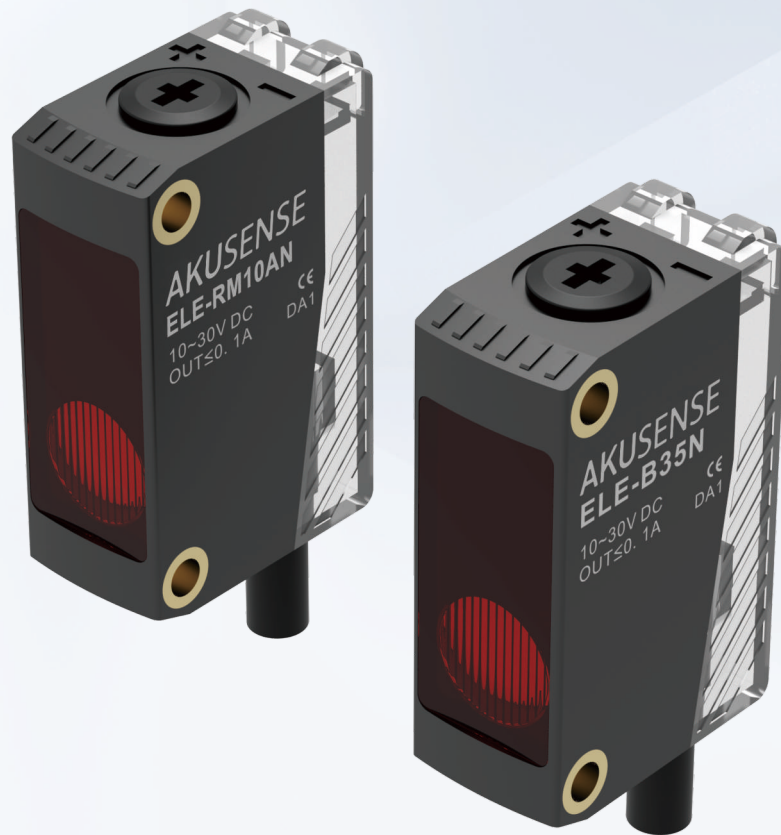
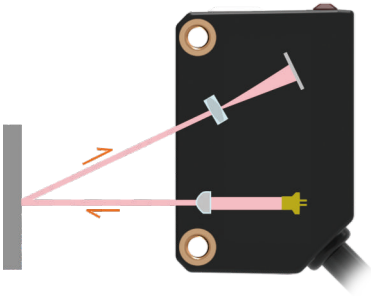


Laser Sensors



- Utilizes custom-developed integrated circuits and optical design
- Ultra-small light spots (minimum 1mm), Achieved High-Precision Detection

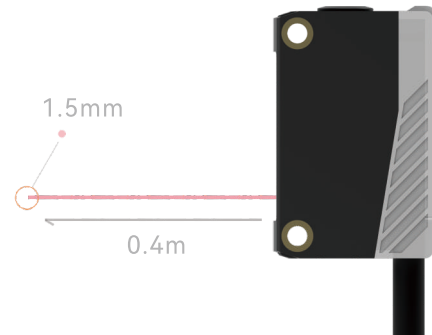


Unique Product Design

Utilizes custom-developed integrated circuits and optical designs
Effective integration of laser light sources with photosensitive elements enhances product performance

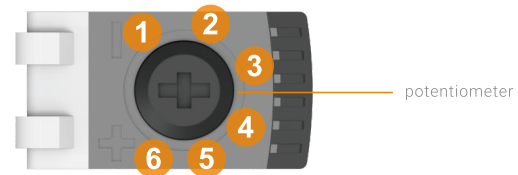
Achieved High-Precision Detection

Fully utilizes the unique excellent directionality and visual recognition of lasers, with ultra-small light spots (minimum 1mm), ensuring the precision of product detection.



Fine Adjustment at Will

Adjustable knob for sensitivity adjustment, making it more convenient to use

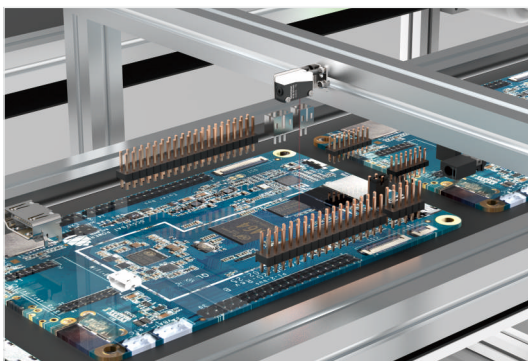


Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

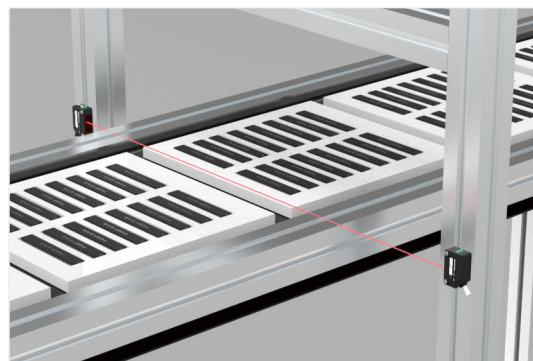
Guidance

Application

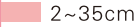
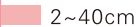
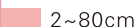
Laser sensors
Square



Detection of PCB boards on the production line



Checking if products inside packaging are correctly positioned

Appearance	Type	Sensing Distance	Model No.		Pages
			NPN Normally open& Normally closed	PNP Normally open& Normally closed	
	Diffuse reflection	 2~35cm	ELE-B35N	ELE-B35P	D-04
	Diffuse reflection	 2~40cm	ELE-B35NS02	ELE-B35PS02	
	Diffuse reflection	 2~80cm	ELE-D80NR	ELE-D80PR	
	Retro-reflection	 10m	ELE-RM10AN	ELE-RM10AP	
	Thru-beam	 50m	ELE-TM50AN	ELE-TM50AP	

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Accessories
Guidance
Laser sensors
Square



Economical Type

NEW!



Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Background suppression diffuse reflection		
	Detection Range	20~350mm	20~400mm	20~800mm
	Light Source	Red laser, 650nm (modulated), Class 2		
	Spot Size	Ø3.5mm/350mm	about Ø1.5mm/400mm	—
	Detected Object	Ø0.5mm		
	Indicator Light	Operating indicator light: green; Output indicator light: red		
	Sensitivity Adjustment	6-turn potentiometer		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	≤1.2ms		1.2ms
	Switching Frequency	1kHz	—	
	Repeatability	≤5%	—	
	Hysteresis	≤5%		
	Operating Voltage	10~24VDC ± 10%	10~30VDC ± 10%	
	Current Consumption	≤20mA		
	Residual Voltage	<1.5V		
	Load Current	≤100mA	100mA	
	Insulation Resistance	≥20MΩ(500V DC)	≥20MΩ(250V DC)	
	Withstand Voltage	1000VAC (50/60Hz)		
	Protection Circuit	Reverse polarity protection/short-circuit protection		Reverse connection protection/short-circuit protection
	Environmental conditions	Operating Temperature	-10~-55℃(no freezing)	
Storage Temperature		-30~70℃(no freezing)		
Operating Humidity		35~85%RH(no condensation)		
Storage Humidity		35~95%RH(no condensation)		
Ambient Light		Incandescent light ≤1000 Lux; LED light ≤600 Lux; Sunlight ≤20000 Lux		
Vibration Resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
Protection Rating		IP65		
Mechanical data	Maximum Tightening Torque	≤0.5Nm		
	Connection Method	2m/4-core cable		
	Dimensions	11.0x31.0x20.0mm		
	Material	PBT+glass fiber (housing); PMMA (lens)		
	Weight	about 68g		
	Accessories	Bracket, screws		
Model	NPN	ELE-B35N	ELE-B35NS02	ELE-D80NR
	PNP	ELE-B35P	ELE-B35PS02	ELE-D80PR

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

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Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Laser sensors

Square

Square

ELE Series



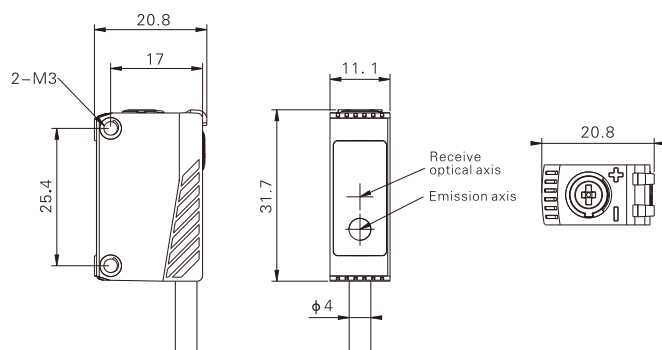
Economical Type

NEW!

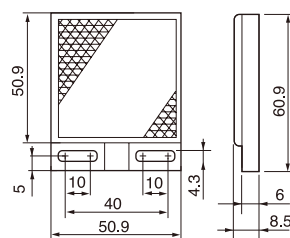


Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Retroreflective	Through-beam
	Detection Range	10m	50m
	Light Source	Red laser, 650nm (modulated), Class 2	
	Spot Size	≤15mmx15mm at 10m	≤25.5mmx29.1mm at 8m
	Detected Object	≤0.5mm	
	Indicator Light	Operating indicator light: green, Action indicator light: red	
	Sensitivity Adjustment	Single-turn potentiometer	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	≤1ms	≤1.7ms
	Switching Frequency	0.5kHz	0.3kHz
	Repeatability	≤5%	
	Hysteresis	≤20%	
	Operating Voltage	10~30VDC	
	Current Consumption	≤20mA	Receiver: ≤20mA, Emitter: ≤10mA
	Residual Voltage	<1.5V	
	Load Current	≤100mA(30VDC)	
	Insulation Resistance	≥50MQ(500VDC)	
	Withstand Voltage	AC 1000V 50/60Hz 60S	
	Protection Circuit	Reverse polarity protection/short-circuit protection	Reverse polarity protection/ surge protection/short-circuit protection
	Operating Temperature	-25~55°C(no freezing/no condensation)	
	Storage Temperature	-30~70°C(no freezing)	
Environmental conditions	Operating Humidity	35~85%RH(no condensation)	
	Storage Humidity	35~95%RH	
	Ambient Light	LED light ≤1000 Lux	Incandescent light ≤3000 Lux; LED light ≤3000 Lux
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	IP65
	Maximum Tightening Torque	≤0.5Nm	
	Connection Method	2m/3-core cable	
Mechanical data	Dimensions	11.0x31.0x20.0mm	
	Material	PBT+glass fiber	
	Weight	about 70g	
	Accessories	Screwdriver, reflector, mounting bracket, screws	Screwdriver, mounting bracket, screws
	Model	NPN	ELE-RM10AN
		PNP	ELE-TM50AP

ELE-B35/B35NS02/D80/RM10

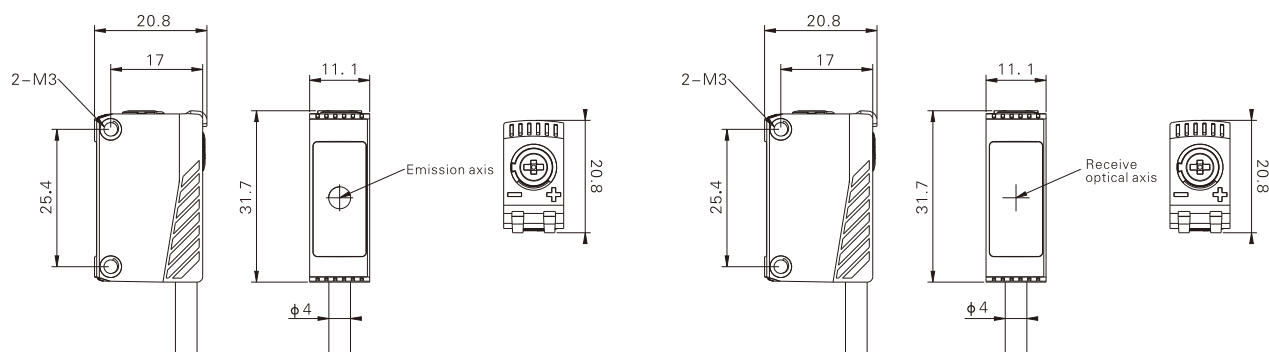


Reflector TD-11



(ELE-RM10 Optional TD-11)

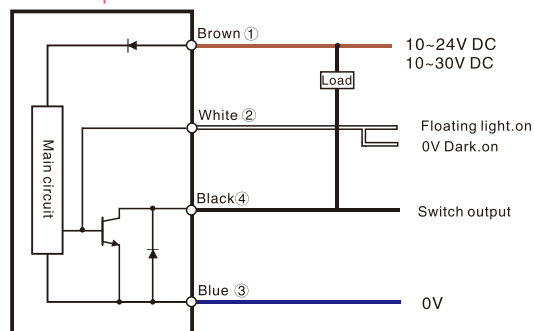
ELE-TM50



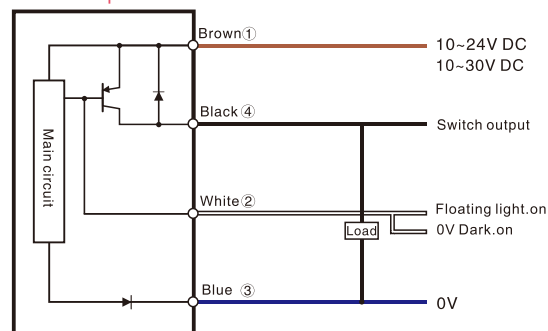
Circuit diagram

ELE-B35/B35N(P)S02/D80

NPN Output

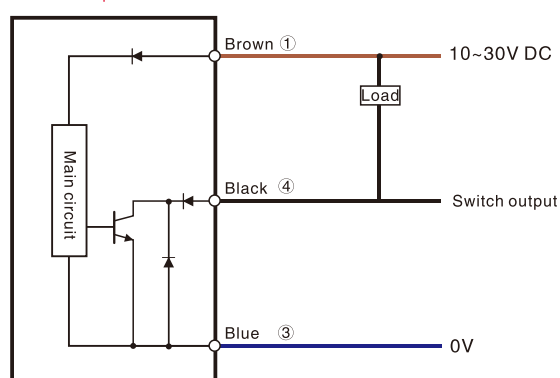


PNP Output

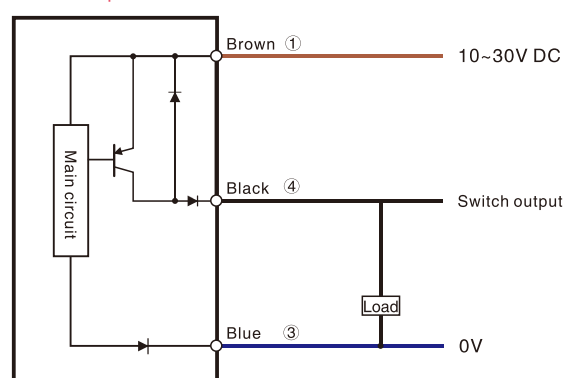


ELE-RM10/TM50

NPN Output



PNP Output



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Guidance

Laser sensors
Square

Measuring Displacement Sensor



- ◎ Adopting international advanced technology and production process.
- ◎ Non-contact detection, realizing micron-level high-precision measurement.
- ◎ Less affected by the color and material of the workpiece, good stability.



NEW!

Triangulation measuring(MLD25 Series)

- Laser triangulation principle, micrometer–level repeat accuracy
- 485 communication, can providereal–time and efficient feedback of data values
- Rich product series, multiple ranges optional

P.F-16



NEW!

TOF long range type(PX-FM series)

- Ultra–long distance measurement, detection distance 8/40/80m optional.
- Stable accuracy, and the repeatability can be guaranteed within 2mm at a long distance.
- Multiple communication modes, supporting RS485(Modbus)/RS232/RS232+Current+Voltage output

P.F-24



NEW!

3D Laser Profiler (ESX Series)

- Laser triangulation principle for high precision measurement
- Wide range of products, 11mm–1490mm field of view available
- High resolution, 1920/2048/4096 physical contour points available

P.F-28



NEW!

Contact Displacement (MRA/MRC Series)

- Micrometer–level high–precision measurement, up to 1.4 μm
- CMOS grating measurement principle, no tracking error
- Can be selected according to different needs of driving mode (pneumatic/rebound) to complete the detection)

P.F-38



NEW!

Laser Lidar

- Time of Flight detection principle, obstacle avoidance type, navigation type optional
- Scanning range 360° , maximum scanning frequency 30Hz
- Serial port (Type–C interface) communication, online output of measurement data (including distance and light intensity data in all directions)

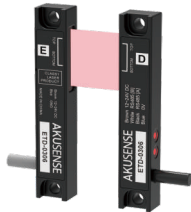
P.F-53



Color Confocal (ACC Series)

- Automated precision measurement device;
- Stable detection for any material;
- Latest non–contact optical sensing technology.

P.F-61



NEW!

Through–beam edge sensor (ETD Series)

- Edge measurement & width and pitch measurement.
- Optical axis adjustment function for easy installation.
- Compact design for easy installation.

P.F-68

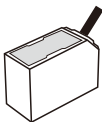
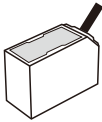
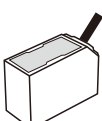
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
All Image
Code Readers
Vibration
Temperature
RFID
Safety doorlock
Pressure Switch
Communication
Accessories

Guidance

Displacement

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

Triangulation Mini Digital Display

Appearance	Type	Sensing distance	Model number		Pages
	Diffuse reflection	 65~135mm	MLD21-100A-485		F-09
		 120~320mm	MLD21-220A-485		
		 300~700mm	MLD21-500A-485		
Appearance	Type	Sensing distance	Model number		Pages
	Diffuse reflection	 25~35mm	MLD23-30N	MLD23-30NP	F-14
		 65~135mm	MLD23-100N	MLD23-100NP	
		 120~280mm	MLD23-200N	MLD23-200NP	
Appearance	Type	Sensing distance	Model number		Pages
	Diffuse reflection	 25~35mm	MLD25-30NV	MLD25-30PV	F-16
		 35~65mm	MLD25-50NV	MLD25-50PV	
		 65~135mm	MLD25-100NV	MLD25-100PV	
		 120~280mm	MLD25-200NV	MLD25-200PV	

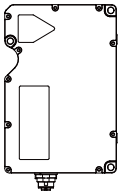
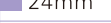
TOF long range type

Appearance	Type	Sensing distance	Model number			Pages
		0.05~8m	PX-FM08-485	PX-FM08-IV-232	PX-FM08-232	F-18
		0.05~8m	PX-FM40-485	PX-FM40-IV-232	PX-FM40-232	F-19
		0.05~40m	PX-FM80-485	PX-FM80-IV-232	PX-FM80-232	F-20

- 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

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

3D Laser Profiler

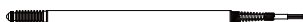
Appearance	Type	Sensing distance	Model number	Pages
	Diffuse reflection	 7mm	ESX-C10	F-22
		 11mm	ESX-C20	
		 25mm	ESX-C30	
		 70mm	ESX-C100	
		 200mm	ESX-C200	
		 200mm	ESX-CE200	F-23
		 350mm	ESX-CE300	
		 490mm	ESX-CE500	
		 1280mm	ESX-CE1000	
		 7mm	ESX-G10	F-24
		 24mm	ESX-G20	
		 74mm	ESX-G100	
		 192mm	ESX-GE200	
		 7mm	ESX-P10	F-25
		 24mm	ESX-P20	
		 74mm	ESX-P100	
		 191mm	ESX-P200	F-26
		 191mm	ESX-PE200	
		 250mm	ESX-PE300	
		 6mm	ESX-H10	F-27
		 18mm	ESX-H20	

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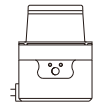
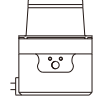
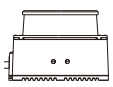
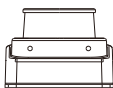
Guidance
Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LIDAR Scanner
Color confocal
Laser Alignment

Guidance

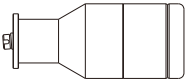
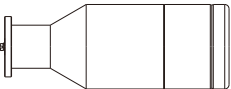
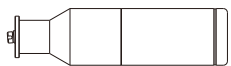
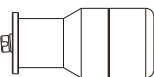
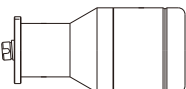
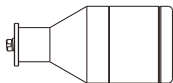
Magnetic Displacement

Appearance	Type	Sensing distance	Model number	Pages
	Pencil type	 2mm	MRA-R02R01XX	F-32
	Pencil type	 5mm	MRA-R05R01XX	
	Pencil type	 8mm	MRA-R08R01XX	
	Pencil type	 10mm	MRA-R10R01XX	
	Box type	 0~12.7mm	MRC-H12R0XX	F-34
	Box type	 0~25.4mm	MRC-H25R0XX	
	Box type	 0~12.7mm	MRC-H12R0XDX	F-35
	Box type	 0~12.7mm	MRC-H12Q0XX	
	Retangular	—	CM-M01	F-37
	Retangular	—	CM-M01A	

LiDAR Scanner

Appearance	Size	Sensing distance	Model number	Pages
	83.5 × 85 × 104.9(mm)	20m	AS-21C	F-41
	83.5 × 85 × 104.9(mm)	40m	AS-41C	F-41
	86 × 85 × 59.5(mm)	20m	AS-11C	F-44
	110*96.5*71.5(mm)	100m	AS-100C	F-47
	60*60*84.9(mm)	20m	AS-31C	F-50
	60*60*81(mm)	20m	AS-32C	F-50
	50*50*72(mm)	10m	AS-33C	F-51
	60*60*82.5(mm)	50m	AS-35C/CA	F-53

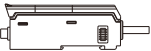
Color Confocal

Appearance	Size	Sensing distance	Model number	Pages
	Φ41*93.9(mm)	8 ± 0.2mm	ACC-008L	F-58
	Φ98*266(mm)	11 ± 1.2mm	ACC-011L	F-58
	Φ41*153.6(mm)	16 ± 1mm	ACC-016L	F-58
	Φ34*153.6(mm)	18 ± 1mm	ACC-018L	F-58
	Φ38*82(mm)	30 ± 2mm	ACC-030L	F-58
	Φ18*55(mm)	33 ± 2mm	ACC-033L	F-58
	Φ54*111.2(mm)	40 ± 4mm	ACC-040L	F-58
	Φ33*75(mm)	55 ± 3mm	ACC-055L	F-58

Through-beam Edge Sensor

Appearance	Size	Sensing distance	Model number	Pages
	Through-beam	60*10.5*8.2(mm) Edge detection mode ±3.25mm Diameter detection mode 6mm	ETD-0306	F-64
	Through-beam	60*25*8.2(mm) Edge detection mode ±6mm Diameter detection mode 12mm	ETD-0612	F-65

Edge Sensor Controller Communicator

Appearance	Size	Installation method	Model number	Pages
	100.78*40*38.76(mm)	DIN rail mounting	CR-M02	F-67
	94.5*29.4*40.81(mm)	DIN rail mounting	CTM01-EC	F-68

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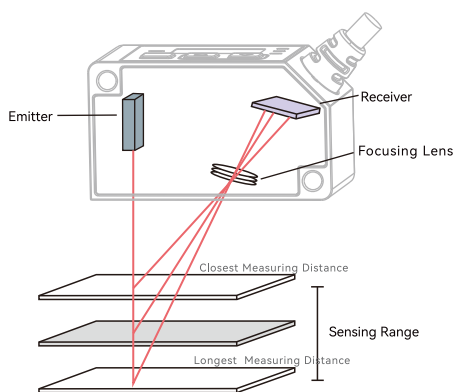
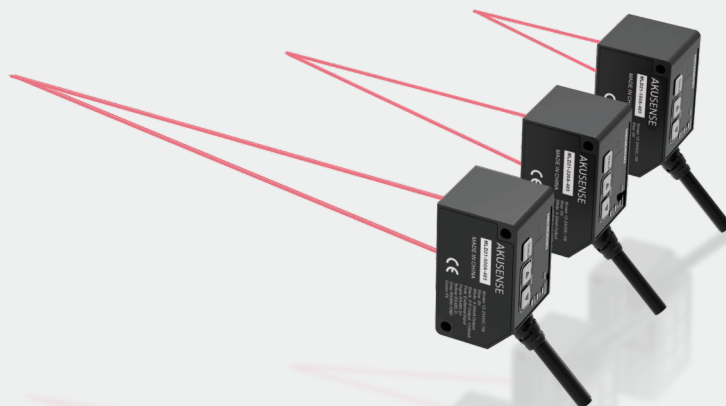
Guidance

Displacement

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

Laser Displacement Sensor

MLD21 Series ▶



CMOS sensor element Highly accurate detection achieved by triangulation principle

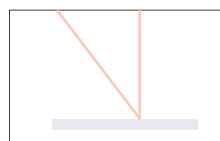
By triangulation principle, the incoming light port on the CMOS of the sensor receiver moves as the object position changes.

And the change of objects can be checked by detecting the incoming light position.

Automatic Exposure Adjustment

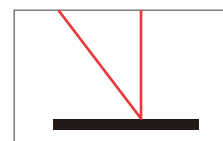
The amount of energy received can be automatically adjusted according to different applications;

Detection remains stable even the color or material of the workpiece changes.



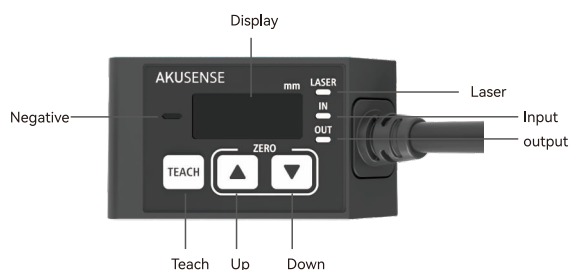
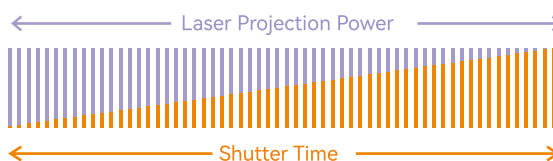
Measuring brighter objects

Laser Weakened



Measuring darker objects

Laser Enhanced



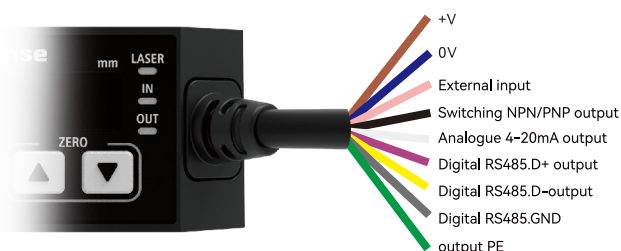
Intuitive digit display on the panel, and button function makes commissioning easy

Equipped with display and function buttons within a mini space;

The opening/closing of the laser, external trigger signal and control output signal status can be intuitively presented; most function settings can be made directly via the sensor panel.

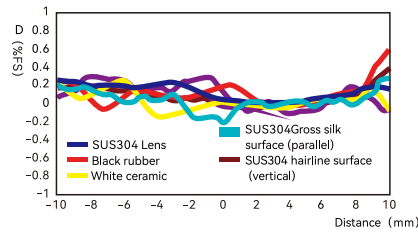
It includes parameter item setting, function item setting and threshold setting.

Integrated output methods; Switching, analogue and digital outputs all in one.

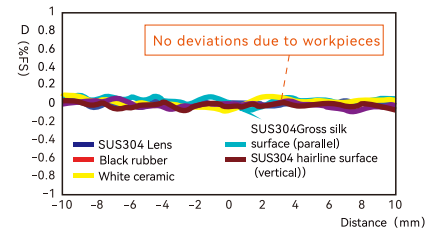


Detection remains stable even the workpiece moves

For workpieces with rough surfaces, a linear beam is used to average the amount of reflection. And the amount of light received is corrected at a highspeed of 30us for per measurement cycle to reduce the alteration of the amount of light received caused by workpiece moving. Thus the detection remains stable even when the workpiece is displaced during the pro process of measurement.



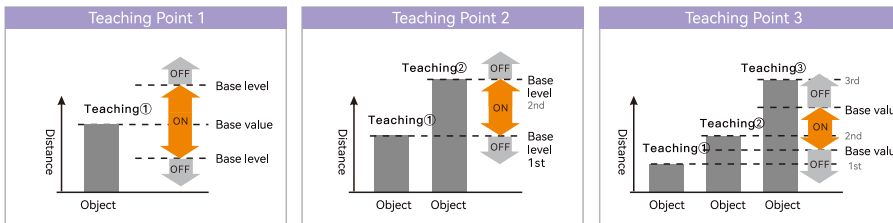
Material-based linear properties of previous products



Material-based linear properties of MLD21

Built-in rich detection modes for greater functionality

In addition to the basic teaching settings, the following three modes have been implemented:
Basic teaching mode for simple setting of the presence or absence of the object to be measured;
A single-point serial comparison mode for deviations from the reference measurement surface;
A two-point teaching serial comparison mode for precise range control.



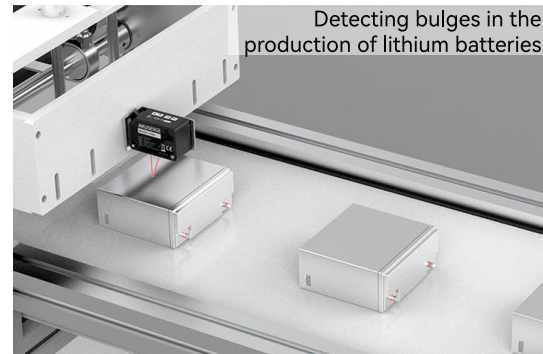
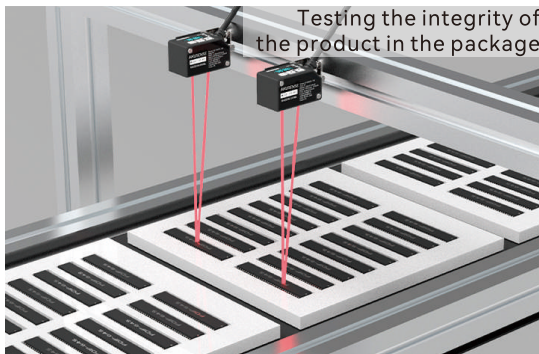
Application

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

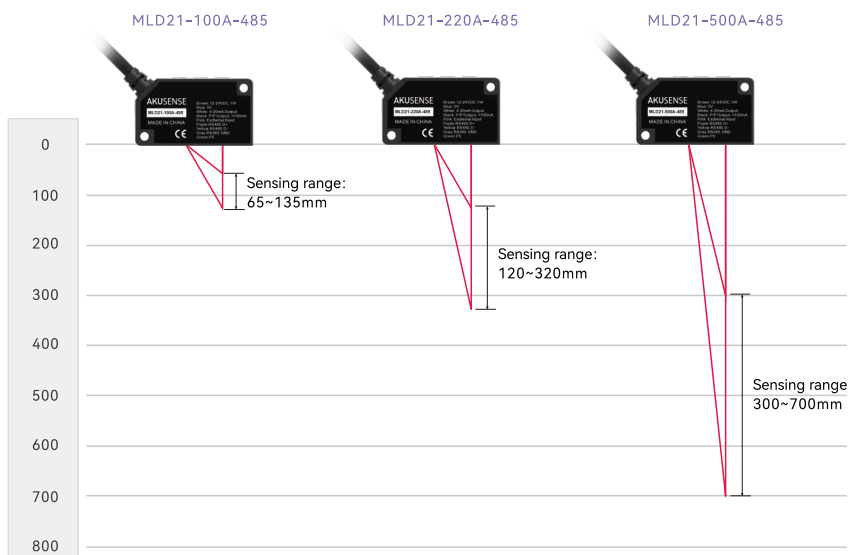
Guidance

Displacement

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



Selection table



Model	MLD21-100A-485
Repeat accuracy	70μm
Linearity	±0.1%
Base distance	100mm

Model	MLD21-220A-485
Repeat accuracy	200μm
Linearity	±0.2%
Base distance	220mm

Model	MLD21-500A-485
Repeat accuracy	(300~500mm)300μm (500~700mm)600μm
Linearity	(300~500mm) ±0.2% (500~700mm) ±0.3%
Base distance	500mm

MLD21 Series

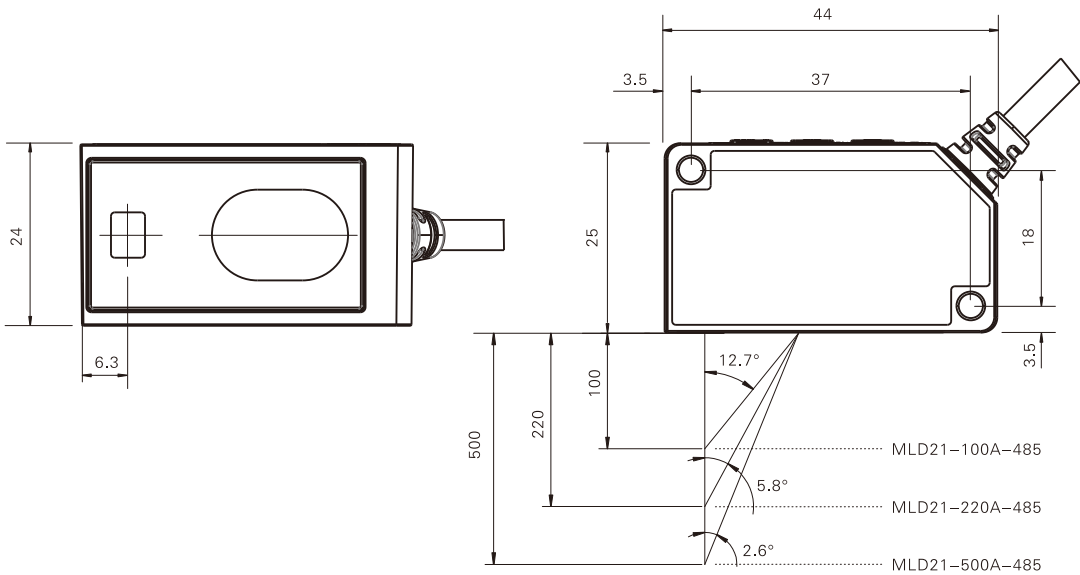


Basic Features	Working principle	Triangulation		
	Housing	Rectangular		
	Optical working principle	Diffuse reflection		
	Reference distance	100mm	220mm	500mm
	Measuring range	65~135mm	120~320mm	300~700mm
	Light source	Red laser, Class 2		
	Spot size	0.14x0.11mm	0.29x0.24mm	0.54x0.33mm
Electrical data	Switching mode	L.on/D.on		
	Output mode	NPN or PNP collector open		
	Response time	1.5ms/ 3ms/5ms (default v: ms)		
	Linearity	± 0.1%	± 0.2%	(300~500mm) ± 0.2% (500~700mm) ± 0.3%
	Repeatability	70μm	200μm	(300~500mm)300μm (500~700mm)600μm
	Temperature drift characteristics	—		
	Operating voltage	12~24VDC ± 10%		
	Current consumption	—		
	Load current	<100mA		
	Insulation resistance	≥20MΩ with 500V DC between power terminals and enclosure		
	Dielectric strength	500 VAC, 50/60 Hz for 1 min between power terminals and enclosure		
	Protection circuit	Reverse Polarity Protection/surge protection		
Environmental conditions	Operating temperature	-10~50℃		
	Operating humidity	35~85%RH		
	Ambient illumination	Incandescent≤3000 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	2m, 9 core cable		
	Dimension	24,0x44.0x25.0mm		
	Material	Aluminum		
	Weight	0.065kg		
	Accessories	Cable		
	Model	MLD21-100A-485	MLD21-220A-485	MLD21-500A-485

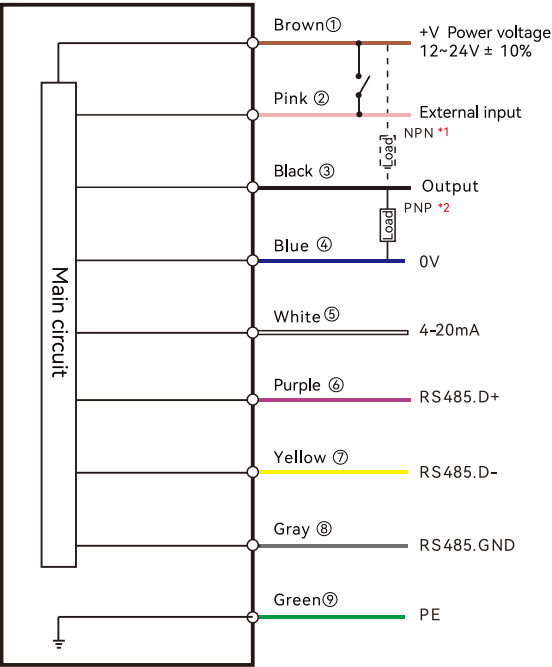
Unit:mm

Dimensions

Displacement



Circuit diagram



Remark :

- 1.NPN output connection : Connect Black with Brown (+V)
- 2.PNP output connection: Connect Black with Blue (0V)

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

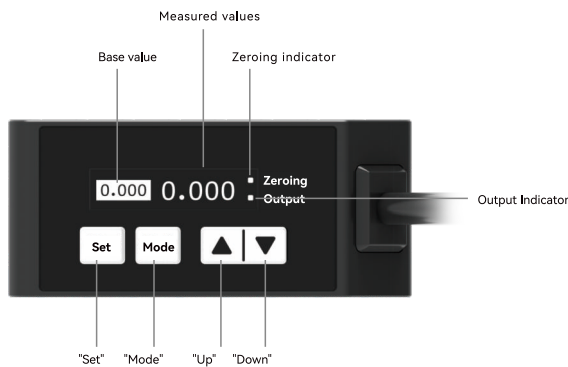
Guidance

Displacement

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

Laser Displacement Sensor

MLD23 Series ▶

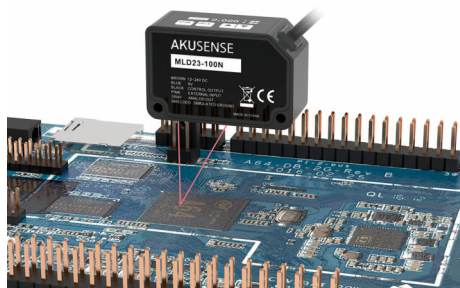
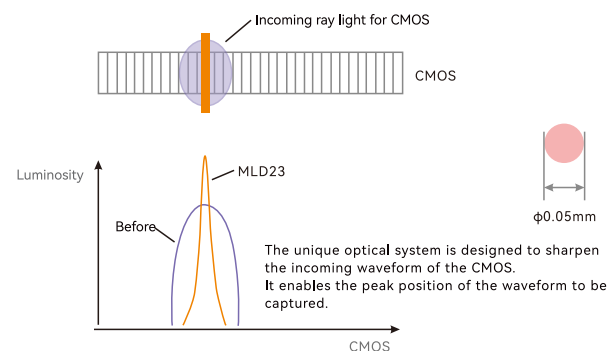


Mini Chinese Display

More Intuitive and Simple for Commissioning

Convergent harnesses for more accurate detection

AkuseNSE has developed its own optical system to significantly converge and improve the beam to 50um;
An ultra-small spot size of 0.05mm formed, which detects objects with stability and accuracy.

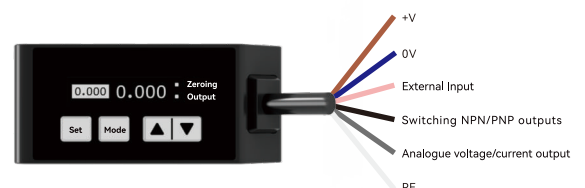


Micron-level linear accuracy

Linear accuracy reaches to 0.01mm for easy inspection with high accuracy

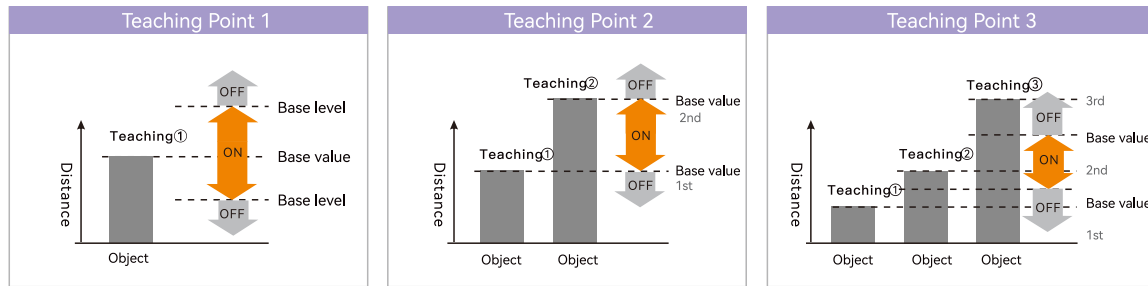
Convenient Installation

Integration of analogue voltage, analogue current and switching



Simple and flexible test patterns

Multiple teaching modes to make testing easier

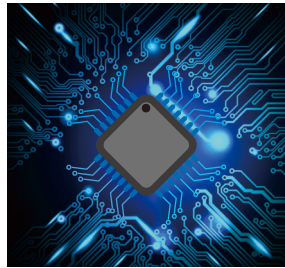


Faster, more stable, more accurate

Three test modes are for option:
standard, high speed and high accuracy

① Ultra-high speed computing and processing

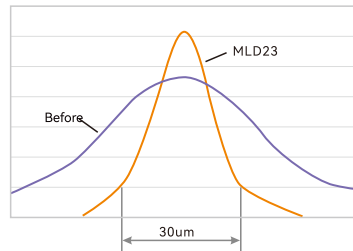
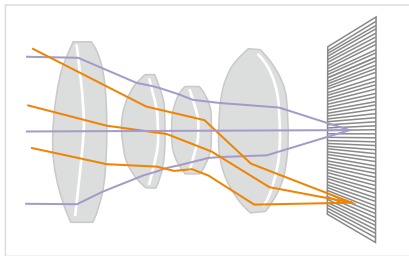
The application of Akusense's advanced IC and algorithm technology has greatly improved the sensor's detection rate and data accuracy, allowing for both high speed transmission and stable detection of measured values.



Max 1.5ms response time

Repeat accuracy up to 10μm

Min ±0.1% F.S linearity

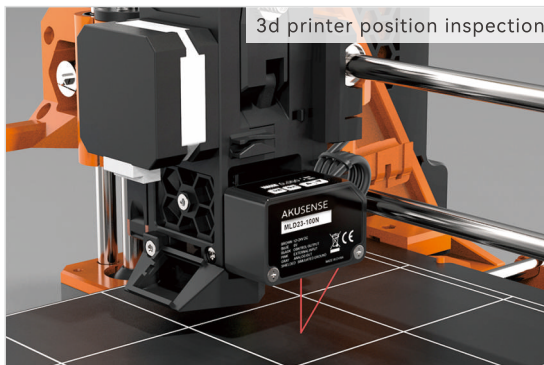


② Achieving greater precision

The new Akusense high-resolution lens design reduces pixel aberration and is assembled with precision.

The small spot of light at any angle can be imaged at the receiving section, resulting in a smaller waveform and higher measurement accuracy.

Application



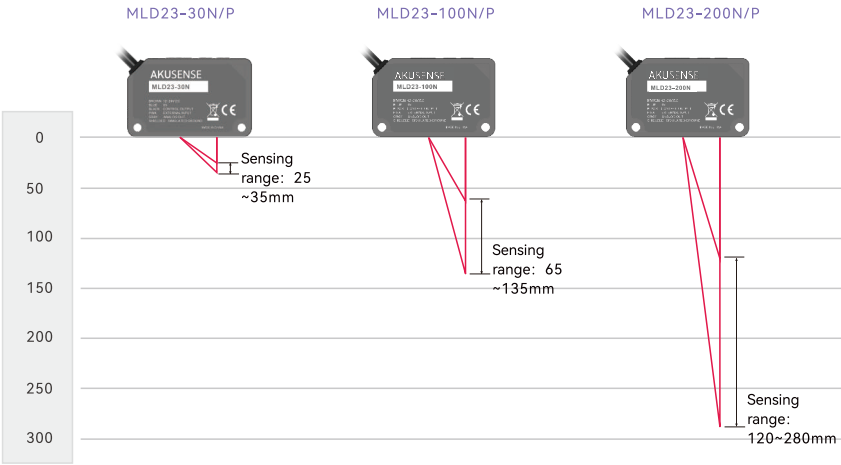
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
All Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement

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

Selection table



Model	MLD23-30N/P
Repeat accuracy	10μm
Linear accuracy	±0.1% F.S.
Base distance	30mm

Model	MLD23-100N/P
Repeat accuracy	70μm
Linear accuracy	±0.1% F.S.
Base distance	100mm

Model	MLD23-200N/P
Repeat accuracy	200μm
Linear accuracy	±0.2% F.S.
Base distance	200mm

Fiber Optic

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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

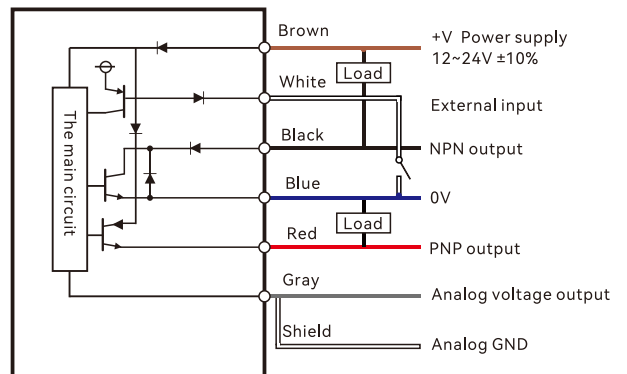
**Economical Type**

Basic Features	Working principle	Triangulation		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Reference distance	30mm	100mm	200mm
	Measuring range	25~35mm	65~135mm	120~280mm
	Light source	Red laser, 655nm, Class 2		
	Spot Size	about Φ0.05mm	about Φ0.15mm	about Φ0.3mm
Electrical data	Switching mode	L.on/D.on		
	Output mode	NPN or PNP collector open		
	Response time	1.5ms/5ms/50ms switchable		
	Linearity	± 0.1% F.S.		± 0.2% F.S.
	Repeatability	10μm	70μm	200μm
	Temperature drift characteristics	± 0.03%/°C		
	Operating voltage	12~24VDC ± 10%		
	Current consumption	<60mA(24VDC); <100mA(12VDC)		
	Load current	<50mA		
	Insulation sesistance	≥20MΩ with 500V DC between power terminals and enclosure		
	Dielectric strength	< 0.1mA(1000V AC)		
	Protection circuit	Surge protection		
Environmental conditions	Operating temperature	-10~45°C(No Freezing)		
	Operating humidity	35~85%RH(No Condensation)		
	Ambient illumination	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 3000 Lux		
	Vibration resistance	10 to 50 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions		
	Enclosure rating	IP66		
Mechanical data	Connection type	2m, 9 core cable		
	Dimension	22.5x50.0x32.0mm		
	Material	Acrylic-based, Aluminum		
	Weight	0.065kg		
	Accessories	Cable		
Model	NPN	MLD23-30N	MLD23-100N	MLD23-200N
	NPN+PNP	MLD23-30NP	MLD23-100NP	MLD23-200NP

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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





Basic Features	Working principle	Triangulation			
	Housing	Retangular			
	Optical working principle	Diffuse reflection			
	Reference distance	30mm	50mm	100mm	200mm
	Measuring range	25-35mm	35-65mm	65-135mm	120-280mm
	Light source	Red laser, wavelength:655nm 1mW Class2			
	Spot Size	φ40μm	Φ50μm	Φ80μm	Φ140μm
Electrical data	Switching mode	L.on/D.on/Botton/RS-485 switch			
	Output mode	Switch output/Analog output			
	Response time	< 10ms/5ms/1.5ms			
	Linearity	± 0.1% F.S.			± 0.2% F.S.
	Repeatability	10um	30um	70um	200um
	Temperature drift characteristics	0.03%/°C F.S.			
	Operating voltage	12~24V DC ± 10%			
	Current consumption	< 65mA(12V), < 40mA(24V)			< 40mA(24V), < 80mA(12V)
	Load current	≤100mA			
	Insulation sesistance	> 500MQ(500V DC)			
	Dielectric strength	< 0.1mA(1000V AC)			
	Protection circuit	Reverse polarity protection / short circuit protection / overload protection / surge protection			
Environmental conditions	Operating temperature	-10~+45°C(No freezing)			
	Operating humidity	35~85%RH(no condensation)			
	Ambient illumination	Ambient light: ≤10000 lux without interference; incandescent lamp: ≤3000 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	2m 7-pin composite cable			
	Dimension	20x28x45mm			
	Material	Body: die-cast aluminum; Front cover: acrylic-based			
	Weight	90g			
	Accessories	Cable			
Model	NPN	MLD25-30NV	MLD25-50NV	MLD25-100NV	MLD25-200NV
	PNP	MLD25-30PV	MLD25-50PV	MLD25-100PV	MLD25-200PV

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

All Image

Code Readers

Vibration

Temperature

RFID

Safety doorlock

Pressure Switch

Communication

Accessories

Guidance

Displacement

Triangulation

TOF Long

Range Type

3D Laser

Profiler

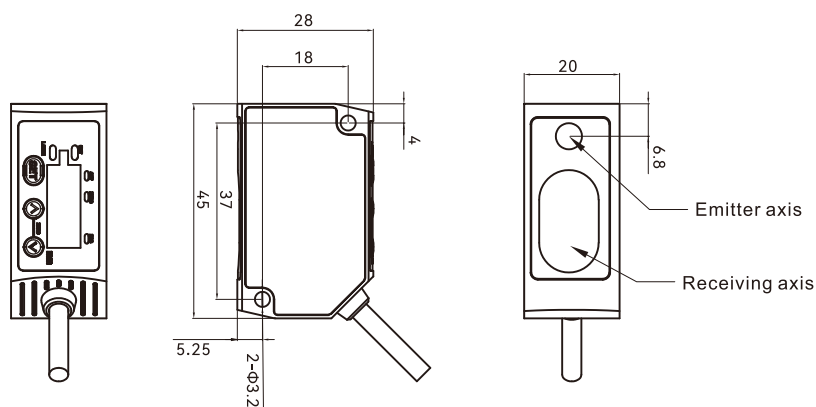
Contact

Displacement

LIDAR Scanner

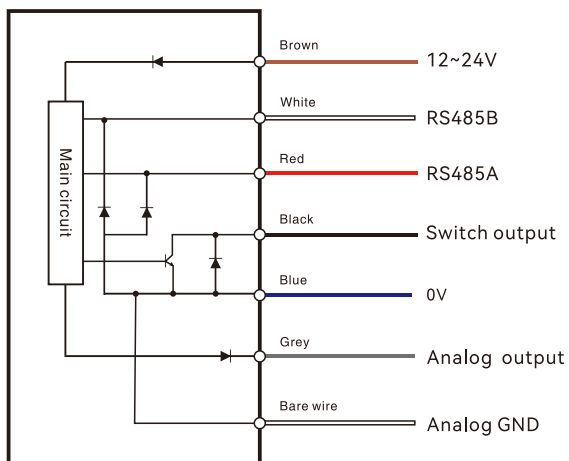
Color confocal

Laser Alignment

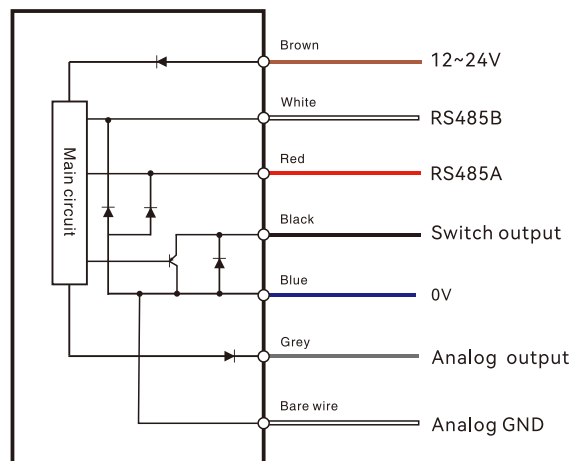


Circuit diagram

NPN Output



PNP Output





Basic Features	Working principle	TOF principle		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Measuring range	0.05~8m		
	Light source	Red laser, 655nm, Class 2		
	Spot size	-		
Electrical data	Operating mode	Single measurement/Continous measurement/Quick measurement		
	Data output rate	Single measurement: 1s ,Continous measurement: 200ms ,Quick measurement: 30-100ms		
	Resolution	1mm		
	Repeatability	< ±2mm		
	Operating voltage	24VDC±10%		5VDC±10%
	Current consumption	Normal 44mA, max.65mA		Normal 50mA, max.150mA
	Residual voltage	0V		
	Load current	150mA(MAX)		
	Input voltage	12~26V DC		5V DC+10%
	Output voltage	Active low	Active low,2 channel output	Active low
	Protocol	RS485(Modbus)	RS232/4-20mA/0-10V	RS232
Environmental conditions	Operating temperature	-10°C-40°C		
	Storage temperature	-20°C-60°C		
	Operating humidity	5%~95%		
	Storage humidity	RH85%		
	Ambient illumination	Ambient light: ≤10000 lux		
	Enclosure rating	IP65		
Mechanical data	Connection type	2M cable		1M cable
	Dimension	42*61.2*23.5mm		
	Material	Aluminum alloy		
	Weight	200g		
	Accessories	-		
	Model	PX-FM08-485	PX-FM08-IV-232	PX-FM08-232

Fiber Optic
Slot Sensors
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Safety door lock
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Guidance

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

TOF Long Range Type

PX-FM Series



Fiber Optic	Basic Features	Working principle	TOF principle		
Slot Sensors		Housing	Retangular		
Photoelectric		Optical working principle	Diffuse reflection		
Laser		Measuring range	0.05~40m		
Proximity		Light source	Red laser, 655nm, Class 2		
Displacement		Spot Size	—		
Magnetic	Electrical data	Operating mode	Single measurement/Continous measurement/Quick measurement		
Contact		Data output rate	Single measurement: 1s ,Continous measurement: 200ms ,Quick measurement: 30-100ms		
Area		Resolution	1mm		
Ultrasonic		Repeatability	< ± 2mm		
AI Image		Operating voltage	12~26V DC	5V DC±10%	
Code Readers		Current consumption	Normal 44mA, max.65mA		Normal 50mA, max.150mA
Vibration		Residual voltage	0V		
Temperature		Load Current	150mA(MAX)		
RFID		Input voltage	12~26V DC		5V DC+10%
Safety door lock		Output voltage	Active low	Active low,2 channel output	Active low
Pressure Switch		Protocol	RS485(Modbus)	RS232/4-20mA/0-10V	RS232
Communication	Environmental conditions	Operating temperature	-10°C-40°C		
Accessories		Storage temperature	-20°C-60°C		
		Operating humidity	5%~95%		
		Storage humidity	RH85%		
		Ambient illumination	Ambient light: ≤10000 lux		
Guidance		Enclosure rating	IP65		
Displacement	Mechanical data	Connection type	2M cable	1M cable	
Triangulation		Dimension	42*61.2*23.5mm		
TOF Long Range Type		Material	Aluminum alloy		
3D Laser Profiler		Weight	200g		
Contact Displacement		Accessories	—		
LIDAR Scanner		Model	PX-FM40-485	PX-FM40-IV-232	PX-FM40-232
Color confocal					
Laser Alignment					



Basic Features	Working principle	TOF principle		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Measuring range	0.05~80m		
	Light source	Red laser, 655nm, Class 2		
	Spot Size	-		
Electrical data	Operating mode	Single measurement/Continous measurement/Quick measurement		
	Data output rate	Single measurement: 1s ,Continous measurement: 200ms ,Quick measurement: 30-100ms		
	Resolution	1mm		
	Repeatability	< ±2mm		
	Operating voltage	24VDC±10%		5V DC±10%
	Current consumption	Normal 44mA, max.65mA		Normal 50mA, max.150mA
	Residual voltage	0V		
	Load current	150mA(MAX)		
	Input voltage	12~26V DC		5V DC+10%
	Output voltage	Active low	Active low,2 channel output	Active low
	Protocol	RS485(Modbus)	RS232/4-20mA/0-10V	RS232
Environmental conditions	Operating temperature	-10°C-40°C		
	Storage temperature	-20°C-60°C		
	Operating humidity	5%~95%		
	Storage humidity	RH85%		
	Ambient illumination	Ambient light: ≤10000 lux		
	Enclosure rating	IP65		
Mechanical data	Connection type	2M cable		1M cable
	Dimension	42*61.2*23.5mm		
	Material	Aluminum alloy		
	Weight	200g		
	Accessories	-		
	Model	PX-FM80-485	PX-FM80-IV-232	PX-FM80-232

Fiber Optic
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Safety doorlock
Pressure Switch
Communication
Accessories

Guidance

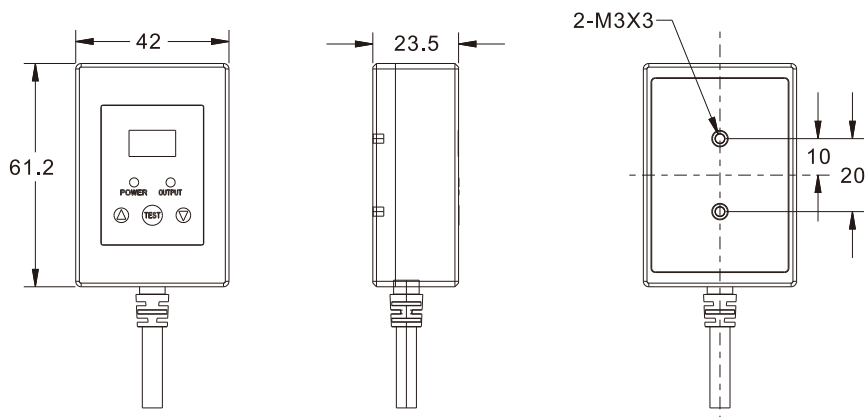
Displacement

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

TOF Long Range Type

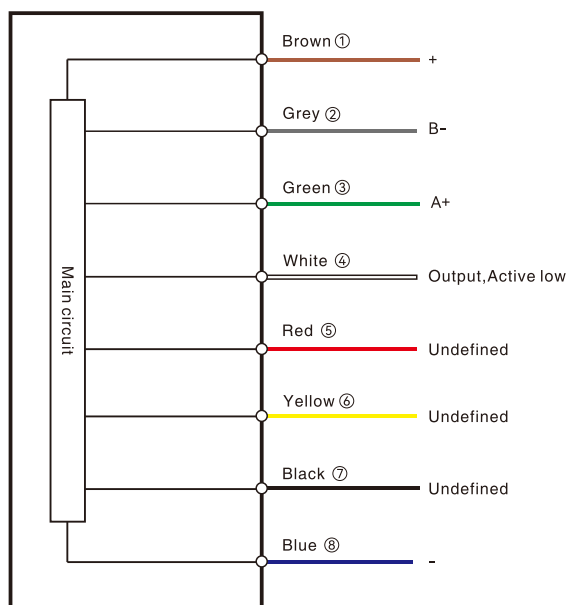
Dimensions

Unit:mm

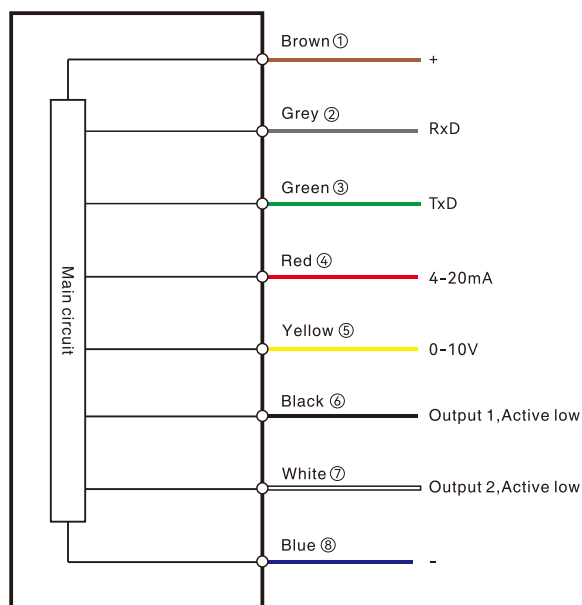


Circuit diagram

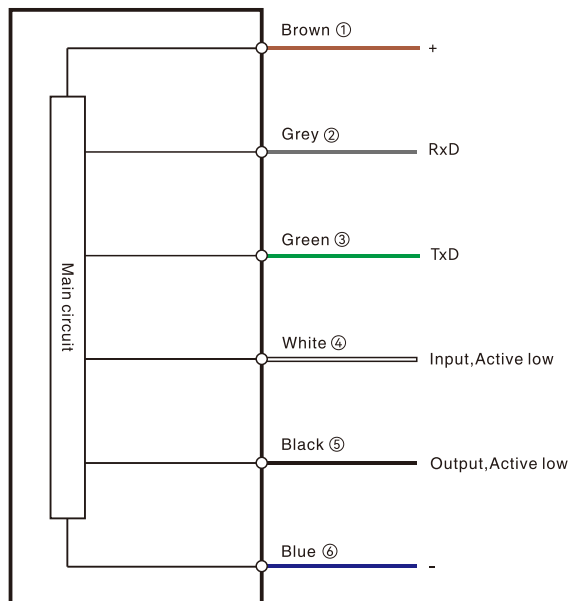
PX-FM08/40/80-485



PX-FM08/40/80-IV-232



PX-FM08/40/80-232





Basic Features	Working principle		Laser 3D measurement displacement sensor					
	Housing		Retangular					
	Optical working principle		Reflection					
	Mounting distance (CD)		19mm	22mm	54mm	80mm	100mm	
	Measuring range	Z-axis depth of field (MR)		7mm	11mm	25mm	70mm	200mm
		X-axis width	Near-end FOV	11mm	16mm	28mm	54mm	110mm
			Reference distance	12mm	17mm	31mm	68mm	170mm
			Distal FOV	13mm	18mm	35mm	80mm	230mm
	Contour points		2048					
	Light source	Wavelength		405nm				
		Laser class		2M/3R				
		Laser output power		10mW				
Electrical data	Reflection angle		50°	45°	30°	30°	27°	
	X-direction resolution		5.6~6.3μm	7.8~8.9μm	13.4~16.4μm	27.1~40.0μm	54.0~114.2μm	
	Z-axis repeatability		0.1μm	0.2μm	0.3μm	0.8μm	1.2μm	
	Z-direction linearity (+/-% of MR)		0.02%					
	Scanning speed		340 ~ 10000Hz					
	Operating voltage		24V DC±10%					
	Power consumption		11W					
	Communication interface		Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios					
Environmental conditions	Operating temperature		0~50℃					
	Ambient illumination		Incandescent≤10000lux					
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions					
	Shock resistance		Peak acceleration of 15g, duration of 11ms half-sine wave shock					
	Enclosure rating		IP67					
Mechanical data	Dimension		150x90x54mm	150x100x54mm	160x105x54mm		185x100x54mm	
	Housing material		Aluminum					
	Weight		0.94kg	0.84kg	1.12kg	0.8kg		
	Model		ESX-C10	ESX-C20	ESX-C30	ESX-C100	ESX-C200	

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3D Laser Profiler

ESX series

NEW!



Basic Features	Working principle	Laser 3D measurement displacement sensor			
	Housing	Retangular			
	Optical working principle	Reflection			
	Mounting distance (CD)	100mm	330mm	250mm	760mm
	Measuring range	Z-axis depth of field (MR)	200mm	350mm	490mm
		X-axis width	Near-end FOV	110mm	195mm
			Reference distance	170mm	262mm
			Distal FOV	230mm	330mm
	Contour points	2048			
	Light source	Wavelength	650nm		
		Laser class	2M/3R		
		Laser output power	10mW		
	Reflection angle	27°	23.2°	25°	27°
Electrical data	X-direction resolution	54.0~114.2μm	92.8~164.9μm	115.5~265.1μm	338.8~731.8μm
	Z-axis repeatability	1.2μm	2μm	6μm	15μm
	Z-direction linearity (+/-% of MR)	0.02%			
	Scanning speed	340 ~ 10000Hz			
	Operating voltage	24V DC±10%			
	Power consumption	11W			
	Communication interface	Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional I/Os			
	Operating temperature	0~50℃			
	Ambient illumination	Incandescent≤10000lux			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Shock resistance	Peak acceleration of 15g, duration of 11ms half-sine wave shock			
	Enclosure rating	IP67			
	Dimension	185x100x54mm	285x100x52.5mm	285x100x52.5mm	690x134.5x58.4mm
	Housing material	Aluminum			
Mechanical data	Weight	0.8kg	1.62kg	1.44kg	4.44kg
	Model	ESX-CE200	ESX-CE300	ESX-CE500	ESX-CE1000



Basic Features	Working principle		Laser 3D measurement displacement sensor				
	Housing		Retangular				
	Optical working principle		Reflection				
	Mounting distance (CD)		18mm	40mm	90mm	140mm	
	Measuring range	Z-axis depth of field (MR)		7mm	24mm	74mm	192mm
		X-axis width	Near-end FOV	14mm	30mm	55mm	100mm
			Reference distance	15mm	33mm	72mm	145mm
			Distal FOV	16mm	36mm	88mm	190mm
	Contour points		4096				
	Light source	Wavelength		405nm			650nm
Laser class		2M/3R					
Laser output power		10mW					
Reflection angle		41°	38°	30°	24°		
Electrical data	X-direction resolution		6.9~8.4μm	14.6~20.1μm	28.8~47.1μm	51.7~99.6μm	
	Z-axis repeatability		0.2μm	0.4μm	0.6μm	1μm	
	Z-direction linearity (+/-% of MR)		0.02%				
	Scanning speed		1000 (full frame) ~20000Hz				
	Operating voltage		24V DC±10%				
	Power consumption		11W				
	Communication interface		Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios				
Environmental conditions	Operating temperature		0~50℃				
	Ambient illumination		Incandescent≤10000lux				
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions				
	Shock resistance		Peak acceleration of 15g, duration of 11ms half-sine wave shock				
	Enclosure rating		IP67				
Mechanical data	Dimension		145x95x60mm	160x104.5x60mm	170x105x60mm	190x115x64mm	
	Housing material		Aluminum				
	Weight		1.04kg	1.24kg	1.22kg	1.56kg	
	Model		ESX-G10	ESX-G20	ESX-G100	ESX-GE200	

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ESX series



NEW!
CE

Basic Features	Working principle		Laser 3D measurement displacement sensor			
	Housing		Retangular			
	Optical working principle		Reflection			
	Mounting distance (CD)		18mm	40mm	90mm	
	Measuring range	Z-axis depth of field (MR)		7mm	24mm	74mm
		X-axis width	Near-end FOV	13mm	28mm	55mm
			Reference distance	14.5mm	27mm	72mm
			Distal FOV	16mm	36mm	90mm
	Contour points		1920			
	Light source	Wavelength		405nm		
		Laser class		2M/3R		
		Laser output power		10mW		
		Reflection Angle		41°	38°	30°
Electrical data	X-direction resolution		7.0~8.6μm	14.6~20.1μm	28.8~47.1μm	
	Z-axis repeatability		0.2μm	0.4μm	0.6μm	
	Z-direction linearity (+/-% of MR)		0.02%			
	Scanning speed		2500~56000Hz			
	Operating voltage		24V DC±10%			
	Power consumption		11W			
	Communication Interface		Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios			
Environmental conditions	Operating temperature		0~50℃			
	Ambient illumination		Incandescent≤10000lux			
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Shock resistance		Peak acceleration of 15g, duration of 11ms half-sine wave shock			
	Enclosure rating		IP67			
Mechanical data	Dimension		145x95x60mm	160x104.5x60mm	190x115x64mm	
	Housing material		Aluminum			
	Weight		0.8kg	1.24kg	1.22kg	
	Model		ESX-P10	ESX-P20	ESX-P100	



NEW!

CE



NEW!

CE

Displacement

Basic Features	Working principle		Laser 3D measurement displacement sensor			
	Housing		Retangular			
	Optical working principle		Reflection			
	Mounting distance (CD)		140mm	140mm	235mm	
	Measuring range	Z-axis depth of field (MR)		191mm	191mm	250mm
		X-axis width	Near-end FOV	100mm	100mm	192mm
			Reference distance	145mm	145mm	247mm
			Distal FOV	190mm	190mm	302mm
	Contour Points		1920			
	Light source	Wavelength		405nm	650nm	
Laser class		2M/3R				
Laser output power		10mW				
Reflection angle		24°		23.2°		
Electrical data	X-direction resolution		51.7~99.7μm	51.7~99.7μm	100.7~160.3μm	
	Z-axis repeatability		1μm	1μm	1.5μm	
	Z-direction linearity (+/-% of MR)		0.02%		0.04%	
	Scanning speed		2500~56000Hz			
	Operating voltage		24V DC±10%			
	Power consumption		11W			
	Communication interface		Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios			
Environmental conditions	Operating temperature		0~50℃			
	Ambient illumination		Incandescent≤10000lux			
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Shock resistance		Peak acceleration of 15g, duration of 11ms half-sine wave shock			
	Enclosure rating		IP67			
Mechanical data	Dimension		190x115x64mm		340x115x64.8mm	
	Housing material		Aluminum			
	Weight		1.54kg		2.08kg	
	Model	ESX-P200	ESX-PE200		ESX-PE300	

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ESX series

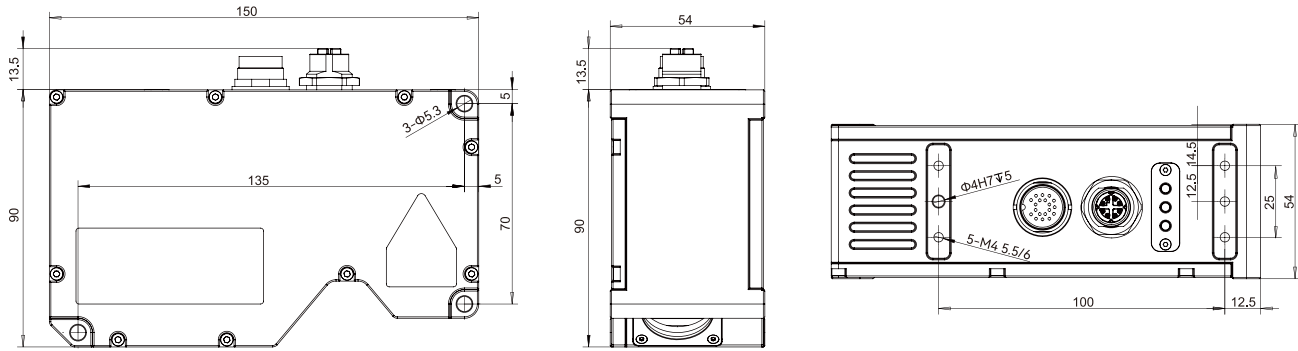


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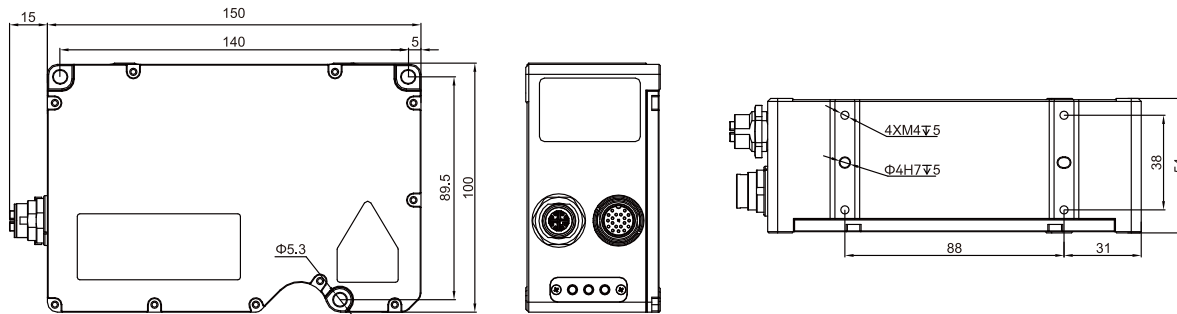
CE

Basic Features	Working principle			Laser 3D measurement displacement sensor				
	Housing			Retangular				
	Optical working principle			Reflection				
	Mounting distance (CD)			30mm		50mm		
	Measuring range	Z-axis depth of field (MR)			6mm		18mm	
		X-axis width	Near-end FOV			20mm		45mm
			Reference distance			22mm		51mm
			Distal FOV			24mm		56mm
	Contour Points			4096				
	Light source	Wavelength			405nm			
		Laser class			2M/3R			
		Laser output power			10mW			
		Reflection angle			50°		38°	
Electrical data	X-direction resolution			5.1~5.9μm		11.1~13.6μm		
	Z-axis repeatability			0.1μm		0.3μm		
	Z-direction linearity (+/-% of MR)			0.02%				
	Scanning speed			1200~16000Hz				
	Operating voltage			24V DC±10%				
	Power consumption			11W				
	Communication Interface			Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios				
Environmental conditions	Operating temperature			0~50℃				
	Ambient Illumination			Incandescent≤10000lux				
	Vibration resistance			10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions				
	Shock resistance			Peak acceleration of 15g, duration of 11ms half-sine wave shock				
	Enclosure rating			IP67				
Mechanical data	Dimension			190x115x80mm				
	Housing material			Aluminum				
	Weight			1.31kg		1.35kg		
	Model			ESX-H10		ESX-H20		

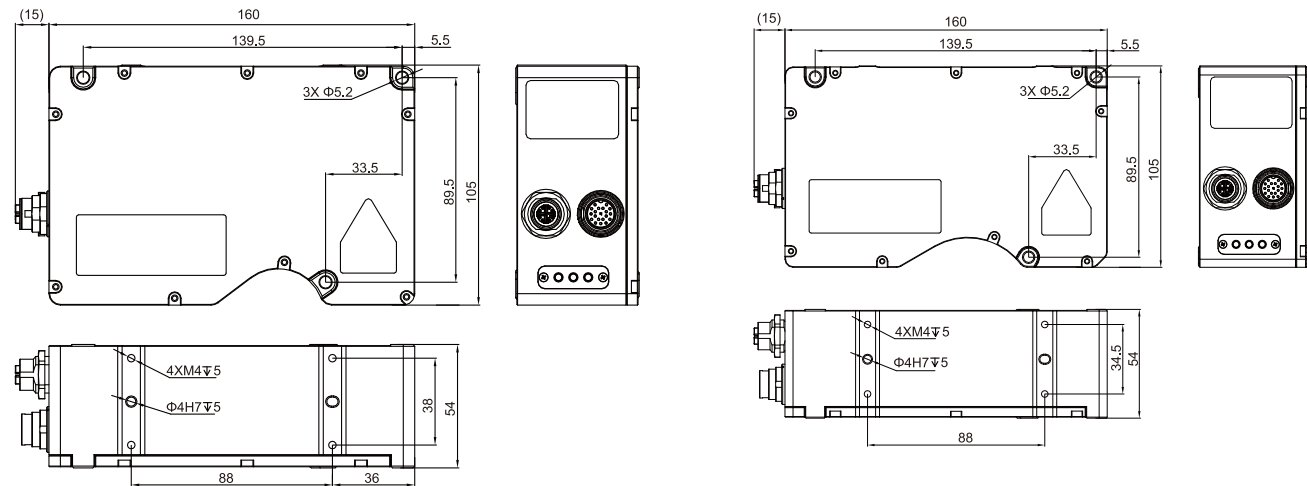
ESX-C10



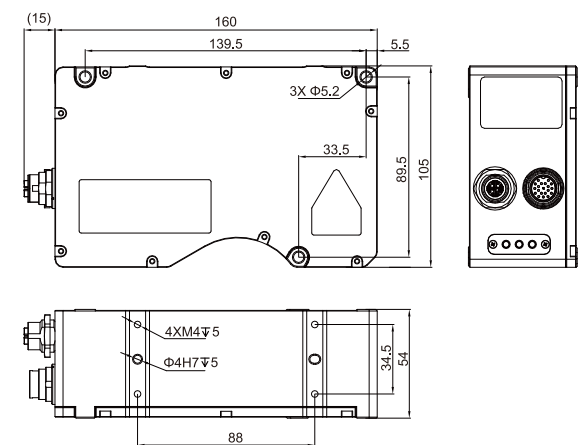
ESX-C20



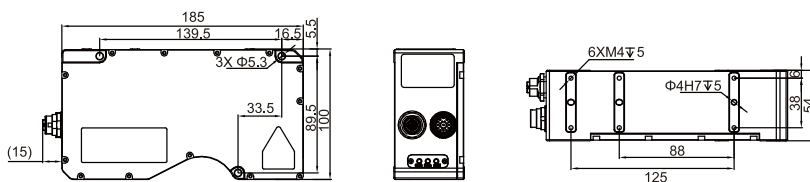
ESX-C30



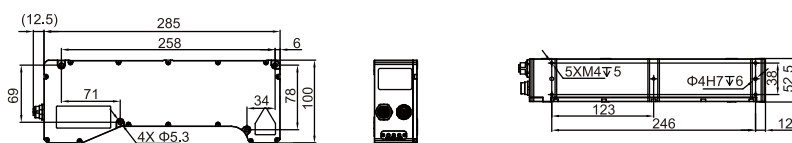
ESX-C100



ESX-C200/CE200



ESX-CE300



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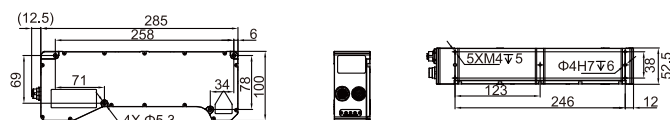
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3D Laser Profiler

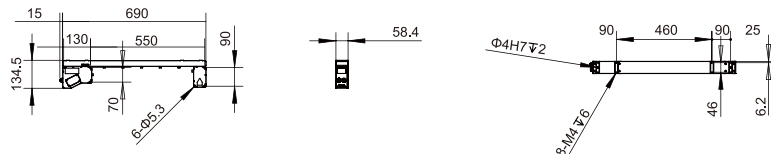
Dimensions

Unit:mm

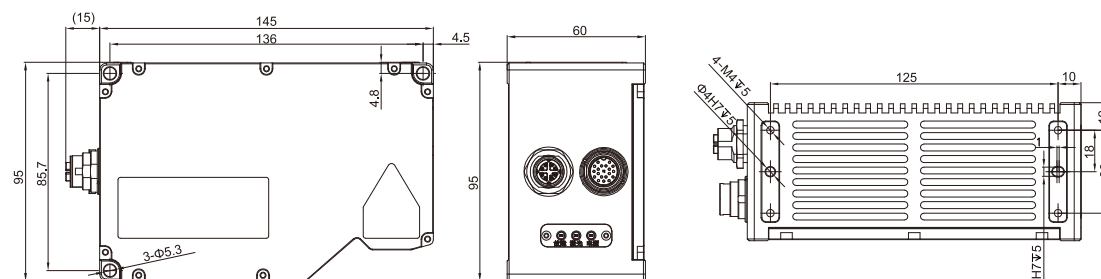
ESX-CE500



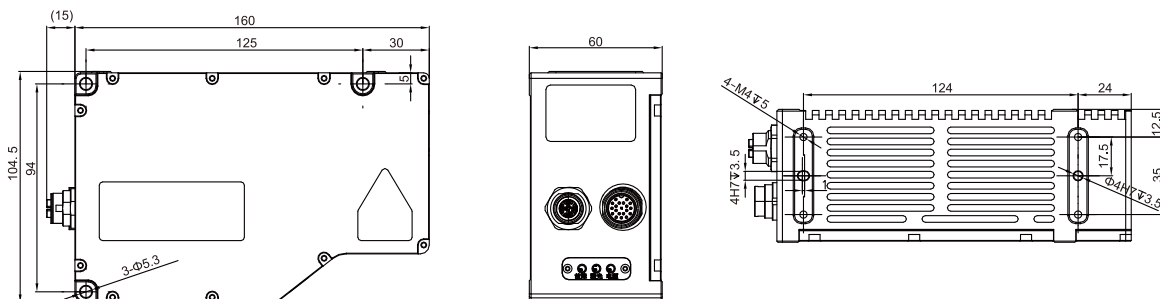
ESX-CE1000



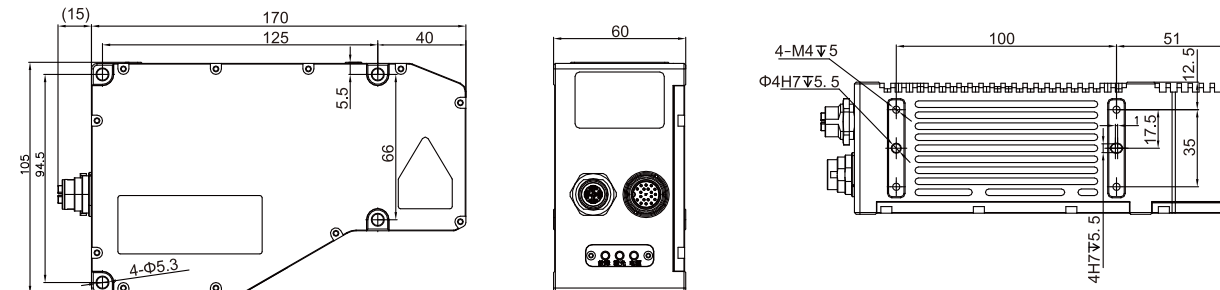
ESX-G10 ESX-P10



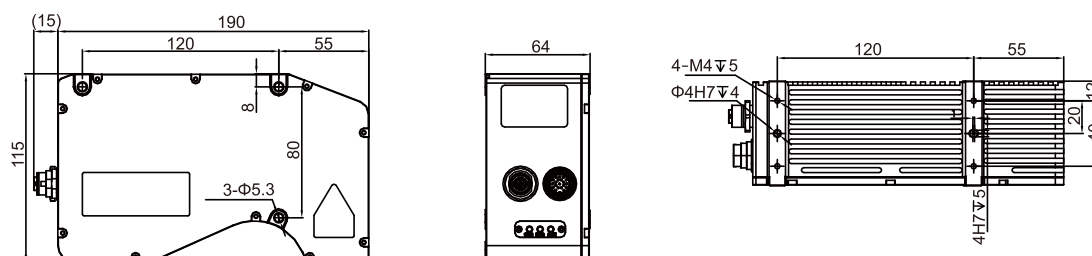
ESX-G20 ESX-P20



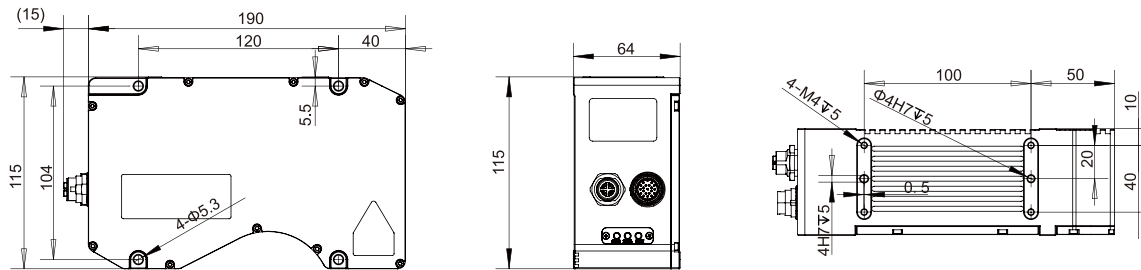
ESX-G100



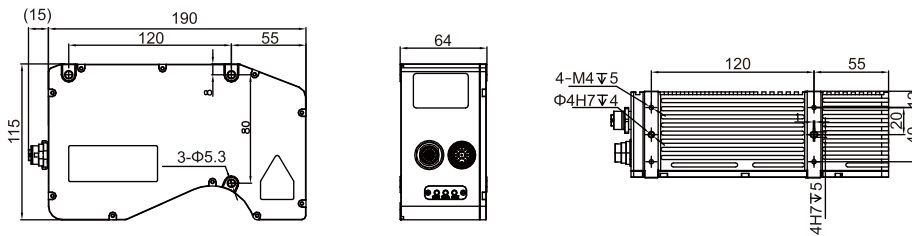
ESX-GE200



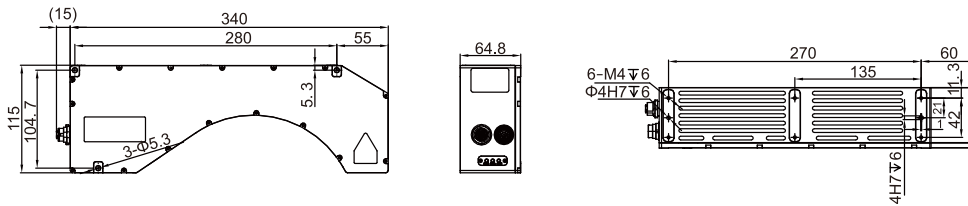
ESX-P100



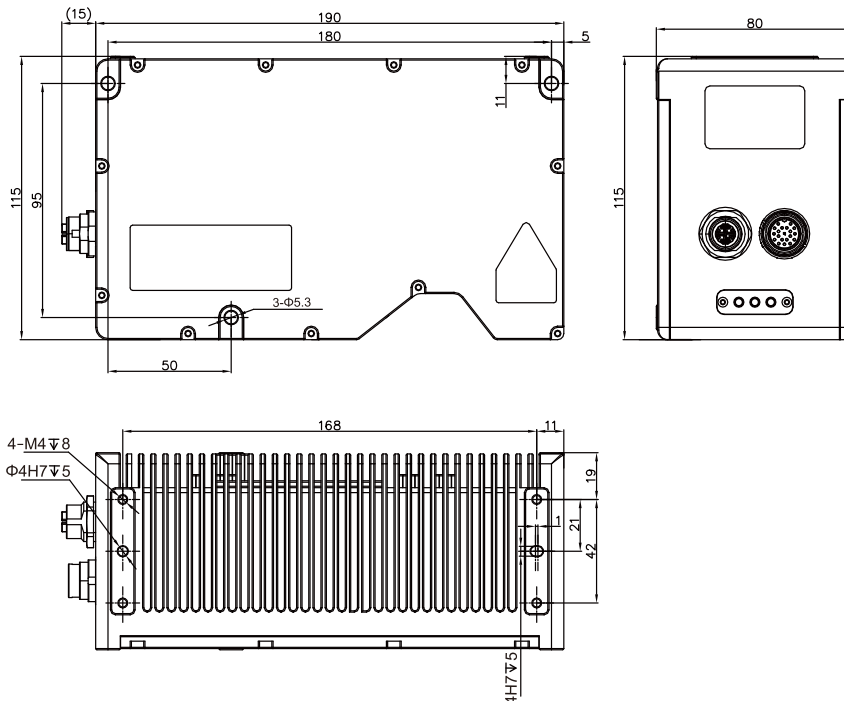
ESX-P200 ESX-PE200



ESX-PE300



ESX-H10 ESX-H20



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3D Laser Profiler

Interface Definitions

Circular connecting pins	Signal definition	Cable color	Feature
C	DIO2+	Orange	Multifunctional difference I/O2
B	DIO2 –	Orangish and white	
D	INDEX+	Yellow	
E	INDEX –	Yellowish and white	Encoder Z–phase input
I	A+	Gray	Encoder A–phase input
S	A–	Grayish	
H	B+	Purple	Encoder B–phase input
G	B–	Pure white	
T	DIO1+	Pink	Multifunctional difference I/O2
K	DIO1 –	Pink and white	
U	OUT+	Blue	Single–ended output
M	OUT–	Blue and white	
O	TRIG_EN+	Brown	Trigger enable
N	TRIG_EN–	Brown and white	
R	IN+	Green	Single–ended output
P	IN –	greenish white	
A	+24V	Red+red and white two wires	Camera Power
L	GND	Black+black and white two wires	Power ground
F	EARTH_GND	Silver	Grounding

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Basic Features	Working principle	Differential transformer			
	Housing	Pencil type			
	Drive mode	Rebound			
	Measuring range	2mm	5mm	8mm	10mm
Electrical data	Linearity	$\pm 0.25\%$ F.S.			
	Resolution	$\leq 0.1\mu\text{m}$, Communication output 16 bit			
	Response time	100ms			
	Sampling frequency	10Hz			
	Operating voltage	9~28V DC(0~5V Analog output)			
		9~29V DC(0~10V Analog output)			
		2-wire, 15~28V DC (4~20mA Analog output)			
		9~12V DC (RS485 output)			
	Current consumption	< 15mA			
Environmental conditions	Communication protocol	Modbus RTU			
	Operating temperature	$-25^{\circ}\text{C}\sim+85^{\circ}\text{C}$ (No Freezing)			
	Operating humidity	10~80% RH(No Condensation)			
	Enclosure rating	IP64			
Mechanical data	Connection type	$\phi 14/5$ -pin signal transmitter			
	Dimension	$\phi 8 \times 85.1\text{mm}$	$\phi 8 \times 138.3\text{mm}$	$\phi 8 \times 151.3\text{mm}$	$\phi 8 \times 151.3\text{mm}$
	Material	Stainless steel			
	Weight	130g			
	Accessories	Mounting bracket			
Model	Analog voltage 0~5V	MRA-P02R01V1	MRA-P05R01V1	MRA-P08R01V1	MRA-P10R01V1
	Analog voltage 0~10V	MRA-P02R01V2	MRA-P05R01V2	MRA-P08R01V2	MRA-P10R01V2
	Analog current 4~20mA	MRA-P02R01A	MRA-P05R01A	MRA-P08R01A	MRA-P10R01A
	RS485 communication	MRA-P02R01M1	MRA-P05R01M1	MRA-P08R01M1	MRA-P10R01M1

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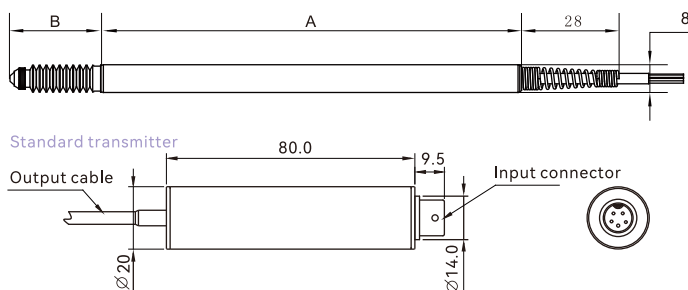
Displacement

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Contact Displacement Sensor Mini Digital Display

Dimensions

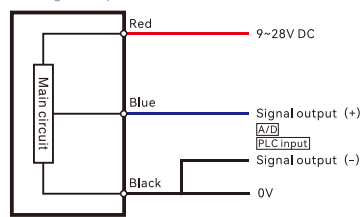
Unit:mm



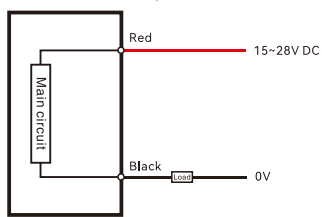
Parameters	Rebound			
Measuring range(mm)	2	5	8	10
Length of A(mm)	65.5	115	121	121
Length of guide rod B(mm)	19.6	23.3	30.3	30.3

Circuit diagram

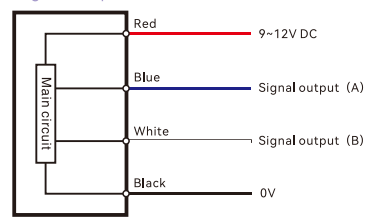
Voltage Output



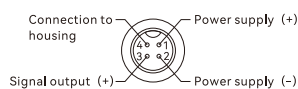
2-wire current output



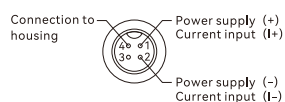
Digital Output



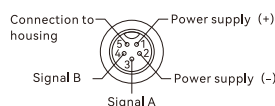
Analog voltage signal output



Analog current signal output



Digital RS485 signal output



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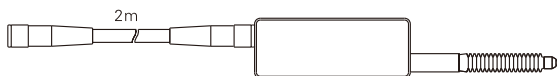
Basic Features	Working principle	CMOS encoder measurement (no tracking error)							
	Housing	Box type							
	Drive mode	Rebound							
	Measuring range	0~12.7mm				0~25.4mm			
Electrical data	Linearity	≤1.4μm	≤2μm	±2μm	≤10μm	≤1.8μm	≤3μm	±3μm	≤10μm
	Resolution	0.2μm	0.5μm	1μm	5μm	0.2μm	0.5μm	1μm	5μm
	Response time	50ms							
	Sampling frequency	40ms							
	Operating voltage	5V DC							
	Current consumption	< 50mA							
	Communication protocol	Modbus RTU							
Environmental conditions	Operating temperature	-10~50℃(No Freezing)							
	Operating humidity	35~80% RH(No Condensation)							
	Enclosure rating	IP65							
Mechanical data	Measuring force	1.1-1.2N				1.6-1.8N			
	Connection type	M8 4pin cable							
	Dimension	146.9x26.2x18mm				206.9x26.2x18mm			
	Material	Body: Aluminum alloy; Dust cover: Viton; Sensor head: Tungsten carbide							
	Weight	about 71.7g				about 91.5g			
	Accessories	M8 4pin cable							
Model	Connector type* ¹	MRC-H12R04S	MRC-H12R02S	MRC-H12R12S	MRC-H12R10S	MRC-H25R08S	MRC-H25R03S	MRC-H25R13S	MRC-H25R10S
	Pre-wired type* ²	MRC-H12R04W	MRC-H12R02W	MRC-H12R12W	MRC-H12R10W	MRC-H25R08W	MRC-H25R03W	MRC-H25R13W	MRC-H25R10W

*1: standard CA08FF-S4F2C M8 dual female connecting cable, need to be used with digital display control module.

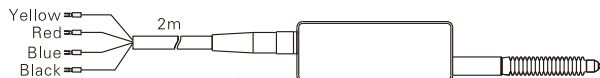
1 sensor head needs to match 1 CA08FF-S4F2C, 1 digital display control module can be connected to 4 sensor heads.

*2: standard M8 four-core cable, does not support the use of digital display control module, if you need to use with the digital display control module, please select the connector type

Dimensions



(0-12.7mm) Aviation plug type



(0-12.7mm) Lead Type



(0-25.4mm) Aviation plug type



(0-25.4mm) Lead Type

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Contact Displacement Sensor

MRC-H Series



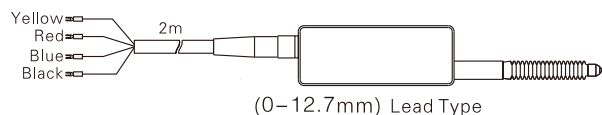
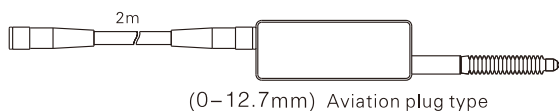
Basic Features	Working principle	CMOS encoder measurement (no tracking error)							
	Housing	Box type							
	Drive mode	Rebound				Air push			
	Measuring range	0~12.7mm				0~12.7mm			
Electrical data	Linearity	≤1.4μm	≤2μm	±2μm	≤10μm	≤1.4μm	≤2μm	±2μm	≤10μm
	Resolution	0.2μm	0.5μm	1μm	5μm	0.2μm	0.5μm	1μm	5μm
	Response time	50ms							
	Sampling frequency	40ms							
	Operating voltage	5V DC							
	Current consumption	< 50mA							
	Communication protocol	Modbus RTU							
Environmental conditions	Operating temperature	-10~50℃(No Freezing)							
	Operating humidity	35~80% RH(No Condensation)							
	Enclosure rating	IP65							
Mechanical data	Measuring force	1.1-1.2N				2.4-3.4N			
	Pressure range	-				0.16~0.2Mpa			
	Connection type	M8 4pin cable							
	Dimension	146.9x26.2x24mm				149.6 x34x20mm			
	Material	Body: Aluminum alloy; Dust cover: Viton; Sensor head: Tungsten carbide							
	Weight	about 90.5g				about 99.2g			
	Accessories	M8 4pin cable							
Model	Connector type* ¹	MRC-H12R04DS	MRC-H12R02DS	MRC-H12R12DS	MRC-H12R10DS	MRC-H12Q04S	MRC-H12Q02S	MRC-H12Q12S	MRC-H12Q10S
	Pre-wired type* ²	MRC-H12R04DW	MRC-H12R02DW	MRC-H12R12DW	MRC-H12R10DW	MRC-H12Q04W	MRC-H12Q02W	MRC-H12Q12W	MRC-H12Q10W

*1: standard CA08FF-S4F2C M8 dual female connecting cable, need to be used with digital display control module.

1 sensor head needs to match 1 CA08FF-S4F2C, 1 digital display control module can be connected to 4 sensor heads.

*2: standard M8 four-core cable.

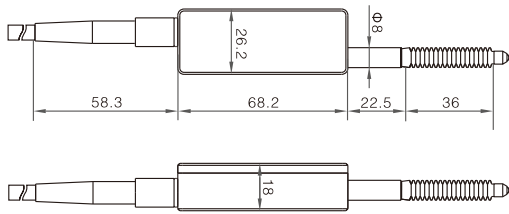
Dimensions



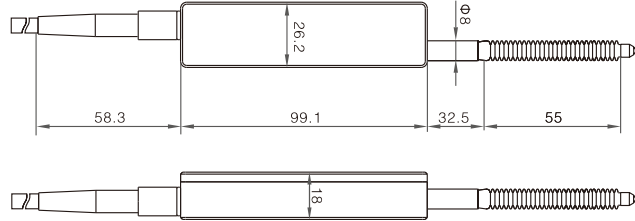
Dimensions

Unit: mm

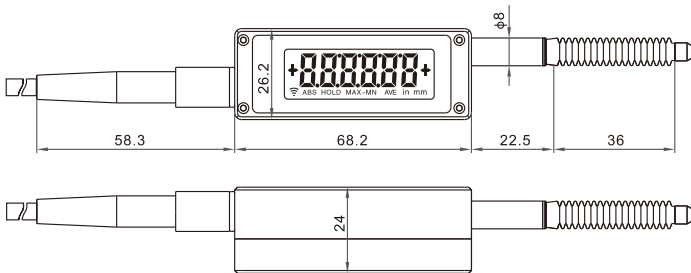
MRC-H12R



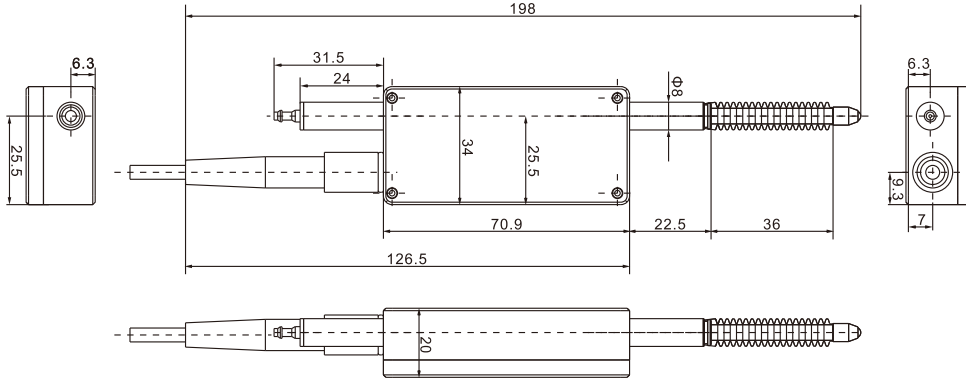
MRC-H25R



MRC-H12RD



MRC-H12Q



Circuit diagram

Port output description:



Aviation plug type	
Pin No.	Description
1	DC 5V(Power)
2	RXD
3	TXD
4	GND

RS232 Lead type	
Pin No.	Description
Blue	RXD
Black	TXD
Yellow	DC 5V(Power)
Red	GND

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement**
- Magnetic
- Contact
- Area
- Ultrasonic
- All 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

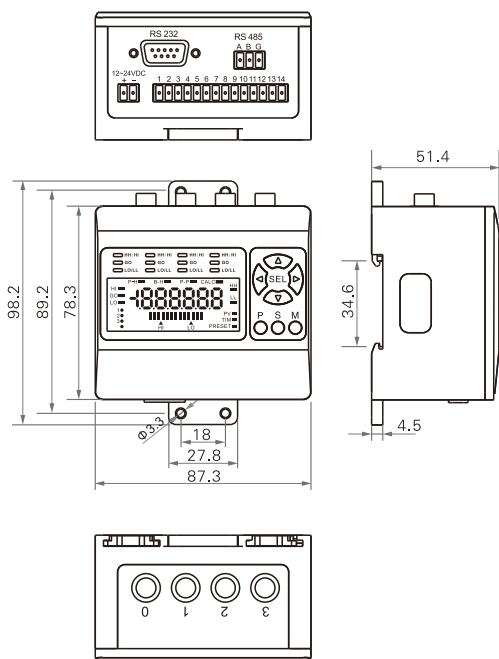


Basic Features	Housing	Retangular	
	Display range	-199.9999~199.9999	
	Display resolution	5μm/1μm/0.5μm/0.2μm(Displayed according to the type of sensor head)	
Electrical data	Operating voltage	12~24VDC	
	Power consumption	≤240mW(without sensor and subcontrol module connected)	≤100mW(without sensor)
	Response time	50/100/500/1000ms(Changed in function parameter setting)	
	Control input	Timer, preset, reset, channel input, no voltage input	
	Control output	NPN output, max. 20mA	
	Communication protocol	Modbus RTU	-
	Communication interface	RS232/RS485	-
Environmental conditions	Operating temperature	-10~60°C(No Freezing)	
	Operating humidity	35~80% RH(No Condensation)	
Mechanical data	Expandable	1 main control module, up to 4 sub-control modules can be extended	-
	Number of connectable sensors	4	
	Dimension	Main control module&Sub-control module:78.3x87.3x51.4mm	
	Material	Body: ABS Key: ABS Panel: MMA Cable: PVC	
	Weight	Main control module approx. 201.6g	Sub-control module approx. 168.3g
	Accessories	The main controller can be paired with up to 4 sub-controllers, up to 20 sensor heads, each sensor head needs to be matched with 1pc of CA08FF-S4F2C to use	
	Model	CR-M01	CR-M01A

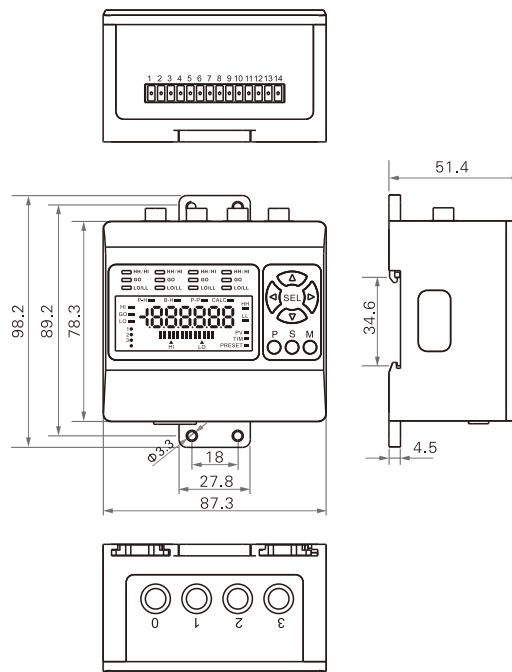
Dimensions

Unit: mm

Main control module CR-M01



Sub-control module CR-M01A

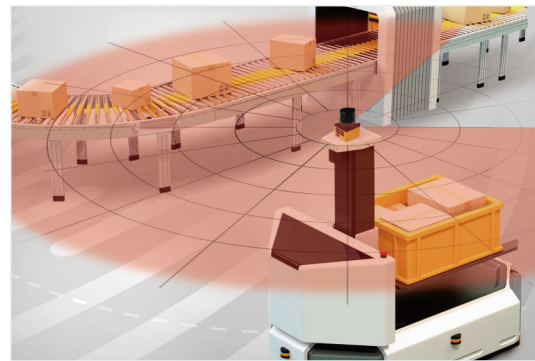


Laser Lidar AS Series ▶▶



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

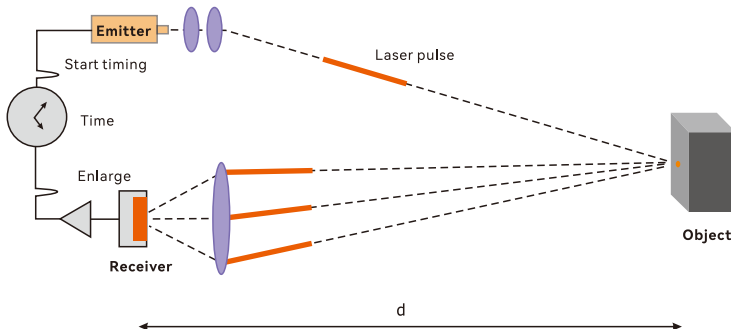
Accurate 2D scanning of object contours on flat surfaces

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



Mainstream performance of TOF single-line lidar

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

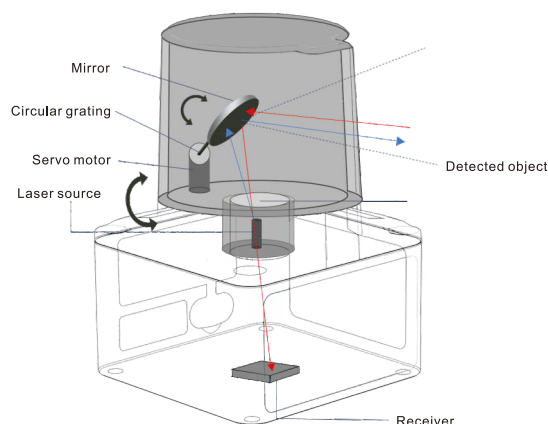
Horizontal viewing angle: 270° scanning angle, can be divided into 64 independent channels

Measurement rates up to 54 KHz

AS Series

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.

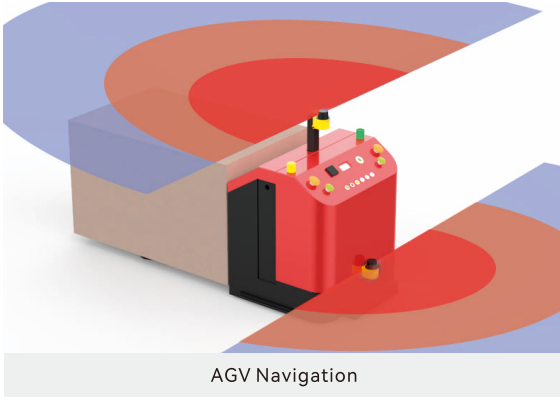
This means that short, nanosecond pulses with high instantaneous power are emitted and the distance to the target is calculated by measuring the round trip time of the pulse.

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.

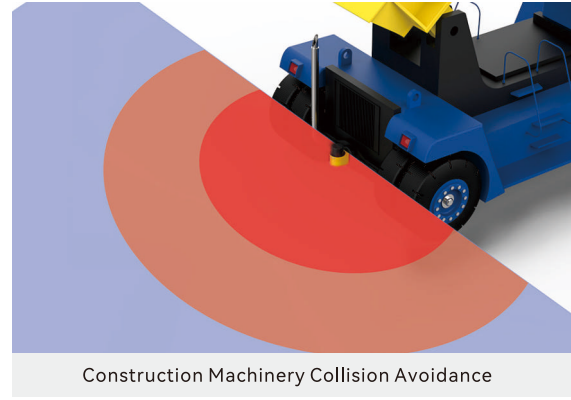
Weak echo signal processing with high signal-to-noise ratio

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.

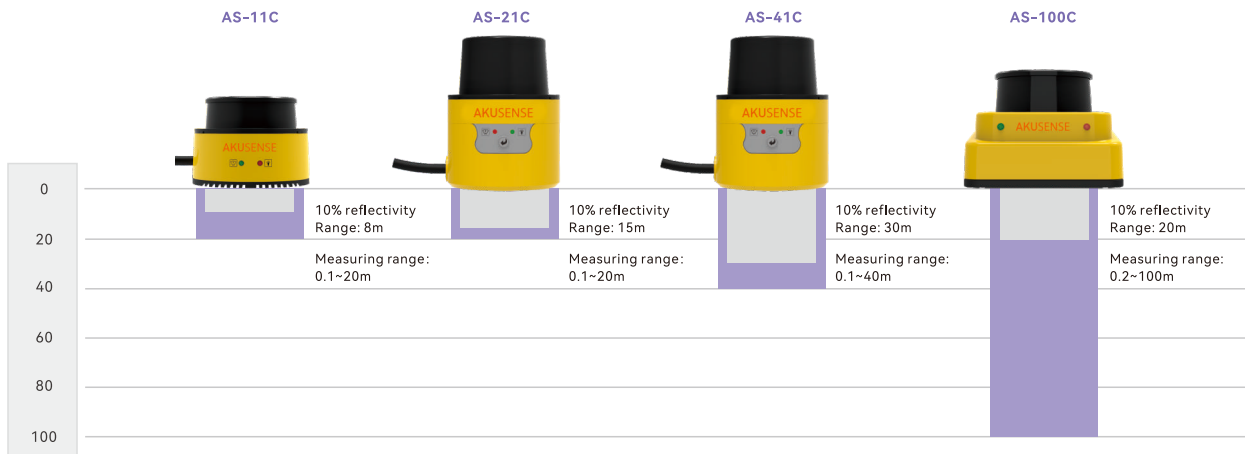


AGV Navigation

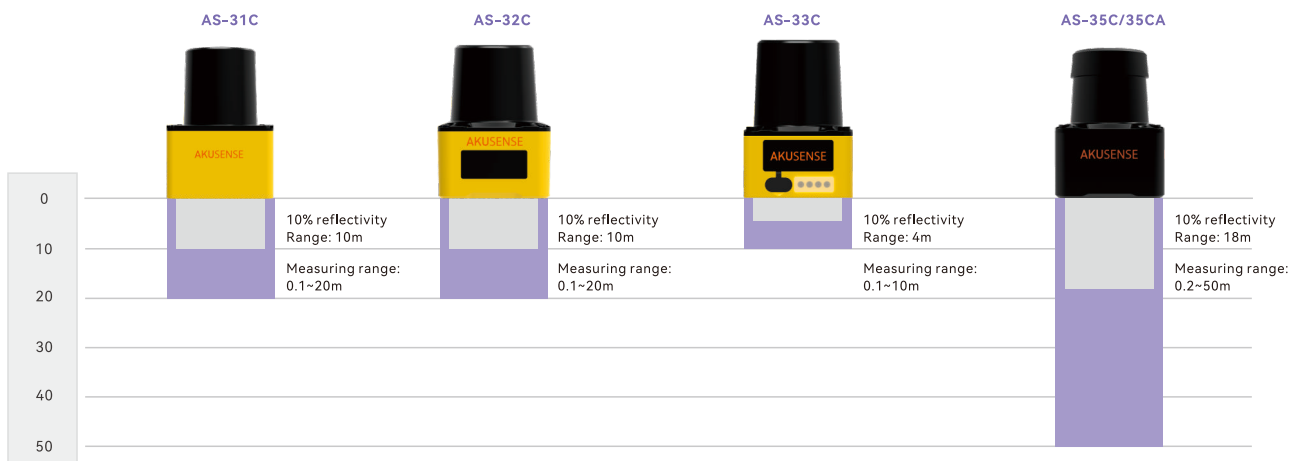


Construction Machinery Collision Avoidance

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
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-21/41C

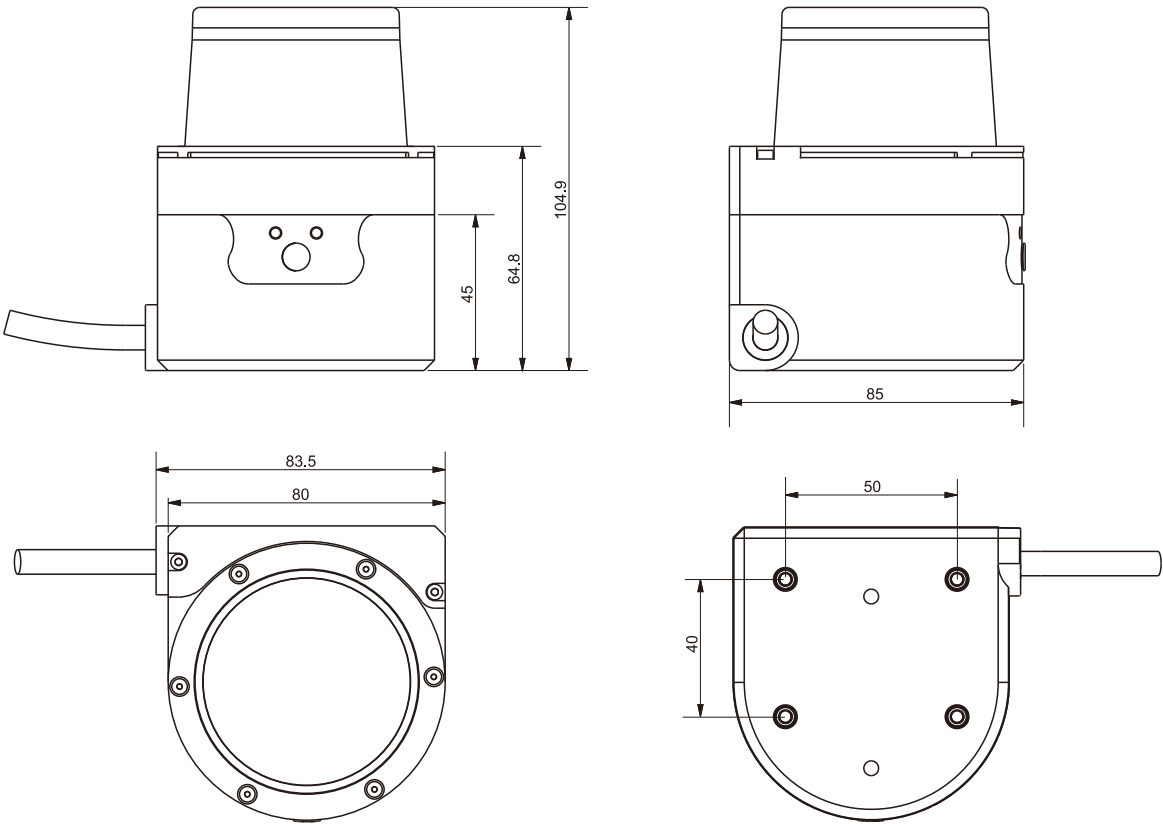


TOF principle

CE



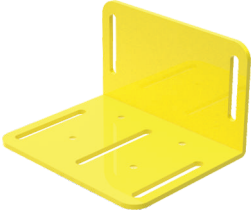
Basic Features	Working principle		TOF	
	Optical working principle		Diffuse Reflection	
	Light source		Infrared laser (905nm)	
	Laser spot exit aperture		8mm	
	Scanning range		300°	
	Scanning angle resolution		0.5°(default)/0.25°/0.125°	
	Measuring range		0.1m ~20m	0.1m ~40m
	Measurement Error	System 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



Power Interface

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

Accessories

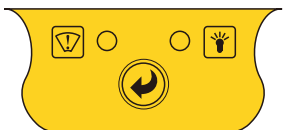
			Mounting screws, gasket and easy installation tool
Composite Bracket: AS-21C-AT 1 Piece	Power Cable : AS-21C-EC 1 Strip	Crystal Protective Cover : AS-21C-WJ 1 Piece	Accessories : M4x8 1 Set

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

Indicators and Operation Buttons

	Name	Instructions
	 ERR	Work fault indicator ◆ 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/occluded ¹
	 HTR	Work status indicator ◆ 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-learning ² ◆ Flash3 (2.5Hz) : Ready to start self-learning ²
	 SLR	Operation button ◆short press (1s~5s)Start background self-learning ◆Long press($\geq 6s$) : Delete background

1:Including being blocked by dense fog or the detection area being blocked.

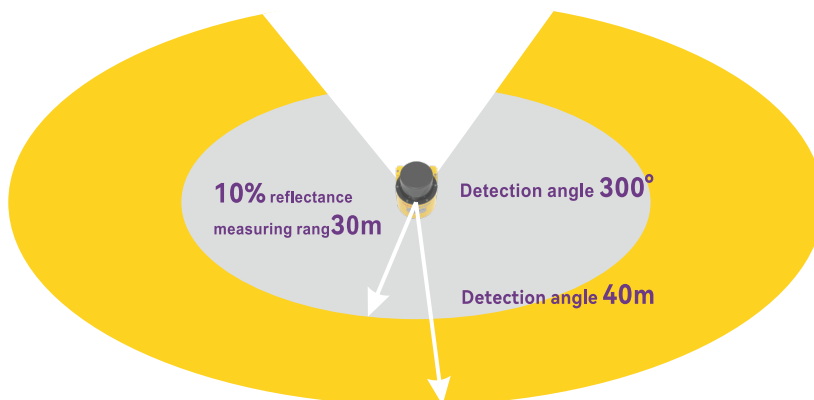
2:Including "background self-learning" and "normal goal self-learning"(customization function).

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)
Electrical data	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)
	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℃~+45℃
	Storage temperature		-30℃~+70℃
	Operating humidity		93%,+40℃,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

All 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

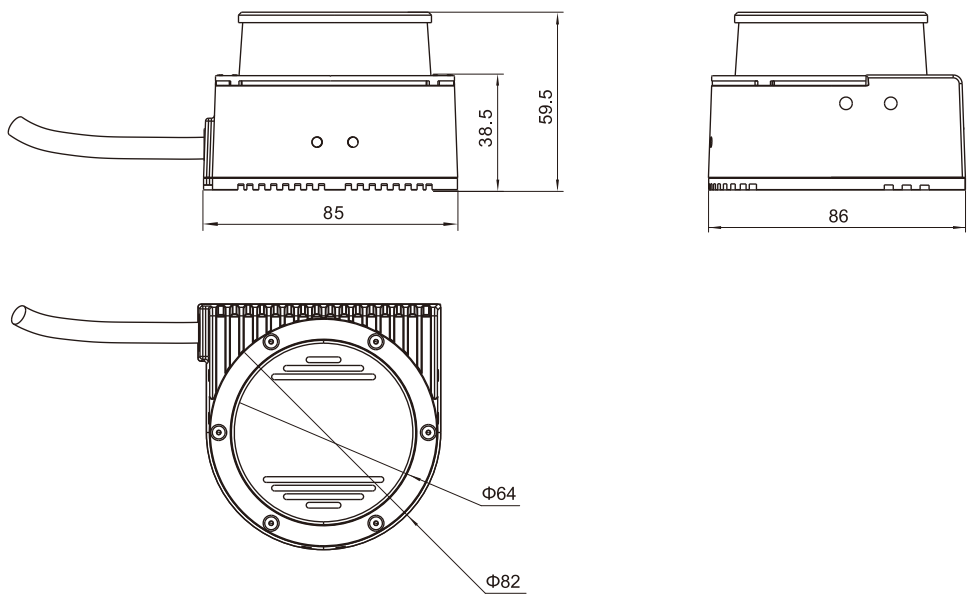
Color confocal

Laser Alignment

LiDAR Scanner

Dimensions

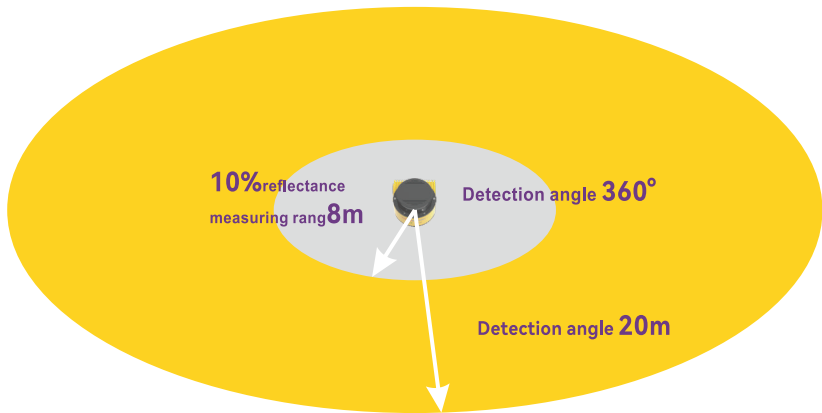
Unit:mm



Power Interface

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

Accessories

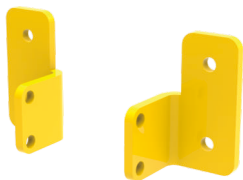


	Name	Instructions
	 ERR	Work fault indicator ◆ Startup status: bright (About 27s) ◆ Off: No fault ◆ Steady light: Internal fault ◆ Long flicker (0.5 Hz): High temperature / low temperature alarm ◆ Short flicker (1Hz): Transmissive cover is dirty/occluded¹
	 HTR	Work status indicator ◆ Startup state: 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

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

All 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

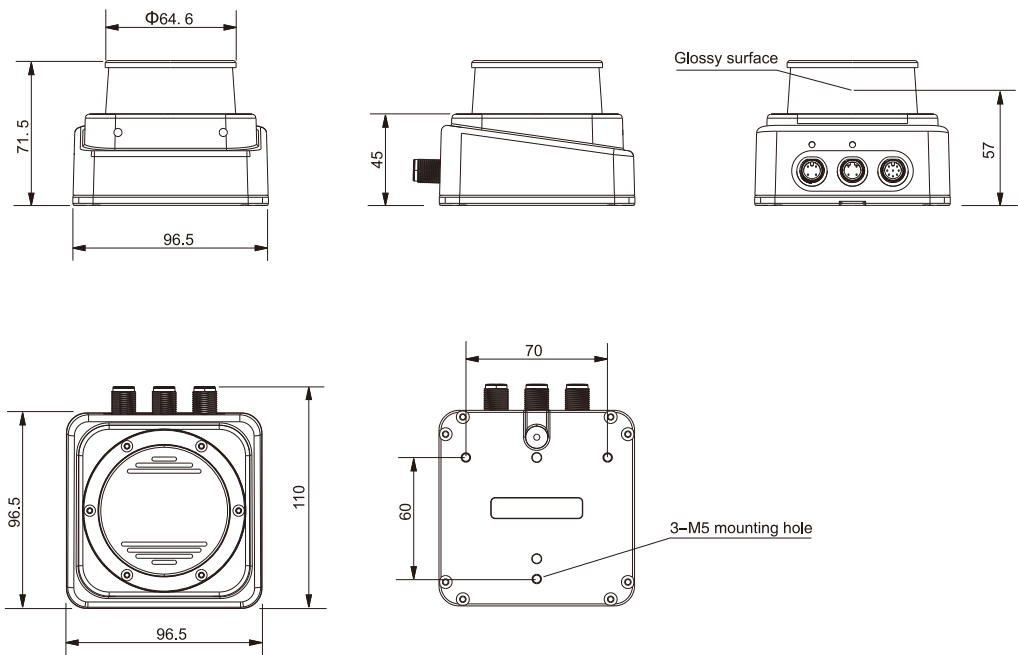
Navigation Type

TOF principle

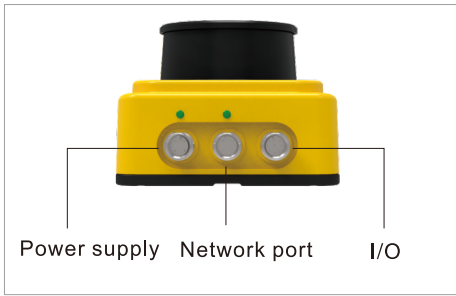
NEW!



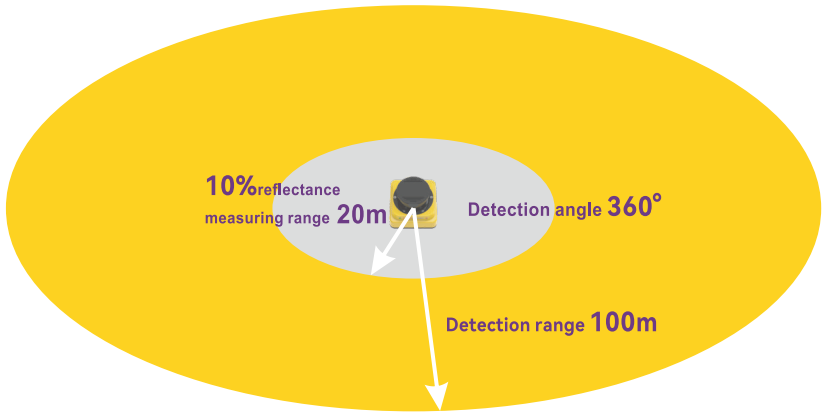
Basic Features	Working principle		TOF	
	Optical working principle		Diffuse Reflection	
	Light source		Infrared laser (905nm)	
	Laser spot exit aperture		10mm	
	Scanning angle		360°	
	Scanning angle resolution		0.05°/0.1°	
	Measuring range		0.2m ~100m	
	Measurement Error	System error (typical)	Distance 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℃~+50℃	
	Storage temperature		-30℃~+70℃	
	Operating humidity		93%,+40℃,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)×8.0(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	



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

Measuring coordinate system/scanning range/range



- 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

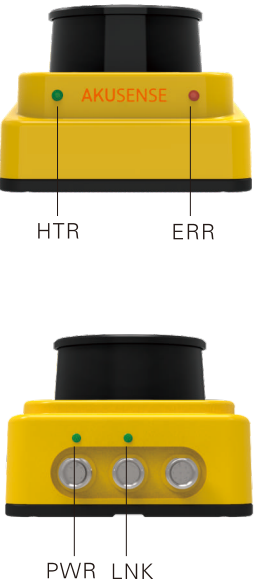
Guidance

Displacement

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

LiDAR Scanner

Indicators and Operation Buttons

	Name	Description
	PWR	Power Indicator ◆ Normal off: no power / power is invalid ◆ Constant light: power on
	LNK	Ethernet indicator ◆ Always off: no network connection ◆ Always on: there is a network connection
	ERR	Work failure indicator ◆ Starting state: Yellow (about 24 seconds) ◆ Green: no fault ◆ Yellow: internal fault/measurement abnormal ¹ ◆ Long flashing (0.5Hz): high temperature/low temperature alarm ◆ Short flashing (1Hz): Dirty/obstructed light transmission cover
	HTR	Normal measurement indicator ◆ 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

Displacement

Magnetic

Contact

Area

Ultrasonic

All 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-33C



TOF principle



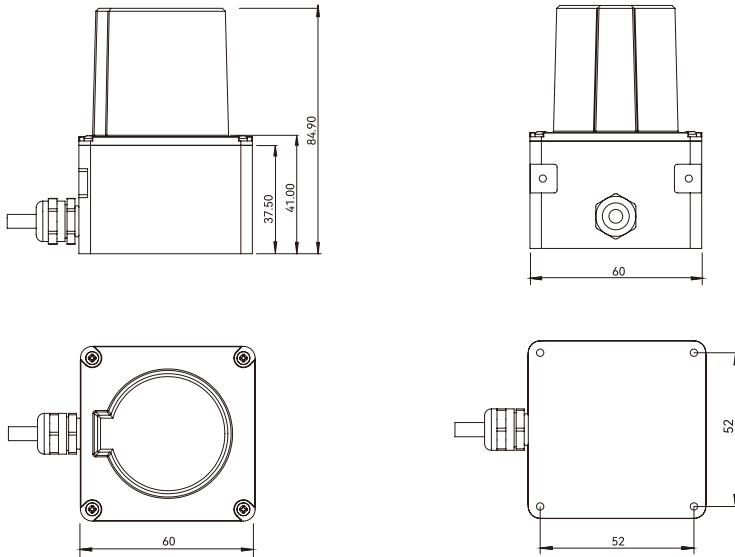
Basic Features	Working principle	TOF
	Optical working principle	Diffuse Reflection
	Light source	Infrared laser (905nm)
	Laser spot exit aperture	4.5(V)*2(H)mm
	Scanning angle	270°
	Scanning angle resolution	0.5°
	Measuring range	10 m (70%reflectivity) / 4 m (10%reflectivity)
	Measurement error	±2 cm(≤10m)
	Indicator	4 (3 zone signals, 1 fault signal)
Electrical data	Operating voltage	DC 9 V ~28 V
	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

Unit:mm

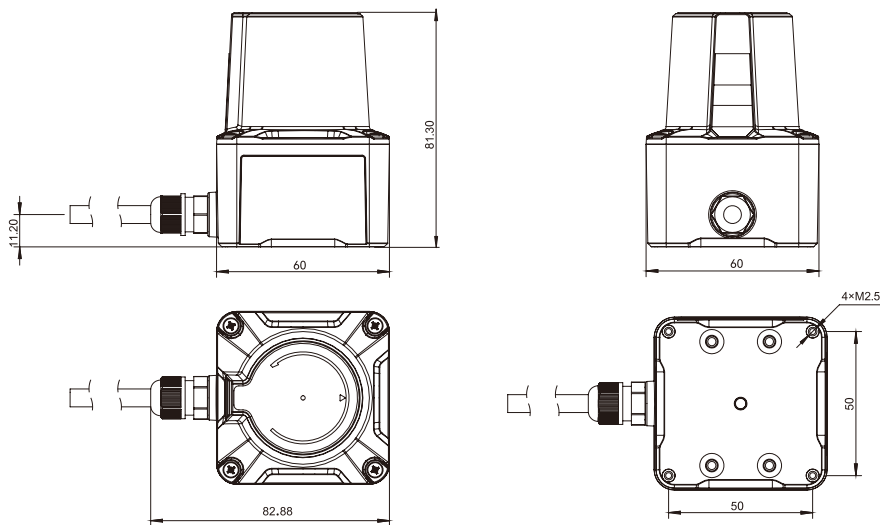
Dimensions

Displacement

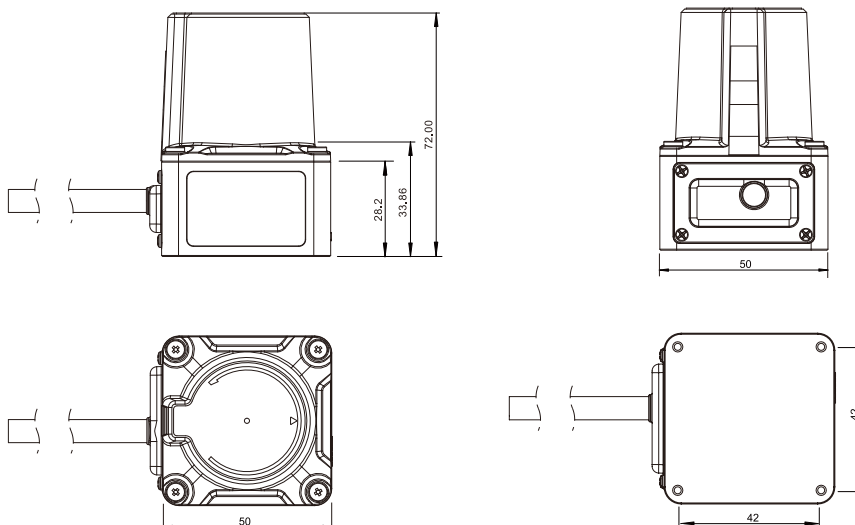
AS-31C



AS-32C



AS-33C



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
All 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

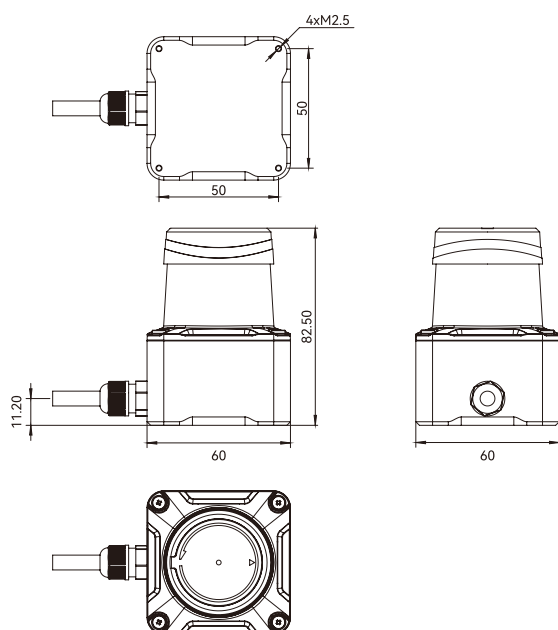
NEW!



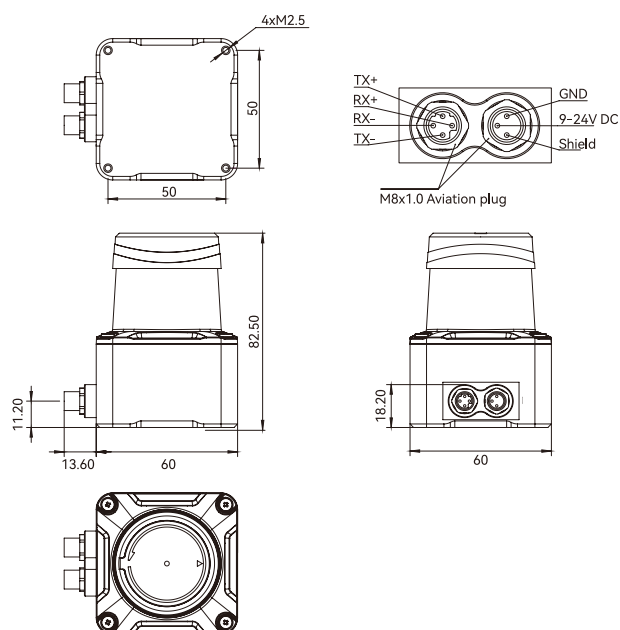
CE

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

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

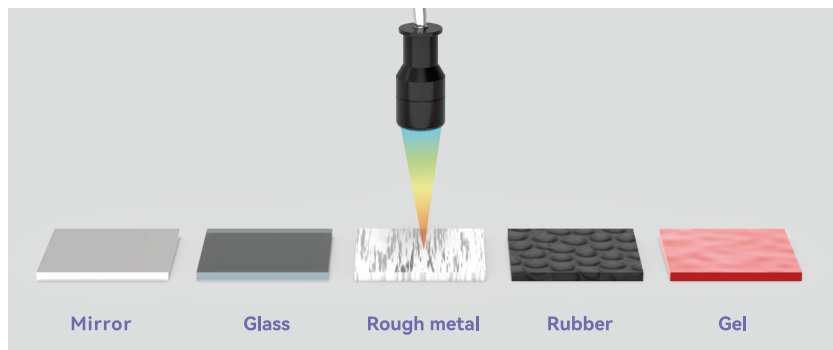
Color confocal
Laser Alignment

Color Confocal Displacement Sensor ACC Series ▶



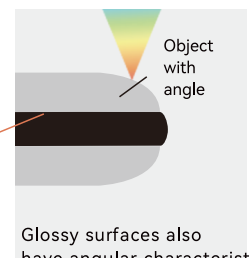
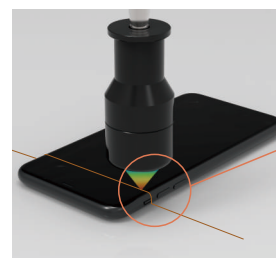
Stable measurement for any material

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

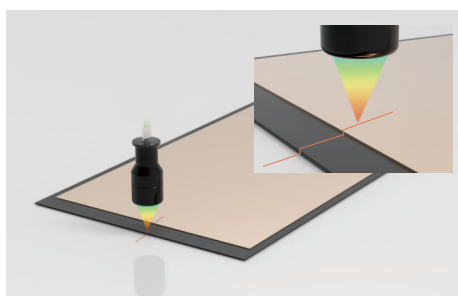


Tilt angle measurement up to $\pm 60^\circ$

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



Glossy surfaces also
have angular characteristics



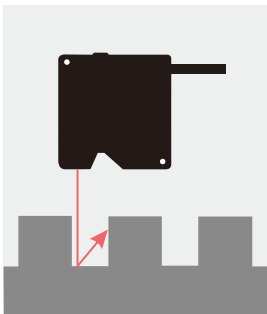
Sub-micron ultra-high measurement accuracy

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

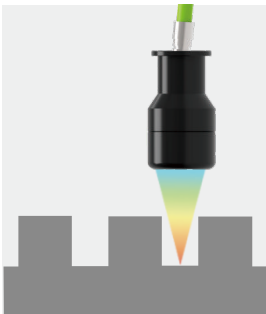
High precision measurement for any surface condition

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

Detection from all directions,even for hollows and segment differences

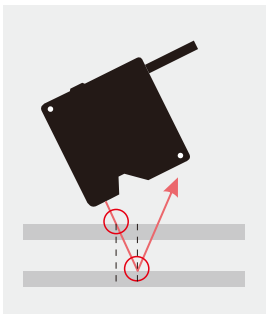


Traditional laser displacement

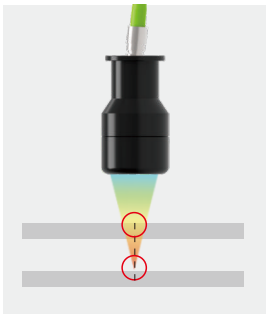


ACC Series

Transparent and mirror objects can also be correctly measured



Traditional laser displacement

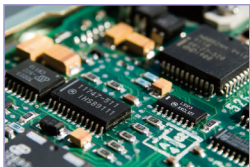


ACC Series

Application fields



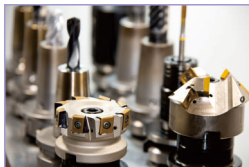
Panel/glass industry



PCB board/IC chip industry



Photovoltaic / semiconductor wafer industries



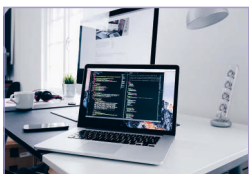
Metal / precision manufacturing industries



Lithium and other industries



Lens industry

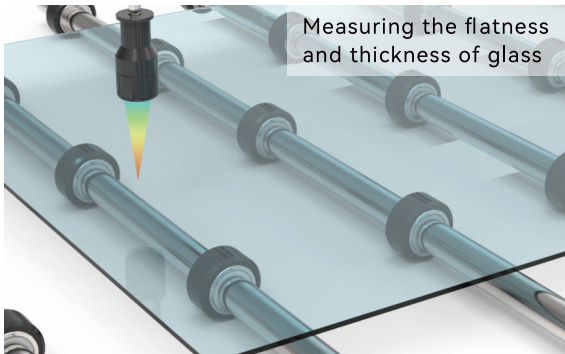


3C electronics and other industries

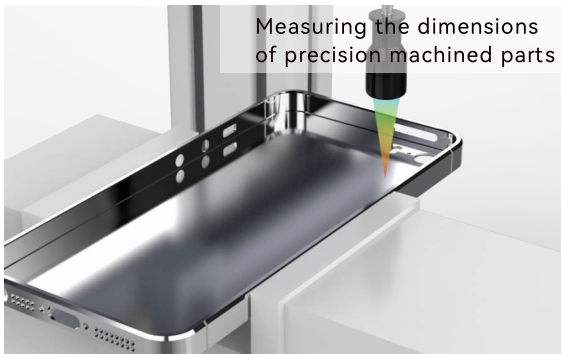


Printing/Ink industry

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

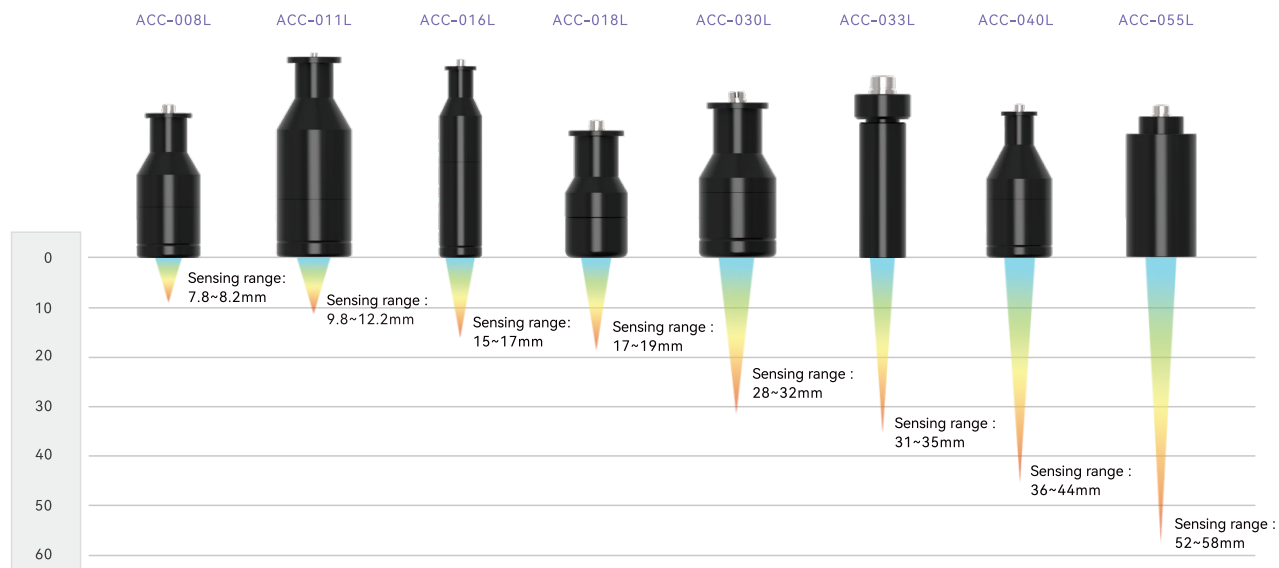
Guidance

Displacement

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

Selection Guide

Selection table



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°

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
- 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



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

Guidance

Displacement

Triangulation

TOF Long

Range Type

3D Laser

Profiler

Contact

Displacement

LIDAR Scanner

Color confocal

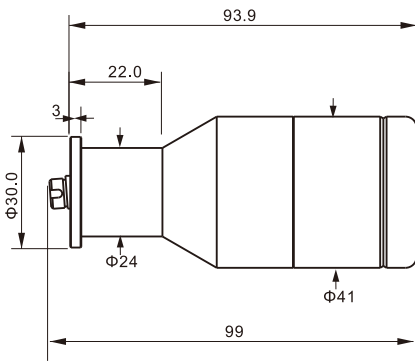
Laser Alignment

Unit:mm

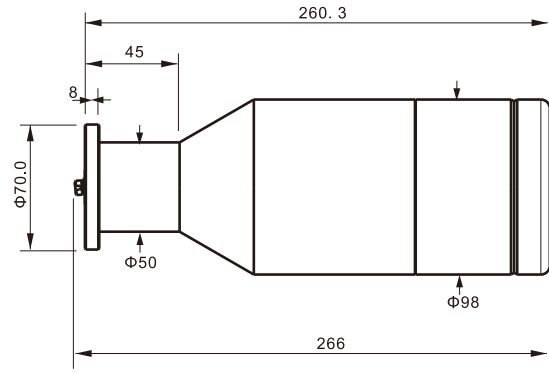
Dimensions

Displacement

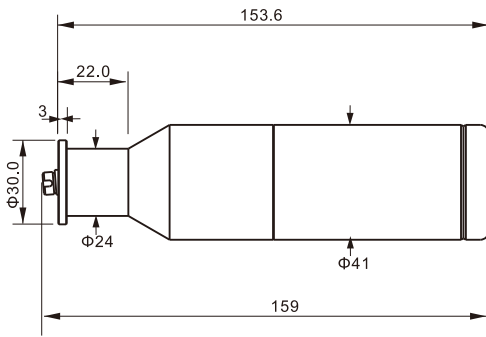
ACC-008L



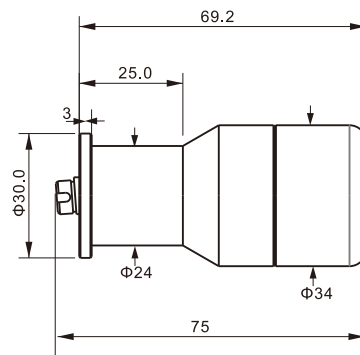
ACC-011L



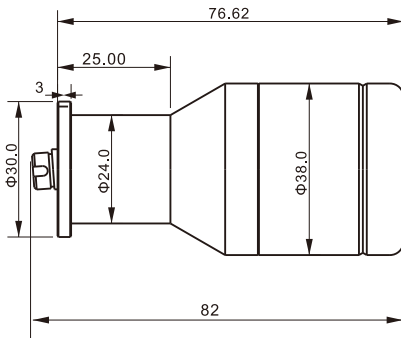
ACC-016L



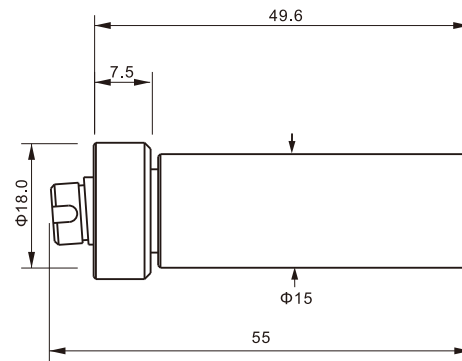
ACC-018L



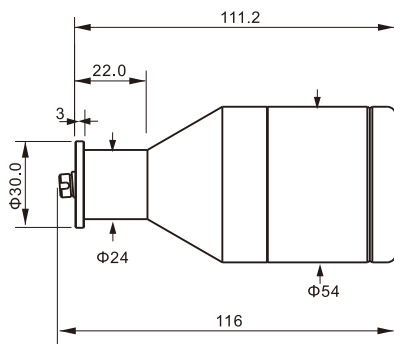
ACC-030L



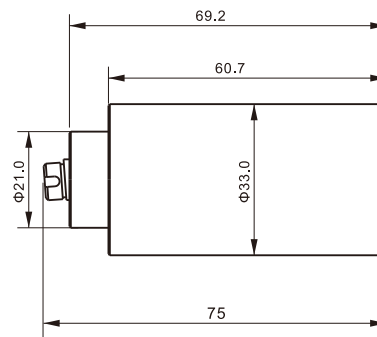
ACC-033L



ACC-040L



ACC-055L



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

Guidance

Displacement

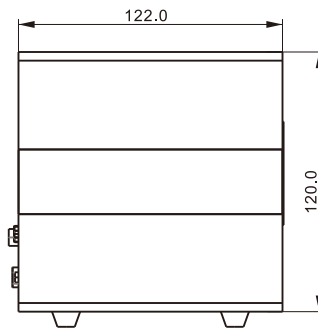
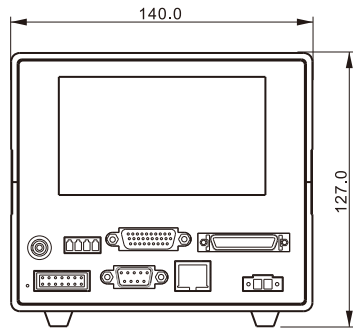
Triangulation
TOF Long
Range Type
3D Laser
Profiler
Contact
Displacement
LIDAR Scanner
Color confocal
Laser Alignment

Color Confocal Displacement Sensor

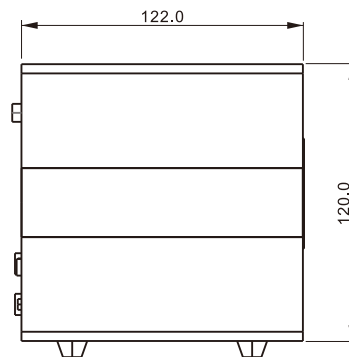
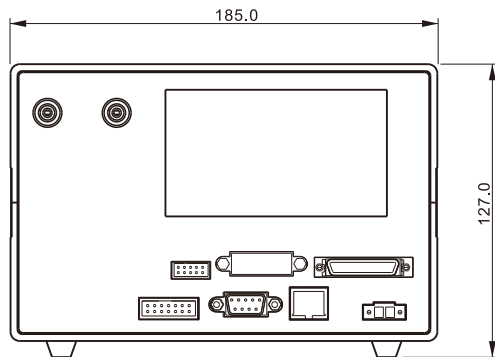
Dimensions

Unit:mm

ADV-12CKS

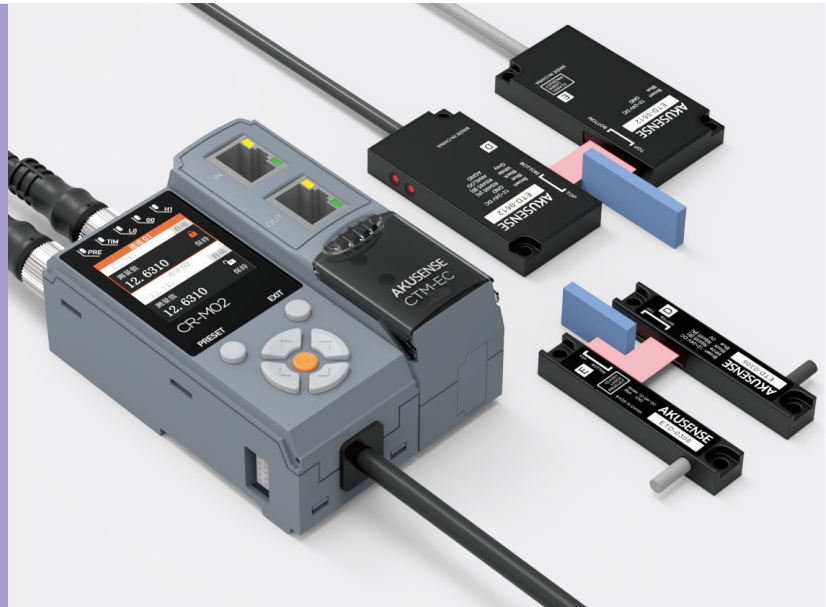


ADV-12CK2



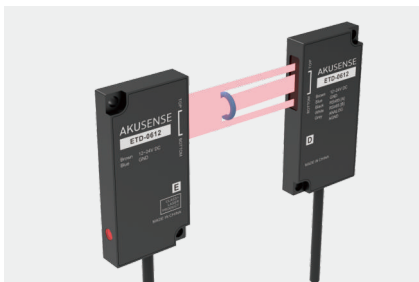
- *1. Resolution: The average level of noise for the stationary workpiece at the zero center of the range center (opening the light intensity auto adjustment and 256 times averaging function)
- *2. Linearity: Maximum error value for full-scale measurement of mirror standard parts after calibration (opening 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 ▶



Product features:

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



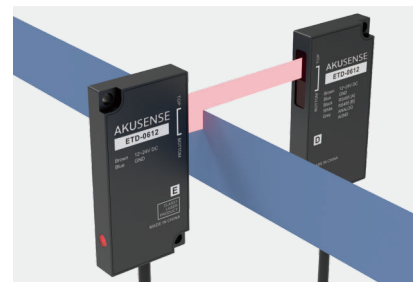
Edge control and positioning modes

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

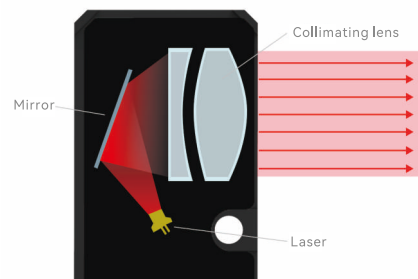
Measures the inner diameter of the target or the gap between targets



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.



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

Guidance

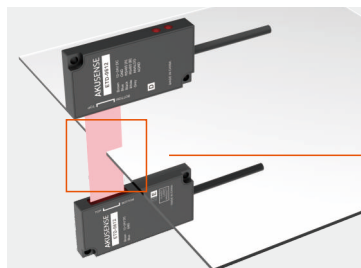
Displacement

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

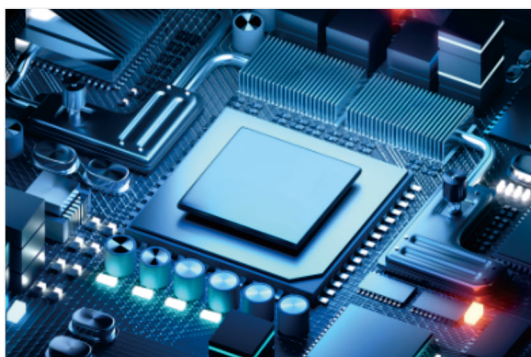
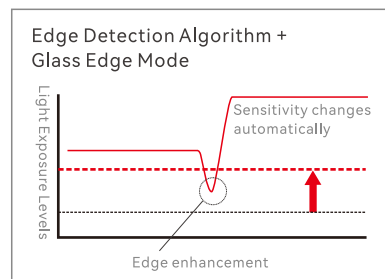
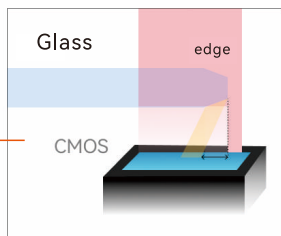
Unique edge detection algorithm

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



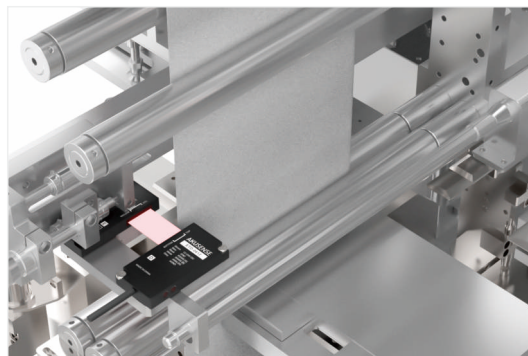
High-speed sampling period, up to 0.5ms

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



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	$0\sim 200\text{mm}$
	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	$1\mu\text{m}$ (when setting distance 20mm); $3\mu\text{m}$ (when setting distance 100mm); $5\mu\text{m}$ (when setting distance 200mm)
	Sampling period	—
	Operating voltage	$12\sim 24\text{VDC} \pm 10\%$
	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	$-10\sim 45^{\circ}\text{C}$ (no freezing, no condensation)
	Storage humidity	$-20\sim +60^{\circ}\text{C}$
	Operating humidity	$35\sim 85\%\text{RH}$ (no condensation)
	Storage humidity	$35\sim 85\%\text{RH}$ (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	$2 \times 8.2 \times 60 \times 10.5\text{mm}$
	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

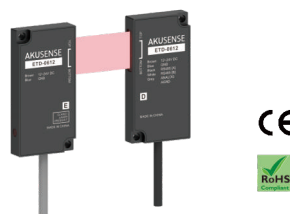
LIDAR Scanner

Color confocal

Laser Alignment

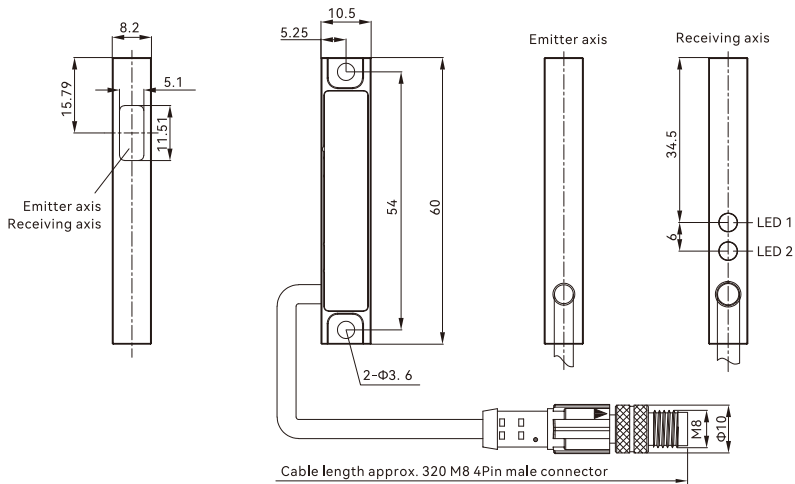
Through-beam edge sensor

ETD Series

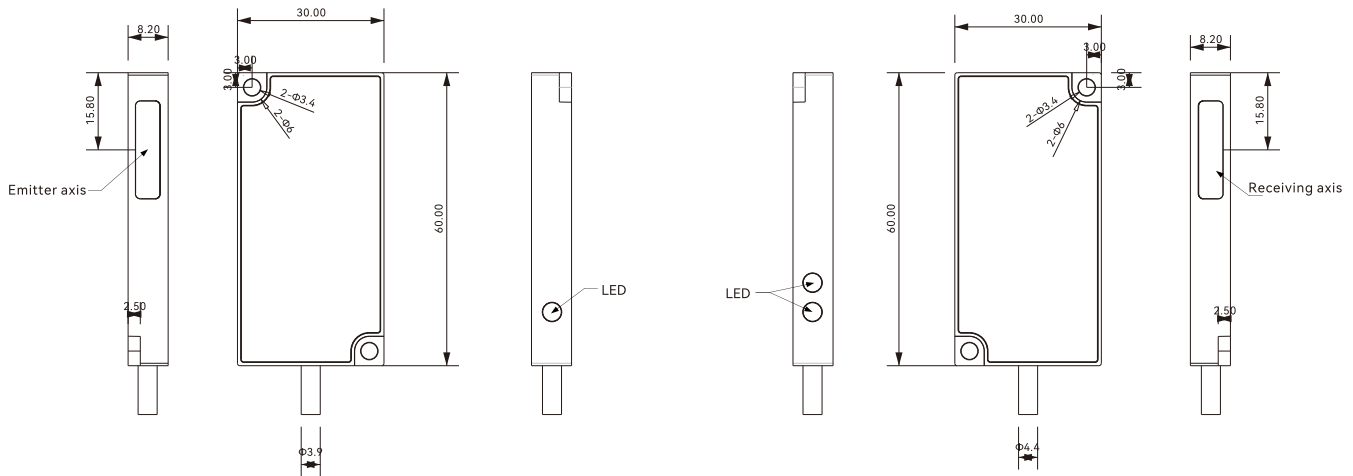


Basic features	Working principle	Photoelectric sensor
	Housing	Flat block
	Optical working principle	Thru-beam
	Measuring range	Edge detection mode $\pm 6\text{mm}$, Diameter detection mode 12mm
	Sensor head mounting distance	0~500mm
	Light source	Red laser, 650nm
	Spot size	13x3.5mm
	Indicator	Transmitter (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

ETD-0306

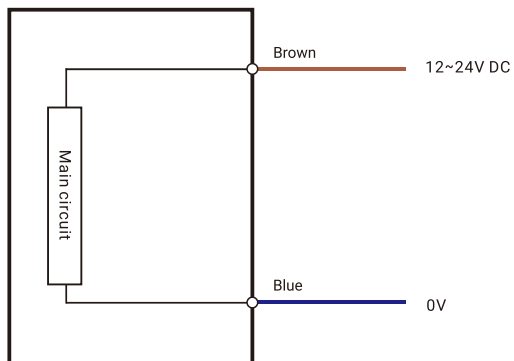


ETD-0612

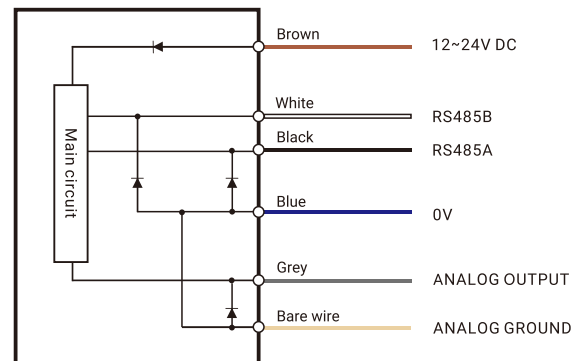


Circuit Diagram

Emitter



Receiver



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
All 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

Controller

CR-M02

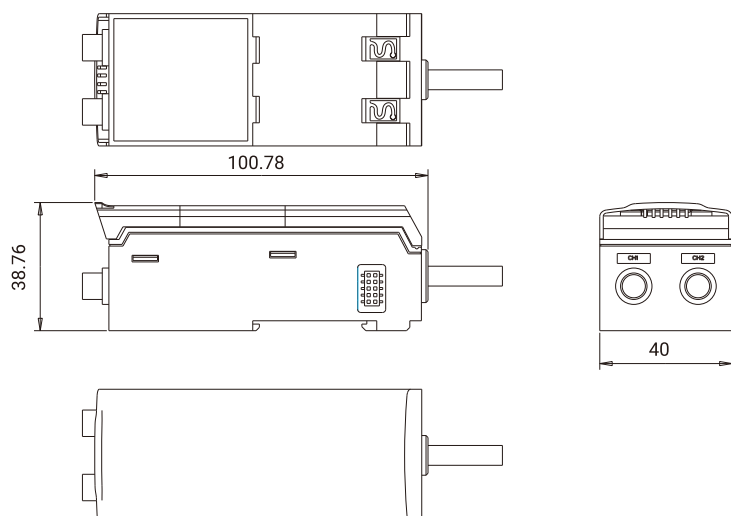


NEW!

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

Dimensions

Unit:mm





	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		

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

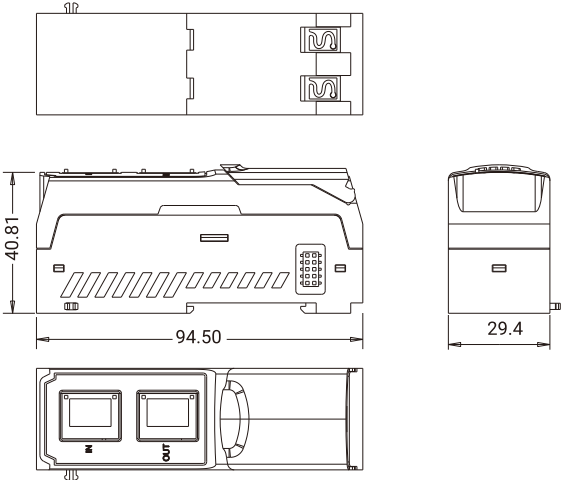
Guidance

Displacement

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

Dimensions

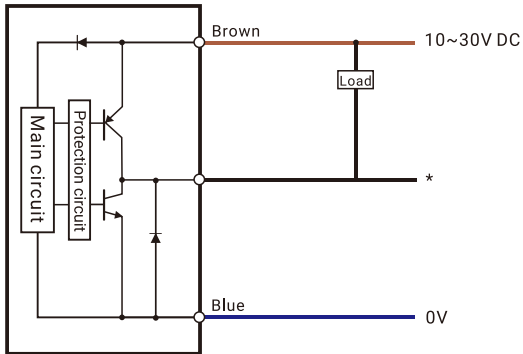
Unit:mm



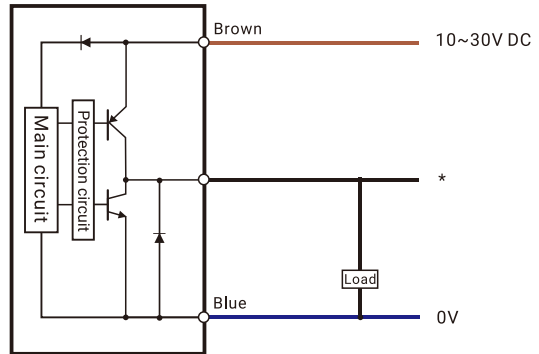
Circuit Diagram

Input Circuit Diagram

NPN Output



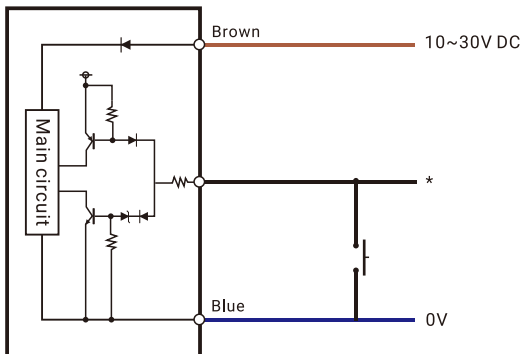
PNP Output



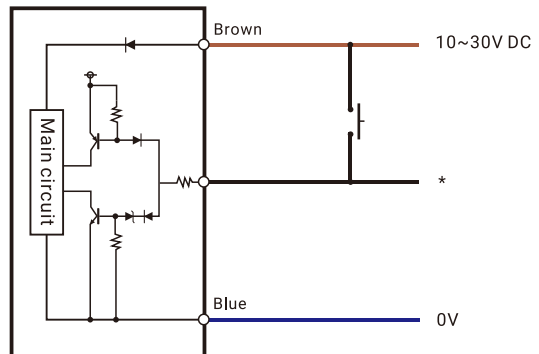
* Black (HIGH detection output) / White (LOW detection output) / Grey (GO detection output) / Green (Verification input)

Output Circuit Diagram

NPN Output



PNP Output



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

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

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Accessories

Guidance

Displacement

Triangulation

TOF Long

Range Type

3D Laser

Profiler

Contact

Displacement

LIDAR Scanner

Color confocal

Laser Alignment

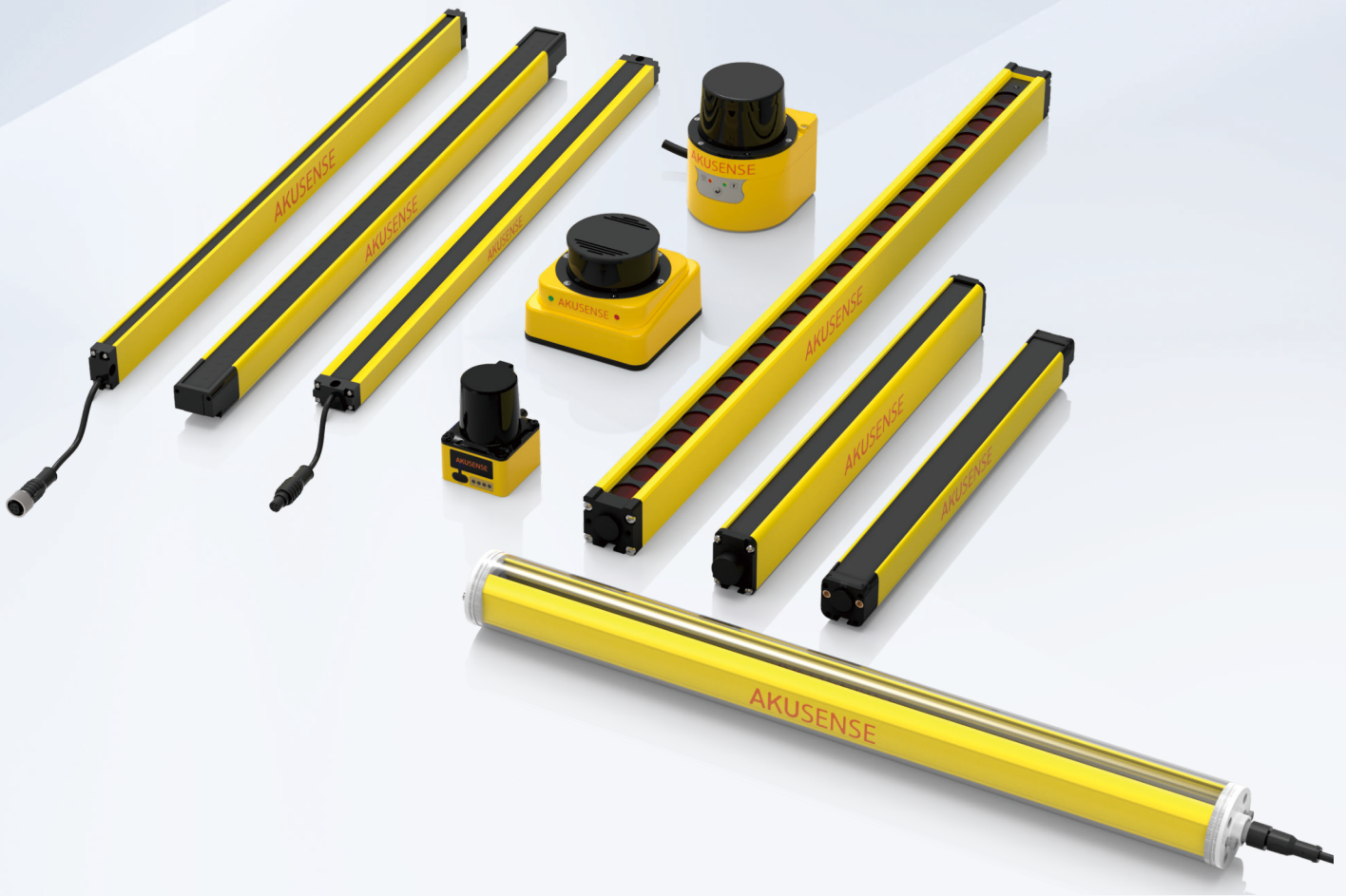
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
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Guidance

Displacement

Triangulation
TOF Long Range Type
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LIDAR Scanner
Color confocal
Laser Alignment

Area/Safety/Obstacle Avoidance Sensor



- ◎ TUV certified safety level 4, suitable for high-risk places
- ◎ Fastened structure design, strong anti-vibration performance
- ◎ Various sizes, protection heights and inspection methods are available, and can be quickly customized according to various non-standard requirements

**Standard Type(BML Series)**

- Cross-sectional size is 30mm * 30mm.
- Multiple resolutions for option.
- 3M cable as standard

P.I-07

**Top-emitting Type(BZL Series)**

- Frontal detection, thickness is only 17mm.
- With plastic installation hole, easy to install.
- The protection distance can be customized according to clients' requirements.

P.I-12

**Side-emitting Type(BCL Series)**

- Side detection, thickness is only 15mm.
- With plastic installation hole, easy to install.
- Small upper and lower blind area, saving installation space.

P.I-18

**Waterproof Type(BPL Series)**

- Cylindrical design with a diameter of only 48mm
- High-strength sealing ring, IP68
- Extraordinary self-checking function and strong anti-interference capability

P.I-22

**Measuring Type (BAL Series)**

- Surface mount technology for superior shock resistance
- Extraordinary self-checking function and strong anti-interference capability
- Customizable RS485/232/422 communication protocols

P.I-27

**Economical Type (BKL Series)**

- Strong anti-electromagnetic interference
- Class 4 safety grating design standards
- Satisfying different installation scenarios, suitable for a variety of working environments

P.I-42

**Guidance Economical type(BSL Series)**

- Response time $\leq 20\text{ms}$, fast response for safe production.
- Detection distance of 1-6m, covering general protection scenarios.
- Robust housing construction, resistant to pressure, vibration and shock.

P.I-38

**Safety Light Curtain(SAF Series)**

- Type 4 standard providing security, providing security for high-risk sites
- Beam Pitch: 10mm, 20mm, 30mm and 40mm. Protection distance: 3m or 12m, 8-20m

P.I-47



Lidar Scanner

**TOF LiDAR Scanner(AS-11C/21C/41C)**

- 20M/40M sensing distance
- 300° scanning range
- 25HZ (Max.) scanning frequency
- 0.125° (Max.) resolution

P.I-55

**Obstacle avoidance LiDAR(AS-33C)**

- Measuring distance up to 10 metres
- Scanning frequency 25 Hz; measurement rate up to 54 KHz
- Horizontal angle of view: 270° scanning angle in front of the machine. 64 independent channels

P.I-65

**Navigation Lidar(AS-100C/31C/32C/35C/35CA)**

- Scanning range 360° , maximum scanning frequency 30Hz
- Serial port (Type-C interface) communication, online output of measurement data (including distance and light intensity data in all directions)

P.I-61

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

Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

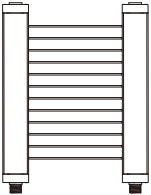
Safety Light Curtain

Safety Light Curtain

LiDAR scanner

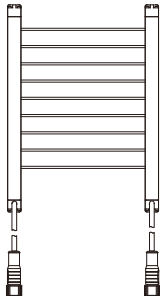
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Standard Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	10mm	> ϕ 14mm, opaque	6~32	50~310mm	0.3~3m	NPN:BML10-TXX03NC PNP:BML10-TXX03PC	I-07
	14mm	> ϕ 19mm, opaque	6~32	70~434mm	0.3~3m	NPN:BML14-TXX03NC PNP:BML14-TXX03PC	
	20mm	> ϕ 25mm, opaque	4~32	60~620mm	0.3~3m	NPN:BML20-TXX03NC PNP:BML20-TXX03PC	
	25mm	> ϕ 30mm, opaque	6~32	125~775mm	0.3~3m	NPN:BML25-TXX03NC PNP:BML25-TXX03PC	
	30mm	> ϕ 35mm, opaque	4~32	90~930mm	0.3~3m	NPN:BML30-TXX03NC PNP:BML30-TXX03PC	
	40mm	> ϕ 45mm, opaque	4~32	120~1240mm	0.3~3m	NPN:BML40-TXX03NC PNP:BML40-TXX03PC	

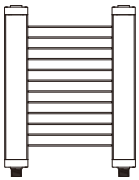
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Top-emitting Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	10mm	> ϕ 18mm, opaque	6~32	50~310mm	0.3~1.5m	NPN:BZL10-TXX03NC PNP:BZL10-TXX03PC	I-12
	14mm	> ϕ 22mm, opaque	6~32	70~434mm	0.3~1.5m	NPN:BZL14-TXX03NC PNP:BZL14-TXX03PC	
	20mm	> ϕ 28mm, opaque	4~32	60~620mm	0.3~1.5m	NPN:BZL20-TXX03NC PNP:BZL20-TXX03PC	
	25mm	> ϕ 33mm, opaque	6~32	125~775mm	0.3~1.5m	NPN:BZL25-TXX03NC PNP:BZL25-TXX03PC	
	30mm	> ϕ 38mm, opaque	4~32	90~930mm	0.3~1.5m	NPN:BZL30-TXX03NC PNP:BZL30-TXX03PC	
	40mm	> ϕ 48mm, opaque	4~32	120~1240mm	0.3~1.5m	NPN:BZL40-TXX03NC PNP:BZL40-TXX03PC	

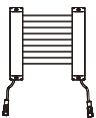
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Measuring Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	2.5mm	> ϕ 3.75mm, opaque	32~1000	77.5~2497.5mm	0.3~3m	Voltage: BAL02-TXX03V Current: BAL02-TXX03A	I-27
	5mm	> ϕ 6.5mm, opaque	16~1000	75~4995mm	0.3~3m	Voltage: BAL05-TXX03V Current: BAL05-TXX03A	
	10mm	> ϕ 15mm, opaque	8~296	70~2950mm	0.3~3m	Voltage: BAL10-TXX03V Current: BAL10-TXX03A	
	20mm	> ϕ 25mm, opaque	4~596	60~11900mm	0.3~3m	Voltage: BAL20-TXX03V Current: BAL20-TXX03A	
	40mm	> ϕ 45mm, opaque	4~146	120~5800mm	0.3~3m	Voltage: BAL40-TXX03V Current: BAL40-TXX03A	

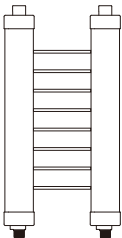
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Side-emitting Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	20mm	> ϕ 28mm, opaque	6~32	100~620mm	0.3~1m	NPN:BCL20-TXX03NC PNP:BCL20-TXX03PC	I-18
	40mm	> ϕ 48mm, opaque	4~32	120~1240mm	0.3~1m	NPN:BCL40-TXX03NC PNP:BCL40-TXX03PC	

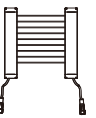
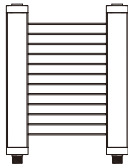
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Waterproof Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	10mm	> ϕ 15mm, opaque	4~32	50~310mm	0.3~3m	NPN:BPL10-TXX03NC PNP:BPL10-TXX03PC	I-22
	14mm	> ϕ 19mm, opaque	4~32	70~434mm	0.3~3m	NPN:BPL14-TXX03NC PNP:BPL14-TXX03PC	
	20mm	> ϕ 25mm, opaque	4~32	60~620mm	0.3~3m	NPN:BPL20-TXX03NC PNP:BPL20-TXX03PC	
	25mm	> ϕ 30mm, opaque	4~32	125~775mm	0.3~3m	NPN:BPL25-TXX03NC PNP:BPL25-TXX03PC	
	30mm	> ϕ 35mm, opaque	4~32	90~930mm	0.3~3m	NPN:BPL30-TXX03NC PNP:BPL30-TXX03PC	
	40mm	> ϕ 45mm, opaque	4~32	120~1240mm	0.3~3m	NPN:BPL40-TXX03NC PNP:BPL40-TXX03PC	

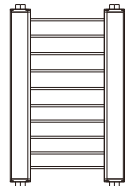
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Economical Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	30mm	> ϕ 38mm, opaque	4~32	90~930mm	0.1~6m	NPN:BSL30-TXX06NC NPN:BSL30-TXX06PC	I-38
	40mm	> ϕ 48mm, opaque	4~32	120~1240mm	0.1~6m	NPN:BSL40-TXX06NC NPN:BSL40-TXX06PC	
	10mm	> ϕ 14mm, opaque	14~48	130~470mm	0.1~6m	NPN:BKL10-TXX06NC PNP:BKL10-TXX06PC	I-42
	20mm	> ϕ 25mm, opaque	8~48	140~940mm	0.1~6m	NPN:BKL20-TXX06NC PNP:BKL20-TXX06PC	
	40mm	> ϕ 45mm, opaque	4~48	120~1880mm	0.1~6m	NPN:BKL40-TXX06NC PNP:BKL40-TXX06PC	

Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Safety Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	10mm	> ϕ 18mm, opaque	16~72	150~710mm	0~3m 0~12m 8~20m	PNP:SAF10-TXXYYPC	I-47
	20mm	> ϕ 28mm, opaque	8~72	140~1420mm	0~3m 0~12m 8~20m	PNP:SAF20-TXXYYPC	
	30mm	> ϕ 38mm, opaque	6~72	150~2130mm	0~3m 0~12m 8~20m	PNP:SAF30-TXXYYPC	
	40mm	> ϕ 48mm, opaque	4~72	120~2840mm	0~3m 0~12m 8~20m	PNP:SAF40-TXXYYPC	

Note: XX represents the number of beam, eg. 06 represents the 6 axis. YY stands for protection distance. For example: 03 means 0~3m.

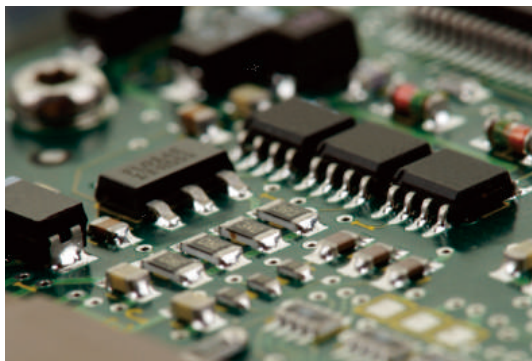
Area Safety Obstacle Avoidance

Light Curtain/Light Barrier Series



Excellent anti-interference performance

Adopt SMT chip design, strong anti-light and electromagnetic interference ability

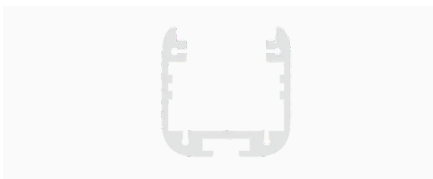


High-quality components

High-quality lamp beads, good power and stability, long transmitting distance, long light-emitting life

Rugged body construction

Fastened structure design, with a variety of anti-vibration measures, high stability



Type 4 light curtains for high-risk locations

SAF type class 4 light curtain for safety protection in high-risk locations
Adopt double circuit output signal, perfect self-test, short response time

Various sizes for option

Provides a variety of sizes for detecting palm, finger, arm, etc.

Step 1: Select the beam pitch
To protect fingers and palms,
choose 10mm;
To protect the arm, choose 20mm;
To protect the body, choose 40mm



Detecting fingers:
beam pitch 10mm



Detecting palms:
beam pitch 20~30mm

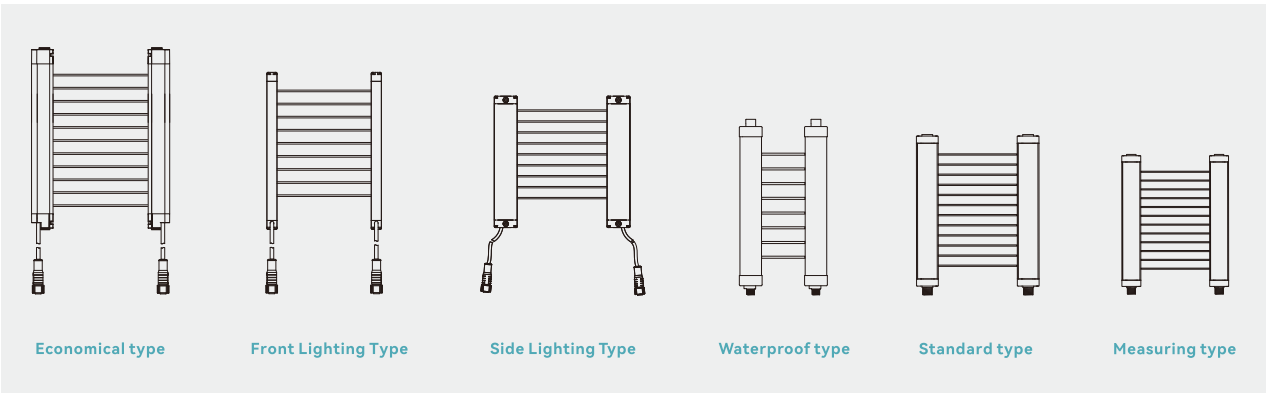


Detection arm:
beam pitch 40mm

Step 2:
According to the protection height, select the appropriate number of optical axes (greater than 4 even), select the signal output (there are a variety of signal output, PNP * 2, NPN * 2, relays, etc.)

Step 3:
Select the alignment distance (light curtain cross-section size is small, the alignment distance is generally closer, less than 3 meters; light curtain cross-section size is large, the alignment distance is generally farther, more than 3 meters).

Step 4: Select the shape and structure of the light curtain



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
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Contact
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AI Image
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Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type
Safety Light Curtain
Safety Light Curtain
LIDAR scanner
TOF LIDAR scanner
MINI LIDAR scanner
Navigation LiDAR

Standard Type

BML Series



Basic Features	Working principle	Photoelectric Sensor					
	Housing	Array					
	Optical working principle	Thru-beam					
	Safety class	—					
	Standard	—					
	Light source	Infrared light (modulation)					
	Number of beams	4~32 beams					
	Beam pitch	10/14/20/25/30/40mm					
	Protection height	50~1240mm					
	Protection distance	0.3~3.0m					
	Mini. detectable object	φ14/φ19/φ25/φ30/φ35/φ45mm or more opaque object					
Electrical data	Output Mode	NPN/PNP					
	Synchronization type	Line synchronization					
	Response time	≤15ms					
	Operating voltage	24VDC ± 10%					
	Current consumption	≤200mA					
	Power consumption	4~6W					
	Residual Voltage	≤1.5V(75mA)					
	Load Current	—					
	Insulation resistance	≥50MΩ between power terminal and case (500VDC)					
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case					
	Protection circuit	Reverse polarity protection/short circuit protection/surge protection					
Environmental conditions	Operating temperature	-10~55℃(No freezing)					
	Storage temperature	-15~60℃(No freezing)					
	Operating humidity	35~85%RH(No condensation)					
	Storage humidity	35~95%RH(No condensation)					
	Ambient Illumination	Incandescent Lamp≤3000Lux;LED≤3000Lux;Sunlight≤10000Lux					
	Vibration resistance	10~150Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis					
	Protection class	IP65					
Mechanical data	Connection type	Cable					
	Dimensions	106~1305x35x51mm					
	Material	Aluminum					
	Weight	0.53~6.53kg					
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cable, M12/4-pin plug cable					

BML10

Beam pitch		10mm					
Mini. detectable object		φ14 or more opaque object					
Protection distance		0.3~3m					
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	32 beams
Protection height		50mm	70mm	90mm	110mm	130mm	310mm
Length of light curtain		106mm	126mm	146mm	166mm	186mm	366mm
Model	NPN NC	BML10-T0603NC	BML10-T0803NC	BML10-T1003NC	BML10-T1203NC	BML10-T1403NC	BML10-T3203NC
	PNP NC	BML10-T0603PC	BML10-T0803PC	BML10-T1003PC	BML10-T1203PC	BML10-T1403PC	BML10-T3203PC

Remarks: Maximum number of beams is 70.

BML14

Beam pitch		14mm						
Mini. detectable object		φ19 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams		32 beams
Protection height		70mm	98mm	126mm	154mm	182mm		434mm
Length of light curtain		128mm	156mm	184mm	212mm	240mm		492mm
Model	NPN NC	BML14-T0603NC	BML14-T0803NC	BML14-T1003NC	BML14-T1203NC	BML14-T1403NC		BML14-T3203NC
	PNP NC	BML14-T0603PC	BML14-T0803PC	BML14-T1003PC	BML14-T1203PC	BML14-T1403PC		BML14-T3203PC

Remarks: Maximum number of beams is 32.

BML20

Beam pitch		20mm						
Mini. detectable object		φ25 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams		32 beams
Protection height		60mm	100mm	140mm	180mm	220mm		620mm
Length of light curtain		115mm	155mm	195mm	235mm	275mm		675mm
Model	NPN NC	BML20-T0403NC	BML20-T0603NC	BML20-T0803NC	BML20-T1003NC	BML20-T1203NC		BML20-T3203NC
	PNP NC	BML20-T0403PC	BML20-T0603PC	BML20-T0803PC	BML20-T1003PC	BML20-T1203PC		BML20-T3203PC

Remarks: Maximum number of beams is 72.

BML25

Beam pitch		25mm						
Mini. detectable object		φ30 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams		32 beams
Protection height		125mm	175mm	225mm	275mm	325mm		775mm
Length of light curtain		182.5mm	232.5mm	282.5mm	332.5mm	382.5mm		832.5mm
Model	NPN NC	BML25-T0603NC	BML25-T0803NC	BML25-T1003NC	BML25-T1203NC	BML25-T1403NC		BML25-T3203NC
	PNP NC	BML25-T0603PC	BML25-T0803PC	BML25-T1003PC	BML25-T1203PC	BML25-T1403PC		BML25-T3203PC

Remarks: Maximum number of beams is 32.

BML30

Beam pitch		30mm						
Mini. detectable object		φ35 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams		32 beams
Protection height		90mm	150mm	210mm	270mm	330mm		930mm
Length of light curtain		150mm	210mm	270mm	330mm	390mm		990mm
Model	NPN NC	BML30-T0403NC	BML30-T0603NC	BML30-T0803NC	BML30-T1003NC	BML30-T1203NC		BML30-T3203NC
	PNP NC	BML30-T0403PC	BML30-T0603PC	BML30-T0803PC	BML30-T1003PC	BML30-T1203PC		BML30-T3203PC

Remarks: Maximum number of beams is 32.

BML40

Beam pitch		40mm						
Mini. detectable object		φ45 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams		32 beams
Protection height		120mm	200mm	280mm	360mm	440mm		1240mm
Length of light curtain		185mm	265mm	345mm	425mm	505mm		1305mm
Model	NPN NC	BML40-T0403NC	BML40-T0603NC	BML40-T0803NC	BML40-T1003NC	BML40-T1203NC		BML40-T3203NC
	PNP NC	BML40-T0403PC	BML40-T0603PC	BML40-T0803PC	BML40-T1003PC	BML40-T1203PC		BML40-T3203PC

Remarks: Maximum number of beams is 72.

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Light curtains

Standard type
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Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

BML Series

BML10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML10-T0603NC	BML10-T0603PC	10	06	50	108
BML10-T0803NC	BML10-T0803PC	10	08	70	128
BML10-T1003NC	BML10-T1003PC	10	10	90	148
BML10-T1203NC	BML10-T1203PC	10	12	110	168
BML10-T1403NC	BML10-T1403PC	10	14	130	188
BML10-T1603NC	BML10-T1603PC	10	16	150	208
BML10-T1803NC	BML10-T1803PC	10	18	170	228
BML10-T2003NC	BML10-T2003PC	10	20	190	248
BML10-T2203NC	BML10-T2203PC	10	22	210	268
BML10-T2403NC	BML10-T2403PC	10	24	230	288
BML10-T2603NC	BML10-T2603PC	10	26	250	308
BML10-T2803NC	BML10-T2803PC	10	28	270	328
BML10-T3003NC	BML10-T3003PC	10	30	290	348
BML10-T3203NC	BML10-T3203PC	10	32	310	368

BML14

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML14-T0603NC	BML14-T0603PC	14	06	70	128
BML14-T0803NC	BML14-T0803PC	14	08	98	156
BML14-T1003NC	BML14-T1003PC	14	10	126	184
BML14-T1203NC	BML14-T1203PC	14	12	154	212
BML14-T1403NC	BML14-T1403PC	14	14	182	240
BML14-T1603NC	BML14-T1603PC	14	16	210	268
BML14-T1803NC	BML14-T1803PC	14	18	238	296
BML14-T2003NC	BML14-T2003PC	14	20	266	324
BML14-T2203NC	BML14-T2203PC	14	22	294	352
BML14-T2403NC	BML14-T2403PC	14	24	322	380
BML14-T2603NC	BML14-T2603PC	14	26	350	408
BML14-T2803NC	BML14-T2803PC	14	28	378	436
BML14-T3003NC	BML14-T3003PC	14	30	406	464
BML14-T3203NC	BML14-T3203PC	14	32	434	492

BML20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML20-T0403NC	BML20-T0403PC	20	04	60	116
BML20-T0603NC	BML20-T0603PC	20	06	100	156
BML20-T0803NC	BML20-T0803PC	20	08	140	196
BML20-T1003NC	BML20-T1003PC	20	10	180	236
BML20-T1203NC	BML20-T1203PC	20	12	220	276
BML20-T1403NC	BML20-T1403PC	20	14	260	316
BML20-T1603NC	BML20-T1603PC	20	16	300	356
BML20-T1803NC	BML20-T1803PC	20	18	340	396
BML20-T2003NC	BML20-T2003PC	20	20	380	436
BML20-T2203NC	BML20-T2203PC	20	22	420	476
BML20-T2403NC	BML20-T2403PC	20	24	460	516
BML20-T2603NC	BML20-T2603PC	20	26	500	556
BML20-T2803NC	BML20-T2803PC	20	28	540	596
BML20-T3003NC	BML20-T3003PC	20	30	580	636
BML20-T3203NC	BML20-T3203PC	20	32	620	676

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TOP LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

BML25

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML25-T0603NC	BML25-T0603PC	25	06	125	184
BML25-T0803NC	BML25-T0803PC	25	08	175	234
BML25-T1003NC	BML25-T1003PC	25	10	225	284
BML25-T1203NC	BML25-T1203PC	25	12	275	334
BML25-T1403NC	BML25-T1403PC	25	14	325	384
BML25-T1603NC	BML25-T1603PC	25	16	375	434
BML25-T1803NC	BML25-T1803PC	25	18	425	484
BML25-T2003NC	BML25-T2003PC	25	20	475	534
BML25-T2203NC	BML25-T2203PC	25	22	525	584
BML25-T2403NC	BML25-T2403PC	25	24	575	634
BML25-T2603NC	BML25-T2603PC	25	26	625	684
BML25-T2803NC	BML25-T2803PC	25	28	675	734
BML25-T3003NC	BML25-T3003PC	25	30	725	784
BML25-T3203NC	BML25-T3203PC	25	32	775	834

BML30

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML30-T0403NC	BML30-T0403PC	30	04	90	151
BML30-T0603NC	BML30-T0603PC	30	06	150	211
BML30-T0803NC	BML30-T0803PC	30	08	210	271
BML30-T1003NC	BML30-T1003PC	30	10	270	331
BML30-T1203NC	BML30-T1203PC	30	12	330	391
BML30-T1403NC	BML30-T1403PC	30	14	390	451
BML30-T1603NC	BML30-T1603PC	30	16	450	511
BML30-T1803NC	BML30-T1803PC	30	18	510	571
BML30-T2003NC	BML30-T2003PC	30	20	570	631
BML30-T2203NC	BML30-T2203PC	30	22	630	691
BML30-T2403NC	BML30-T2403PC	30	24	690	751
BML30-T2603NC	BML30-T2603PC	30	26	750	811
BML30-T2803NC	BML30-T2803PC	30	28	810	871
BML30-T3003NC	BML30-T3003PC	30	30	870	931
BML30-T3203NC	BML30-T3203PC	30	32	930	991

BML40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML40-T0403NC	BML40-T0403PC	40	04	120	186
BML40-T0603NC	BML40-T0603PC	40	06	200	266
BML40-T0803NC	BML40-T0803PC	40	08	280	346
BML40-T1003NC	BML40-T1003PC	40	10	360	426
BML40-T1203NC	BML40-T1203PC	40	12	440	506
BML40-T1403NC	BML40-T1403PC	40	14	520	586
BML40-T1603NC	BML40-T1603PC	40	16	600	666
BML40-T1803NC	BML40-T1803PC	40	18	680	746
BML40-T2003NC	BML40-T2003PC	40	20	760	826
BML40-T2203NC	BML40-T2203PC	40	22	840	906
BML40-T2403NC	BML40-T2403PC	40	24	920	986
BML40-T2603NC	BML40-T2603PC	40	26	1000	1066
BML40-T2803NC	BML40-T2803PC	40	28	1080	1146
BML40-T3003NC	BML40-T3003PC	40	30	1160	1226
BML40-T3203NC	BML40-T3203PC	40	32	1240	1306

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Light curtains

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Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

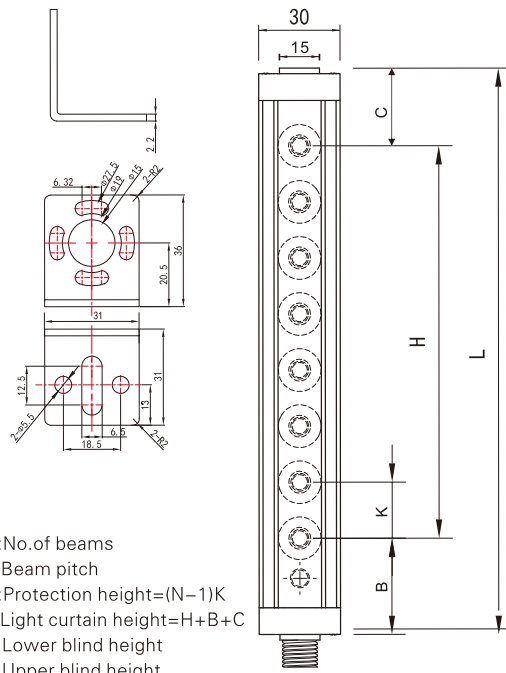
Navigation LIDAR

Standard Type

Dimensions

Unit:mm

Area



N: No. of beams
K: Beam pitch
H: Protection height = $(N-1)K$
L: Light curtain height = $H+B+C$
B: Lower blind height
C: Upper blind height

BML10

K: 10
H: $(N-1)*10$
L: $H+56$
B: 41
C: 15

BML20

K: 20
H: $(N-1)*20$
L: $H+55$
B: 35
C: 20

BML30

K: 30
H: $(N-1)*30$
L: $H+60$
B: 35
C: 25

BML14

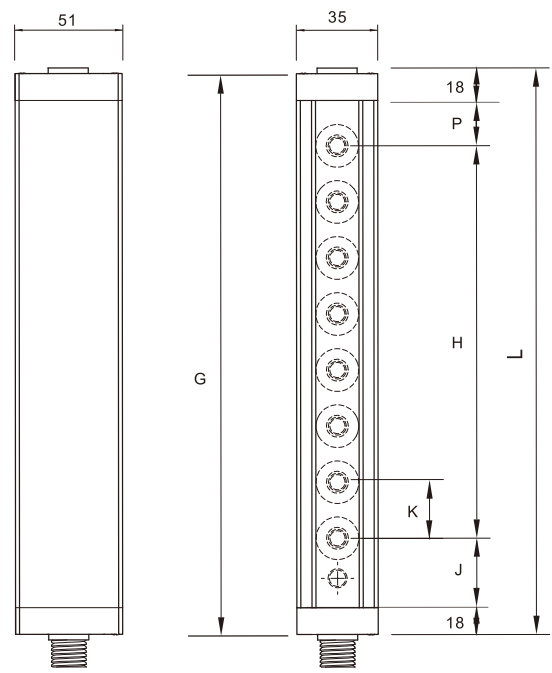
K: 14
H: $(N-1)*14$
L: $H+58$
B: 41
C: 17

BML25

K: 25
H: $(N-1)*25$
L: $H+57.5$
B: 35
C: 22.5

BML40

K: 40
H: $(N-1)*40$
L: $H+65$
B: 35
C: 30



When the detection distance is more than 10m and the number of optical axis exceeds 32 axis:

H: Detection height
 $H = (N-1)*k$
L: Light curtain height
N: No. of beams
 $L = P + H + J + 18 + 18$

K	14	20	25	30	40
P	7	10	12.5	15	20
J	32	25	25	25	25

Light curtains

Standard type

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Safety Light Curtain

Safety Light Curtain

LIDAR scanner

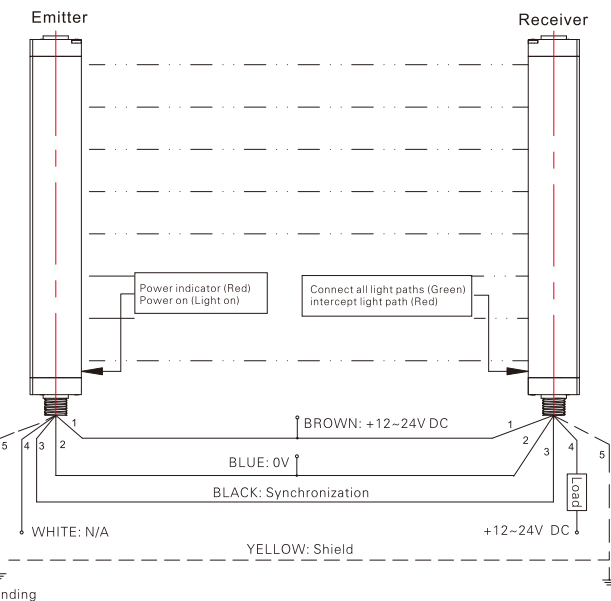
TOF LIDAR scanner

MINI LIDAR scanner

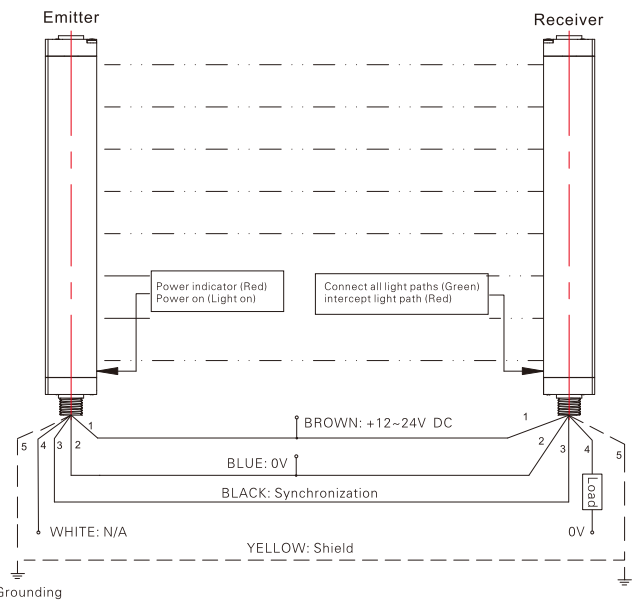
Navigation LIDAR

Connection Diagram

NPN



PNP





Basic Features	Working principle	Photoelectric Sensor					
	Housing	Array					
	Optical working principle	Thru-beam					
	Safety class	-					
	Standard	-					
	Light source	Infrared light (modulation)					
	Number of beams	4~32 beams					
	Beam pitch	10/14/20/25/30/40mm					
	Protection height	50~1240mm					
	Protection distance	0.3~3.0m					
	Mini. detectable object	φ18/φ22/φ28/φ33/φ38/φ48mm or more opaque object					
Electrical data	Output Mode	NPN/PNP					
	Synchronization type	Line synchronization					
	Response time	≤15ms					
	Operating voltage	24VDC ± 10%					
	Current consumption	≤200mA					
	Power consumption	3~8W					
	Residual Voltage	≤2.5V(50mA)					
	Load Current	-					
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)					
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case					
	Protection circuit	Reverse polarity protection/short circuit protection					
Environmental conditions	Operating temperature	-10~55°C(No freezing)					
	Storage temperature	-15~60°C(No freezing)					
	Operating humidity	35~85%RH(No condensation)					
	Storage humidity	35~95%RH(No condensation)					
	Ambient Illumination	Incandescent Lamp≤2000Lux;LED≤3000Lux;Sunlight≤10000Lux					
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis					
	Protection class	IP65					
Mechanical data	Connection type	Cable					
	Dimensions	110~1309x30x17.2mm					
	Material	Aluminum					
	Weight	0.55~6.55kg					
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cablex2					

BZL10

Beam pitch	10mm						
Mini. detectable object	φ18 or more opaque object						
Protection distance	0.3~3m						
Number of beams	6 beams	8 beams	10beams	12 beams	14 beams		32 beams
Protection height	50mm	70mm	90mm	110mm	130mm		310mm
Length of light curtain	110mm	130mm	150mm	170mm	190mm		370mm
Model	NPN NC	BZL10-T0603NC	BZL10-T0803NC	BZL10-T1003NC	BZL10-T1203NC	BZL10-T1403NC	BZL10-T3203NC
	PNP NC	BZL10-T0603PC	BZL10-T0803PC	BZL10-T1003PC	BZL10-T1203PC	BZL10-T1403PC	BZL10-T3203PC

Remarks: Maximum number of beams is 32.

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Safety Light Curtain

Safety Light Curtain

LiDAR scanner

TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Top-emitting Type

BZL Series

BZL14

Beam pitch		14mm					
Mini. detectable object		φ22 or more opaque object					
Protection distance		0.3~3m					
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	 32 beams
Protection height		70mm	98mm	126mm	154mm	182mm	 434mm
Length of light curtain		132mm	160mm	188mm	216mm	244mm	 496mm
Model	NPN NC	BZL14-T0603NC	BZL14-T0803NC	BZL14-T1003NC	BZL14-T1203NC	BZL14-T1403NC	 BZL14-T3203NC
	PNP NC	BZL14-T0603PC	BZL14-T0803PC	BZL14-T1003PC	BZL14-T1203PC	BZL14-T1403PC	 BZL14-T3203PC

Remarks: Maximum number of beams is 32.

BZL20

Beam pitch		20mm					
Mini. detectable object		φ28 or more opaque object					
Protection distance		0.3~3m					
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	 32 beams
Protection height		60mm	100mm	140mm	180mm	220mm	 620mm
Length of light curtain		119mm	159mm	199mm	239mm	279mm	 679mm
Model	NPN NC	BZL20-T0403NC	BZL20-T0603NC	BZL20-T0803NC	BZL20-T1003NC	BZL20-T1203NC	 BZL20-T3203NC
	PNP NC	BZL20-T0403PC	BZL20-T0603PC	BZL20-T0803PC	BZL20-T1003PC	BZL20-T1203PC	 BZL20-T3203PC

Remarks: Maximum number of beams is 32.

BZL25

Beam pitch		25mm					
Mini. detectable object		φ33 or more opaque object					
Protection distance		0.3~3m					
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	 32 beams
Protection height		125mm	175mm	225mm	275mm	325mm	 775mm
Length of light curtain		186.5mm	236.5mm	286.5mm	336.5mm	386.5mm	 836.5mm
Model	NPN NC	BZL25-T0603NC	BZL25-T0803NC	BZL25-T1003NC	BZL25-T1203NC	BZL25-T1403NC	 BZL25-T3203NC
	PNP NC	BZL25-T0603PC	BZL25-T0803PC	BZL25-T1003PC	BZL25-T1203PC	BZL25-T1403PC	 BZL25-T3203PC

Remarks: Maximum number of beams is 32.

BZL30

Beam pitch		30mm					
Mini. detectable object		φ38 or more opaque object					
Protection distance		0.3~3m					
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	 32 beams
Protection height		90mm	150mm	210mm	270mm	330mm	 930mm
Length of light curtain		154mm	214mm	274mm	334mm	394mm	 994mm
Model	NPN NC	BZL30-T0403NC	BZL30-T0603NC	BZL30-T0803NC	BZL30-T1003NC	BZL30-T1203NC	 BZL30-T3203NC
	PNP NC	BZL30-T0403PC	BZL30-T0603PC	BZL30-T0803PC	BZL30-T1003PC	BZL30-T1203PC	 BZL30-T3203PC

Remarks: Maximum number of beams is 32.

BZL40

Beam pitch		40mm					
Mini. detectable object		φ48 or more opaque object					
Protection distance		0.3~3m					
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	 32 beams
Protection height		120mm	200mm	280mm	360mm	440mm	 1240mm
Length of light curtain		189mm	269mm	349mm	429mm	509mm	 1309mm
Model	NPN NC	BZL40-T0403NC	BZL40-T0603NC	BZL40-T0803NC	BZL40-T1003NC	BZL40-T1203NC	 BZL40-T3203NC
	PNP NC	BZL40-T0403PC	BZL40-T0603PC	BZL40-T0803PC	BZL40-T1003PC	BZL40-T1203PC	 BZL40-T3203PC

Remarks: Maximum number of beams is 32.

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Light curtains
Standard type
Top-emitting type
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Waterproof type
Measuring type
Economical type
Safety Light Curtain
Safety Light Curtain
LIDAR scanner
TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

BZL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL10-T0603NC	BZL10-T0603PC	10	06	50	110
BZL10-T0803NC	BZL10-T0803PC	10	08	70	130
BZL10-T1003NC	BZL10-T1003PC	10	10	90	150
BZL10-T1203NC	BZL10-T1203PC	10	12	110	170
BZL10-T1403NC	BZL10-T1403PC	10	14	130	190
BZL10-T1603NC	BZL10-T1603PC	10	16	150	210
BZL10-T1803NC	BZL10-T1803PC	10	18	170	230
BZL10-T2003NC	BZL10-T2003PC	10	20	190	250
BZL10-T2203NC	BZL10-T2203PC	10	22	210	270
BZL10-T2403NC	BZL10-T2403PC	10	24	230	290
BZL10-T2603NC	BZL10-T2603PC	10	26	250	310
BZL10-T2803NC	BZL10-T2803PC	10	28	270	330
BZL10-T3003NC	BZL10-T3003PC	10	30	290	350
BZL10-T3203NC	BZL10-T3203PC	10	32	310	370

BZL14

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL14-T0603NC	BZL14-T0603PC	14	06	70	132
BZL14-T0803NC	BZL14-T0803PC	14	08	98	160
BZL14-T1003NC	BZL14-T1003PC	14	10	126	188
BZL14-T1203NC	BZL14-T1203PC	14	12	154	216
BZL14-T1403NC	BZL14-T1403PC	14	14	182	244
BZL14-T1603NC	BZL14-T1603PC	14	16	210	272
BZL14-T1803NC	BZL14-T1803PC	14	18	238	300
BZL14-T2003NC	BZL14-T2003PC	14	20	266	328
BZL14-T2203NC	BZL14-T2203PC	14	22	294	356
BZL14-T2403NC	BZL14-T2403PC	14	24	322	384
BZL14-T2603NC	BZL14-T2603PC	14	26	350	412
BZL14-T2803NC	BZL14-T2803PC	14	28	378	440
BZL14-T3003NC	BZL14-T3003PC	14	30	406	468
BZL14-T3203NC	BZL14-T3203PC	14	32	434	496

BZL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL20-T0403NC	BZL20-T0403PC	20	04	60	119
BZL20-T0603NC	BZL20-T0603PC	20	06	100	159
BZL20-T0803NC	BZL20-T0803PC	20	08	140	199
BZL20-T1003NC	BZL20-T1003PC	20	10	180	239
BZL20-T1203NC	BZL20-T1203PC	20	12	220	279
BZL20-T1403NC	BZL20-T1403PC	20	14	260	319
BZL20-T1603NC	BZL20-T1603PC	20	16	300	359
BZL20-T1803NC	BZL20-T1803PC	20	18	340	399
BZL20-T2003NC	BZL20-T2003PC	20	20	380	439
BZL20-T2203NC	BZL20-T2203PC	20	22	420	479
BZL20-T2403NC	BZL20-T2403PC	20	24	460	519
BZL20-T2603NC	BZL20-T2603PC	20	26	500	559
BZL20-T2803NC	BZL20-T2803PC	20	28	540	599
BZL20-T3003NC	BZL20-T3003PC	20	30	580	639
BZL20-T3203NC	BZL20-T3203PC	20	32	620	679

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

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Contact

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Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

Navigation LIDAR

Top-emitting Type

BZL Series

BZL25

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL25-T0603NC	BZL25-T0603PC	25	06	125	186.5
BZL25-T0803NC	BZL25-T0803PC	25	08	175	236.5
BZL25-T1003NC	BZL25-T1003PC	25	10	225	286.5
BZL25-T1203NC	BZL25-T1203PC	25	12	275	336.5
BZL25-T1403NC	BZL25-T1403PC	25	14	325	386.5
BZL25-T1603NC	BZL25-T1603PC	25	16	375	436.5
BZL25-T1803NC	BZL25-T1803PC	25	18	425	486.5
BZL25-T2003NC	BZL25-T2003PC	25	20	475	536.5
BZL25-T2203NC	BZL25-T2203PC	25	22	525	586.5
BZL25-T2403NC	BZL25-T2403PC	25	24	575	636.5
BZL25-T2603NC	BZL25-T2603PC	25	26	625	686.5
BZL25-T2803NC	BZL25-T2803PC	25	28	675	736.5
BZL25-T3003NC	BZL25-T3003PC	25	30	725	786.5
BZL25-T3203NC	BZL25-T3203PC	25	32	775	836.5

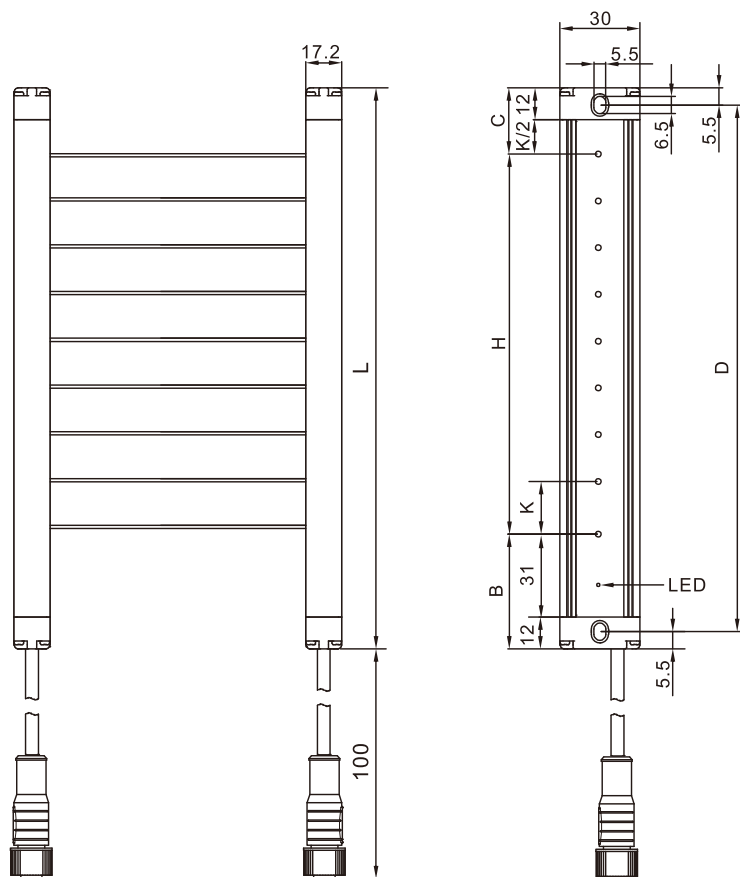
BZL30

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL30-T0403NC	BZL30-T0403PC	30	04	90	154
BZL30-T0603NC	BZL30-T0603PC	30	06	150	214
BZL30-T0803NC	BZL30-T0803PC	30	08	210	274
BZL30-T1003NC	BZL30-T1003PC	30	10	270	334
BZL30-T1203NC	BZL30-T1203PC	30	12	330	394
BZL30-T1403NC	BZL30-T1403PC	30	14	390	454
BZL30-T1603NC	BZL30-T1603PC	30	16	450	514
BZL30-T1803NC	BZL30-T1803PC	30	18	510	574
BZL30-T2003NC	BZL30-T2003PC	30	20	570	634
BZL30-T2203NC	BZL30-T2203PC	30	22	630	694
BZL30-T2403NC	BZL30-T2403PC	30	24	690	754
BZL30-T2603NC	BZL30-T2603PC	30	26	750	814
BZL30-T2803NC	BZL30-T2803PC	30	28	810	874
BZL30-T3003NC	BZL30-T3003PC	30	30	870	934
BZL30-T3203NC	BZL30-T3203PC	30	32	930	994

BZL40

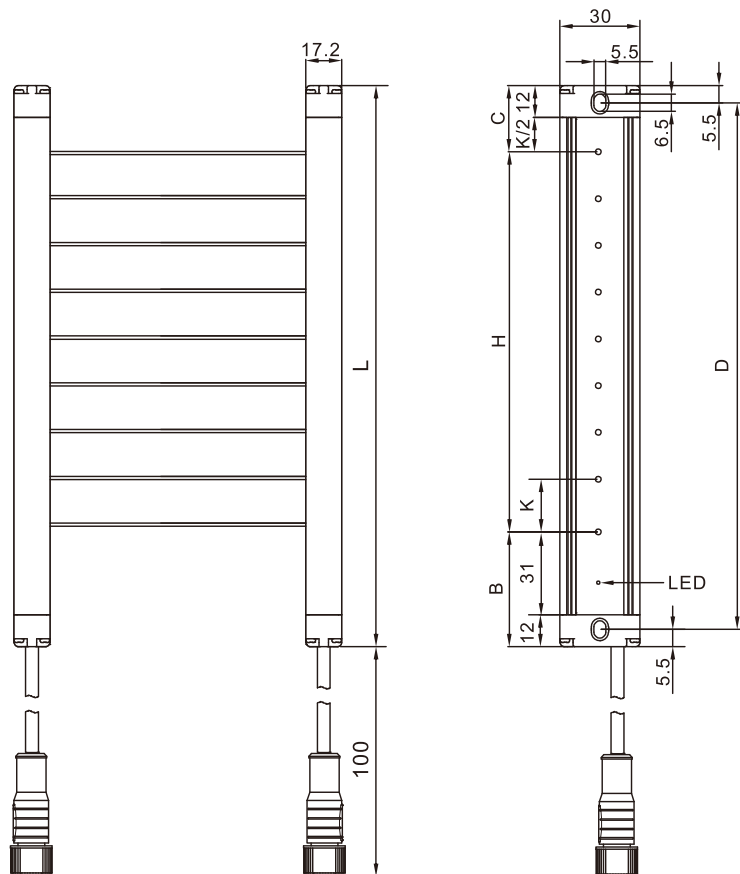
Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL40-T0403NC	BZL40-T0403PC	40	04	120	189
BZL40-T0603NC	BZL40-T0603PC	40	06	200	269
BZL40-T0803NC	BZL40-T0803PC	40	08	280	349
BZL40-T1003NC	BZL40-T1003PC	40	10	360	429
BZL40-T1203NC	BZL40-T1203PC	40	12	440	509
BZL40-T1403NC	BZL40-T1403PC	40	14	520	589
BZL40-T1603NC	BZL40-T1603PC	40	16	600	669
BZL40-T1803NC	BZL40-T1803PC	40	18	680	749
BZL40-T2003NC	BZL40-T2003PC	40	20	760	829
BZL40-T2203NC	BZL40-T2203PC	40	22	840	909
BZL40-T2403NC	BZL40-T2403PC	40	24	920	989
BZL40-T2603NC	BZL40-T2603PC	40	26	1000	1069
BZL40-T2803NC	BZL40-T2803PC	40	28	1080	1149
BZL40-T3003NC	BZL40-T3003PC	40	30	1160	1229
BZL40-T3203NC	BZL40-T3203PC	40	32	1240	1309

BZL10



H:Protection Height= (N-1) K
 L:Light curtain total height=H+60
 N:No.of beams
 K:Beam pitch=10
 B:Lower blind height=43
 C:Upper blind height=17
 D:Mounting hole spacing= (L-11)

BZL14



H:Protection Height= (N-1) K
 L:Light curtain total height=H+62
 N:No.of beams
 K:Beam pitch=14
 B:Lower blind height=43
 C:Upper blind height=19
 D:Mounting hole spacing= (L-11)

Fiber Optic
Slot Sensors
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Proximity
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Guidance

Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

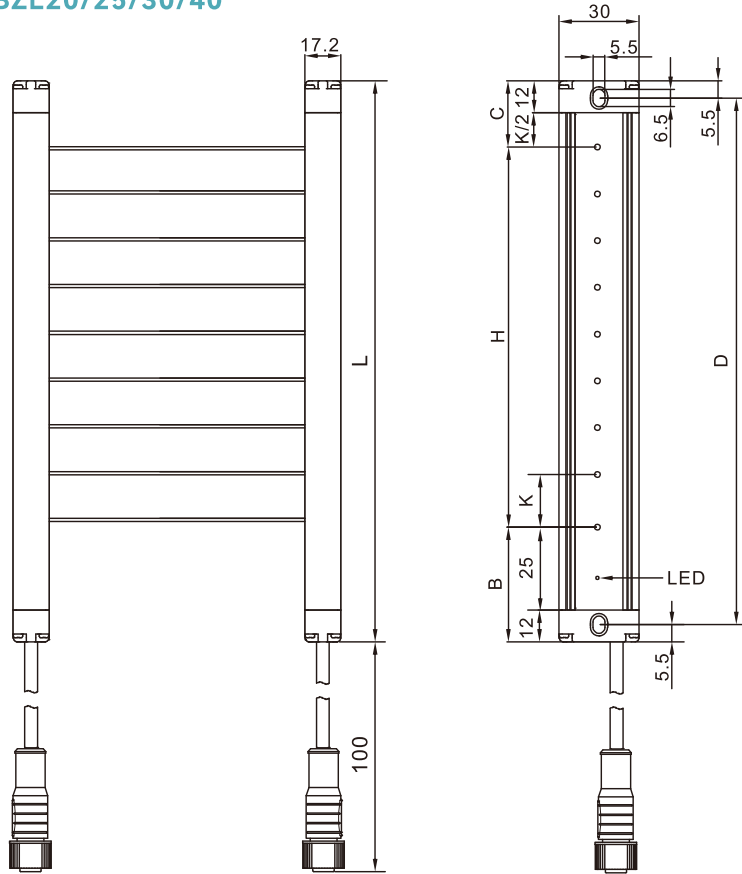
TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

Top-emitting Type

Dimensions

Unit:mm

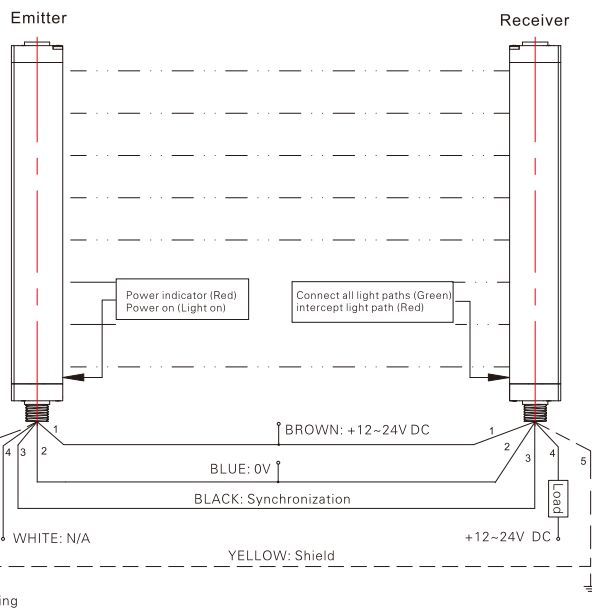
BZL20/25/30/40



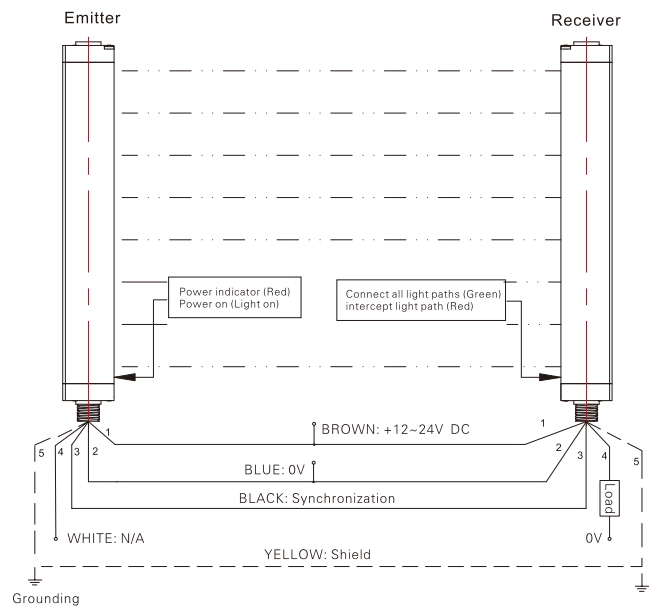
H: Protection Height= (N-1) K
 L: Light curtain total height=(N-1/2)K+49
 N: No.of beams
 K: Beam pitch
 B: Lower blind height=37
 C: Upper blind height=K/2+12
 D: Mounting hole spacing= (L-11)

Connection Diagram

NPN



PNP





Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	—
	Standard	—
	Light source	Infrared light (modulation)
	Number of beams	4~32 beams
	Beam pitch	20/40mm
	Protection height	100~1240mm
	Protection distance	0.3~3.0m
	Mini. detectable object	φ28/φ48mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Line synchronization
	Response time	≤15ms
	Operating voltage	24VDC ± 10%
	Current consumption	≤200mA
	Power consumption	3~8W
	Residual Voltage	≤3.5V (150mA)
	Load Current	—
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection
Environmental conditions	Operating temperature	–10~55°C(No freezing)
	Storage temperature	–10~55°C(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp≤3000Lux;LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	159~1292.5x15x30mm
	Material	Aluminum
	Weight	0.8~6.46kg
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cablex2

Fiber Optic

Slot Sensors

Photoelectric

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Proximity

Displacement

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Ultrasonic

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Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

Navigation LIDAR

Side-emitting Type

BCL Series

BCL20

Beam pitch		20mm					
Mini. detectable object		φ28 or more opaque object					
Protection distance		0.3~3m					
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	 30 beams
Protection height		100mm	140mm	180mm	220mm	260mm	 580mm
Length of light curtain		159mm	199mm	239mm	279mm	319mm	 639mm
Model	NPN NC	BCL20-T0603NC	BCL20-T0803NC	BCL20-T1003NC	BCL20-T1203NC	BCL20-T1403NC	 BCL20-T3003NC
	PNP NC	BCL20-T0603PC	BCL20-T0803PC	BCL20-T1003PC	BCL20-T1203PC	BCL20-T1403PC	 BCL20-T3003PC

Remarks: Maximum number of beams is 30.

BCL40

Beam pitch		40mm					
Mini. detectable object		φ48 or more opaque object					
Protection distance		0.3~3m					
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	 32 beams
Protection height		120mm	200mm	280mm	360mm	440mm	 1240mm
Length of light curtain		172.5mm	252.5mm	332.5mm	412.5mm	492.5mm	 1292.5mm
Model	NPN NC	BCL40-T0403NC	BCL40-T0603NC	BCL40-T0803NC	BCL40-T1003NC	BCL40-T1203NC	 BCL40-T3203NC
	PNP NC	BCL40-T0403PC	BCL40-T0603PC	BCL40-T0803PC	BCL40-T1003PC	BCL40-T1203PC	 BCL40-T3203PC

Remarks: Maximum number of beams is 32.

BCL20

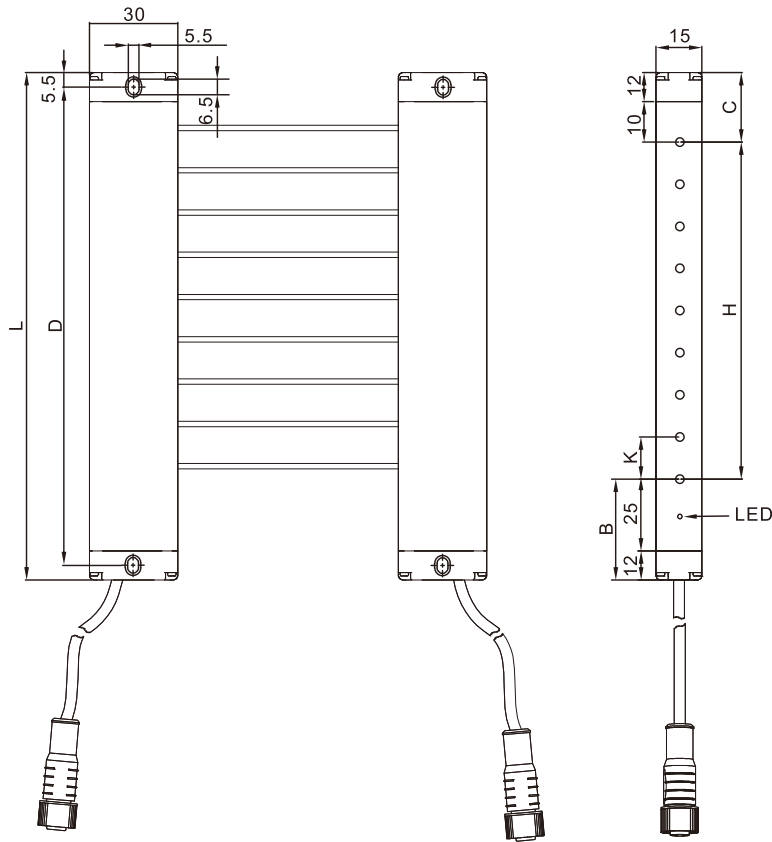
Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BCL20-T0603NC	BCL20-T0603PC	20	06	100	159
BCL20-T0803NC	BCL20-T0803PC	20	08	140	199
BCL20-T1003NC	BCL20-T1003PC	20	10	180	239
BCL20-T1203NC	BCL20-T1203PC	20	12	220	279
BCL20-T1403NC	BCL20-T1403PC	20	14	260	319
BCL20-T1603NC	BCL20-T1603PC	20	16	300	359
BCL20-T1803NC	BCL20-T1803PC	20	18	340	399
BCL20-T2003NC	BCL20-T2003PC	20	20	380	439
BCL20-T2203NC	BCL20-T2203PC	20	22	420	479
BCL20-T2403NC	BCL20-T2403PC	20	24	460	519
BCL20-T2603NC	BCL20-T2603PC	20	26	500	559
BCL20-T2803NC	BCL20-T2803PC	20	28	540	599
BCL20-T3003NC	BCL20-T3003PC	20	30	580	639

BCL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BCL40-T0403NC	BCL40-T0403PC	40	04	120	172.5
BCL40-T0603NC	BCL40-T0603PC	40	06	200	252.5
BCL40-T0803NC	BCL40-T0803PC	40	08	280	332.5
BCL40-T1003NC	BCL40-T1003PC	40	10	360	412.5
BCL40-T1203NC	BCL40-T1203PC	40	12	440	492.5
BCL40-T1403NC	BCL40-T1403PC	40	14	520	572.5
BCL40-T1603NC	BCL40-T1603PC	40	16	600	652.5
BCL40-T1803NC	BCL40-T1803PC	40	18	680	732.5
BCL40-T2003NC	BCL40-T2003PC	40	20	760	812.5
BCL40-T2203NC	BCL40-T2203PC	40	22	840	892.5
BCL40-T2403NC	BCL40-T2403PC	40	24	920	972.5
BCL40-T2603NC	BCL40-T2603PC	40	26	1000	1052.5
BCL40-T2803NC	BCL40-T2803PC	40	28	1080	1132.5
BCL40-T3003NC	BCL40-T3003PC	40	30	1160	1212.5
BCL40-T3203NC	BCL40-T3203PC	40	30	1240	1292.5

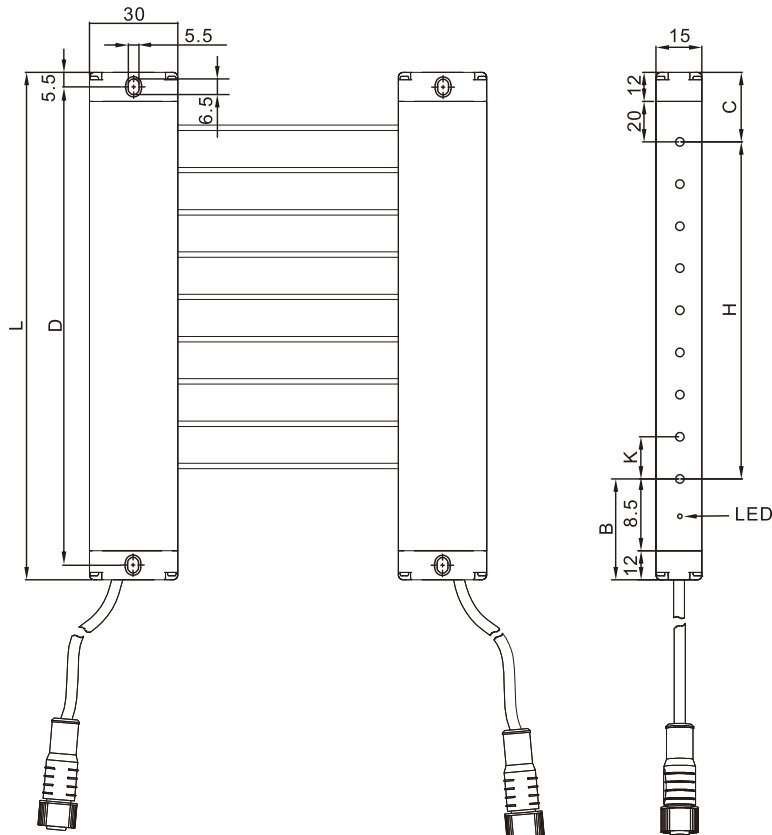
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
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Vibration
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Safety door lock
Pressure Switch
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Accessories
Guidance
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type
Safety Light Curtain
Safety Light Curtain
LIDAR scanner
TOP LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

BCL20



H: Protection Height= (N-1) K
 L: Light curtain total height=H+59
 N: No.of beams
 K: Beam pitch=20
 B: Lower blind height=37
 C: Upper blind height=22
 D: Mounting hole spacing= (L-11)

BCL40



H: Protection Height= (N-1) K
 L: Light curtain total height=H+52.5
 N: No.of beams
 K: Beam pitch=40
 B: Lower blind height=20.5
 C: Upper blind height=32
 D: Mounting hole spacing= (L-11)

Fiber Optic
Slot Sensors
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LiDAR

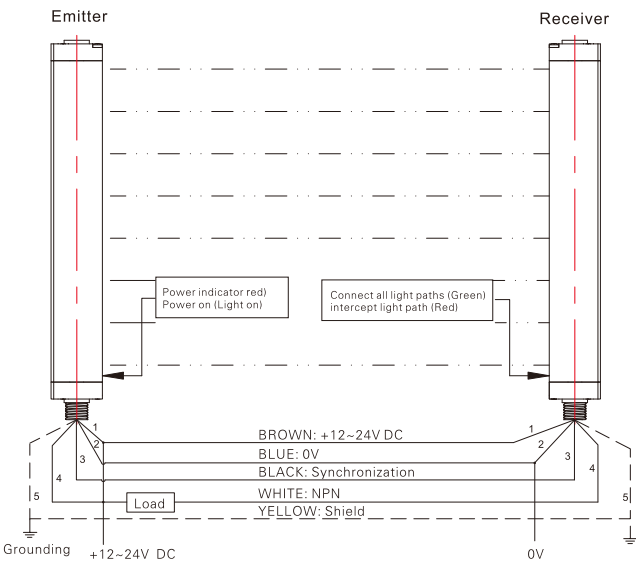
Side-emitting Type

Connection Diagram

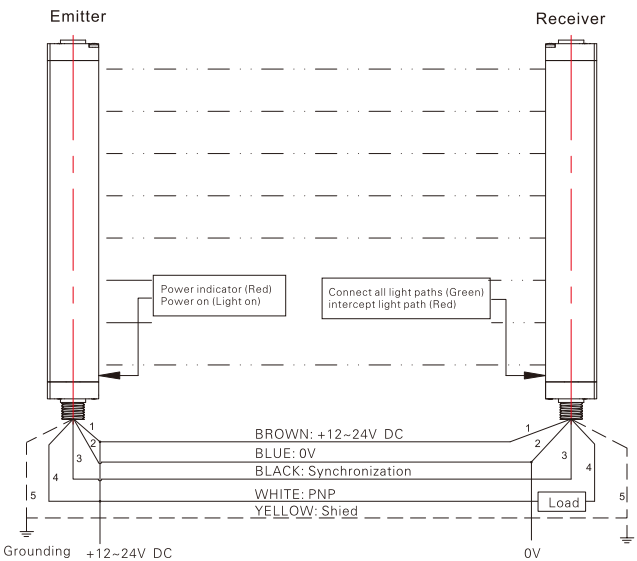
Unit:mm

Area

NPN



PNP



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

Guidance

- Light curtains
 - Standard type
 - Top-emitting type
 - Side-emitting type
 - Waterproof type
 - Measuring type
 - Economical type
- Safety Light Curtain
 - Safety Light Curtain
- LIDAR scanner
 - TOF LIDAR scanner
 - MINI LIDAR scanner
 - Navigation LIDAR



Basic Features	Working principle	Photoelectric Sensor					
	Housing	Array					
	Optical working principle	Thru-beam					
	Safety class	—					
	Standard	—					
	Light source	Infrared light (modulation)					
	Number of beams	4~32beams					
	Beam pitch	10/14/20/25/30/40mm					
	Protection height	50~1240mm					
	Protection distance	0.3~3.0m					
	Mini. detectable object	φ15/φ19/φ25/φ30/φ35/φ45mm or more opaque object					
Electrical data	Output Mode	NPN/PNP					
	Synchronization type	Line synchronization					
	Response time	≤15ms					
	Operating voltage	24VDC ± 10%					
	Current consumption	≤200mA					
	Power consumption	3~8W					
	Residual Voltage	—					
	Load Current	—					
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)					
	Dielectric strength	—					
	Protection circuit	Reverse polarity protection/short circuit protection					
Environmental conditions	Operating temperature	-10~55℃(No freezing)					
	Storage temperature	-15~60℃(No freezing)					
	Operating humidity	35~85%RH(No condensation)					
	Storage humidity	35~95%RH(No condensation)					
	Ambient Illumination	—					
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis					
	Protection class	IP68					
Mechanical data	Connection type	Cable					
	Dimensions	118~1317xØ48xØ48mm					
	Material	Aluminum					
	Weight	0.59~6.59kg					
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cablex2					

Fiber Optic
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Accessories

Guidance

Light curtains

Standard type
Top-emitting type
Side-emitting type
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Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

BPL10

Beam pitch	10mm						
Mini. detectable object	φ15 or more opaque object						
Protection distance	0.3~3m						
Number of beams	6 beams	8 beams	10 beams	12 beams	14 beams		32 beams
Protection height	50mm	70mm	90mm	110mm	130mm		310mm
Length of light curtain	118mm	138mm	158mm	178mm	198mm		378mm
Model	NPN NC	BPL10-T0603NC	BPL10-T0803NC	BPL10-T1003NC	BPL10-T1203NC	BPL10-T1403NC	BPL10-T3203NC
	PNP NC	BPL10-T0603PC	BPL10-T0803PC	BPL10-T1003PC	BPL10-T1203PC	BPL10-T1403PC	BPL10-T3203PC

Waterproof Type

BPL series

BPL14

Beam pitch		14mm						
Mini. detectable object		φ19 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams		32 beams
Protection height		70mm	98mm	126mm	154mm	182mm		434mm
Length of light curtain		140mm	168mm	196mm	224mm	252mm		504mm
Model	NPN NC	BPL14-T0603NC	BPL14-T0803NC	BPL14-T1003NC	BPL14-T1203NC	BPL14-T1403NC		BPL14-T3203NC
	PNP NC	BPL14-T0603PC	BPL14-T0803PC	BPL14-T1003PC	BPL14-T1203PC	BPL14-T1403PC		BPL14-T3203PC

BPL20

Beam pitch		20mm						
Mini. detectable object		φ25 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams		32 beams
Protection height		60mm	100mm	140mm	180mm	220mm		620mm
Length of light curtain		127mm	167mm	207mm	247mm	287mm		687mm
Model	NPN NC	BPL20-T0403NC	BPL20-T0603NC	BPL20-T0803NC	BPL20-T1003NC	BPL20-T1203NC		BPL20-T3203NC
	PNP NC	BPL20-T0403PC	BPL20-T0603PC	BPL20-T0803PC	BPL20-T1003PC	BPL20-T1203PC		BPL20-T3203PC

BPL25

Beam pitch		25mm						
Mini. detectable object		φ30 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams		32 beams
Protection height		125mm	175mm	225mm	275mm	325mm		775mm
Length of light curtain		194.5mm	244.5mm	294.5mm	344.5mm	394.5mm		844.5mm
Model	NPN NC	BPL25-T0603NC	BPL25-T0803NC	BPL25-T1003NC	BPL25-T1203NC	BPL25-T1403NC		BPL25-T3203NC
	PNP NC	BPL25-T0603PC	BPL25-T0803PC	BPL25-T1003PC	BPL25-T1203PC	BPL25-T1403PC		BPL25-T3203PC

BPL30

Beam pitch		30mm						
Mini. detectable object		φ35 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams		32 beams
Protection height		90mm	150mm	210mm	270mm	330mm		930mm
Length of light curtain		162mm	222mm	282mm	342mm	402mm		1002mm
Model	NPN NC	BPL30-T0403NC	BPL30-T0603NC	BPL30-T0803NC	BPL30-T1003NC	BPL30-T1203NC		BPL30-T3203NC
	PNP NC	BPL30-T0403PC	BPL30-T0603PC	BPL30-T0803PC	BPL30-T1003PC	BPL30-T1203PC		BPL30-T3203PC

BPL40

Beam pitch		40mm						
Mini. detectable object		φ45 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams		32 beams
Protection height		120mm	200mm	280mm	360mm	440mm		1240mm
Length of light curtain		197mm	277mm	357mm	437mm	517mm		1317mm
Model	NPN NC	BPL40-T0403NC	BPL40-T0603NC	BPL40-T0803NC	BPL40-T1003NC	BPL40-T1203NC		BPL40-T3203NC
	PNP NC	BPL40-T0403PC	BPL40-T0603PC	BPL40-T0803PC	BPL40-T1003PC	BPL40-T1203PC		BPL40-T3203PC

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BPL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL10-T0603NC	BPL10-T0603PC	10	06	50	118
BPL10-T0803NC	BPL10-T0803PC	10	08	70	138
BPL10-T1003NC	BPL10-T1003PC	10	10	90	158
BPL10-T1203NC	BPL10-T1203PC	10	12	110	178
BPL10-T1403NC	BPL10-T1403PC	10	14	130	198
BPL10-T1603NC	BPL10-T1603PC	10	16	150	218
BPL10-T1803NC	BPL10-T1803PC	10	18	170	238
BPL10-T2003NC	BPL10-T2003PC	10	20	190	258
BPL10-T2203NC	BPL10-T2203PC	10	22	210	278
BPL10-T2403NC	BPL10-T2403PC	10	24	230	298
BPL10-T2603NC	BPL10-T2603PC	10	26	250	318
BPL10-T2803NC	BPL10-T2803PC	10	28	270	338
BPL10-T3003NC	BPL10-T3003PC	10	30	290	358
BPL10-T3203NC	BPL10-T3203PC	10	32	310	378

BPL14

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL14-T0603NC	BPL14-T0603PC	14	06	70	140
BPL14-T0803NC	BPL14-T0803PC	14	08	98	168
BPL14-T1003NC	BPL14-T1003PC	14	10	126	196
BPL14-T1203NC	BPL14-T1203PC	14	12	154	224
BPL14-T1403NC	BPL14-T1403PC	14	14	182	252
BPL14-T1603NC	BPL14-T1603PC	14	16	210	280
BPL14-T1803NC	BPL14-T1803PC	14	18	238	308
BPL14-T2003NC	BPL14-T2003PC	14	20	266	336
BPL14-T2203NC	BPL14-T2203PC	14	22	294	364
BPL14-T2403NC	BPL14-T2403PC	14	24	322	392
BPL14-T2603NC	BPL14-T2603PC	14	26	350	420
BPL14-T2803NC	BPL14-T2803PC	14	28	378	448
BPL14-T3003NC	BPL14-T3003PC	14	30	406	476
BPL14-T3203NC	BPL14-T3203PC	14	32	434	504

BPL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL20-T0403NC	BPL20-T0403PC	20	04	60	127
BPL20-T0603NC	BPL20-T0603PC	20	06	100	167
BPL20-T0803NC	BPL20-T0803PC	20	08	140	207
BPL20-T1003NC	BPL20-T1003PC	20	10	180	247
BPL20-T1203NC	BPL20-T1203PC	20	12	220	287
BPL20-T1403NC	BPL20-T1403PC	20	14	260	327
BPL20-T1603NC	BPL20-T1603PC	20	16	300	367
BPL20-T1803NC	BPL20-T1803PC	20	18	340	407
BPL20-T2003NC	BPL20-T2003PC	20	20	380	447
BPL20-T2203NC	BPL20-T2203PC	20	22	420	487
BPL20-T2403NC	BPL20-T2403PC	20	24	460	527
BPL20-T2603NC	BPL20-T2603PC	20	26	500	567
BPL20-T2803NC	BPL20-T2803PC	20	28	540	607
BPL20-T3003NC	BPL20-T3003PC	20	30	580	647
BPL20-T3203NC	BPL20-T3203PC	20	32	620	687

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Accessories

Guidance

Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

Waterproof Type

BPL series

BPL25

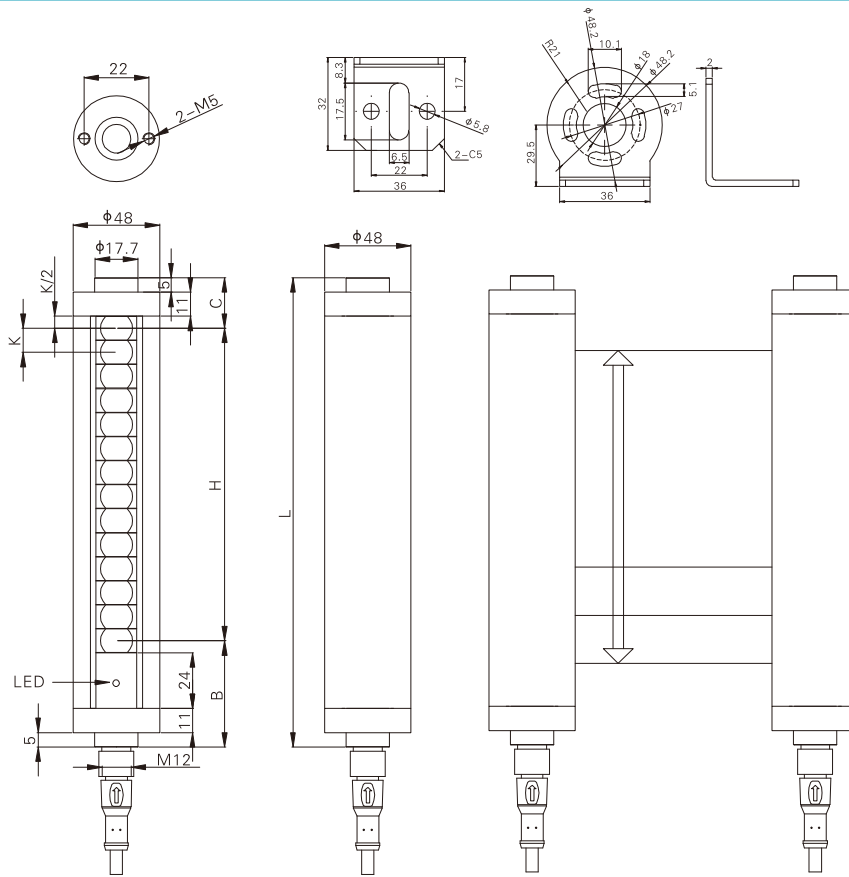
Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL25-T0603NC	BPL25-T0603PC	25	06	125	194.5
BPL25-T0803NC	BPL25-T0803PC	25	08	175	244.5
BPL25-T1003NC	BPL25-T1003PC	25	10	225	294.5
BPL25-T1203NC	BPL25-T1203PC	25	12	275	344.5
BPL25-T1403NC	BPL25-T1403PC	25	14	325	394.5
BPL25-T1603NC	BPL25-T1603PC	25	16	375	444.5
BPL25-T1803NC	BPL25-T1803PC	25	18	425	494.5
BPL25-T2003NC	BPL25-T2003PC	25	20	475	544.5
BPL25-T2203NC	BPL25-T2203PC	25	22	525	594.5
BPL25-T2403NC	BPL25-T2403PC	25	24	575	644.5
BPL25-T2603NC	BPL25-T2603PC	25	26	625	694.5
BPL25-T2803NC	BPL25-T2803PC	25	28	675	744.5
BPL25-T3003NC	BPL25-T3003PC	25	30	725	794.5
BPL25-T3203NC	BPL25-T3203PC	25	32	775	844.5

BPL30

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL30-T0403NC	BPL30-T0403PC	30	04	90	162
BPL30-T0603NC	BPL30-T0603PC	30	06	150	222
BPL30-T0803NC	BPL30-T0803PC	30	08	210	282
BPL30-T1003NC	BPL30-T1003PC	30	10	270	342
BPL30-T1203NC	BPL30-T1203PC	30	12	330	402
BPL30-T1403NC	BPL30-T1403PC	30	14	390	462
BPL30-T1603NC	BPL30-T1603PC	30	16	450	522
BPL30-T1803NC	BPL30-T1803PC	30	18	510	582
BPL30-T2003NC	BPL30-T2003PC	30	20	570	642
BPL30-T2203NC	BPL30-T2203PC	30	22	630	702
BPL30-T2403NC	BPL30-T2403PC	30	24	690	762
BPL30-T2603NC	BPL30-T2603PC	30	26	750	822
BPL30-T2803NC	BPL30-T2803PC	30	28	810	882
BPL30-T3003NC	BPL30-T3003PC	30	30	870	942
BPL30-T3203NC	BPL30-T3203PC	30	32	930	1002

BPL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL40-T0403NC	BPL40-T0403PC	40	04	120	197
BPL40-T0603NC	BPL40-T0603PC	40	06	200	277
BPL40-T0803NC	BPL40-T0803PC	40	08	280	357
BPL40-T1003NC	BPL40-T1003PC	40	10	360	437
BPL40-T1203NC	BPL40-T1203PC	40	12	440	517
BPL40-T1403NC	BPL40-T1403PC	40	14	520	597
BPL40-T1603NC	BPL40-T1603PC	40	16	600	677
BPL40-T1803NC	BPL40-T1803PC	40	18	680	757
BPL40-T2003NC	BPL40-T2003PC	40	20	760	837
BPL40-T2203NC	BPL40-T2203PC	40	22	840	917
BPL40-T2403NC	BPL40-T2403PC	40	24	920	997
BPL40-T2603NC	BPL40-T2603PC	40	26	1000	1077
BPL40-T2803NC	BPL40-T2803PC	40	28	1080	1157
BPL40-T3003NC	BPL40-T3003PC	40	30	1160	1237
BPL40-T3203NC	BPL40-T3203PC	40	32	1240	1317



BPL10
K: 10
H: (N-1)*10
L: H+68
B: 47
C: 21

BPL25
K: 25
H: (N-1)*25
L: H+69.5
B: 41
C: 28.5

BPL14
K: 14
H: (N-1)*14
L: H+70
B: 47
C: 23

BPL30
K: 30
H: (N-1)*30
L: H+72
B: 41
C: 31

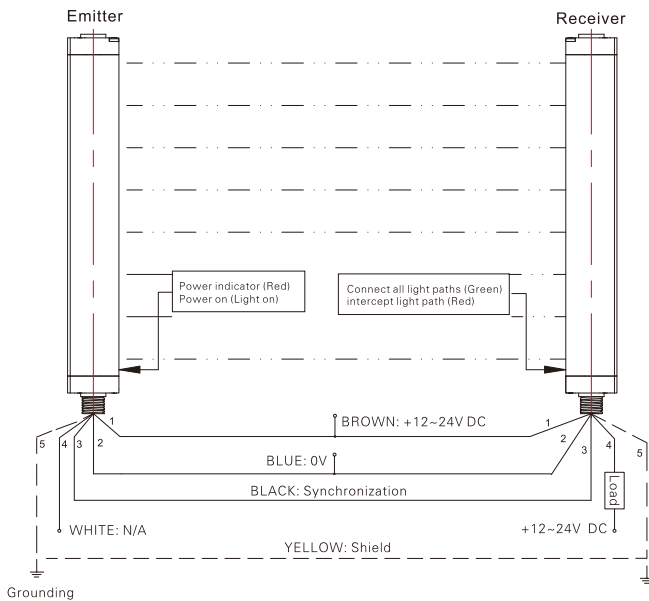
BPL20
K: 20
H: (N-1)*20
L: H+67
B: 41
C: 26

BPL40
K: 40
H: (N-1)*40
L: H+77
B: 41
C: 36

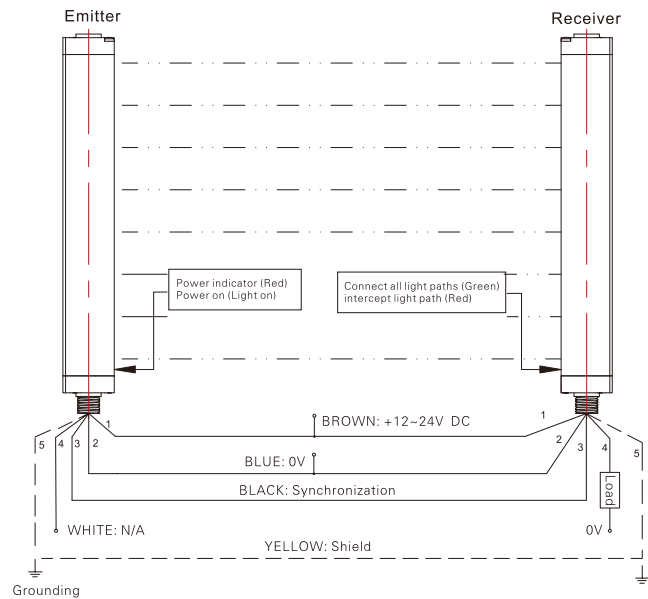
N: No. of beams
K: Beam pitch
H: Protection Height=(N-1)K
L: Light curtain total height=H+B+C
B: Lower blind height
C: Upper blind height=K/2+16

Connection Diagram

NPN



PNP



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact

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Safety door lock
Pressure Switch
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Light curtains

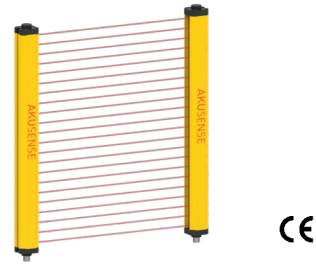
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

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Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	—
	Standard	—
	Light source	Infrared light (modulation)
	Number of beams	4~496 beams
	Beam pitch	2.5/5/10/20/40mm
	Protection height	60~3990mm
	Protection distance	0.3~3.0m
	Mini. detectable object	φ3.75/φ6.5/φ15/φ25/φ45mm or more opaque object
	Output Mode	I:4~20mA; U:1~5V; NPN/PNP; 485/232 output
Electrical data	Synchronization type	Line synchronization
	Response time	≤15ms
	Operating voltage	24VDC ± 10%
	Current consumption	≤200mA
	Power consumption	3~8W
	Residual Voltage	Analog output
	Load Current	—
	Insulation resistance	≥100MQ between power terminal and case (500VDC)
	Dielectric strength	500VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection/surge protection
Environmental conditions	Operating temperature	-10~55°C(No freezing)
	Storage temperature	-10~55°C(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~150Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
	Connection type	Cable
Mechanical data	Dimensions	136.5~5056.5x36x36mm
	Material	Aluminum
	Weight	0.68~8.28kg
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cablex2

BAL02

Beam pitch	2.5mm						
Mini. detectable object	φ3.75 or more opaque object						
Protection distance	0.3~3m						
Number of beams	32 beams	64 beams	96 beams	128 beams	160 beams		496 beams
Protection height	77.5mm	157.5mm	237.5mm	317.5mm	397.5mm		1237.5mm
Length of light curtain	136.5mm	216.5mm	296.5mm	376.5mm	456.5mm		1296.5mm
Model	Voltage	BAL02-T3203V	BAL02-T6403V	BAL02-T9603V	BAL02-T12803V	BAL02-T16003V	BAL02-T49603V
	Current	BAL02-T3203A	BAL02-T6403A	BAL02-T9603A	BAL02-T12803A	BAL02-T16003A	BAL02-T49603A

BAL05

Beam pitch	5mm						
Mini. detectable object	φ6.5 or more opaque object						
Protection distance	0.3~3m						
Number of beams	16 beams	24 beams	32 beams	40 beams	48 beams		496 beams
Protection height	75mm	115mm	155mm	195mm	235mm		2475mm
Length of light curtain	136.5mm	176.5mm	216.5mm	256.5mm	296.5mm		2536.5mm
Model	Voltage	BAL05-T1603V	BAL05-T2403V	BAL05-T3203V	BAL05-T4003V	BAL05-T4803V	BAL05-T100003V
	Current	BAL05-T1603A	BAL05-T2403A	BAL05-T3203A	BAL05-T4003A	BAL05-T4803A	BAL05-T100003A

BAL10

Beam pitch	10mm						
Mini. detectable object	φ15 or more opaque object						
Protection distance	0.3~3m						
Number of beams	8 beams	10 beams	12 beams	14 beams	16 beams		400 beams
Protection height	70mm	90mm	110mm	130mm	150mm		3990mm
Length of light curtain	136.5mm	156.5mm	176.5mm	196.5mm	216.5mm		4056.5mm
Model	Voltage	BAL10-T0803V	BAL10-T1003V	BAL10-T1203V	BAL10-T1403V	BAL10-T1603V	BAL10-T40003V
	Current	BAL10-T0803A	BAL10-T1003A	BAL10-T1203A	BAL10-T1403A	BAL10-T1603A	BAL10-T40003A

BAL20

Beam pitch	20mm						
Mini. detectable object	φ25 or more opaque object						
Protection distance	0.3~3m						
Number of beams	4 beams	6 beams	8 beams	10 beams	12 beams		200 beams
Protection height	60mm	100mm	140mm	180mm	220mm		3980mm
Length of light curtain	136.5mm	176.5mm	216.5mm	256.5mm	296.5mm		4056.5mm
Model	Voltage	BAL20-T0403V	BAL20-T0603V	BAL20-T0803V	BAL20-T1003V	BAL20-T1203V	BAL20-T20003V
	Current	BAL20-T0403A	BAL20-T0603A	BAL20-T0803A	BAL20-T1003A	BAL20-T1203A	BAL20-T20003A

BAL40

Beam pitch	40mm						
Mini. detectable object	φ45 or more opaque object						
Protection distance	0.3~3m						
Number of beams	4 beams	6 beams	8 beams	10 beams	12 beams		100 beams
Protection height	120mm	200mm	280mm	360mm	440mm		3960mm
Length of light curtain	196.5mm	276.5mm	356.5mm	436.5mm	516.5mm		4036.5mm
Model	Voltage	BAL40-T0403V	BAL40-T0603V	BAL40-T0803V	BAL40-T1003V	BAL40-T1203V	BAL40-T10003V
	Current	BAL40-T0403A	BAL40-T0603A	BAL40-T0803A	BAL40-T1003A	BAL40-T1203A	BAL40-T10003A

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Light curtains

Standard type
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Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
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Navigation LIDAR

Measuring Type						
BAL Series						
BAL02						
	Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
	BAL02-T3203V	BAL02-T3203A	2.5	32	77.5	136.5
	BAL02-T4003V	BAL02-T4003A	2.5	40	97.5	156.5
	BAL02-T4803V	BAL02-T4803A	2.5	48	117.5	176.5
	BAL02-T5603V	BAL02-T5603A	2.5	56	137.5	196.5
	BAL02-T6403V	BAL02-T6403A	2.5	64	157.5	216.5
	BAL02-T7203V	BAL02-T7203A	2.5	72	177.5	236.5
	BAL02-T8003V	BAL02-T8003A	2.5	80	197.5	256.5
	BAL02-T8803V	BAL02-T8803A	2.5	88	217.5	276.5
	BAL02-T9603V	BAL02-T9603A	2.5	96	237.5	296.5
	BAL02-T10403V	BAL02-T10403A	2.5	104	257.5	316.5
	BAL02-T11203V	BAL02-T11203A	2.5	112	277.5	336.5
	BAL02-T12003V	BAL02-T12003A	2.5	120	297.5	356.5
	BAL02-T12803V	BAL02-T12803A	2.5	128	317.5	376.5
	BAL02-T13603V	BAL02-T13603A	2.5	136	337.5	396.5
	BAL02-T14403V	BAL02-T14403A	2.5	144	357.5	416.5
	BAL02-T15203V	BAL02-T15203A	2.5	152	377.5	436.5
	BAL02-T16003V	BAL02-T16003A	2.5	160	397.5	456.5
	BAL02-T16803V	BAL02-T16803A	2.5	168	417.5	476.5
	BAL02-T17603V	BAL02-T17603A	2.5	176	437.5	496.5
	BAL02-T18403V	BAL02-T18403A	2.5	184	457.5	516.5
	BAL02-T19203V	BAL02-T19203A	2.5	192	477.5	536.5
	BAL02-T20003V	BAL02-T20003A	2.5	200	497.5	556.5
	BAL02-T20803V	BAL02-T20803A	2.5	208	517.5	576.5
	BAL02-T21603V	BAL02-T21603A	2.5	216	537.5	596.5
	BAL02-T22403V	BAL02-T22403A	2.5	224	557.5	616.5
	BAL02-T23203V	BAL02-T23203A	2.5	232	577.5	636.5
	BAL02-T24003V	BAL02-T24003A	2.5	240	597.5	656.5
	BAL02-T24803V	BAL02-T24803A	2.5	248	617.5	676.5
	BAL02-T25603V	BAL02-T25603A	2.5	256	637.5	696.5
	BAL02-T26403V	BAL02-T26403A	2.5	264	657.5	716.5
	BAL02-T27203V	BAL02-T27203A	2.5	272	677.5	736.5
	BAL02-T28003V	BAL02-T28003A	2.5	280	697.5	756.5
	BAL02-T28803V	BAL02-T28803A	2.5	288	717.5	776.5
	BAL02-T29603V	BAL02-T29603A	2.5	296	737.5	796.5
	BAL02-T30403V	BAL02-T30403A	2.5	304	757.5	816.5
	BAL02-T31203V	BAL02-T31203A	2.5	312	777.5	836.5
	BAL02-T32003V	BAL02-T32003A	2.5	320	797.5	856.5
	BAL02-T32803V	BAL02-T32803A	2.5	328	817.5	876.5
	BAL02-T33603V	BAL02-T33603A	2.5	336	837.5	896.5
	BAL02-T34403V	BAL02-T34403A	2.5	344	857.5	916.5
	BAL02-T35203V	BAL02-T35203A	2.5	352	877.5	936.5
	BAL02-T36003V	BAL02-T36003A	2.5	360	897.5	956.5
	BAL02-T36803V	BAL02-T36803A	2.5	368	917.5	976.5
	BAL02-T37603V	BAL02-T37603A	2.5	376	937.5	996.5
	BAL02-T38403V	BAL02-T38403A	2.5	384	957.5	1016.5
	BAL02-T39203V	BAL02-T39203A	2.5	392	977.5	1036.5
	BAL02-T40003V	BAL02-T40003A	2.5	400	997.5	1056.5
	BAL02-T40803V	BAL02-T40803A	2.5	408	1017.5	1076.5
	BAL02-T41603V	BAL02-T41603A	2.5	416	1037.5	1096.5
	BAL02-T42403V	BAL02-T42403A	2.5	424	1057.5	1116.5
	BAL02-T43203V	BAL02-T43203A	2.5	432	1077.5	1136.5
	BAL02-T44003V	BAL02-T44003A	2.5	440	1097.5	1156.5
	BAL02-T44803V	BAL02-T44803A	2.5	448	1117.5	1176.5
	BAL02-T45603V	BAL02-T45603A	2.5	456	1137.5	1196.5
	BAL02-T46403V	BAL02-T46403A	2.5	464	1157.5	1216.5
	BAL02-T47203V	BAL02-T47203A	2.5	472	1177.5	1236.5
	BAL02-T48003V	BAL02-T48003A	2.5	480	1197.5	1256.5
	BAL02-T48803V	BAL02-T48803A	2.5	488	1217.5	1276.5
	BAL02-T49603V	BAL02-T49603A	2.5	496	1237.5	1296.5

Area

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

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOP LIDAR scanner

MINI LIDAR scanner

Navigation LIDAR

BAL05

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL05-T1603V	BAL05-T1603A	5	16	75	136.5
BAL05-T2403V	BAL05-T2403A	5	24	115	176.5
BAL05-T3203V	BAL05-T3203A	5	32	155	216.5
BAL05-T4003V	BAL05-T4003A	5	40	195	256.5
BAL05-T4803V	BAL05-T4803A	5	48	235	296.5
BAL05-T5603V	BAL05-T5603A	5	56	275	336.5
BAL05-T6403V	BAL05-T6403A	5	64	315	376.5
BAL05-T7203V	BAL05-T7203A	5	72	355	416.5
BAL05-T8003V	BAL05-T8003A	5	80	395	456.5
BAL05-T8803V	BAL05-T8803A	5	88	435	496.5
BAL05-T9603V	BAL05-T9603A	5	96	475	536.5
BAL05-T10403V	BAL05-T10403A	5	104	515	576.5
BAL05-T11203V	BAL05-T11203A	5	112	555	616.5
BAL05-T12003V	BAL05-T12003A	5	120	595	656.5
BAL05-T12803V	BAL05-T12803A	5	128	635	696.5
BAL05-T13603V	BAL05-T13603A	5	136	675	736.5
BAL05-T14403V	BAL05-T14403A	5	144	715	776.5
BAL05-T15203V	BAL05-T15203A	5	152	755	816.5
BAL05-T16003V	BAL05-T16003A	5	160	795	856.5
BAL05-T16803V	BAL05-T16803A	5	168	835	896.5
BAL05-T17603V	BAL05-T17603A	5	176	875	936.5
BAL05-T18403V	BAL05-T18403A	5	184	915	976.5
BAL05-T19203V	BAL05-T19203A	5	192	955	1016.5
BAL05-T20003V	BAL05-T20003A	5	200	995	1056.5
BAL05-T20803V	BAL05-T20803A	5	208	1035	1096.5
BAL05-T21603V	BAL05-T21603A	5	216	1075	1136.5
BAL05-T22403V	BAL05-T22403A	5	224	1115	1176.5
BAL05-T23203V	BAL05-T23203A	5	232	1155	1216.5
BAL05-T24003V	BAL05-T24003A	5	240	1195	1256.5
BAL05-T24803V	BAL05-T24803A	5	248	1235	1296.5
BAL05-T25603V	BAL05-T25603A	5	256	1275	1336.5
BAL05-T26403V	BAL05-T26403A	5	264	1315	1376.5
BAL05-T27203V	BAL05-T27203A	5	272	1355	1416.5
BAL05-T28003V	BAL05-T28003A	5	280	1395	1456.5
BAL05-T28803V	BAL05-T28803A	5	288	1435	1496.5
BAL05-T29603V	BAL05-T29603A	5	296	1475	1536.5
BAL05-T30403V	BAL05-T30403A	5	304	1515	1576.5
BAL05-T31203V	BAL05-T31203A	5	312	1555	1616.5
BAL05-T32003V	BAL05-T32003A	5	320	1595	1656.5
BAL05-T32803V	BAL05-T32803A	5	328	1635	1696.5
BAL05-T33603V	BAL05-T33603A	5	336	1675	1736.5
BAL05-T34403V	BAL05-T34403A	5	344	1715	1776.5
BAL05-T35203V	BAL05-T35203A	5	352	1755	1816.5
BAL05-T36003V	BAL05-T36003A	5	360	1795	1856.5
BAL05-T36803V	BAL05-T36803A	5	368	1835	1896.5
BAL05-T37603V	BAL05-T37603A	5	376	1875	1936.5
BAL05-T38403V	BAL05-T38403A	5	384	1915	1976.5
BAL05-T39203V	BAL05-T39203A	5	392	1955	2016.5
BAL05-T40003V	BAL05-T40003A	5	400	1995	2056.5
BAL05-T40803V	BAL05-T40803A	5	408	2035	2096.5
BAL05-T41603V	BAL05-T41603A	5	416	2075	2136.5
BAL05-T42403V	BAL05-T42403A	5	424	2115	2176.5
BAL05-T43203V	BAL05-T43203A	5	432	2155	2216.5
BAL05-T44003V	BAL05-T44003A	5	440	2195	2256.5
BAL05-T44803V	BAL05-T44803A	5	448	2235	2296.5
BAL05-T45603V	BAL05-T45603A	5	456	2275	2336.5
BAL05-T46403V	BAL05-T46403A	5	464	2315	2376.5
BAL05-T47203V	BAL05-T47203A	5	472	2355	2416.5
BAL05-T48003V	BAL05-T48003A	5	480	2395	2456.5
BAL05-T48803V	BAL05-T48803A	5	488	2435	2496.5
BAL05-T49603V	BAL05-T49603A	5	496	2475	2536.5

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Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL10-T0803V	BAL10-T0803A	10	8	70	136.5
BAL10-T1003V	BAL10-T1003A	10	10	90	156.5
BAL10-T1203V	BAL10-T1203A	10	12	110	176.5
BAL10-T1403V	BAL10-T1403A	10	14	130	196.5
BAL10-T1603V	BAL10-T1603A	10	16	150	216.5
BAL10-T1803V	BAL10-T1803A	10	18	170	236.5
BAL10-T2003V	BAL10-T2003A	10	20	190	256.5
BAL10-T2203V	BAL10-T2203A	10	22	210	276.5
BAL10-T2403V	BAL10-T2403A	10	24	230	296.5
BAL10-T2603V	BAL10-T2603A	10	26	250	316.5
BAL10-T2803V	BAL10-T2803A	10	28	270	336.5
BAL10-T3003V	BAL10-T3003A	10	30	290	356.5
BAL10-T3203V	BAL10-T3203A	10	32	310	376.5
BAL10-T3403V	BAL10-T3403A	10	34	330	396.5
BAL10-T4603V	BAL10-T4603A	10	36	350	416.5
BAL10-T3803V	BAL10-T3803A	10	38	370	436.5
BAL10-T4003V	BAL10-T4003A	10	40	390	456.5
BAL10-T4203V	BAL10-T4203A	10	42	410	476.5
BAL10-T4403V	BAL10-T4403A	10	44	430	496.5
BAL10-T4603V	BAL10-T4603A	10	46	450	516.5
BAL10-T4803V	BAL10-T4803A	10	48	470	536.5
BAL10-T5003V	BAL10-T5003A	10	50	490	556.5
BAL10-T5203V	BAL10-T5203A	10	52	510	576.5
BAL10-T5403V	BAL10-T5403A	10	54	530	596.5
BAL10-T5603V	BAL10-T5603A	10	56	550	616.5
BAL10-T5803V	BAL10-T5803A	10	58	570	636.5
BAL10-T6003V	BAL10-T6003A	10	60	590	656.5
BAL10-T6203V	BAL10-T6203A	10	62	610	676.5
BAL10-T6403V	BAL10-T6403A	10	64	630	696.5
BAL10-T6603V	BAL10-T6603A	10	66	650	716.5
BAL10-T6803V	BAL10-T6803A	10	68	670	736.5
BAL10-T7003V	BAL10-T7003A	10	70	690	756.5
BAL10-T7203V	BAL10-T7203A	10	72	710	776.5
BAL10-T7403V	BAL10-T7403A	10	74	730	796.5
BAL10-T7603V	BAL10-T7603A	10	76	750	816.5
BAL10-T7803V	BAL10-T7803A	10	78	770	836.5
BAL10-T8003V	BAL10-T8003A	10	80	790	856.5
BAL10-T8203V	BAL10-T8203A	10	82	810	876.5
BAL10-T8403V	BAL10-T8403A	10	84	830	896.5
BAL10-T8603V	BAL10-T8603A	10	86	850	916.5
BAL10-T8803V	BAL10-T8803A	10	88	870	936.5
BAL10-T9003V	BAL10-T9003A	10	90	890	956.5
BAL10-T9203V	BAL10-T9203A	10	92	910	976.5
BAL10-T9403V	BAL10-T9403A	10	94	930	996.5
BAL10-T9603V	BAL10-T9603A	10	96	950	1016.5
BAL10-T9803V	BAL10-T9803A	10	98	970	1036.5
BAL10-T10003V	BAL10-T10003A	10	100	990	1056.5
BAL10-T10203V	BAL10-T10203A	10	102	1010	1076.5
BAL10-T10403V	BAL10-T10403A	10	104	1030	1096.5
BAL10-T10603V	BAL10-T10603A	10	106	1050	1116.5
BAL10-T10803V	BAL10-T10803A	10	108	1070	1136.5
BAL10-T11003V	BAL10-T11003A	10	110	1090	1156.5
BAL10-T11203V	BAL10-T11203A	10	112	1110	1176.5
BAL10-T11403V	BAL10-T11403A	10	114	1130	1196.5
BAL10-T11603V	BAL10-T11603A	10	116	1150	1216.5
BAL10-T11803V	BAL10-T11803A	10	118	1170	1236.5
BAL10-T12003V	BAL10-T12003A	10	120	1190	1256.5
BAL10-T12203V	BAL10-T12203A	10	122	1210	1276.5
BAL10-T12403V	BAL10-T12403A	10	124	1230	1296.5

BAL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL10-T12603V	BAL10-T12603A	10	126	1250	1316.5
BAL10-T12803V	BAL10-T12803A	10	128	1270	1336.5
BAL10-T13003V	BAL10-T13003A	10	130	1290	1356.5
BAL10-T13203V	BAL10-T13203A	10	132	1310	1376.5
BAL10-T13403V	BAL10-T13403A	10	134	1330	1396.5
BAL10-T13603V	BAL10-T13603A	10	136	1350	1416.5
BAL10-T13803V	BAL10-T13803A	10	138	1370	1436.5
BAL10-T14003V	BAL10-T14003A	10	140	1390	1456.5
BAL10-T14203V	BAL10-T14203A	10	142	1410	1476.5
BAL10-T14403V	BAL10-T14403A	10	144	1430	1496.5
BAL10-T14603V	BAL10-T14603A	10	146	1450	1516.5
BAL10-T14803V	BAL10-T14803A	10	148	1470	1536.5
BAL10-T15003V	BAL10-T15003A	10	150	1490	1556.5
BAL10-T15203V	BAL10-T15203A	10	152	1510	1576.5
BAL10-T15403V	BAL10-T15403A	10	154	1530	1596.5
BAL10-T15603V	BAL10-T15603A	10	156	1550	1616.5
BAL10-T15803V	BAL10-T15803A	10	158	1570	1636.5
BAL10-T16003V	BAL10-T16003A	10	160	1590	1656.5
BAL10-T16203V	BAL10-T16203A	10	162	1610	1676.5
BAL10-T16403V	BAL10-T16403A	10	164	1630	1696.5
BAL10-T16603V	BAL10-T16603A	10	166	1650	1716.5
BAL10-T16803V	BAL10-T16803A	10	168	1670	1736.5
BAL10-T17003V	BAL10-T17003A	10	170	1690	1756.5
BAL10-T17203V	BAL10-T17203A	10	172	1710	1776.5
BAL10-T17403V	BAL10-T17403A	10	174	1730	1796.5
BAL10-T17603V	BAL10-T17603A	10	176	1750	1816.5
BAL10-T17803V	BAL10-T17803A	10	178	1770	1836.5
BAL10-T18003V	BAL10-T18003A	10	180	1790	1856.5
BAL10-T18203V	BAL10-T18203A	10	182	1810	1876.5
BAL10-T18403V	BAL10-T18403A	10	184	1830	1896.5
BAL10-T18603V	BAL10-T18603A	10	186	1850	1916.5
BAL10-T18803V	BAL10-T18803A	10	188	1870	1936.5
BAL10-T19003V	BAL10-T19003A	10	190	1890	1956.5
BAL10-T19203V	BAL10-T19203A	10	192	1910	1976.5
BAL10-T19403V	BAL10-T19403A	10	194	1930	1996.5
BAL10-T19603V	BAL10-T19603A	10	196	1950	2016.5
BAL10-T19803V	BAL10-T19803A	10	198	1970	2036.5
BAL10-T20003V	BAL10-T20003A	10	200	1990	2056.5
BAL10-T20203V	BAL10-T20203A	10	202	2010	2076.5
BAL10-T20403V	BAL10-T20403A	10	204	2030	2096.5
BAL10-T20603V	BAL10-T20603A	10	206	2050	2116.5
BAL10-T20803V	BAL10-T20803A	10	208	2070	2136.5
BAL10-T21003V	BAL10-T21003A	10	210	2090	2156.5
BAL10-T21203V	BAL10-T21203A	10	212	2110	2176.5
BAL10-T21403V	BAL10-T21403A	10	214	2130	2196.5
BAL10-T21603V	BAL10-T21603A	10	216	2150	2216.5
BAL10-T21803V	BAL10-T21803A	10	218	2170	2236.5
BAL10-T22003V	BAL10-T22003A	10	220	2190	2256.5
BAL10-T22203V	BAL10-T22203A	10	222	2210	2276.5
BAL10-T22403V	BAL10-T22403A	10	224	2230	2296.5
BAL10-T22603V	BAL10-T22603A	10	226	2250	2316.5
BAL10-T22803V	BAL10-T22803A	10	228	2270	2336.5
BAL10-T23003V	BAL10-T23003A	10	230	2290	2356.5
BAL10-T23203V	BAL10-T23203A	10	232	2310	2376.5
BAL10-T23403V	BAL10-T23403A	10	234	2330	2396.5
BAL10-T23603V	BAL10-T23603A	10	236	2350	2416.5
BAL10-T23803V	BAL10-T23803A	10	238	2370	2436.5
BAL10-T24003V	BAL10-T24003A	10	240	2390	2456.5
BAL10-T24203V	BAL10-T24203A	10	242	2410	2476.5

Fiber Optic
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Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

Area

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BAL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL10-T36203V	BAL10-T36203A	10	362	3610	3676.5
BAL10-T36403V	BAL10-T36403A	10	364	3630	3696.5
BAL10-T36603V	BAL10-T36603A	10	366	3650	3716.5
BAL10-T36803V	BAL10-T36803A	10	368	3670	3736.5
BAL10-T37003V	BAL10-T37003A	10	370	3690	3756.5
BAL10-T37203V	BAL10-T37203A	10	372	3710	3776.5
BAL10-T37403V	BAL10-T37403A	10	374	3730	3796.5
BAL10-T37603V	BAL10-T37603A	10	376	3750	3816.5
BAL10-T37803V	BAL10-T37803A	10	378	3770	3836.5
BAL10-T38003V	BAL10-T38003A	10	380	3790	3856.5
BAL10-T38203V	BAL10-T38203A	10	382	3810	3876.5
BAL10-T38403V	BAL10-T38403A	10	384	3830	3896.5
BAL10-T38603V	BAL10-T38603A	10	386	3850	3916.5
BAL10-T38803V	BAL10-T38803A	10	388	3870	3936.5
BAL10-T39003V	BAL10-T39003A	10	390	3890	3956.5
BAL10-T39203V	BAL10-T39203A	10	392	3910	3976.5
BAL10-T39403V	BAL10-T39403A	10	394	3930	3996.5
BAL10-T39603V	BAL10-T39603A	10	396	3950	4016.5
BAL10-T39803V	BAL10-T39803A	10	398	3970	4036.5
BAL10-T40003V	BAL10-T40003A	10	400	3990	4056.5

BAL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL20-T0403V	BAL20-T0403A	20	4	60	136.5
BAL20-T0603V	BAL20-T0603A	20	6	100	176.5
BAL20-T0803V	BAL20-T0803A	20	8	140	216.5
BAL20-T1003V	BAL20-T1003A	20	10	180	256.5
BAL20-T1203V	BAL20-T1203A	20	12	220	296.5
BAL20-T1403V	BAL20-T1403A	20	14	260	336.5
BAL20-T1603V	BAL20-T1603A	20	16	300	376.5
BAL20-T1803V	BAL20-T1803A	20	18	340	416.5
BAL20-T2003V	BAL20-T2003A	20	20	380	456.5
BAL20-T2203V	BAL20-T2203A	20	22	420	496.5
BAL20-T2403V	BAL20-T2403A	20	24	460	536.5
BAL20-T2603V	BAL20-T2603A	20	26	500	576.5
BAL20-T2803V	BAL20-T2803A	20	28	540	616.5
BAL20-T3003V	BAL20-T3003A	20	30	580	656.5
BAL20-T3203V	BAL20-T3203A	20	32	620	696.5
BAL20-T3403V	BAL20-T3403A	20	34	660	736.5
BAL20-T4603V	BAL20-T4603A	20	36	700	776.5
BAL20-T3803V	BAL20-T3803A	20	38	740	816.5
BAL20-T4003V	BAL20-T4003A	20	40	780	856.5
BAL20-T4203V	BAL20-T4203A	20	42	820	896.5
BAL20-T4403V	BAL20-T4403A	20	44	860	936.5
BAL20-T4603V	BAL20-T4603A	20	46	900	976.5
BAL20-T4803V	BAL20-T4803A	20	48	940	1016.5
BAL20-T5003V	BAL20-T5003A	20	50	980	1056.5
BAL20-T5203V	BAL20-T5203A	20	52	1020	1096.5
BAL20-T5403V	BAL20-T5403A	20	54	1060	1136.5
BAL20-T5603V	BAL20-T5603A	20	56	1100	1176.5
BAL20-T5803V	BAL20-T5803A	20	58	1140	1216.5
BAL20-T6003V	BAL20-T6003A	20	60	1180	1256.5
BAL20-T6203V	BAL20-T6203A	20	62	1220	1296.5
BAL20-T6403V	BAL20-T6403A	20	64	1260	1336.5
BAL20-T6603V	BAL20-T6603A	20	66	1300	1376.5
BAL20-T6803V	BAL20-T6803A	20	68	1340	1416.5
BAL20-T7003V	BAL20-T7003A	20	70	1380	1456.5
BAL20-T7203V	BAL20-T7203A	20	72	1420	1496.5

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Light curtains

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Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

Area

Measuring Type

BAL Series

BAL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL20-T7403V	BAL20-T7403A	20	74	1460	1536.5
BAL20-T7603V	BAL20-T7603A	20	76	1500	1576.5
BAL20-T7803V	BAL20-T7803A	20	78	1540	1616.5
BAL20-T8003V	BAL20-T8003A	20	80	1580	1656.5
BAL20-T8203V	BAL20-T8203A	20	82	1620	1696.5
BAL20-T8403V	BAL20-T8403A	20	84	1660	1736.5
BAL20-T8603V	BAL20-T8603A	20	86	1700	1776.5
BAL20-T8803V	BAL20-T8803A	20	88	1740	1816.5
BAL20-T9003V	BAL20-T9003A	20	90	1780	1856.5
BAL20-T9203V	BAL20-T9203A	20	92	1820	1896.5
BAL20-T9403V	BAL20-T9403A	20	94	1860	1936.5
BAL20-T9603V	BAL20-T9603A	20	96	1900	1976.5
BAL20-T9803V	BAL20-T9803A	20	98	1940	2016.5
BAL20-T10003V	BAL20-T10003A	20	100	1980	2056.5
BAL20-T10203V	BAL20-T10203A	20	102	2020	2116.5
BAL20-T10403V	BAL20-T10403A	20	104	2060	2156.5
BAL20-T10603V	BAL20-T10603A	20	106	2100	2196.5
BAL20-T10803V	BAL20-T10803A	20	108	2140	2236.5
BAL20-T11003V	BAL20-T11003A	20	110	2180	2276.5
BAL20-T11203V	BAL20-T11203A	20	112	2240	2316.5
BAL20-T11403V	BAL20-T11403A	20	114	2280	2356.5
BAL20-T11603V	BAL20-T11603A	20	116	2320	2396.5
BAL20-T11803V	BAL20-T11803A	20	118	2360	2436.5
BAL20-T12003V	BAL20-T12003A	20	120	2400	2476.5
BAL20-T12203V	BAL20-T12203A	20	122	2440	2516.5
BAL20-T12403V	BAL20-T12403A	20	124	2480	2556.5
BAL20-T12603V	BAL20-T12603A	10	126	2520	2596.5
BAL20-T12803V	BAL20-T12803A	10	128	2560	2636.5
BAL20-T13003V	BAL20-T13003A	10	130	2600	2676.5
BAL20-T13203V	BAL20-T13203A	10	132	2640	2716.5
BAL20-T13403V	BAL20-T13403A	10	134	2680	2756.5
BAL20-T13603V	BAL20-T13603A	10	136	2720	2796.5
BAL20-T13803V	BAL20-T13803A	10	138	2760	2836.5
BAL20-T14003V	BAL20-T14003A	10	140	2800	2876.5
BAL20-T14203V	BAL20-T14203A	10	142	2840	2916.5
BAL20-T14403V	BAL20-T14403A	10	144	2880	2956.5
BAL20-T14603V	BAL20-T14603A	10	146	2920	2996.5
BAL20-T14803V	BAL20-T14803A	10	148	2960	3036.5
BAL20-T15003V	BAL20-T15003A	10	150	3000	3076.5
BAL20-T15203V	BAL20-T15203A	10	152	3040	3116.5
BAL20-T15403V	BAL20-T15403A	10	154	3080	3156.5
BAL20-T15603V	BAL20-T15603A	10	156	3120	3196.5
BAL20-T15803V	BAL20-T15803A	10	158	3160	3236.5
BAL20-T16003V	BAL20-T16003A	10	160	3200	3276.5
BAL20-T16203V	BAL20-T16203A	10	162	3240	3316.5
BAL20-T16403V	BAL20-T16403A	10	164	3280	3356.5
BAL20-T16603V	BAL20-T16603A	10	166	3320	3396.5
BAL20-T16803V	BAL20-T16803A	10	168	3360	3436.5
BAL20-T17003V	BAL20-T17003A	10	170	3400	3476.5
BAL20-T17203V	BAL20-T17203A	10	172	3440	3516.5
BAL20-T17403V	BAL20-T17403A	10	174	3480	3556.5
BAL20-T17603V	BAL20-T17603A	10	176	3520	3596.5
BAL20-T17803V	BAL20-T17803A	10	178	3560	3636.5
BAL20-T18003V	BAL20-T18003A	10	180	3600	3676.5
BAL20-T18203V	BAL20-T18203A	10	182	3640	3716.5
BAL20-T18403V	BAL20-T18403A	10	184	3680	3756.5
BAL20-T18603V	BAL20-T18603A	10	186	3720	3796.5
BAL20-T18803V	BAL20-T18803A	10	188	3760	3836.5

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

Navigation LIDAR

BAL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL20-T19003V	BAL20-T19003A	10	190	3800	3876.5
BAL20-T19203V	BAL20-T19203A	10	192	3840	3916.5
BAL20-T19403V	BAL20-T19403A	10	194	3880	3956.5
BAL20-T19603V	BAL20-T19603A	10	196	3920	3996.5
BAL20-T19803V	BAL20-T19803A	10	198	3960	4036.5
BAL20-T20003V	BAL20-T20003A	10	200	3980	4056.5

BAL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL40-T0403V	BAL40-T0403A	40	4	120	196.5
BAL40-T0603V	BAL40-T0603A	40	6	200	276.5
BAL40-T0803V	BAL40-T0803A	40	8	280	356.5
BAL40-T1003V	BAL40-T1003A	40	10	360	436.5
BAL40-T1203V	BAL40-T1203A	40	12	440	516.5
BAL40-T1403V	BAL40-T1403A	40	14	520	596.5
BAL40-T1603V	BAL40-T1603A	40	16	600	676.5
BAL40-T1803V	BAL40-T1803A	40	18	680	756.5
BAL40-T2003V	BAL40-T2003A	40	20	760	836.5
BAL40-T2203V	BAL40-T2203A	40	22	840	916.5
BAL40-T2403V	BAL40-T2403A	40	24	920	996.5
BAL40-T2603V	BAL40-T2603A	40	26	1000	1076.5
BAL40-T2803V	BAL40-T2803A	40	28	1080	1156.5
BAL40-T3003V	BAL40-T3003A	40	30	1160	1236.5
BAL40-T3203V	BAL40-T3203A	40	32	1240	1316.5
BAL40-T3403V	BAL40-T3403A	40	34	1320	1396.5
BAL40-T4603V	BAL40-T4603A	40	36	1400	1476.5
BAL40-T3803V	BAL40-T3803A	40	38	1480	1556.5
BAL40-T4003V	BAL40-T4003A	40	40	1560	1636.5
BAL40-T4203V	BAL40-T4203A	40	42	1640	1716.5
BAL40-T4403V	BAL40-T4403A	40	44	1720	1796.5
BAL40-T4603V	BAL40-T4603A	40	46	1800	1876.5
BAL40-T4803V	BAL40-T4803A	40	48	1880	1956.5
BAL40-T5003V	BAL40-T5003A	40	50	1960	2036.5
BAL40-T5203V	BAL40-T5203A	40	52	2040	2116.5
BAL40-T5403V	BAL40-T5403A	40	54	2120	2196.5
BAL40-T5603V	BAL40-T5603A	40	56	2200	2276.5
BAL40-T5803V	BAL40-T5803A	40	58	2280	2356.5
BAL40-T6003V	BAL40-T6003A	40	60	2360	2436.5
BAL40-T6203V	BAL40-T6203A	40	62	2440	2516.5
BAL40-T6403V	BAL40-T6403A	40	64	2520	2596.5
BAL40-T6603V	BAL40-T6603A	40	66	2600	2676.5
BAL40-T6803V	BAL40-T6803A	40	68	2680	2756.5
BAL40-T7003V	BAL40-T7003A	40	70	2760	2836.5
BAL40-T7203V	BAL40-T7203A	40	72	2840	2916.5
BAL40-T7403V	BAL40-T7403A	40	74	2920	2996.5
BAL40-T7603V	BAL40-T7603A	40	76	3000	3076.5
BAL40-T7803V	BAL40-T7803A	40	78	3080	3156.5
BAL40-T8003V	BAL40-T8003A	40	80	3160	3236.5
BAL40-T8203V	BAL40-T8203A	40	82	3240	3316.5
BAL40-T8403V	BAL40-T8403A	40	84	3320	3396.5
BAL40-T8603V	BAL40-T8603A	40	86	3400	3476.5
BAL40-T8803V	BAL40-T8803A	40	88	3480	3556.5
BAL40-T9003V	BAL40-T9003A	40	90	3560	3636.5
BAL40-T9203V	BAL40-T9203A	40	92	3640	3716.5
BAL40-T9403V	BAL40-T9403A	40	94	3720	3796.5
BAL40-T9603V	BAL40-T9603A	40	96	3800	3876.5
BAL40-T9803V	BAL40-T9803A	40	98	3880	3956.5
BAL40-T10003V	BAL40-T10003A	40	100	3960	4036.5

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

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Safety door lock

Pressure Switch

Communication

Accessories

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Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

Navigation LIDAR



Economical Type



Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	—
	Standard	—
	Light source	Infrared light, 860nm (modulation)
	Number of beams	8~32 beams
	Beam pitch	20/40mm
	Protection height	180~1240mm
	Protection distance	0.1~6.0m
	Mini. detectable object	φ28/φ48mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Line synchronization
	Response time	≤20ms
	Operating voltage	12~24VDC ± 10%
	Current consumption	Emitter: ≤200mA, Receiving: ≤200mA
	Power consumption	3~8W
	Residual Voltage	≤2.0V(150mA)/ < 2.0V
	Load Current	≤150mA
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)/ ± 500V 50/60Hz 60s
	Dielectric strength	500VAC (50/60Hz), 1 minute between power terminal and case/ ± 500V 50/60Hz 60s
	Protection circuit	Reverse polarity protection/short circuit protection/surge protection
Environmental conditions	Operating temperature	-10~55°C(No freezing)
	Storage temperature	-10~55°C(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp ≤3000Lux; LED ≤3000Lux; Sunlight ≤10000Lux
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	214.6~1274.6x30x29.65mm
	Material	Aluminum
	Weight	0.62~6.37kg
	Accessories	Right angle mount: M12/5-pin plug cable x2

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Guidance

Light curtains

- Standard type
- Top-emitting type
- Side-emitting type
- Waterproof type
- Measuring type
- Economical type

Safety Light Curtain

- Safety Light Curtain

LIDAR scanner

- TOF LIDAR scanner
- MINI LIDAR scanner
- Navigation LIDAR

Economical Type

BSL Series

BSL20

Beam pitch		20mm				
Mini. detectable object		φ28 or more opaque object				
Protection distance		0.1~6m				
Number of beams		10 beams	12 beams	14 beams	… …	32 beams
Protection height		180mm	220mm	260mm	… …	620mm
Length of light curtain		214.6mm	254.6mm	294.6mm	… …	654.6mm
Model	NPN NC	BSL20-T1006NC	BSL20-T1206NC	BSL20-T1406NC	… …	BSL20-T3206NC
	PNP NC	BSL20-T1006PC	BSL20-T1206PC	BSL20-T1406PC	… …	BSL20-T3206PC

BSL40

Beam pitch		40mm				
Mini. detectable object		φ48 or more opaque object				
Protection distance		0.1~6m				
Number of beams		8 beams	10 beams	12 beams	… …	32 beams
Protection height		280mm	360mm	440mm	… …	1240mm
Length of light curtain		314.6mm	394.6mm	474.6mm	… …	1274.6mm
Model	NPN NC	BSL40-T0806NC	BSL40-T1006NC	BSL40-T1206NC	… …	BSL40-T3206NC
	PNP NC	BSL40-T0806PC	BSL40-T1006PC	BSL40-T1206PC	… …	BSL40-T3206PC

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Light curtains
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BSL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BSL20-T1006NC	BSL20-T1006PC	20	10	180	214.6
BSL20-T1206NC	BSL20-T1206PC	20	12	220	254.6
BSL20-T1406NC	BSL20-T1406PC	20	14	260	294.6
BSL20-T1606NC	BSL20-T1606PC	20	16	300	334.6
BSL20-T1806NC	BSL20-T1806PC	20	18	340	374.6
BSL20-T2006NC	BSL20-T2006PC	20	20	380	414.6
BSL20-T2206NC	BSL20-T2206PC	20	22	420	454.6
BSL20-T2406NC	BSL20-T2406PC	20	24	460	494.6
BSL20-T2606NC	BSL20-T2606PC	20	26	500	534.6
BSL20-T2806NC	BSL20-T2806PC	20	28	540	574.6
BSL20-T3006NC	BSL20-T3006PC	20	30	580	614.6
BSL20-T3206NC	BSL20-T3206PC	20	32	620	654.6

BSL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BSL40-T0806NC	BSL40-T0806PC	40	08	280	314.6
BSL40-T1006NC	BSL40-T1006PC	40	10	360	394.6
BSL40-T1206NC	BSL40-T1206PC	40	12	440	474.6
BSL40-T1406NC	BSL40-T1406PC	40	14	520	554.6
BSL40-T1606NC	BSL40-T1606PC	40	16	600	634.6
BSL40-T1806NC	BSL40-T1806PC	40	18	680	714.6
BSL40-T2006NC	BSL40-T2006PC	40	20	760	794.6
BSL40-T2206NC	BSL40-T2206PC	40	22	840	874.6
BSL40-T2406NC	BSL40-T2406PC	40	24	920	954.6
BSL40-T2606NC	BSL40-T2606PC	40	26	1000	1034.6
BSL40-T2806NC	BSL40-T2806PC	40	28	1080	1114.6
BSL40-T3006NC	BSL40-T3006PC	40	30	1160	1194.6
BSL40-T3206NC	BSL40-T3206PC	40	32	1240	1274.6

Fiber Optic

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Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

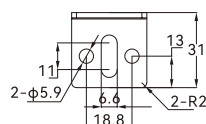
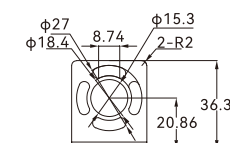
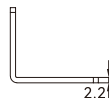
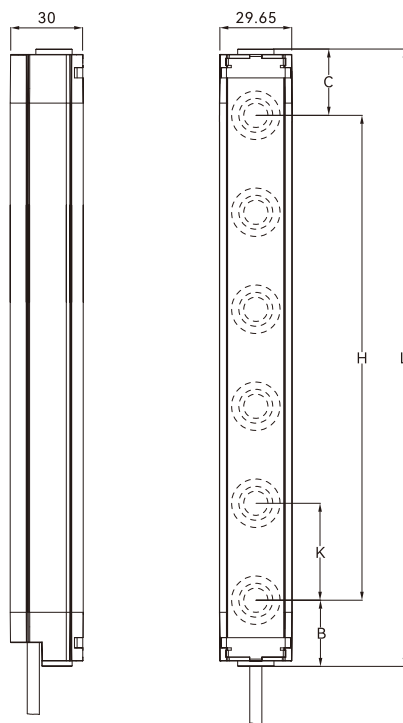
Navigation LiDAR

Economical Type

Dimensions

Unit:mm

Area



$$B=C=17.3\text{mm}$$

$$H=(N-1)*K$$

$$L=H+B+C$$

B: Upper blind height

C: Lower blind height

K: Beam pitch

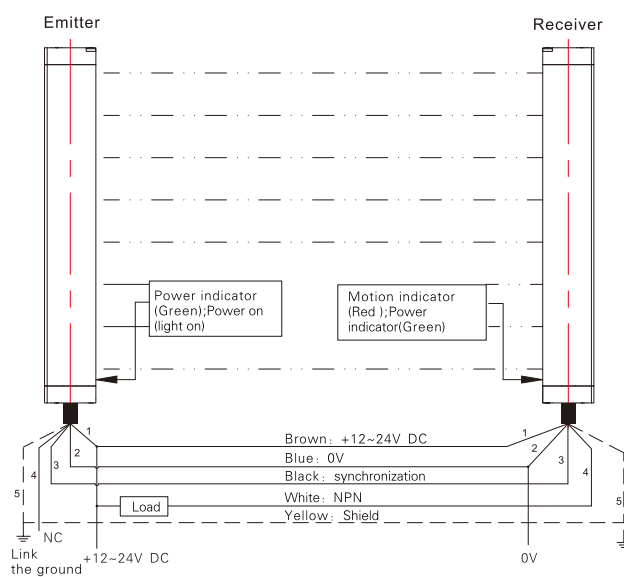
H: Protection height

N: No. of beam

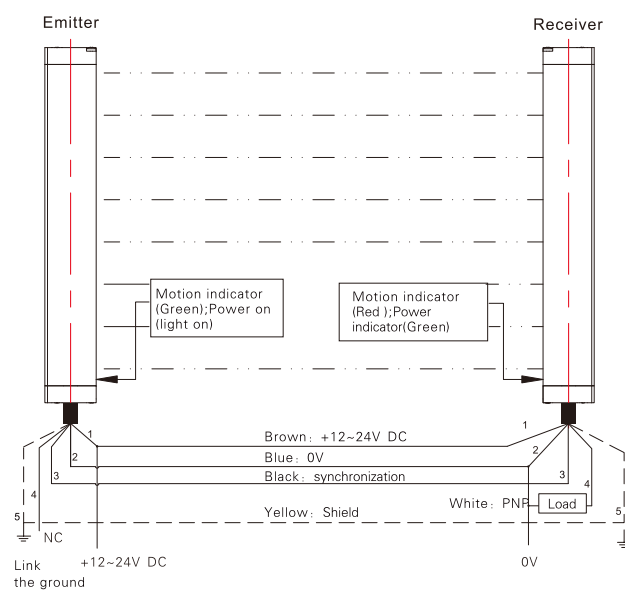
L: Total light curtain height

Connection Diagram

NPN



PNP





Economical Type



Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	—
	Standard	—
	Light source	Infrared light (modulation)
	Number of beams	4~48 beams
	Beam pitch	10/20/40mm
	Protection height	120~1880mm
	Protection distance	0.1~6.0m
	Mini. detectable object	φ14/φ25/φ45mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Optical synchronization, Line synchronization
	Response time	≤10ms
	Operating voltage	12~24VDC ± 10%
	Current consumption	≤200mA
	Power consumption	3~8W
	Residual Voltage	≤1.5V (150mA)
	Load Current	—
	Insulation resistance	≥10MΩ between power terminal and case (500VDC)
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection/surge protection
Environmental conditions	Operating temperature	-15~55°C(No freezing)
	Storage temperature	-20~60°C(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp≤3000Lux;LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~150Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	146~1926x30x30mm
	Material	Aluminum
	Weight	0.75~9.65kg
	Accessories	Mounting bracket, mounting screws, M12/6-pin plug cablex2

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Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

Area

Economical Type

BKL Series

BKL10

Beam pitch	10mm						
Mini. detectable object	φ14 or more opaque object						
Protection distance	0.1~6m						
Number of beams	14 beams	16 beams	18 beams	20 beams	22 beams		48 beams
Protection height	130mm	150mm	170mm	190mm	210mm		470mm
Length of light curtain	146mm	166mm	186mm	206mm	226mm		486mm
Model	NPN NC	BKL10-T1406NC	BKL10-T1606NC	BKL10-T1806NC	BKL10-T2006NC	BKL10-T2206NC	 BKL10-T4806NC
	PNP NC	BKL10-T1406PC	BKL10-T1606PC	BKL10-T1806PC	BKL10-T2006PC	BKL10-T2206PC	 BKL10-T4806PC

Remarks: Maximum number of beams is 64.

BKL20

Beam pitch	20mm						
Mini. detectable object	φ25 or more opaque object						
Protection distance	0.1~6m						
Number of beams	8 beams	10 beams	12 beams	14 beams	16 beams		48 beams
Protection height	140mm	180mm	220mm	260mm	300mm		940mm
Length of light curtain	166mm	206mm	246mm	286mm	326mm		966mm
Model	NPN NC	BKL20-T0806NC	BKL20-T1006NC	BKL20-T1206NC	BKL20-T1406NC	BKL20-T1606NC	 BKL20-T4806NC
	PNP NC	BKL20-T0806PC	BKL20-T1006PC	BKL20-T1206PC	BKL20-T1406PC	BKL20-T1606PC	 BKL20-T4806PC

Remarks: Maximum number of beams is 128.

BKL40

Beam pitch	40mm						
Mini. detectable object	φ45 or more opaque object						
Protection distance	0.1~6m						
Number of beams	4 beams	6 beams	8 beams	10 beams	12 beams		48 beams
Protection height	120mm	200mm	280mm	360mm	440mm		1880mm
Length of light curtain	166mm	246mm	326mm	406mm	486mm		1926mm
Model	NPN NC	BKL40-T0406NC	BKL40-T0606NC	BKL40-T0806NC	BKL40-T1006NC	BKL40-T1206NC	 BKL40-T4806NC
	PNP NC	BKL40-T0406PC	BKL40-T0606PC	BKL40-T0806PC	BKL40-T1006PC	BKL40-T1206PC	 BKL40-T4806PC

Remarks: Maximum number of beams is 48.

Guidance

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

Navigation LIDAR

BKL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BKL10-T1406NC	BKL10-T1406PC	10	14	130	146
BKL10-T1606NC	BKL10-T1606PC	10	16	150	166
BKL10-T1806NC	BKL10-T1806PC	10	18	170	186
BKL10-T2006NC	BKL10-T2006PC	10	20	190	206
BKL10-T2206NC	BKL10-T2206PC	10	22	210	226
BKL10-T2406NC	BKL10-T2406PC	10	24	230	246
BKL10-T2606NC	BKL10-T2606PC	10	26	250	266
BKL10-T2806NC	BKL10-T2806PC	10	28	270	286
BKL10-T3006NC	BKL10-T3006PC	10	30	290	306
BKL10-T3206NC	BKL10-T3206PC	10	32	310	326
BKL10-T3406NC	BKL10-T3406PC	10	34	330	346
BKL10-T3606NC	BKL10-T3606PC	10	36	350	366
BKL10-T3806NC	BKL10-T3806PC	10	38	370	386
BKL10-T4006NC	BKL10-T4006PC	10	40	390	406
BKL10-T4206NC	BKL10-T4206PC	10	42	410	426
BKL10-T4406NC	BKL10-T4406PC	10	44	430	446
BKL10-T4606NC	BKL10-T4606PC	10	46	450	466
BKL10-T4806NC	BKL10-T4806PC	10	48	470	486

BKL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BKL20-T0806NC	BKL20-T0806PC	20	08	140	166
BKL20-T1006NC	BKL20-T1006PC	20	10	180	206
BKL20-T1206NC	BKL20-T1206PC	20	12	220	246
BKL20-T1406NC	BKL20-T1406PC	20	14	260	286
BKL20-T1606NC	BKL20-T1606PC	20	16	300	326
BKL20-T1806NC	BKL20-T1806PC	20	18	340	366
BKL20-T2006NC	BKL20-T2006PC	20	20	380	406
BKL20-T2206NC	BKL20-T2206PC	20	22	420	446
BKL20-T2406NC	BKL20-T2406PC	20	24	460	486
BKL20-T2606NC	BKL20-T2606PC	20	26	500	526
BKL20-T2806NC	BKL20-T2806PC	20	28	540	566
BKL20-T3006NC	BKL20-T3006PC	20	30	580	606
BKL20-T3206NC	BKL20-T3206PC	20	32	620	646
BKL20-T3406NC	BKL20-T3406PC	20	34	660	686
BKL20-T3606NC	BKL20-T3606PC	20	36	700	726
BKL20-T3806NC	BKL20-T3806PC	20	38	740	766
BKL20-T4006NC	BKL20-T4006PC	20	40	780	806
BKL20-T4206NC	BKL20-T4206PC	20	42	820	846
BKL20-T4406NC	BKL20-T4406PC	20	44	860	886
BKL20-T4606NC	BKL20-T4606PC	20	46	900	926
BKL20-T4806NC	BKL20-T4806PC	20	48	940	966

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

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

Navigation LIDAR

Area

Fiber Optic

Slot Sensors

Photoelectric

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Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

MINI LIDAR scanner

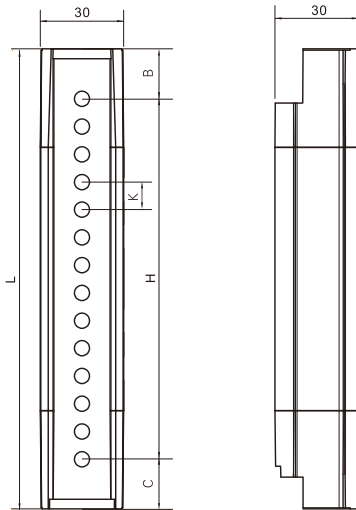
Navigation LIDAR

Economical Type

BKL Series

BKL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BKL40-T0406NC	BKL40-T0406PC	40	04	120	166
BKL40-T0606NC	BKL40-T0606PC	40	06	200	246
BKL40-T0806NC	BKL40-T0806PC	40	08	280	326
BKL40-T1006NC	BKL40-T1006PC	40	10	360	406
BKL40-T1206NC	BKL40-T1206PC	40	12	440	486
BKL40-T1406NC	BKL40-T1406PC	40	14	520	566
BKL40-T1606NC	BKL40-T1606PC	40	16	600	646
BKL40-T1806NC	BKL40-T1806PC	40	18	680	726
BKL40-T2006NC	BKL40-T2006PC	40	20	760	806
BKL40-T2206NC	BKL40-T2206PC	40	22	840	886
BKL40-T2406NC	BKL40-T2406PC	40	24	920	966
BKL40-T2606NC	BKL40-T2606PC	40	26	1000	1046
BKL40-T2806NC	BKL40-T2806PC	40	28	1080	1126
BKL40-T3006NC	BKL40-T3006PC	40	30	1160	1206
BKL40-T3206NC	BKL40-T3206PC	40	32	1240	1286
BKL40-T3406NC	BKL40-T3406PC	40	34	1320	1366
BKL40-T3606NC	BKL40-T3606PC	40	36	1400	1446
BKL40-T3806NC	BKL40-T3806PC	40	38	1480	1526
BKL40-T4006NC	BKL40-T4006PC	40	40	1560	1606
BKL40-T4206NC	BKL40-T4206PC	40	42	1640	1686
BKL40-T4406NC	BKL40-T4406PC	40	44	1720	1766
BKL40-T4606NC	BKL40-T4606PC	40	46	1800	1846
BKL40-T4806NC	BKL40-T4806PC	40	48	1880	1926



B: Upper blind
C: Lower blind
K: Beam pitch
H: Protection Height
N: No. of beams
N: Light curtain total height

$$B = 1/2K + 3\text{mm}$$

$$C = 1/2K + 3\text{mm}$$

$$H = (N - 1) * K$$

$$L = H + B + C$$

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact

Area

Ultrasonic
AI Image
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Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

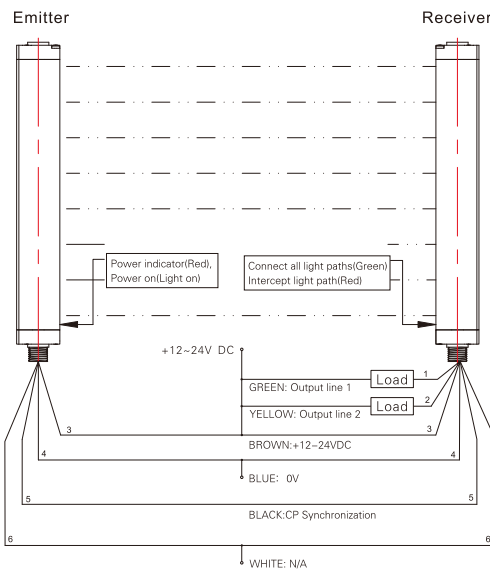
TOF LIDAR scanner

MINI LIDAR scanner

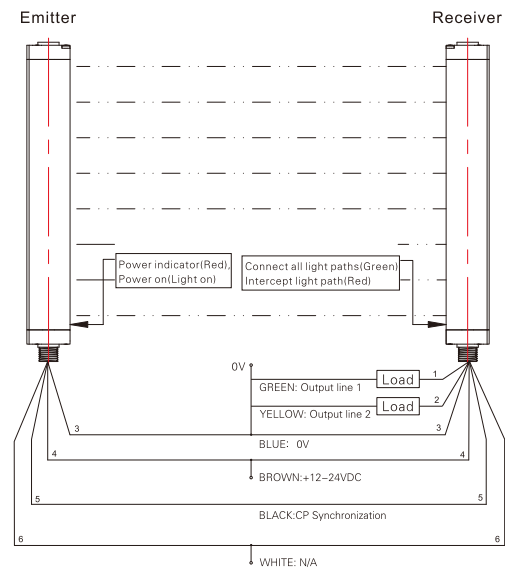
Navigation LiDAR

Connection Diagram

NPN



PNP



Safety Light Curtain

SAF Series

Area



Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	Type 4 Cat.4 PLe
	Standard	GB 4584、GB/T 19436.1 (Type 4)、GB/T 19436.2 (Type 4)、IEC 61496-1 (Type 4)、IEC 61496-2 (Type 4)
	Light source	Infrared light,940nm (modulation)
	Number of beams	4~72 beams
	Beam pitch	10/20/40mm
	Protection height	120~2840mm
	Protection distance	0~6m/0~12m/8~20m
	Mini. detectable object	φ18/φ28/φ38/φ48mm or more opaque object
Electrical data	Output Mode	PNP (two groups)
	Synchronization type	Line synchronization
	Response time	≤20ms
	Operating voltage	24VDC±10%
	Current consumption	Emitter: ≤300mA, Receiving: ≤100mA
	Power consumption	3~10W
	Residual Voltage	≤3.5V(300mA)
	Load Current	≤300mA
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection
Environmental conditions	Operating temperature	-10~55℃(No freezing)
	Storage temperature	-40~70℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp≤3000Lux;LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	239~2959x35x52mm
	Material	-
	Weight	1.2~14.8kg
	Accessories	Mounting bracket, mounting screws, M18/7-pin plug cablex2

Product Description

The safety light curtain integrates the controller and is a photoelectric protection device for risk-assessed equipment that does not require a controller and needs to be controlled by a level signal (e.g. equipment controlled by a PLC, computer), with two safe PNP output signals. It meets the requirements of safety class four. SAF series light curtains can effectively detect any opaque objects that enter the light curtain area beyond the detection accuracy. It is suitable for the safety protection of mechanical presses, hydraulic presses, shearing machines, bending machines, and other hazardous occasions. It can be used for detection and anti-theft.

Product features

- Perfect self-test function, realizing full self-test including output signal;
- Floating shielding function can be realized, which is convenient to realize the processing of long materials;
- Provide two relay passive contact outputs, higher safety performance
- High detection accuracy, up to 18mm, can protect fingers;
- Long detection distance, up to 40m.
- Long detection height, up to 2840mm.
- Wide range of product specifications
- Split indication function can be provided to visualize the state of the beam on and off;
- Good vibration damping performance, suitable for high-speed punch, large tonnage presses, long service life;
- Strong resistance to light interference and electromagnetic interference; more stable work;
- configuring the safety relay module, it can provide two forms of 3 normally open and 1 normally closed outputs and 2 normally open and 1 normally closed outputs.

SAF10

Beam pitch	10mm						
Mini. detectable object	φ18 or more opaque object						
Protection distance	03: 0~3m; 12: 0~12m; 20: 8~20m;						
Number of beams	16 beams	20 beams	24 beams	28 beams	32 beams		72 beams
Protection height	150mm	190mm	230mm	270mm	310mm		710mm
Length of light curtain	239mm	279mm	319mm	359mm	399mm		799mm
Model	PNP NC	SAF10-T1603PC	SAF10-T2003PC	SAF10-T2403PC	SAF10-T2803PC	SAF10-T3203PC	 SAF10-T7203PC
	Other	03: 0~3m	12: 0~12m	20: 8~20m			

SAF20

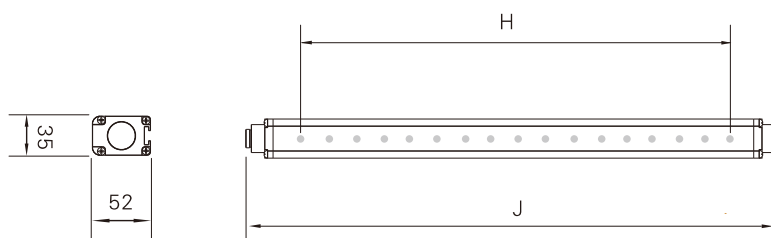
Beam pitch	20mm						
Mini. detectable object	φ28 or more opaque object						
Protection distance	03: 0~3m; 12: 0~12m; 20: 8~20m;						
Number of beams	8 beams	10 beams	12 beams	14 beams	16 beams		72 beams
Protection height	140mm	180mm	220mm	260mm	300mm		1420mm
Length of light curtain	239mm	279mm	319mm	359mm	399mm		1519mm
Model	PNP NC	SAF20-T0803PC	SAF20-T1003PC	SAF20-T1203PC	SAF20-T1403PC	SAF20-T1603PC	 SAF20-T7203PC
	Other	03: 0~3m	12: 0~12m	20: 8~20m			

SAF40

Beam pitch	40mm						
Mini. detectable object	φ48 or more opaque object						
Protection distance	03: 0~3m; 12: 0~12m; 20: 8~20m;						
Number of beams	4 beams	6 beams	8 beams	10 beams	12 beams		72 beams
Protection height	120mm	200mm	280mm	360mm	440mm		2840mm
Length of light curtain	239mm	319mm	399mm	479mm	559mm		2959mm
Model	PNP NC	SAF40-T0403PC	SAF40-T0603PC	SAF40-T0803PC	SAF40-T1003PC	SAF40-T1203PC	 SAF40-T7203PC
	Other	03: 0~3m	12: 0~12m	20: 8~20m			

Unit:mm

Dimensions



H: Protection height
J: Length of light emitter and light receiver

- 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

Light curtains

- Standard type
- Top-emitting type
- Side-emitting type
- Waterproof type
- Measuring type
- Economical type

Safety Light Curtain

- Safety Light Curtain

LIDAR scanner

- TOF LIDAR scanner
- MINI LIDAR scanner
- Navigation LIDAR

Area

</

SAF40

Model			Beam pitch	No. Beams	Detection Height	Light Curtain Height
SAF40-T0403PC	SAF40-T0412PC	SAF40-T0420PC	40	04	120	239
SAF40-T0603PC	SAF40-T0612PC	SAF40-T0620PC	40	06	200	319
SAF40-T0803PC	SAF40-T0812PC	SAF40-T0820PC	40	08	280	399
SAF40-T1003PC	SAF40-T1012PC	SAF40-T1020PC	40	10	360	479
SAF40-T1203PC	SAF40-T1212PC	SAF40-T1220PC	40	12	440	559
SAF40-T1403PC	SAF40-T1412PC	SAF40-T1420PC	40	14	520	639
SAF40-T1603PC	SAF40-T1612PC	SAF40-T1620PC	40	16	600	719
SAF40-T1803PC	SAF40-T1812PC	SAF40-T1820PC	40	18	680	799
SAF40-T2003PC	SAF40-T2012PC	SAF40-T2020PC	40	20	760	879
SAF40-T2203PC	SAF40-T2212PC	SAF40-T2220PC	40	22	840	959
SAF40-T2403PC	SAF40-T2412PC	SAF40-T2420PC	40	24	920	1039
SAF40-T2603PC	SAF40-T2612PC	SAF40-T2620PC	40	26	1000	1119
SAF40-T2803PC	SAF40-T2812PC	SAF40-T2820PC	40	28	1080	1199
SAF40-T3003PC	SAF40-T3012PC	SAF40-T3020PC	40	30	1160	1279
SAF40-T3203PC	SAF40-T3212PC	SAF40-T3220PC	40	32	1240	1359
SAF40-T3403PC	SAF40-T3412PC	SAF40-T3420PC	40	34	1320	1439
SAF40-T3603PC	SAF40-T3612PC	SAF40-T3620PC	40	36	1400	1519
SAF40-T3803PC	SAF40-T3812PC	SAF40-T3820PC	40	38	1480	1599
SAF40-T4003PC	SAF40-T4012PC	SAF40-T4020PC	40	40	1560	1679
SAF40-T4203PC	SAF40-T4212PC	SAF40-T4220PC	40	42	1640	1759
SAF40-T4403PC	SAF40-T4412PC	SAF40-T4420PC	40	44	1720	1839
SAF40-T4603PC	SAF40-T4612PC	SAF40-T4620PC	40	46	1800	1919
SAF40-T4803PC	SAF40-T4812PC	SAF40-T4820PC	40	48	1880	1999
SAF40-T5003PC	SAF40-T5012PC	SAF40-T5020PC	40	50	1960	2079
SAF40-T5203PC	SAF40-T5212PC	SAF40-T5220PC	40	52	2040	2159
SAF40-T5403PC	SAF40-T5412PC	SAF40-T5420PC	40	54	2120	2239
SAF40-T5603PC	SAF40-T5612PC	SAF40-T5620PC	40	56	2200	2319
SAF40-T5803PC	SAF40-T5812PC	SAF40-T5820PC	40	58	2280	2399
SAF40-T6003PC	SAF40-T6012PC	SAF40-T6020PC	40	60	2360	2479
SAF40-T6203PC	SAF40-T6212PC	SAF40-T6220PC	40	62	2440	2559
SAF40-T6403PC	SAF40-T6412PC	SAF40-T6420PC	40	64	2520	2639
SAF40-T6603PC	SAF40-T6612PC	SAF40-T6620PC	40	66	2600	2719
SAF40-T6803PC	SAF40-T6812PC	SAF40-T6820PC	40	68	2680	2799
SAF40-T7003PC	SAF40-T7012PC	SAF40-T7020PC	40	70	2760	2879
SAF40-T7203PC	SAF40-T7212PC	SAF40-T7220PC	40	72	2840	2959

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

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

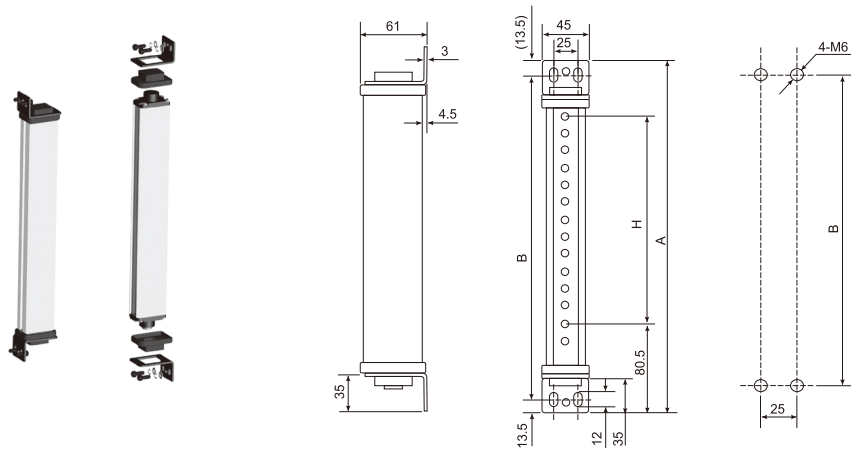
MINI LIDAR scanner

Navigation LIDAR

Safety Light Curtain

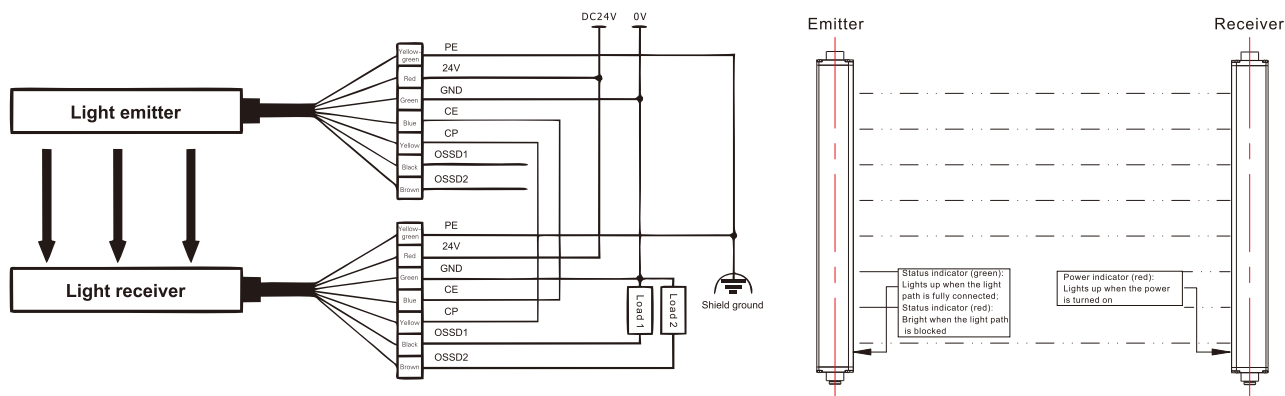
Installation Method

Front and side integrated installation method (ZC)



A	Optical axis spacing 10mm	H+131
	Optical axis spacing 20mm	H+141
	Optical axis spacing 30mm	H+131
	Optical axis spacing 40mm	H+161
B	Optical axis spacing 10mm	H+104
	Optical axis spacing 20mm	H+114
	Optical axis spacing 30mm	H+104
	Optical axis spacing 40mm	H+134
H	Protection height	

Connection diagram



Note: The control signal lines OSSD1 and OSSD2 at the light emitter end are floating.

Area

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact

- Area
- Ultrasonic
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- Accessories

Guidance

- Light curtains
- Standard type
- Top-emitting type
- Side-emitting type
- Waterproof type
- Measuring type
- Economical type

- Safety Light Curtain
- Safety Light Curtain

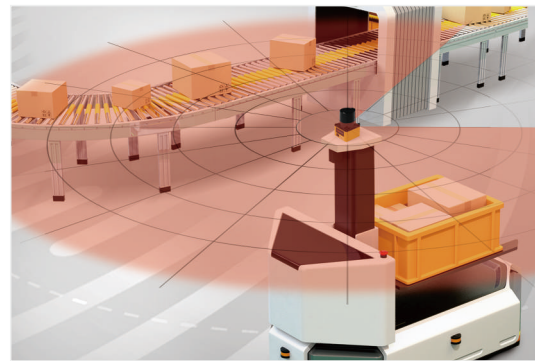
- LIDAR scanner
- TOF LIDAR scanner
- MINI LIDAR scanner
- Navigation LIDAR

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

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

Guidance

Light curtains

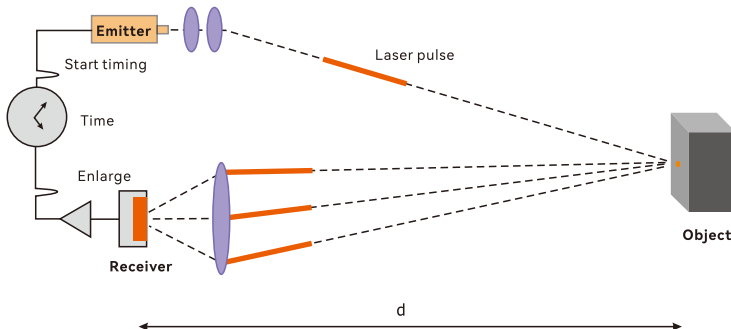
Standard type
Top-emitting type
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Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR



Mainstream performance of TOF single-line lidar

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

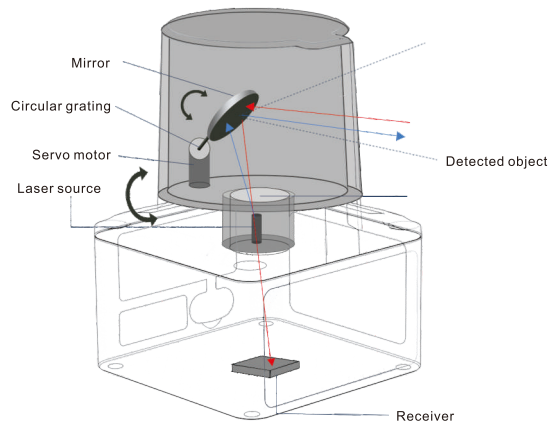
Horizontal viewing angle: 270° scanning angle, can be divided into 64 independent channels

Measurement rates up to 54 KHz

AS Series

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.



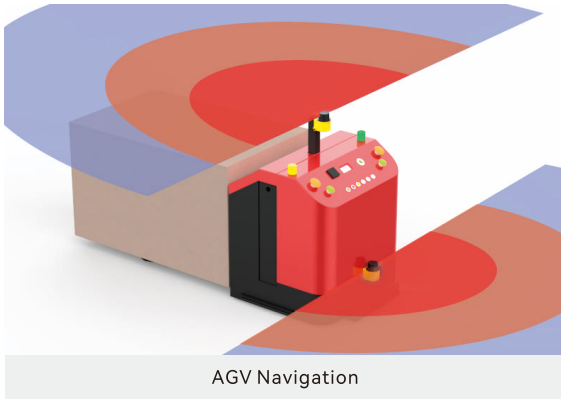
Lidar Technology

Pulsed TOF high-speed ranging technology:

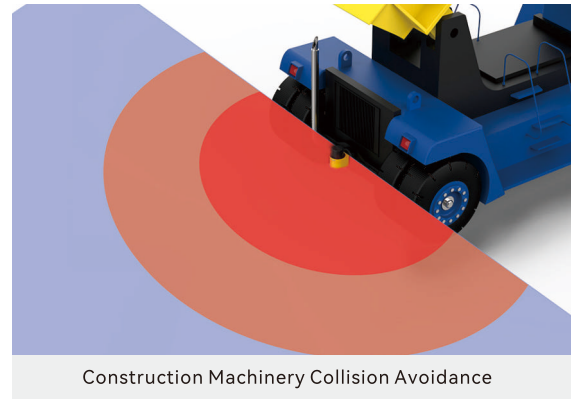
AKUSENSE's full range of LIDAR products utilize direct time-of-flight (dTOF) technology for distance measurement. This means that short, nanosecond pulses with high instantaneous power are emitted and the distance to the target is calculated by measuring the round trip time of the pulse. Compared to 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.

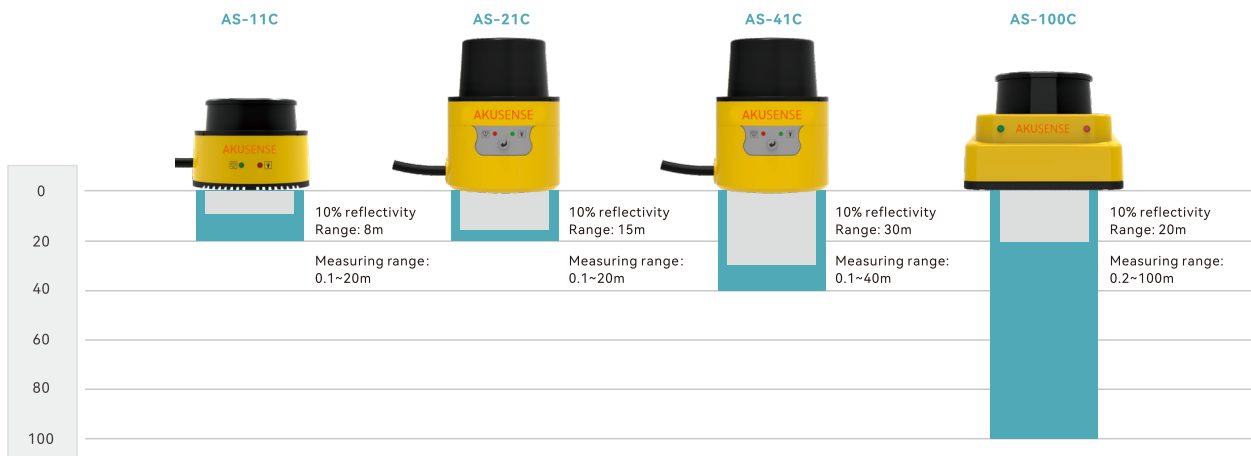


AGV Navigation

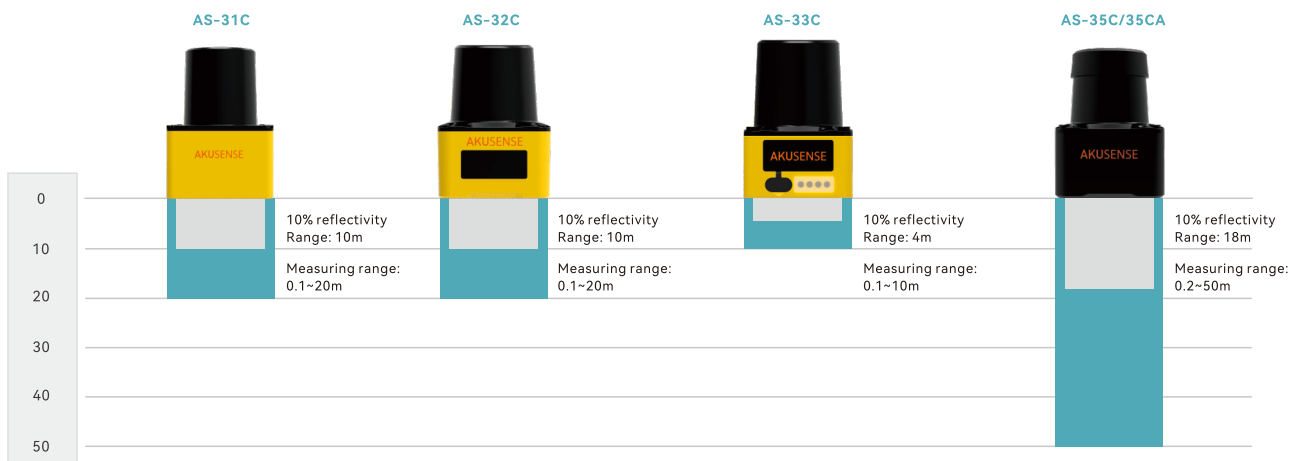


Construction Machinery Collision Avoidance

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

LiDAR Scanner

AS-21/41C

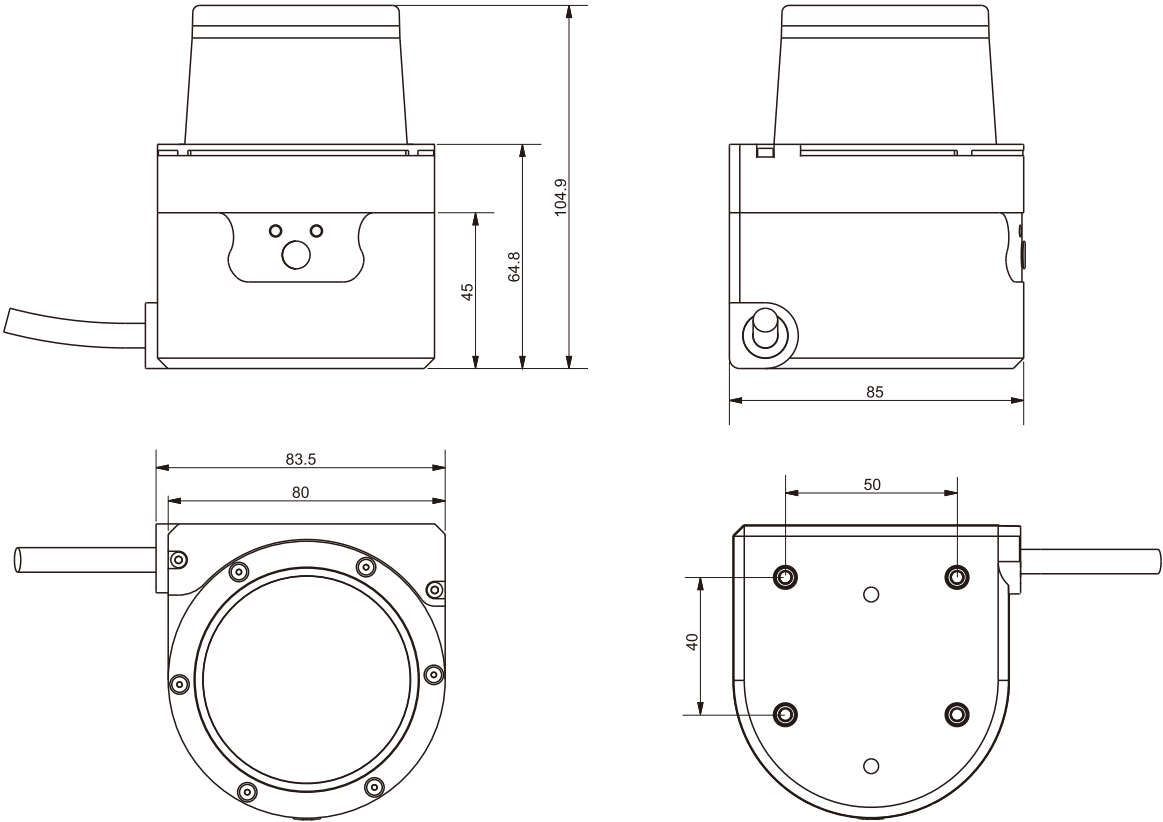
TOF Principle



CE



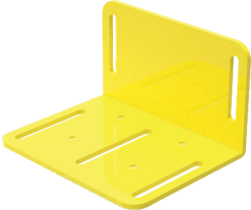
Basic Features	Working principle		TOF	
	Optical working principle		Diffuse Reflection	
	Light source		Infrared laser (905nm)	
	Laser spot exit aperture		8mm	
	Scanning angle		300°	
	Scanning angle resolution		0.5°(default)/0.25°/0.125°	
	Measuring range		0.1m ~20m	0.1m ~40m
	Measurement Error	System 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℃~+50℃	
	Storage temperature		-30℃~+70℃	
	Operating humidity		93%,+40℃,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



Power Interface

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

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

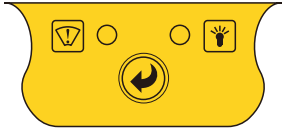
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain
LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

LiDAR Scanner

Indicators and Operation Buttons

	Name	Instructions
	 ERR	Work fault indicator ◆ 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/occluded ¹
	 HTR	Work status indicator ◆ 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-learning ² ◆ Flash3 (2.5Hz) : Ready to start self-learning ²
	 SLR	Operation button ◆ 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.

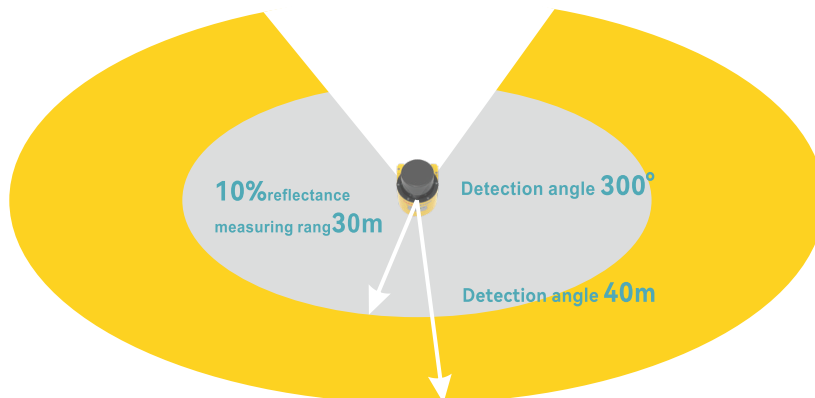
2:Including "background self-learning" and "normal goal self-learning"(customization function).

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 angle		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)
Electrical data	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)
	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

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LiDAR scanner

TOF LiDAR scanner

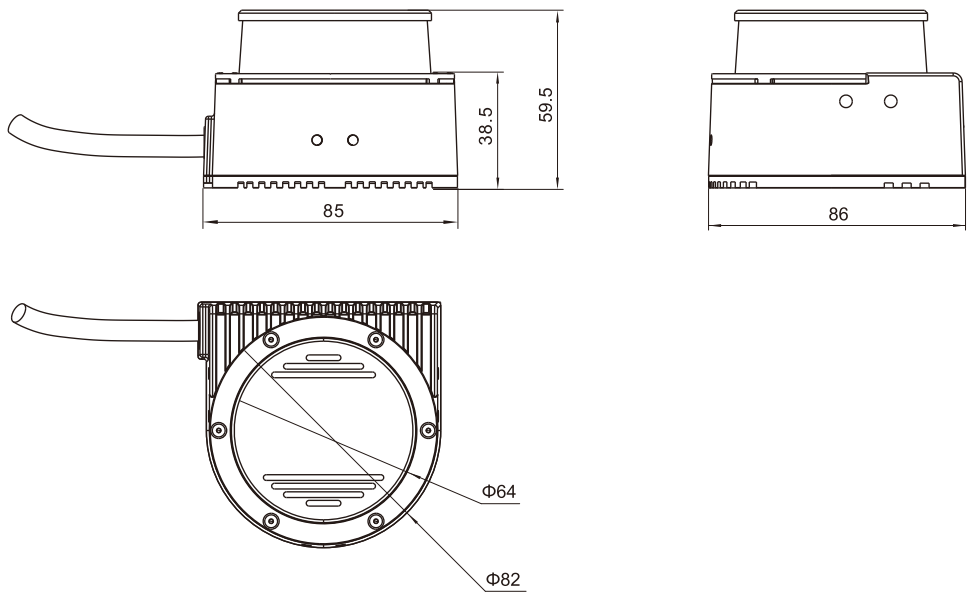
MINI LiDAR scanner

Navigation LiDAR

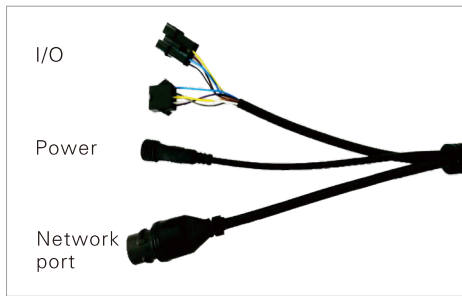
LiDAR Scanner

Dimensions

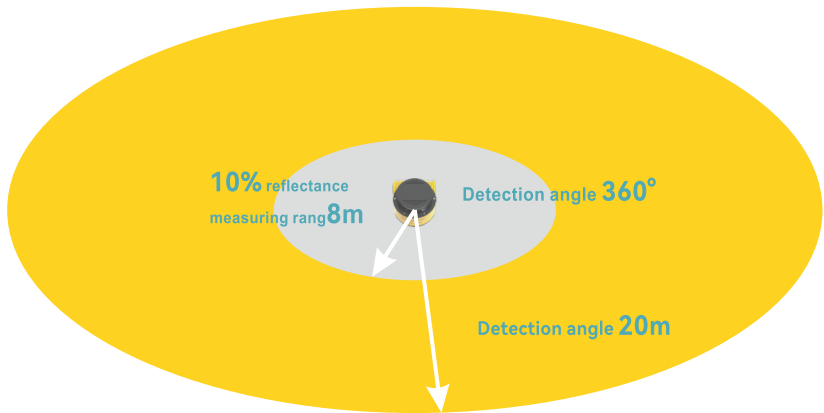
Unit:mm

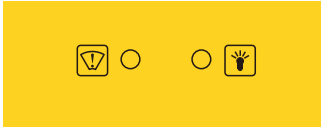


Power Interface

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

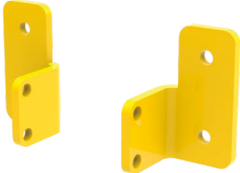
Accessories



	Name	Instructions
	 ERR	Work fault indicator ◆ 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 ◆ 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: AS-11C-AT*1 pc	Cable:AS-11C-EC*1 pc	Network cable crystal head waterproof jacket: AS-11C-WJ*1 pc	Accessories:A set of M4x8

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

Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

LiDAR Scanner

Navigation Type

TOF Principle

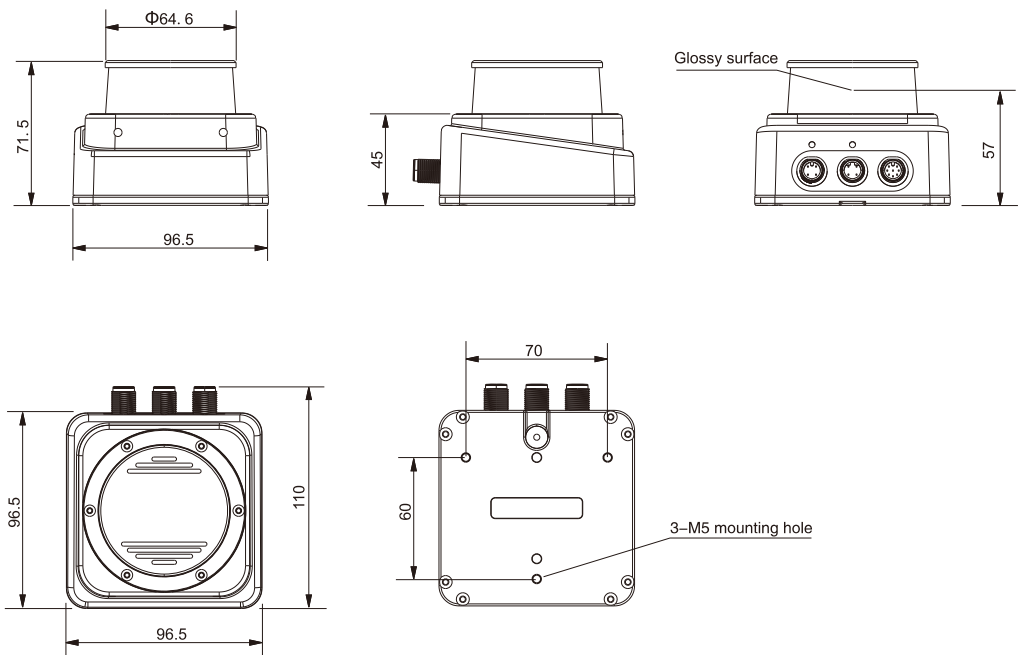
NEW!



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)×8.0(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	

Unit:mm

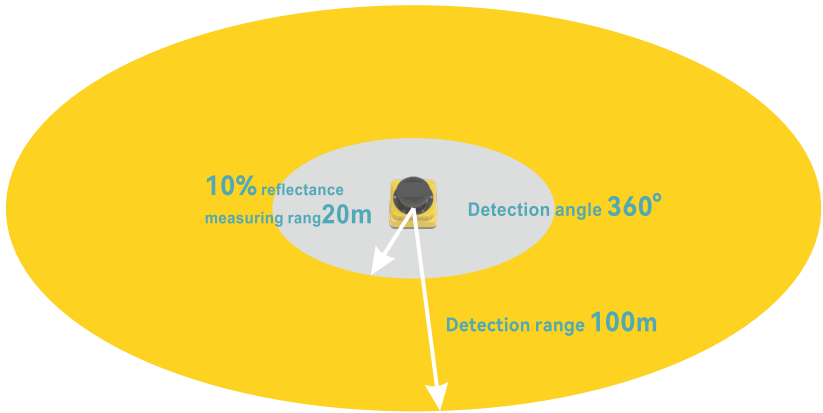
Dimensions



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

Measuring coordinate system/scanning range/range



Area

- 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

Light curtains

- Standard type
- Top-emitting type
- Side-emitting type
- Waterproof type
- Measuring type
- Economical type

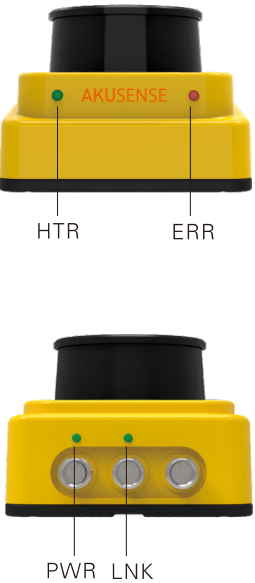
Safety Light Curtain

- Safety Light Curtain

LIDAR scanner

- TOF LIDAR scanner
- MINI LIDAR scanner
- Navigation LIDAR

Indicators and Operation Buttons

	Name	Description
	PWR	Power Indicator ◆ Normal off: no power / power is invalid ◆ Constant light: power on
	LNK	Ethernet indicator ◆ Always off: no network connection ◆ Always on: there is a network connection
	ERR	Work failure indicator ◆ Starting state: Yellow (about 24 seconds) ◆ Green: no fault ◆ Yellow: internal fault/measurement abnormal ¹ ◆ Long flashing (0.5Hz): high temperature/low temperature alarm ◆ Short flashing (1Hz): Dirty/obstructed light transmission cover ²
	HTR	Normal measurement indicator ◆ 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*1 pc	RJ45 network cable: AS-100C-IOCB*1 pc	I/O cable: AS-100C-IOCB*1 pc	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℃~60℃	
	Storage temperature		-20℃~70℃	
	Operating humidity		93%,+40℃,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

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LiDAR scanner

TOF LiDAR scanner

MINI LiDAR scanner

Navigation LiDAR

LiDAR Scanner

AS-33C



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	DC 9 V ~28 V
	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

Light curtains

Standard type

Top-emitting type

Side-emitting type

Waterproof type

Measuring type

Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner

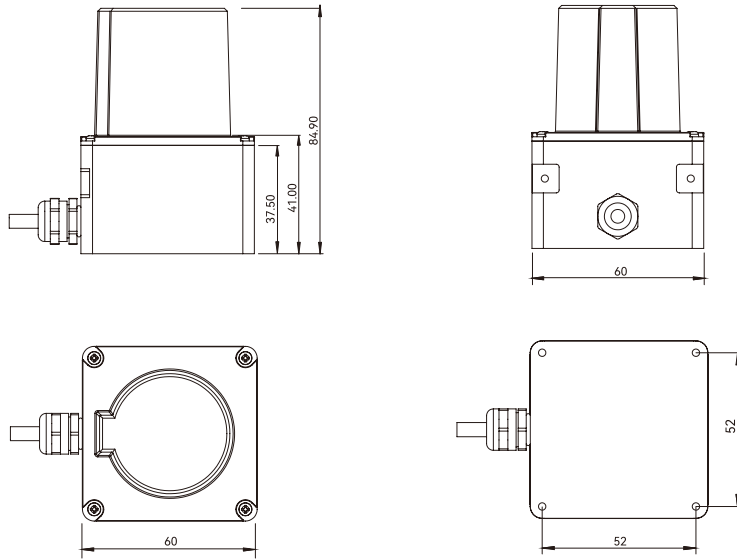
MINI LIDAR scanner

Navigation LIDAR

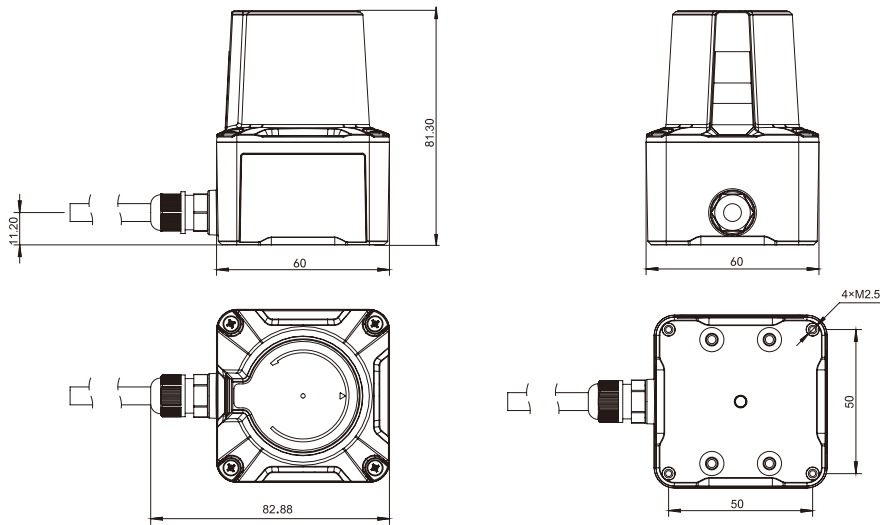
Unit:mm

Dimensions

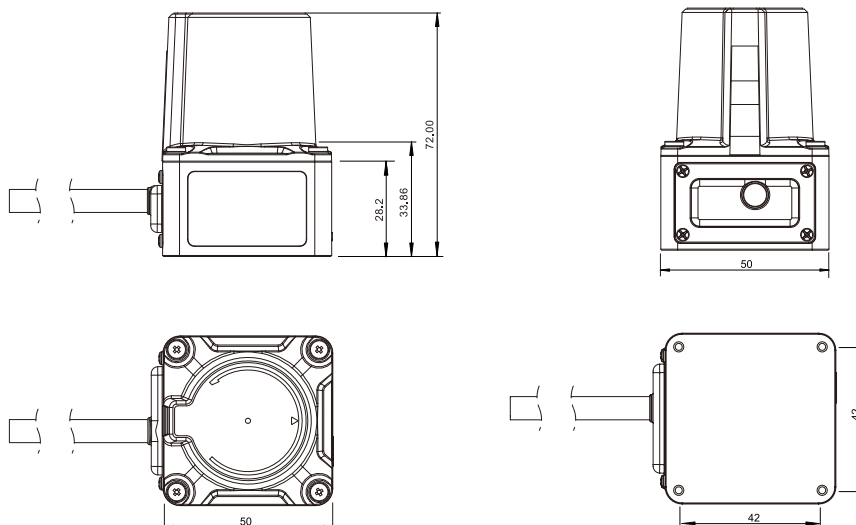
AS-31C



AS-32C



AS-33C



Area

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

Light curtains

Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain

Safety Light Curtain

LIDAR scanner

TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

LiDAR Scanner

AS-35C/AS-35CA

Area



TOF Principle

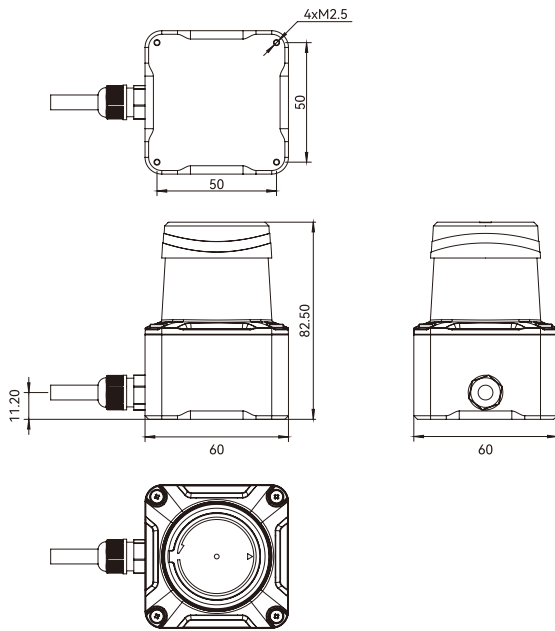
NEW!

CE

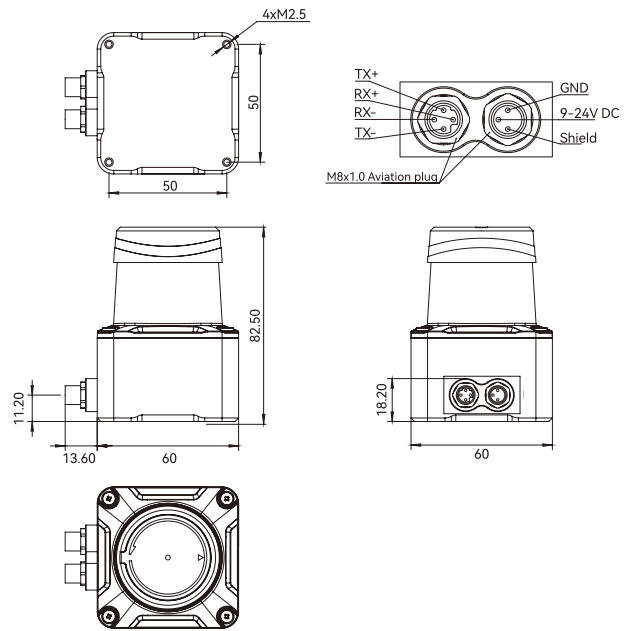
Basic Features	Working principle	TOF	
	Optical working principle	Diffuse Reflection	
	Light source	laser (905nm)	
	Laser spot exit aperture	4.5*2mm	
	Scanning angle	360°(Ranging performance in the area of 10° directly behind is about half of other positions)	
	Scanning angle resolution	0.06°/0.09°/0.12°/0.18°	
	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
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AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type
Safety Light Curtain
LIDAR scanner
TOF LIDAR scanner
MINI LIDAR scanner
Navigation LIDAR

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

Light curtains

- Standard type
- Top-emitting type
- Side-emitting type
- Waterproof type
- Measuring type
- Economical type

Safety Light Curtain

- Safety Light Curtain

LiDAR scanner

- TOF LiDAR scanner
- MINI LiDAR scanner
- Navigation LiDAR