

ESCL Series

Measuring/ Detection Light Curtain



Product Introduction

ESCL 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, analog current, switch quantity various output signal. Effectively against interference of electromagnetic pf different moto, servo.

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.

Measuring Light Curtain

Product Parameter

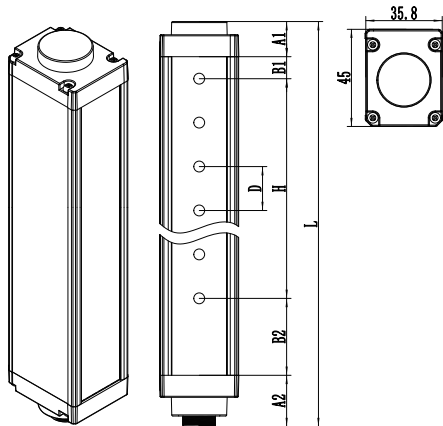
Power Supply	DC12V~30V
Detection Accuracy	1mm, 10mm, 20mm, 40mm
Beams	1mm: 128, 256,... 1280
	10mm: 16, 24,...400
	20mm: 16, 20, 24,...240
	40mm: 8, 16,... 120
Capacity	<5W
Protection Height	H= (beams -1)* beam space.
Light Wavelength	940nm
Output	Switch output: NPN, PNP
	Analog output: 0~5V, 0~10V and 4~20mA.
Against Optical Interference	10000 Lux (angle >5°)
Communication	Communication mode: RS485 and RS232.
	Baud rate: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps
	Protocol: Modbus-RTU
	Data transmission mode: active mode, passive 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.: ESCL-1620L1NRYL-2)

Product Series	Beams	Beam Space	Bracket	Output 1	Output 2	Enclosure	Sensing Distance
ESCL	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 U1: 0-5V I: 4-20mA	RY: RS485 passive mode RZ: RS485 active mode SY: RS232 passive mode SZ: RS232 active mode	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. Curtain with default communication in RS485; Output with dual NPN/PNP or 0-10V. It can be changed on host-computer through RS485 interface. (Please check ESCL/ESM manual).
2. 1mm beam space curtain can select: lowest blocked beam + highest blocked beam + NO of blocked beam + pulse, under this output method, curtain white output wire can be as input signal for new port. (Please refer diagram of RS485 output + pulse input)
3. If G enclosure chosen, there's only 1 OSSD. Sensing distance of 2.5mm G enclosure can be only 0.5m, other beam space within 5m.
4. 1mm beam space curtain without analog output, only with 1 OSSD, and no G enclosure.

Product Size

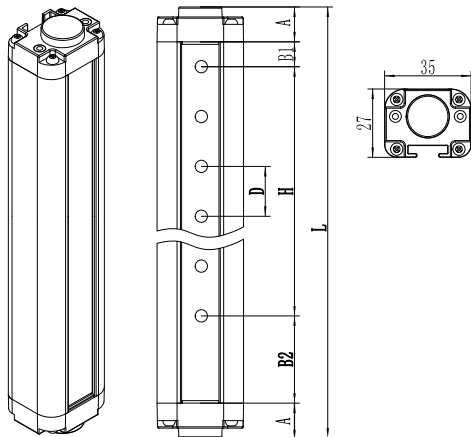


ESCL Enclosure

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

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

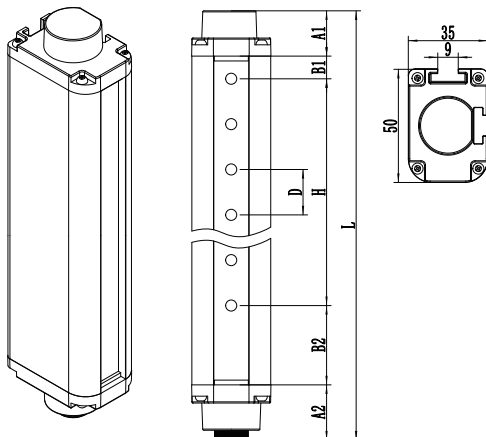


ELG Enclosure

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

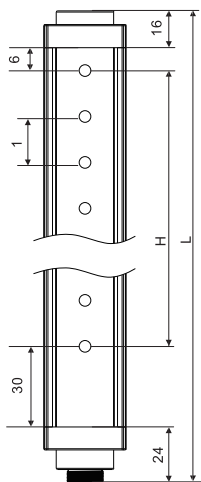
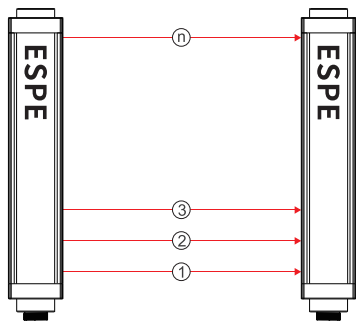
A1 is 20mm, A2 is 25mm
When D=10mm, B1=5mm, B2=30mm
When D=20mm, B1=10mm, B2=35mm
When D=40mm, B1=10mm, B2=35mm

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

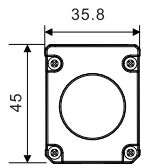
Measuring Light Curtain

ESCL Model Selection Table

- Detection accuracy 1mm



Front View

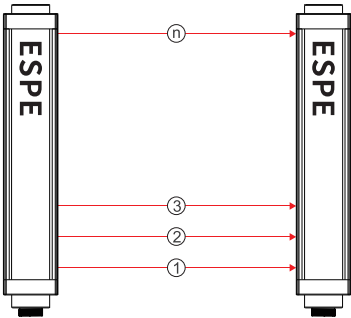
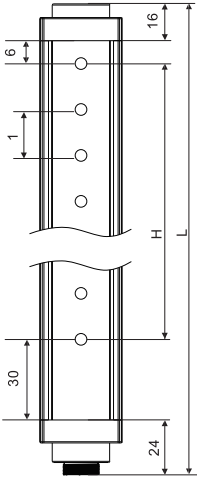
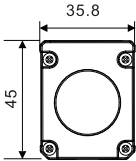


Top View

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

L is total height=end covers+ up & bottom

blind area + protection height

Picture	Beams (n)	Detection Height (mm)	Total Height (mm)	Model
	128	127	203	ESCL12801
	256	255	331	ESCL25601
	384	383	459	ESCL38401
	512	511	587	ESCL51201
	640	639	715	ESCL64001
	768	767	843	ESCL76801
	896	895	971	ESCL89601
	1024	1023	1099	ESCL102401
	1152	1151	1227	ESCL115201
	1280	1279	1355	ESCL128001
				
				

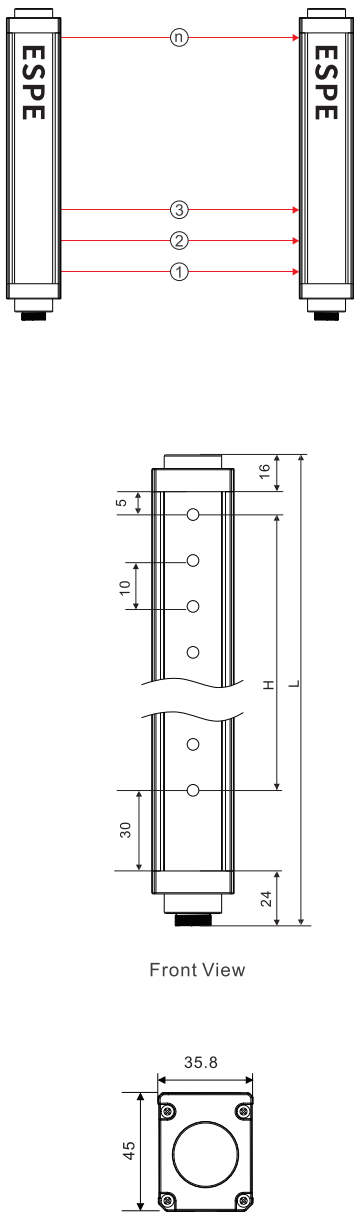
H is protection height=(beams-1)*beam space

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

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

ESCL Model Selection Table

- Detection accuracy 10mm

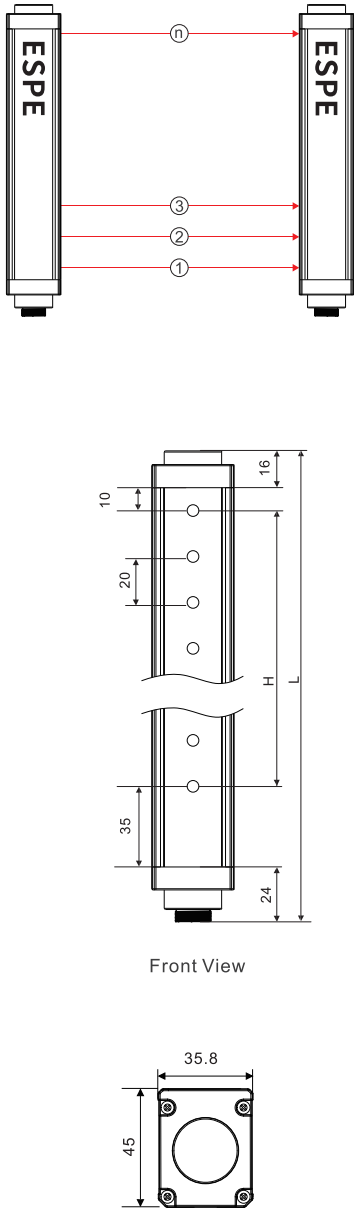
Picture	Beams (n)	Detection Height (mm)	Total Height (mm)	Model
 Front View Top View H is protection height=(beams-1)*beam space L is total height=end covers+ up & bottom blind area + protection height	16	150	225	ESCL1610
	24	230	305	ESCL2410
	32	310	385	ESCL3210
	40	390	465	ESCL4010
	48	470	545	ESCL4810
	56	550	625	ESCL5610
	64	630	705	ESCL6410
	72	710	785	ESCL7210
	80	790	865	ESCL8010
	88	870	945	ESCL8810
	96	950	1025	ESCL9610
	104	1030	1105	ESCL10410
	112	1110	1185	ESCL11210
	120	1190	1265	ESCL12010
	128	1270	1345	ESCL12810
	136	1350	1425	ESCL13610
	144	1430	1505	ESCL14410
	152	1510	1585	ESCL15210
	160	1590	1665	ESCL16010
	168	1670	1745	ESCL16810
	176	1750	1825	ESCL17610
	184	1830	1905	ESCL18410
	192	1910	1985	ESCL19210
	200	1990	2065	ESCL20010
	208	2070	2145	ESCL20810
	216	2150	2225	ESCL21610
	224	2230	2305	ESCL22410
	232	2310	2385	ESCL23210
	240	2390	2465	ESCL24010
	248	2470	2545	ESCL24810
	256	2550	2625	ESCL25610
				
	400	3990	4065	ESCL40010

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

Measuring Light Curtain

ESCL Model Selection Table

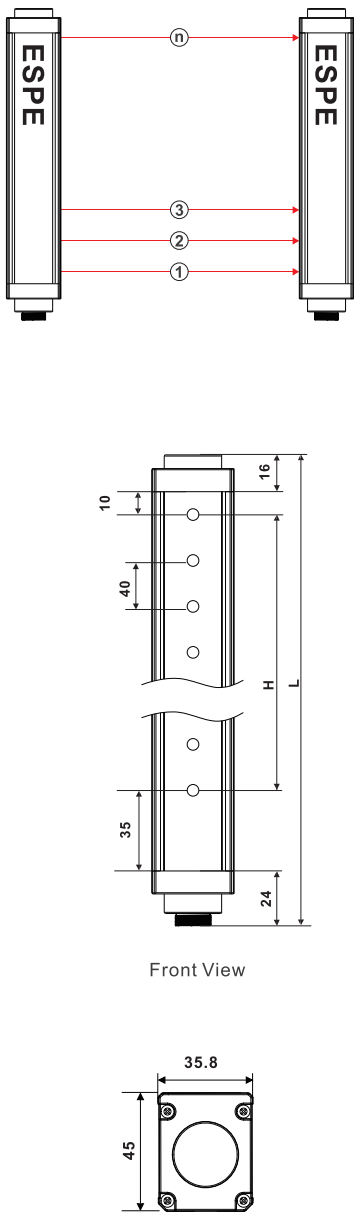
- Detection accuracy 20mm

Picture	Beams (n)	Detection 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	300	385	ESCL1620
	20	380	465	ESCL2020
	24	460	545	ESCL2420
	28	540	625	ESCL2820
	32	620	705	ESCL3220
	36	700	785	ESCL3620
	40	780	865	ESCL4020
	44	860	945	ESCL4420
	48	940	1025	ESCL4820
	52	1020	1105	ESCL5220
	56	1100	1185	ESCL5620
	60	1180	1265	ESCL6020
	64	1260	1345	ESCL6420
	68	1340	1425	ESCL6820
	72	1420	1505	ESCL7220
	76	1500	1585	ESCL7620
	80	1580	1665	ESCL8020
	84	1660	1745	ESCL8420
	88	1740	1825	ESCL8820
	92	1820	1905	ESCL9220
	96	1900	1985	ESCL9620
	100	1980	2065	ESCL10020
	104	2060	2145	ESCL10420
	108	2140	2225	ESCL10820
	112	2220	2305	ESCL11220
	116	2300	2385	ESCL11620
	120	2380	2465	ESCL12020
	124	2460	2545	ESCL12420
	128	2540	2625	ESCL12820
	132	2620	2705	ESCL13220
	136	2700	2785	ESCL13620
				
	240	4780	4865	ESCL24020

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

ESCL Model Selection Table

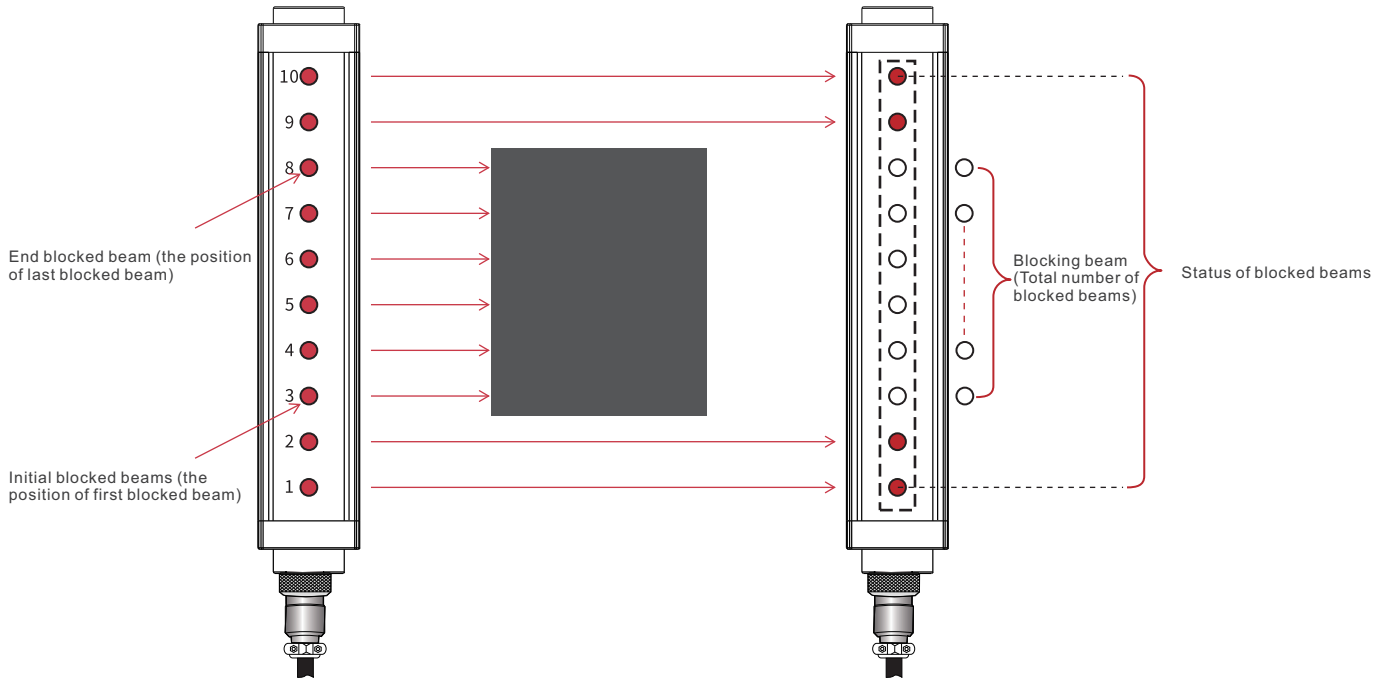
- Detection accuracy 40mm

Picture	Beams (n)	Detection 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	280	365	ESCL0840
	12	440	525	ESCL1240
	16	600	685	ESCL1640
	20	760	845	ESCL2040
	24	920	1005	ESCL2440
	28	1080	1165	ESCL2840
	32	1240	1325	ESCL3240
	36	1400	1485	ESCL3640
	40	1560	1645	ESCL4040
	44	1720	1805	ESCL4440
	48	1880	1965	ESCL4840
	52	2040	2125	ESCL5240
	56	2200	2285	ESCL5640
	60	2360	2445	ESCL6040
	64	2520	2605	ESCL6440
	68	2680	2765	ESCL6840
	72	2840	2925	ESCL7240
	76	3000	3085	ESCL7640
	80	3160	3245	ESCL8040
	84	3320	3405	ESCL8440
	88	3480	3565	ESCL8840
	92	3640	3725	ESCL9240
	96	3800	3885	ESCL9640
	100	3960	4045	ESCL10040
	104	4120	4205	ESCL10440
	108	4280	4365	ESCL10840
	112	4440	4525	ESCL11240
	116	4600	4685	ESCL11640
	120	4760	4845	ESCL12040

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

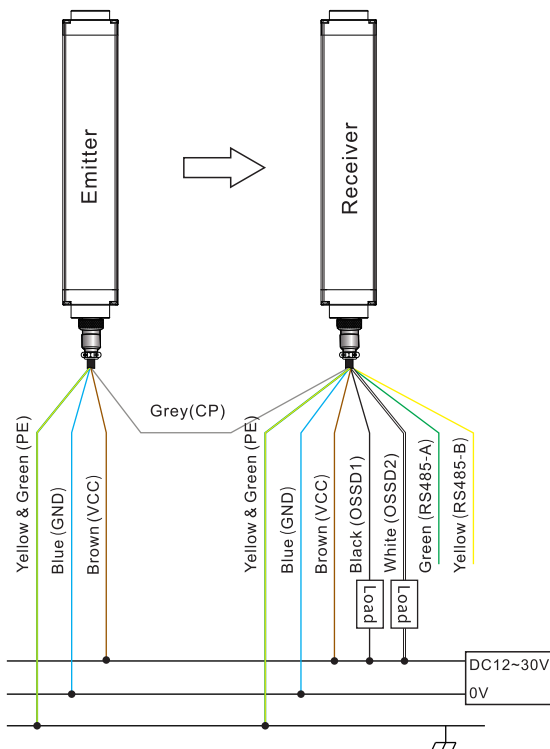
Measuring Light Curtain

Output Data Specification

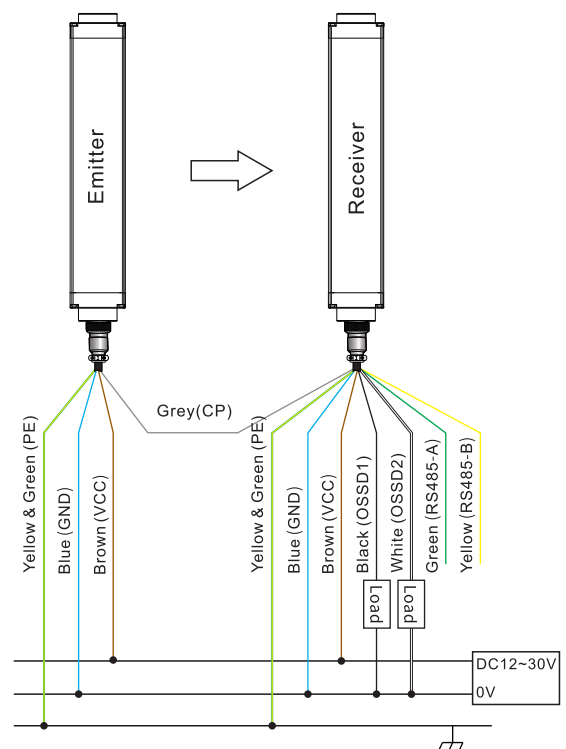


Wire Diagram

Output-NPN+RS485 (ESN/ESCL enclosure)

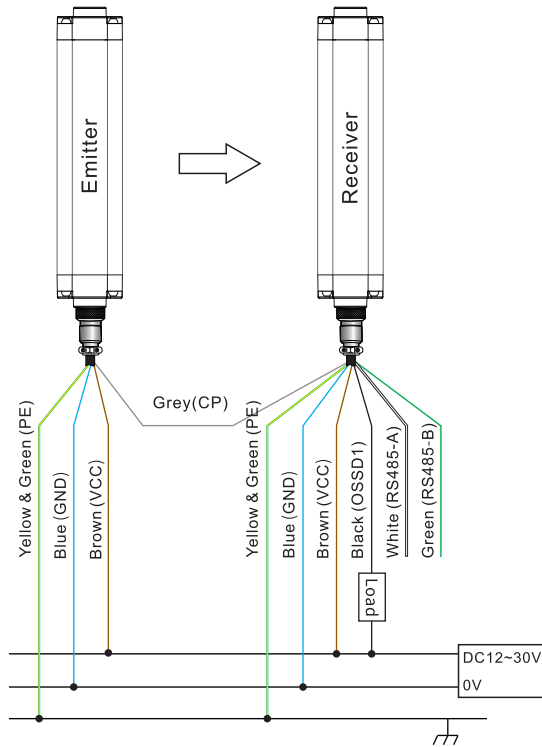


Output-PNP+RS485 (ESN/ESCL enclosure)

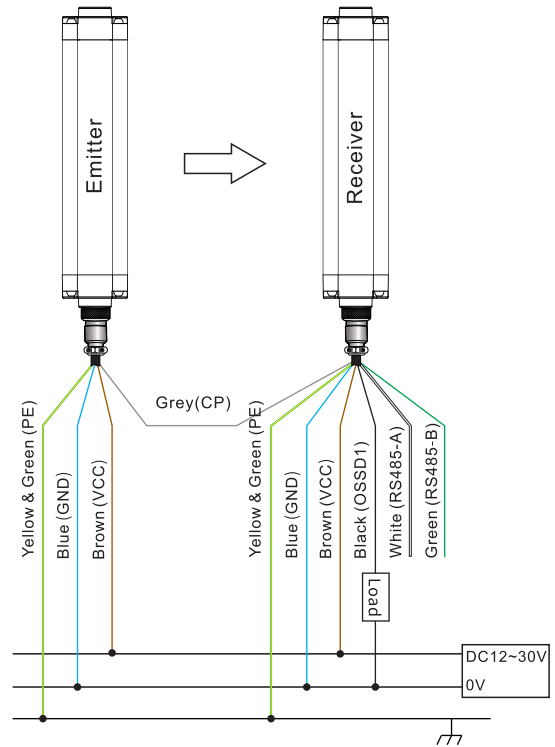


Wire Diagram

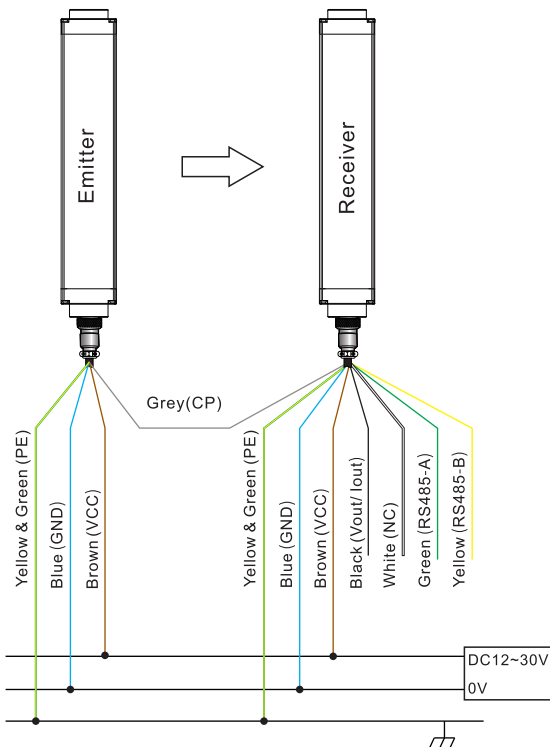
Output-NPN+RS485 (ELG enclosure)



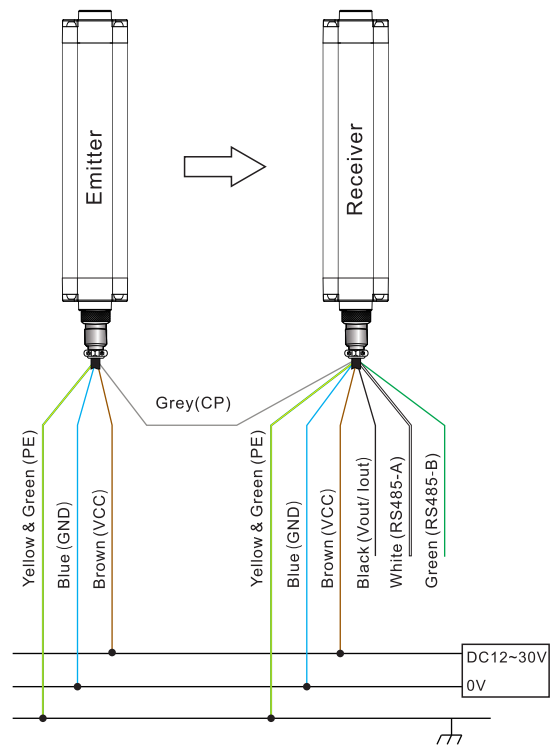
Output-PNP+RS485 (ELG enclosure)



Output-Analog+RS485 (ESN/ESCL enclosure)



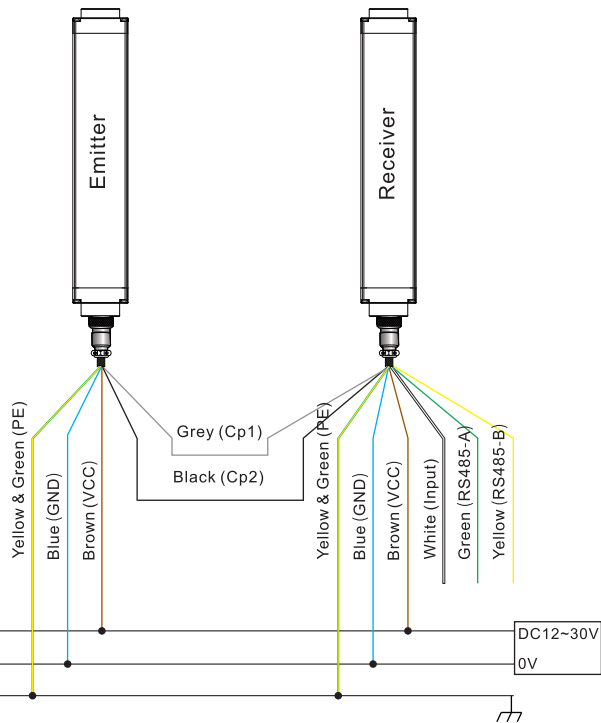
Output-Analog+RS485 (ELG enclosure)



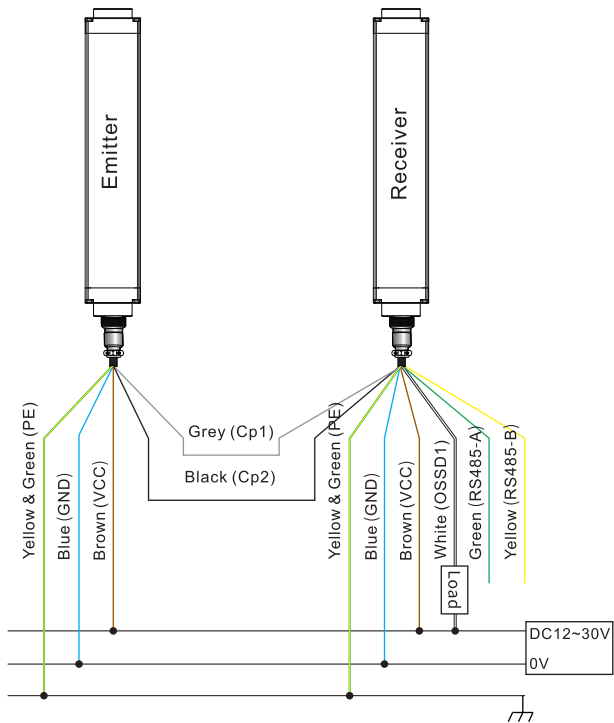
Measuring Light Curtain

Wire Diagram

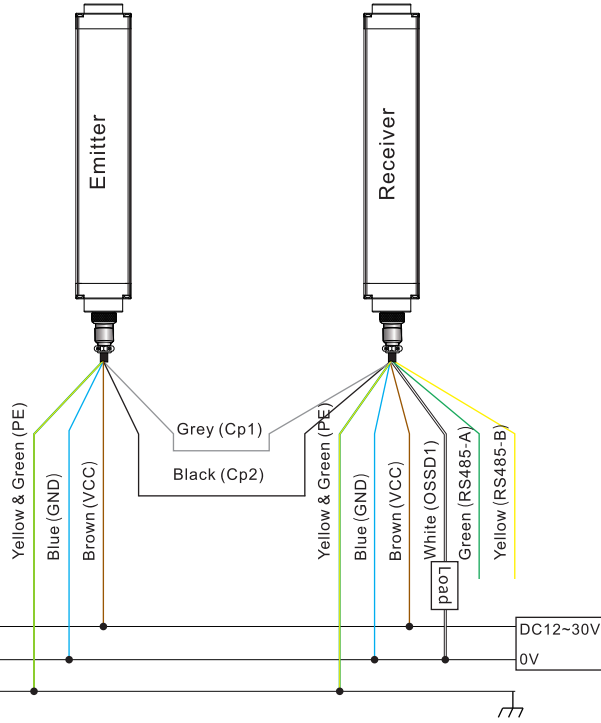
Output-RS485+pulse input (Only for 1mm beam space)



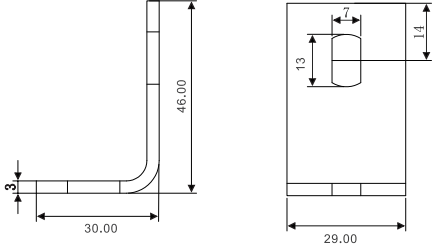
Output-RS485+NPN (Only for 1mm beam space)



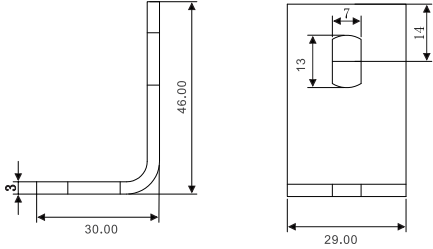
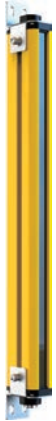
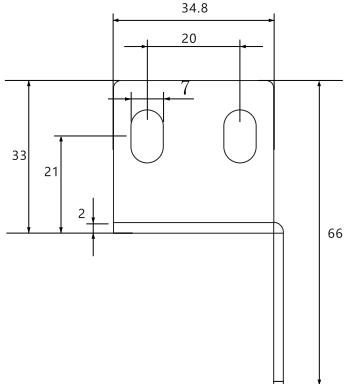
Output-RS485+PNP (Only for 1mm beam space)



ESCL Enclosure

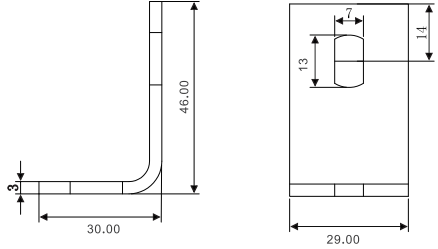
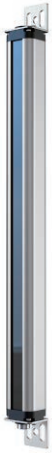
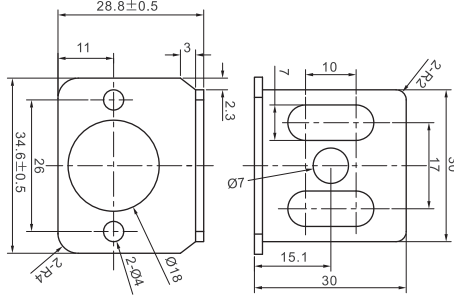
Picture	Name	Accessories	Size
	L1 side mounting	L bracket (4pcs) Slider (4pcs) M6 pad(4pcs) M6 spring washer(4pcs) M6*16 screw(4pcs) M6*8 screw(4pcs)	

ESN 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)	

Measuring Light Curtain

ELG Enclosure

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)	