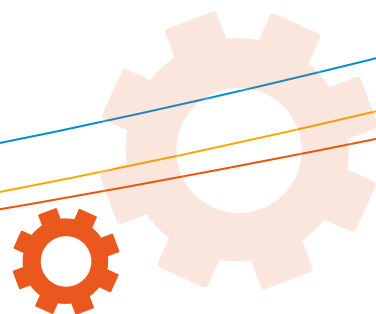


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Shenzhen Xaori Technology Co., Ltd
深圳市骁锐科技有限公司

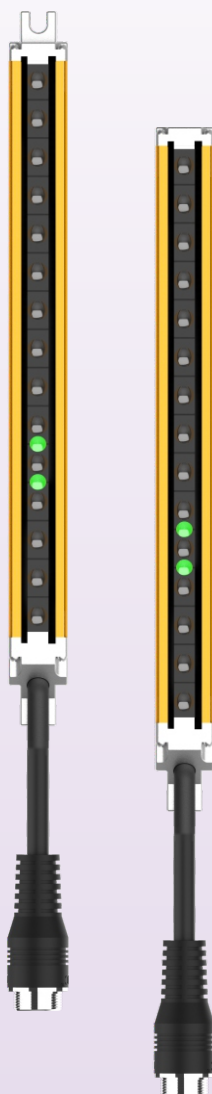


HONORARY CERTIFICATE 荣誉证书





LCS series Miniature Safety Light curtain



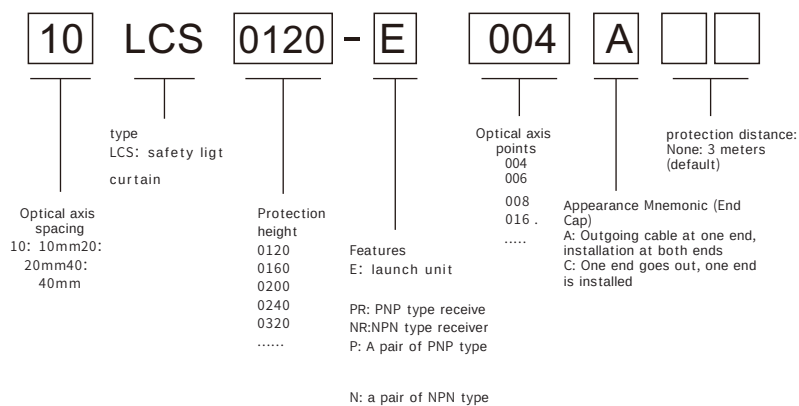
LCS series miniature safety grating performance characteristics

LCS series safety grating is a new type of through-beam safety photoelectric protection device developed and developed using the current international advanced technology. The smallest cross-section in the industry is 15×15mm. It has the characteristics of high safety and high reliability through ISO13849-1 PLe and EN61496-1/2 Type4 certification. At the same time, the structure is compact and the shape is slender, and it can achieve single-end without blind spots. Professional optical design and circuit design make the safety grating have very good resistance to electromagnetic interference and ambient light interference, so it can be used in many harsh environments and structurally restricted areas.

This grating has the following characteristics:



LCS series miniature safety grating product structure model description



※Appearance mnemonic code C type requires additional purchase of "LCS back mounting bracket"

- ◆ Dual-channel design reduces the probability of dangerous failure of safety gratings and improves safety performance;
- ◆ The grating resolution is 14mm, 25mm, 45mm optional;
- ◆ Adopt the most advanced infrared light synchronization technology, easy to install and use;
- ◆ C-type grating can realize single-ended without dead zone;
- ◆ It has good field application ability, strong anti-light interference and anti-electromagnetic interference ability;
- ◆ Pulse test, self-diagnosis of output circuit, short-circuit fault detection and other means to ensure functional safety;
- ◆ Small in size, the cross-sectional size is only 15×15mm;
- ◆ It comes with two ends installed, no need to install the bracket, easy to use;

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门控单元

安全/光栅

安全模块

光电传感器

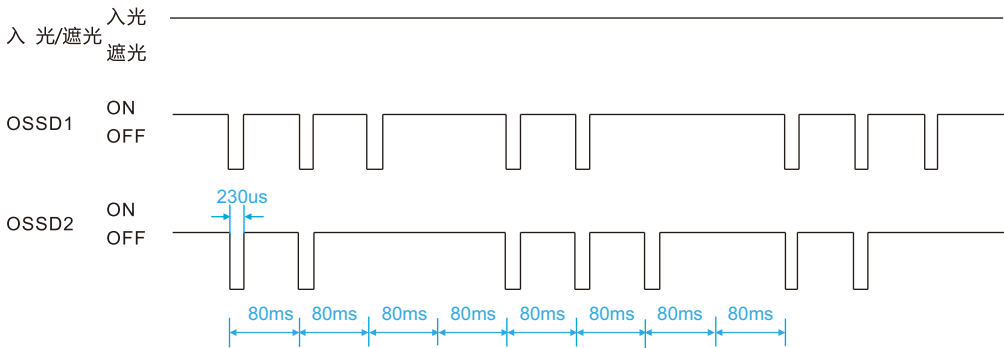
安全产品应用案例

LCS series miniature safety curtain technical parameters

LCS series miniature safety light curtain (10/20/40 series)			
Safety standard	Ple per ISO13849-1 Cat.4 Type4 per IEC61496-1& IEC61496-2	Maximum capacitive load	0.1uF
		voltage	+24V±10%
Optical axis spacing (resolution)	10mm (14mm) 20mm (25mm) 40mm(45m)	maximum power	<3W
Detection distance	0.1-1m,0.1-3m	Shell protection	IP65 (可订制IP67)
Number of optical axes	4-191	working temperature	0~55°C
Protection height	100-1910mm	storage temperature	-20°C~70°C
Light source wavelength	940nm	Relative humidity	15%~85%
Response time	参见选型表	impact	10g/20mS
	output type	vibration	0.35mm/10~55Hz
Maximum output current	200mA		
Average Hourly Hazard Failure probability PFHd	<5.3x10 ⁻⁸		

LCS series miniature safety light grid OSSD output self-diagnosis sequence

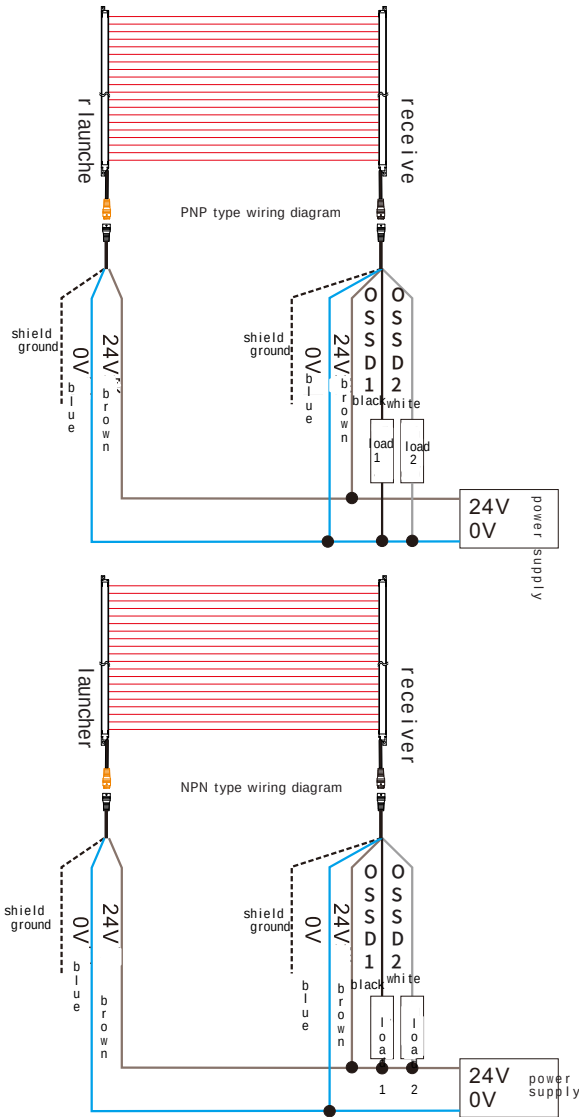
LCS series miniature safety light grid has OSSD output self-diagnosis function. During the normal light-passing OSSD output of the grating, the internal control timing control unit of the grating periodically and actively turns off the outputs of OSSD1 and OSSD2 in turn. When OSSD1 or OSSD2 is closed for a short time, the internal timing control unit of the grating detects whether the level of OSSD1 or OSSD2 is consistent with the expected result. If it is consistent, the OSSD switch is in normal working state; if it is inconsistent with the expected result, the OSSD In the event of a failure, the system will immediately shut down the two OSSDs to ensure functional safety. At this time, the red LED indicator light of the receiving grating will flash to indicate the failure. Therefore, when the load connected to the LCS safety light grid is a PLC or a fast intelligent device with MCU control, it is necessary to filter out the self-checking pulse (recommended 1ms) in the program to prevent the PLC or MCU from detecting this waveform and causing the machine to stop. The figure below is the timing chart of the output waveform of the PNP-type grating self-diagnosis



LCS series miniature safety light grid common troubleshooting

LED indicator light			illustrate
l a u n c h e r		green light	works fine
		1Hz red light flashing	Launch tube failure
		2Hz red light flashing	power failure
		alternately 2Hz light	Select circuit failure
		light flashes	software failure
LED indicator light			illustrate
r e c e i v e r		green light	All beams on
		red light	There is a beam interruption (not on the right light)
		1Hz green light flashing	disturbing
		2Hz red light flashing	Abnormal power supply
		1Hz red light flashes	Output error Overload Short circuit etc.
		2Hz green light flashing	software failure
		2Hz red and green flash alternately	Select circuit failure
		1Hz red and green flash alternately	Primary and secondary MCU communication error

Definition and application wiring diagram of LCS series miniature safety light grid signal interface



name	color	illustrate
launcher	Brown+24VDC	Supply voltage, DC 24V
	blue GND	Power 0V
receiver	Brown+24VDC	Supply voltage, DC 24V
	blue GND	Power 0V
	black OSSD1	Safety output 1: NPN/PNP (can directly enter PLC, safety relay)
	White OSSD2	Safety output 2: NPN/PNP (can directly enter PLC, safety relay)

w a r n

Please connect the dual output to the control safety system of the equipment, if the output is single, the safety level will not be met.

- Confirm that the wiring is performed with the power turned off.
- Please confirm that the change of power supply voltage does not exceed the rated range.
- Do not run wires together with high-voltage wires or power wires or in the same line, as this may cause malfunctions due to induction.
- Do not use it for a short time (2S) after the power is turned on.
- Avoid dust, dirt and water vapor.
- Do not directly contact the grating with water, oil, grease or organic solution (such as thinner).
- Do not expose the grating directly to the fluorescence of fast-start lamps or high-frequency lighting equipment, which will affect the detection performance.
- If possible, install the grating as insulating as possible.

安全知识普及

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安全/开关

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门控单元

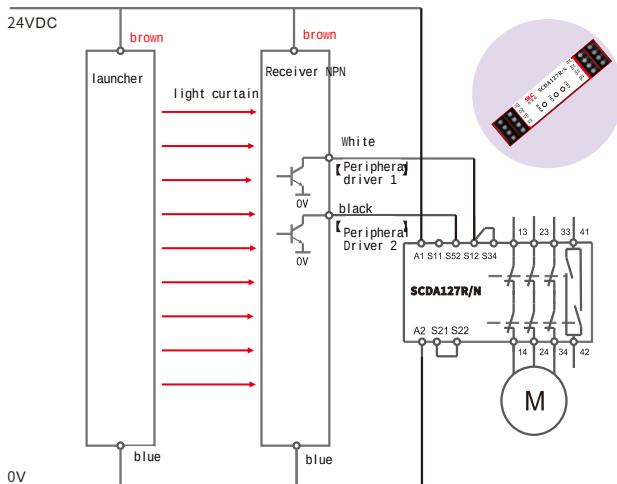
安全/光栅

安全模块

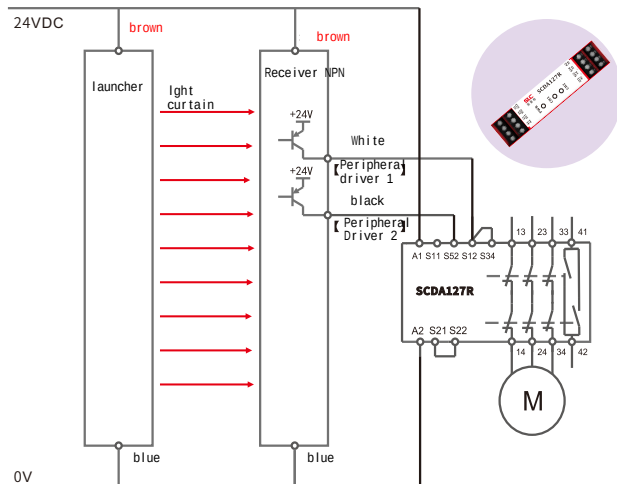
光电传感器

安全产品应用案例

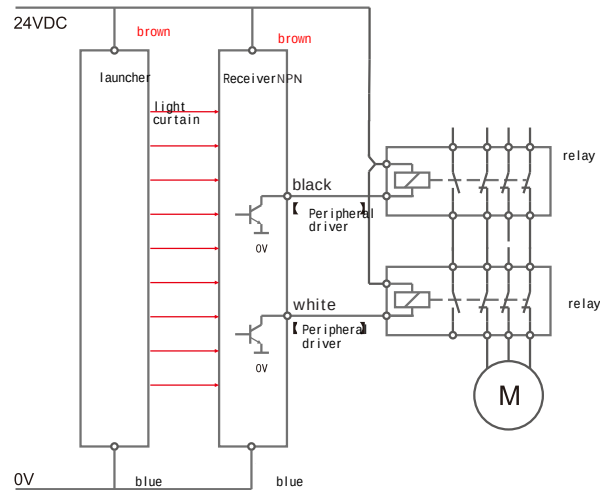
LCS safety light grid (NPN) and SCDA127R/N application wiring diagram



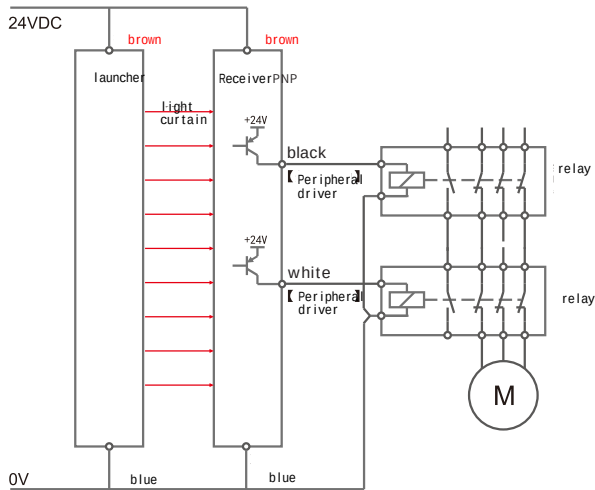
LCS safety light grid (PNP) and SCDA127R application wiring diagram



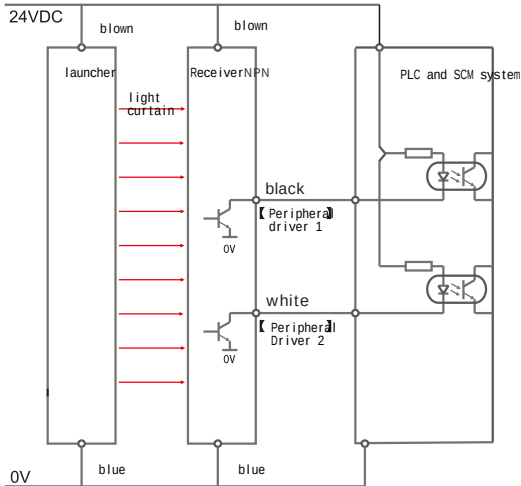
LCS safety light grid (NPN) and relay application wiring diagram



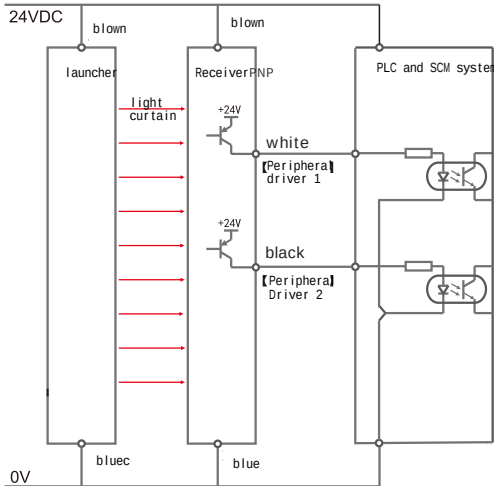
LCS safety light grid (PNP) and relay application wiring diagram



LCS safety light grid (NPN) and PLC application wiring diagram



LCS safety light grid (PNP) and PLC application wiring diagram



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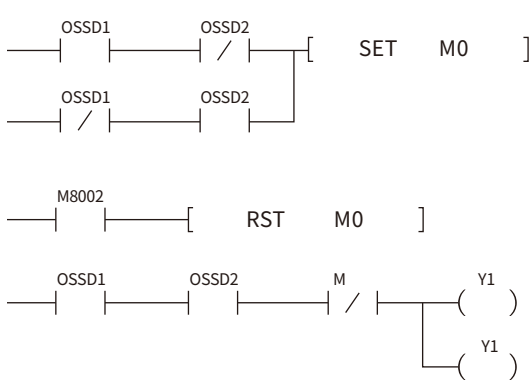
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应用案例

LCS series miniature safety grating connected to PLC (Mitsubishi) programming reference program



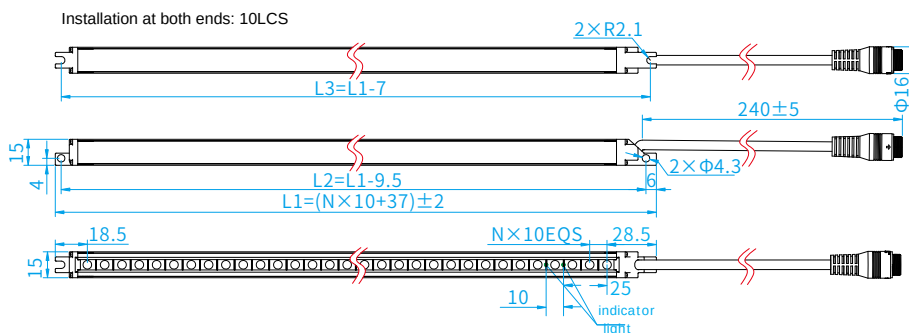
PLC signal logic state truth table

OSSD1 input	OSSD2 input	Y1 output	Y2 ouput	grating working status
0	0	0	0	Grating shading, normal work
0	1	0	0	Fault
1	0	0	0	Fault
1	1	1	1	The grating is clear and works normally

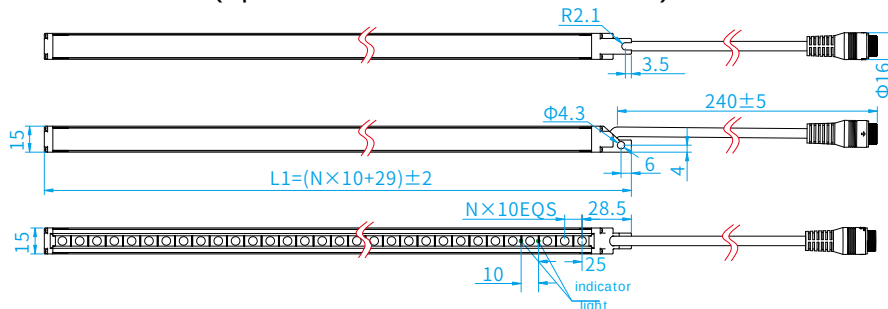
※OSSD1/2 input refers to the grating output to PLC signal;
Y1/Y2 refers to the output signal after the PLC has processed OSSD1/2;
0" means shutdown,
1" means on.

Specification selection and installation size of LCS series miniature safety grating

◆ 10 Series Installation and Dimensions



●Back mount (optional back mount bracket): 10LCS□□□□-□□□□C



※Affected by product configuration and manufacturing process, the actual product size and weight may be different, please refer to the actual product

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门控单元

安全/光栅

安全模块

光电传感器

安全产品应用案例

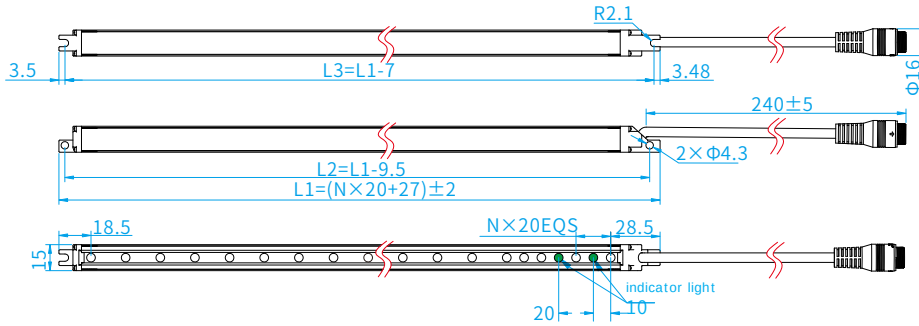
◆ 10 series (optical axis spacing: 10mm, resolution: 14mm)

10LCS safety light grid: A-two ends installation (standard type) C-back bracket installation (customized type)			Optical axis points	Response time (ms)	Protection height (mm)	A-type dimensions (mm)	C-type profile length (mm)
launch	PNP type receiver	PNP type receiver					
10LCS0120-E011A□□	10LCS0120-PR011A□□	10LCS0120-NR011A□□	11	7	120	15×15×147	139
10LCS0160-E015A□□	10LCS0160-PR015A□□	10LCS0160-NR015A□□	15	9	160	15×15×187	179
10LCS0200-E019A□□	10LCS0200-PR019A□□	10LCS0200-NR019A□□	19	10	200	15×15×227	219
10LCS0240-E023A□□	10LCS0240-PR023A□□	10LCS0240-NR023A□□	23	11	240	15×15×267	267
10LCS0280-E027A□□	10LCS0280-PR027A□□	10LCS0280-NR027A□□	27	12	280	15×15×307	259
10LCS0320-E031A□□	10LCS0320-PR031A□□	10LCS0320-NR031A□□	31	13	320	15×15×347	299
10LCS0360-E035A□□	10LCS0360-PR035A□□	10LCS0360-NR035A□□	35	14	360	15×15×387	339
10LCS0400-E039A□□	10LCS0400-PR039A□□	10LCS0400-NR039A□□	39	15	400	15×15×427	379
10LCS0440-E043A□□	10LCS0440-PR043A□□	10LCS0440-NR043A□□	43	16	440	15×15×467	419
10LCS0480-E047A□□	10LCS0480-PR047A□□	10LCS0480-NR047A□□	47	17	480	15×15×507	459
10LCS0520-E051A□□	10LCS0520-PR051A□□	10LCS0520-NR051A□□	51	18	520	15×15×547	499
10LCS0560-E055A□□	10LCS0560-PR055A□□	10LCS0560-NR055A□□	55	19	560	15×15×587	539
10LCS0600-E059A□□	10LCS0600-PR059A□□	10LCS0600-NR059A□□	69	20	600	15×15×627	579
10LCS0640-E063A□□	10LCS0640-PR063A□□	10LCS0640-NR063A□□	63	21	640	15×15×667	619
10LCS0680-E067A□□	10LCS0680-PR067A□□	10LCS0680-NR067A□□	67	23	680	15×15×707	659
10LCS0720-E071A□□	10LCS0720-PR071A□□	10LCS0720-NR071A□□	71	24	720	15×15×747	699
10LCS0760-E075A□□	10LCS0760-PR075A□□	10LCS0760-NR075A□□	75	25	760	15×15×787	739
10LCS0800-E079A□□	10LCS0800-PR079A□□	10LCS0800-NR079A□□	79	26	800	15×15×827	779
10LCS0840-E083A□□	10LCS0840-PR083A□□	10LCS0840-NR083A□□	83	27	840	15×15×867	819
10LCS0880-E087A□□	10LCS0880-PR087A□□	10LCS0880-NR087A□□	87	28	880	15×15×907	859
10LCS0920-E091A□□	10LCS0920-PR091A□□	10LCS0920-NR091A□□	91	29	920	15×15×947	599
10LCS0960-E095A□□	10LCS0960-PR095A□□	10LCS0960-NR095A□□	95	30	960	15×15×987	939
10LCS1000-E099A□□	10LCS1000-PR099A□□	10LCS1000-NR099A□□	99	31	1000	15×15×1027	979
10LCS1040-E103A□□	10LCS1040-PR103A□□	10LCS1040-NR103A□□	103	32	1040	15×15×1067	1019
10LCS1080-E107A□□	10LCS1080-PR107A□□	10LCS1080-NR107A□□	107	33	1080	15×15×1107	1059
10LCS1120-E111A□□	10LCS1120-PR111A□□	10LCS1120-NR111A□□	111	34	1120	15×15×1147	1099
10LCS1160-E115A□□	10LCS1160-PR115A□□	10LCS1160-NR115A□□	115	36	1160	15×15×1187	1139
10LCS1200-E119A□□	10LCS1200-PR119A□□	10LCS1200-NR119A□□	119	37	1200	15×15×1227	1179
10LCS1240-E123A□□	10LCS1240-PR123A□□	10LCS1240-NR123A□□	123	38	1240	15×15×1267	1219
10LCS1280-E127A□□	10LCS1280-PR127A□□	10LCS1280-NR127A□□	127	39	1280	15×15×1307	1259
10LCS1320-E131A□□	10LCS1320-PR131A□□	10LCS1320-NR131A□□	131	40	1320	15×15×1347	1299
10LCS1360-E135A□□	10LCS1360-PR135A□□	10LCS1360-NR135A□□	135	41	1360	15×15×1387	1339
10LCS1400-E139A□□	10LCS1400-PR139A□□	10LCS1400-NR139A□□	139	42	1400	15×15×1427	1379
10LCS1440-E143A□□	10LCS1440-PR143A□□	10LCS1440-NR143 A□□	143	43	1440	15×15×1467	1419
10LCS1480-E147A□□	10LCS1480-PR147A□□	10LCS1480-NR147 A□□	147	44	1480	15×15×1507	1459
10LCS1520-E151A□□	10LCS1520-PR151A□□	10LCS1520-NR151 A□□	151	45	1520	15×15×1547	1499
10LCS1560-E155A□□	10LCS1560-PR155A□□	10LCS1560-NR155 A□□	155	46	1560	15×15×1587	1539
10LCS1600-E159A□□	10LCS1600-PR159A□□	10LCS1600-NR159 A□□	159	47	1600	15×15×1627	1579
10LCS1640-E163A□□	10LCS1640-PR163A□□	10LCS1640-NR163 A□□	163	48	1640	15×15×1667	1619
10LCS1680-E167A□□	10LCS1680-PR167A□□	10LCS1680-NR167 A□□	167	50	1680	15×15×1707	1659
10LCS1720-E171A□□	10LCS1720-PR171A□□	10LCS1720-NR171 A□□	171	51	1720	15×15×1747	1699
10LCS1760-E175A□□	10LCS1760-PR175A□□	10LCS1760-NR175 A□□	175	52	1760	15×15×1787	1739
10LCS1800-E179A□□	10LCS1800-PR179A□□	10LCS1800-NR179 A□□	179	53	1800	15×15×1827	1779
10LCS1840-E183A□□	10LCS1840-PR183A□□	10LCS1840-NR183 A□□	183	54	1840	15×15×1867	1819
10LCS1880-E187A□□	10LCS1880-PR187A□□	10LCS1880-NR187 A□□	187	55	1880	15×15×1907	1859
10LCS1920-E191A□□	10LCS1920-PR191A□□	10LCS1920-NR191 A□□	191	56	1920	15×15×1947	1899

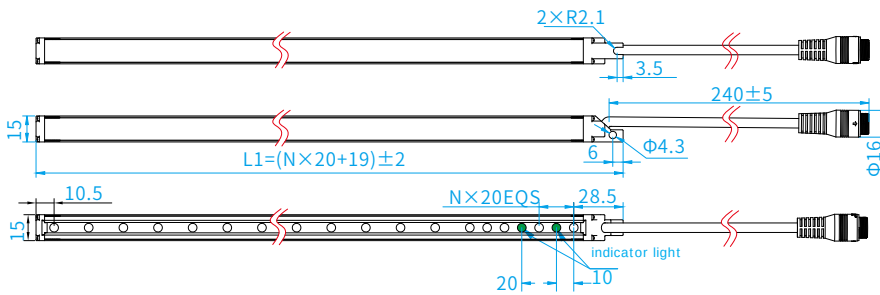
※ n: number of light spots
※The above are some specifications and models
※ Protective height: the effective height that can detect the test rod (diameter is the length of the distance) = (n+1) × optical axis distance Degree 4.5M, 6M, 10M need to be noted.

20 Series Installation and Dimensions

Installation at both ends: 20LCS□□□□-□□□□A



Back mount (optional back mount bracket): 20LCS□□□□-□□□□C



20 series (optical axis spacing: 20mm, resolution: 25mm)

20 LCS safety light grid: A-two ends installation (standard type) C-back bracket installation (customized type)			Optical axis points	Response time (ms)	Protection height (mm)	A-type dimensions (mm)	C-type profile length (mm)
launch	PNP type receiver	PNP type receiver					
20LCS0180-E008A□□	20LCS0180-PR008A□□	20LCS0180-NR008A□□	8	7	180	15×15×187	179
20LCS0260-E012A□□	20LCS0260-PR012A□□	20LCS0260-NR012A□□	12	8	260	15×15×267	259
20LCS0340-E016A□□	20LCS0340-PR016A□□	20LCS0340-NR016A□□	16	9	340	15×15×347	339
20LCS0420-E020A□□	20LCS0420-PR020A□□	20LCS0420-NR020A□□	20	10	420	15×15×427	419
20LCS0500-E024A□□	20LCS0500-PR024A□□	20LCS0500-NR024A□□	24	11	500	15×15×507	499
20LCS0580-E028A□□	20LCS0580-PR028A□□	20LCS0580-NR028A□□	28	12	580	15×15×587	579
20LCS0660-E032A□□	20LCS0660-PR032A□□	20LCS0660-NR032A□□	32	13	660	15×15×667	659
20LCS0740-E036A□□	20LCS0740-PR036A□□	20LCS0740-NR036A□□	36	14	740	15×15×747	739
20LCS0820-E040A□□	20LCS0820-PR040A□□	20LCS0820-NR040A□□	40	15	820	15×15×827	819
20LCS0900-E044A□□	20LCS0900-PR044A□□	20LCS0900-NR044A□□	44	16	900	15×15×907	899
20LCS0980-E048A□□	20LCS0980-PR048A□□	20LCS0980-NR048A□□	48	17	980	15×15×987	979
20LCS1060-E052A□□	20LCS1060-PR052A□□	20LCS1060-NR052A□□	52	19	1060	15×15×1067	1059
20LCS1140-E056A□□	20LCS1140-PR056A□□	20LCS1140-NR056A□□	56	20	1140	15×15×1147	1139
20LCS1220-E060A□□	20LCS1220-PR060A□□	20LCS1220-NR060A□□	60	21	1220	15×15×1227	1219
20LCS1300-E064A□□	20LCS1300-PR064A□□	20LCS1300-NR064A□□	64	22	1300	15×15×1307	1299
20LCS1380-E068A□□	20LCS1380-PR068A□□	20LCS1380-NR068A□□	68	23	1380	15×15×1387	1379
20LCS1460-E072A□□	20LCS1460-PR072A□□	20LCS1460-NR072A□□	72	24	1460	15×15×1467	1459
20LCS1540-E076A□□	20LCS1540-PR076A□□	20LCS1540-NR076A□□	76	25	1540	15×15×1547	1539
20LCS1620-E080A□□	20LCS1620-PR080A□□	20LCS1620-NR080A□□	80	26	1620	15×15×1627	1619
20LCS1700-E084A□□	20LCS1700-PR084A□□	20LCS1700-NR084A□□	84	27	1700	15×15×1707	1699
20LCS1780-E088A□□	20LCS1780-PR088A□□	20LCS1780-NR088A□□	88	28	1780	15×15×1787	1779
20LCS1860-E092A□□	20LCS1860-PR092A□□	20LCS1860-NR092A□□	92	29	1860	15×15×1867	1859
20LCS1940-E096A□□	20LCS1940-PR096A□□	20LCS1940-NR096A□□	96	30	1940	15×15×1947	1939

※n: Number of light spots

※ The above are some specifications and models

※ Protective height: the effective height that can detect the test rod (diameter is the length of the spacing) = (n+1) × optical axis spacing

※ The cable needs to be purchased separately, the standard length is 3M, other lengths are 4.5M, 6M, 10M, please note

※ Affected by product configuration and manufacturing process, the actual product size and weight may be different, please refer to the actual product

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安全/开关

安全/门灯

门控单元

安全/光栅

安全模块

光电传感器

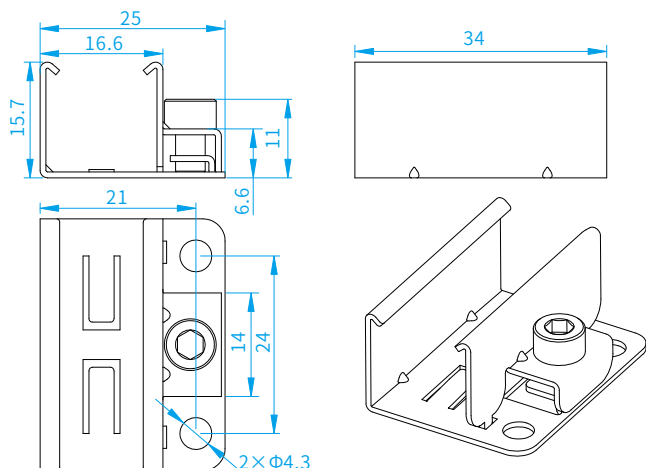
安全产品应用案例

40 Series Installation and Dimensions
Installation at both ends: 40LCS□□□□-□□□□A



※n: Number of light spots
 ※The above are some specifications and models
 ※Protective height: the effective height that can detect the test rod (diameter is the length of the spacing) = (n+1) × optical axis spacing
 ※The cable needs to be purchased separately, the standard length is 3M, other lengths are 4.5M, 6M, 10M, please note
 ※Affected by product configuration and manufacturing process, the actual product size and weight may be different, please refer to the actual product

LCS Series Back Mounting Rack Selection and Size



LCS safety light grid accessories selection table

Accessory name	model	order number
LCS back mount bracket	LCSZJ-S1	LCS253424-S1

Note: Accessories need to be purchased additionally

※Affected by product configuration and manufacturing process, the actual product size and weight may be different, please refer to the actual product

LCS series miniature safety grating back mounting bracket installation method

- ①Hook the bracket bottom hook into the groove on the upper edge of the grating shell, and stick to the grating shell;
- ②Hook the hook of the bracket pressing plate into the groove on the other side of the grating shell, close the grating shell, and insert the lower two bosses into the corresponding holes of the bracket bottom plate;
- ③Use the matching M4 screws to fasten the bracket pressing plate. It is firmly locked with the bottom plate of the rack;
- ④Finally, use the self-provided M4 or M3 screws and matching M4 plastic gaskets to fix the installed grating and bracket components to the use environment through the two $\Phi 4.3$ holes in the bracket bottom plate.

