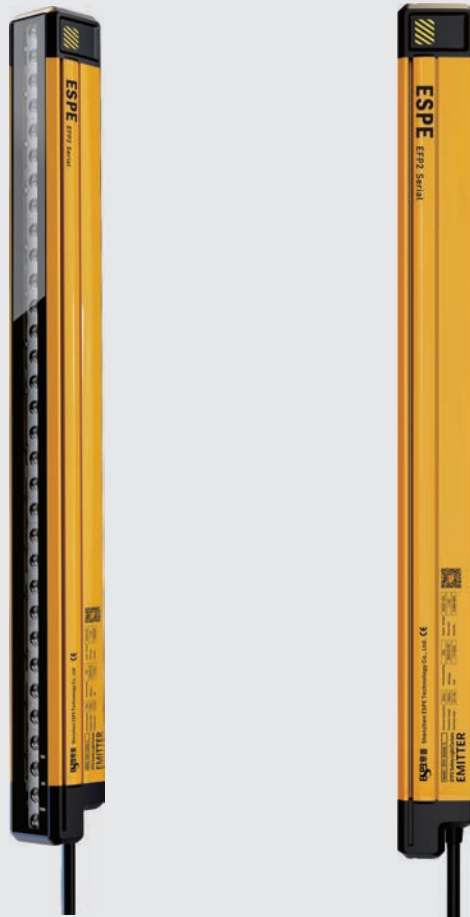


EFP2 Series

No-dead Zone Safety Light Curtain



Product Introduction

EFP2 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

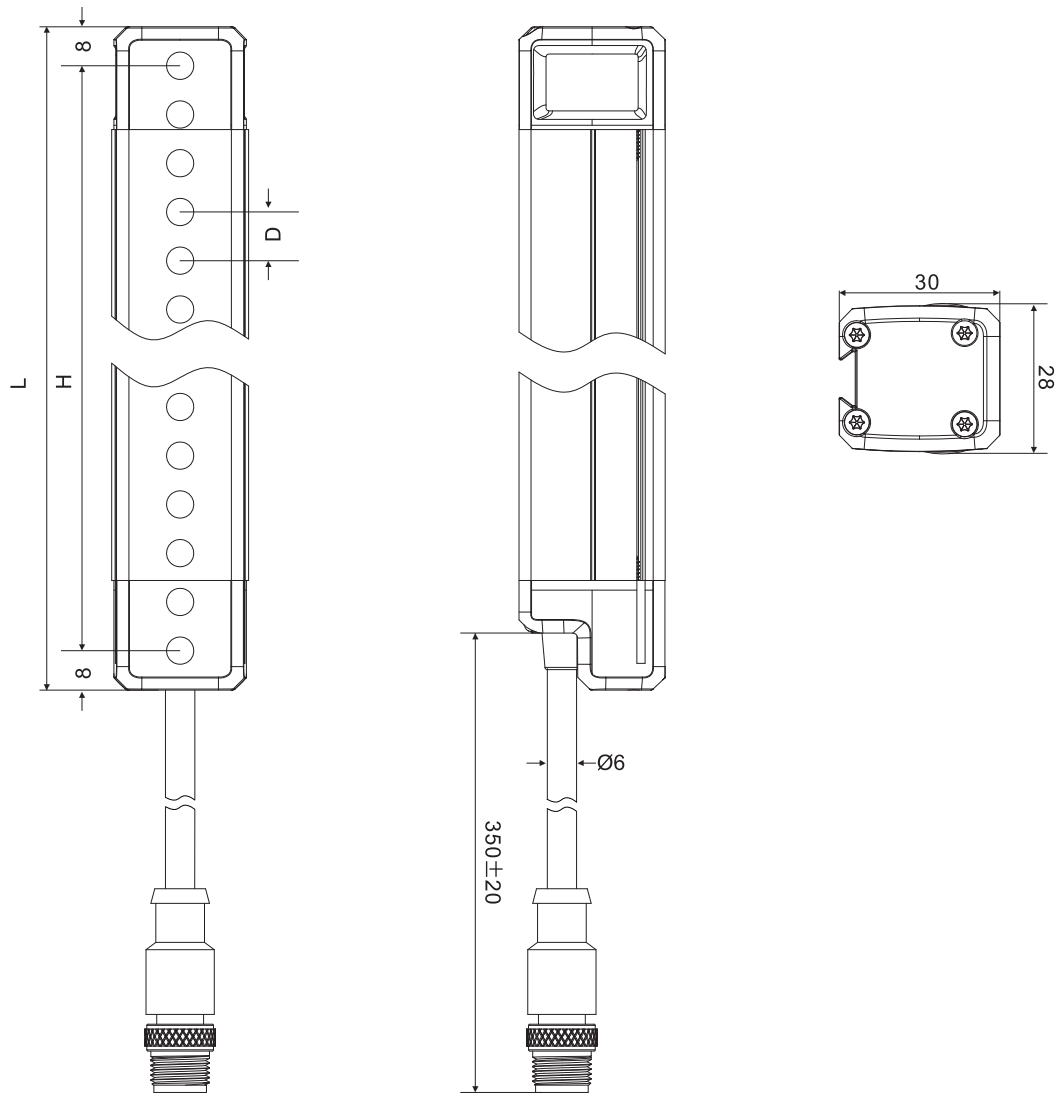
Product Parameter

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,...80
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 ≤200mA, residual voltage less than 1V (except voltage drop caused by cable extension), leakage current≤1mA.
Protective Circuit	Overvoltage protection, power supply reverse protection and overcurrent protection.
Sensing Distance	0.1-2m, 0.5-5m (if any light reflecting, please remind us).
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, 20 times 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.: EFP2-1220NEL-2)

Product Series	Beams	Beam Space	Output	Function	Bracket	Sensing Distance
EFP2	12	20	N	E	L	2
	08, 10, 12...	10mm 20mm	N: NPN*2 P: PNP*2	No mark: No EDM, automatic reset E: With EDM, automatic reset R: No EDM, manual reset A: With EDM, manual reset	L: side mounting LD1: up & bottom rotate mounting	2: 0.1~2m 5: 0.5~5m

Product Size



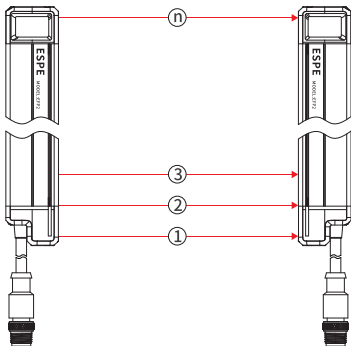
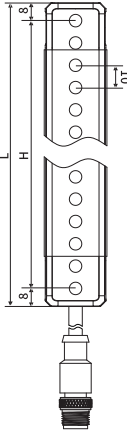
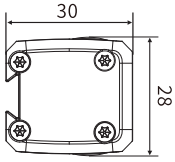
D: Beam space
 H: Protection height
 L: Total Height

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

Safety Light Curtain

ESP2 Model Selection Table

- Beam space 10mm, resolution 15mm

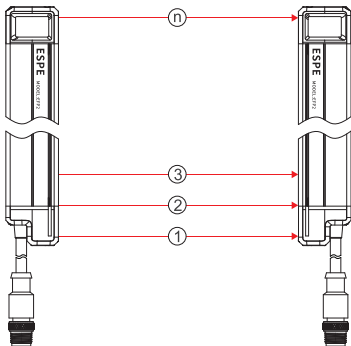
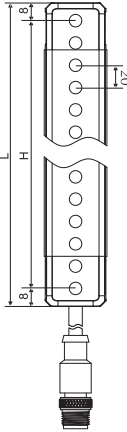
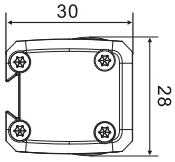
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	16	150	166	EFP2-1610
	20	190	206	EFP2-2010
	24	230	246	EFP2-2410
	28	270	286	EFP2-2810
	32	310	326	EFP2-3210
	36	350	366	EFP2-3610
	40	390	406	EFP2-4010
	44	430	446	EFP2-4410
	48	470	486	EFP2-4810
Front View	52	510	526	EFP2-5210
	56	550	566	EFP2-5610
	60	590	606	EFP2-6010
Top View	64	630	646	EFP2-6410
	68	670	686	EFP2-6810
	72	710	726	EFP2-7210
	76	750	766	EFP2-7610
	80	790	806	EFP2-8010
	84	830	846	EFP2-8410
	88	870	886	EFP2-8810
	92	910	926	EFP2-9210
	96	950	966	EFP2-9610
	100	990	1006	EFP2-10010
	104	1030	1046	EFP2-10410
	108	1070	1086	EFP2-10810
	112	1110	1126	EFP2-11210
	116	1150	1166	EFP2-11610
	120	1190	1206	EFP2-12010
	124	1230	1246	EFP2-12410
	128	1270	1286	EFP2-12810
	132	1310	1326	EFP2-13210
	136	1350	1366	EFP2-13610
				
	160	1590	1606	EFP2-16010

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.

ESP2 Model Selection Table

- Beam space 20mm, resolution 25mm

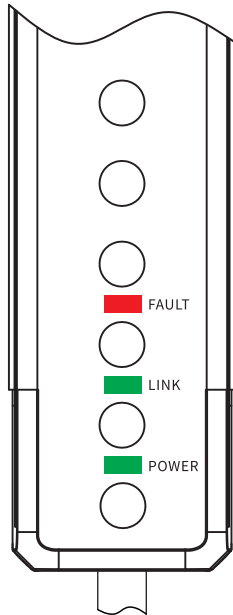
Picture	Beams (n)	Protection Height (mm)	Total Height (mm)	Model
	8	140	156	EFP2-0820
	10	180	196	EFP2-1020
	12	220	236	EFP2-1220
	14	260	276	EFP2-1420
	16	300	316	EFP2-1620
	18	340	356	EFP2-1820
	20	380	396	EFP2-2020
	22	420	436	EFP2-2220
	24	460	476	EFP2-2420
Front View	26	500	516	EFP2-2620
	28	540	556	EFP2-2820
	30	580	596	EFP2-3020
Top View	32	620	636	EFP2-3220
	34	660	676	EFP2-3420
	36	700	716	EFP2-3620
	38	740	756	EFP2-3820
	40	780	796	EFP2-4020
	42	820	836	EFP2-4220
	44	860	876	EFP2-4420
	46	900	916	EFP2-4620
	48	940	956	EFP2-4820
	50	980	996	EFP2-5020
	52	1020	1036	EFP2-5220
	54	1060	1076	EFP2-5420
	56	1100	1116	EFP2-5620
	58	1140	1156	EFP2-5820
	60	1180	1196	EFP2-6020
	62	1220	1236	EFP2-6220
	64	1260	1276	EFP2-6420
	66	1300	1316	EFP2-6620
	68	1340	1356	EFP2-6820
				
	80	1580	1596	EFP2-8020

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.

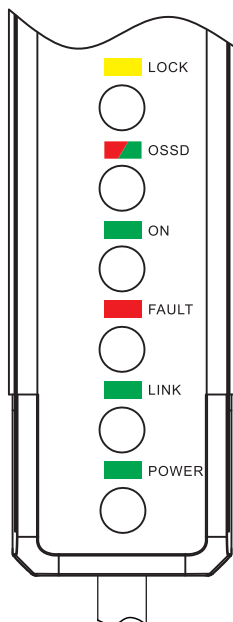
Safety Light Curtain

Indicator Specification



Emitter

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

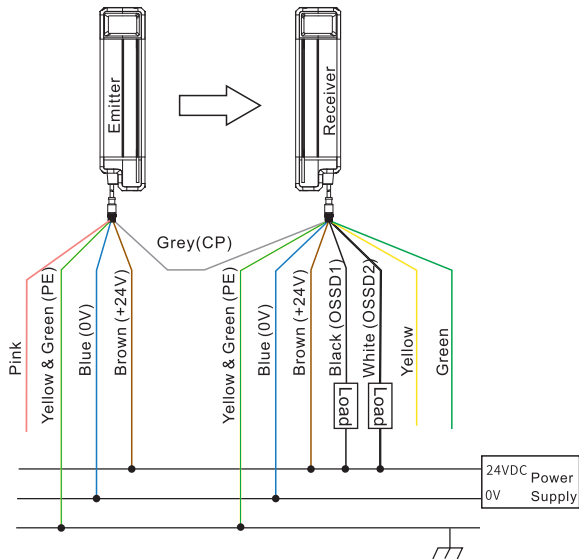


Receiver

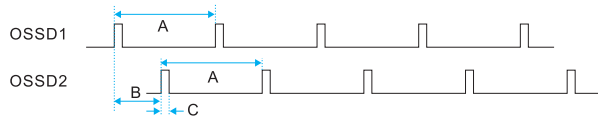
Receiver Indicator Specification		
Indicator	State of Indicator	Function
POWER (Green)	ON	Normal work
	OFF	Internal abnormality
	1Hz blink	Under voltage
	2Hz blink	Over voltage
LINK (Green)	OFF	Normal work
	2Hz blink	Internal abnormality
FAULT (Red)	ON	Internal abnormality
	OFF	Normal work
	2Hz blink	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 EDM, automatic Reset)

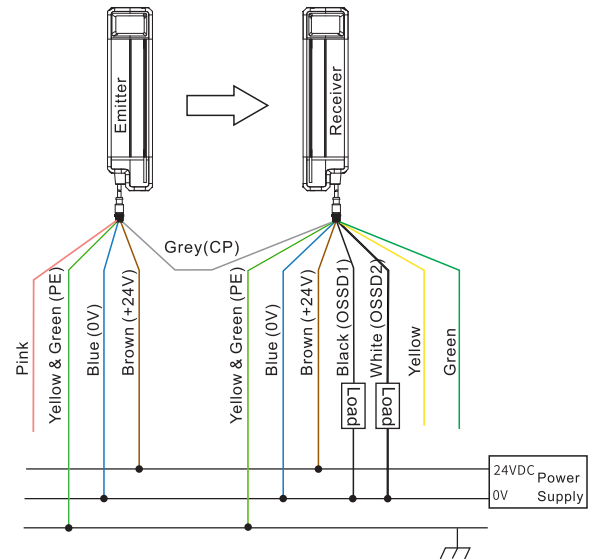


NPN Output timing chart

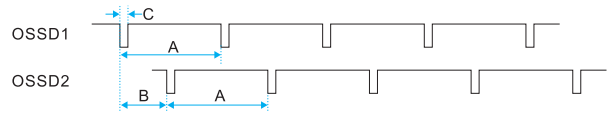


A: 470ms; B: 235ms C: 256us

PNP (No EDM, automatic Reset)

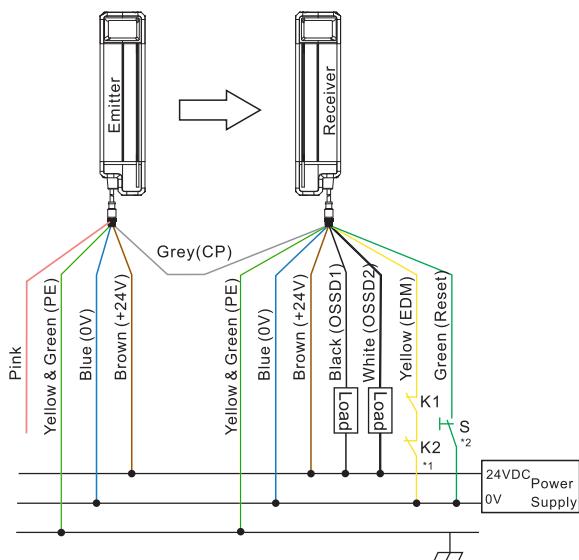


PNP Output timing chart



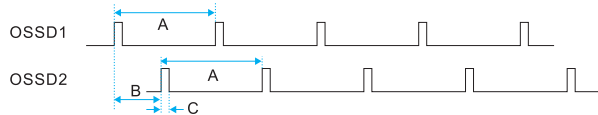
A: 470ms; B: 235ms C: 256us

NPN (With EDM, Manual Reset)



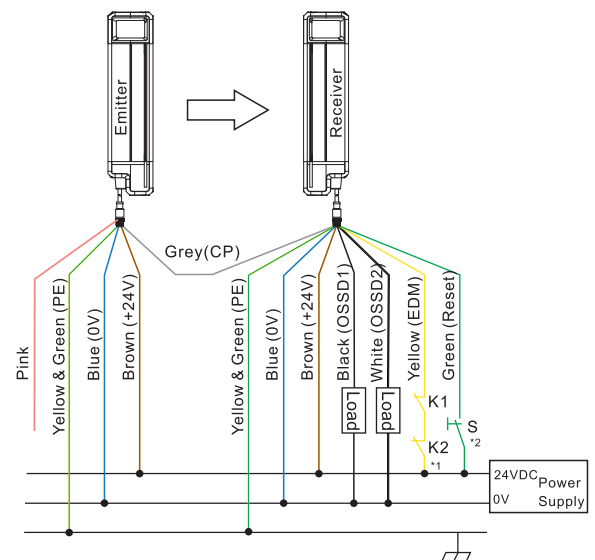
- 1.If no EDM, please keep yellow wire of receiver disconnected.
- 2.If automatic reset, keep green wire of receiver disconnected.

NPN Output timing chart



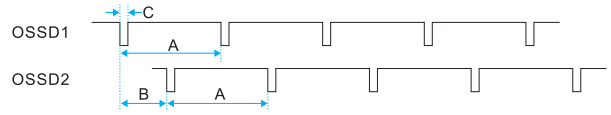
A: 470ms; B: 235ms C: 256us

PNP (With EDM, Manual Reset)



- 1.If no EDM, please keep yellow wire of receiver disconnected.
- 2.If automatic reset, keep green wire of receiver disconnected.

PNP Output timing chart



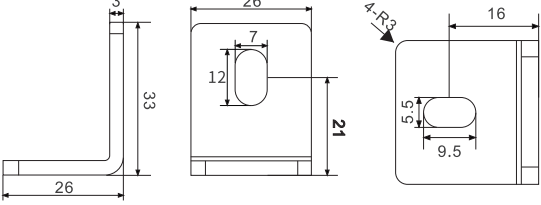
A: 470ms; B: 235ms C: 256us

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 receiver
	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)	