TOF LiDAR Scanner

TOF Principle

Appearance			
Light source		Infrared laser(905nm)	
Laser safety level		Class 1 (GB7247.1–2012, Eye–safe IEC)	
Laser spot light diameter		8mm	
Laser spot light scan angle		12.5 mrad	
Scanning angle range		300°	
Scanning frequency		25Hz(system default)/12.5Hz/6.25Hz	
Scanning angle resolution		0.5° (system default)/0.25° /0.125°	
Sensing range		0.1m ~ 20m	0.1m ~40m
10% reflectivity range		15m	30m
Outdoor performance		Anti–dusty, Anti–sunlight	
Rain fog and smoke penetration		Supported	
Measurement error	System error (typical)	±5cm	±5cm（1m~20m）;±10cm（20m~40m）
	Statistical error (1σ)	±2cm	±2cm（1m~20m）;±4cm（20m~40m）
Built–in application Regional monitoring		Monitoring mode: Point number monitoring / target width monitoring / contour monitoring	
		Monitor signal level: Attention / warning / alarm	
		Number of regional groups: 16 groups, support self–learning background exclusion	
		Concurrent work area group number: 16 (max)	
		Guide the network camera to monitor the target video positioning and tracking	
Self–test equipment		Contents:Transparent cover dirt / block / high temperature / low temperature Output mode: Indicator + TCP packets	
Ethernet		Rate: 10/100 Mbps; Network protocol: TCP/IP; Function: Device configuration / measurement data output /monitor signal output	
I/O Input		Quantity：4; Type: Switching level input; High level range：10V~28V DC; Low level range：0V~5V DC Preset function: Monitor area selection (0x0 – 0xF); Regional monitoring disarm / forced alarm, active level: high level	
I/O Output		Quantity: 4; Type: PNP switch output ; Output voltage: Supply voltage;Power on: OFF;Device ready (OUT), active state: pass (High level), zone detection signal output (OUT2/OUT3/OUT4) active state: configurable	
Indicator light		Quantity: 2; Definition: ERR (Device alarm: Fault/Abnormal ,Transparent cover dirty / block, high and low temperature, Dense fog); HTR (operation status indication: detection signal / self–learning)	
Front panel button		Quantity: 1; Definition: Shielded monitor signal output / start background self–learning /restart device	
Operating voltage		10V~ 28V DC	
Power		5W(measuring),3.6W@DC 12V/14.4W@DC 24V(heating)	
Outer covering protection rank(IP)		IP65(GB4208~2008)	
Insulation resistance		1MΩ(GB16796~2009.5.4.4)	
Dielectric strength		0.5KV(GB16796~2009.5.4.3)	
Weight		0.6kg	
Dimension(L×W×H)		83.5×85×104.9(mm)	
Electromagnetic compatibility (EMC)	Electrostatic discharge	6KV (GB/T17626.2~2006，class 3)	
	Fast bursts	1KV (GB/T17626.4~2008，class 2)	
	Electromagnetic field radiation immunity	GB/T17626.3~2006，class 2	
Surge immunity		GB / T17626.5–2008 Power interface: 1.2 / 50 μs, 2KV / 1KA (Class 3) Ethernet interface: 10 / 700 μs, 1KV / 25A (Class 2); I / O interface: 1.5 / 50 μs, 0.5KV / 0.25KA (Class 1)	
Impact		GB/T 2423.5	
Single impact		15g, 11ms	
Continuous impact		10g, 16ms	
Vibration		GB/T 2423.10	
Frequency Range		10Hz~150Hz	
Amplitude		5g	
Humidity		93%, +40℃, 2h（GB/T 2423.3）	
Operating temperature range		–25℃~+50℃	
Storage temperature range		–30℃~+70℃	
Ambient illumination range		≤70,000lux	
Model NO.		AS-21C	AS-41C

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
Vision
Code Readers
Vibration
Temperature
Accessories

Guidance

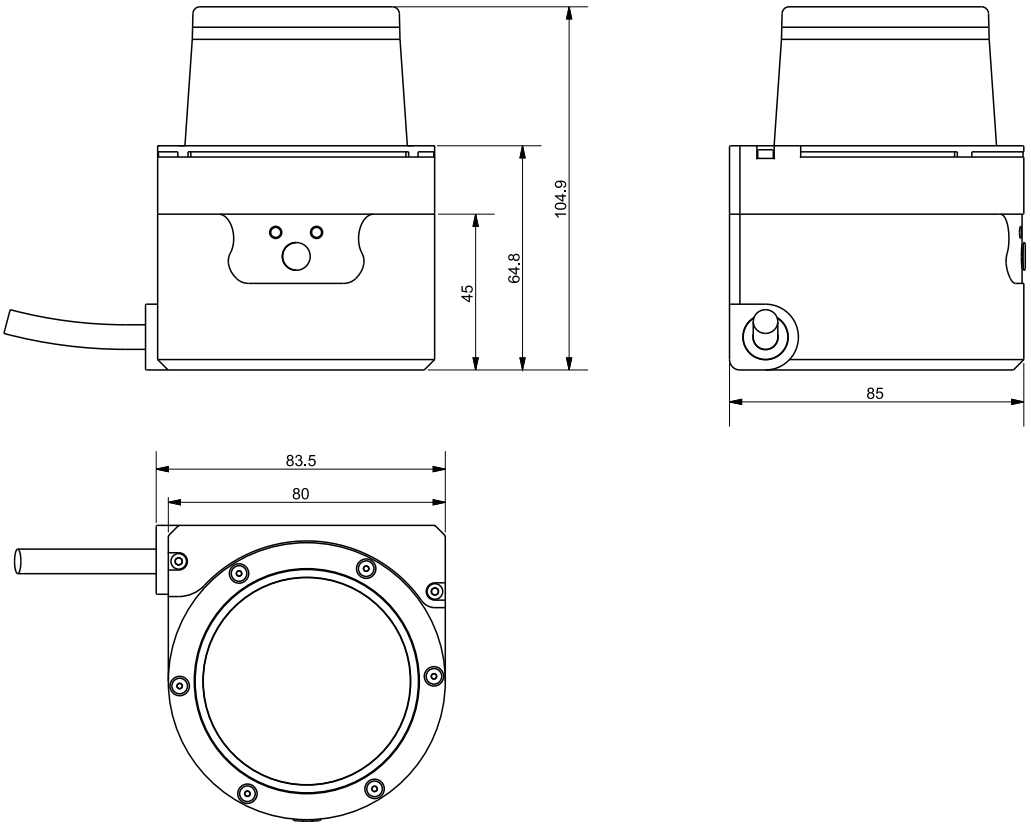
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Beam pitch 10mm
Beam pitch 20mm
Beam pitch 30mm
Beam pitch 40mm

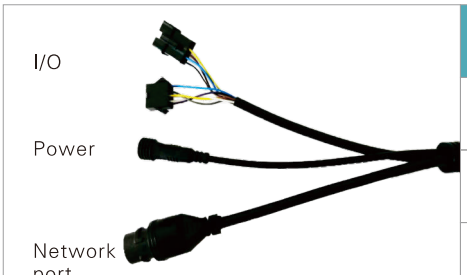
LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

LiDAR Scanner

Dimensions Unit:mm

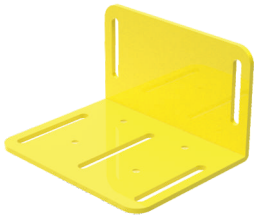


Power Interface

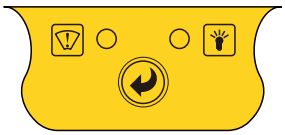


Socket	Type	Explanation
DC002	Power	Female 2 pin
Ethernet	RJ45 socket	4 pin
I/O	Cable	10 pin

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

Indicators and Operation Buttons

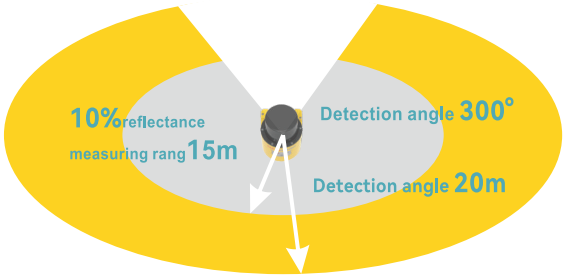


Name	Instructions
ERR	Work fault indicator ◆ Startup state： Light on(About 27s)Always off： No fault ◆ Always on:Internal fault ◆ Always on： Internal fault,Abnormal measurement ◆ Long flicker（ 0.25Hz ）： High / low temperature alarm ◆ Short flicker(1Hz ）： Transmissive cover is dirty/occluded[1]
HTR	Work 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

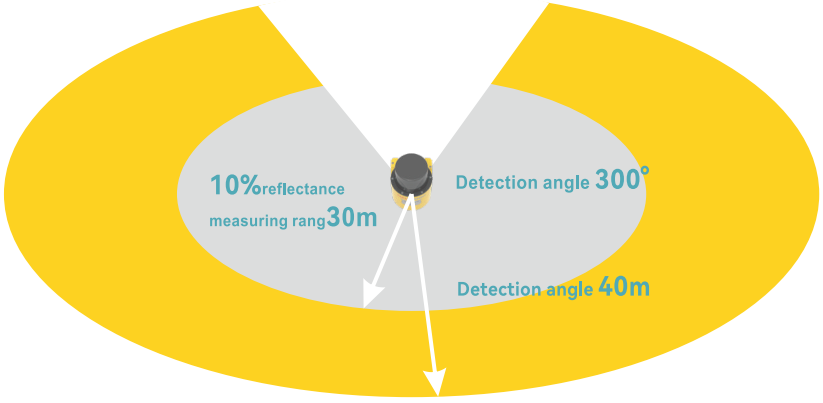
1:Including being blocked by dense fog or the detection area being blocked.
2:Including "background self–learning" and "normal goal self–learning"(customized function).

Measuring coordinate system/scan range/range

AS-21C



AS-41C



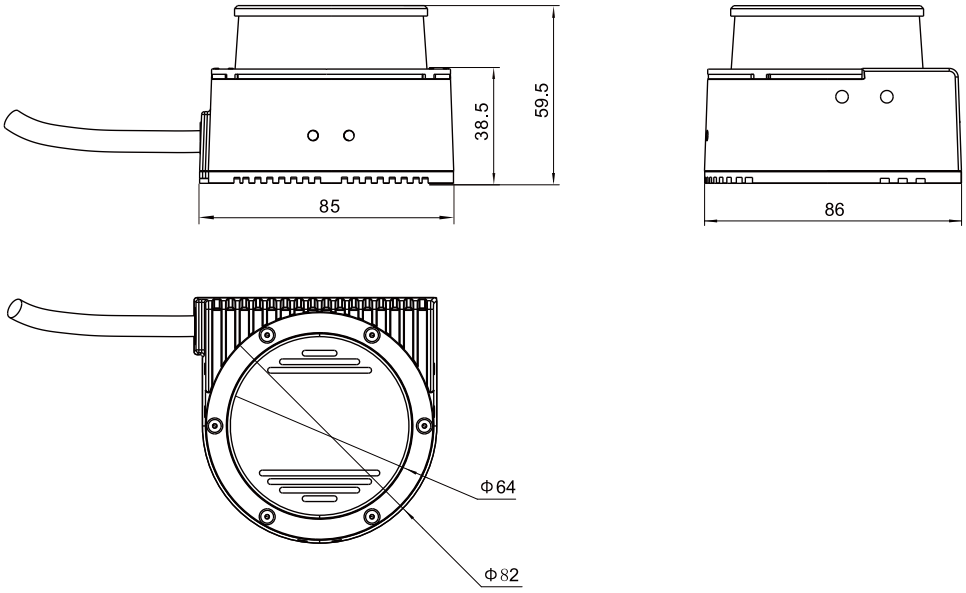
LiDAR Scanner

MINI LiDAR Scanner

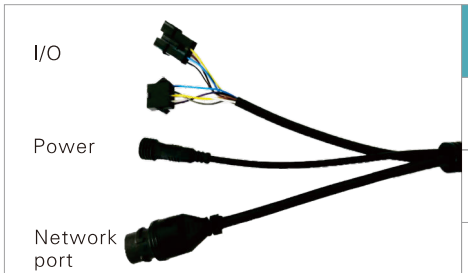
TOF principle

Appearance		
Light source		Infrared laser(905nm)
Laser safety level		Class1(GB7247.1–2012,Eye–safe IEC)
Laser spot light diameter		10mm
Laser spot light scan angle		10.0(H)　2.0(V)mrad
Scanning angle range		360°
Scanning frequency		12.5Hz
Scanning angle resolution		0.5°
Sensing range		0.1m ~20m
10% reflectivity range		15m
Outdoor performance		Indoor, anti – light, anti – dirt
Rain fog and smoke penetration		Support
Measurement error	System error (typical)	± 5cm（1m~15m）
	Statistical error (1σ)	± 2cm（1m~15m）
Built–in application Regional monitoring		Monitoring mode: point number monitoring / target width monitoring / contour monitoring
		Monitoring signal type: attention / warning / alarm
		Number of regional groups: 16 groups
		Number of concurrent work area groups: 16 (max)
		Can detect targets of any shape, support normal target self–learning function
Self–test equipment		Contents: Dirty cover / blocking / high temperature / low temperature; output method: indicator + TCP message
Ethernet		Rate: 10/100 Mbps; network protocol: TCP / IP; function: device configuration / measurement data output / monitor signal output
I/O Input		Quantity: 4; Type: Level input; High level range: 10V~28V DC; Low level range: 0V~5V DC; Preset function: monitoring area selection (0x0 ~ 0xF); area monitoring disarm / force alarm, effective level: high level;
I/O Output		Quantity: 4; Type: PNP switch output; Output voltage: power supply voltage; Power–on state: off; Device ready (OUT), valid state: on, zone detection signal output (OUT2 / OUT3 / OUT4) valid state: configurable
Indicator light		Quantity: 2; Definition: ERR (equipment alarm: failure / abnormality, dirty / transparent cover, high and low temperature, dense fog); HTR (operation status indication: detection signal / self–learning)
Operating voltage		12V~28V DC
Power		4.5W@DC 24V
Outer covering protection rank(IP)		IP65(GB4208~2008)
Insulation resistance		1MΩ(GB16796~2009.5.4.4)
Dielectric strength		0.5KV(GB16796~2009.5.4.3)
Weight		0.5kg
Dimension(L×W×H)		86.0 × 85.0 × 59.5(mm)
Electromagnetic compatibility (EMC)	Electrostatic discharge	6KV（GB/T17626.2~2006，Class 3）
	Fast bursts	1KV（GB/T17626.4~2008，Class 2）
	Electromagnetic field radiation immunity	GB/T17626.3~2006，Class 2
Surge immunity		GB/T17626.5–2008：Power interface：1.2/50μs, 2KV/1KA（Class 3）； Ethernet interface：10/700μs, 1KV/25A（Class 2）；I/O interface：1.5/50μs, 0.5KV/0.25KA（Class 1）；
Impact		GB/T 2423.5
Single impact		15g，11ms
Continuous impact		10g，16ms
Vibration		GB/T 2423.10
Frequency Range		10Hz~150Hz
Amplitude		5g
Humidity		93%，+40℃，2h（GB/T 2423.3）
Operating temperature range		–10℃~+45℃
Storage temperature range		–30℃~+70℃
Ambient illumination range		≤70,000lux
Model NO.		AS-11C

Unit:mm Dimensions



Power Interface



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

Accessories

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
Vision
Code Readers
Vibration
Temperature
Accessories

Guidance

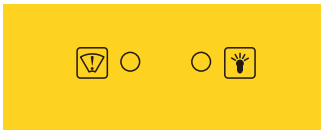
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Beam pitch 10mm
Beam pitch 20mm
Beam pitch 30mm
Beam pitch 40mm

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

LiDAR Scanner

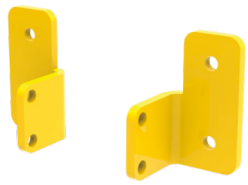
Indicators and Operation Buttons



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/occluded[1]
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–learning[2] ◆Flashing 3 (2.5Hz) : Ready for self–learning[2]

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

Navigation Type

TOF principle

Appearance		
Light source		Infrared laser (905nm)
Laser safety level		Class I (GB7247.1–2012, human eye safety)
Laser spot light diameter		10mm
Laser spot light scan angle		2.0(H)×8.0(V)mrad
Scanning angle range		360°
Scanning frequency		10Hz/20Hz
Scanning angle resolution		0.05° /0.1°
Sensing range		0.2m ~100m
RSSI Measurement Range		3%~1000%(reflector)
10% reflectivity range		20m
Outdoor performance		Anti–sunlight, anti–dirt, support smoke penetration, use under non–rainfall conditio
Measurement data		Composite data (distance + RSSI)
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)
Self–test equipment		Content: Dirty/blocking/high temperature/low temperature of the translucent cove
Ethernet		Rate: 10/100 Mbps; function: device configuration/measurement data output
I/O Input		Quantity: 3;Type:level input (vs. general input common ground "GND IN"); high level range: 9 V – 30V DC; low level range: 0V–0.7V DC;Preset function: power saving and life extension control (In2 / In3), effective level: high lev
I/O Output		Quantity: 3; Type: PNP switch output (vs. power supply positive terminal); Power–on state: off;Preset function: equipment on Thread (OUT), effective state: op
Indicator light		Quantity: 4; Definition: PWR: power indicator; LNK: Ethernet indicator; ERR: working failure indicator; HTR: normal measurement indicator
Operating voltage		9V~30V DC
Power		5W@DC 24V
Outer covering protection rank(IP)		IP65(GB4208~2008)
Insulation resistance		1MΩ(GB16796~2009.5.4.4)
Dielectric strength		0.5KV(GB16796~2009.5.4.3)
Weight		0.7kg
Dimension(L×W×H)		97.0×97.0×72.0(mm)
Electromagnetic compatibility (EMC)	Electrostatic discharge	6KV（GB/T17626.2~2006，Class 3）
	Fast bursts	1KV（GB/T17626.4~2008，Class 2）
	Electromagnetic field radiation immunity	GB/T17626.3~2006，Class 2
Surge immunity		GB/T17626.5–2008；Power interface：1.2/50μs, 2KV/1KA（Class 3）；Ethernet interface：10/700μs, 1KV/25A（Class 2）；I/O interface：1.5/50μs, 0.5KV/0.25KA（Class 1）；
Impact		GB/T 2423.5
Single impact		15g，11ms
Continuous impact		10g，16ms
Vibration		GB/T 2423.10
Frequency Range		10Hz~150Hz
Amplitude		5g
Humidity		93%，+40℃，2h（GB/T 2423.3）
Operating temperature range		–10℃~+50℃
Storage temperature range		–30℃~+70℃
Ambient illumination range		≤80,000lux
Model NO.		AS-100C

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
Vision
Code Readers
Vibration
Temperature
Accessories

Guidance

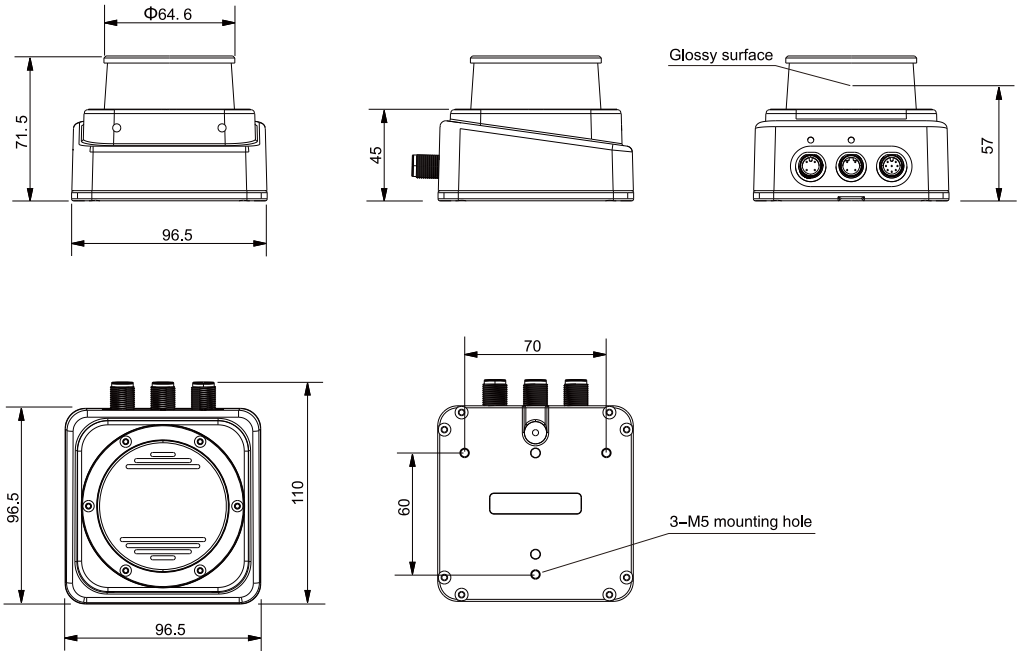
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Beam pitch 10mm
Beam pitch 20mm
Beam pitch 30mm
Beam pitch 40mm

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

LiDAR Scanner

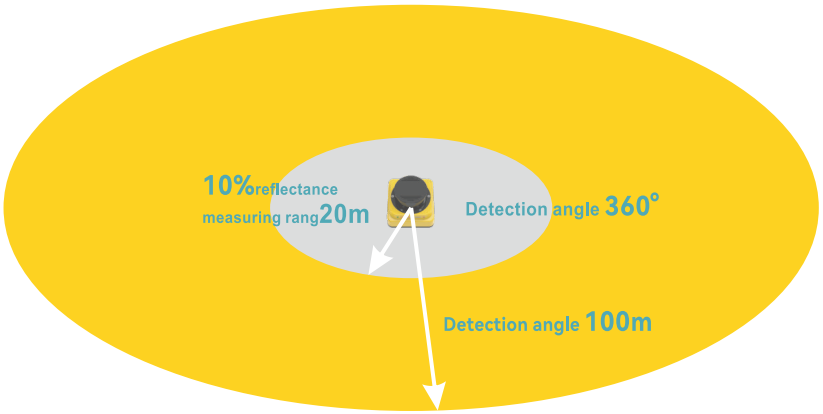
Dimensions Unit:mm



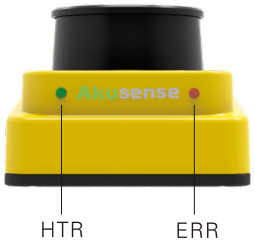
Power connector

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



Indicator Lights 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: bright (about 24 seconds) ◆Always off: no fault ◆Always on: 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 A	RJ45 network cable: AS-100C-IOCB A	I/O cable: AS-100C-IOCB A	Parts and accessories: M5x8 set