# Датчики измерения световой завесы ESCL

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Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
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# ESCL series

# Detection/ Measuring light curtain

ESCL series measuring light curtain is mainly used for detecting the shape or size of objects, detecting hole, measuring volume. As it can also detect the detailed position of objects when they pass through light curtain, curtains are also applied for education (measuring the distance of long jump or shot-throwing), spraying coating of workpiece, coordinate positioning and so on.
High accuracy can even detect 2.5mm small size product. With RS485, RS232, analog quantity (voltage, current), switch quantity output signal, stable performance. As strong anti-electromagnetic interference ability, it can work in various servo motors and environments with large interference.


## Product feature

- High accuracy to detect project even 2.5mm size;
- Quick response time, adopt special algorithm to shorten the entire scan cycle;
- Multiple output method, RS485, RS232, analog voltage, analog current
- Standard communication protocol, using Modbus-RTU communication protocol.
- Good performance to resist electromagnetic interference, and resist influence by electromagnetic of various equipment motors.
- Wire synchronization technology to resist light interference effectively;

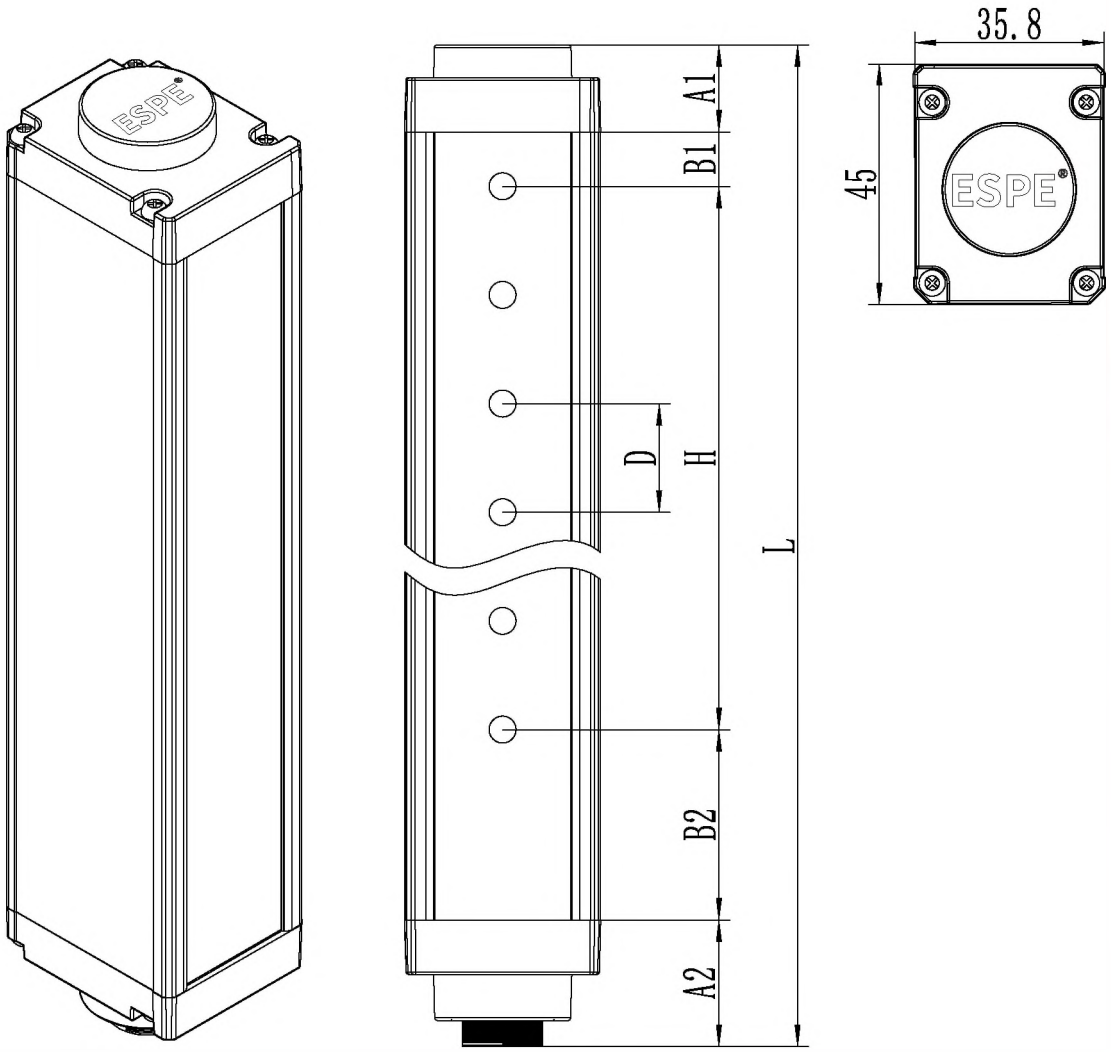
## Technical parameter

| Parameter of safety light curtain | |
|---|---|
| Power supply | DC12V~30V |
| Capacity | <5W |
| Detection precision | 2.5mm, 5mm, 10mm, 20mm, 40mm |
| Beam space | 2.5mm: 32, 64, 96……480<br>5mm: 16, 24, 32……640<br>10mm: 16, 24, 32……400<br>20mm: 16, 24, 32……240<br>40mm: 8, 16, 24……120 |
| Detection height | Detection height= (N-1)* beam space, N is beam quantity |
| Wave length | 940nm |
| Output signal | Switch quantity: NPN , PNP<br>Analog quantity: 0-5V, 0-10V, 4-20mA |
| Anti-optical interference | 10000Lux(angle>5°) |
| Communication method | Rs485, Rs232<br>Baud rate: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps<br>Protocol: Modbus-RTU<br>Data mode: active mode/ passive mode |
| Sensing method | Through-beam type |
| Sensing distance | 2.5mm space: 0.1~2m **(remark: if have light reflection, please let us know)**<br>5mm space: 0.1~4m **(remark: if have light reflection, please let us know)**<br>10mm space: 0.1~20m **(remark: if have light reflection, please let us know)**<br>20mm space: 0.1~20m **(remark: if have light reflection, please let us know)**<br>40mm space: 0.1~20m **(remark: if have light reflection, please let us know)** |
| Synchronization | Wire synchronization |
| Enclosure material | Aluminum alloy |
| Enclosure rating | IP65 |
| Sectional size | 35.8*45mm |
| Ambient operating temperature | -10°C~55°C(with no freezing) |
| Storage temperature | -30°C~70°C(with no freezing) |
| Ambient operating humidity | Whentemperatureis20°C, humidity max 85% |

## Explanation of model number ( For example: ESCL16 20 L1 NRY N-2)

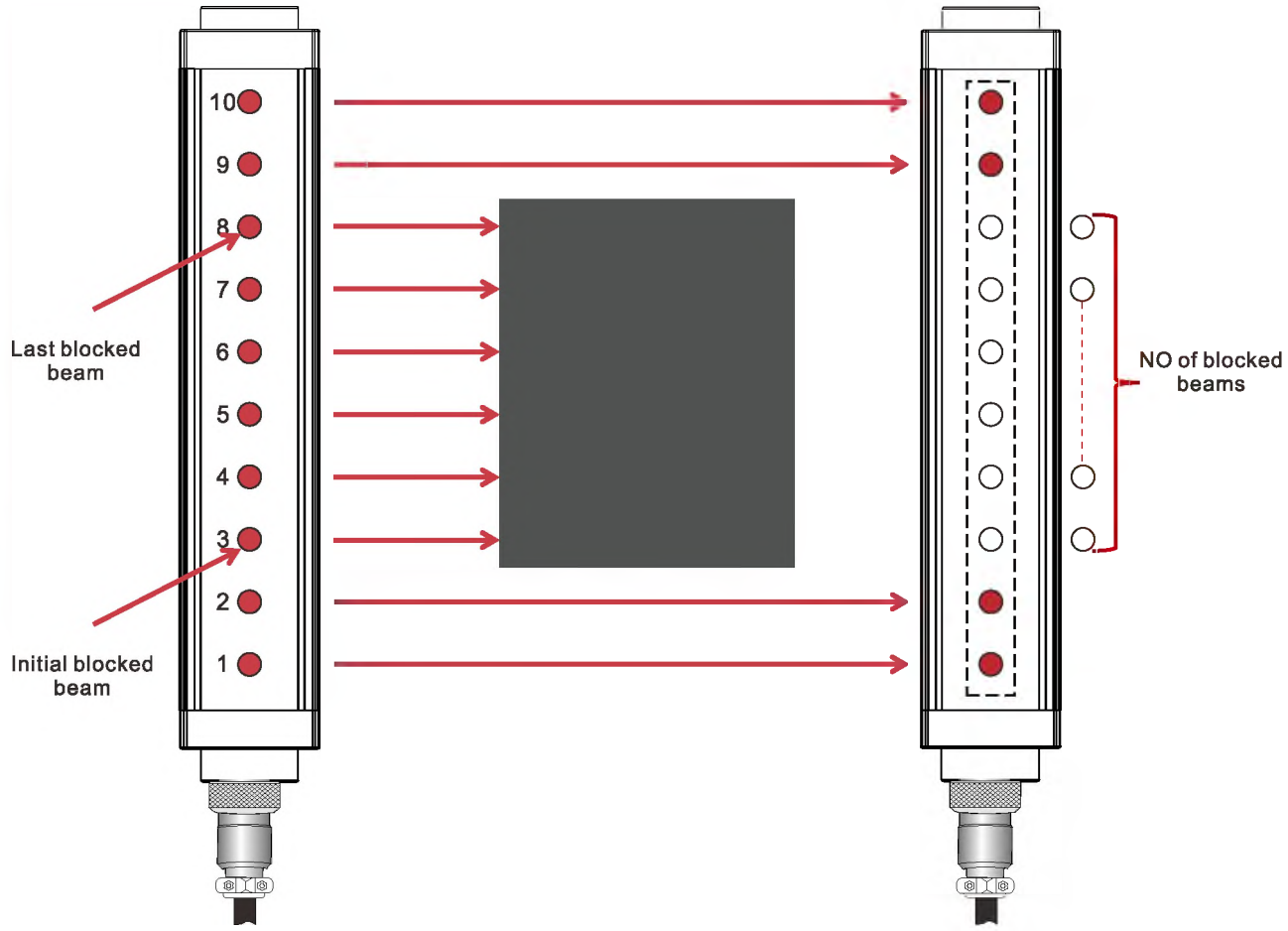
| ESCL | 16 | 20 | L1 | N | RY | N | – | 2 |
|---|---|---|---|---|---|---|---|---|
| Model | Beams | Beam space | Bracket | Output signal | Communication method | Output data | | Sensing distance |
| ESCL series | 08,16, 24, 32..... | 2.5mm<br>5mm<br>10mm<br>20mm<br>40mm | L1<br>L2 | N:NPN<br>P:PNP<br>(annlog quantitg has no) | **Digital quantity:**<br>RY: RS485 active mode<br>RZ: RS485 passive mode<br>SY: RS232 active mode<br>SZ: RS232 passive mode<br>**Analog quantity:**<br>U: 0-10V voltage<br>U1: 0-5V voltage<br>I : 4-20mA current | N: NO of blocked beams<br>S: Initial blocked beam<br>E: Last blocked beam | | 2: 0.1~2M<br>4: 0.1~4M<br>20: 0.1~20M |

## Product size




| | |
|---|---|
| A1: Upper cover | A1=16mm; A2=24mm |
| A2: Bottom cover | When D=2.5mm, B1=6.25mm, B2=81.25mm |
| B1: Upper stop-work range | When D=5mm, B1=7.5mm, B2=42.5mm |
| B2: Bottom stop-work range | When D=10mm, B1=5mm, B2=30mm |
| D: Beam space | When D=20/40mm, B1=10mm, B2=35mm |
| H: Protective height | H is protective height: H=(beams-1) * beam space |
| L: Total height | L is total height: L=A1+A2+B1+B2+H |

## Output data description of light curtain




### Output data description of light curtain

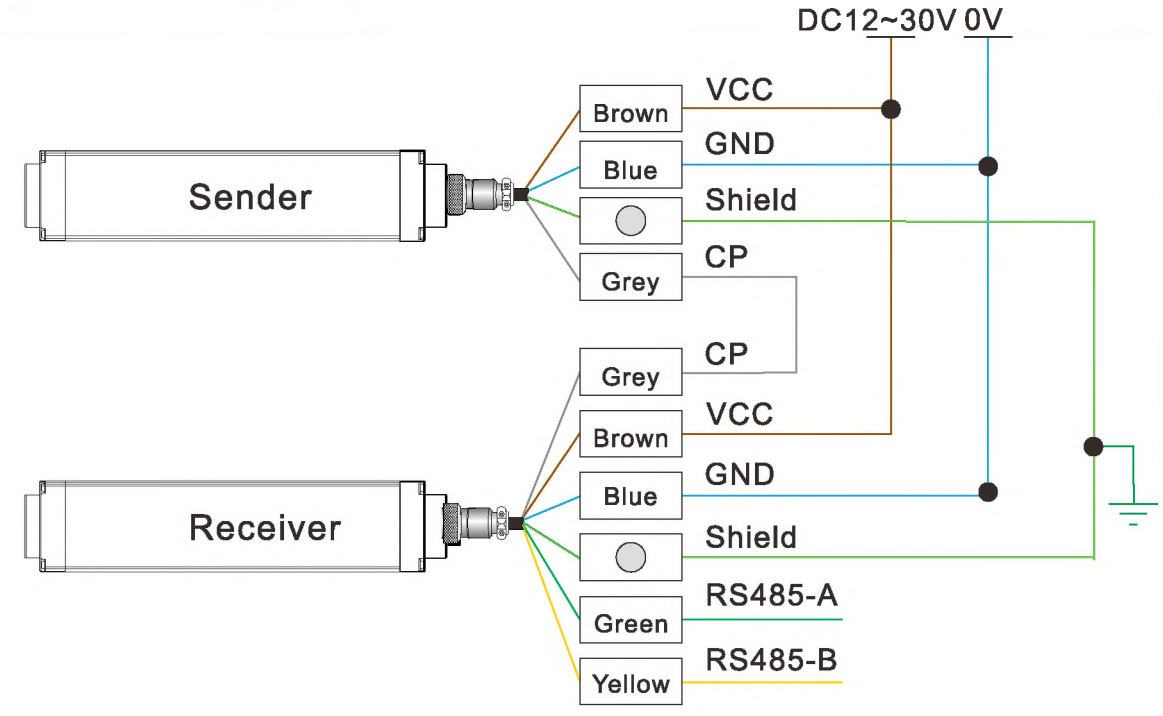
- Numbers of blocked beams: The total number of light beams that are blocked.
- Initial blocked beams: The initial position where light curtain is blocked by objects
- Last blocked beams: The Last position where light curtain is blocked by objects.

## The beam space is related to the minimum size of detected objects

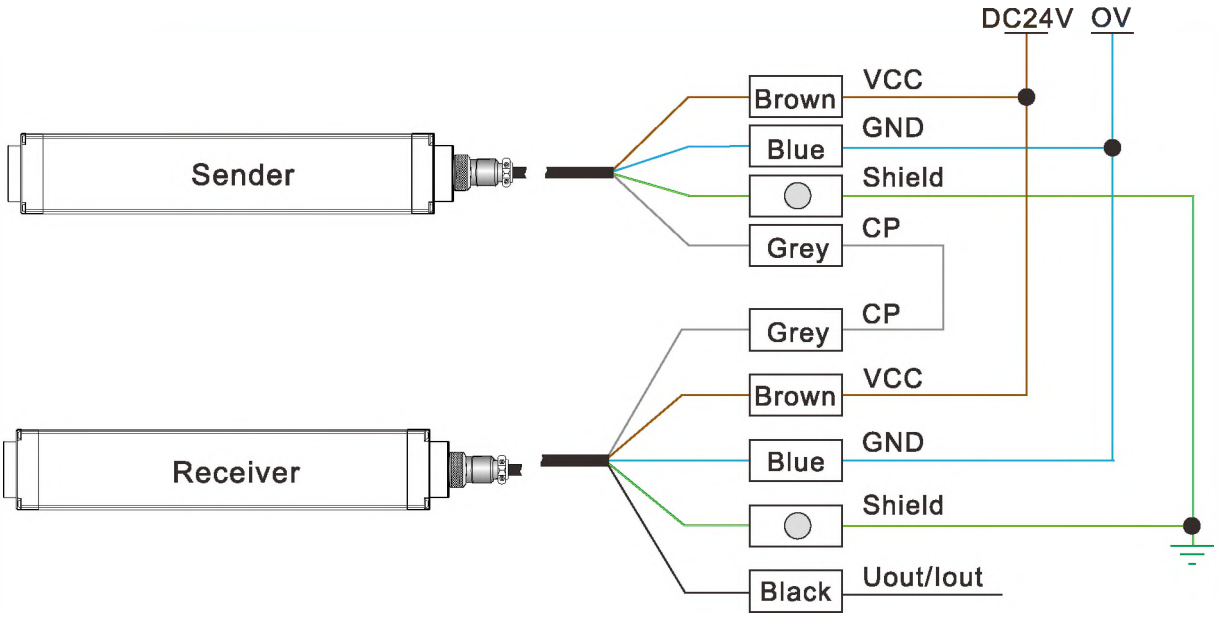
- 2.5mm size: minimum object ≥2.5mm
- 5mm size: minimum object ≥5mm
- 10mm size: minimum object ≥10mm
- 20mm size: minimum object ≥20mm
- 40mm size: minimum object ≥40mm

## Wire connection

### Connection of RS485



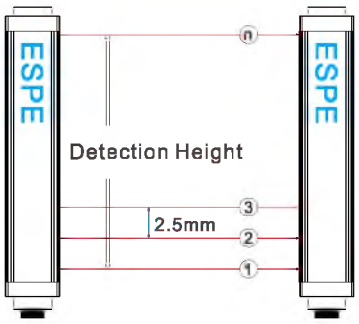

### Connection of Analog output

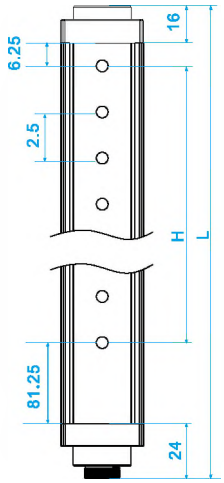


Measurement Light Curtain

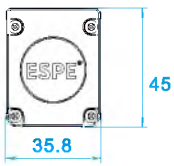
# ESCL selection sheet

- Beam space 2.5mm




Front view




Top-view

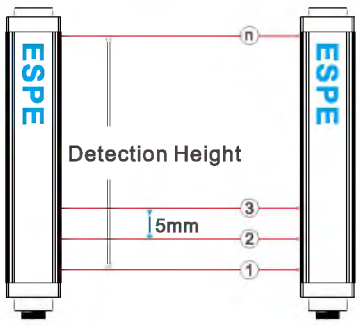
H is protective height:
H=(beams-1) * beam space
L is total height: L=A1+A2+B1+B2+H

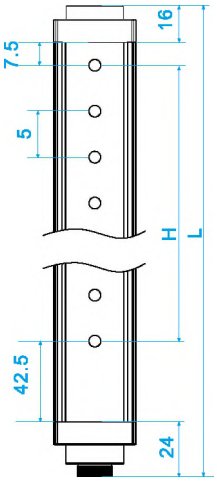
| Picture | Beams | Detection Height(mm) | Total Height (mm) | Model | Size L*W*H(mm) |
|---|---|---|---|---|---|
| | 32 | 77.50 | 205 | ESCL32025 | 35.8*45*205 |
| | 64 | 157.50 | 285 | ESCL64025 | 35.8*45*285 |
| | 96 | 237.50 | 365 | ESCL96025 | 35.8*45*365 |
| | 128 | 317.50 | 445 | ESCL128025 | 35.8*45*445 |
| | 160 | 397.50 | 525 | ESCL160025 | 35.8*45*525 |
| | 192 | 477.50 | 605 | ESCL192025 | 35.8*45*605 |
| | 224 | 557.50 | 685 | ESCL224025 | 35.8*45*685 |
| | 256 | 637.50 | 765 | ESCL256025 | 35.8*45*765 |
| | 288 | 717.50 | 845 | ESCL288025 | 35.8*45*845 |
| | 320 | 797.50 | 925 | ESCL320025 | 35.8*45*925 |
| | 352 | 877.50 | 1005 | ESCL352025 | 35.8*45*1005 |
| | 384 | 957.50 | 1085 | ESCL384025 | 35.8*45*1085 |
| | 416 | 1037.50 | 1165 | ESCL416025 | 35.8*45*1165 |
| | 448 | 1117.50 | 1245 | ESCL448025 | 35.8*45*1245 |
| | 480 | 1197.50 | 1325 | ESCL480025 | 35.8*45*1325 |

Remark: Size can be customized according to real application.

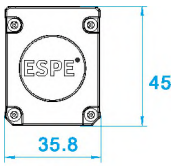
# ESCL selection sheet

- Beam space 5mm




Front view




Top-view

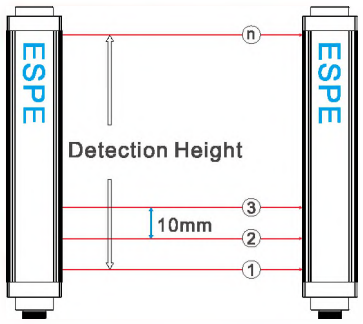
H is protective height:
H=(beams-1) * beam space
L is total height: L=A1+A2+B1+B2+H

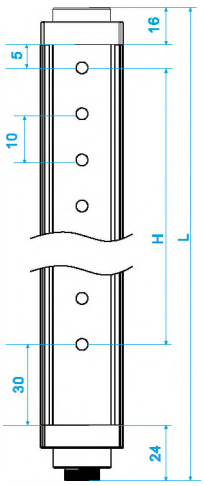
| Picture | Beams | Detection Height(mm) | Total Height (mm) | Model | Size L*W*H(mm) |
|---|---|---|---|---|---|
| | 16 | 75 | 165 | ESCL1605 | 35.8*45*165 |
| | 24 | 115 | 205 | ESCL2405 | 35.8*45*205 |
| | 32 | 155 | 245 | ESCL3205 | 35.8*45*245 |
| | 40 | 195 | 285 | ESCL4005 | 35.8*45*285 |
| | 48 | 235 | 325 | ESCL4805 | 35.8*45*325 |
| | 56 | 275 | 365 | ESCL5605 | 35.8*45*365 |
| | 64 | 315 | 405 | ESCL6405 | 35.8*45*405 |
| | 72 | 355 | 445 | ESCL7205 | 35.8*45*445 |
| | 80 | 395 | 485 | ESCL8005 | 35.8*45*485 |
| | 88 | 435 | 525 | ESCL8805 | 35.8*45*525 |
| | 96 | 475 | 565 | ESCL9605 | 35.8*45*565 |
| | 104 | 515 | 605 | ESCL10405 | 35.8*45*605 |
| | 112 | 555 | 645 | ESCL11205 | 35.8*45*645 |
| | 120 | 595 | 685 | ESCL12005 | 35.8*45*685 |
| | 128 | 635 | 725 | ESCL12805 | 35.8*45*725 |
| | 136 | 675 | 765 | ESCL13605 | 35.8*45*765 |
| | 144 | 715 | 805 | ESCL14405 | 35.8*45*805 |
| | 152 | 755 | 845 | ESCL15205 | 35.8*45*845 |
| | 160 | 795 | 885 | ESCL16005 | 35.8*45*885 |
| | 168 | 835 | 925 | ESCL16805 | 35.8*45*925 |
| | 176 | 875 | 965 | ESCL17605 | 35.8*45*965 |
| | 184 | 915 | 1005 | ESCL18405 | 35.8*45*1005 |
| | 192 | 955 | 1045 | ESCL19205 | 35.8*45*1045 |
| | 200 | 995 | 1085 | ESCL20005 | 35.8*45*1085 |
| | 208 | 1035 | 1125 | ESCL20805 | 35.8*45*1125 |
| | 216 | 1075 | 1165 | ESCL21605 | 35.8*45*1165 |
| | 224 | 1115 | 1205 | ESCL22405 | 35.8*45*1205 |
| | 232 | 1155 | 1245 | ESCL23205 | 35.8*45*1245 |
| | 240 | 1195 | 1285 | ESCL24005 | 35.8*45*1285 |
| | 248 | 1235 | 1325 | ESCL24805 | 35.8*45*1325 |
| | 256 | 1275 | 1365 | ESCL25605 | 35.8*45*1365 |
| | ..... | ..... | ..... | ..... | ..... |
| | 640 | 3195 | 3285 | ESCL64005 | 35.8*45*3285 |

Remark: Size can be customized according to real application.

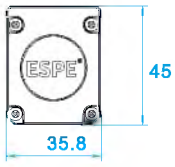
# ESCL selection sheet

- Beam space 10mm




Front view




Top-view

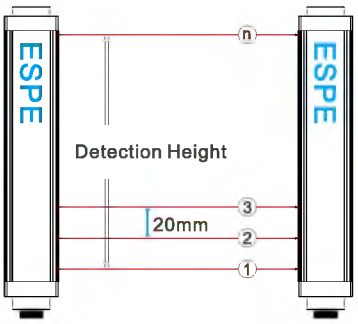
H is protective height:
H=(beams-1) * beam space
L is total height: L=A1+A2+B1+B2+H

| Picture | Beams | Detection Height(mm) | Total Height (mm) | Model | Size L*W*H(mm) |
|---|---|---|---|---|---|
| | 16 | 150 | 225 | ESCL1610 | 35.8*45*225 |
| | 24 | 230 | 305 | ESCL2410 | 35.8*45*305 |
| | 32 | 310 | 385 | ESCL3210 | 35.8*45*385 |
| | 40 | 390 | 465 | ESCL4010 | 35.8*45*465 |
| | 48 | 470 | 545 | ESCL4810 | 35.8*45*545 |
| | 56 | 550 | 625 | ESCL5610 | 35.8*45*625 |
| | 64 | 630 | 705 | ESCL6410 | 35.8*45*705 |
| | 72 | 710 | 785 | ESCL7210 | 35.8*45*785 |
| | 80 | 790 | 865 | ESCL8010 | 35.8*45*865 |
| | 88 | 870 | 945 | ESCL8810 | 35.8*45*945 |
| | 96 | 950 | 1025 | ESCL9610 | 35.8*45*1025 |
| | 104 | 1030 | 1105 | ESCL10410 | 35.8*45*1105 |
| | 112 | 1110 | 1185 | ESCL11210 | 35.8*45*1185 |
| | 120 | 1190 | 1265 | ESCL12010 | 35.8*45*1265 |
| | 128 | 1270 | 1345 | ESCL12810 | 35.8*45*1345 |
| | 136 | 1350 | 1425 | ESCL13610 | 35.8*45*1425 |
| | 144 | 1430 | 1505 | ESCL14410 | 35.8*45*1505 |
| | 152 | 1510 | 1585 | ESCL15210 | 35.8*45*1585 |
| | 160 | 1590 | 1665 | ESCL16010 | 35.8*45*1665 |
| | 168 | 1670 | 1745 | ESCL16810 | 35.8*45*1745 |
| | 176 | 1750 | 1825 | ESCL17610 | 35.8*45*1825 |
| | 184 | 1830 | 1905 | ESCL18410 | 35.8*45*1905 |
| | 192 | 1910 | 1985 | ESCL19210 | 35.8*45*1985 |
| | 200 | 1990 | 2065 | ESCL20010 | 35.8*45*2065 |
| | 208 | 2070 | 2145 | ESCL20810 | 35.8*45*2145 |
| | 216 | 2150 | 2225 | ESCL21610 | 35.8*45*2225 |
| | 224 | 2230 | 2305 | ESCL22410 | 35.8*45*2305 |
| | 232 | 2310 | 2385 | ESCL23210 | 35.8*45*2385 |
| | 240 | 2390 | 2465 | ESCL24010 | 35.8*45*2465 |
| | 248 | 2470 | 2545 | ESCL24810 | 35.8*45*2545 |
| | 256 | 2550 | 2625 | ESCL25610 | 35.8*45*2625 |
| | ..... | ..... | ..... | ..... | ..... |
| | 400 | 3990 | 4065 | ESCL40010 | 35.8*45*4065 |

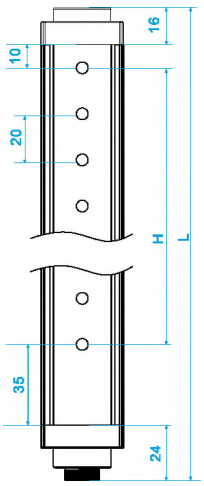
Remark: Size can be customized according to real application.

# ESCL selection sheet

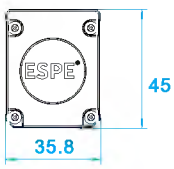
- Beam space 20mm

| Picture | Beams | Detection Height(mm) | Total Height (mm) | Model | Size L*W*H(mm) |
|---|---|---|---|---|---|
|  | 16 | 300 | 385 | ESCL1620 | 35.8*45*385 |
| | 24 | 460 | 545 | ESCL2420 | 35.8*45*545 |
| | 32 | 620 | 705 | ESCL3220 | 35.8*45*705 |
| | 40 | 780 | 865 | ESCL4020 | 35.8*45*865 |
| | 48 | 940 | 1025 | ESCL4820 | 35.8*45*1025 |
| | 56 | 1100 | 1185 | ESCL5620 | 35.8*45*1185 |
| | 64 | 1260 | 1345 | ESCL6420 | 35.8*45*1345 |
| | 72 | 1420 | 1505 | ESCL7220 | 35.8*45*1505 |
| | 80 | 1580 | 1665 | ESCL8020 | 35.8*45*1665 |
| | 88 | 1740 | 1825 | ESCL8820 | 35.8*45*1825 |
| | 96 | 1900 | 1985 | ESCL9620 | 35.8*45*1985 |
| | 104 | 2060 | 2145 | ESCL10420 | 35.8*45*2145 |
| | 112 | 2220 | 2305 | ESCL11220 | 35.8*45*2305 |
| | 120 | 2380 | 2465 | ESCL12020 | 35.8*45*2465 |
| | 128 | 2540 | 2625 | ESCL12820 | 35.8*45*2625 |
| | 136 | 2700 | 2785 | ESCL13620 | 35.8*45*2785 |
| | 144 | 2860 | 2945 | ESCL14420 | 35.8*45*2945 |
| | 152 | 3020 | 3105 | ESCL15220 | 35.8*45*3105 |
| | 160 | 3180 | 3265 | ESCL16020 | 35.8*45*3265 |
| | 168 | 3340 | 3425 | ESCL16820 | 35.8*45*3425 |
| | 176 | 3500 | 3585 | ESCL17620 | 35.8*45*3585 |
| | 184 | 3660 | 3745 | ESCL18420 | 35.8*45*3745 |
| | 192 | 3820 | 3905 | ESCL19220 | 35.8*45*3905 |
| | 200 | 3980 | 4065 | ESCL20020 | 35.8*45*4065 |
| | 208 | 4140 | 4225 | ESCL20820 | 35.8*45*4225 |
| | 216 | 4300 | 4385 | ESCL21620 | 35.8*45*4385 |
| | 224 | 4460 | 4545 | ESCL22420 | 35.8*45*4545 |
| | 232 | 4620 | 4705 | ESCL23220 | 35.8*45*4705 |
| | 240 | 4780 | 4865 | ESCL24020 | 35.8*45*4865 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |






Front view



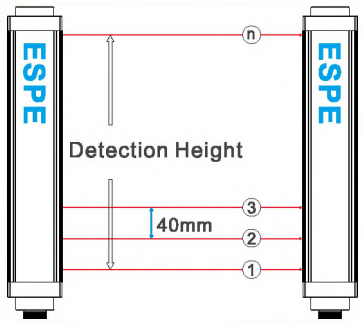

Top-view

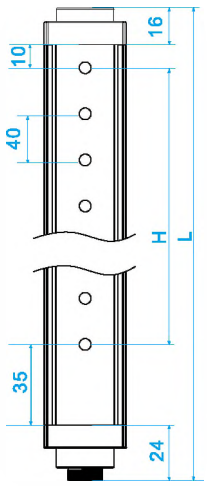
H is protective height:
H=(beams-1) * beam space
L is total height: L=A1+A2+B1+B2+H

Remark: Size can be customized according to real application.

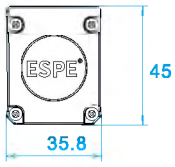
# ESCL selection sheet

- Beam space 40mm




Front view



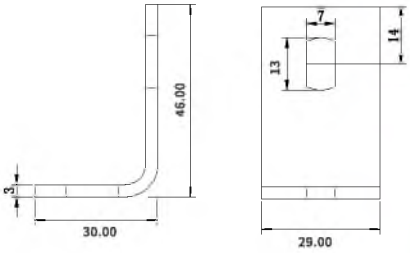

Top-view

H is protective height:
H=(beams-1) * beam space
L is total height: L=A1+A2+B1+B2+H

| Picture | Beams | Detection Height(mm) | Total Height (mm) | Model | Size L*W*H(mm) |
|---|---|---|---|---|---|
| | 08 | 280 | 365 | ESCL0840 | 35.8*45*365 |
| | 12 | 440 | 525 | ESCL1240 | 35.8*45*525 |
| | 16 | 600 | 685 | ESCL1640 | 35.8*45*685 |
| | 20 | 760 | 845 | ESCL2040 | 35.8*45*845 |
| | 24 | 920 | 1005 | ESCL2440 | 35.8*45*1005 |
| | 28 | 1080 | 1165 | ESCL2840 | 35.8*45*1165 |
| | 32 | 1240 | 1325 | ESCL3240 | 35.8*45*1325 |
| | 36 | 1400 | 1485 | ESCL3640 | 35.8*45*1485 |
| | 40 | 1560 | 1645 | ESCL4040 | 35.8*45*1645 |
| | 44 | 1720 | 1805 | ESCL4440 | 35.8*45*1805 |
| | 48 | 1880 | 1965 | ESCL4840 | 35.8*45*1965 |
| | 52 | 2040 | 2125 | ESCL5240 | 35.8*45*2125 |
| | 56 | 2200 | 2285 | ESCL5640 | 35.8*45*2285 |
| | 60 | 2360 | 2445 | ESCL6040 | 35.8*45*2445 |
| | 64 | 2520 | 2605 | ESCL6440 | 35.8*45*2605 |
| | 68 | 2680 | 2765 | ESCL6840 | 35.8*45*2765 |
| | 72 | 2840 | 2925 | ESCL7240 | 35.8*45*2925 |
| | 76 | 3000 | 3085 | ESCL7640 | 35.8*45*3085 |
| | 80 | 3160 | 3245 | ESCL8040 | 35.8*45*3245 |
| | 84 | 3320 | 3405 | ESCL8440 | 35.8*45*3405 |
| | 88 | 3480 | 3565 | ESCL8840 | 35.8*45*3565 |
| | 92 | 3640 | 3725 | ESCL9240 | 35.8*45*3725 |
| | 96 | 3800 | 3885 | ESCL9640 | 35.8*45*3885 |
| | 100 | 3960 | 4045 | ESCL10040 | 35.8*45*4045 |
| | 104 | 4120 | 4205 | ESCL10440 | 35.8*45*4205 |
| | 108 | 4280 | 4365 | ESCL10840 | 35.8*45*4365 |
| | 112 | 4440 | 4525 | ESCL11240 | 35.8*45*4525 |
| | 116 | 4600 | 4685 | ESCL11640 | 35.8*45*4685 |
| | 120 | 4760 | 4845 | ESCL12040 | 35.8*45*4845 |

Remark: Size can be customized according to real application.

## Option of brackets

| Picture | Brackets | Accessories | Size |
|---|---|---|---|
|  | L1 back mounting brackets | 1. L type brackets(4 pcs)<br>2. Slide block (4pcs)<br>3. M6 grommet (4 pcs)<br>4. M6 pad(4 pcs)<br>5. M6*16 screw(4 pcs)<br>6. M6*8 screw(4 pcs) |  |

## Application case

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