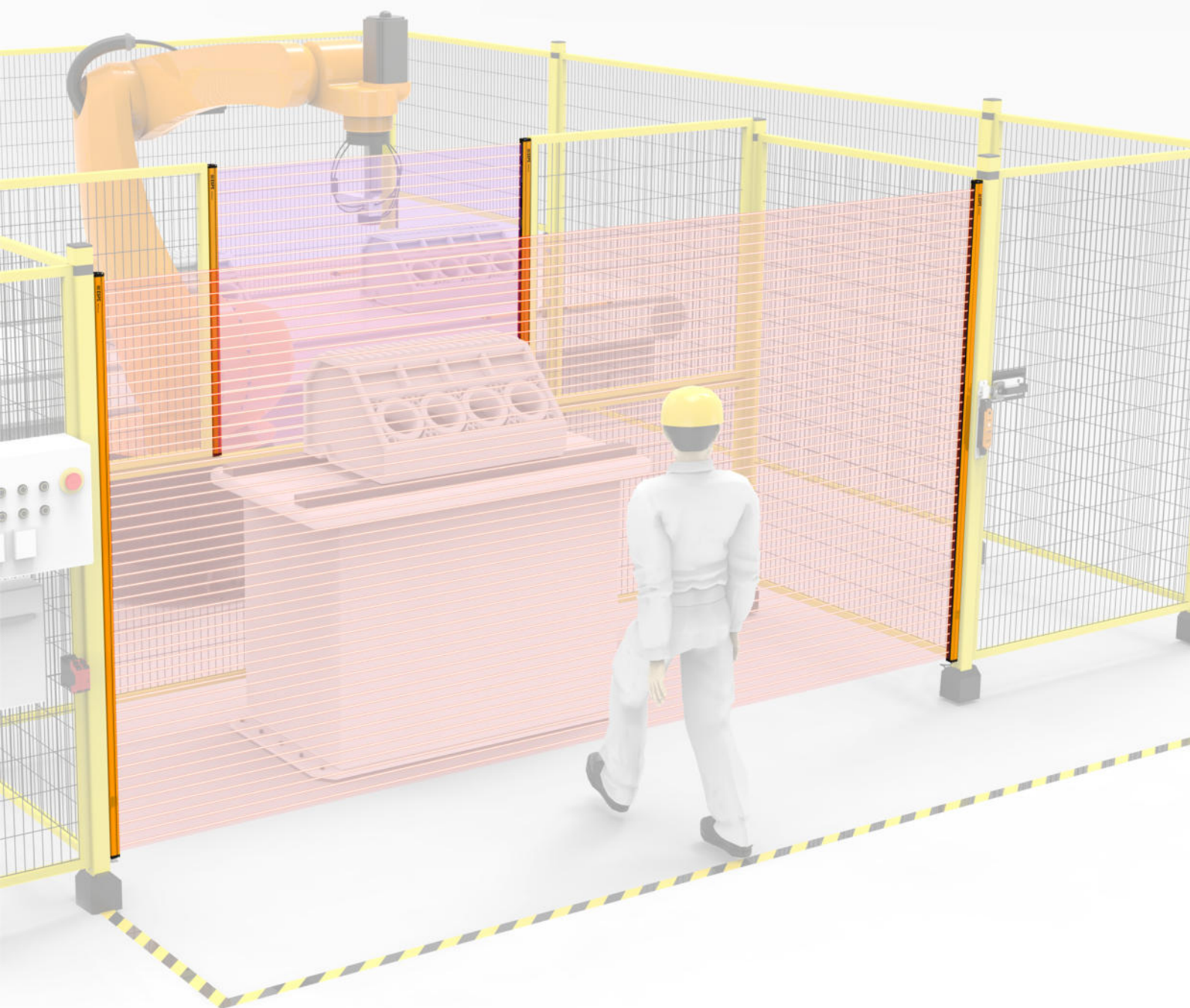




Safety Light Curtain/ Measuring Light Curtain

Comprehensive Industrial Safety Solution Provider

COMPANY INTRODUCTION

ESPE Introduction

Shenzhen ESPE Technology Co.,Ltd.is a high-tech enterprise integrated with researching, production and sales of industrial safety product since 2008. As leading brand of safety industry, ESPE supply consult, risk evaluation, safety solution designing one-stop service.

"3+1+N" product strategy make sure ESPE have power to support 20000+ customers from wide industry:new energy (lithium battery & photovoltaic),aerospace,semiconductor,automotive, logistic,electronic production etc.Not only take 1/3 Chinese market,but also exported to 50+ countries.Product range:safety light curtain,measuring light curtain,safety interlock switch,laser scanner,safety relay,safety controller module,LED signal tower light.

Established In

2008

Annual Amount (Curtain)

250000⁺
set

Annual Amount (Switch)

150000⁺
set

Partner Over

11000⁺



Honor & Certificates



Company certificates

- ★ National High-tech Enterprise.
- ★ Title of "Shenzhen Specialized, Refined and Innovative" Enterprise.
- ★ Title of Guangdong Province Credit-worthy Enterprise.
- ★ National Casting & Forging Machinery Supervision Product Certificates.
- ★ ISO9001:2015 Quality Management System Certification.
- ★ Co-draft of industry standard "JB/T14121-2021 Cylinder-driven Rapid Forging Hydraulic Press".
- ★ Co-revise of national Standard "GB/T4584-2022 Technical Conditions of Photoelectric Protection Devices for Presses".
- ★ Co-draft of National standard GBT/T19436 Mechanical Electrical Safety Electro-sensitive protection Equipment".

Product Certificates

- ★ EU CE type 4.
- ★ TUV AUD/ TUV Austria.
- ★ CE-EMC, FCC safety certificates.
- ★ UKCA Type 4 certificates.
- ★ National CMA, CNAS.
- ★ EU RoHS certificates.

Patent

- ★ Technology patent 40+, software 30+.

Comprehensive Industrial Safety Solution Provider

Vision

Act as industry benchmark, aiming to be century enterprises.

Value

Integrity and pragmatism, innovation, repay society.

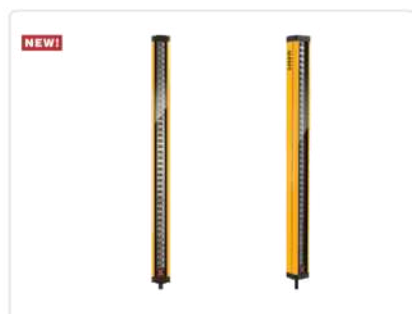
Mission

Popularize industrial safety and lead the sensor technology;
Make machine more intelligent, production more convenient, and operators safer.

Cooperative Partners



Contents



NSES Series

Type 4 Safety Light Curtain

P.16



NSEFP Series

No-dead Zone Type 4 Safety Light Curtain

P.27



NSESE Series

Classic Type 4 Safety Light Curtain

P.41



NSEFP2 Series

No-dead Zone Safety Light Curtain

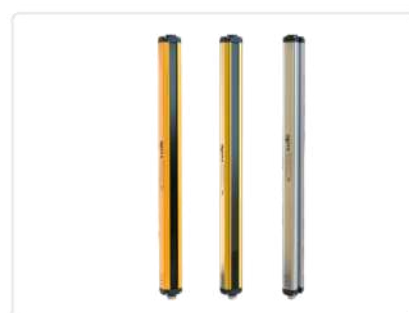
P.49



NSESS Series

Compact Safety Light Curtain

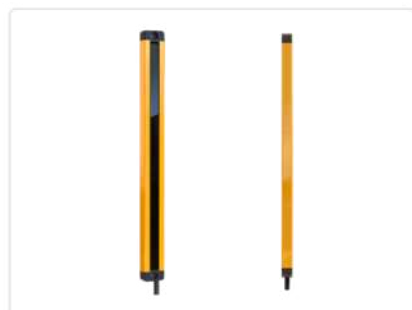
P.57



NSELG Series

Automation Safety Light Curtain

P.65



NSEB13 Series

Ultra-compact Safety Light Curtain

P.74



NSEB15 Series

Ultra-thin Safety Light Curtain

P.82



NSESN Series

Universal Use Safety Light Curtain

P.90



NSES Series

Punching Machine Use Safety Light Curtain

P.99



NSESP Series

Anti-light (Strong) Safety Light Curtain

P.110



NSELD Series

Area Sensor (Curtain)

P.118

Contents



NSESF Series

Waterproof Safety Light Curtain P.126



NSEFB Series

Anti-explosion Safety Light Curtain P.134



NSEQC Series

Multiple Side Safety Light Curtain P.141



NSESCC Series

Vehicle Separation Light Curtain P.148



NSESM Series

Measuring Light Curtain P.154



NSESCL Series

Measuring/ Detection Light Curtain P.165



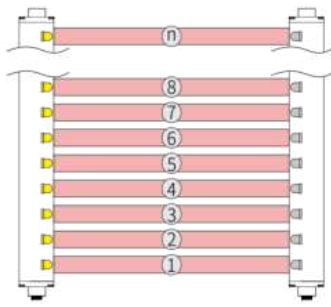
NSESCH Series

Correcting & Centering Light Curtain P.176

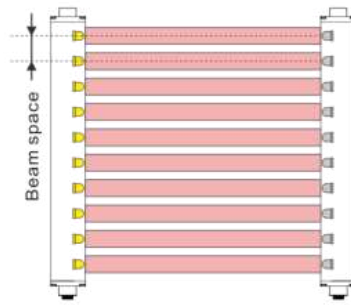


NSESQS Series

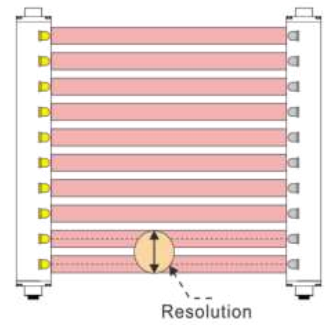
Mounting Reflector P.184



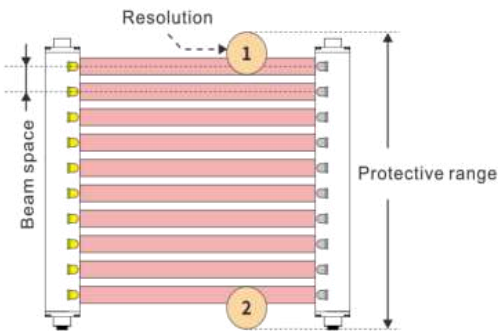
Beams: the numbers of LED



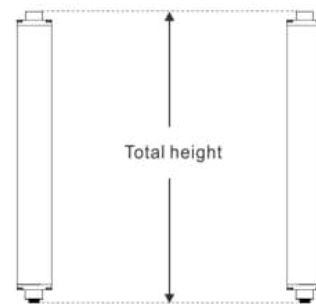
Beam space: space between two closed beams



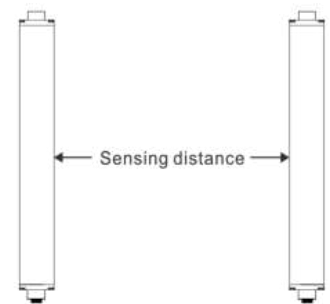
Resolution: the smallest opaque can be detected by curtain.



Protective range: the real working range from first beam to last one.

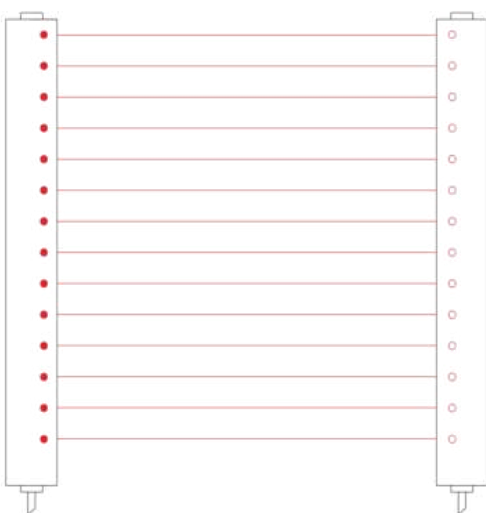


Total height: the size from above cover to bottom cover

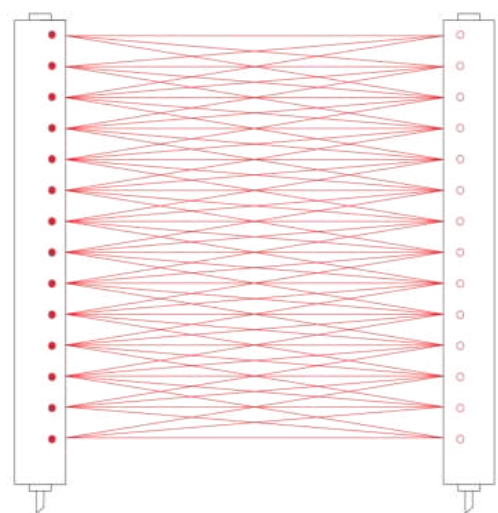


Sensing distance: the distance between emitter and receiver.

Scanning method



Parallel scanning



Cross scanning (only for detection curtain)

Figure 10 Diagram of scanning method

1 Learn more of ambient environment

Before selection, it is important to learn better of environment and equipment, like water mist, dust, oil, high temperature, strong light, outdoor environment, and application equipment, automation equipment, shearing machines, bending machines, hydraulic presses, injection molding machines, regional protection, stamping robots, etc. You can choose the corresponding light curtain according to environment.

2 Confirming resolution

Selecting suitable resolution according to smallest detected opaque.



Opaque $\phi 15\text{mm}$ (finger)



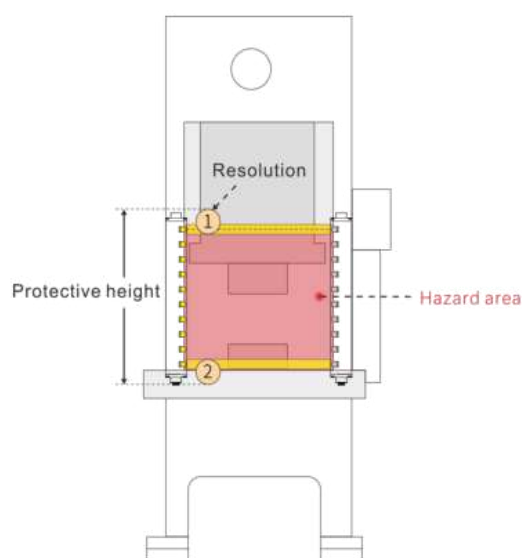
Opaque $\phi 25\text{mm}$ (hand)



Opaque $\phi 45\text{mm}$ (arm, feet and body)

Remark: The distance to hazard is decided by resolution and response speed. $\phi 25\text{mm}$ is always used. But if its too close to hazard point, please choose $\phi 15\text{mm}$. If distance is longer, $\phi 45$ resolution is also good for using and also saving cost.

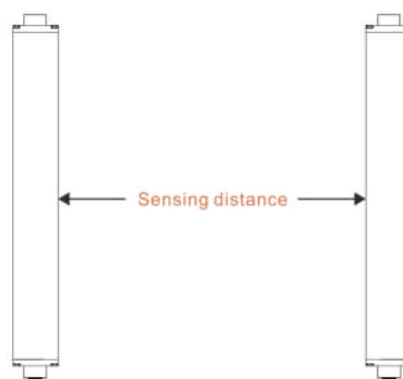
3 Selecting protective height



Curtain protective height= (beams-1)* beam space +2 resolution

The real protective range need to be checked according to hazard equipment.

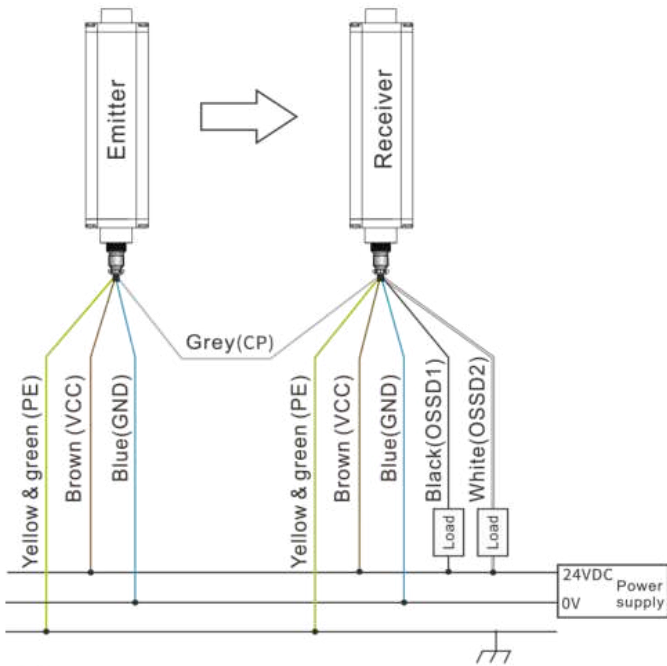
4 Confirming detection distance



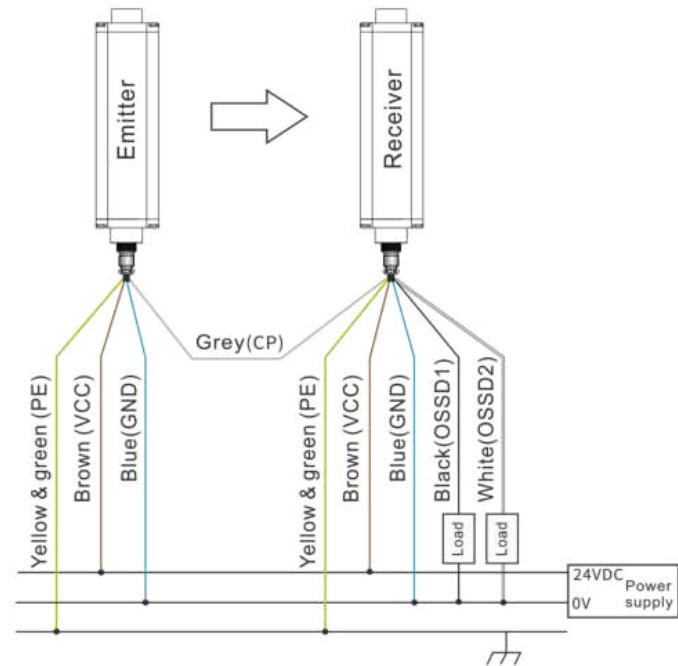
Sensing distance: the distance between emitter * receiver of light curtain.
According to site equipment

5 Output method

NPN: output 0V



PNP: output 24V



6 Installation



Side mounting brackets



Up & Bottom mounting



Rotary installation brackets



Reinforced brackets



Vibration absorbing brackets



Screw fixing

7 Confirming model

Model confirmed according to above information

Precaution

- The safety light curtain can be only installed and maintained by professional engineers who is well trained with qualification or with rich knowledge and proved with ability to solving problem.
- Before installing or using, please read this manual carefully to learn process and request of installation, operation and maintenance.
- OSSD need to meet condition: no short connection, no exceed rated value.
- No impact or collision to light curtain.
- Establish safety operating rules and effectively conduct.

Warning

- It is forbidden to plug or unplug the light barrier cable when the power is connected.
- After debugging, it is strictly forbidden to change other installation position unless it is a dedicated person.
- Make sure that the light curtain has shut down the dangerous state of machine and maintain this state.
- Ensure the output of safety light curtain does not affect the machine during installation.

1.Installation of safety light curtain

Safety distance and protection height is 2 factors to ensure effective protection of light curtain, safety distance must be calculated correctly, and the installation position of the light curtain must meet the requirements of safety distance and installation height; Otherwise, there is still the possibility of accidents.

1.1 Calculation of safety distance

Safety distance refers to the minimum distance between the photoelectric protection device and the dangerous point. To ensure that the dangerous equipment stops when people or objects enter the dangerous area, a safety distance S must be set between the dangerous area and the safety light curtain (as shown in the figure below). The safety distance determined by the corresponding safety standards as ISO13855 and the equipment characteristics is different. The safety distance must be set according to the relevant standards during installation; otherwise, there is still the possibility of accidents.

Formulation	In formulation
$S=(K\times T)+C$	• S: is the minimum distance from the nearest hazard point to ESPE detection point/line/surface in millimeters. • K: is a parameter derived from the approach speed of a person or part of a person in millimeter per second. • T: is the downtime of the entire system in seconds. • C: is additional distance to enter the danger zone before the protective device is triggered in millimeters.

Vertical approach			
$\beta=90^{\circ} (\pm 5^{\circ})$ $d \leq 40 \text{ mm}$	$S = 2000 \times T + 8 \times (d - 14)$ If $S > 500 \text{ mm}$, please refer formaltion $S = 1600 \times T + 8 \times (d - 14)$. $S = 1600 \times T + 8 \times (d - 14)$. In this case, S cannot be less than 500mm.	Safety distance S cannot be less than 100mm.	
$40 < d \leq 70 \text{ mm}$	$S = 1600 \times T + 850$	Bottom beam height $\leq 300 \text{ mm}$. Ip beam height $\geq 900 \text{ mm}$.	
$d > 70 \text{ mm}$ Multi-beams Single beams	$S = 1600 \times T + 850$ $S = 1600 \times T + 1200$ Single beams can be only used if permitted by risk assessment or C standard.	Beams 4 3	Suggested height 300, 600, 900, 1200 mm 300, 700, 1100 mm
Horizontal approach			
$\beta = 0^{\circ} (\pm 5^{\circ})$	$S = 1600 \times T + (1200 - 0.4 \times H)$ $(1200 - 0.4 \times H) > 850 \text{ mm}$		
Approaching with angle.			
$5^{\circ} < \beta < 85^{\circ}$	When $\beta > 30^{\circ}$, formulation of vertical approach can be used. When $\beta < 30^{\circ}$, formulation of horizontal approach can be used. S is suitable for height $\leq 1000 \text{ mm}$ and longest distance beams.	$d \leq \frac{H}{15} + 50$ Is refer to the bottom beams.	

S:Smallest distance
H:Protective height
d:resolution of ESPE light curtain

β : Angle between the detection plane and the direction of entry
T: Downtime of whole system

1.2 Verification of the installation height of the vertical protective field.

According to ISO13855, the possibility of bypassing electro-sensitive equipment is not allowed.

If the danger zone must be entered when reaching (touching) from above vertical protective field, the protective field height and the minimum distance to the electro-sensitive equipment must be determined. This can be determined by comparing the calculated value based on the possible detection of the limbs or body parts with the value obtained by touching. The greater value resulting from this comparison is used.

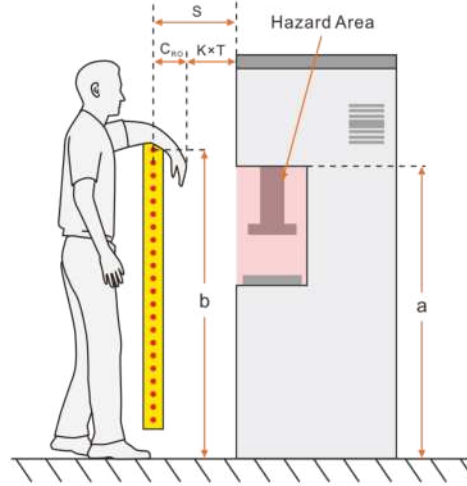


Figure 11 Installation height diagram for vertical protection zone

A Height of hazard point(mm)	Creach over (mm)											
2600	0	0	0	0	0	0	0	0	0	0	0	0
2500	400	400	350	300	300	300	300	300	250	150	100	0
2400	550	550	550	500	450	450	400	400	300	250	100	0
2200	800	750	750	700	650	650	600	550	400	250	0	0
2000	950	950	850	850	800	750	700	550	400	0	0	0
1800	1100	1100	950	950	850	800	750	550	0	0	0	0
1600	1150	1150	1100	1000	900	850	750	450	0	0	0	0
1400	1200	1200	1100	1000	900	850	650	0	0	0	0	0
1200	1200	1200	1100	1000	850	800	0	0	0	0	0	0
1000	1200	1150	1050	950	750	700	0	0	0	0	0	0
800	1150	1050	950	800	500	450	0	0	0	0	0	0
600	1050	950	750	550	0	0	0	0	0	0	0	0
400	900	700	0	0	0	0	0	0	0	0	0	0
200	600	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
B safety light curtain height(mm)												
	900	1000	1100	1200	1300	1400	1600	1800	2000	2200	2400	2600

Formulation of safety distance

Case 1: Vertical installation-Hazardous point protection with presence detection

As shown in picture, the calculated safety distance $S=320\text{mm}$. The safety light curtain with highest resolution is used here, so the optimal safety distance is obtained.

a =hazard area height
 d =detection ability (AOPD resolution)
 H =safety height
 S =safety distance

x =the distance of protection end to machine
 y =height of up end beams, the calculation of safety distance please refer "1.3 Safety light curtain installation example"

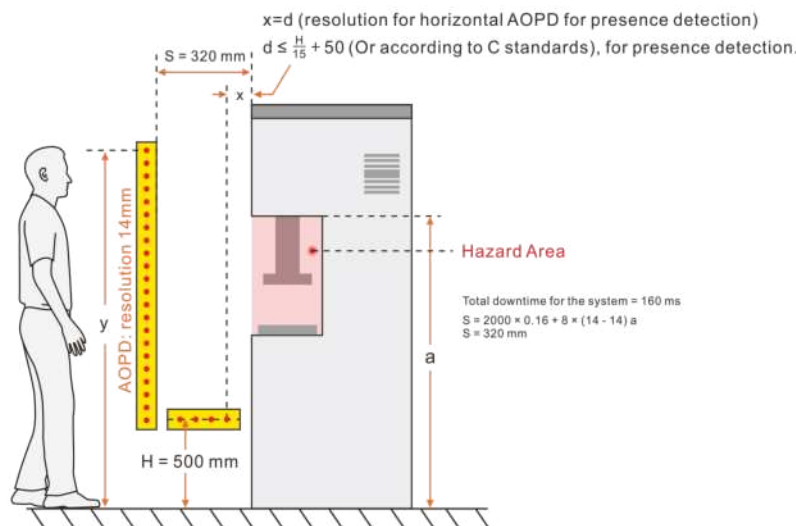


Figure 12 Schematic diagram of vertical installation safety distance calculation

Case 2: Horizontal installation-hazardous area protection

This example taken vertical AOPD, the figure below shows the calculation of safety distance S and the positioning of the AOPD. If the mounting height of the AOPD is increased to 500mm, the safety distance decreases. For this height, AOPD with a resolution of less than or equal 80mm can be used. However, it must still be ensured that the hazardous area below the AOPD cannot be accessed. This type of protection is usually implemented using AOP DDRs (laser scanners). However, for some technical reasons, a certain margin distance should be set for these devices.

C refers to distance from entrance of the danger zone before the protective device is triggered, in millimeters.

d = detection ability (AOPD resolution)
S = safety distance
X = distance from protection end to machine

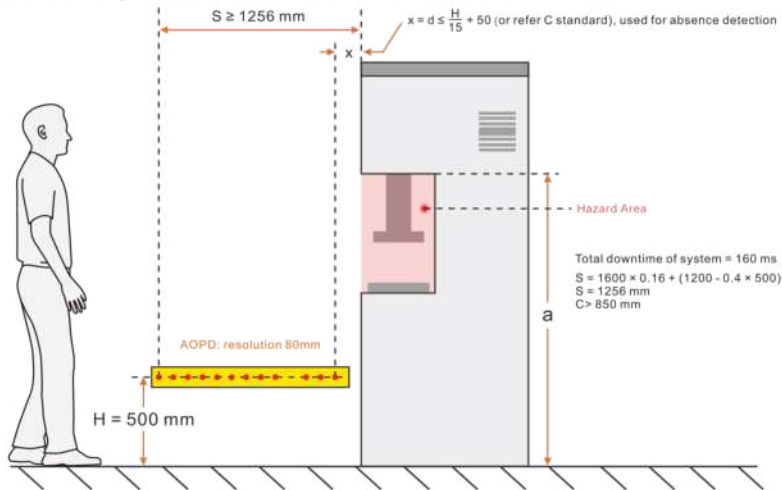


Figure 13 Schematic diagram of horizontal installation safety distance calculation.

Case 3: Aisle guarding

Use 3 beams (300mm, 700mm and 1100 in height) for aisle guarding, vertical approach is allowed. When using this solution, the system cannot detect if the operator is standing between the danger zone and the AOPD. Therefore, additional safety measures area required to reduce this risk. Control devices (like reset buttons) should be placed where the entire danger zone can be seen. The buttons should not be accessible from the danger zone.

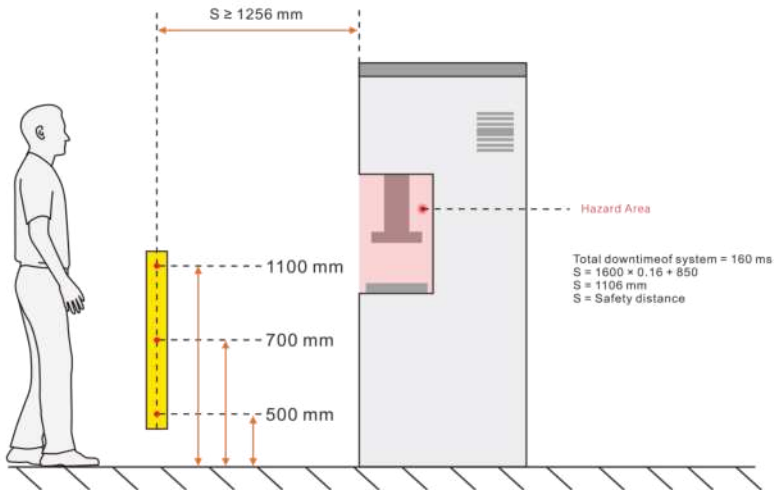


Figure 14 Channel protection safety distance calculation diagram

The following table shows the results of using these solutions. The specific requirements determine the choice of solution:

Solution Used for stop/downtime=160ms		Advantage	Disadvantage
1	Hazard point protection S = 320 mm	- Higher productivity due to operator closer to the work process (short path); - Small space required for automatic start or PSDI mode possible;	Due to the higher resolution and presence detection, the price is higher.
2	Hazard area protection S = 1256 mm	- Can be started automatically. - Access is not affected by the height of the hazardous area.	- Operator is further away (long reach) - More space required - Lower productivity
3	Aisle protection S = 1106 mm	- Most economical solution - Access is not affected by the height of the hazardous area - Multi-side protection using deflecting mirrors.	- Operator is further away (long reach) - Lower productivity (need to reset always) - The risk of standing behind protective equipment has been taken into account. If there are lots of people, this solution is not recommended.

1.3. The correct and incorrect installation example, in case any accidents caused by wrong installation.

The installation height refers to the position of the light curtain relative to the upper and lower die of machine tool, that is, under the premise of ensuring safety distance, the lowest beam of light curtain shall not be higher than the lower edge of lower die, the highest beam of light curtain shall not be lower than the upper edge of upper die. In some case without relevant safety standards, the isolation of operators and dangerous areas should be ensured.

When there is a blind area greater than 75mm between safety light curtain and equipment, an auxiliary light curtain or guardrail should be installed to prevent the body of operators entering the inner side of the light curtain, as shown in Figure 1-3. If it is less than 75mm, safety measures such as auxiliary light curtain or guardrails can also be taken.



1. Correct installation, auxiliary safety protection device needs to be installed if the blind distance between safety light curtain and equipment is exceed 75mm.

2. Correct installation.

3. Incorrect installation, the safety distance is too big.



4. Incorrect installation, safety distance is too close.

5. Incorrect installation, installation height is too low.

5. Incorrect installation, installation height is too high.

Figure 15 Diagram of safety light curtain installation



Warning

- If the mold is replaced during operation, the safety distance and installation position must be re-adjusted according to the above two requirements.
- If the machine tool has a slipping, it must be repaired and adjust in time. Otherwise, the correct installation of light curtain cannot ensure safety (photoelectric device can only control the electronic part, but cannot avoid accidents such as slipping and breaking).
- If there is a blind area greater than 75mm between safety light curtain and the equipment, it is necessary to take other auxiliary protective measures.
- The height is one of the necessary conditions for determining the protection function of the photoelectric protection device. The height must be correct during installation.
- When installing the safety light curtain, make sure that the safety light curtain cannot be bypassed from below, above and behind, as well as that it cannot be moved.
- The safety light curtain may only be installed on machines that meet the requirements and whose protection zone width does not change when the safety light curtain is in operation.

1.4 Precautions for adjacent installation

When 2 or more sets of safety light curtain are installed adjacent to each other, mutual interference may happen. As shown in Figure 1-4, the infrared light from emitter of system 1 may affect the receiver of system 2. This may interfere with the protection function of system 2, which means that the operator is in danger. So you can install as Figure 17.

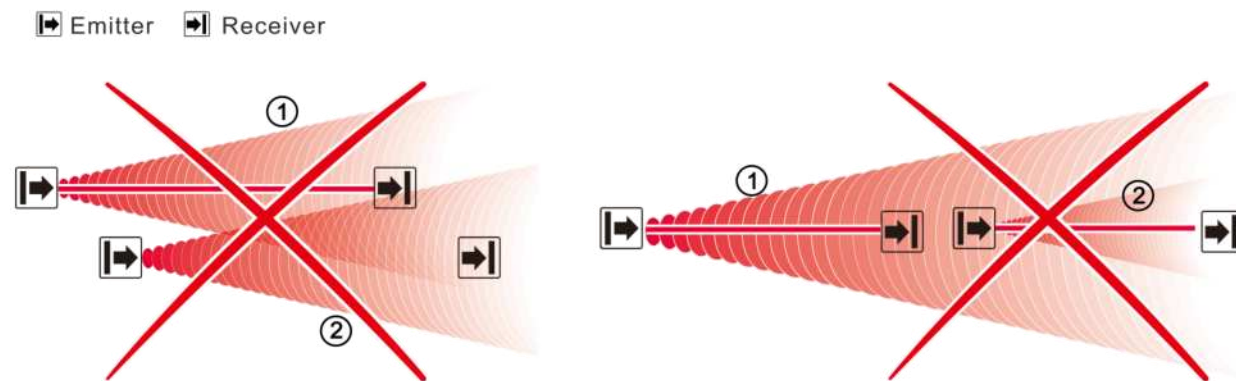
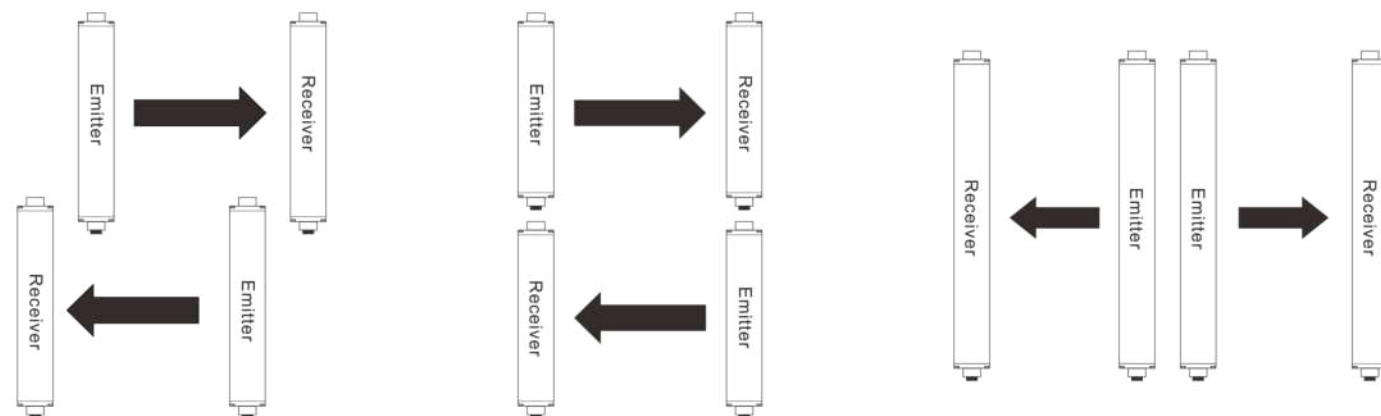


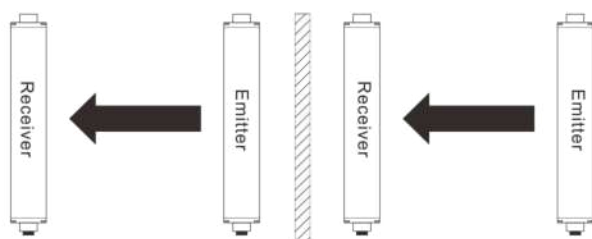
Figure 16 Avoid mutual interference between system 1 and system 2



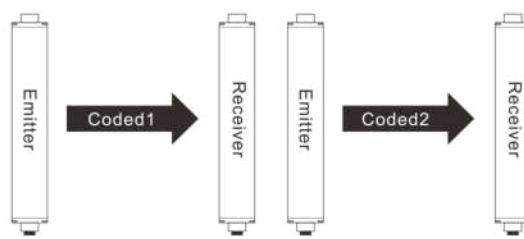
1. Place the transmitters front to back when facing each other.

2. Ensure transmitters up and down when facing each other.

2. Place the transmitters back to back.



4. When transmitters are in the same direction, a partition should be added in the middle.



5. Two pairs of safety light curtain can be coded to receive light in different wavelengths. Even if light of different wavelengths is received, there will be no interference.

Figure 17 Position of light curtains to avoid interference



- The interference between curtains will cause them to lose normal function and fail to protect.
- Please use the correct installation according to specific situation to eliminate interference between curtains and ensure safety.

1.5 Correct installation when with reflective objects.

If there are smooth reflective surfaces around the safety light curtain, such as metal plates, floors, ceilings, processed parts, covers, partitions, glass plates etc. The installation of curtains to reflective surface should be greater than A(m) which can be calculated by formula in the table or found from the coordinate diagram. As shown in Figure 8-6, this cone has an aperture angle α , which is formed between the optical axis and the light beam at the edge of the light cone. Where α =the aperture angle of the light beam, L=the distance between the transmitter and the receiver, the L <the farthest distance of the light curtain.

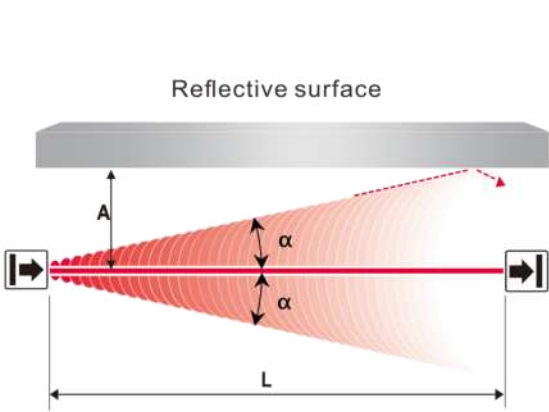


Figure 18 Illustration of interference from reflective objects

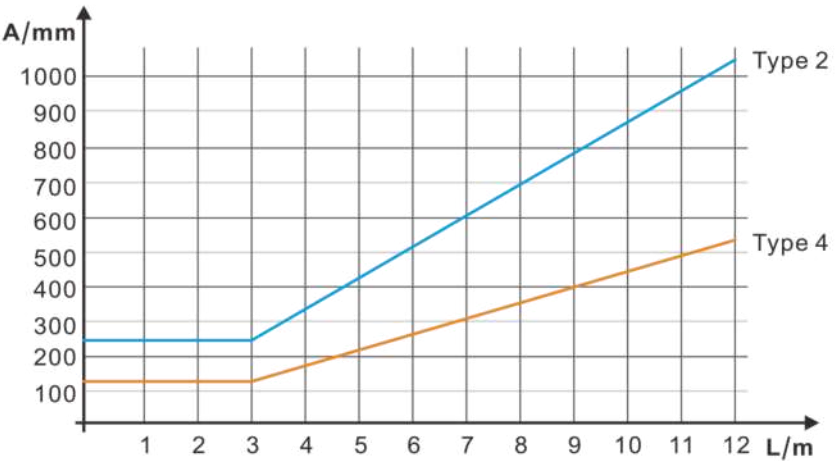


Figure 19 The installation position where reflective objects affect the light curtain

The distance calculation of type 2 safety light curtain to the reflective surface

Distance between emitter & receiver L (m)	The smallest distance to reflective surface A (mm)
$L \leq 3m$	$A=262mm$
$L > 3m$	$A= \tan(5^{\circ}) \times 1000mm/m \times L=87.48 \times 1mm/m \times L$

The distance calculation of type 4 safety light curtain to the reflective surface

Distance between emitter & receiver L (m)	The smallest distance to reflective surface A (mm)
$L \leq 3m$	$A=131mm$
$L > 3m$	$A= \tan(2.5^{\circ}) \times 1000mm/m \times L=43.66 \times 1mm/m \times L$

- The smooth reflective surface or scattering medium of the surrounding reflective objects will change the propagation direction of the light emitted by the light curtain, causing the protected personnel or body parts to be bypassed and not detected, causing the safety light curtain to lose its normal function and fail to play a protective role. (Scattering media include dust, fog smoke etc.)
- When installing the safety light curtain, please try to stay away from reflective objects, or cover or block the reflective objects to eliminate interference, such as reducing the smoothness or reflective objects, or sticking frosted materials to ensure safety.

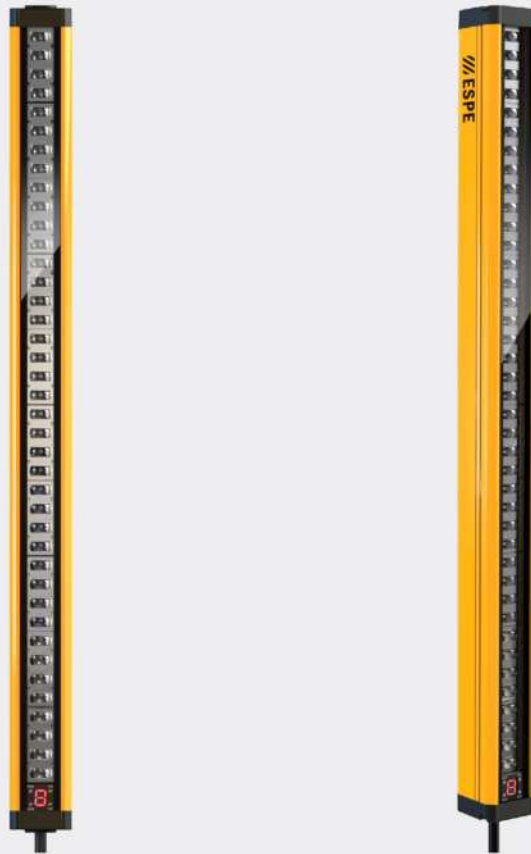
Installation matters (Safety light curtain)

- 1.Confirming the power supply is consistent with the voltage on the nameplate by multimeter, and the fluctuation range does not exceed $\pm 20\%$.
- 2.Correctly connect wire of light curtain with power supply.
- 3.Users adjust the position and angle of the emitter and the receiver according to on-site environment to make the receiver light up (the indicator light of two barrier in green when light is aligned normally).
- 4.Use a detection rod to block each beam to confirm that light curtain is in normal condition; Check the receiver indicator light, red light on/green light off when block beams; When normal state, the green indicator light is on and red off.
- 5.Confirm safety distance and installation position to ensure its effective protection.
- 6.Tighten the screw to fix the installation position of the safety light curtain so that it can work reliably.
- 7.Debugging is completed.

- After completing installation and wiring, engineers need to inspect and ensure correct wiring. It can be only power-on debugging after correct verification.
- Connector on cable should be tighten with light curtain, in case light barrier will not be able to play a protective role.

NSESV Series

Type 4 Safety Light Curtain



Product Introduction

NSESV series meet safety standard of IEC61496 (Type 4). High safety performance for internal self-diagnosis function and small aperture angle. Optional wire-syn and optical-syn design is suitable for various application. EDM & reset function ensure multiple safety connection with equipment. Cover fixed installation and slider installation is easier to mount on equipment.

Product Feature

- Meet IEC61496 (Type 4) and ISO13849.1 (Cat.4/PLe) safety standard;
- High safety level: Self-diagnosis design and periodic dual cross-diagnosis design;
- Optical wire-syn or optical-syn;
- Redundancy with self-diagnosis: Dual-loop redundant output design ensure each loop with self-diagnosis pulse, and in time self-diagnosis when overcurrent, power short-circuit or output short-circuit;
- EDM: Dynamically monitor signals of external device (relay, contacts etc,) connected with light curtain to prevent any loss of safety protection due to adhesion failure of external relays;
- Reset: Light curtain has optional interlock reset for selecting automatic reset and manual reset; Small optical aperture angle: 2.5° optical angle for high safety performance;
- Various installation: End cap fixing and slider ensure higher adaptability to the installation environment.

Type 4 Safety Light Curtain

Product Parameter

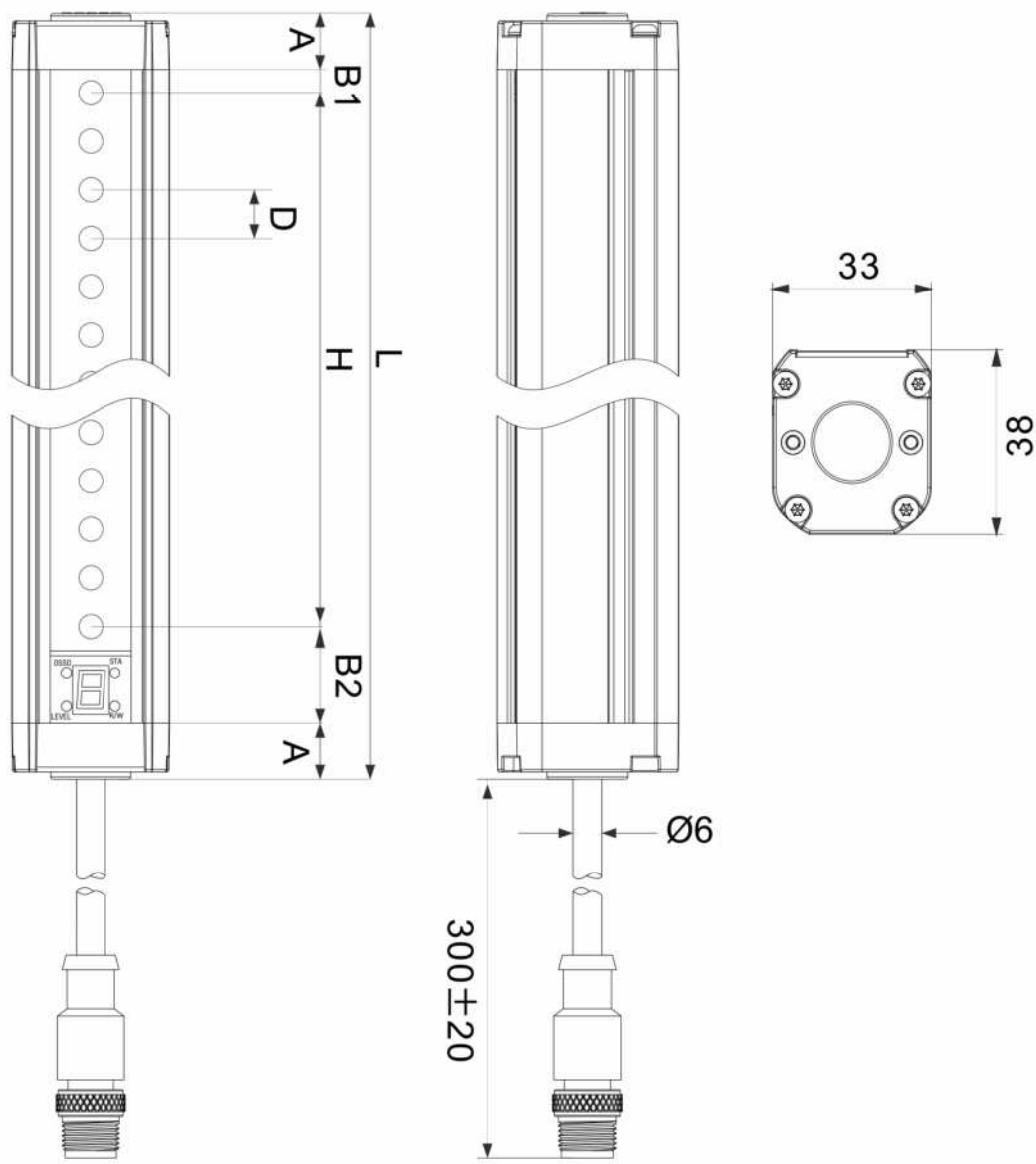
Safety Standard	Type 4(IEC 61496-1/-2)Cat. 4,PL e(ISO 13849-1)
Power Supply	DC24V±20%
Capacity	<7W
Beam Space	10mm, 20mm
Resolution	15mm, 25mm
Beams	10mm: 16, 20,... 148
	20mm: 8, 10,... 74
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm infrared light
Response Time	≤2(N×0.1+3)ms N is beams
Safety Output (OSSD)	PNP or NPN Load current≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~3m
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Optical-syn
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	33*38mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ambient Operating Temperature	-10°C~55°C(no freezing)
Storage Temperature	-30°C~70°C(no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%
T (Operation time)	

Model Selection (e.g.: NSESV1620 NEL1-3)

Product Series	Beams	Beam Space	Output	Function	Installation	Sensing Distance
NSESV	16	20	N	E	L1	- 3
	08, 10, 12.....	10mm 20mm	N: NPN*2 P: PNP*2	No mark: without EDM & reset E: with EDM, no reset R: manual reset A: with EDM and reset	L1: L1 side mounting Q2: end cover mounting	3: 0.1~3m



Product Size



A: Up & bottom cover
B1: Up blind area
B2: Bottom blind area
D: Beam space
H: Protection height
L: Total Height

A is 11.5mm
When D=10mm, B1=5mm, B2=20mm
When D=20mm, B1=15mm, B2=20mm
 $H=(Beams-1)*beam\ space$
 $L=A+B1+B2+H$

Type 4 Safety Light Curtain

NSESV Model Selection Table

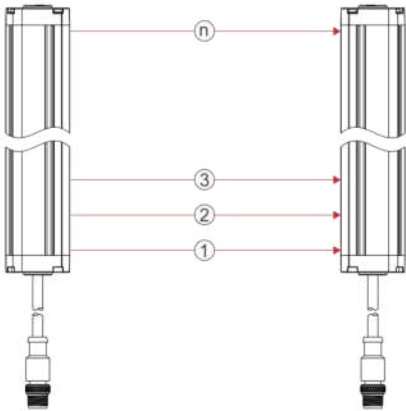
- Beam space 10mm, resolution 15mm

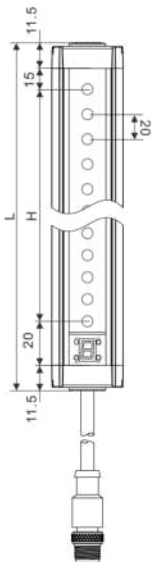
Picture	Beams (n)	Response Time(ms)	Protection Height(mm)	Total Height (mm)	Model (NPN)	Model (PNP)
	16	6.4	150	198	NSESV1610N	NSESV1610P
	20	7.2	190	238	NSESV2010N	NSESV2010P
	24	8	230	278	NSESV2410N	NSESV2410P
	28	8.8	270	318	NSESV2810N	NSESV2810P
	32	9.6	310	358	NSESV3210N	NSESV3210P
	36	10.4	350	398	NSESV3610N	NSESV3610P
	40	11.2	390	438	NSESV4010N	NSESV4010P
	44	12	430	478	NSESV4410N	NSESV4410P
	48	12.8	470	518	NSESV4810N	NSESV4810P
	52	13.6	510	558	NSESV5210N	NSESV5210P
	56	14.4	550	598	NSESV5610N	NSESV5610P
	60	15.2	590	638	NSESV6010N	NSESV6010P
	64	16	630	678	NSESV6410N	NSESV6410P
	68	16.8	670	718	NSESV6810N	NSESV6810P
	72	17.6	710	758	NSESV7210N	NSESV7210P
	76	18.4	750	798	NSESV7610N	NSESV7610P
	80	19.2	790	838	NSESV8010N	NSESV8010P
	84	20	830	878	NSESV8410N	NSESV8410P
	88	20.8	870	918	NSESV8810N	NSESV8810P
	92	21.6	910	958	NSESV9210N	NSESV9210P
H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	96	22.4	950	998	NSESV9610N	NSESV9610P
	100	23.2	990	1038	NSESV10010N	NSESV10010P
	104	24	1030	1078	NSESV10410N	NSESV10410P
	108	24.8	1070	1118	NSESV10810N	NSESV10810P
	112	25.6	1110	1158	NSESV11210N	NSESV11210P
	116	26.4	1150	1198	NSESV11610N	NSESV11610P
	120	27.2	1190	1238	NSESV12010N	NSESV12010P
	124	28	1230	1278	NSESV12410N	NSESV12410P
	128	28.8	1270	1318	NSESV12810N	NSESV12810P
	132	29.6	1310	1358	NSESV13210N	NSESV13210P
	136	30.4	1350	1398	NSESV13610N	NSESV13610P
						
	148	32.8	1470	1518	NSESV14810N	NSESV14810P

Remark: Besides above model, other curtains can be customized.

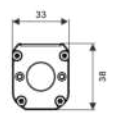
NSESV Model Selection Table

- Beam space 20mm, resolution 25mm

Picture	Beams (n)	Response Time(ms)	Protection Height(mm)	Total Height (mm)	Model (NPN)	Model (PNP)
	8	4.8	140	198	NSESV0820N	NSESV0820P
	10	5.2	180	238	NSESV1020N	NSESV1020P
	12	5.6	220	278	NSESV1220N	NSESV1220P
	14	6	260	318	NSESV1420N	NSESV1420P
	16	6.4	300	358	NSESV1620N	NSESV1620P
	18	6.8	340	398	NSESV1820N	NSESV1820P
	20	7.2	380	438	NSESV2020N	NSESV2020P
	22	7.6	420	478	NSESV2220N	NSESV2220P
	24	8	460	518	NSESV2420N	NSESV2420P
	26	8.4	500	558	NSESV2620N	NSESV2620P
	28	8.8	540	598	NSESV2820N	NSESV2820P
	30	9.2	580	638	NSESV3020N	NSESV3020P
	32	9.6	620	678	NSESV3220N	NSESV3220P
	34	10	660	718	NSESV3420N	NSESV3420P
	36	10.4	700	758	NSESV3620N	NSESV3620P
	38	10.8	740	798	NSESV3820N	NSESV3820P
	40	11.2	780	838	NSESV4020N	NSESV4020P
	42	11.6	820	878	NSESV4220N	NSESV4220P
	44	12	860	918	NSESV4420N	NSESV4420P
	46	12.4	900	958	NSESV4620N	NSESV4620P
	48	12.8	940	998	NSESV4820N	NSESV4820P
	50	13.2	980	1038	NSESV5020N	NSESV5020P
	52	13.6	1020	1078	NSESV5220N	NSESV5220P
	54	14	1060	1118	NSESV5420N	NSESV5420P
	56	14.4	1100	1158	NSESV5620N	NSESV5620P
	58	14.8	1140	1198	NSESV5820N	NSESV5820P
	60	15.2	1180	1238	NSESV6020N	NSESV6020P
	62	15.6	1220	1278	NSESV6220N	NSESV6220P
	64	16	1260	1318	NSESV6420N	NSESV6420P
	66	16.4	1300	1358	NSESV6620N	NSESV6620P
	68	16.8	1340	1398	NSESV6820N	NSESV6820P
						
	74	18	1460	1518	NSESV7420N	NSESV7420P



Front View



Top View

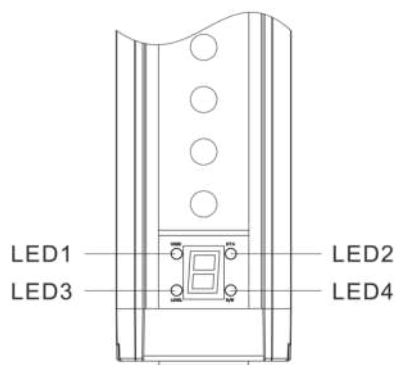
H is protection height=(beams-1)*beam space

L is total height=end covers+ up & bottom blind area + protection height

Remark: Besides above model, other curtains can be customized.

Type 4 Safety Light Curtain

Indicator Light



- Light oAff
- Light on
- ☀ Light blink
- 8. No display on digital tube
- 8- Digital tube LED blink

Power-on startup process status:

Emitter/receiver indicator during power-on						
Status	LED1	LED2	LED3	LED4	Digital Tube	Lasting Time
Status 1	● Red/Green	● Green red ON	● Blue	● Yellow	8.	Lasting 1.5s
Status 2	☀ Red/Green (2Hz)	☀ Red green 2Hz	☀ 2Hz	☀ 2Hz	8.	Lasting 1s
Status 3	☀ Red/Green (2Hz)	☀ Red green 2Hz	☀ 2Hz	☀ 2Hz	-8- 2Hz	Configuring status, re-start after configuring

Note: 1. After the light curtain is powered on, the configuration display sequence of the host computer is: State 1->State 2-> Normal working state.
 2. If the light curtain detects a configuration before entering the normal working state, it will jump to and continue in state 3. After the configuration, the light curtains need to be restarted and then started according to the normal startup process.

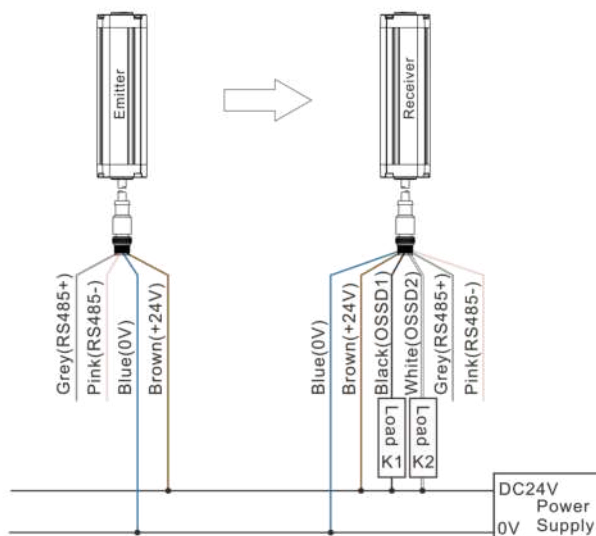
Receiver working state description					
LED1	LED2	LED3	LED4	Digital Tube	Description
●	●	○	○	8.	Normal working
●	●	○	○	8.	Overvoltage or undervoltage, please check power supply
●	☀ 2Hz	○	○	8.	Internal failure, repair or replace
○	○	○	○	8→8.	Internal failure, repair or replace
○	○	○	○	8.	Internal failure, repair or replace
○	○	○	○	8→8.	Internal failure, repair or replace
○	○	○	○	8→8.	Internal failure, repair or replace
○	○	○	○	8→8.	Internal failure, repair or replace
○	○	○	○	8.	Internal failure, repair or replace
○	○	○	○	8→8.	Internal failure, repair or replace
○	○	○	○	8→8.	Internal failure, repair or replace
○	○	○	○	8→8.	Internal failure, repair or replace
○	○	○	○	8→8.	Internal failure, repair or replace
○	○	○	○	8.	Internal failure, repair or replace

Receiver working state description					
LED1	LED2	LED3	LED4	Digital Tube	Description
				 1Hz	Waiting wire-syn signal
				 1Hz	Waiting optical-syn signal
					Well alignment, with output
					Beam blocked, no signal
			 1Hz		Waiting for reset signal
					Input power failure
					Wire-syn failure,
					Reset input error (when the reset function is enabled)
					OSSD1 short-circuit
					OSSD2 short-circuit
					OSSD1 and OSSD2 short-circuit
					OSSD1 overload
					OSSD2 over load
					Auxiliary output overload
					Abnormal voltage at OSSD1
					Abnormal voltage OSSD2
					EDM error
	 1Hz				Internal failure, repair or replace
					Internal failure, repair or replace
					Internal failure, repair or replace
					Internal failure, repair or replace
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					Internal failure, repair or replace

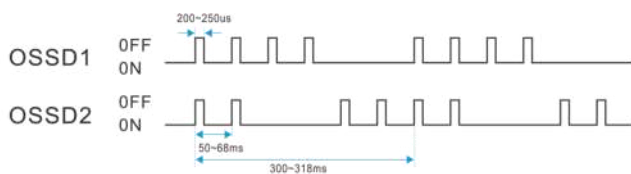
Type 4 Safety Light Curtain

Wire Diagram

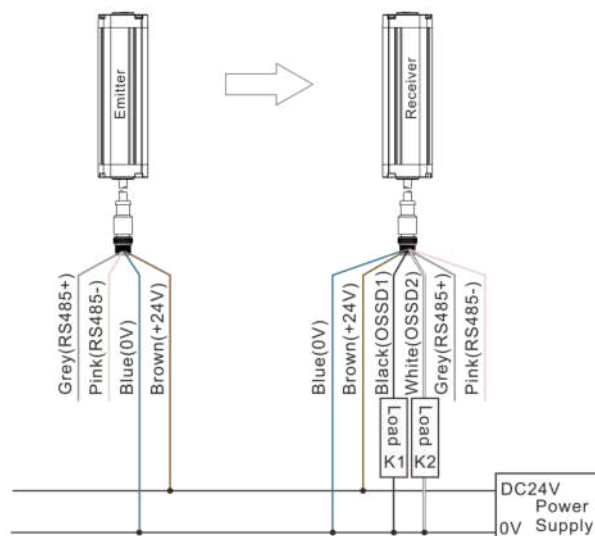
NPN (No EDM, automatic reset)



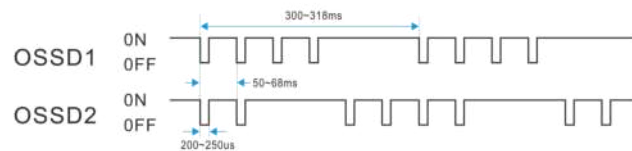
NPN output timing chart



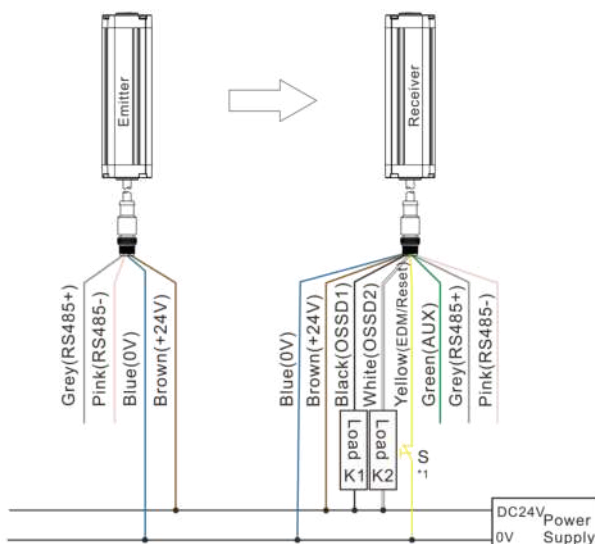
PNP (No EDM, automatic reset)



PNP output timing chart



NPN (No EDM, with manual reset)

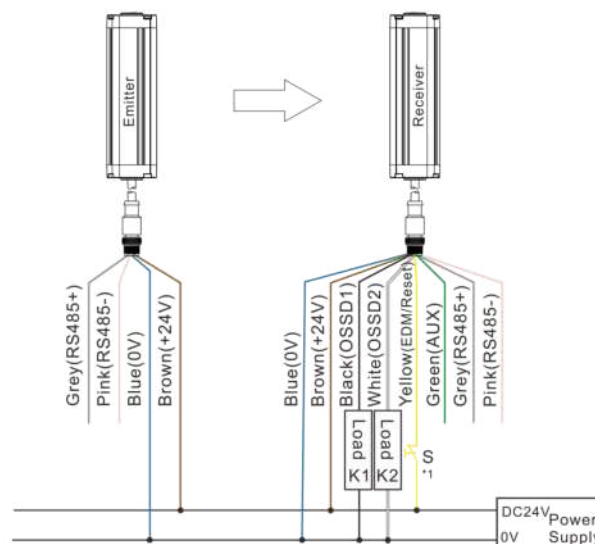


1.Reset: Once safety device triggered, reset interlock avoid machine restarting. Operator need to push restart safety device. Then machine start to work.

NPN output timing chart

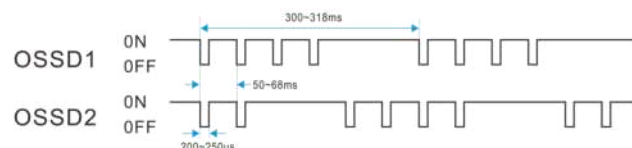


PNP (No EDM, with manual reset)



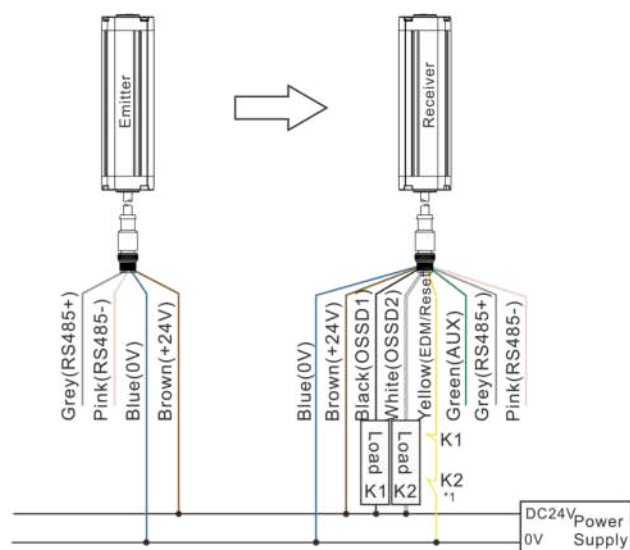
2.Reset: Once safety device triggered, reset interlock avoid machine restarting. Operator need to push restart safety device. Then machine start to work.

PNP output timing chart



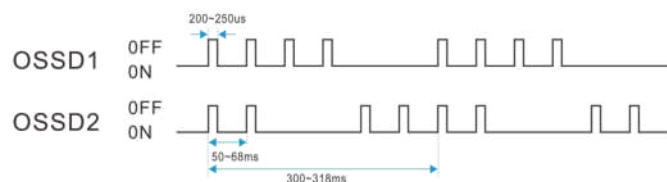
Wire Diagram

NPN (With EDM & automatic reset)

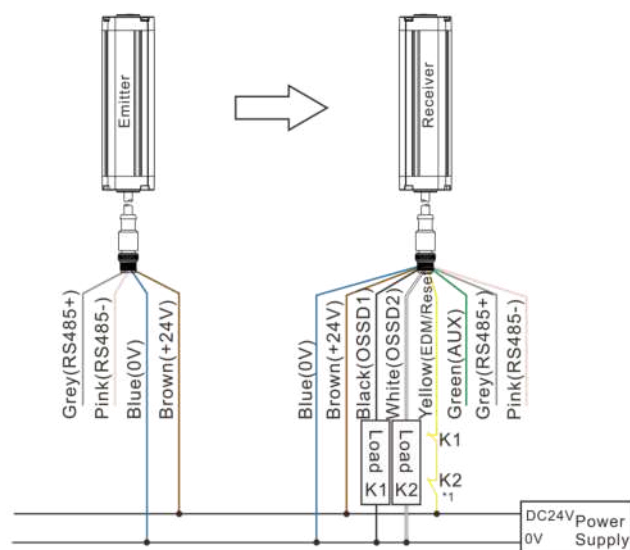


1 EDM: Monitor external device state

NPN output timing chart

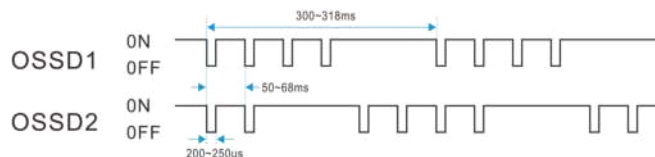


PNP (With EDM & automatic reset)

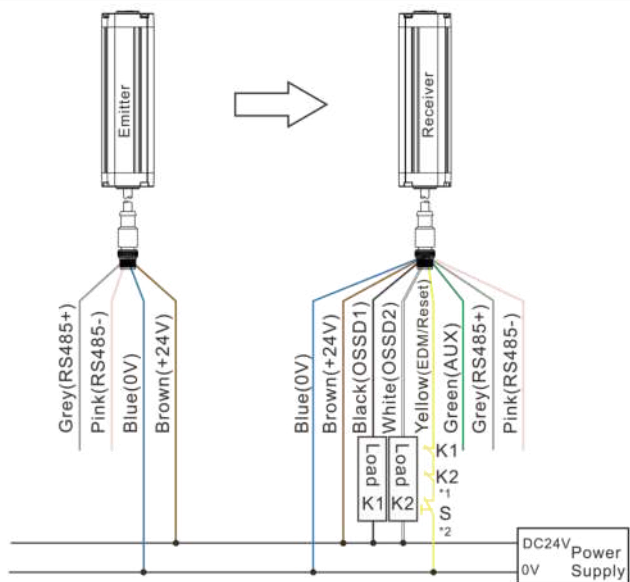


1 EDM: Monitor external device state

PNP output timing chart



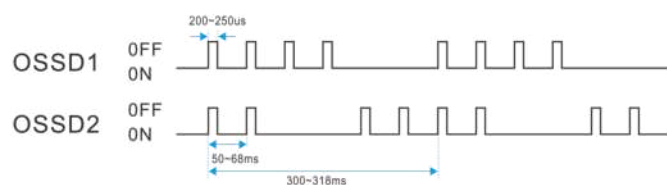
NPN (With EDM & manual reset)



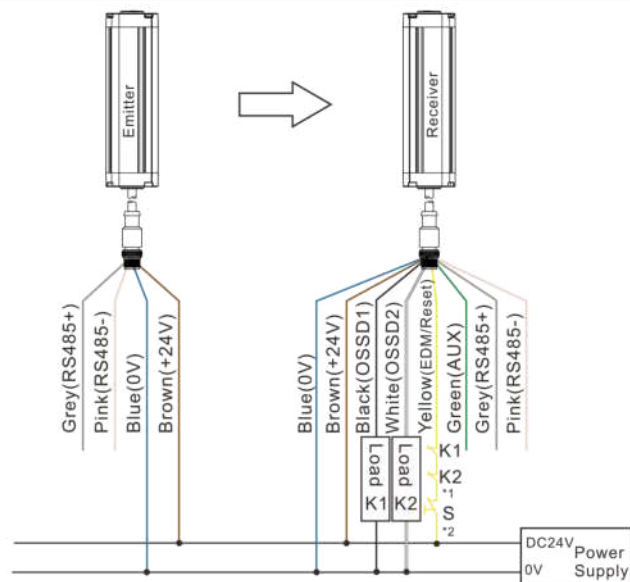
1.EDM: Monitor external device state

2.Reset: Once safety device triggered, reset interlock avoid machine restarting. Operator need to push restart safety device. Then machine start to work.

NPN output timing chart



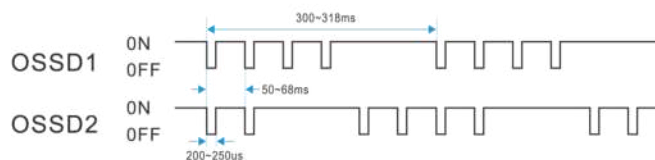
PNP (With EDM & manual reset)



1.EDM: Monitor external device state

2.Reset: Once safety device triggered, reset interlock avoid machine restarting. Operator need to push restart safety device. Then machine start to work.

PNP output timing chart

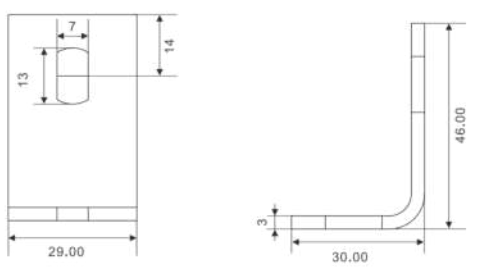
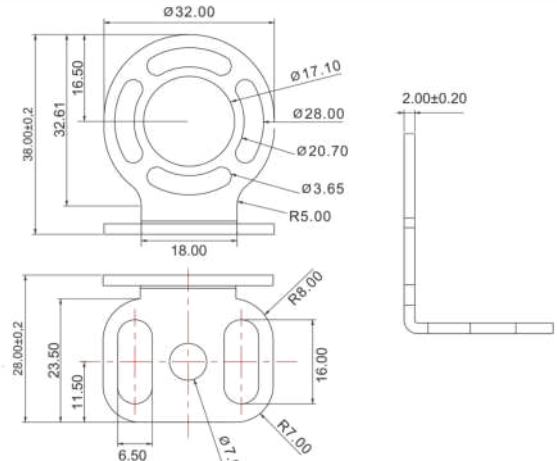


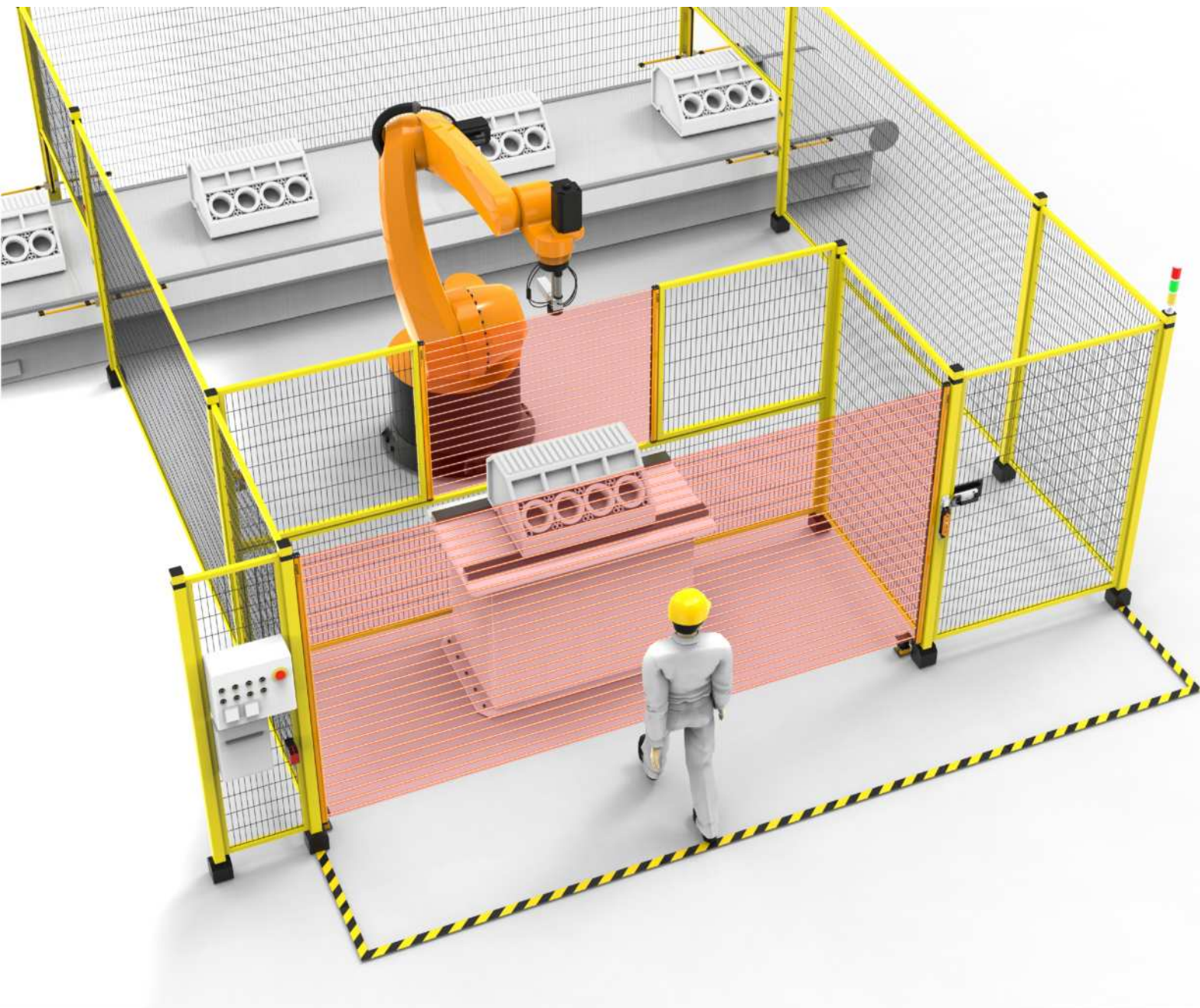
Type 4 Safety Light Curtain

Wire Specification

Barrier	Color	Wire Mark	Function
Emitter	White	NC	—
	Brown	24V DC	Positive of power
	Green	NC	—
	Yellow	NC	—
	Grey	RS485+	Configure RS485/ Syn RS485+
	Pink	RS485-	Configure RS485/ Syn RS485+
	Blue	0V	Negative of power
	Black	NC	—
Receiver	White	OSSD2	Safety output 2
	Brown	24V	Positive of power
	Green	AUX	Auxiliary output
	Yellow	EDM/RESET	EDM/ Reset input
	Grey	SYNC+	Configure RS485/ Syn RS485+
	Pink	SYNC-	Configure RS485/ Syn RS485+
	Blue	0V	Negative of power
	Black	OSSD1	Safety output 1

Option of Bracket

Picture	Name	Accessories	Size
	L1 bracket	L1 bracket (4pcs) Slider (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)	 29.00, 13, 7, 14, 46.00, 30.00
	Q2 bracket	Q2 bracket (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M3*7 screw (4pcs)	 38.00±0.2, 32.61, 16.50, 18.00, 16.00, 6.50, 23.50, 11.50, 28.00±0.2, 32.00, 17.10, 28.00, 20.70, 3.65, R5.00, R8.00, R7.00, 1.00, 2.00±0.20



Certificate

Safenet Certification Services Ltd.
 Export Safe, Caiding Park Commercial Complex, Lianhua, YIM 1910, Ireland
 Tel: +353 (0)1 234 56789 Email: info@safenet.ie Website: www.safenet.ie
 European Notified Body 2002

EU Type Examination Certificate

This is to certify that

Shenzhen ESPE Technology Co., Ltd.
 401, 501, 502 Building 2, Hongqian Industrial Park, Guangqiang Road,
 Xixian Community, Qixian, Longhua, Shenzhen, Guangdong, China

Has had a range of ESD Safety Light Curtains examined with regard to
 the Electromagnetic Compatibility Directive 2014/53/EU.

2002 reference to model

Manufactured by

Shenzhen ESPE Technology Co., Ltd.
 401, 501, 502 Building 2, Hongqian Industrial Park, Guangqiang Road,
 Xixian Community, Qixian, Longhua, Shenzhen, Guangdong, China

1. The technical construction file contains all the relevant information.
 2. Having verified that the appropriate tests have been conducted, with regard to the
 EMC Directive, the scope of the examination is as follows:
 2.1. The design and construction of the equipment.
 2.2. The design and construction of the equipment.
 2.3. The design and construction of the equipment.
 2.4. The design and construction of the equipment.

Certificate Number: 0400000204
 Date: 08/03/2024 Expiry Date: 08/03/2029

Signed for Safenet Certification Services Ltd.
 Peter McNulty
 Technical Manager

CE

Safenet Certification Services Ltd.
 Export Safe, Caiding Park Commercial Complex, Lianhua, YIM 1910, Ireland
 Tel: +353 (0)1 234 56789 Email: info@safenet.ie Website: www.safenet.ie
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Certificate Number: 0400000204
 Date: 08/03/2024 Expiry Date: 08/03/2029

Signed for Safenet Certification Services Ltd.
 Peter McNulty
 Technical Manager

CE

NSEFP Series

No-dead Zone Type 4 Safety Light Curtain



Product Introduction

NSEFP Series is a no dead zone safety light curtain in accordance with EU type 4 safety standards which adopt internal MCU redundancy design, periodic self-diagnoses & cross-diagnosis, independent loop to ensure high safety performance.

Product Feature

- Design according to IEC61496 type 4 standard;
- Self-diagnosis and cross-diagnosis to improve safety;
- Independent and redundancy dual OSSD output prevent safety hazards caused by failure of a single circuit;
- Wire-syn to against interference of external infrared light.

Product Parameter

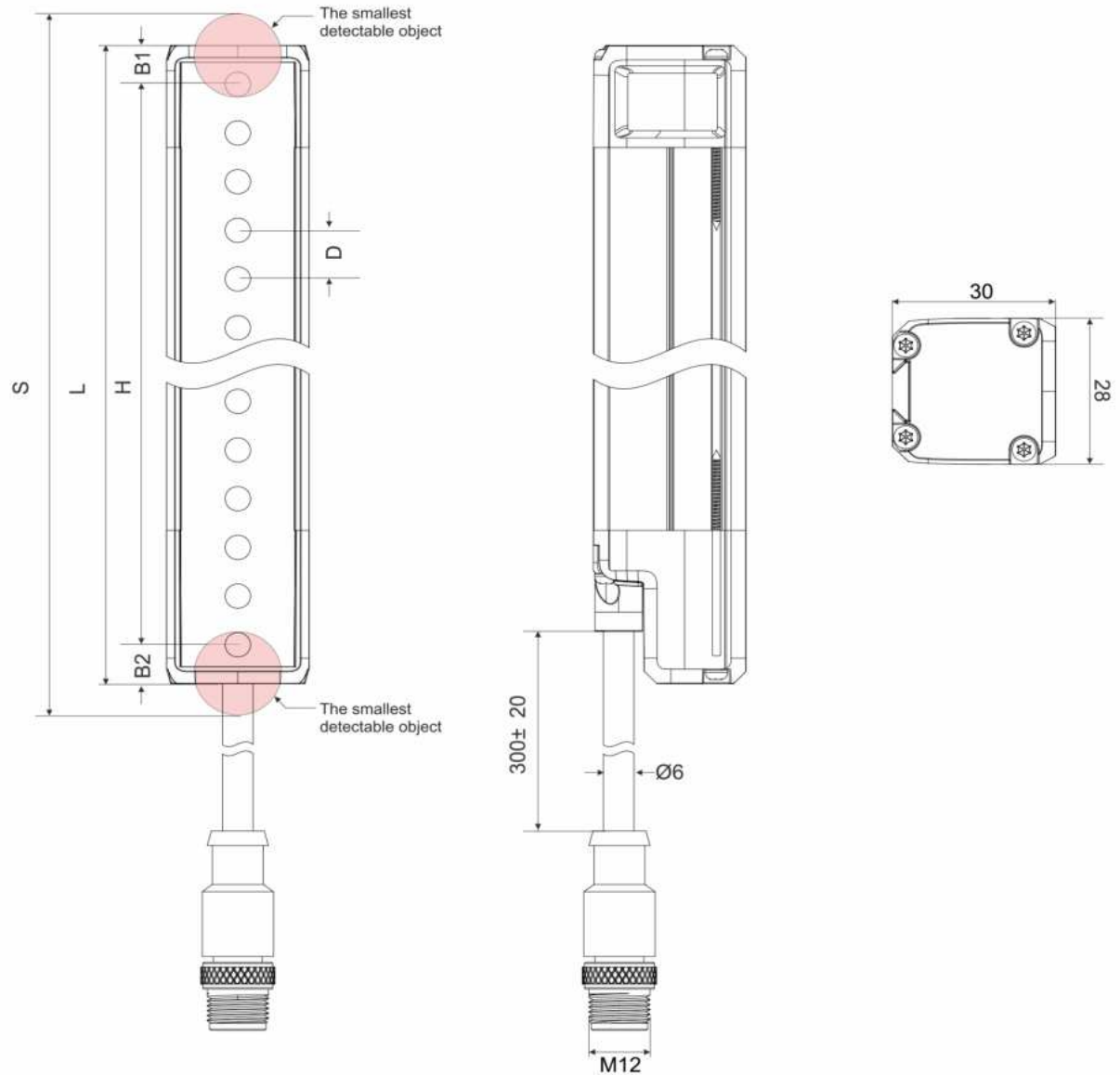
Safety Standard	Type 4 (IEC 61496-1/-2) Cat.4,PL e (ISO 13849-1)
Power Supply	DC24V±20%
Capacity	<5W
Beam Space	10mm,20mm,40mm
Resolution	15mm,25mm,45mm
Beams	10mm:16,20.....160
	20mm:8,10.....80
	40mm:4,6.....40
Protective Height	$S=N \times \text{Beam space} + \text{Resolution}$, N=Beams
Light Wavelength	940nm infrared light
Response Time	$\leq 2 \times (N \times 0.1 + 3) \text{ms}$ (N is beams)
Safety Output (OSSD)	PNP or NPN Load current $\leq 500 \text{mA}$ (Temperature exceed $40^\circ\text{C} \leq 400 \text{mA}$), residual voltage $\leq 1 \text{V}$ (any voltage drop caused by cable extension is excepted.), voltage leakage $\leq 0.1 \text{mA}$.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~5m, 0.2~12m
Against Optical Interference	10000 Lux (angle $> 2.5^\circ$)
Sensing Method	Thru-beam
Synchronization	Optical-syn/ Wire-syn
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	30*28mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude $0.35 \pm 0.05 \text{mm}$, 20time each X, Y and Z direction.
Shock Resistance	$100/\text{s}^2$ (10G), 1000 times each at X, Y, Z directions.
Ambient Operating Temperature	$-10^\circ\text{C} \sim 55^\circ\text{C}$ (no freezing)
Storage Temperature	$-30^\circ\text{C} \sim 70^\circ\text{C}$ (no freezing)
Ambient Operating Humidity	When temperature 20°C , the humidity max. 85%
T (Operation time)	(ISO 13849-1)

Model Selection e.g.:(NSEFP 1620NL-5)

Product Series	Beams	Beam Space	Output	Installation	Sensing Distance
NSEFP	16	20	N	L	5
	04,06,08.....	10mm 20mm 40mm	N: NPN*2 P: PNP*2	L: side mounting H4: H4 end mounting LD2: LD2 up & bottom rotate bracket	5:0.2~5m 12:0.6~12m

Type 4 Safety Light Curtain

Product Size



$D=10\text{mm}; B1=8\text{mm}, B2=8\text{mm}$
 $D=20\text{mm}; B1=8\text{mm}, B2=8\text{mm}$
 $D=40\text{mm}; B1=18\text{mm}, B2=18\text{mm}$
 $H=(N-1) \times \text{Beam space}, N=\text{Beams}$
 $S=N \times \text{Beam space} + \text{Resolution}, N=\text{Beams}$
 $L=B1+H+B2$

Product Size

- Beam space 10mm, resolution 15mm

Beams	Response Time (ms)	Protection Height (mm)	Detection Height (mm)	Total Height (mm)	Model
16	≤9.2	175	150	166	NSEFP1610
20	≤10	215	190	206	NSEFP2010
24	≤10.8	255	230	246	NSEFP2410
28	≤11.6	295	270	286	NSEFP2810
32	≤12.4	335	310	326	NSEFP3210
36	≤13.2	375	350	366	NSEFP3610
40	≤14	415	390	406	NSEFP4010
44	≤14.8	455	430	446	NSEFP4410
48	≤15.6	495	470	486	NSEFP4810
52	≤16.4	535	510	526	NSEFP5210
56	≤17.2	575	550	566	NSEFP5610
60	≤18	615	590	606	NSEFP6010
64	≤18.8	655	630	646	NSEFP6410
68	≤19.6	695	670	686	NSEFP6810
72	≤20.4	735	710	726	NSEFP7210
76	≤21.2	775	750	766	NSEFP7610
80	≤22	815	790	806	NSEFP8010
84	≤22.8	855	830	846	NSEFP8410
88	≤23.6	895	870	886	NSEFP8810
92	≤24.4	935	910	926	NSEFP9210
96	≤25.2	975	950	966	NSEFP9610
100	≤26	1015	990	1006	NSEFP10010
104	≤26.8	1055	1030	1046	NSEFP10410
108	≤27.6	1095	1070	1086	NSEFP10810
112	≤28.4	1135	1110	1126	NSEFP11210
116	≤29.2	1175	1150	1166	NSEFP11610
120	≤30	1215	1190	1206	NSEFP12010
124	≤30.8	1255	1230	1246	NSEFP12410
128	≤31.6	1295	1270	1286	NSEFP12810
132	≤32.4	1335	1310	1326	NSEFP13210
136	≤33.2	1375	1350	1366	NSEFP13610
.....					
160	≤38	1615	1590	1606	NSEFP16010

Remark: Besides above model, other curtains can be customized.

Type 4 Safety Light Curtain

NSEFP Model Selection Table

- Beam space 20mm, resolution 25mm

Beams	Response Time (ms)	Protection Height (mm)	Detection Height (mm)	Total Height (mm)	Model
8	≤7.2	185	140	156	NSEFP820
10	≤8	225	180	196	NSEFP1020
12	≤8.4	265	220	236	NSEFP1220
14	≤8.8	305	260	276	NSEFP1420
16	≤9.2	345	300	316	NSEFP1620
18	≤9.6	385	340	356	NSEFP1820
20	≤10	425	380	396	NSEFP2020
22	≤10.8	465	420	436	NSEFP2220
24	≤10.8	505	460	476	NSEFP2420
26	≤11.2	545	500	516	NSEFP2620
28	≤11.6	585	540	556	NSEFP2820
30	≤12	625	580	596	NSEFP3020
32	≤12.4	665	620	636	NSEFP3220
34	≤12.8	705	660	676	NSEFP3420
36	≤13.2	745	700	716	NSEFP3620
38	≤13.6	785	740	756	NSEFP3820
40	≤14	825	780	796	NSEFP4020
42	≤14.4	865	820	836	NSEFP4220
44	≤14.8	905	860	876	NSEFP4420
46	≤15.2	945	900	916	NSEFP4620
48	≤15.6	985	940	956	NSEFP4820
50	≤16	1025	980	996	NSEFP5020
52	≤16.4	1065	1020	1036	NSEFP5220
54	≤16.8	1105	1060	1076	NSEFP5420
56	≤17.2	1145	1100	1116	NSEFP5620
58	≤17.6	1185	1140	1156	NSEFP5820
60	≤18	1225	1180	1196	NSEFP6020
62	≤18.4	1265	1220	1236	NSEFP6220
64	≤18.8	1305	1260	1276	NSEFP6420
66	≤19.2	1345	1300	1316	NSEFP6620
68	≤19.6	1385	1340	1356	NSEFP6820
.....					
80	≤22	1625	1580	1596	NSEFP8020

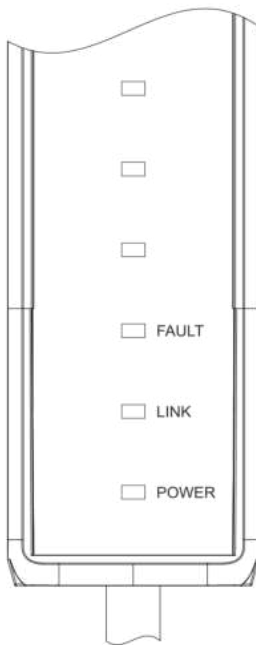
Remark: Besides above model, other curtains can be customized.

-

[illegible]

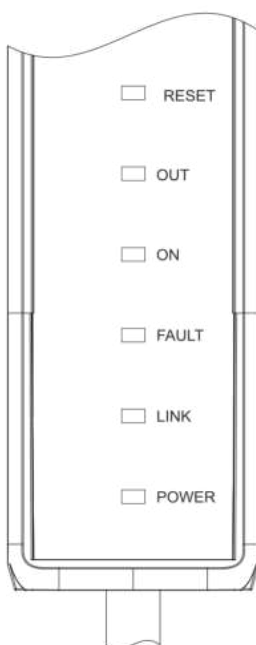
Remark: Besides above model, other curtains can be customized.

Indicator Light



Emitter

Receiver working state description			
POWER	LINK	FAULT	Description
Green ON	Green ON	OFF	Normal working
Green ON	GREEN(1Hz)	OFF	Initializing
Green ON	GREEN(2Hz)	OFF	Wire-syn poor connection or broken
GREEN(1Hz)	OFF	RED	Undervoltage, Please check
GREEN(2Hz)	OFF	RED	Overvoltage, please check
Green ON	OFF	RED	Internal failure, repair or replace
OFF	OFF	OFF	Internal failure, repair or replace



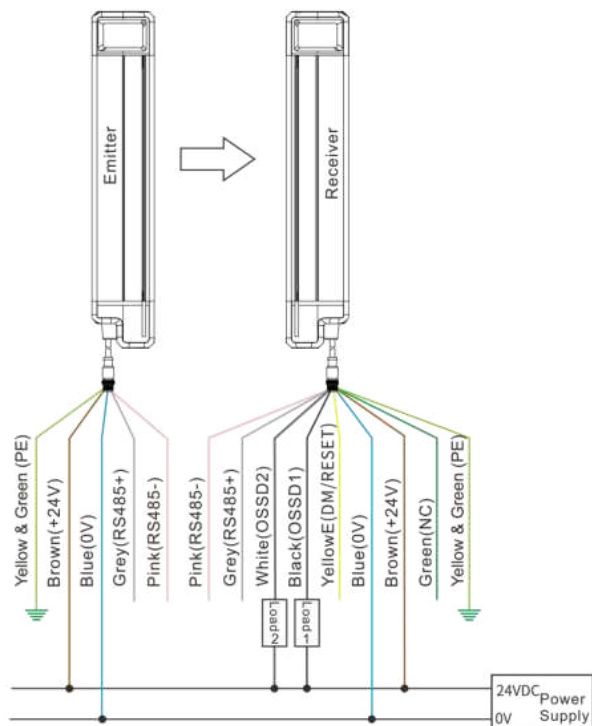
Receiver

Receiver Indicator Specification						
POWER	LINK	FAULT	ON	OUT	RESET	Function
Green ON	Green ON	OFF	Green ON	Green ON	OFF	Normal working
Green ON	Green (1Hz)	OFF	OFF	Red ON	OFF	Initializing
Green ON	Green (2Hz)	OFF	OFF	Red ON	OFF	Not synchronized with the light
Green ON	Green ON	OFF	Green ON	Red ON	YELLOW ON	RESET
Green (1Hz)	OFF	Red	OFF	Red ON	OFF	Undervoltage, please check power supply
Green (2Hz)	OFF	Red	OFF	Red ON	OFF	Overvoltage , please check power supply
Green ON	OFF	Red(1Hz)	OFF	Red ON	OFF	EDM fault
Green ON	OFF	Red(2Hz)	OFF	Red ON	OFF	2 Output Short-Circuit
Green ON	OFF	Red(4Hz)	OFF	Red ON	OFF	Output Overload
Green ON	OFF	Red	OFF	Red ON	OFF	Internal failure, repair or replace
OFF	OFF	OFF	OFF	Red ON	OFF	Internal failure, repair or replace

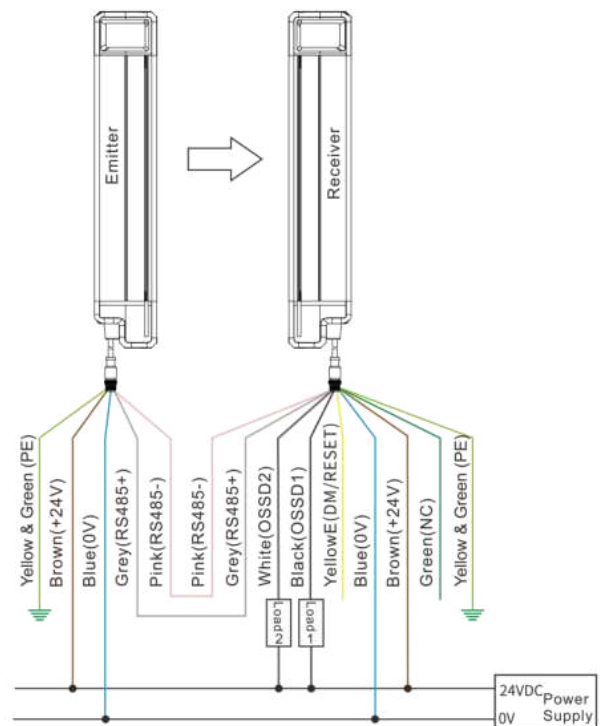
Type 4 Safety Light Curtain

Wire Diagram

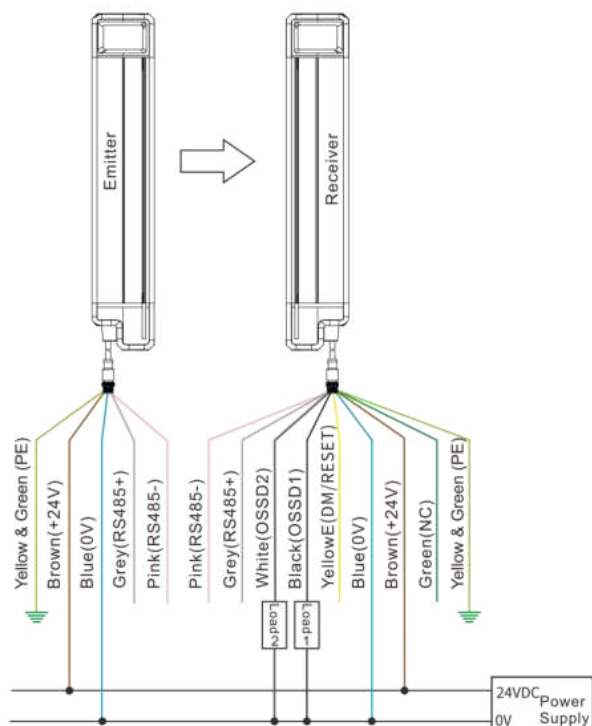
Optical synchronization NPN (No EDM, automatic reset)



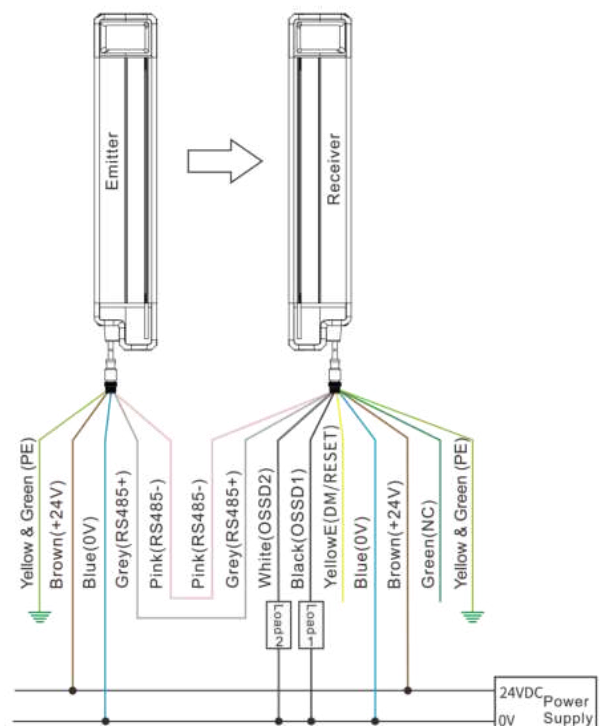
Wire connection NPN (No EDM, automatic reset)



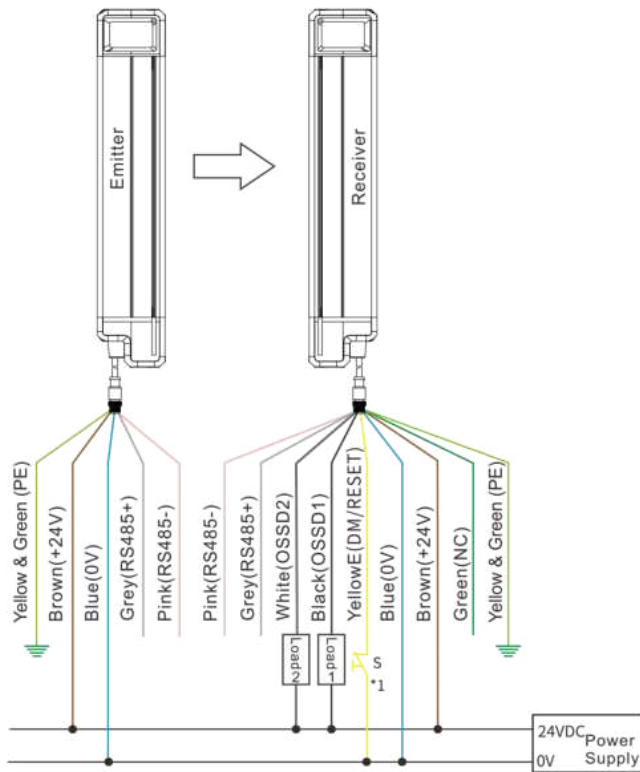
Optical synchronization PNP (No EDM, automatic reset)



Wire connection PNP (No EDM, automatic reset)

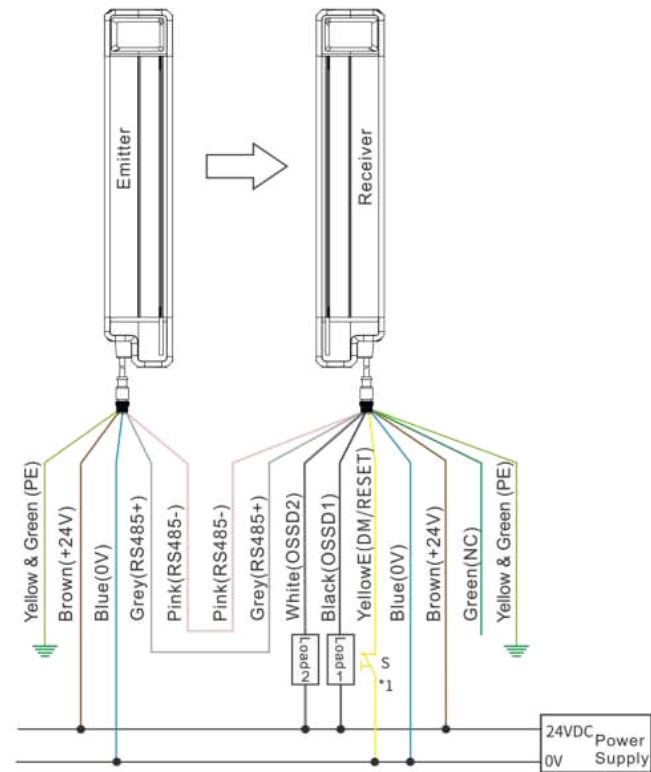


Optical synchronization NPN (No EDM, automatic reset)

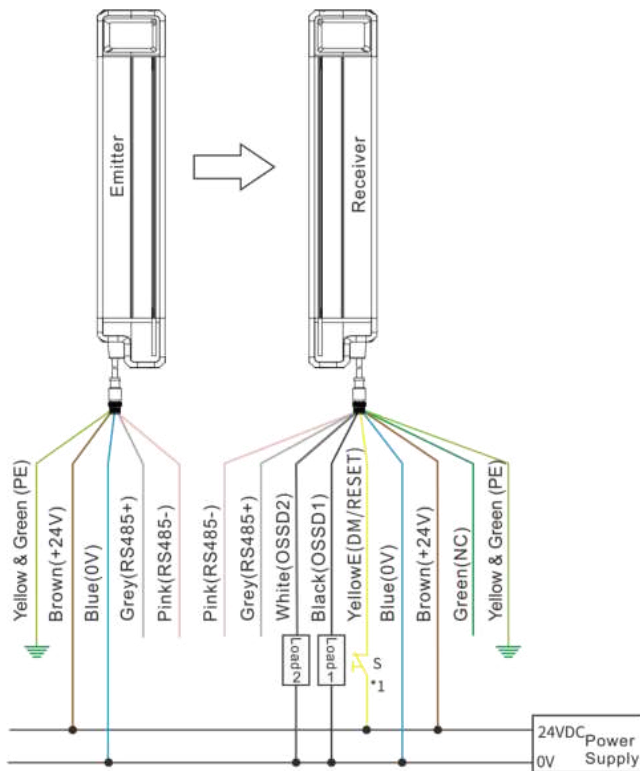


*1RESET: Once safety device triggered, reset interlock avoid machine restarting. Operator need to push restart safety device. Then machine start to work.

Wire connection NPN (No EDM, automatic reset)

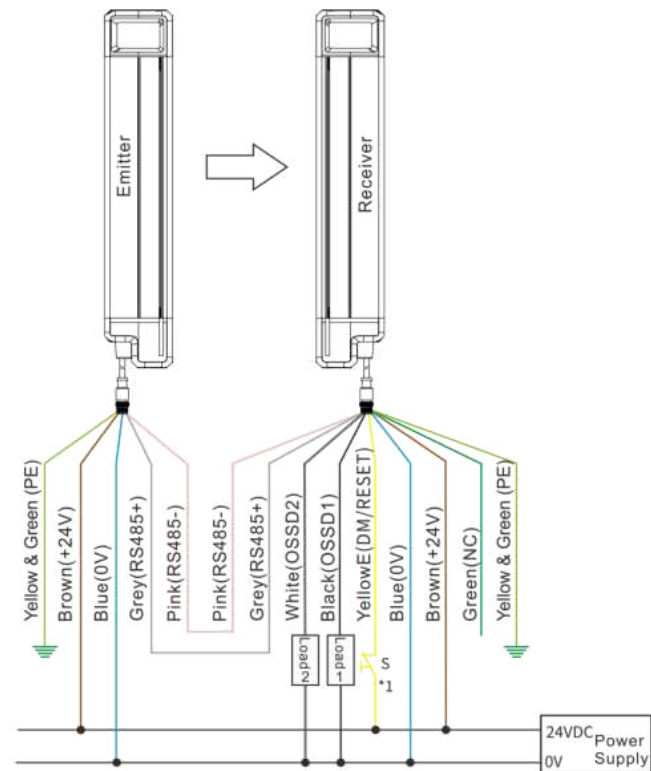


Optical synchronization PNP (No EDM, automatic reset)



*1RESET: Once safety device triggered, reset interlock avoid machine restarting. Operator need to push restart safety device. Then machine start to work.

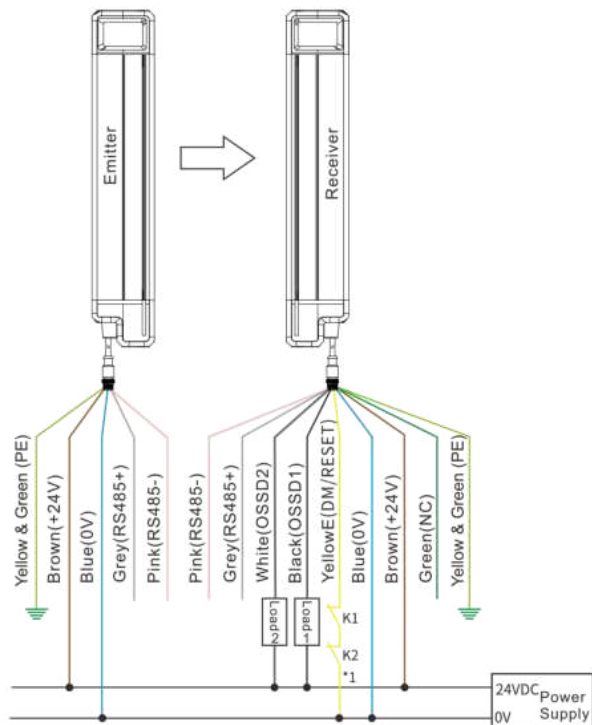
Wire connection PNP (No EDM, automatic reset)



Type 4 Safety Light Curtain

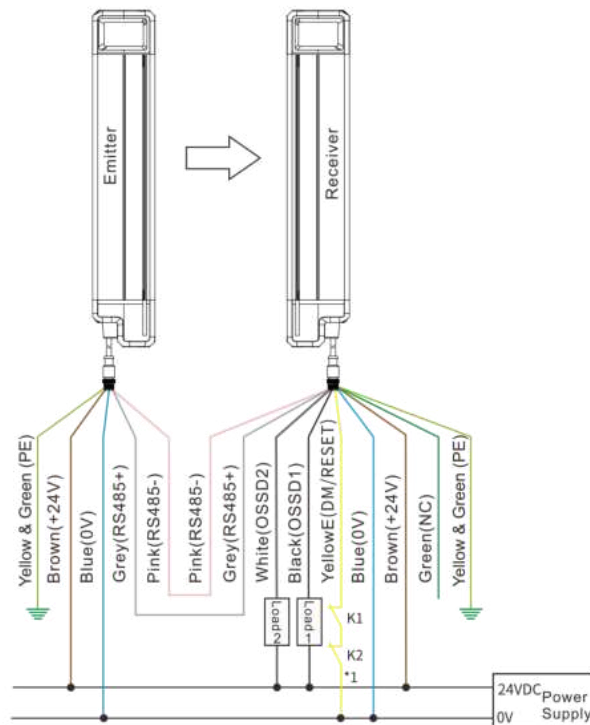
Wire Diagram

Optical synchronization NPN (With EDM & Automatic Reset)



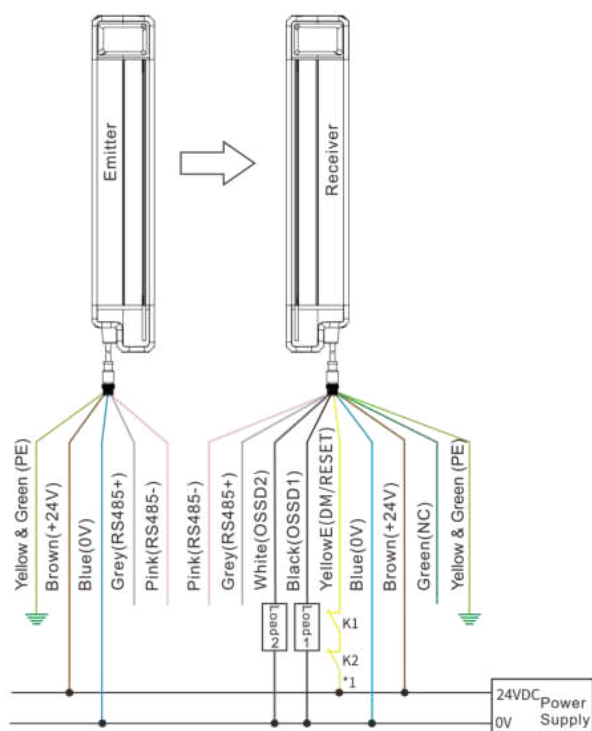
1 EDM: Monitor external device state

Wire connection NPN (With EDM & Automatic Reset)



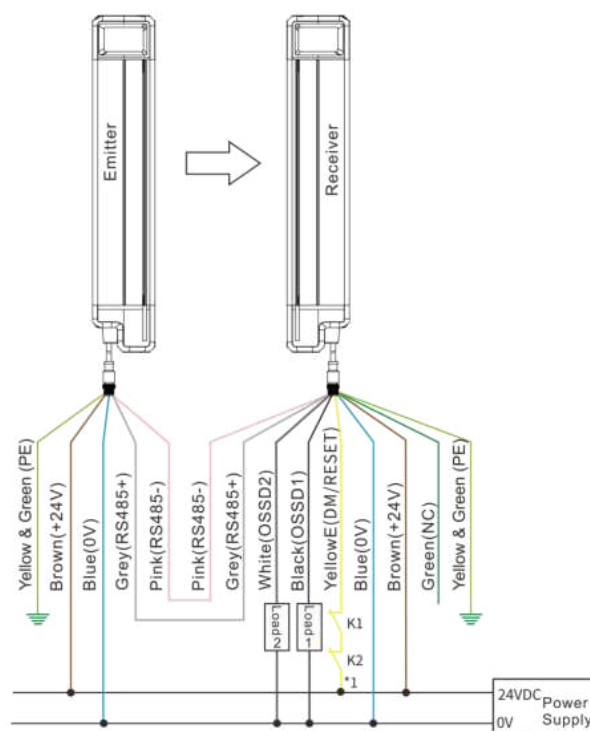
1 EDM: Monitor external device state

Optical synchronization PNP (With EDM & Automatic Reset)



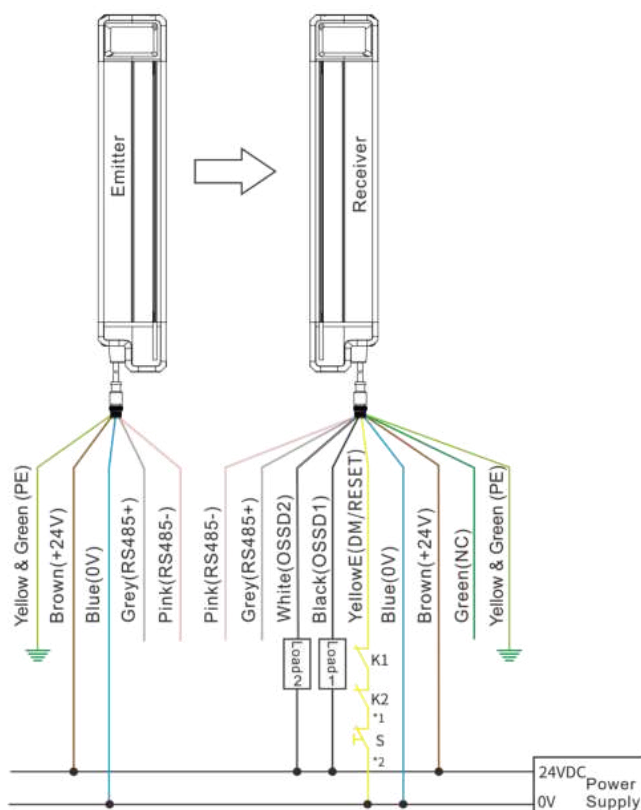
1 EDM: Monitor external device state

Wire connection PNP (With EDM & Automatic Reset)



1 EDM: Monitor external device state

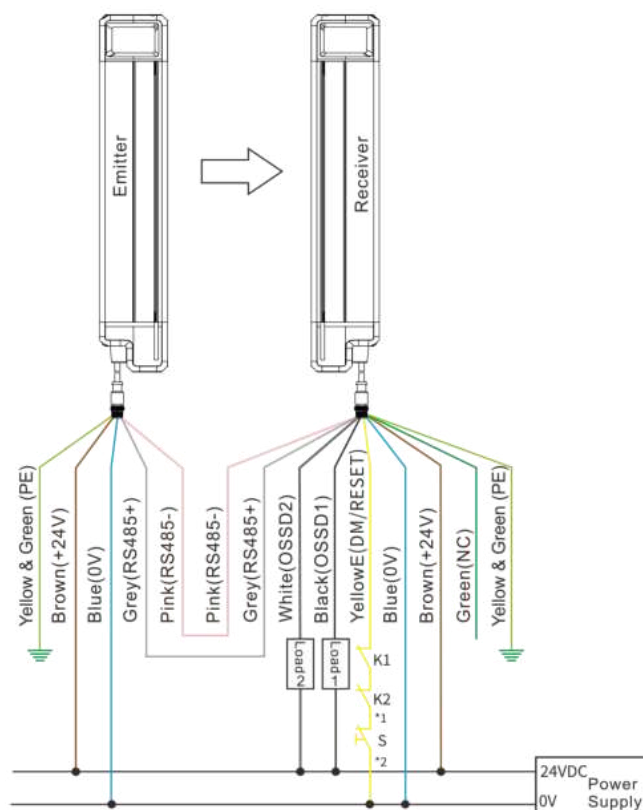
Optical synchronization NPN (With EDM & manual reset)



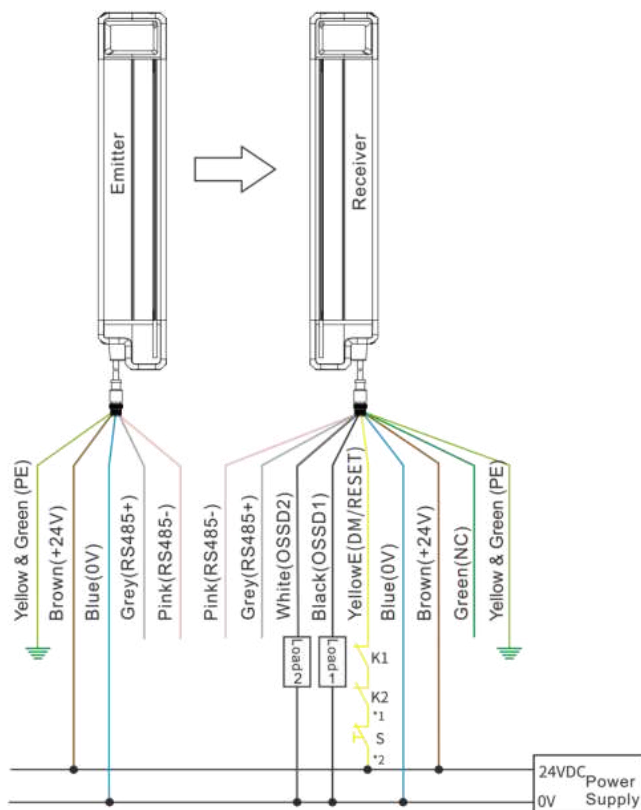
1 EDM: Monitor external device state

*2 Reset: Once safety device triggered, reset interlock avoid machine restarting. Operator need to push restart safety device. Then machine start to work.

Wire connection NPN (With EDM & manual reset)



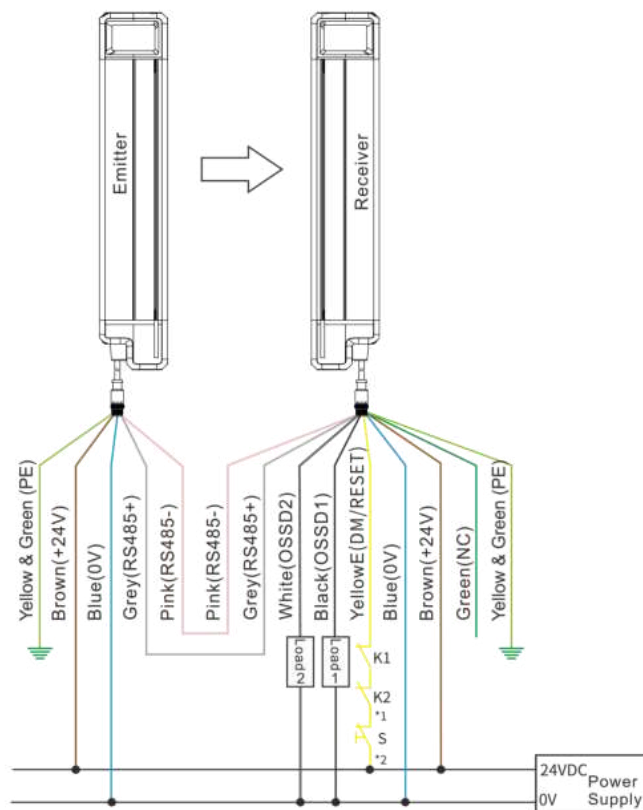
Optical synchronization PNP (With EDM & manual reset)



1 EDM: Monitor external device state

*2 Reset: Once safety device triggered, reset interlock avoid machine restarting. Operator need to push restart safety device. Then machine start to work.

Wire connection PNP (With EDM & manual reset)



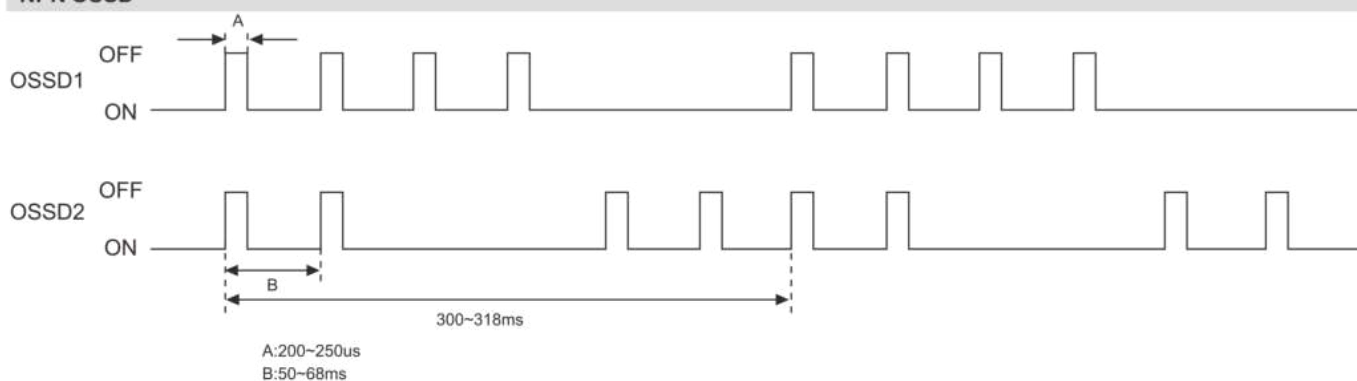
Type 4 Safety Light Curtain

Wire Specification

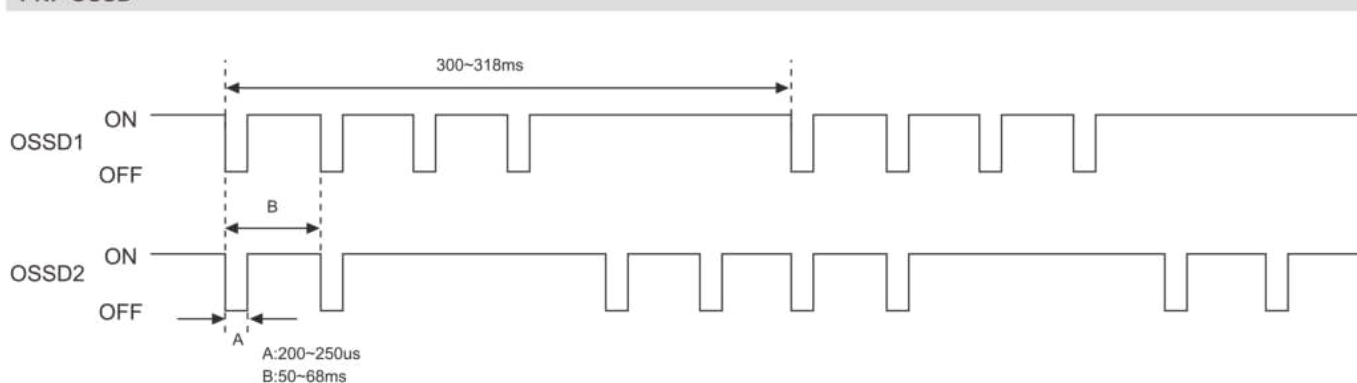
Barrier	Color	Wire Mark	Function
Emitter	Brown	24VDC	Positive of power
	Blue	0V	Negative of power
	Grey	RS485+	Configure RS485/ Syn RS485+
	Pink	RS485-	Configure RS485/ Syn RS485+
	Yellow & Green	PE	Shielding wire
Receiver	Brown	24VDC	Positive of power
	Blue	0V	Negative of power
	Grey	RS485+	Configure RS485/ Syn RS485+
	Pink	RS485-	Configure RS485/ Syn RS485+
	Yellow & Green	PE	Shielding wire
	Yellow	EDM/RESET	EDM detection and RESET reset input
	Black	OSSD1	Safety output 1
	White	OSSD2	Safety output 2
	Green	NC	Vacant Line

Sequence Diagram

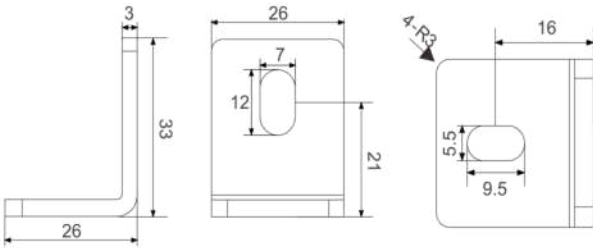
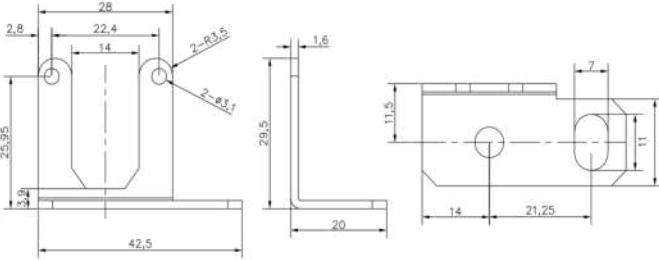
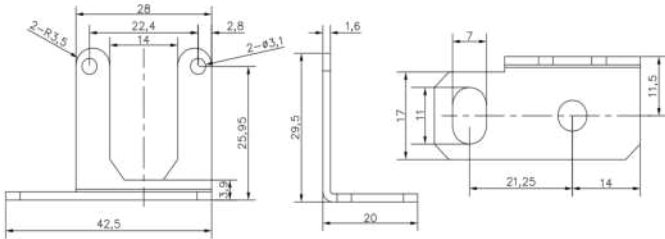
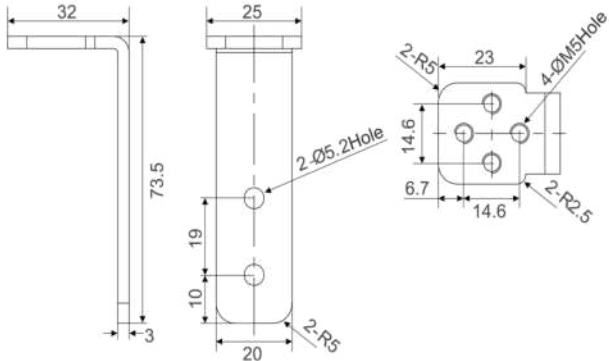
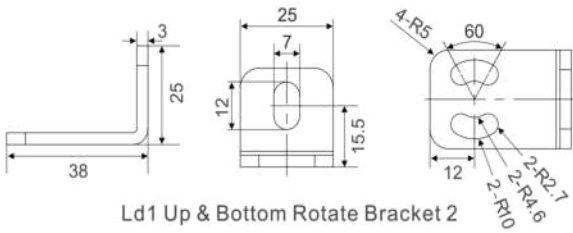
NPN OSSD



PNP OSSD

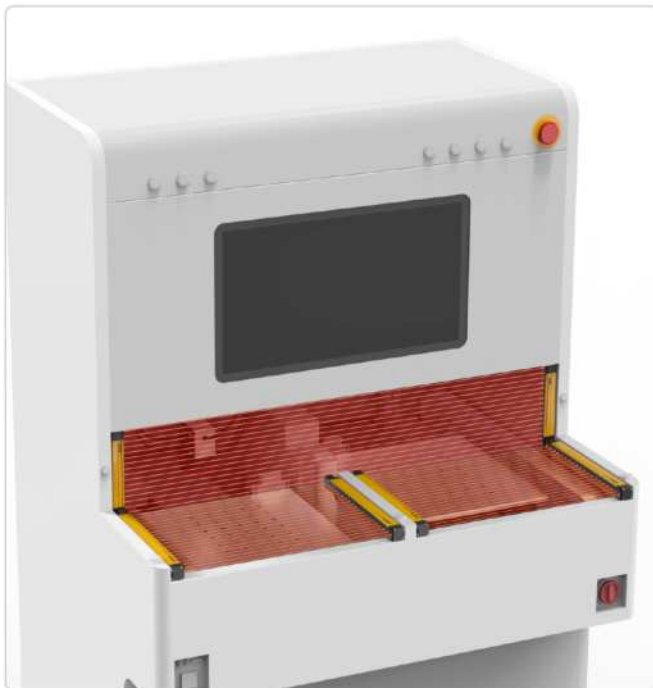


Option of Bracket

Picture	Name	Accessories	Size
	L side mounting bracket	L1 bracket (4pcs) M5 Slider (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)	
	H4 up & bottom mounting bracket	Up & bottom bracket (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M3*6 screw (4pcs)	H4 Up Bracket Size  H4 Bottom Bracket Size 
	LD1 up & bottom rotate bracket	LD1 rotate brackets 1 (4pcs) LD1 rotate brackets 2 (4pcs) M5 slider (8pcs) M5 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M5*6 screw (16pcs)	LD1 Up & Bottom Rotate Bracket 1  LD1 Up & Bottom Rotate Bracket 2 

Type 4 Safety Light Curtain

Application



Certificate



NSESE Series

Classic Type 4 Safety Light Curtain



Product Introduction

NSESE series is designed according to EU type 4 safety standard, with internal MCU redundancy technology, periodic self-diagnosis & cross-diagnosis, and redundant independent dual loop output to ensure high safety performance.

Product Feature

- CE type 4 certificates;
- Working voltage Dc24±20%;
- MCU redundancy for internal inspection;
- Dual OSSD in case any safety hazards caused by single loop failure;
- Against interference caused by over 2KV pulse group (electromagnet);
- Wire-syn to against any interference by external infrared light.

Type 4 Safety Light Curtain

Product Parameter

Safety Standard	Type 4(IEC 61496-1/-2) Cat. 4. PL e(ISO 13849-1)
Power Supply	DC24V±20%
Capacity	<5W
Beam Space	10mm.20mm.40mm
Resolution	20mm.30mm.50mm
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	<10ms
Safety Output (OSSD)	PNP or NPN Load currents≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted.), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~5m、0.1~10m
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire synchronization
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	35*53mm/35*27mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ambient Operating Temperature	-10°C~55°C(no freezing)
Storage Temperature	-30°C~70°C(no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

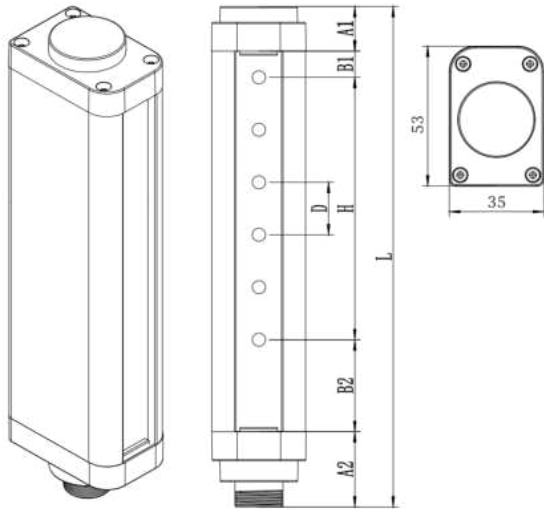
Model Selection (e.g.:20NSESE300-16PR-5)

Beam Space	Series	Protection Area	Beams	Output	Barrier	Enclosure Size	Sensing Distance
20	NSESE	300	16	P	R		5
10mm 20mm 40mm			04.06. 08.....	N: NPN*2 P: PNP*2	E: emitter R: receiver No mark: pair	NO: 35*53mm G: 35*27mm	5: 0.1~5m 10: 0.5~10m (Remark: please let us know when with reflectivity)

Remark: If G enclosure is chosen, the sensing distance is only 5m.

Product Size

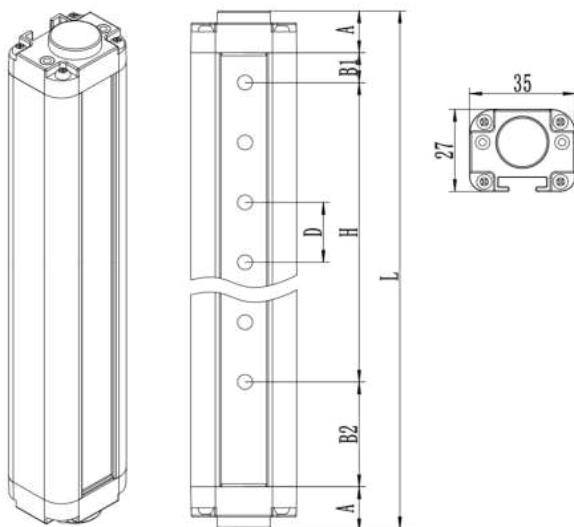
Sectional size: 35*53mm



A1: Up cover
A2: Bottom cover + aviation plug
B1: Up blind area
B2: Bottom blind area
D: Beam space
H: Protection height
L: Total Height

A1= 17mm; A2=28mmWhen
D=10mm, B1=5mm, B2=30mmWhen
D=20mm, B1=10mm, B2=35mmWhen
D=40mm, B1=30mm, B2=35mm
H=(Beams-1)*beam space
L=A+B1+B2+H

Sectional size: 35*27mm



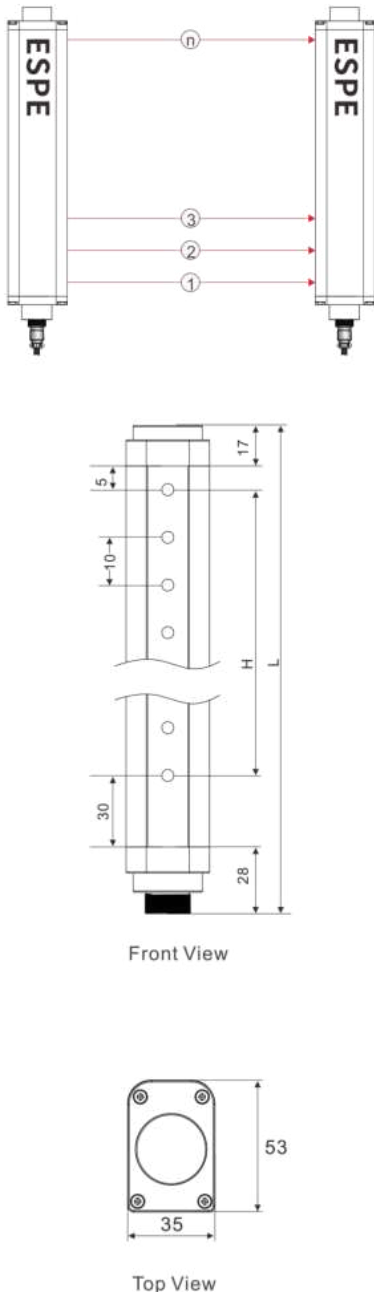
A: Up & bottom cover
B1: Up blind area
B2: Bottom blind area
D: Beam space
H: Protection height
L: Total Height

A is 14mm
When D=10mm, B1=5mm, B2=30mm
When D=20mm, B1=10mm, B2=35mm
When D=40mm, B1=30mm, B2=35mm
H=(Beams-1)*beam space
L=A+B1+B2+H

Type 4 Safety Light Curtain

NSESE Model Selection Table

- Beam space 10mm, resolution 20mm

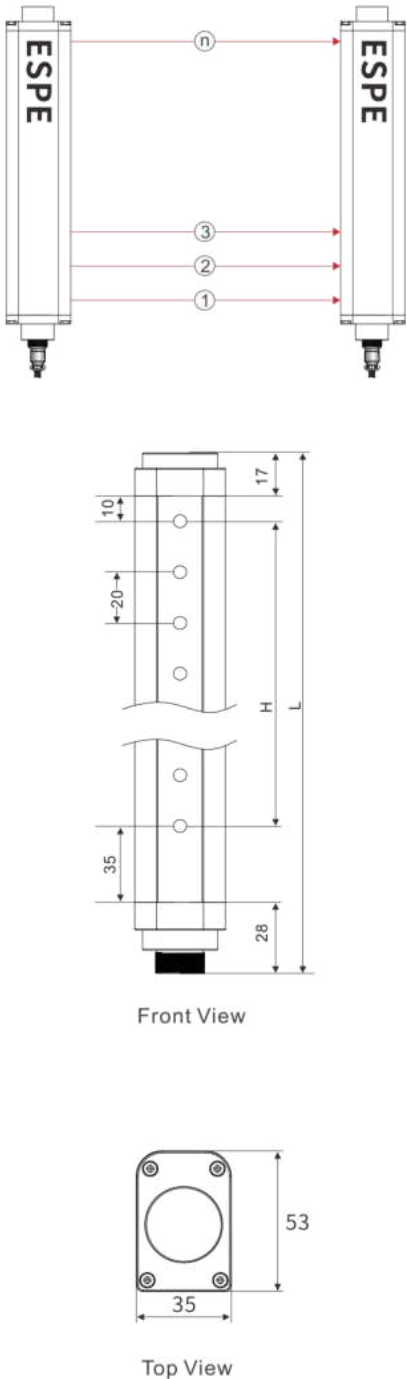
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model (NPN)	Model (PNP)
 The diagram illustrates the NSESE Safety Light Curtain. The top part shows a side view with two vertical units labeled 'ESPE' connected by a cable. The bottom part shows a front view and a top view. The front view labels dimensions: 17mm for the top cover, 10mm for the beam spacing, H for the protection height, L for the total height, 30mm for the bottom cover, and 28mm for the base. The top view shows a square base with a diameter of 35mm and a side length of 53mm. Front View Top View	16	150	230	10NSESE150-16N	10NSESE150-16P
	20	190	270	10NSESE190-20N	10NSESE190-20P
	24	230	310	10NSESE230-24N	10NSESE230-24P
	28	270	350	10NSESE270-28N	10NSESE270-28P
	32	310	390	10NSESE310-32N	10NSESE310-32P
	36	350	430	10NSESE350-36N	10NSESE350-36P
	40	390	470	10NSESE390-40N	10NSESE390-40P
	44	430	510	10NSESE430-44N	10NSESE430-44P
	48	470	550	10NSESE470-48N	10NSESE470-48P
	52	510	590	10NSESE510-52N	10NSESE510-52P
	56	550	630	10NSESE550-56N	10NSESE550-56P
	60	590	670	10NSESE590-60N	10NSESE590-60P
	64	630	710	10NSESE630-64N	10NSESE630-64P
	68	670	750	10NSESE670-68N	10NSESE670-68P
	72	710	790	10NSESE710-72N	10NSESE710-72P
	76	750	830	10NSESE750-76N	10NSESE750-76P
	80	790	870	10NSESE790-80N	10NSESE790-80P
	84	830	910	10NSESE830-84N	10NSESE830-84P
	88	870	950	10NSESE870-88N	10NSESE870-88P
	92	910	990	10NSESE910-92N	10NSESE910-92P
	96	950	1030	10NSESE950-96N	10NSESE950-96P
	100	990	1070	10NSESE990-100N	10NSESE990-100P
	104	1030	1110	10NSESE1030-104N	10NSESE1030-104P
	108	1070	1150	10NSESE1070-108N	10NSESE1070-108P
	112	1110	1190	10NSESE1110-112N	10NSESE1110-112P
	116	1150	1230	10NSESE1150-116N	10NSESE1150-116P
	120	1190	1270	10NSESE1190-120N	10NSESE1190-120P
	124	1230	1310	10NSESE1230-124N	10NSESE1230-124P
	128	1270	1350	10NSESE1270-128N	10NSESE1270-128P
	132	1310	1390	10NSESE1310-132N	10NSESE1310-132P
	136	1350	1430	10NSESE1350-136N	10NSESE1350-136P
					
	160	1590	1670	10NSESE1590-160N	10NSESE1590-160P

H is protection height=(beams-1)*beam space
 L is total height=end covers+ up & bottom blind area + protection height

Remark: Besides above model, other curtains can be customized.

NSESE Model Selection Table

- Beam space 20mm, resolution 30mm

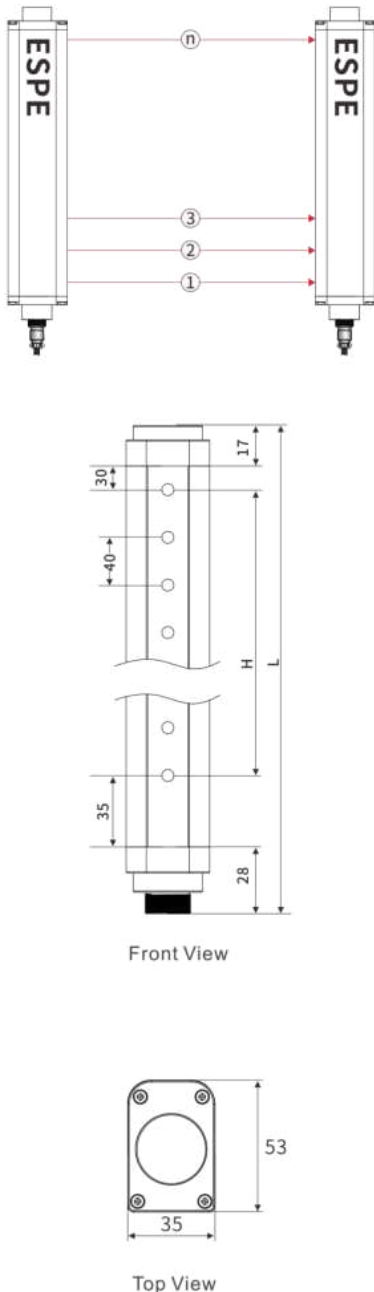
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model (NPN)	Model (PNP)
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	8	140	230	20NSESE140-08N	20NSESE140-08P
	10	180	270	20NSESE180-10N	20NSESE180-10P
	12	220	310	20NSESE220-12N	20NSESE220-12P
	14	260	350	20NSESE260-14N	20NSESE260-14P
	16	300	390	20NSESE300-16N	20NSESE300-16P
	18	340	430	20NSESE340-18N	20NSESE340-18P
	20	380	470	20NSESE380-20N	20NSESE380-20P
	22	420	510	20NSESE420-22N	20NSESE420-22P
	24	460	550	20NSESE460-24N	20NSESE460-24P
	26	500	590	20NSESE500-26N	20NSESE500-26P
	28	540	630	20NSESE540-28N	20NSESE540-28P
	30	580	670	20NSESE580-30N	20NSESE580-30P
	32	620	710	20NSESE620-32N	20NSESE620-32P
	34	660	750	20NSESE660-34N	20NSESE660-34P
	36	700	790	20NSESE700-36N	20NSESE700-36P
	38	740	830	20NSESE740-38N	20NSESE740-38P
	40	780	870	20NSESE780-40N	20NSESE780-40P
	42	820	910	20NSESE820-42N	20NSESE820-42P
	44	860	950	20NSESE860-44N	20NSESE860-44P
	46	900	990	20NSESE900-46N	20NSESE900-46P
	48	940	1030	20NSESE940-48N	20NSESE940-48P
	50	980	1070	20NSESE980-50N	20NSESE980-50P
	52	1020	1110	20NSESE1020-52N	20NSESE1020-52P
	54	1060	1150	20NSESE1060-54N	20NSESE1060-54P
	56	1100	1190	20NSESE1100-56N	20NSESE1100-56P
	58	1140	1230	20NSESE1140-58N	20NSESE1140-58P
	60	1180	1270	20NSESE1180-60N	20NSESE1180-60P
	62	1220	1310	20NSESE1220-62N	20NSESE1220-62P
	64	1260	1350	20NSESE1260-64N	20NSESE1260-64P
	66	1300	1390	20NSESE1300-66N	20NSESE1300-66P
	68	1340	1430	20NSESE1340-68N	20NSESE1340-68P
	70	1380	1470	20NSESE1380-70N	20NSESE1380-70P
	72	1420	1510	20NSESE1420-72N	20NSESE1420-72P

Remark: Besides above model, other curtains can be customized.

Type 4 Safety Light Curtain

NSESE Model Selection Table

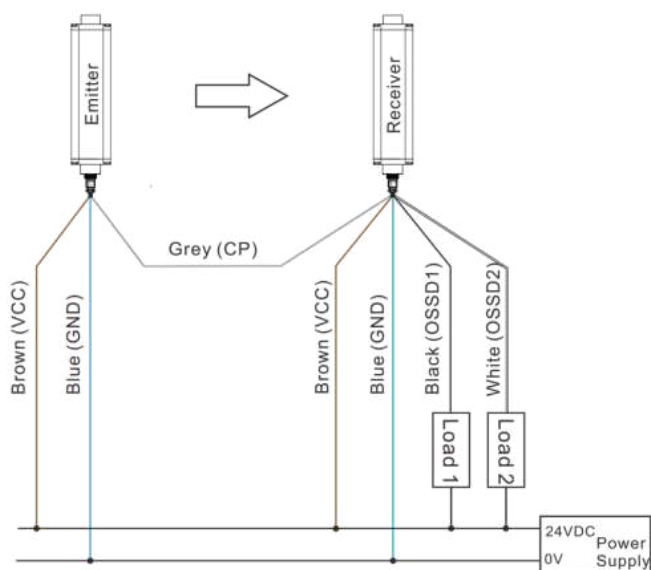
- Beam space 40mm, resolution 50mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model (NPN)	Model (PNP)
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	4	120	230	40NSESE120-04N	40NSESE120-04P
	6	200	310	40NSESE120-06N	40NSESE120-06P
	8	280	390	40NSESE120-08N	40NSESE120-08P
	10	360	470	40NSESE360-10N	40NSESE360-10P
	12	440	550	40NSESE440-12N	40NSESE440-12P
	14	520	630	40NSESE520-14N	40NSESE520-14P
	16	600	710	40NSESE600-16N	40NSESE600-16P
	18	680	790	40NSESE680-18N	40NSESE680-18P
	20	760	870	40NSESE760-20N	40NSESE760-20P
	22	840	950	40NSESE840-22N	40NSESE840-22P
	24	920	1030	40NSESE920-24N	40NSESE920-24P
	26	1000	1110	40NSESE1000-26N	40NSESE1000-26P
	28	1080	1190	40NSESE1080-28N	40NSESE1080-28P
	30	1160	1270	40NSESE1160-30N	40NSESE1160-30P
	32	1240	1350	40NSESE1240-32N	40NSESE1240-32P
	34	1320	1430	40NSESE1320-34N	40NSESE1320-34P
	36	1400	1510	40NSESE1400-36N	40NSESE1400-36P

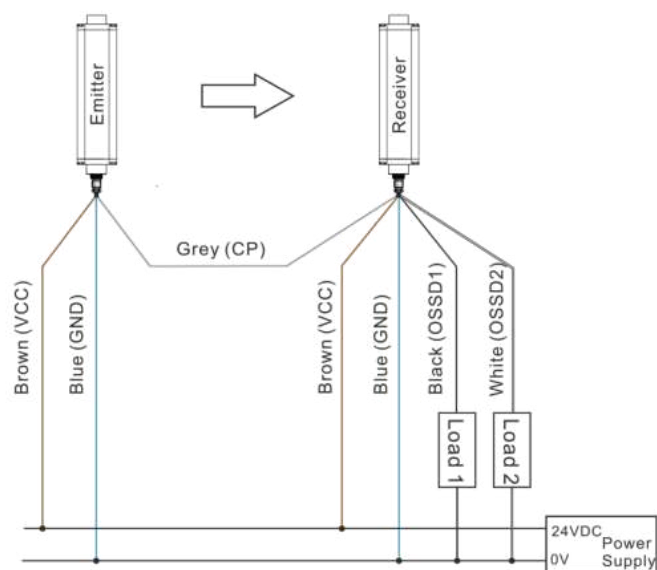
Remark: Besides above model, other curtains can be customized.

Wire Diagram

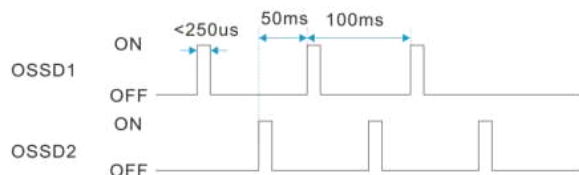
NPN



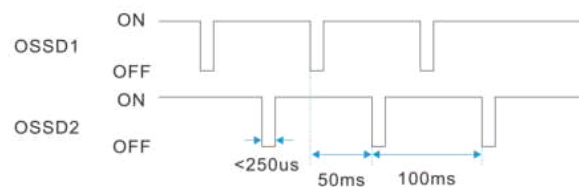
PNP



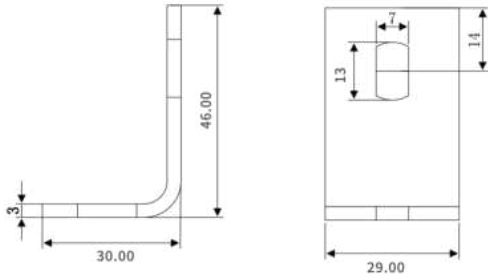
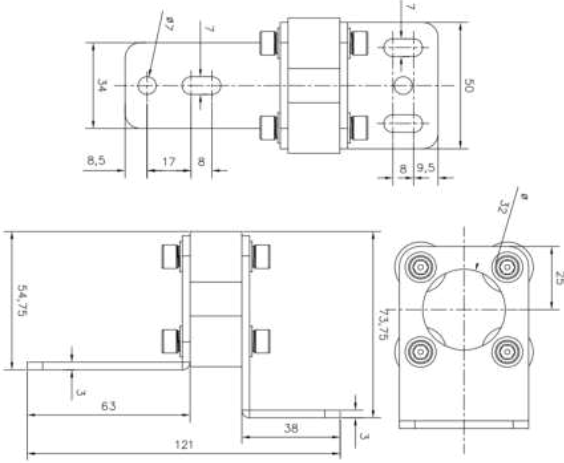
NPN output timing chart



PNP output timing chart

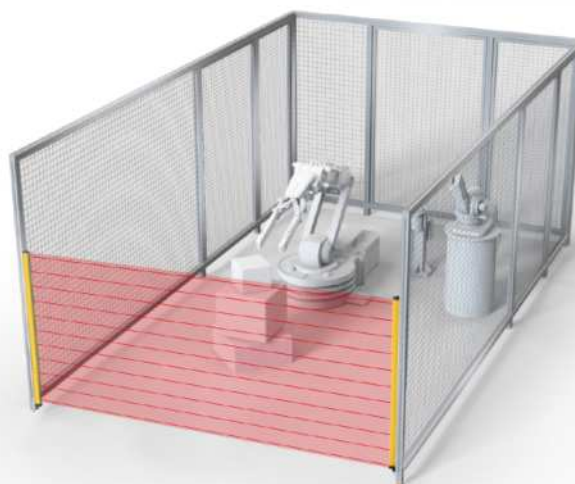
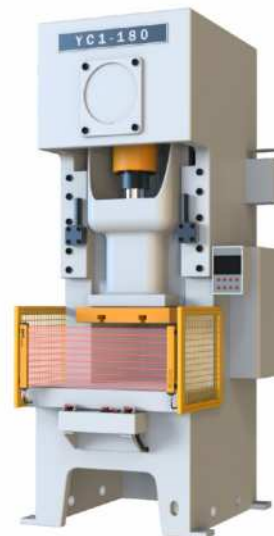


Option of Bracket

Picture	Name	Accessories	Size
	L1 side mounting	L bracket (4pcs) Slider (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)	
	JZ vibration absorbing	Assembled bracket (4pcs) Slider (8pcs) M6 pad (4pcs) M6 spring washer (8pcs) M6*16 screw (8pcs) M6*8 screw (8pcs)	

Type 4 Safety Light Curtain

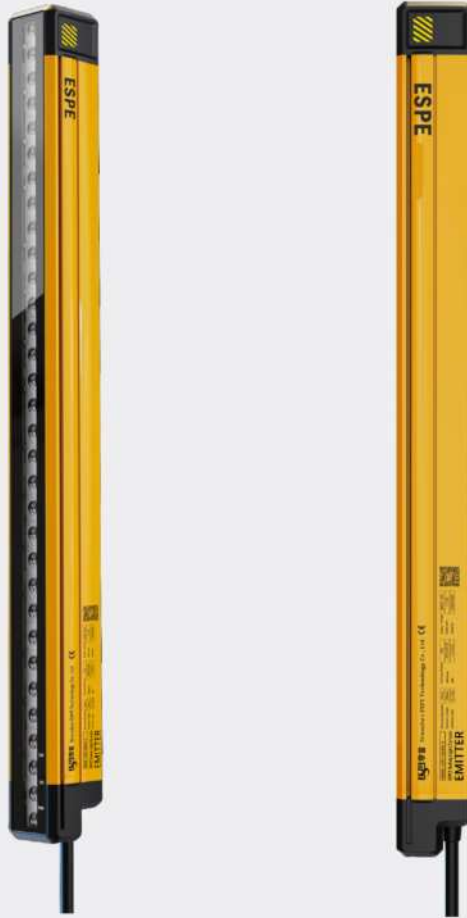
Application



Certificate



NSEFP2 Series No-dead Zone Safety Light Curtain



Product Introduction

NSEFP2 series is no-dead zone safety light curtain design according to type 2 safety level, with internal MCU redundancy design, periodic self-diagnosis & cross-diagnosis, and redundant and independent dual output support high safety level.

Product Feature

- Design according to IEC61496 type 2;
- Self-diagnosis and cross-diagnosis to improve safety performance;
- Independent and redundant output in case any hazards caused by single loop failure;
- Wire synchronization design against interference of external infrared light.

Safety Light Curtain

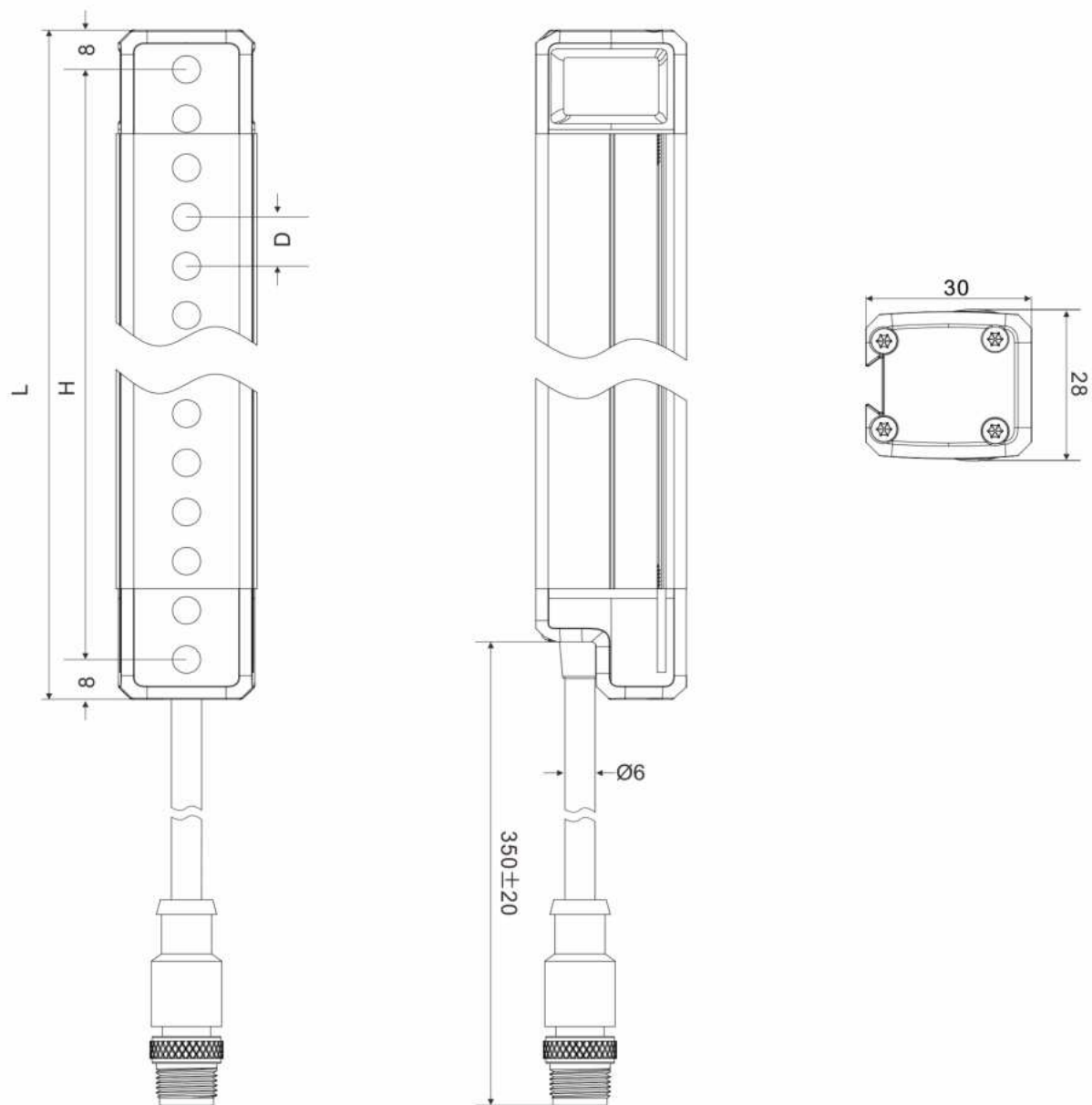
Product Parameter

Safety Standard	Type 2 (IEC 61496-1/-2) Cat. 2, PL c (ISO 13849-1)
Power Supply	DC24V±20%
Capacity	<5W
Beam Space	10mm, 20mm
Resolution	15mm, 25mm
Beams	10mm: 16, 20,...160
	20mm: 8, 10,...74
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time=((N+1) * 0.1ms) + 0.4ms(N is beams)
Safety Output (OSSD)	PNP or NPN Load currents≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~2m, 0.5~5m
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire synchronization
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	28*30mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ambient Operating Temperature	-10°C~55°C (no freezing)
Storage Temperature	-30°C~70°C (no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max.85%

Model Selection (e.g.: NSEFP2-1220NEL-2)

Product Series	Beams	Beam Space	Output	Function	Installation	Sensing Distance
NSEFP2	12	20	N	E	L	2
	08, 10, 12...	10mm 20mm	N: NPN*2 P: PNP*2	No mark: without EDM & reset E: with EDM, no reset R: manual reset A: with EDM and reset	L: side mounting LD1: up & bottom rotate mounting	2: 0.1~2m 5: 0.5~5m

Product Size



D: Beam space

H: Protection height

L: Total Height

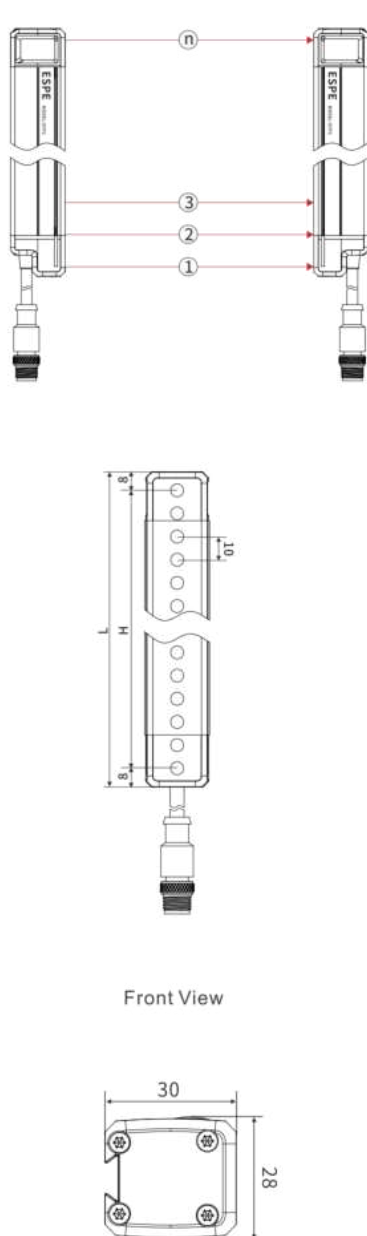
$H = (\text{Beams} - 1) \times \text{beam space}$

$L = D + H$

Safety Light Curtain

NSEFP2 Model Selection Table

- Beam space 10mm, resolution 15mm

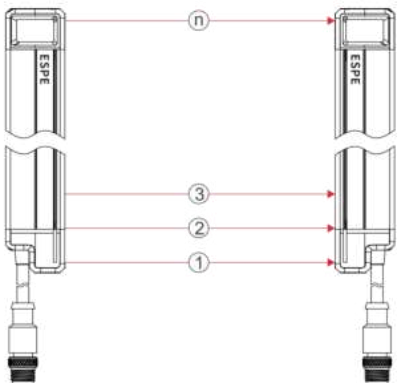
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View	16	150	166	NSEFP2-1610
	20	190	206	NSEFP2-2010
	24	230	246	NSEFP2-2410
	28	270	286	NSEFP2-2810
	32	310	326	NSEFP2-3210
	36	350	366	NSEFP2-3610
	40	390	406	NSEFP2-4010
	44	430	446	NSEFP2-4410
	48	470	486	NSEFP2-4810
	52	510	526	NSEFP2-5210
	56	550	566	NSEFP2-5610
	60	590	606	NSEFP2-6010
	64	630	646	NSEFP2-6410
	68	670	686	NSEFP2-6810
	72	710	726	NSEFP2-7210
	76	750	766	NSEFP2-7610
	80	790	806	NSEFP2-8010
	84	830	846	NSEFP2-8410
	88	870	886	NSEFP2-8810
	92	910	926	NSEFP2-9210
	96	950	966	NSEFP2-9610
	100	990	1006	NSEFP2-10010
	104	1030	1046	NSEFP2-10410
	108	1070	1086	NSEFP2-10810
	112	1110	1126	NSEFP2-11210
	116	1150	1166	NSEFP2-11610
	120	1190	1206	NSEFP2-12010
	124	1230	1246	NSEFP2-12410
	128	1270	1286	NSEFP2-12810
	132	1310	1326	NSEFP2-13210
	136	1350	1366	NSEFP2-13610
				
	160	1590	1606	NSEFP2-16010

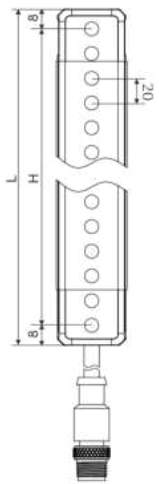
H is protection height-(beams-1)*beam space
L is total height=up & bottom+protection height

Remark: Besides above model, other curtains can be customized.

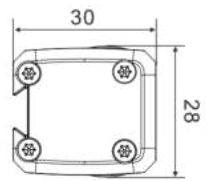
NSEFP2 Model Selection Table

• Beam space 20mm, resolution 25mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	8	140	156	NSEFP2-0820
	10	180	196	NSEFP2-1020
	12	220	236	NSEFP2-1220
	14	260	276	NSEFP2-1420
	16	300	316	NSEFP2-1620
	18	340	356	NSEFP2-1820
	20	380	396	NSEFP2-2020
	22	420	436	NSEFP2-2220
	24	460	476	NSEFP2-2420
	26	500	516	NSEFP2-2620
	28	540	556	NSEFP2-2820
	30	580	596	NSEFP2-3020
	32	620	636	NSEFP2-3220
	34	660	676	NSEFP2-3420
	36	700	716	NSEFP2-3620
	38	740	756	NSEFP2-3820
	40	780	796	NSEFP2-4020
	42	820	836	NSEFP2-4220
	44	860	876	NSEFP2-4420
	46	900	916	NSEFP2-4620
	48	940	956	NSEFP2-4820
	50	980	996	NSEFP2-5020
	52	1020	1036	NSEFP2-5220
	54	1060	1076	NSEFP2-5420
	56	1100	1116	NSEFP2-5620
	58	1140	1156	NSEFP2-5820
	60	1180	1196	NSEFP2-6020
	62	1220	1236	NSEFP2-6220
	64	1260	1276	NSEFP2-6420
	66	1300	1316	NSEFP2-6620
	68	1340	1356	NSEFP2-6820
				
	80	1580	1596	NSEFP2-8020



Front View



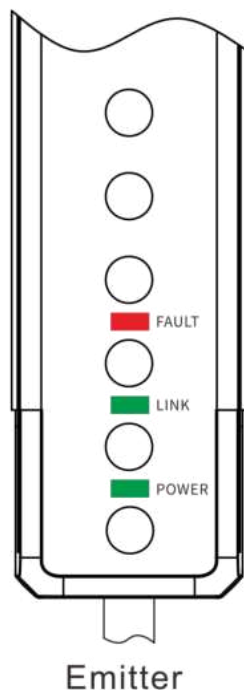
Top View

H is protection height-(beams-1)*beam space
L is total height=up & bottom+protection height

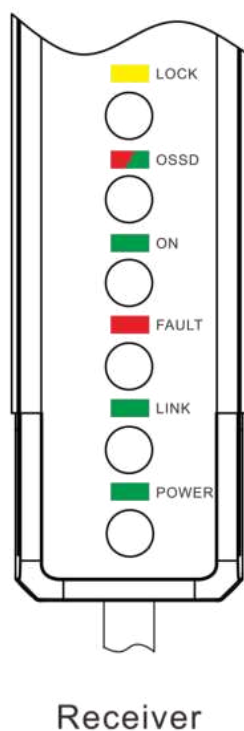
Remark: Besides above model, other curtains can be customized.

Safety Light Curtain

Indicator Specification



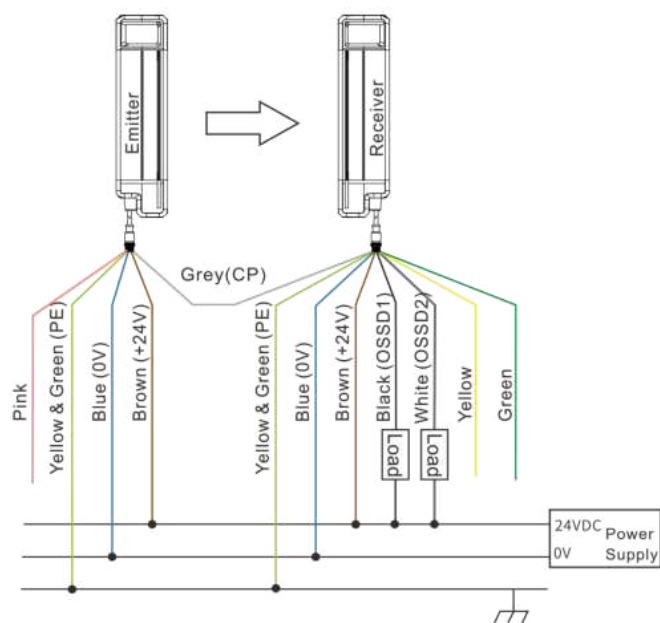
Emitter Indicator Specification		
Indicator	State of Indicator	Function
Power (Green)	ON	Indicator working well
	OFF	Internal abnormality
	1Hz blink	Under voltage
	2Hz blink	Over voltage
LINK (Green)	OFF	Normal work
	2Hz blink	Internal abnormality
FAULT (Red)	ON	Internal abnormality
	OFF	Normal work
	2Hz blink	Internal abnormality



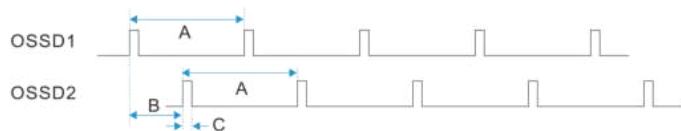
Receiver Indicator Specification		
Indicator	State of Indicator	Function
POWER (GREEN)	ON	Normal work
	OFF	Internal abnormality
	1Hz blink	Under voltage
	2Hz blink	Over voltage
LINK (GREEN)	OFF	Normal work
	2Hz blink	Internal abnormality
FAULT (RED)	ON	Internal abnormality
	OFF	Normal work
	2Hz blink	Internal abnormality
ON (GREEN)	ON	Beam through
	1Hz blink	EDM fault
	OFF	Beam blocked
OSSD (RED & GREEN)	Green ON	Output open
	Red ON	Output close
LOCK (YELLOW)	ON	Waiting for reset
	1Hz blink	Wire connection fault
	OFF	Normal work

Wire Diagram

NPN (NO Output, NO Reset)

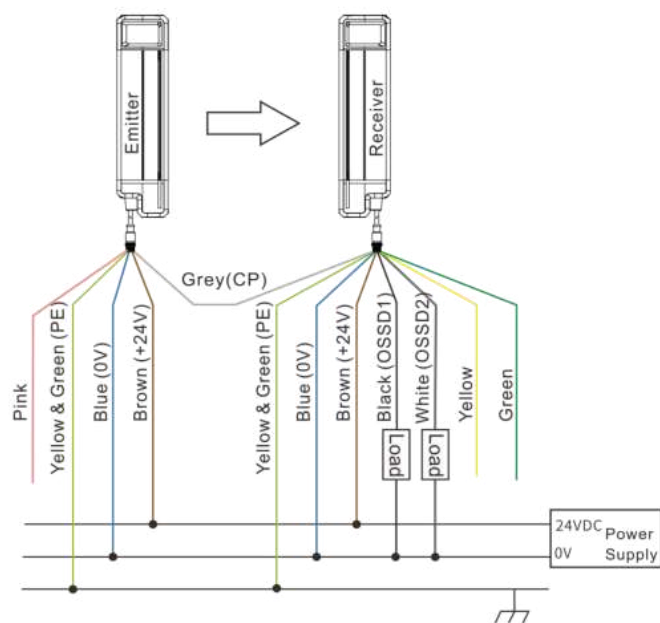


NPN Output timing chart

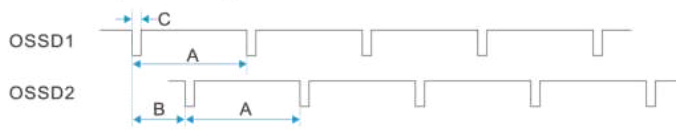


A: 470ms; B: 235ms; C: 256us

PNP (NO Output, NO Reset)

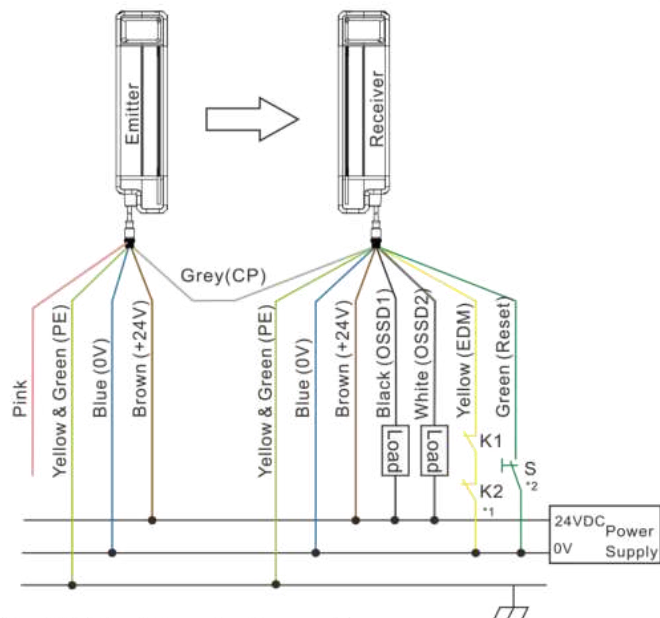


PNP Output timing chart



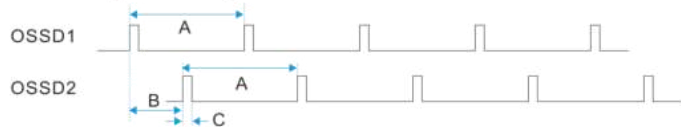
A: 470ms; B: 235ms; C: 256us

NPN (EDM, reset)



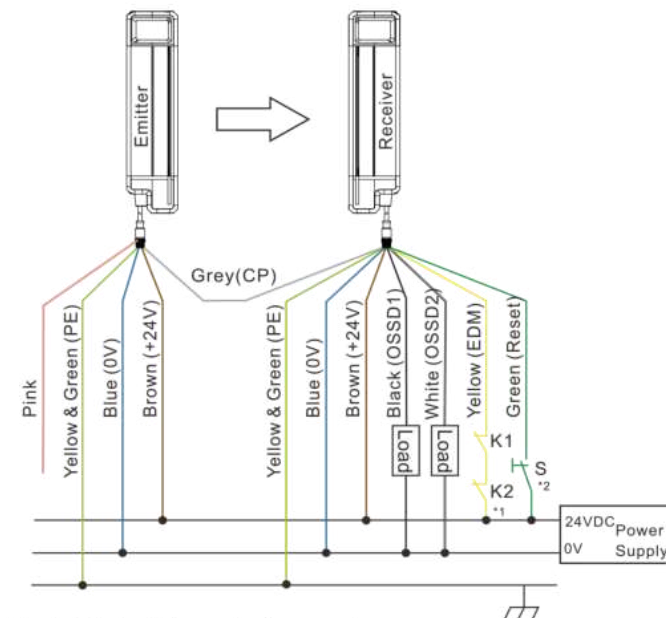
1. If no EDM signal, keep wire disconnect;
2. If no reset, keep wire disconnect.

NPN Output timing chart



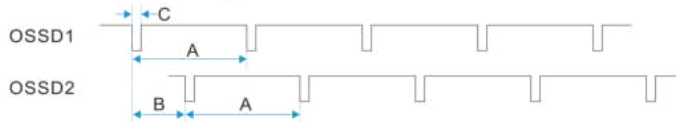
A: 470ms; B: 235ms; C: 256us

PNP (EDM, reset)



1. If no EDM signal, keep wire disconnect;
2. If no reset, keep wire disconnect.

PNP Output timing chart



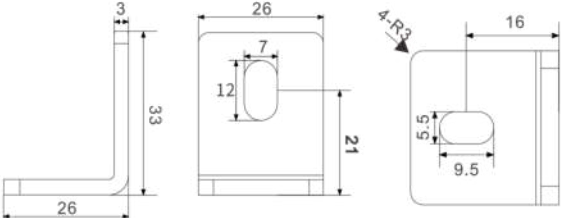
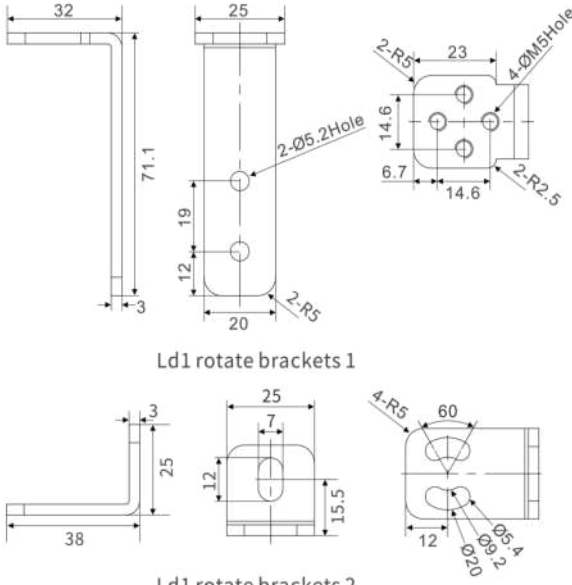
A: 470ms; B: 235ms; C: 256us

Safety Light Curtain

Wire Specification

Barrier	Color	Wire Mark	Function	Connection
Emitter	Brown	24V	Positive of power	Connect to 24V of power
	Blue	0V	Negative of power	Connect to 0V of power
	Grey	CP	Synchronization wire	Connect to CP of emitter
	Pink	NC	Vacant Line	Suspend
	Yellow & Green	PE	Shielding wire	Grounding or connect to GND
Receiver	Brown	24V	Positive of power	Connect to 24V of power
	Blue	0V	Negative of power	Connect to 0V of power
	Grey	CP	Synchronization wire	Connect to CP of emitter
	Yellow & Green	PE	Shielding wire	Grounding or connect to GND
	Black	OSSD1	Output OSSD1	Connect to safety input port 1
	White	OSSD2	Output OSSD2	Connect to safety input port 2
	Yellow	EDM	External device monitor	Connect to NC contacts of external device (floating if no EDM function)
	Green	Reset	Reset	Connect to reset button (floating if no EDM function)

Option of Bracket

Picture	Name	Accessories	Size
	L1 bracket	L26 bracket (4pcs) ESM-M5 Slider (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M5*6 screw (4pcs)	
	LD1 up & bottom rotate bracket	LD1 rotate brackets 1 (4pcs) LD1 rotate brackets 2 (4pcs) M5 slider (8pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M5*6 screw (16pcs)	

NSESS Series

Compact Safety Light Curtain



Product Introduction

NSESS series safety light curtain is optical-syn and 25mm*25mm compact size; Up to 6m sensing distance; EU Type 2 and redundancy MCU design, self-diagnosis & cross-diagnosis.

Product Feature

- Optical-syn for easy wire connection;
- 25*25mm compact size;
- Dual loop redundancy design;
- Great self-diagnosis and cross-diagnosis;
- Overvoltage and undervoltage/ overcurrent/ output short-circuit monitor;
- LED indicates working and fault state;
- Strong anti-electromagnetic interference;
- Side or end cover installation method;

Safety Light Curtain

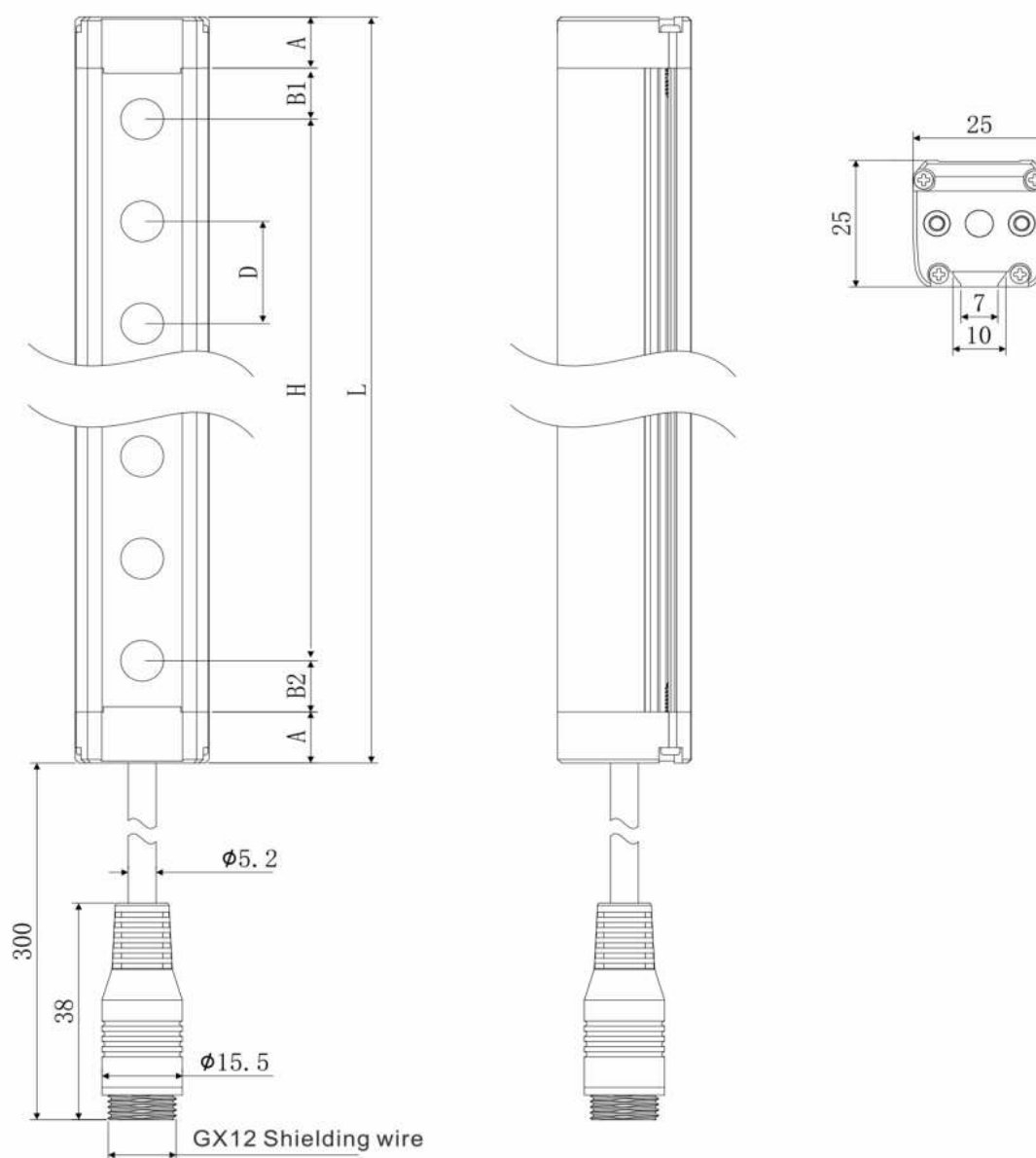
Product Parameter

Safety Standard	Type 2 (IEC 61496-1/-2) Cat. 2, PL c (ISO 13849-1)
Power Supply	DC24V±20%
Capacity	<5W
Beam Space	20mm, 40mm
Resolution	29mm, 49mm
Beams	20mm: 8, 12, 16, 20, ...96
	40mm: 4, 6, 8, 10, ...48
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response time ((N+1)* 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN Load current≤500mA (Temperature exceed 40℃≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~6m
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Optical-syn
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	25*25mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ambient Operating Temperature	-10℃~55℃ (no freezing)
Storage Temperature	-30℃~70℃ (no freezing)
Ambient Operating Humidity	When temperature 20℃, the humidity max. 85%

Model Selection (e.g.: NSESS1620NEL - 6)

Product Series	Beams	Beam Space	Output	Installation	Sensing Distance
NSESS	16	20	N	L	6
	04, 06, 10...	20mm 40mm	N: NPN*2 P: PNP*2	L: side mounting bracket LD: LD end mounting	6: 0.1~6m

Product Size



B1: Up blind area
 B2: Bottom blind area
 D: Beam space
 H: Protection height
 L: Total Height

A is 10mm
 When D=20mm, B1=10mm, B2=10mm
 When D=40mm, B1=10mm, B2=30mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$

Safety Light Curtain

NSESS Model Selection Table

- Beam space 20mm, resolution 29mm

[illegible]

Remark: Besides above model, other curtains can be customized.

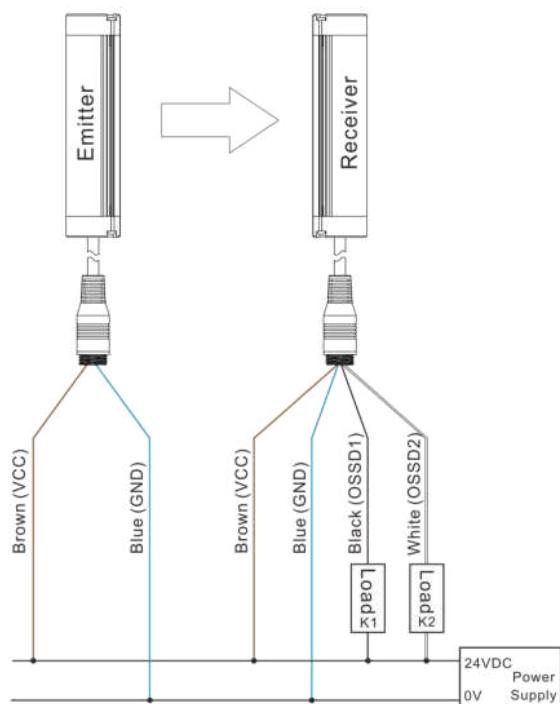
- Beam space 40mm, resolution 49mm

Remark: Besides above model, other curtains can be customized.

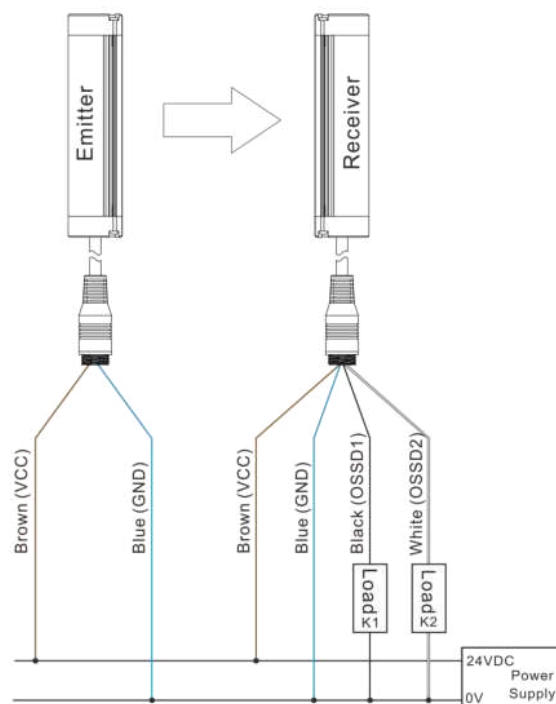
Safety Light Curtain

Wire Diagram

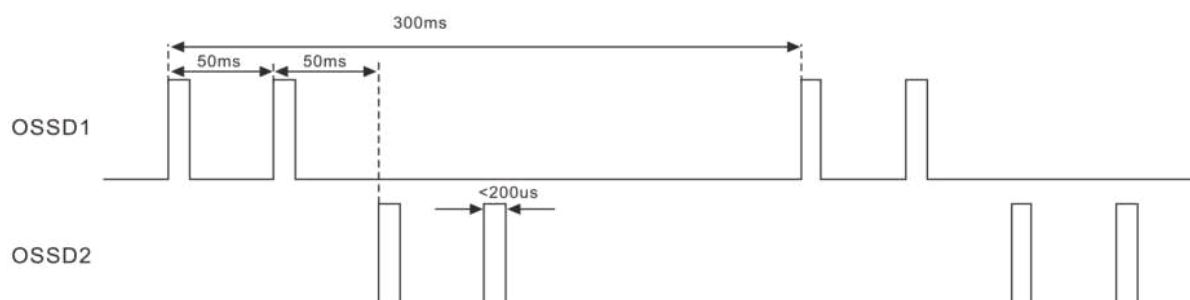
NPN



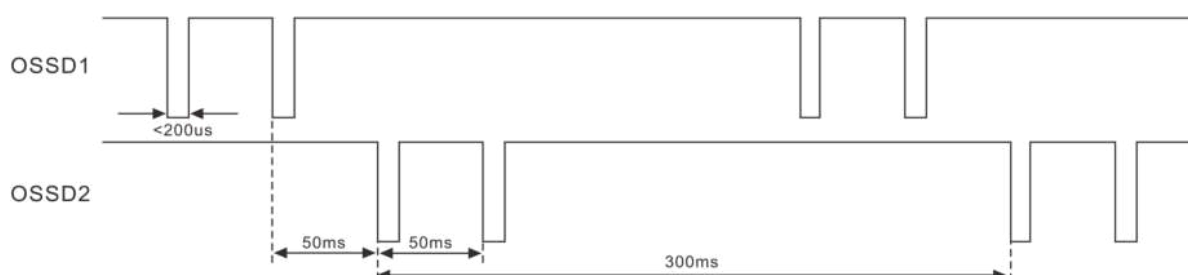
PNP



NPN output timing chart



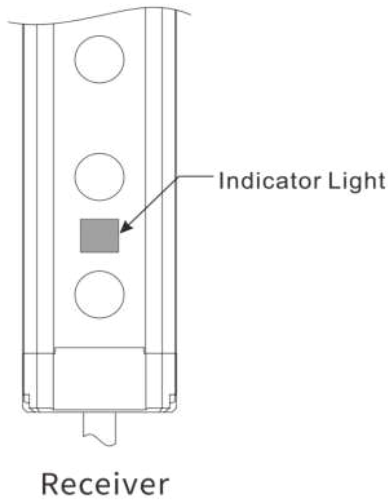
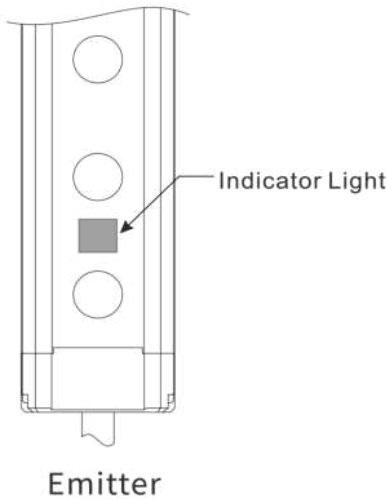
PNP output timing chart



Wire Specification

Barrier	Color	Wire Mark	Function	Connection
Emitter	Brown	24V	Positive of power	Connect to 24V of power
	Blue	0V	Negative of power	Connect to 0V of power
Receiver	Brown	24V	Positive of power	Connect to 24V of power
	Blue	0V	Negative of power	Connect to 0V of power
	Black	OSSD1	Output OSSD1	Connect to safety input port 1
	White	OSSD2	Output OSSD2	Connect to safety input port 2

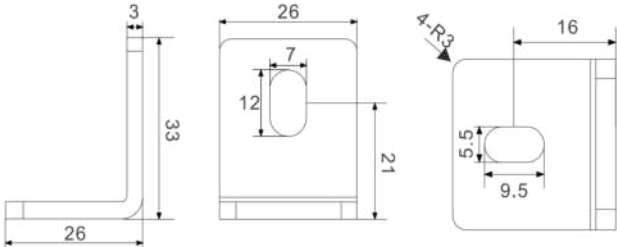
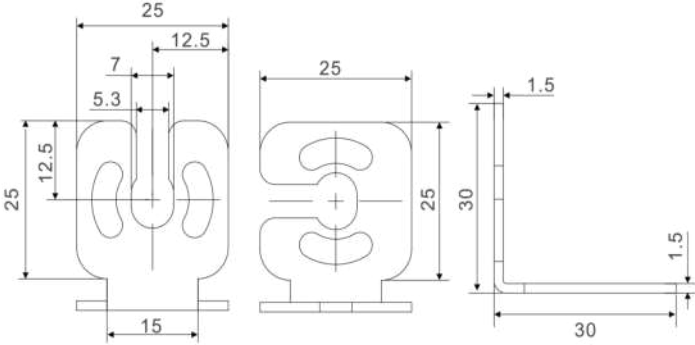
Indicator Light



Working State		Emitter Indicator	Receiver Indicator
Normal	OSSD-ON	Green steady ON	Green steady ON
	OSSD-OFF		Red steady ON
Abnormal	Overvoltage	Red green 2Hz blink	Red green 2Hz blink
	Undervoltage	Red green 0.5Hz blink	Red green 0.5Hz blink
	Short-circuit	/	Red 2Hz blink
	Over load	/	Green 2Hz blink
	EEPRO error	Red 0.5Hz blink	Red 0.5Hz blink
	Board length detection abnormal	Green 0.5Hz	Green 0.5Hz

Safety Light Curtain

Option of Bracket

Picture	Name	Accessories	Size
	L side mounting	L26 bracket (4pcs) ESM-M5 slider (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M5*6 screw (4pcs)	
	LD end mounting	End mounting bracket (4pcs) M6*16 screw (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M3*6 screw (8pcs)	

Application



NSELG Series

Automation Safety Light Curtain



Product Introduction

NSELGseries is suitable for various automation equipment for its compact size. High resolution, long sensing distance, dual independent loop and self-diagnosis & cross-diagnosis for high safety performance.

Product Feature

- Sensing distance up to 5m;
- Dual loop, self-diagnosis and cross-diagnosis for high safety performance;
- Quick response time;
- Strong ability to against electromagnetic interference of various motor;
- Wire synchronization to against optical interference;
- Multiple brackets for easy mounting;
- Waterproof and dustproof;
- 35*27mm small size.

Safety Light Curtain

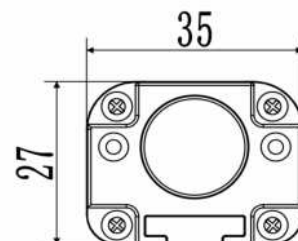
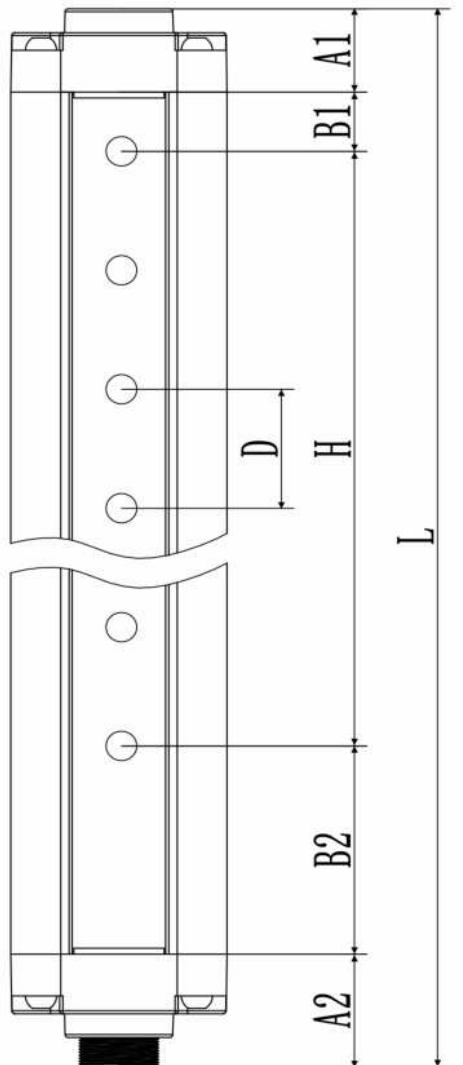
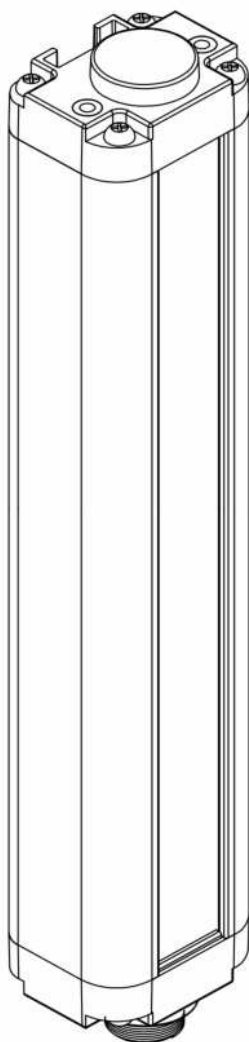
Product Parameter

Safety Standard	Type 2 (IEC 61496-1/-2) Cat. 2, PL c (ISO 13849-1) SIL 1 (IEC 62061 IEC 61508)
Power Supply	DC24V±20%
Capacity	<5W
Beam Space	10mm, 20mm, 40mm
Resolution	15mm, 25mm, 45mm
Beams	10mm beam space: 8, 12, 16, 20, ... 144
	20mm beam space: 4, 6, 8, ... 72
	40mm beam space: 4, 6, 8, ... 36
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN
	Load current≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted.), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~0.5m, 0.1~2m, 0.1~5m
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire synchronization
Enclosure Material	Aluminum alloy
Color	Golden, Silver, Yellow
Enclosure Protection rate	IP65
Sectional Size	35*27mm
Ambient Operating Temperature	-10°C~55°C(no freezing)
Storage Temperature	-30°C~70°C(no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

Model Selection (e.g.: NSELG1020L1NCGC-2)

Product Series	Beams	Beam Space	Installation	Output	Sensing method	Color	Scanning method	Sensing Distance
NSELG	10	20	L1	N	C	G	C	- 2
	04, 06, 08...	10mm 20mm 40mm	L1: L1 side mounting L2: L2 Installation L7: L7 Installation	N: NPN P: PNP	C: normally close	G: Golden S: Silver Y: Yellow	Parallel scanning C: Cross scanning	05: 0.1~0.5m 2: 0.1~2m 5: 0.1~5m (Remark: please let us know when with reflectivity)

Product Size



A1: Up cover
 A2: Bottom cover + aviation plug
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space
 H: Protection height
 L: Total Height

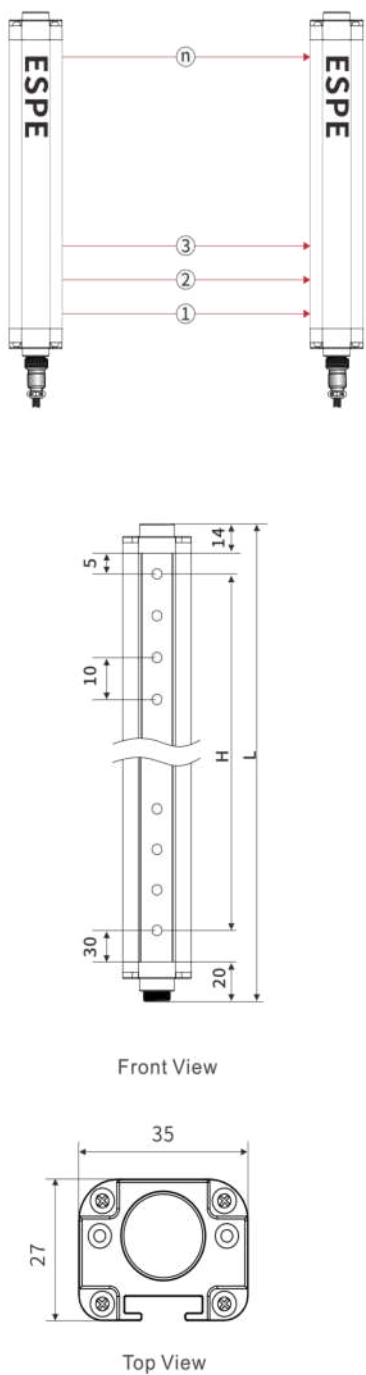
A1 is 14mm; A2 is 20mm;
 When D=10mm, B1=5mm, B2=30mm
 When D=20mm, B1=10mm, B2=35mm
 When D=40mm, B1=10mm, B2=35mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$

Safety Light Curtain

NSELG Model Selection Table

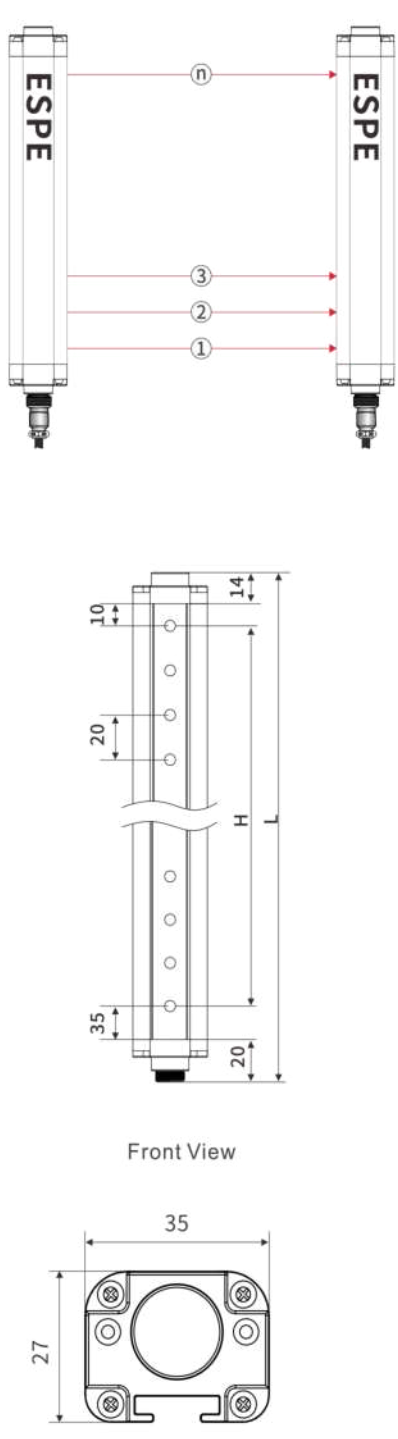
- Beam space 10mm, resolution 15mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	08	70	139	NSELG0810
	12	110	179	NSELG1210
	16	150	219	NSELG1610
	20	190	259	NSELG2010
	24	230	299	NSELG2410
	28	270	339	NSELG2810
	32	310	379	NSELG3210
	36	350	419	NSELG3610
	40	390	459	NSELG4010
	44	430	499	NSELG4410
	48	470	539	NSELG4810
	52	510	579	NSELG5210
	56	550	619	NSELG5610
	60	590	659	NSELG6010
	64	630	699	NSELG6410
	68	670	739	NSELG6810
	72	710	779	NSELG7210
	76	750	819	NSELG7610
	80	790	859	NSELG8010
	84	830	899	NSELG8410
	88	870	939	NSELG8810
	92	910	979	NSELG9210
	96	950	1019	NSELG9610
	100	990	1059	NSELG10010
	104	1030	1099	NSELG10410
	108	1070	1139	NSELG10810
	112	1110	1179	NSELG11210
	116	1150	1219	NSELG11610
	120	1190	1259	NSELG12010
	124	1230	1299	NSELG12410
	128	1270	1339	NSELG12810
				
	144	1430	1499	NSELG14410

Remark: Besides above model, other curtains can be customized.

NSELG Model Selection Table

• Beam space 20mm, resolution 25mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View	04	60	139	NSELG0810
	06	100	179	NSELG1210
	08	140	219	NSELG1610
	10	180	259	NSELG2010
	12	220	299	NSELG2410
	14	260	339	NSELG2810
	16	300	379	NSELG3210
	18	340	419	NSELG3610
	20	380	459	NSELG4010
	22	420	499	NSELG4410
	24	460	539	NSELG4810
	26	500	579	NSELG5210
	28	540	619	NSELG5610
	30	580	659	NSELG6010
	32	620	699	NSELG6410
	34	660	739	NSELG6810
	36	700	779	NSELG7210
	38	740	819	NSELG7610
	40	780	859	NSELG8010
	42	820	899	NSELG8410
	44	860	939	NSELG8810
	46	900	979	NSELG9210
	48	940	1019	NSELG9610
	50	980	1059	NSELG10010
	52	1020	1099	NSELG10410
	54	1060	1139	NSELG10810
	56	1100	1179	NSELG11210
	58	1140	1219	NSELG11610
	60	1180	1259	NSELG12010
	62	1220	1299	NSELG12410
	64	1260	1339	NSELG12810
				
	72	1420	1499	NSELG14410

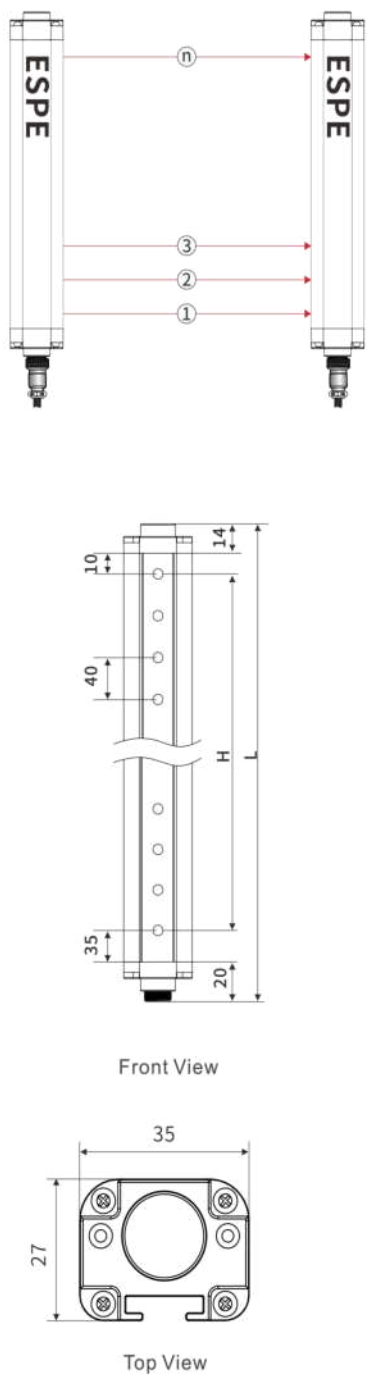
H is protection height=(beams-1)*beam space
L is total height=end covers+ up & bottom
blind area + protection height

Remark: Besides above model, other curtains can be customized.

Safety Light Curtain

NSELG Model Selection Table

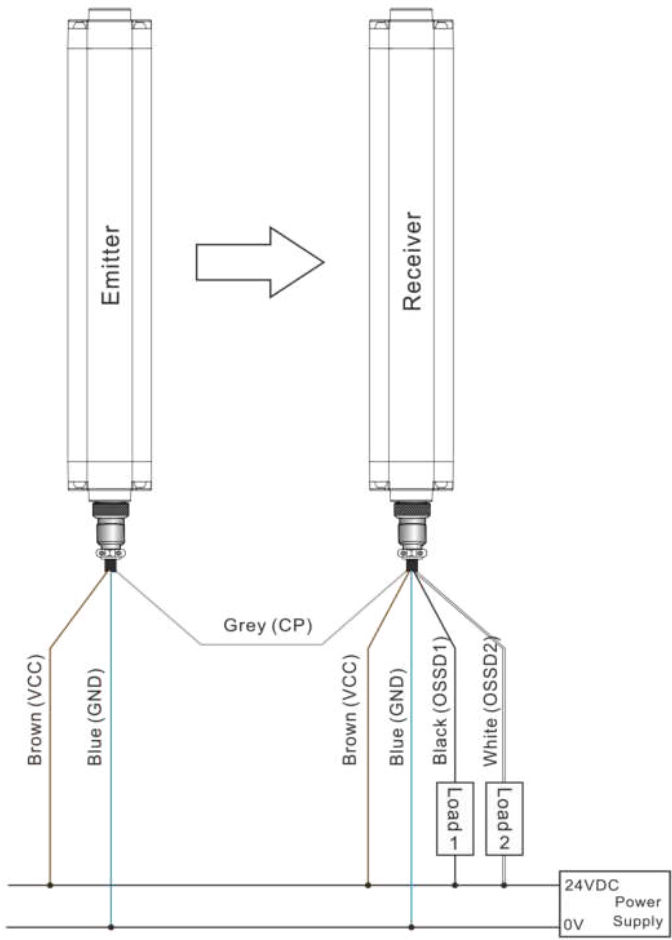
- Beam space 40mm, resolution 45mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	04	120	199	NSELG0440
	06	200	279	NSELG0640
	08	280	359	NSELG0840
	10	360	439	NSELG1040
	12	440	519	NSELG1240
	14	520	599	NSELG1440
	16	600	679	NSELG1640
	18	680	759	NSELG1840
	20	760	839	NSELG2040
	22	840	919	NSELG2240
	24	920	999	NSELG2440
	26	1000	1079	NSELG2640
	28	1080	1159	NSELG2840
	30	1160	1239	NSELG3040
	32	1240	1319	NSELG3240
	34	1320	1399	NSELG3440
	36	1400	1479	NSELG3640

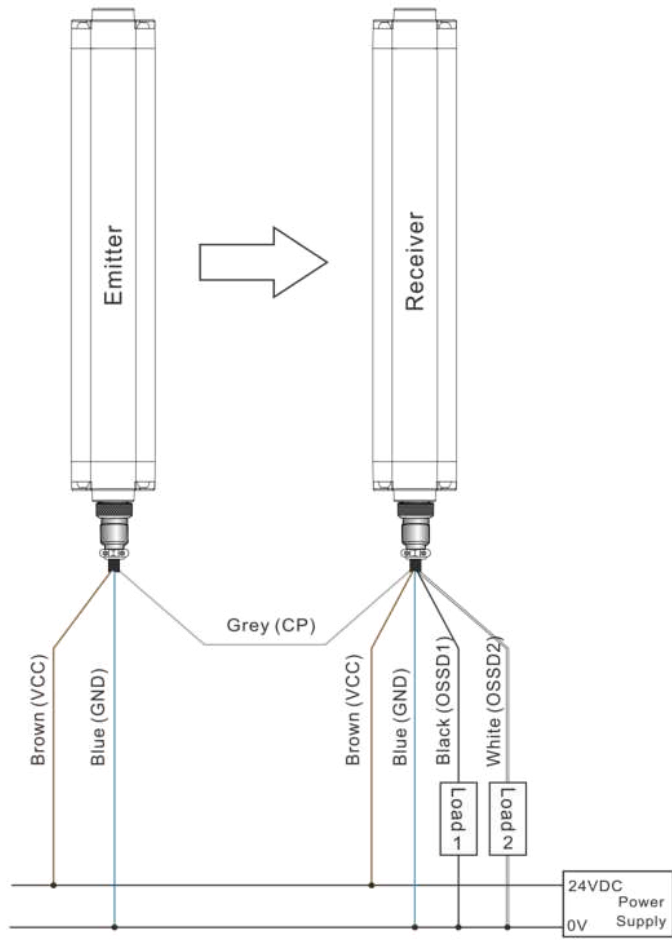
Remark: Besides above model, other curtains can be customized.

 Wire Diagram

NPN



PNP

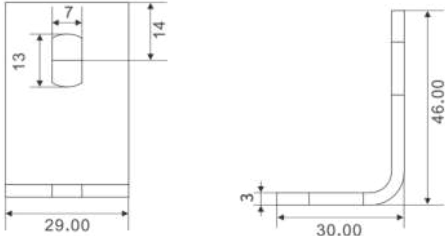
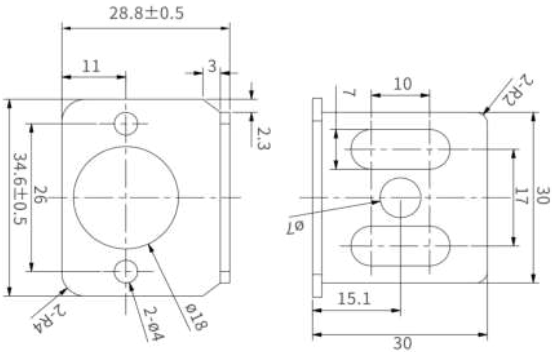
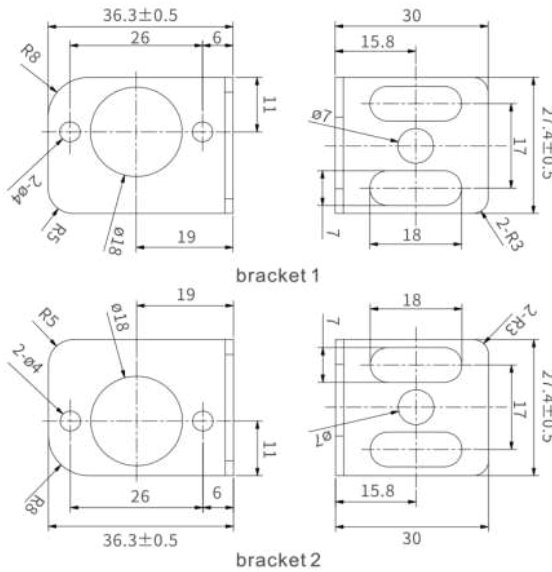


 Indicator

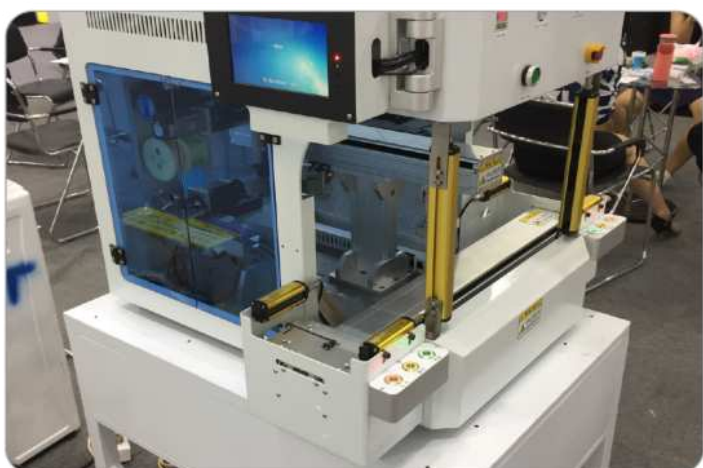
State	Receiver LED	Emitter LED
Beam-thru	Green ON	Green ON
Beam blocked	Red ON	Green ON
CP failure	RYG 1Hz blink	Green ON
CP over current	Red 1Hz blink	Green ON
Overvoltage, undervoltage	Yellow 1Hz blink	Green ON

Safety Light Curtain

Option of Bracket

Picture	Name	Accessories	Size
	L1 bracket	L bracket (4pcs) Slider (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)	
	L2 back of end cover bracket	Up & bottom bracket (4pcs) M3*6 screw (8pcs)	
	L7 side of end cover bracket	Bracket 1 (2pcs) Bracket 2 (2pcs) M3*6 screw (8pcs)	

Application



Mobile receiver assembly machine



Servo press machine



Non-standard automation machine



Die-cutting machine



Oil press machine



Molding injection machine

NSEB13 Series Ultra-compact Safety Light Curtain



Product Introduction

NSEB13 series is 28*13mm compact size for easy installation. Light is emitted from 28mm side, easy to align. Good ability to against interference of infrared light and electromagnet.

Product Feature

- 28*13mm compact size;
- Quick response time;
- DC10V-30V voltage range;
- Good ability to against interference of electromagnet of different motor;
- Wire synchronization for anti-light interference;
- Easy installation.

 Product Parameter

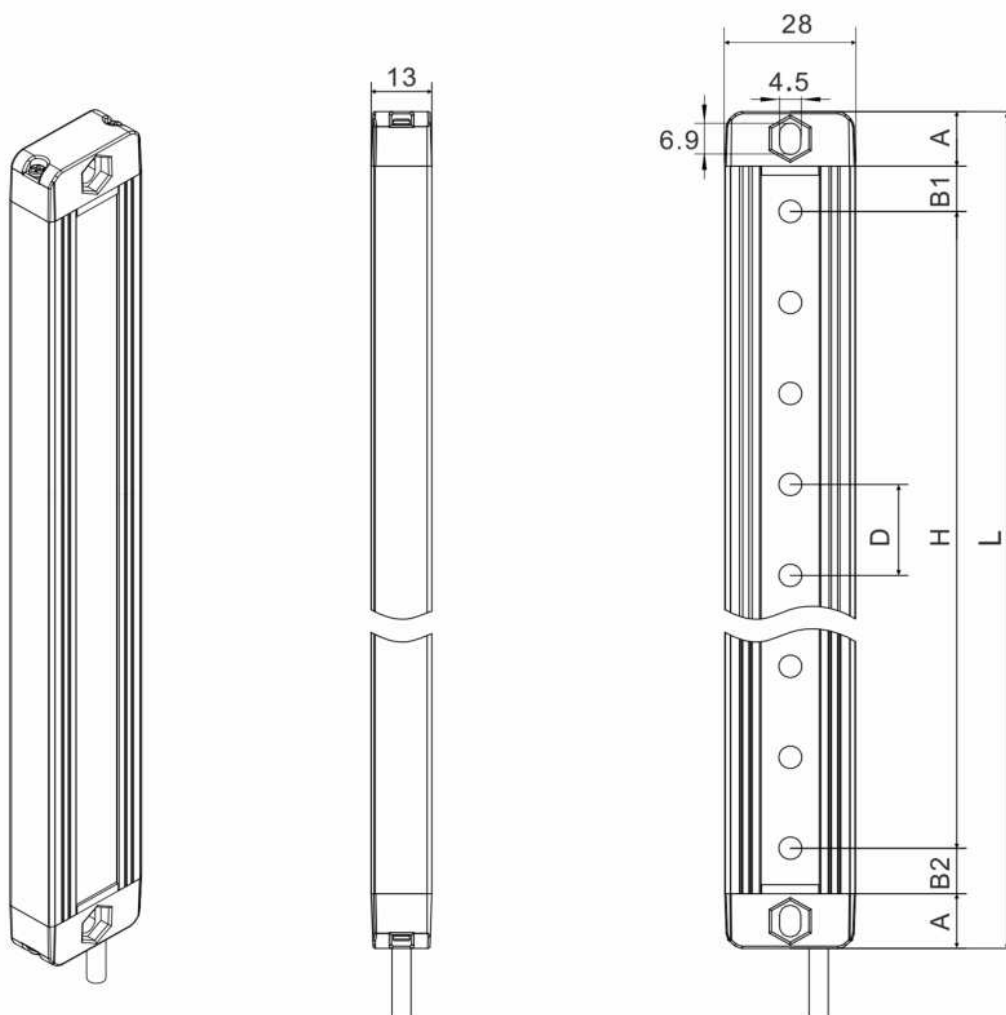
Power Supply	DC10V~30V
Capacity	<5W
Beam Space	10mm, 20mm, 40mm
Resolution	15mm, 25mm, 45mm
Beams	10mm: 8, 12, 16,...128
	20mm: 4, 6, 8,...64
	40mm: 4, 6, 8,...32
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN
	Load current≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~0.5m, 0.1~1m, 0.1~2.5m
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire synchronization
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP54
Sectional Size	28*13mm
Ambient Operating Temperature	-10°C~55°C(no freezing)
Storage Temperature	-30°C~70°C(no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

 Model Selection (e.g.: NSEB13-1020NCSC-2)

Product Series	Beams	Beam Space	Output	Sensing method	Color	Scanning method	Sensing Distance
NSEB13	10	20	N	C	S	C	2
	04, 06, 08...	10mm 20mm 40mm	N; NPN P; PNP	C: normally close	S: Silver Y: yellow	Parallel scanning C: Cross scanning	05: 0.1~0.5m 2: 0.1~2m 025: 0.1~2.5m (Remark: please let us know when with reflectivity)

Safety Light Curtain

Product Size



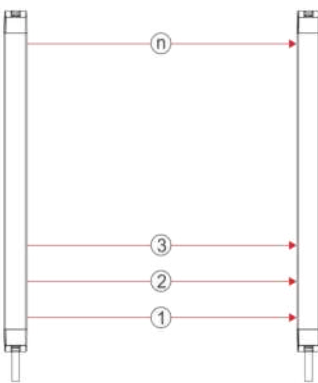
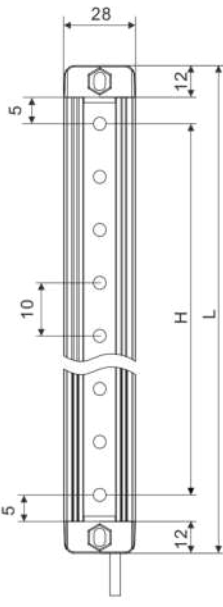
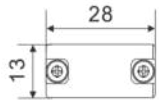
A: Up & bottom cover
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space (10mm/20mm/40mm)
 H: Protection height
 L: Total Height

A is 12mm
 When D=10mm, B1=5mm, B2=5mm.
 When D=20mm, B1=10mm, B2=10mm.
 When D=40mm, B1=10mm, B2=30mm.

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$

NSEB13 Model Selection Table

• Beam space 10mm, resolution 15mm

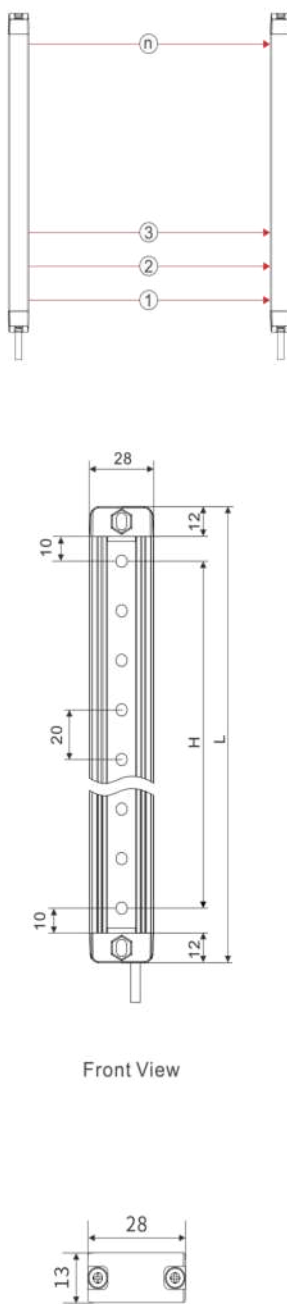
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
   Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	08	70	104	NSEB13-810
	12	110	144	NSEB13-1210
	16	150	184	NSEB13-1610
	20	190	224	NSEB13-2010
	24	230	264	NSEB13-2410
	28	270	304	NSEB13-2810
	32	310	344	NSEB13-3210
	36	350	384	NSEB13-3610
	40	390	424	NSEB13-4010
	44	430	464	NSEB13-4410
	48	470	504	NSEB13-4810
	52	510	544	NSEB13-5210
	56	550	584	NSEB13-5610
	60	590	624	NSEB13-6010
	64	630	664	NSEB13-6410
	68	670	704	NSEB13-6810
	72	710	744	NSEB13-7210
	76	750	784	NSEB13-7610
	80	790	824	NSEB13-8010
	84	830	864	NSEB13-8410
	88	870	904	NSEB13-8810
	92	910	944	NSEB13-9210
	96	950	984	NSEB13-9610
	100	990	1024	NSEB13-10010
	104	1030	1064	NSEB13-10410
	108	1070	1104	NSEB13-10810
	112	1110	1144	NSEB13-11210
	116	1150	1184	NSEB13-11610
	120	1190	1224	NSEB13-12010
	124	1230	1264	NSEB13-12410
	128	1270	1304	NSEB13-12810

Remark: Besides above model, other curtains can be customized.

Safety Light Curtain

NSEB13 Model Selection Table

- Beam space 20mm, resolution 25mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	04	60	104	NSEB13-0420
	06	100	144	NSEB13-0620
	08	140	184	NSEB13-0820
	10	180	224	NSEB13-1020
	12	220	264	NSEB13-1220
	14	260	304	NSEB13-1420
	16	300	344	NSEB13-1620
	18	340	384	NSEB13-1820
	20	380	424	NSEB13-2020
	22	420	464	NSEB13-2220
	24	460	504	NSEB13-2420
	26	500	544	NSEB13-2620
	28	540	584	NSEB13-2820
	30	580	624	NSEB13-3020
	32	620	664	NSEB13-3220
	34	660	704	NSEB13-3420
	36	700	744	NSEB13-3620
	38	740	784	NSEB13-3820
	40	780	824	NSEB13-4020
	42	820	864	NSEB13-4220
	44	860	904	NSEB13-4420
	46	900	944	NSEB13-4620
	48	940	984	NSEB13-4820
	50	980	1024	NSEB13-5020
	52	1020	1064	NSEB13-5220
	54	1060	1104	NSEB13-5420
	56	1100	1144	NSEB13-5620
	58	1140	1184	NSEB13-5820
	60	1180	1224	NSEB13-6020
	62	1220	1264	NSEB13-6220
	64	1260	1304	NSEB13-6420

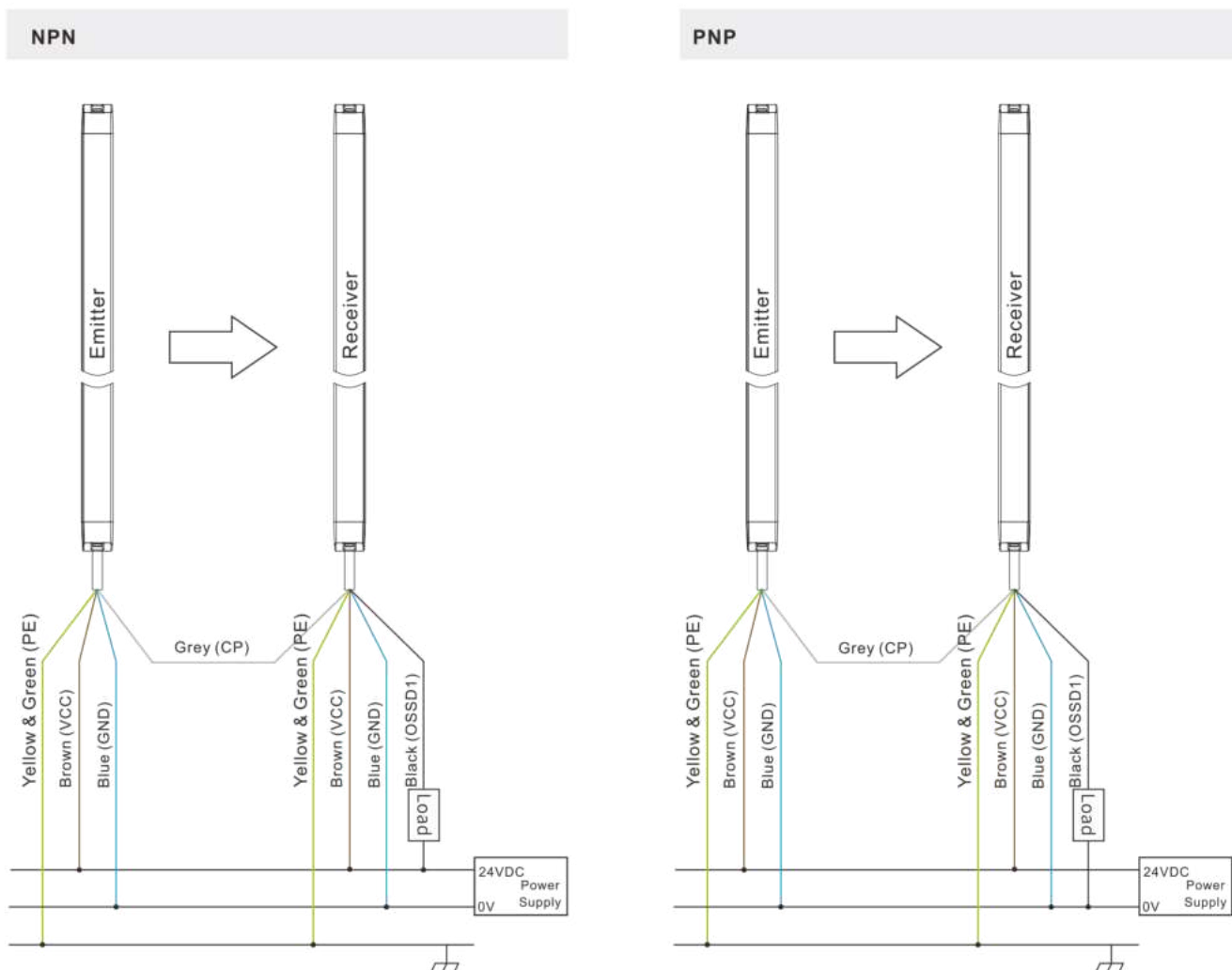
Remark: Besides above model, other curtains can be customized.

- B

Remark: Besides above model, other curtains can be customized.

Safety Light Curtain

Wire Diagram



Indicator

State	Receiver LED	Emitter LED
Beam through	Green ON	Green ON
Beam blocked	Red ON	Green ON
CP failure	Red green 1Hz blink	Green 1Hz blink
CP overcurrent	Red 2Hz blink	Green ON
Internal error	Green 1Hz blink	Green 2Hz

Option of Bracket

Picture	Installation	Accessories
	End screw fixing	Round M4*16 screw (4pcs)

Application






Widely Applying

On automation machine,
AOI testing machine,
small size machine

NSEB15 Series

Ultra-thin Safety Light Curtain



Product Introduction

NSEB13 series with special ultra-thin structure, 15mm thickness side emitting infrared light, with easy mounting and wire connection; Quick response time for high performance.

Product Feature

- 15mm ultra-thin light emitting;
- Quick response;
- Lower wide voltage DC10-30V;
- Strong ability against interference of electromagnet of different motor;
- Wire synchronization against light interference;
- Screw fixing mounting ensure easy installation;
- Sectional size 39*15mm.

Product Parameter

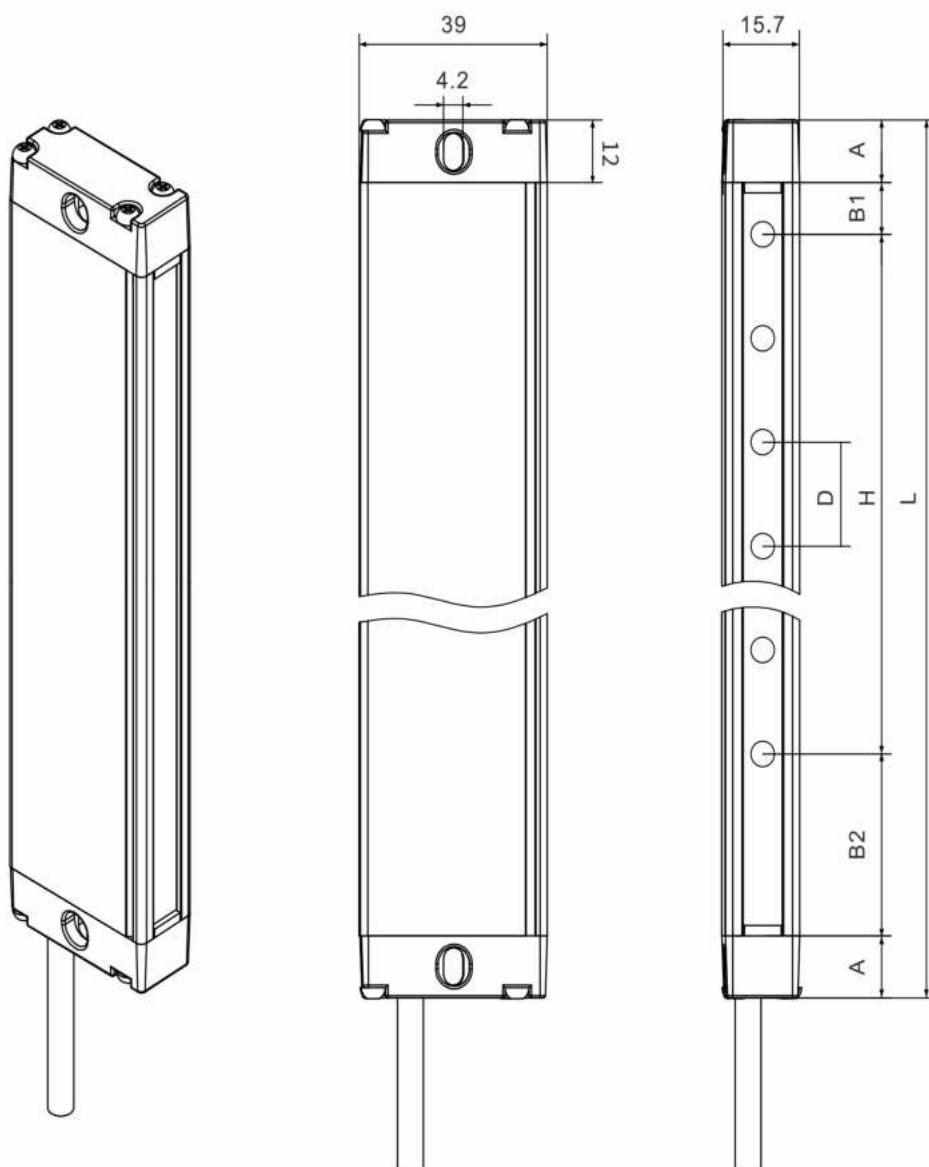
Power Supply	DC10V~30V
Capacity	<5W
Beam Space	10mm, 20mm, 40mm
Resolution	15mm, 25mm, 45mm
Beams	10mm: 8, 12, 16,...160
	20mm: 4, 6, 8,...80
	40mm: 4, 6, 8,...40
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN
	Load current≤500mA (Temperature exceed 40℃≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~0.5m, 0.1~2m, 0.1~4m
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire synchronization
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP54
Sectional Size	39*15mm
Ambient Operating Temperature	-10℃~55℃ (no freezing)
Storage Temperature	-30℃~70℃ (no freezing)
Ambient Operating Humidity	When temperature 20℃, the humidity max. 85%

Model Selection (e.g.: NSEB15-1020NCC-2)

Product Series	Beams	Beam Space	Output	Sensing method	Scanning method	Sensing Distance
NSEB15	10	20	N	C	C	2
	04, 06, 08...	10mm 20mm 40mm	N; NPN P; PNP	C: normally close	Parallel scanning C: Cross scanning	05: 0.1~0.5m 2: 0.1~2m 4: 0.1~4m (Remark: please let us know when with reflectivity)

Safety Light Curtain

Product Size



A: Up & bottom cover
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space (10mm/20mm/40mm)
 H: Protection height
 L: Total Height

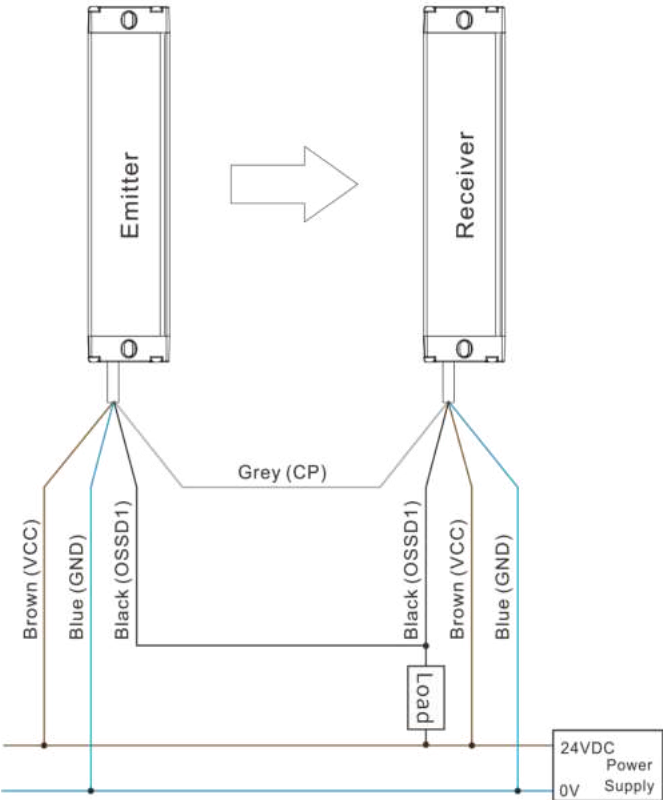
A is 12mm
 When D=10mm, B1=5mm, B2=5mm
 When D=20mm, B1=5mm, B2=15mm
 When D=40mm, B1=5mm, B2=15mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$

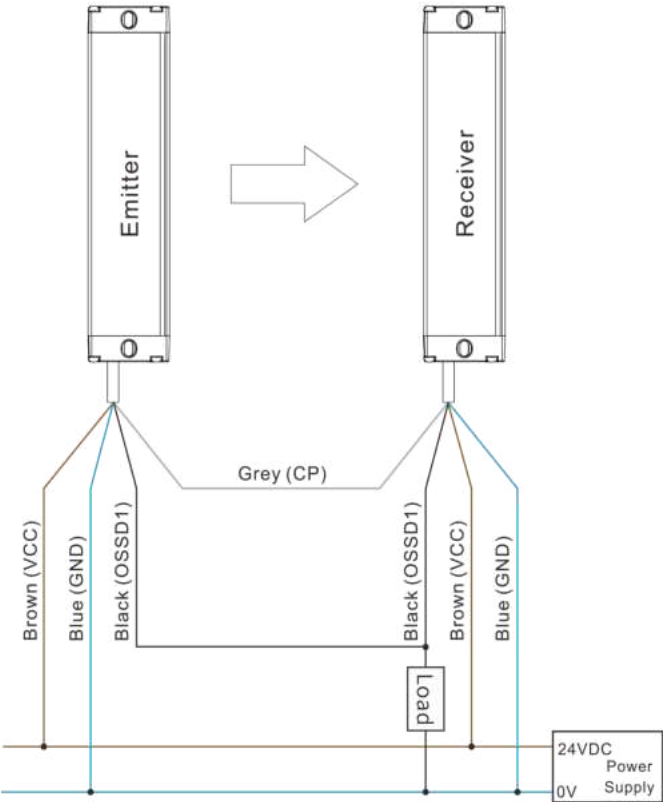


Wire Diagram

NPN



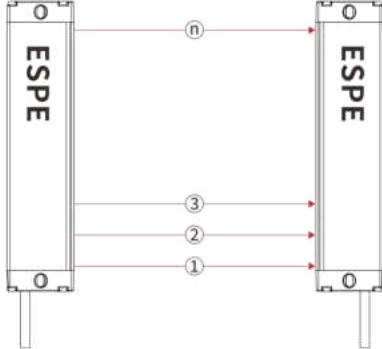
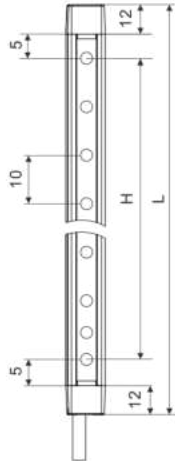
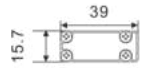
PNP



Safety Light Curtain

NSEB15 Model Selection Table

- Beam space 10mm, resolution 15mm

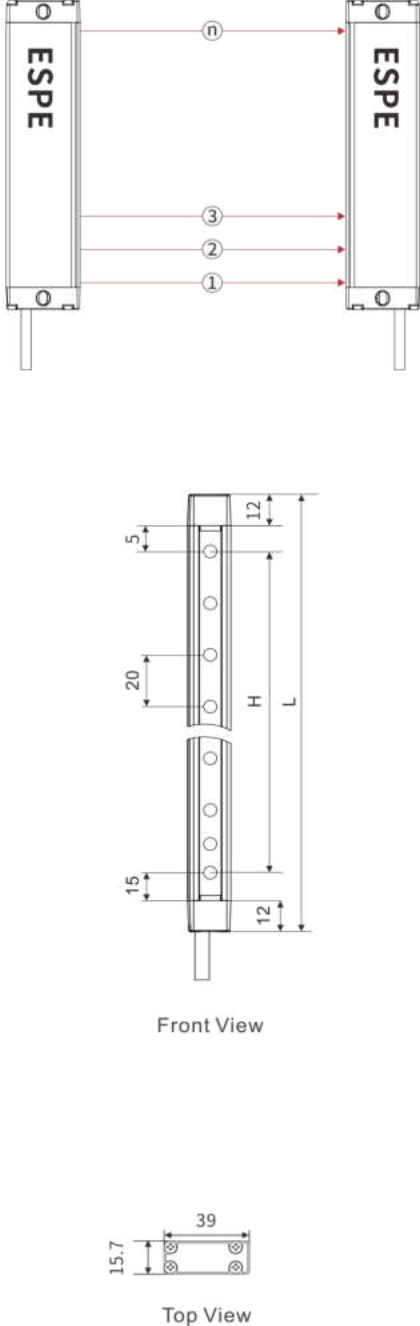
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	08	70	104	NSEB15-0810
	12	110	144	NSEB15-1210
	16	150	184	NSEB15-1610
	20	190	224	NSEB15-2010
	24	230	264	NSEB15-2410
	28	270	304	NSEB15-2810
	32	310	344	NSEB15-3210
	36	350	384	NSEB15-3610
	40	390	424	NSEB15-4010
	44	430	464	NSEB15-4410
	48	470	504	NSEB15-4810
	52	510	544	NSEB15-5210
	56	550	584	NSEB15-5610
	60	590	624	NSEB15-6010
	64	630	664	NSEB15-6410
	68	670	704	NSEB15-6810
	72	710	744	NSEB15-7210
	76	750	784	NSEB15-7610
	80	790	824	NSEB15-8010
	84	830	864	NSEB15-8410
 Front View	88	870	904	NSEB15-8810
	92	910	944	NSEB15-9210
	96	950	984	NSEB15-9610
	100	990	1024	NSEB15-10010
	104	1030	1064	NSEB15-10410
	108	1070	1104	NSEB15-10810
	112	1110	1144	NSEB15-11210
	116	1150	1184	NSEB15-11610
	120	1190	1224	NSEB15-12010
	124	1230	1264	NSEB15-12410
 Top View	128	1270	1304	NSEB15-12810
				
	160	1590	1624	NSEB15-16010

H is protection height=(beams-1)*beam space
 L is total height=end covers+ up & bottom
 blind area + protection height

Remark: Besides above model, other curtains can be customized.

NSEB15 Model Selection Table

- Beam space 20mm, resolution 25mm

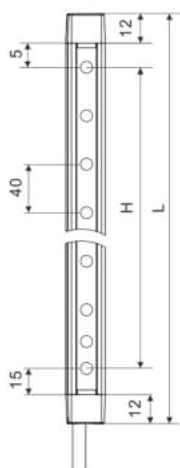
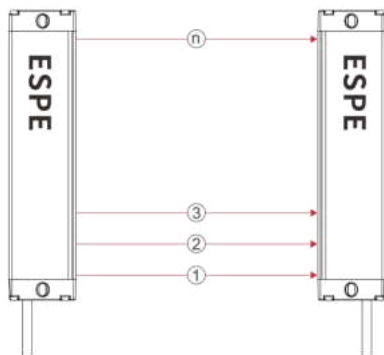
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	04	60	104	NSEB15-0420
	06	100	144	NSEB15-0620
	08	140	184	NSEB15-0820
	10	180	224	NSEB15-1020
	12	220	264	NSEB15-1220
	14	260	304	NSEB15-1420
	16	300	344	NSEB15-1620
	18	340	384	NSEB15-1820
	20	380	424	NSEB15-2020
	22	420	464	NSEB15-2220
	24	460	504	NSEB15-2420
	26	500	544	NSEB15-2620
	28	540	584	NSEB15-2820
	30	580	624	NSEB15-3020
	32	620	664	NSEB15-3220
	34	660	704	NSEB15-3420
	36	700	744	NSEB15-3620
	38	740	784	NSEB15-3820
	40	780	824	NSEB15-4020
	42	820	864	NSEB15-4220
	44	860	904	NSEB15-4420
	46	900	944	NSEB15-4620
	48	940	984	NSEB15-4820
	50	980	1024	NSEB15-5020
	52	1020	1064	NSEB15-5220
	54	1060	1104	NSEB15-5420
	56	1100	1144	NSEB15-5620
	58	1140	1184	NSEB15-5820
	60	1180	1224	NSEB15-6020
	62	1220	1264	NSEB15-6220
	64	1260	1304	NSEB15-6420
				
	80	1580	1624	NSEB15-8020

Remark: Besides above model, other curtains can be customized.

Safety Light Curtain

NSEB15 Model Selection Table

- Beam space 40mm, resolution 45mm



Front View



Top View

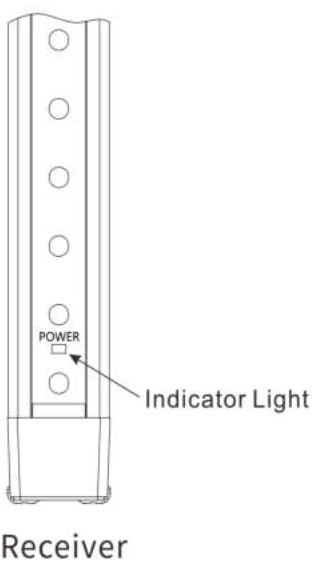
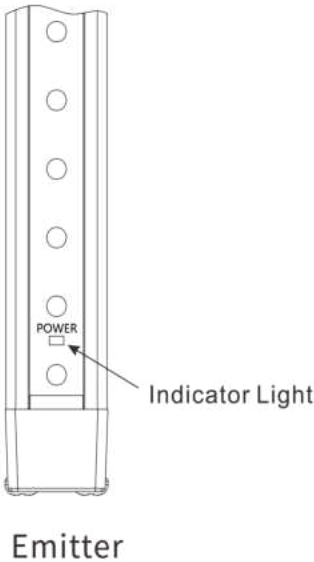
H is protection height=(beams-1)*beam space

L is total height=end covers+ up & bottom
blind area + protection height

[illegible]

Remark: Besides above model, other curtains can be customized.

 Indicator Light



Barrier Working State		Emitter Indicator	Receiver Indicator
Normal state	Beam through	Green steady ON	Green steady ON
	Beam block	Green steady ON	Red steady ON
Abnormal state	CP wire connecting error/ CP fault	Red 1Hz blink	Red 2Hz blink
	CP over current	Red 4Hz blink	/
	Overvoltage	Green 4Hz blink	/
	Undervoltage	Green 0.5Hz blink	/

 Option of Bracket

Picture	Installation	Accessories
	Screw fixing	M4*20 screw (4pcs)

NSESN Series

Universal Use Safety Light Curtain



Product Introduction

NSESN series is independent dual OSSD output design, with self-diagnosis and over current protective circuit function. Special optical lens ensure a long sensing distance up to 30m. Transistor output ensure barriers can be connected PLC. Dual slide enclosure support multiple installation for various environment.

Product Feature

- Long sensing distance up to 30m;
- Dual self-diagnosis OSSD ensure high safety performance;
- Strong ability to against electromagnet interference of different moto;
- Anti-vibration circuit and aluminum alloy enclosure, great to against vibration;
- Wire-syn technology anti light interference well;
- Multiple mounting method for different environment.

Product Parameter

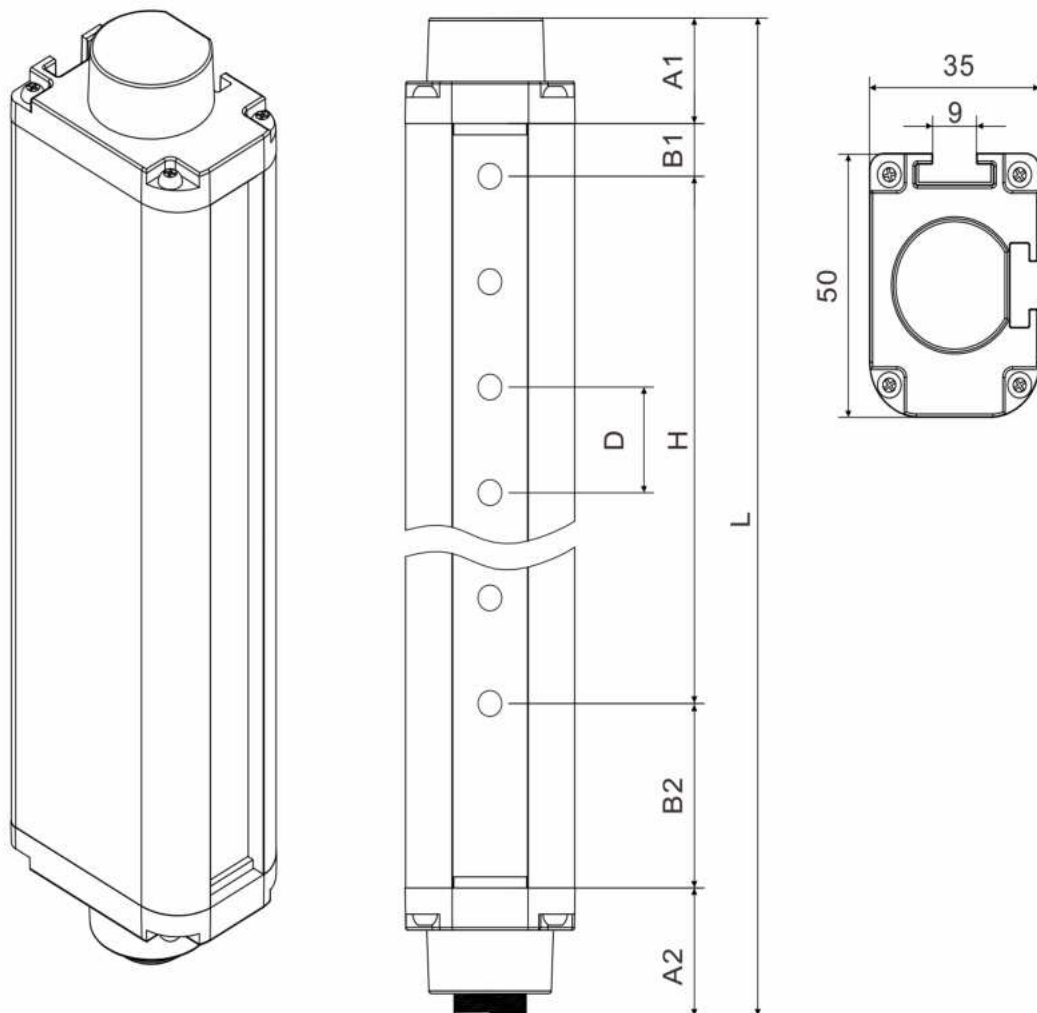
Safety Standard	Type 2 (IEC 61496-1/-2) Cat. 2, PL c (ISO 13849-1) SIL 1 (IEC 62061 IEC 61508)
Power Supply	DC24V±20%
Capacity	<5W
Beam Space	10mm, 20mm, 40mm
Resolution	20mm, 30mm, 50mm
Beams	10mm: 08, 12, 16,...320
	20mm: 4, 6, 8,...160
	40mm: 4, 6, 8,...120
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN Load current≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~0.5m, 0.1~2m, 0.1~5m, 0.1~10m, 0.1~20m
	0.1~30m(10mm:8~160,20mm:4~80,40mm:4~76)
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire synchronization
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	35*50mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ambient Operating Temperature	-10°C~55°C (no freezing)
Storage Temperature	-30°C~70°C (no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

Model Selection (e.g.: NSESN1020L1NCC-5)

Product Series	Beams	Beam Space	Installation	Output	Sensing method	Scanning method	Sensing Distance
NSESN	10	20	L1	N	C	C	- 5
	04, 06, 08...	10mm 20mm 40mm	L1: L1 side mounting H1: H1 end mounting JZ: JZ vibration absorbing bracket	N: NPN P: PNP	C: normally close	Parallel scanning C: Cross scanning	05: 0.1~0.5m 2: 0.1~2m 5: 0.1~5m 10: 0.1~10m 20: 0.1~20m 30: 0.1~30m

Safety Light Curtain

Product Size



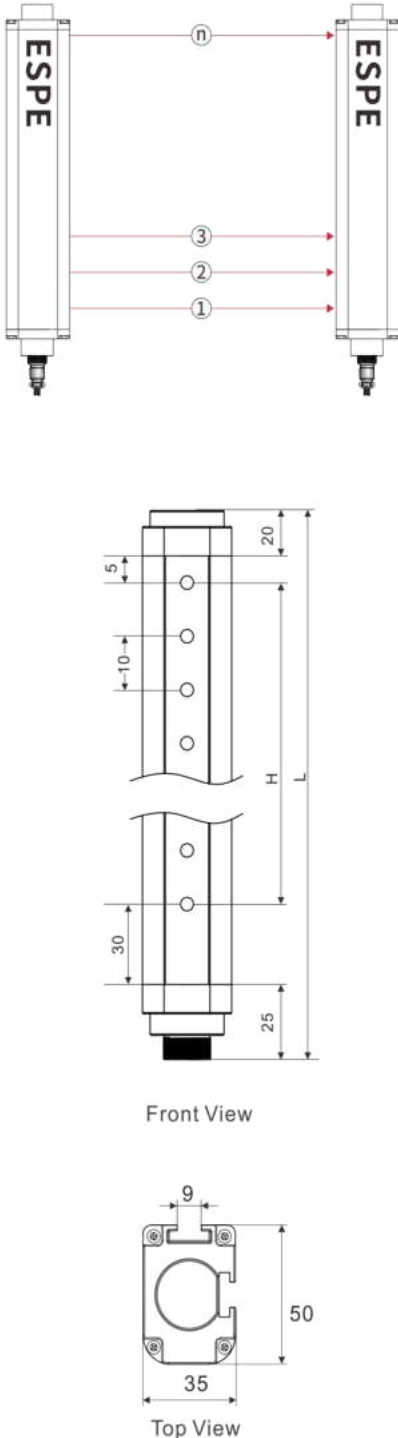
A1: Up cover
 A2: Bottom cover + aviation plug
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space (10mm/20mm/40mm)
 H: Protection height
 L: Total Height

A1 is 20mm, A2 is 25mm,
 When D=10mm, B1=5mm, B2=30mm
 When D=20mm, B1=10mm, B2=35mm
 When D=40mm, B1=10mm, B2=35mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$

NSESN Model Selection Table

- Beam space 10mm, resolution 20mm

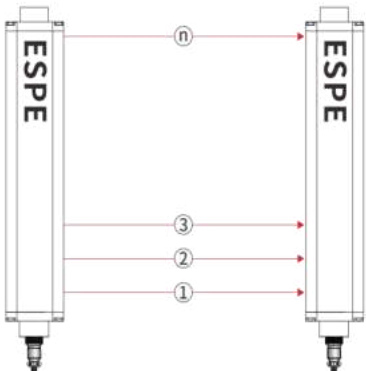
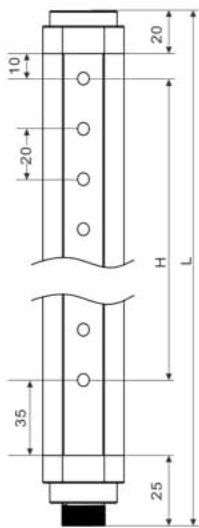
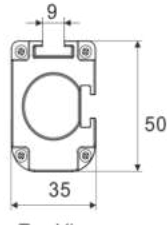
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	08	70	150	NSESN810
	12	110	190	NSESN1210
	16	150	230	NSESN1610
	20	190	270	NSESN2010
	24	230	310	NSESN2410
	28	270	350	NSESN2810
	32	310	390	NSESN3210
	36	350	430	NSESN3610
	40	390	470	NSESN4010
	44	430	510	NSESN4410
	48	470	550	NSESN4810
	52	510	590	NSESN5210
	56	550	630	NSESN5610
	60	590	670	NSESN6010
	64	630	710	NSESN6410
	68	670	750	NSESN6810
	72	710	790	NSESN7210
	76	750	830	NSESN7610
	80	790	870	NSESN8010
	84	830	910	NSESN8410
	88	870	950	NSESN8810
	92	910	990	NSESN9210
	96	950	1030	NSESN9610
	100	990	1070	NSESN10010
	104	1030	1110	NSESN10410
	108	1070	1150	NSESN10810
	112	1110	1190	NSESN11210
	116	1150	1230	NSESN11610
	120	1190	1270	NSESN12010
	124	1230	1310	NSESN12410
	128	1270	1350	NSESN12810
				
	320	3190	3270	NSESN32010

Remark: Besides above model, other curtains can be customized.

Safety Light Curtain

NSESN Model Selection Table

- Beam space 20mm, resolution 30mm

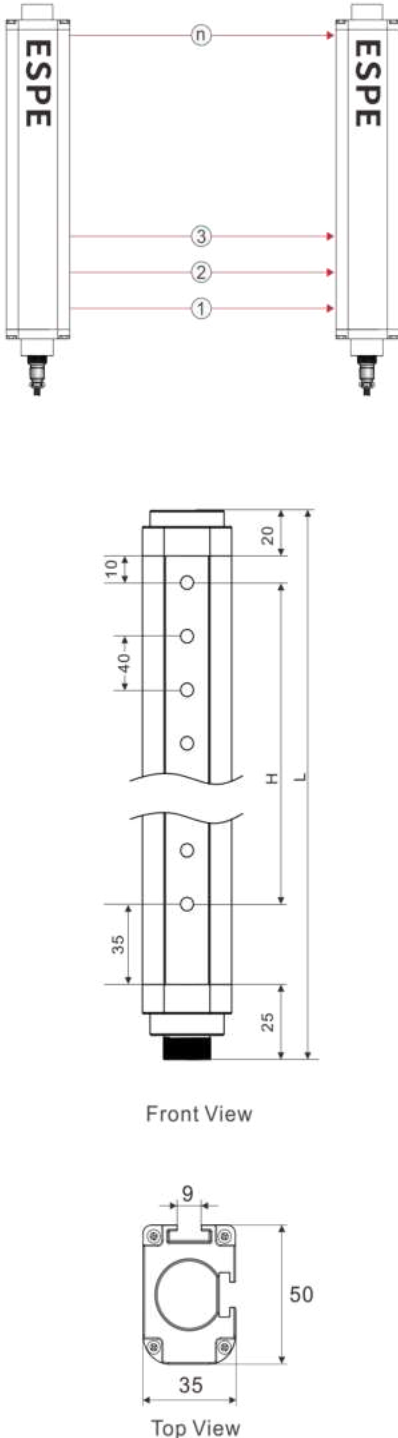
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
   Front View Top View	04	60	125	NSESN0420
	06	100	190	NSESN0620
	08	140	230	NSESN0820
	10	180	270	NSESN1020
	12	220	310	NSESN1220
	14	260	350	NSESN1420
	16	300	390	NSESN1620
	18	340	430	NSESN1820
	20	380	470	NSESN2020
	22	420	510	NSESN2220
	24	460	550	NSESN2420
	26	500	590	NSESN2620
	28	540	630	NSESN2820
	30	580	670	NSESN3020
	32	620	710	NSESN3220
	34	660	750	NSESN3420
	36	700	790	NSESN3620
	38	740	830	NSESN3820
	40	780	870	NSESN4020
	42	820	910	NSESN4220
	44	860	950	NSESN4420
	46	900	990	NSESN4620
	48	940	1030	NSESN4820
	50	980	1070	NSESN5020
	52	1020	1110	NSESN5220
	54	1060	1150	NSESN5420
	56	1100	1190	NSESN5620
	58	1140	1230	NSESN5820
	60	1180	1270	NSESN6020
	62	1220	1310	NSESN6220
	64	1260	1350	NSESN6420
				
	160	3180	3270	NSESN16020

H is protection height=(beams-1)*beam space
 L is total height=end covers+ up & bottom
 blind area + protection height

Remark: when over 80 beams, the beam increment is changed to 4 beams, i.e. 80, 84,88.

NSESN Model Selection Table

• Beam space 40mm, Resolution 50mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View	04	120	210	NSESN0440
	06	200	290	NSESN0640
	08	280	370	NSESN0840
	10	360	450	NSESN1040
	12	440	530	NSESN1240
	14	520	610	NSESN1440
	16	600	690	NSESN1640
	18	680	770	NSESN1840
	20	760	850	NSESN2040
	22	840	930	NSESN2240
	24	920	1010	NSESN2440
	26	1000	1090	NSESN2640
	28	1080	1170	NSESN2840
	30	1160	1250	NSESN3040
	32	1240	1330	NSESN3240
	34	1320	1410	NSESN3440
	36	1400	1490	NSESN3640
	38	1480	1570	NSESN3840
	40	1560	1650	NSESN4040
	42	1640	1730	NSESN4240
	44	1720	1810	NSESN4440
	46	1800	1890	NSESN4640
	48	1880	1970	NSESN4840
	50	1960	2050	NSESN5040
	52	2040	2130	NSESN5240
	54	2120	2210	NSESN5440
	56	2200	2290	NSESN5640
	58	2280	2370	NSESN5840
	60	2360	2450	NSESN6040
	62	2440	2530	NSESN6240
	64	2520	2610	NSESN6440
				
	120	4760	4850	NSESN12040

H is protection height=(beams-1)*beam space

L is total height=end covers+ up & bottom

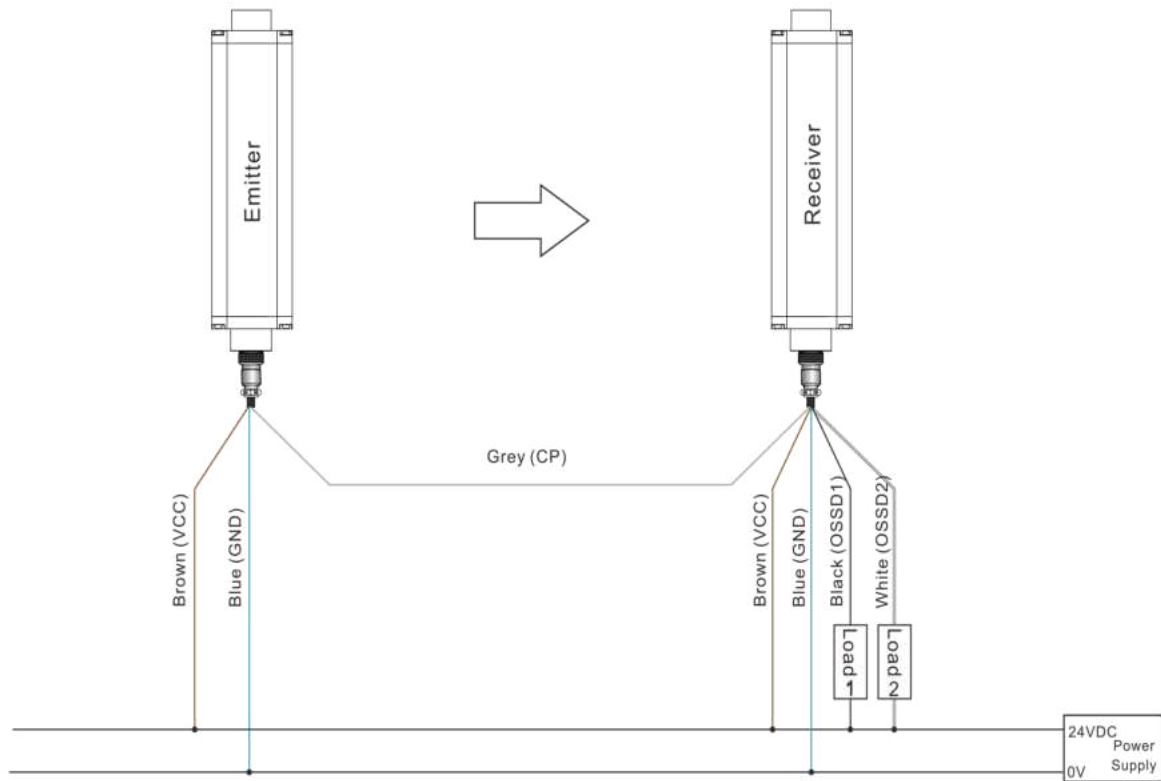
blind area + protection height

Remark: when over 76 beams, the beam increment is changed to 4 beams, i.e. 76, 80,84.

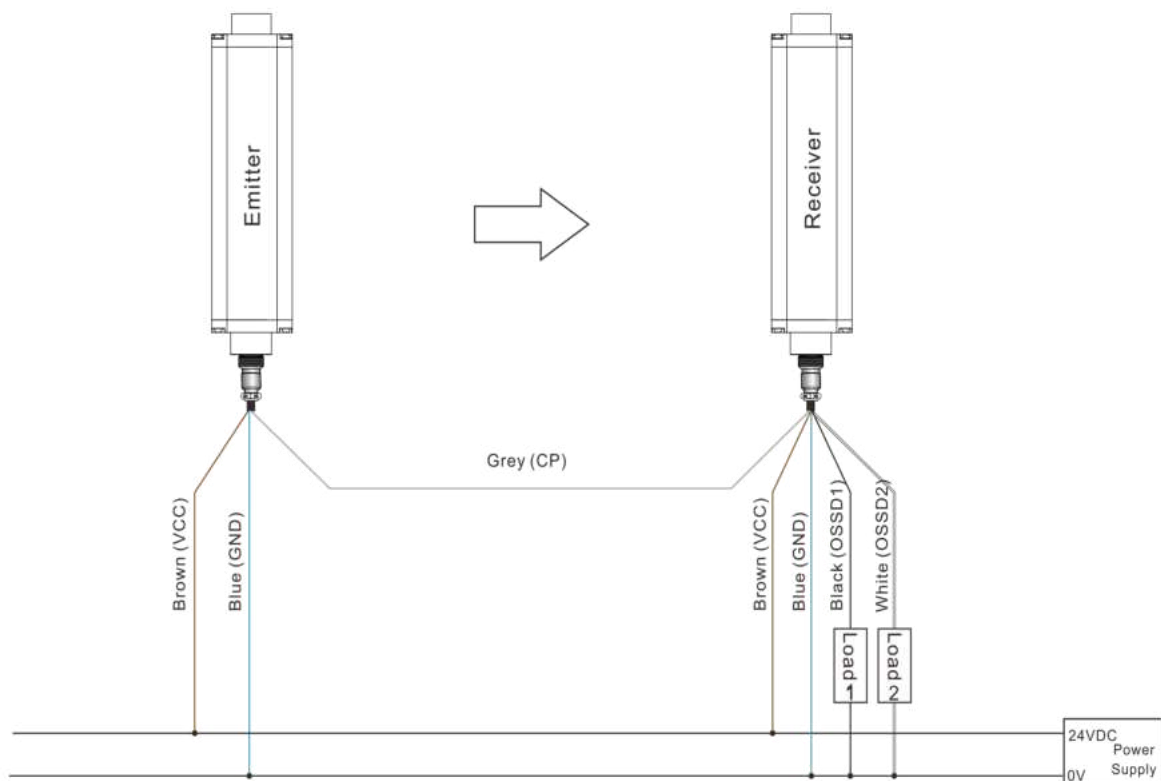
Safety Light Curtain

Wire Diagram

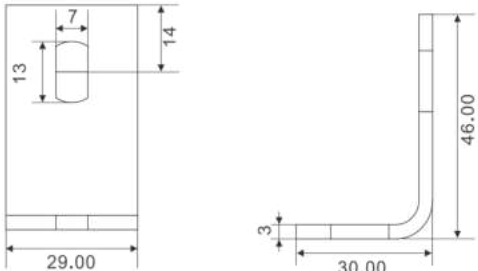
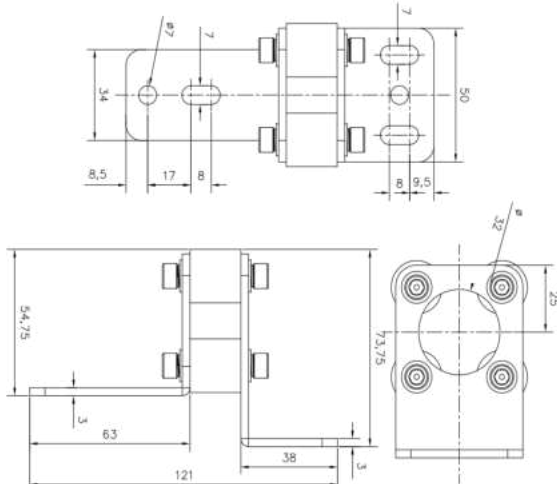
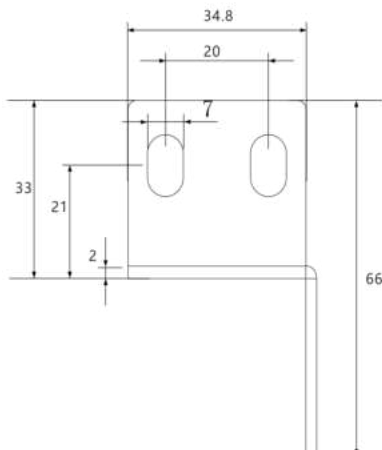
NPN



PNP



Option of Bracket

Picture	Name	Accessories	Size
	L1 bracket	L type brackets (4pcs) Slider (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)	
	JZ vibration absorbing bracket	Assembled bracket (4pcs) Slider (8pcs) M6 pad (8pcs) M6 spring washer (8pcs) M6*16 screw (8pcs) M6*8 screw (8pcs)	
	H1 end mounting	H type bracket (4pcs) Slider (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M6*16 screw (8pcs) M6*8 screw (4pcs)	

Safety Light Curtain

Application



NSESA Series

Punching Machine Use Safety Light Curtain



Product Introduction

NSESA series is mainly used for safety protection for stamping machinery, which adopt controller to monitor and output signal of light curtains. ESA series supports AV110-220V, AC380V voltage and output relay signal. ESA series is designed according to EU safety standard, whose main components are imported. Good self-diagnosis, easy to operation, and strong anti-vibration ability make ESA series can work in different hazardous equipment, and well protect operators from accident.

Product Feature

- AC110V-220V, AC380V wide voltage for stamping machinery;
- Controller reliably monitor signal of light curtain by pulse detection method, which effectively ensure that mistake signal will not be triggered when short circuit;
- Good performance to against electromagnetic interference of different machine motor;
- Anti-shock circuit and strong aluminum alloy enclosure well against vibration;
- Wire-syn good to against light interference;
- Controller output signal by relay isolation output mode, and the external control signal is completely isolated form internal circuit of barriers;
- Plug connecting between curtain & controller make wire connection easily and quickly;
- Multiple brackets for various environment mounting;
- One controller can work with more sets of safety light curtain for multi-faced protection;
- Long sensing distance up to 20m.

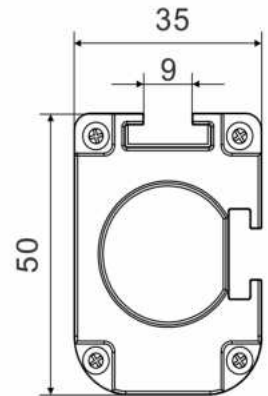
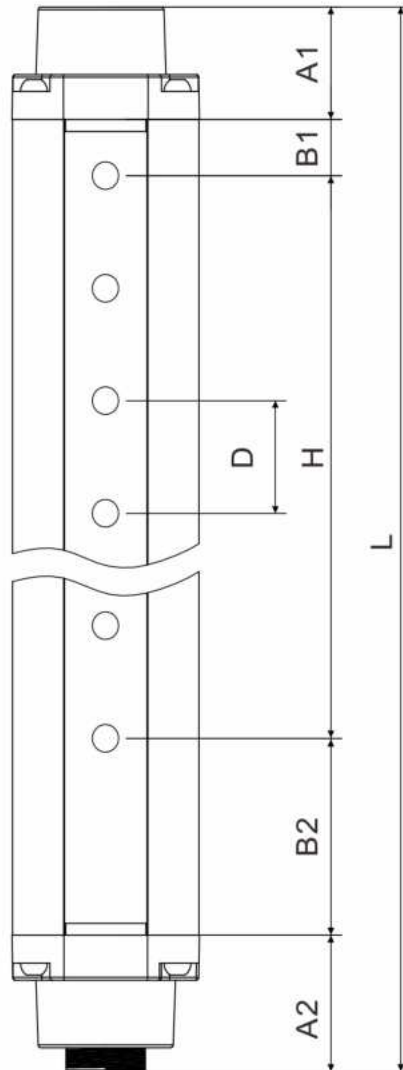
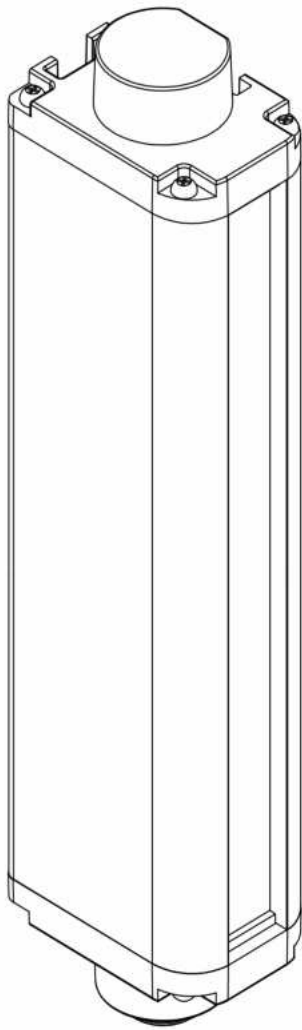
Safety Light Curtain

Product Parameter

Controller Electric Parameter	
Power supply	AC110V~220V 50/60Hz, AC380V
Capacity	<15W
Output	Relay contact output
Contact capacity	5A, AC250V/DC30V Resistive load
Relay lifespan	≥10 million times, electrical life is depend on the connected load, can be changed;
Response time	≤20ms
Ambient temperature	-10~55℃ No freezing
Ambient humidity	20℃, RH≤85%
Insulation resistance	≥100MΩ
Protection rate	P controller: IP54; Q controller: IP20
Light Curtain Electric Parameter	
Beam space	10mm, 20mm, 40mm
Resolution	20mm, 30mm, 50mm
Beams	10mm: 8, 12, 16,...320
	20mm: 4, 6, 8,...160
	40mm: 4, 6, 8,...122
Protective height	Protective height $H=(N-1)*\text{beam space}$, N is beams
Light wavelength	940nm
Sensing distance	0.1~0.5m, 0.1~2m, 0.1~5m, 0.1~10m, 0.1~20m, 0.1~30m (Remark: please let us know when with reflectivity)
Sensing method	Through beam
Synchronization	Wire-syn
Against optical interference	10000 Lux (angle>5°)
Enclosure material	Aluminum alloy
Sectional size	35*50mm
Protection rate	IP65
Vibration resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20 times each in X, Y and Z direction

Model Selection (e.g.: NSESA120PN-3)

Product Series	Beams	Beam Space	Controller	Installation	Sensing Distance
NSESA	16	20	P	N	5
	04, 06, 08...	10mm 20mm 40mm	P: P controller X: X controller Q: Q controller	N: aluminum rotary type J: reinforce type L1: side mounting type JZ: shock absorbing type	05: 0.1~0.5m 2: 0.1~2m 5: 0.1~5m 10: 0.1~10m 20: 0.1~20m 30: 0.1~30m (Remark: please let us know when with reflectivity)



A1: Upper end cover
 A2: Lower end cover + aviation terminal
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space (10mm/20mm/40mm)
 H: Protection height
 L: Total height

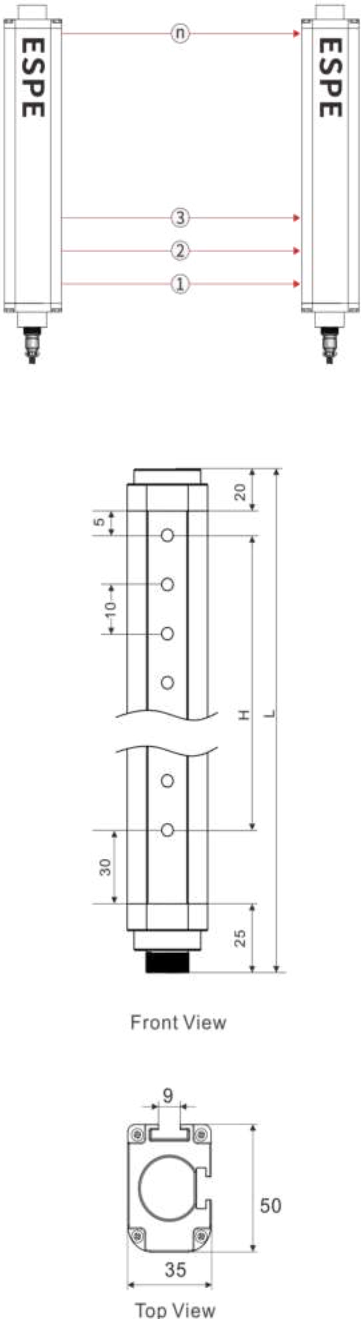
A1 is 20mm; A2 is 25mm;
 When D=10mm, B1=5mm, B2=30mm
 When D=20mm, B1=10mm, B2=35mm
 When D=40mm, B1=10mm, B2=35mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A1 + A2 + B1 + B2 + H$

Safety Light Curtain

NSESA Model Selection Table

- Beam space 10mm, resolution 20mm

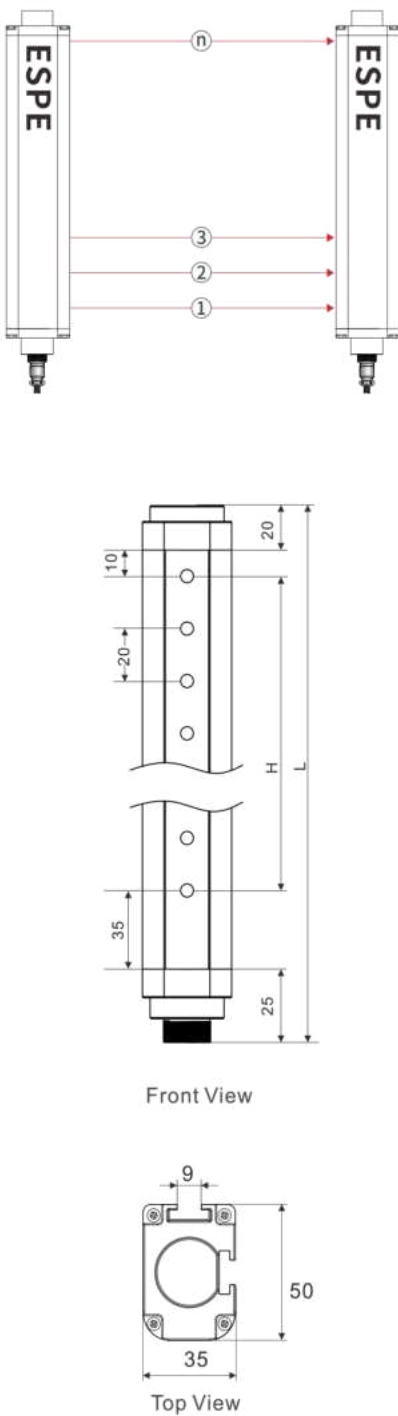
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View	08	70	150	NSESA0810
	12	110	190	NSESA1210
	16	150	230	NSESA1610
	20	190	270	NSESA2010
	24	230	310	NSESA2410
	28	270	350	NSESA2810
	32	310	390	NSESA3210
	36	350	430	NSESA3610
	40	390	470	NSESA4010
	44	430	510	NSESA4410
	48	470	550	NSESA4810
	52	510	590	NSESA5210
	56	550	630	NSESA5610
	60	590	670	NSESA6010
	64	630	710	NSESA6410
	68	670	750	NSESA6810
	72	710	790	NSESA7210
	76	750	830	NSESA7610
	80	790	870	NSESA8010
	84	830	910	NSESA8410
	88	870	950	NSESA8810
	92	910	990	NSESA9210
	96	950	1030	NSESA9610
	100	990	1070	NSESA10010
	104	1030	1110	NSESA10410
	108	1070	1150	NSESA10810
	112	1110	1190	NSESA11210
	116	1150	1230	NSESA11610
	120	1190	1270	NSESA12010
	124	1230	1310	NSESA12410
	128	1270	1350	NSESA12810
				
	320	3100	3180	NSESA32010

H is protection height=(beams-1)*beam space
L is total height=end covers+ up & bottom
blind area + protection height

Remark: Beside above models, other light curtains can be customized

NSEA Model Selection Table

- Beam space 20mm, resolution 30mm

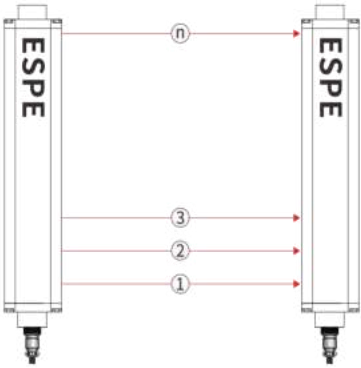
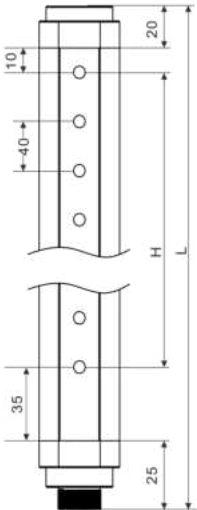
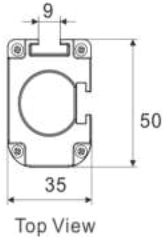
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	04	60	125	NSEA0420
	06	100	190	NSEA0620
	08	140	230	NSEA0820
	10	180	270	NSEA1020
	12	220	310	NSEA1220
	14	260	350	NSEA1420
	16	300	390	NSEA1620
	18	340	430	NSEA1820
	20	380	470	NSEA2020
	22	420	510	NSEA2220
	24	460	550	NSEA2420
	26	500	590	NSEA2620
	28	540	630	NSEA2820
	30	580	670	NSEA3020
	32	620	710	NSEA3220
	34	660	750	NSEA3420
	36	700	790	NSEA3620
	38	740	830	NSEA3820
	40	780	870	NSEA4020
	42	820	910	NSEA4220
	44	860	950	NSEA4420
	46	900	990	NSEA4620
	48	940	1030	NSEA4820
	50	980	1070	NSEA5020
	52	1020	1110	NSEA5220
	54	1060	1150	NSEA5420
	56	1100	1190	NSEA5620
	58	1140	1230	NSEA5820
	60	1180	1270	NSEA6020
	62	1220	1310	NSEA6220
	64	1260	1350	NSEA6420
				
	160	3180	3270	NSEA16020

Note: When the number of beams is 80, the incremental formula is changed to 4 beams, that is, 80, 84, 88, 160.

Safety Light Curtain

NSESA Model Selection Table

- Beam space 40mm, resolution 50mm

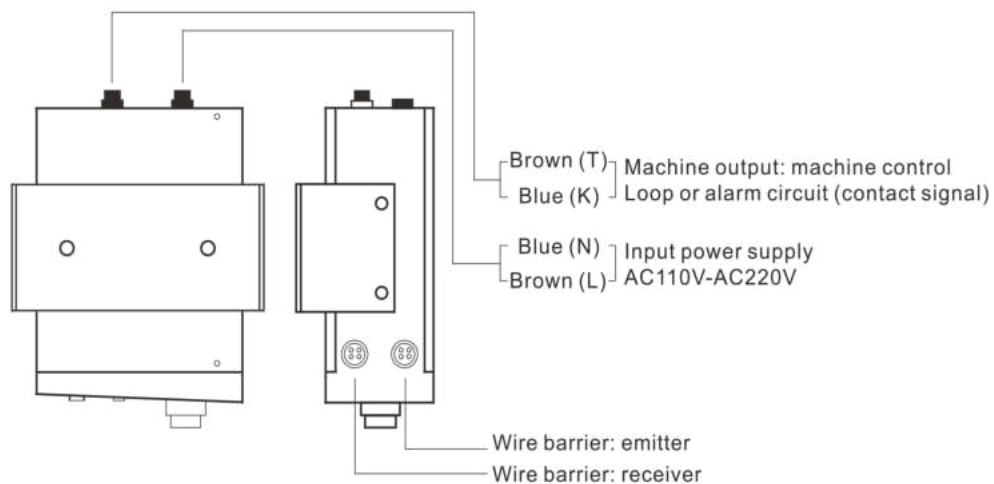
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	04	120	210	NSESA0440
	06	200	290	NSESA0640
	08	280	370	NSESA0840
	10	360	450	NSESA1040
	12	440	530	NSESA1240
	14	520	610	NSESA1440
 Front View  Top View	16	600	690	NSESA1640
	18	680	770	NSESA1840
	20	760	850	NSESA2040
	22	840	930	NSESA2240
	24	920	1010	NSESA2440
	26	1000	1090	NSESA2640
	28	1080	1170	NSESA2840
	30	1160	1250	NSESA3040
	32	1240	1330	NSESA3240
	34	1320	1410	NSESA3440
	36	1400	1490	NSESA3640
	38	1480	1570	NSESA3840
	40	1560	1650	NSESA4040
	42	1640	1730	NSESA4240
	44	1720	1810	NSESA4440
	46	1800	1890	NSESA4640
	48	1880	1970	NSESA4840
	50	1960	2050	NSESA5040
	52	2040	2130	NSESA5240
	54	2120	2210	NSESA5440
	56	2200	2290	NSESA5640
	58	2280	2370	NSESA5840
	60	2360	2450	NSESA6040
	62	2440	2530	NSESA6240
	64	2520	2610	NSESA6440
				
	122	4840	4930	NSESA12240

H is protection height=(beams-1)*beam space
L is total height=end covers+ up & bottom blind area + protection height

Note: When the number of beams is 76, the incremental formula is changed to 4 beams, namely 76, 80, 84, 122.

Wire Diagram

External Controller (P type)



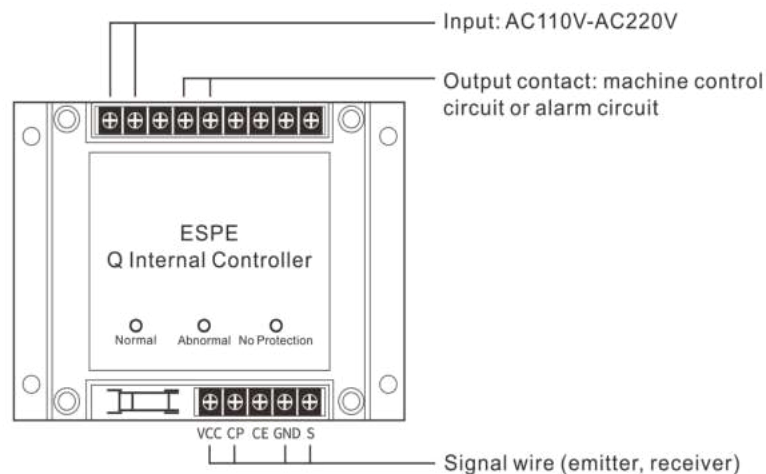
L (brown) and N (blue) is input wire of AC110V/220V, please check and ensure right connection;
T (brown) and K (blue) should be connected with control circuit of machine shown as below. When beams are through, T&K are connected and the machine works well; When beams are blocked, T&K are disconnected to stop the machine.



Notice

In case of any accident, power supply must be cut off before wiring; Wiring should be strictly in accordance with the wiring diagram. (If machine circuit get changed, please pay attention to action of machine internal electrical appliance to ensure correct control). Forbid to change circuit of safety light curtain, Rated voltage of controller is AC220V, exorbitant high or low voltage may burn the circuit of safety device.

Internal Controller (Q)



1. Connection of T,K wire, under normal circumstance, Return No Protection no need);
2. Connection of T,K (need Return No Protection), Return No Protection function is usually achieved by machine, no need to connect additionally. When it needs to be achieved by safety light curtain, you can connect wire as below method. A pair of normally open contacts of the cam are connected in parallel with T and K.

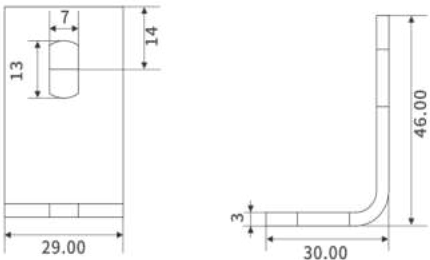
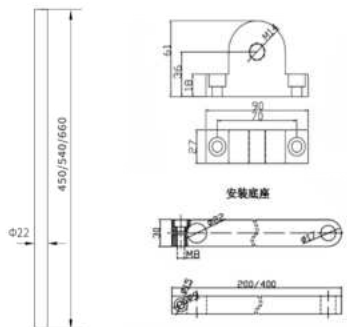
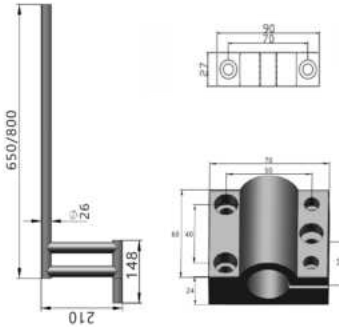
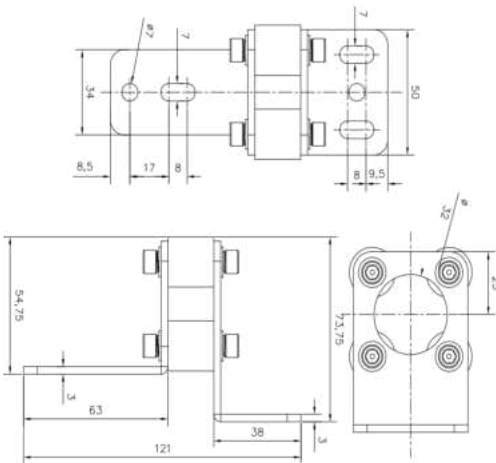


Notice

When the emergency stop button is NO, operators open the cover of controller, and connect the original T/K wire respectively connect to T1/K2 (Q controller connect directly), and parallel connect with the emergency button of machine (T1, K2 normally open when light on, normally close when light off).

Safety Light Curtain

Option of Bracket

Picture	Name	Size
	L1 bracket	
	N aluminum rotary bracket	
	J reinforce bracket	
	JZ vibration absorbing bracket	

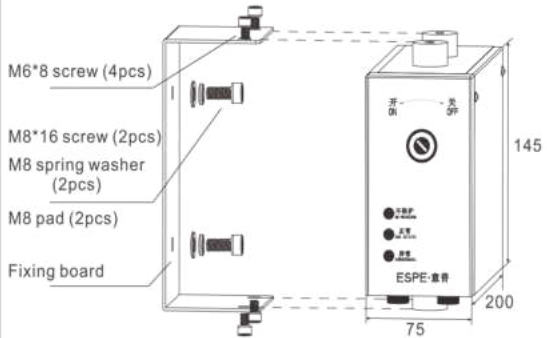
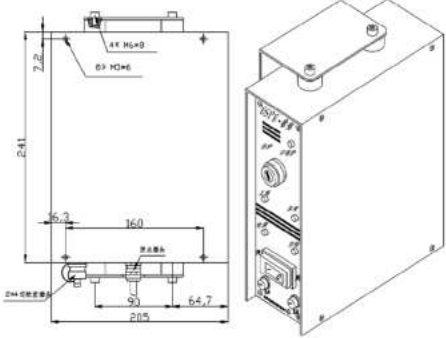
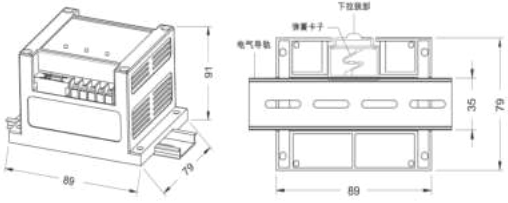
Option of Bracket

Picture	Name	Accessories
	L1 bracket	L bracket (4pcs) Slider (4pcs) M6 pad (4pcs) + M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)
	N aluminum rotary bracket	Steel pipe (2pcs) (450mm pipe for barrier ≤180mm height; 550mm pipe for 180mm < barrier ≤300mm height; 660mm pipe for barrier >300mm height) Rotary brackets (2pcs) Base (2pcs) Slider (4pcs) M8 pad (2pcs) + M8 spring washer (2pcs) M8*16 screw (2pcs) M6*8 screw (8pcs) M5 pad (4pcs) + M5 spring washer (4pcs) M5 nut (4pcs) M5*30 screw (4pcs) M16*40 screw (2pcs) M16 pad (2pcs) + M16 spring washer (2pcs) M8*25 screw (4pcs) M8 pad (4pcs)
	J reinforce bracket	Reinforce pipe (2pcs) Base (2pcs) O clip (4pcs) Slider (4pcs) M8 pad (2pcs) + M8 spring washer (10pcs) M8*16 screw (6pcs) M6*8 screw (4pcs) M5 pad (4pcs) + M5 spring washer (4pcs) M5 nut (4pcs) M5*30 screw (4pcs) M8*25 screw (6pcs) M6*12 screw (4pcs)
	JZ vibration absorbing bracket	Assembled bracket (4pcs) Slider (8pcs) M6 pad (8pcs) M6 spring washer (8pcs) M6*16 screw (8pcs) M6*8 screw (8pcs)

Remark: 1. Customers can choose controller and bracket according to requirement, standard equipment is P controller and N bracket;
 2. Standard cable length is 2.5m emitter, 3.5m receiver;
 3. Customization is welcomed (include cable extending, installation etc.);
 4. Voltage can be customized in 380V.

Safety Light Curtain

Option of Controller

Picture	Model	Voltage	Size
	P external controller (Standard)	AC110V-220V AC380V customized	
	X external controller (Option)	AC110-220V AC380V customized	
	Q internal controller (Option)	AC110V-220V	

⚠ Remark:

- Please check if light curtain control machine well before working and refer to step 4 to debug.
- Avoid movement of safety light curtain casually;
- The key of controller should be kept by professional engineers;
- Engineers need to adjust the sensing distance and position of light curtain after changing machine model;
- Power Supply should be cut off by professional operators when disassemble and maintain light curtain;
- 100 million times, reaching the service life, or after three years of use, it should be replaced;
- During use, be careful not to let workpieces, tools, wastes and other items collide with the photoelectric protection device.
- Push reset button to re-start machine, if curtains connected with reset button, and machine stop after beam blocked.



When the photoelectric protection device is not needed, just put the lock switch on the controller in the "off" position.
At this time, the light spot protection device has no protection function, and other safety protection measures should be taken.

Note: It is strictly forbidden to plug in or plug out live plugs.



NSESP Series

Anti-light (Strong) Safety Light Curtain



Product Introduction

NSESP series is specially designed for environment with strong light or even under sunshine. Independent dual output with selfdiagnosis and overcurrent protection, Special optical lens ensure its long sensing distance up to 20m; Transistor output can be connected with PLC directly; Double-sided chute enclosure support diverse mounting.

Product Feature

- Great performance against strong light and sunlight;
- Long sensing distance up to 20m;
- Dual output with self-diagnosis achieve high safety performance;
- Good ability against electromagnetic interference of various machine motor;
- Anti-shock circuit and strong aluminum alloy avoid vibration influence;
- Wire-syn against light interference well;
- Multiple mounting for more environment installation.

Product Parameter

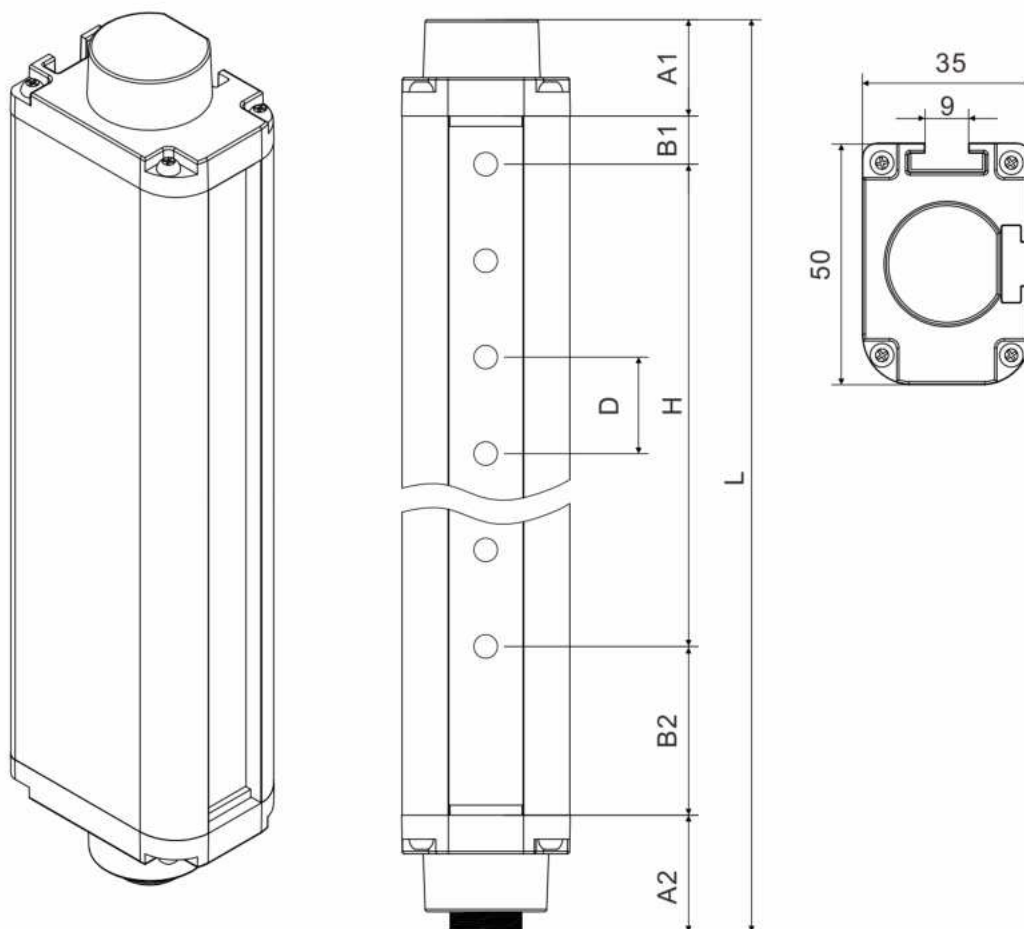
Power Supply	DC24V±20%
Capacity	<5W
Beam Space	20mm, 40mm
Resolution	30mm, 50mm
Beams	20mm: 8, 16, 24,...160
	40mm: 8, 16, 24,...80
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN Load current≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted.), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~2m, 0.1~5m, 0.1~10m, 0.1~20m (Remark: please let us know when with reflectivity)
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire-syn
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	35*50mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ambient Operating Temperature	-10°C~55°C (no freezing)
Storage Temperature	-30°C~70°C (no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

Model Selection (e.g.: NSESP1620L1NCC-5)

Product Series	Beams	Beam Space	Installation	Output	Sensing Method	Scanning Mode	Sensing Distance
NSESP	16	20	L1	N	C	C	5
	08, 16, 24...	20mm 40mm	L1: L1 side mounting bracket H1: H1 bracket JZ: JZ vibration absorbing bracket	N: NPN P: PNP	C: normally close	None: parallel scanning C: cross scanning	2: 0.1~2m 5: 0.1~5m 10: 0.1~10m 20: 0.1~20m (Remark: please let us know when with reflectivity)

Safety Light Curtain

Product Size



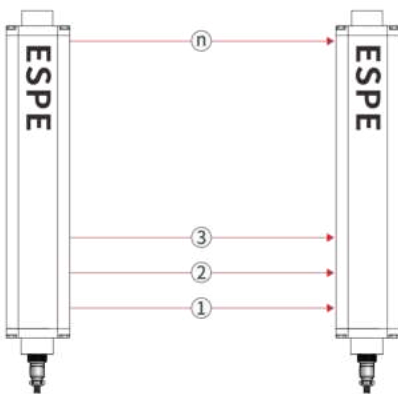
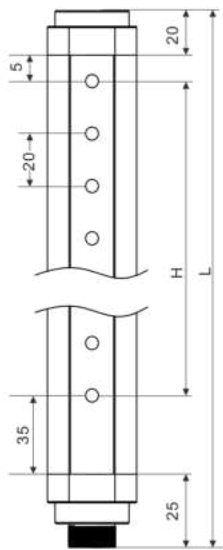
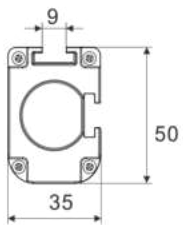
A1: Upper end cover
 A2: Lower end cover + aviation terminal
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space (20mm/40mm)
 H: Protection height
 L: Total height

A1 is 20mm, A2 is 25mm
 When D=20mm, B1=10mm, B2=35mm
 When D=40mm, B1=10mm, B2=35mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$

NSESP Model Selection Table

- Beam space 20mm, resolution 30mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
  Front View  Top View	08	140	230	NSESP820
	16	300	390	NSESP1620
	24	460	550	NSESP2420
	32	620	710	NSESP3220
	40	780	870	NSESP4020
	48	940	1030	NSESP4820
	56	1100	1190	NSESP5620
	64	1260	1350	NSESP6420
	72	1420	1510	NSESP7220
	80	1580	1670	NSESP8020
	88	1740	1830	NSESP8820
	96	1900	1990	NSESP9620
	104	2060	2150	NSESP10420
	112	2220	2310	NSESP11220
	120	2380	2470	NSESP12020
	128	2540	2630	NSESP12820
H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	136	2700	2790	NSESP13620
	144	2860	2950	NSESP14420
	152	3020	3110	NSESP15220
	160	3180	3270	NSESP16020

Remark: Beside above models, other light curtains can be customized

Safety Light Curtain

NESP Model Selection Table

- Beam space 40mm, resolution 50mm

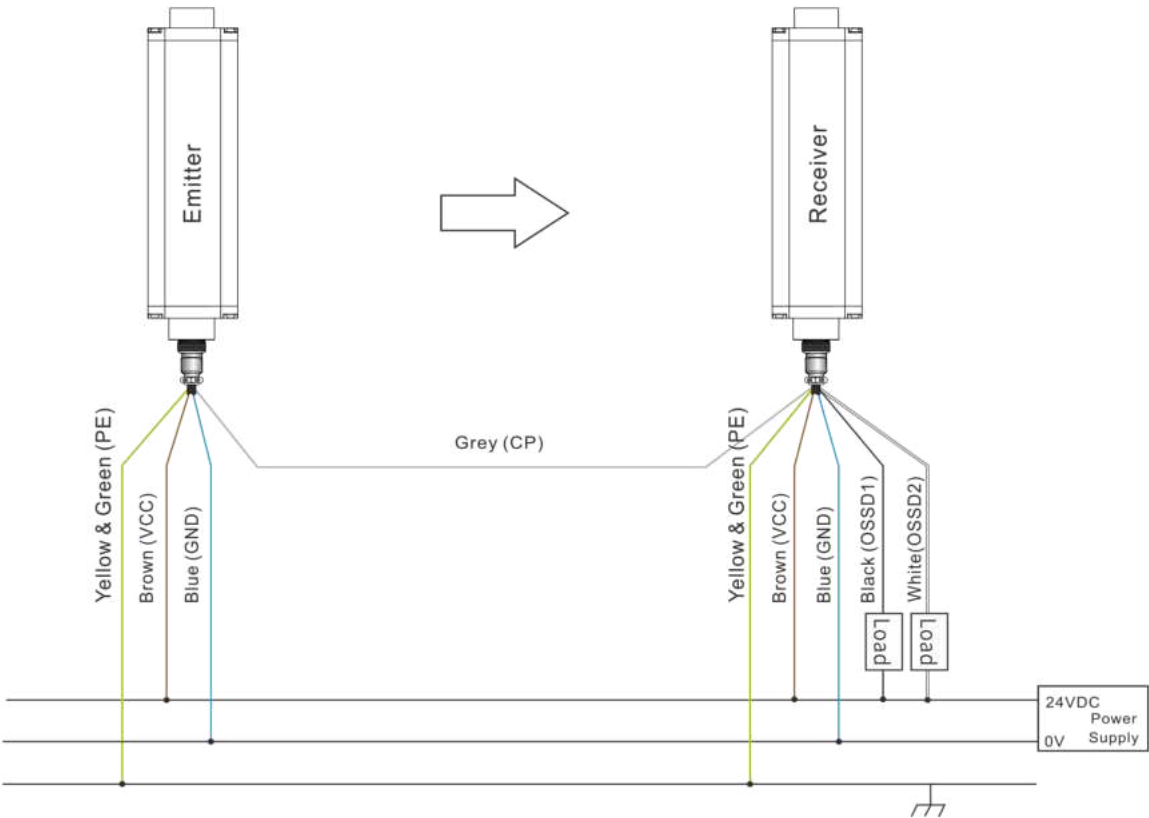
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Remark: Beside above models, other light curtains can be customized

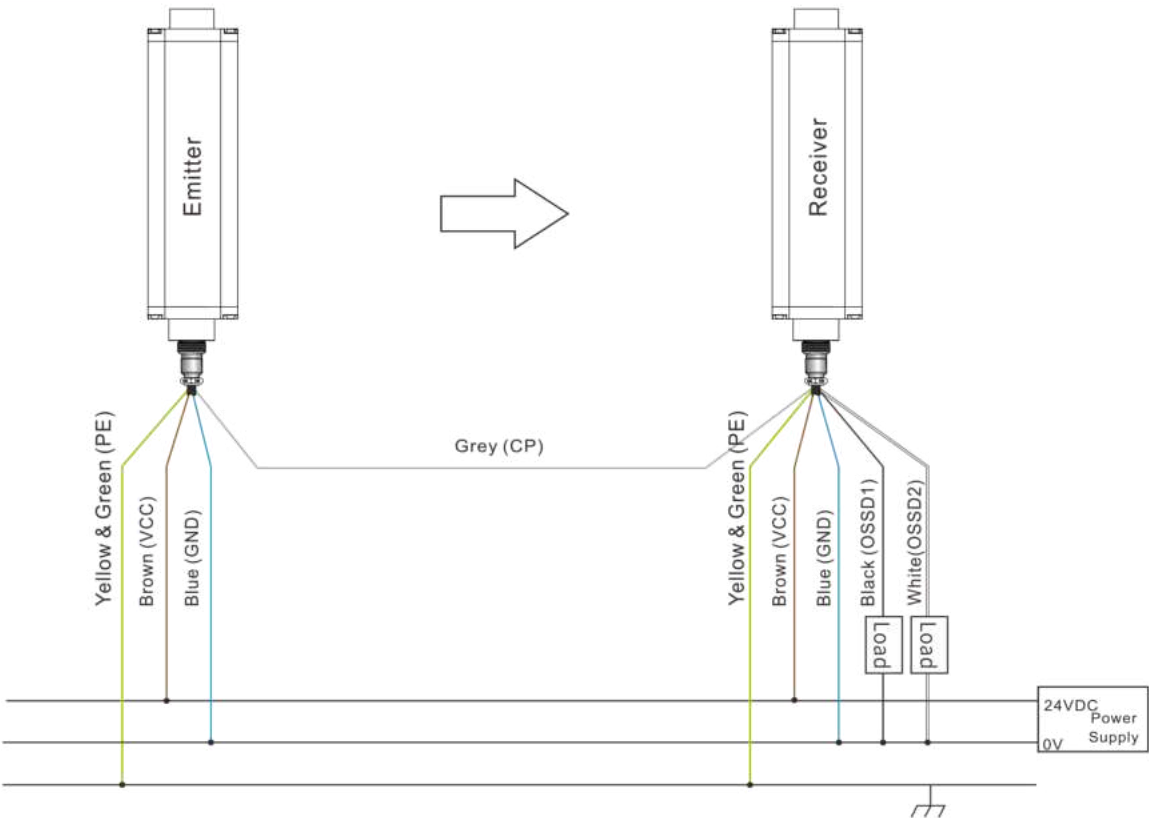


Wire Diagram

NPN

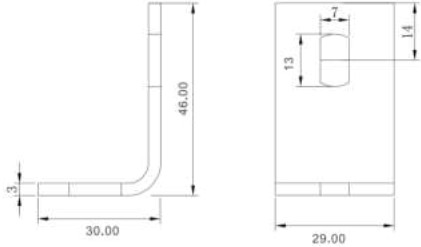
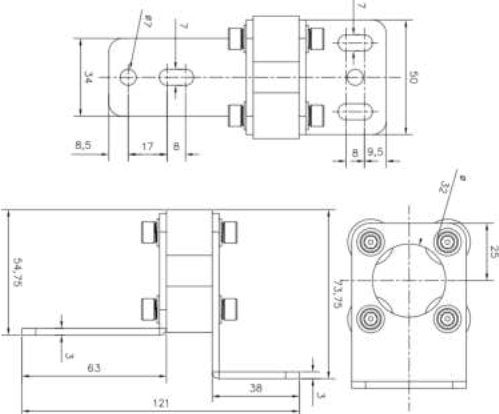
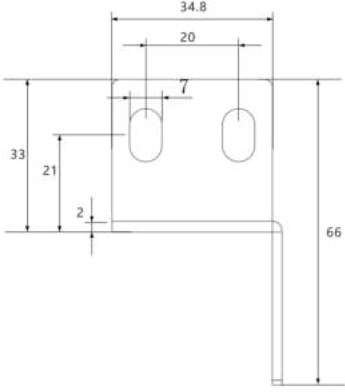


PNP

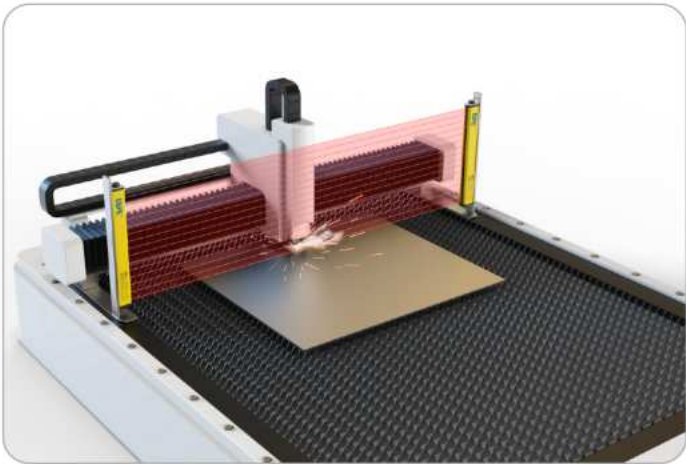


Safety Light Curtain

Option of Bracket

Picture	Name	Accessories	Size
	L1 bracket	L1 bracket (4pcs) Slider (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)	
	JZ vibration absorbing bracket	Assembled bracket (4pcs) Slider (8pcs) M6 pad (8pcs) M6 spring washer (8pcs) M6*16 screw (8pcs) M6*8 screw (8pcs)	
	H1 end mounting	L bracket (4pcs) Slider (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)	

Application



NSELD Series

Area Sensor (Curtain)



Product Introduction

NSELD Series area sensor is small size for various automation use, with advantage: end-cover fixing installation, easy alignment, against interference of light, electromagnet, low capacity, quick response time.

Product Feature

- 28*28mm small size;
- Quick response time (quickest less than 1ms);
- Low wide voltage DC10-30V;
- Good performance against electromagnetic interference of various machine motor;
- Wire-syn avoid interference of strong light;
- End-cover installation is easy mounting.

Product Parameter

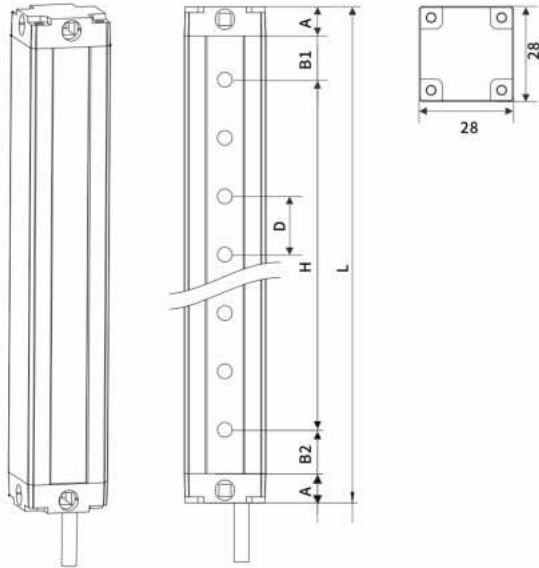
Power Supply	DC10V~30V
Capacity	<5W
Beam Space	10mm, 20mm, 40mm
Resolution	15mm, 25mm, 45mm
Beams	10mm: 8, 12, 16,...148
	20mm: 4, 6, 8,...74
	40mm: 4, 6, 8,...36
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN Load current≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~2m, 0.1~5m (Remark: please let us know when with reflectivity)
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire-syn
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	28*28mm
Ambient Operating Temperature	-10°C~55°C (no freezing)
Storage Temperature	-30°C~70°C (no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

Model Selection (e.g.:NSELD-1020Q3NCC-3)

Product Series	Beams	Beam Space	Installation	Output	Sensing Methods	Scanning Mode	Sensing Distance
NSELD	10	20	Q3	N	C	C	- 2
	04, 06, 08...	10mm 20mm 40mm	No mark: screw fixing Q3: Q3 bracket	N: NPN P: PNP	C: normally close	None: parallel scanning C: cross scanning	2: 0.1~2m 5: 0.1~5m (Remark: please let us know when with reflectivity)

Safety Light Curtain

Product Size

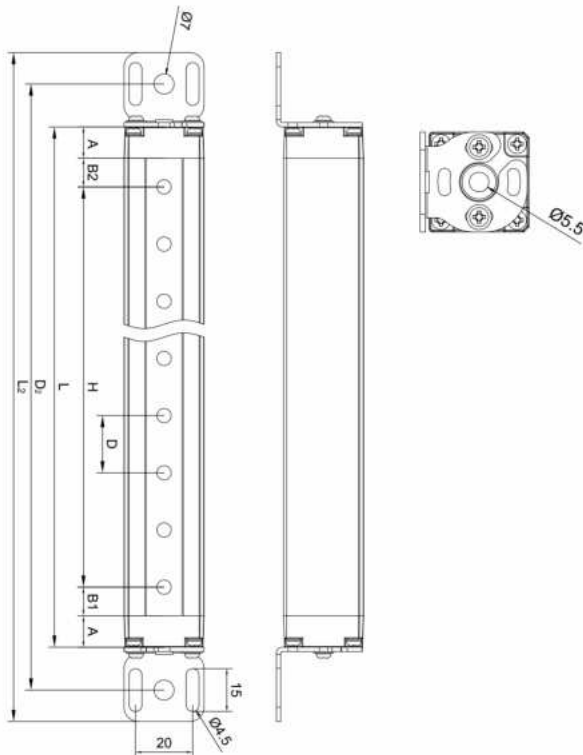


Mounting Hole Ports Type

A1: Upper end cover
 A2: Lower end cover + aviation terminal
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space (10mm, 20mm, 40mm)
 H: Protection height
 L: Total Height

A is 10mm
 When D=10mm, B1=5mm, B2=5mm
 When D=20mm, B1=10mm, B2=10mm
 When D=40mm, B1=20mm, B2=20mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$



Upper and Lower Bracket Ports Type

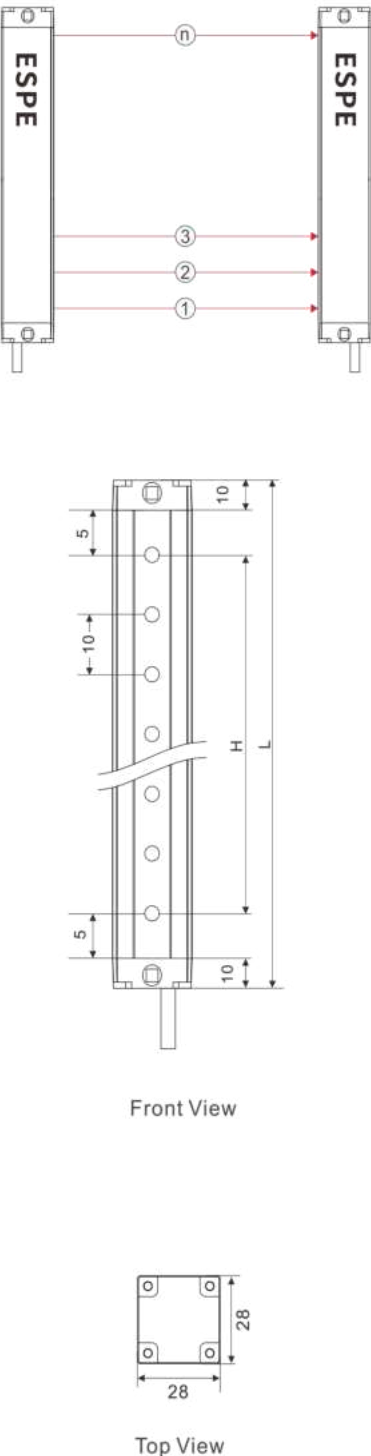
A1: Upper end cover
 A2: Lower end cover + aviation terminal
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space (10mm, 20mm, 40mm)
 H: Protection height
 L: Total Height

A is 11mm
 When D=10mm, B1=5mm, B2=5mm
 When D=20mm, B1=10mm, B2=10mm
 When D=40mm, B1=20mm, B2=20mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$
 $D2 = L + 30; L2 = L + 52$

NSESD Model Selection Table

- Beam space 10mm, resolution 15mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View	08	70	100	NSELD0810
	12	110	140	NSELD1210
	16	150	180	NSELD1610
	20	190	220	NSELD2010
	24	230	260	NSELD2410
	28	270	300	NSELD2810
	32	310	340	NSELD3210
	36	350	380	NSELD3610
	40	390	420	NSELD4010
	44	430	460	NSELD4410
	48	470	500	NSELD4810
	52	510	540	NSELD5210
	56	550	580	NSELD5610
	60	590	620	NSELD6010
	64	630	660	NSELD6410
	68	670	700	NSELD6810
	72	710	740	NSELD7210
	76	750	780	NSELD7610
	80	790	820	NSELD8010
	84	830	860	NSELD8410
	88	870	900	NSELD8810
	92	910	940	NSELD9210
	96	950	980	NSELD9610
	100	990	1020	NSELD10010
	104	1030	1060	NSELD10410
	108	1070	1100	NSELD10810
	112	1110	1140	NSELD11210
	116	1150	1180	NSELD11610
	120	1190	1220	NSELD12010
	124	1230	1260	NSELD12410
	128	1270	1300	NSELD12810
				
	148	1470	1500	NSELD14810

H is protection height=(beams-1)*beam space

L is total height=end covers+ up & bottom

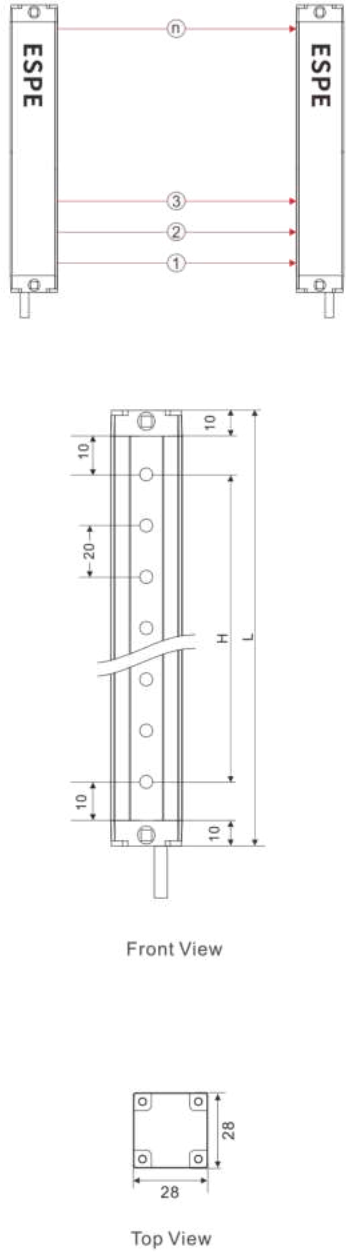
blind area + protection height

Remark: Beside above models, other light curtains can be customized

Safety Light Curtain

NSESD Model Selection Table

- Beam space 20mm, resolution 25mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	04	60	100	NSELD0420
	06	100	140	NSELD0620
	08	140	180	NSELD0820
	10	180	220	NSELD1020
	12	220	260	NSELD1220
	14	260	300	NSELD1420
	16	300	340	NSELD1620
	18	340	380	NSELD1820
	20	380	420	NSELD2020
	22	420	460	NSELD2220
	24	460	500	NSELD2420
	26	500	540	NSELD2620
	28	540	580	NSELD2820
	30	580	620	NSELD3020
	32	620	660	NSELD3220
	34	660	700	NSELD3420
	36	700	740	NSELD3620
	38	740	780	NSELD3820
	40	780	820	NSELD4020
	42	820	860	NSELD4220
	44	860	900	NSELD4420
	46	900	940	NSELD4620
	48	940	980	NSELD4820
	50	980	1020	NSELD5020
	52	1020	1060	NSELD5220
	54	1060	1100	NSELD5420
	56	1100	1140	NSELD5620
	58	1140	1180	NSELD5820
	60	1180	1220	NSELD6020
	62	1220	1260	NSELD6220
	64	1260	1300	NSELD6420
				
	74	1460	1500	NSELD7420

Remark: Beside above models, other light curtains can be customized

- B

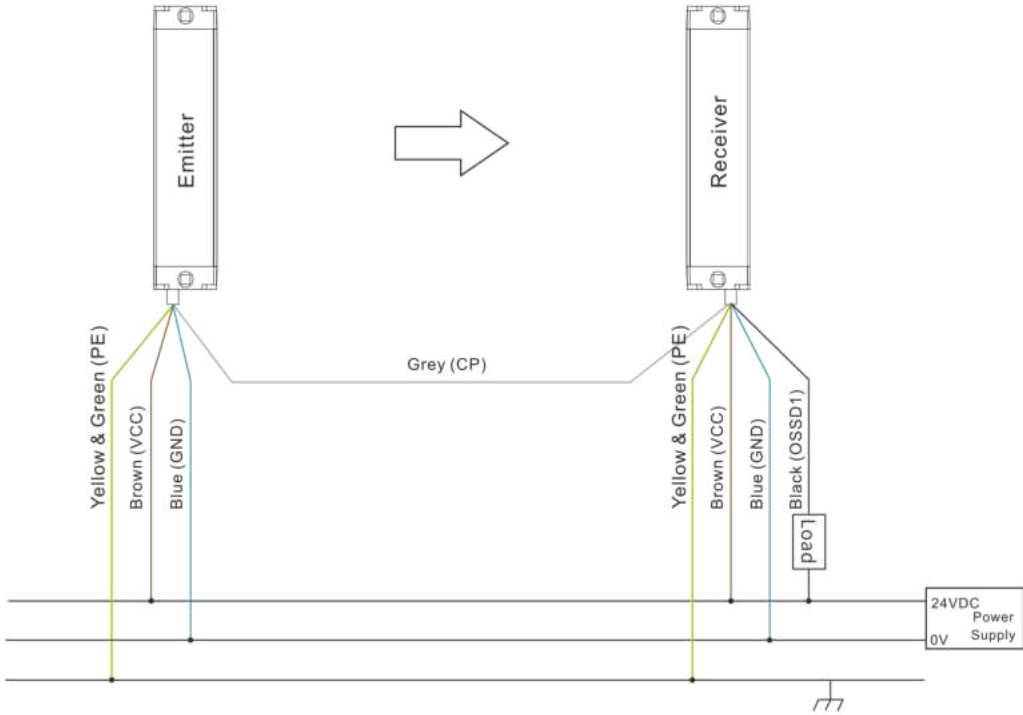
H is protection height=(beams-1)*beam space
L is total height=end covers+ up & bottom
blind area + protection height

Remark: Beside above models, other light curtains can be customized

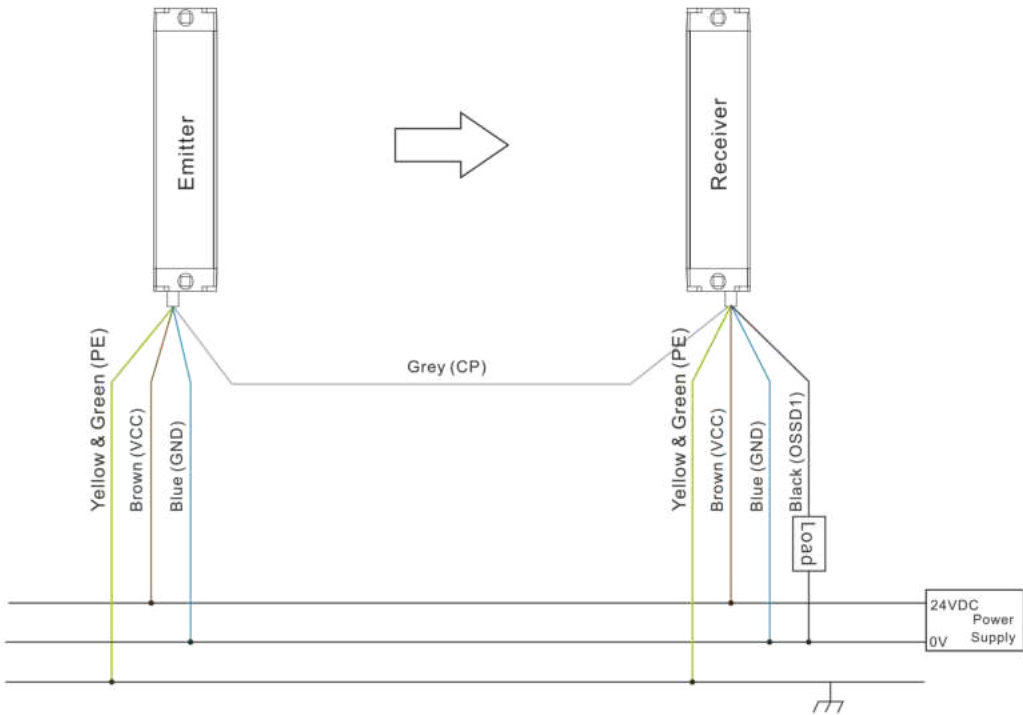
Safety Light Curtain

Wire Diagram

NPN

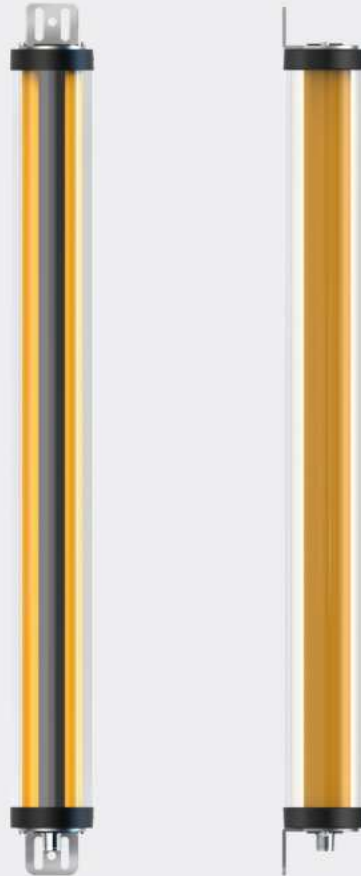


PNP



NSESF Series

Waterproof Safety Light Curtain



Product Introduction

NSESF series safety light curtain with IP68 protection rate, can work well under water. Good ability against interference of strong light and electromagnet, low capacity, quick response for high safety performance.

Product Feature

- IP68 protection rate (dustproof and waterproof) ;
- Long sensing distance up to 5m;
- Independent dual loop with self-diagnosis for high safety performance;
- Quick response time;
- Good performance to against electromagnetic interference of various machine motor;
- Wire-syn anti-interference of light;
- Optional brackets support various mounting method.

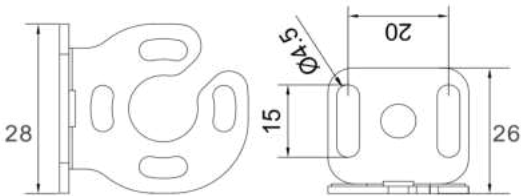
Product Parameter

Power Supply	DC24V±20%
Capacity	<5W
Beam Space	10mm, 20mm, 40mm
Resolution	20mm, 30mm, 50mm
Beams	10mm: 8, 12, 16,...144
	20mm: 4, 6, 8,...72
	40mm: 4, 6, 8,...36
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN
	Load current≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~0.5m, 0.1~2m, 0.1~4m (Remark: please let us know when with reflectivity)
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire-syn
Enclosure Material	Aluminum alloy+PMMA
Enclosure Protection rate	IP68
Sectional Size	Φ46mm
Ambient Operating Temperature	-10°C~55°C (no freezing)
Storage Temperature	-30°C~60°C (no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

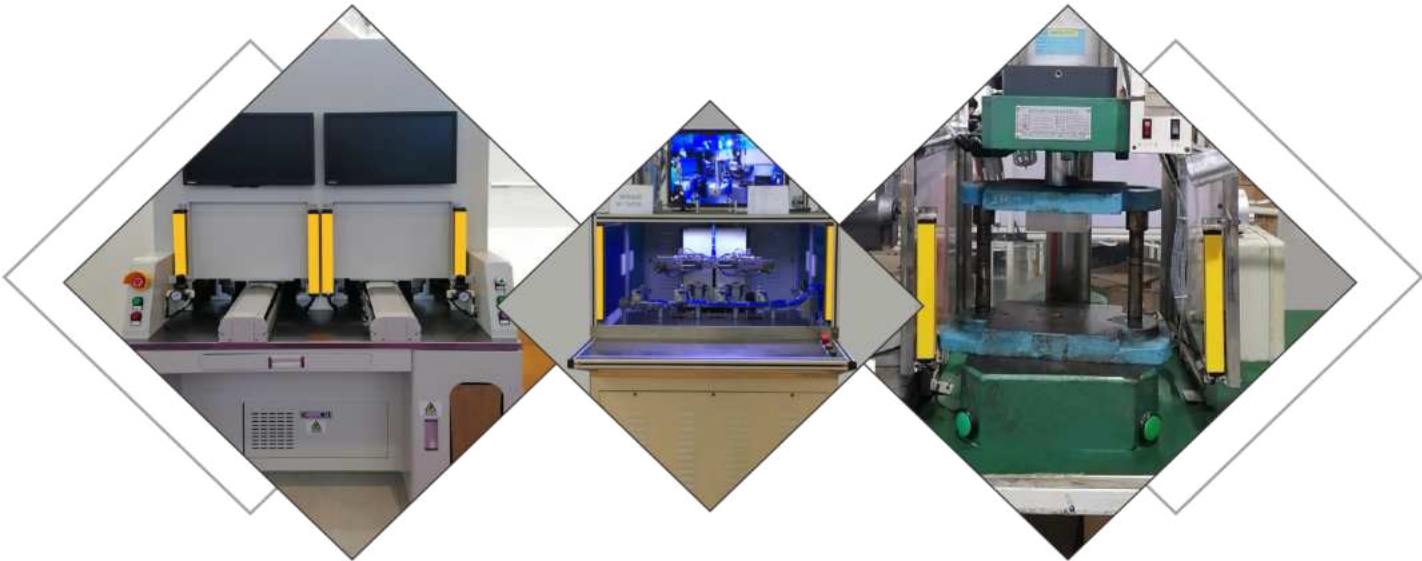
Model Selection (e.g.NSESF1020NCC-2)

Product Series	Beams	Beam Space	Output	Sensing Methods	Scanning Mode	Sensing Distance
NSESF	10	20	N	C	C	- 2
	04, 06, 08...	10mm 20mm 40mm	N: NPN P: PNP	C: normally close	None: parallel scanning C: cross scanning	05: 0.1~0.5m 2: 0.1~2m 4: 0.1~4m (Remark: please let us know when with reflectivity)

Option of Bracket

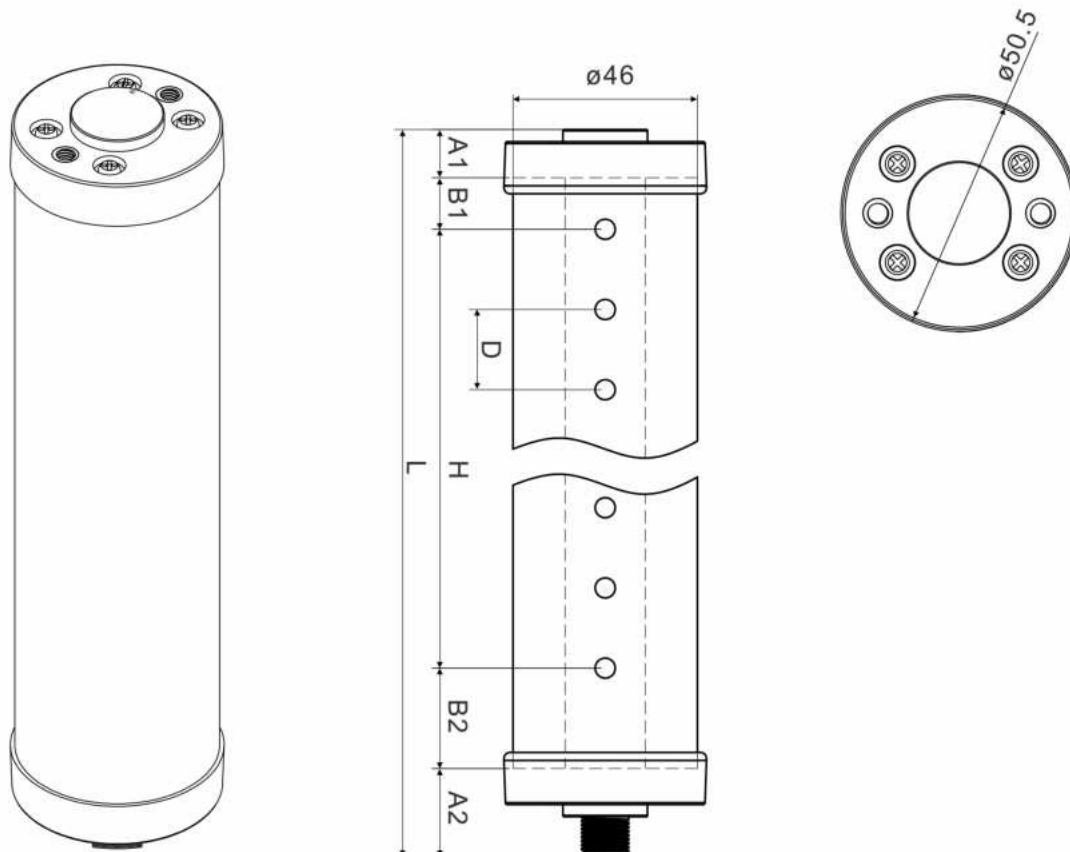
Picture	Name	Accessories	Size
	Screw fixing (from front/side)	M4*30 screw (4pcs)	None
	Q3 up & bottom mounting bracket	Up & bottom bracket (4pcs) M6*16 screw (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M3*6 screw (8pcs)	

Application



Safety Light Curtain

Product Size



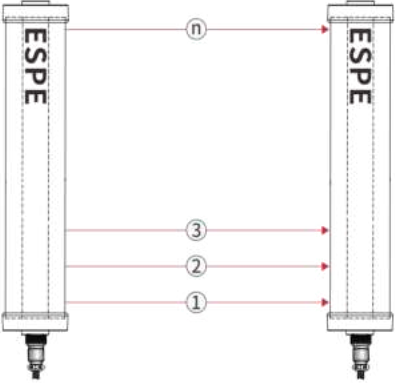
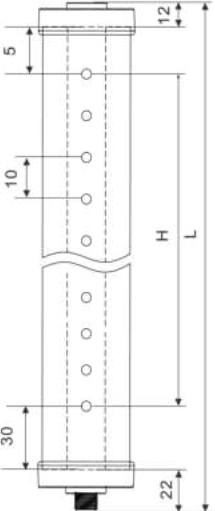
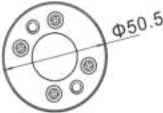
A1: Upper end cover
 A2: Lower end cover + aviation terminal
 B1: Up blind area
 B2: Bottom blind area
 D: Beam space
 H: Protection height
 L: Total Height

A1 is 12mm, A2 is 22mm,
 When D=10mm, B1=5mm, B2=30mm
 When D=20mm, B1=10mm, B2=35mm
 When D=40mm, B1=10mm, B2=35mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = A + B1 + B2 + H$

NSESF Model Selection Table

- Beam space 10mm, resolution 20mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	08	70	139	NSESF0810
	12	110	179	NSESF1210
	16	150	219	NSESF1610
	20	190	259	NSESF2010
	24	230	299	NSESF2410
	28	270	339	NSESF2810
	32	310	379	NSESF3210
	36	350	419	NSESF3610
	40	390	459	NSESF4010
	44	430	499	NSESF4410
	48	470	539	NSESF4810
	52	510	579	NSESF5210
	56	550	619	NSESF5610
	60	590	659	NSESF6010
	64	630	699	NSESF6410
	68	670	739	NSESF6810
	72	710	779	NSESF7210
	76	750	819	NSESF7610
	80	790	859	NSESF8010
	84	830	899	NSESF8410
	88	870	939	NSESF8810
	92	910	979	NSESF9210
	96	950	1019	NSESF9610
	100	990	1059	NSESF10010
	104	1030	1099	NSESF10410
	108	1070	1139	NSESF10810
	112	1110	1179	NSESF11210
	116	1150	1219	NSESF11610
	120	1190	1259	NSESF12010
	124	1230	1299	NSESF12410
	128	1270	1339	NSESF12810
				
	144	1430	1499	NSESF14410

H is protection height=(beams-1)*beam space

L is total height=end covers+ up & bottom

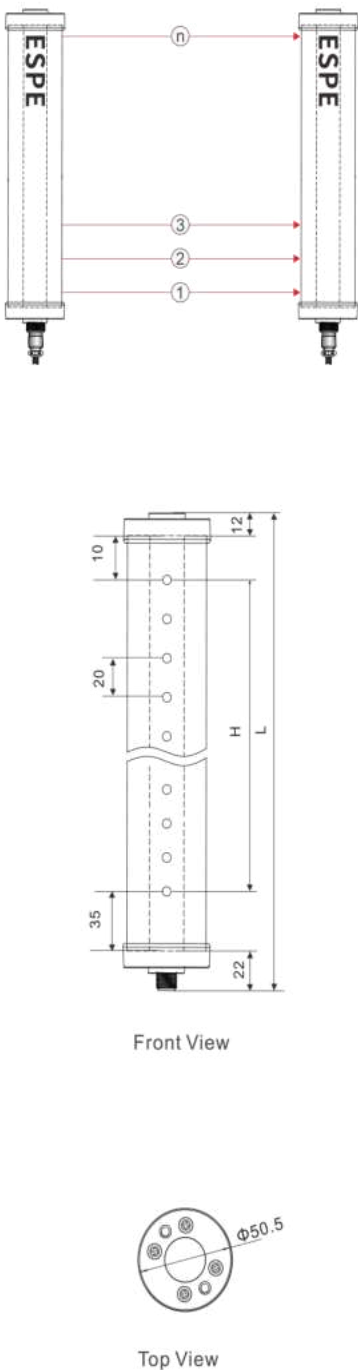
blind area + protection height

Remark: Beside above models, other light curtains can be customized

Safety Light Curtain

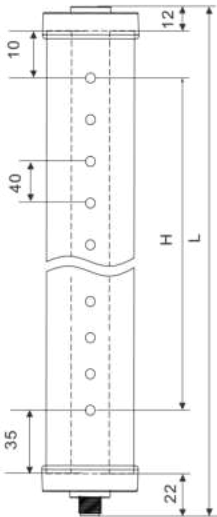
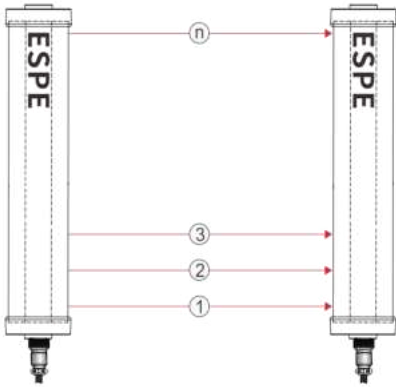
NSESF Model Selection Table

- Beam space 20mm, resolution 30mm

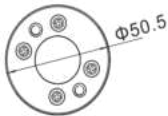
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	06	100	179	NSESF0620
	08	140	219	NSESF0820
	10	180	259	NSESF1020
	12	220	299	NSESF1220
	14	260	339	NSESF1420
	16	300	379	NSESF1620
	18	340	419	NSESF1820
	20	380	459	NSESF2020
	22	420	499	NSESF2220
	24	460	539	NSESF2420
	26	500	579	NSESF2620
	28	540	619	NSESF2820
	30	580	659	NSESF3020
	32	620	699	NSESF3220
	34	660	739	NSESF3420
	36	700	779	NSESF3620
	38	740	819	NSESF3820
	40	780	859	NSESF4020
	42	820	899	NSESF4220
	44	860	939	NSESF4420
	46	900	979	NSESF4620
	48	940	1019	NSESF4820
	50	980	1059	NSESF5020
	52	1020	1099	NSESF5220
	54	1060	1139	NSESF5420
	56	1100	1179	NSESF5620
	58	1140	1219	NSESF5820
	60	1180	1259	NSESF6020
	62	1220	1299	NSESF6220
	64	1260	1339	NSESF6420
	66	1300	1379	NSESF6620
				
	72	1420	1499	NSESF7220

Remark: Beside above models, other light curtains can be customized

-



Front View



Top View

H is protection height=(beams-1)*beam space

L is total height=end covers+ up & bottom

blind area + protection height

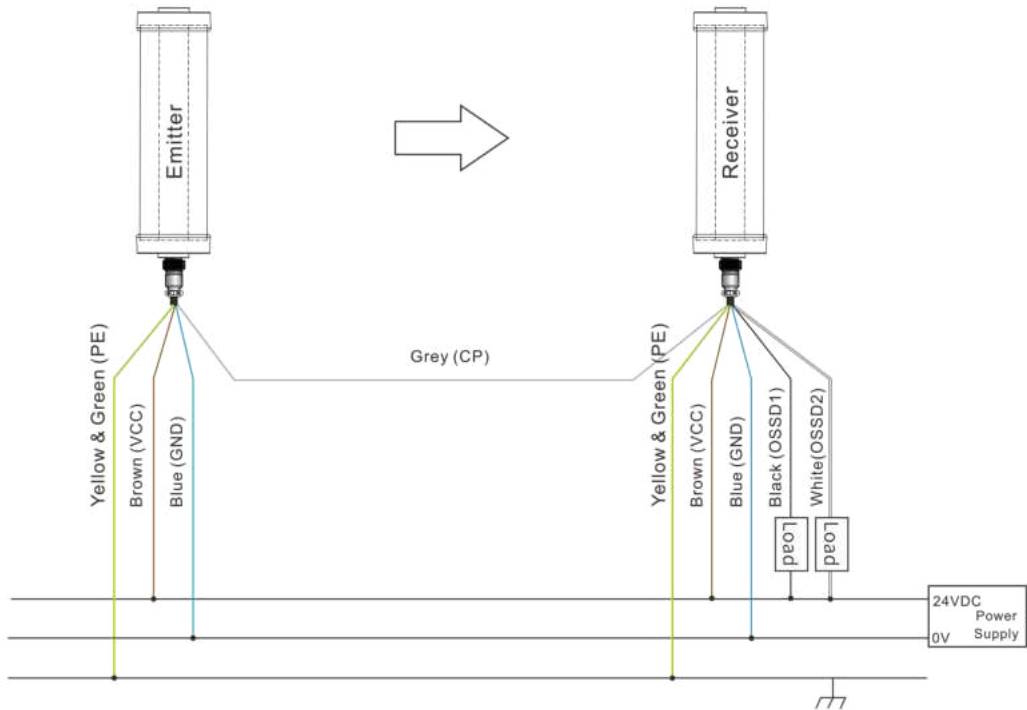
[illegible]

Remark: Beside above models, other light curtains can be customized

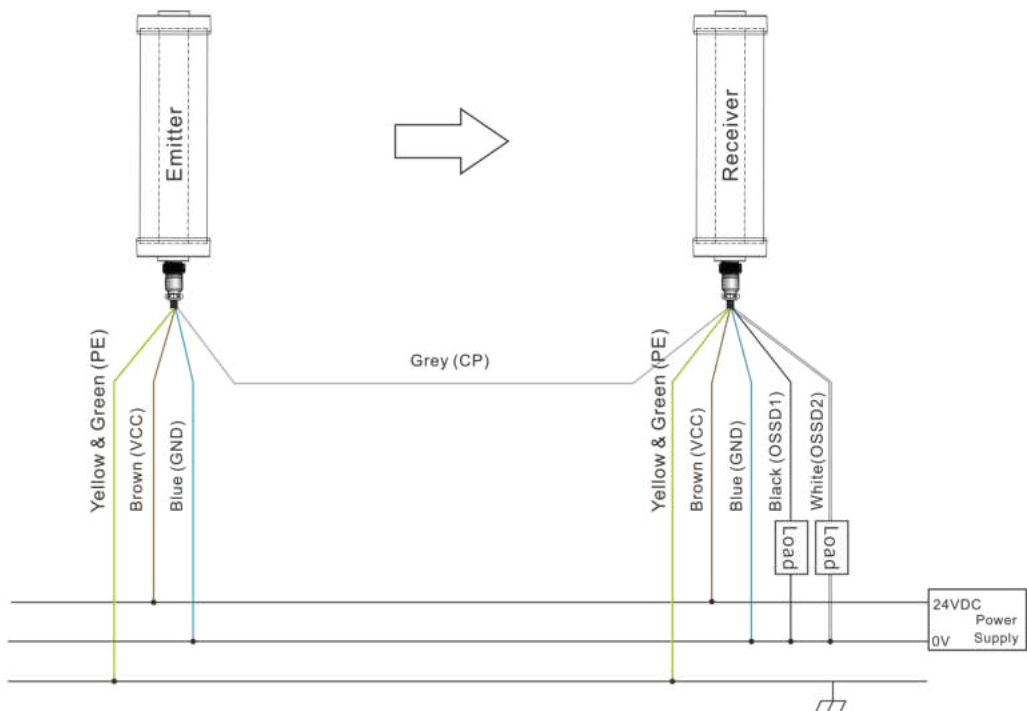
Safety Light Curtain

Wire Diagram

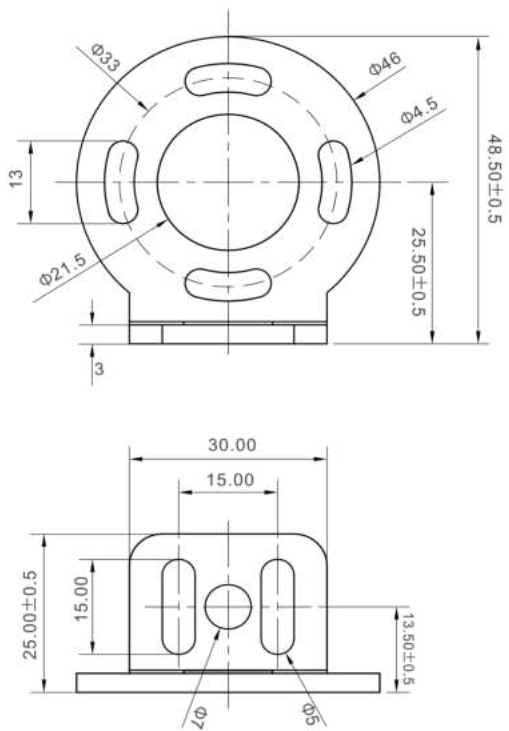
NPN



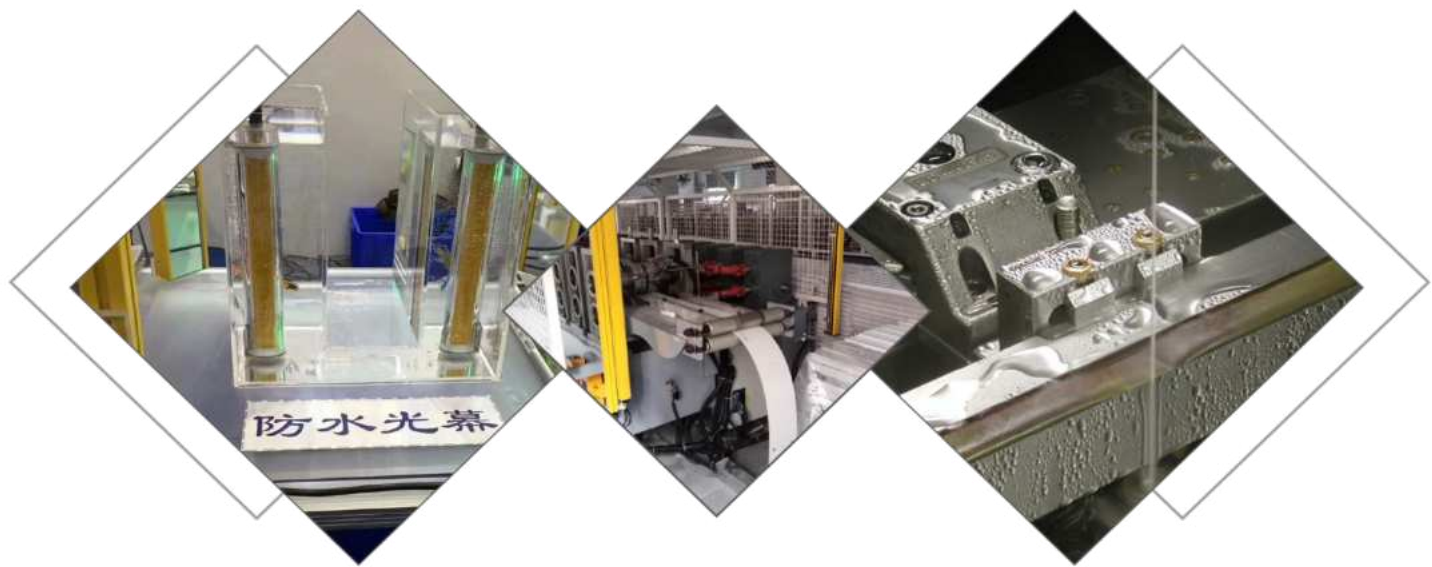
PNP



 Option of Bracket

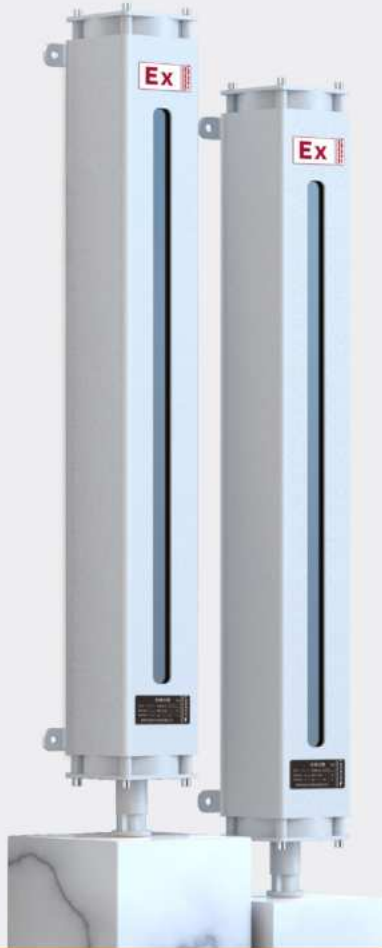
Picture	Accessories	Size
	End mounting bracket (4pcs) M6*12 screw (4pcs) N4*8 screw (8pcs)	

 Application



NSEFB Series

Anti-explosion Safety Light Curtain



Product Introduction

NSEFB Series is mainly used for isolating safety light curtain from explosion environment, which is suitable for hazardous explosive environment zone 1 and zone 2, IIA/ IIB/ IIC level explosive gas environment, combustible dust environment zone 20, zone 21 and zone 22, temperature group is between T1-T6, petrochemical, offshore drilling platform, medicine, light industry, textile, wine, paint, coating, food, biological engineering and military factory etc.

Product Feature

- Long sensing distance up to 20m;
- Independent dual loop with self-diagnosis for high safety performance;
- Great ability to against electromagnetic interference of various machine motors;
- Wire-syn technology ensure good preference to resist optical interference;
- High quality steel plates or stainless steel enclosure is electrostatically sprayed with powder after high speed shot blasting;
- Upper and bottom end for easy mounting;
- 355-1835mm customized size;
- Steel pipe, cable or explosion proof hose for easy wiring.

Product Parameter

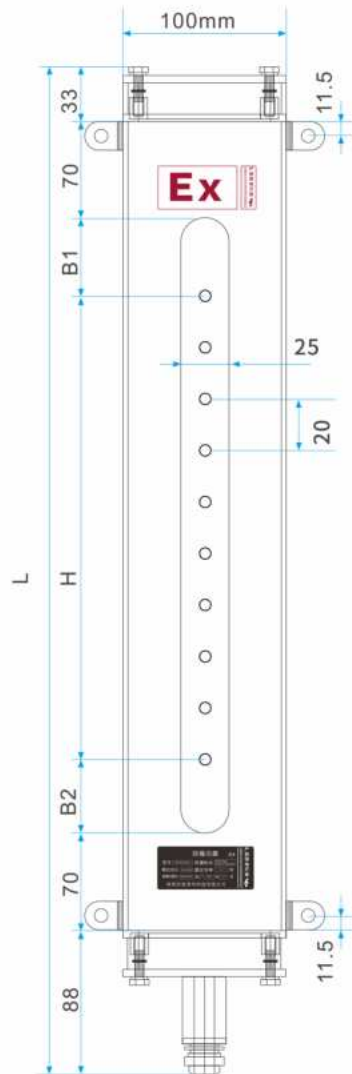
Power Supply	DC24V±20%
Capacity	<5W
Beam Space	10mm, 20mm, 40mm
Resolution	20mm, 30mm, 50mm
Beams	10mm: 32, 36, 40,...176
	20mm: 16, 18, 20,...88
	40mm: 8, 10, 12,...44
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN Load current≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1~5m, 0.1~10m, 0.1~20m (Remark: please let us know when with reflectivity)
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire-syn
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	35*50mm (Note: the section of explosion-proof enclosure is 100*100mm).
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ex anti-explosion mark	Ex d II C T6 Gb; Ex tD A21 IP66 T80°C
Ambient Operating Temperature	-10°C~55°C (no freezing)
Storage Temperature	-30°C~70°C (no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

Model Selection (e.g.: NSEFB - EX - N1620NC-5)

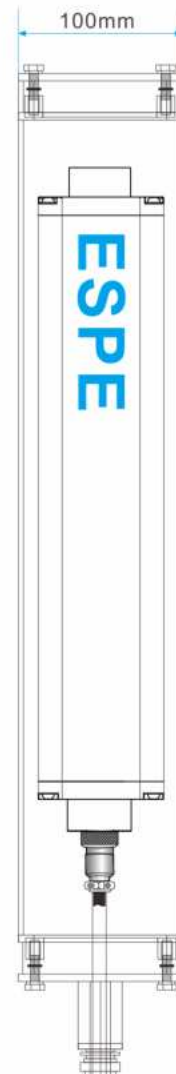
Product Series	Ex anti-explosion mark	Barrier Series	Beams	Beam Space	Output	Sensing Method	Sensing Distance
NSEFB	EX	N	16	20	N	C	5
	Ex Anti-explosion Mark	N: ESN series	16, 18, 20...	10mm 20mm 40mm	N: NPN P: PNP	C: normally close	5: 0.1~5m 10: 0.1~10m 20: 0.1~20m (Remark: please let us know when with reflectivity)

Safety Light Curtain

Product Size



G3/4"



G3/4"

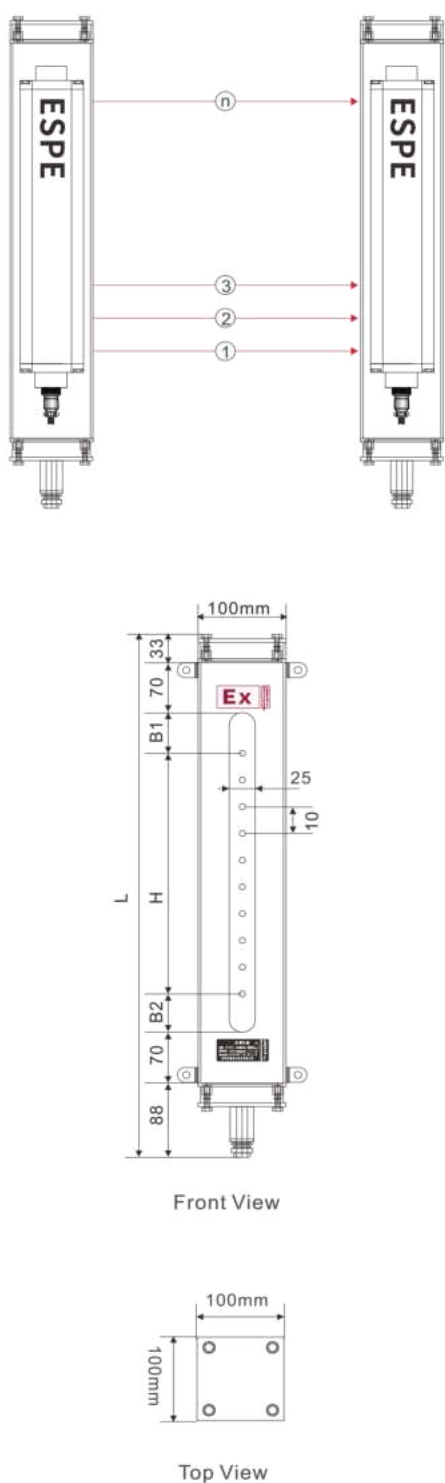
B1: Blind area on the photosensitive surface
 B2: Blind area under the photosensitive surface
 D: Beam space (10mm/20mm/40mm)
 H: Protection height
 L: Total height

When D=10mm, B1=10mm, B2=35mm
 When D=20mm, B1=15mm, B2=40mm
 When D=40mm, B1=15mm, B2=60mm

$H = (\text{Beams} - 1) \times \text{beam space}$
 $L = B1 + B2 + H + 261$

NSEFB Model Selection Table

- Beam space 10mm, resolution 20mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View	32	310	616	NSEFB-EX-N3210
	36	350	656	NSEFB-EX-N3610
	40	390	696	NSEFB-EX-N4010
	44	430	736	NSEFB-EX-N4410
	48	470	776	NSEFB-EX-N4810
	52	510	816	NSEFB-EX-N5210
	56	550	856	NSEFB-EX-N5610
	60	590	896	NSEFB-EX-N6010
	64	630	936	NSEFB-EX-N6410
	68	670	976	NSEFB-EX-N6810
	72	710	1016	NSEFB-EX-N7210
	76	750	1056	NSEFB-EX-N7610
	80	790	1096	NSEFB-EX-N8010
	84	830	1136	NSEFB-EX-N8410
	88	870	1176	NSEFB-EX-N8810
	92	910	1216	NSEFB-EX-N9210
	96	950	1256	NSEFB-EX-N9610
	100	990	1296	NSEFB-EX-N10010
	104	1030	1336	NSEFB-EX-N10410
	108	1070	1376	NSEFB-EX-N10810
	112	1110	1416	NSEFB-EX-N11210
	116	1150	1456	NSEFB-EX-N11610
	120	1190	1496	NSEFB-EX-N12010
	124	1230	1536	NSEFB-EX-N12410
	128	1270	1576	NSEFB-EX-N12810
	132	1310	1616	NSEFB-EX-N13210
	136	1350	1656	NSEFB-EX-N13610
	140	1390	1696	NSEFB-EX-N14010
	144	1430	1736	NSEFB-EX-N14410
	148	1470	1776	NSEFB-EX-N14810
	152	1510	1816	NSEFB-EX-N15210
				
	176	1750	2056	NSEFB-EX-N17610

Remark: Beside above models, other light curtains can be customized

Safety Light Curtain

NSEFB Model Selection Table

- Beam space 20mm, resolution 30mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	16	300	616	NSEFB-EX-N1620
	18	340	656	NSEFB-EX-N1820
	20	380	696	NSEFB-EX-N2020
	22	420	736	NSEFB-EX-N2220
	24	460	776	NSEFB-EX-N2420
	26	500	816	NSEFB-EX-N2620
	28	540	856	NSEFB-EX-N2820
	30	580	896	NSEFB-EX-N3020
	32	620	936	NSEFB-EX-N3220
	34	660	976	NSEFB-EX-N3420
	36	700	1016	NSEFB-EX-N3620
	38	740	1056	NSEFB-EX-N3820
	40	780	1096	NSEFB-EX-N4020
	42	820	1136	NSEFB-EX-N4220
	44	860	1176	NSEFB-EX-N4420
	46	900	1216	NSEFB-EX-N4620
	48	940	1256	NSEFB-EX-N4820
	50	980	1296	NSEFB-EX-N5020
	52	1020	1336	NSEFB-EX-N5220
	54	1060	1376	NSEFB-EX-N5420
	56	1100	1416	NSEFB-EX-N5620
	58	1140	1456	NSEFB-EX-N5820
	60	1180	1496	NSEFB-EX-N6020
	62	1220	1536	NSEFB-EX-N6220
	64	1260	1576	NSEFB-EX-N6420
	66	1300	1616	NSEFB-EX-N6620
	68	1340	1656	NSEFB-EX-N6820
	70	1380	1696	NSEFB-EX-N7020
	72	1420	1736	NSEFB-EX-N7220
	74	1460	1776	NSEFB-EX-N7420
	76	1500	1816	NSEFB-EX-N7620
				
	88	1740	2056	NSEFB-EX-N8820

Remark: Beside above models, other light curtains can be customized

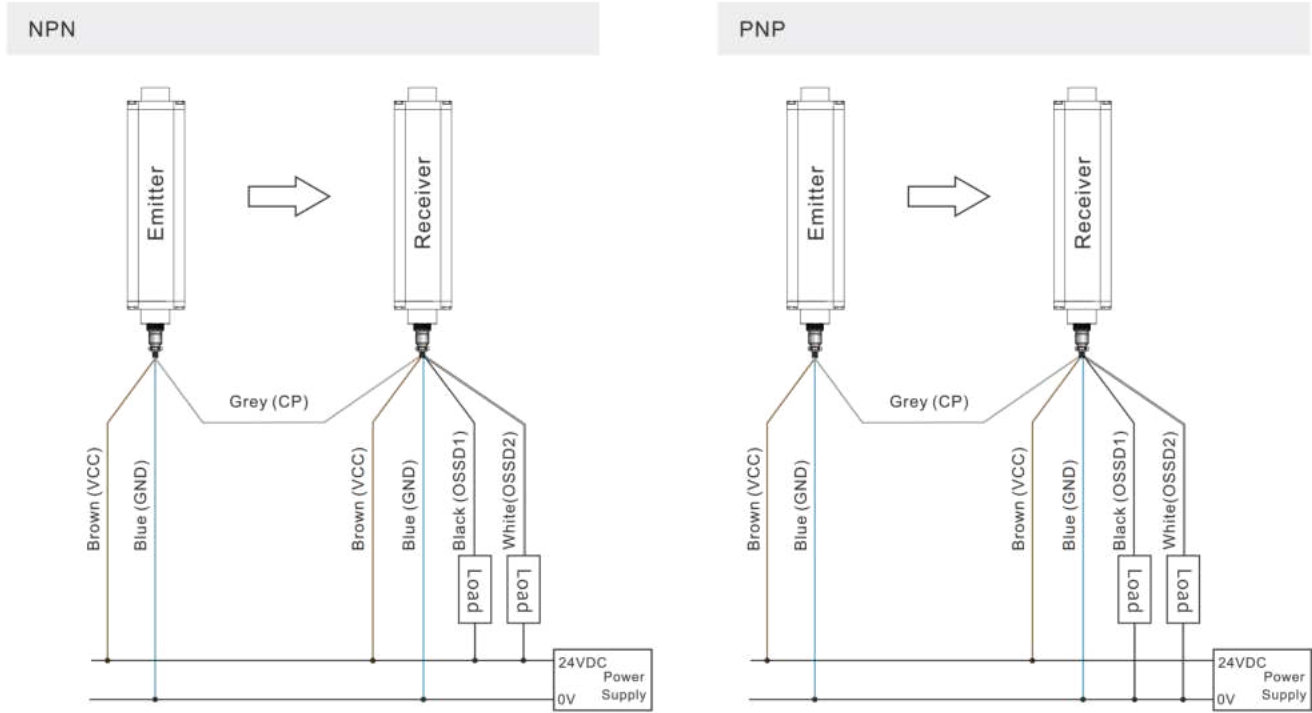
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Top View

R

Safety Light Curtain

Wire Diagram

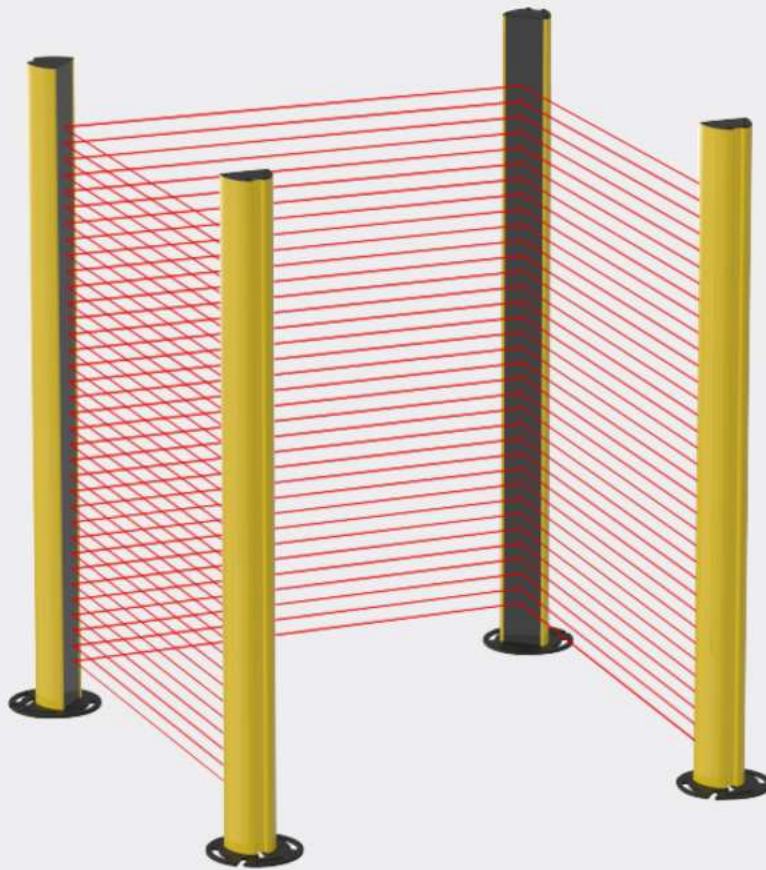


Application



NSESQC Series

Multiple Side Safety Light Curtain



Standard base



Adjustable base

Product Introduction

NSESQC series can work with curtain (NSESN series or ESE series) and multiple mirrors to form a multiple protection side for automation machine. The standing column can be mounted on ground directly.

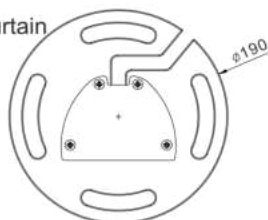
Product Feature

- Multi-side protection only 1 pair of curtain;
- Long sensing distance;
- Independent dual loop with self-diagnosis for high safety performance;
- Anti-shock circuit and strong aluminum alloy shell avoid vibration interference;
- Wire-syn technology has strong anti-light interference ability;
- Multiple installation methods for different environment.

Product Size

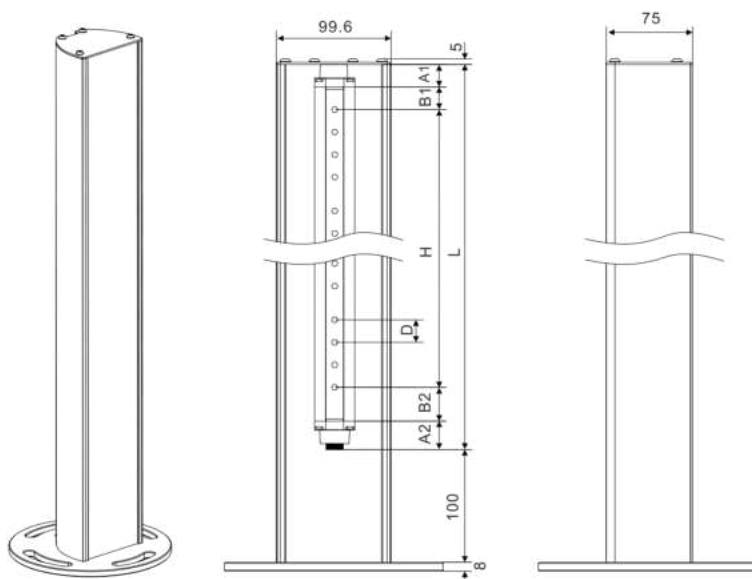
Standard Base

A1: up cover of curtain
A2: bottom cover and aviation of curtain
B1: up blind area
B2: bottom blind area
D: beam space of curtain
H: protective height
L: total height of curtain



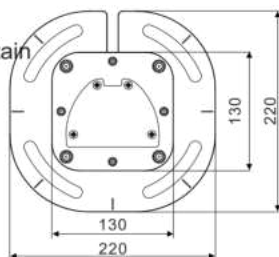
L is total height: $L = A1 + A2 + B1 + B2 + H$
H is protective height: $H = (\text{beams} - 1) \times \text{beam space}$
Enclosure height = curtain total height + 100

Total height = enclosure height + 13



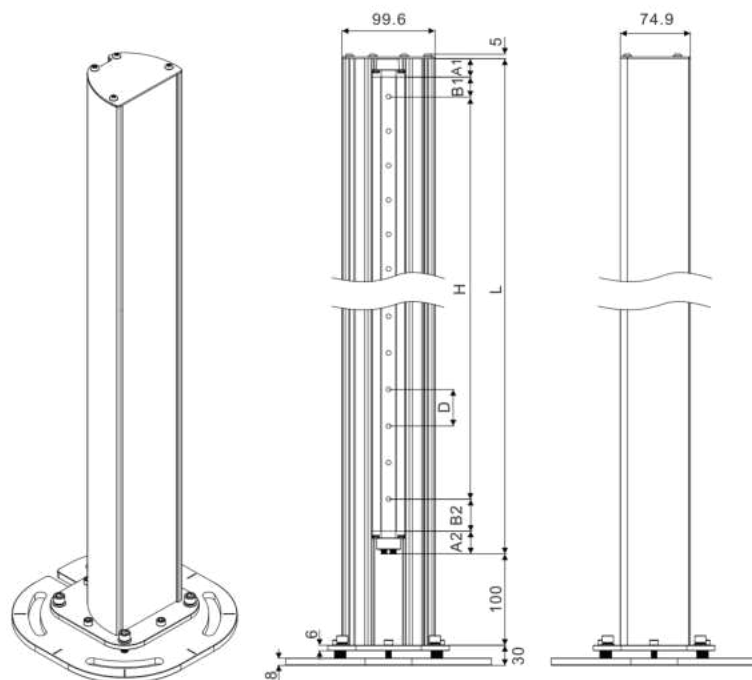
Standard Base

A1: up cover of curtain
A2: bottom cover and aviation of curtain
B1: up blind area
B2: bottom blind area
D: beam space of curtain
H: protective height
L: total height of curtain



L is total height: $L = A1 + A2 + B1 + B2 + H$
H is protective height: $H = (\text{beams} - 1) \times \text{beam space}$
Enclosure height = curtain total height + 100

Total height = enclosure height + 35



Safety Light Curtain

NSEQC Model Selection Table

- Beam space 10mm, resolution 20mm

Beams	Protection Height	Total Height (standard base)	Total Height (adjustable base)	Model
32	310	503	525	NSEQC-N3210
36	350	543	565	NSEQC-N3610
40	390	583	605	NSEQC-N4010
44	430	623	645	NSEQC-N4410
48	470	663	685	NSEQC-N4810
52	510	703	725	NSEQC-N5210
56	550	743	765	NSEQC-N5610
60	590	783	805	NSEQC-N6010
64	630	823	845	NSEQC-N6410
68	670	863	885	NSEQC-N6810
72	710	903	925	NSEQC-N7210
76	750	943	965	NSEQC-N7610
80	790	983	1005	NSEQC-N8010
84	830	1023	1045	NSEQC-N8410
88	870	1063	1085	NSEQC-N8810
92	910	1103	1125	NSEQC-N9210
96	950	1143	1165	NSEQC-N9610
100	990	1183	1205	NSEQC-N10010
104	1030	1223	1245	NSEQC-N10410
108	1070	1263	1285	NSEQC-N10810
112	1110	1303	1325	NSEQC-N11210
116	1150	1343	1365	NSEQC-N11610
120	1190	1383	1405	NSEQC-N12010
124	1230	1423	1445	NSEQC-N12410
128	1270	1463	1485	NSEQC-N12810
132	1310	1503	1525	NSEQC-N13210
136	1350	1543	1565	NSEQC-N13610
140	1390	1583	1605	NSEQC-N14010
144	1430	1623	1645	NSEQC-N14410
148	1470	1663	1685	NSEQC-N14810
152	1510	1703	1725	NSEQC-N15210
.....				
176	1750	1943	1965	NSEQC-N17610

Remark: Beside above models, other light curtains can be customized

Safety Light Curtain

Product Parameter

Power Supply	DC24V±20%
Capacity	<5W
Beam Space	10mm, 20mm, 40mm
Resolution	20mm, 30mm, 50mm
Beams	10mm: 32, 36, 40,...176
	20mm: 16, 18, 20,...88
	40mm: 8, 10, 12,...44
Protective Height	Protection height=(N-1)*beam space, N is beams
Light Wavelength	940nm
Response Time	Response Time= (N * 0.1ms) + 0.4ms N is beams
Safety Output (OSSD)	PNP or NPN
	Load currents≤500mA (Temperature exceed 40°C≤400 mA), residual voltage≤1V (any voltage drop caused by cable extension is excepted,), voltage leakage≤0.1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Protective Surface Sensing Distance	0~5m, 0~10m, 0~20m, 0~30m
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Synchronization	Wire-syn
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	99.6*75mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ambient Operating Temperature	-10°C~55°C (no freezing)
Storage Temperature	-30°C~70°C (no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

Model Selection (e.g.: NSEQC-N1620NC2AD-20)

Product Series	Barrier Series	Beams	Beam Space	Output	Sensing Method	Protective Side	Base Option	Sensing Distance
NSEQC	- N	16	20	N	C	2	AD	- 20
	N: ESN series	8, 10, 12...	10mm 20mm 40mm	N: NPN*2 P: PNP*2	C: normally close	2: 2 side 3: 3 side 4: 4 side	No mark: normal base AD: adjustable base	5: 0.1~5m 10: 0.1~10m 20: 0.1~20m 30: 0.1~30m

Remark: 1 side protection with 30m sensing distance, 2 side protection with 24m sensing distance, 3 side protection with 16m sensing distance.

NSEQC Model Selection Table

- Beam space 20mm, resolution 30mm

Beams	Protection Height	Total Height (standard base)	Total Height (adjustable base)	Model
16	300	503	525	NSEQC-N1620
18	340	543	565	NSEQC-N1820
20	380	583	605	NSEQC-N2020
22	420	623	645	NSEQC-N2220
24	460	663	685	NSEQC-N2420
26	500	703	725	NSEQC-N2620
28	540	743	765	NSEQC-N2820
30	580	783	805	NSEQC-N3020
32	620	823	845	NSEQC-N3220
34	660	863	885	NSEQC-N3420
36	700	903	925	NSEQC-N3620
38	740	943	965	NSEQC-N3820
40	780	983	1005	NSEQC-N4020
42	820	1023	1045	NSEQC-N4220
44	860	1063	1085	NSEQC-N4420
46	900	1103	1125	NSEQC-N4620
48	940	1143	1165	NSEQC-N4820
50	980	1183	1205	NSEQC-N5020
52	1020	1223	1245	NSEQC-N5220
54	1060	1263	1263	NSEQC-N5420
56	1100	1303	1303	NSEQC-N5620
58	1140	1343	1343	NSEQC-N5820
60	1180	1383	1383	NSEQC-N6020
62	1220	1423	1423	NSEQC-N6220
64	1260	1463	1463	NSEQC-N6420
66	1300	1503	1503	NSEQC-N6620
68	1340	1543	1543	NSEQC-N6820
70	1380	1583	1583	NSEQC-N7020
72	1420	1623	1623	NSEQC-N7220
74	1460	1663	1663	NSEQC-N7420
76	1500	1703	1703	NSEQC-N7620
.....				
88	1740	1943	1943	NSEQC-N8820

Remark: Beside above models, other light curtains can be customized

Safety Light Curtain

NSEQC Model Selection Table

- Beam space 40mm, resolution 50mm

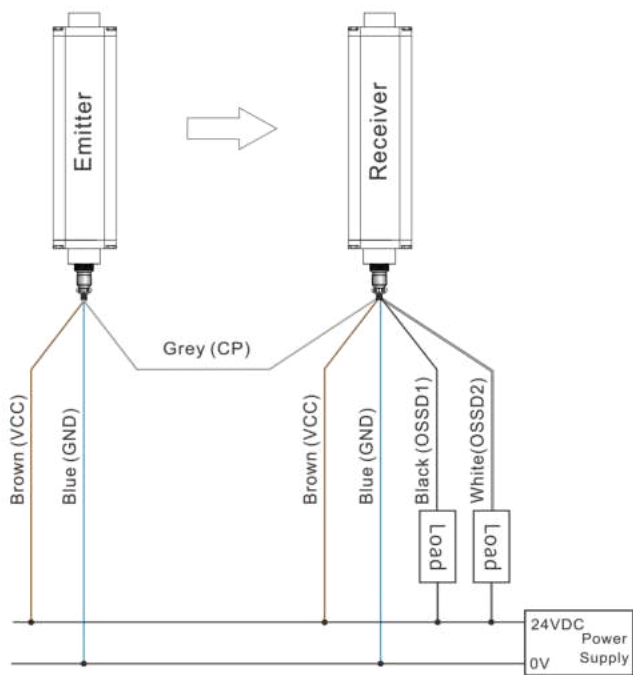
[illegible]

Remark: Beside above models, other light curtains can be customized

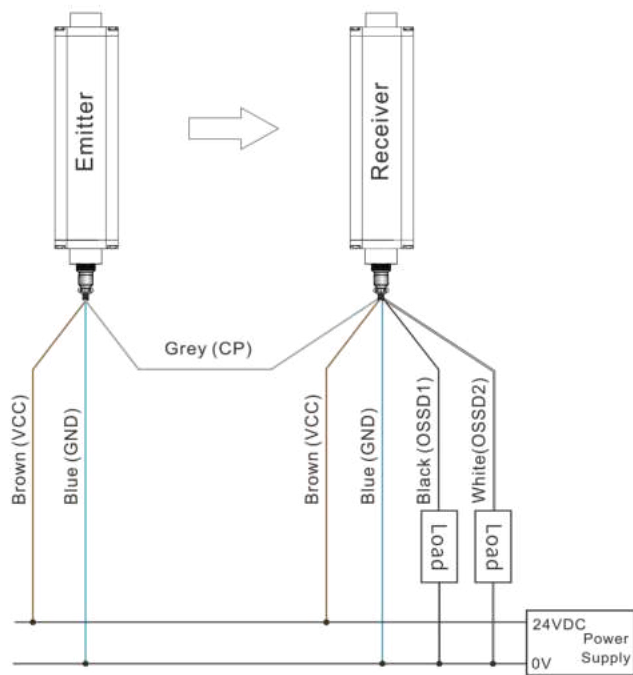


Wire Diagram

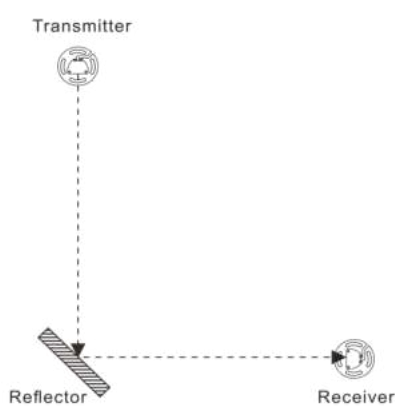
NPN



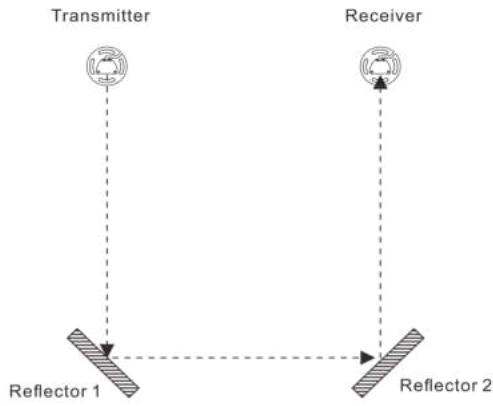
PNP



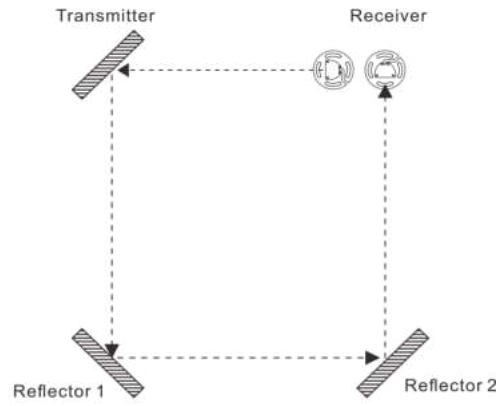
Planar Graph



2 side



3 side



4 side

ESCC Series

Vehicle Separation Light Curtain



Product Introduction

NSESCC series is a kind of light curtain specially designed for highway, toll collection by weight, highway detection station, custom or other vehicle detection site that can mainly achieve function of vehicle height limit, vehicle separation, detection of vehicle speed and vehicle driving direction etc. Stainless steel or cold rolled steel plate enclosure for ESCC is built in heating glass, temperature & humidity controller, realize automatic heating when humidity is too high or temperature is too low so as to ensure that the curtain can be used in wet areas, rainy and snowy weather.

Product Feature

- Special design for vehicle separation detection;
- High energy and penetration rate imported photocell is used to keep stable and reliable performance. It is easy to install and align, when used for 4.5m lane, the excess gain value can reach 5 times. Well work even through harsh environment with dust, rain, fog, special temperature;
- NPN or PNP output signal of vehicle detection and fault detection;
- High self-diagnosis function, can send alarm in time when monitoring objects blocked beam, and automatically shield abnormal beam to ensure curtain work continually until the exception is cleared and restored;
- RS485 and RS232 signal can detect the status of blocked beams;
- It can communicate with host computer and support secondary development;
- Unique programing, and effective signal can be set to output until the object blocking beams reach specified size.
- Industrial ambient temperature:-40-55°C, the maximum relative humidity 95% (50°C), protection rate IP67, can be used in highly cold and hot area stably;
- The enclosure can adjust temperature automatically.

Product Parameter

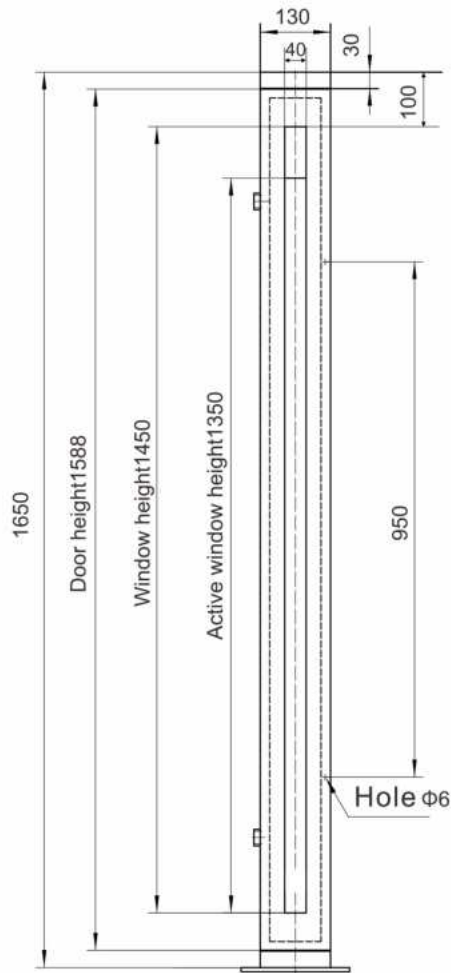
Light Curtain Electric Parameter	
Power Supply	DC24V±15%
Beam Space	20mm/40mm
Resolution	25mm/45mm
Beams	20mm: 32, 64
	40mm: 16, 32
Light Wavelength	940nm
Capacity	<5W
Sensing Distance	20m (Remark: please let us know when with reflectivity)
Against Optical Interference	10000 Lux (angle>2.5°)
Sensing Method	Thru-beam
Output	NPN, PNP, Digital output RS485 (option)
Safety Output (OSSD)	Output of PNP transistor: the residual voltage is less than 1V under a load of 120mA (except the voltage caused by cable extension), and the leakage current is less than 1mA. Output of NPN transistor: under a load of 120mA, the residual voltage is below 1V (except the voltage caused by cable extension), and the leakage current is less than 1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Output Signal	OSSD1 output beam blocked signal, OSSD2 output fault signal
Transmitter Indicator Light	Normal: green steady on
Receiver Indicator Light	Alignment well: green steady on; Alignment error: red steady on. Synchronization error: red blink
Insulation Resistance	≥100MΩ
Ambient Operating Temperature	-40°C~55°C
Storage Temperature	-55°C~80°C
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%
Enclosure Protection Grade	IP65
Sectional Dimension	35*50mm (Remark: protection sectional size is 130*130mm)
Protection Enclosure Parameter	
Operating Voltage	24V±10%
Working Current	10A
Humidity Switch	Mechanical nylon film trigger switch relative humidity 20%-80%
Main Control Unit	When heating component work, the red light on
Enclosure Structure	Stainless steel (201/304)
Window	Adjustable self-heating glass
Heating Glass	Core 2 #4 standard cable with ground wire is required for heating glass (cable not provided)
Door Opening Method	Front opening
Door Closing Method	Front door screw fixed

Model Selection (e.g.: NSESCC6420RH1NRY-20)

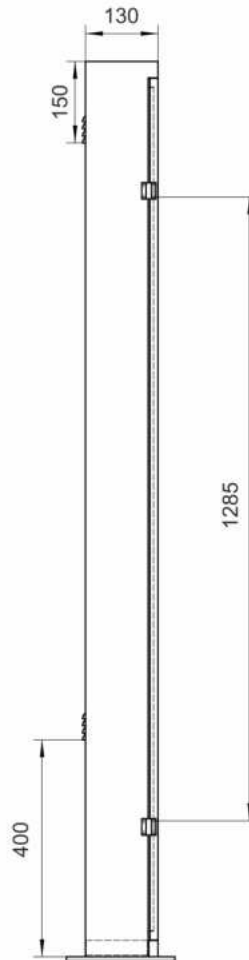
Product Series	Beams	Beam Space	Installation	Output	Digital Output	Sensing Distance
NSESCC	64	20	RH1	N	RY	20
	16, 32, 64	20mm 40mm 16 beams are only 40mm apart.	RH1:CRH-201-1000 (Cover) RH2:CRH-304-1000 (Cover) RH3:CRH-201-1650 (Cover) RH4:CRH-304-1650 (Cover) L1: L1 side mounting	N: NPN P: PNP	No need for digital output; RY: RS485 output response; RZ: RS485 output active.	20:0.1~20m (Remark: please let us know when with reflectivity)

Safety Light Curtain

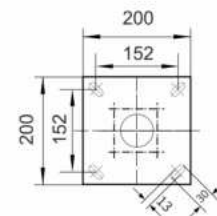
Enclosure Size



Front View



Side View



Fixed Base



1. The positive and negative poles of the power supply cannot be reversely connected, otherwise the LED glass heating indicator light will not work;
2. The heating power is $70 \times 2 = 140\text{W}$, so the heating power supply power shall not be less than 200W, otherwise the power supply can't work.
3. When plugging and unplugging the plug-in connector on the glass, please press the bottom of the connector to ensure that the connector does not fall off from the glass. Do not break the plug-in connector on the glass by hand. If the joint falls off, it must be restored by welding or conductive adhesive bonding.
4. Please be careful of the glass during installation and pay attention to protect the heating wire on the glass.

NSESCC Model Selection Table

- Beam space 20mm, resolution 25mm

Beams (n)	Protection Height (mm)	Total Height (mm)	Model	Enclosure	Material
32	620	705	NSESCC3220	CRH-201-1000	210 stainless steel
				CRH-304-1000	304 stainless steel
64	1260	1345	NSESCC6420	CRH-201-1650	210 stainless steel
				CRH-304-1650	304 stainless steel

- Beam space 40mm, resolution 45mm

Beams (n)	Protection Height (mm)	Total Height (mm)	Model	Enclosure	Material
16	600	685	NSESCC1640	CRH-201-1000	210 stainless steel
				CRH-304-1000	304 stainless steel
32	1240	1325	NSESCC3240	CRH-201-1650	210 stainless steel
				CRH-304-1650	304 stainless steel

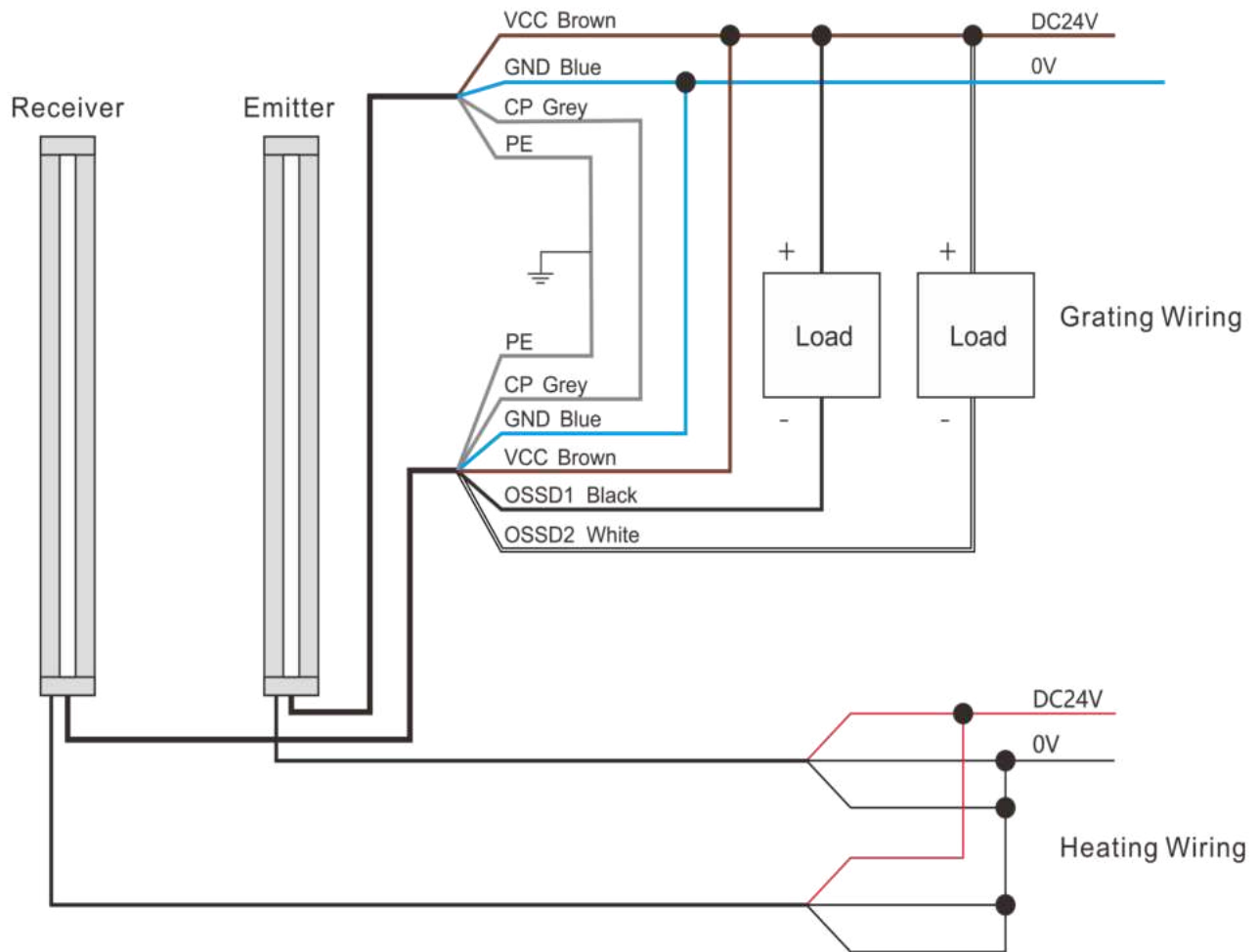
Remark: curtain height can be customized according to requirement besides above model.

Fault and Solution

Fault Symptom	Possible Reason	Solution
Light curtain not work, all indicators are off	No power supply	Check power supply and wire connection
Light curtain intermittently works, and indicator light ON/OFF switching	The wire connection in poor contact	Fasten control cable
	Bad alignment	Re-adjust to make it normally
	Poor grounding or interference with the ground line	To ground or remove interference reliably
	Luminous surface of the emitter and receiver is shielded by spot.	Clean the luminous surface
Green and red indicator of receiver blink at the same time.	CP synchronization cable poor connection or broken	Re-connect CP wire or re-change cable
The glass on heating states	The humidity control switch is set to a lower scale	Adjust the humidity control to 60%-70%
Heating glass cannot heat	The humidity switch control range is too high	Adjust the humidity switch to 60%-70%

Safety Light Curtain

Wire Diagram



Output Setting

- Connect brown VCC wire of emitter & receiver together, then connect to DC12-30V;
- Connect blue GND wire of emitter & receiver together, then connect to 0V;
- Connect gray CP wire of emitter & receiver together;
- The black OSSD1 wire of receiver output vehicle detection signal in 0V;
- The white OSSD2 wire of receiver output curtain fault signal in 0V;
- Receiver green wire 485A+ connect to system 485 communication port A (additional configuration);
- Receiver yellow wire 485B+ connect to system 485 communication port B (additional configuration).

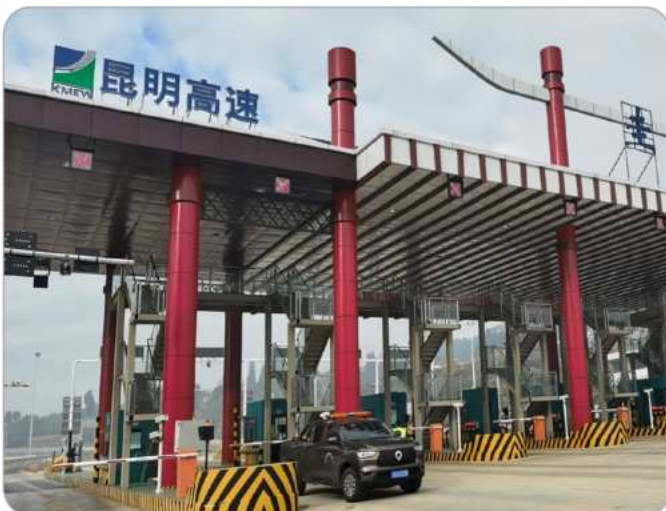
Enclosure Wiring Instruction

- Considering application, ex-work setting of humidity switch is to 60%-70%. When testing, please turn the knob clockwise until a "click" sound is heard, and the humidity switch is turned on. After the test, please turn it counter-clockwise to the humidity required by your company or factory setting.
- Power supply connection, the two wire reserved in the protective cover are connected to 24V power supply, and the working current is 5A. Please pay attention on the positive and negative connection between the wire and the power supply. Red wire connected to the positive side of power supply, 2 black wires must be together connected to the negative side of the power supply. If AC24V power supply, the red is connected to one pole, and other two wires are connected to the other pole.

Output Setting

- Only when 6 consecutive beams are blocked at the same time (e.g.: when the head enters the detection area), NPN OSSD1 become high level to generate signal output, and output 1 remains active until all beams are switched on. The purpose of the setup is to reliably detect the trailer hook, and eliminate the interference of birds, stones, hands and other external factors.
- When a beam or several beams are blocked for more than 3 minutes, system will automatically shield (eliminate) the beam and ensure that the vehicle can still be normally detected. At the same time, NPN output 2 (alarm) will be activated to remind the staff to remove the alarm source. The reasons for long time blocking of the beam may include mud, insects stuck to the glass window, and the failure of the photocell itself. After the cause of the failure is eliminated, the system automatically removes the shielding function immediately, and the alarm output is removed at the same time. Factory setting can block up to 6 beams of light.

Application



NSESM Series

Measuring Light Curtain



Product Introduction

NSESM series measuring light curtain is mainly used for measuring the scale, outline and volume of objects; Skillful and beautiful appearance, diverse installation; The detection accuracy can reach up to 2.5mm, with various parameter configurations, perfect fault detection and fault monitoring, and the digital tube can visually display various working states; Hold the function of shielding lamp beads through the upper computer; The light curtain has strong anti-interference ability and can work normally in various servo motors and harsh environments.

Product Feature

- Wide voltage power supply: the operating voltage is DC12~30V.
- Detection accuracy: the detection accuracy of light curtain can reach 2.5mm at most.
- Long sensing distance: 2.5mm spacing can reach more than 3m sensing distance, 5mm and 10mm spacing can reach more than 5m sensing distance.
- A variety of data output: light spot blocking beam, light spot status, edge shading position.
- Flexible configuration: the system parameters such as communication parameters, output data type, shielding lamp beads are modified by the upper computer, and the settings are restored by the parameters.
- Standard protocol: Modbus-RTU communication protocol is adopted.
- Visual display of operation status: adopt digital tube and Indicator light display screen as the status.
- Strong seismic performance: the interior of the light curtain adopts seismic structure and aluminum shell structure design, which has good seismic performance.
- Suitable for installation in various environments: there are various installation types and a variety of installation racks, which are suitable for installation in more environments.
- Small appearance size: 32mm*30mm sectional dimension

Product Parameter

Power Supply	DC12V~30V
Capacity	<5W
Beam Space	2.5mm, 5mm, 10mm
Detection accuracy	2.5mm, 5mm, 10mm
Sensing Distance	15mm, 25mm, 45mm
Beam	2.5mm: 32, 64.....640
	5mm: 16, 24.....640
	10mm: 16, 24.....400
Protective Height	Protection height=(N-1)*beam space, N is beams
Wavelength	940nm
Response Time	Response time=(N*0.1ms)+0.4ms N is beams
Safety Output (OSSD)	NPN or PNP
	Analog voltage: 0~5V, 0~10V, 4~20mA
Communication	Communication: RS485
	Baud rate:9600bps(default), 19200bps, 38400bps, 57600bps, 115200bps
	Protocol: Modbus-RTU
	Data sending: active mode, passive mode
Sensing Distance	2.5mm:0.1~3m (Remark: please let us know when with reflectivity)
	5mm:0.1~5m (Remark: please let us know when with reflectivity)
	10mm:0.1~5m (Remark: please let us know when with reflectivity)
Sensing Method	Thru-beam
Synchronization	Wire-syn
Enclosure Material	Aluminum alloy
Enclosure Rate	IP65
Sectional Size	32*30mm
Vibration Resistance	Frequency 10Hz-55Hz, amplitude 0.35±0.05mm, 20time each X, Y and Z direction.
Ambient Temperature	-10°C~55°C (no freezing)
Store Temperature	-30°C~70°C (no freezing)
Ambient Humidity	When temperature 20°C, the humidity max. 85%

Model Selection (e.g.: NSESM - 1610NL-3)

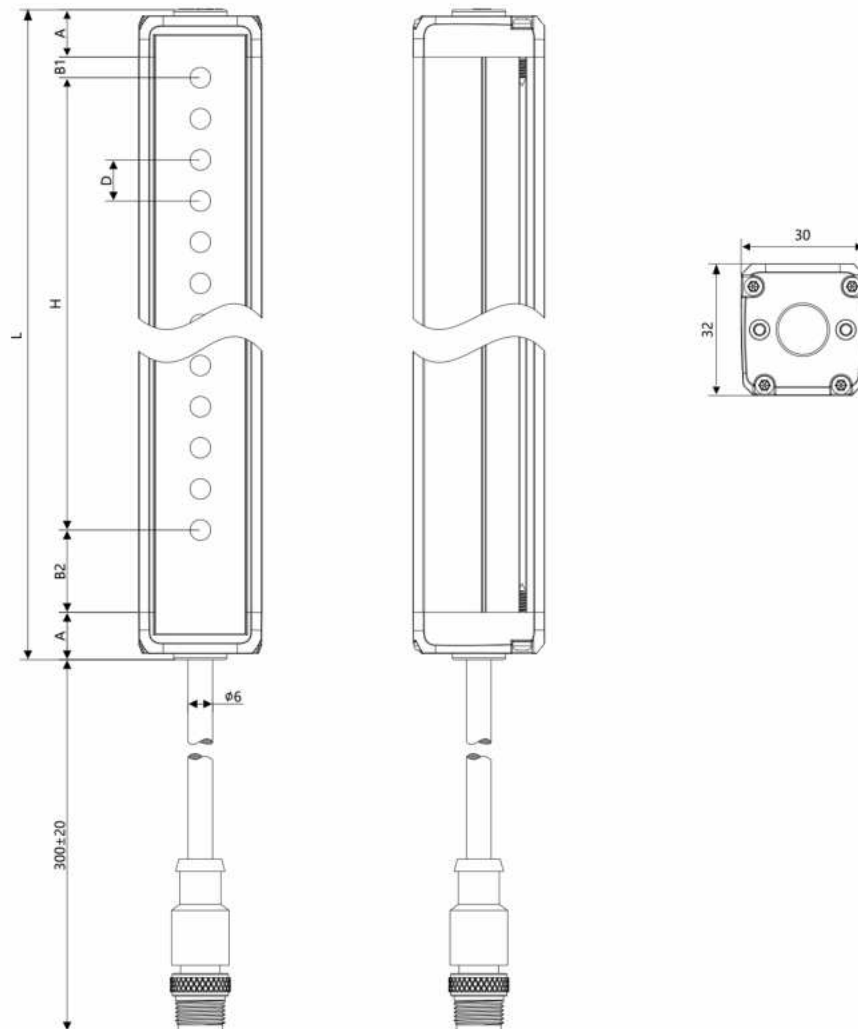
Product Series	Beams	Beam Space	Output Option	Installation	Sensing Distance
NSESM	16	10	N	L	3
	16,24, 32...	2.5mm 5mm 10mm	N:2 NPN outputs P:2 PNP outputs U1:0~5V analog voltage output U2:0~10V analog voltage output I:4~20mA analog current output PP:1-channel p-type pulse transmission	L: L side mounting Q2: Q2end cover mounting	1: 0.1~1m 3: 0.1~3m 5: 0.1~5m (Remark: please let us know when with reflectivity)

Note: 1. When PP(1-channel P-pulse transmission) is selected, the shooting distance is 3m at the farthest.

2. The product has RS485 digital output response by default; Among them, active, baud rate, address, output data content, OSSD trigger, analog output data and shielding settings can be configured on the upper computer. Please refer to the EMLCC_ESM Operation Manual for specific operation procedures.

Measuring Light Curtain

Product Size



A: upper & lower end caps
 B1: up blind area
 B2: bottom blind area
 D: beam space
 H: protective height
 L: total length

Cover A=11.5mm

When the optical axis spacing $D=2.5\text{mm}$, the upper blind zone $B1=1.25\text{mm}$ and the lower blind zone $B2=16.25\text{mm}$.

When the optical axis spacing $D=5.0\text{mm}$, the upper blind zone $B1=2.5\text{mm}$ and the lower blind zone $B2=17.5\text{mm}$.

When the optical axis spacing $D=10.0\text{mm}$, the upper blind zone $B1=5.0\text{mm}$ and the lower blind zone $B2=20.0\text{mm}$.

H is the detection degree of the light curtain:

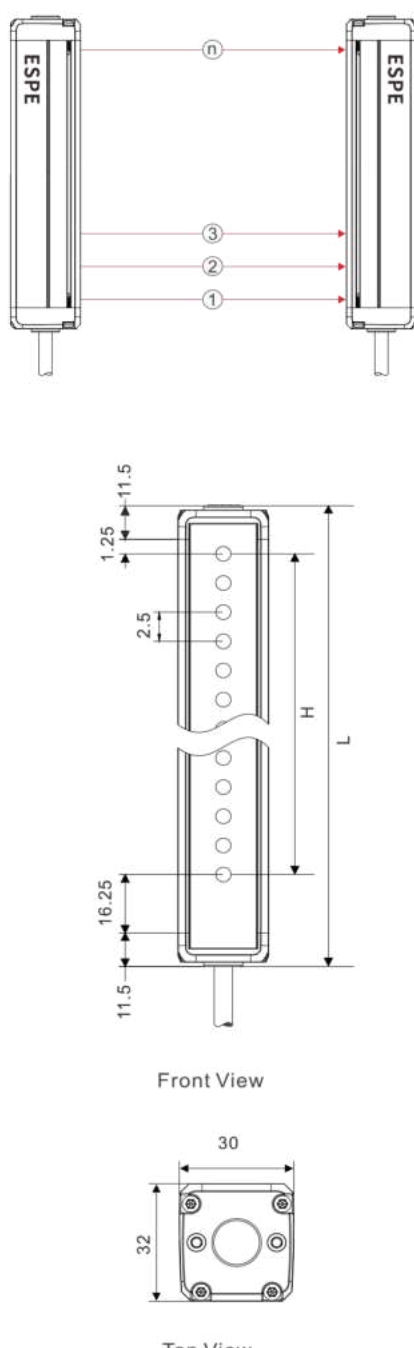
$H = (\text{number of optical axes} - 1) \times \text{optical axis spacing}$.

L is the total degree of light curtain:

$L = \text{end cover degree} \times 2 + \text{upper and lower blind spots} + \text{detection degree}$.

NSESM Model Selection Table

- Detection accuracy 2.5mm

Picture (mm)	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protective height: $H = (beams - 1) * beam\ space$. L is total height: $L = A + B1 + B2 + H$	32	77.5	118	NSESM32025
	64	157.5	198	NSESM64025
	96	237.5	278	NSESM96025
	128	317.5	358	NSESM128025
	160	397.5	438	NSESM160025
	192	477.5	518	NSESM192025
	224	557.5	598	NSESM224025
	256	637.5	678	NSESM256025
	288	717.5	758	NSESM288025
	320	797.5	838	NSESM320025
	352	877.5	918	NSESM352025
	384	957.5	998	NSESM384025
	416	1037.5	1078	NSESM416025
	448	1117.5	1158	NSESM448025
	480	1197.5	1238	NSESM480025
	512	1277.5	1318	NSESM512025
	544	1357.5	1398	NSESM544025
	576	1437.5	1478	NSESM576025
	608	1517.5	1558	NSESM608025
	640	1597.5	1638	NSESM640025

Remark: Beside above models, other light curtains can be customized

Measuring Light Curtain

NESM Model Selection Table

- Detection accuracy 5mm

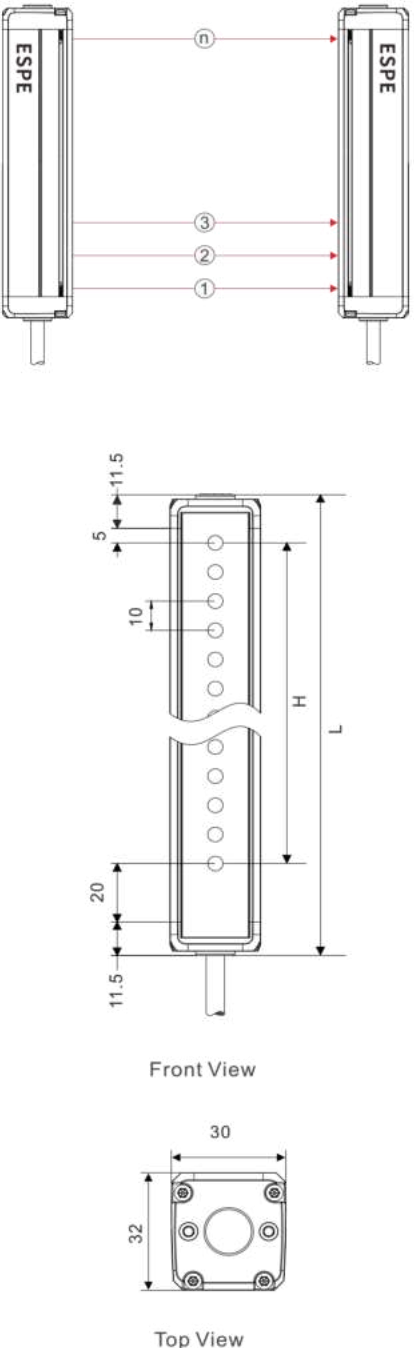
Picture (mm)	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
Front View Top View	16	75	118	NESM1605
	24	115	158	NESM2405
	32	155	198	NESM3205
	40	195	238	NESM4005
	48	235	278	NESM4805
	56	275	318	NESM5605
	64	315	358	NESM6405
	72	355	398	NESM7205
	80	395	438	NESM8005
	88	435	478	NESM8805
	96	475	518	NESM9605
	104	515	558	NESM10405
	112	555	598	NESM11205
	120	595	638	NESM12005
	128	635	678	NESM12805
	136	675	718	NESM13605
	144	715	758	NESM14405
	152	755	798	NESM15205
	160	795	838	NESM16005
	168	835	878	NESM16805
	176	875	918	NESM17605
	184	915	958	NESM18405
	192	955	998	NESM19205
	200	995	1038	NESM20005
	208	1035	1078	NESM20805
	216	1075	1118	NESM21605
	224	1115	1158	NESM22405
	232	1155	1198	NESM23205
	240	1195	1238	NESM24005
	248	1235	1278	NESM24805
	256	1275	1318	NESM25605
				
	640	3195	3238	NESM64005

H is protective height: $H = (\text{beams} - 1) \times \text{beam space}$.
 L is total height: $L = A + B1 + B2 + H$

Remark: Beside above models, other light curtains can be customized

NSESM Model Selection Table

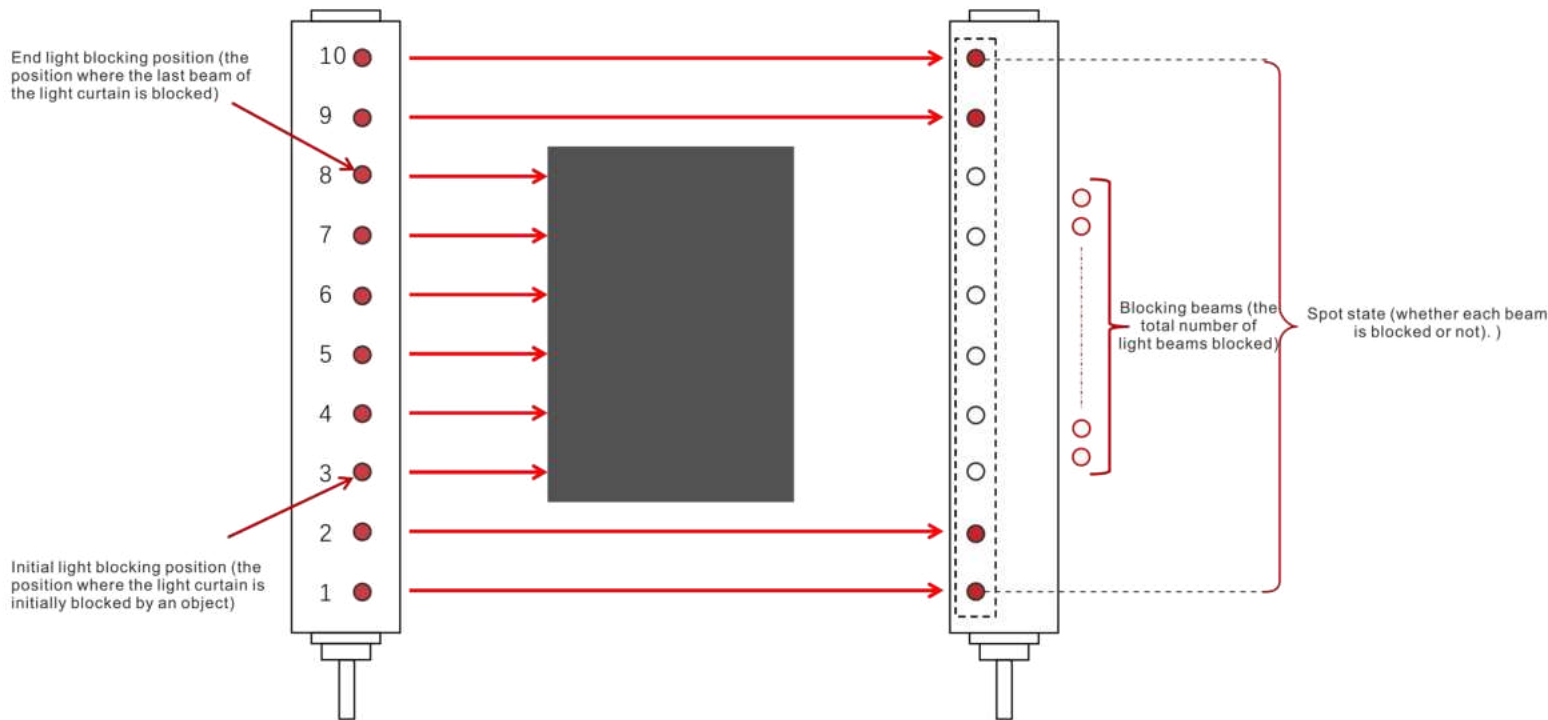
- Detection accuracy 10mm

Picture (mm)	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protective height: $H = (beams - 1) * beam\ space$. L is total height: $L = A + B1 + B2 + H$	16	150	198	NSESM1610
	24	230	278	NSESM2410
	32	310	358	NSESM3210
	40	390	438	NSESM4010
	48	470	518	NSESM4810
	56	550	598	NSESM5610
	64	630	678	NSESM6410
	72	710	758	NSESM7210
	80	790	838	NSESM8010
	88	870	918	NSESM8810
	96	950	998	NSESM9610
	104	1030	1078	NSESM10410
	112	1110	1158	NSESM11210
	120	1190	1238	NSESM12010
	128	1270	1318	NSESM12810
	136	1350	1398	NSESM13610
	144	1430	1478	NSESM14410
	152	1510	1558	NSESM15210
	160	1590	1638	NSESM16010
	168	1670	1718	NSESM16810
	176	1750	1798	NSESM17610
	184	1830	1878	NSESM18410
	192	1910	1958	NSESM19210
	200	1990	2038	NSESM20010
	208	2070	2118	NSESM20810
	216	2150	2198	NSESM21610
	224	2230	2278	NSESM22410
	232	2310	2358	NSESM23210
	240	2390	2438	NSESM24010
	248	2470	2518	NSESM24810
	256	2550	2598	NSESM25610
				
	400	3990	4038	NSESM40010

Remark: Beside above models, other light curtains can be customized

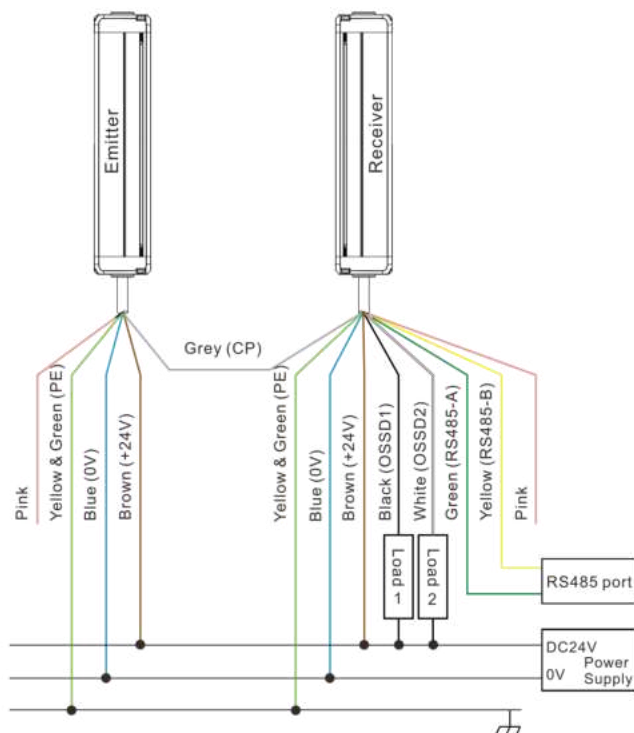
Measuring Light Curtain

Light Curtain Output Data Description

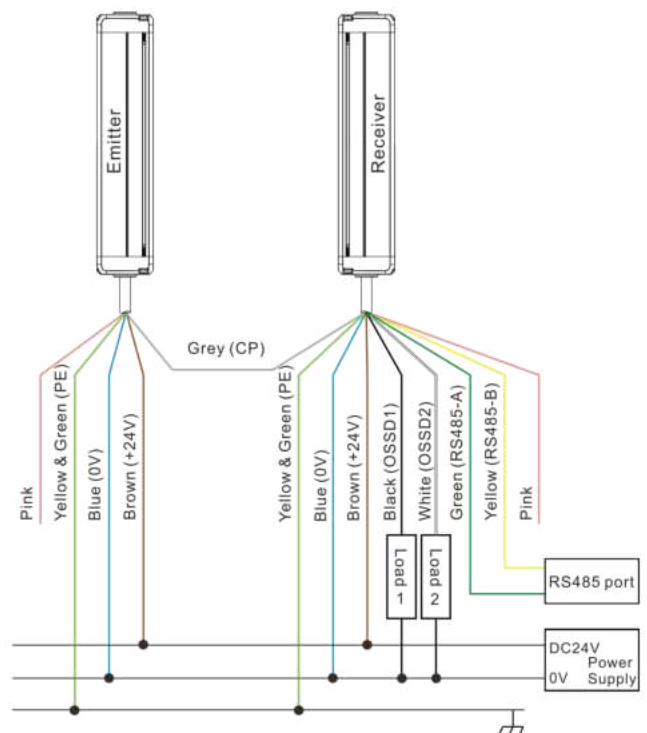


Wire Diagram

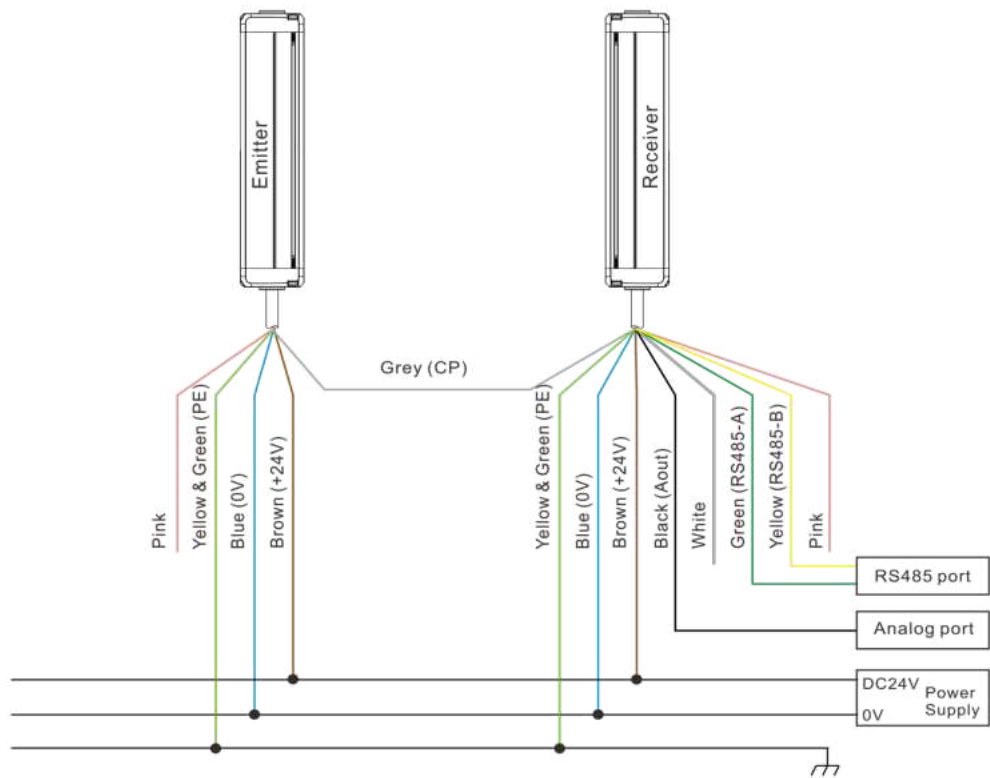
NPN



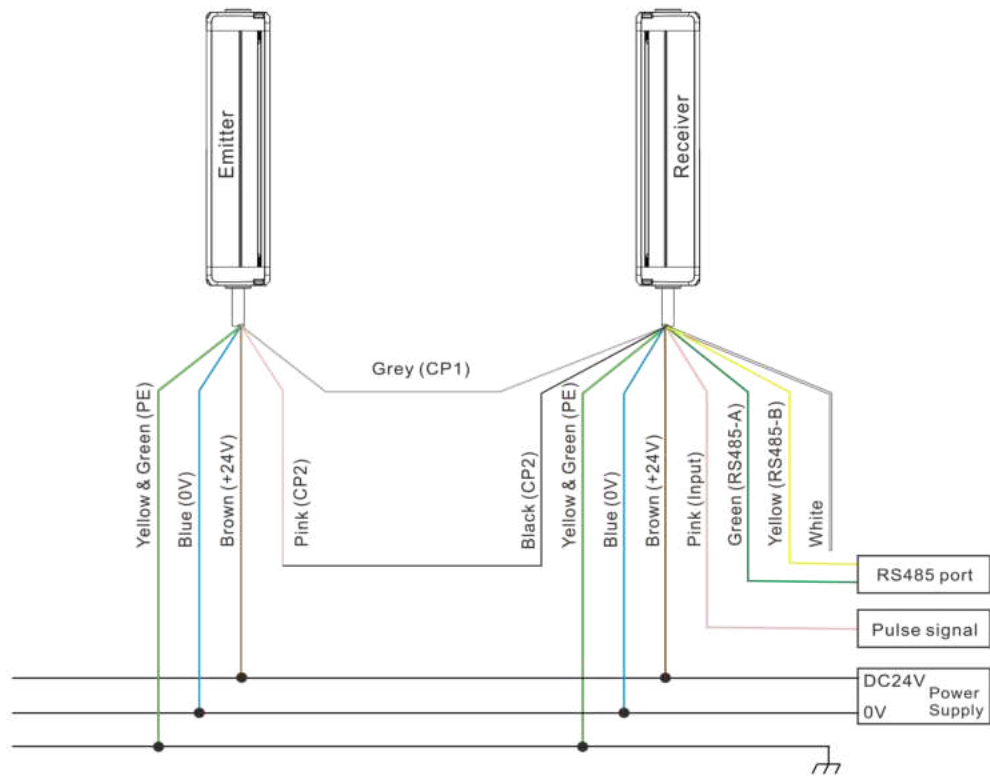
PNP



Analog Wiring Diagram



Pulse Transmission Wiring Diagram

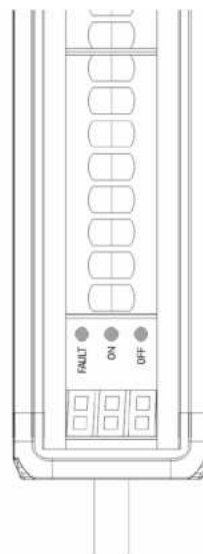
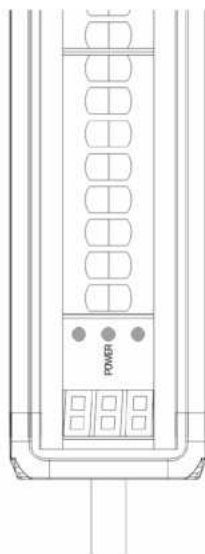


Measuring Light Curtain

Connection

Barrier	Color	Wire Mark	Function	Connection
Emitter	Brown	24V	Positive of power	Connect to 24V of power
	Blue	0V	Negative of power	Connect to 0V of power
	Grey	CP/CP1	Synchronization wire	Connect to CP/CP1 of emitter
	Black	CP2/NC	Wire synchronization/reservation	Connect the receiver CP2/ Suspend
	Yellow & Green	PE	Shielding wire	Grounding after short circuit with receiving PE.
Receiver	Brown	24V	Positive of power	Connect to 24V of power
	Blue	0V	Negative of power	Connect to 0V of power
	Grey	CP/CP1	Synchronization wire	Connect to CP/CP1 of emitter
	Black	OSSD1/Aout/CP2	Switch output 1/ analog output signal/synchronization signal	Connect the switch signal input 1/connect the analog input terminal/connect the transmitting CP2.
	White	OSSD2/NC	Switch output 2/ NULL	Connect switch signal input 2/NULL
	Green	RS485-A	RS485 communication interface	Connected to RS485 bus A
	Yellow	RS485-B		Connected to RS485 bus B
	Pink	Input/NC	Pulse transmission/reservation	Connect pulse signal/suspend
	Yellow & Green	PE	Shielding wire	Ground after short circuit with transmitting PE.

Indication of Indicator Light



Indication of Indicator Light

Indication Code of ESM Equipment Receiver



Power on and light all LEDs for 1s: to judge whether the LEDs can work normally.



On power-up, the communication parameters of the equipment are shown as follows:
baud rate: 9600,
Digital tube display: 96n.
Parity: None



The red, green and orange indicator lights flash at the frequency of 2.5Hz. After the configuration parameters and system parameters are modified, the digital tube displays: set.



Fault-free, lighting:
The green finger light is on,
Digital tube display: 000,
The red finger light goes out,
The orange light goes out.



Fault-free, light blocking shows the position of the lowest blocking spot. For example, the position of the lowest blocking light spot is the 111th lamp bead.
Digital tube display: 111,
The green finger light goes out,
The red finger light is on,
The orange light goes out..



Fault, EEPROM parameters are not configured, or EEPROM parameters are wrong. Digital tube display: E0,
Red finger lights go out.
Green finger lights go out.
Orange means flashing at 1 Hz frequency.



Fault, CP open circuit.
Digital tube display: CP,
The red finger light goes out,
The green finger light goes out,
Orange means flashing at 1 Hz frequency.



Fault, CP overcurrent.
Digital tube display: 0c,
The green finger light goes out,
Orange means flashing at 1 Hz frequency.
The red finger light goes out,



Fault, overvoltage of power supply voltage.
Digital tube display: 0v,
The green finger light goes out,
Fault, overvoltage of power supply voltage.
The red finger light is always on,
Orange means flashing at 1 Hz frequency.



Fault, undervoltage of power supply voltage.
Digital tube display: UV,
The red finger light is always on,
The green finger light goes out,
Orange means flashing at 1 Hz frequency.

ESM Equipment Transmitter Explicit Coding Instructions



Power on and light all LEDs for 1s: to judge whether the LEDs can work normally.



Fault-free:
The digital tube has no display,
The red finger light goes out,
The green finger light is always on
The orange light goes out.



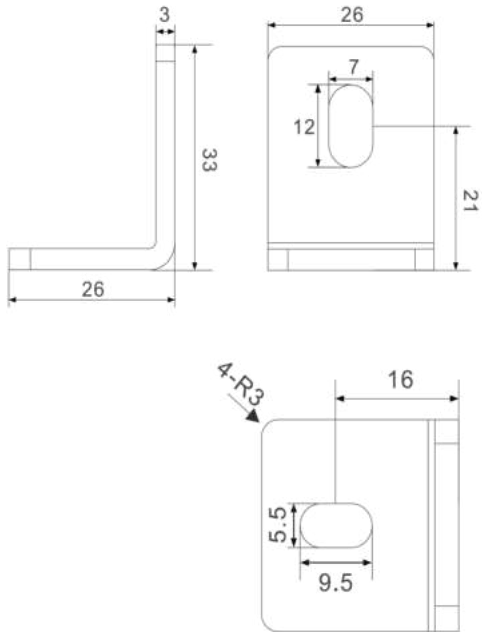
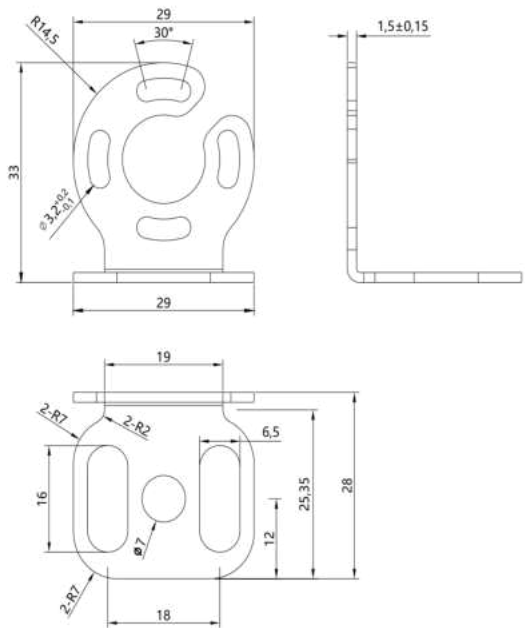
Fault, overvoltage of power supply voltage.
Digital tube display: 0v,
The red finger light is always on,
The green finger light goes out,
Orange indicates 0.5Hz frequency flashing.



Fault, undervoltage of power supply voltage.
Digital tube display: UV,
The red finger light is always on,
The green finger light goes out,
Orange indicates 0.5Hz frequency flashing.

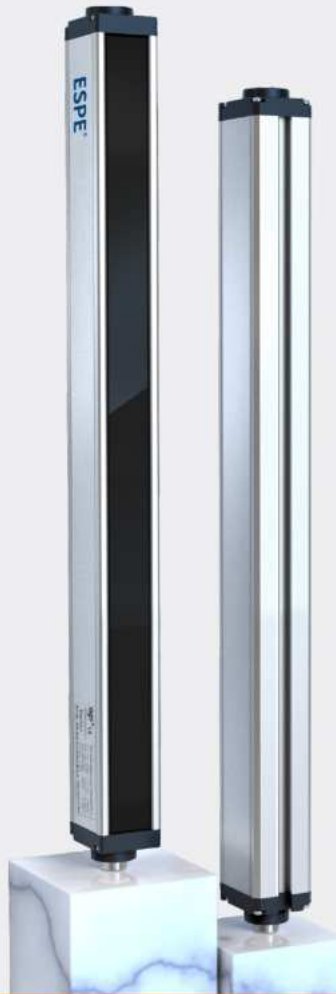
Measuring Light Curtain

Option of Bracket

Picture	Name & Accessories	Size
	L bracket: L bracket (4pcs) M5 Slider (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M5*6 screw (4pcs)	
	Q4 bracket: Q4 bracket (4pcs) M3*7 screw (4pcs) M6 gasket (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs)	

NSESCL Series

Measuring/ Detection Light Curtain



Product Introduction

NSESCL series is mainly used for detecting the shape or size of objects, holes, and volume measuring: High resolution can detect even 1mm objects; With RS485/RS232, analog voltage, witch output signal. >ESCL series measuring light curtain, mainly used to detect object shape ruler, hole detection, etc. The light curtain has high detection accuracy, and the minimum detection energy can detect objects with 1mm accuracy; With RS485, RS232, analog voltage, analog current, switch output and other output modes, it has high stability. Strong anti-electromagnetic interference ability, can be effectively used in various servo motors, motor interference environment.

Product Feature

- High accuracy to detect objects of even 1mm;
- Long sensing distance;
- Quick response time, special algorithm is applied to shorten the entire scan cycle;
- Multiple output method including RS485, RS232, analog voltage and analog current;
- Standard Modbus-RTU communication;
- Good performance to resist electromagnetic interference of various equipment motors;
- Wire synchronization technology to resist light interference effectively.

Product Parameter

Power Supply	DC12V~30V
Detection accuracy	1mm, 10mm, 20mm, 40mm
Beams	1mm: 128, 256,...1280
	10mm: 16, 24,...400
	20mm: 16, 20, 24,...240
	40mm: 8, 16,...120
Capacity	<5W
Protection Height	H= (beams -1)* beam space.
Light Wavelength	940nm
Output	Switch output: NPN, PNP
	Analog output: 0~5V, 0~10V and 4~20mA.
Against Optical Interference	10000 Lux (angle>2.5°)
Communication	Communication mode: RS485 and RS232.
	Baud rate: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
	Protocol: Modbus-RTU
	Data transmission mode: active mode, response mode.
Sensing Method	Thru-beam
Sensing Distance	1mm: 0.4~1.5m (Remark: please let us know when with reflectivity)
	10mm: 0.2~20m (Remark: please let us know when with reflectivity)
	20mm: 0.2~20m (Remark: please let us know when with reflectivity)
	40mm: 0.2~20m (Remark: please let us know when with reflectivity)
Synchronization	Wire-syn
Enclosure Material	Aluminum alloy
Enclosure Protection rate	IP65
Sectional Size	35.8*45mm
Ambient Operating Temperature	-10°C~55°C(no freezing)
Storage Temperature	-30°C~70°C(no freezing)
Ambient Operating Humidity	When temperature 20°C, the humidity max. 85%

Model Selection (e.g.: NSESCSCL - 1620L1NRYL-2)

Product Series	Beams	Beam Space	Installation	Output 1	Output 2	Enclosure Option	Sensing Distance
NSESCSCL	16	20	L1	N	RY	L	2
	8, 16, 24, 32...	1mm 10mm 20mm 40mm	L1: side mounting L2: up & bottom mounting (only G enclosure) L7: end mounting from side (only G enclosure) H1: end mounting (only N enclosure)	N: NPN*2 P: PNP*2 U: (0-10V) voltage type U1: (0-5V) voltage type I: (4-20mA) current mode	RY: RS485 output response type RZ: RS485 output active type SY: RS232 output response type SZ: RS232 output active type	L: 35.8×45mm N: 35×50mm G: 35×27mm	05: 0.1~0.5m 1: 0.1~1m 2: 0.1~2m 5: 0.1~5m 10: 0.1~10m 15: 0.1~15m 20: 0.1~20m

Remark: 1. By default, the communication mode of light curtain is RS485 response mode, and the output mode is double NPN/PNP normally closed output. It can communicate with the supporting upper computer software through the RS485 interface of the light curtain, and modify it. For the specific communication protocol, please refer to the ESCL/ESM Series Measuring Light Curtain Communication Protocol Manual V3.2.

2. 1mm beam space can select output data: the lowest blocked beam+the highest blocked beam+the number of blocked beams+input pulse number. When this output is selected, the white line output interface is the input signal line. See the wiring diagram of RS485 Output+Pulse Input for details.

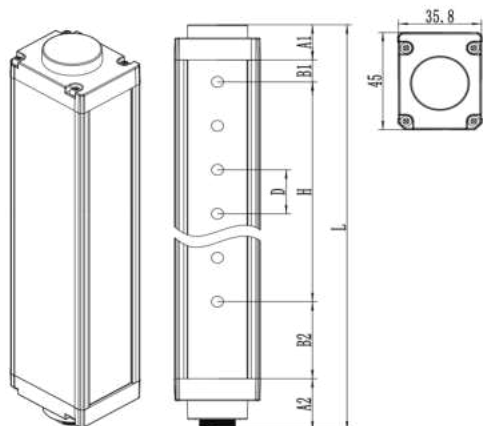
3. If ELG shell is selected, only single output can be selected for switch output. In addition, if 2.5mmG shell is selected, only 0.5 can be selected for the cross-reference distance, and only 5m can be selected for other intervals.

4. There is no analog output at the interval of 1mm, only one switch output, OSSD2 effective signal, and G-shaped enclosure is not allowed.

Measuring Light Curtain



Product Size



ESCL Enclosure

A1: up cover of curtain

A2: bottom cover and aviation of curtain

B1: up blind area

B2: bottom blind area

D: beam space of curtain

H: protective height

L: total height of curtain

A1 is 16mm, A2 is 24mm

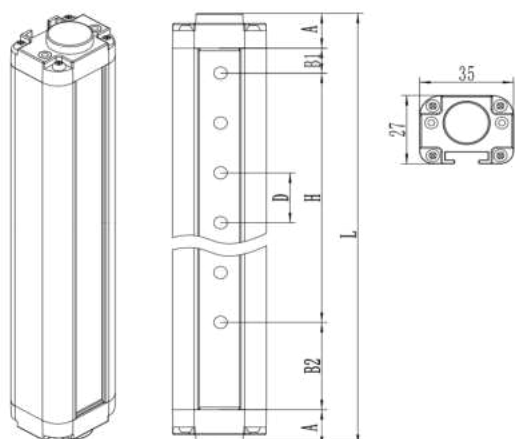
When D=1mm, B1=6mm, B2=30mm

When D=10mm, B1=5mm, B2=30mm

When D=20mm/40mm, B1=10mm, B2=35mm

$H = (\text{Beams} - 1) \times \text{beam space}$

$L = A1 + A2 + B1 + B2 + H$



ELG Enclosure

A1: up cover of curtain

A2: bottom cover and aviation of curtain

B1: up blind area

B2: bottom blind area

D: beam space of curtain

H: protective height

L: total height of curtain

A1 is 14mm, A2 is 20mm

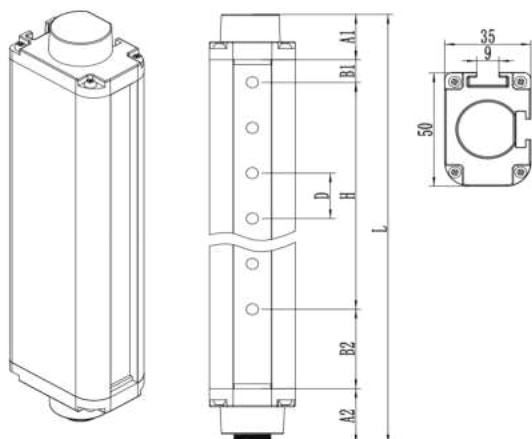
When D=10mm, B1=5mm, B2=30mm

When D=20mm, B1=10mm, B2=35mm

When D=40mm, B1=10mm, B2=35mm

$H = (\text{Beams} - 1) \times \text{beam space}$

$L = A1 + A2 + B1 + B2 + H$



ESN Enclosure

A1: up cover of curtain

A2: bottom cover and aviation of curtain

B1: up blind area

B2: bottom blind area

D: beam space of curtain

H: protective height

L: total height of curtain

A1 is 20mm, A2 is 25mm

When D=10mm, B1=5mm, B2=30mm

When D=20mm, B1=10mm, B2=35mm

When D=40mm, B1=10mm, B2=35mm

$H = (\text{Beams} - 1) \times \text{beam space}$

$L = A1 + A2 + B1 + B2 + H$

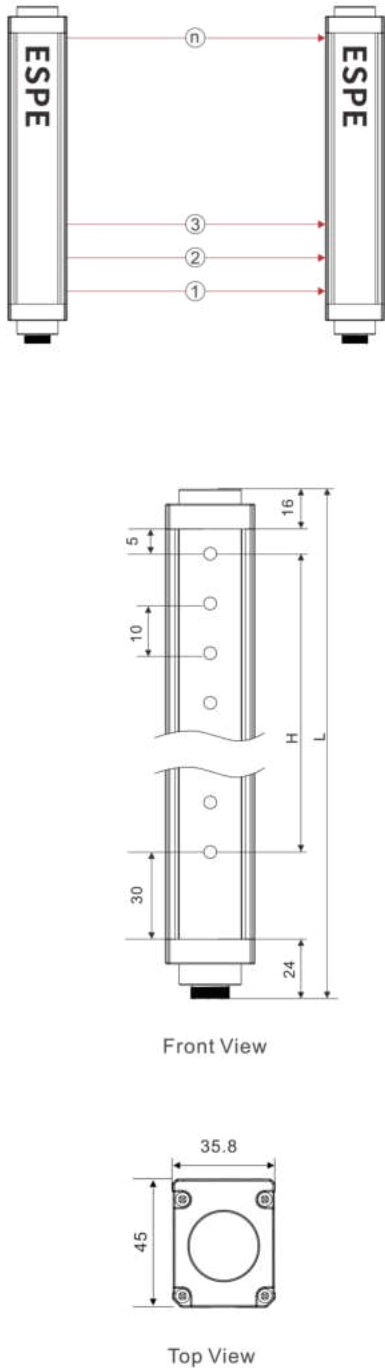
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Remark: Beside above models, other light curtains can be customized

Measuring Light Curtain

NSESCL Model Selection Table

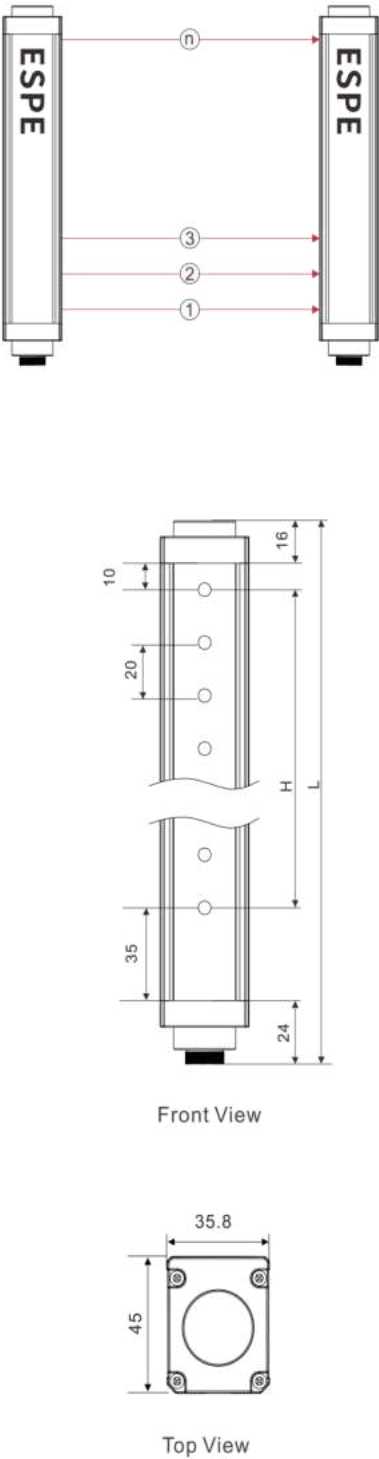
- Detection accuracy 10mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	16	150	225	NSESCL1610
	24	230	305	NSESCL2410
	32	310	385	NSESCL3210
	40	390	465	NSESCL4010
	48	470	545	NSESCL4810
	56	550	625	NSESCL5610
	64	630	705	NSESCL6410
	72	710	785	NSESCL7210
	80	790	865	NSESCL8010
	88	870	945	NSESCL8810
	96	950	1025	NSESCL9610
	104	1030	1105	NSESCL10410
	112	1110	1185	NSESCL11210
	120	1190	1265	NSESCL12010
	128	1270	1345	NSESCL12810
	136	1350	1425	NSESCL13610
	144	1430	1505	NSESCL14410
	152	1510	1585	NSESCL15210
	160	1590	1665	NSESCL16010
	168	1670	1745	NSESCL16810
	176	1750	1825	NSESCL17610
	184	1830	1905	NSESCL18410
	192	1910	1985	NSESCL19210
	200	1990	2065	NSESCL20010
	208	2070	2145	NSESCL20810
	216	2150	2225	NSESCL21610
	224	2230	2305	NSESCL22410
	232	2310	2385	NSESCL23210
	240	2390	2465	NSESCL24010
	248	2470	2545	NSESCL24810
	256	2550	2625	NSESCL25610
				
	400	3990	4065	NSESCL40010

Remark: Beside above models, other light curtains can be customized

NSESCL Model Selection Table

• Detection accuracy 20mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View	16	300	385	NSESCL1620
	20	380	465	NSESCL2020
	24	460	545	NSESCL2420
	28	540	625	NSESCL2820
	32	620	705	NSESCL3220
	36	700	785	NSESCL3620
	40	780	865	NSESCL4020
	44	860	945	NSESCL4420
	48	940	1025	NSESCL4820
	52	1020	1105	NSESCL5220
	56	1100	1185	NSESCL5620
	60	1180	1265	NSESCL6020
	64	1260	1345	NSESCL6420
	68	1340	1425	NSESCL6820
	72	1420	1505	NSESCL7220
	76	1500	1585	NSESCL7620
	80	1580	1665	NSESCL8020
	84	1660	1745	NSESCL8420
	88	1740	1825	NSESCL8820
	92	1820	1905	NSESCL9220
	96	1900	1985	NSESCL9620
	100	1980	2065	NSESCL10020
	104	2060	2145	NSESCL10420
	108	2140	2225	NSESCL10820
	112	2220	2305	NSESCL11220
	116	2300	2385	NSESCL11620
	120	2380	2465	NSESCL12020
	124	2460	2545	NSESCL12420
	128	2540	2625	NSESCL12820
	132	2620	2705	NSESCL13220
	136	2700	2785	NSESCL13620
				
	240	4780	4865	NSESCL24020

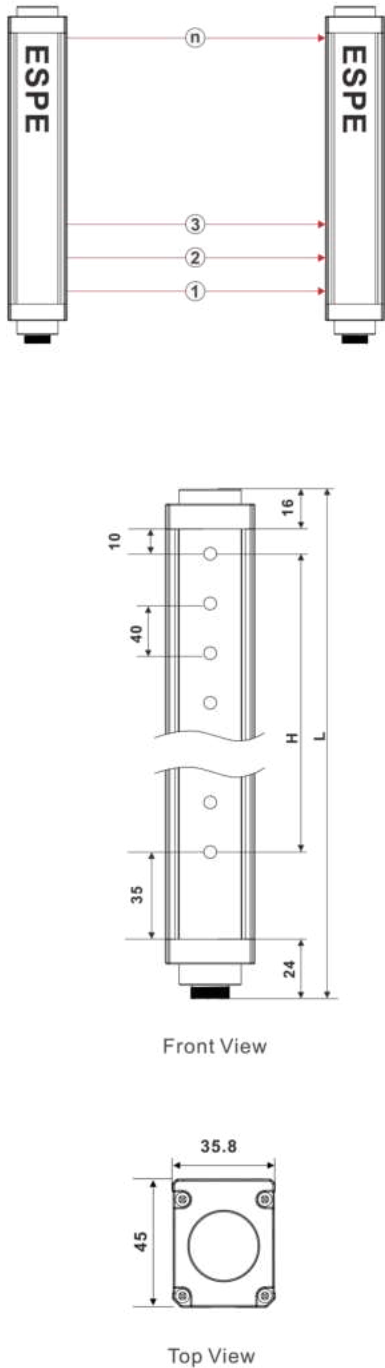
H is protection height=(beams-1)*beam space
L is total height=end covers+ up & bottom blind area + protection height

Remark: Beside above models, other light curtains can be customized

Measuring Light Curtain

NSESCL Model Selection Table

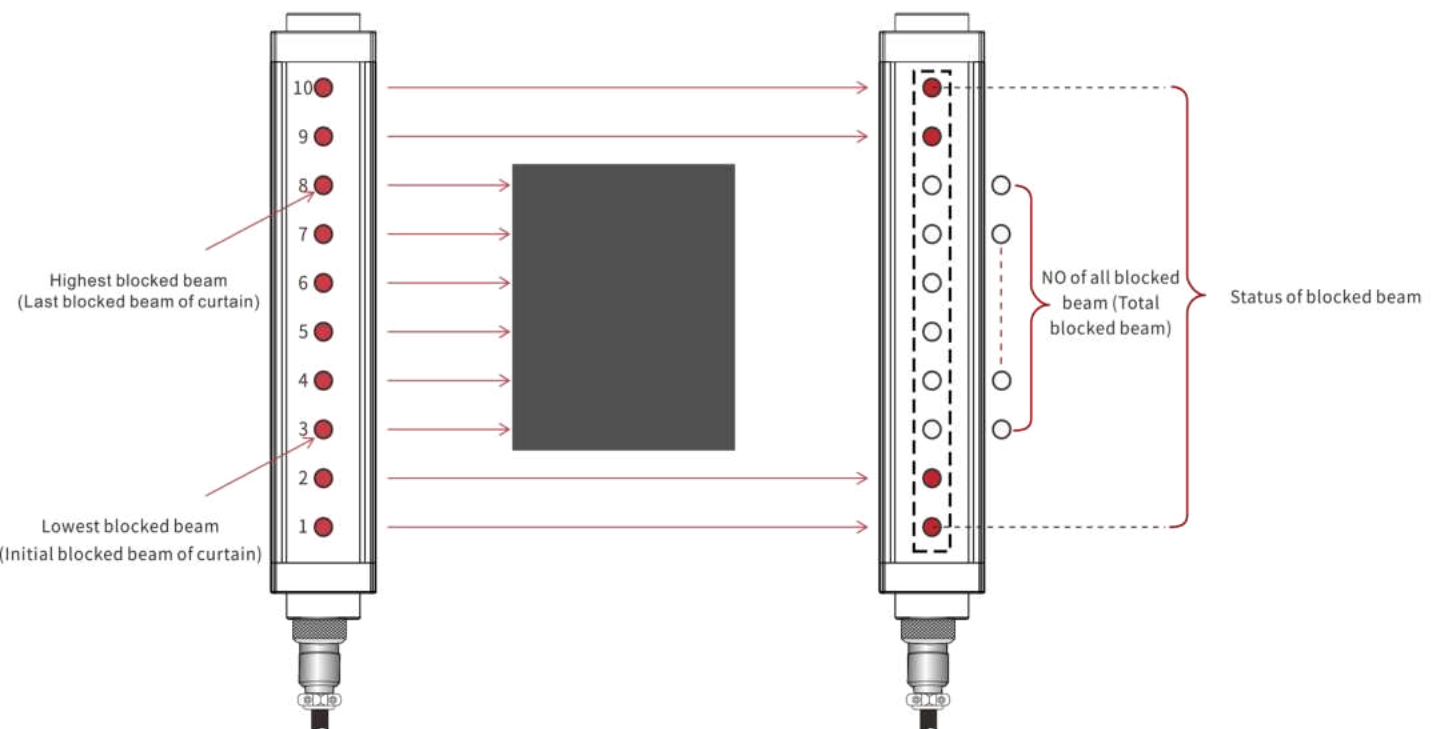
- Detection accuracy 40mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
 Front View Top View	08	280	365	NSESCL0840
	12	440	525	NSESCL1240
	16	600	685	NSESCL1640
	20	760	845	NSESCL2040
	24	920	1005	NSESCL2440
	28	1080	1165	NSESCL2840
	32	1240	1325	NSESCL3240
	36	1400	1485	NSESCL3640
	40	1560	1645	NSESCL4040
	44	1720	1805	NSESCL4440
	48	1880	1965	NSESCL4840
	52	2040	2125	NSESCL5240
	56	2200	2285	NSESCL5640
	60	2360	2445	NSESCL6040
	64	2520	2605	NSESCL6440
	68	2680	2765	NSESCL6840
	72	2840	2925	NSESCL7240
	76	3000	3085	NSESCL7640
	80	3160	3245	NSESCL8040
	84	3320	3405	NSESCL8440
	88	3480	3565	NSESCL8840
	92	3640	3725	NSESCL9240
	96	3800	3885	NSESCL9640
	100	3960	4045	NSESCL10040
	104	4120	4205	NSESCL10440
	108	4280	4365	NSESCL10840
	112	4440	4525	NSESCL11240
	116	4600	4685	NSESCL11640
	120	4760	4845	NSESCL12040

H is protection height=(beams-1)*beam space
L is total height=end covers+ up & bottom blind area + protection height

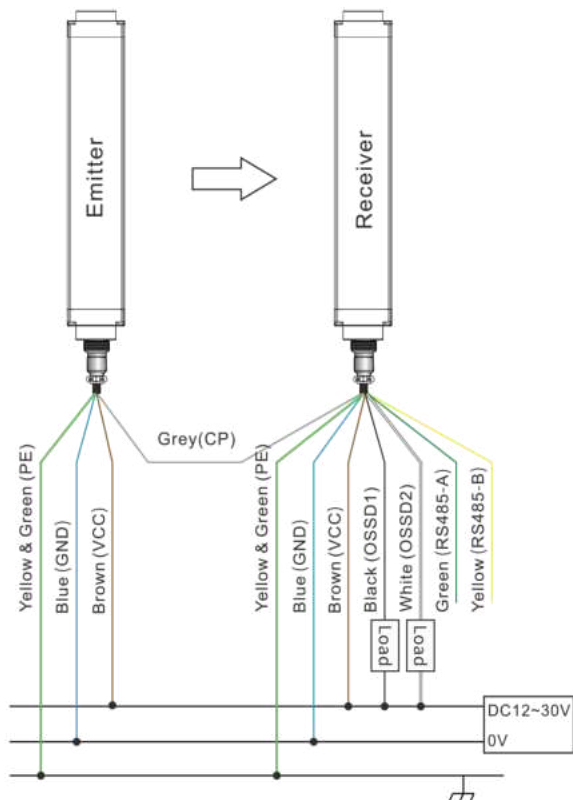
Remark: Beside above models, other light curtains can be customized

⚙️ Output Data Specification

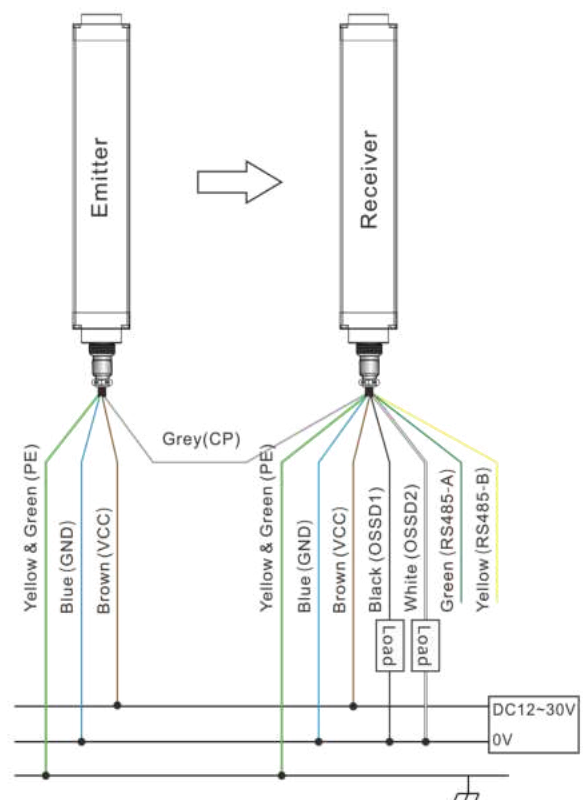


🔌 Wire Diagram

Output-NPN+RS485 (ESN/ESCL enclosure)



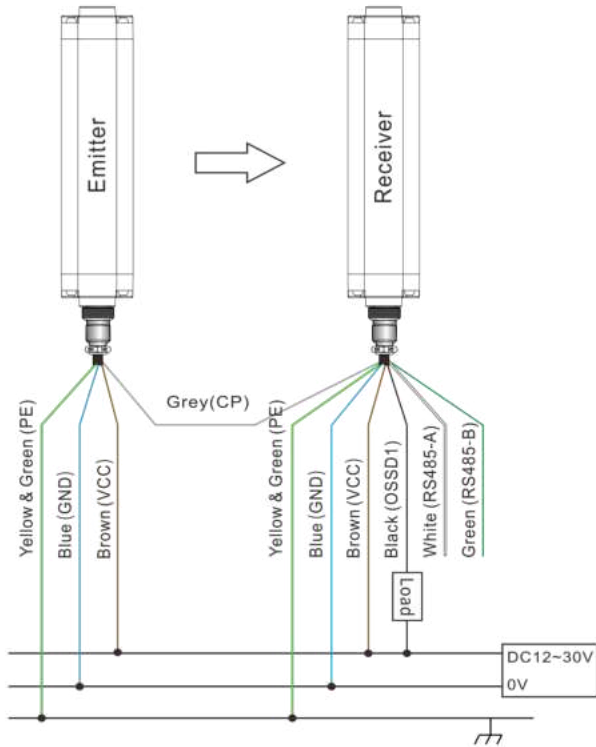
Output-PNP+RS485 (ESN/ESCL enclosure)



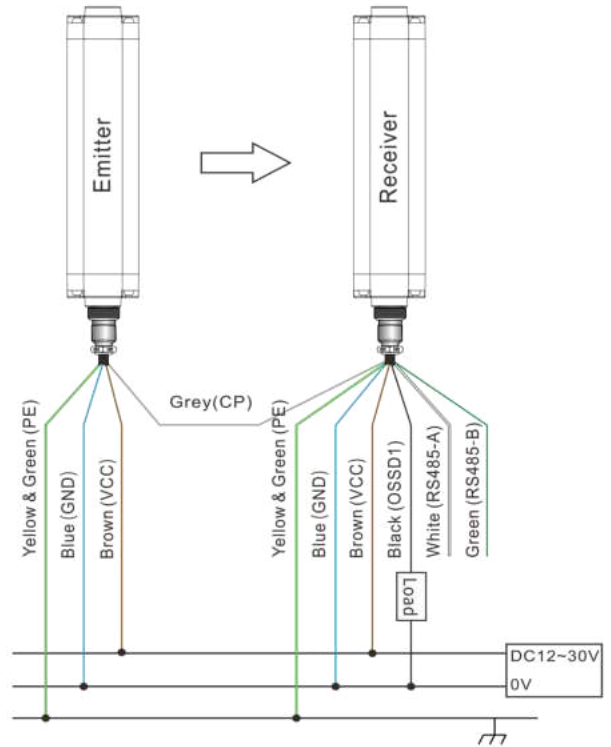
Measuring Light Curtain

Wire Diagram

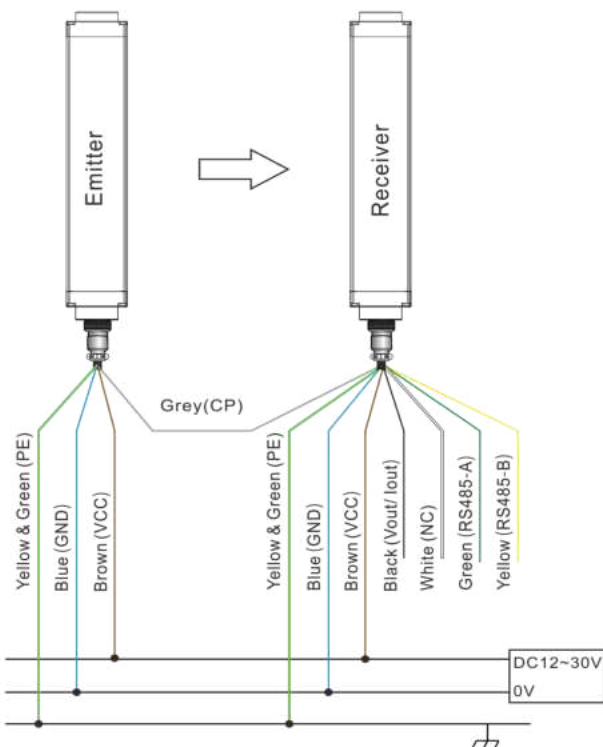
Output-NPN+RS485 (ELG enclosure)



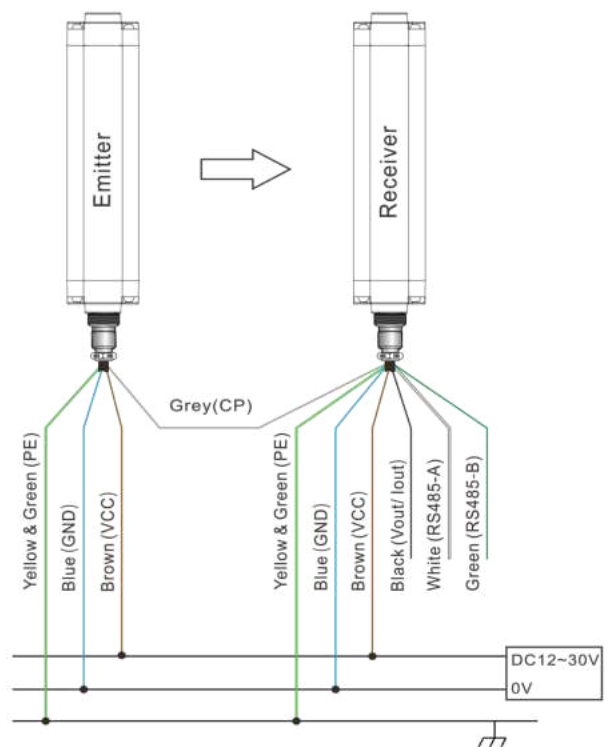
Output-PNP+RS485 (ELG enclosure)



Output-Analog+RS485 (ESN/ESCL enclosure)

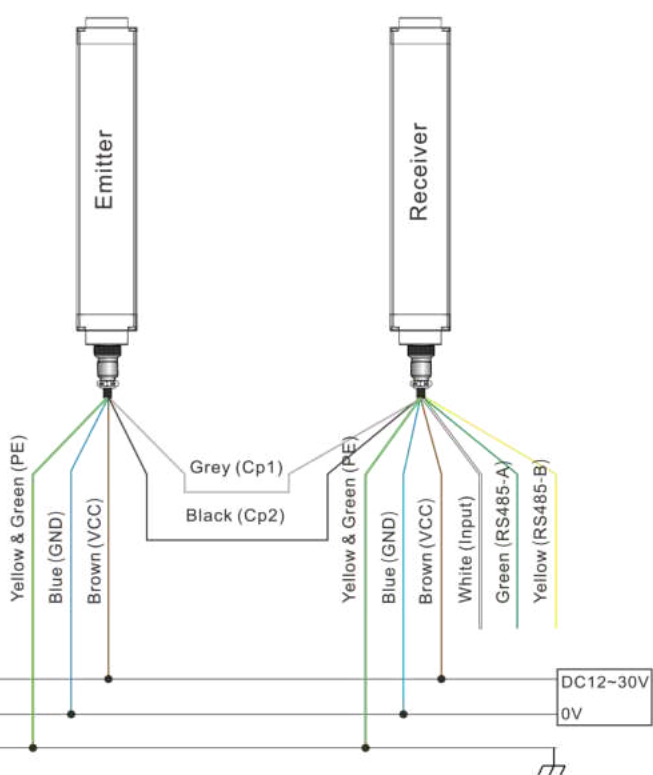


Output-Analog+RS485 (ELG enclosure)

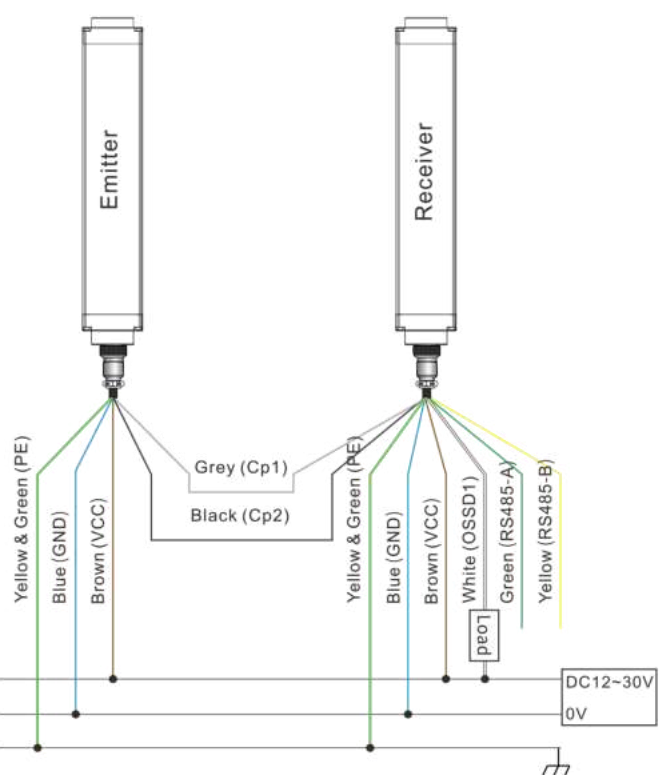


 Wire Diagram

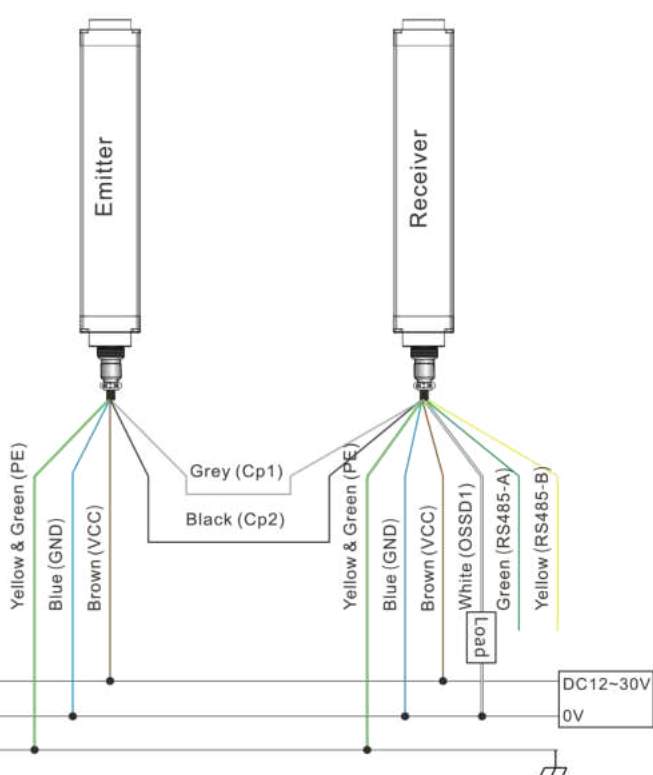
Output-RS485+pulse input (Only for 1mm beam space)



Output-RS485+NPN (Only for 1mm beam space)

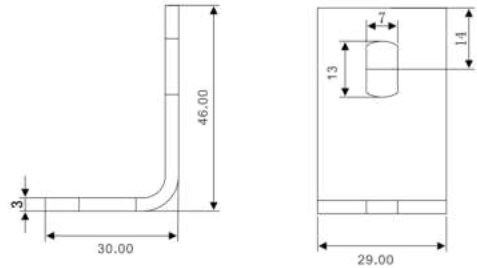


Output-RS485+PNP (Only for 1mm beam space)

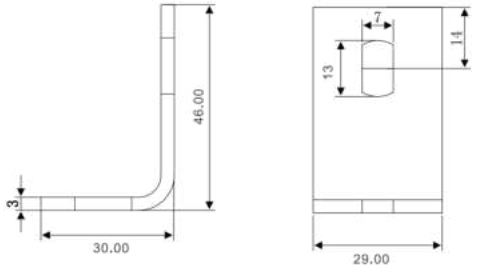
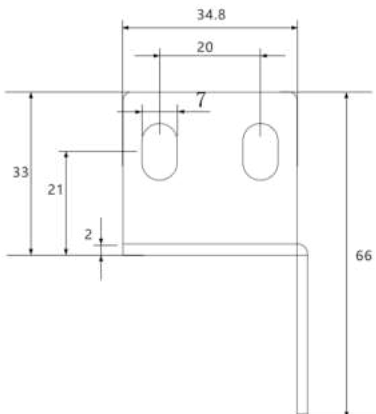


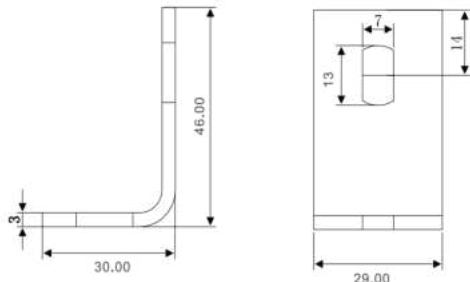
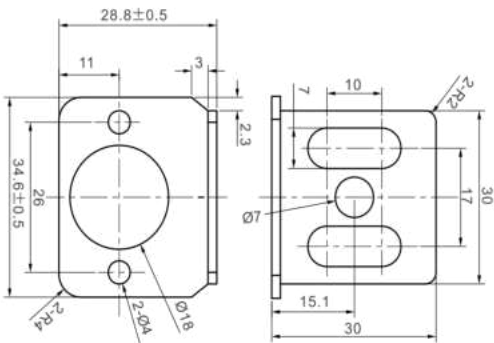
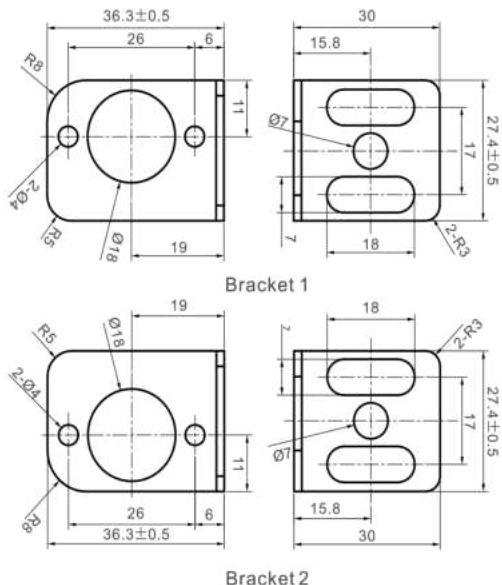
Measuring Light Curtain

NSESCL Enclosure

Picture	Name	Accessories	Size
	L1 side mounting	L bracket (4pcs) Slider (4pcs) M6 pad(4pcs) M6 spring washer(4pcs) M6*16 screw(4pcs) M6*8 screw(4pcs)	

NSESN Enclosure

Picture	Name	Accessories	Size
	L1 side mounting	L bracket (4pcs) Slider (4pcs) M6 pad(4pcs) M6 spring washer(4pcs) M6*16 screw(4pcs) M6*8 screw(4pcs)	
	H1 up & bottom mounting bracket	H bracket (4pcs) Slider (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M6*16 screw (8pcs) M6*8 screw (4pcs)	

Picture	Name	Accessories	Size
	L1 side mounting bracket	L bracket (4pcs) Slider (4pcs) M6 pad (4pcs) M6 spring washer (4pcs) M6*16 screw (4pcs) M6*8 screw (4pcs)	
	L2 up & bottom mounting bracket	End fixing bracket (4pcs) M3*6 screw (8pcs)	
	L7 end-side mounting bracket	Bracket 1 (2pcs) Bracket 2 (2pcs) M3*6 screw (8pcs)	

NSESCH Series

Correcting & Centering Light Curtain



Product Introduction

NSESCH series is a kind of infrared sensor for deviation correction and center detection of coiled material, which is mainly used for effective deviation correction of various material like corrugated paper, fabric, steel etc. Its effective solution to solve the problem of uneven strip force or conveyor defects, material conveying deviates from the center line or limited position, conveyor runs off the track, and the edge of the strip is irregular when crimped, resulting in a lot of strip edge material waste, increase the subsequent process work, affect the quality of strips, and need to increase production and maintenance labor for supervision, resulting in low production effectively.

Product Feature

- Support single-side correction, double-side combined correction, and center correction can be selected based on actual needs;
- Accuracy up to 1.25mm;
- With parallel scanning mode and cross scanning mode;
- Multiple output option: voltage mode, current mode, RS485 communication;
- Good anti-interference ability for electromagnetic signals, strobe lights, welding arcs and sunshine light.

Measuring Light Curtain

Product Parameter

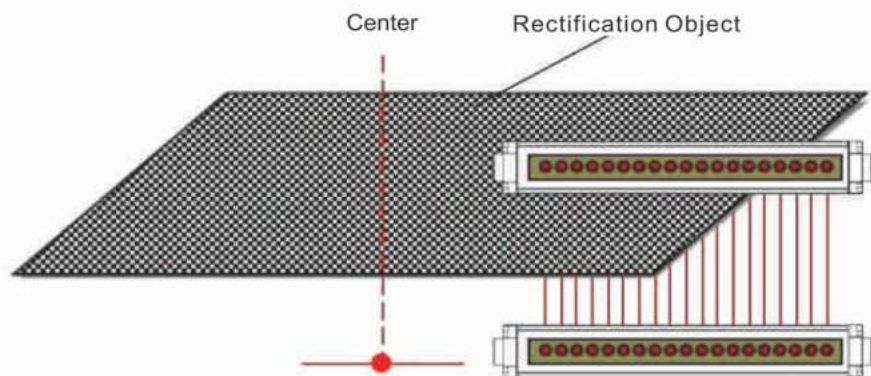
Power Supply	DC12V~30V
Capacity	<5W
Beam Space	2.5mm
Accuracy	1.25mm (cross scanning of 2.5mm), 2.5mm
Beam Space	32~544 (can be customized)
Correction Range	80~4000mm (standard)
Wavelength	940nm
Sensing Distance	0~200mm (With tube and brackets), 0~1000mm (Remark: please let us know with any reflectivity)
Output	Analog voltage: 0-5V, 0-10V
	Analog current: 4mA-20mA
	RS485 communication: Modbus RTU protocol
Anti-interference of Light	10000I>5°
Communication	Communication: RS485, RS232
	Baud rate: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
	Protocol: Modbus-RTU
	Data sending: active mode, passive mode
Sensing Method	Thru-beam
Synchronization	Wire-syn
Enclosure Material	Aluminum alloy, PC tube
Enclosure Rate	IP65
Ambient Temperature	-10°C~55°C (No freezing)
Store Temperature	-30°C~70°C (No freezing)
Ambient Humidity	When temperature is 20°C, humidity<85%

Model Selection (e.g.: NSESCH96025RYPS-L1-1)

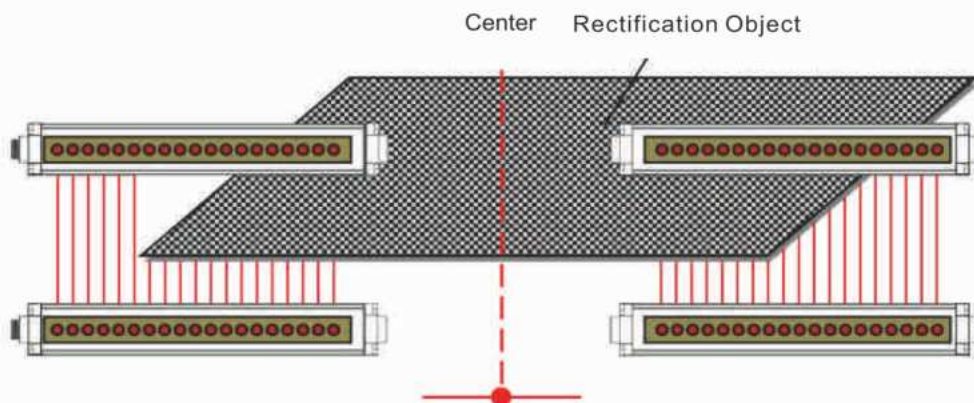
Product Series	Beams	Beam Space	Output	Scanning	Rectification	Installation	Sensing Distance
NSESCH	96	025	RY	P	S	L1	1
	32, 64, 96...	2.5mm	Digital output RY: RS485 passive RZ: RS485 active Analog output I: 4-20mA current U: 0-10V voltage U1: 0-5V voltage	P: parallel scanning C: cross scanning S: single side scanning	S: single side D: dual side	Single side (bracket) L1: L1 side mounting L2: L2 bracket Dual side (middle blind area) 120+N*80 (N=32, 64...) Remark: total length<4000mm	Single correction 05: 0.1~0.5m 1: 0.1~1m No mark: dual side correction

Rectification Method

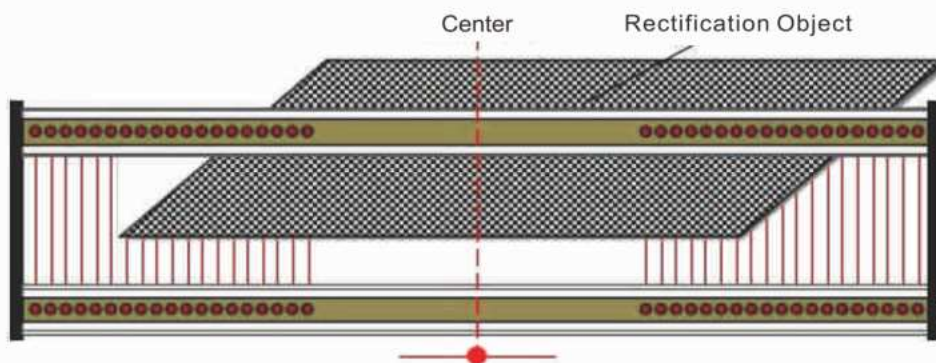
Unilateral rectification (independent): a single set of light curtain is used for detection, and a set of detection signals are output without protective tube.



Bilateral rectification (independent): rectification is carried out by two sets of unilateral rectification light curtains, and two sets of detection signals are output independently without protective tubes.



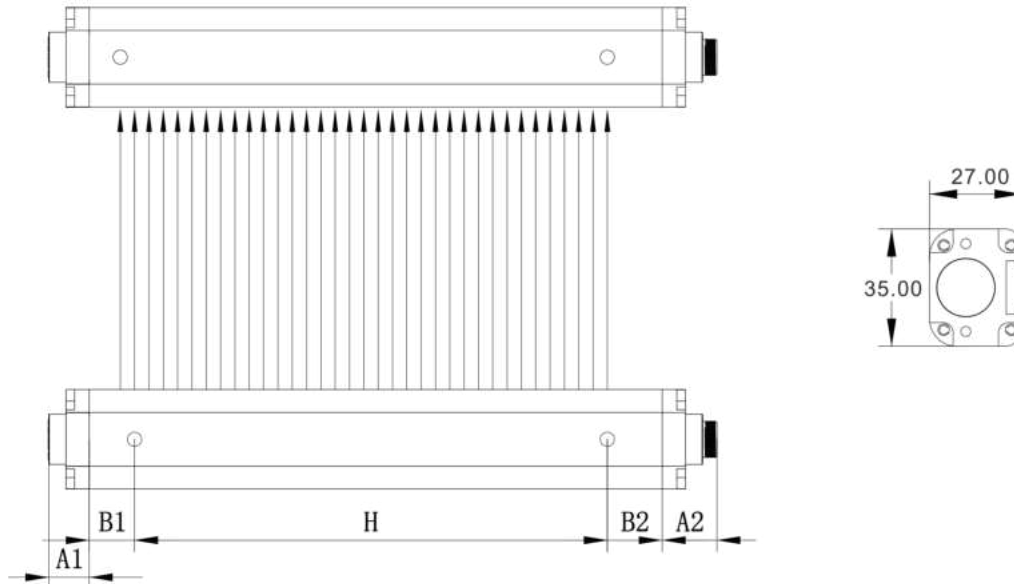
Alignment and rectification (combined): A whole set of light curtain carries out alignment and rectification on both sides, and internally, by calculating and comparing the data on both sides, a single signal output or two signal outputs after calculation and comparison can be selected, with a protective tube and two special mounting brackets.



Measuring Light Curtain

Product Size

Single-sided & Double-sided Rectification (without protective tube)

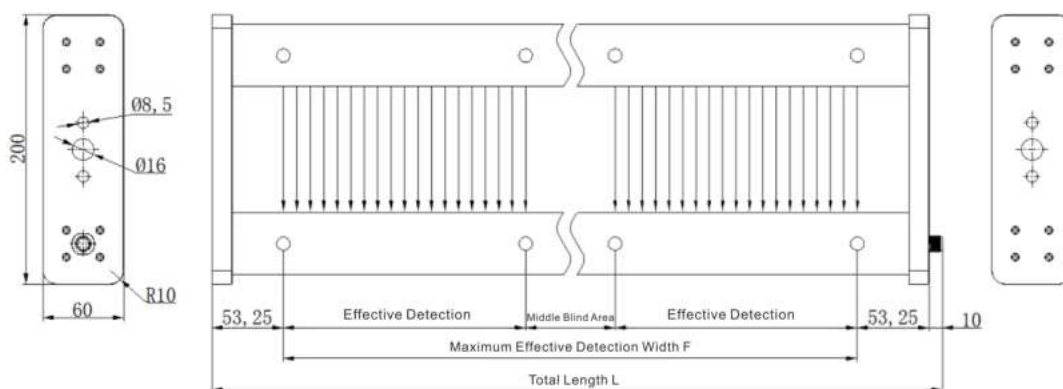


B1: up blind area
B2: bottom blind area
D: beam space
H: detection length
L: total length

A1=14mm, A2=20mm
When D=2.5mm, B1=6.25mm, B2=81.28mm

L is total length: $L = A1 + A2 + B1 + B2 + H$
H is detection length: $H = (\text{beams} - 1) * \text{beam space}$

Alignment and Rectification (with protective tube)



Middle Blind Area: $W = 120\text{mm} + (80\text{mm} * N)$, $N = 1, 2, 3, \dots$ (total length < 4000mm)

Effective detection width H: beam space * (beams - 1)

Maximum effective detection width F = effective detection width H * 2 + Middle Blind Area

Total length L = 116.5 mm + middle blind area W + effective detection width H * 2 (total light curtain < 4000mm).

Single-sided Rectification Model Selection Table

- Detection accuracy 2.5mm

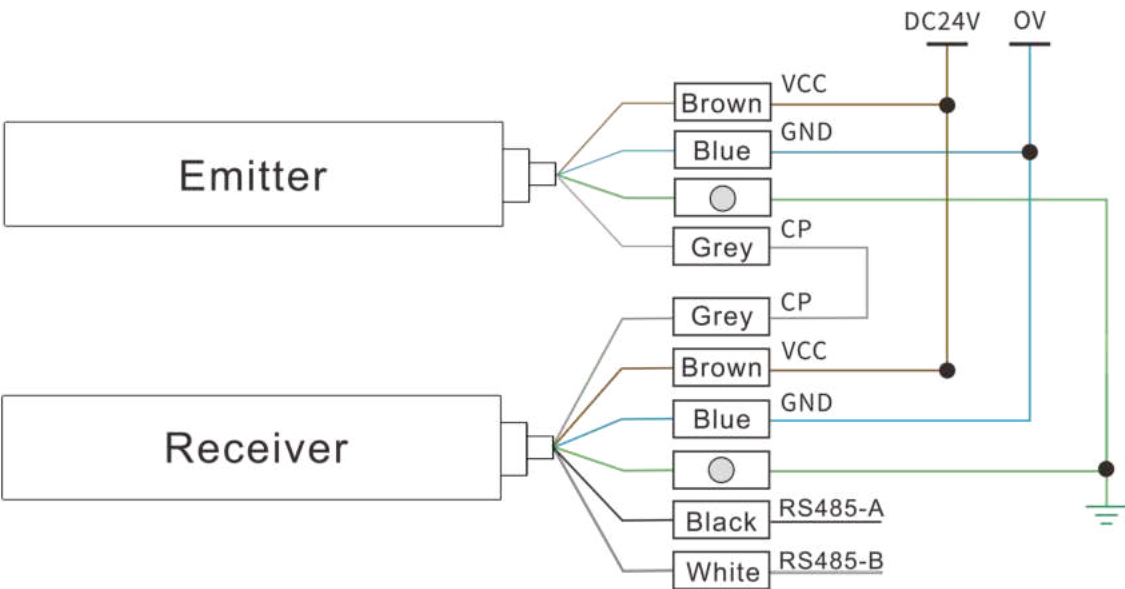
Beams (n)	Detection Area (mm)	Model
32	77.5	NSESCH32025
64	157.5	NSESCH64025
96	237.5	NSESCH96025
128	317.5	NSESCH128025
160	397.5	NSESCH160025
192	477.5	NSESCH192025
224	557.5	NSESCH224025
256	637.5	NSESCH256025
288	717.5	NSESCH288025
320	797.5	NSESCH320025
352	877.5	NSESCH352025
384	957.5	NSESCH384025
416	1037.5	NSESCH416025
448	1117.5	NSESCH448025
480	1197.5	NSESCH480025
512	1277.5	NSESCH512025
544	1357.5	NSESCH544025

Remark: Besides above models, other light curtains can be customized

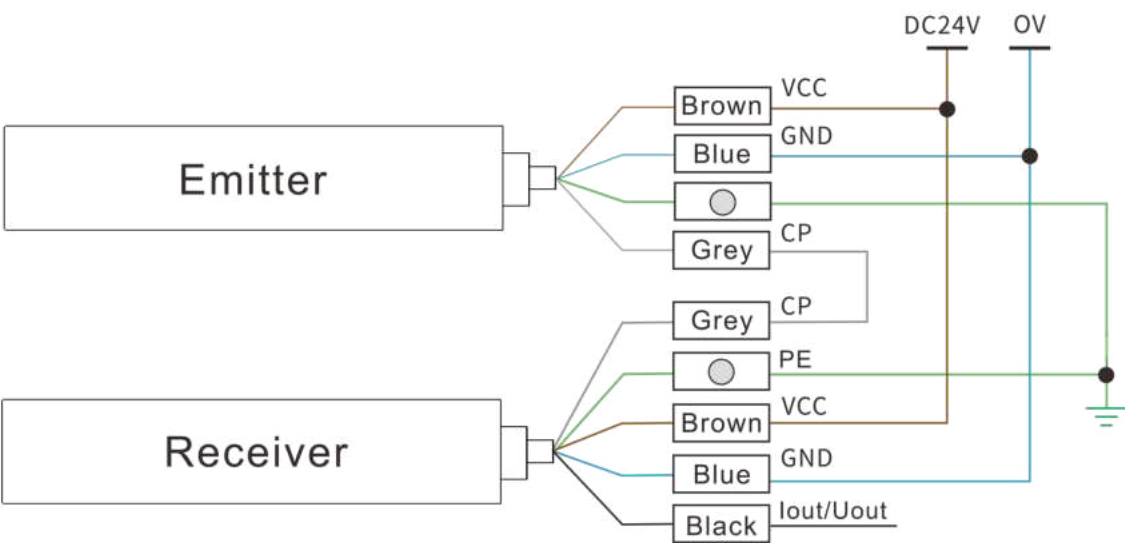
Measuring Light Curtain

Single-sided and Double-sided Rectification Wiring Diagram

RS485 Output

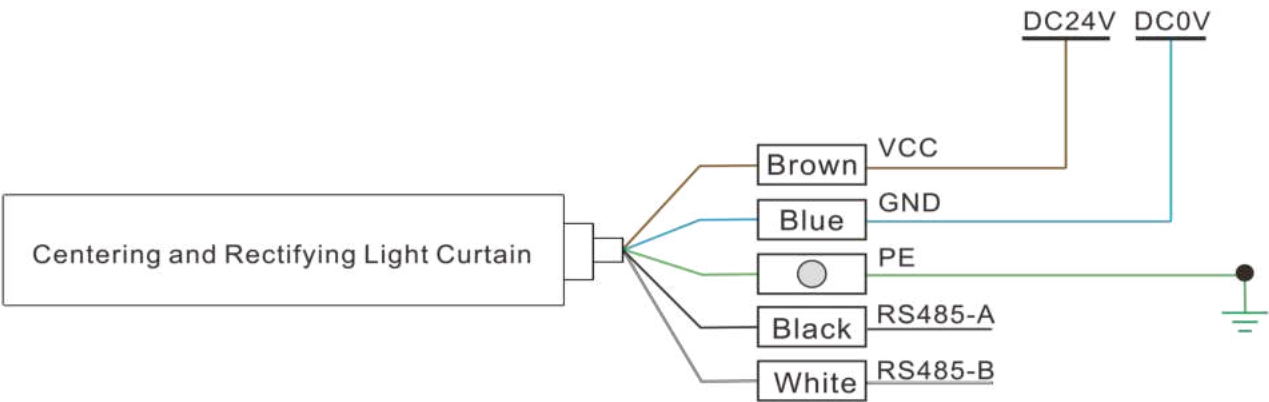


Analog Output

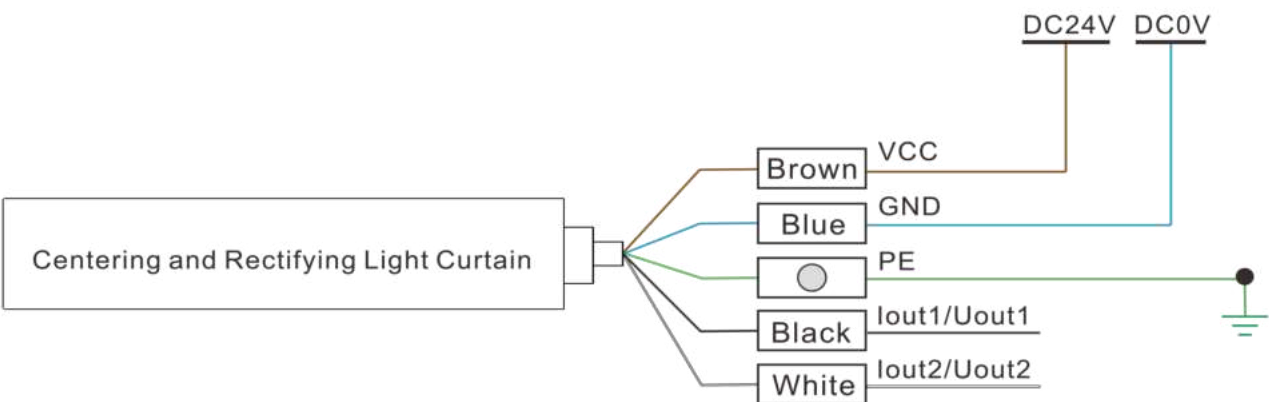


 Alignment and Rectification Wiring Diagram

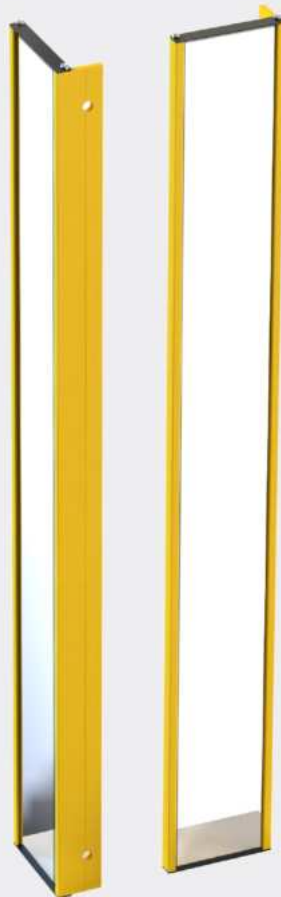
RS485 Output



Analog Output



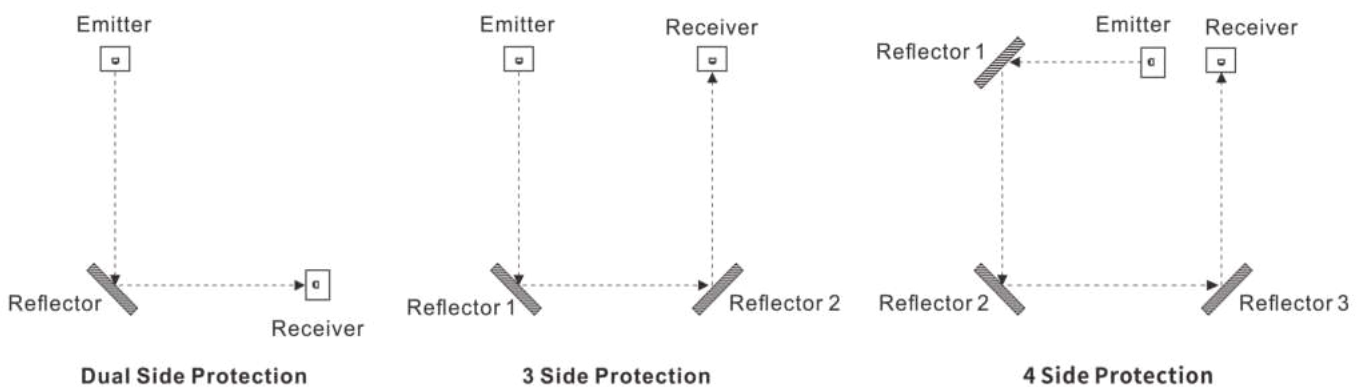
NSESQS Series Mounting Reflector



Product Introduction

NSESQS reflector can be used to assist NSESN and NSESE series safety light curtains to form multi-faceted protection, which is mainly used for safety protection of safety automation equipment. Light curtain and reflector can be installed on mechanical equipment.

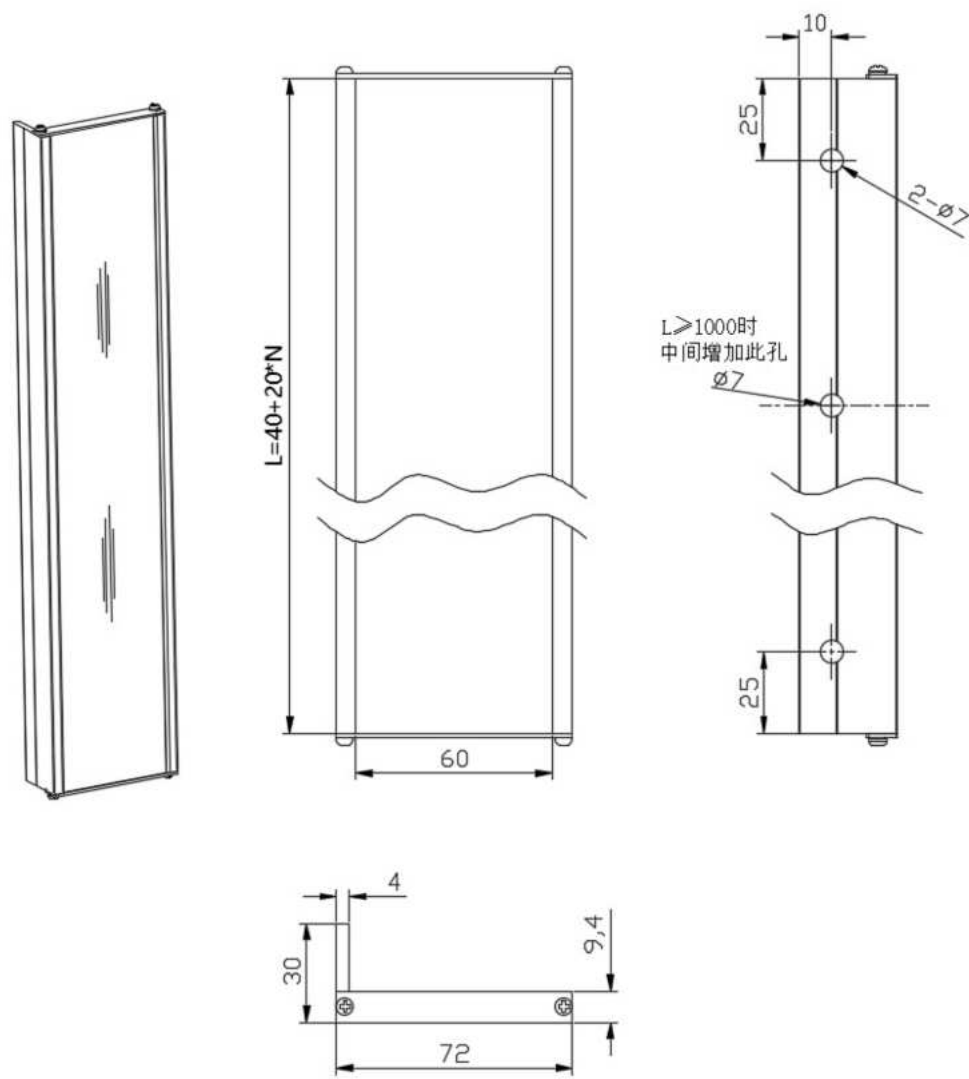
Top View



Light Curtain Accessory



Product Size



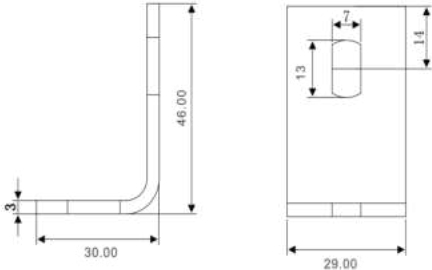
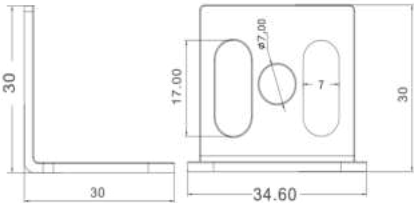
L: Enclosure height
N: Correspond to the number of optical axes of the NSES/NSESE series 20mm pitch, 6, 8, 10...96

Model Specification (e.g. NSESQS -160)

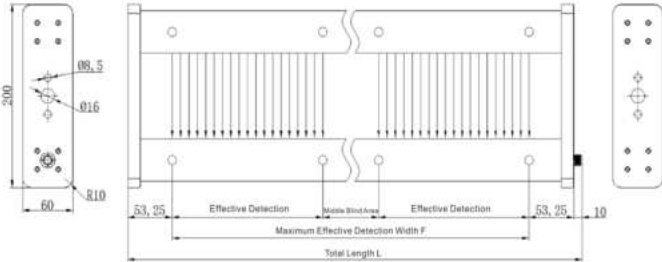
Product Series	Enclosure Length
NSESQS	160
160mm, 200mm, 240mm,1960mm	

Measuring Light Curtain

Installation Diagram of Single-sided Rectification Light Curtain

Picture	Bracket	Accessory	Bracket Size
	L1 bracket	L bracket (2pcs) Slider (2pcs) M6 pad (2pcs) M6 spring washer (2pcs) M6*16 screw (2pcs) M6*8 screw (2pcs)	
	L2 back of end cover bracket	Up & bottom bracket (2pcs) M3*6 screw (4pcs)	

Installation Diagram of Double-sided Rectification Light Curtain

Picture	 Install the fixing hole
Bracket	Protective Tube
Bracket Size	

NSESQS Model Selection Table

- Corresponding NSESN model

Reflector Height (mm)	Model	Corresponding NSESN model		
		10mm spacing	20mm spacing	40mm spacing
160	NSESQS-160	NSESN1210	NSESN0620	/
200	NSESQS-200	NSESN1610	NSESN0820	NSESN0440
240	NSESQS-240	NSESN2010	NSESN1020	/
280	NSESQS-280	NSESN2410	NSESN1220	NSESN0640
320	NSESQS-320	NSESN2810	NSESN1420	/
360	NSESQS-360	NSESN3210	NSESN1620	NSESN0840
400	NSESQS-400	NSESN3610	NSESN1820	/
440	NSESQS-440	NSESN4010	NSESN2020	NSESN1040
480	NSESQS-480	NSESN4410	NSESN2220	/
520	NSESQS-520	NSESN4810	NSESN2420	NSESN1240
560	NSESQS-560	NSESN5210	NSESN2620	/
600	NSESQS-600	NSESN5610	NSESN2820	NSESN1440
640	NSESQS-640	NSESN6010	NSESN3020	/
680	NSESQS-680	NSESN6410	NSESN3220	NSESN1640
720	NSESQS-720	NSESN6810	NSESN3420	/
760	NSESQS-760	NSESN7210	NSESN3620	NSESN1840
800	NSESQS-800	NSESN7610	NSESN3820	/
840	NSESQS-840	NSESN8010	NSESN4020	NSESN2040
880	NSESQS-880	NSESN8410	NSESN4220	/
920	NSESQS-920	NSESN8810	NSESN4420	NSESN2240
960	NSESQS-960	NSESN9210	NSESN4620	/
1000	NSESQS-1000	NSESN9610	NSESN4820	NSESN2440
1040	NSESQS-1040	NSESN10010	NSESN5020	/
1080	NSESQS-1080	NSESN10410	NSESN5220	NSESN2640
1120	NSESQS-1120	NSESN10810	NSESN5420	/
1160	NSESQS-1160	NSESN11210	NSESN5620	NSESN2840
1200	NSESQS-1200	NSESN11610	NSESN5820	/
1240	NSESQS-1240	NSESN12010	NSESN6020	NSESN3040
1280	NSESQS-1280	NSESN12410	NSESN6220	/
1320	NSESQS-1320	NSESN12810	NSESN6420	NSESN3240
1360	NSESQS-1360	NSESN13210	NSESN6620	/
.....				
1960	NSESQS-1960	NSESN19210	NSESN9620	NSESN4840

Remark: Besides above models, other light curtains can be customized

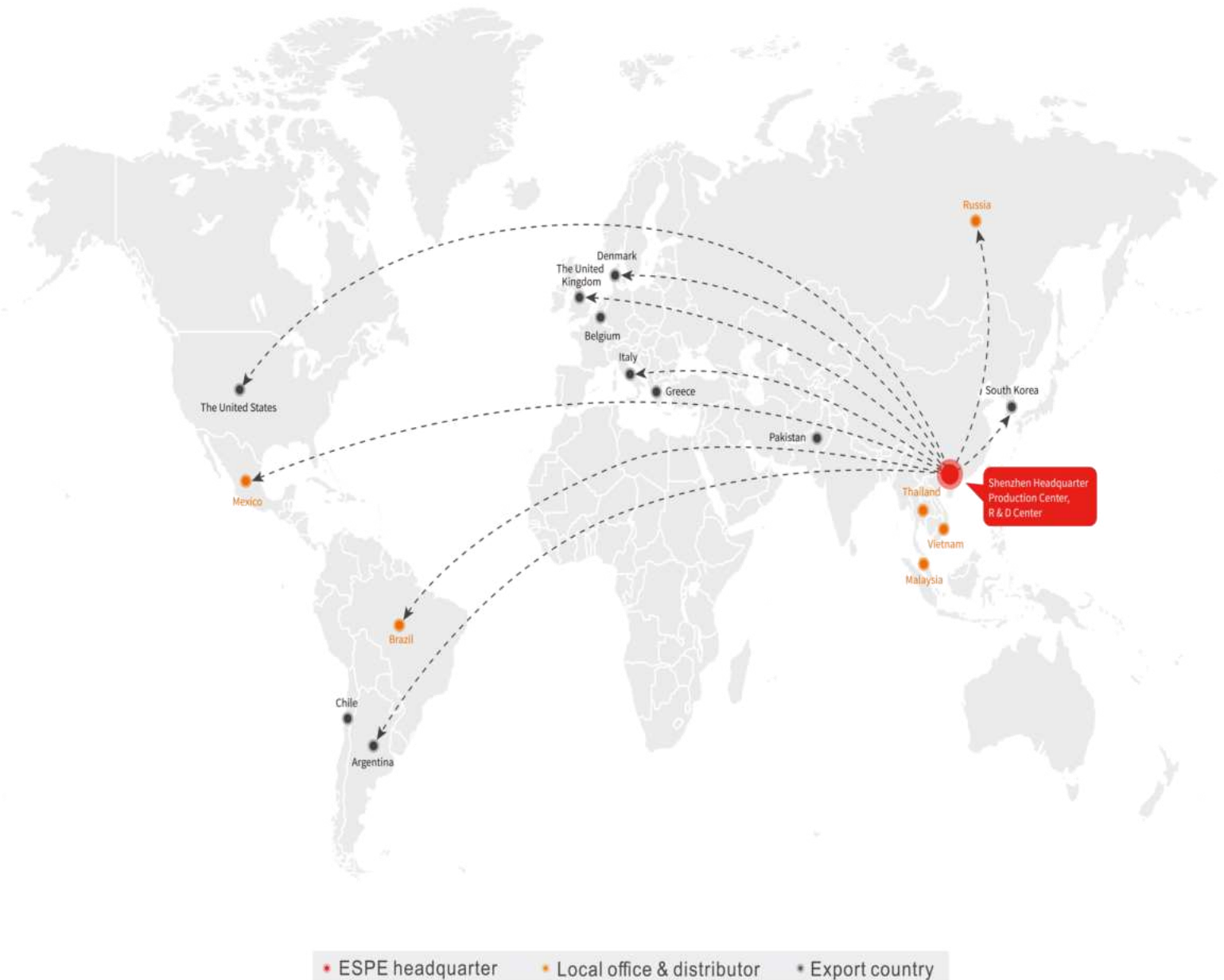
NSESQS Model Selection Table

• Corresponding NSESE model

Reflector Height (mm)	Model	Corresponding NSESE model		
		10mm spacing	20mm spacing	40mm spacing
160	NSESQS-160	10NSESE110-12	20NSESE100-6	/
200	NSESQS-200	10NSESE150-16	20NSESE140-8	40NSESE120-4
240	NSESQS-240	10NSESE190-20	20NSESE180-10	/
280	NSESQS-280	10NSESE230-24	20NSESE220-12	40NSESE200-6
320	NSESQS-320	10NSESE270-28	20NSESE260-14	/
360	NSESQS-360	10NSESE310-32	20NSESE300-16	40NSESE280-8
400	NSESQS-400	10NSESE350-36	20NSESE340-18	/
440	NSESQS-440	10NSESE390-40	20NSESE380-20	40NSESE360-10
480	NSESQS-480	10NSESE430-44	20NSESE420-22	/
520	NSESQS-520	10NSESE470-48	20NSESE460-24	40NSESE440-12
560	NSESQS-560	10NSESE510-52	20NSESE500-26	/
600	NSESQS-600	10NSESE550-56	20NSESE540-28	40NSESE520-14
640	NSESQS-640	10NSESE590-60	20NSESE580-30	/
680	NSESQS-680	10NSESE510-52	20NSESE620-32	40NSESE600-16
720	NSESQS-720	10NSESE550-56	20NSESE660-34	/
760	NSESQS-760	10NSESE590-60	20NSESE700-36	40NSESE680-18
800	NSESQS-800	10NSESE630-64	20NSESE740-38	/
840	NSESQS-840	10NSESE670-68	20NSESE780-40	40NSESE760-20
880	NSESQS-880	10NSESE710-72	20NSESE820-42	/
920	NSESQS-920	10NSESE750-76	20NSESE860-44	40NSESE840-22
960	NSESQS-960	10NSESE790-80	20NSESE900-46	/
1000	NSESQS-1000	10NSESE830-84	20NSESE940-48	40NSESE920-24
1040	NSESQS-1040	10NSESE870-88	20NSESE980-50	/
1080	NSESQS-1080	10NSESE910-92	20NSESE1020-52	40NSESE1000-26
1120	NSESQS-1120	10NSESE950-96	20NSESE1060-54	/
1160	NSESQS-1160	10NSESE990-100	20NSESE1100-56	40NSESE1080-28
1200	NSESQS-1200	10NSESE1030-104	20NSESE1140-58	/
1240	NSESQS-1240	10NSESE1070-108	20NSESE1180-60	40NSESE1160-30
1280	NSESQS-1280	10NSESE1110-112	20NSESE1220-62	/
1320	NSESQS-1320	10NSESE1150-116	20NSESE1260-64	40NSESE1240-32
1360	NSESQS-1360	10NSESE1190-120	20NSESE1300-66	/
*****	*****	*****	*****	*****
1800	NSESQS-1800	10NSESE1750-176	20NSESE1740-88	40NSESE1720-44

Remark: Besides above models, other light curtains can be customized

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