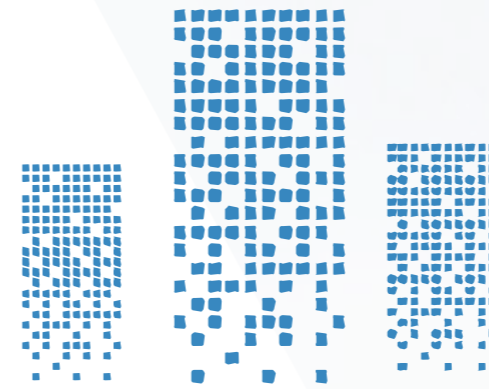


**CYNDAR**<sup>®</sup>

专注 高端 品质



CE ISO9001:2015



**科技，给见未来**  
*Technology changes the future*

**新达科技**

**020-83717854**

全国服务热线

**广州市新达电子科技有限公司**

广州市天河区科林路18号6栋301-260房

CN:www.gzcyndar.cn EN:www.gzcyndar.com

COMPREHENSIVE  
SAMPLE OF SENSORS

**传感器综合目录**

安全光幕/安全激光雷达/安全地垫/安全触边/安全继电器

# COMPANY

## Profile

# 公司简介

>>>



新达公司是一家专业从事光，电，机技术为一体的产品研究，开发，生产，销售，代理的科技型企业，是传感器产品的专业制造商。致力于防止人碰触引起的工伤事故，例如安全保护装置和模具安全检测器，我们的产品系列有安全光幕（安全光栅）、安全激光雷达、压敏安全地垫、安全边缘、安全开关、安全继电器等。其中安全光幕系列产品是光电安全保护器，测量光幕，屏幕，车辆分离，高精度微处理器模具根据理货（模具安全检测器），误模多功能，光电反射板（反射器），反射模具和冲头周围的自动化设备，为行业知名企业提供优质的产品和专业的服务并获得经过多年的不懈努力，不断转型，不断完善，我们的产品已销往全国各地和中亚地区，客户遍及全国主要汽车制造1，家电制造，金属加工和锻造设备等。广泛用于冲床，剪板机，折弯机，注塑机，液压机，拉丝机，皮革机械，木工机械，自动流水线和自动模具检测等。公司全体员工将一如既往地坚持“客户至上，以质量求生存”，以科技谋发展，以管理经营的经营理念”，务实专业为广大客户提供优质的产品，解决实际问题，建立长期稳定的良好合作关系，欢迎您的合作，欢迎！大家伙将是您理想的合作伙伴。

Cyndar Company is a scientific and technological enterprise specializing in product research, development, production, sales and agency of optical, electrical and mechanical technology. It is a professional manufacturer of sensor products. Committed to preventing work-related accidents caused by human touch, such as safety protection devices and mold safety detectors, our product series include safety light curtains (safety gratings), safety laser radars, pressure-sensitive safety mats, safety edges, safety switches, Safety relays, etc. Among them, the safety light curtain series products are photoelectric safety protectors, measuring light curtains, screens, vehicle separation, high-precision microprocessor molds according to tally (mold safety detector), mis-mold multi-function, photoelectric reflector (reflector) The automatic equipment around the reflective mold and the punch provides high-quality products and professional services for well-known companies in the industry. After years of unremitting efforts, continuous transformation and continuous improvement, our products have been sold to customers throughout the country and Central Asia. Major automobile manufacturing, home appliance manufacturing, metal processing and forging equipment, etc. throughout the country. It is widely used in punch presses, shearing machines, bending machines, injection molding machines, hydraulic presses, wire drawing machines, leather machinery, woodworking machinery, automatic assembly lines and automatic mold inspections. All employees of the company will, as always, insist on "customer first, survive by quality", develop with science and technology, and operate with management philosophy", pragmatically and professionally provide customers with high-quality products, solve practical problems, and establish long-term stable cooperation. Relationship, your cooperation is welcome, welcome! Big guy will be your ideal partner.

## 服务领域 SERVICE AREA

公司集光电保护技术的设计，制造和服务于一体，以推广安全生产意识为己任，以创造安全生产环境为目标，将产品推广到社会生产的众多领域。公司主要服务于锻压行业，汽车制造业，电子电器制造业，五金家电制造业和地铁屏蔽门系统等。

The company integrates the design, manufacture and service of photoelectric protection technology, takes the promotion of safety production consciousness as its responsibility, takes the creation of safety production environment as its goal, and extends its products to many fields of social production. The company mainly serves in forging industry, automobile manufacturing industry, electronic and electrical manufacturing industry, hardware and household appliances manufacturing industry and subway screen door system, etc.

## 产品用途 PRODUCT USE

产品与机械设备配套，保护操作者的人身安全。如：

- ◆ 冲压机械
- ◆ 自动化仓储设备
- ◆ 升降控制机械
- ◆ 注塑机械
- ◆ 热熔机
- ◆ 剪切机械
- ◆ 立体车库
- ◆ 其他存在的危险场合
- ◆ 自动化装配线
- ◆ 压装机
- ◆ 折弯机械
- ◆ 压滤机械
- ◆ 木工机械
- ◆ 橡胶机械
- ◆ 纺织机械
- ◆ 焊接流水线
- ◆ 制模机械
- ◆ 切纸机械
- ◆ 吹瓶机
- ◆ 压力机

The product is matched with the mechanical equipment to protect the operator's personal safety. Such as:

- ◆ Stamping Machinery
- ◆ Automated warehousing equipment
- ◆ Lift Control Machinery
- ◆ Shearing Machinery
- ◆ Stereo garage
- ◆ Other Dangerous Situations
- ◆ Bending Machinery
- ◆ Filter Press Machinery
- ◆ Woodworking machinery
- ◆ Welding line
- ◆ Molding Machinery
- ◆ Paper Cutting Machinery
- ◆ Injection Molding Machinery
- ◆ hot-melt machine
- ◆ Automated assembly line
- ◆ press mounting machine
- ◆ Rubber machinery
- ◆ Textile machinery
- ◆ bottle blowing machine
- ◆ press



# C 目录 Contents



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07-12	CAT远距离对射安全光幕	Long-distance beam safety light curtain
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19-24	COT无盲区安全光幕	No blind spot safety light curtain
25-30	CRFT超强防水安全光幕	Super waterproof safety light curtain
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45-55	CLT/CMT测量、检测光幕	Measuring and testing light curtain
56-60	CSAT系列区域安全防护光幕	Area safety protection light curtain
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79-83	CVT安全光幕	CVT Safety Light Curtain
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93-97	安全继电器模块/检知器	Safety relay module/detector

## 荣誉展示

行销全球多个国家和地区。15年品质，专注精研。 HONOR EXHIBITION

### Partial Cooperative Clients

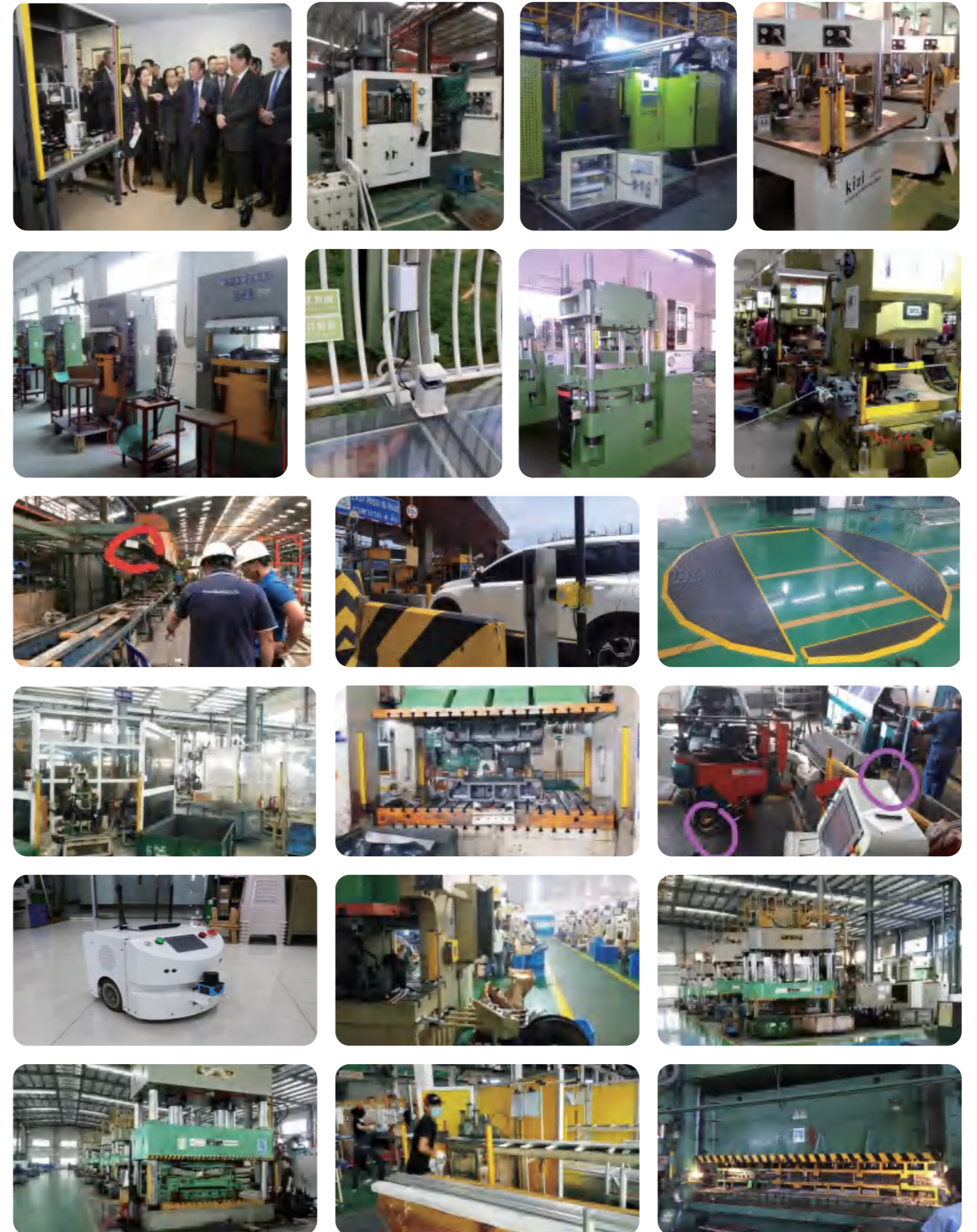


部分合作客户

安全光幕应用案例 Safety light curtain application case



其他产品应用案例 Other product application cases



## 通用型安全光幕-CCT Universal safety light curtain

- 超快响应速度 < 15ms
- 能有效屏蔽99%干扰信号
- 极性、短路、过载保护、自检
- 累计突破200,000+对
- Ultra-fast response speed < 15ms
- Can effectively shield 99% of interference signals
- Polarity, short circuit, overload protection, self-check
- Cumulative breakthrough 200,000+ pairs

广泛适用于压力机、液压机、油压机、剪板机、自动门等80%以上设备及其他危险场合。

It is widely used in more than 80% equipment such as presses, hydraulic presses, hydraulic presses, shears, automatic doors and other dangerous occasions.



### CCT系列安全光幕 CCT series safety light curtain

- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
- ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
- ★ 安装调试方便，配线简单，外形美观；
- ★ 采用表面贴装技术，防震性能优越；
- ★ 符合国际电工学会IEC61496-1/2标准安全等级，TUV的CE认证；
- ★ 响应时间短（≤15ms），安全可靠性能高；
- ★ 尺寸设计30mm\*30mm，安全传感器可以通过航空插座与电缆线（M12）链接；
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short (≤15ms), and the safety and reliability performance is high.
- ★ The dimension design is 30mm\*30mm. The safety sensor can be connected to the cable (M12) through the air socket.
- ★ All electronic components adopt world-renowned brand accessories.

### ◆ 产品配置 Product configuration

发光器、受光器和传输线组成。

The light emitter, the light receiver and the transmission line are composed.

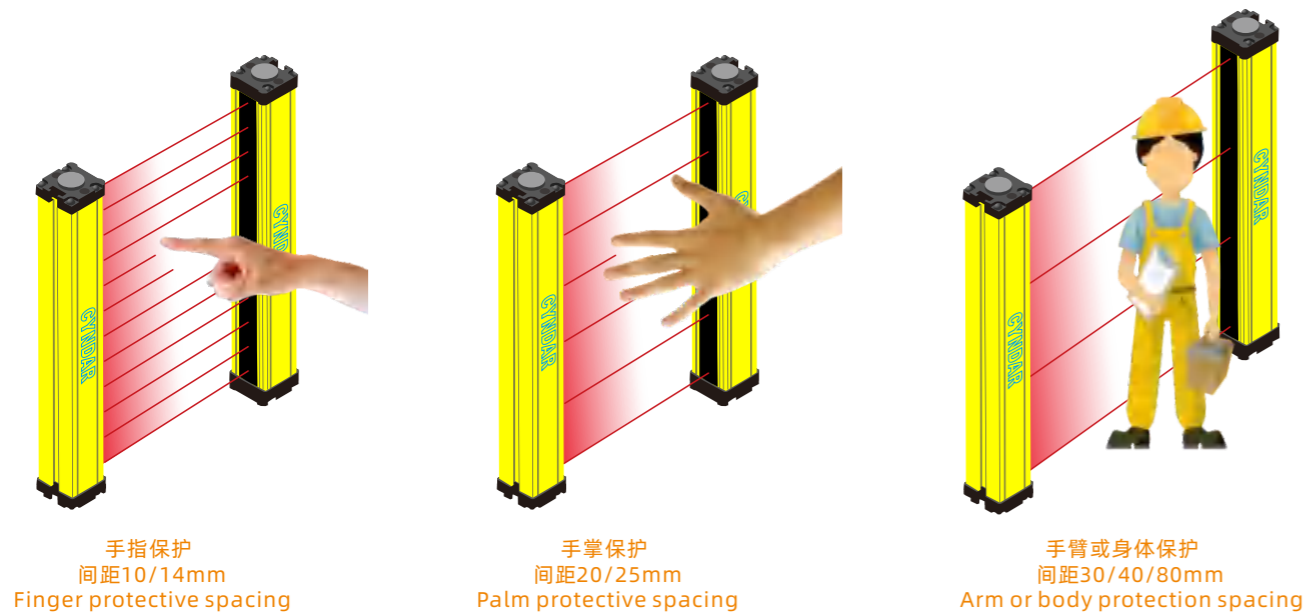


四芯(3m)五芯(3.5m)数据线  
4 core (3m) 5 core (3.5m)  
data cable



可定制任何角度的异形光幕  
Customizable light curtains of any angle  
can be customized

## 分辨率 Resolving power



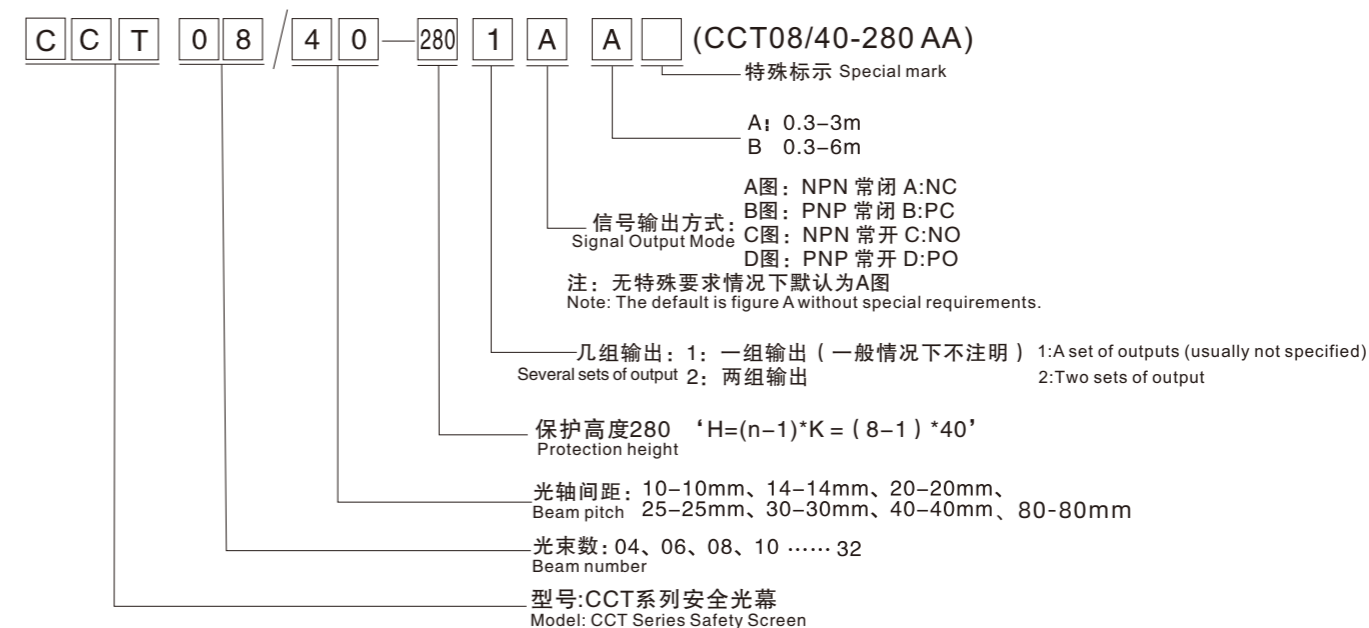
## 产品技术参数 Technical parameters of products

光幕形式 Light curtain form	对射式Counter shooting							
光轴间距 Beam pitch	10mm	14mm	20mm	25mm	30mm	40mm	80mm	
检测精度 Check the accuracy	18mm	22mm	28mm	33mm	38mm	48mm	88mm	
光束数 Beam number	6、8...32	6、8...32	4、6...32	6、8...32	4、6...32	4、6...32	4、6...32	
保护高度 Height of protection	光轴间距Beam pitch X (光束数Beam number-1)							
检测距离 Detection distance	30~3000mm、30~6000mm							
响应时间 Response time	≤15ms							
抗光干扰 Anti light interference	10000Lux(入射角Incidence angle ≥5°)							
外形尺寸 Outline size	30×30×Lmm(L为发光器/受光器长度 L is the length of light emitter/receiver)							
防护等级 Protection level	IP65							
控制器 Controller	QCA QCA2							
电源电压 Supply voltage	DC12/24V AC110~220V(继电器输出Relay output)							
消耗电流 Consumption current	≤200mA							
输出 Output	NPN/PNP型, 灌入电流500mA, 电压1.5v以下, 极性、短路、过载保护 NPN/PNP type, with current 500 mA and voltage less than 1.5 v, polarity, short circuit and overload protection							
输出状态 Output state	ON (接收指示灯Receiving Indicator Green Light)							
指示灯 Indicator light	投光器: 电源指示灯 (红色); 受光器: 输出指示灯 透光 (绿色) 遮光 (红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)							
光源 Light source	调制红外LED Modulated Infrared LED							
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器4芯, 受光器5芯 Circular aviation socket with special connecting cable, 4 cores of projector and 5 cores of receiver							
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon							
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx							
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C							
环境湿度 Ambient humidity	工作时: 35~85%RH, 保存时: 35~95%RH Work: 35~85% RH, save: 35~95% RH							

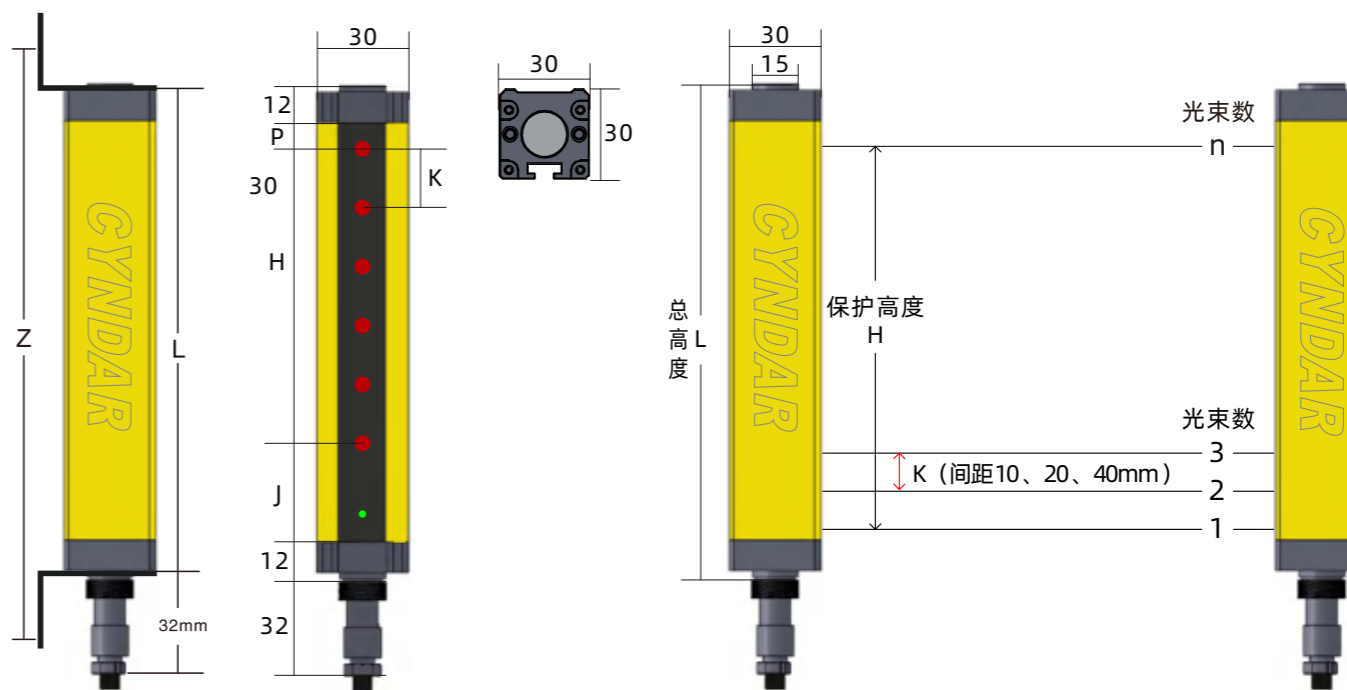
## CCT型安全光幕规格表说明如下:

The specifications of CCT type safety screen are as follows

单位Unit: mm



## 外形尺寸 Dimensions



备注:  
Remarks

H = (n-1)\*K = 保护高度  
Height of detection

L: 光幕总长度  
Total length of light screen

n: 光轴数  
Optical axis number

Z = L + 32mm = 上下直角架固定方式中心距离  
Center Distance of Fixed Mode of Upper and Lower Right Angle Frames

K: 光轴间距  
Optical axis spacing

L = P + H + J + 12mm + 12mm

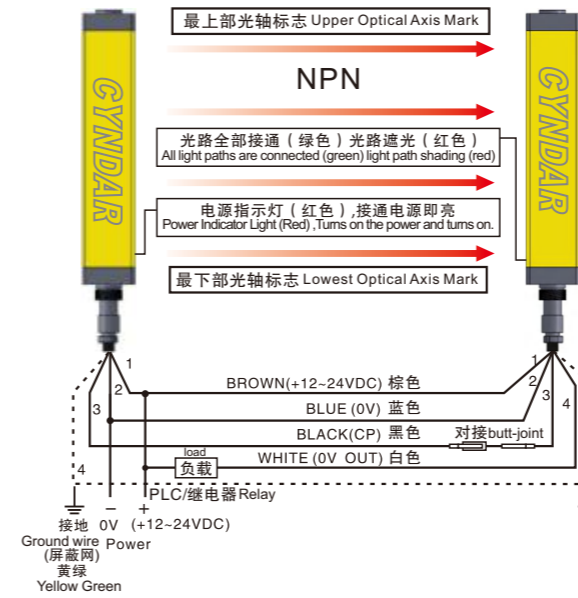
K (mm)	10	14	20	25	30	40	80
P (mm)	5	7	10	12.5	15	20	40
J (mm)	32	32	25	25	25	25	25

## CCT规格一览表 Specification List

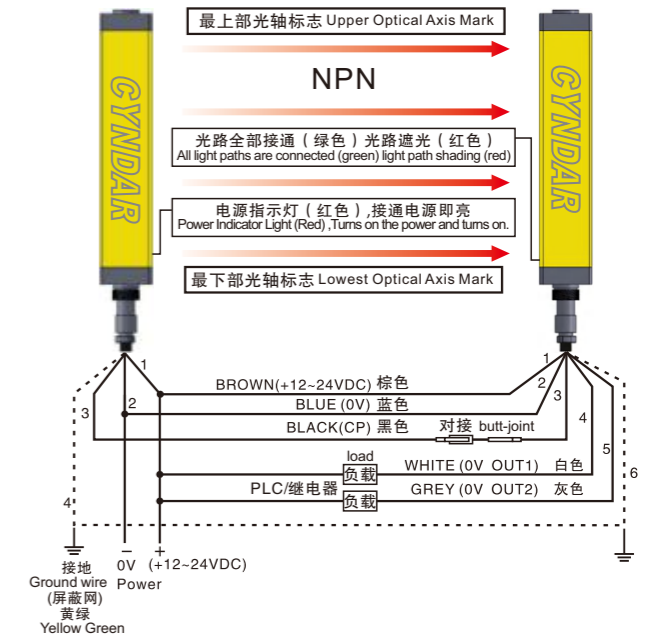
光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	信号输出方式 Signal output mode				检测距离 Detection distance	
					NPN	PNP	NPN	PNP		
10mm (K)	6	50	111	CCT06/10-50	A	B	C	D	0.3-3m	
	8	70	131	CCT08/10-70	A	B	C	D	0.3-3m	
	10	90	151	CCT10/10-90	A	B	C	D	0.3-3m	
	12	110	171	CCT12/10-110	A	B	C	D	0.3-3m	
	14	130	191	CCT14/10-130	A	B	C	D	0.3-3m	
	16	150	211	CCT16/10-150	A	B	C	D	0.3-3m	
	18	170	231	CCT18/10-170	A	B	C	D	0.3-3m	
	20	190	251	CCT20/10-190	A	B	C	D	0.3-3m	
	22	210	271	CCT22/10-210	A	B	C	D	0.3-3m	
	24	230	291	CCT24/10-230	A	B	C	D	0.3-3m	
	26	250	311	CCT26/10-250	A	B	C	D	0.3-3m	
	28	270	331	CCT28/10-270	A	B	C	D	0.3-3m	
	30	290	351	CCT30/10-290	A	B	C	D	0.3-3m	
	32	310	371	CCT32/10-310	A	B	C	D	0.3-3m	
	14mm (K)	6	70	133	CCT06/14-70	A	B	C	D	0.3-3m
		8	98	161	CCT08/14-98	A	B	C	D	0.3-3m
10		126	189	CCT10/14-126	A	B	C	D	0.3-3m	
12		154	217	CCT12/14-154	A	B	C	D	0.3-3m	
14		182	245	CCT14/14-182	A	B	C	D	0.3-3m	
16		210	273	CCT16/14-210	A	B	C	D	0.3-3m	
18		238	301	CCT18/14-238	A	B	C	D	0.3-3m	
20		266	329	CCT20/14-266	A	B	C	D	0.3-3m	
22		294	357	CCT22/14-294	A	B	C	D	0.3-3m	
24		322	385	CCT24/14-322	A	B	C	D	0.3-3m	
26		350	413	CCT26/14-350	A	B	C	D	0.3-3m	
28		378	441	CCT28/14-378	A	B	C	D	0.3-3m	
30		406	469	CCT30/14-406	A	B	C	D	0.3-3m	
32		434	497	CCT32/14-434	A	B	C	D	0.3-3m	
20mm (K)		4	60	119	CCT04/20-60	A	B	C	D	0.3-3m
		6	100	159	CCT06/20-100	A	B	C	D	0.3-3m
	8	140	199	CCT08/20-140	A	B	C	D	0.3-3m	
	10	180	239	CCT10/20-180	A	B	C	D	0.3-3m	
	12	220	279	CCT12/20-220	A	B	C	D	0.3-3m	
	14	260	319	CCT14/20-260	A	B	C	D	0.3-3m	
	16	300	359	CCT16/20-300	A	B	C	D	0.3-3m	
	18	340	399	CCT18/20-340	A	B	C	D	0.3-3m	
	20	380	439	CCT20/20-380	A	B	C	D	0.3-3m	
	22	420	479	CCT22/20-420	A	B	C	D	0.3-3m	
	24	460	519	CCT24/20-460	A	B	C	D	0.3-3m	
	26	500	559	CCT26/20-500	A	B	C	D	0.3-3m	
	28	540	599	CCT28/20-540	A	B	C	D	0.3-3m	
	30	580	639	CCT30/20-580	A	B	C	D	0.3-3m	
	32	620	679	CCT32/20-620	A	B	C	D	0.3-3m	
	25mm (K)	6	125	186.5	CCT06/25-125	A	B	C	D	0.3-3m
8		175	236.5	CCT08/25-175	A	B	C	D	0.3-3m	
10		225	286.5	CCT10/25-225	A	B	C	D	0.3-3m	
12		275	336.5	CCT12/25-275	A	B	C	D	0.3-3m	
14		325	386.5	CCT14/25-325	A	B	C	D	0.3-3m	
16		375	436.5	CCT16/25-375	A	B	C	D	0.3-3m	
18		425	486.5	CCT18/25-425	A	B	C	D	0.3-3m	
20		475	536.5	CCT20/25-475	A	B	C	D	0.3-3m	
22		525	586.5	CCT22/25-525	A	B	C	D	0.3-3m	
24		575	636.5	CCT24/25-575	A	B	C	D	0.3-3m	
26		625	686.5	CCT26/25-625	A	B	C	D	0.3-3m	
28		675	736.5	CCT28/25-675	A	B	C	D	0.3-3m	
30		725	786.5	CCT30/25-725	A	B	C	D	0.3-3m	
32		775	836.5	CCT32/25-775	A	B	C	D	0.3-3m	
30mm (K)		4	90	154	CCT04/30-90	A	B	C	D	0.3-3m
		6	150	214	CCT06/30-150	A	B	C	D	0.3-3m
	8	210	274	CCT08/30-210	A	B	C	D	0.3-3m	
	10	270	334	CCT10/30-270	A	B	C	D	0.3-3m	
	12	330	394	CCT12/30-330	A	B	C	D	0.3-3m	
	14	390	454	CCT14/30-390	A	B	C	D	0.3-3m	
	16	450	514	CCT16/30-450	A	B	C	D	0.3-3m	
	18	510	574	CCT18/30-510	A	B	C	D	0.3-3m	
	20	570	634	CCT20/30-570	A	B	C	D	0.3-3m	
	22	630	694	CCT22/30-630	A	B	C	D	0.3-3m	
	24	690	754	CCT24/30-690	A	B	C	D	0.3-3m	
	26	750	814	CCT26/30-750	A	B	C	D	0.3-3m	
	28	810	874	CCT28/30-810	A	B	C	D	0.3-3m	
	30	870	934	CCT30/30-870	A	B	C	D	0.3-3m	
	32	930	994	CCT32/30-930	A	B	C	D	0.3-3m	
	40mm (K)	4	120	189	CCT04/40-120	A	B	C	D	0.3-3m
6		200	269	CCT06/40-200	A	B	C	D	0.3-3m	
8		280	349	CCT08/40-280	A	B	C	D	0.3-3m	
10		360	429	CCT10/40-360	A	B	C	D	0.3-3m	
12		440	509	CCT12/40-440	A	B	C	D	0.3-3m	
14		520	589	CCT14/40-520	A	B	C	D	0.3-3m	
16		600	669	CCT16/40-600	A	B	C	D	0.3-3m	
18		680	749	CCT18/40-680	A	B	C	D	0.3-3m	
20		760	829	CCT20/40-760	A	B	C	D	0.3-3m	
22		840	909	CCT22/40-840	A	B	C	D	0.3-3m	
24		920	989	CCT24/40-920	A	B	C	D	0.3-3m	
26		1000	1069	CCT26/40-1000	A	B	C	D	0.3-3m	
28		1080	1149	CCT28/40-1080	A	B	C	D	0.3-3m	
30		1160	1229	CCT30/40-1160	A	B	C	D	0.3-3m	
32		1240	1309	CCT32/40-1240	A	B	C	D	0.3-3m	
80mm (K)		4	240	329	CCT04/80-240	A	B	C	D	0.3-3m
	6	400	489	CCT06/80-400	A	B	C	D	0.3-3m	
	8	560	649	CCT08/80-560	A	B	C	D	0.3-3m	
	10	720	809	CCT10/80-720	A	B	C	D	0.3-3m	
	12	880	969	CCT12/80-880	A	B	C	D	0.3-3m	
	14	1040	1129	CCT14/80-1040	A	B	C	D	0.3-3m	
	16	1200	1289	CCT16/80-1200	A	B	C	D	0.3-3m	
	18	1360	1449	CCT18/80-1360	A	B	C	D	0.3-3m	
	20	1520	1609	CCT20/80-1520	A	B	C	D	0.3-3m	
	22	1680	1769	CCT22/80-1680	A	B	C	D	0.3-3m	
	24	1840	1929	CCT24/80-1840	A	B	C	D	0.3-3m	
	26	2000	2089	CCT26/80-2000	A	B	C	D	0.3-3m	
	28	2160	2249	CCT28/80-2160	A	B	C	D	0.3-3m	
	30	2320	2409	CCT30/80-2320	A	B	C	D	0.3-3m	
	32	2480	2569	CCT32/80-2480	A	B	C	D	0.3-3m	

备注：输出方式详见上一页规格说明，如无要求默认为A图。特殊规格可另外订做，检测距离达3-6米需提前说明。  
Note: The output mode is detailed in the specifications on the previous page. If there is no requirement, the default is figure A. special specifications can be customized separately, and the detection distance up to 3-6M needs to be specified in advance.

## CCT 四、五芯系列接线图 4、5-core series wiring diagram

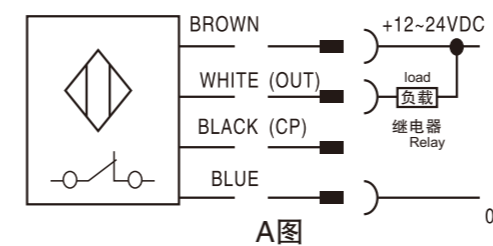


## CCT NPN双输出四芯、六芯接线图 CCT NPN dual output four core, six core wiring diagram

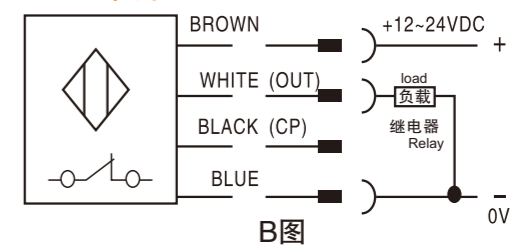


## CCT信号输出选择 (晶体管正常工作的实际输出) CCT signal output selection (actual output of transistor working normally)

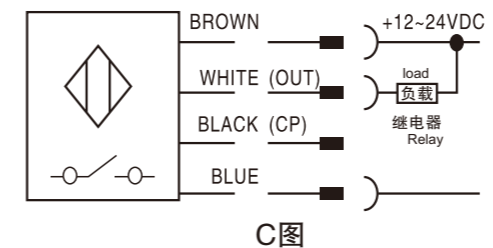
### NPN 常闭 NC



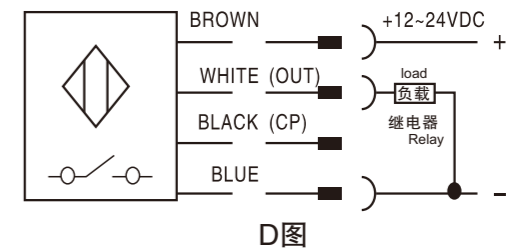
### PNP 常闭 PC



### NPN 常开 NO



### PNP 常开 PO





## ◆产品特点 Product characteristics

- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
  - ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
  - ★ 安装调试方便，配线简单，外形美观；
  - ★ 采用表面贴装技术，防震性能优越；
  - ★ 符合国际电工学会IEC61496-1/2标准安全等级，已通过TUV的CE认证；
  - ★ 响应时间短（≤15ms），安全可靠性能高；
  - ★ 尺寸设计35mm\*51mm，安全传感器可以通过航空插座与电缆线(M12)链接；
  - ★ 所有电子元器件均采用全球知名品牌配件。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
  - ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
  - ★ Easy installation and debugging, simple wiring, beautiful appearance;
  - ★ Surface mounting technology is adopted, which has superior seismic performance.
  - ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
  - ★ The corresponding time is short (≤ 15ms), and the safety and reliability performance is high.
  - ★ The dimension design is 35mm\*51mm. The safety sensor can be connected to the cable (M12) through the air socket.
  - ★ All electronic components adopt world-renowned brand accessories.

## ◆产品配置 Product configuration

发光器、受光器、数据线和安装配件组成。  
Composition of Light Emitter, Light Receiver, Data Line and Installation Parts.



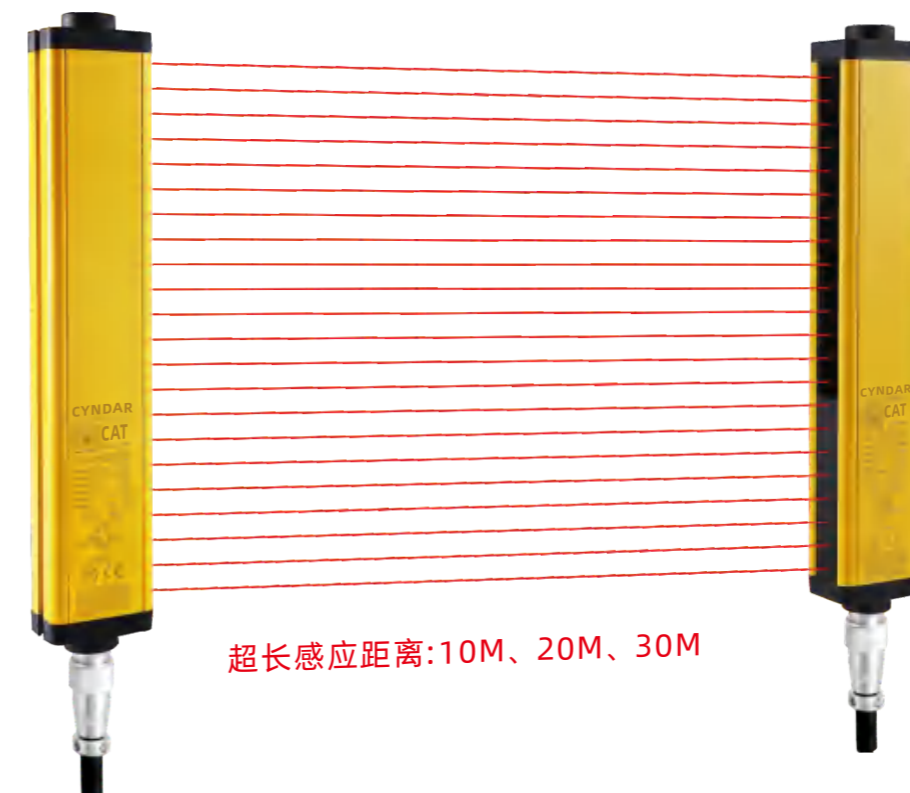
五芯(发射3m,接收3.5m)数据线(标配)  
5 core(Emitter 3m, Receive 3.5m)  
data cable (standard)



安全光幕控制器QCA(选购件)  
Safety light curtain controller QCA (optional)



安全光幕双面控制器QCA2(选购件)  
Safety light curtain double-sided controller QCA2  
(optional)



超长感应距离:10M、20M、30M

## 超远距离对射光幕-CAT Ultra-long distance on the beam light curtain

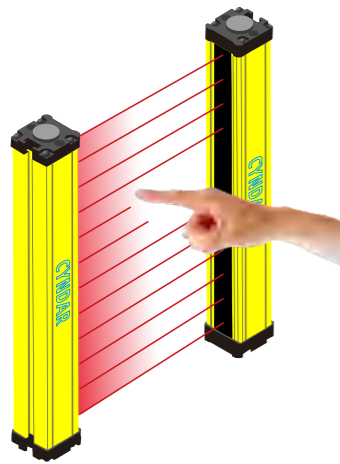
- 对射距离最长达50米
- 开关量、继电器无源输出
- 能有效屏蔽99%干扰信号
- 极性、短路、过载保护、自检
- The shooting distance is up to 50 meters
- Switch quantity, relay passive output
- Can effectively shield 99% of interference signals
- Polarity, short circuit, overload protection, self-check

广泛适用于压力机、液压机、油压机、剪板机、自动门等大型机械或需要长远距离保护的场合。

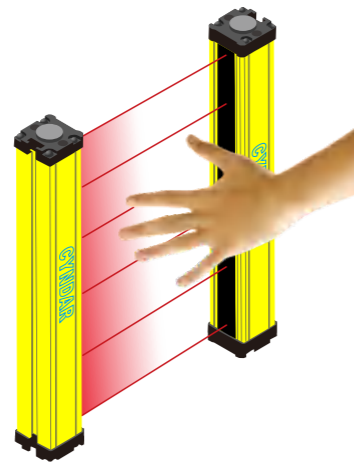
It is widely used in large machinery such as presses, hydraulic presses, hydraulic presses, shears, automatic doors, or dangerous occasions that require long-distance protection.



## ◆ 分辨率 Resolving power



手指保护  
间距10/14mm  
Finger protective spacing



手掌保护  
间距20/25mm  
Palm protective spacing



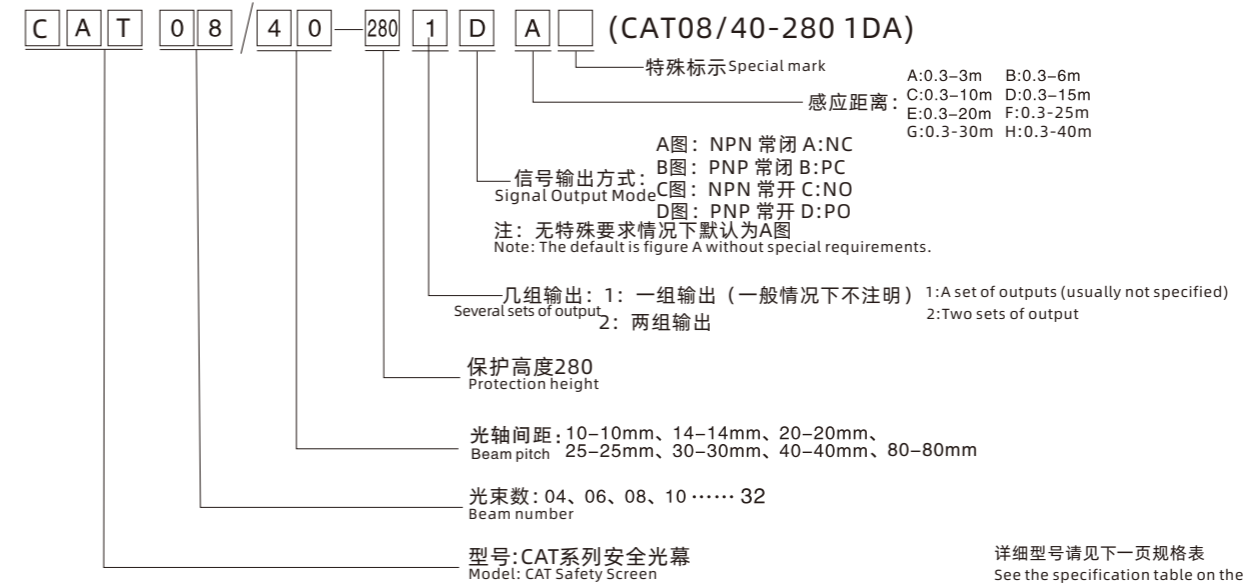
手臂或身体保护  
间距30/40/80mm  
Arm or body protection spacing

## ◆ 产品技术参数 Technical parameters of products

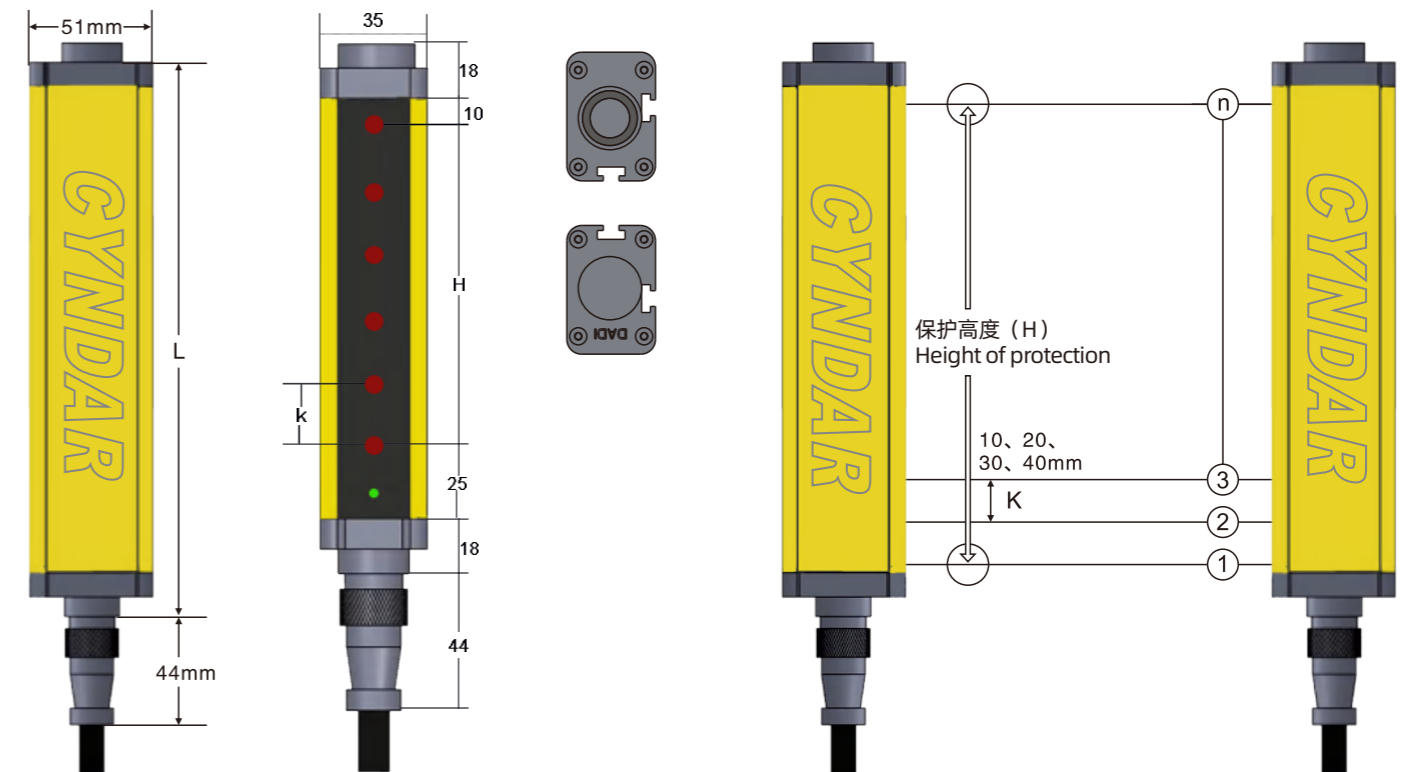
光幕形式 Light curtain form	对射式 Counter shooting						
光轴间距 Beam pitch	10mm	14mm	20mm	25mm	30mm	40mm	80mm
检测精度 Check the accuracy	18mm	22mm	28mm	33mm	38mm	48mm	88mm
光束数 Beam number	6、8...32	6、8...32	4、6...32	6、8...32	4、6...32	4、6...32	4、6...32
保护高度 Height of protection	光轴间距 Beam pitch X (光束数 Beam number - 1)						
检测距离 Detection distance	30 ~ 3000mm、30~6000mm						
响应时间 Response time	≤15ms						
抗光干扰 Anti light interference	10000Lux(入射角 incidence angle ≥ 5°)						
外形尺寸 Outline size	35x51xLmm(L为发光器/受光器长度 L is the length of light emitter/receiver)						
防护等级 Protection level	IP65						
控制器 Controller	QCA QCA2						
电源电压 Supply voltage	DC12/24V AC110~220V(继电器输出 Relay output)						
消耗电流 Consumption current	≤200mA						
输出 Output	NPN/PNP型, 灌入电流500mA, 电压1.5v以下, 极性、短路、过载保护 NPN/PNP type, with current 500 mA and voltage less than 1.5 v, polarity, short circuit and overload protection						
输出状态 Output state	ON (接收指示灯 Receiving Indicator Green Light)						
指示灯 Indicator light	投光器: 电源指示灯 (红色); 受光器: 输出指示灯 (绿色) 遮光 (红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)						
光源 Light source	调制红外LED Modulated Infrared LED						
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器5芯, 受光器5芯 Circular aviation socket with special connecting cable, 5 cores of projector and 5 cores of receiver						
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon						
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx						
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C						
环境湿度 Ambient humidity	工作时: 35~85%RH, 保存时: 35~95%RH Work: 35-85% RH, save: 35-95% RH						

## CAT型安全光幕规格表说明如下: The specifications of CAT type safety screen are as follows

单位 Unit: mm



## 外形尺寸 Dimensions



备注:  
Remarks

H = (n - 1) \* K = 保护高度  
Height of detection

L: 光幕总长度  
Total length of light screen

n: 光轴数  
Optical axis number

K: 光轴间距  
Optical axis spacing

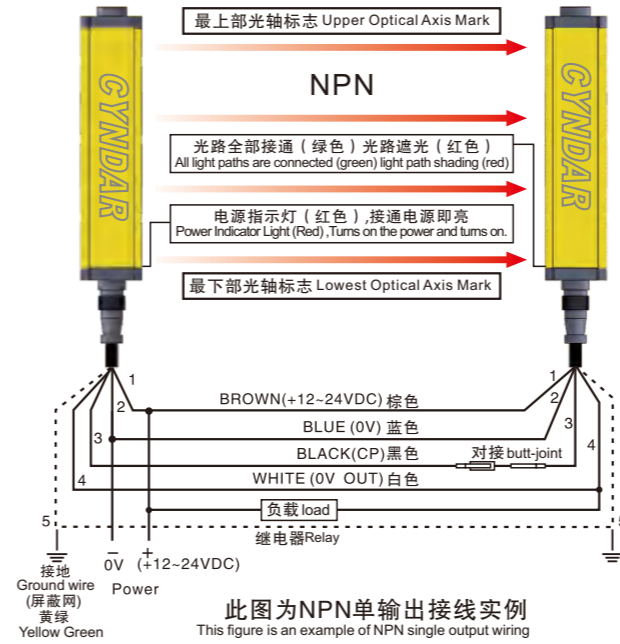
L = P + H + J + 18mm + 18mm

K (mm)	10	14	20	25	30	40	80
P (mm)	5	7	10	12.5	15	20	40
J (mm)	32	32	25	25	25	25	25

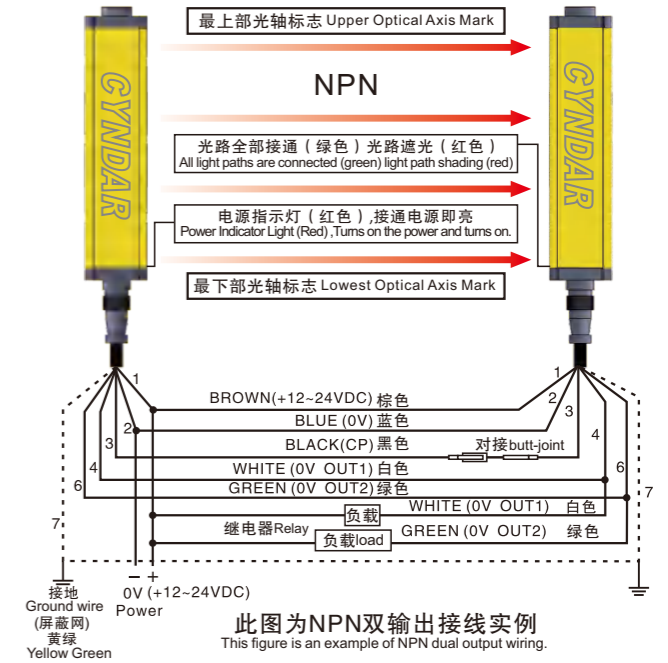
光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	信号输出方式 Signal output mode				检测距离 Detection distance
					NPN	PNP	NPN	PNP	
10mm (K)	6	50	123	CAT06/10-50	A	B	C	D	0.3-3m
	8	70	143	CAT08/10-70	A	B	C	D	0.3-3m
	10	90	163	CAT10/10-90	A	B	C	D	0.3-3m
	12	110	183	CAT12/10-110	A	B	C	D	0.3-3m
	14	130	203	CAT14/10-130	A	B	C	D	0.3-3m
	16	150	223	CAT16/10-150	A	B	C	D	0.3-3m
	18	170	243	CAT18/10-170	A	B	C	D	0.3-3m
	20	190	263	CAT20/10-190	A	B	C	D	0.3-3m
	22	210	283	CAT22/10-210	A	B	C	D	0.3-3m
	24	230	303	CAT24/10-230	A	B	C	D	0.3-3m
	26	250	323	CAT26/10-250	A	B	C	D	0.3-3m
	28	270	343	CAT28/10-270	A	B	C	D	0.3-3m
	30	290	363	CAT30/10-290	A	B	C	D	0.3-3m
	32	310	383	CAT32/10-310	A	B	C	D	0.3-3m
14mm (K)	6	70	145	CAT06/14-70	A	B	C	D	0.3-3m
	8	98	173	CAT08/14-98	A	B	C	D	0.3-3m
	10	126	201	CAT10/14-126	A	B	C	D	0.3-3m
	12	154	229	CAT12/14-154	A	B	C	D	0.3-3m
	14	182	257	CAT14/14-182	A	B	C	D	0.3-3m
	16	210	285	CAT16/14-210	A	B	C	D	0.3-3m
	18	238	313	CAT18/14-238	A	B	C	D	0.3-3m
	20	266	341	CAT20/14-266	A	B	C	D	0.3-3m
	22	294	369	CAT22/14-294	A	B	C	D	0.3-3m
	24	322	397	CAT24/14-322	A	B	C	D	0.3-3m
	26	350	425	CAT26/14-350	A	B	C	D	0.3-3m
	28	378	453	CAT28/14-378	A	B	C	D	0.3-3m
	30	406	481	CAT30/14-406	A	B	C	D	0.3-3m
	32	434	509	CAT32/14-434	A	B	C	D	0.3-3m
20mm (K)	4	60	131	CAT04/20-60	A	B	C	D	0.3-3m
	6	100	171	CAT06/20-100	A	B	C	D	0.3-3m
	8	140	211	CAT08/20-140	A	B	C	D	0.3-3m
	10	180	251	CAT10/20-180	A	B	C	D	0.3-3m
	12	220	291	CAT12/20-220	A	B	C	D	0.3-3m
	14	260	331	CAT14/20-260	A	B	C	D	0.3-3m
	16	300	371	CAT16/20-300	A	B	C	D	0.3-3m
	18	340	411	CAT18/20-340	A	B	C	D	0.3-3m
	20	380	451	CAT20/20-380	A	B	C	D	0.3-3m
	22	420	491	CAT22/20-420	A	B	C	D	0.3-3m
	24	460	531	CAT24/20-460	A	B	C	D	0.3-3m
	26	500	571	CAT26/20-500	A	B	C	D	0.3-3m
	28	540	611	CAT28/20-540	A	B	C	D	0.3-3m
	30	580	651	CAT30/20-580	A	B	C	D	0.3-3m
32	620	691	CAT32/20-620	A	B	C	D	0.3-3m	
25mm (K)	6	125	198.5	CAT06/25-125	A	B	C	D	0.3-3m
	8	175	248.5	CAT08/25-175	A	B	C	D	0.3-3m
	10	225	298.5	CAT10/25-225	A	B	C	D	0.3-3m
	12	275	348.5	CAT12/25-275	A	B	C	D	0.3-3m
	14	325	398.5	CAT14/25-325	A	B	C	D	0.3-3m
	16	375	448.5	CAT16/25-375	A	B	C	D	0.3-3m
	18	425	498.5	CAT18/25-425	A	B	C	D	0.3-3m
	20	475	548.5	CAT20/25-475	A	B	C	D	0.3-3m
	22	525	598.5	CAT22/25-525	A	B	C	D	0.3-3m
	24	575	648.5	CAT24/25-575	A	B	C	D	0.3-3m
	26	625	698.5	CAT26/25-625	A	B	C	D	0.3-3m
	28	675	748.5	CAT28/25-675	A	B	C	D	0.3-3m
	30	725	798.5	CAT30/25-725	A	B	C	D	0.3-3m
	32	775	848.5	CAT32/25-775	A	B	C	D	0.3-3m
30mm (K)	4	90	166	CAT04/30-90	A	B	C	D	0.3-3m
	6	150	226	CAT06/30-150	A	B	C	D	0.3-3m
	8	210	286	CAT08/30-210	A	B	C	D	0.3-3m
	10	270	346	CAT10/30-270	A	B	C	D	0.3-3m
	12	330	406	CAT12/30-330	A	B	C	D	0.3-3m
	14	390	466	CAT14/30-390	A	B	C	D	0.3-3m
	16	450	526	CAT16/30-450	A	B	C	D	0.3-3m
	18	510	586	CAT18/30-510	A	B	C	D	0.3-3m
	20	570	646	CAT20/30-570	A	B	C	D	0.3-3m
	22	630	706	CAT22/30-630	A	B	C	D	0.3-3m
	24	690	766	CAT24/30-690	A	B	C	D	0.3-3m
	26	750	826	CAT26/30-750	A	B	C	D	0.3-3m
	28	810	886	CAT28/30-810	A	B	C	D	0.3-3m
	30	870	946	CAT30/30-870	A	B	C	D	0.3-3m
32	930	1006	CAT32/30-930	A	B	C	D	0.3-3m	
40mm (K)	4	120	201	CAT04/40-120	A	B	C	D	0.3-3m
	6	200	281	CAT06/40-200	A	B	C	D	0.3-3m
	8	280	361	CAT08/40-280	A	B	C	D	0.3-3m
	10	360	441	CAT10/40-360	A	B	C	D	0.3-3m
	12	440	521	CAT12/40-440	A	B	C	D	0.3-3m
	14	520	601	CAT14/40-520	A	B	C	D	0.3-3m
	16	600	681	CAT16/40-600	A	B	C	D	0.3-3m
	18	680	761	CAT18/40-680	A	B	C	D	0.3-3m
	20	760	841	CAT20/40-760	A	B	C	D	0.3-3m
	22	840	921	CAT22/40-840	A	B	C	D	0.3-3m
	24	920	1001	CAT24/40-920	A	B	C	D	0.3-3m
	26	1000	1081	CAT26/40-1000	A	B	C	D	0.3-3m
	28	1080	1161	CAT28/40-1080	A	B	C	D	0.3-3m
	30	1160	1241	CAT30/40-1160	A	B	C	D	0.3-3m
32	1240	1321	CAT32/40-1240	A	B	C	D	0.3-3m	
80mm (K)	4	240	341	CAT04/80-240	A	B	C	D	0.3-3m
	6	400	501	CAT06/80-400	A	B	C	D	0.3-3m
	8	560	661	CAT08/80-560	A	B	C	D	0.3-3m
	10	720	821	CAT10/80-720	A	B	C	D	0.3-3m
	12	880	981	CAT12/80-880	A	B	C	D	0.3-3m
	14	1040	1141	CAT14/80-1040	A	B	C	D	0.3-3m
	16	1200	1301	CAT16/80-1200	A	B	C	D	0.3-3m
	18	1360	1461	CAT18/80-1360	A	B	C	D	0.3-3m
	20	1520	1621	CAT20/80-1520	A	B	C	D	0.3-3m
	22	1680	1781	CAT22/80-1680	A	B	C	D	0.3-3m
	24	1840	1941	CAT24/80-1840	A	B	C	D	0.3-3m
	26	2000	2101	CAT26/80-2000	A	B	C	D	0.3-3m
	28	2160	2261	CAT28/80-2160	A	B	C	D	0.3-3m
	30	2320	2421	CAT30/80-2320	A	B	C	D	0.3-3m
32	2480	2581	CAT32/80-2480	A	B	C	D	0.3-3m	

备注：输出方式详见上一规格说明，如无要求默认为A图。特殊规格可另外订做，检测距离A: 0.3-3M, B: 0.3-6M, C: 0.3-10M, D: 0.3-15M, E: 0.3-20M, F: 0.3-25M, G: 0.3-30M, H: 0.3-40M。  
Note: The mode of output is detailed in the specification on the next page. If there is no requirement, the default is figure A. Special specifications can be customized, detection distance A: 0.3-3M, B: 0.3-6M, C: 0.3-10M, etc. D: 0.3-15M, E: 0.3-20M, F: 0.3-25M, G: 0.3-30M, H: 0.3-40M.

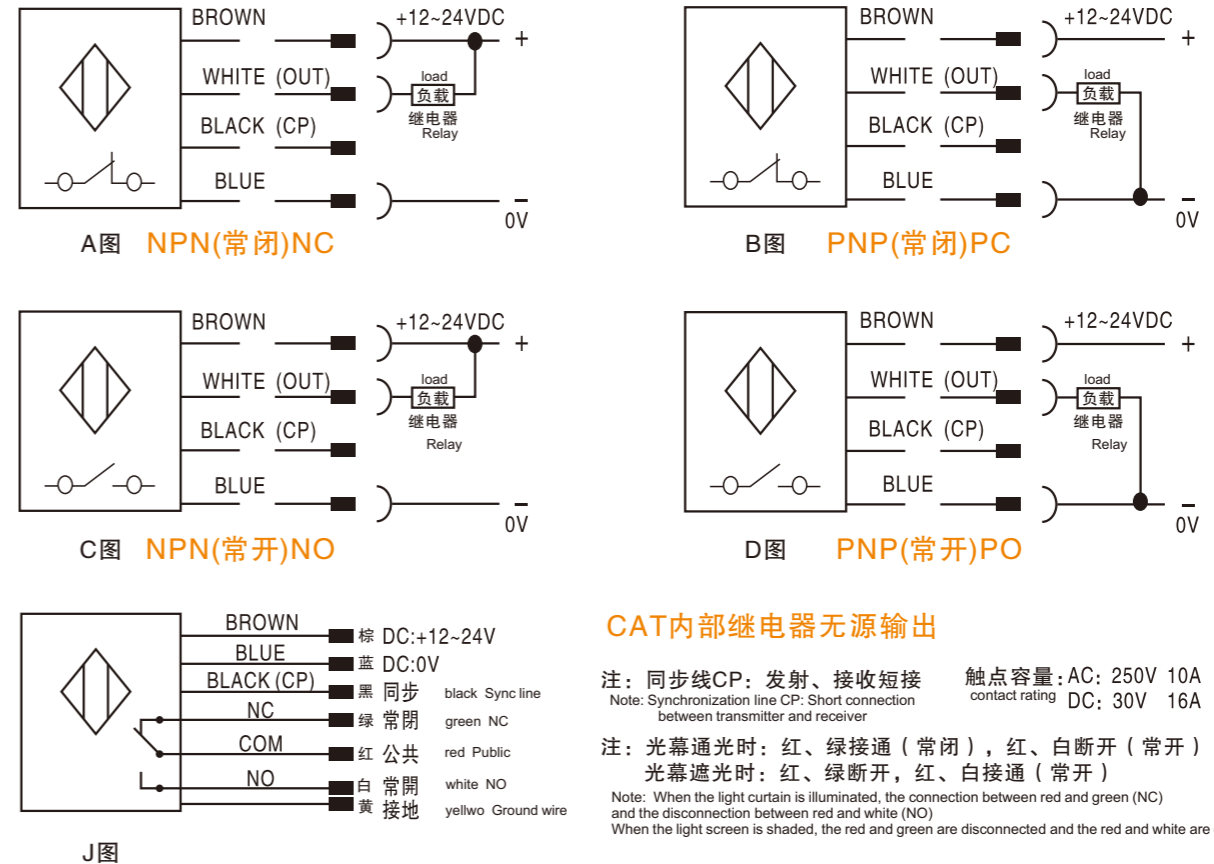
### ◆ CAT五芯系列接线图 CAT five-core series wiring diagram



### ◆ CAT 7 6 CAT transmitter and receiver are all seven-pin six-core wiring diagram



### ◆ CAT信号输出选择 (晶体管正常工作的实际输出) CAT signal output selection (actual output of transistor working normally)





## 光同步安全光幕-QX Light synchronization safety light curtain

- 采用光同步技术
- 体积小,安装方便,超高性价比
- 能有效屏蔽99%干扰信号
- 极性、短路、过载保护、自检
- Using optical synchronization technology
- Small size, easy installation, super cost-effective
- Can effectively shield 99% of interference signals
- Polarity, short circuit, overload protection, self-check

广泛适用于压力机、液压机、油压机、剪板机、自动门等80%以上设备及其他危险场合。

It is widely used in more than 80% equipment such as presses, hydraulic presses, hydraulic presses, shears, automatic doors and other dangerous occasions.

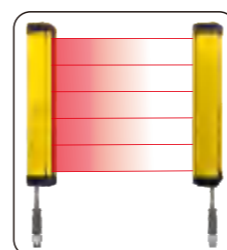


### ◆ 产品特点 Product characteristics

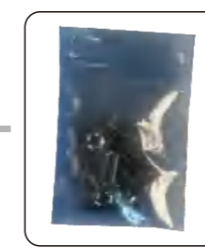
- ★ 自检功能完善: 当安全传感器出现故障时, 确保不向所控制的电器发送错误的信号;
- ★ 抗干扰能力强: 系统对电磁信号, 频闪灯光, 焊接弧光及周围的光源具有良好的抗干扰能力;
- ★ 采用光同步, 接线简单, 节省安装时间;
- ★ 采用表面贴装技术, 防震性能优越;
- ★ 符合国际电工学会IEC61496-1/2标准安全等级,TUV的CE认证;
- ★ 响应时间短(≤15ms),安全可靠性能高;
- ★ 尺寸设计25mm\*23mm,安装简单方便;
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Using optical synchronization, simple wiring, saving installation time;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short (≤15ms), and the safety and reliability performance is high.
- ★ The size design is 25mm\*23mm, the installation is simple and convenient;
- ★ All electronic components adopt world-renowned brand accessories.

### ◆ 产品配置 Product configuration

光幕由发光器、受光器组成。  
The grating is composed of a light emitter and a light receiver.



发射器、接收器  
emitter, receiver



T型螺母+圆型螺丝  
T nut + round screw



数据线  
data cable



安全光幕控制器QCA  
(选配件)  
Safety light curtain controller QCA  
(optional)



安全光幕双面控制器QCA2  
(选配件)  
Safety light curtain  
double-sided controller QCA2  
(optional)

## ◆ 分辨率 Resolving power



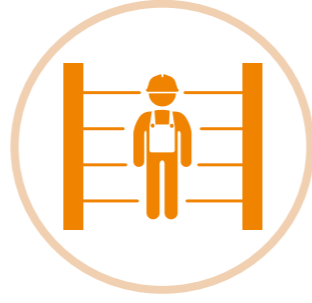
手指保护  
间距10mm

Finger protective spacing



手掌保护  
间距20mm

Palm protective spacing



手臂或身体保护  
间距40mm

Arm or body protection spacing

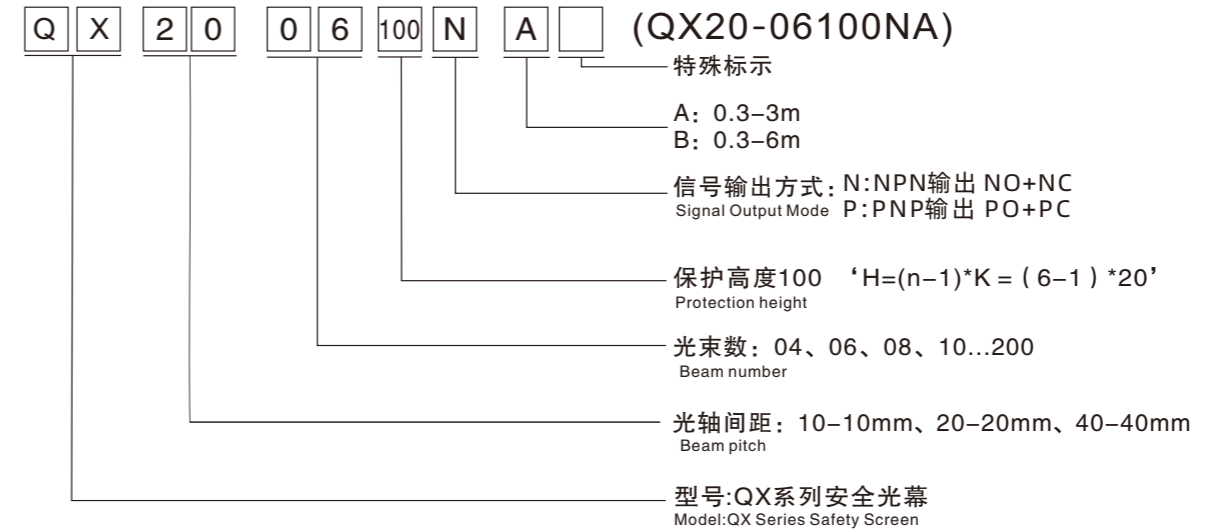
## ◆ 产品技术参数 Technical parameters of products

光幕形式 Light curtain form	对射式Counter shooting		
光轴间距 Beam pitch	10mm	20mm	30mm
检测精度 Check the accuracy	18mm	28mm	38mm
光束数 Beam number	8、10...32	4、6...32	4、6...32
保护高度 Height of protection	光轴间距Beam pitch X (光束数Beam number-1)		
检测距离 Detection distance	30-3000mm、30-6000mm		
响应时间 Response time	≤15ms		
抗光干扰 Anti light interference	10000Lux(入射角Incidence angle ≥5°)		
外形尺寸 Outline size	25x23xLmm (L为发光器/受光器长度 L is the length of light emitter/receiver)		
防护等级 Protection level	IP65		
控制器 Controller	QCA QCA2		
电源电压 Supply voltage	DC12/24V AC110-220V(继电器输出Relay output)		
消耗电流 Consumption current	≤200mA		
输出 Output	NPN/PNP型, 灌入电流500mA, 电压1.5v以下, 极性、短路、过载保护 NPN/PNP type, with current 500 mA and voltage less than 1.5 v, polarity, short circuit and overload protection		
输出状态 Output state	ON (接收指示灯Receiving Indicator Green Light)		
指示灯 Indicator light	投光器: 电源指示灯(红色); 受光器: 输出指示灯(绿色) 遮光(红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)		
光源 Light source	调制红外LED Modulated Infrared LED		
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器3芯, 受光器5芯 Circular aviation socket with special connecting cable, 3 cores of projector and 5 cores of receiver		
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon		
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx		
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C		
环境湿度 Ambient humidity	工作时: 35-85%RH, 保存时: 35-95%RH Work: 35-85% RH, save: 35-95% RH		

## ◆ QX型安全光幕规格表说明如下:

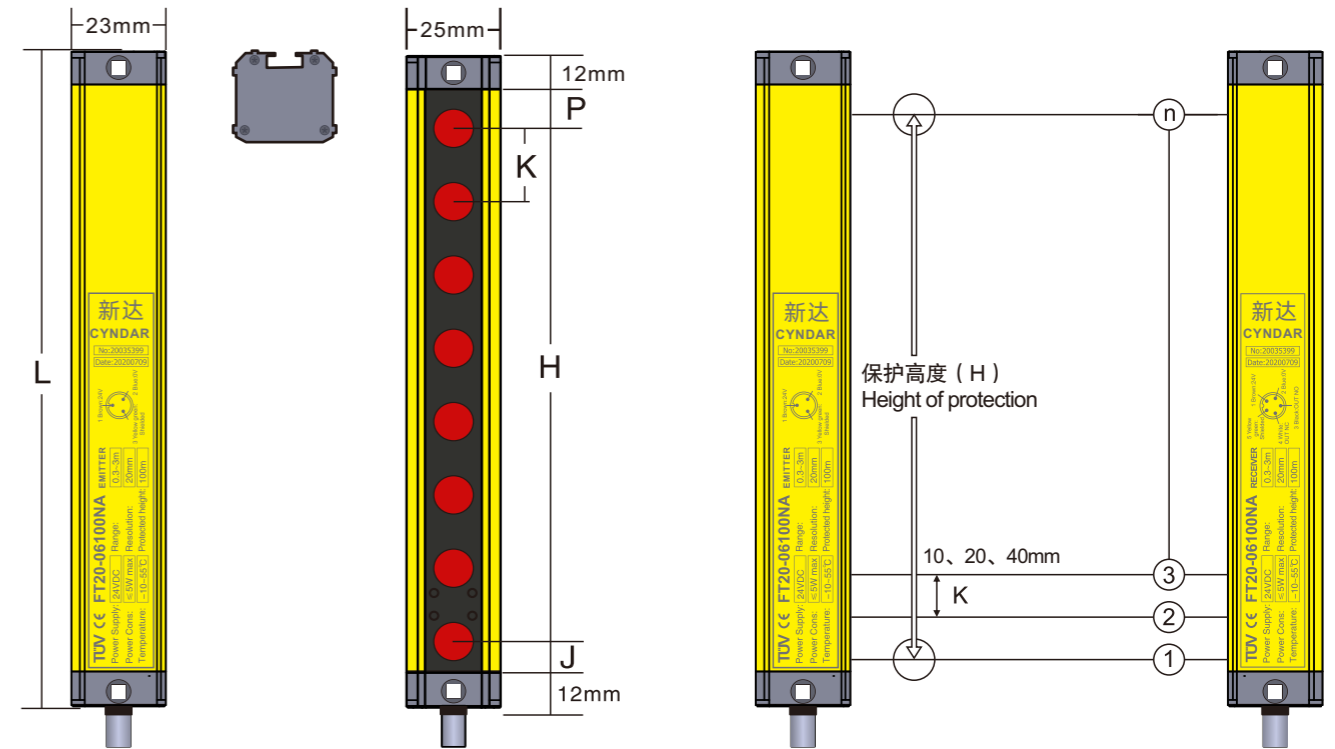
The specifications of QX type safety screen are as follows

单位Unit: mm



详细型号请见下一页规格表 Detailed models can be found in the specification sheet on the previous page.

## ◆ 外形尺寸 Dimensions



备注:  
Remarks

H= (n-1) \*K=保护高度  
Height of detection

K:光轴间距  
Optical axis spacing

L:光幕总长度  
Total length of light screen

L=P+H+J+12mm+12mm

n:光轴数  
Optical axis number

K(mm)	10	20	40
P(mm)	5	10	10
J(mm)	5	10	10

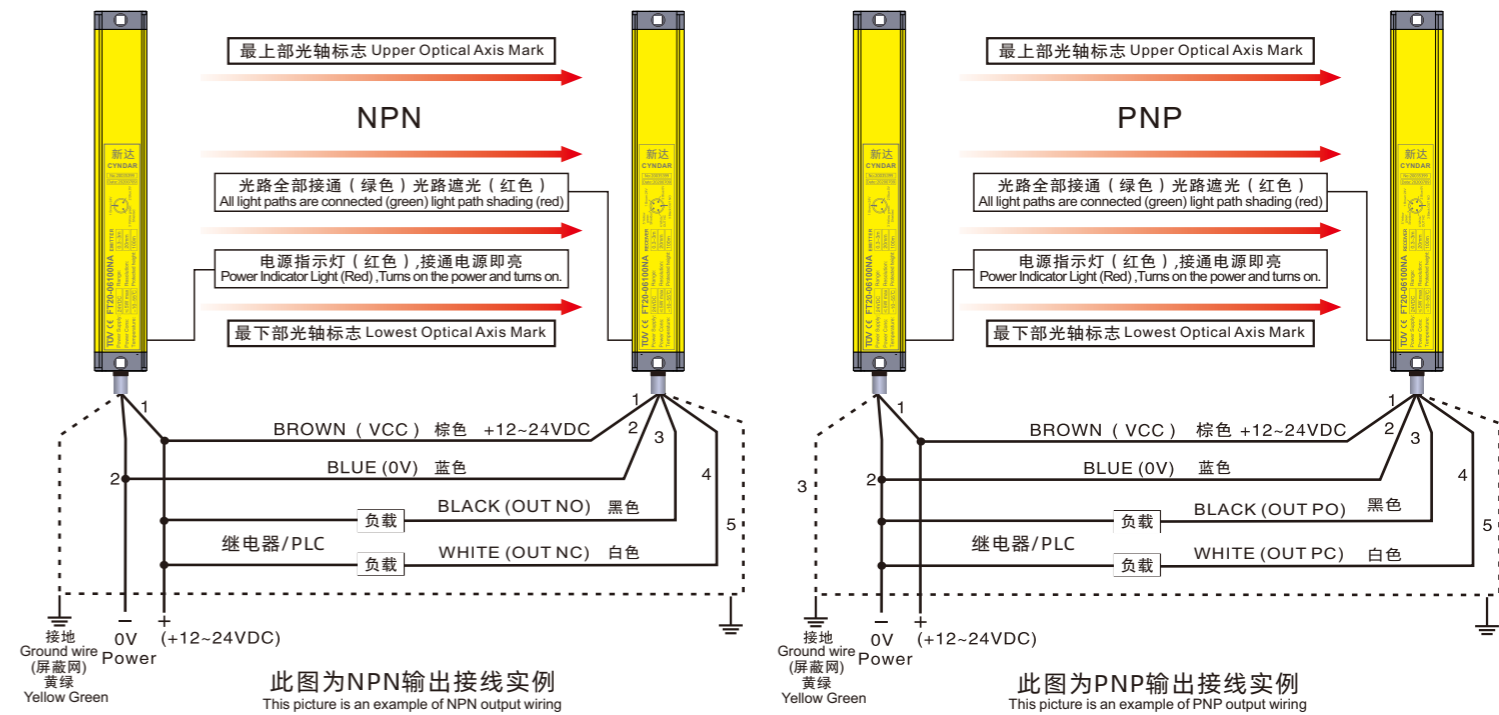
## ◆ QX规格一览表 Specification List

光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	信号输出方式 Signal output mode		检测距离 Detection distance
					NPN	PNP	
10mm (K)	8	70	104	QX10-0870NA	N	P	0.3-3m
	10	90	124	QX10-1090NA	N	P	0.3-3m
	12	110	144	QX10-12110NA	N	P	0.3-3m
	14	130	164	QX10-14130NA	N	P	0.3-3m
	16	150	184	QX10-16150NA	N	P	0.3-3m
	18	170	204	QX10-18170NA	N	P	0.3-3m
	20	190	224	QX10-20190NA	N	P	0.3-3m
	22	210	244	QX10-22210NA	N	P	0.3-3m
	24	230	264	QX10-24230NA	N	P	0.3-3m
	26	250	284	QX10-26250NA	N	P	0.3-3m
	28	270	304	QX10-28270NA	N	P	0.3-3m
	30	290	324	QX10-30290NA	N	P	0.3-3m
	32	310	344	QX10-...NA	N	P	0.3-3m
	34	330	364	QX10-1981970NA	N	P	0.3-3m
	36	350	384	QX10-2001990NA	N	P	0.3-3m
	38	370	404	QX10-32310NA	N	P	0.3-3m
	40	390	424	QX10-34330NA	N	P	0.3-3m
	42	410	444	QX10-36350NA	N	P	0.3-3m
	44	430	464	QX10-38370NA	N	P	0.3-3m
	46	450	484	QX10-40390NA	N	P	0.3-3m
...	...	...	QX10-42410NA	N	P	0.3-3m	
198	1970	2004	QX10-44430NA	N	P	0.3-3m	
200	1990	2024	QX10-46450NA	N	P	0.3-3m	
20mm (K)	6	100	144	QX20-06100NA	N	P	0.3-3m
	8	140	184	QX20-08140NA	N	P	0.3-3m
	10	180	224	QX20-10180NA	N	P	0.3-3m
	12	220	264	QX20-12220NA	N	P	0.3-3m
	14	260	304	QX20-14260NA	N	P	0.3-3m
	16	300	344	QX20-16300NA	N	P	0.3-3m
	18	340	384	QX20-18340NA	N	P	0.3-3m
	20	380	424	QX20-20380NA	N	P	0.3-3m
	22	420	464	QX20-22420NA	N	P	0.3-3m
	24	460	504	QX20-24460NA	N	P	0.3-3m
	26	500	544	QX20-26500NA	N	P	0.3-3m
	28	540	584	QX20-28540NA	N	P	0.3-3m
	30	580	624	QX20-30580NA	N	P	0.3-3m
	32	620	664	QX20-32620NA	N	P	0.3-3m
	34	660	704	QX20-34660NA	N	P	0.3-3m
	36	700	744	QX20-36700NA	N	P	0.3-3m
	38	740	784	QX20-38740NA	N	P	0.3-3m
	40	780	824	QX20-40780NA	N	P	0.3-3m
	42	820	864	QX20-42820NA	N	P	0.3-3m
	44	860	904	QX20-44860NA	N	P	0.3-3m
...	...	...	QX20-...NA	N	P	0.3-3m	
198	3940	3984	QX20-1983940NA	N	P	0.3-3m	
200	3980	4024	QX20-2003980NA	N	P	0.3-3m	
40mm (K)	4	120	164	QX40-04120NA	N	P	0.3-3m
	6	200	244	QX40-06200NA	N	P	0.3-3m
	8	280	324	QX40-08280NA	N	P	0.3-3m
	10	360	404	QX40-10360NA	N	P	0.3-3m
	12	440	484	QX40-12440NA	N	P	0.3-3m
	14	520	564	QX40-14520NA	N	P	0.3-3m
	16	600	644	QX40-16600NA	N	P	0.3-3m
	18	680	724	QX40-18680NA	N	P	0.3-3m
	20	760	804	QX40-20760NA	N	P	0.3-3m
	22	840	884	QX40-22840NA	N	P	0.3-3m
	24	920	964	QX40-248920NA	N	P	0.3-3m
	26	1000	1044	QX40-261000NA	N	P	0.3-3m
	28	1080	1124	QX40-281080NA	N	P	0.3-3m
	30	1160	1204	QX40-301160NA	N	P	0.3-3m
	32	1240	1284	QX40-321240NA	N	P	0.3-3m
	34	1320	1364	QX40-341320NA	N	P	0.3-3m
	36	1400	1444	QX40-361400NA	N	P	0.3-3m
	38	1480	1524	QX40-381480NA	N	P	0.3-3m
	40	1560	1604	QX40-401560NA	N	P	0.3-3m
	42	1640	1684	QX40-421640NA	N	P	0.3-3m
	44	1720	1764	QX40-441720NA	N	P	0.3-3m
	46	1800	1844	QX40-461800NA	N	P	0.3-3m
	48	1880	1924	QX40-481880NA	N	P	0.3-3m
	50	1960	2004	QX40-501960NA	N	P	0.3-3m
	52	2040	2084	QX40-522040NA	N	P	0.3-3m
	54	2120	2164	QX40-542120NA	N	P	0.3-3m
	56	2200	2244	QX40-562200NA	N	P	0.3-3m
	58	2280	2324	QX40-582280NA	N	P	0.3-3m
	60	2360	2404	QX40-602360NA	N	P	0.3-3m
	62	2440	2484	QX40-622440NA	N	P	0.3-3m
	64	2520	2564	QX40-642520NA	N	P	0.3-3m
	66	2600	2644	QX40-662600NA	N	P	0.3-3m
	68	2680	2724	QX40-682680NA	N	P	0.3-3m
	70	2760	2804	QX40-702760NA	N	P	0.3-3m
	72	2840	2884	QX40-722840NA	N	P	0.3-3m
	74	2920	2964	QX40-742920NA	N	P	0.3-3m
	76	3000	3044	QX40-763000NA	N	P	0.3-3m
	78	3080	3124	QX40-783080NA	N	P	0.3-3m
	80	3160	3204	QX40-803160NA	N	P	0.3-3m
	...	...	...	QX40-...NA	N	P	0.3-3m
198	7880	7924	QX40-1987880NA	N	P	0.3-3m	
200	7960	8004	QX40-2007960NA	N	P	0.3-3m	

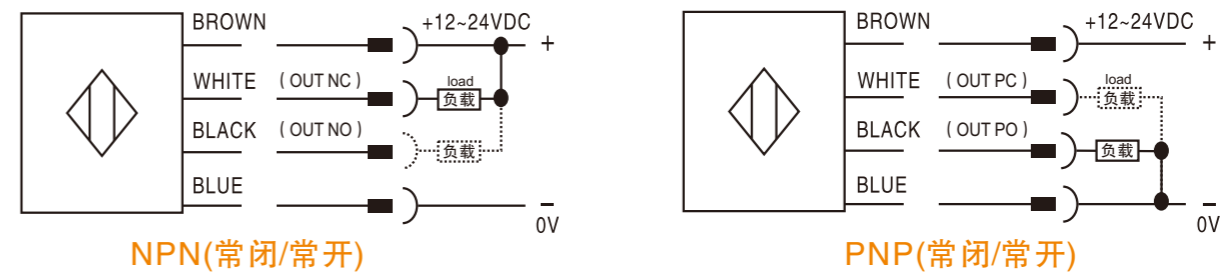
备注：输出方式详见上一规格说明。特殊规格可另外订做，检测距离达3-6米需提前说明。

Note: The output mode is detailed in the specifications on the previous page. special specifications can be customized separately, and the detection distance up to 3-6M needs to be specified in advance.

## ◆ QX 三、五芯系列接线图： QX three and five core series wiring diagram:



## ◆ QX信号输出选择(晶体管正常工作的实际输出) QX signal output selection (actual output of transistor working normally)





## 无盲区安全光幕-COT No blind spot safety light curtain

- 0.01秒快速响应
- 能有效屏蔽99%干扰信号
- 无盲区检测, 更安全
- 极性、短路、过载保护、自检
- 0.01 second quick response
- Can effectively shield 99% of interference signals
- No blind spot detection, safer
- Polarity, short circuit, overload protection, self-check

广泛适用于压力机、液压机、油压机、剪板机、自动门等80%以上设备及其他危险场合。

It is widely used in large machinery such as presses, hydraulic presses, hydraulic presses, shears, automatic doors, or dangerous occasions that require long-distance protection.



超长感应距离: 3m、6m、10m  
Ultra long sensing distance

### 产品特点 Product characteristics

- ★ 自检功能完善: 当安全传感器出现故障时, 确保不向所控制的电器发送错误的信号;
- ★ 抗干扰能力强: 系统对电磁信号, 频闪灯光, 焊接弧光及周围的光源具有良好的抗干扰能力;
- ★ 安装调试方便, 配线简单, 外形美观;
- ★ 采用表面贴装技术, 防震性能优越;
- ★ 符合国际电工学会IEC61496-1/2标准安全等级, TUV的CE认证;
- ★ 响应时间短 (≤15ms), 安全可靠性能高;
- ★ 尺寸设计30mm\*28mm, 安全传感器可以通过航空插座与电缆线(M12)链接;
- ★ 所有电子元器件均采用全球知名品牌配件;
- ★ 提供分路指示功能, 直观显示光束通断状态;
- ★ 产品符合GB/T19436.1、GB/19436.2及GB4584-2007的要求。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short (≤15ms), and the safety and reliability performance is high.
- ★ The dimension design is 30mm\*28mm. The safety sensor can be connected to the cable (M12) through the air socket.
- ★ All electronic components adopt world-renowned brand accessories.
- ★ It provides shunt indication function to visually display the on-off state of the beam.
- ★ The product meets the requirements of GB/T19436.1, GB/19436.2 and GB4584-2007.

### 产品配置 Product configuration

控制器、发光器、受光器、传输线和电源线组成。  
The controller, the light emitter, the light receiver, the transmission line and the power line are composed.



七芯数据线  
7-core data cable



内置式控制器QCA  
Built-in controller

## ◆ 分辨率 Resolving power

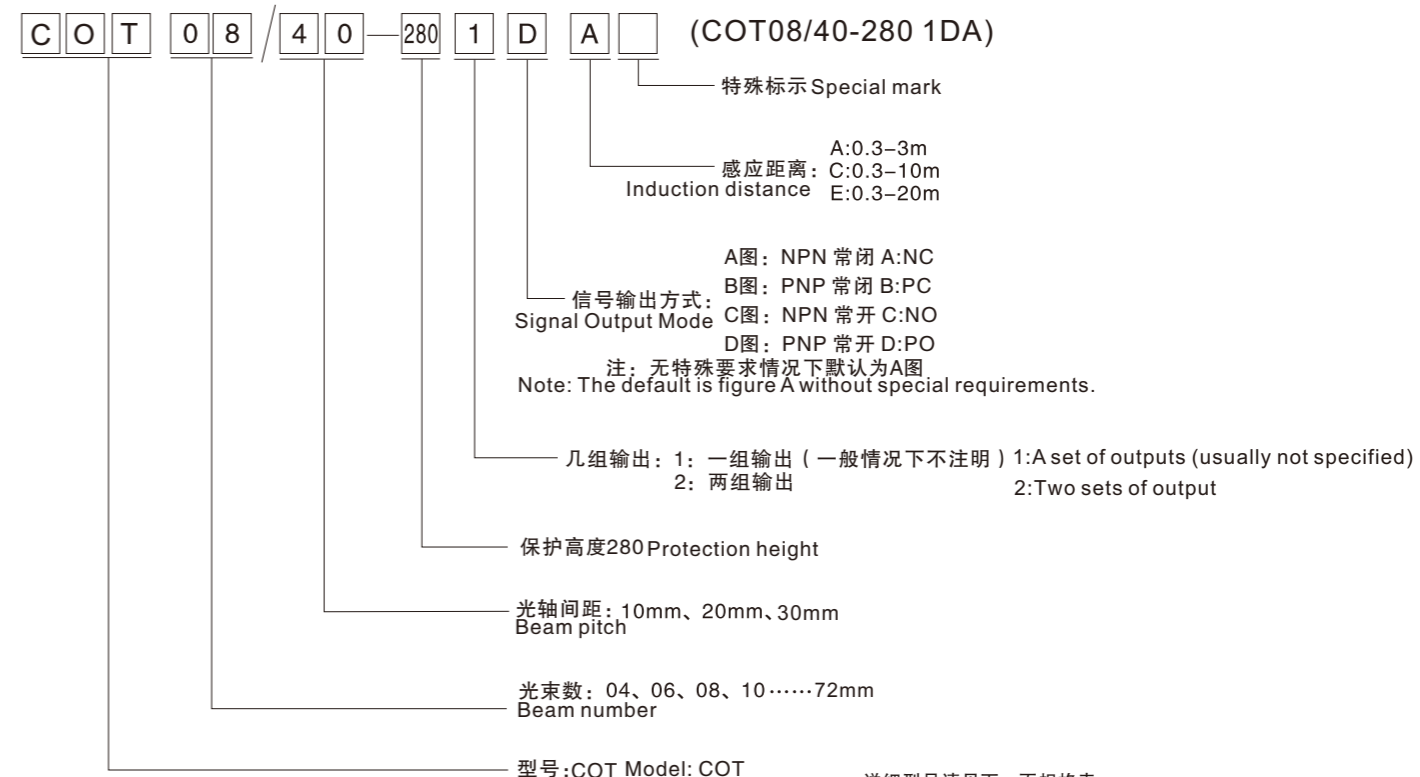


## ◆ 产品技术参数 Technical parameters of products

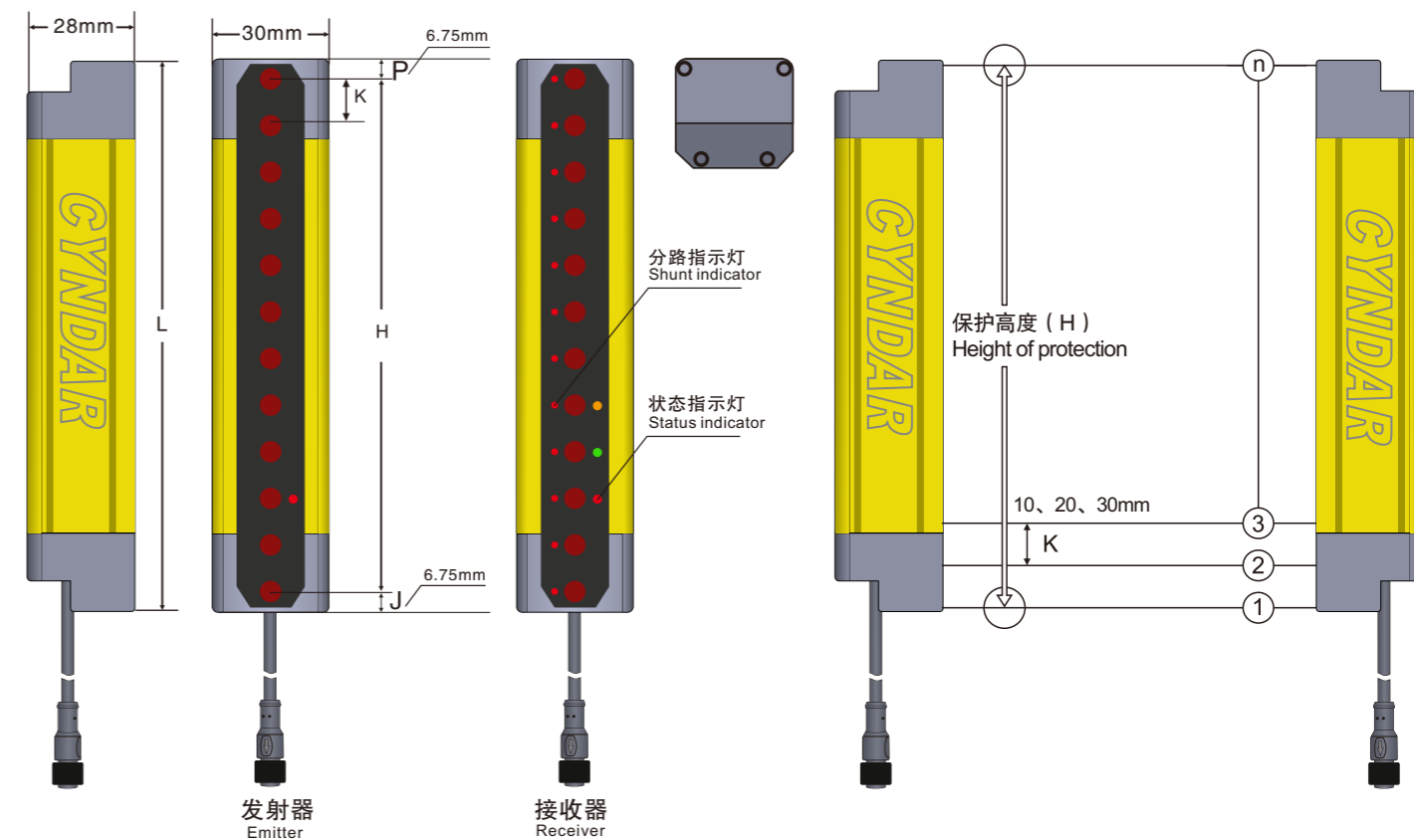
光幕形式 Light curtain form	对射式Counter shooting		
光轴间距 Beam pitch	10mm	20mm	30mm
检测精度 Check the accuracy	18mm	28mm	48mm
光束数 Beam number	12、14、16...70	4、6、8、10...72	4、6、8、10...72
保护高度 Height of protection	光轴间距Beam pitch X (光束数Beam number-1)		
检测距离 Detection distance	30~3000mm、30~6000mm		
响应时间 Response time	≤15ms		
抗光干扰 Anti light interference	10000Lux(入射角Incidence angle ≥ 5°)		
外形尺寸 Outline size	30x28xLmm(L为发光器/受光器长度L is the length of light emitter/receiver)		
防护等级 Protection level	IP65		
控制器 Controller	QET、QCA		
电源电压 Supply voltage	DC12/24V AC110~220V(继电器输出Relay output)带控制器Tape controller		
消耗电流 Consumption current	≤200mA		
输出 Output	2NPN/PNP型, 灌入电流500mA, 电压1.5v以下, 极性、短路、过载保护 2NPN/PNP type, with current 500 mA and voltage less than 1.5 v, polarity, short circuit and overload protection		
输出状态 Output state	所有光轴受光时ON (接收指示灯) ON (Receiving Indicator Green Light) when all optical axes are illuminated		
指示灯 Indicator light	投光器: 电源指示灯 (红色); 受光器: 输出指示灯 透光 (绿色) 遮光 (红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)		
光源 Light source	调制红外LED Modulated Infrared LED		
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器7芯, 受光器7芯 Circular aviation socket with special connecting cable, 7cores of projector and 7cores of receiver		
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon		
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx		
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10~+40℃ (but not freezing), when preserved: -25~+55℃		
环境湿度 Ambient humidity	工作时: 35~85%RH, 保存时: 35~95%RH Work: 35~85% RH, save: 35~95% RH		

## ◆ COT型安全光幕规格表说明如下: The specifications of COT type safety screen are as follows

单位Unit: mm



## ◆ 外形尺寸 Dimensions



备注: H = (n-1) \* K = 保护高度  
Remarks: Height of detection  
L: 光幕总长度  
Total length of light screen  
n: 光轴数  
Optical axis number  
K: 光轴间距  
Optical axis spacing

K(mm)	10	20	30
P/J(mm)	6.75	6.75	6.75

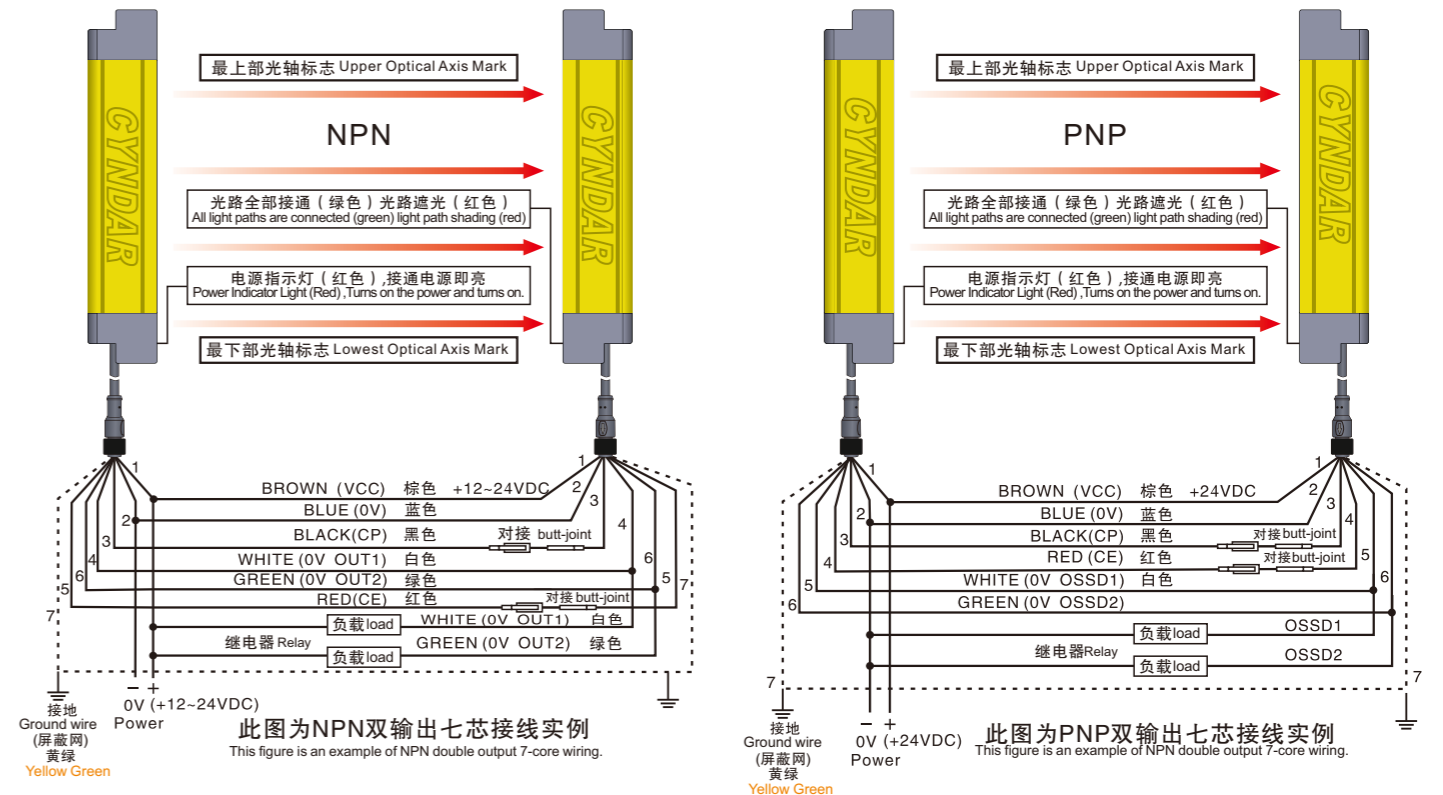
详细型号请见下一页规格表  
Please see the specification table on the next page for detailed models.

## ◆COT规格一览表 Specification List

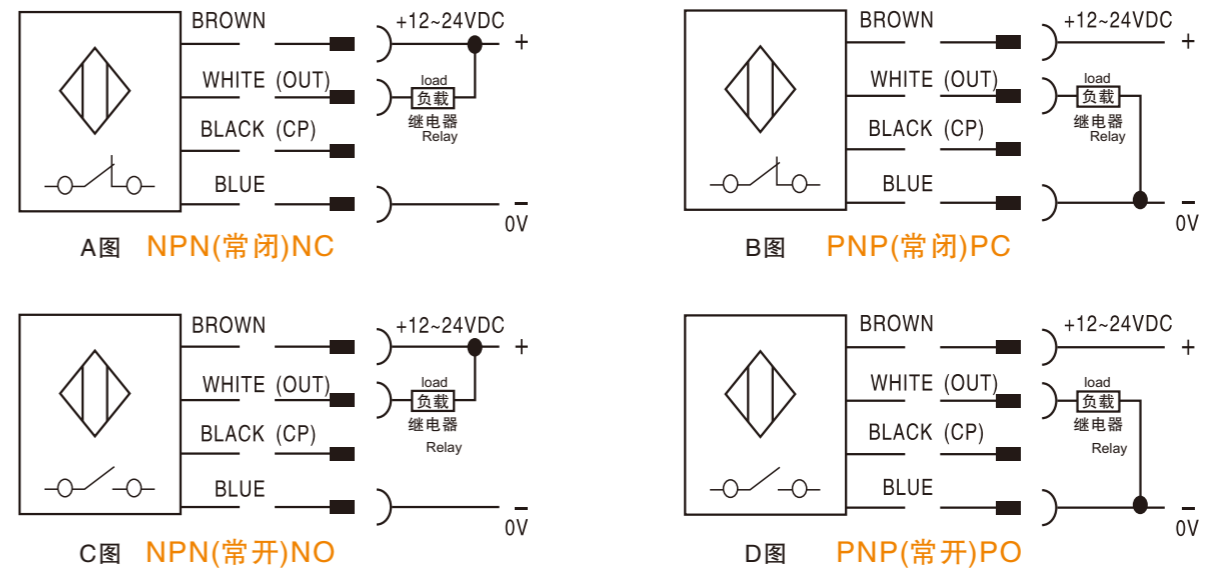
光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	信号输出方式 Signal output mode				检测距离 Detection distance	
					NPN	PNP	NPN	PNP		
10mm (K)	12	110	123.5	COT12/10-110	A	B	C	D	0.3-3m	
	14	140	153.5	COT14/10-140	A	B	C	D	0.3-3m	
	16	150	163.5	COT16/10-150	A	B	C	D	0.3-3m	
	18	170	183.5	COT18/10-170	A	B	C	D	0.3-3m	
	20	190	203.5	COT20/10-190	A	B	C	D	0.3-3m	
	22	210	223.5	COT22/10-210	A	B	C	D	0.3-3m	
	24	230	243.5	COT24/10-230	A	B	C	D	0.3-3m	
	26	250	263.5	COT26/10-250	A	B	C	D	0.3-3m	
	28	270	283.5	COT28/10-270	A	B	C	D	0.3-3m	
	30	290	303.5	COT30/10-290	A	B	C	D	0.3-3m	
	32	310	323.5	COT32/10-310	A	B	C	D	0.3-3m	
	34	330	343.5	COT34/10-330	A	B	C	D	0.3-3m	
	36	350	363.5	COT36/10-350	A	B	C	D	0.3-3m	
	38	370	383.5	COT38/10-370	A	B	C	D	0.3-3m	
	40	390	403.5	COT40/10-390	A	B	C	D	0.3-3m	
	42	410	423.5	COT42/10-410	A	B	C	D	0.3-3m	
	44	430	443.5	COT44/10-430	A	B	C	D	0.3-3m	
	46	450	463.5	COT46/10-450	A	B	C	D	0.3-3m	
	48	470	483.5	COT48/10-470	A	B	C	D	0.3-3m	
	50	490	503.5	COT50/10-490	A	B	C	D	0.3-3m	
	52	510	523.5	COT52/10-510	A	B	C	D	0.3-3m	
	54	530	543.5	COT54/10-530	A	B	C	D	0.3-3m	
	56	550	563.5	COT56/10-550	A	B	C	D	0.3-3m	
	58	570	583.5	COT58/10-570	A	B	C	D	0.3-3m	
	60	590	603.5	COT60/10-590	A	B	C	D	0.3-3m	
	62	610	623.5	COT62/10-610	A	B	C	D	0.3-3m	
	64	630	643.5	COT64/10-630	A	B	C	D	0.3-3m	
	66	650	663.5	COT66/10-650	A	B	C	D	0.3-3m	
	68	670	683.5	COT68/10-670	A	B	C	D	0.3-3m	
	70	690	703.5	COT70/10-690	A	B	C	D	0.3-3m	
	20mm (K)	6	100	113.5	COT06/20-100	A	B	C	D	0.3-3m
		8	140	153.5	COT08/20-140	A	B	C	D	0.3-3m
		10	180	193.5	COT10/20-180	A	B	C	D	0.3-3m
		12	220	233.5	COT12/20-220	A	B	C	D	0.3-3m
		14	260	273.5	COT14/20-260	A	B	C	D	0.3-3m
		16	300	313.5	COT16/20-300	A	B	C	D	0.3-3m
18		340	353.5	COT18/20-340	A	B	C	D	0.3-3m	
20		380	393.5	COT20/20-380	A	B	C	D	0.3-3m	
22		420	433.5	COT22/20-420	A	B	C	D	0.3-3m	
24		460	473.5	COT24/20-460	A	B	C	D	0.3-3m	
26		500	513.5	COT26/20-500	A	B	C	D	0.3-3m	
28		540	553.5	COT28/20-540	A	B	C	D	0.3-3m	
30		580	593.5	COT30/20-580	A	B	C	D	0.3-3m	
32		620	633.5	COT32/20-620	A	B	C	D	0.3-3m	
34		660	673.5	COT34/20-660	A	B	C	D	0.3-3m	
36		700	713.5	COT36/20-700	A	B	C	D	0.3-3m	
38		740	753.5	COT38/20-740	A	B	C	D	0.3-3m	
40		780	793.5	COT40/20-780	A	B	C	D	0.3-3m	
42		820	833.5	COT42/20-820	A	B	C	D	0.3-3m	
44		860	873.5	COT44/20-860	A	B	C	D	0.3-3m	
46		900	913.5	COT46/20-900	A	B	C	D	0.3-3m	
48		940	953.5	COT48/20-940	A	B	C	D	0.3-3m	
50		980	993.5	COT50/20-980	A	B	C	D	0.3-3m	
52		1020	1033.5	COT52/20-1020	A	B	C	D	0.3-3m	
54		1060	1073.5	COT54/20-1060	A	B	C	D	0.3-3m	
56		1100	1113.5	COT56/20-1100	A	B	C	D	0.3-3m	
58		1140	1153.5	COT58/20-1140	A	B	C	D	0.3-3m	
60		1180	1193.5	COT60/20-1180	A	B	C	D	0.3-3m	
62		1220	1233.5	COT62/20-1220	A	B	C	D	0.3-3m	
64		1260	1273.5	COT64/20-1260	A	B	C	D	0.3-3m	
66		1300	1313.5	COT66/20-1300	A	B	C	D	0.3-3m	
68		1340	1353.5	COT68/20-1340	A	B	C	D	0.3-3m	
70		1380	1393.5	COT70/20-1380	A	B	C	D	0.3-3m	
72		1420	1433.5	COT72/20-1420	A	B	C	D	0.3-3m	
30mm (K)		4	90	103.5	COT04/30-90	A	B	C	D	0.3-3m
		6	150	163.5	COT06/30-150	A	B	C	D	0.3-3m
	8	210	223.5	COT08/30-210	A	B	C	D	0.3-3m	
	10	270	283.5	COT10/30-270	A	B	C	D	0.3-3m	
	12	330	343.5	COT12/30-330	A	B	C	D	0.3-3m	
	14	390	403.5	COT14/30-390	A	B	C	D	0.3-3m	
	16	450	463.5	COT16/30-450	A	B	C	D	0.3-3m	
	18	510	523.5	COT18/30-510	A	B	C	D	0.3-3m	
	20	570	583.5	COT20/30-570	A	B	C	D	0.3-3m	
	22	630	643.5	COT22/30-630	A	B	C	D	0.3-3m	
	24	690	703.5	COT24/30-690	A	B	C	D	0.3-3m	
	26	750	763.5	COT26/30-750	A	B	C	D	0.3-3m	
	28	810	823.5	COT28/30-810	A	B	C	D	0.3-3m	
	30	870	883.5	COT30/30-870	A	B	C	D	0.3-3m	
	32	930	943.5	COT32/30-930	A	B	C	D	0.3-3m	
	34	990	1003.5	COT34/30-990	A	B	C	D	0.3-3m	
	36	1050	1063.5	COT36/30-1050	A	B	C	D	0.3-3m	
	38	1110	1123.5	COT38/30-1110	A	B	C	D	0.3-3m	
	40	1170	1183.5	COT40/30-1170	A	B	C	D	0.3-3m	
	42	1230	1243.5	COT42/30-1230	A	B	C	D	0.3-3m	
	44	1290	1303.5	COT44/30-1290	A	B	C	D	0.3-3m	
	46	1350	1363.5	COT46/30-1350	A	B	C	D	0.3-3m	
	48	1410	1423.5	COT48/30-1410	A	B	C	D	0.3-3m	
	50	1470	1483.5	COT50/30-1470	A	B	C	D	0.3-3m	
	52	1530	1543.5	COT52/30-1530	A	B	C	D	0.3-3m	
	54	1590	1603.5	COT54/30-1590	A	B	C	D	0.3-3m	
	56	1650	1663.5	COT56/30-1650	A	B	C	D	0.3-3m	
	58	1710	1723.5	COT58/30-1710	A	B	C	D	0.3-3m	
	60	1770	1783.5	COT60/30-1770	A	B	C	D	0.3-3m	
	62	1830	1843.5	COT62/30-1830	A	B	C	D	0.3-3m	
	64	1890	1903.5	COT64/30-1890	A	B	C	D	0.3-3m	
	66	1950	1963.5	COT66/30-1950	A	B	C	D	0.3-3m	
	68	2010	2023.5	COT68/30-2010	A	B	C	D	0.3-3m	
	70	2070	2083.5	COT70/30-2070	A	B	C	D	0.3-3m	
	72	2130	2143.5	COT72/30-2130	A	B	C	D	0.3-3m	

备注: 输出方式详见上一规格说明, 特殊规格可另外订做, 检测距离达3米-6米需提前说明。  
Remarks: Please refer to the specification on the previous page for the output method. Special specifications can be customized separately.  
The detection distance of 3-6 meters should be specified in advance.

## ◆外形尺寸 Dimensions



## ◆COT信号输出选择(晶体管正常工作的实际输出) COT signal output selection (actual output of transistor working normally)



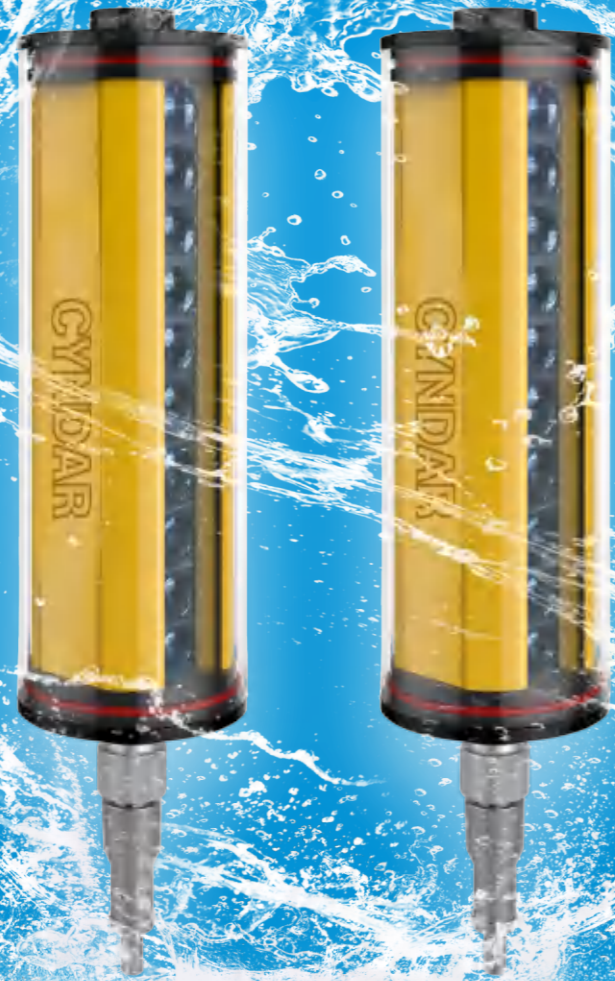


# 超强防水安全光幕-CRFT Super waterproof safety light curtain

- 国际IP68级防水特殊定制
- 304不锈钢螺丝防水航空插头
- 超快响应速度（小于15ms）
- 能有效屏蔽99%干扰信号
- International IP68 waterproof special customization
- 304 stainless steel screw waterproof aviation plug
- Ultra-fast response speed (less than 15ms)
- Can effectively shield 99% of interference signals

广泛适用于压力机、液压机、油压机、剪板机、自动门等使用环境潮湿、室外的危险场合。

It is widely used in dangerous places such as presses, hydraulic presses, hydraulic presses, shears, automatic doors, etc., where the environment is humid and outdoor.



## ◆ CRFT安全光幕 Safety light curtain

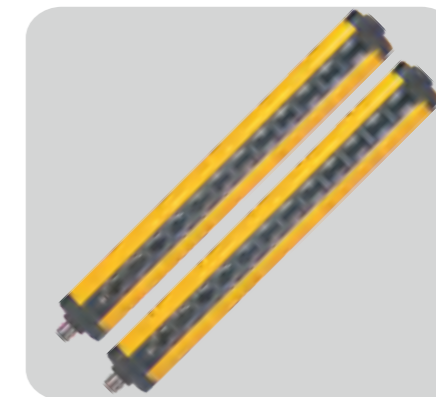
- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
- ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
- ★ 安装调试方便，配线简单，外形美观；
- ★ 采用表面贴装技术，防震性能优越；
- ★ 符合国际电工学会IEC61496-1/2标准安全等级，TUV的CE认证；
- ★ 响应时间短（≤15ms），安全可靠性能高；
- ★ 尺寸设计36mm\*36mm，安全传感器可以通过航空插座与电缆线（M12）链接；
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short (≤15ms), and the safety and reliability performance is high.
- ★ The dimension design is 36mm\*36mm. The safety sensor can be connected to the cable (M12) through the air socket.
- ★ All electronic components adopt world-renowned brand accessories.

## ◆ 产品配置 Product configuration

控制器、发光器、受光器、传输线和电源线组成。  
The controller, the light emitter, the light receiver, the transmission line and the power line are composed.



CRT数据线  
CRT data cable

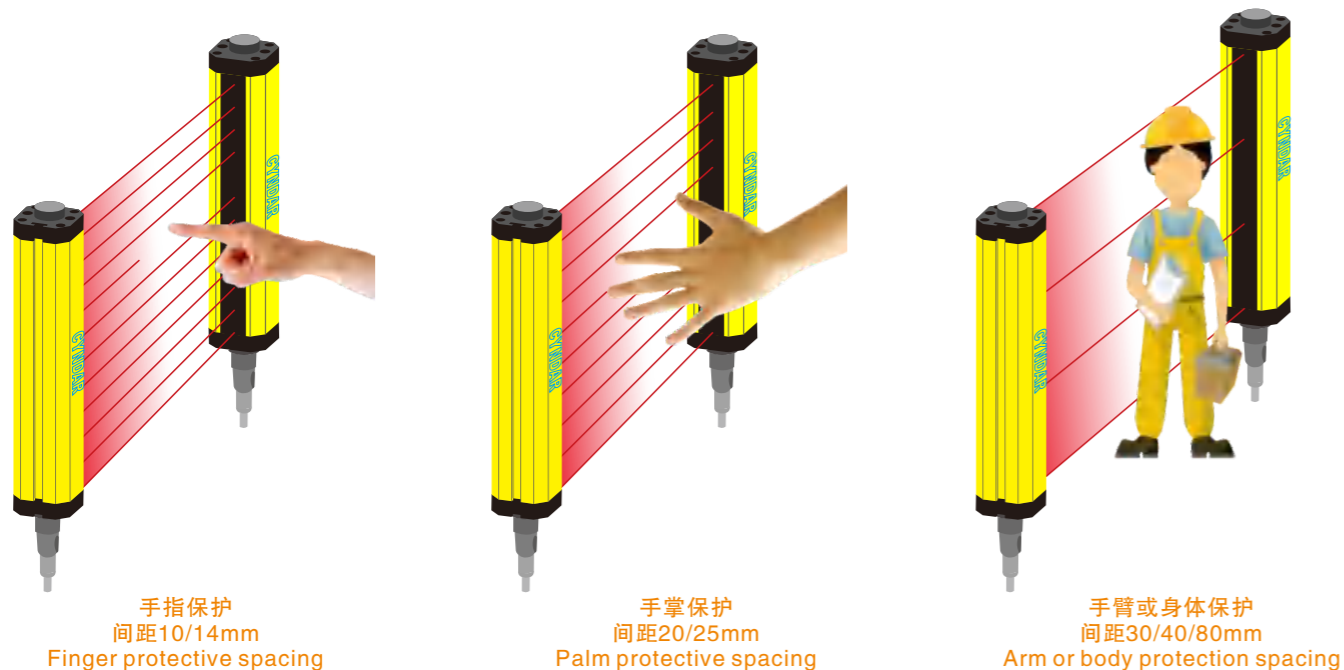


产品外形图  
Product outline drawing



CRFT  
IP68  
304不锈钢螺丝  
密封部分全部采用密封圈  
IP68级防水安全光幕  
304 stainless steel screw,  
sealing part all adopt sealing ring,  
IP68 class waterproof safety light curtain

## ◆ 分辨率 Resolving power



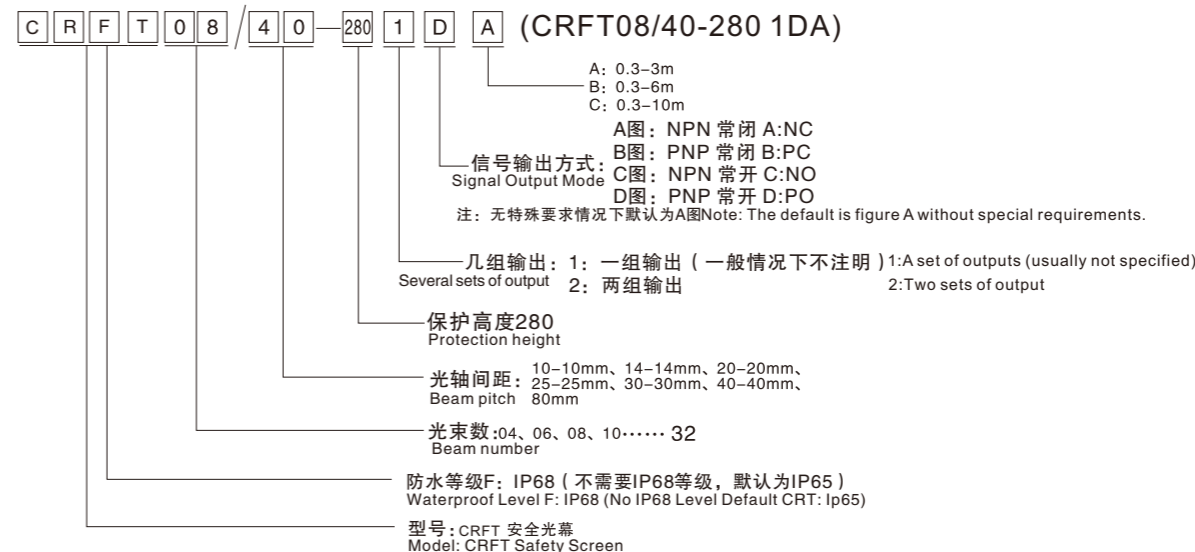
## ◆ 产品技术参数 Technical parameters of products

光幕形式 Light curtain form	对射式Counter shooting					
光轴间距 Beam pitch	10mm	14mm	20mm	25mm	30mm	40mm
检测精度 Check the accuracy	18mm	22mm	28mm	33mm	38mm	48mm
光束数 Beam number	6、8...32	6、8...32	4、6...32	6、8...32	4、6...32	4、6...32
保护高度 Height of protection	光轴间距Beam pitch X (光束数Beam number-1)					
检测距离 Detection distance	30 - 3000mm、30-6000mm					
响应时间 Response time	≤15ms					
抗光干扰 Anti light interference	10000Lux(入射角Incidence angle ≥5°)					
外形尺寸 Outline size	36x36xLmm(L为发光器/受光器长度L is the length of light emitter/receiver)					
防护等级 Protection level	IP65					
控制器 Controller	QCA QCA2					
电源电压 Supply voltage	DC12/24V AC110-220V(继电器输出Relay output)					
消耗电流 Consumption current	≤200mA					
输出 Output	NPN/PNP型, 灌入电流500mA, 电压1.5v以下, 极性、短路、过载保护 NPN/PNP type, with current 500 mA and voltage less than 1.5 v, polarity, short circuit and overload protection					
输出状态 Output state	ON (接收指示绿灯Receiving Indicator Green Light)					
指示灯 Indicator light	投光器: 电源指示灯 (红色); 受光器: 输出指示灯 透光 (绿色) 遮光 (红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)					
光源 Light source	调制红外LED Modulated Infrared LED					
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器4芯, 受光器5芯 Circular aviation socket with special connecting cable, 4 cores of projector and 5 cores of receiver					
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon					
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx					
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C					
环境湿度 Ambient humidity	工作时: 35-85%RH, 保存时: 35-95%RH Work: 35-85% RH, save: 35-95% RH					

## ◆ CRFT型安全光幕规格表说明如下:

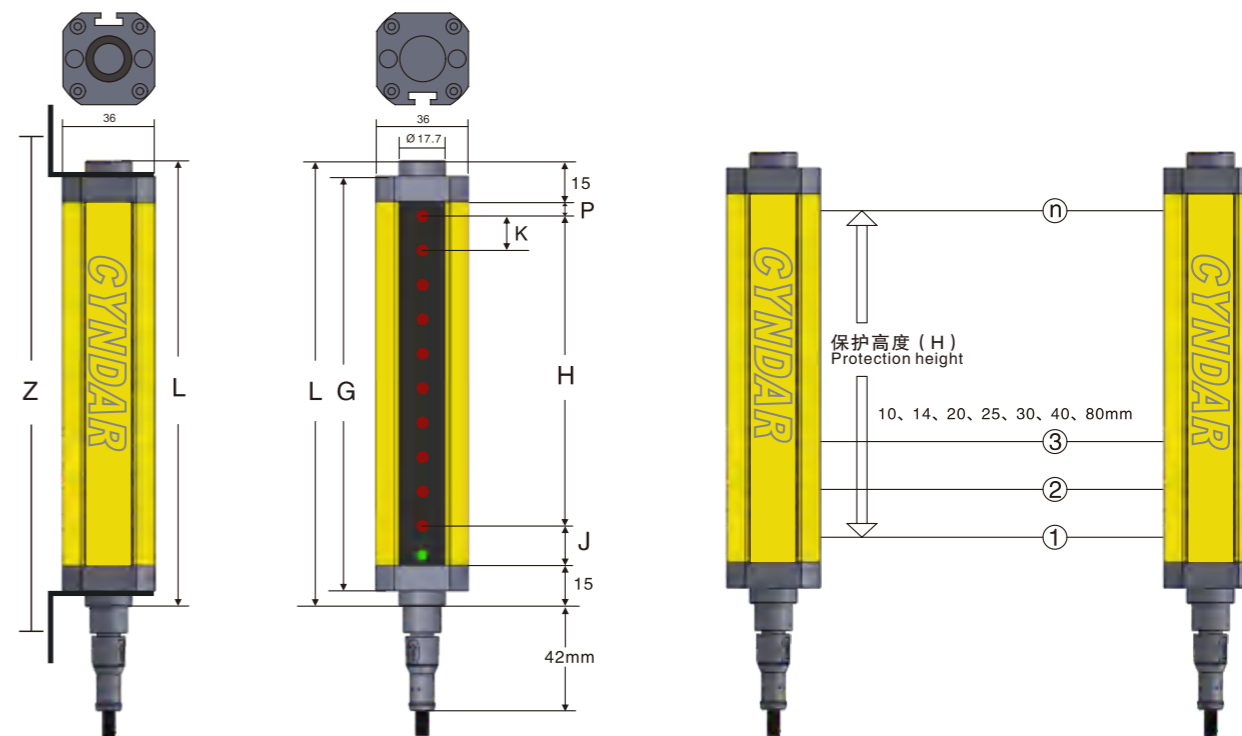
The specifications of CRT type safety screen are as follows

单位Unit: mm



详细型号请见下一页规格表 Detailed models can be found in the specification sheet on the previous page.

## ◆ 外形尺寸 Dimensions



备注:  
Remarks

Z: 上下直角架固定方式中心距离  
Center Distance of Fixed Mode of Upper and Lower Right Angle Frames

Z=L+34mm  
L=P+H+J+15mm+15mm

H=(n-1)\*K=保护高度  
Height of detection

K: 光轴间距  
Optical axis spacing

L: 光幕总长度  
Total length of light screen

n: 光轴数  
Optical axis number

K (mm)	10	14	20	25	30	40	80
P (mm)	5	7	10	12.5	15	20	40
J (mm)	32	32	25	25	25	25	25

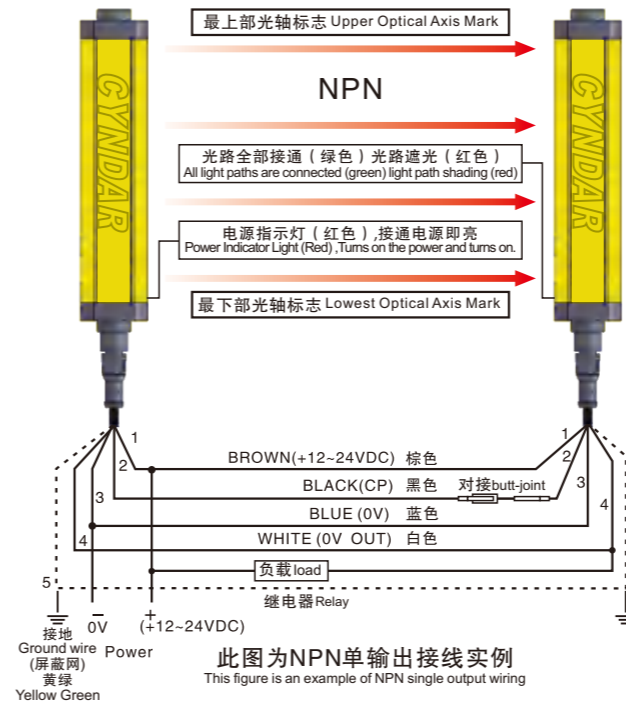
## ◆ CRFT规格一览表 Specification List

光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	信号输出方式 Signal output mode				检测距离 Detection distance
					NPN	PNP	NPN	PNP	
10mm (K)	6	50	117	CRFT06/10-50	A	B	C	D	0.3-3m
	8	70	137	CRFT08/10-70	A	B	C	D	0.3-3m
	10	90	157	CRFT10/10-90	A	B	C	D	0.3-3m
	12	110	177	CRFT12/10-110	A	B	C	D	0.3-3m
	14	130	197	CRFT14/10-130	A	B	C	D	0.3-3m
	16	150	217	CRFT16/10-150	A	B	C	D	0.3-3m
	18	170	237	CRFT18/10-170	A	B	C	D	0.3-3m
	20	190	257	CRFT20/10-190	A	B	C	D	0.3-3m
	22	210	277	CRFT22/10-210	A	B	C	D	0.3-3m
	24	230	297	CRFT24/10-230	A	B	C	D	0.3-3m
	26	250	317	CRFT26/10-250	A	B	C	D	0.3-3m
	28	270	337	CRFT28/10-270	A	B	C	D	0.3-3m
14mm (K)	6	70	139	CRFT06/14-70	A	B	C	D	0.3-3m
	8	98	167	CRFT08/14-98	A	B	C	D	0.3-3m
	10	126	195	CRFT10/14-126	A	B	C	D	0.3-3m
	12	154	223	CRFT12/14-154	A	B	C	D	0.3-3m
	14	182	251	CRFT14/14-182	A	B	C	D	0.3-3m
	16	210	279	CRFT16/14-210	A	B	C	D	0.3-3m
	18	238	307	CRFT18/14-238	A	B	C	D	0.3-3m
	20	266	335	CRFT20/14-266	A	B	C	D	0.3-3m
	22	294	363	CRFT22/14-294	A	B	C	D	0.3-3m
	24	322	391	CRFT24/14-322	A	B	C	D	0.3-3m
	26	350	419	CRFT26/14-350	A	B	C	D	0.3-3m
	28	378	447	CRFT28/14-378	A	B	C	D	0.3-3m
20mm (K)	4	60	125	CRFT04/20-60	A	B	C	D	0.3-3m
	6	100	165	CRFT06/20-100	A	B	C	D	0.3-3m
	8	140	205	CRFT08/20-140	A	B	C	D	0.3-3m
	10	180	245	CRFT10/20-180	A	B	C	D	0.3-3m
	12	220	285	CRFT12/20-220	A	B	C	D	0.3-3m
	14	260	325	CRFT14/20-260	A	B	C	D	0.3-3m
	16	300	365	CRFT16/20-300	A	B	C	D	0.3-3m
	18	340	405	CRFT18/20-340	A	B	C	D	0.3-3m
	20	380	445	CRFT20/20-380	A	B	C	D	0.3-3m
	22	420	485	CRFT22/20-420	A	B	C	D	0.3-3m
	24	460	525	CRFT24/20-460	A	B	C	D	0.3-3m
	26	500	565	CRFT26/20-500	A	B	C	D	0.3-3m
25mm (K)	6	125	192.5	CRFT06/25-125	A	B	C	D	0.3-3m
	8	175	242.5	CRFT08/25-175	A	B	C	D	0.3-3m
	10	225	292.5	CRFT10/25-225	A	B	C	D	0.3-3m
	12	275	342.5	CRFT12/25-275	A	B	C	D	0.3-3m
	14	325	392.5	CRFT14/25-325	A	B	C	D	0.3-3m
	16	375	442.5	CRFT16/25-375	A	B	C	D	0.3-3m
	18	425	492.5	CRFT18/25-425	A	B	C	D	0.3-3m
	20	475	542.5	CRFT20/25-475	A	B	C	D	0.3-3m
	22	525	592.5	CRFT22/25-525	A	B	C	D	0.3-3m
	24	575	642.5	CRFT24/25-575	A	B	C	D	0.3-3m
	26	625	692.5	CRFT26/25-625	A	B	C	D	0.3-3m
	28	675	742.5	CRFT28/25-675	A	B	C	D	0.3-3m
30mm (K)	4	90	160	CRFT04/30-90	A	B	C	D	0.3-3m
	6	150	220	CRFT06/30-150	A	B	C	D	0.3-3m
	8	210	280	CRFT08/30-210	A	B	C	D	0.3-3m
	10	270	340	CRFT10/30-270	A	B	C	D	0.3-3m
	12	330	400	CRFT12/30-330	A	B	C	D	0.3-3m
	14	390	460	CRFT14/30-390	A	B	C	D	0.3-3m
	16	450	520	CRFT16/30-450	A	B	C	D	0.3-3m
	18	510	580	CRFT18/30-510	A	B	C	D	0.3-3m
	20	570	640	CRFT20/30-570	A	B	C	D	0.3-3m
	22	630	700	CRFT22/30-630	A	B	C	D	0.3-3m
	24	690	760	CRFT24/30-690	A	B	C	D	0.3-3m
	26	750	820	CRFT26/30-750	A	B	C	D	0.3-3m
40mm (K)	4	120	195	CRFT04/40-120	A	B	C	D	0.3-3m
	6	200	275	CRFT06/40-200	A	B	C	D	0.3-3m
	8	280	355	CRFT08/40-280	A	B	C	D	0.3-3m
	10	360	435	CRFT10/40-360	A	B	C	D	0.3-3m
	12	440	515	CRFT12/40-440	A	B	C	D	0.3-3m
	14	520	595	CRFT14/40-520	A	B	C	D	0.3-3m
	16	600	675	CRFT16/40-600	A	B	C	D	0.3-3m
	18	680	755	CRFT18/40-680	A	B	C	D	0.3-3m
	20	760	835	CRFT20/40-760	A	B	C	D	0.3-3m
	22	840	915	CRFT22/40-840	A	B	C	D	0.3-3m
	24	920	995	CRFT24/40-920	A	B	C	D	0.3-3m
	80mm (K)	4	240	335	CRFT04/80-240	A	B	C	D
6		400	495	CRFT06/80-400	A	B	C	D	0.3-3m
8		560	655	CRFT08/80-560	A	B	C	D	0.3-3m
10		720	815	CRFT10/80-720	A	B	C	D	0.3-3m
12		880	975	CRFT12/80-880	A	B	C	D	0.3-3m
14		1040	1135	CRFT14/80-1040	A	B	C	D	0.3-3m
26		2000	2095	CRFT26/80-2000	A	B	C	D	0.3-3m
28		2160	2255	CRFT28/80-2160	A	B	C	D	0.3-3m
30		2320	2415	CRFT30/80-2320	A	B	C	D	0.3-3m
32		2480	2575	CRFT32/80-2480	A	B	C	D	0.3-3m

备注：输出方式详见上一规格说明，如无要求默认按A图。80mm间距及特殊规格可另外订做，检测距离达3米以上需提前说明。  
Note: The output mode is detailed in the specifications on the previous page. If there is no requirement, the default is figure A. The 80mm spacing and special specifications can be customized separately, and the detection distance up to 3M or more needs to be specified in advance.

## ◆ CRFT五芯系列接线图

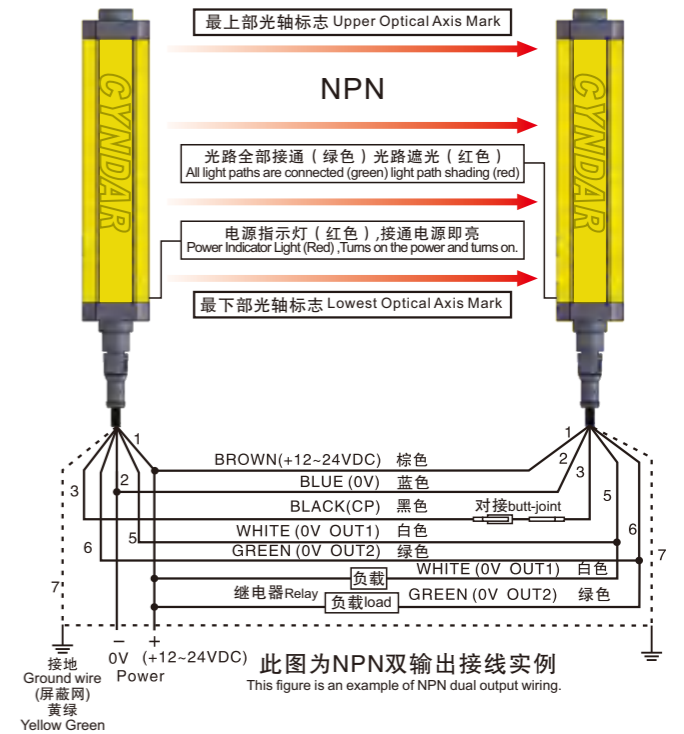
CRFT Five-core Series Wiring Diagram



此图为NPN单输出接线实例  
This figure is an example of NPN single output wiring

## ◆ CRFT发射器、接收器七芯接线图

Transmitter and receiver seven-core wiring diagram

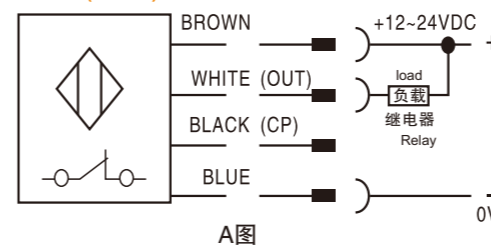


此图为NPN双输出接线实例  
This figure is an example of NPN dual output wiring

## ◆ CRFT信号输出选择(晶体管正常工作的实际输出)

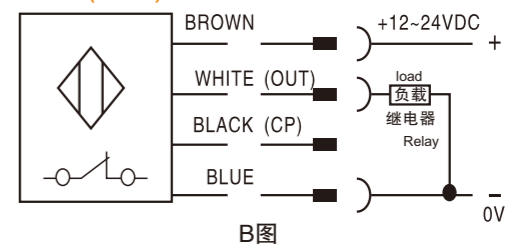
CRFT signal output selection (actual output of transistor working normally)

### NPN(常闭)NC



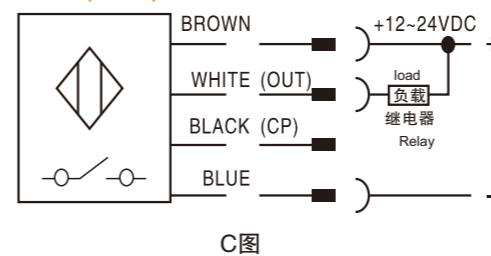
A图

### PNP(常闭)PC



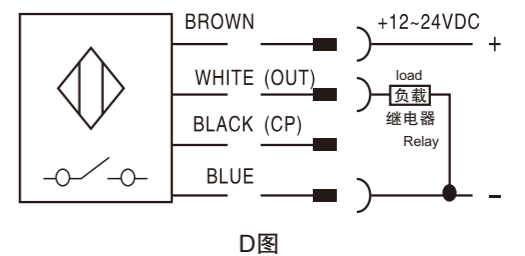
B图

### NPN(常开)NO



C图

### PNP(常开)PO



D图



## 超薄安全光幕-CZT-CBT No blind spot safety light curtain

- QB系列超薄出光截面仅15mm
- QB series ultra-thin light output section is only 15mm
- QZ系列超薄侧面仅17.2mm
- QZ series ultra-thin side is only 17.2mm
- 超快响应速度 (小于15ms)
- Ultra-fast response speed (less than 15ms)
- 能有效屏蔽99%干扰信号
- Can effectively shield 99% of interference signals

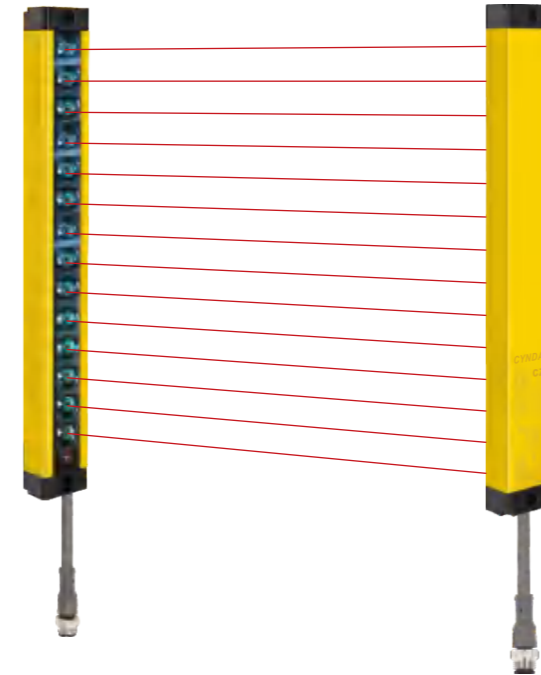
广泛适用于液压机、油压机、剪板机、注塑机等设备及安装空间特殊的危险场合的安全防护。

It is widely used in large machinery such as presses, hydraulic presses, hydraulic presses, shears, automatic doors, or dangerous occasions that require long-distance protection.

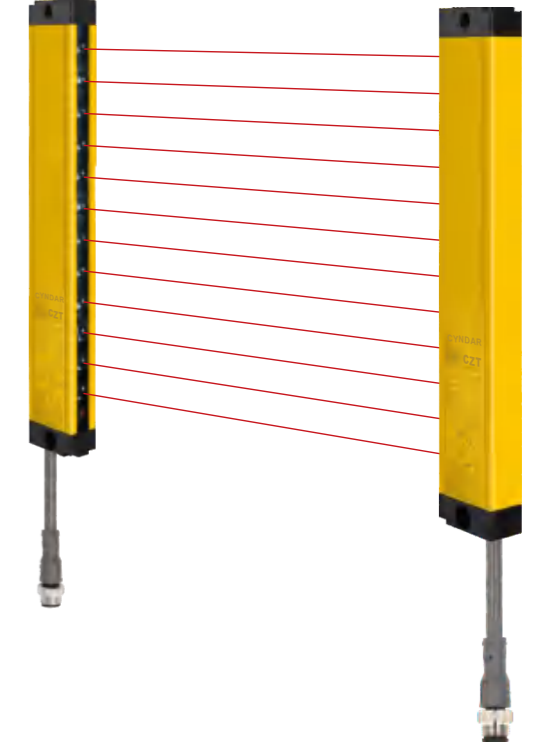


CYNDAR

### ◆ CZT超薄型安全光幕 (17.2x30mm) Ultra-thin safety screen



### ◆ CBT超薄型安全光幕 (30x15mm) Ultra-thin safety screen



### ◆ 产品配置 Product configuration

控制器、发光器、受光器、传输线和电源线组成。

The controller, the light emitter, the light receiver, the transmission line and the power line are composed.

### ◆ 产品特点 Product characteristics

- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
- ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
- ★ 安装调试方便，配线简单，外形美观；
- ★ 采用表面贴装技术，防震性能优越；
- ★ 符合国际电工学会IEC61496-1/2标准安全等级，TUV的CE认证；
- ★ 响应时间短（≤15ms），安全可靠性能高；
- ★ 超薄型外形尺寸设计，宽度和厚度QZ仅有17.2mm\*30mm，QB仅有30mm\*15mm，安全传感器可以通过航空插座与电缆线(M12)链接；
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short (≤15ms), and the safety and reliability performance is high.
- ★ Ultra-thin shape size design, width and thickness QZ only 17.2 mm\*30 mm, QB only 30 mm\*15 mm. The safety sensor can be connected to the cable (M12) through an aviation socket.
- ★ All electronic components adopt world-renowned brand accessories.

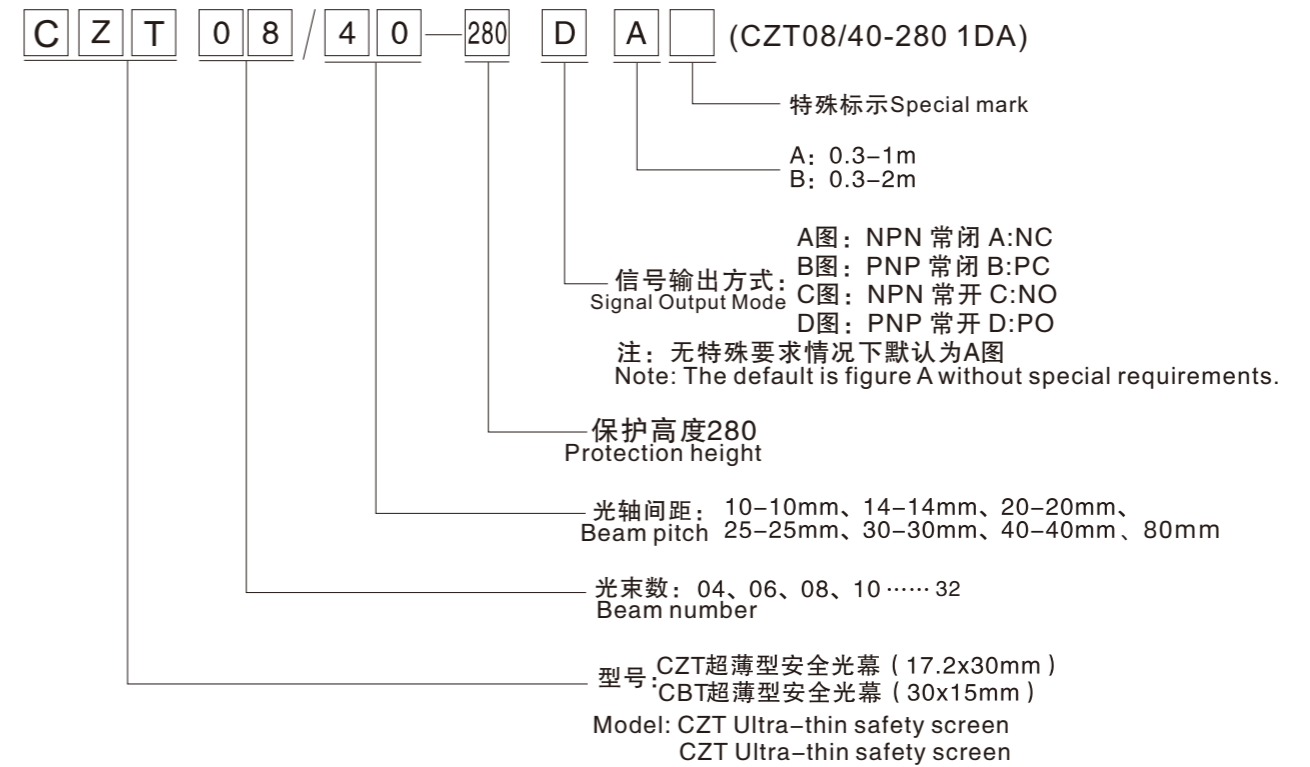
## ◆分辨率 Resolving power



## ◆CZT/CBT产品技术参数 Technical parameters of products

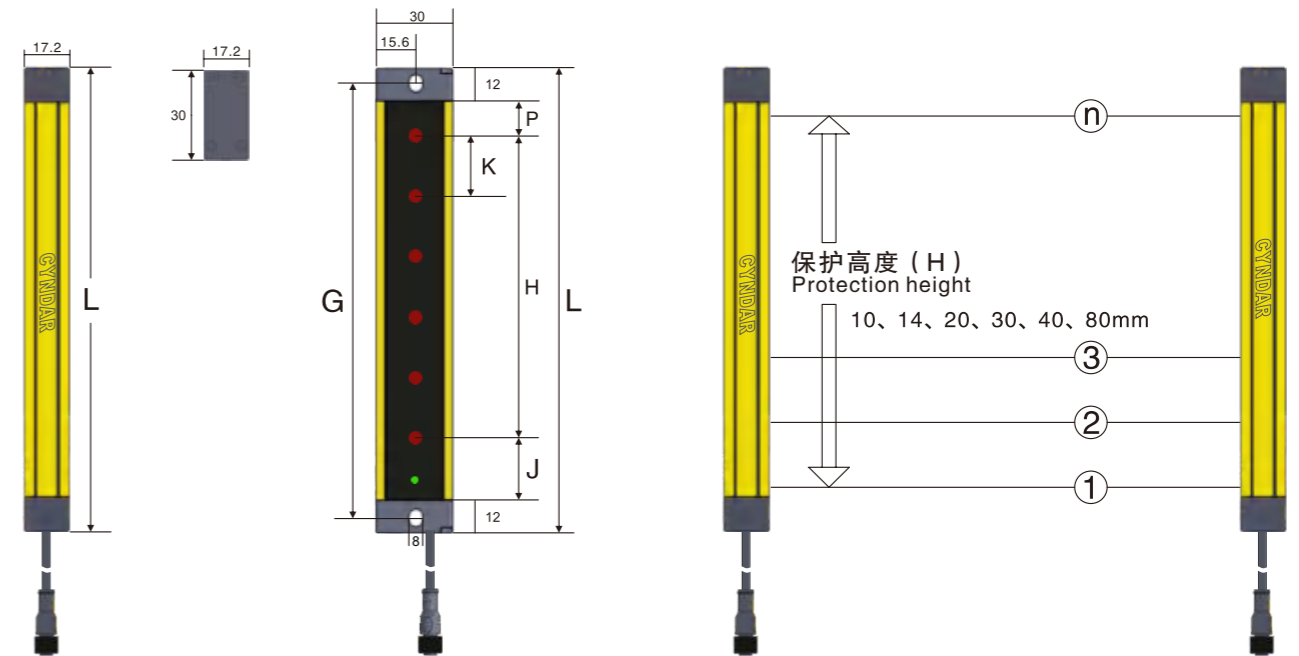
光幕形式 Light curtain form	对射式Counter shooting					
CZT光轴间距 Beam pitch	10mm	14mm	20mm	25mm	30mm	40mm
CZT光轴间距 Beam pitch			20mm			40mm
检测精度 Check the accuracy	18mm	22mm	28mm	33mm	38mm	48mm
光束数 Beam number	6、8···32	6、8···32	4、6···32	6、8···32	4、6···32	4、6···32
保护高度 Height of protection	光轴间距Beam pitch X (光束数Beam number-1)					
检测距离 Detection distance	30 ~ 3000mm、30~6000mm					
响应时间 Response time	≤15ms					
抗光干扰 Anti light interference	10000Lux(入射角Incidence angle ≥5°)					
外形尺寸 Outline size	17.2x30xLmm 30x15xLmm(L为发光器/受光器长度L is the length of light emitter/receiver)					
防护等级 Protection level	IP65					
控制器 Controller	QCA QCA2					
电源电压 Supply voltage	DC12/24V AC110~220V(继电器输出Relay output)					
消耗电流 Consumption current	≤200mA					
输出 Output	NPN/PNP型, 灌入电流500mA, 电压1.5v以下, 极性、短路、过载保护 NPN/PNP type, with current 500 mA and voltage less than 1.5 v, polarity, short circuit and overload protection					
输出状态 Output state	ON (接收指示灯Receiving Indicator Green Light)					
指示灯 Indicator light	投光器: 电源指示灯(红色); 受光器: 输出指示灯(绿色) 遮光(红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)					
光源 Light source	调制红外LED Modulated Infrared LED					
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器4芯, 受光器5芯 Circular aviation socket with special connecting cable, 4 cores of projector and 5 cores of receiver					
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon					
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx					
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C					
环境湿度 Ambient humidity	工作时: 35~85%RH, 保存时: 35~95%RH Work: 35~85% RH, save: 35~95% RH					

## ◆CZT/CBT超薄型安全光幕规格表说明如下: CZT/CBT ultra-thin safety light curtain specification sheet is as follows



详细型号请见下一页规格表  
Please see the specification table on the next page for detailed models.

## ◆CZT Dimensions



备注:  
Remarks

H = (n-1) \* K = 保护高度  
Height of detection

L = 光幕总长度  
Total length of light screen

n = 光轴数  
Optical axis number

固定孔位中心距离  
Fixed hole center distance

Z = L - 11mm

K = 光轴间距  
Optical axis spacing

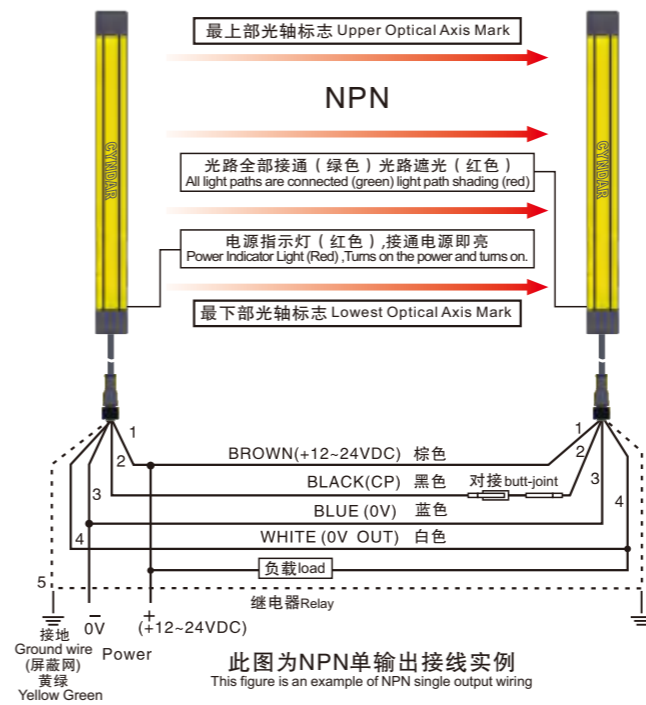
K(mm)	10	14	20	25	30	40	80
P(mm)	5	7	10	12.5	15	20	40
J(mm)	32	32	25	25	25	25	25

## ◆ CZT规格一览表 Specification List

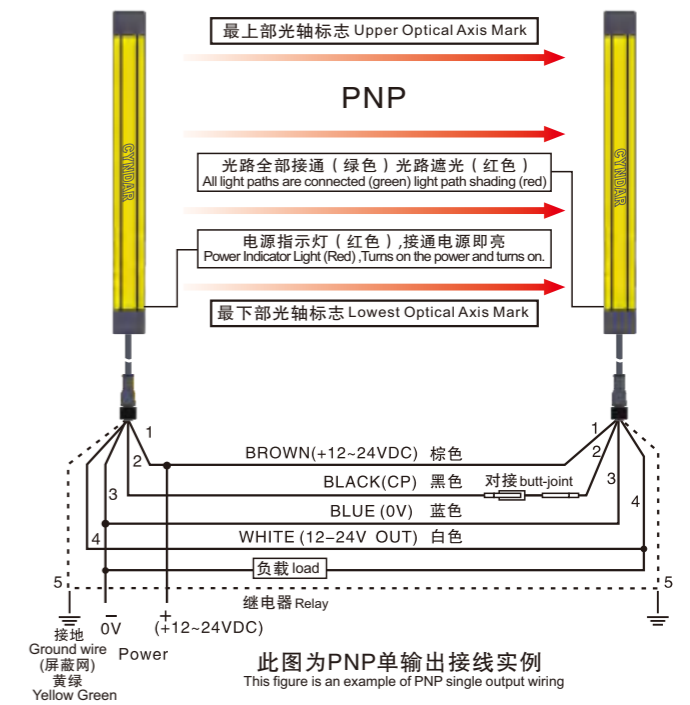
光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	信号输出方式 Signal output mode				检测距离 Detection distance
					NPN	PNP	NPN	PNP	
10mm (K)	6	50	111	CZT06/10-50	A	B	C	D	0.3-3m
	8	70	131	CZT08/10-70	A	B	C	D	0.3-3m
	10	90	151	CZT10/10-90	A	B	C	D	0.3-3m
	12	110	171	CZT12/10-110	A	B	C	D	0.3-3m
	14	130	191	CZT14/10-130	A	B	C	D	0.3-3m
	16	150	211	CZT16/10-150	A	B	C	D	0.3-3m
	18	170	231	CZT18/10-170	A	B	C	D	0.3-3m
	20	190	251	CZT20/10-190	A	B	C	D	0.3-3m
	22	210	271	CZT22/10-210	A	B	C	D	0.3-3m
	24	230	291	CZT24/10-230	A	B	C	D	0.3-3m
	26	250	311	CZT26/10-250	A	B	C	D	0.3-3m
	28	270	331	CZT28/10-270	A	B	C	D	0.3-3m
14mm (K)	6	70	133	CZT06/14-70	A	B	C	D	0.3-3m
	8	98	161	CZT08/14-98	A	B	C	D	0.3-3m
	10	126	189	CZT10/14-126	A	B	C	D	0.3-3m
	12	154	217	CZT12/14-154	A	B	C	D	0.3-3m
	14	182	245	CZT14/14-182	A	B	C	D	0.3-3m
	16	210	273	CZT16/14-210	A	B	C	D	0.3-3m
	18	238	301	CZT18/14-238	A	B	C	D	0.3-3m
	20	266	329	CZT20/14-266	A	B	C	D	0.3-3m
	22	294	357	CZT22/14-294	A	B	C	D	0.3-3m
	24	322	385	CZT24/14-322	A	B	C	D	0.3-3m
	26	350	413	CZT26/14-350	A	B	C	D	0.3-3m
	28	378	441	CZT28/14-378	A	B	C	D	0.3-3m
20mm (K)	4	60	119	CZT04/20-60	A	B	C	D	0.3-3m
	6	100	159	CZT06/20-100	A	B	C	D	0.3-3m
	8	140	199	CZT08/20-140	A	B	C	D	0.3-3m
	10	180	239	CZT10/20-180	A	B	C	D	0.3-3m
	12	220	279	CZT12/20-220	A	B	C	D	0.3-3m
	14	260	319	CZT14/20-260	A	B	C	D	0.3-3m
	16	300	359	CZT16/20-300	A	B	C	D	0.3-3m
	18	340	399	CZT18/20-340	A	B	C	D	0.3-3m
	20	380	439	CZT20/20-380	A	B	C	D	0.3-3m
	22	420	479	CZT22/20-420	A	B	C	D	0.3-3m
	24	460	519	CZT24/20-460	A	B	C	D	0.3-3m
	26	500	559	CZT26/20-500	A	B	C	D	0.3-3m
25mm (K)	4	100	159	CZT04/25-100	A	B	C	D	0.3-3m
	6	125	186.5	CZT06/25-125	A	B	C	D	0.3-3m
	8	175	236.5	CZT08/25-175	A	B	C	D	0.3-3m
	10	225	286.5	CZT10/25-225	A	B	C	D	0.3-3m
	12	275	336.5	CZT12/25-275	A	B	C	D	0.3-3m
	14	325	386.5	CZT14/25-325	A	B	C	D	0.3-3m
	16	375	436.5	CZT16/25-375	A	B	C	D	0.3-3m
	18	425	486.5	CZT18/25-425	A	B	C	D	0.3-3m
	20	475	538.5	CZT20/25-475	A	B	C	D	0.3-3m
	22	525	586.5	CZT22/25-525	A	B	C	D	0.3-3m
	24	575	636.5	CZT24/25-575	A	B	C	D	0.3-3m
	26	625	686.5	CZT26/25-625	A	B	C	D	0.3-3m
30mm (K)	4	150	214	CZT04/30-150	A	B	C	D	0.3-3m
	6	210	274	CZT06/30-210	A	B	C	D	0.3-3m
	8	270	334	CZT08/30-270	A	B	C	D	0.3-3m
	10	330	394	CZT10/30-330	A	B	C	D	0.3-3m
	12	390	454	CZT12/30-390	A	B	C	D	0.3-3m
	14	450	514	CZT14/30-450	A	B	C	D	0.3-3m
	16	510	574	CZT16/30-510	A	B	C	D	0.3-3m
	18	570	634	CZT18/30-570	A	B	C	D	0.3-3m
	20	630	694	CZT20/30-630	A	B	C	D	0.3-3m
	22	690	754	CZT22/30-690	A	B	C	D	0.3-3m
	24	750	814	CZT24/30-750	A	B	C	D	0.3-3m
	26	810	874	CZT26/30-810	A	B	C	D	0.3-3m
40mm (K)	4	200	269	CZT04/40-200	A	B	C	D	0.3-3m
	6	280	349	CZT06/40-280	A	B	C	D	0.3-3m
	8	360	429	CZT08/40-360	A	B	C	D	0.3-3m
	10	440	509	CZT10/40-440	A	B	C	D	0.3-3m
	12	520	589	CZT12/40-520	A	B	C	D	0.3-3m
	14	600	669	CZT14/40-600	A	B	C	D	0.3-3m
	16	680	749	CZT16/40-680	A	B	C	D	0.3-3m
	18	760	829	CZT18/40-760	A	B	C	D	0.3-3m
	20	840	909	CZT20/40-840	A	B	C	D	0.3-3m
	22	920	989	CZT22/40-920	A	B	C	D	0.3-3m
	24	1000	1069	CZT24/40-1000	A	B	C	D	0.3-3m
	80mm (K)	4	240	329	CZT04/80-240	A	B	C	D
6		400	489	CZT06/80-400	A	B	C	D	0.3-3m
8		560	649	CZT08/80-560	A	B	C	D	0.3-3m
10		720	809	CZT10/80-720	A	B	C	D	0.3-3m
12		880	969	CZT12/80-880	A	B	C	D	0.3-3m
14		1040	1129	CZT14/80-1040	A	B	C	D	0.3-3m
...		...	...	...	A	B	C	D	0.3-3m
26		2000	2089	CZT26/80-2000	A	B	C	D	0.3-3m
28		2160	2249	CZT28/80-2160	A	B	C	D	0.3-3m
30		2320	2409	CZT30/80-2320	A	B	C	D	0.3-3m
32		2480	2569	CZT32/80-2480	A	B	C	D	0.3-3m

备注：输出方式详见上一规格说明，如无要求默认A图。80mm间距及特殊规格可另外订做，检测距离0.3-2M。  
Remarks: Please refer to the specification on the previous page for the output method. If there is no requirement, the default is A picture.  
80mm pitch and special specifications can be customized, The detection distance is 0.3-2M.

## ◆ CZT发射接收全五芯系列NPN接线图 CZT transmitting and receiving full five-core series NPN wiring diagram

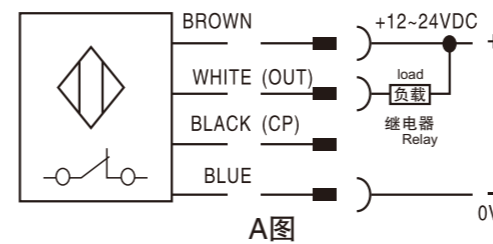


## ◆ CZT发射器、接收器全五芯PNP接线图 CZT transmitter, receiver full five-core PNP wiring diagram

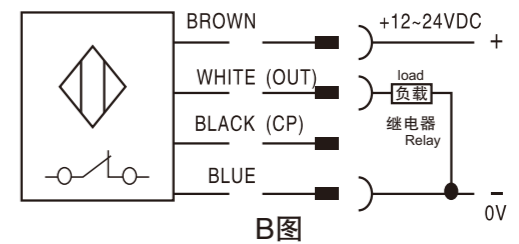


## ◆ CZT信号输出选择（晶体管正常工作的实际输出） CZT signal output selection (actual output of transistor working normally)

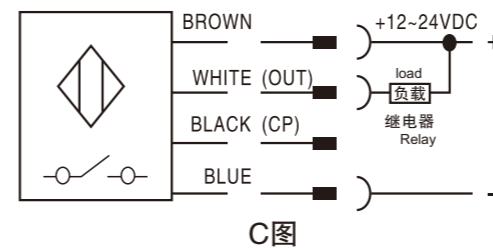
### NPN 常闭 NC



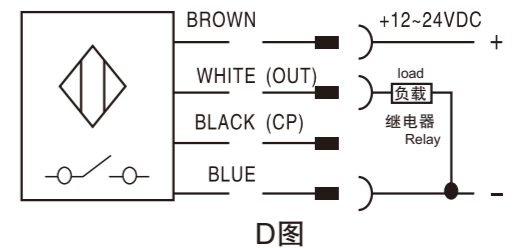
### PNP 常闭 PC



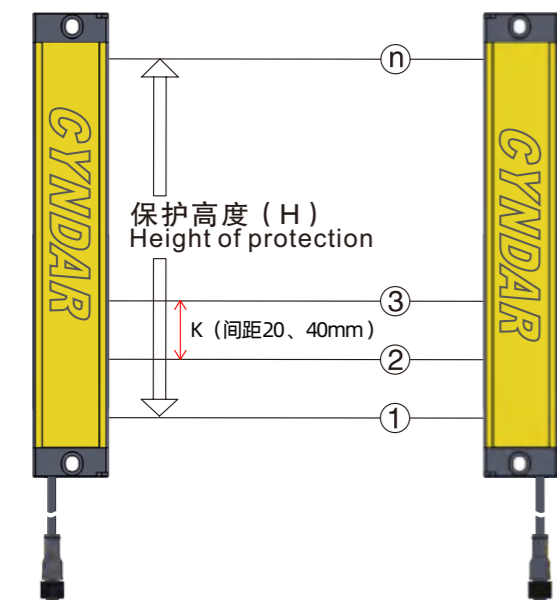
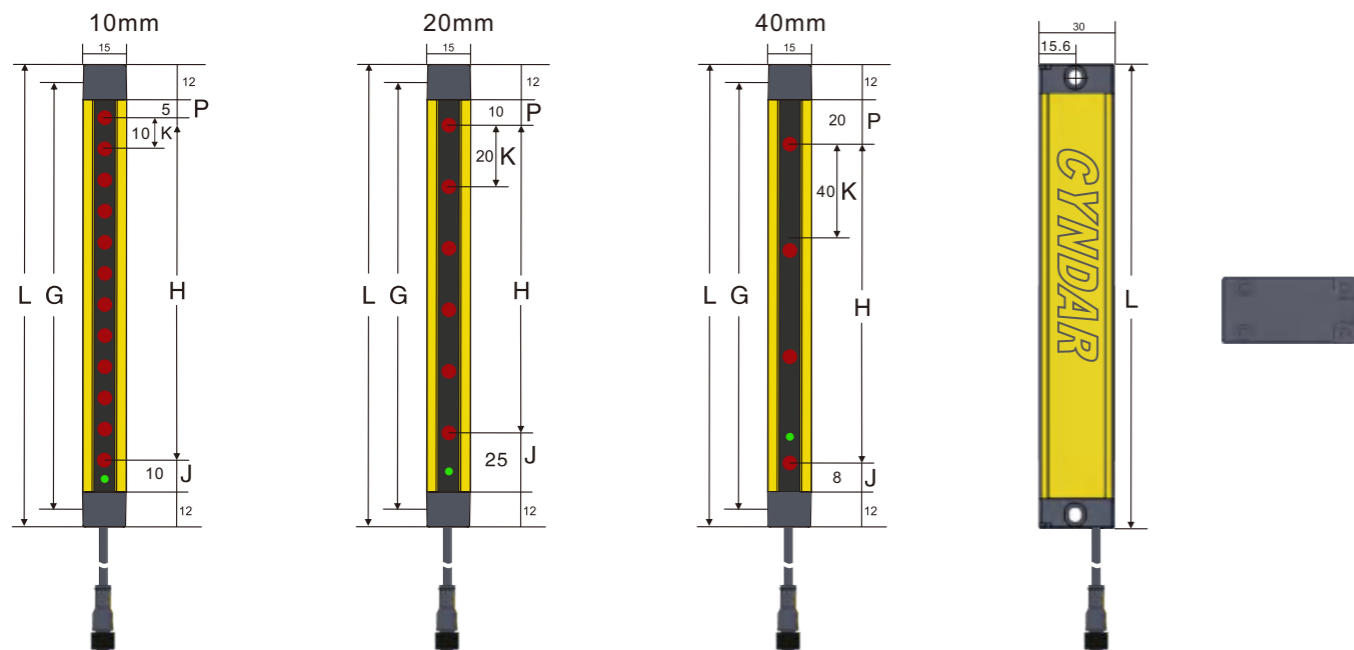
### NPN 常开 NO



### PNP 常开 PO



## ◆ CBT外形尺寸 Dimensions



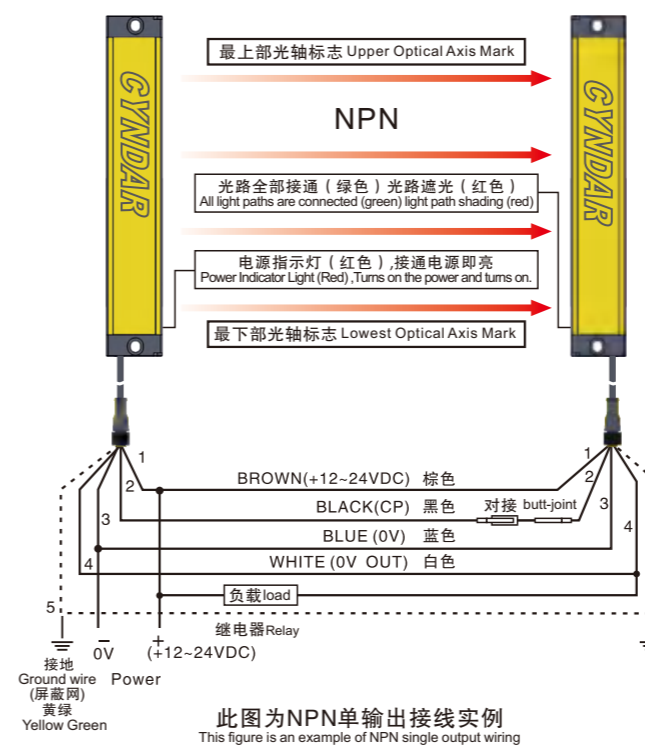
## ◆ CBT Specification List

光束数 Optical axis number	规格型号 Model number	保护高度 Protection height	光幕高度 Light curtain height
光轴间距10mm (K) Optical axis spacing 10mm (K)			
6	CBT06/10-50*#	50	89
8	CBT08/10-70*#	70	109
10	CBT10/10-90*#	90	129
12	CBT12/10-110*#	110	149
14	CBT14/10-130*#	130	169
16	CBT16/10-150*#	150	189
18	CBT18/10-170*#	170	209
20	CBT20/10-190*#	190	229
22	CBT22/10-210*#	210	249
24	CBT24/10-230*#	230	269
26	CBT26/10-250*#	250	289
28	CBT28/10-270*#	270	309
30	CBT30/10-290*#	290	329
32	CBT32/10-310*#	310	349

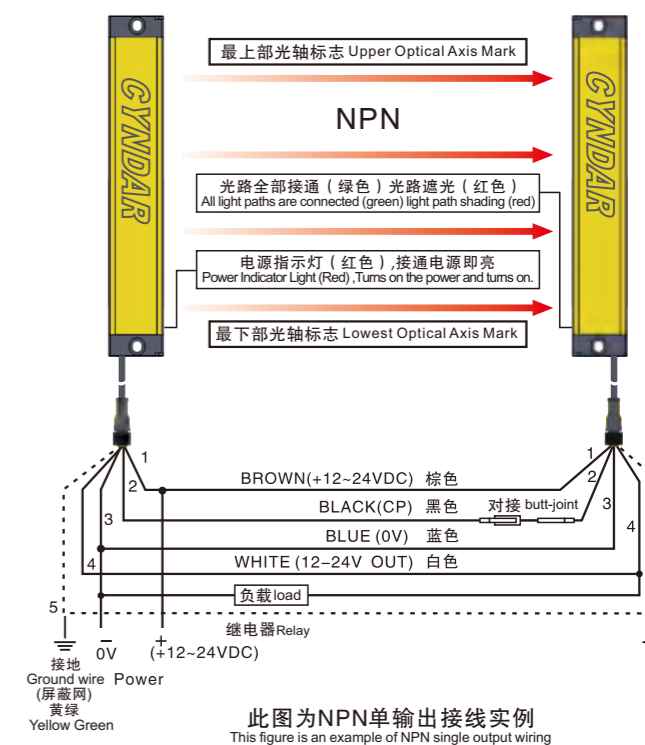
光轴间距20mm (K) Optical axis spacing 20mm (K)			
4	CBT04/20-60*#	60	119
6	CBT06/20-100*#	100	159
8	CBT08/20-140*#	140	199
10	CBT10/20-180*#	180	239
12	CBT12/20-220*#	220	279
14	CBT14/20-260*#	260	319
16	CBT16/20-300*#	300	359
18	CBT18/20-340*#	340	399
20	CBT20/20-380*#	380	439
22	CBT22/20-420*#	420	479
24	CBT24/20-460*#	460	519
26	CBT26/20-500*#	500	559
28	CBT28/20-540*#	540	599
30	CBT30/20-580*#	580	639
32	CBT32/20-620*#	620	679

光轴间距40mm (K) Optical axis spacing 40mm (K)			
4	CBT04/40-120*#	120	189
6	CBT06/40-200*#	200	269
8	CBT08/40-280*#	280	349
10	CBT10/40-360*#	360	429
12	CBT12/40-440*#	440	509
14	CBT14/40-520*#	520	589
16	CBT16/40-600*#	600	669
18	CBT18/40-680*#	680	749
20	CBT20/40-760*#	760	829
22	CBT22/40-840*#	840	909
24	CBT24/40-920*#	920	989
26	CBT26/40-1000*#	1000	1069
28	CBT28/40-1080*#	1080	1149
30	CBT30/40-1160*#	1160	1229
32	CBT32/40-1240*#	1240	1309

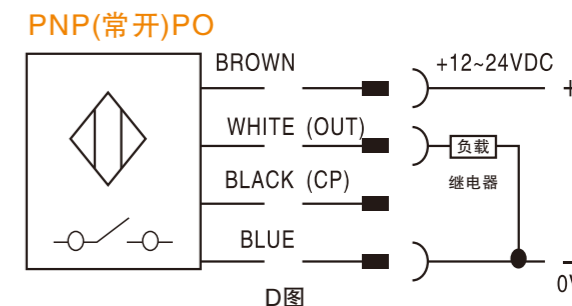
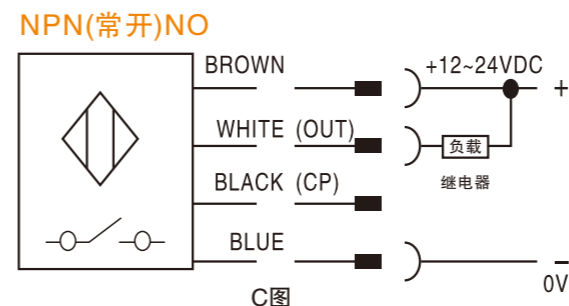
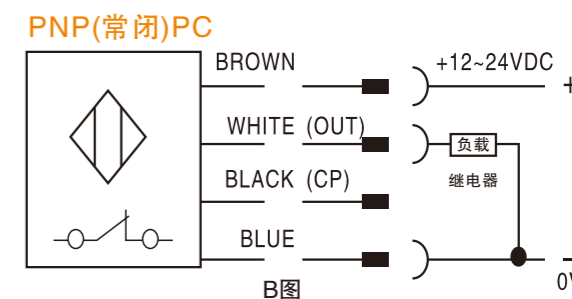
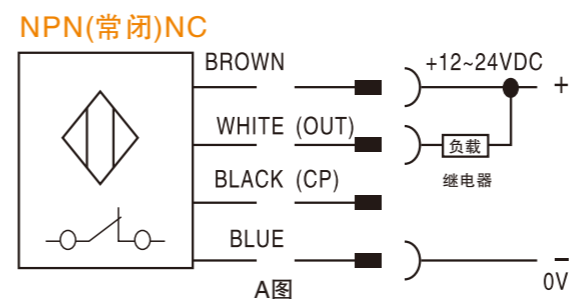
## ◆ CBT发射器、接收器五芯接线图 CBT transmitting and receiving five-core wiring diagram



## ◆ CBT发射器、接收器五芯接线图 CBT transmitting and receiving five-core wiring diagram



## ◆ CBT信号输出选择 (晶体管正常工作的实际输出) CBT signal output selection (actual output of transistor working normally)



## ▶ 光电安全保护装置-CST Photoelectric safety protection device

- 无源脉冲输出 逻辑功能更加完善
- 光电信号与设备控制隔离设计
- 能有效屏蔽99%干扰信号
- 极性、短路、过载保护、自检
- Passive pulse output logic function is more perfect
- Optoelectronic signal and equipment control isolation design
- Can effectively shield 99% of interference signals
- Polarity, short circuit, overload protection, self-check

广泛适用于各种冲床、油压机、拉伸机、剪板机、注塑机、自动装配线、自动门等大型设备及其他安全性更高要求的危险场合。

It is widely used in large machinery such as presses, hydraulic presses, hydraulic presses, shears, automatic doors, or dangerous occasions that require long-distance protection.



超长感应距离：10m、20m、30m  
Ultra long sensing distance

## ◆ 产品特点 Product characteristics

- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
- ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
- ★ 安装调试方便，配线简单，外形美观；
- ★ 采用表面贴装技术，防震性能优越；
- ★ 符合国际电工学会IEC61496-1/2标准安全等级，TUV的CE认证；
- ★ 响应时间短（≤10ms），安全可靠性能高；
- ★ 尺寸设计35mm\*51mm,安全传感器可以通过航空插座与电缆线(M12)链接；
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short (≤10ms), and the safety and reliability performance is high.
- ★ The dimension design is 35mm\*51mm. The safety sensor can be connected to the cable (M12) through the air socket.
- ★ All electronic components adopt world-renowned brand accessories.



## ◆ 产品配置 Product configuration

控制器、发光器、受光器、传输线和电源线组成。  
The controller, the light emitter, the light receiver, the transmission line and the power line are composed.



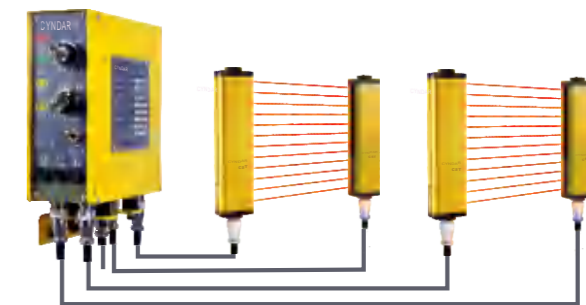
外置控制器QSW  
External controller QSW



五芯（发射2.5m，接收3.5m）数据线  
Five core (transmitting 2.5m, receiving 3.5m) data line



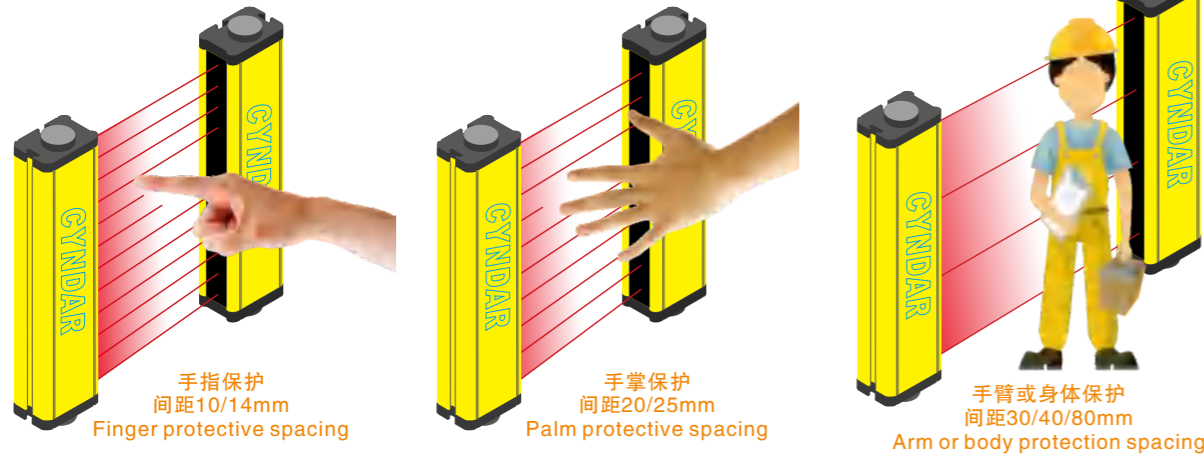
内置控制器QSN  
Built-in controller QSN



QSS 系列双面光电安全保护器  
QSS series double-sided photoelectric safety protector



## ◆ 分辨率 Resolving power



## ◆ 安全接口技术参数一览表 (发光器、受光器) List of safety interface technical parameters (illuminator, receiver)

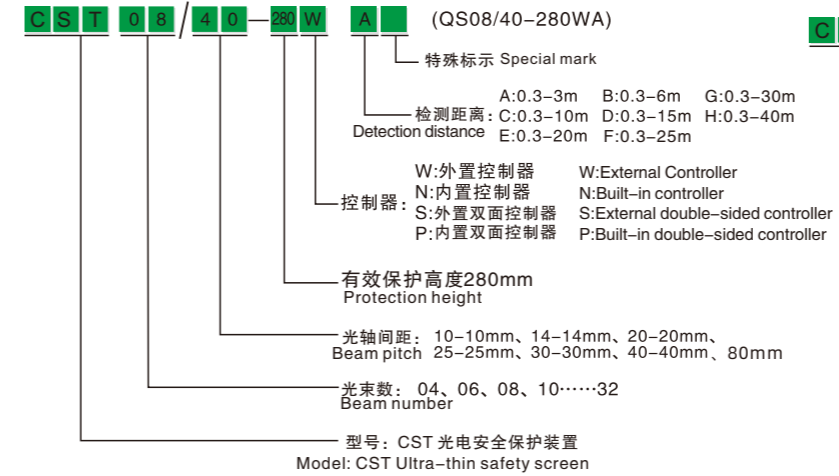
工作电源 Working power	DC12V	输出电流 Output current	≤300mA
输出形式 Output form	直流输出 DC output	电源隔离形式 Power isolation form	DC-DC
脉冲输出电压 Pulse output voltage	DC5V	输出隔离形式 Output isolation form	光耦隔离 Optocoupler isolation

## ◆ 产品技术参数 Technical parameters of products

电源电压 Supply voltage	AC110-220V ± 15% 50/60Hz						
消耗电流 Consumption current	≤200mA						
输出状态 Output state	双继电器、双输出, 常闭, 常开一组 Double relay, double output, normally closed, often open a group						
输出触点容量 Output Contact Capacity	AC250V/5A或DC30V5A						
指示灯 Indicator light	投光器: 电源指示灯 (红色); 受光器: 输出指示灯 (绿色) 遮光 (红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)						
光源 Light source	调制红外LED Modulated Infrared LED						
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器4芯, 受光器5芯 Circular aviation socket with special connecting cable, 4 cores of projector and 5 cores of receiver						
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon						
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx						
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C						
环境湿度 Ambient humidity	工作时: 35~85%RH, 保存时: 35~95%RH Work: 35~85% RH, save: 35~95% RH						
光幕形式 Light curtain form	对射式 Counter shooting						
光轴间距 Beam pitch	10mm	14mm	20mm	25mm	30mm	40mm	
检测精度 Check the accuracy	18mm	22mm	28mm	33mm	38mm	48mm	
光束数 Beam number	6、8...32	6、8...32	4、6...32	6、8...32	4、6...32	4、6...32	
保护高度 Height of protection	光轴间距 Beam pitch X (光束数 Beam number - 1)						
检测距离 Detection distance	0.3-3m 0.3-6m 0.3-30m						
响应时间 Response time	≤10ms						
抗光干扰 Anti light interference	10000Lux (入射角 Incidence angle ≥ 5°)						
外形尺寸 Outline size	35x51xLmm (L为发光器/受光器长度 L is the length of light emitter/receiver)						
防护等级 Protection level	IP65						
控制器 Controller	QSW、QSN、QSS、QSP						

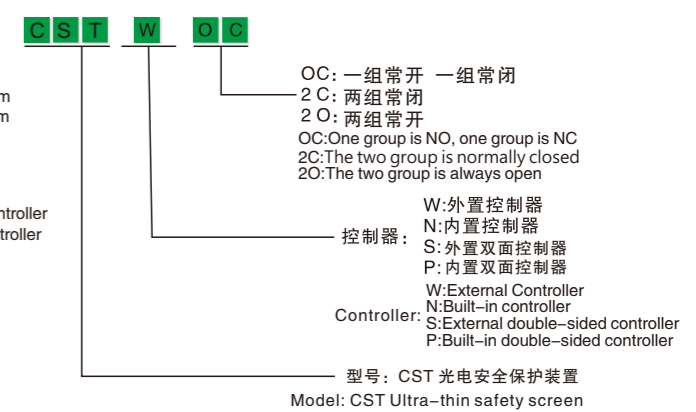
## ◆ CST型光电安全保护装置规格表说明

CST ultra-thin safety light curtain specification sheet is as follows



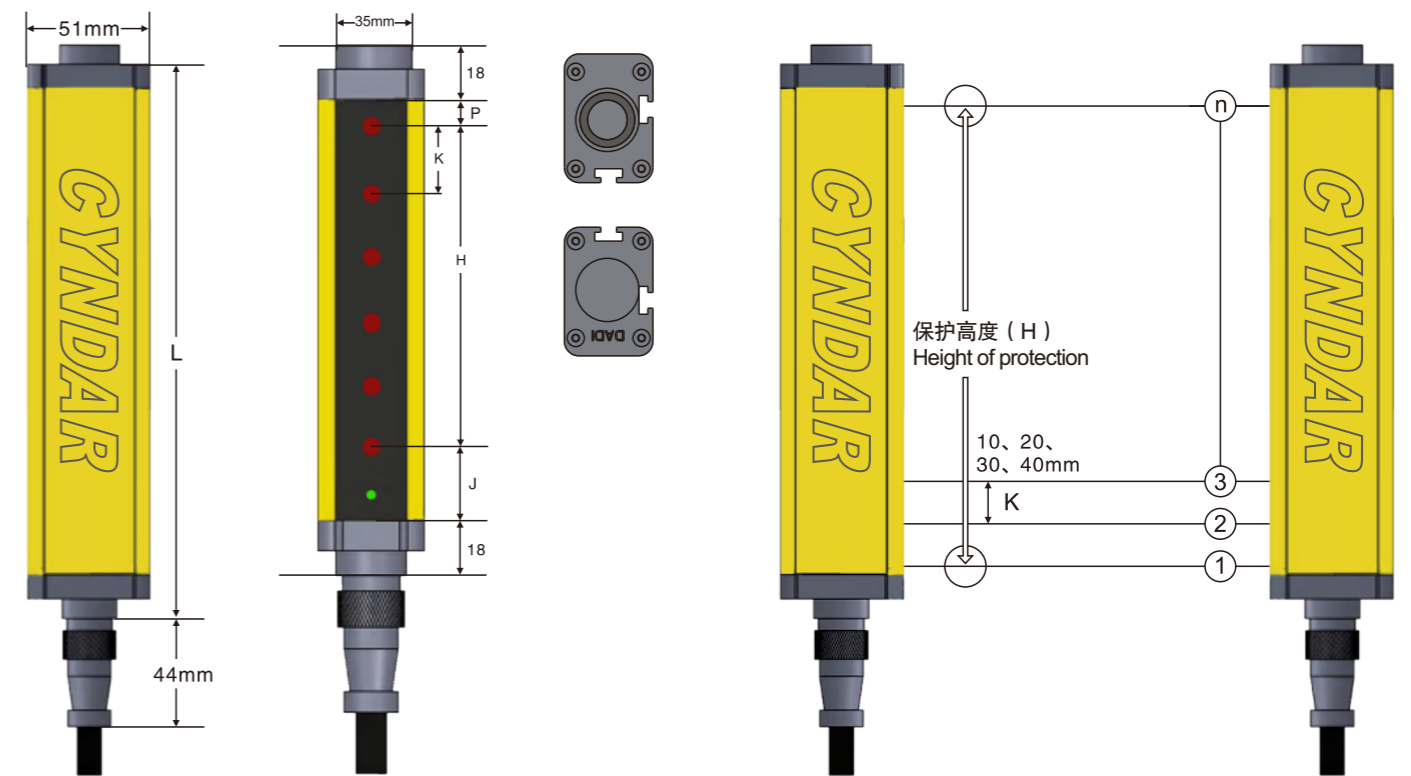
## ◆ CST控制器规格表

CST Controller Specification Table



详细型号请见下一页规格表  
Please see the specification table on the next page for detailed models.

## ◆ CST外形尺寸 Dimensions



备注:  
Remarks

H = (n-1) \* K = 保护高度  
Height of detection

L: 光幕总长度  
Total length of light screen

n: 光轴数  
Optical axis number

K: 光轴间距  
Optical axis spacing

L = P + H + J + 18mm + 18mm

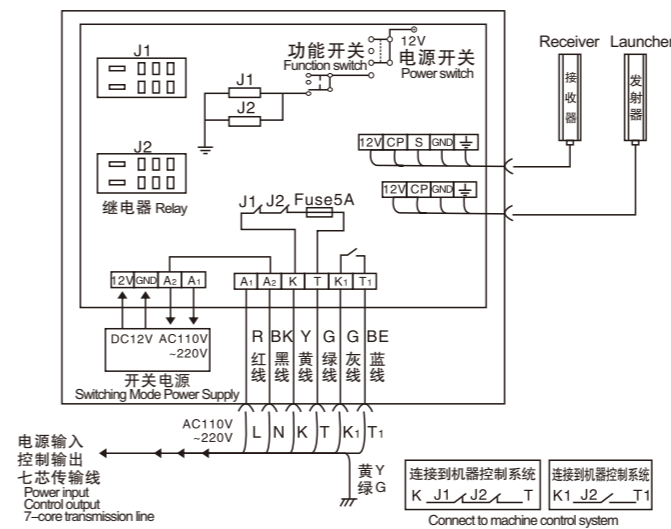
K (mm)	10	14	20	25	30	40	80
P (mm)	5	7	10	12.5	15	20	40
J (mm)	32	32	25	25	25	25	25

## ◆ CST规格一览表 Specification List

光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	信号输出方式 Signal output mode			检测距离 Detection distance
					W	N	S	
10mm (K)	6	50	123	Q506/10-50	W	N	S	0.3-3m
	8	70	143	Q508/10-70	W	N	S	0.3-3m
	10	90	163	Q510/10-90	W	N	S	0.3-3m
	12	110	183	Q512/10-110	W	N	S	0.3-3m
	14	130	203	Q514/10-130	W	N	S	0.3-3m
	16	150	223	Q516/10-150	W	N	S	0.3-3m
	18	170	243	Q518/10-170	W	N	S	0.3-3m
	20	190	263	Q520/10-190	W	N	S	0.3-3m
	22	210	283	Q522/10-210	W	N	S	0.3-3m
	24	230	303	Q524/10-230	W	N	S	0.3-3m
	26	250	323	Q526/10-250	W	N	S	0.3-3m
	28	270	343	Q528/10-270	W	N	S	0.3-3m
14mm (K)	6	70	145	Q506/14-70	W	N	S	0.3-3m
	8	98	173	Q508/14-98	W	N	S	0.3-3m
	10	126	201	Q510/14-126	W	N	S	0.3-3m
	12	154	229	Q512/14-154	W	N	S	0.3-3m
	14	182	257	Q514/14-182	W	N	S	0.3-3m
	16	210	285	Q516/14-210	W	N	S	0.3-3m
	18	238	313	Q518/14-238	W	N	S	0.3-3m
	20	266	341	Q520/14-266	W	N	S	0.3-3m
	22	294	369	Q522/14-294	W	N	S	0.3-3m
	24	322	397	Q524/14-322	W	N	S	0.3-3m
	26	350	425	Q526/14-350	W	N	S	0.3-3m
	28	378	453	Q528/14-378	W	N	S	0.3-3m
20mm (K)	4	60	131	Q504/20-60	W	N	S	0.3-3m
	6	100	171	Q506/20-100	W	N	S	0.3-3m
	8	140	211	Q508/20-140	W	N	S	0.3-3m
	10	180	251	Q510/20-180	W	N	S	0.3-3m
	12	220	291	Q512/20-220	W	N	S	0.3-3m
	14	260	331	Q514/20-260	W	N	S	0.3-3m
	16	300	371	Q516/20-300	W	N	S	0.3-3m
	18	340	411	Q518/20-340	W	N	S	0.3-3m
	20	380	451	Q520/20-380	W	N	S	0.3-3m
	22	420	491	Q522/20-420	W	N	S	0.3-3m
	24	460	531	Q524/20-460	W	N	S	0.3-3m
	26	500	571	Q526/20-500	W	N	S	0.3-3m
25mm (K)	4	90	166	Q504/25-90	W	N	S	0.3-3m
	6	150	226	Q506/25-150	W	N	S	0.3-3m
	8	210	286	Q508/25-210	W	N	S	0.3-3m
	10	270	346	Q510/25-270	W	N	S	0.3-3m
	12	330	406	Q512/25-330	W	N	S	0.3-3m
	14	390	466	Q514/25-390	W	N	S	0.3-3m
	16	450	526	Q516/25-450	W	N	S	0.3-3m
	18	510	586	Q518/25-510	W	N	S	0.3-3m
	20	570	646	Q520/25-570	W	N	S	0.3-3m
	22	630	706	Q522/25-630	W	N	S	0.3-3m
	24	690	766	Q524/25-690	W	N	S	0.3-3m
	26	750	826	Q526/25-750	W	N	S	0.3-3m
30mm (K)	4	120	201	Q504/30-120	W	N	S	0.3-3m
	6	200	281	Q506/30-200	W	N	S	0.3-3m
	8	280	361	Q508/30-280	W	N	S	0.3-3m
	10	360	441	Q510/30-360	W	N	S	0.3-3m
	12	440	521	Q512/30-440	W	N	S	0.3-3m
	14	520	601	Q514/30-520	W	N	S	0.3-3m
	16	600	681	Q516/30-600	W	N	S	0.3-3m
	18	680	761	Q518/30-680	W	N	S	0.3-3m
	20	760	841	Q520/30-760	W	N	S	0.3-3m
	22	840	921	Q522/30-840	W	N	S	0.3-3m
	24	920	1001	Q524/30-920	W	N	S	0.3-3m
	26	1000	1081	Q526/30-1000	W	N	S	0.3-3m
40mm (K)	4	240	341	Q504/40-240	W	N	S	0.3-3m
	6	400	501	Q506/40-400	W	N	S	0.3-3m
	8	560	661	Q508/40-560	W	N	S	0.3-3m
	10	720	821	Q510/40-720	W	N	S	0.3-3m
	12	880	981	Q512/40-880	W	N	S	0.3-3m
	14	1040	1141	Q514/40-1040	W	N	S	0.3-3m
	16	1200	1301	Q516/40-1200	W	N	S	0.3-3m
	18	1360	1461	Q518/40-1360	W	N	S	0.3-3m
	20	1520	1621	Q520/40-1520	W	N	S	0.3-3m
	22	1680	1781	Q522/40-1680	W	N	S	0.3-3m
	24	1840	1941	Q524/40-1840	W	N	S	0.3-3m
	26	2000	2101	Q526/40-2000	W	N	S	0.3-3m
80mm (K)	28	2160	2261	Q528/80-2160	W	N	S	0.3-3m
	30	2320	2421	Q530/80-2320	W	N	S	0.3-3m
	32	2480	2581	Q532/80-2480	W	N	S	0.3-3m

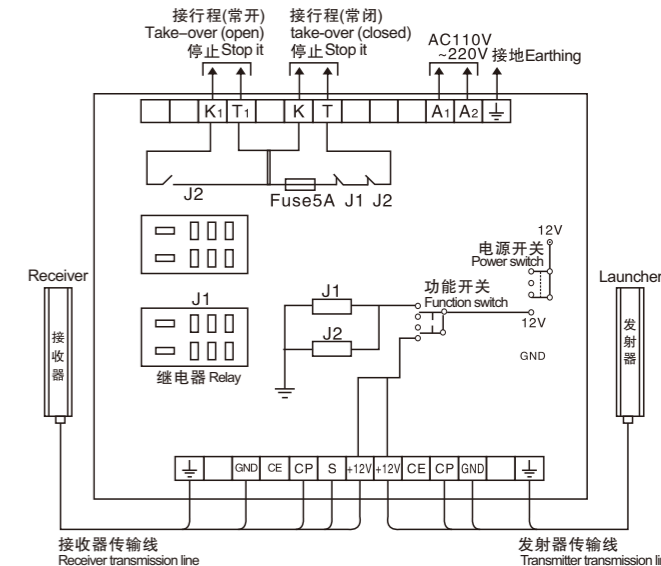
备注：输出方式详见上一规格说明，如无要求默认为A图。80mm间距及特殊规格可另外订做。  
Remarks: Please refer to the specification on the previous page for the output method. If there is no requirement, the default is A picture.  
80mm pitch and special specifications can be customized.

## ◆ QSW型外挂式控制器的接线图 Connection of QSW External Controller



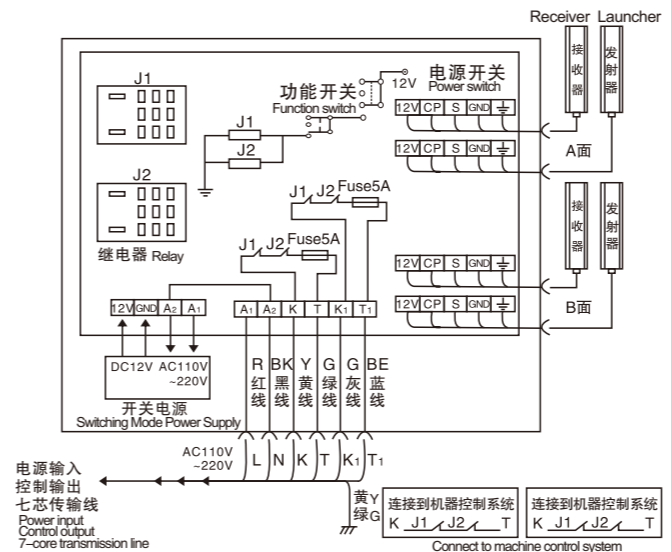
注：正常工作(通光)时K、T为常闭，K1、T1为常开  
Note: K and T are normally closed while K1 and T1 are normally open when working normally.

## ◆ QSN型内置式控制器的接线图 Connection Diagram of QSN Built-in Controller



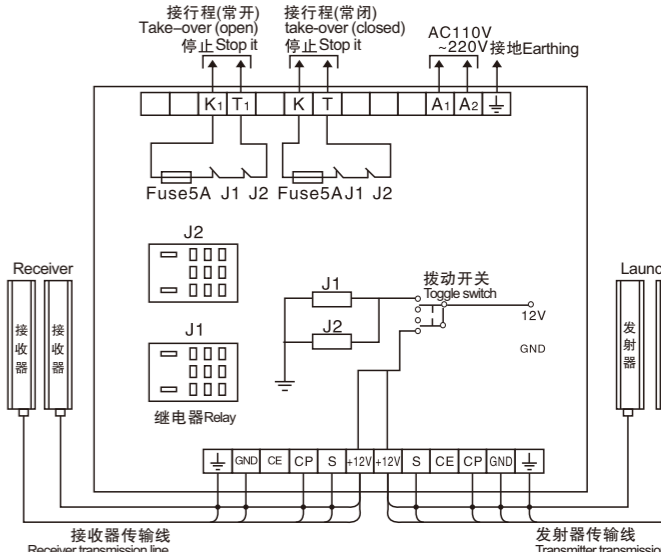
注：正常工作(通光)时K、T为常闭，K1、T1为常开  
Note: K and T are normally closed while K1 and T1 are normally open when working normally.

## ◆ QSS型外挂式双面控制器的接线 Connection of QSS External Double-sided Controller

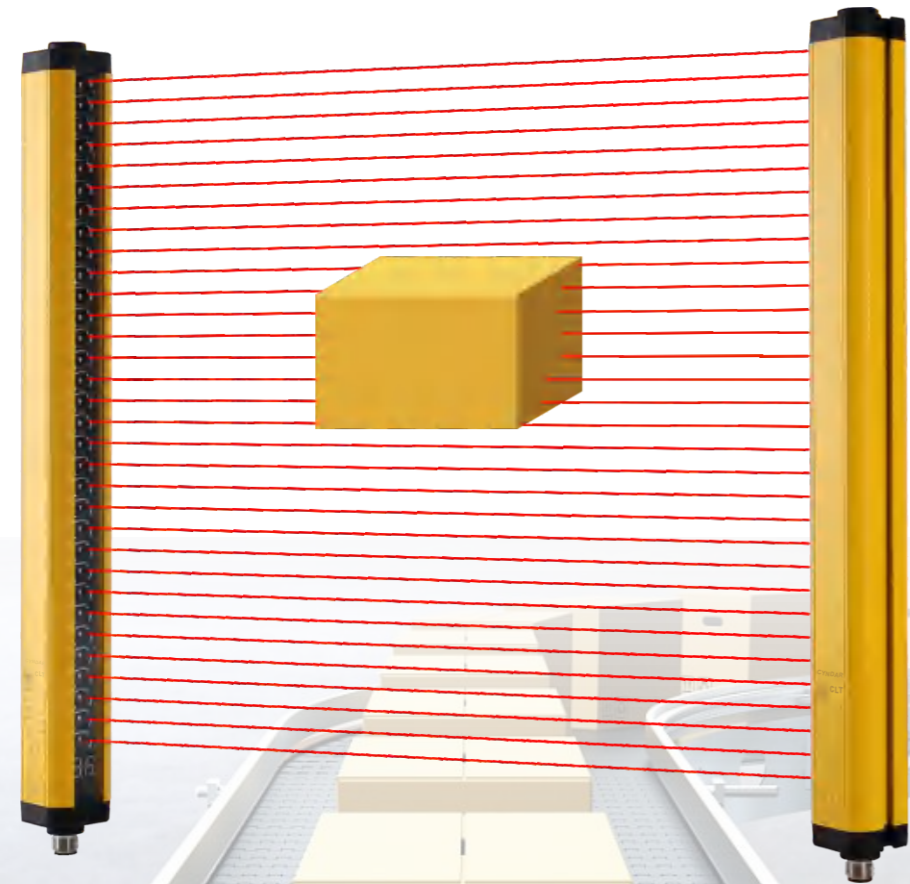


注：正常工作(通光)时K、T为常闭，K1、T1为常开(OSSD1)  
Note: K and T are normally closed while K1 and T1 are normally open (OSSD1) when working normally (through light).

## ◆ QSP型内置式双面控制器的接线图 Wiring diagram of QSP built-in double-sided controller



注：正常工作(通光)时K、T为常闭，K1、T1为常开(OSSD2)  
Note: K and T are normally closed while K1 and T1 are normally open (OSSD2) when working normally (through light).



## 高精度测量检测光幕-CLT-CMT High-precision measurement and detection light curtain

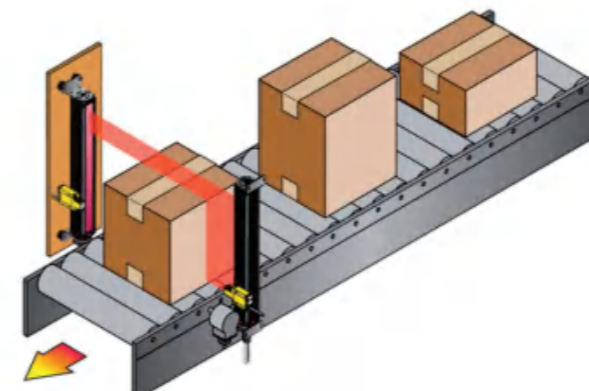
- 超快响应速度 (最高5ms)
- 2.5mm高精度测量检测
- RS485/232/模拟量多种输出
- 能有效屏蔽99%干扰信号
- Ultra-fast response speed (up to 5ms)
- 2.5mm high precision measurement and detection
- RS485/232/analog multiple output
- Can effectively shield 99% of interference signals

广泛适用于尺寸测量、体积测量、精度纠偏、孔洞检测、中心定位、零件计数等复杂在线检测和测量。

It is widely used in complex online detection and measurement such as size measurement, volume measurement, precision correction, hole detection, center positioning, and part counting.

## ◆ CLT测量、检测光幕Photoelectric protection device

- ★ 高精度的CLT系列测量光幕适用于高精度的检测和测量。包括在线检测、尺寸测量、轮廓检测、精度纠偏、孔洞检测、外形检测、边缘和中心定位，张力控制，零件计数、在线产品尺寸检测和以上类似的检测和测量。每套系统包括一对高分辨率的发射器和接收器、两条电缆。
- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
- ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
- ★ 安装调试方便，配线简单，外形美观；
- ★ 采用表面贴装技术，防震性能优越；
- ★ 符合国际电工学会IEC61496-1/2标准安全等级，TUV的CE认证；
- ★ 响应时间短 (≤15ms)，安全可靠性能高；
- ★ 尺寸设计36mm\*36mm,安全传感器可以通过航空插座与电缆线(M12)链接；
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ High precision CLT series measuring light curtain is suitable for high precision detection and measurement. It includes on-line detection, size measurement, contour detection, accuracy correction, hole detection, shape detection, edge and center positioning, tension control, part counting, on-line product size detection and similar detection and measurement. Each system consists of a high-resolution transmitter and receiver, and two cables.
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short (≤15ms), and the safety and reliability performance is high.
- ★ The dimension design is 36mm\*36mm. The safety sensor can be connected to the cable (M12) through the air socket.
- ★ All electronic components adopt world-renowned brand accessories.



## CLFT IP68

304不锈钢螺丝  
密封部分全部采用密封圈  
IP68级防水测量检测光幕  
304 stainless steel screw,  
sealing part all adopt sealing ring,  
IP68 class waterproof safety light curtain

## ◆ 产品配置 Product configuration

控制器、发光器、受光器、传输线组成。

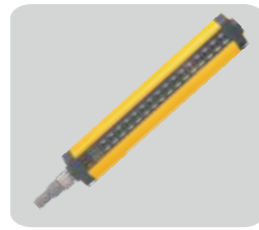
The controller, the light emitter, the light receiver and the transmission line are composed.



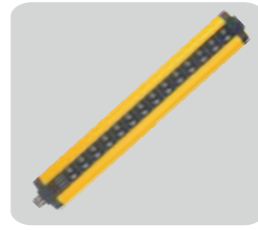
7芯数据线  
7-core data line



间距1.25、2.5、5mm外形圆  
Distance 1.25, 2.5, 5mm  
shape circle



间距10mm外形圆  
Distance 10mm shape circle



间距20mm外形圆  
Distance 20mm shape circle

## ◆ 产品技术参数 Technical parameters of products

光幕形式 Light curtain form	对射式Counter shooting					
光轴间距 Beam pitch	1.25mm	2.5mm	5mm	10mm	20mm	40mm
检测精度 Check the accuracy	2mm	3.75mm	6.5mm	15mm	25mm	45mm
光束数 Beam number	64\96...480	32\48...480	16\24...480	8\10...480	4\6...480	4\6...480
保护高度 Height of protection	光轴间距Beam pitch X (光束数Beam number-1)					
检测距离 Detection distance	30~3000mm、30~6000mm、30~10000mm					
响应时间 Response time	≤15ms					
抗光干扰 Anti light interference	10000Lux(入射角Incidence angle ≥5°)					
外形尺寸 Outline size	36x36xLmm(L为发光器/受光器长度L is the length of light emitter/receiver)					
防护等级 Protection level	IP65					
电源电压 Supply voltage	DC12/24V					
输出 Output	RS485/RS232 I:4-20mA U:1-10V					
输出状态 Output state	所有光轴受光时ON (接收显示绿灯) 数码管显示00 ON (Receiving Display Green Light) Digital Tube Display 00 when all optical axes are illuminated					
指示灯 Indicator light	投光器: 电源指示灯 (红色); 受光器: 输出指示灯 透光 (绿色) 遮光 (红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)					
光源 Light source	调制红外LED Modulated Infrared LED					
连接方式 Connection mode	防水圆形航空插座, 配专用连接电缆, 投光器7/5芯, 受光器7/5芯 Waterproof circular air socket with special connecting cable, 7/5 core of projector and 7/5 core of receiver					
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon					
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx					
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10~+40℃ (but not freezing), when preserved: -25~+55℃					
环境湿度 Ambient humidity	工作时: 35~85%RH, 保存时: 35~95%RH Work: 35~85% RH, save: 35~95% RH					

## 测量、检测光幕应用介绍

Introduction to the Application of Measuring and Detecting Light Curtain

### 纸板箱尺寸测量:

可以测量物体的长度、宽度、高度, 并且将数据发送到后台程序来算物体的体积合成运算。

Size measurement of cardboard boxes:

It can measure the length, width and height of the object, and send the data to the background program to calculate the volume synthesis operation of the object.

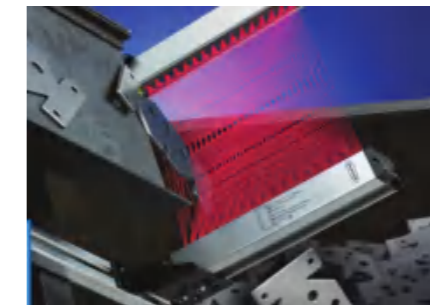


### 对掉落的扁平小物体计数:

用于高精度检测的独特光斑同步多光束红外LED发射和接收产生精确的光线交叉斑,且有极精细小物体的检测功能。

Counting of Falling Flat Small Objects:

Unique facula synchronous multi-beam infrared LED for high-precision detection generates accurate cross-spot of light, and has the detection function of extremely small objects.

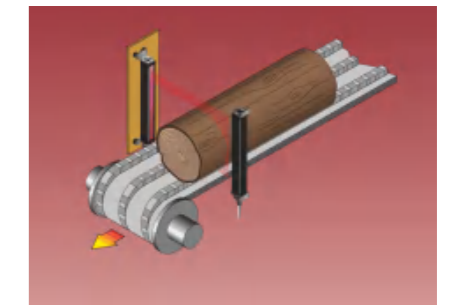


### 木材外型尺寸测量:

检测圆木直径,用于木材表面加工。进入剥皮设备前,测量原木外径,根据原木的大小调整夹具和剥皮刀具,准确地测量原木尺寸能很好的保证生产稳定和剥皮设备不受损坏。

Tyre classification:

Two sets of light curtains are used to measure the inner and outer diameters of the tires, and the tires are conveyed to the corresponding conveyor belt. If either of the dimensions of the tires does not conform to the specifications, they will be packed without air.



### 木材切割:

测量木板的长度和检测是否变形。超出规格的木板将被剔除。同时,通过测量长度来确定木板是否弯曲变形,因为弯曲变形会引起木板的长度变化。

Wood cutting

Measure the length of the board and check whether it is deformed or not. Boards that exceed specifications will be removed. At the same time, the length of the board can be measured to determine whether the board is bent or not, because the bending deformation of the board will cause the length of the board to change.



### 轮胎分类:

采用两套测量光幕检测轮胎的内外径尺寸,决定轮胎输送到相应输送带,如果轮胎的尺寸哪一个规格也不符合,将会被气绝装箱。

Tyre classification:

Two sets of light curtains are used to measure the inner and outer diameters of the tires, and the tires are conveyed to the corresponding conveyor belt. If either of the dimensions of the tires does not conform to the specifications, they will be packed without air.

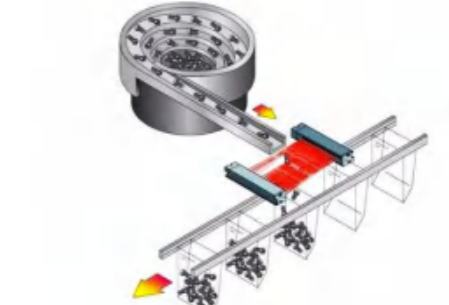


### 小物体计数:

在生产过程中,小螺钉从供料桶中输送出来,掉落到塑料袋内。光幕对掉落小螺钉计数,并监控每袋包装的数量。接收器的输出包含一个5毫秒的脉冲展宽器(关延时)来提高计数精度。

Counting of Small Objects:

In the production process, the small screw is conveyed from the feeding barrel and falls into the plastic bag. The light screen counts the dropping small screws and monitors the number of packages per bag. The transmitter of the receiver consists of a 5 millisecond pulse stretcher (turn-off delay) to improve the counting accuracy.

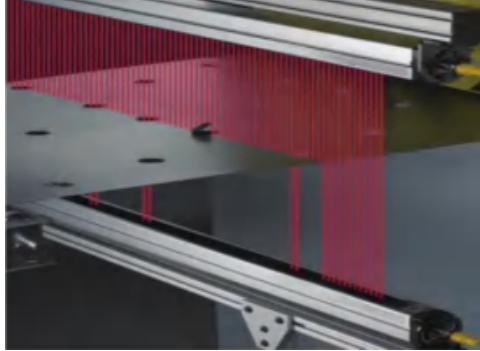


### 冲孔检测:

检测金属板上冲孔的缺少或卷材切割的定位或板材有孔洞。

Punching test:

Detection of the absence of punches on metal sheets or the location of coil cutting or the presence of holes in sheets.



### 布毯侦测:

当布毯通过测量光幕,光幕侦测出布毯边缘及织簇边则送出信号给控制系统作位置校正。

Cloth blanket detection:

When the blanket passes through the measuring light curtain, the light curtain detects the edge of the blanket green and the edge of the fabric cluster and sends out signals to the control system for position correction.



### 带提示指示灯,用于零件组装生产:

引导装配工人正确的拾取零件,防止漏掉零件和零件装配次序错误的发生。

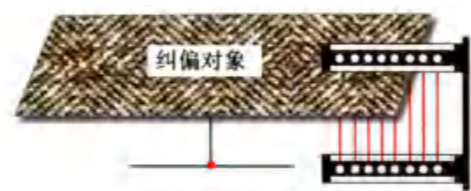
Indicator lamp with hint for assembly and production of parts:

Guide assembly workers to pick up parts correctly to prevent missing parts and parts assembly sequence errors.



### 纸箱包装行业纠偏

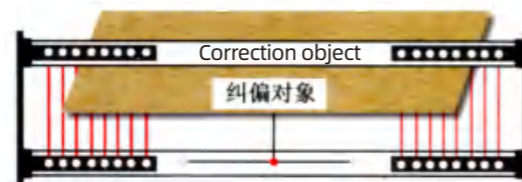
Correction of deviation in carton packaging industry



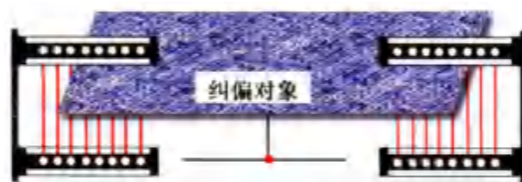
单套对边纠偏光幕  
Single set of opposite-side rectifying curtain



单套对边纠偏光幕 (含保护管)  
Single set of opposite-side rectifying light curtain (including protective tube)

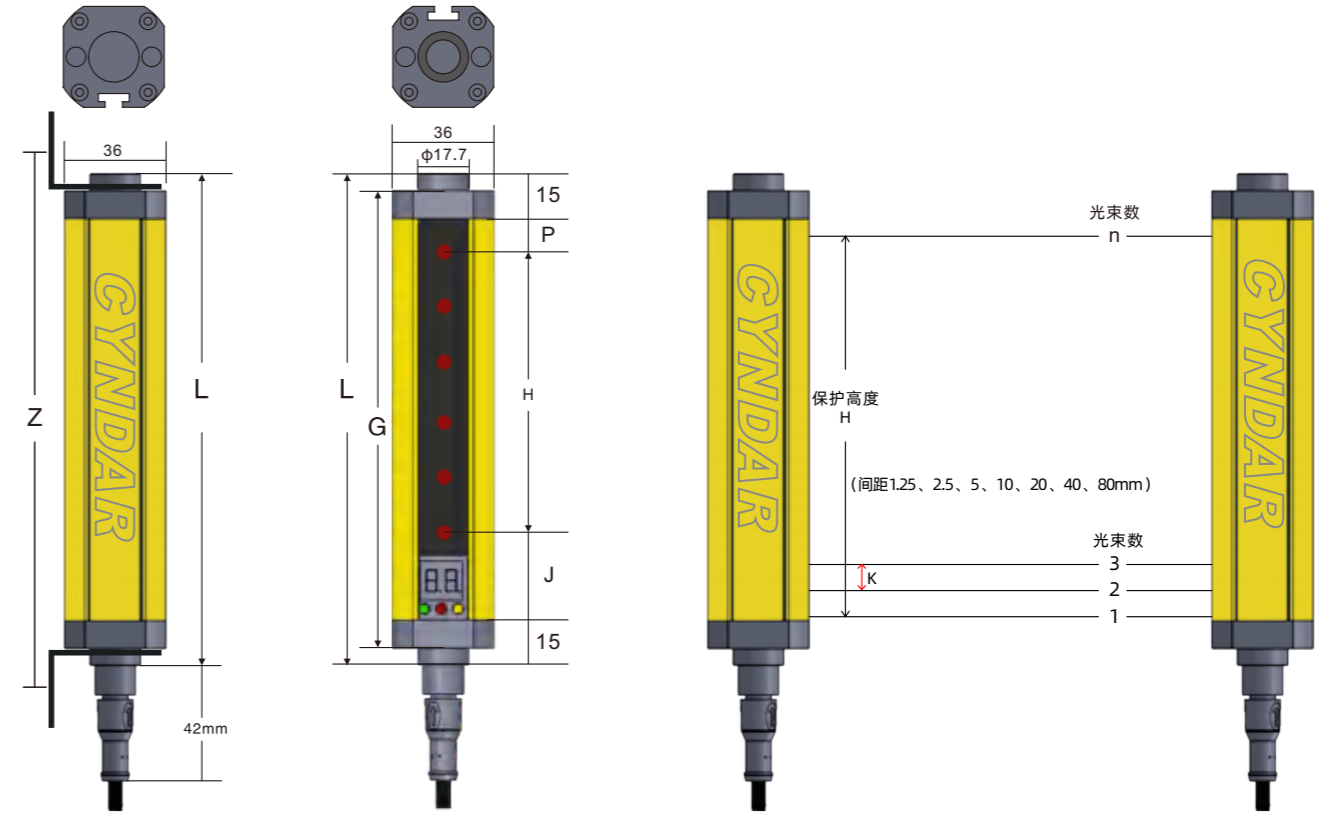


双边纠偏光幕 (含保护管)  
Bilateral polarization correction curtain (with protective tube)



双边纠偏光幕 (两套组合)  
Bilateral polarization correction curtain (two sets of combination)

### ◆ CLT外形尺寸 Dimensions



备注:  
Remarks

H = (n-1) \* K = 检测高度  
Detection height

L: 光幕总长度  
Total length of light screen

n: 光轴数  
Optical axis number

Z = L + 30mm = 上下直角架固定方式中心距离  
Center Distance of Fixed Mode of Upper and Lower Right Angle Frames

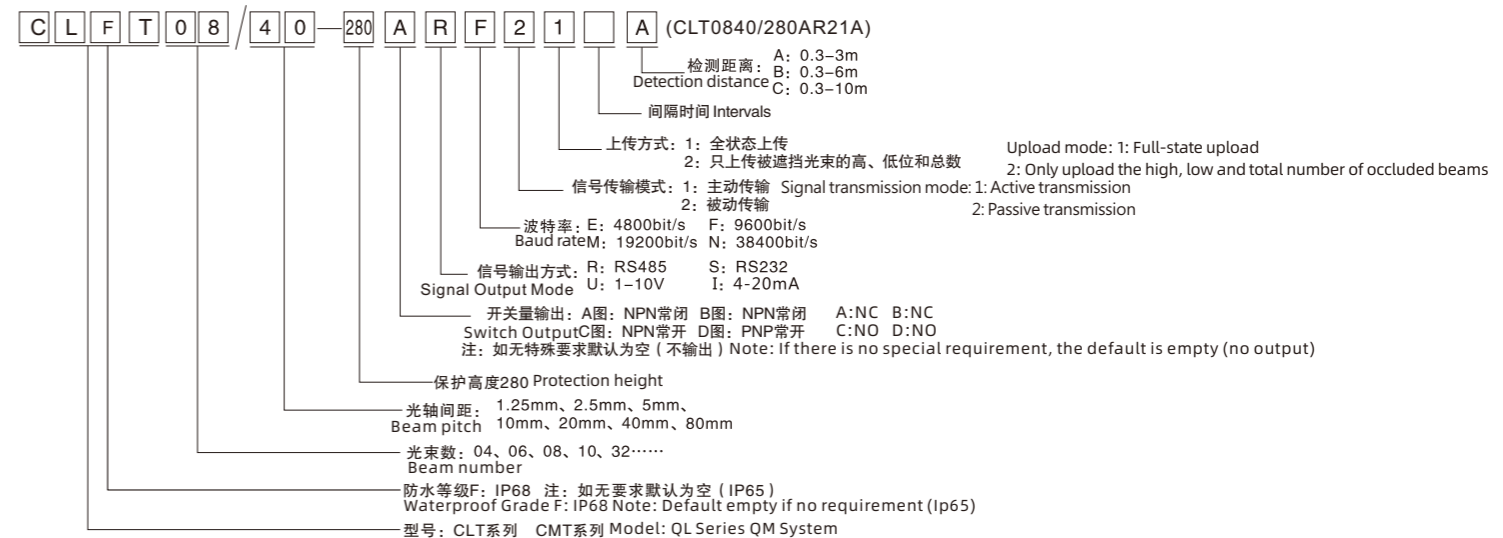
K: 光轴间距  
Optical axis spacing

L = P + H + J + 15mm + 15mm

K (mm)	2.5	5	10	20	40	80
P (mm)	1.25	2.5	5	10	10	10
J (mm)	25.75	27	29.5	34.5	34.5	35

### ◆ CLT型安全光幕规格表说明如下:

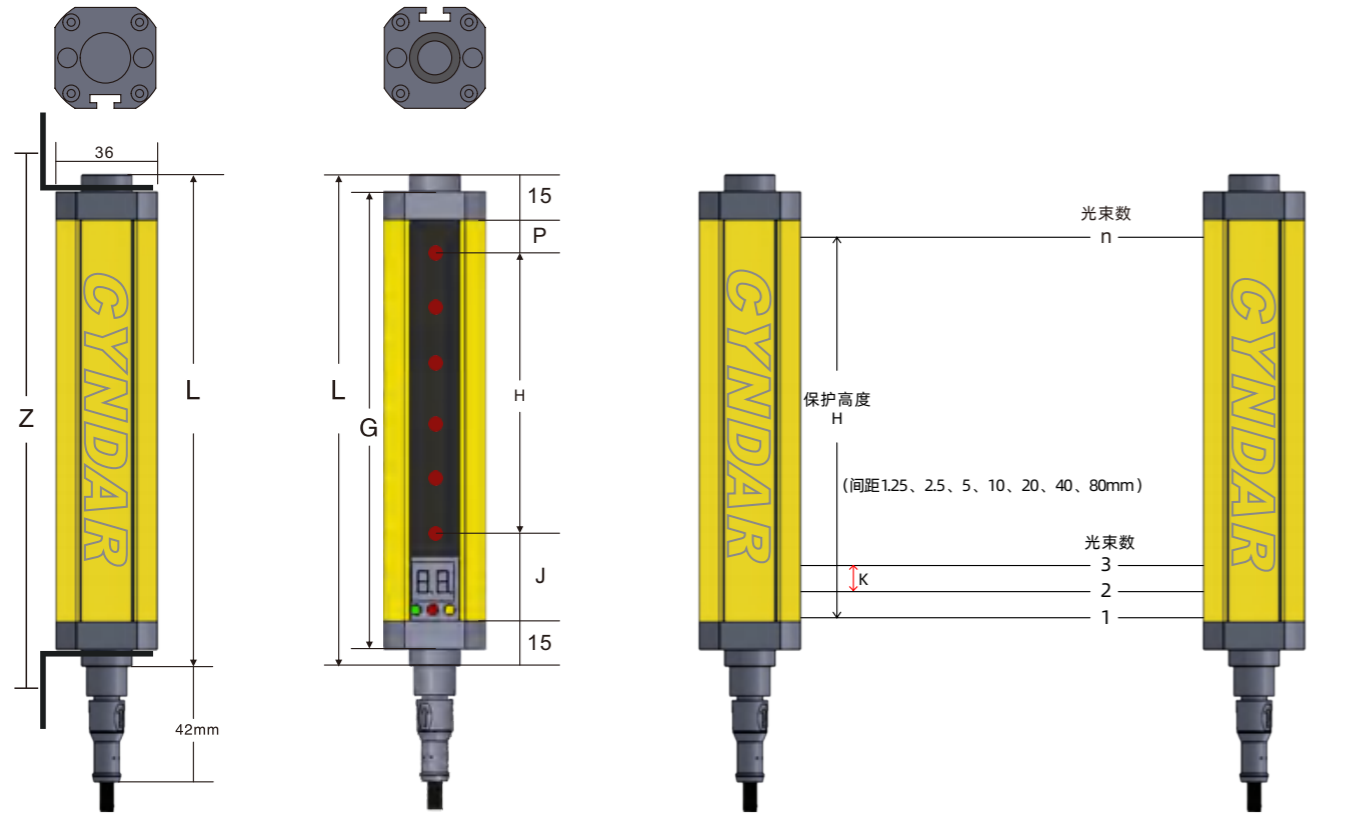
CLT ultra-thin safety light curtain specification sheet is as follows



例: CLT08/40-280ARA21: 测量光幕8光束40mm间距 保护高度280mm NPN常闭RS485输出 波特率9600bit/s 被动传输模式 全状态上传 检测距离3米。  
QL08/40-280ARA21A: Measure the protective height of 40mm spacing of 8 beams of light curtain 280 mm NPN NC Rs485 output baud rate 9600 bit/s passive transmission mode full-state upload detection distance of 3 meters.  
详细型号请见下一页规格表 Detailed models can be found on the next page.



## ◆ CMT外形尺寸 Dimensions



备注:  
Remarks

$H = (n-1) * K =$ 检测高度  
Detection height

L:光幕总长度  
Total length of light screen

n:光轴数  
Optical axis number

$Z = L + 30mm =$ 上下直角架固定方式中心距离  
Center Distance of Fixed Mode of Upper and Lower Right Angle Frames

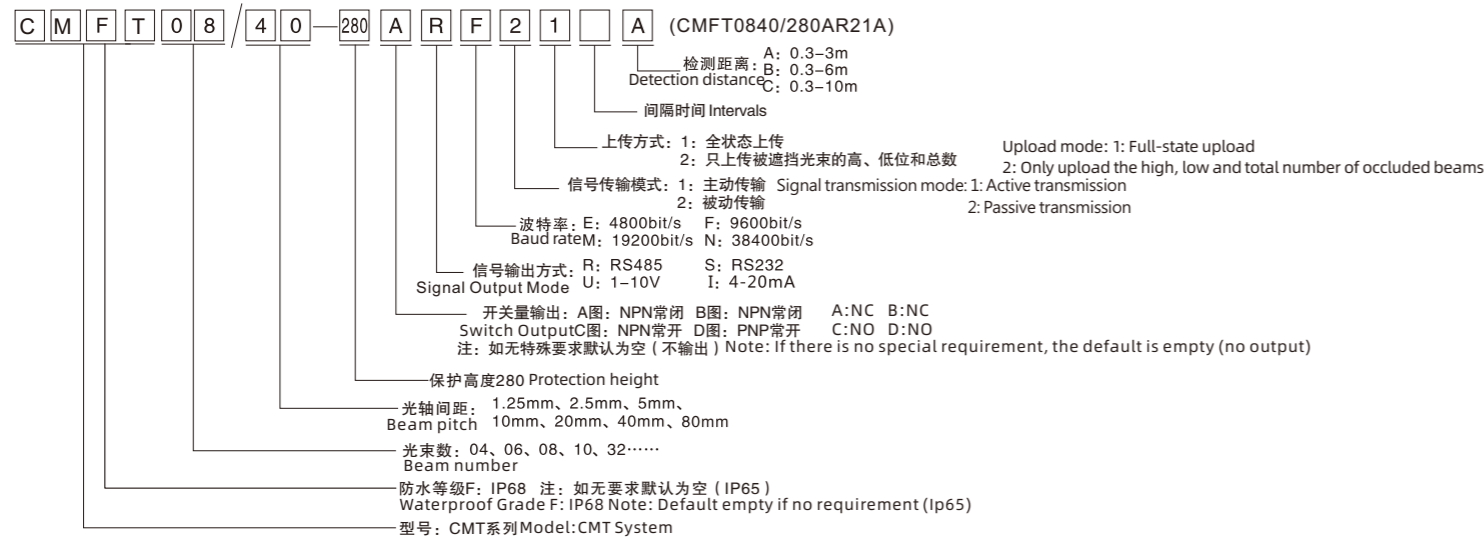
K:光轴间距  
Optical axis spacing

$L = P + H + J + 15mm + 15mm$

K (mm)	2.5	5	10	20	40	80
P (mm)	1	4	5	10	10	10
J (mm)	24	24	28	33	33	35

## ◆ CMT型安全光幕规格表说明如下:

CMT ultra-thin safety light curtain specification sheet is as follows

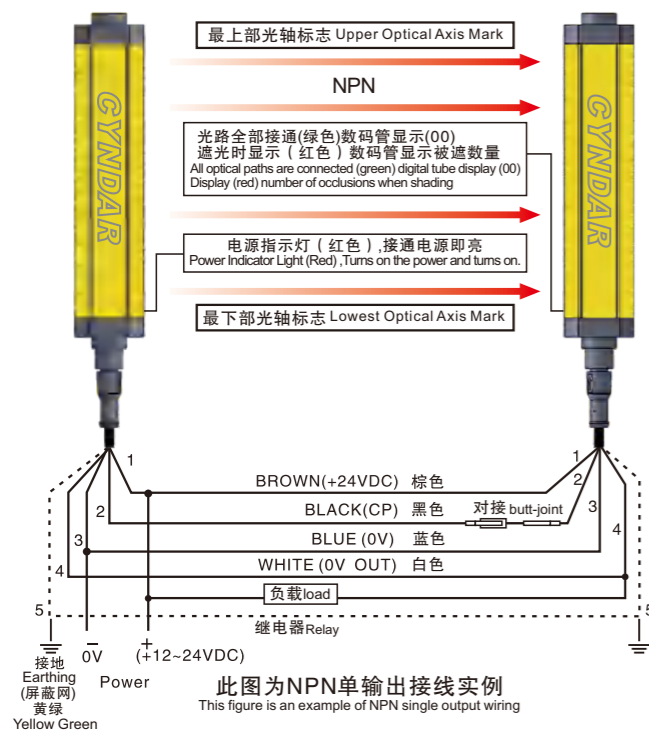


## ◆ CMT规格一览表 Specification List

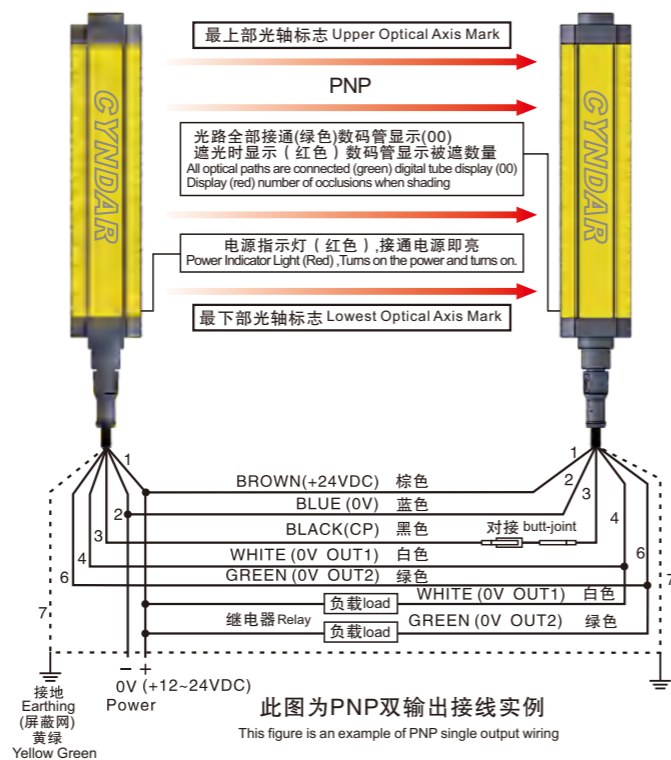
光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(L) Screen height	产品型号 Product model	信号输出方式 Signal output mode				检测距离 Detection distance	
					NPN	PNP	NPN	PNP		
1.25mm (K)	64	78.75	134.37	CMT64/1.25-78.75	A	B	C	D	0.3-3m	
	96	118.75	174.37	CMT96/1.25-118.75	A	B	C	D	0.3-3m	
	128	158.75	214.37	CMT128/1.25-158.75	A	B	C	D	0.3-3m	
	160	198.75	254.37	CMT160/1.25-198.75	A	B	C	D	0.3-3m	
	192	238.75	294.37	CMT192/1.25-238.75	A	B	C	D	0.3-3m	
	224	278.75	334.37	CMT224/1.25-278.75	A	B	C	D	0.3-3m	
	256	318.75	374.37	CMT256/1.25-318.75	A	B	C	D	0.3-3m	
	288	358.75	414.37	CMT288/1.25-358.75	A	B	C	D	0.3-3m	
	320	398.75	454.37	CMT320/1.25-398.75	A	B	C	D	0.3-3m	
	352	438.75	494.37	CMT352/1.25-438.75	A	B	C	D	0.3-3m	
	384	478.75	534.37	CMT384/1.25-478.75	A	B	C	D	0.3-3m	
	416	518.75	574.37	CMT416/1.25-518.75	A	B	C	D	0.3-3m	
	448	558.75	614.37	CMT448/1.25-558.75	A	B	C	D	0.3-3m	
	480	598.75	654.37	CMT480/1.25-598.75	A	B	C	D	0.3-3m	
	2.5mm (K)	32	77.5	132.5	CMT32/2.5-77.5	A	B	C	D	0.3-3m
		48	117.5	172.5	CMT48/2.5-117.5	A	B	C	D	0.3-3m
64		157.5	212.5	CMT64/2.5-157.5	A	B	C	D	0.3-3m	
80		197.5	252.5	CMT80/2.5-197.5	A	B	C	D	0.3-3m	
96		237.5	292.5	CMT96/2.5-237.5	A	B	C	D	0.3-3m	
112		277.5	332.5	CMT112/2.5-277.5	A	B	C	D	0.3-3m	
128		317.5	372.5	CMT128/2.5-317.5	A	B	C	D	0.3-3m	
144		357.5	412.5	CMT144/2.5-357.5	A	B	C	D	0.3-3m	
160		397.5	452.5	CMT160/2.5-397.5	A	B	C	D	0.3-3m	
176		437.5	492.5	CMT176/2.5-437.5	A	B	C	D	0.3-3m	
192		477.5	532.5	CMT192/2.5-477.5	A	B	C	D	0.3-3m	
208		517.5	572.5	CMT208/2.5-517.5	A	B	C	D	0.3-3m	
224		557.5	612.5	CMT224/2.5-557.5	A	B	C	D	0.3-3m	
480		1197.5	1252.5	CMT480/2.5-1197.5	A	B	C	D	0.3-3m	
5mm (K)		16	75	130	CMT16/5-75	A	B	C	D	0.3-3m
		32	155	210	CMT32/5-155	A	B	C	D	0.3-3m
	48	235	290	CMT48/5-235	A	B	C	D	0.3-3m	
	64	315	370	CMT64/5-315	A	B	C	D	0.3-3m	
	80	395	450	CMT80/5-395	A	B	C	D	0.3-3m	
	96	475	530	CMT96/5-475	A	B	C	D	0.3-3m	
	112	555	610	CMT112/5-555	A	B	C	D	0.3-3m	
	128	635	690	CMT128/5-635	A	B	C	D	0.3-3m	
	144	715	770	CMT144/5-715	A	B	C	D	0.3-3m	
	160	795	850	CMT160/5-795	A	B	C	D	0.3-3m	
	176	875	930	CMT176/5-875	A	B	C	D	0.3-3m	
	192	955	1010	CMT192/5-955	A	B	C	D	0.3-3m	
	208	1035	1090	CMT208/5-1035	A	B	C	D	0.3-3m	
	480	2395	2450	CMT480/5-2395	A	B	C	D	0.3-3m	
	10mm (K)	8	70	133	CMT08/10-70	A	B	C	D	0.3-3m
		10	90	153	CMT10/10-90	A	B	C	D	0.3-3m
12		110	173	CMT12/10-110	A	B	C	D	0.3-3m	
14		130	193	CMT14/10-130	A	B	C	D	0.3-3m	
16		150	213	CMT16/10-150	A	B	C	D	0.3-3m	
18		170	233	CMT18/10-170	A	B	C	D	0.3-3m	
20		190	253	CMT20/10-190	A	B	C	D	0.3-3m	
22		210	273	CMT22/10-210	A	B	C	D	0.3-3m	
24		230	293	CMT24/10-230	A	B	C	D	0.3-3m	
26		250	313	CMT26/10-250	A	B	C	D	0.3-3m	
28		270	333	CMT28/10-270	A	B	C	D	0.3-3m	
30		290	353	CMT30/10-290	A	B	C	D	0.3-3m	
32		310	373	CMT32/10-310	A	B	C	D	0.3-3m	
34		330	393	CMT34/10-330	A	B	C	D	0.3-3m	
20mm (K)		4	60	133	CMT04/20-60	A	B	C	D	0.3-3m
		6	100	173	CMT06/20-100	A	B	C	D	0.3-3m
	8	140	213	CMT08/20-140	A	B	C	D	0.3-3m	
	10	180	253	CMT10/20-180	A	B	C	D	0.3-3m	
	12	220	293	CMT12/20-220	A	B	C	D	0.3-3m	
	14	260	333	CMT14/20-260	A	B	C	D	0.3-3m	
	16	300	373	CMT16/20-300	A	B	C	D	0.3-3m	
	18	340	413	CMT18/20-340	A	B	C	D	0.3-3m	
	20	380	453	CMT20/20-380	A	B	C	D	0.3-3m	
	22	420	493	CMT22/20-420	A	B	C	D	0.3-3m	
	24	460	533	CMT24/20-460	A	B	C	D	0.3-3m	
	26	500	573	CMT26/20-500	A	B	C	D	0.3-3m	
	28	540	613	CMT28/20-540	A	B	C	D	0.3-3m	
	30	580	653	CMT30/20-580	A	B	C	D	0.3-3m	
	32	620	693	CMT32/20-620	A	B	C	D	0.3-3m	
	40mm (K)	4	120	193	CMT04/40-120	A	B	C	D	0.3-3m
6		200	273	CMT06/40-200	A	B	C	D	0.3-3m	
8		280	353	CMT08/40-280	A	B	C	D	0.3-3m	
10		360	433	CMT10/40-360	A	B	C	D	0.3-3m	
12		440	513	CMT12/40-440	A	B	C	D	0.3-3m	
14		520	593	CMT14/40-520	A	B	C	D	0.3-3m	
16		600	673	CMT16/40-600	A	B	C	D	0.3-3m	
18		680	753	CMT18/40-680	A	B	C	D	0.3-3m	
20		760	833	CMT20/40-760	A	B	C	D	0.3-3m	
22		840	913	CMT22/40-840	A	B	C	D	0.3-3m	
24		920	993	CMT24/40-920	A	B	C	D	0.3-3m	
26		1000	1073	CMT26/40-1000	A	B	C	D	0.3-3m	
28		1080	1153	CMT28/40-1080	A	B	C	D	0.3-3m	
30		1160	1233	CMT30/40-1160	A	B	C	D	0.3-3m	
32		1240	1313	CMT32/40-1240	A	B	C	D	0.3-3m	
80mm (K)		4	240	315	CMT04/80-240	A	B	C	D	0.3-3m
	6	400	475	CMT06/80-400	A	B	C	D	0.3-3m	
	8	560	635	CMT08/80-560	A	B	C	D	0.3-3m	
	10	720	795	CMT10/80-720	A	B	C	D	0.3-3m	
	12	880	955	CMT12/80-880	A	B	C	D	0.3-3m	
	14	1040	1105	CMT14/80-1040	A	B	C	D	0.3-3m	
	16	1200	1265	CMT16/80-1200	A	B	C	D	0.3-3m	
	18	1360	1425	CMT18/80-1360	A	B	C	D	0.3-3m	
	20	1520	1585	CMT20/80-1520	A	B	C	D	0.3-3m	
	...	...	...	...	A	B	C	D	0.3-3m	
	30	2320	2395	CMT30/80-2320	A	B	C	D	0.3-3m	
	32	2480	2555	CMT32/80-2480	A	B	C	D	0.3-3m	

备注:超出以上规格表的光束数可以另外注明,特殊规格可以另外订做。间距20-40mm的检测距离达4米以上请提前说明。  
Note: The number of beams exceeding the above specifications can be indicated separately. Special specifications can be customized separately. The distance between 20 and 40 mm is more than 4 meters. Please explain in advance.

### ◆ CMT五芯系列接线图 CMT 5-core Series Wiring Diagram



### ◆ CMT七芯系列接线图 CMT 7-core Series Wiring Diagram

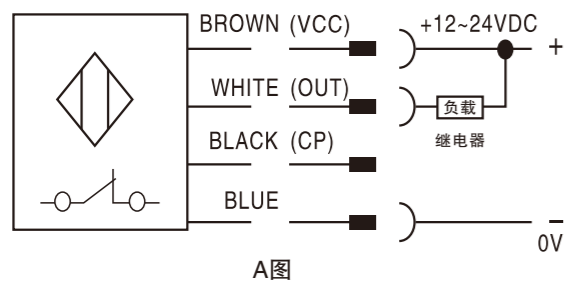


超快的响应时间为0.5ms  
Ultra-fast response time is 0.5ms

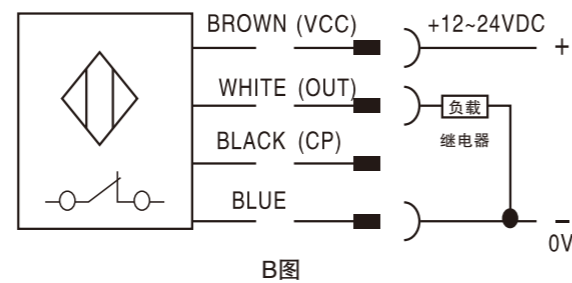
### ◆ CMT信号输出选择 (晶体管正常工作的实际输出)

CMT signal output selection (actual output of transistor working normally)

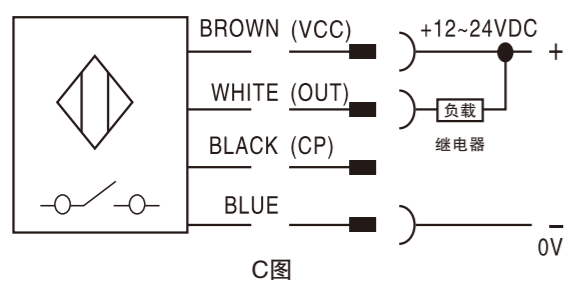
#### NPN(常闭)NC



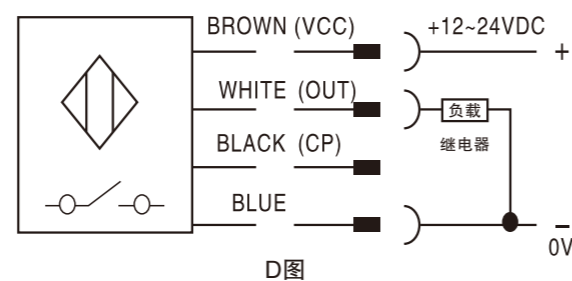
#### PNP(常闭)PC



#### NPN(常开)NO



#### PNP(常开)PO





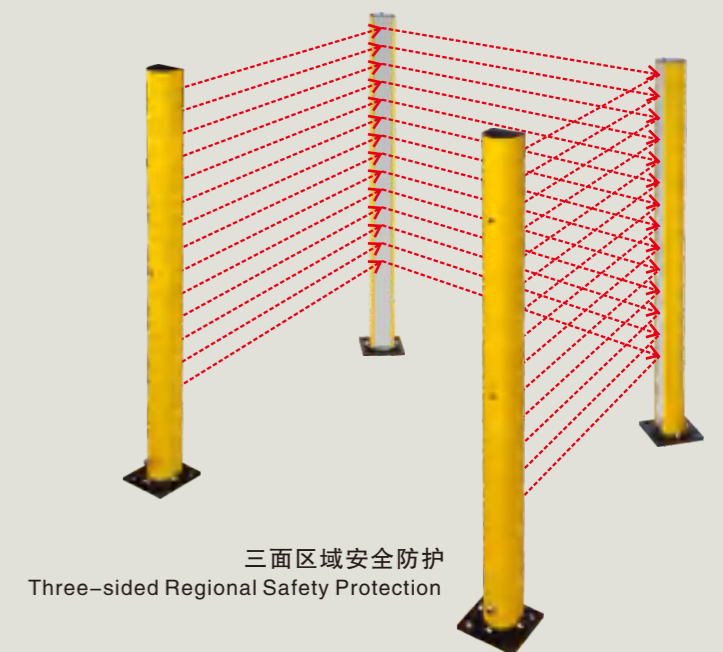
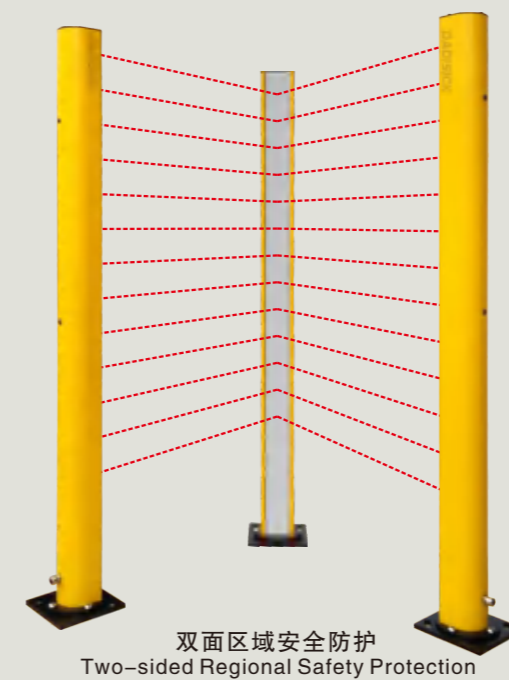


## 区域防护光栅-CSAT Area protection safety grating

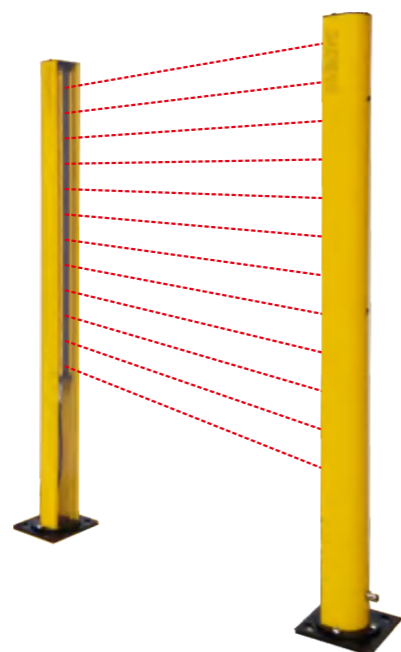
- 保护区域最大可达30米
- 超快响应速度（小于15ms）
- 能有效屏蔽99%干扰信号
- 极性、短路、过载保护、自检
- Protected area up to 30 meters
- Ultra-fast response speed (less than 15ms)
- Can effectively shield 99% of interference signals
- Polarity, short circuit, overload protection, self-check

广泛适用于转塔冲床、装配站、包装设备、码堆机、机器人工作区域等其他区域性包围防护危险场合。

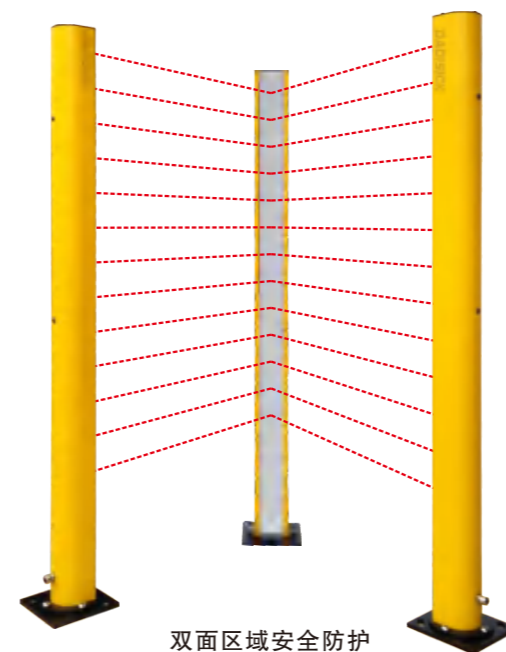
It is widely used in turret punch presses, assembly stations, packaging equipment, stackers, robot working areas and other regional surrounding and protection dangerous occasions.



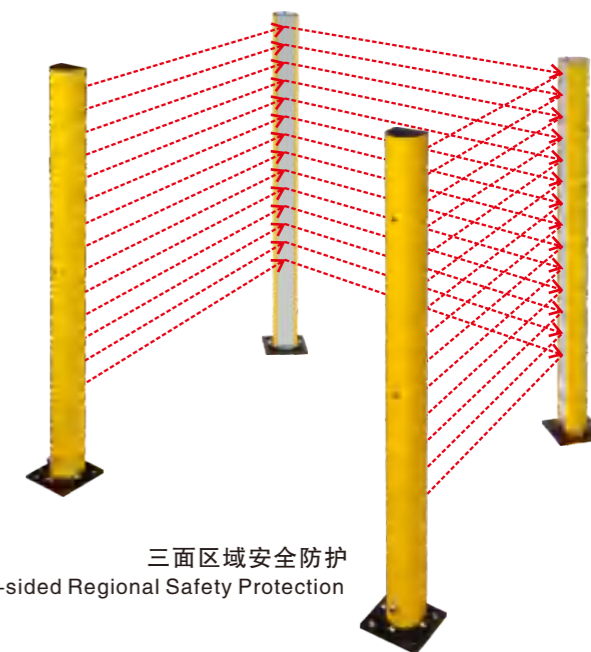
## CSAT系列区域安全防护光幕 CSAT Series Area Safety Protection Light Curtain



单面长距离安全防护  
One-sided Long-distance Safety Protection



双面区域安全防护  
Two-sided Regional Safety Protection



三面区域安全防护  
Three-sided Regional Safety Protection

CSAT系列光电保护装置是利用反射镜，改变光线的传输方向，形成2面或3面的保护区域

光幕形式：区域防护

光轴间距：40mm、80mm

保护距离：2面 $\leq 20000\text{mm}$ ，3面 $\leq 15000\text{mm}$

保护高度：120~1240mm为常规产品

CSAT series optoelectronic protective devices use mirrors to change the direction of light transmission and form two or three-sided protected areas.

Light curtain form: regional protection

Optical Axis Spacing: 40mm, 80mm

Protective distance: 2 planes  $\leq 20000\text{mm}$ , 3 planes  $\leq 15000\text{mm}$

Protective Height: 120-1240mm for Conventional Products

产品组成：

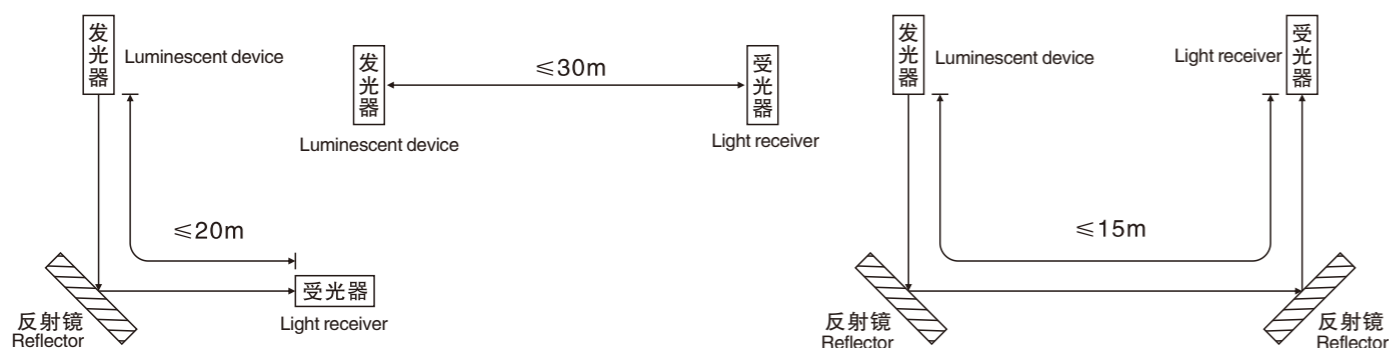
2面保护：发光器1支，反射镜1支，受光器1支，控制器1只，信号电缆2根，安装附件1套。

3面保护：发光器1支，反射镜2支，受光器1支，控制器1只，信号电缆2根，安装附件1套。

Product composition:

2-side protection: 1 light-emitting device, 1 reflector, 1 light-receiving device, 1 controller, 2 signal cables and 1 set of accessories.

3-sided protection: 1 light-emitting device, 2 mirrors, 1 light-receiving device, 1 controller, 2 signal cables and 1 set of accessories.



外置控制器QSW (可选配)  
External Controller QSW

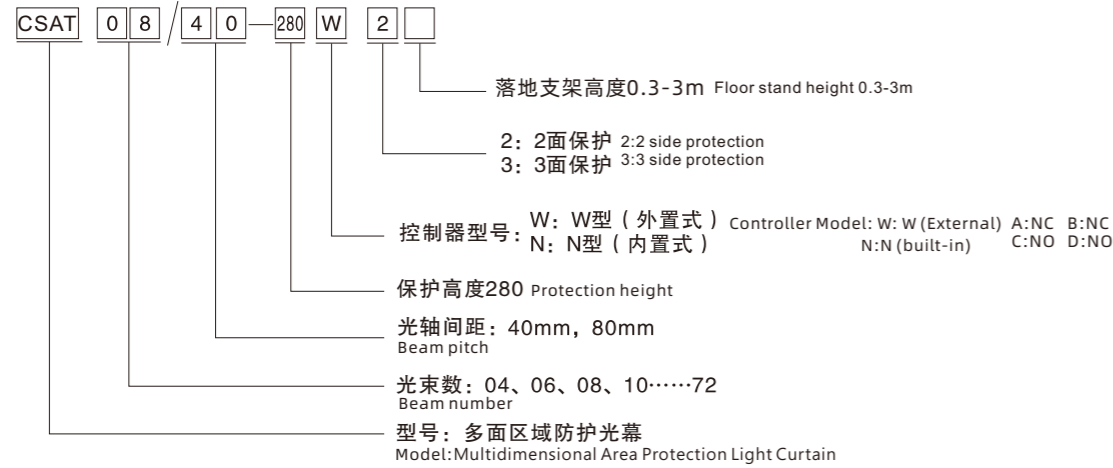
### ◆ 应用领域 Application area

- |                                |  |                                       |  |
|--------------------------------|--|---------------------------------------|--|
| ● 转塔冲床<br>Turret punch press   | ● 装配站<br>Assembly station                  | ● 物流处理区域<br>Logistics processing area | ● 包装设备<br>Packaging equipment                                  |
| ● 码堆机<br>Code stacking machine | ● 自动生产设备<br>Automatic production equipment | ● 机器人工作区域<br>Robot working area       | ● 其他危险区域周边防护<br>Peripheral protection of other dangerous areas |

### ◆ 产品特点 Product characteristics

- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
- ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
- ★ 安装调试方便，配线简单，外形美观；
- ★ 采用表面贴装技术，防震性能优越；
- ★ 符合国际电工学会IEC61496-1/2标准安全等级，TUV的CE认证；
- ★ 响应时间短（ $\leq 15\text{ms}$ ），安全可靠性能高；
- ★ 结构简单，接线方便，安全传感器可以通过航空插座与电缆线(M12)链接；
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ 可提供双路NPN或PNP输出，此时用户应保证机械设备的后续控制电路安全可靠。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short ( $\leq 15\text{ms}$ ), and the safety and reliability performance is high.
- ★ The safety sensor can be connected to the cable line (M12) through an aviation socket, because of its simple structure and convenient wiring.
- ★ All electronic components adopt world-renowned brand accessories.
- ★ Double NPN or PNP output can be provided. At this time, users should ensure that the follow-up control circuit of mechanical equipment is safe and reliable.

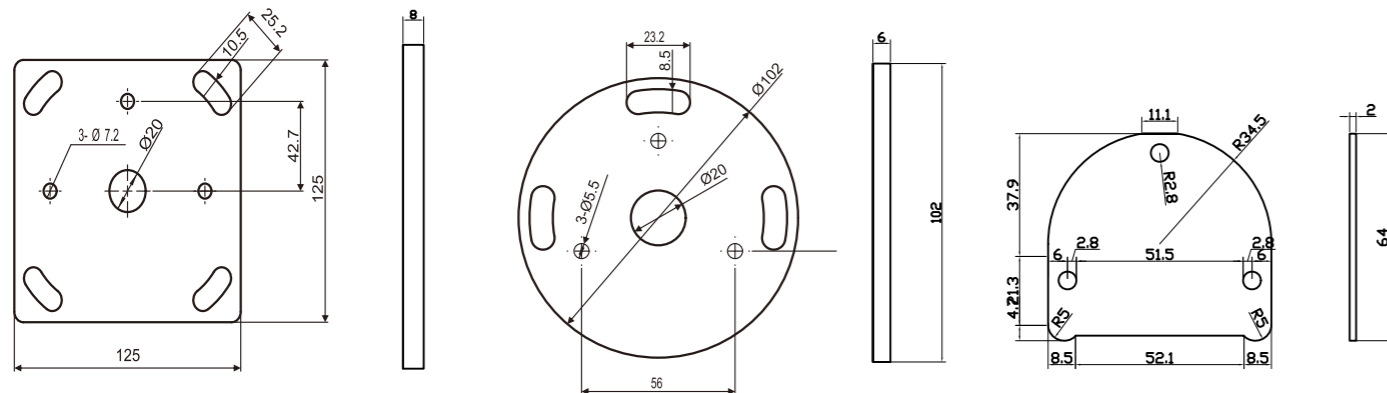
## ◆ 规格表说明 Specification



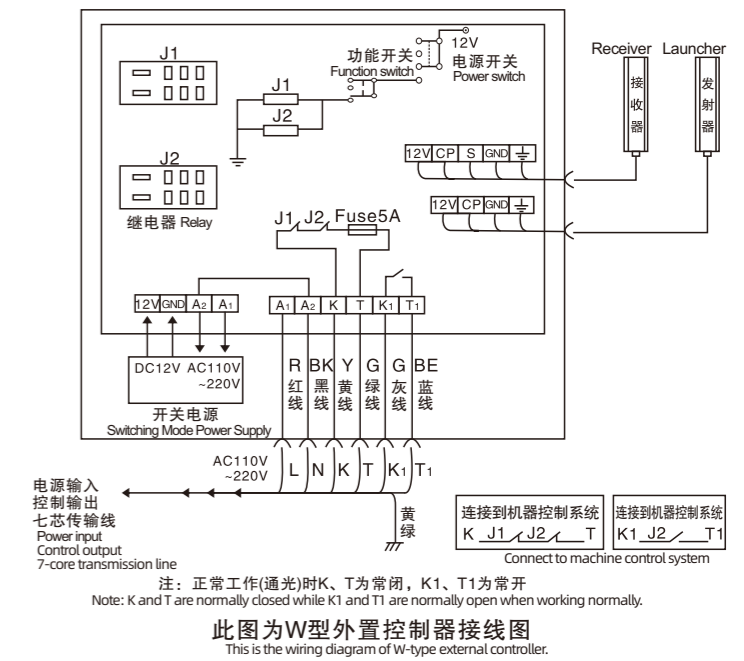
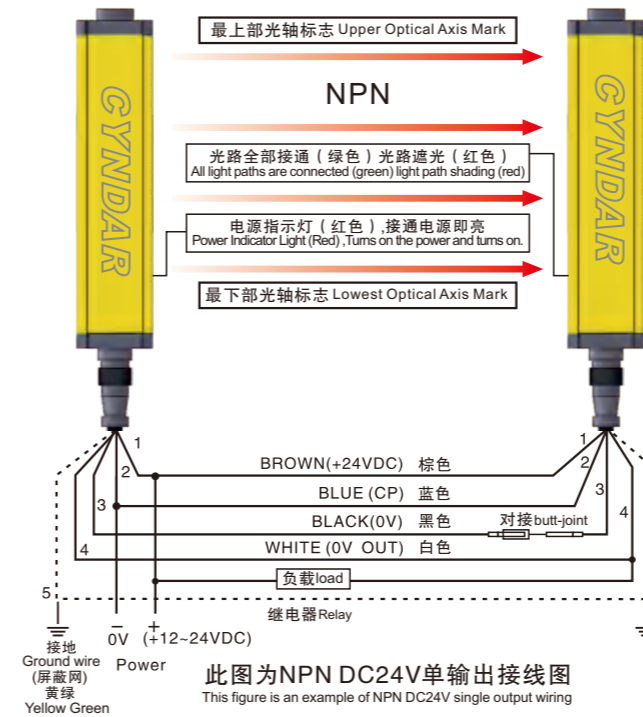
## ◆ 产品技术参数 Technical parameters of products

工作电源 Working power supply	AC220V/110V ± % 50/60Hz 或DC24V
输出触点容量 Output Contact Capacity	AC250V5A
功耗Power waste	≤15W
适用温度Applicable temperature	-10℃~50℃
环境温度 Ambient temperature	20℃, RH≤85%
响应时间 Response Time	<15ms (含控制器Containing controller)
绝缘电阻 Insulation Resistance	>100MΩ
介电强度 Dielectric strength	AC150V, 60s
抗光干扰 Anti light interference	10000Lux(入射角Incidence angle ≥ 5°)
继电器寿命 Relay life	≥100万次(可更换) 1 million times (replaceable)
保护高度 Height of protection	H=光轴间距Beam pitch X (光束数Beam number-1)
光轴间距 Beam pitch	40mm,80mm
保护距离 Protection distance	2面sides≤20000mm, 3面sides≤15000mm

## ◆ 外型尺寸 Outline size



## ◆ 接线图 Wiring diagram



## ◆ 规格一览表 List of specifications

光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	反射镜高度mm(J) Screen height
40mm (K)	4	120	201	CSAT04/40-120	351
	6	200	281	CSAT06/40-120	431
	8	280	361	CSAT08/40-120	511
	10	360	441	CSAT10/40-120	591
	12	440	521	CSAT12/40-120	671
	14	520	601	CSAT14/40-120	751
	16	600	681	CSAT16/40-120	831
	18	680	761	CSAT18/40-120	911
	20	760	841	CSAT20/40-120	991
	22	840	921	CSAT22/40-120	1071
	24	920	1001	CSAT24/40-120	1151
	26	1000	1081	CSAT26/40-120	1231
	28	1080	1161	CSAT28/40-120	1311
	30	1160	1241	CSAT30/40-120	1391
	32	1240	1321	CSAT32/40-120	1471
	80mm (K)	4	240	341	CSAT04/80-240
6		400	501	CSAT06/80-400	651
8		560	661	CSAT08/80-560	811
10		720	821	CSAT10/80-720	971
12		880	981	CSAT12/80-880	1131
14		1040	1141	CSAT14/80-1040	1291
16		1200	1301	CSAT16/80-1200	1451
18		1360	1461	CSAT18/80-1360	1611
20		1520	1621	CSAT20/80-1520	1771
22		1680	1781	CSAT22/80-1680	1931
24		1840	1941	CSAT24/80-1840	2091
26		2000	2101	CSAT26/80-2000	2251
28		2160	2261	CSAT28/80-2160	2411
30		2320	2421	CSAT30/40-2320	2571
32		2480	2581	CSAT32/40-2480	2731

备注: 需要其他规格配落地支架可以参照各系列规格表  
Note: If other specifications are needed, the ground support can be referred to the specifications of each series.

## ▶ QSMT车辆分离光幕-QSMT QSMT vehicle separation light curtain

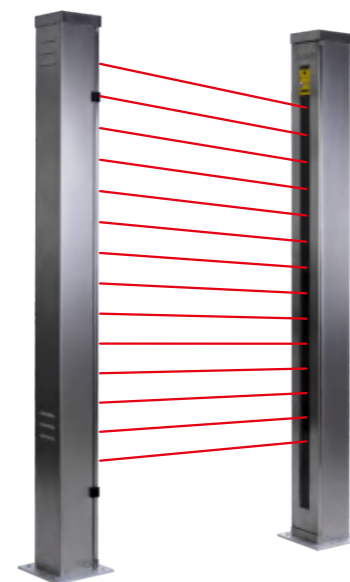
- 国际IP67级防水不锈钢外罩
- 自动加热、低温湿度自动控制
- 超快响应速度(小于15ms)
- 能有效屏蔽99%干扰信号
- International IP67 waterproof stainless steel housing
- Automatic heating, automatic control of low temperature and humidity
- Ultra-fast response speed (less than 15ms)
- Can effectively shield 99% of interference signals

广泛适用于智能交通系统、不停车收费系统、公路计重系统、公路收费系统、超限检测系统等其他场合。

It is widely used in other occasions such as intelligent transportation system, non-stop toll collection system, highway weighing system, highway toll collection system, overrun detection system, etc.



## QSMT系列车辆分离光幕 QSMT Series Vehicle Separation Curtain



### ◆ 产品配置: Product configuration

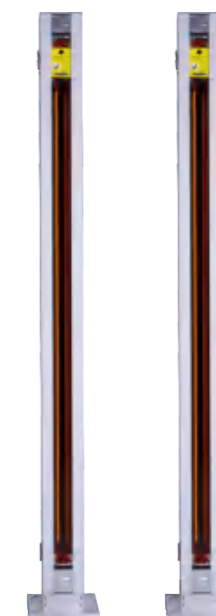
- 1.发射器和接收器: 发射器内置线性排列的高能量发光元件, 接收器内置与发射器数量相同的接收元件, 发射器和接收器的对应光电元件依次按顺序同步触发, 检测光路是否导通, 当汽车通过扫描区域时, 部分或全部光束被遮挡, 因而被检测出。
- 2.控制单元: 读取并处理发射器/接收器的同步扫描信号, 同时检测光幕工作状态, 提供多种输出信号, 如: 开关量输出, 串口输出或模拟量输出。考虑到系统可靠性和安装的简便性, 市场上普遍使用的车辆分离光幕都是控制器内置的两箱式产品, 而没有独立的外置控制器。
- 3.电缆线: 连接发射器/接收器与控制器的接插电缆, 默认长度为5m。
- 4.防护外罩: 为不锈钢或铝合金材料, 为分离器提供防护, 内置电加热玻璃, 温度控制器, 湿度控制器, 在湿度过高, 温度过低时实现自动加热, 以保证车辆分离器在潮湿地区, 雨雪天气, 寒冷季节可靠使用。

### Product configuration:

1. Transmitters and receivers: Transmitters have linearly arranged high-energy light-emitting elements, receivers have the same number of receiving elements as transmitters. The corresponding optoelectronic elements of transmitters and receivers are triggered synchronously in sequence to detect whether the light path is on or not. When the car passes through the scanning area, some or all of the beams are occluded and thus detected.
2. Control Unit: Read and process the synchronous scanning signal of transmitter/receiver, detect the working state of the light screen, and provide a variety of output signals, such as switching output, serial output or analog output. Considering the reliability of the system and the convenience of installation, the vehicle separating light curtain commonly used in the market is a two-box product built in the controller, but there is no independent external controller.
3. Cable: Connect the cable between transmitter/receiver and controller. The default length is 5m.
4. Protective cover: for stainless steel or aluminium alloy materials, to provide protection for separators, built-in electric heating glass, temperature controller, humidity controller, when the humidity is too high, the temperature is too low to realize automatic heating, in order to ensure the reliable use of vehicle separators in wet areas, rain and snow weather, cold season.

### ◆ 产品特点: Product characteristics

- 1.集成化设计、无需控制器, 简单易用;
- 2.光幕高度: 60mm-2840mm;
- 3.光幕间距: 10、14、20、25、30、40、80mm七种, 其他间距可以定做;
- 4.检测距离: 0-5m、0-10m、0-30m
- 5.LED指示灯可显示光幕的工作状态及故障状态;
- 6.双NPN输出:
  - #输出1: 车辆检测信号输出;
  - #输出2: 光幕故障报警输出;
- 7.运用独特算法, 使光幕只检测150mm以上的物体, 同时具有1mm的分辨率, 既可以避免由阳光、飞鸟、蚊虫及污泥引起的误动作, 也可以可靠检测车辆挂钩;
- 8.自动检测故障, 并忽略(屏蔽)有问题的光束, 仍能保持正常工作, 同时输出报警信号;
- 9.使用高能量、高穿透率光电管, 便于安装维护;
- 10.可以实现车辆自动分离、计数、存在检测、分类检测、确定车头时距;
- 11.完全消除跟车现象, 将半挂车、全挂车、单车可靠分离;
- 12.专用防护外壳使用坚固的铝型材制成, 保证车辆分离光幕可靠用于室外的恶劣环境;
- 13.使用温度: -10℃--55℃; 环境温度: RH≤85℃(20℃)。



Product characteristics:

1. Integrated design, no controller, simple and easy to use.
2. Light curtain height: 60mm-2840mm;
3. Light screen spacing: 10, 14, 20, 25, 30, 40, 80 mm, other spacing can be customized;
4. Detection distance: 0-5m, 0-10m, 0-130m;
5. The LED indicator can display the working state and failure state of the light screen.
6. Dual NPN output:  
# Output 1: Vehicle detection signal output;  
# Output 2: Output of light screen fault alarm;
7. Using a unique algorithm, the light curtain can detect only objects over 150 mm with a resolution of 1 mm, which can avoid the misoperation caused by sunlight, birds, mosquitoes and sludge, and also can reliably detect vehicle hooks.
8. Automatically detect faults and ignore (shield) faulty beams, still can maintain normal operation, while outputting alarm signals;
9. Use high-energy and high-penetration photovoltaic cells for easy installation and maintenance.
10. Automatic separation, counting, presence detection, classification detection and determination of headway can be realized.
11. Completely eliminate the phenomenon of car-following and reliably separate semi-trailer, full-trailer and bicycle.
12. The special protective shell is made of solid aluminium profiles to ensure that the vehicle light separation screen is reliably used in outdoor harsh environment.
13. Applicable temperature: -10℃--55℃; Environmental humidity: RH≤85% ( 20℃ ) .



### ◆ 工作原理 Working principle

车辆分离光幕的工作原理是通过线性排列的红外光发射和接收来实现对车辆的同步扫描，并将光信号转换为电信号，从而实现对车辆数据的综合检测，与其他检测技术相比，红外线车辆检测产品技术成熟，安装简便，高速响应，抗干扰性强，可输出丰富的车辆技术信息，能可靠检测各种特殊车辆。红外线车辆扫描系统主要用于：一般公路收费站、不停车收费系统（ETC）、自动车辆分类系统（AVC）、公路计重收费系统（WIM）、固定式超限检测站，海关车辆管理系统等。

The working principle of the vehicle separation light curtain is to realize synchronous scanning of the vehicle through linearly arranged infrared light transmission and reception, and convert the optical signal into an electrical signal, thereby realizing comprehensive detection of vehicle data, compared with other detection technologies. Infrared vehicle detection products are mature in technology, easy to install, high-

speed response, strong anti-interference, can output a wealth of vehicle technical information, and can reliably detect various special vehicles. Infrared vehicle scanning system is mainly used for: general road toll station, non-stop toll collection system (ETC), automatic vehicle classification system (AVC), highway weight collection system (WIM), fixed over-limit detection station, customs vehicle management system, etc..

### ◆ 防护外罩技术参数： Technical parameters of protective cover

加热电源 Heating power supply	24V 10A
主温控器 Main thermostat	盘式封装 闭合温度4℃ 断开温度29℃ Disc package Closing temperature 4℃ Disconnecting temperature 29℃
备用温控器 Standby thermostat	盘式封装 闭合温度55℃ 断开温度36℃ Closure temperature of disc packaging 55℃ and disconnection temperature 36℃
湿度开关 Humidity switch	机械式尼龙膜触发开关 相对湿度 20-80% Relative humidity of mechanical nylon membrane trigger switch is 20-80%.
状态指示灯 Status indicator	加热部件启动时，前部的红色LED灯发光 Red LED light in front of heater when starting.
温度范围 temperature range	正常工作温度-20℃—+70℃ Normal operating temperature -20℃+70℃.
结构 structure	外壳：不锈钢或铝合金，窗口：加热玻璃 Shell: stainless steel or aluminium alloy, window: heated glass
防护等级 Protection level	NEMA 3R (IEC IP54)

### ◆ 防护外罩 Protective cover

为不锈钢和冷钢板喷塑材料，为光幕提供防护，内置电加热玻璃、温度控制器，湿度控制器，在湿度过高，温度过低时实现自动加热，以保证车辆分离光幕在潮湿地区，雨雪天气，寒冷季节可靠使用。

广泛应用于智能交通系统，公路收费系统，不停车收费系统，公路计重系统，超限检测系统及其它交通控制系统中。

Spray plastic material for stainless steel and cold steel plate, provide protection for light curtain, built-in electric heating glass, temperature controller, humidity controller, realize automatic heating when humidity is too high and temperature is too low, in order to ensure the reliable use of vehicle separation light curtain in wet areas, rain and snow weather, cold season. It is widely used in intelligent transportation system, highway toll collection system, non-stop toll collection system, highway weighing system, over-limit detection system and other traffic control systems. Use of vehicle separators in wet areas, rain and snow weather, cold season.

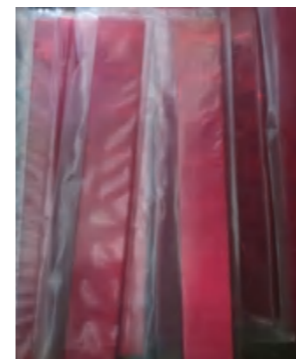
- ◆ 专门用于检测光幕安装于户外时使用，保护光幕不受撞击损坏；
- ◆ 内置电加热玻璃，可自动加热；
- ◆ 内部温度自动控制，当潮湿或雨雾汽较大时，自动清除玻璃表面的雨雪；
- ◆ 箱体材料：不锈钢，冷轧钢板，铝合金等；
- ◆ 防雾玻璃：电热丝加丝安全钢化玻璃，功率200W/套，电源为24VDC；
- ◆ 湿度低于0℃开始加热（可现场设定）；湿度高于96%时开始加热（可现场设定）
- ◆ 过热保护控制：湿度高于45℃时断开加热

- ◆ It is specially used for detecting the light curtain when it is installed outdoors to protect the light curtain from impact damage.
- ◆ Built-in electric heating glass can be automatically heated.
- ◆ Internal temperature automatic control, when wet or heavy rain and fog vapor, automatic removal of snow and rain on the glass surface;
- ◆ Box material: stainless steel, cold rolled steel plate, aluminum alloy, etc.
- ◆ Antifogging glass: electric heating wire plus wire safety tempered glass, power 200W/set, power supply 24VDC;
- ◆ Start heating when humidity is below 0℃ (can be set on site); start heating when humidity is above 96% (can be set on site);
- ◆ Overheat protection control: disconnect heating when humidity is higher than 45℃.



序号 Serial number	型号 Model	外形长度 Shape length	窗口长度 Window length	可配套光幕 Matching light curtain
1	QLVF-1.6	1600mm	1280mm	检测高度1280mm以下光幕 Detection height below 1280mm light screen
2	QLVF-1.8	1800mm	1600mm	检测高度1440mm以下光幕 Detection height below 1440mm light screen

### ◆ 光电反光板(反光片、反射板) Photoelectric reflector (reflector)



45 × 310mm

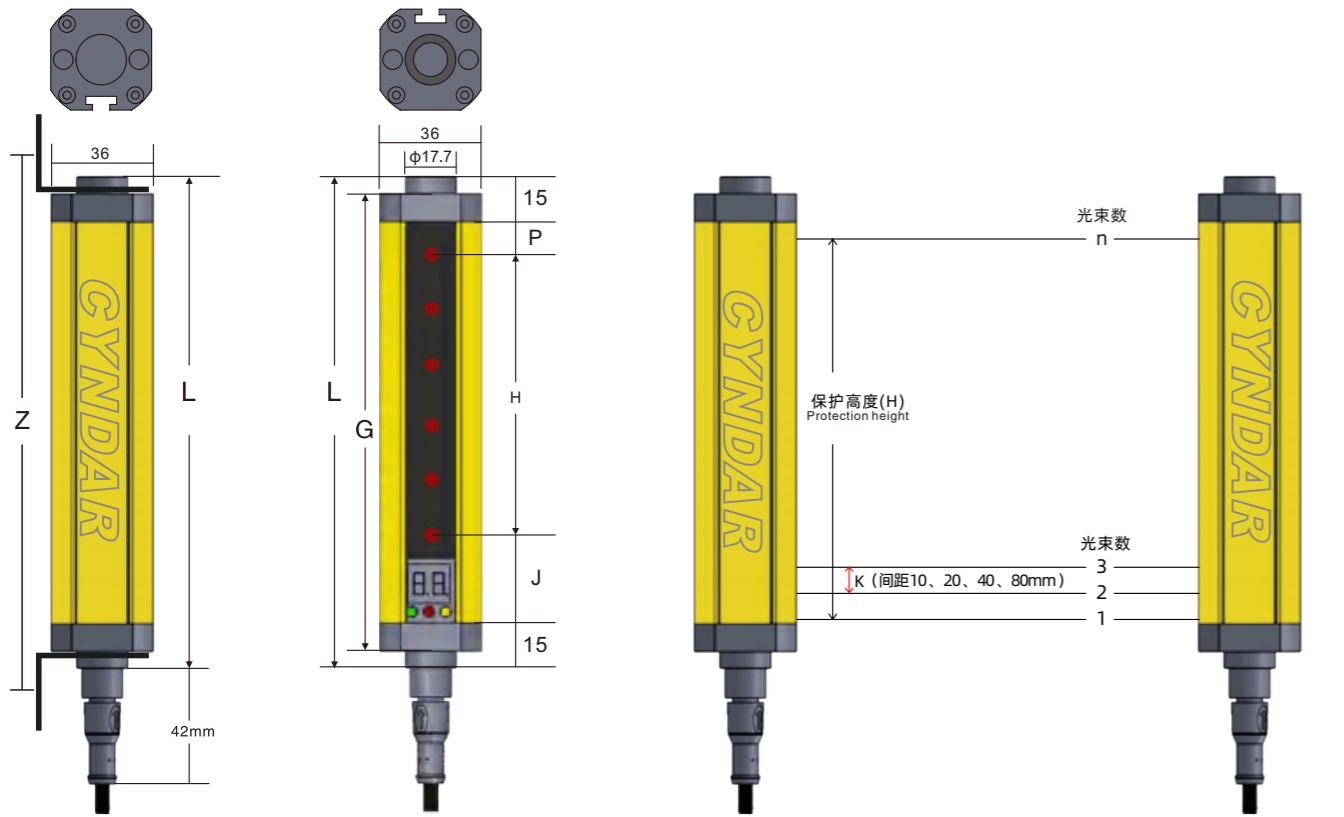


55 × 350mm

本公司的反射板(反光片)种类规格齐全(55×300、55×350、55×任意长度、45×310、45×任意长度，反光膜1.22米×任意长度等等)，所有材质全部采用进口材料，质量保证(如果有质量问题，三包，所发生的运输费用由我方负责)。我们是一家规格齐全的光电感应器及光电材料供应商，产品被广泛运用于特殊场所，本产品应用于日本“理研”“小森”光电保护器及科力、莱恩国产保护器反射装置。

The company's reflectors (reflective sheets) have a complete range of specifications (55×300, 55×350, 55×arbitrary length, 45×310, 45×arbitrary length, reflective film 1.22m×arbitrary length, etc.), all materials are used Imported materials, quality assurance (if there are quality problems, three guarantees, the transportation costs incurred will be borne by us). We are a supplier of photoelectric sensors and photoelectric materials with complete specifications. The products are widely used in special places. This product is used in Japan's "Riken" and "Komori" photoelectric protectors and Keli and Lion's domestic protector reflectors.

## ◆ QSMT外形尺寸 Dimensions



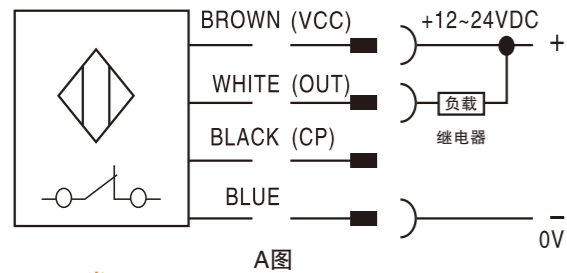
**备注:**  
Remarks  
H = (n - 1) \* K = 检测高度  
Detection height  
L: 光幕总长度  
Total length of light screen  
n: 光轴数  
Optical axis number  
Z = L + 30mm = 上下直角架固定方式中心距离  
Center Distance of Fixed Mode of Upper and Lower Right Angle Frames  
K: 光轴间距  
Optical axis spacing  
L = P + H + J + 15mm + 15mm

K (mm)	10	20	40	80
P (mm)	5	10	10	10
J (mm)	28	33	33	33

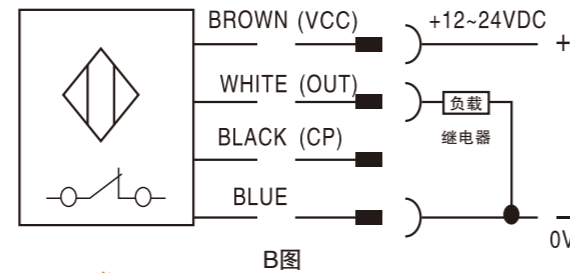
## ◆ QSMT信号输出选择 (晶体管正常工作的实际输出)

QSMT signal output selection (actual output of transistor working normally)

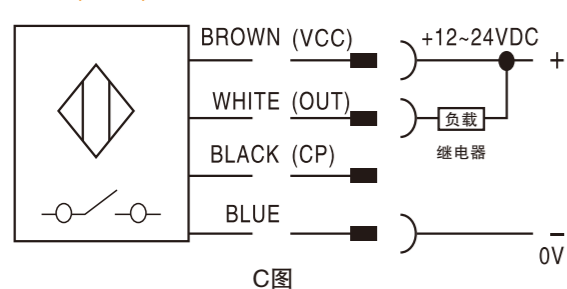
### NPN(常闭)NC



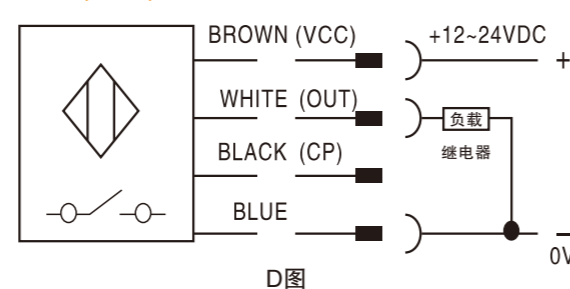
### PNP(常闭)PC



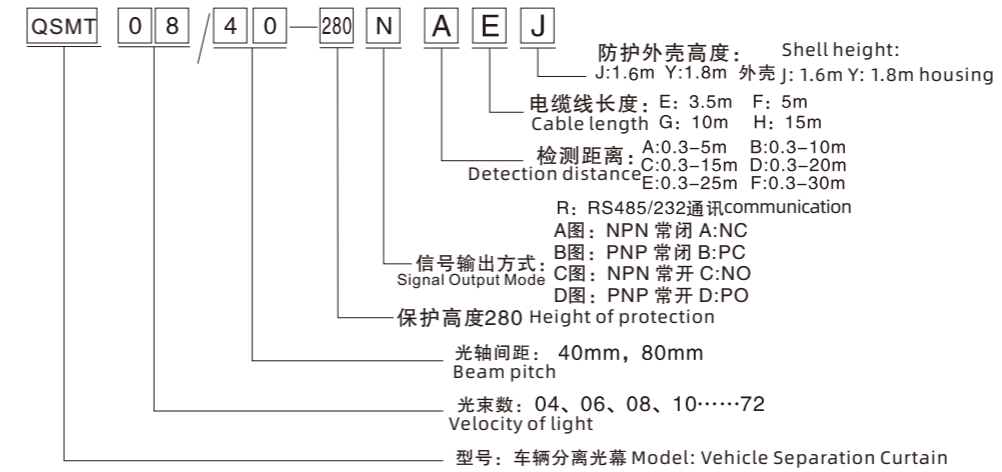
### NPN(常开)NO



### PNP(常开)PO



## ◆ 规格表说明 Specification



## ◆ QSMT规格一览表 Specification List

光轴间距 Beam pitch	光束数 Light beam	保护高度mm(H) Protection height	光幕高度mm(l) Screen height	产品型号 Product model	信号输出方式 Signal output mode					检测距离 Detection distance	
					RS485	NPN	PNP	NPN	PNP		
10mm (K)	8	70	133	QSMT08/10-70	R	A	B	C	D	0.3-5m	
	10	90	153	QSMT10/10-90	R	A	B	C	D	0.3-5m	
	12	110	173	QSMT12/10-110	R	A	B	C	D	0.3-5m	
	14	130	193	QSMT14/10-130	R	A	B	C	D	0.3-5m	
	16	150	213	QSMT16/10-150	R	A	B	C	D	0.3-5m	
	18	170	233	QSMT18/10-170	R	A	B	C	D	0.3-5m	
	20	190	253	QSMT20/10-190	R	A	B	C	D	0.3-5m	
	22	210	273	QSMT22/10-210	R	A	B	C	D	0.3-5m	
	24	230	293	QSMT24/10-230	R	A	B	C	D	0.3-5m	
	26	250	313	QSMT26/10-250	R	A	B	C	D	0.3-5m	
	28	270	333	QSMT28/10-270	R	A	B	C	D	0.3-5m	
	30	290	353	QSMT30/10-290	R	A	B	C	D	0.3-5m	
	32	310	373	QSMT32/10-310	R	A	B	C	D	0.3-5m	
	34	330	393	QSMT34/10-330	R	A	B	C	D	0.3-5m	
	20mm (K)	4	60	133	QSMT04/20-60	R	A	B	C	D	0.3-5m
		6	100	173	QSMT06/20-100	R	A	B	C	D	0.3-5m
8		140	213	QSMT08/20-140	R	A	B	C	D	0.3-5m	
10		180	253	QSMT10/20-180	R	A	B	C	D	0.3-5m	
12		220	293	QSMT12/20-220	R	A	B	C	D	0.3-5m	
14		260	333	QSMT14/20-260	R	A	B	C	D	0.3-5m	
16		300	373	QSMT16/20-300	R	A	B	C	D	0.3-5m	
18		340	413	QSMT18/20-340	R	A	B	C	D	0.3-5m	
20		380	453	QSMT20/20-380	R	A	B	C	D	0.3-5m	
22		420	493	QSMT22/20-420	R	A	B	C	D	0.3-5m	
24		460	533	QSMT24/20-460	R	A	B	C	D	0.3-5m	
26		500	573	QSMT26/20-500	R	A	B	C	D	0.3-5m	
28		540	613	QSMT28/20-540	R	A	B	C	D	0.3-5m	
30		580	653	QSMT30/20-580	R	A	B	C	D	0.3-5m	
32		620	693	QSMT32/20-620	R	A	B	C	D	0.3-5m	
40mm (K)		4	120	193	QSMT04/40-120	R	A	B	C	D	0.3-5m
	6	200	273	QSMT06/40-200	R	A	B	C	D	0.3-5m	
	8	280	353	QSMT08/40-280	R	A	B	C	D	0.3-5m	
	10	360	433	QSMT10/40-360	R	A	B	C	D	0.3-5m	
	12	440	513	QSMT12/40-440	R	A	B	C	D	0.3-5m	
	14	520	593	QSMT14/40-520	R	A	B	C	D	0.3-5m	
	16	600	673	QSMT16/40-600	R	A	B	C	D	0.3-5m	
	18	680	753	QSMT18/40-680	R	A	B	C	D	0.3-5m	
	20	760	833	QSMT20/40-760	R	A	B	C	D	0.3-5m	
	22	840	913	QSMT22/40-840	R	A	B	C	D	0.3-5m	
	24	920	993	QSMT24/40-920	R	A	B	C	D	0.3-5m	
	26	1000	1073	QSMT26/40-1000	R	A	B	C	D	0.3-5m	
	28	1080	1153	QSMT28/40-1080	R	A	B	C	D	0.3-5m	
	30	1160	1233	QSMT30/40-1160	R	A	B	C	D	0.3-5m	
	32	1240	1313	QSMT32/40-1240	R	A	B	C	D	0.3-5m	
	80mm (K)	4	240	313	QSMT04/80-240	R	A	B	C	D	0.3-5m
6		400	473	QSMT06/80-400	R	A	B	C	D	0.3-5m	
8		560	633	QSMT08/80-560	R	A	B	C	D	0.3-5m	
10		720	793	QSMT10/80-720	R	A	B	C	D	0.3-5m	
12		880	953	QSMT12/80-880	R	A	B	C	D	0.3-5m	
14		1040	1113	QSMT14/80-1040	R	A	B	C	D	0.3-5m	
16		1200	1273	QSMT16/80-1200	R	A	B	C	D	0.3-5m	
18		1360	1433	QSMT18/80-1360	R	A	B	C	D	0.3-5m	
20		1520	1593	QSMT20/80-1520	R	A	B	C	D	0.3-5m	
22		1680	1753	QSMT22/80-1680	R	A	B	C	D	0.3-5m	
24		1840	1913	QSMT24/80-1840	R	A	B	C	D	0.3-5m	
26		2000	2073	QSMT26/80-2000	R	A	B	C	D	0.3-5m	
28		2160	2233	QSMT28/80-2160	R	A	B	C	D	0.3-5m	
30		2320	2393	QSMT30/80-2320	R	A	B	C	D	0.3-5m	

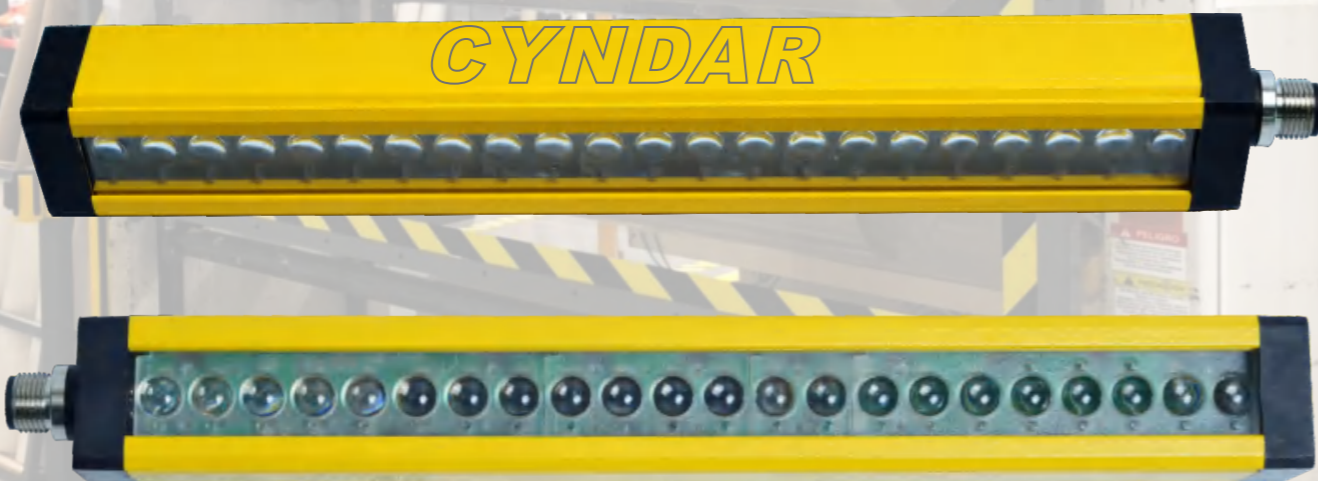
备注:如无特殊要求,检测距离默认为A图,需要检测距离达5m以上的请提前说明。  
Note: If there is no special requirement, the detection distance defaults to A chart. If the detection distance is more than 5 meters, please specify in advance.

## CET系列红外对射安全光幕 Infrared beam safety light curtain

- 超快响应速度 < 15ms
- 能有效屏蔽99%干扰信号
- 极性、短路、过载保护、自检
- 符合国际4类安全等级, CE认证
- Ultra-fast response speed < 15ms
- Can effectively shield 99% of interference signals
- Polarity, short circuit, overload protection, self-check
- Comply with international class 4 safety level, CE certification

广泛适用于压力机、液压机、油压机、剪板机、自动门等80%以上设备及其他危险场合。

It is widely used in more than 80% equipment such as presses, hydraulic presses, hydraulic presses, shears, automatic doors and other dangerous occasions.



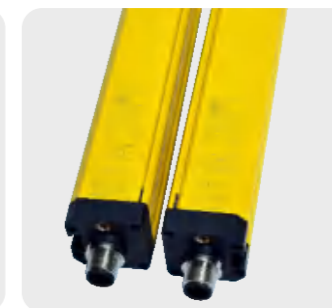
## ◆ CET安全光幕 CET Safety Light Curtain

- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
- ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
- ★ 安装调试方便，配线简单，外形美观；
- ★ 采用表面贴装技术，防震性能优越；
- ★ 符合国际电工学会IEC61496-1/2标准安全等级，TUV的CE认证；
- ★ 响应时间短（≤15ms），安全可靠性能高；
- ★ 尺寸设计30mm\*30mm,安全传感器可以通过航空插座与电缆线(M12)链接；
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short (≤15ms), and the safety and reliability performance is high.
- ★ The dimension design is 30mm\*30mm. The safety sensor can be connected to the cable (M12) through the air socket.
- ★ All electronic components adopt world-renowned brand accessories.

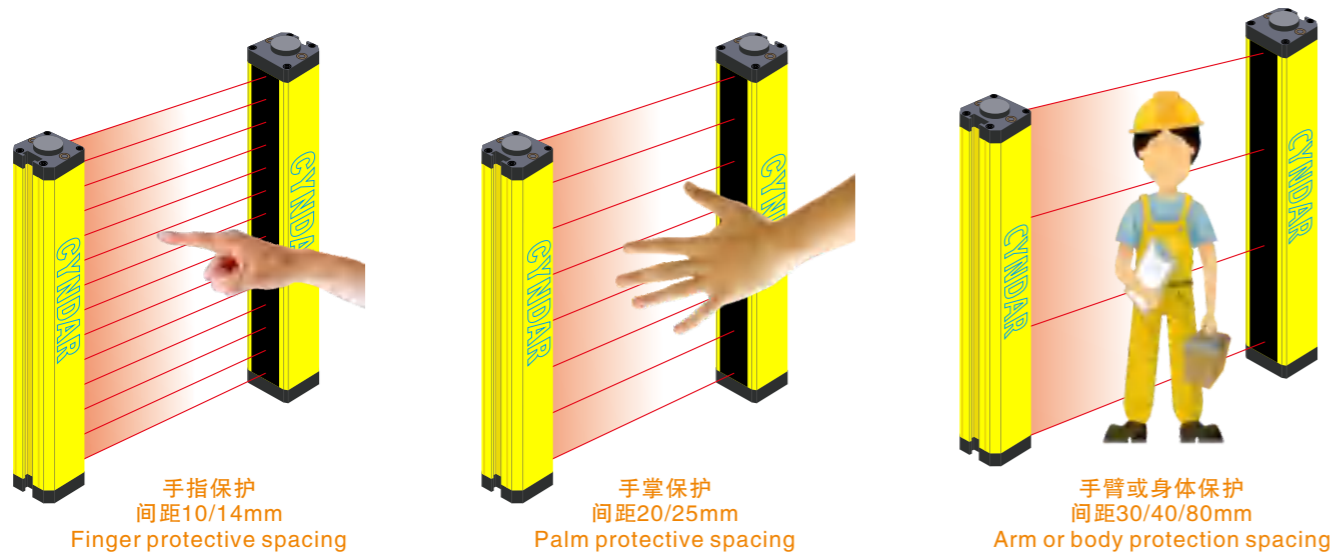
## ◆ 产品配置 Product configuration

控制器、发光器、受光器、传输线和电源线组成。

The controller, the light emitter, the light receiver, the transmission line and the power line are composed.



## ◆分辨率 Resolving power

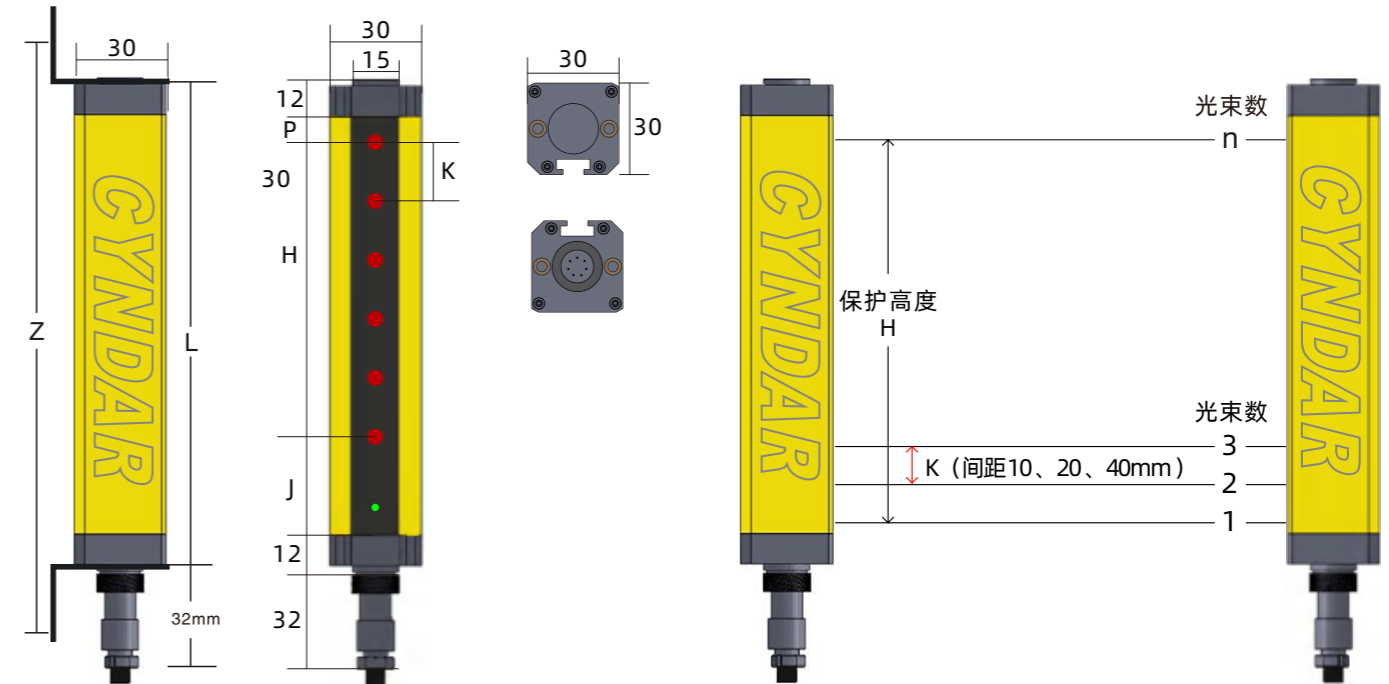


## ◆产品技术参数 Technical parameters of products

光幕形式 Light curtain form	对射式 Counter shooting		
光轴间距 Beam pitch	10mm	20mm	40mm
检测精度 Check the accuracy	18mm	28mm	48mm
光束数 Beam number	12、14、16...70	4、6、8、10...72	4、6、8、10...72
保护高度 Height of protection	光轴间距 Beam pitch X (光束数 Beam number - 1)		
检测距离 Detection distance	30 ~ 3000mm、30 ~ 6000mm		
响应时间 Response time	≤ 15ms		
抗光干扰 Anti light interference	10000Lux (入射角 Incidence angle ≥ 5°)		
外形尺寸 Outline size	30x30xLmm (L为发光器/受光器长度 L is the length of light emitter/receiver)		
防护等级 Protection level	IP65		
控制器 Controller	QCA QCA2		
电源电压 Supply voltage	DC12/24V AC110~220V (继电器输出 Relay output)		
消耗电流 Consumption current	≤ 200mA		
输出 Output	NPN/PNP型, 灌入电流500mA, 电压1.5v以下, 极性、短路、过载保护 NPN/PNP type, with current 500 mA and voltage less than 1.5 v, polarity, short circuit and overload protection		
输出状态 Output state	所有光轴受光时ON (接收指示灯) ON (Receiving Indicator Green Light) when all optical axes are illuminated		
指示灯 Indicator light	投光器: 电源指示灯 (红色); 受光器: 输出指示灯 (绿色) 遮光 (红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)		
光源 Light source	调制红外LED Modulated Infrared LED		
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器4芯, 受光器5芯 Circular aviation socket with special connecting cable, 4 cores of projector and 5 cores of receiver		
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon		
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx		
环境温度 Ambient temperature	工作时: -10~+40℃ (但不结冰); 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C		
环境湿度 Ambient humidity	工作时: 35~85%RH; 保存时: 35~95%RH Work: 35~85% RH, save: 35~95% RH		

## 外形尺寸 Dimensions

单位 Unit: mm



备注: Remarks

H = (n-1) \* K = 保护高度 Height of detection  
L: 光幕总长度 Total length of light screen  
n: 光轴数 Optical axis number  
Z = L + 32mm = 上下直角架固定方式中心距离 Center Distance of Fixed Mode of Upper and Lower Right Angle Frames

K: 光轴间距 Optical axis spacing  
L = P + H + J + 12mm + 12mm

K (mm)	10	20	40	80
P (mm)	5	10	20	40
J (mm)	32	25	25	25

## CET型安全光幕规格表说明如下:

The specifications of QCWT type safety screen are as follows

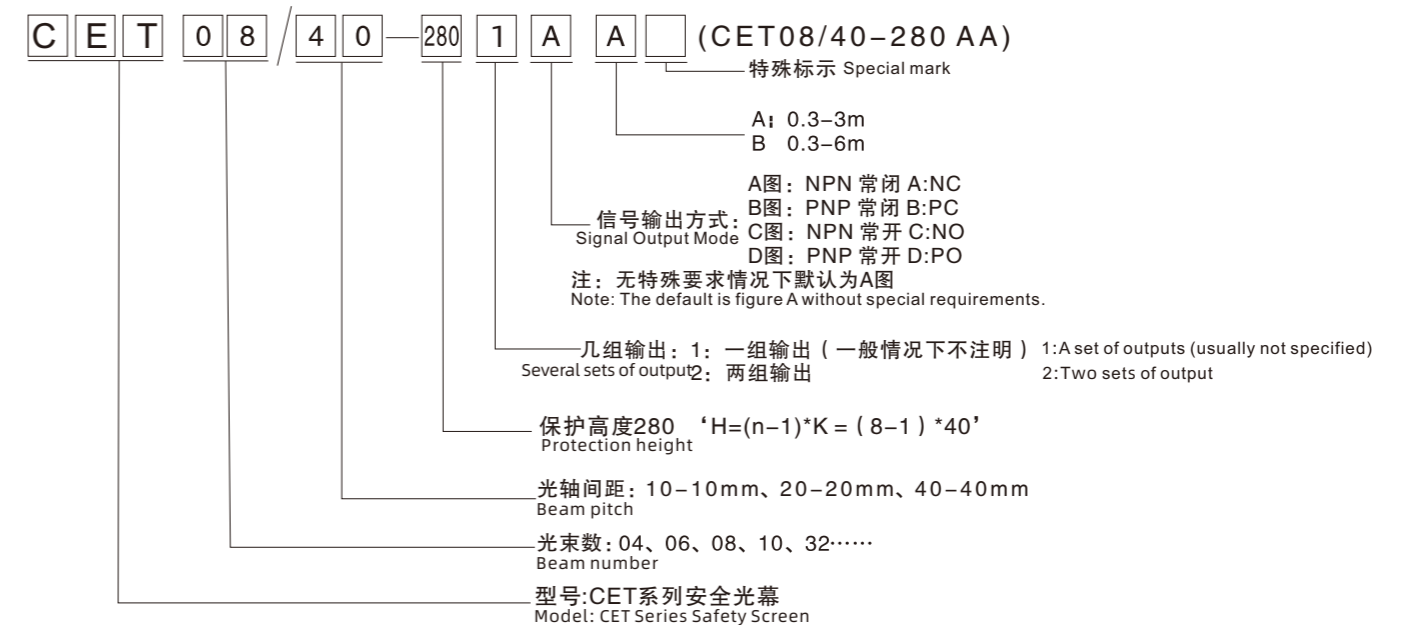
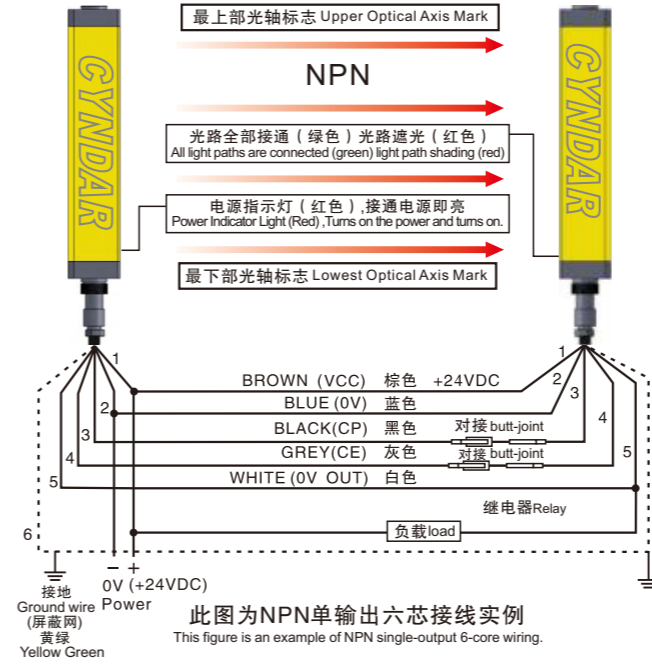




Table with 10 columns: 光轴间距 (Beam pitch), 光束数 (Light beam), 保护高度mm(H) (Protection height), 光幕高度mm(l) (Screen height), 产品型号 (Product model), 信号输出方式 (Signal output mode: NPN, PNP), 检测距离 (Detection distance). Rows are grouped by beam pitch (10mm, 20mm, 40mm, 80mm).

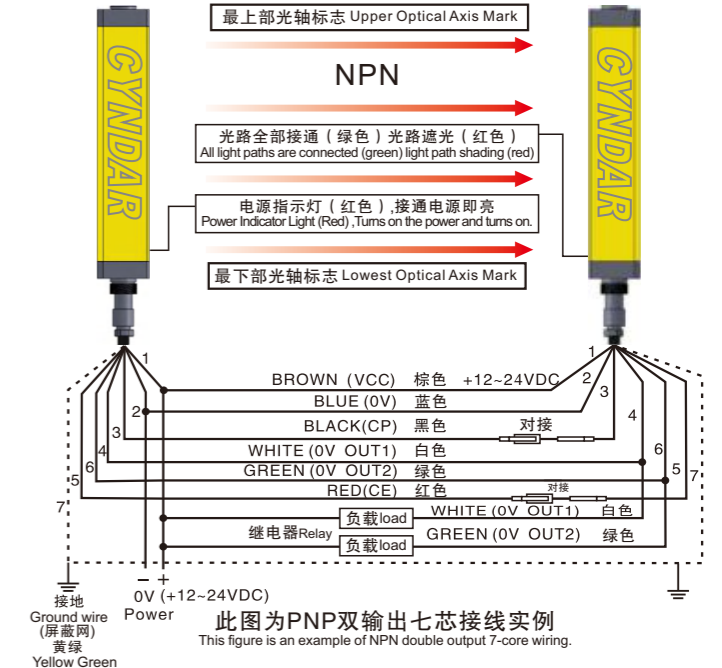
备注: 输出方式详见上一规格说明, 特殊规格可另外订做, 检测距离达3米-6米需提前说明。
Remarks: Please refer to the specification on the previous page for the output method. Special specifications can be customized separately.
The detection distance up to 3m - 6m needs to be specified in advance.

CET六芯系列接线图
CET 6-core series wiring diagram



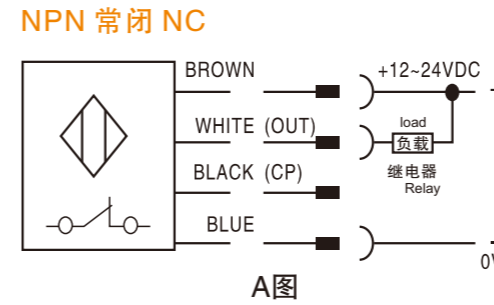
此图为NPN单输出六芯接线实例
This figure is an example of NPN single-output 6-core wiring.

CET发射器、接收器均为七芯接线图
CET transmitter and receiver are all seven-core wiring diagram

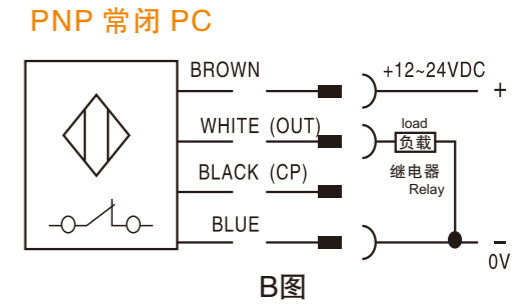


此图为PNP双输出七芯接线实例
This figure is an example of PNP double output 7-core wiring.

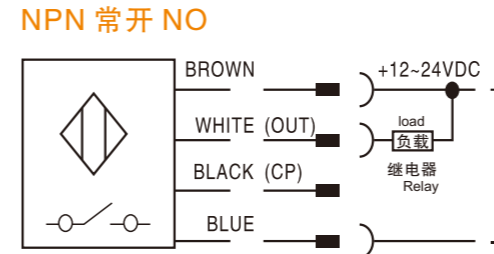
CET信号输出选择 (晶体管正常工作的实际输出)
CET signal output selection (actual output of transistor working normally)



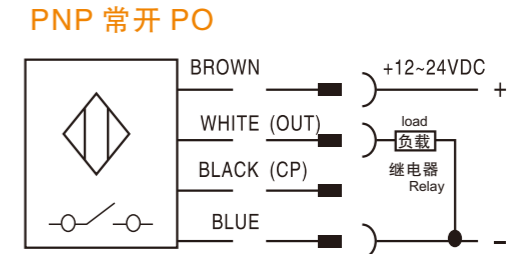
A图



B图



C图



D图



## CTT安全光幕 Safety light curtain

- 对射距离最长达50米
- 开关量、继电器无源输出
- 能有效屏蔽99%干扰信号
- 极性、短路、过载保护、自检
- The shooting distance is up to 50 meters
- Switch quantity, relay passive output
- Can effectively shield 99% of interference signals
- Polarity, short circuit, overload protection, self-check

广泛适用于压力机、液压机、油压机、剪板机、自动门等大型机械或需要长远距离保护的危险场合。

It is widely used in large machinery such as presses, hydraulic presses, hydraulic presses, shears, automatic doors, or dangerous occasions that require long-distance protection.

超长感应距离: 10m、20m、30m  
Ultra long sensing distance

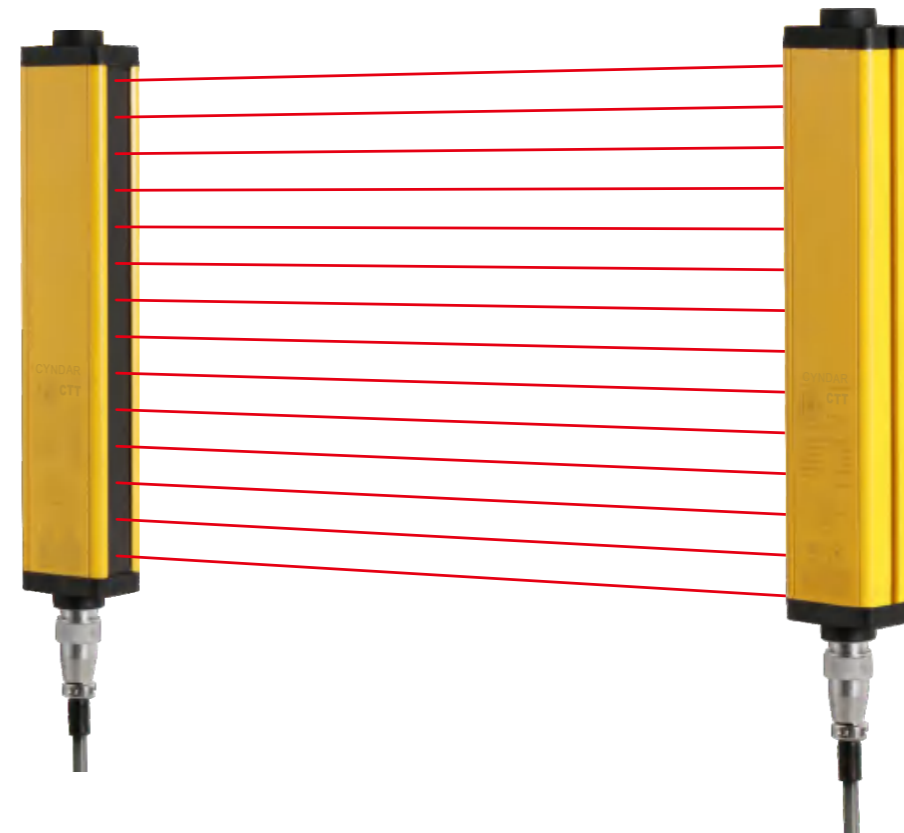
## 产品特点 Product characteristics

- ★ 自检功能完善: 当安全传感器出现故障时, 确保不向所控制的电器发送错误的信号;
- ★ 抗干扰能力强: 系统对电磁信号, 频闪灯光, 焊接弧光及周围的光源具有良好的抗干扰能力;
- ★ 安装调试方便, 配线简单, 外形美观;
- ★ 采用表面贴装技术, 防震性能优越;
- ★ 符合国际电工学会IEC61496-1/2标准安全等级, TUV的CE认证;
- ★ 响应时间短 ( $\leq 15ms$ ), 安全可靠性能高;
- ★ 尺寸设计35mm\*51mm,安全传感器可以通过航空插座与电缆线(M12)链接;
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ 本系列保护高度可达2840mm, 光束72。

- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ It conforms to IEC61496-1/2 standard safety grade and TUV CE certification.
- ★ The corresponding time is short ( $\leq 15ms$ ), and the safety and reliability performance is high.
- ★ The dimension design is 35mm\*51mm.
- ★ The safety sensor can be connected to the cable (M12) through the air socket.
- ★ All electronic components adopt world-renowned brand accessories.
- ★ The protection height of this series can reach 2840 mm and the beam is 72.

## 产品配置 Product configuration

控制器、发光器、受光器、传输线和电源线组成。  
The controller, the light emitter, the light receiver, the transmission line and the power line are composed.



七孔航空接头  
Seven hole aviation connector

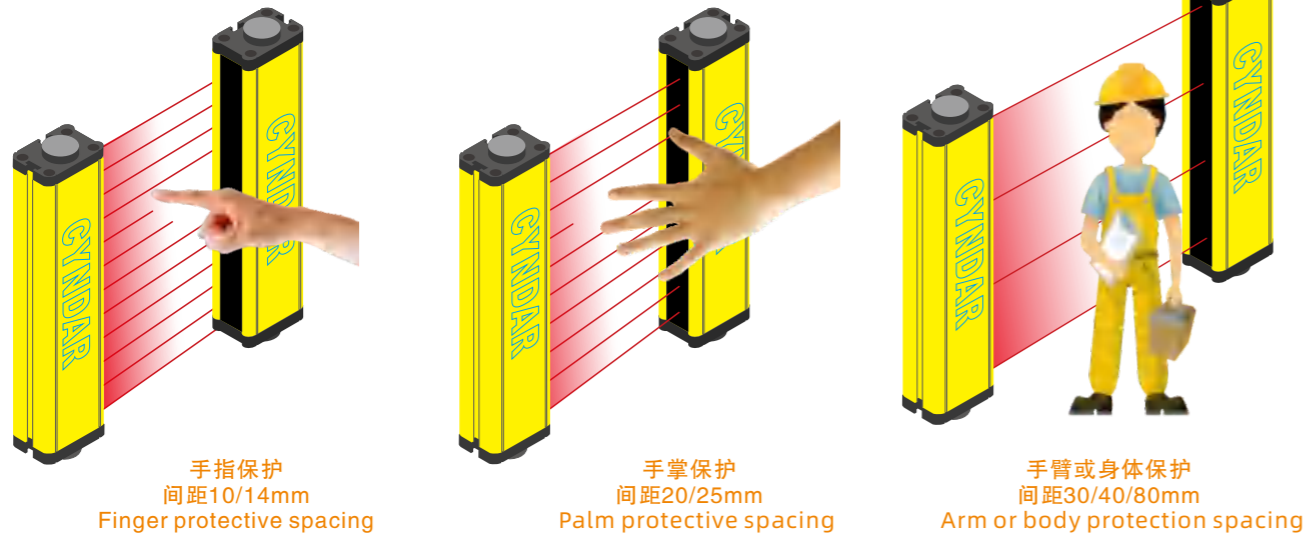


七芯 (发射3m, 接收3.5m)  
7 core (transmit 3M, receive 3.5m)



内置控制器QET  
Built in controller QET

## ◆ 分辨率 Resolving power

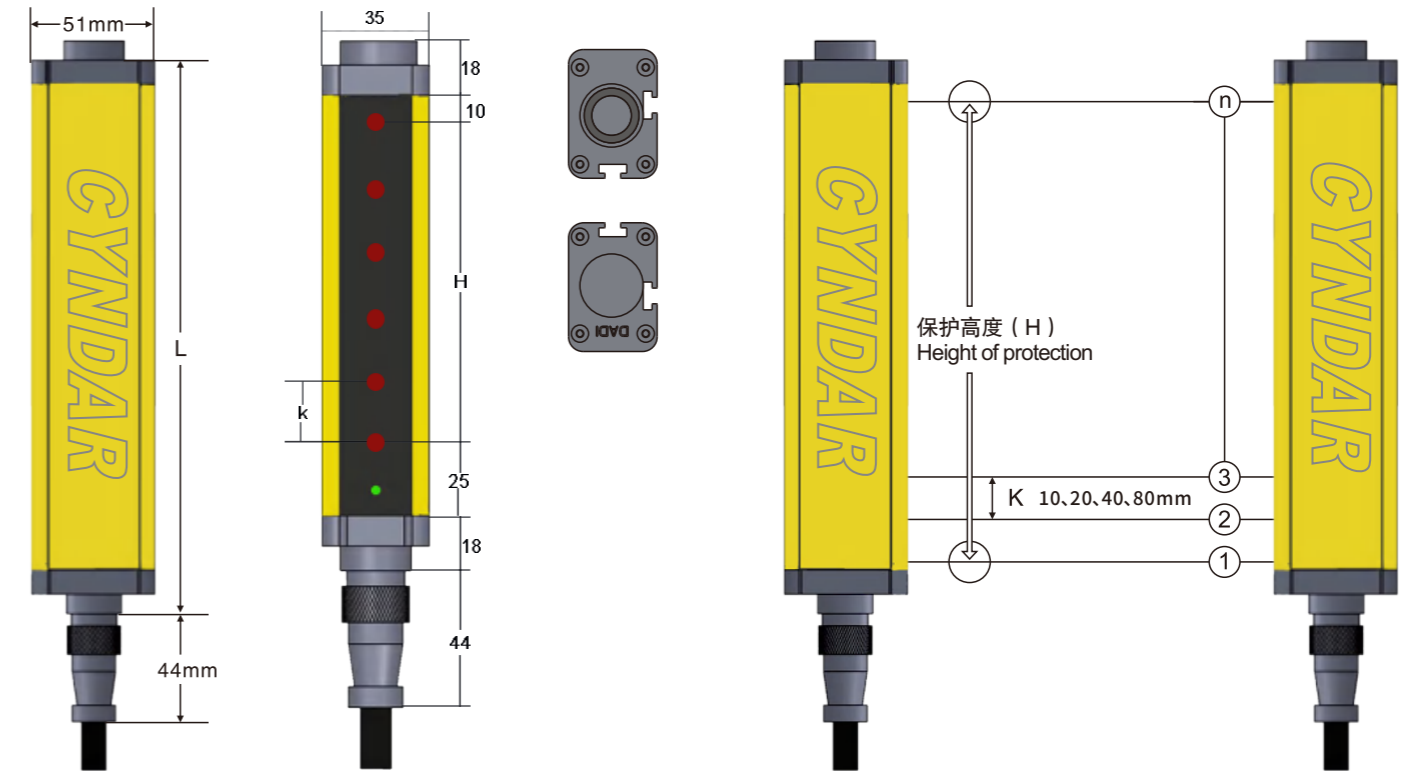


## ◆ 产品技术参数 Technical parameters of products

光幕形式 Light curtain form	对射式 Counter shooting		
光轴间距 Beam pitch	10mm	20mm	40mm
检测精度 Check the accuracy	18mm	28mm	48mm
光束数 Beam number	12、14、16...70	4、6、8、10...72	4、6、8、10...72
保护高度 Height of protection	光轴间距 Beam pitch X (光束数 Beam number - 1)		
检测距离 Detection distance	0.3~3m、0.3~6m、0.3~10m、0.3~15、0.3~20m、0.3~30m		
响应时间 Response time	≤15ms		
抗光干扰 Anti light interference	10000Lux (入射角 Incidence angle ≥ 5°)		
外形尺寸 Outline size	35x51xLmm (L为发光器/受光器长度 L is the length of light emitter/receiver)		
防护等级 Protection level	IP65		
控制器 Controller	QCA QCA2		
电源电压 Supply voltage	DC12/24V AC110~220V (继电器输出 Relay output) 带控制器 Tape controller		
消耗电流 Consumption current	≤200mA		
输出 Output	2NPN/PNP型, 灌入电流500mA, 电压1.5v以下, 极性、短路、过载保护 2NPN/PNP type, with current 500 mA and voltage less than 1.5 v, polarity, short circuit and overload protection		
输出状态 Output state	所有光轴受光时ON (接收指示绿灯) ON (Receiving Indicator Green Light) when all optical axes are illuminated		
指示灯 Indicator light	投影器: 电源指示灯 (红色); 受光器: 输出指示灯 透光 (绿色) 遮光 (红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)		
光源 Light source	调制红外LED Modulated Infrared LED		
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投影器7芯, 受光器7芯 Circular aviation socket with special connecting cable, 7cores of projector and 7cores of receiver		
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon		
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx		
环境温度 Ambient temperature	工作时: -10~+40℃ (但不结冰), 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C		
环境湿度 Ambient humidity	工作时: 35~85%RH, 保存时: 35~95%RH Work: 35~85% RH, save: 35~95% RH		

## 外形尺寸 Dimensions

单位 Unit: mm



备注:  
Remarks

$H = (n-1) * K =$  保护高度  
Height of detection

L: 光幕总长度  
Total length of light screen

n: 光轴数  
Optical axis number

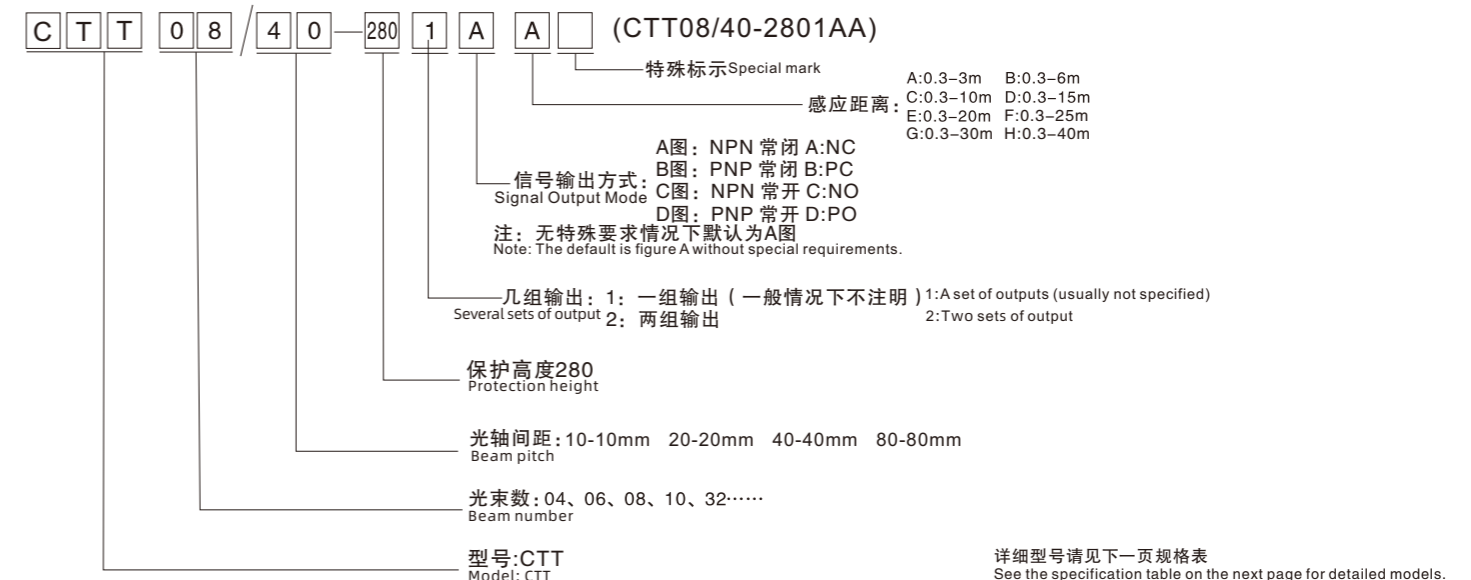
K: 光轴间距  
Optical axis spacing

$L = P + H + J + 18mm + 18mm$

K (mm)	10	20	40	80
P (mm)	5	10	20	40
J (mm)	32	25	25	25

## CTT型安全光幕规格表说明如下:

The specifications of QA type safety screen are as follows







## CVT光电保护装置 Photoelectric safety protection device

- 无源脉冲输出 逻辑功能更加完善
- 光电信号与设备控制隔离设计
- 能有效屏蔽99%干扰信号
- 极性、短路、过载保护、自检
- Passive pulse output logic function is more perfect
- Optoelectronic signal and equipment control isolation design
- Can effectively shield 99% of interference signals
- Polarity, short circuit, overload protection, self-check



外置控制器QSW  
External controller QSW

广泛适用于各种冲床、油压机、拉伸机、剪板机、注塑机、自动装配线、自动门等大型设备及其他安全性更高要求的危险场合。

It is widely used in large machinery such as presses, hydraulic presses, hydraulic presses, shears, automatic doors, or dangerous occasions that require long-distance protection.



超长感应距离：10m、20m、30m  
Ultra long sensing distance

### ◆ 产品配置 Product configuration

控制器、发光器、受光器、传输线和电源线组成。  
The controller, the light emitter, the light receiver, the transmission line and the power line are composed.



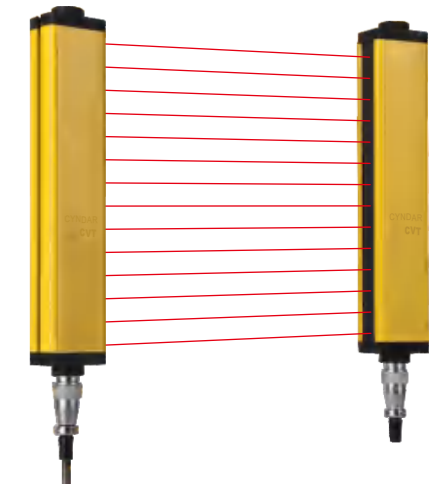
五芯 (发射2.5m, 接收3.5m)  
数据线  
Five core (transmitting 2.5m,  
receiving 3.5m) data line



内置控制器CVTP  
Built-in controller CVTP



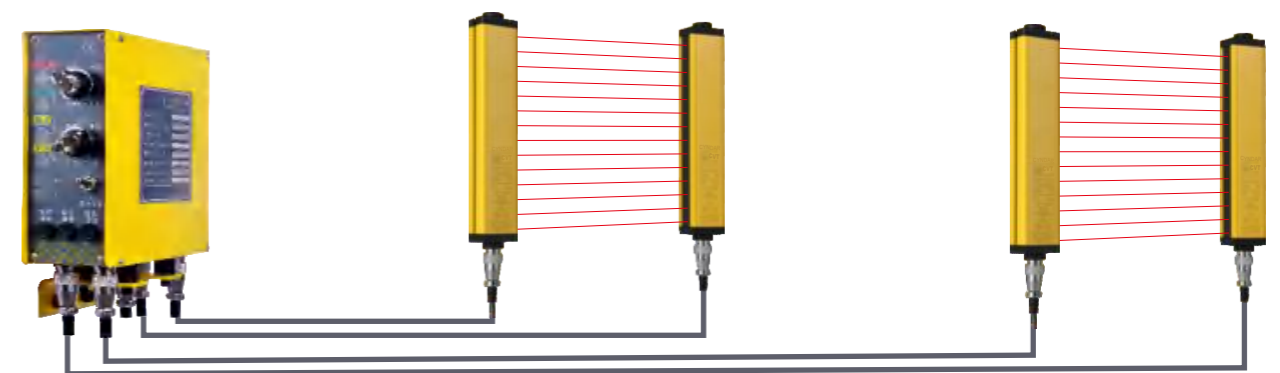
内置双面控制器QSN  
Built-in double-sided  
controller QSN



### ◆ 产品特点 Product characteristics

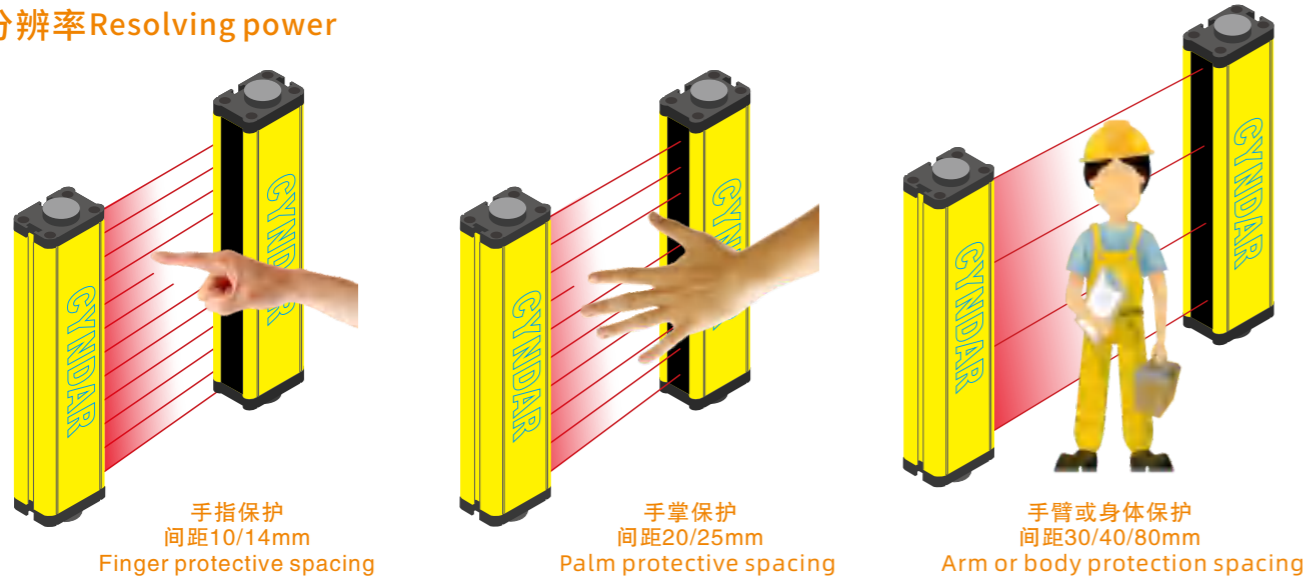
- ★ 自检功能完善：当安全传感器出现故障时，确保不向所控制的电器发送错误的信号；
- ★ 抗干扰能力强：系统对电磁信号，频闪灯光，焊接弧光及周围的光源具有良好的抗干扰能力；
- ★ 安装调试方便，配线简单，外形美观；
- ★ 采用表面贴装技术，防震性能优越；
- ★ 符合国际电工学会IEC61496-1/2标准，TUV的CE认证；
- ★ 响应时间短 (≤10ms)，安全可靠性能高；
- ★ 尺寸设计35mm\*51mm,安全传感器可以通过航空插座与电缆线(M12)链接；
- ★ 所有电子元器件均采用全球知名品牌配件。
- ★ 光幕以脉冲输出，此光幕须与控制器同时使用，经过控制器处理，反应速度更快。双继电器输出更加安全。

- ★ Perfect self-check function: When the safety screen protector fails, ensure that the wrong signal is not sent to the controlled electrical appliances.
- ★ Strong anti-interference ability: The system has good anti-interference ability to electromagnetic signal, stroboscopic light, welding arc and surrounding light source;
- ★ Easy installation and debugging, simple wiring, beautiful appearance;
- ★ Surface mounting technology is adopted, which has superior seismic performance.
- ★ Comply with the International Electrotechnical Society IEC61496-1/2 standard, TUV CE certification;
- ★ The corresponding time is short (≤10ms), and the safety and reliability performance is high.
- ★ The dimension design is 35mm\*51mm.
- ★ The safety sensor can be connected to the cable (M12) through the air socket.
- ★ All electronic components adopt world-renowned brand accessories.
- ★ The light curtain is pulsed. This light curtain must be used simultaneously with the controller. After the controller, the reaction speed is faster. The dual relay output is safer.



CVTS系列双面光电安全保护器  
CVTS series double-sided photoelectric safety protector

### ◆ 分辨率 Resolving power



### ◆ 安全接口技术参数一览表(发光器、受光器) List of safety interface technical parameters (illuminator, receiver)

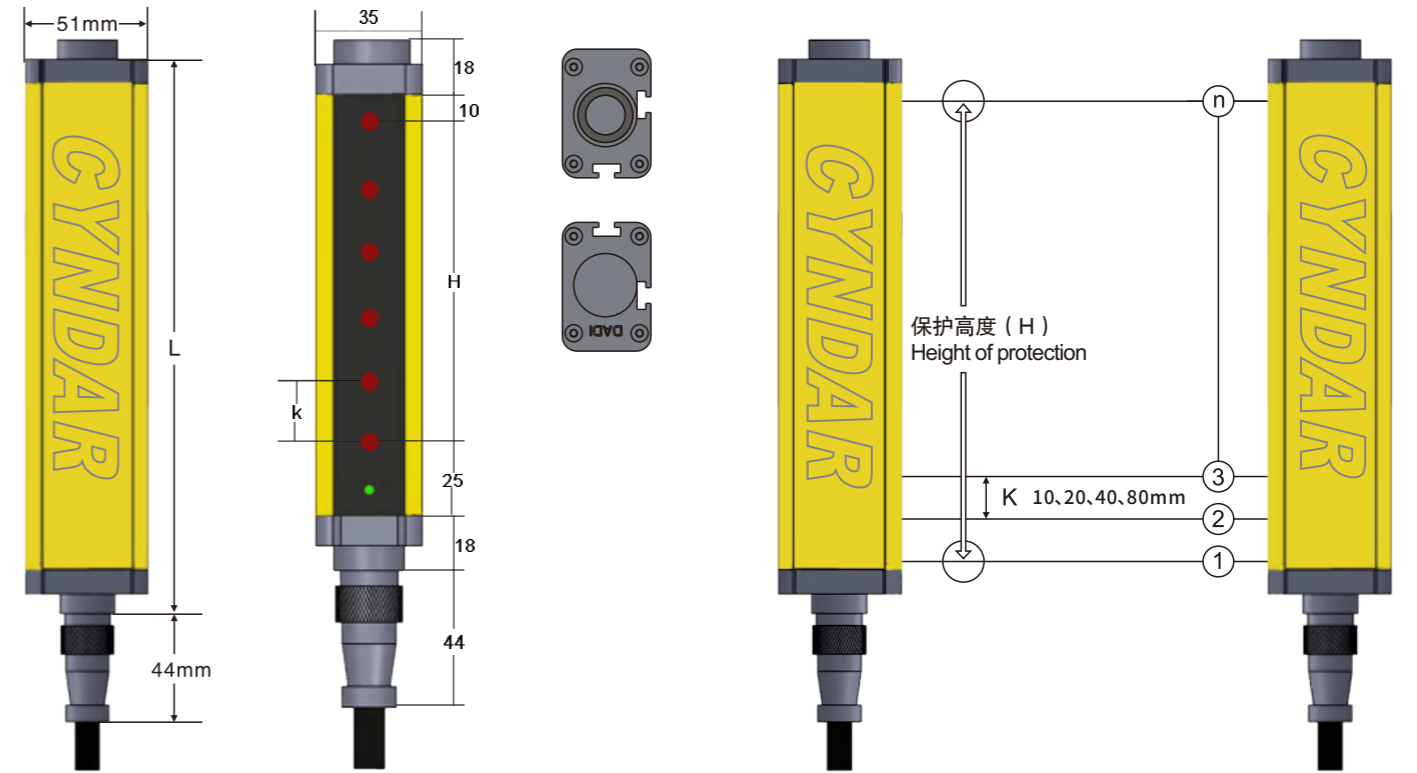
工作电源 Working power	DC12V	输出电流 Output current	≤300mA
输出形式 Output form	直流输出 DC output	电源隔离形式 Power isolation form	DC-DC
脉冲输出电压 Pulse output voltage	DC5V	输出隔离形式 Output isolation form	光耦隔离 Optocoupler isolation

### ◆ 产品技术参数 Technical parameters of products

电源电压 Supply voltage	AC110-220V ± 15% 50/60Hz					
消耗电流 Consumption current	≤200mA					
输出状态 Output state	双继电器、双输出, 常闭, 常开一组 Double relay, double output, normally closed, often open a group					
输出触点容量 Output Contact Capacity	AC250V/5A或DC30V5A					
指示灯 Indicator light	投光器: 电源指示灯(红色); 受光器: 输出指示灯(绿色) 遮光(红色) Projector: Power indicator (red); Receiver: Output indicator (green) shading (red)					
光源 Light source	调制红外LED Modulated Infrared LED					
连接方式 Connection mode	圆形航空插座, 配专用连接电缆, 投光器7芯, 受光器7芯 Circular aviation socket with special connecting cable, 7 cores of projector and 7 cores of receiver					
壳体材料 Shell material	铝合金, 端盖: ABS增强尼龙 Aluminum alloy, end cover: ABS reinforced nylon					
耐环境光 Environmental light resistance	白炽光: 受光面照度3000Lx; 太阳光: 受光面照度10000Lx Incandescent light: illumination of the receiving surface 3000Lx; sunlight: illumination of the receiving surface 10000Lx					
环境温度 Ambient temperature	工作时: -10~+40℃(但不结冰), 保存时: -25~+55℃ When working: -10 ~ +40 C (but not freezing), when preserved: -25 ~ +55 C					
环境湿度 Ambient humidity	工作时: 35~85%RH, 保存时: 35~95%RH Work: 35~85% RH, save: 35~95% RH					
光幕形式 Light curtain form	对射式 Counter shooting					
光轴间距 Beam pitch	10mm	14mm	20mm	25mm	30mm	40mm
检测精度 Check the accuracy	18mm	22mm	28mm	33mm	38mm	48mm
光束数 Beam number	6、8···32	6、8···32	4、6···32	6、8···32	4、6···32	4、6···32
保护高度 Height of protection	光轴间距Beam pitch X (光束数Beam number-1)					
检测距离 Detection distance	0.3-3m 0.3-6m 0.3-30m					
响应时间 Response time	≤10ms					
抗光干扰 Anti light interference	10000Lux(入射角Incidence angle ≥ 5°)					
外形尺寸 Outline size	35x51xLmm(L为发光器/受光器长度L is the length of light emitter/receiver)					
防护等级 Protection level	IP65					
控制器 Controller	CVTW、CVTN、CVTS、CVTP					

### 外形尺寸 Dimensions

单位Unit: mm



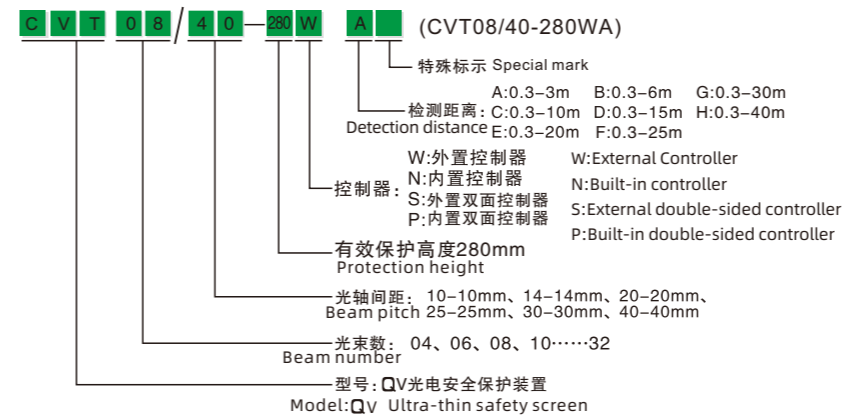
备注: Remarks

$H = (n-1) * K = \text{保护高度}$  Height of detection  
 $L = P + H + J + 18\text{mm} + 18\text{mm}$   
 L: 光幕总长度 Total length of light screen  
 n: 光轴数 Optical axis number  
 K: 光轴间距 Optical axis spacing

K (mm)	10	20	40	80
P (mm)	5	10	20	40
J (mm)	32	25	25	25

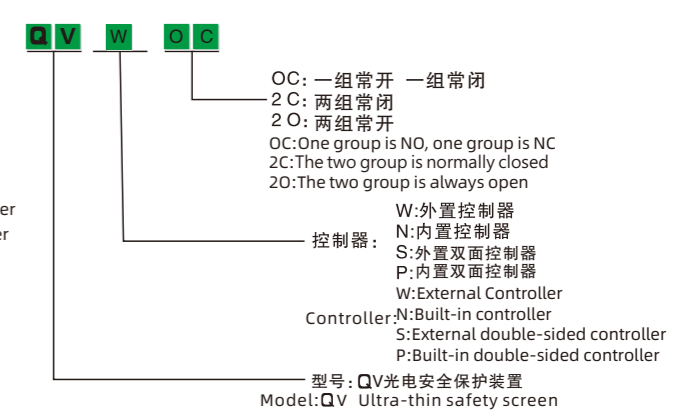
### ◆ CVT型光电安全保护装置规格表说明

CVT ultra-thin safety light curtain specification sheet is as follows



### ◆ CVT控制器规格表

CVT Controller Specification Table

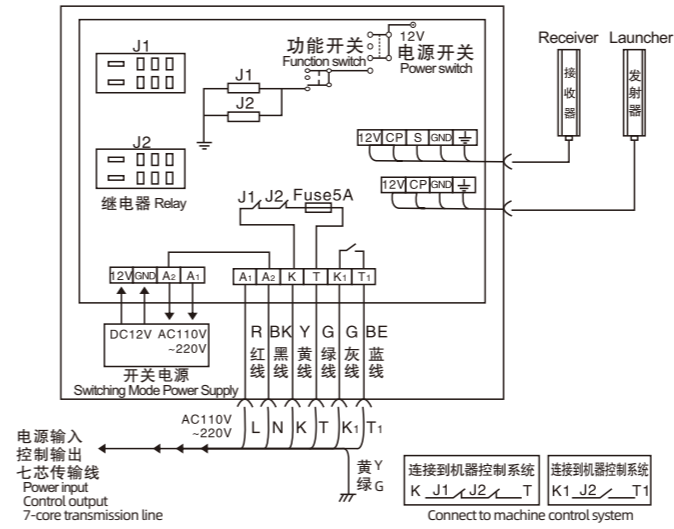


详细型号请见下一页规格表  
See the specification table on the next page for detailed models.



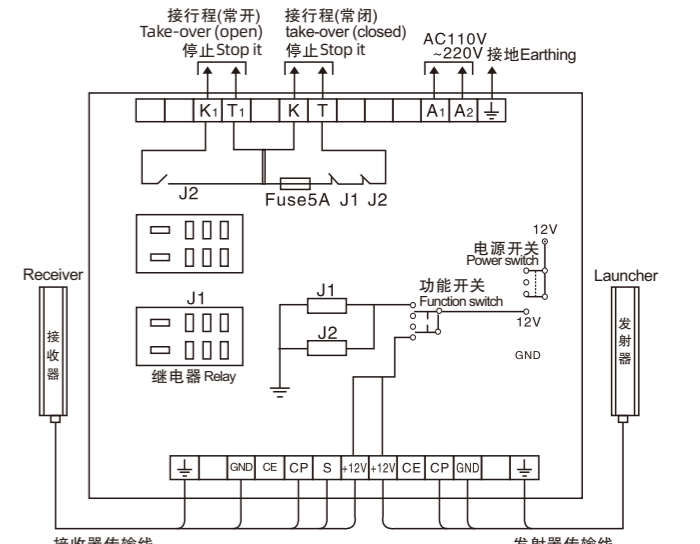


◆ QVW型外挂式控制器的接线图  
Connection of QVW External Controller



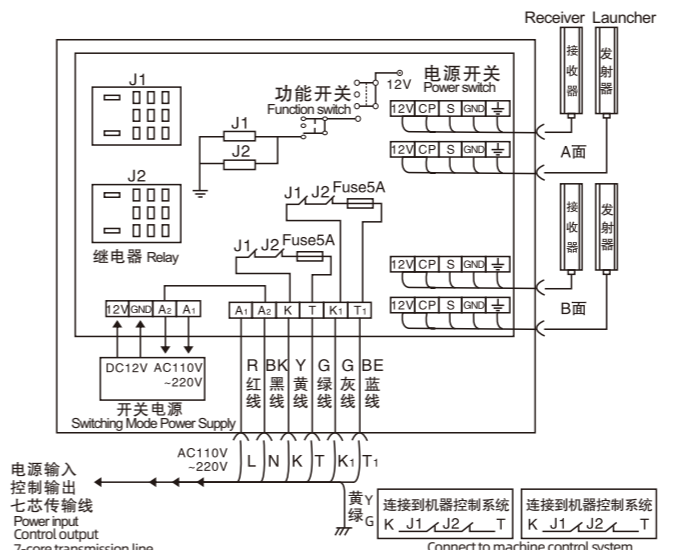
注：正常工作(通光)时K、T为常闭，K1、T1为常开  
Note: K and T are normally closed while K1 and T1 are normally open when working normally.

◆ QVN型内置式控制器的接线图  
Connection Diagram of QVN Built-in Controller



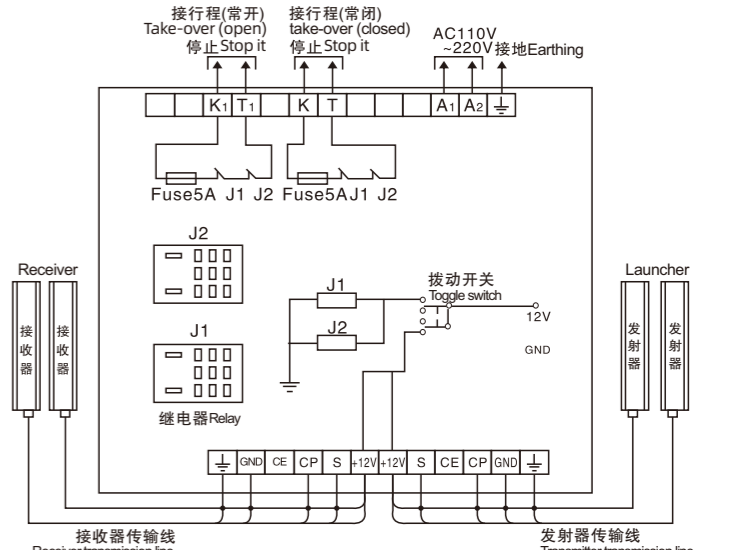
注：正常工作(通光)时K、T为常闭，K1、T1为常开  
Note: K and T are normally closed while K1 and T1 are normally open when working normally.

◆ QVS型外挂式双面控制器的接线  
Connection of QVS External Double-sided Controller



注：正常工作(通光)时K、T为常闭，K1、T1为常闭(OSSD1)  
Note: K and T are normally closed while K1 and T1 are normally open (OSSD1) when working normally (through light).

◆ QVP型内置式双面控制器的接线图  
Wiring diagram of QVP built-in double-sided controller

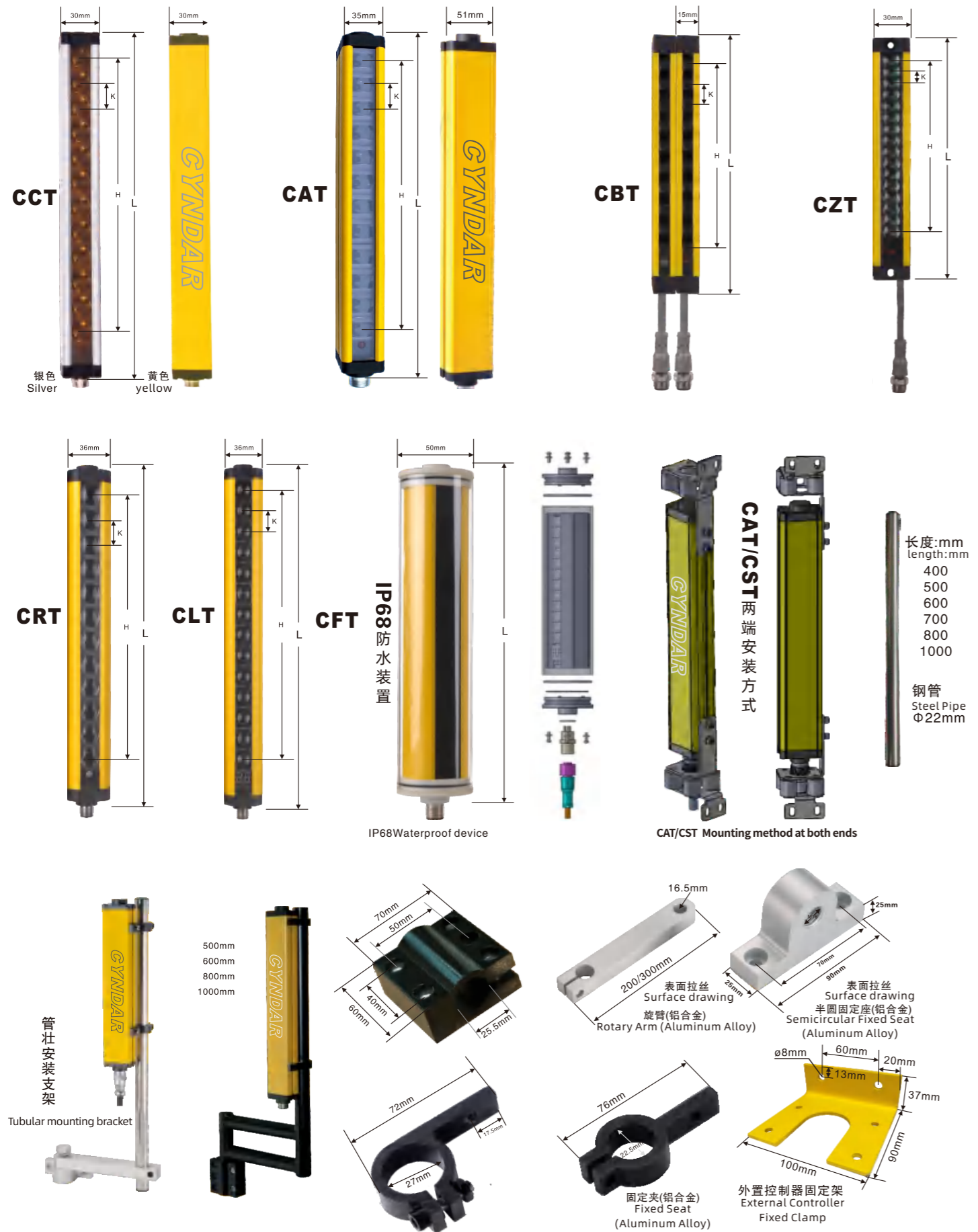


注：正常工作(通光)时K、T为常闭，K1、T1为常闭(OSSD2)  
Note: K and T are normally closed while K1 and T1 are normally open (OSSD2) when working normally (through light).



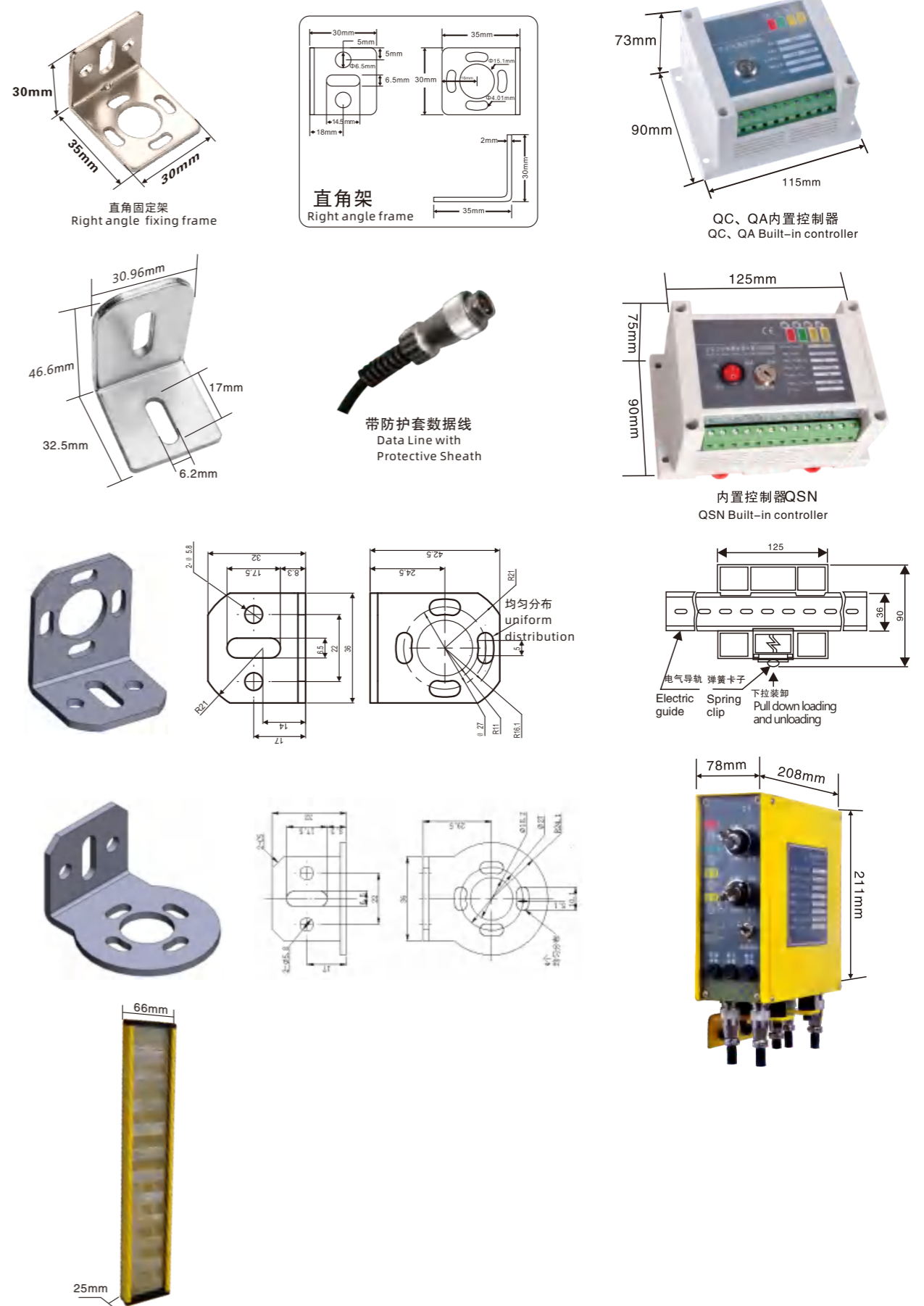
## ◆外观尺寸图

### Appearance size chart



## ◆外观尺寸图

### Appearance size chart



## 配件表 Accessory table

品名	形状 shape	型号 Model	描述 describe	备注 Remarks
内置式控制器		QCA	安装电控箱内与QC、QA安全光幕配套使用无源输出可直接接大功率负载 Installation of electronic control box with QC, QA safety light curtain and passive output can directly connect high-power load	选配件 Spare parts
内置式控制器		QET	安装电控箱内与QE、QT安全光幕配套使用无源输出可直接接大功率负载 Installation of electronic control box with QE, QT safety light curtain and passive output can directly connect high-power load	选配件 Spare parts
内置式控制器		QCA2	安装电控箱内与QC、QA安全光幕配套使用无源输出可直接接大功率负载 Installation of electronic control box with QC, QA safety light curtain and passive output can directly connect high-power load	选配件 Spare parts
内置式控制器		QSN	安装电控箱内与QS、QV安全光幕配套使用无源输出可直接接大功率负载 Installation of electronic control box with QS, QV safety light curtain and passive output can directly connect high-power load	选配件 Spare parts
内置式控制器		Tner-A31	安装电控箱内与QC、QA、QE、QT双输出安全光幕配套使用无源输出可直接接大功率负载，提供4组无源开关信号 Installation of electronic control box and QC, QA, QE, QT double output safety light curtain matching use of passive output can directly connect high-power load, provide four groups of passive switching signals	选配件 Spare parts
内置式控制器		LCS-SRA/B	安装电控箱内与QC、QA、QE、QT双输出安全光幕配套使用无源输出可直接接大功率负载，提供4组无源开关信号 Installation of electronic control box and QC, QA, QE, QT double output safety light curtain matching use of passive output can directly connect high-power load, provide four groups of passive switching signals	选配件 Spare parts
外置双面控制器		QSWs	安装机器侧面QSW双继电器无源输出 Install machine side QSW Dual relay passive output	选配件 Spare parts
外置单面控制器		QSWs	安装机器侧面QSW双继电器无源输出 Install machine side QSW Dual relay passive output	选配件 Spare parts
控制器固定架		QCA-06	用于QS外置控制器固定架 For QS external controller mounting bracket	标配件 Standard

五针五芯电缆		QSN543 QA543	五针Φ16航空接头带2.5x3.56m屏蔽电缆发射、接收单元 Five-pin Φ16 aviation joint with 2.5x3.56m shielded cable transmitting and receiving unit	标配件 Standard
		QSN545 QA545	五针Φ16航空接头带5m屏蔽电缆接收单元 Five-pin Φ16 aviation joint with 5m shielded cable	选配件 Spare parts
		QSN5410 QA5410	五针Φ16航空接头带10m屏蔽电缆接收单元 Five-pin Φ16 aviation joint with 10m shielded cable	选配件 Spare parts
五针五芯电缆		QSW543	五针Φ16航空接头带3m屏蔽电缆接收单元 Five-pin Φ16 aviation joint with 3m shielded cable	标配件 Standard
		QSW545	五针Φ16航空接头带5m屏蔽电缆接收单元 Five-pin Φ16 aviation joint with 5m shielded cable	选配件 Spare parts
		QSW5410	五针Φ16航空接头带10m屏蔽电缆接收单元 Five-pin Φ16 aviation joint with 10m shielded cable	选配件 Spare parts
七孔七芯数据电缆		QVW543	七孔Φ16航空接头带3m屏蔽电缆接收单元 seven-hole Φ16 aviation joint with 3m shielded cable	标配件 Standard
		QVW545	七孔Φ16航空接头带5m屏蔽电缆接收单元 seven-hole Φ16 aviation joint with 5m shielded cable	选配件 Spare parts
		QVW5410	七孔Φ16航空接头带10m屏蔽电缆接收单元 seven-hole Φ16 aviation joint with 10m shielded cable	选配件 Spare parts
五针五芯电缆		QC543	五针Φ12航空接头带3m屏蔽电缆接收单元 Five-pin Φ12 aviation joint with 3m shielded cable Receiver	标配件 Standard
		QC545	五针Φ12航空接头带5m屏蔽电缆接收单元 Five-pin Φ12 aviation joint with 5m shielded cable Receiver	选配件 Spare parts
		QC5410	五针Φ12航空接头带10m屏蔽电缆接收单元 Five-pin Φ12 aviation joint with 10m shielded cable Receiver	选配件 Spare parts
四孔四芯电缆		QC433	四孔Φ12航空接头带3m屏蔽电缆接收单元 Four-hole Φ12 aviation joint with 3m shielded cable	标配件 Standard
		QC435	四孔Φ12航空接头带5m屏蔽电缆接收单元 Four-hole Φ12 aviation joint with 5m shielded cable	选配件 Spare parts
		QC4310	四孔Φ12航空接头带10m屏蔽电缆接收单元 Four-hole Φ12 aviation joint with 10m shielded cable	选配件 Spare parts
七针七芯数据电缆		QT702	七针Φ16航空接头带2m屏蔽电缆外置控制器 seven-pin Φ16 aviation joint with 2m External controller	标配件 Standard
		QT703	七针Φ16航空接头带3m屏蔽电缆外置控制器 seven-pin Φ16 aviation joint with 3m External controller	选配件 Spare parts
		QT705	七针Φ16航空接头带5m屏蔽电缆外置控制器 seven-pin Φ16 aviation joint with 5m External controller	选配件 Spare parts
七针七芯数据电缆		QE702	七针Φ16航空接头带2m屏蔽电缆外置控制器 seven-pin Φ16 aviation joint with 2m External controller	标配件 Standard
		QE703	七针Φ16航空接头带3m屏蔽电缆外置控制器 seven-pin Φ16 aviation joint with 3m External controller	选配件 Spare parts
		QE705	七针Φ16航空接头带5m屏蔽电缆外置控制器 seven-pin Φ16 aviation joint with 5m External controller	选配件 Spare parts
		QE705	七针Φ16航空接头带5m屏蔽电缆外置控制器 seven-pin Φ16 aviation joint with 5m External controller	选配件 Spare parts

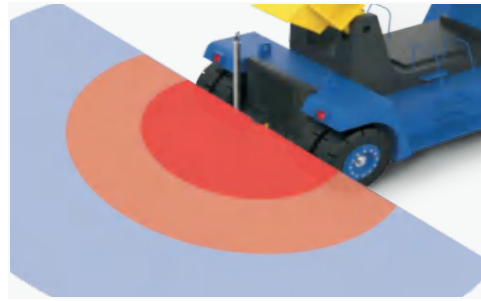
## 配件表 Accessory table

七孔七芯数据电缆		QSW702	七孔Φ16航空接头带2m屏蔽电缆外置控制器 seven-hole Φ16 aviation joint with 2m data cable	标配件 Standard
		QSW703	七孔Φ16航空接头带3m屏蔽电缆外置控制器 seven-hole Φ16 aviation joint with 3m data cable	选配件 Spare parts
		QSW705	七孔Φ16航空接头带5m屏蔽电缆外置控制器 seven-hole Φ16 aviation joint with 5m data cable	选配件 Spare parts
五孔五芯数据电缆		QM/QR QZ/QB 503	五孔Φ12航空接头带3m电缆数据 five-hole Φ12 aviation joint with 3m data cable	标配件 Standard
		QM/QR QZ/QB 505	五孔Φ12航空接头带5m电缆数据 five-hole Φ12 aviation joint with 5m data cable	选配件 Spare parts
		QM/QR QZ/QB 508	五孔Φ12航空接头带8m电缆数据 five-hole Φ12 aviation joint with 8m data cable	选配件 Spare parts
七孔七芯数据电缆		QL/QM 503	七孔Φ12航空接头带3m电缆数据 seven-hole Φ12 aviation joint with 3m data cable	标配件 Standard
		QL/QM 505	七孔Φ12航空接头带5m电缆数据 seven-hole Φ12 aviation joint with 5m data cable	选配件 Spare parts
		QL/QM 508	七孔Φ12航空接头带8m电缆数据 seven-hole Φ12 aviation joint with 8m data cable	选配件 Spare parts
二孔四孔数据电缆		QG2403	二孔、四孔Φ12航空接头带3m电缆数据 two-hole, four-hole Φ12 aviation joint with 3m data cable	标配件 Standard
		QG2405	二孔、四孔Φ12航空接头带5m电缆数据 two-hole, four-hole Φ12 aviation joint with 5m data cable	选配件 Spare parts
		QG2408	二孔、四孔Φ12航空接头带8m电缆数据 two-hole, four-hole Φ12 aviation joint with 8m data cable	选配件 Spare parts
不锈钢管支架		QCA-01	用于QC、QA管状安装方式 For QC, QA tubular installation	标配件 Standard
T形螺丝		QCA-02	用于QC、QA侧面滑槽安装方式 For QC, QA side chute installation	标配件 Standard
凸形螺母		QCA-03	用于QC、QA侧面滑槽安装方式 For QC, QA side chute installation	标配件 Standard

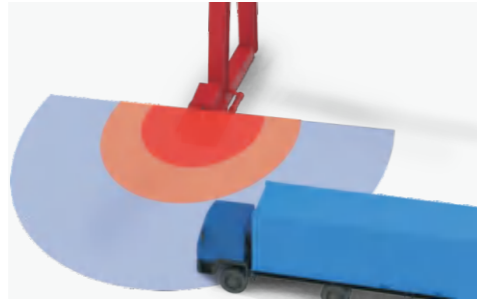
注：标配件...免费配送 选配件...需单独购买 标配件：QCA-02 QCA-03 QCA-04 任一款，QS型：QCA-01为标配件。  
Note: Standard accessories... Free distribution. Optional accessories... Need to be purchased separately. Standard accessories: QCA-02, QCA-03, QCA-04 Optional one, QS type: QCA-01 is the standard accessory.

直角架		QCA-04	用于QC两头安装方式 For QC, QA side chute installation	标配件 Standard
侧面直角架		QCA-05	用于QC/QA/QS侧面固定 For QC/QA/QS side fixing	标配件 Standard
直角架		QLMR-06	用于QL、QM、QR两头安装方式 For QL, QM, QR two-head installation	标配件 Standard
直角架		QF-07	用于QF两头安装方式 For QF two-head installation	标配件 Standard
高强度管状支架		QSA-07	用于QS、QA管状安装方式 For QS, QA tubular installation	标配件 Spare parts
侧面直角架		QSA-08	用于QS/QA/QV/QT侧面安装方式 For QS/QA/QV/QT Side mounting method	标配件 Spare parts
正面直角架		QSA-09	用于QS/QA/QV/QT正面安装方式 For QS/QA/QV/QT Frontal mounting method	标配件 Spare parts
反射装置		QSA-10	用于QS/QA/QV/QT两面或三面反射器的配件 For QS/QA/QV/QT Accessories for 2 or 3-sided reflectors	标配件 Spare parts

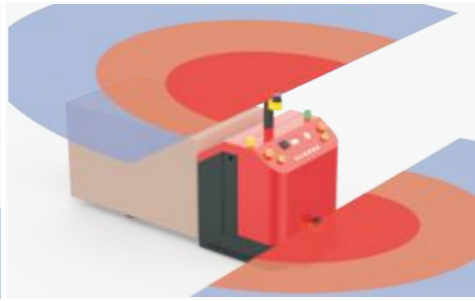
## ◆ 使用案例 Use cases



**工程机械防撞**



**桥吊脚部防撞**



**AGV导航**

防撞系统会日夜对堆积机后面的整个区域进行监控，如果有物体进入预设的警告区域内，激光雷达就会向操作员提供声光警告信号。

**Construction machinery collision avoidance**

The collision avoidance system will monitor the entire area day and night. If an object enters the preset warning area, the lidar will provide the operator with a sound and light warning signal.

有助于避免桥吊脚部在通道上和其他物体发生碰撞，而且可以帮助起重机的操作员对行程路径以及交叉路径进行监控。

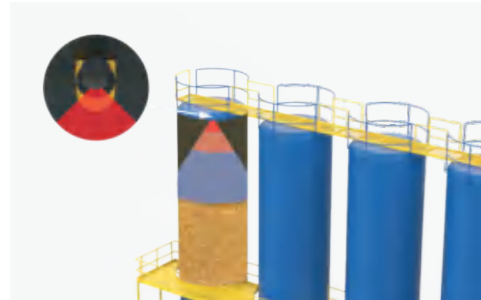
**Anti-collision of bridge crane foot**

It helps to avoid collisions between the foot of the bridge crane and other objects in the passage, and can help the crane operator monitor the travel path and the cross path.

避免集装箱堆场中自动导航车辆与其他物体发生碰撞。检测到物体，AGV 就会自动减速或停止。

**AGV navigation**

Avoid collisions between automatic navigation vehicles and other objects in the container yard. When an object is detected, the AGV will automatically decelerate or stop.

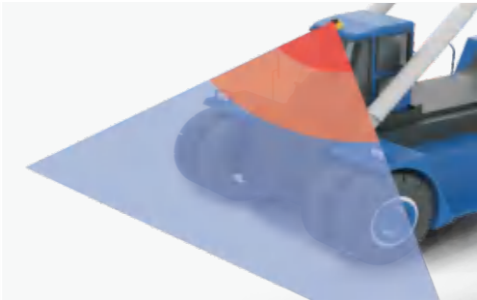


**料位测量**

利用LD雷达传感器来实现对料位的测量，依据上下限来报警和控制。

**Level measurement**

Use LD radar sensor to realize the measurement of material level, and alarm and control according to the upper and lower limits.

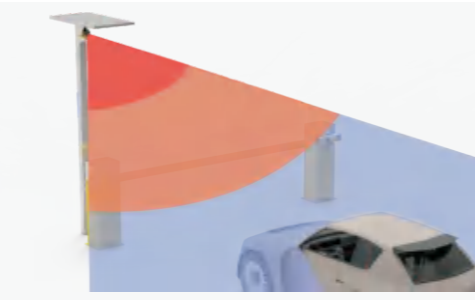


**起重机防撞**

LD雷达传感器的检测距离达到20M。它可以帮助起重机的操作员避免起重机和其他物体之间发生碰撞。

**Crane collision avoidance**

The detection distance of LD radar sensor reaches 20M. It can help crane operators avoid collisions between cranes and other objects.

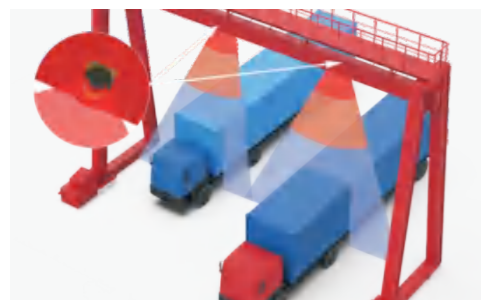


**停车场车辆检测**

LD雷达传感器可用于车辆位置检测，可触发道闸系统，从而实现抓拍计费等功能。

**Parking lot vehicle detection**

LD radar sensor can be used for vehicle position detection, can trigger the barrier system, so as to achieve functions such as capture and billing.

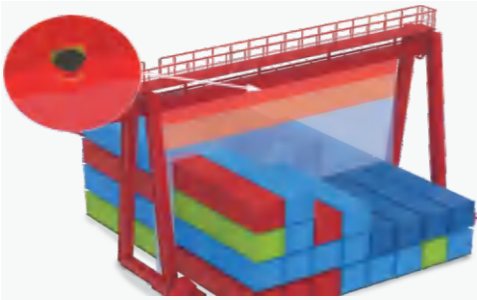


**集卡拖车定位**

LD雷达传感器可用于对龙门起重机下面的集装箱的堆栈进行扫描锁定集装箱抓取点。

**Truck trailer positioning**

The LD radar sensor can be used to scan the stack of containers under the gantry crane to lock the container grab points.

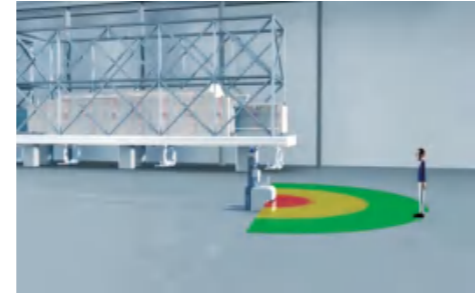


**集装箱堆栈测量**

对龙门起重机下面的集装箱的堆栈进行扫描，在此基础上通过软件处理，就可以在使用吊具吊起和固定集装箱时避免发生碰撞。

**Container stack measurement**

Scanning the stack of containers under the gantry crane, and on this basis, through software processing, it is possible to automatically warn of people or objects entering the set working area to avoid collisions when using spreaders to lift and fix the containers.



**检测人或物体靠近报警**

自动化机械在作业的时候，检测到人或物进入设定的工作区时，自动预警，避免造成伤害。

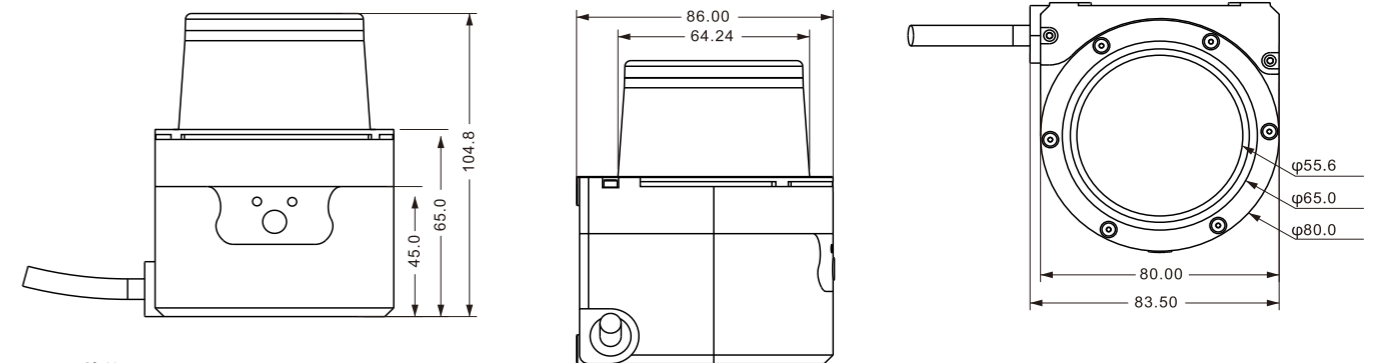
**Detect people or objects approaching alarm**

When the automated machinery is in operation, it will automatically warn of people or objects entering the set working area to avoid injury.

## ◆ XD-TOF-20S激光雷达 XD-TOF-20S safety laser scanner



## ◆ 激光雷达尺寸规格 Specification and size of lidar



单位：mm

## ◆ 激光雷达技术参数 Laser radar technical parameters

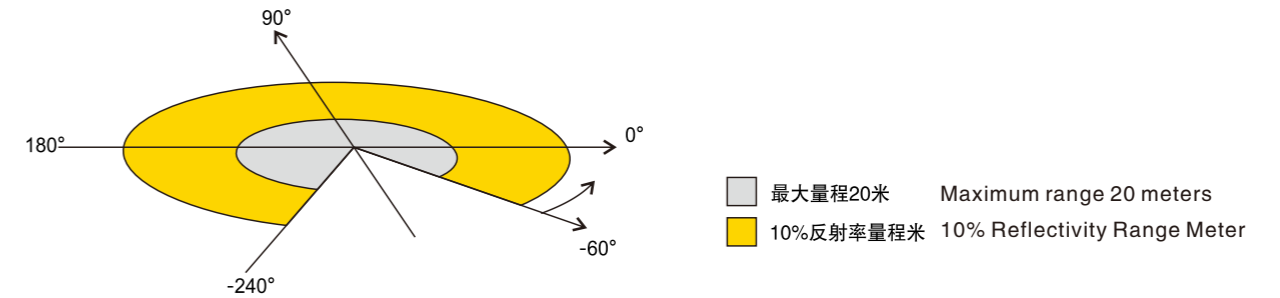
型号 model	XD-TOF-20S	
光源 The light source	红外激光(905nm) Infrared laser (905nm)	
激光安全等级 Laser safety rating	一类(GB7247.1-2012, 人眼安全) Category 1 (gb7247.1-2012, human eye safety)	
激光光斑出口口径 Laser spot exit caliber	8mm	
激光光斑发散角 Angle of divergence of laser spot	12.5mrad	
扫描角度范围 Sweep Angle range	300°	
扫描频率 Sweep frequency	25Hz	
扫描角度分辨率 Sweep Angle resolution	0.5°	
测量范围 Measuring range	0.1m ~20m	
10%反射率量程 10% reflectivity range	10m	
室外性能 Outdoor performance	抗脏污, 抗阳光 Anti-smudge, anti-sunlight	
雨雾烟尘穿透 The rain and mist penetrated the smoke	支持 support	
测量误差 Measurement error	系统误差 (典型值) Systematic error (typical value)	5cm
	统计误差 (1σ) Statistical error (1 sigma)	2cm
内置应用 Built-in application	监测模式: 点个数监测/目标宽度监测/轮廓监测 Monitoring mode: point number monitoring/target width monitoring/contour monitoring	
区域监测 Regional monitoring	监测信号种类: 注意/预警/告警 Monitoring signal type: attention/warning/alarm 区域组个数: 16组, 支持自学习背景剪裁 Number of area groups: 16 groups, supporting self-learning background clipping	
设备自检 Device self-checking	并发工作区域组个数: 16个(max) Number of concurrent working area groups: 16 (Max) 引导网络摄像机对监测目标进行视频定位和追踪 Guide the network camera to locate and track video monitoring target	
I/O输入端 The I/O input	内容: 透光罩脏污/遮挡/高温/低温; 输出方式: 指示灯+TCP 报文 Contents: dirt/shielding/high temperature/low temperature of the transmission hood; Output mode: indicator +TCP message 速率: 10/100 Mbps; 网络协议: TCP/IP; 功能: 设备配置/测量数据输出/监测信号输出 Speed: 10/100 Mbps; Network protocol: TCP/IP; Function: equipment configuration/measurement data output/monitoring signal output	
I/O输出端 I/O output	数量: 4个; 类型: 开关电平输入; 高电平范围: 9V-28V DC; 低电平范围: 0V-5V DC; Quantity: 4; Type: switch level input; High level range: 9V-28V DC; Low level range: 0V-5V DC; 预设功能: 监控区域选择(0x0-0xF); 区域监测撤防/强制报警, 有效电平: 高电平; Preset function: monitor area selection (0x0-0xF); Regional monitoring disarming/mandatory alarm, effective level: high level;	
指示灯 Indicator light	数量: 4个; 类型: PNP OC输出; 电平电压: 电源电压; 开机状态: 高阻; Quantity: 4; Type: PNP OC output; Level voltage: power supply voltage; Starting state: high resistance; 预设功能: 区域监测信号输出/设备就绪, 有效状态: 高电平 Preset function: area monitoring signal output/equipment ready, effective state: high level	
前面板按钮 Front button	数量: 2个; 定义: ERR (设备告警: 透光罩脏污/遮挡, 高低温); HTR (运行状态指示: 检测信号/自学习/准备重启) Quantity: 2; Definition: ERR (equipment alarm: transmission hood is dirty/blocked, high and low temperature); HTR (operation status indication: detection signal/self-learning/preparation for restart)	
工作电压 Working voltage	数量: 1个; 定义: 屏蔽监测信号输出/启动背景自学习/重启设备 Quantity: 1; Definition: shield monitoring signal output/start background self-learning/restart device	
功耗 Power consumption	9V~28V DC	
外壳防护等级 Enclosure protection class	5W	
绝缘电阻 Insulation resistance	IP65(GB4208~2008)	
抗电强度 The electric strength	1MΩ (GB16796~2009.5.4.4)	
重量 The weight of the	0.5KV(GB16796~2009.5.4.3)	
尺寸(L × W × H) The size (L * w * h)	0.6kg	
电磁兼容性 (EMC) Electromagnetic compatibility	83.5 × 86 × 104.8(mm)	
静电放电 Electrostatic discharge	6KV (GB/T17626.2~2006, Class 3)	
快速脉冲群 Fast pulse group	1KV (GB/T17626.4~2008, Class 2)	
电磁场辐射抗干扰度 The anti-interference degree of electromagnetic field radiation	GB/T17626.3~2006, Class 2	
浪涌抗扰度 Surge immunity	以太网接口: GB/T17626.5-2008; 电源接口 Power interface: 1.2/50μs, 2KV/1KA (Class 3); Ethernet interface: 10/700μs, 1KV/25A (Class 2); I/O 接口 interface: 1.5/50μs, 0.5KV/0.25KA (Class 1);	
冲击 Impact	GB/T 2423.5	
单次冲击 A single blow	15g, 11ms	
连续冲击 Continuous impact	10g, 16ms	
振动 Vibration	GB/T 2423.10	
频率范围 Frequency range	10Hz~150Hz	
幅度 Amplitude	5g	
湿度 Humidity	93%, +40℃, 2h (GB/T 2423.3)	
工作温度范围 Operating temperature range	-25℃~+50℃	
储存温度范围 Storage temperature range	-30℃~+70℃	
环境照度范围 Ambient illumination range	≤70,000lux	

## ◆ 激光雷达电源接口 Laser Radar Power Interface

电源 Power Supply	I/O	网口 Mesh port	插座 Socket	类型 Type	说明 Explain
			Dc002型 Type Dc002	电源 Power Supply	Female2芯 Female2core
			以太网 Ethernet	RJ45插座 RJ45Socket	4芯 4core
			I/O	引线 Lead wire	9芯 9core

## ◆ 激光雷达测量坐标系/扫描范围/量程

### Laser Radar Measuring Coordinate System/Scanning Range/Range



## ◆ 指示灯和操作按钮 Indicator lights and operation buttons

名称 Name	说明 Explain
ERR	工作故障指示灯 ◆ 启动状态: 亮 (12s) ◆ 常灭: 无故障 ◆ 常亮: 内部故障 ◆ 长闪烁 (0.25Hz): 高温/低温报警 ◆ 短闪烁 (1Hz): 透光罩脏污/遮挡 Work failure indicator Start state: bright (12s) Frequent extinction: fault-free Chang Liang: Internal Fault Long Scintillation (0.25Hz): High/Low Temperature Alarm Short scintillation (1Hz): dirty dirt/shielding of transmitter
HTR	工作状态指示灯 ◆ 启动状态: 灭 ◆ 常灭: 设备未开始测量/准备重启 ◆ 常亮: 设备正常测量 ◆ 闪烁 1 (0.5Hz): 准备开始自学习* ◆ 闪烁 2 (1Hz): 有监测信号输出 ◆ 闪烁 3 (2.5Hz): 正在自学习* Work failure indicator Startup status: extinction Everlasting: The equipment has not begun to measure/is ready to restart Changliang: Normal Measurement of Equipment Scintillation 1 (0.5Hz): Ready to start self-learning* Scintillation 2 (1Hz): Detection signal output Scintillation 3 (2.5Hz): Self-learning*
SLR	操作按钮 ◆ 短按 (1s~5s) 启动背景自学习 ◆ 长按 (≥6s): 重启设备 Operation button Short press (1s~5s) to start background self-learning Long press (≥6s): restart the device

\*:包括“背景自学习”和“正常目标学习”。\*: Includes "background self-learning" and "normal goal learning"

## ◆ 配件 parts

			安装螺丝、垫片及简易安装工具 Mounting screws, gaskets And easy installation tools
侧装/坐装复合支架: Ld1 1个 Side/sitting composite bracket: Ld1 1	电源电缆: LD2 一条 Power cable: Ld2	网线水晶头防水护套: LD3 Network cable crystal head waterproof jacket: Ld3	零附件: M4x8 一套 Accessories: A set of M4x8

## Tner-A31系列安全继电器模块

- 最高符合ISO13849-1的PLe标准和IEC 62061的SiL3标准经验证的双通道安全监控电路
- 多功能配置拨码开关，适用于多种安全传感器
- 输入输出LED指示
- 自动/手动复位拨杆，快速配置系统
- 宽度22.5mm，减少安装空间
- 可选螺钉端子或弹簧端子，适用范围更广
- PLC信号输出

## Tner-A31 series safety relay module

- Proven dual-channel safety monitoring circuit design up to the PLe standard of ISO13849-1 and SiL3 standard of IEC 62061
- Multi-function configuration DIP switch, applicable to a variety of safety sensors
- Input and output LED indication
- Automatic/manual reset lever to quickly configure the system
- Width 22.5mm, reducing installation space
- Optional screw terminal or spring terminal, wider application range
- PLC signal output

## 安全强制断开型继电器输出

3个常开瞬时型安全触点 (3NO) 1个常闭瞬时型安全触点 (1NC)

## 多功能配置拨码开关

- 可配置成适用于急停，光幕，门锁，触边，地毯，双手开关等多种功能。

## 安全特性

- 冗余的回路并且带有自我监控功能
- 在元器件发生故障时，安全功能依然有效
- 在每个开-闭周期中都会自动测试安全触点是否正确地断开和闭合

## Safety forced-off relay output

- 3 normally open instantaneous safety contacts (3NO), 1 normally closed instantaneous safety contacts (1NC)

## Multi-function configuration dial switch

- It can be configured for emergency stop, light curtain, door lock, edge contact, carpet, two-hand switch and other functions.

## Safety features

- Redundant circuit with self-monitoring function
- In the event of component failure, the safety function is still effective
- In each opening-closing cycle, it will automatically test whether the safety contacts are properly opened and closed

## LED指示灯 LED indicator

- 电源指示 Power indicator
- 输入状态指示 Input status indication
- 输出状态指示 Output status indication

## 自动复位开关 Automatic reset switch

- 可配置自动/手动复位开关 Configurable automatic/manual reset switch

## LCS-SRA104-2A1B/LCS-SRB104-2A1B

## 系列安全继电器模块

LCS-SRA/B型安全继电器是用于压敏传感保护装置的信号处理部件。安全继电器接受并评估带有1.2KΩ监控电阻的压敏传感器的输入信号。通过集成输出信号交换电路 (OSSD) 传输并评估接受的信号，并直接给机器的控制装置发送安全指令。

## LCS-SRA104-2A1B/LCS-SRB104-2A1B series safety relay module

The LCS-SRA/B safety relay is a signal processing component for pressure sensitive sensor protection devices. The safety relay accepts and evaluates the input signal of a pressure-sensitive sensor with a 1.2KΩ monitoring resistor.



## 技术参数 technical parameter

安全控制等级 Safety Control Level	4级 Level 4
电源电压 supply voltage	DC24/+10%/-20%
功耗 Power waste	2.9W
负载功能 Load function	AC-1:6A/250VAC/1500VA
	AC-15:4A/240VAC
	DC-1:6A/24VDC/150W
	DC-13:4A/24VDC
响应时间 Response time	<30ms(从输入到输出/From input to output)
环境温度 Ambient temperature	-25°C~85°C
环境湿度 Ambient humidity	35%~85%(No icing or condensation)
介电强度 Dielectric strength	AC1500V, 60S无击穿或闪络(No breakdown or flashover)
继电器寿命 Relay life	8000次 times
外形尺寸 Outline size	114.5mm*100.5mm*22.5mm



## LCS-SRA/B型安全继电器技术参数表

## LCS-SRA/B Safety Relay Technical Parameters

项目/型号 (Type/Project)	LCS-SRA104-2A1B	LCS-SRA134-2A1B	LCS-SRB104-2A1B	LCS-SRB134-2A1B	
Test principles 测试原理:	EN1760-1, EN1760-2, EN12978, ISO13849-1				
适用安全产品系列类型 Applicable Safety Product Series Type	安全激光雷达、安全光幕、安全地垫、安全触边 Safety Lidar, Safety Light Curtain, Secure Ground Pad, Secure Touch Edge				
性能级别 Performance	Pie	Pie	Pie	Pie	
安全类别 Security category	Cat.3	Cat.3	Cat3	Cat3	
寿命 life	机械寿命 mechanical life > 300 万次	> 300 万次	> 100 万次	> 100 万次	
使用条件 Conditions of Use	复位方式 reset mode	自动/手动 Automatic/manual	自动/手动 Automatic/manual	自动/手动 Automatic/manual	
	使用电压 service voltage	AC/DC 24 V	AC 220 V	AC/DC 24 V	
	容许电压范围 Allowable voltage range	-15%~+10% AC/ 15%~+20% DC	-15% - +10%	-15%~+10% AC/ 15%~+20% DC	-15% - +10%
	常用电流 Common Current	192 MA/89 MA	48 mA / 28 mA	192 MA/86 MA	48 mA / 28 mA
	保护电流 Protection	250 MA	250 MA	250 MA	250 MA
	耗电量 power consumption	< 5 VA/ < 3W	< 7VA	< 5 VA/ < 3W	< 7VA
时间 time	响应时间 response time	< 10 ms	< 10 ms	< 13 ms	
	再启动时间 Restart time	< 190 ms	< 190 ms	< 190 ms	
继电器输入 relay input	输入端子 input terminal	Y1、Y2	Y1、Y2	Y1、Y2	
	终端电阻 Terminating	1.2KΩ	1.2KΩ	1.2KΩ	
	触发电阻 Trigger resistance	<400 Ω	<400 Ω	<400 Ω	
	线缆电阻 Cable resistance	< 100 Ω	< 100 Ω	< 100 Ω	
	线缆长度 (max) Cable length(max)	100 m	100 m	100 m	
	开关阈值 Switch threshold	< 600 Ω	< 600 Ω	< 600 Ω	
	电览断路 Electrical circuit	> 1.8 KΩ	> 1.8 KΩ	> 1.8 KΩ	
	继电器输出 [计] relay output	输出常开端子 Output constant terminal	13, 14 / 23, 24	13, 14 / 23, 24	13, 14 / 23, 24
输出常闭端子 Output normally closed		31, /32	31, /32	31, / 32	
触点数量 Number of contacts		2NO+1NC	2NO+1NC	2NO+1NC	
开关电流 switching current (min. / max.)		10 mA/2 A	10 mA/2 A	10 mA/2 A	
开关容量 Switching capacity ( max.)		5A/24VDC	5A/220VAC	5A/24VDC	
开关机械寿命 Switching Mechanical Life		500 万次	500 麻	500 弧	
开关电气寿命 Switching Electrical Life		100 万次	100 於	100^J	
安装条件 Installation conditions		安装方式 way to install	导轨 lead rail	导轨 lead rail	导轨 lead rail
	防护等级 levels of protection	IP20	IP20	IP20	
	环境温度 ambient temperature	-20°C 到 +50°C	-20°C 到 +50°C	-20°C 到 +50°C	
	环境湿度 ambient humidity ( 23°C)	95%	95%	95%	
	外形尺寸 Dimensions	45 x 75 x 105 mm	45 x 75 x 105 mm	45 x 75 x 105 mm	
安全分类 Security classification	EN 1760-1 重置命令 Reset command	支持			
	ISO 13849-1 : 2015	Cat 3 Pie			
	MTTF <sub>d</sub>	>30 年			
	B10d	3*10 <sup>7</sup>			
	N <sub>op</sub> (接受) (accept)	52560/年			
	IEC 61508 : PFH <sub>s</sub>	6.99*10 <sup>-1</sup> 1/h(SIL3)			

## OSD-136多功能模具安全感知器



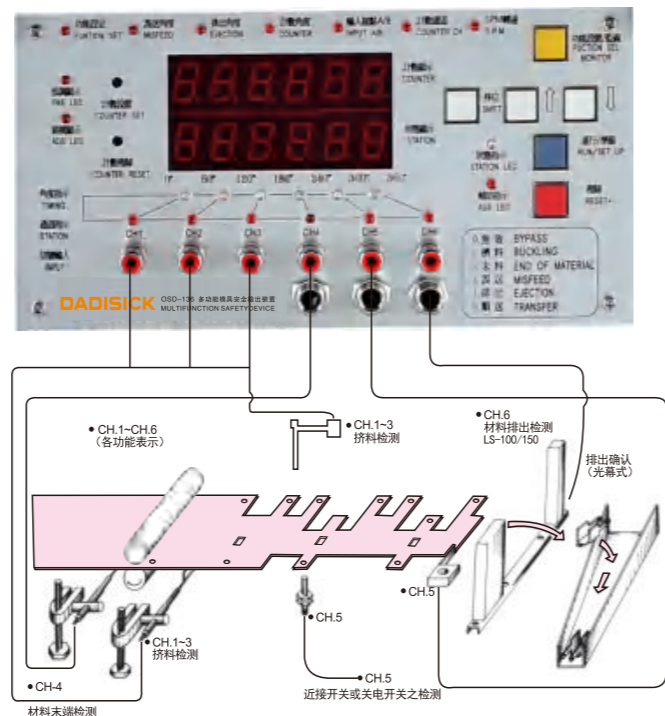
OSD-136多功能模具检出装置是冲床自动化不可缺少的先进监测器,高技术、高性能、测试 确、应用范围广泛,一致受到工业界的好评。将优良丰富的功能、监测系统内藏于主机,操作简单。在冲床自动移送、冲压加工过程中,监测模具损坏、不良品之防备、材料末端检出、波动、挤料、误送、排出通过检出等等,优点特多,保护模具,至为重要。

## QSD-136 Multifunctional Die Safety Sensor

QSD-136 multi-functional die detection device is an indispensable advanced monitor for punch automation. It has high technology, high performance, accurate testing, wide application range and has been praised by the industry. It has excellent and rich functions, and the detection system is embedded in the host computer, which is easy to operate. In the process of automatic transfer of punch press and stamping, it is very important to monitor the damage of die, the protection of defective products, the detection of material end, fluctuation, extrusion, misdelivery and discharge through detection.

- 1、六个频道,内藏五种功能。
- 2、各种功能已预设,所以只需手指一按即可操作。
- 3、当冲床凸输设定好角度,然后可配合使用三种功能,(误送、排除通过检出、计数器显示)
- 4、允许计数器积分和重新设定分数的数目广泛使用。
- 5、当讯号输入后,冲床的行程和产品的检出讯号,监控系统相当准确测试出来。

1. 6 Channels, 5 Functions.
2. Various functions are preset, so it can be operated with a single finger press.
3. When the projection output of the punch is set at a good angle, three functions can be used together. (Misdelivery, exclusion through detection, counter display).
4. Allow the number of counter integrals and reset scores to be widely used.
5. When the signal is input, the inspection signal of the punch's stroke and product can be detected accurately by the monitoring system.
6. Universal for a wide range of applications such as fixed time.
7. The number of walks per minute is displayed on the display panel.
8. Once the channels are set up, their monitoring function and action status are confirmed, the normal operation will begin with the press of the finger.
9. Detection and verification system that can easily cooperate with economical sensors



- |        |               |        |          |
|--------|---------------|--------|----------|
| 0、无效   | BYPASS        | 3、误送检知 | MISFEED  |
| 1、挤料检知 | BUCKLING      | 4、排出检知 | EJECTION |
| 2、末料检知 | ENDOFMATERIAL | 5、顺送检知 | TRANSFER |

- 6、适用于定时间等范围广阔的多用途。
- 7、每分钟行走的次数由显示板显示出来。
- 8、各频道设定好,其监测功能,动作状态等确认后,用手指一按便开始正常操作。
- 9、可轻易配合经济的感应器去侦察检定系统。

功能设定: 111234 Function setting ▶ 111234	CH1-3 功能设定 1挤料检出 CH4 功能设定 2末料检出 CH5 功能设定 3误送检出 CH6 功能设定 4通过检出	CH1-3 Function setting 1 Extrusion detection CH4 Function setting 2 Final material detection CH5 Function setting 3 Misfeed detection CH6 Function setting 4 Through detection
误差角度: 60° ~90° Misdelivery angle ▶ 06090 排除角度: 200° ~30° Exclusion angle ▶ 200030	[角度设定]前3位是超始角ON,后三位是结束角度OFF。功能3、4的角度,本机出厂时已预设为此角度。	[Angle setting] The first three are super-start angle ON and the last three are end angle . OFF.Function 3, 4 angle, the machine has
计数角度: 320° Counting angle ▶ 320	[计数角度]计数器在此角度计数,当达到预设值时,在此角度发出停止信号。	The counter counts at this angle, and when the preset value is reached, a stop signal is sent at this angle.
输入信号A/B切换: Input signal A/B switching ▶ AAAbAA	[输入信号切换]输入信号接点A(常开)B(常闭)可相互切换	The counter counts at this angle, and when the preset value is reached, a stop signal is sent at this angle.
计数通道设定: Counting channel setting ▶ 0 0	[计数通道设定]可以设定由哪一个通道进行计数,「0」表示由凸轴信号计数。	[Input signal switching] Input signal contacts A (normally open) B (normally closed) can be switched.
转速设定: ( SPM ) Speed setting ▶ 0 0 0	[转速检出]转速设定第22次后开始比较,如果与设定转速有±20%的误差,即发出停止信号。	[Speed detection] Comparisons begin after the 22nd speed setting. If there is an error of (+20%) between the speed setting and the
动作显示: Motion display ▶ -	[动作表示]每跳动一格为60°。	
异常显示: Abnormal display ▶ 4	[异常显示]当机台检测到异常后,通道上方的功能数字会闪烁。	[Abnormal display] The function number above the channel will flicker when the
无效: invalid ▶ 00000	[检出无效]功能设定为「0」时,所有功能均无效。	When the detection function is set to "0", all functions are invalid.

### OSD-136

检出回路	Channel	6CH. 独立检出 6check individually
使用电压	Power	AC85V~260V、50/60HZ
消耗电力	Power consumption	15W以下 < 15W
输出信号	Output signal	继电器/A/B ( 220V3A ) Relay/A/B ( 220V3A )
延迟时间	Delayed time	10ms以内 < 10ms
周围温度	Applicable temperature	-10℃~50℃
输入信号	Inprt signal	DC12V、检测装置 DC12V、detecting device
标准配件	Standard accessories	侦测棒单叉2支、七芯讯号线1条、预备凸轴线1条 Detetring red 2ps;proximity switch 1set;length of join cable 1pcs
外形尺寸	Dimension	180W × 210L × 110H

### LS-100/150

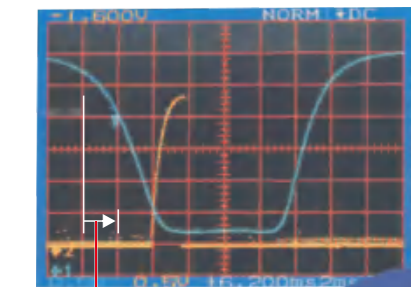
检出幅	Checking amplitude	LS-150最大150mm/LS-100最大100mm(红外线侦测) LS-150 150mm(MAX)/LS-100 100mm(MAX)
最小检出	Minimum check	Φ2mm ( 距离设定0.5m ) 不透明体 Φ2mm(checking distance:0.5M)opacity
检出距离	Checking distnce	500mm以内 < 500mm
电源电压	Power	DC12V
消费电力	Power consumption	60mA以下 < 60mA
输出指示	Indicating lamp	(绿色)电源、红色(通过表示) Green:power,red:pass
感度调整	Sensibility	依检测物大小调整 A djusted by the shape of material and distance
周围温度	Applicable temperature	-10℃~50℃
反应速度	Response speed	1msec以下 < 1ms
连接线长	Length of joint cable	2.5M
外形尺寸	Dimension	40W × 210L × 180H

## ◆ OSD-214/212高精度微电脑下死点检出器

OSD-214/212是最新研发出来的高精度下死点检出器，本公司特别开发出内部角度设定方式，且分解程度选到0.1 μM。对于以往很难检测到的凸底模具等，能非常容易的进行检测。

## ◆ OSD-214/212 High Precision Dead Point Detector for Microcomputer

OSD-214/212 is the latest developed high-precision lower dead-point detector. Our company has developed an internal angle setting method, and the degree of decomposition is 0.1 μm. For the convex bottom die which is difficult to detect in the past, it can be very easy to detect.



### 0.1 μM/1 μM自动切换

OSD-214/212是最新研发出来的高精度下死点检出器，本公司特别开发出内部角度设定方式，且分解程度选到0.1 μM。对于以往很难检测到的凸底模具等，能非常容易的进行检测。

### 0.1 μM/1 μM Automatic Switchover

0.1 μM/1 μM can be automatically switched according to the size of the set value. Generally speaking, the accuracy of punch press is less than a few meters, while the plastic plate of die is less than one hundred meters. Under stable production

此角度范围最接近产品的设定范围  
This angle range is closest to the set range of the product

设定角度显示  
Setting Angle Display

设定复归键 Setting the Return Key  
异常时按此键恢复监视  
Press this key to resume monitoring when an exception occurs

#### 角度设定 Angle setting

0.0° 内部角度安全检测 (模具强压以后检测) 0.0° internal angle safety inspection (test after strong mold pressure)  
0.1° ~99.9° 内部角度 (模具强压以前检测) 0.1° ~99.9° internal angle (tested before mold pressure)

#### 交换模具时不用调整

感测头的设定间隙会自动读取演算，所以在更换模具时，感测头的间隙不超过0.7~1.5mm范围内，无需调整。

#### 内部、内部角度、外部角度可选择

依使用模具的种类来选择角度种类，0.0度内部角度是在下死点自动检测，外部角度/内部角度设定则在脱料板到下死点之间可任意设定。

#### 以 μM表示的LED显示

以 ± 表示差异。1 μM/0.1 μM自动切换。且设定值与变差值可同时显示在高速运转中可容易观察。

#### 表示单位

0.1 μM范围检测时灯亮

#### 设定值表示

通常 ± 设定值是相同的，但也可以个别设定

#### 检测通道选择

设定通道选择键，于停止时会自动显示造成异常停止的通道，但按设定键时，会变成设定值增/减键。按角度键时，会变成角度增/减键。

#### No need to adjust when switching dies

The setting clearance of the sensor will read the calculus automatically, so when replacing the die, the clearance of the sensor does not exceed 0.7-1.5 mm, and need not be adjusted.

#### Internal, internal and external angles are optional

Depending on the type of mould used to select the angle type, 0.0 degree internal angle is automatically detected at the lower dead point, while the setting of external angle/internal angle can be arbitrarily set between the stripper and the lower dead point.

#### LED Display in μM

The difference is expressed by (±). 1 μM/0.1 μM automatic switching. The set value and variation value can be displayed at the same time and can be easily observed in high-speed operation.

#### Unit of expression

Lighting on 0.1 μM range detection

#### Set Value Representation

Usually the setting value is the same, but it can also be set individually.

#### 停止通道自动显示

在异常检知的停止场合，会自动切换到异常通道。

#### Stop Channel Automatic Display

In the case of stop of anomaly detection, it will automatically switch to the anomaly channel. of 0.1 millimeters as a unit to test.

#### 检测头的间隙显示 Gap Display of Detection Head

在MONITOR键中，OFF的状态下会显示感测头与感应板(脱料板)的间隙。在调节感测头距离时非常方便。

In the MONITOR key, the gap between the sensor and the sensing plate (stripper) is displayed in the OFF state. It is very convenient to adjust the distance between sensors.

#### 每个检测模具可直接选择开/关

Each inspection die can be switched on/off directly.

#### 设定 Set up

按此键可更改设定值。  
Press this key to change the settings.

## 新开发内部角度检测，可以跳屑被强压前检测

New development of internal angle detection can detect chip before being pressed

### 角度模式的选择表 Selection Table of Angle Patterns

普通模具 Ordinary mold	底模凸起 高压力脱料板模具 Bottom die raised high pressure stripper die
内部角度(0.0°) Internal angle(0.0°)	内部角度设定(0.1°~99.9°) Internal Angle Setting(0.1°~99.9°)

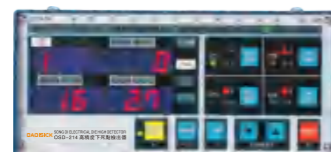
### 规格 Specifications

项目 project	参数 parameter
检出通道数 Number of detected channels	4(OSD-214), 2(OSD-212)
检出精度 Detection accuracy	1 μm or 0.1 μm
设定最大值 Set maximum	200 μm or 20.0 μm
冲床置于下死点时感应头基准距离 Datum Distance of Induction Head when Punch Press is at Lower Dead Point	0.7~1.5mm(BDC)
感测线 Sensing line	标准 (standard) 3m~5m
最大运转速度 Maximum operating speed	4000SPM(MAX)
电源电压 Supply voltage	AC 100~240V ± 10% 50/60HZ AC 100V~240V ± 10% 50/60HZ
消费电力 Electricity consumption	22VA 最大 Maximum
重量 Weight	2.8Kg
外部尺寸 External dimensions	210 × 94 × 184(mm)
使用周围温度 Use ambient temperature	-10~55℃
使用周围湿度 Use ambient humidity	35~85%RH

## OSD-214/212高精度微电脑下死点检出器

OSD-214/212 High Precision Dead Point Detector for Microcomputer

### OSD-214



正面 Positive



后面 behind



安全传感器专家  
Safety sensor expert



Space-saving and Robust

Slim: Type 2 Safety Light Curtains for Hand Protection.