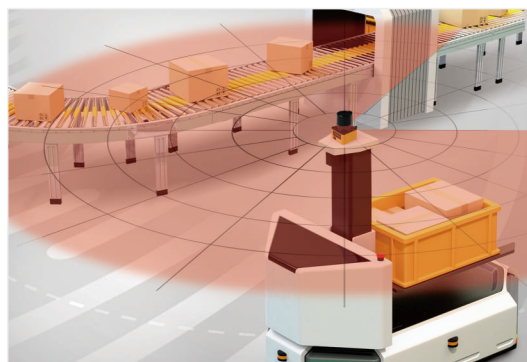


Laser Lidar AS Series ▶



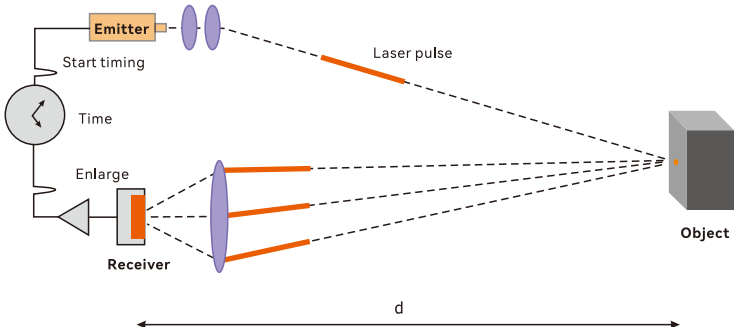
Industrial obstacle avoidance lidar

AKUSENSE's new generation TOF single-line LiDAR boasts high reliability, stable performance, and cost-effectiveness. It's an ideal choice for industrial AGVs, mobile robots, and low-speed robots.



Single-line laser lidar

Accurate 2D scanning of object contours on flat surfaces



Mainstream performance of TOF single-line lidar

Measurement distance ≥ 10 m (70% reflectivity), ≥ 4 m (10% reflectivity)

Horizontal viewing angle: 270° scanning angle, can be divided into 64 independent channels

Measurement rates up to 54 KHz

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety doorlock
- Pressure Switch
- Communication
- Accessories

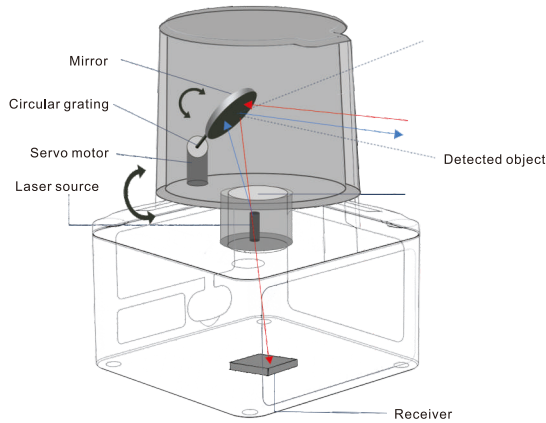
Guidance

Displacement

- Triangulation
- TOF Long
- Range Type
- 3D Laser
- Profiler
- Contact
- Displacement
- LIDAR Scanner**
- Color confocal
- Laser Alignment

Unique structural design, high reliability

The use of lightweight rotary mirror design, with precision brushless silent motor, making the product stable and reliable operation.



Supports serial port (Type-C connector) communication *

Online real-time output of measurement data (including distance and light intensity data in each direction)

* AS-33C

Vibration and shock resistant, adapting to a variety of inspection scenarios

Precision dust-free assembly process, through the high-intensity vibration test and harsh impact test, product consistency is good.



Lidar Technology

Pulsed TOF high-speed ranging technology:

AKUSENSE's full range of LIDAR products utilize direct time-of-flight (dTOF) technology for distance measurement.

This means that short, nanosecond pulses with high instantaneous power are emitted and the distance to the target is calculated by measuring the round trip time of the pulse.

Compared to other commonly used ranging mechanisms (e.g. triangulation based on geometric similarity, and phase ranging using the phase difference between the transceiver channels), it is much faster and has a longer detection distance.

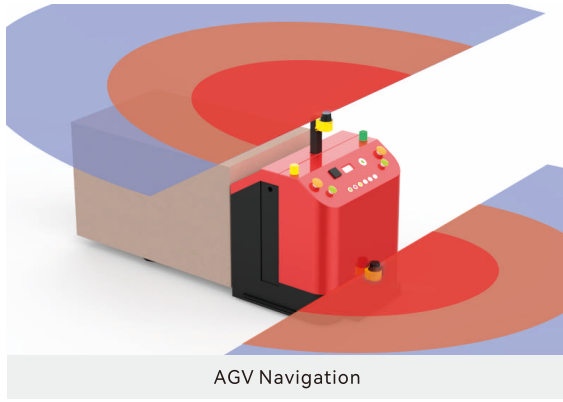
Weak echo signal processing with high signal-to-noise ratio

Pulse echo signal at the receiving end of the photoelectric sensor to form a weak photocurrent, converted to voltage signals and through several levels of amplification and conditioning, by the timing circuit for subsequent processing.

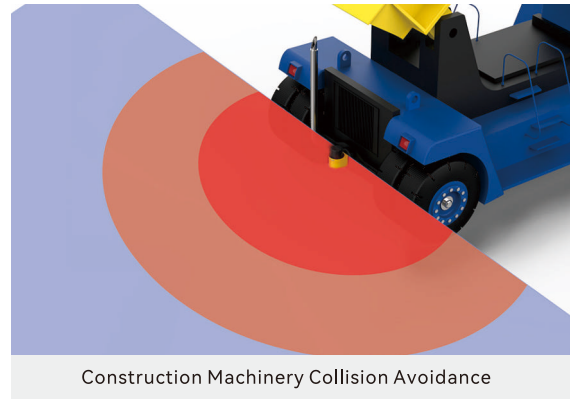
In order to ensure the stability and reliability of the measurement results, the entire signal processing path is sufficient to meet the requirements of TOF ranging on the large bandwidth and high signal-to-noise ratio, so as to capture the weaker signals and measure longer distances.

- Fiber Optic
- Slot Sensors
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- Laser
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- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories
- Guidance

- Displacement
- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner
- Color confocal
- Laser Alignment

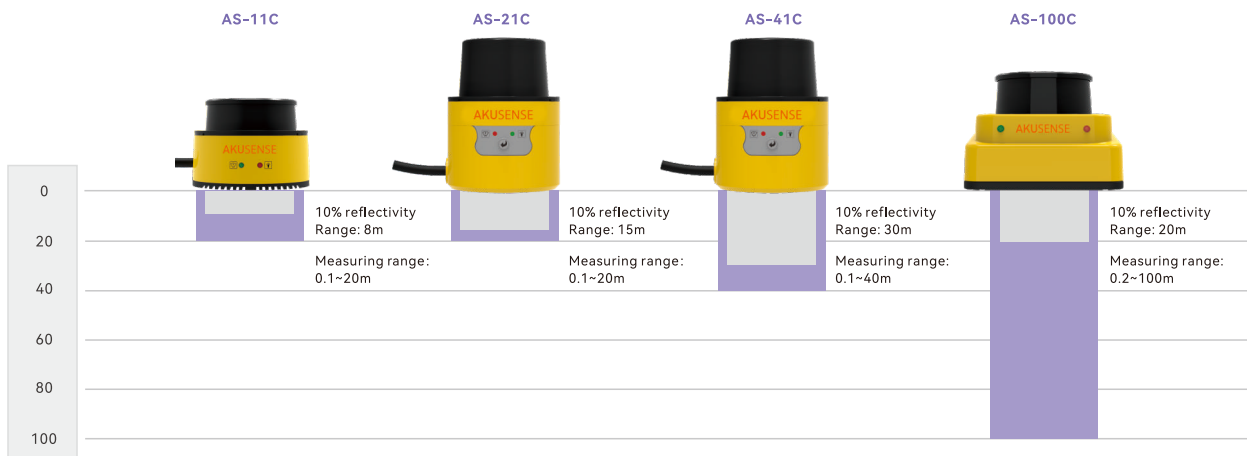


AGV Navigation

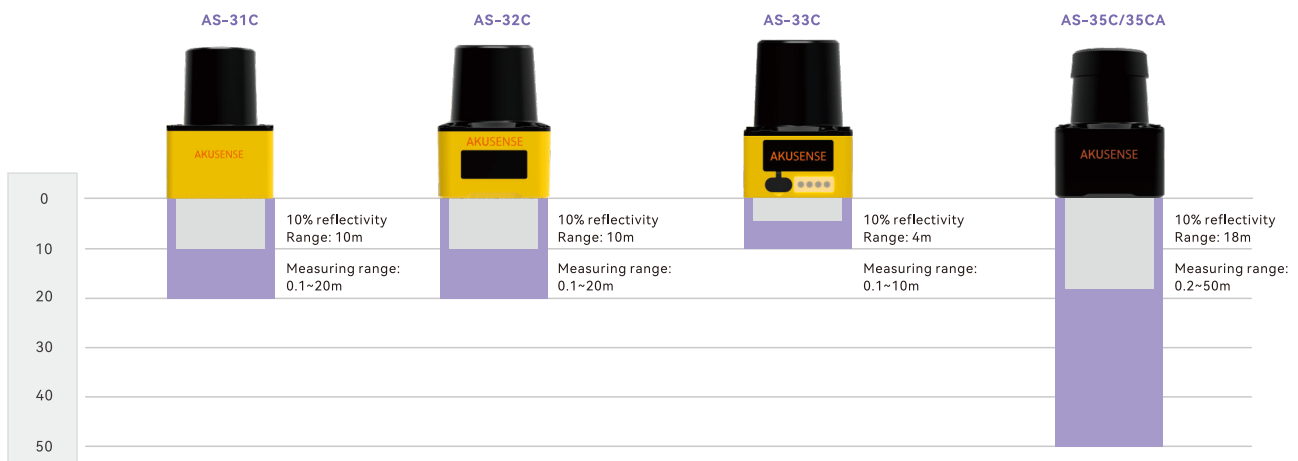


Construction Machinery Collision Avoidance

Selection table



Model	AS-11C	AS-21C	AS-41C	AS-100C
Scanning angle	360°	300°	300°	360°
Resolution	0.5°	0.5°(default)/0.25°/0.125°	0.5°(default)/0.25°/0.125°	0.05°/0.1°
Scanning frequency	12.5Hz	25Hz(default)/12.5Hz/6.25Hz	25Hz(default)/12.5Hz/6.25Hz	10Hz/20Hz



Model	AS-31C	AS-32C	AS-33C	AS-35C/35CA
Scanning angle	270°	270°	270°	360°
Resolution	0.12°/0.18°/0.23°/0.35°	0.12°/0.18°/0.23°/0.35°	0.5°	0.06°/0.09°/0.12°/0.18°
Scanning frequency	10Hz/15Hz/20Hz/25Hz/30Hz	10Hz/15Hz/20Hz/25Hz/30Hz	25Hz	10 Hz / 15 Hz / 20 Hz / 30 Hz

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
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- Pressure Switch
- Communication
- Accessories

Guidance

Displacement

- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner**
- Color confocal
- Laser Alignment

LiDAR Scanner

AS-21/41C

Displacement



TOF principle



Basic Features	Working principle	TOF		
	Optical working principle	Diffuse Reflection		
	Light source	Infrared laser (905nm)		
	Laser spot exit aperture	8mm		
	Scanning range	300°		
	Scanning angle resolution	0.5°(default)/0.25°/0.125°		
	Measuring range	0.1m ~20m	0.1m ~40m	
	Measurement Error	System error (typical)	±5cm	±5cm(1m~20m); ± 10cm(20m~40m)
		Statistical error(1σ)	±2cm	±2cm(1m~20m); ± 4cm(20m~40m)
	Indicator	Quantity: 2; Definition: ERR (Equipment Alarm: Failure/Abnormality, Dirty/Shade of Transparent Cover, High/Low Temperature, Dense Fog); HTR (Operation Status Indication: Detecting Signal/Self-Learning)		
Electrical data	Operating voltage	10V~28V DC		
	Power consumption	5W(Measuring), 3.6W@DC 12V/14.4W@DC 24V(Heating)		
	Communication	Ethernet, rate: 10/100 Mbps; Network protocol: TCP/P; Functions: device configuration/ measurement data output/monitoring signal output		
Environmental conditions	Operating temperature	-25°C~+50°C		
	Storage temperature	-30°C~+70°C		
	Operating humidity	93%,+40°C,2h(GB/T2423.3)		
	Ambient Illumination	≤70,000Lux		
	Vibration resistance	GB/T 2423,10		
	Enclosure rating	IP65(GB4208~2008)		
Mechanical data	Connection	GB/T 2423,10		
	Dimension	83.5×85×104.9(mm)		
	Material	Aluminum Alloy		
	Weight	0.6kg		
	Accessories	Side/sit composite bracket AS-21C-AT, power cable AS-21C-EC, standard RJ45 cable, waterproof sheath for cable crystal head, hexagonal M4*8 screws, spacers, recommended installation tools.		
Special function	Safety class	Class I(GB 7247.1-2012, human eye safety)		
	Laser spot emission angle	12.5mrad		
	Scanning frequency	300°(-60°~+240°)		
	Model	AS-21C	AS-41C	

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Displacement

Triangulation

TOF Long

Range Type

3D Laser

Profiler

Contact

Displacement

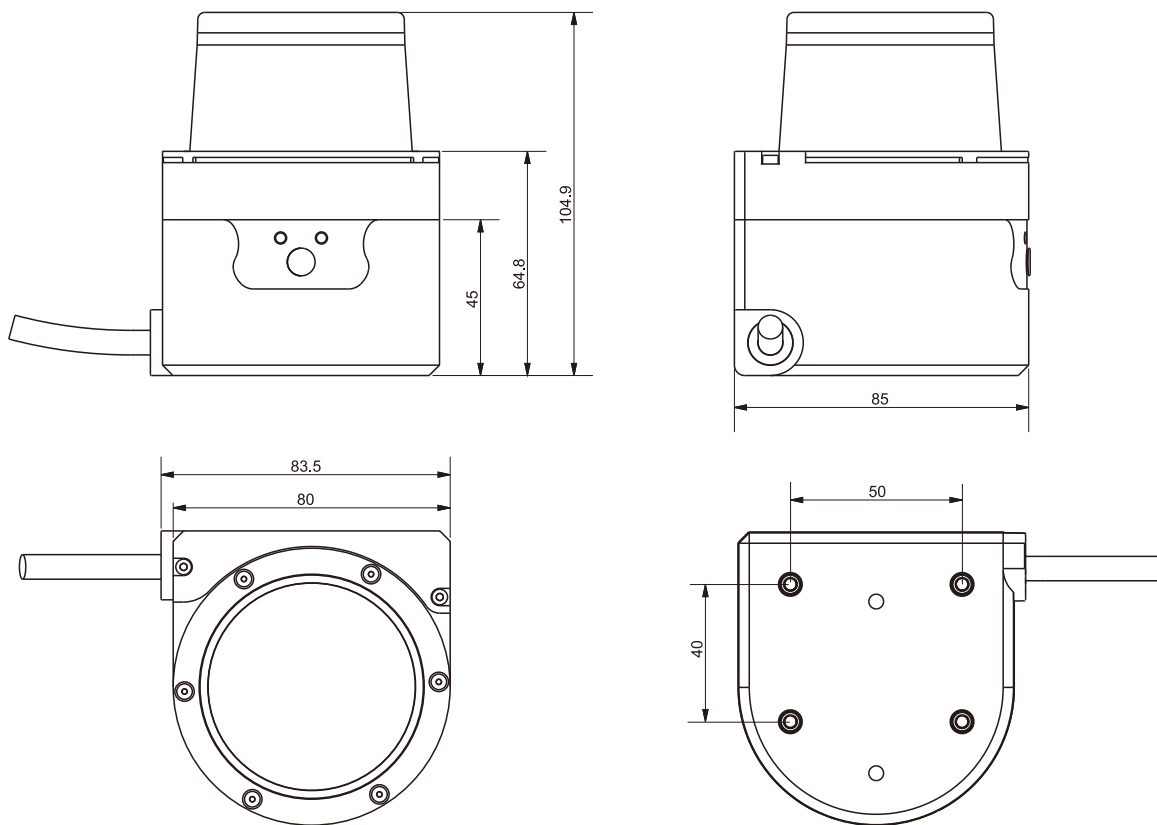
LiDAR Scanner

Color confocal

Laser Alignment

Unit:mm

Dimensions



Displacement

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety doorlock
- Pressure Switch
- Communication
- Accessories

Power Interface

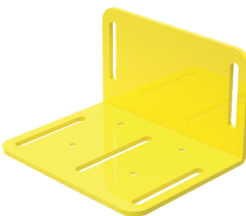


	Socket	Type	Explanation
I/O	DC002	Power	Female 2 pin
Power	Ethernet	RJ45 socket	4 pin
Network port	I/O	Cable	10 pin

Guidance

Displacement

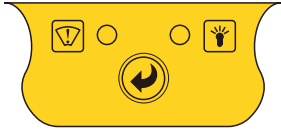



- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LiDAR Scanner
- Color confocal
- Laser Alignment

Accessories

			Mounting screws, gasket and easy installation tool
Composite Bracket: AS-21C-AT 1 Piece	Power Cable: AS-21C-EC 1 Strip	Crystal Protective Cover: AS-21C-WJ 1 Piece	Accessories: M4x8 1 Set

LiDAR Scanner

Indicators and Operation Buttons

	Name	Instructions
	 ERR	Work fault indicator <ul style="list-style-type: none"> ◆ Startup state: Light on(About 27s)Always off: No fault ◆ Always on: Internal fault ◆ Always on: Internal fault, Abnormal measurement ◆ Long flicker (0.25Hz) : High / low temperature alarm ◆ Short flicker(1Hz) : Transmissive cover is dirty/occluded¹
	 HTR	Work status indicator <ul style="list-style-type: none"> ◆ Startup state: Off ◆ Off: The device does not start measuring/ready to restart ◆ Always on: Equipment normal measurement ◆ Flash1 (0.5Hz) : Monitor Signal output ◆ Flash2 (1Hz) : Self-learning² ◆ Flash3 (2.5Hz) : Ready to start self-learning²
	 SLR	Operation button <ul style="list-style-type: none"> ◆ short press (1s~5s) Start background self-learning ◆ Long press(≥ 6s) : Delete background

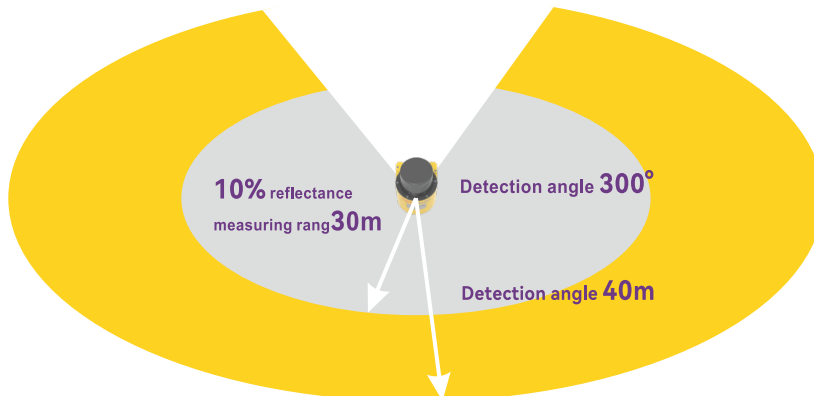
1:Including being blocked by dense fog or the detection area being blocked.
 2:Including "background self-learning" and "normal goal self-learning"(customization function).

Measuring coordinate system/scan range/range

AS-21C



AS-41C





TOF principle



Basic Features	Working principle	TOF	
	Optical working principle	Diffuse Reflection	
	Light source	Infrared laser (905nm)	
	Laser spot exit aperture	10mm	
	Scanning range	360°	
	Scanning angle resolution	0.5°	
	Measuring range	0.1m ~20m	
	Measurement Error	System error (typical)	±5cm(1m~15m)
		Statistical Error(1σ)	±2cm(1m~15m)
Indicator	Quantity: 2; Definition: ERR (Equipment Alarm: Failure/Abnormality, Dirty/Shade of Transparent Cover, High/Low Temperature, Dense Fog); HTR (Operation Status Indication: Detecting Signal/Self-Learning)		
Electrical data	Operating voltage	12V~28V DC	
	Power consumption	4.5W@DC 24V	
	Communication	Ethernet, rate: 10/100 Mbps; Network protocol: TCP/P; Functions: device configuration/ measurement data output/monitoring signal output	
Environmental conditions	Operating temperature	-10°C~+45°C	
	Storage temperature	-30°C~+70°C	
	Operating humidity	93%,+40°C,2h(GB/T2423,3)	
	Ambient Illumination	≤70,000Lux	
	Vibration resistance	GB/T 2423,10	
	Enclosure rating	IP65(GB4208~2008)	
Mechanical data	Connection	Cable Connection	
	Dimension	86.0×85.0×59.5(mm)	
	Material	Aluminum Alloy	
	Weight	0.5kg	
	Accessories	Power Supply, RJ45 socket, Leads	
Special function	Safety class	Class I(GB 7247.1-2012, human eye safety)	
	Laser spot emission angle	10.0(H) × 2.0(V)mrad	
	Scanning frequency	360°	
	Model	AS-11C	

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Displacement

Triangulation

TOF Long

Range Type

3D Laser

Profiler

Contact

Displacement

LiDAR Scanner

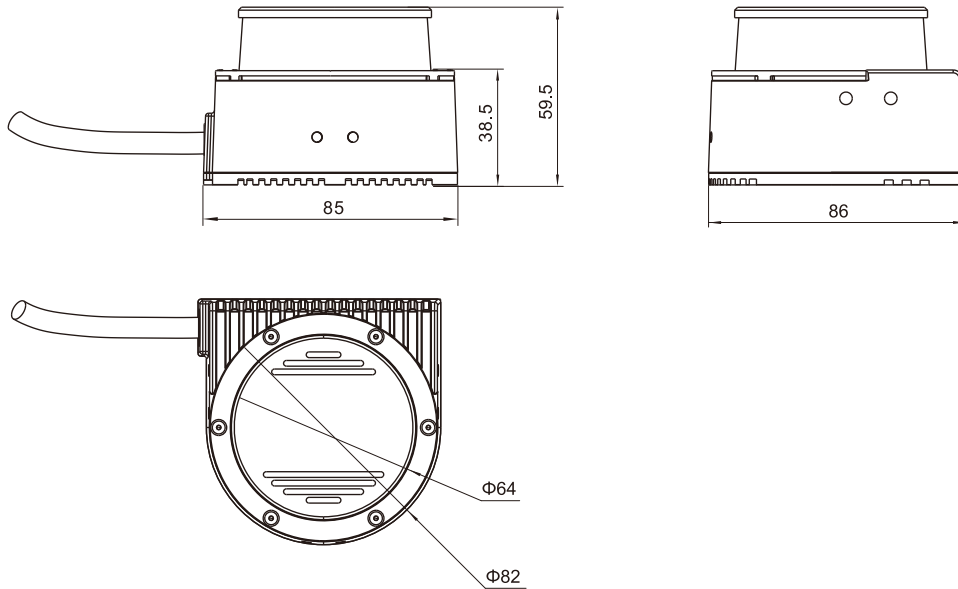
Color confocal

Laser Alignment

LiDAR Scanner

Dimensions

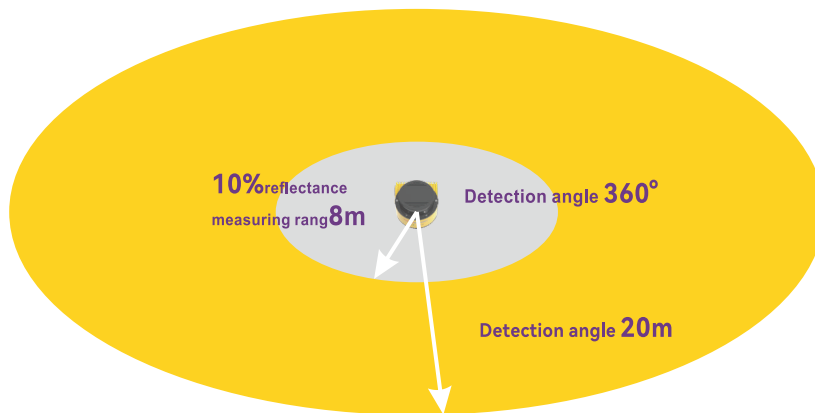
Unit:mm



Power Interface

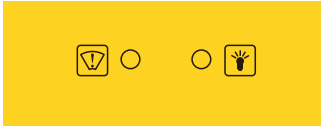


	Socket	Type	Explanation
I/O	DC002	Power	Female 2 pin
Power	Ethernet	RJ45 socket	4 pin
Network port	I/O	Cable	9 pin

Accessories



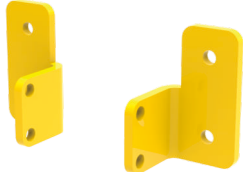


- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories
- Guidance

- Displacement**
- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact
- Displacement
- LiDAR Scanner**
- Color confocal
- Laser Alignment

	Name	Instructions
	 ERR	Work fault indicator <ul style="list-style-type: none"> ◆ Startup status: bright (About 27s) ◆ Off: No fault ◆ Steady light: Internal fault ◆ Long flicker (0.5 Hz): High temperature / low temperature alarm ◆ Short flicker (1Hz): Transmissive cover is dirty/occluded¹
	 HTR	Work status indicator <ul style="list-style-type: none"> ◆ Startup state: off ◆ Off: The device does not start measurement/ready to reboot ◆ Bright: Normal measurement of equipment ◆ Flashing 1 (0.5Hz): Monitor signal output ◆ Flashing 2 (1Hz): Self-learning² ◆ Flashing 3 (2.5Hz) : Ready for self-learning²

1:Including being blocked by dense fog or the detection area being blocked.
 2:Including "background self-learning" and "normal goal self-learning"(customized function).

Accessories

			Mounting screws, gasket and easy installation tool
Side bracket: A AS-11C-AT	Cable:A piece of AS-11C-EC	Network cable crystal head waterproof jacket: A AS-11C-WJ	Accessories:A set of M4x8

- Fiber Optic
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Guidance

Displacement

- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LiDAR Scanner**
- Color confocal
- Laser Alignment

LiDAR Scanner

Navigation Type

Displacement

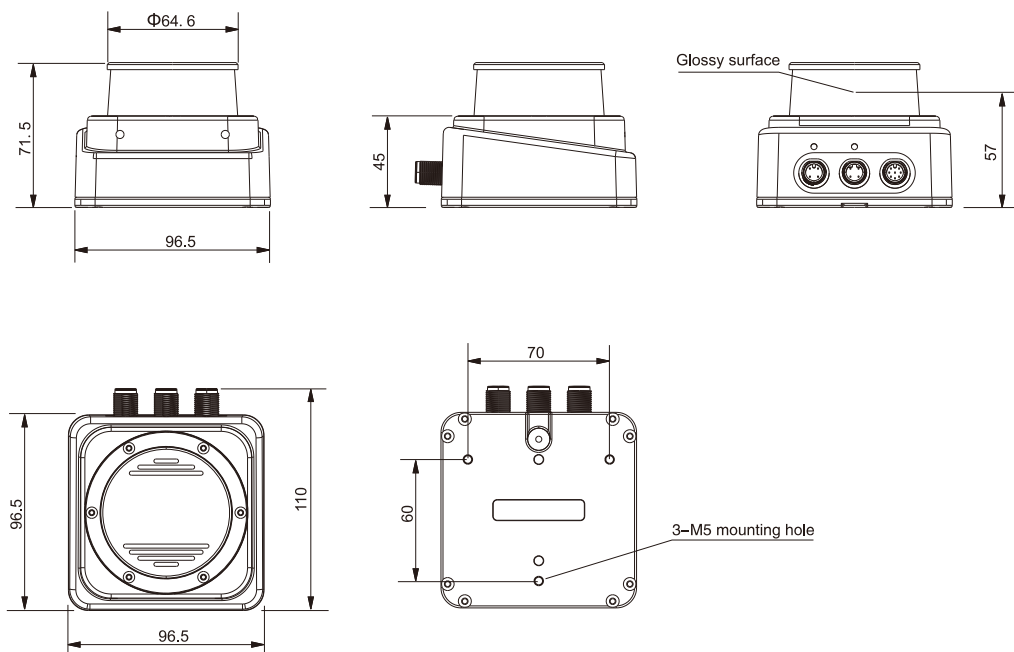
TOF principle

NEW!



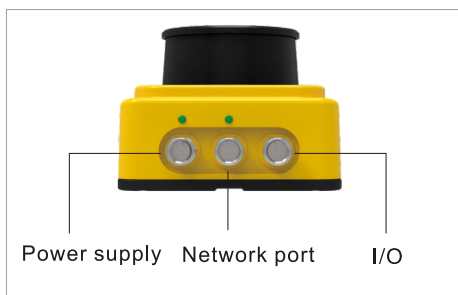
Basic Features	Working principle		TOF	
	Optical working principle		Diffuse Reflection	
	Light source		Infrared laser (905nm)	
	Laser spot exit aperture		10mm	
	Scanning angle		360°	
	Scanning angle resolution		0.05°/0.1°	
	Measuring range		0.2m ~100m	
	Measurement Error	System error (typical)	Distance measurement: 25mm(1m~20m) / 40mm(20m~50m); RSSI Measurement: 2%(1m~20m) / 4%(20m~50m)	
		Statistical Error(1σ)	Distance measurement: 10mm(1m~20m) / 20mm(20m~50m); RSSI Measurement: 1%(1m~20m) / 2%(20m~50m)	
	Indicator		Quantity: 4; Definition: PWR: Power indicator; LNK: Ethernet indicator; ERR: Operating fault indicator; HTR: Normal measurement indicator	
Electrical data	Operating voltage		9V~30V DC	
	Power consumption		5W@DC 24V	
	Communication		Ethernet: Rate: 10/100Mbps; Functions: device configuration/measurement data output	
Environmental conditions	Operating temperature		-10°C~+50°C	
	Storage temperature		-30°C~+70°C	
	Operating humidity		93%,+40°C,2h(GB/T2423.3)	
	Ambient Illumination		≤80,000Lux	
	Vibration resistance		GB/T 2423.10	
	Enclosure rating		IP65(GB4208~2008)	
Mechanical data	Connection		Connector	
	Dimension		110x96.5x71.5mm	
	Material		Aluminum Alloy	
	Weight		0.7kg	
	Accessories		Power cables, RJ45 network cables, I/O cables, mounting screws, spacers and easy installation tools, vibration isolating screws, nuts and spacers	
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)	
	Laser spot emission angle		2.0(H)x8.0(V)mrad	
	Scanning frequency		10Hz/20Hz	
	Working condition		Resistant to sunlight, dirt, supports smoke penetration, non-rainfall conditions	
	Measurement data		Composite data (distance + RSSI)	
	Device self-test		Contents: Dirty/obstructed light transmission cover/high/low temperature	
Model		AS-100C		

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
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- Area
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- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories
- Guidance
- Displacement
 - Triangulation
 - TOF Long Range Type
 - 3D Laser Profiler
 - Contact
 - Displacement
 - LiDAR Scanner**
 - Color confocal
 - Laser Alignment



- Fiber Optic
- Slot Sensors
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- Accessories

Power connector



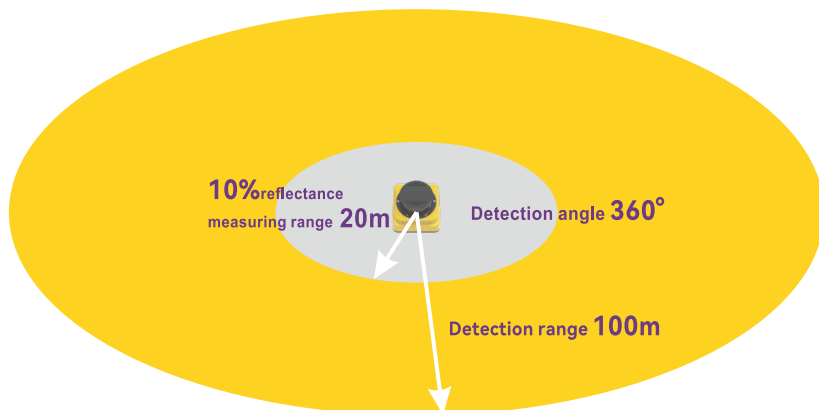
Socket	Types	Number of terminal
Power supply	M12(Type A), Male	4
Etherne	M12(Type B), Male	4
I/O	M12(Type B), Male	8

Guidance

Displacement

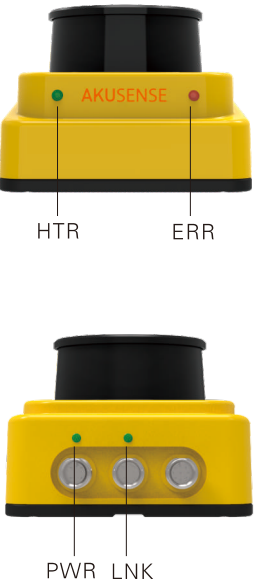
- Triangulation
- TOF Long
- Range Type
- 3D Laser
- Profiler
- Contact
- Displacement
- LiDAR Scanner**
- Color confocal
- Laser Alignment

Measuring coordinate system/scanning range/range








LiDAR Scanner

Indicators and Operation Buttons

		Name	Description
		PWR	Power Indicator <ul style="list-style-type: none"> ◆ Normal off: no power / power is invalid ◆ Constant light: power on
		LNK	Ethernet indicator <ul style="list-style-type: none"> ◆ Always off: no network connection ◆ Always on: there is a network connection
		ERR	Work failure indicator <ul style="list-style-type: none"> ◆ Starting state: Yellow (about 24 seconds) ◆ Green: no fault ◆ Yellow: internal fault/measurement abnormal¹ ◆ Long flashing (0.5Hz): high temperature/low temperature alarm ◆ Short flashing (1Hz): Dirty/obstructed light transmission cover
		HTR	Normal measurement indicator <ul style="list-style-type: none"> ◆ Starting state: off ◆ Always off: the device has not started to measure ◆ Always on: the equipment is measuring normally

1: Including measurement stop and motor stop;
 2: Including being blocked by dense fog.

Accessories

					Mounting screws, washers And easy installation tools
Mounting bracket: AS-100C-AT set	M12 dust plug Comes with	Power cable: AS-100C-EC A	RJ45 network cable: AS-100C-IOCB A	I/O cable: AS-100C-IOCB A	Parts and accessories: M5x8 set

TOF principle



Basic Features	Working principle	TOF		
	Optical working principle	Diffuse Reflection		
	Light source	Infrared laser (905nm)		
	Laser spot exit aperture	7*3mm	4.5*2mm	
	Scanning angle	270°		
	Scanning angle resolution	0.12°/0.18°/0.23°/0.35°		
	Measuring range	0.1m~20m (70% reflectivity) ; 0.1m - 10m (10% reflectivity)		
	Measurement Error	Resolution	1cm	
		Linearity	2cm	
Indicator	-			
Electrical data	Operating voltage	DC 12V	DC 9~28V	
	Power consumption	5W		
	Communication	Ethernet or RS485		
Environmental conditions	Operating temperature	-20°C~60°C		
	Storage temperature	-20°C~70°C		
	Operating humidity	93%,+40°C,2h(GB/T2423.3)		
	Ambient Illumination	≤80,000Lux		
	Vibration resistance	500m/s (about 50G), 3 times each in XYZ direction		
	Enclosure rating	IP65(GB4208~2008)		
Mechanical data	Connection	Cable Connection		
	Dimension	60×60×84.9(mm)	60×60×81.3(mm)	
	Material	Aluminum Alloy		
	Weight	0.25kg		
	Accessories	DC5521 female power socket, RJ45 Ethernet male		
Special function	Safety class	Class I(GB 7247.1-2012, human eye safety)		
	Laser spot emission angle	5.2*9mrad	4.0*2mrad	
	Scanning frequency	10Hz/15Hz/20Hz/25Hz/30Hz		
	Working condition	Indoor		
	Application	Navigation		
	Device self-test	Yes		
	Abnormal alarm function	Yes		
Sampling frequency	30KHz			
Model	AS-31C	AS-32C		

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
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- Magnetic
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- Safety doorlock
- Pressure Switch
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- Accessories

Guidance

Displacement

- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LiDAR Scanner**
- Color confocal
- Laser Alignment

LiDAR Scanner

AS-33C

Displacement



TOF principle



Basic Features	Working principle	TOF
	Optical working principle	Diffuse Reflection
	Light source	Infrared laser (905nm)
	Laser spot exit aperture	4.5(V)*2(H)mm
	Scanning angle	270°
	Scanning angle resolution	0.5°
	Measuring range	10 m (70%reflectivity) /4 m (10%reflectivity)
	Measurement error	±2 cm(≤10m)
	Indicator	4 (3 zone signals, 1 fault signal)
	Electrical data	Operating voltage
Power consumption		Rated power: < 1 W (no load); starting power: < 3 W (no load)
Communication		USB-TYPE C(Serial port)
Environmental conditions	Operating temperature	-10°C~50°C
	Storage temperature	-20°C~70°C
	Operating humidity	85% or less, non-condensing
	Ambient illumination	≤80000 Lux
	Vibration resistance	500m/s (about 50G), 3 times each in XYZ direction
	Enclosure rating	IP65
Mechanical data	Connection	Cable Connection
	Dimension	50x50x72mm
	Material	Aluminum
	Weight	171g
	Accessories	Threaded
Special function	Sampling frequency	18KHz/54KHz
	Response time	40 ms
	Start-up time	<10s
	Model	AS-33C

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Displacement

Triangulation

TOF Long

Range Type

3D Laser

Profiler

Contact

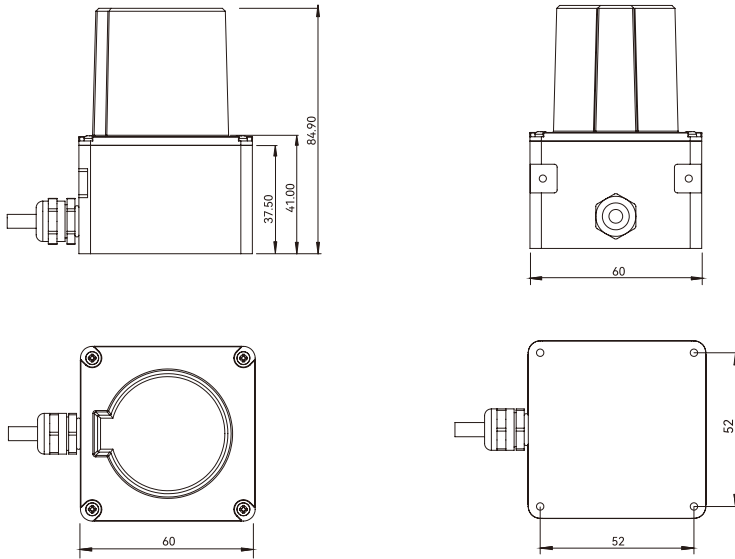
Displacement

LiDAR Scanner

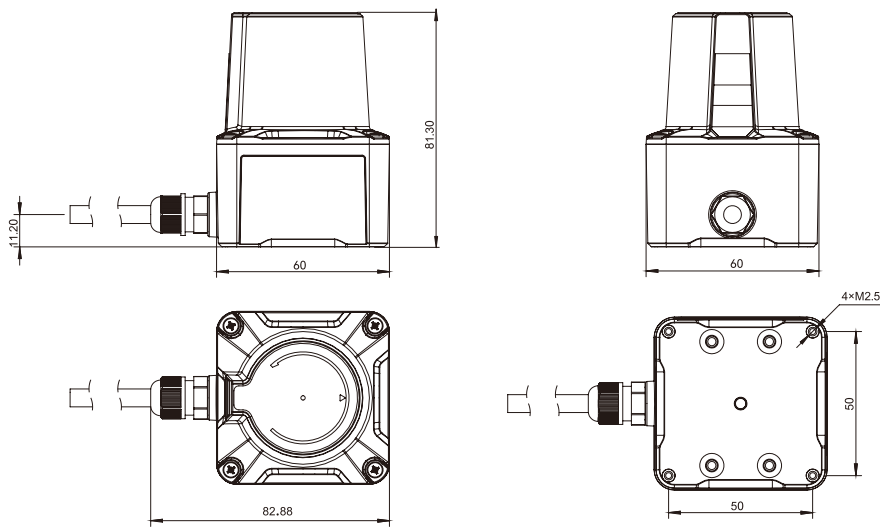
Color confocal

Laser Alignment

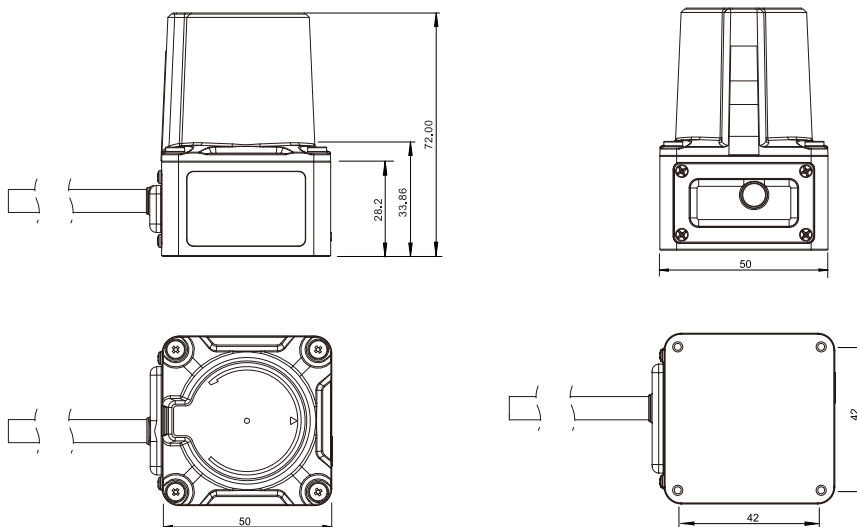
AS-31C



AS-32C



AS-33C



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety doorlock
- Pressure Switch
- Communication
- Accessories

Guidance

Displacement

- Triangulation
- TOF Long
- Range Type
- 3D Laser
- Profiler
- Contact
- Displacement
- LiDAR Scanner**
- Color confocal
- Laser Alignment

LiDAR Scanner

AS-35C/AS-35CA

TOF principle

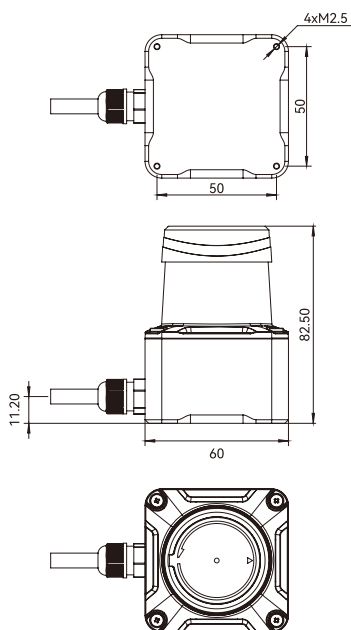
NEW!



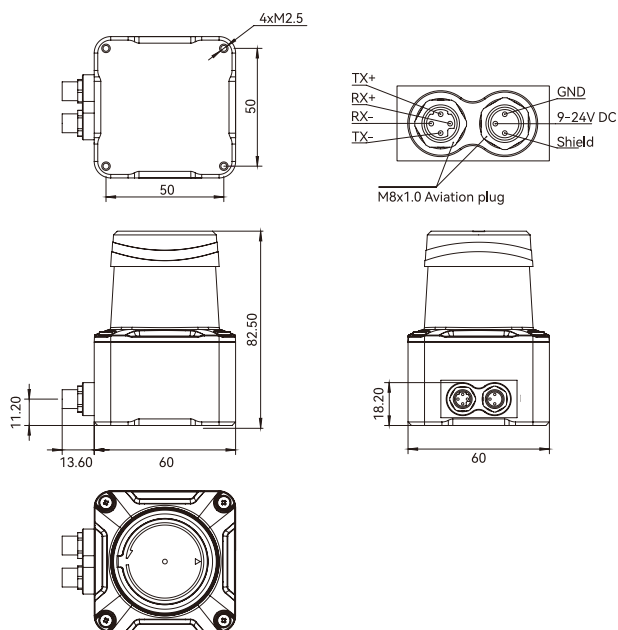
Basic Features	Working principle	TOF	
	Optical working principle	Diffuse Reflection	
	Light source	laser (905nm)	
	Laser spot exit aperture	4.5*2mm	
	Scanning angle	360°(Ranging performance in the area of 10° directly behind is about half of other positions)	
	Scanning angle resolution	0.06°/0.09°/0.12°/0.18°	
	Measuring range	0.2m~50m(90% reflectivity),0.2~18m(10% reflectivity),0.2~6m(2% reflectivity)	
	Measurement error	± 2 cm	
	Indicator	-	
	Electrical data	Operating voltage	DC9V~24V
Power consumption		<5W/peak, <2W/typical	
Communication		Ethernet/RJ45	4 holes, M8x1 connector, Ethernet/RJ45 communication
Environmental conditions	Operating temperature	-10°C~50°C(no freezing)	
	Storage temperature	-20°C~60°C	
	Operating humidity	85% or less, non-condensing	
	Ambient illumination	≤80000 Lux	
	Vibration resistance	500m/s (about 50G), 3 times each in XYZ direction	
	Enclosure rating	IP65	
Mechanical data	Connection	Cable Connection	
	Dimension	82.5x60x60mm	
	Material	Aluminum	
	Weight	about 171 g	
	Accessories	Threaded	
Special function	Sampling frequency	60 kHz 2	
	Power supply	Dc5521 Standard Power Supply	3-hole, M8x1 connector, standard power supply
	Model	AS-35C	AS-35CA

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories
- Guidance
- Displacement**
- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact
- Displacement
- LiDAR Scanner**
- Color confocal
- Laser Alignment

AS-35C



AS-35CA



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

Guidance

Displacement

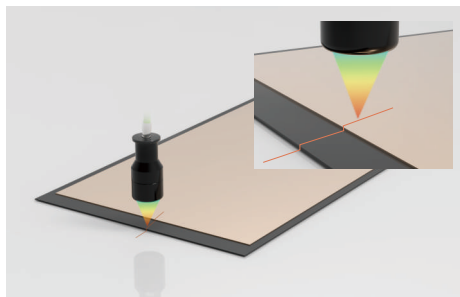
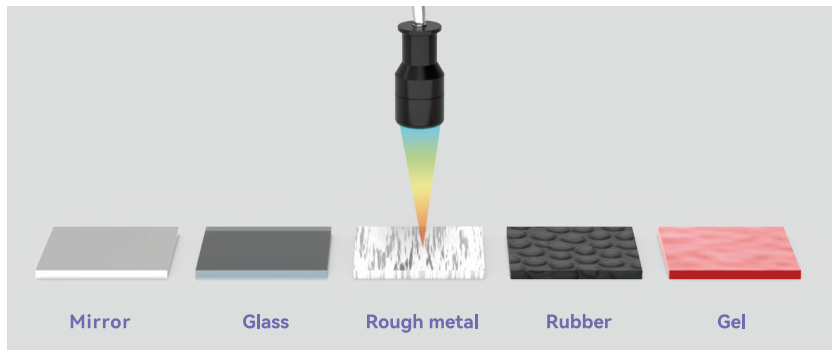
- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LiDAR Scanner
- Color confocal
- Laser Alignment

Color Confocal Displacement Sensor ACC Series ▶



Stable measurement for any material

Metals, ceramics, mirrors, glass, transparent and non-transparent materials can all be detected

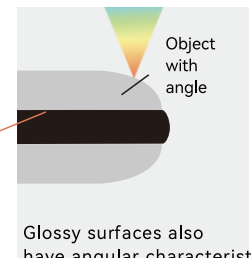
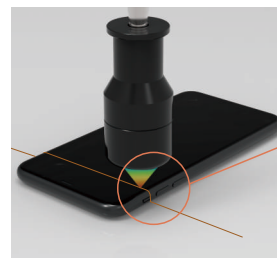


Sub-micron ultra-high measurement accuracy

The maximum resolution is 0.02um, and the minimum spot size is 2um, for precise capture of minute details

Tilt angle measurement up to $\pm 60^\circ$

The shape of object with angles can be accurately tracked, almost no impact by the shape.



Glossy surfaces also have angular characteristics

- Fiber Optic
- Slot Sensors
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- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

Guidance

Displacement

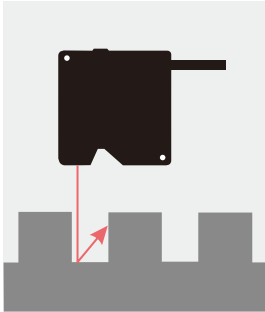
- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner
- Color confocal**
- Laser Alignment

High precision measurement for any surface condition

Stable detection for rough surfaces, mirrors, curved surfaces, inclined surfaces, pits, section differences, etc.

Detection from all directions, even for hollows and segment differences

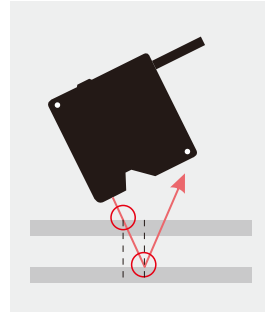
Transparent and mirror objects can also be correctly measured



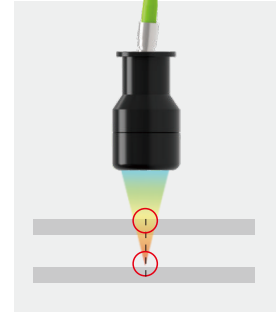
Traditional laser displacement



ACC Series



Traditional laser displacement

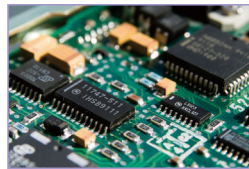


ACC Series

Application fields



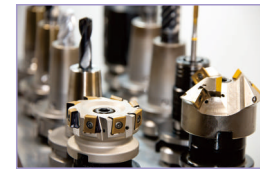
Panel/glass industry



PCB board/IC chip industry



Photovoltaic / semiconductor wafer industries



Metal / precision manufacturing industries



Lithium and other industries



Lens industry

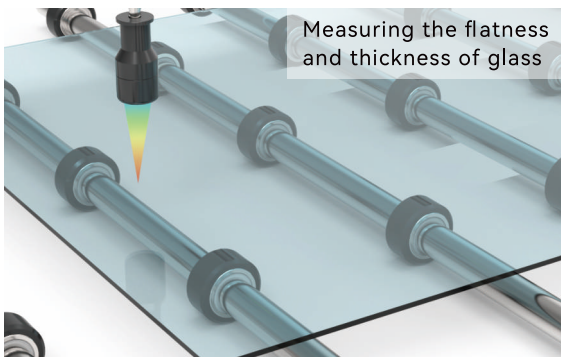


3C electronics and other industries

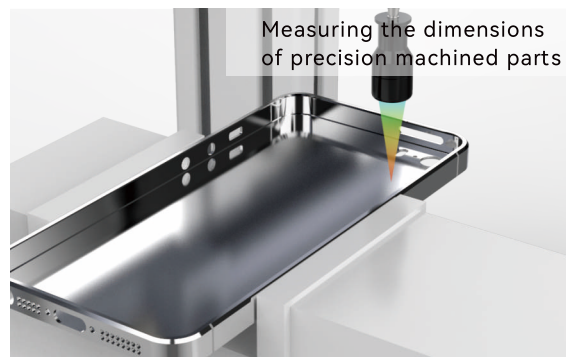


Printing/Ink industry

Applications



Measuring the flatness and thickness of glass



Measuring the dimensions of precision machined parts

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety doorlock
- Pressure Switch
- Communication
- Accessories

Guidance

Displacement

- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner**
- Color confocal
- Laser Alignment

Selection Guide

Selection table

Displacement



Model	ACC-008L	ACC-011L	ACC-016L	ACC-018L	ACC-030L	ACC-033L	ACC-040L	ACC-055L
Resolution	0.02μm	0.05μm	0.05μm	0.05μm	0.07μm	0.2μm	0.12μm	0.1μm
Spot size	2μm	16μm	8μm	25μm	9μm	40μm	40μm	45μm
Max. inclination	±40°	±60°	±30°	±22°	±15°	±7°	±15°	±11°

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Guidance

- Displacement**
- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner
- Color confocal
- Laser Alignment



Probe



Basic Features	Working principle	Coaxial	Coaxial	Coaxial	Coaxial
	Housing	Cylindrical	Cylindrical	Cylindrical	Cylindrical
	Reference distance	8mm	11mm	16mm	18mm
	Measuring range	±0.2mm	±1.2mm	±1mm	±1mm
	Spot size*3	2µm	16µm	8µm	25µm
	Resolution*1	0.02µm	0.05µm	0.05µm	0.05µm
	Linearity*2	±0.15µm	±0.45µm	±0.35µm	±0.3µm
Mechanical data	Maximum tilt angle*4	±40°	±60°	±30°	±22°
	Enclosure rating	IP40	IP40	IP40	IP40
	Dimension	Φ41x99mm	Φ98x266mm	Φ41x159mm	Φ34x75mm
	Weight	220g	3250g	360g	105g
Probe model		ACC-008L	ACC-011L	ACC-016L	ACC-018L

Probe



Basic Features	Working Principle	Coaxial	Coaxial	Coaxial	Coaxial
	Housing	Cylindrical	Cylindrical	Cylindrical	Cylindrical
	Reference distance	30mm	33mm	40mm	55mm
	Measuring range	±2mm	±2mm	±4mm	±3mm
	Spot size*3	9µm	40µm	40µm	45µm
	Resolution*1	0.07µm	0.2µm	0.12µm	0.1µm
	Linearity*2	±0.45µm	±2µm	±0.5µm	±0.65µm
Mechanical data	Maximum tilt angle*4	±15°	±7°	±15°	±11°
	Enclosure rating	IP40	IP40	IP40	IP40
	Dimension	Φ38x82mm	Φ18x55mm	Φ54x116mm	Φ33x75mm
	Weight	145g	24g	380g	122g
Probe model		ACC-030L	ACC-033L	ACC-040L	ACC-055L

- Fiber Optic
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Guidance

Displacement

- Triangulation
- TOF Long Range Type
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- Contact Displacement
- LIDAR Scanner
- Color confocal**
- Laser Alignment

Color Confocal Displacement Sensor

ACC Series



Controller model



Basic Features	Housing	Retangular	
	Light source	White LED	
Electrical data	Operating voltage	24V DC	
	Sampling frequency	4K HZ(Max)	2K HZ(Max)
	I/O function	Pulse input, output, encoder trigger input	
	Number of encoder axes	3 axes, incremental (A/B/Z phase)	
Environmental conditions	External communication interface	RS-232:115200 bps(max.) Ethernet:100BASE-TX/10BASE-T	
	Operating temperature	5~40℃	
	Operating humidity	35~80%	
	Ambient illumination	<10000lx	
Mechanical data	Enclosure rating	IP20	
	Fiber optic extension cable	ACC-OF-S(standard); Outer Armor: ACC-OF-M(optional)	
	Length of fiber optic extension cable	2/5/10m, standard 10m	
	Weight of fiber optic extension cable	ACC-OF-S: 23/40/69g; ACC-OF-M: 108/218/396g	
	Minimum bending radius ^{*5}	50mm	
	Dimension	140x122x127mm	185x122x127mm
	Weight	1.38kg	
	Accessories	-	
Connectable channels	-	2	
	Controller model	ADV-12CK5	ADV-12CK2

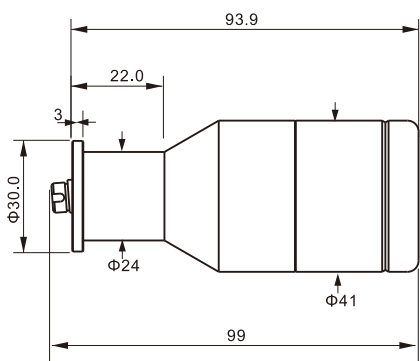
- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

Guidance

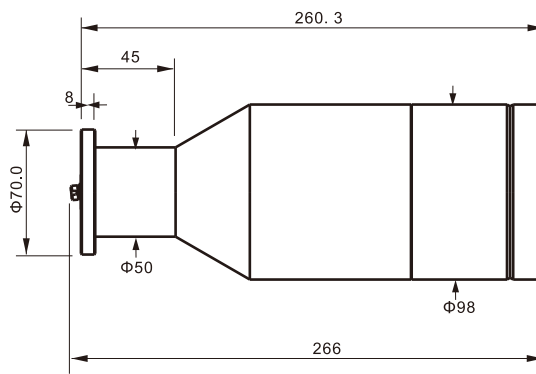
Displacement

- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner
- Color confocal**
- Laser Alignment

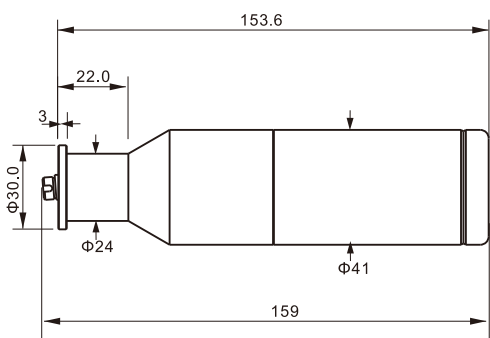
ACC-008L



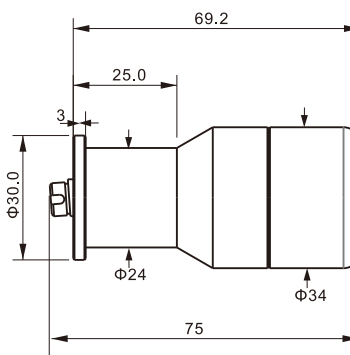
ACC-011L



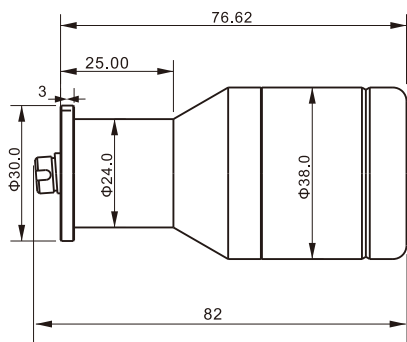
ACC-016L



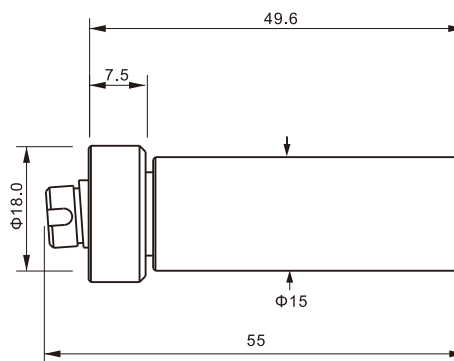
ACC-018L



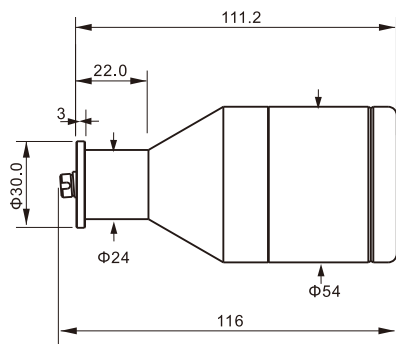
ACC-030L



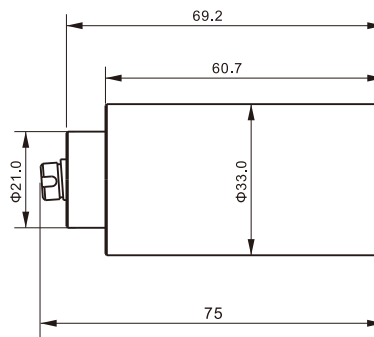
ACC-033L



ACC-040L



ACC-055L



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety doorlock
Pressure Switch
Communication
Accessories

Guidance

Displacement

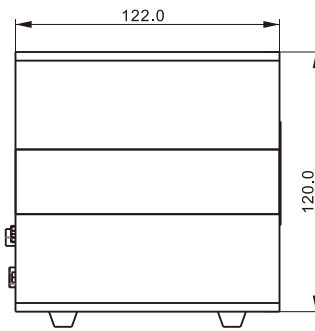
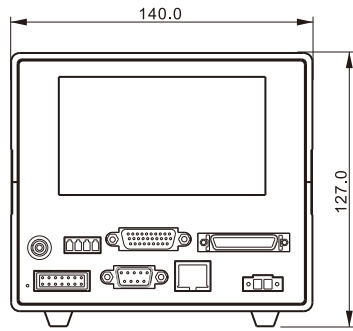
Triangulation
TOF Long
Range Type
3D Laser
Profiler
Contact
Displacement
LIDAR Scanner
Color confocal
Laser Alignment

Color Confocal Displacement Sensor

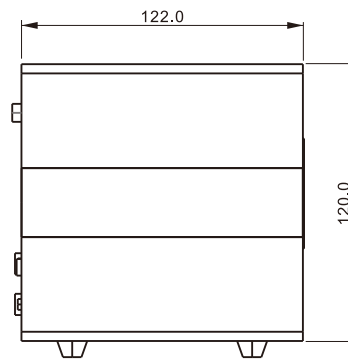
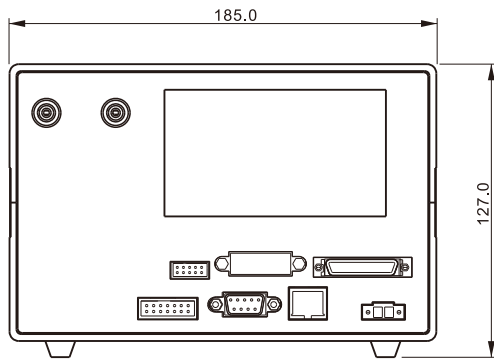
Dimensions

Unit:mm

ADV-12CKS



ADV-12CK2



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
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- Area
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- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

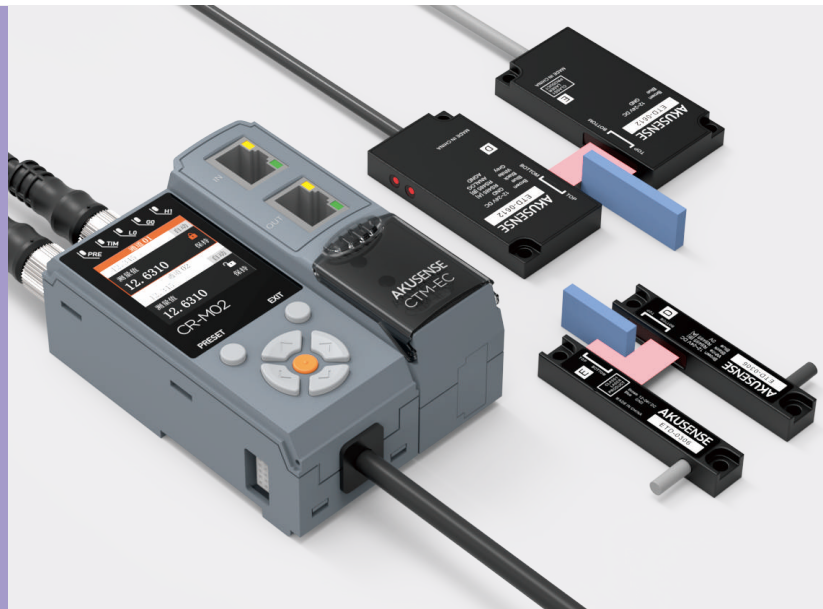
Guidance

Displacement

- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner
- Color confocal**
- Laser Alignment

- *1. Resolution: The average level of noise for the stationary workpiece at the zero center of the range center (opening the light intensity auto adjustment and 256 times averaging function)
- *2. Linearity: Maximum error value for full-scale measurement of mirror standard parts after calibration (opening the light intensity auto adjustment and 256 times averaging function)
- *3. Spot diameter: theoretical spot diameter value at the center of the range
- *4. Maximum inclination: refers to the maximum acceptable optical signal angle under the mirror-reflective material workpiece. The diffuse reflection workpiece usually can reach 80 degrees.
- *5. Minimum bending radius: The minimum radius of curvature that can be received when the fiber is crimped and stored. Below this value, it is easy to break and damage.

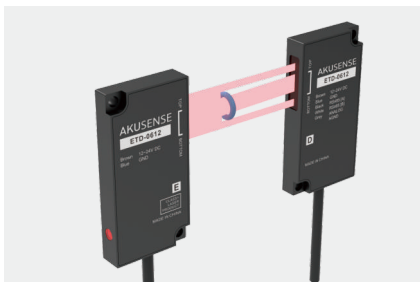
Displacement Sensors
ETD Series ▶



- Fiber Optic
- Slot Sensors
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- Laser
- Proximity
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Product features:

Combination of width mode and edge mode to adapt to a variety of detection scenarios



Edge control and positioning modes

Measures the distance from the end of the detection range to the edge of the target



Outside diameter/width detection mode

Measures the outer diameter or width of the target



Inside diameter/gap detection mode

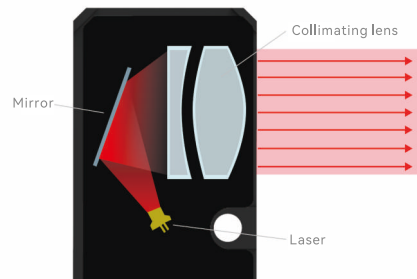
Measures the inner diameter of the target or the gap between targets



Measurement is possible at any position within the area, regardless of the color or material of the object.

Self-developed lens realizes ultra-flat light technology with repeatability of 1µm

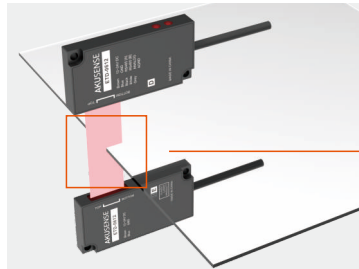
Ultra-flat light technology realizes near-ideal parallel light. Suppressing errors in the measurement area, realizing high-precision inspection over long distances.



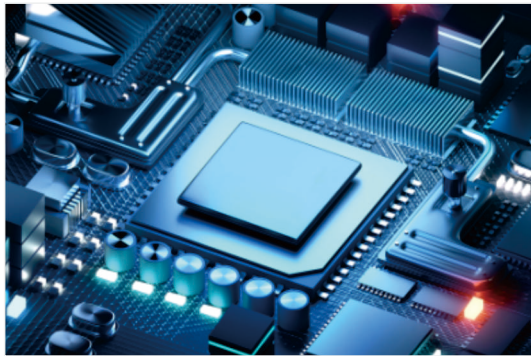
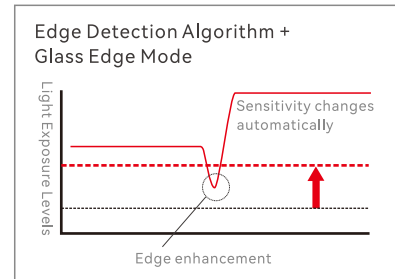
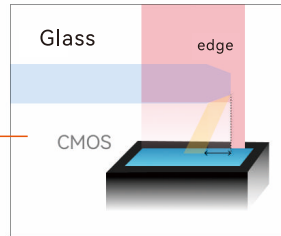
- Displacement**
- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner
- Color confocal
- Laser Alignment**

Unique edge detection algorithm Stable measurement even on transparent objects (mirrors/translucent glass)

The edges of transparent objects, such as glass, are less transparent, reducing the amount of light received. ETD series utilizes this characteristic to detect edges and automatically adjusts the sensitivity to accommodate the detection of transparent objects.



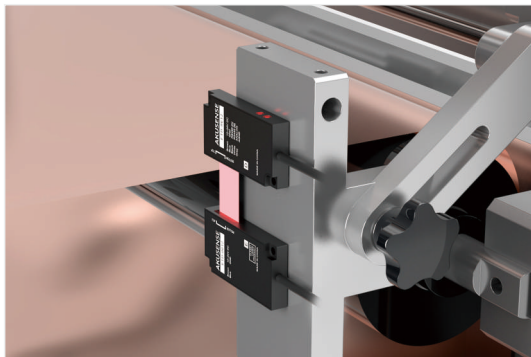
Glass edge



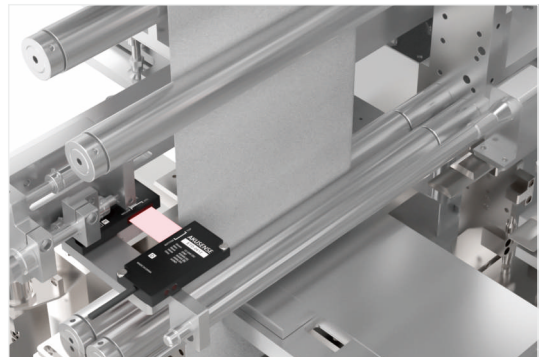
High-speed sampling period, up to 0.5ms

Equipped with high-performance ultra-high-speed processor combined with unique algorithms to realize high-speed detection.

Application



Detection of electrode sheet position shift after roller coating



Control of diaphragm positional drift during transport

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
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- AI Image
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- Accessories

Guidance

Displacement

- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner
- Color confocal
- Laser Alignment



Basic features	Working principle	Photoelectric sensor
	Housing	Flat block
	Optical working principle	Thru-beam
	Measuring range	Edge detection mode $\pm 3.25\text{mm}$, Diameter detection mode 6mm
	Sensor head mounting distance	0~200mm
	Light source	Red laser
	Spot size	-
	Indicator	Transmitter (laser emission indicator green); Receiver (optical axis adjustment indicator green, judgment output indicator red)
Electrical data	Linearity	$\pm 0.12\%$ F.S. (when setting distance 20mm); $\pm 0.4\%$ F.S. (when setting distance 100mm)
	Repeatability	1 μm (when setting distance 20mm); 3 μm (when setting distance 100mm); 5 μm (when setting distance 200mm)
	Sampling period	-
	Operating voltage	12~24VDC $\pm 10\%$
	Operating current	Emitter: $\leq 10\text{mA}$, Receiver: $\leq 70\text{mA}$
	Communication mode	485 communication hexadecimal
	Temperature drift characteristics	-
	Circuit protection	Reverse connection protection
Environmental conditions	Operating temperature	-10~45 $^{\circ}\text{C}$ (no freezing, no condensation)
	Storage humidity	-20~+60 $^{\circ}\text{C}$
	Operating humidity	35~85%RH(no condensation)
	Storage humidity	35~85%RH(no condensation)
	Ambient illumination	Incandescent Lamp $\leq 3000\text{ Lux}$; Sunlight $\leq 10000\text{ Lux}$
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions
	Enclosure rating	IP67
Mechanical data	Connection type	2x M8/4-pin connector with 0.3m cable
	Dimensions	2x8.2x60x10.5mm
	Material	Aluminum
	Weight	-
	Accessories	Brackets and screws
	Model	ETD-0306

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Displacement

Triangulation

TOF Long

Range Type

3D Laser

Profiler

Contact

Displacement

LIDAR Scanner

Color confocal

Laser Alignment

Through-beam edge sensor

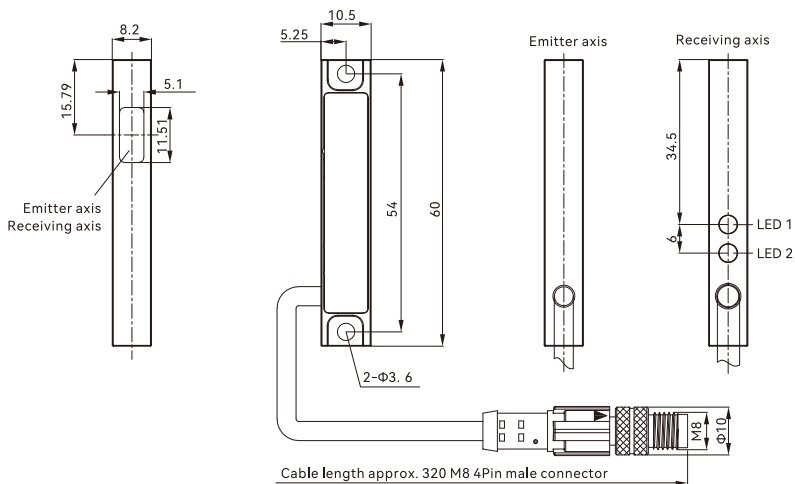
ETD Series



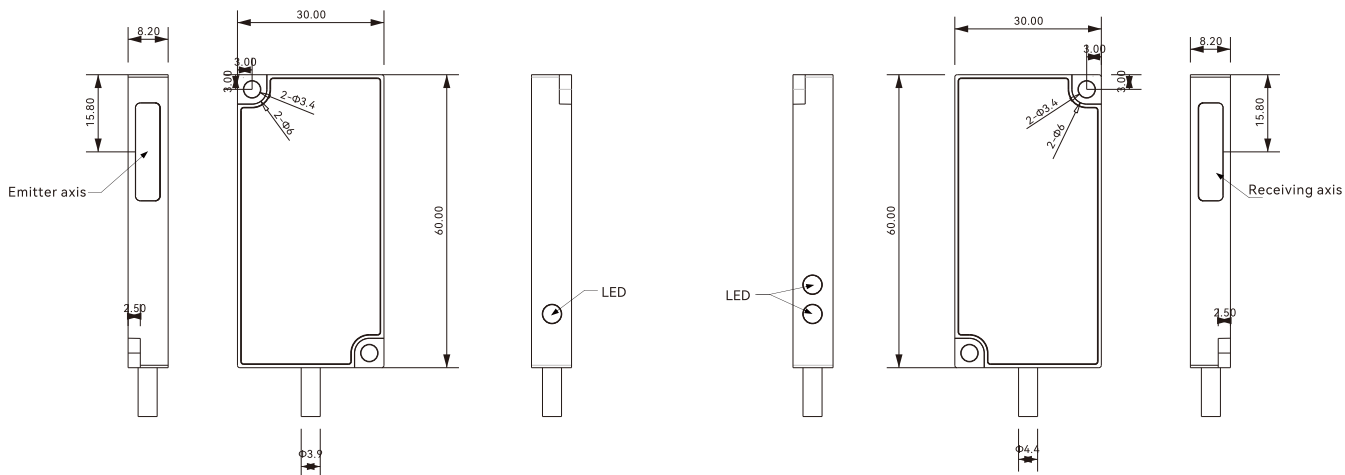
Basic features	Working principle	Photoelectric sensor
	Housing	Flat block
	Optical working principle	Thru-beam
	Measuring range	Edge detection mode $\pm 6\text{mm}$, Diameter detection mode 12mm
	Sensor head mounting distance	0~500mm
	Light source	Red laser, 650nm
	Spot size	13x3.5mm
	Indicator	Transmitter (laser emission indicator green); Receiver (optical axis adjustment indicator green, judgment output indicator red)
Electrical data	Linearity	$\pm 0.12\%$ F.S. (when setting distance 20mm); $\pm 0.4\%$ F.S. (when setting distance 100mm)
	Repeatability	1 μm (when setting distance 20mm); 3 μm (when setting distance 100mm); 5 μm (when setting distance 200mm)
	Sampling period	1ms
	Operating voltage	12~24VDC $\pm 10\%$
	Operating current	Emitter: $\leq 10\text{mA}$, Receiver: $\leq 70\text{mA}$
	Communication mode	485 communication hexadecimal
	Temperature drift characteristics	$\pm 0.03\%/^{\circ}\text{C}$
	Circuit protection	Reverse connection protection
Environmental conditions	Operating temperature	-10~50 $^{\circ}\text{C}$
	Storage humidity	-20~60 $^{\circ}\text{C}$
	Operating humidity	35~85%RH(no condensation)
	Storage humidity	35~85%RH(no condensation)
	Ambient Illumination	Incandescent Lamp $\leq 3000\text{ Lux}$; Sunlight $\leq 10000\text{ Lux}$
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions
	Enclosure rating	IP50
Mechanical data	Connection type	2x M8/4-pin connector with 0.3m cable
	Dimension	2x8.2x60x30mm
	Material	Aluminum
	Weight	0.01kg
	Accessories	Brackets and screws
	Model	ETD-0612

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- Pressure Switch
- Communication
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- Displacement**
- Triangulation
- TOF Long Range Type
- 3D Laser Profiler
- Contact Displacement
- LIDAR Scanner
- Color confocal
- Laser Alignment

ETD-0306

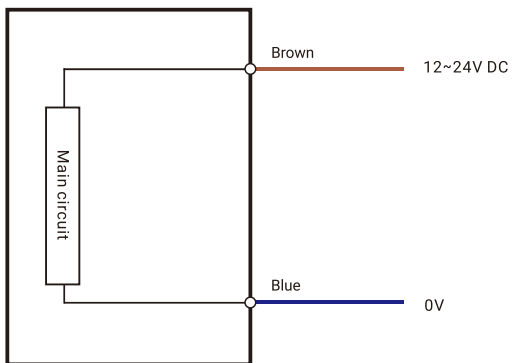


ETD-0612

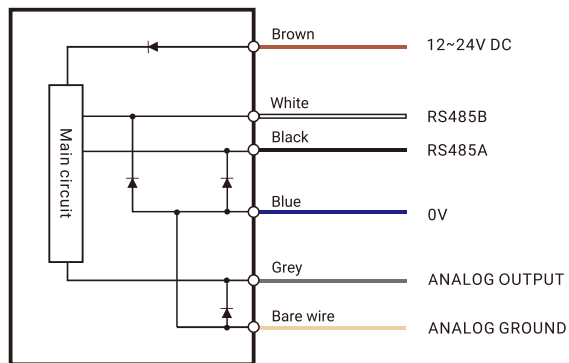


Circuit Diagram

Emitter



Receiver



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Controller

CR-M02



NEW!

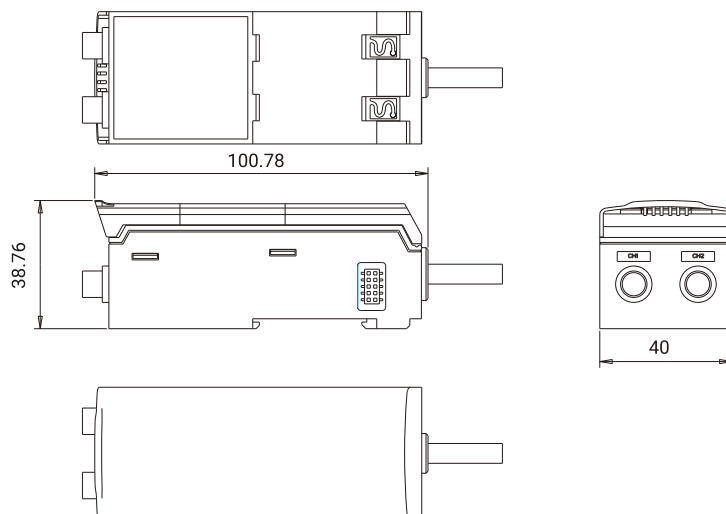
Installation method	DIN rail installation
Operating voltage	+24VDC±10%
Current consumption of a single controller	Under 100mA(When connecting the sensor)
Number of connected sensors	Two pairs of sensors
The communication with sensors	RS485
Number of controllers connected in parallel	Up to 16 controllers can be connected
Display	240*240TFT display
Indicator light	Output 1~3 and function indicator light red
Analog output	Analog output current 4~20mA, voltage 0~5V can be switched
Switching output	3-channel output, NO, NC, PO, PC can be switched
External input	3-channel input, NPN and PNP input optional
Display resolution	1μm
Display range	-99.999mm~99.999mm
Protective structure	IP40
Operating temperature	-10°C~+50°C
Working humidity	35%RH~85%RH
Insulation resistance	The resistance of all connecting terminals and shells is above 20MΩ
Dielectric strength	All connection terminals and housing withstand voltage AC 1000V
Vibration resistance	Frequency 10~55HZ, 1.5m double amplitude, two hours each in X, Y and Z directions
Shock proof	98m/s ² (about 10G) 5 times each in X, Y, and Z directions
Model	CR-M02

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Dimensions

Unit:mm





NEW!

Installation method	DIN rail installation
Operating voltage	24V DC(10~30V DC)
Indicator light	PWR: Power indicator/green RUN: running indicator light/green ERR: Error indicator/red Sensor communication indicator light: red light (RTU communication abnormality) Ethernet port: (green) D-BUS: RTU Communication normal/green light Ethernet port(green): RTU communication abnormality/traffic light alternation of some slave stations No RTU communication activity/off The Ethernet port has established a valid network connection/on. The Ethernet port is in network activity/blinks. The Ethernet port does not establish a network connection or the port is abnormal/off.
100M Ethernet port	10/100Base-T (X) RJ45, automatic flow control, full and half-duplex mode, MDI/MDI-X automatic detection
Burning port	The software programming port uses 8-bit terminal blocks with a pitch of 2.0mm, occupying 2-5 positions from the left
Console port	The CLI command management port uses 8-position terminal blocks with a spacing of 2.0mm, occupying 6-8 positions from the left
RS-485 serial port	Supports 2 RS-485 serial ports, one of which is reserved, using 10-bit terminal blocks with a spacing of 2.0mm, and the serial port occupies 4 bits
Reset button	Reset button
Access terminal, no load power consumption at normal temperature	10-position terminal block with a pitch of 2.0mm, 2 positions for power supply, 0.7w@10VDC 0.7w@20VDC 0.7w@30VDC
Full-load power consumption at normal temperature	0.7w@10VDC 0.7w@20VDC 0.7w@30VDC
High temperature full load power consumption	0.8w@10VDC 0.8w@20VDC 0.8w@30VDC
Operating temperature	-40°C~75°C
Storage temperature	-40°C~85°C
Working humidity	5%~95% (No condensation)
Model	CTM01-EC

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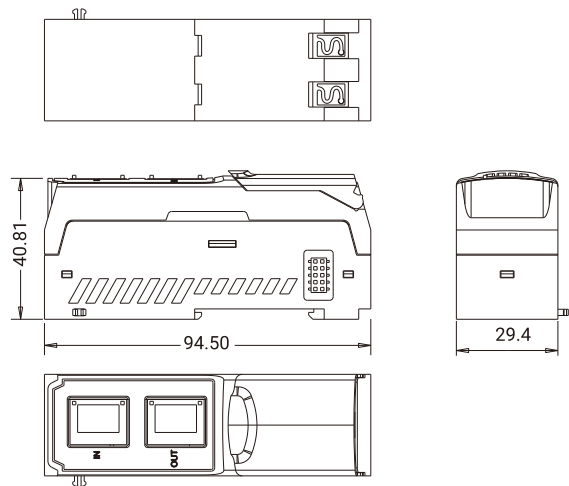
Guidance

Displacement

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Dimensions

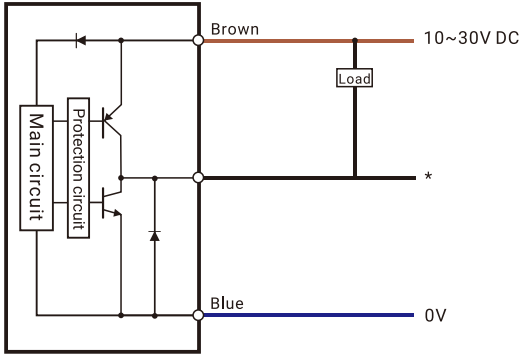
Unit:mm



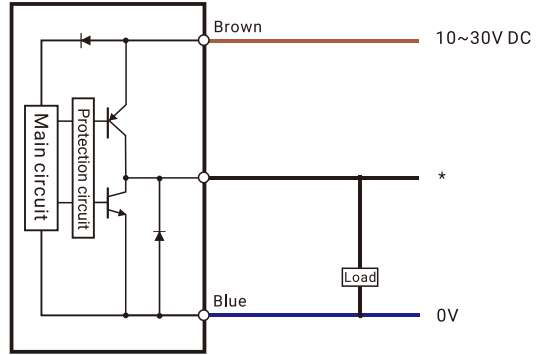
Circuit Diagram

Input Circuit Diagram

NPN Output



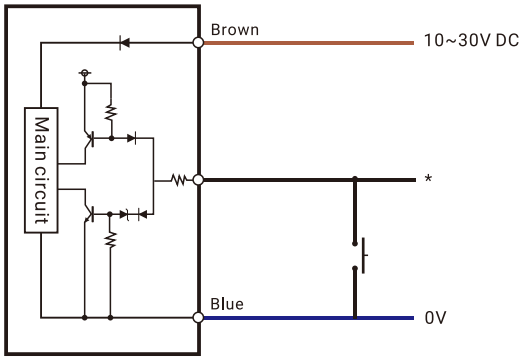
PNP Output



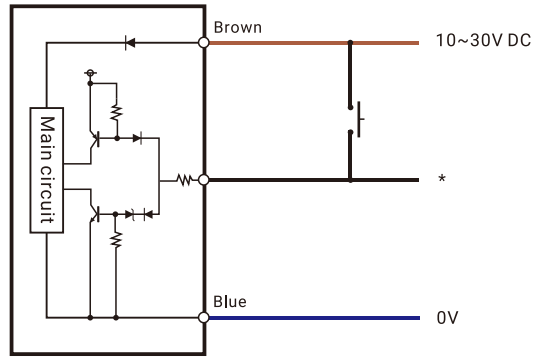
* Black (HIGH detection output) / White (LOW detection output) / Grey (GO detection output) / Green (Verification input)

Output Circuit Diagram

NPN Output



PNP Output



* Pink (External Input 1) / Yellow (External Input 2) / Pink Purple (External Input 3) / Purple (External Input 4)

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