CHASING CAN BE HIGHER

Cat.4、PL e、Type 4、SIL 3

CCH SHANGHAI SENSING INTELLIGENCE TECHNOLOGY CO., LTD

ISO 9001 ISO 45001 ISO14001 CE SGS TÜV SAAR FUNKTIONALE SICHERHEIT GEPRÜFT FUNCTIONAL SAFETY APPROVED

CCH SHANGHAI SENSING INTELLIGENCE TECHNOLOGY CO., LTD is located in Hangzhou Airport Economic Demonstration Zone, It is a high-starting-point, high-ideal innovative high-tech enterprise. The core team has been engaged in the research, production and sales of core industrial safety sensors and controllers for more than 20 years. The company is committed to transforming technological innovation into practical productivity, providing advanced and reliable solutions for the industrial automation field through continuous technological research and development, and helping enterprises achieve intelligent transformation.

The company's main products include industrial-grade sensors and control devices such as safety light curtains, lidar, safety laser scanner, safety controllers.

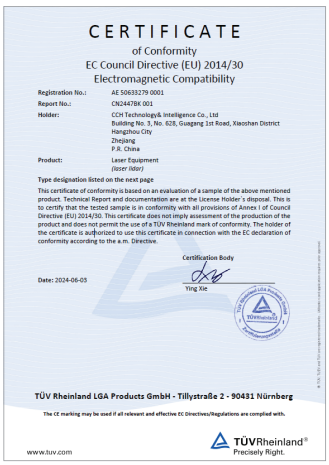
The company boasts a high-standard electronics workshop of over 5,000 square meters, equipped with advanced SMT high-precision placement production lines and MV-6eOMNI 3D AOI placement quality inspection equipment, possessing top-tier domestic product quality assurance and delivery capabilities. It also has a high-standard R&D center and laboratory of over 1,000 square meters, capable of conducting tests for electromagnetic compatibility, temperature and humidity, vibration and shock, and IP protection. Furthermore, the company is capable of providing rapid, customized development services to its clients.

CERTIFICATES

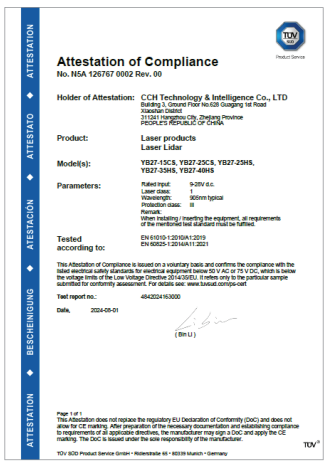

中经认证
质量管理体系认证证书
骑鲸瞰海（杭州）科技有限公司
GB/T 19001-2016/ISO 9001:2015 标准


中经认证
环境管理体系认证证书
骑鲸瞰海（杭州）科技有限公司
GB/T 24001-2016/ISO 14001:2015 标准


中经认证
职业健康安全管理体系认证证书
骑鲸瞰海（杭州）科技有限公司
GB/T 45001-2020/ISO 45001:2018 标准


CERTIFICATE
of Conformity
EC Council Directive (EU) 2014/30
Electromagnetic Compatibility

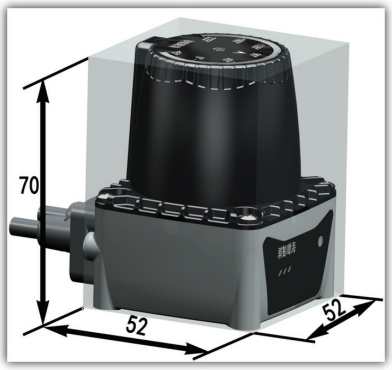

CERTIFICATE NO FS/71/220/24/1456


Attestation of Compliance
No. N5A 126767 0002 Rev. 00

OUR VISION

CCH SHANGHAI SENSING INTELLIGENCE TECHNOLOGY CO., LTD would adher to the philosophy of "technology-led, innovation-driven, and high-quality development," and relying on a professional team, advanced equipment, clean production workshops, mature processes, a comprehensive quality assurance system, and a sales and service network, ensures fast and high-quality service. Riding the Whale to See the Sea's mission is to "achieve complete localization of industrial sensors," and its goal is to "become the world's most renowned industrial sensor supplier."

PRODUCT 1：YB SERIES LIDAR—— OUTSTANDING PERFORMANCE, THE BEST CHOICE

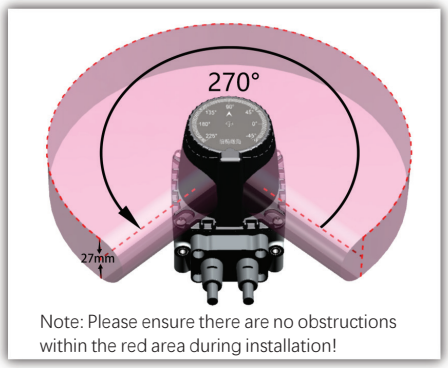


The YB series lidar is a single-line lidar based on the dToF (direct time-of-flight) ranging principle. It has the advantages of small size, ease of use, high precision, and high cost performance, and is suitable for diverse applications such as navigation and obstacle avoidance, and area monitoring.

- Consistent scanning plane height.
- Miniaturized, compatible with more application scenarios.
- Low power consumption, effectively extending device lifespan and battery life.
- Multi-user monitoring, providing simultaneous access to the configuration software for up to 4 users.
- No blind spots, ensuring high accuracy even near the window, with reliable and safe protection.
- High-precision measurement, with an angular resolution as low as 0.1°, accurately identifying the surrounding environment.
- Strong resistance to interference from the same source of light, allowing multiple devices to work simultaneously without interference.

Implementation Standards

UL 61010-1:2018
EN 60825-1:2014
EN 61010-1:2010
EN 61000-4-2~4、6、8：2009
EMI、EMS：EN61326-1：2013
CAN/CSA C22.2 No.61010-1-12



Note: Please ensure there are no obstructions within the red area during installation!

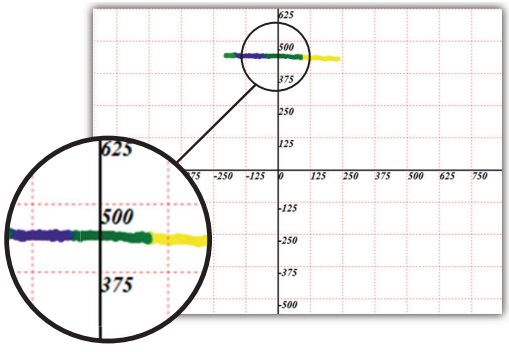
Blind-spot-free design

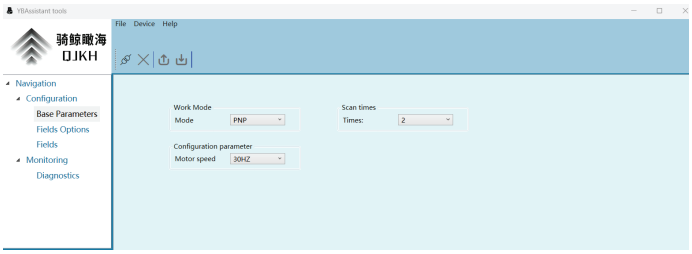
The blind-spot-free design effectively enhances environmental awareness, improves safety performance, reduces false alarms and false negatives, and increases overall system reliability. High-precision detection capabilities are maintained even near the radar window.

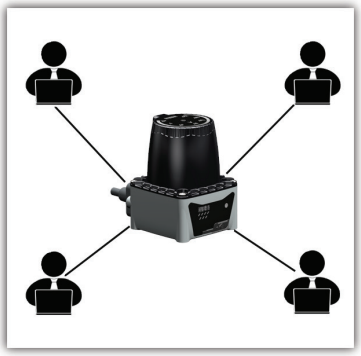
Rotational scanning enables 270°, 40m radius @ 70% two-dimensional area detection and contour scanning, and provides switch output and measurement data output, making it an ideal choice for obstacle avoidance and navigation of mobile robots.

Accurate identification of objects of different materials on the same plane

Advanced data processing and machine learning algorithms ensure that the radar can cope with complex and ever-changing environments.







Simple and flexible configuration

The configuration software allows for quick modification of parameters such as angular resolution, motor speed, and operating mode. (Configuration items are subject to the specific model.)

Multi-user monitoring

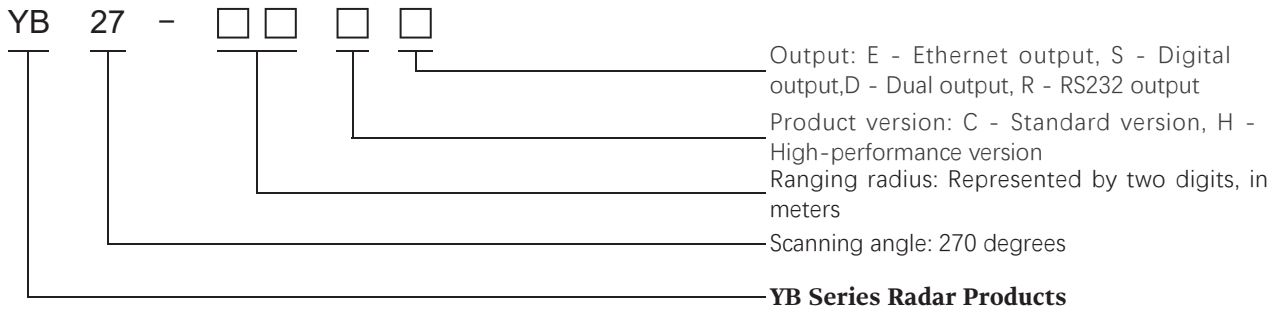
Supports simultaneous radar monitoring from multiple terminals, with a maximum of 4 users accessing the configuration software simultaneously (default setting is 2 users). This allows for configuration and monitoring of the product status, facilitating on-site installation and debugging.

Parameters

Detection parameters		
Scanning range	270°	
Scanning plane angle	Pitch angle ±0.5° Roll angle ±0.5°	
Distance deviation	±2cm (Typical value)	
Repeatability	±4mm@1sigma(10% black velvet fabric, 600mm position measurement statistics)	
Electrical characteristics		
power supply	DC 9~28V	
Power-on startup time	Typical 10s	
Power consumption	<3W(No load at the output)	
Ambient temperature	Operating temperature:-10°C~50°C(The windows are free of frost and condensation.)	Storage temperature:-40°C~70°C
Ambient humidity	Operating humidity:35%RH~85%RH	Storage humidity:35%RH~95%RH
IP	IP65	
Light interference	100000Lux	
Cross-sectional dimensions	52mm X52mm X70mm	
Vibration resistance	frequency 10Hz-55Hz， amplitude 0.35±0.05mm， 20 times each in the X, Y, and Z directions.	
Impact resistance	acceleration 10g， Pulse duration 16ms， 1000 times each in the X, Y, and Z directions.	
EMC	(EMI)EN61326-1: 2013, EN55011:2009 + A1: 2010 (EMS)EN61326-1:2013,EN61000-4-2:2009,EN61000-4-3:2006+A1:2009+A2:2010 (EMS)EN61000-4-4: 2004+A1:2010, EN61000-4-6: 2014,EN61000-4-8: 2010	

*Note: Measurement errors for materials with different reflectivities are controlled within ±2cm (typical value).
Factory testing method: Place three test pieces (black velvet cloth, white paper, and reflective sticker) at different angles and the same distance on the automated inspection fixture. The deviation between the center value and the actual distance for each material should be within ±2cm, and the maximum difference between the three materials should be within 2cm.

SPECIFICATIONS AND MODELS



Specifications and Models				
output type	Model	Detection radius (@70%Reflectivity)	Angular resolution	Output
Measurement type	YB27-15CE	15m	Default 0.15°@20Hz Support(0.15/0.2/0.25/0.3/0.33/0.5)°@20Hz (0.2/0.25/0.3/0.33/0.5)°@25Hz (0.25/0.3/0.33/0.5)°@(28/30)Hz (0.33/0.5)°@40Hz 0.5°@50HzFast adjustment and adaptation	Ethernet UDP Protocol
	YB27-25CE	25m		
	YB27-25HE		Default 0.1°@25Hz Support(0.1/0.15/0.2/0.25/0.3/0.33/0.5)°@(20/25/28/30)Hz (0.15/0.2/0.25/0.3/0.33/0.5)°@40Hz (0.2/0.25/0.3/0.33/0.5)°@50HzFast adjustment and adaptation	
	YB27-35HE	35m		
	YB27-40HE	40m		
Obstacle avoidance type	YB27-15CS	15m	Default 0.3°@30Hz Support0.3°@(20/25/30/40)Hz	PNP/NPN Configurable (defaultPNP)
	YB27-25CS	25m		
	YB27-25HS		Default 0.3°@30Hz Support0.3°@(20/25/30/40/50)Hz	
	YB27-35HS	35m		
	YB27-40HS	40m		
Dual output type	YB27-15CD	15m	Default 0.3°@30Hz Support0.3°@(20/25/30/40)Hz	Ethernet UDP Protocol
	YB27-25CD	25m		
	YB27-25HD		Adjustable frequency@(20/25/30/40/50)Hz Default for obstacle avoidance applications0.3°@30Hz Default for measurement applications0.1°Adjustable data resolution	
	YB27-35HD	35m		
	YB27-40HD	40m		
RS232 type	YB27-15CR	15m	Default 0.5°@30Hz Support(0.5/1/2)°@(20/25/30/40/50)Hz	RS232 output
	YB27-25CR	25m		

Configurable function is for Y27-_S and YB27-_D series	
Detection Zone Configuration	Users can configure the radar detection zone to the desired shape using the configuration software.
response time	67ms(2-scan mode)~536ms(16-scan mode),Default67ms
Zone group switching	4 external input signals enable switching between 16 zone groups.

MEASUREMENT APPLICATIONS

Uses measuring radar and 232-type radar

Multiple communication methods

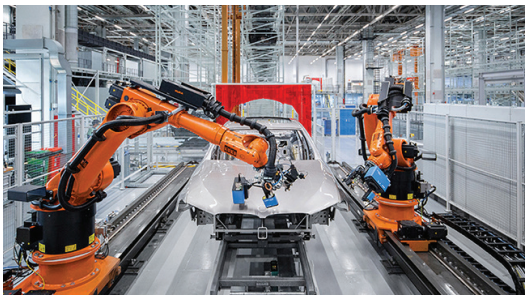
Ethernet UDP protocol output

Capable of transmitting large amounts of measurement data or performing remote monitoring and control.

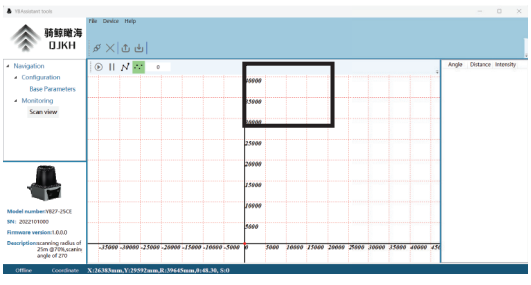
Suitable for industrial automation, warehousing and logistics, autonomous mobile robots, intelligent transportation management systems, and other scenarios requiring high real-time performance.

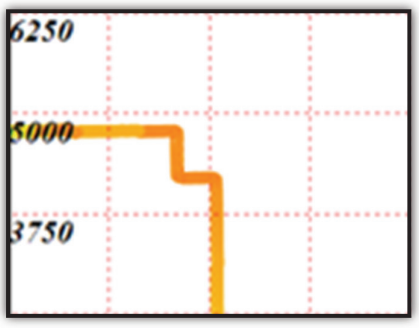
——RS232 output

Communicates with low-speed embedded devices.
Suitable for industrial automation, environmental monitoring, garage management systems, etc.



YB Assistant: The perfect combination of excellent products and high-precision measurement





High-quality supporting software

Excellent products require strong software support and performance. YB Assistant uses color marking to distinguish the reflectivity of different materials, ensuring high-precision measurement of various materials.

OBSTACLE AVOIDANCE APPLICATION

Uses obstacle avoidance radar and dual-output radar

Stable and reliable, compatible with various environments

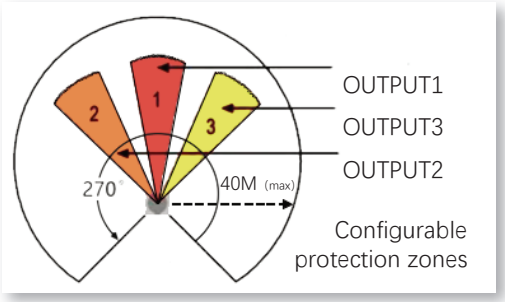
——PNP/NPN one-button configurable output

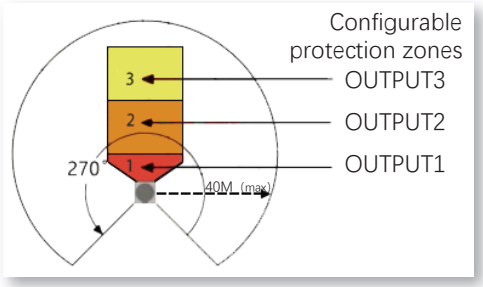
Connects to PLCs, controllers, or other embedded devices. Suitable for industrial automation, enabling mechanical equipment control, etc.

——Supports dual output

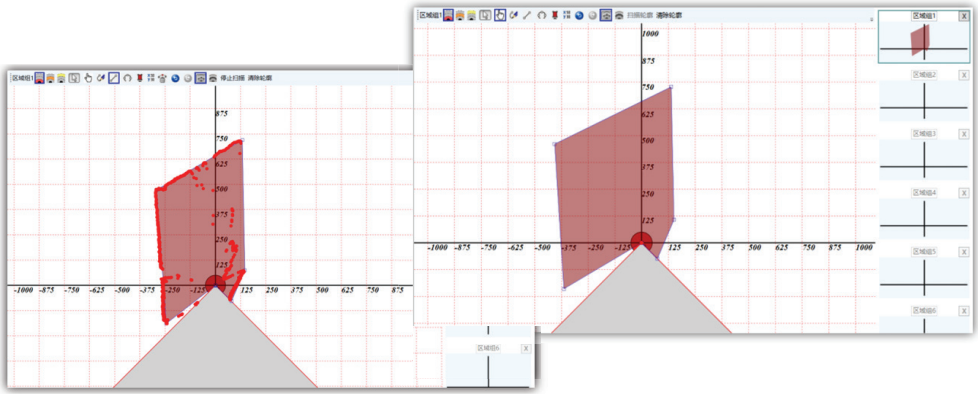
- Simultaneously supports obstacle avoidance and navigation output
- Compatible with various industrial environments
- Reduces the need for additional hardware
- Simplifies system design and installation process

Flexible setting of protection zones through Yuanbao Assistant





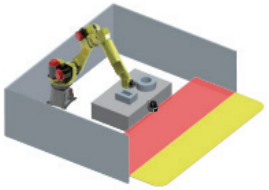
Based on the pulsed laser ranging principle, it achieves two-dimensional area detection with an angle of 270° and a maximum radius of 40m through rotating scanning.

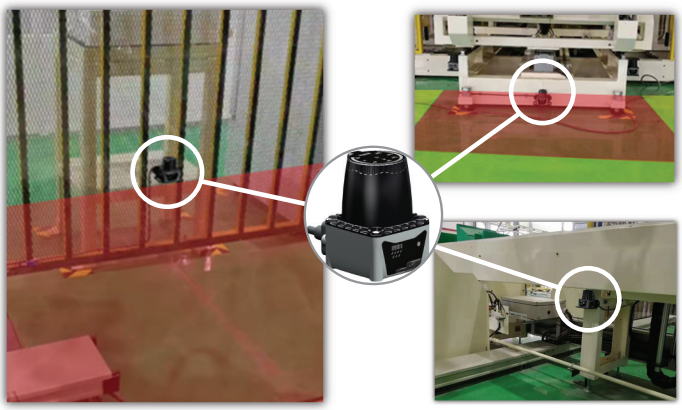


Users can directly set the protection zone, or first scan the surrounding environment and use the configuration software to outline the shape of the protection zone and set the protection parameters.

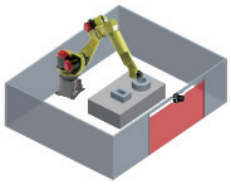
APPLICATION SCENARIOS

Fixed Area Hazard Protection

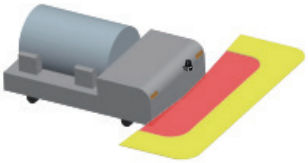


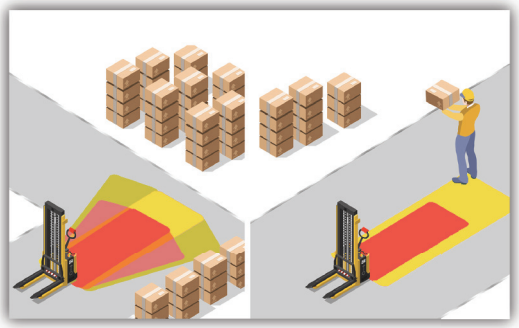


Access Control Protection



Mobile Area Hazard Protection

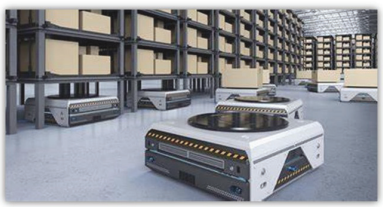




AGVs, forklifts, etc.
Industrial mobile robots
Safety obstacle avoidance, positioning, and navigation

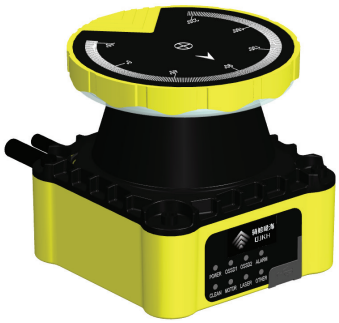
Service mobile robots
Safety obstacle avoidance, positioning, and navigation

Intelligent parking garage management systems



Automated warehouses, intelligent logistics, etc.
Safety obstacle avoidance, positioning, and navigation

PRODUCT 2: SH SAFETY LASER RADAR

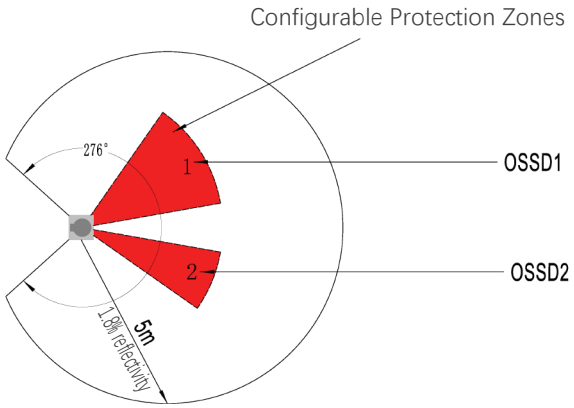


The "electronic safety officer" for industrial scenarios, using millimeter-level laser ranging and 276° panoramic scanning technology, builds a comprehensive safety protection network for AGVs, intelligent warehousing, human-robot collaboration, and other scenarios, meeting the safety level certification requirements of Type 3 (IEC 61496), SIL 2 (IEC 61508), Cat. 3 (ISO 13849), and ISO 13849 PL d.

- Window contamination indicator light for easier maintenance
- Low power consumption, effectively extending equipment life and battery life.
- High-precision measurement, angular resolution as low as 0.1°, accurately identifying the surrounding environment.
- Strong resistance to co-source light interference, allowing multiple devices to work simultaneously without interference.
- Supports 64 static input zone group protections and 256 dynamic and static input zone group protection settings.

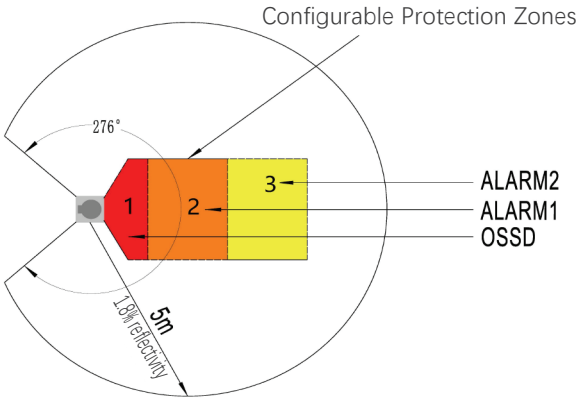
Execution Standards

EN61326-1: 2013
EN61000-4-6: 2014
EN61000-4-8: 2010
EN61000-4-2: 2009
EN61000-4-4: 2004+A1:2010
EN61000-4-3: 2006+A1:2008+A2:2010



Dual-Mode Protection Architecture

Provides industry-leading PAA mode (protection zone + dual-level pre-warning) and PP mode (dual protection zones) dual protection mechanisms, allowing free switching of protection logic according to the needs of AGV navigation, human-robot collaboration, and other scenarios, supporting customized safety solution deployment under the ISO 13849 standard.



Advanced Zone Management Capabilities

64 sets of vector zone libraries: Pre-stored multi-form protection templates (sector/polygon/dynamic contour)
Scenario-based instance configuration: Bind zone groups to specific [monitoring instances] to build a hierarchical protection system
Millisecond-level strategy switching: Dynamic loading of protection strategies through conditional triggers (switching delay < 50ms)

SPECIFICATIONS AND PARAMETERS

Safety Parameters				
Type	Type 3(IEC 61496)			
Safety Integrity Level	SIL 2(IEC 61508)			
Category	Cat. 3(IS0 13849)			
Performance Level	PL d(IS0 13849)			
Functional Parameters				
Classification	Obstacle Avoidance Type	Dual Output Type	Obstacle Avoidance Type	Dual Output Type
Model	SH27-03S	SH27-03D	SH27-05S	SH27-05D
Output	PNP	ethernet		ethernet
Maximum Protection Radius	3m@1.8% Reflectivity		5m@1.8% Reflectivity	
Alarm Zone Radius	10m		20m	
Measurement Range	40m		60m	
Safety Output	PNP output (ON state: maximum IOUT=100mA, VOUT≥VCC-2V, OFF state: IOUT < 2V), overcurrent protection, capacitive load ≤0.5uF. The output is ON when there is no object in the protected area, and OFF when there is an object or a fault.			
Auxiliary Output	Maximum IOUT=100mA, VOUT≥VCC-2V, OFF state: IOUT < 1mA), VOUT < 2V, overcurrent protection			
Laser Light Source	Wavelength 905nm, Class 1 laser product			
Scanning Angle	276°			
Angular Resolution	0.1°			
response time	100ms (Configurable)			
Object Resolution	70mm @ maximum protection area radius			
Tolerance Zone	350mm			
ZR Extension Distance	350mm			
power supply	DC 24V±20%			
Power-on startup time	10s Typical			
refresh rate	25hz			
consumption	<4w (no load)			
dimension	80mm*80mm*80mm			
color	yellow			
Ambient temperature	Operating temperature:-10℃~50℃(No frost or condensation)		Storage temperature:-40℃~70℃	
Ambient humidity	Operating humidity:35%RH~95%RH		Storage humidity:35%RH~95%RH	
IP	IP65			
Light interference immunity	3000lux			
Vibration resistance	frequency10Hz-55Hz,amplitude 0.35±0.05mm,20 times each in the X, Y, and Z directions.5M1(IEC 60721-3-5)			
Impact resistance	acceleration 10g,16ms Pulse duration,1000±10 times each in the X, Y, and Z directions.5M1(IEC 60721-3-5) 50m/s^2 ,11ms			

MODEL SPECIFICATION

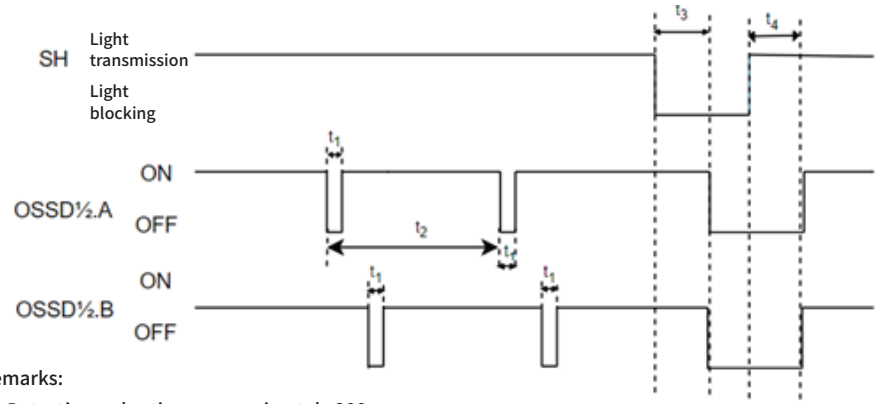
SH 27 - □□ □

- Output type:
  PNP output, 64 area group switch
  PNP output, 64 area group switch+ethernet output
- protection radius (@1.8 % reflectivity)
  protection radius 3m
  protection radius 5m
- Scanning angle: 276degree
- **SH series safety lidar**

SAFETY OUTPUT

When no object is detected in the protected area, the OSSD outputs an ON signal, and the protected equipment operates normally.

When an object is detected in the protected area or the radar malfunctions, the OSSD is in the OFF state, and the protected equipment stops operating. The OFF state signal during the output cycle is shown in the figure:



Remarks:

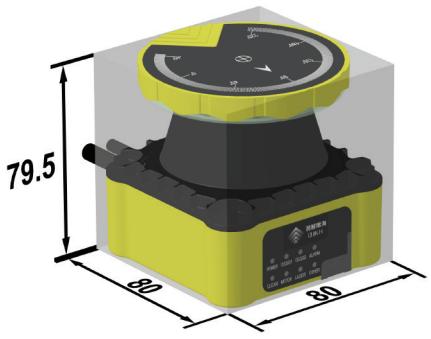
t1: Detection pulse time, approximately 200us;

t2: Detection pulse period, the time for one rotation of the radar, 40ms;

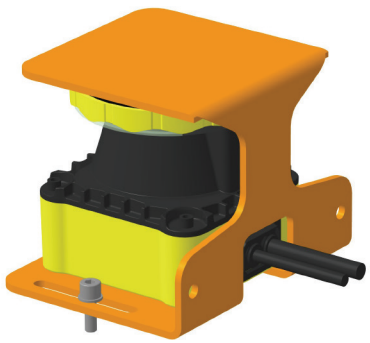
t3: Light blocking response time, minimum 100ms (configurable)

t4: Light blocking recovery time, minimum 300ms (configurable)

DIMENSION

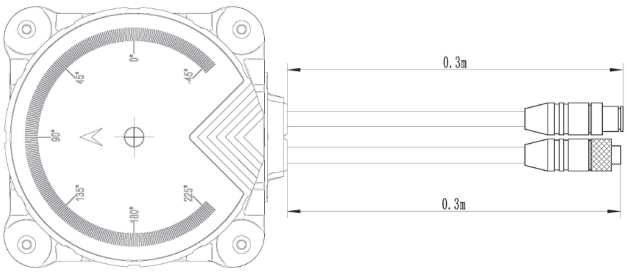


Compact design: 95mm×71mm×50mm,

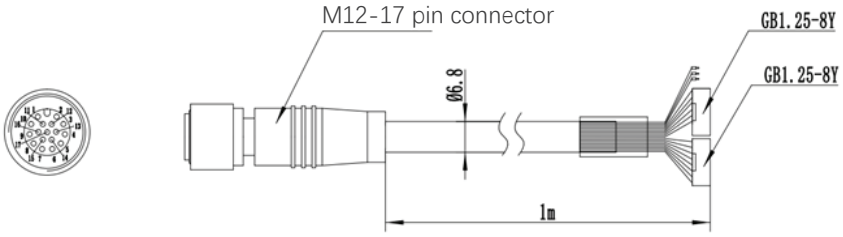


Weighing only 360g, easily integrated into various equipment.

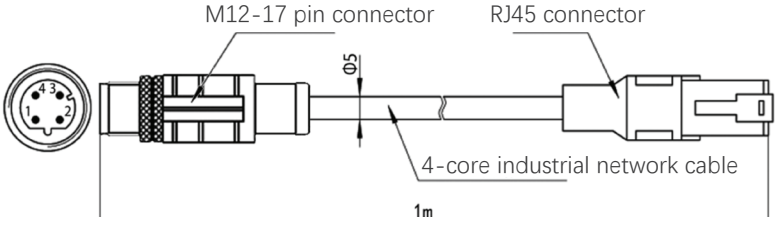
INPUT/OUTPUT INTERFACES



The SH power/output interface uses an M12-17 pin connector with a cable length of 0.3m.



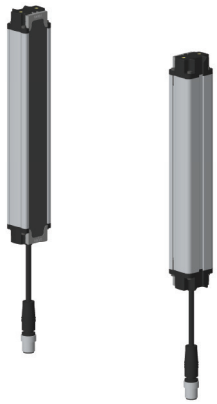
The network connection interface uses an M12-4 pin connector with a cable length of 0.3m. The standard length of the power/control interface extension cable is 1m.



OPTIONAL ACCESSORIES
(NOT INCLUDED IN THE MAIN UNIT, MUST BE PURCHASED SEPARATELY)

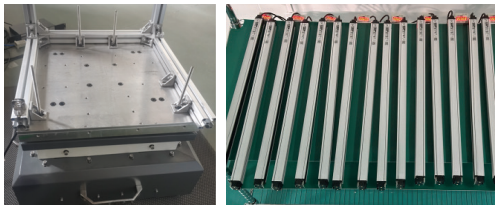
NAME	MODEL	DESCRIPTION
SH OBSTACLE AVOIDANCE EXTENSION CABLE - 3M	SH-BZM12-3M	SINGLE-ENDED EXTENSION CABLE
SH OBSTACLE AVOIDANCE EXTENSION CABLE - 5M	SH-BZM12-5M	SINGLE-ENDED EXTENSION CABLE
M12 TO RJ45 EXTENSION CABLE - 3M	SH-RJ45YCX-3M	SINGLE-ENDED EXTENSION CABLE
M12 TO RJ45 EXTENSION CABLE - 5M	SH-RJ45YCX-5M	SINGLE-ENDED EXTENSION CABLE

ENT SAFETY LIGHT CURTAIN

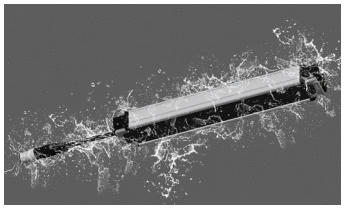


The ENT safety light curtain is TÜV certified, meeting safety levels of Type 4, Cat. 4, PL e, and SIL 3.
It utilizes optical synchronization communication, features a compact size, elegant appearance, and excellent performance, making it suitable for safety protection in dangerous environments such as automation fields, mechanical presses, hydraulic presses, shearing machines, and bending machines.

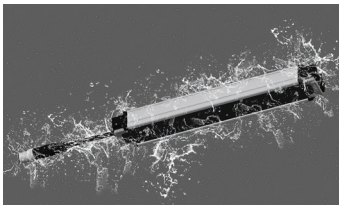
- 70m; Detection height up to 1960mm, detection distance up to 70m;
- Unique vibration damping design for excellent vibration resistance;
- High protection level: IP65 protection rating;
- Strong resistance to light and electromagnetic interference, ensuring stable performance.



Rigorous testing including vibration and aging tests



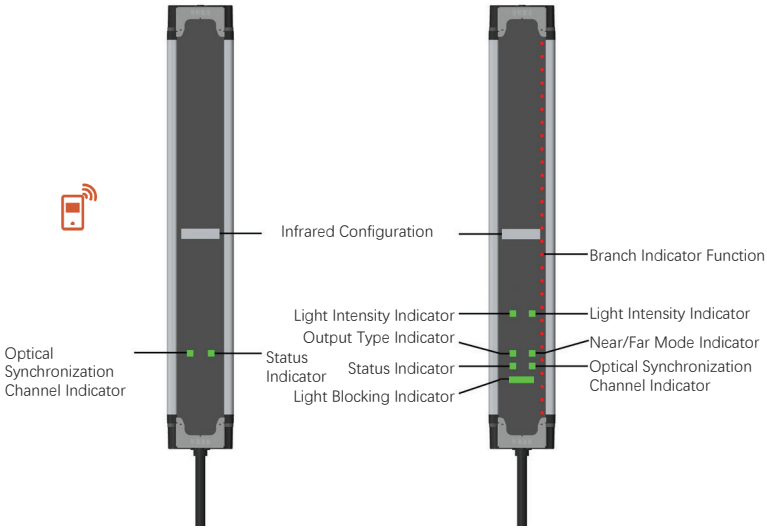
IP65 protection rating



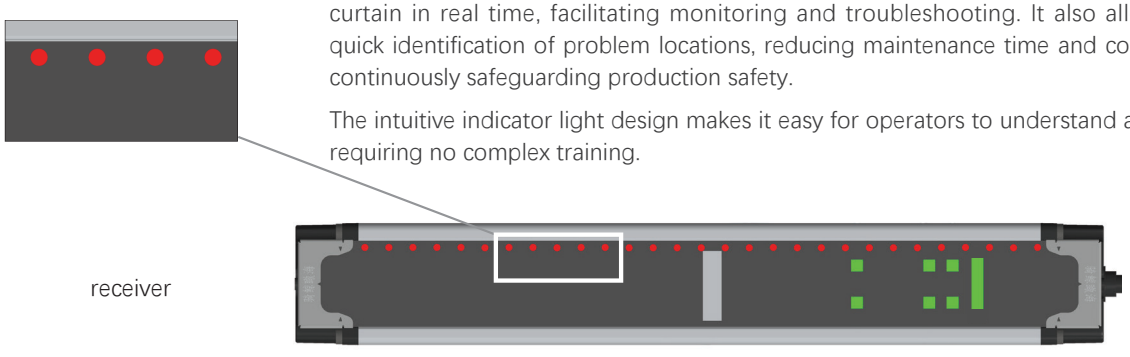
Strong anti-interference ability

Efficient protection

Product indicator lights intuitively display light intensity and equipment status at a glance.
The product comes standard with infrared settings, allowing for one-button setting of PNP/NPN output modes, compatible with various devices, eliminating selection difficulties and facilitating installation and use.



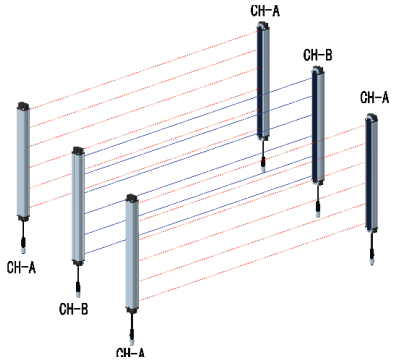
Branch Indicator Function



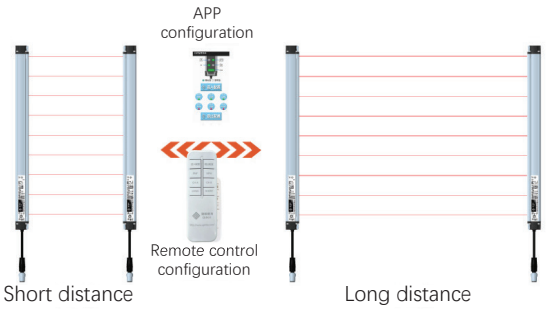
The branch indicator lights display the working status of each segment of the light curtain in real time, facilitating monitoring and troubleshooting. It also allows for quick identification of problem locations, reducing maintenance time and costs, and continuously safeguarding production safety.

The intuitive indicator light design makes it easy for operators to understand and use, requiring no complex training.

Flexible Configuration



The optical communication channel includes A and B dual-frequency bands, effectively avoiding interference from the same light source between devices.



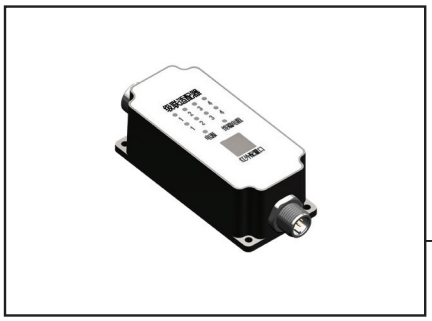
ne-click infrared configuration via remote control or mobile APP.

Select the short-range or long-range mode of the light curtain according to the actual scenario, and freely adjust the sensitivity to protect production safety.

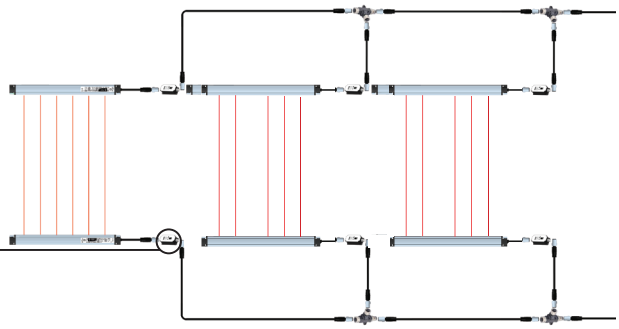
Cascading Design

The ENT cascading system adopts a split design. Based on the ENT safety light curtain, a cascading adapter is added, and after configuration, it can be used in a cascaded manner.
It fully supports large and complex scenarios, providing unified scheduling and protection, and building a reliable protection network.

The cascading network configuration can be built with a self-selected number of units according to requirements. During subsequent maintenance and replacement, equipment can be adjusted and added or removed based on the original layout.



Cascading adapter

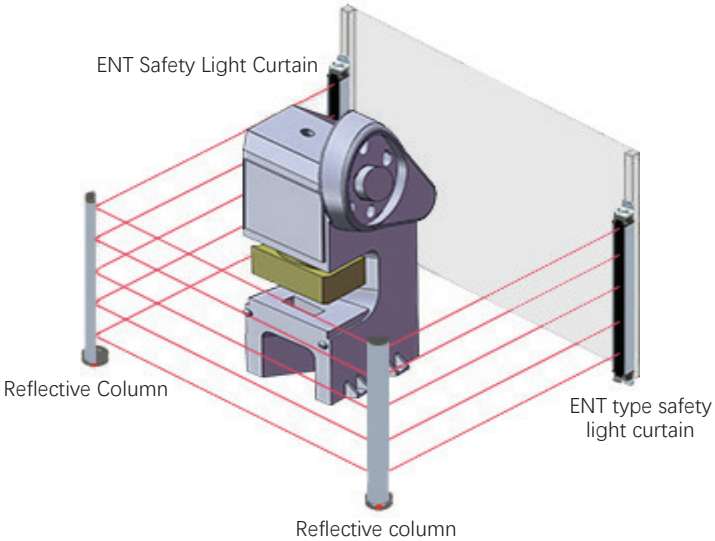


Flexible configuration, adjustable number of cascaded light curtains.

Multi-faceted Area Protection

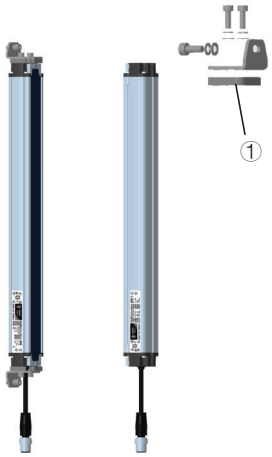
Efficient, flexible, and reliable choice.

Supports area protection with reflective column components; one safety light curtain can provide multi-faceted protection. Simple installation and easy maintenance, efficiently safeguarding production safety.



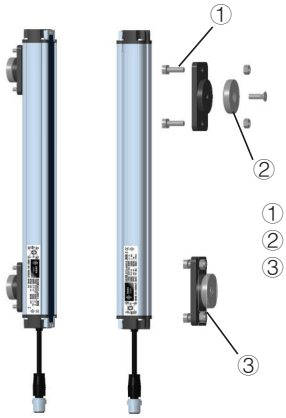
installation

The installation method shown below is the basic configuration. For other requirements, please contact us.



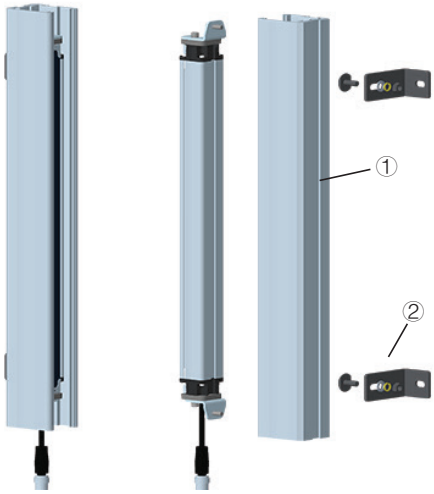
① Front/Side Mount Integrated Bracket

ZC - Front/Side Mount Integrated Installation Method



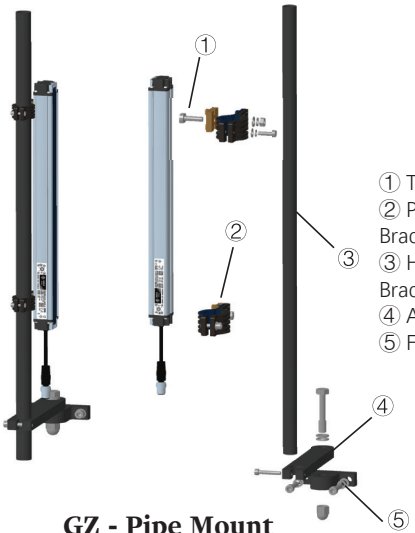
① T-bolt
② Powerful Neodymium Magnet
③ Magnetic Bracket

CX - Magnetic Mounting Method



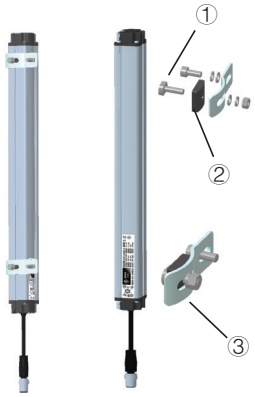
①Light Curtain Protective Cover
② Protective Cover Bracket

FZ – Protective cover can be added based on the T–slot mounting method



① T-bolt
② Pipe Mount Bracket
③ High-strength Bracket Steel Pipe
④ Adjustment Seat
⑤ Fixing Seat

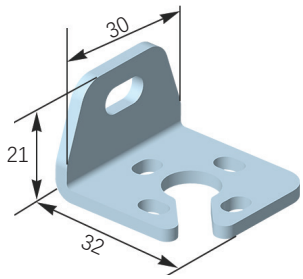
GZ - Pipe Mount Bracket Installation Method



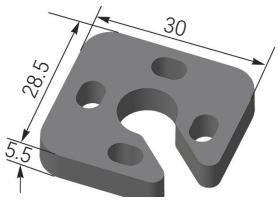
① T-bolt
② (Adjustable Angle)
③ T-slot Bracket

TC - T–slot Mounting Method

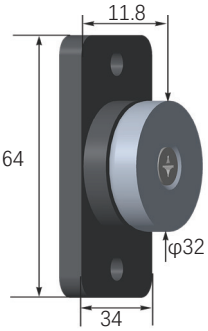
Product Accessory Dimensions



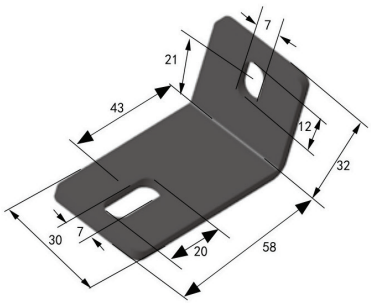
Front/Side Mount Integrated Bracket



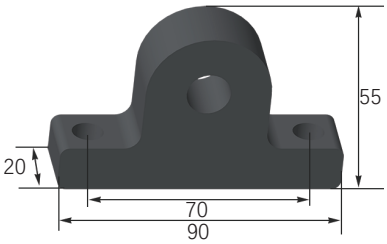
Front/Side Mount Shock Absorbing Pad



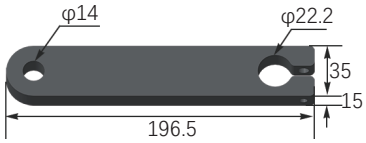
Magnetic Mounting Bracket



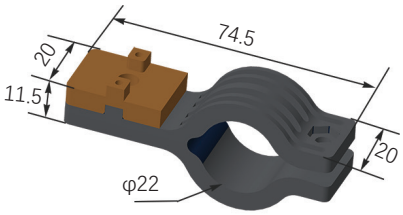
L-shaped Mounting Bracket



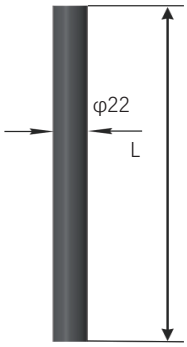
Swivel Arm Base



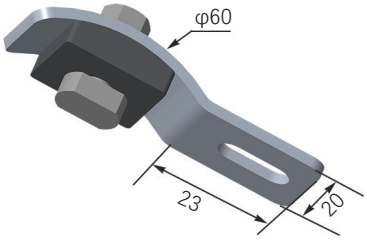
Swivel Arm



Pipe Mounting Bracket



Bracket Steel Pipe



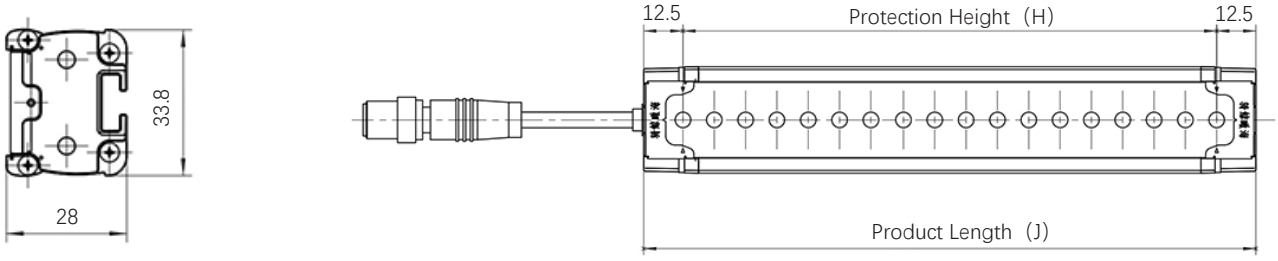
T-slot Mounting Bracket

Product Number

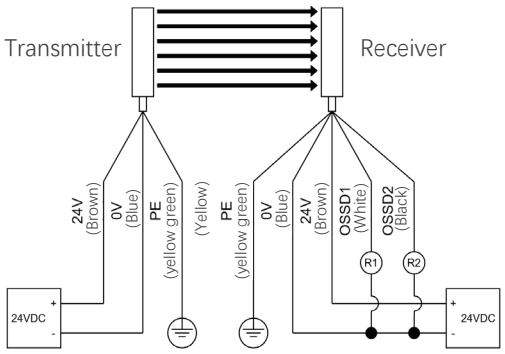
ENT □□ - □ □□□□ - □ / □□

- CX: Magnetic mounting method
- GZ: Pipe mounting bracket installation method;
- TC: T-slot mounting method;
- FZ: Protective cover mounting method
- E: Transmitter; R: Receiver; Default indicates a complete set of products
- Protection Height: Four-digit number, unit in millimeters
- Detection Distance: A indicates 0-10 meters, B indicates 0-16 meters,
  C indicates 0-5 meters
- Detection Accuracy: Two-digit number, unit in millimeters
- **ENT Type Safety Light Curtain Products**

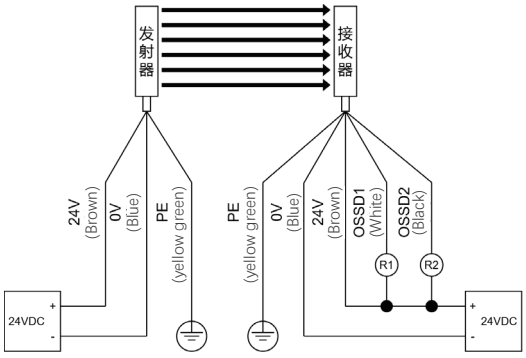
Product Dimensio



Typical Wiring Diagram



PNP Wiring Diagram



NPN Wiring Diagram

Product Parameters

Applicable Standards and Safety Category					
European Standard	EN IEC 61496-1, 2: 2020, EN 61508 -1~4:2020, EN ISO 13849-1:2023,EN ISO13849-2:2012				
International Standard	IEC 61496-1,2:2020,IEC 61508 -1~4:2020,ISO13849-1:2023,ISO13849-2:2012				
Chinese Standard	GB4584	Safety Level	Cat.4, PLe、 Type 4, SIL3	Protection Rating	IP65
Optical Parameters					
Emitting Light Source	Infrared LED (Center Wavelength nm)				
Optical Axis Spacing	10mm	20mm	40mm		
Detection Accuracy	14mm	25mm	45mm		
Protection Height	(Number of Beams - 1) * Optical Axis Spacing (unit mm)				
Detection Distance	A: 0-10M	B:0-16M	C:0-5M	D:0-40M	E: 0-7OM
Environmental parameters					
Ambient Temperature	Operating Temperature	-10°C~55°C (No condensation or frost on the optical surface)	Ambient Humidity	Operating Humidity:35%RH~85%RH	
	Storage Temperature	40°C ~70°C		Storage humidity:35%RH~95%RH	
Light Interference Resistance	Incandescent Lamp	3000Lux	Vibration Resistance	Frequency10-55Hz, Amplitude 0.35±0.05mm, 20 times each in X, Y, and Z directions	
	Fluorescent Lamp	3000Lux	Shock Resistance	Acceleration 10g, Pulse duration 16ms, 1000 times each in X, Y, and Z directions	
	Sunlight	10000Lux	Cross-sectional dimensions	34x28mm	
Electrical Characteristics					
Operating Voltage	24V DC±20%				
Operating Current	Transmitter:<200mA		Receiver:<200mA(No Load)		
Response Time	6.0ms-30.8ms(Increases or decreases with the number of beams)				
Safety Output	PNP	PNP transistor output *2;ON state: load current ≤100mA, output voltage ≥Vcc-2V;OFF state: leakage current ≤1mA, residual voltage ≤1V (excluding the effect of wire extension);			
	NPN	NPN transistor output *2;ON state: load current ≤100mA, output voltage ≤2V;OFF state: leakage current ≤1mA, residual voltage ≤2V (excluding the effect of wire extension)			
Startup Time	<3s				
Detection Function	Power-on self-test, real-time self-test during operation, diagnostic test interval less than 10 minutes, diagnostic coverage >99%				
Protection Circuit	Overvoltage and overcurrent protection, output short-circuit protection				

PRODUCT FOUR: SRB SAFETY RELAY - A2A1B SAFETY RELAY

The SRB safety relay module complies with EN/ISO 13849-1 Cat.4/PL e safety requirements and is suitable for monitoring the switching signals of safety light curtains in industrial environments with high safety requirements.

- Features 2 normally open contacts and 1 normally closed auxiliary contact;
- Supports suppression and shielding functions;
- Allows selection between manual and automatic reset;
- Full circuit self-test function, locking the signal level when the two signals are inconsistent;
- Can monitor NPN/PNP signals, suitable for a wider range of applications;
- Power supply reverse connection protection design;
- Standard 35mm width DIN rail mounting design;
- Detachable terminal blocks for easy maintenance;
- Intuitive status indicator lights for easy operational status diagnosis;

Product Number & Technical Parameters

CCH-SR □– 2A 1B

- Output form: 2A1B - Output 2 sets of normally open and 1 set of normally closed contacts
- Application
- B-Square wave signal output safety light curtain signal
- CCH-SR Series Safety Relay Module

Note:

CH1 (green light): Channel 1 status indicator, this indicator lights up when relay 1 is energized

CH2 (green light): Channel 2 status indicator, this indicator lights up when relay 2 is energized

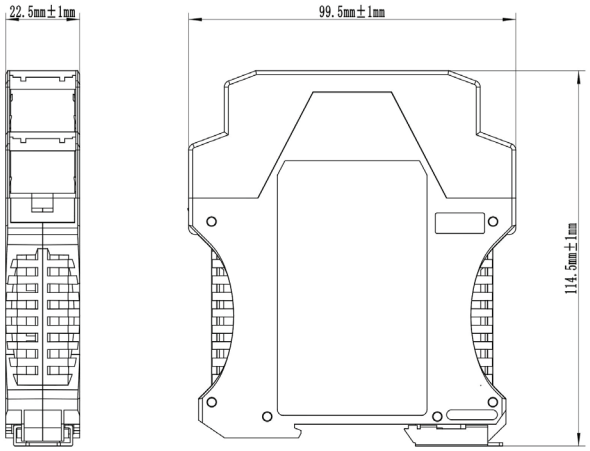
ERROR (red light): Fault indicator, this indicator lights up when the relay module detects a fault, otherwise, the indicator is off

POWER (red light): Power indicator, this indicator lights up when the relay module is powered on

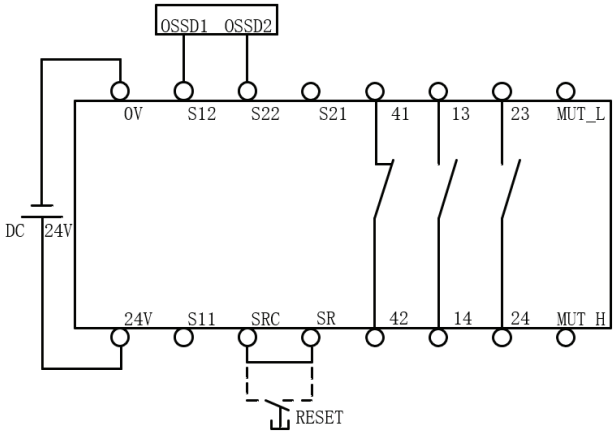
NPN and PNP mode selection switch. The mode of the safety relay module is controlled by the DIP switch and should match the mode of the safety light curtain.

Electrical Characteristics			
Operating Voltage	24V DC±10%	Rated Power	<3W
Response Time	<10ms	Relay Life	1 million cycles (Electrical life)
Pull-in delay time	<50ms	Power-on startup time	<1s
Safety Input	Dual NPN or Dual PNP		
Safety Output	2 normally open passive contacts, 1 normally closed passive contact		
Contact Capacity	AC15:5A/250V		DC13:6A/24V
Environment			
Operating temperature	-30~50°C(No frost or condensation)		
Storage temperature	-40~70°C	Operating humidity	35~85%RH
Storage humidity	35~95%RH	IP	IP20
dimension	114.5mmx99.5mmx22.5mm		
Vibration resistance	frequency:5Hz~55Hz	amplitude:0.35±0.05mm	Number of scans:20 times each in the X, Y, and Z directions.
Impact resistance	acceleration 10g, Pulse duration16ms		1000 times each in the X, Y, and Z directions.
Standard Ratings			
Safety Certification	Performance Level (PL):Ple, Compliant standardsENISO13849		
	Safety Category(Cat.):Cat.4, Compliant standardsENISO13849		
	Safety Integrity Level(SIL):SIL3, Compliant standardsIEC 61508,EC 62061		
EMC	EN61000-4-2: 2009,EN61000-4-3: 2006+A1: 2009+A2: 2010,EN61000-4-4: 2004+A1: 2010,EN61000-4-6: 2014,EN61000-4-8: 2010		

Mechanical Dimensions & Functional Block Diagram

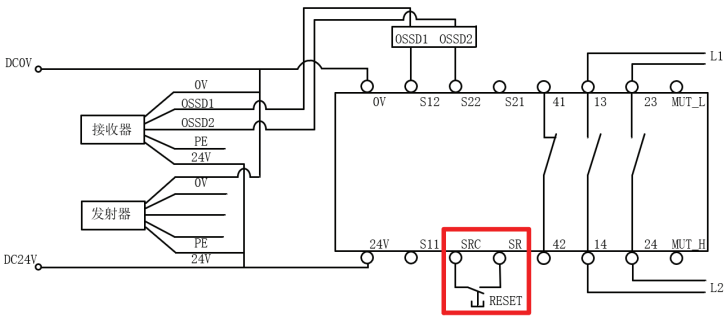


Mechanical dimensions diagram

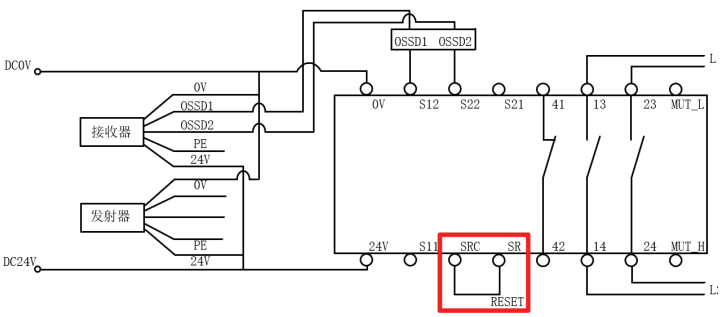


Functional block diagram

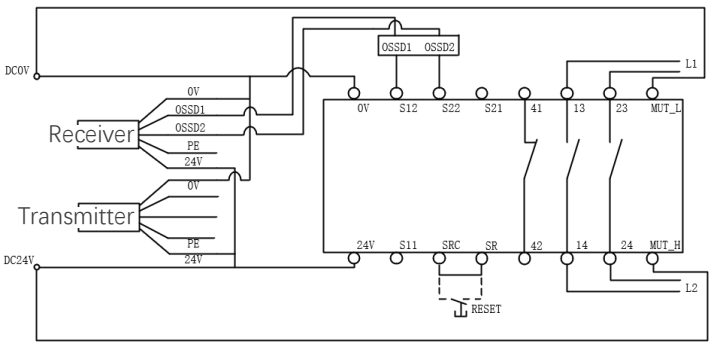
Typical Wiring Diagram



SRB-2A1B Wiring Diagram for Safety Light Curtain Manual Reset



SRB-2A1B Wiring Diagram for Safety Light Curtain Automatic Reset



MUT Wiring Diagram for Muting Safety Light Curtain Signals

Note:
When the safety relay module is powered normally, connect MUT_H to 24V power and MUT_L to 0V.
The safety relay module is in the muting state. At this time, the signal from the safety light curtain cannot affect the safety relay module, and the CH1, CH2, and POWER lights are constantly on.

ENT SAFETY LIGHT CURTAIN BASIC MODEL OVERVIEW

H: Protection height, J: Product length, L: Bracket steel pipe length, C: Protective cover length (unit: mm); MTTFd: Mean time to dangerous failure (unit: years); MTTF: Mean time to failure (unit: years)

Detection Accuracy 14mm Series						
Model	H	J	L	C	MTTFd	MTTF
ENT14-□0120	120	145	700	210	242	67
ENT14-□0200	200	225	700	290	198	52
ENT14-□0280	280	305	700	370	167	42
ENT14-□0360	360	385	700	450	145	36
ENT14-□0440	440	465	700	530	128	31
ENT14-□0520	520	545	1000	610	114	27
ENT14-□0600	600	625	1000	690	103	24
ENT14-□0680	680	705	1000	770	94	22
ENT14-□0760	760	785	1000	850	87	20
ENT14-□0840	840	865	1200	930	80	19
ENT14-□0920	920	945	1200	1010	75	17
ENT14-□1000	1000	1025	1200	1090	70	16
Detection Accuracy 45mm Series						
Model	H	J	L	C	MTTFd	MTTF
ENT25-□0120	120	145	700	210	291	86
ENT25-□0200	200	225	700	290	256	72
ENT25-□0280	280	305	700	370	229	63
ENT25-□0360	360	385	700	450	207	55
ENT25-□0440	440	465	700	530	189	49
ENT25-□0520	520	545	1000	610	174	44
ENT25-□0600	600	625	1000	690	161	41
ENT25-□0680	680	705	1000	770	150	37
ENT25-□0760	760	785	1000	850	140	35
ENT25-□0840	840	865	1200	930	131	32
ENT25-□0920	920	945	1200	1010	124	30
ENT25-□1000	1000	1025	1200	1090	117	28
ENT25-□1080	1080	1105	1500	1170	111	27
ENT25-□1160	1160	1185	1500	1250	106	25
ENT25-□1240	1240	1265	1500	1330	101	24
ENT25-□1320	1320	1345	2000	1410	96	23
ENT25-□1400	1400	1425	2000	1490	92	22
ENT25-□1480	1480	1505	2000	1570	88	21
ENT25-□1560	1560	1585	2000	1650	85	20
ENT25-□1640	1640	1665	2000	1730	82	19
ENT25-□1720	1720	1745	2000	1810	79	18

Detection Accuracy 25mm Series						
Model	H	J	L	C	MTTFd	MTTF
ENT45-□0120	120	145	700	210	323	100
ENT45-□0200	200	225	700	290	301	90
ENT45-□0280	280	305	700	370	281	82
ENT45-□0360	360	385	700	450	264	75
ENT45-□0440	440	465	700	530	249	70
ENT45-□0520	520	545	1000	610	235	65
ENT45-□0600	600	625	1000	690	223	61
ENT45-□0680	680	705	1000	770	212	57
ENT45-□0760	760	785	1000	850	202	53
ENT45-□0840	840	865	1200	930	193	51
ENT45-□0920	920	945	1200	1010	185	48
ENT45-□1000	1000	1025	1200	1090	177	46
ENT45-□1080	1080	1105	1500	1170	170	43
ENT45-□1160	1160	1185	1500	1250	164	41
ENT45-□1240	1240	1265	1500	1330	158	40
ENT45-□1320	1320	1345	2000	1410	152	38
ENT45-□1400	1400	1425	2000	1490	147	37
ENT45-□1480	1480	1505	2000	1570	142	35
ENT45-□1560	1560	1585	2000	1650	138	34
ENT45-□1640	1640	1665	2000	1730	134	33
ENT45-□1720	1720	1745	2000	1810	130	32
ENT45-□1800	1800	1800	2000	1890	126	31
ENT45-□1880	1880	1905	—	1970	122	30
ENT45-□1960	1960	1985	—	2050	119	29

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