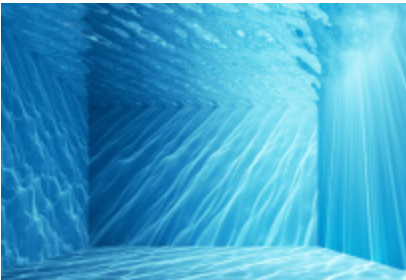
Main Application Cases



Measuring Different Surface
Measuring dark, glossy, or high reflective surfaces like red liquid aluminum solution, or molten steel.



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



Underwater Detection
Penetrating the water to get the measuring data.



Industrial Protective Housing

The IP protection rating, based on IEC 60529, indicates a device's resistance to dust and water ingress. This rating ensures devices operate safely and reliably in various environments, from outdoors to wet areas. Choosing products with the right IP rating is crucial for suitability, reliability, and compliance.

Key Features

Aluminum Alloy Material

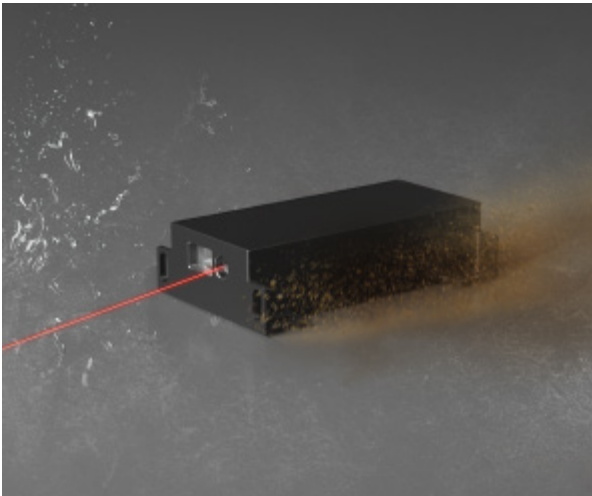
Metal shell is robust, stable and durable.

Splashproof and Dustproof

High-level protection performance, it can provide good protection for some extreme environments.

Multiple Communication Interface

Support TTL/RS485/RS232 interface



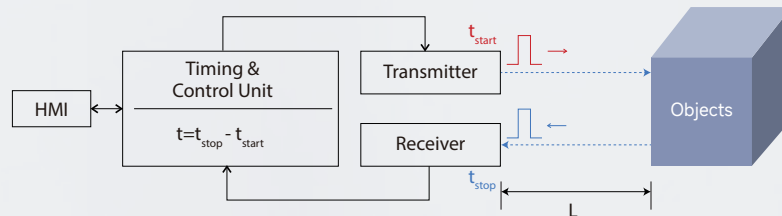
Product Model

	LDJ-P4/LDJG-P4			
	Distance	0.03~100/150/200m	Laser	Red/Green Laser
	Size	85.00x62.00x22.00mm	Protection Grade	IP54/IP67(Customize)
	Weight	90g	Working Temperature	-25~60°C
	Accuracy	±(3mm+D*(1/10000))	Interface	TTL/RS485/RS232
	Frequency	3~20Hz		
	LDK-P4/LDKG-P4			
	Distance	0.03~40/60m	Laser	Red/Green Laser
	Size	75.00x47.00x21.05mm	Protection Grade	IP54/IP67(Customize)
	Weight	69g	Working Temperature	-25~60°C
	Accuracy	±(3mm+D*(1/10000))	Interface	TTL/RS485/RS232
	Frequency	3~10Hz		
	LDL-P4			
	Distance	0.03~10/20/40m	Laser	Red Laser
	Size	58.00x42.20x17.40mm	Protection Grade	IP54/IP67(Customize)
	Weight	50g	Working Temperature	-25~60°C
	Accuracy	±(3mm+D*(1/10000))	Interface	TTL/RS485/RS232
	Frequency	3~20Hz		

Long Range Laser Distance 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-Long Distance Mini Module

Key Features

Long Distance

Measures up to 2KM, ideal for vast projects.

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.



Product Model

	TS1224			
	Distance	5~2000m (70% reflection rate)	Frequency	1~3Hz
	Size	25.72x24.60x13.40mm	Laser Wavelength	905nm, Class I
	Weight	10g	Power Consumption	330mW@3.3V
	Accuracy	±1m	Working Temperature	-20~60°C
			Interface	TTL/RS485/RS232

Main Application Cases



UAVs

TS1224 can help UAVs to realize positioning&navigation, obstacle detection&avoidance, precision operation & monitoring.



Aiming Device

TS1224 distance sensor pioneers precise sighting capabilities.



Monitor Camera

TS1224 distance sensor enhances security monitoring systems with high-precision distance measurement, real-time dynamic monitoring, and improved intelligence.

PTFS-Square Distance Module

Key Features

Middle Distance

Multiple distance options, providing measurement ranges of 100 meters, 400 meters, 700 meters, and 1100 meters.

High Frequency

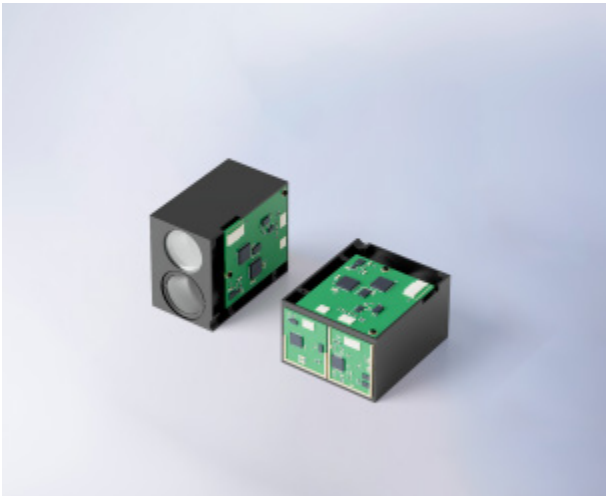
Customizable frequencies ranging from 50 to 500 Hz, making it ideal for applications requiring rapid response times.

Easy Integration

The square structure is easy to integrate into system.

Classic Module Excels in Durability

Made by using the pulsed technology and 905nm laser, it has been a flagship product in Meskernel's category after technical iterations and updates, and is well accepted by clients in different regions.



Product Model

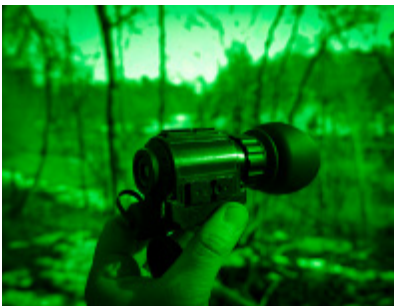
	PTFS-H			
	Distance	3~100/150/400m (70% reflection rate)	Frequency	50~500Hz
	Size	42.79x35.19x21.37mm	Laser Wavelength	905nm, Class I
	Weight	30g	Power Consumption	330mW@3.3V
	Accuracy	±1m	Working Temperature	-10~50°C
			Interface	TTL/RS485/RS232
	PTFS			
	Distance	3~400/700/1100m (70% reflection rate)	Frequency	1~3Hz
	Size	42.79x35.19x21.37mm	Laser Wavelength	905nm, Class I (400m); Class II (700/1100m)
	Weight	30g	Power Consumption	330mW@3.3V
	Accuracy	±1m	Working Temperature	-10~50°C
			Interface	TTL/RS485/RS232

Main Application Cases



Smart Solutions

PTFS can be integrated into systems such as smart parking, smart shelving, smart building management etc.



Night-vision Devices

By providing precise distance measurements, it helps in accurately locating and identifying targets, can improve the overall effectiveness when combined with night-vision technology, such as infrared (IR) or thermal imaging.



Transportation

Monitor vehicle's speed, and also when in public spaces, it can be used to gauge the density of crowds by measuring the distance between people.



TC Series-Cylinder Distance Module

Key Features

Wide Distance

Multiple distance options, providing measurement ranges of 700 meters, and 1000 meters. This versatility allows it to meet the needs of both medium-range and ultra-long-range applications, delivering exceptional performance in large areas or remote monitoring.

Cylindrical Shape


The cylindrical shape makes it easier to integrate into products such as drones and gun sights.

High Precision

The sensor offers a measurement accuracy of up to 1 meters, providing reliable and precise data for long-distance measurements.



Product Model

	TC22			
	Distance	3~700/1000m (70% reflection rate)	Frequency	1~3Hz
	Size	Φ22.00x42.87mm	Laser Wavelength	905nm, Class I
	Weight	15g	Power Consumption	<330mW@3.3V
	Accuracy	±1m	Working Temperature	-10~50°C
			Interface	TTL/RS485/RS232
	TC25			
	Distance	3~1500m (70% reflection rate)	Frequency	1~3Hz
	Size	Φ25.00x46.00mm	Laser Wavelength	905nm, Class I
	Weight	18g	Power Consumption	<330mW@3.3V
	Accuracy	±1m	Working Temperature	-10~50°C
			Interface	TTL/RS485/RS232

Main Application Cases



Drones

TC Series can be workable when in IoT sytems such as in smart agriculture, it can measure crop height or soil moisture levels. This data can be used to optimize irrigation, planting, and harvesting schedules, and integrate with IoT platforms for precision farming.



Surveillance

TC Series can also be used in surveillance systems where specific distances trigger alarms (e.g., someone coming too close to a sensitive area), it can provide precise measurements to activate or deactivate alarms based on proximity.



Hunting Equipment

TC Series can be integrate into gunshot devices to help target the preys and even plays a important role in the defense industry where accurate distance of the targets are emphasized.

PTFG-Telescope Distance Module

Key Features

Eyesafe Laser

We use 905nm invisible light, which is less harmful for human eyes and less disturbed by sunlight.

High-transmittance LCD Display Screen


The measurement results are displayed on the screen, and the user can see the measurement data immediately, which is easy to make quick decisions and adjustments.

Telescope Eyepiece

6x monocular telescope, multi-layer coating, 6x monocular telescope provides a bright and clear field of view. Multi-layer coating can improve the transmittance, reduce reflection, and increase contrast. The coating also protects the surface of the lens against scratches, stains, and dust, increasing the durability of the lens.



Product Model

	PTFG		
	Distance	5~3000m (70% reflection rate)	Frequency3Hz
	Size	92.00x54.00x33.10mm	Laser Wavelength905nm, Class I
	Weight	66g	Power Consumption<330mW@3.3V
	Accuracy	±1m	Working Temperature-10~50°C
			InterfaceTTL/RS485/RS232

Main Application Cases



Industrial Measurement

Used to measure distances, heights of buildings, size of industrial equipment and large structures.



Outdoor Sports

It can be used in golf, mountaineering, hiking and hunting applications.



Thermal Imaging

Combined with thermal imaging technology, targets can be quickly identified in complex environments.



LDJU-High Frequency Distance Module

Key Features

Wide Measurement Range

Capable of measuring distances from 0.2 to 25 m, making it versatile for various applications.

High Frequency

Measuring frequencies up to 3000Hz on the surface with 70% reflection rate.

Advanced Measurement Method

Adopting phase method for measurement, providing reliable and accurate distance data.

Reliable communication

Employing TTL (3.3V) for communication, ensuring reliable data transmission. Using UART interface, a widely used serial communication protocol. Supporting a high baud rate of 460800, enabling fast data transfer.



Product Model

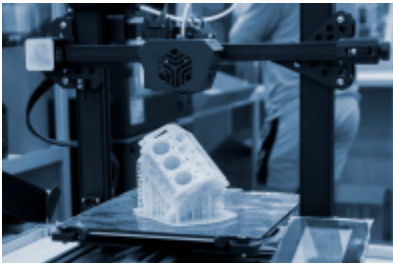
	LDJU			
	Distance	0.2~25m (70% reflection rate)	Frequency	100~3000Hz
	Size	109x40x18mm	Protection Grade	IP54/IP67(Customize)
	Weight	170g	Power Consumption	<2.5W
	Accuracy	±(3mm+D*(1/10000))	Working Temperature	0~40°C
			Interface	TTL/RS485/RS232

Main Application Cases



Robot Navigation and Obstacle Avoidance

High-frequency laser range sensors provide robots with real-time environmental data, allowing them to respond quickly to changes, navigate precisely, and avoid obstacles, thereby enhancing operational efficiency and safety.



3D Printing and Manufacturing Processes

High-frequency laser range sensors measure the distance between the print head and the print bed, ensuring consistent layer thickness and accuracy, thereby improving print and manufacturing quality.



Size Detection on Automated Production Lines

High-frequency laser sensors installed on the production line can measure the dimensions of passing workpieces in real-time, ensuring they meet specifications and promptly removing defective items.

PTFS Protective Housing

Key Features

Enhanced Adaptability

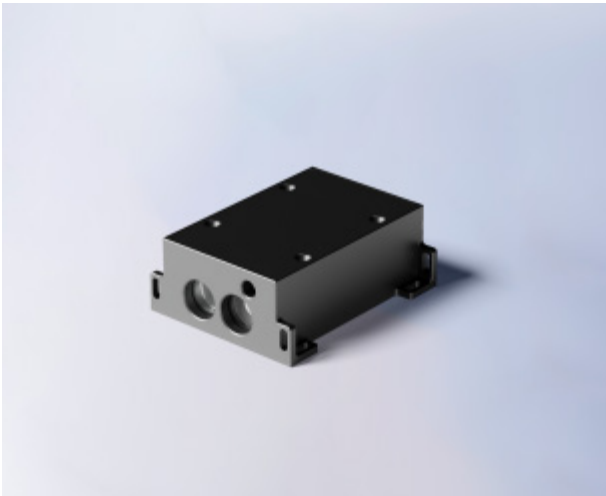
Industrial protective housings are compactly designed to adapt to various complex environments. Beyond their excellent dust and water resistance.

Traditional Connection


These housings typically come equipped with multiple communication interfaces like RS232 and RS485, facilitating easy connection and data transmission with various devices.

Protection of Sensor Modules

Industrial protective housings feature robust casing designs that effectively safeguard sensor modules from physical damage. Additionally, these housings guard against electromagnetic interference and electrostatic discharge issues, ensuring the sensor operates stably and accurately.



Product Model

	PTFS-P4			
	Distance	3~400/700/1100m (70% reflection rate)	Frequency	3Hz/50~400Hz
			Laser Wavelength	905nm laser
	Size	80x65x32.20mm	Power Consumption	330mW@3.3V
	Weight	188g	Working Temperature	-10~50°C
	Accuracy	±1m	Interface	TTL/RS485/RS232

Main Application Cases



Coping with Harsh Environments

In some damp, dusty, or outdoor environments, sensors are susceptible to the invasion of moisture and dust. Dustproof and waterproof treatment enhances sensors' adaptability to these harsh environments.



Surface Coating Protection

Applying a layer of waterproof and dustproof coating on the sensor enclosure and sensitive elements can further enhance their protective capabilities. These coatings usually have excellent corrosion resistance, wear resistance, and self-cleaning properties.




Expanding Application Scopes

Sensors with dustproof and waterproof treatment can be applied in more fields, such as food processing and logistics transportation, which have high requirements for sensors' dustproof and waterproof performance.




Laser Rangefinder

Product Model




S80

Distance	0.03~80m	Power Supply	3.7V 500mAh, Lipo
Size	110x32x18mm	Material	Aluminium Alloy
Accuracy	±3mm	Color	Black
Laser	620-690nm, <1mW, Class II		




P100

Distance	0.03~100/120m	Power Supply	1.5V 2xAAA Battery
Size	110x36x20mm	Material	ABS
Accuracy	±3mm	Color	Red+Black
Laser	620-690nm, <1mW, Class II		



M6

Distance	0.03~40m+5m	Power Supply	3.7V 200mAh, Lipo
Size	72x72x35mm	Material	Aluminium Alloy
Accuracy	±3mm	Color	Black/Red/Silver/ Blue/Gold
Laser	620-690nm, Class II		



Hyper

Distance	3~800/1000/1200/	Object Lens Diameter	23.5mm
	1500/3000m	Eyepiece Diameter	15mm
Size	105x75x35mm	Exit Pupil Distance	15mm
Accuracy	±0.5~1m	Exit Pupil Diameter	3.5mm
Laser	905nm, Class I	FOV	6.5°
Power Supply	3.7V 400mAh, Lipo	Operating Temperature	
		0~40℃	

Notes

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Chengdu Meskernel Integrated Technology Co., Ltd.

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



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