ESS Series
Compact Safety Light Curtain

✍ Product Introduction

ESS 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.
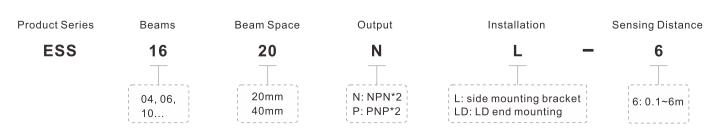
⊟ Product Feature

- 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;
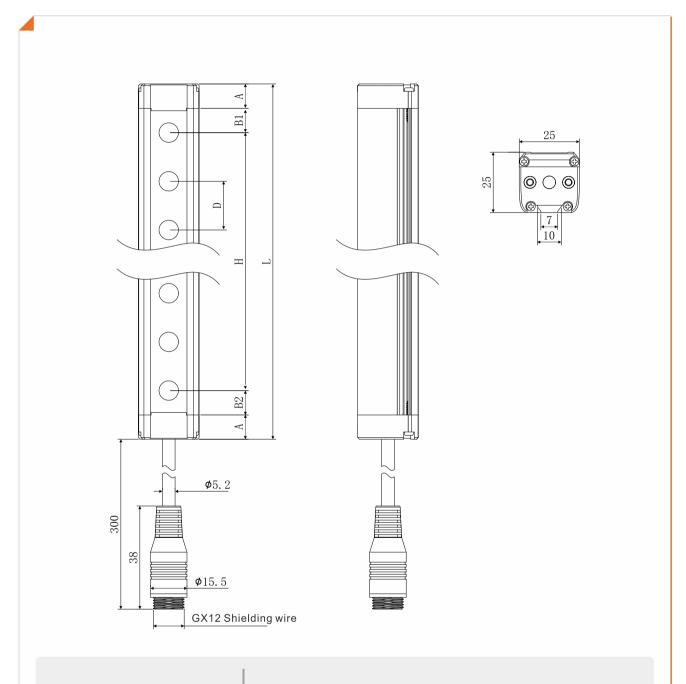- Side or end cover installation method;

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⚙ 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.: ESS1620NL-6)

Product Series	Beams	Beam Space	Output	Installation	Sensing Distance
ESS	**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

Dimensions shown: 25 × 25, 7, 10, φ5.2, φ15.5, 300, 38

GX12 Shielding wire

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=(Beams-1)*beam space
L=A+B1+B2+H

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📝 ESS Model Selection Table

- Beam space 20mm, resolution 29mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	8	140	180	ESS0820
	12	220	260	ESS1220
	16	300	340	ESS1620
	20	380	420	ESS2020
	24	460	500	ESS2420
	28	540	580	ESS2820
	32	620	660	ESS3220
	36	700	740	ESS3620
	40	780	820	ESS4020
	44	860	900	ESS4420
	48	940	980	ESS4820
	52	1020	1060	ESS5220
Front View	56	1100	1140	ESS5620
	60	1180	1220	ESS6020
	64	1260	1300	ESS6420
	68	1340	1380	ESS6820
	72	1420	1460	ESS7220
	76	1500	1540	ESS7620
	80	1580	1620	ESS8020
	84	1660	1700	ESS8420
	88	1740	1780	ESS8820
	92	1820	1860	ESS9220
Top View	96	1900	1940	ESS9620
	100	1980	2020	ESS10020

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.

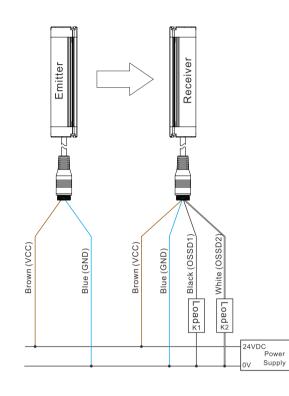# 📝 ESS Model Selection Table
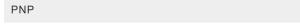
- Beam space 40mm, resolution 49mm

Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	4	120	180	ESS0440
	6	200	260	ESS0640
	8	280	340	ESS0840
	10	360	420	ESS1040
	12	440	500	ESS1240
	14	520	580	ESS1440
	16	600	660	ESS1640
	18	680	740	ESS1840
	20	760	820	ESS2040
	22	840	900	ESS2240
	24	920	980	ESS2440
	26	1000	1060	ESS2640
	28	1080	1140	ESS2840
	30	1160	1220	ESS3040
	32	1240	1300	ESS3240
	34	1320	1380	ESS3440
	36	1400	1460	ESS3640
	38	1480	1540	ESS3840
	40	1560	1620	ESS4040
	42	1640	1700	ESS4240
	44	1720	1780	ESS4440
	46	1800	1860	ESS4640
	48	1880	1940	ESS4840
	50	1960	2020	ESS5040

Front View

Top View

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

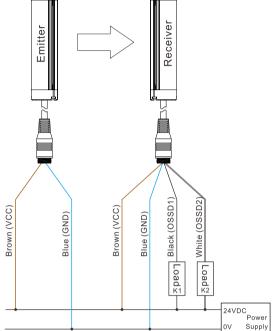L is total height=end covers+ up & bottom blind area + protection height

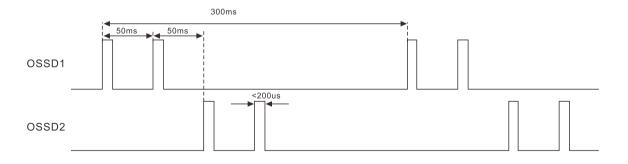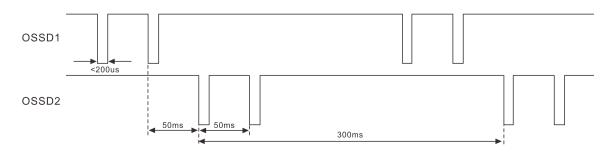Remark: Besides above model, other curtains can be customized.

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Wire Diagram

NPN

PNP

NPN output timing chart
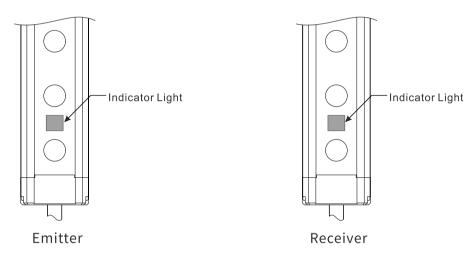
PNP output timing chart

⚗ 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

Emitter — Indicator Light

Receiver — 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

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⬡ 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