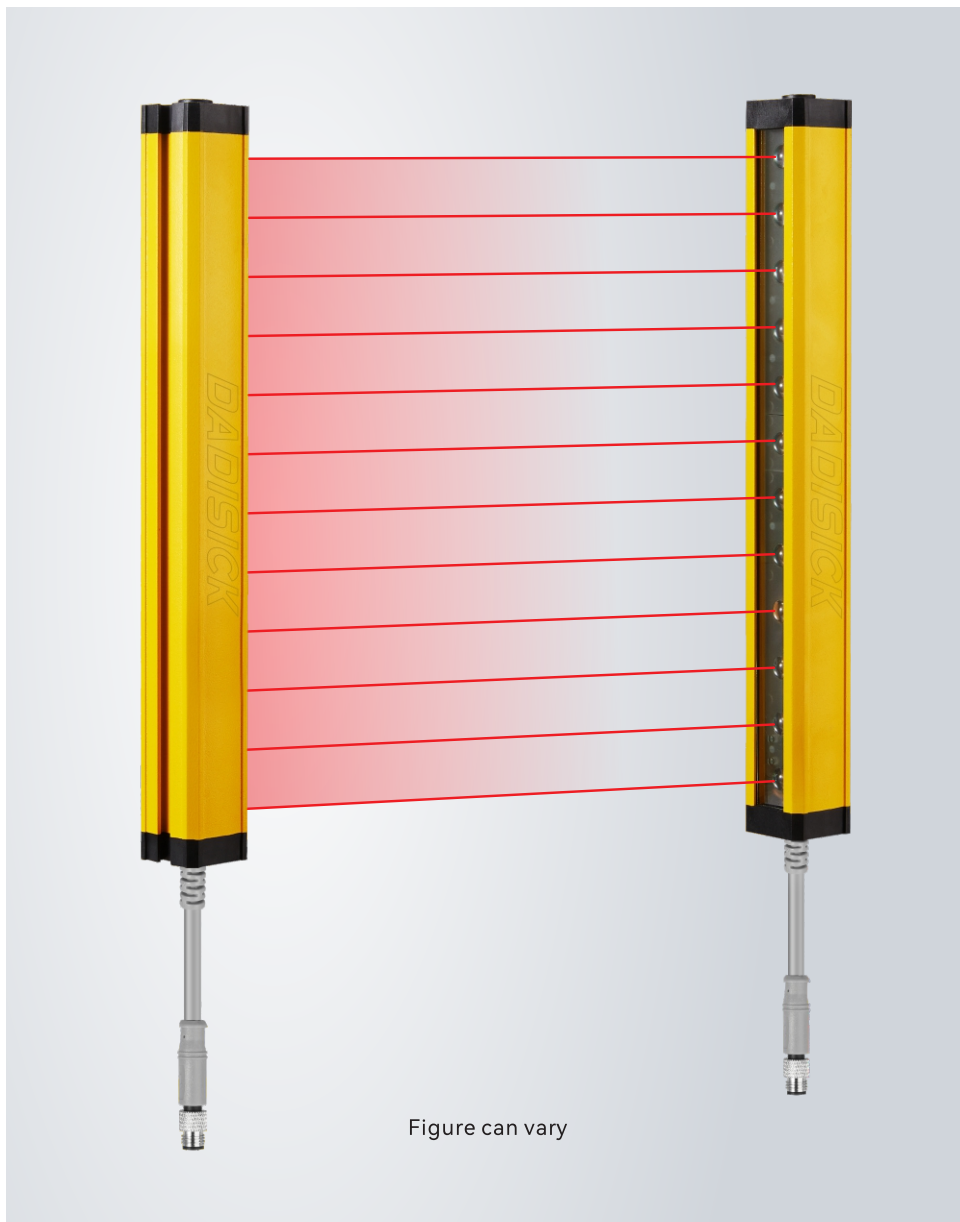


# TECHNICAL DATA SHEET

## SAFETY LIGHT CURTAIN SENSOR Emitter and Receiver KT series



### Contents

- Product application
- Resolution ratio
- Technical data
- Operation and display
- Dimensioned drawings
- Electrical connection
- Wiring diagram
- Accessories



Solutions

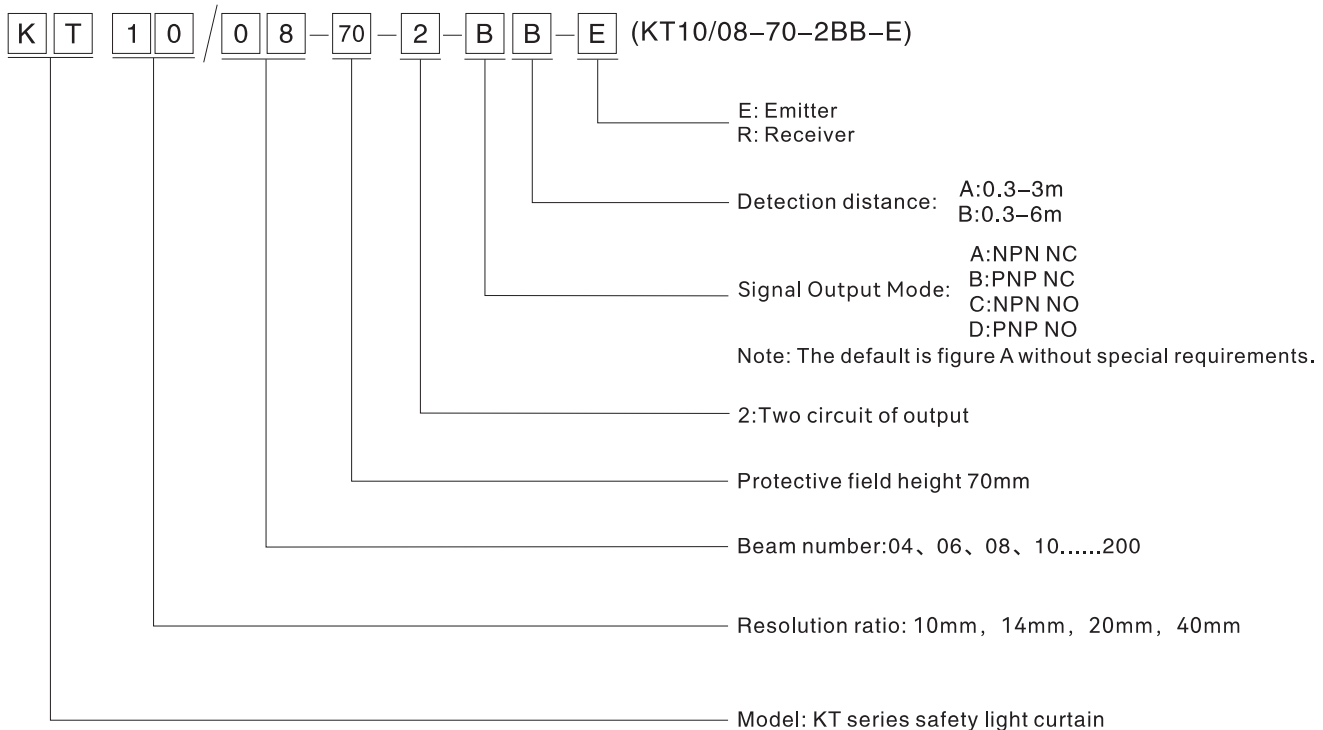


GB/T 19001-2016

## Product application

- A. Light curtain can achieve full protection for the slider can be stopped at any position on the press machine.
- B. The light curtain can only achieve upper dead point protection if the slider can not be stopped at any position on the press machine.
- C. Realize the regional protection for the industry manipulator, injection molding machines, packaging equipment, automation equipment, assembly wires and other dangerous work area.
- D. Used to detect and alarm object.

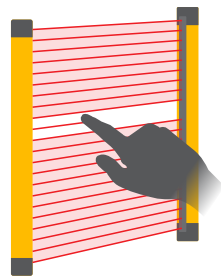
## The specifications of KT type safety light curtain are as follows:



## Resolution ratio

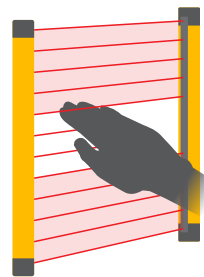
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

### Finger protection



Detection capability  
**10/14/20mm**  
diameter

### Hand protection



Detection capability  
**40mm**  
diameter

## Technical data

### Basic data of Receiver and Emitter

Standard packaging	
Product model	<b>KT series</b>
Standard configuration	One receiver, one emitter, two data lines, one right-angle rack, and one t-shaped screw
Light curtain form	Infrared radiation type
Application	Standard industrial environment

Features	
Resolution ratio	10mm, 14mm, 20mm, 40mm
Check the accuracy	18mm, 22mm, 28mm, 48mm
Number of beams	04、06、08、10.....200
Overall dimension	29mm*29mm*L, L is the length of emitter and receiver.
Detection distance	30-6000mm
Response time	≤15ms

Synchronization	
Consumption current	≤200mA
Output mode	2-circuit of PNP, with current of 500mA and voltage below 1.5V, polarity, short circuit and over-cutting protection
Output status	ON (receiving indicator green light)
Indicator light	Transmitter: power indicator light (red); receiver: output indicator light on (green), blackout (red)
Wavelength	850nm
Type of light	Infrared light (NIR), invisible
Function	Automatic reset

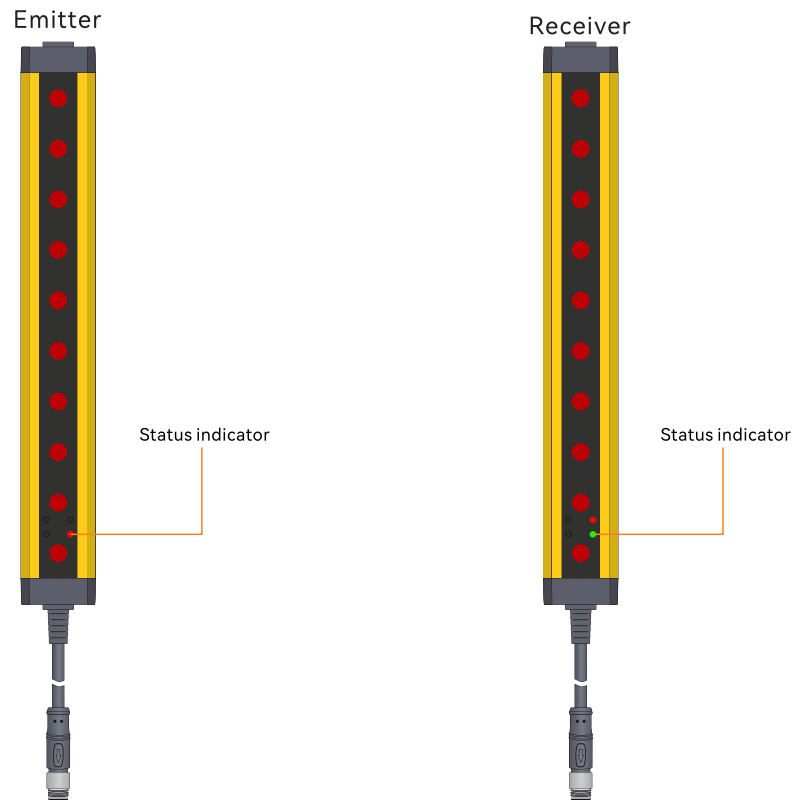
Mechanical data	
Housing material	Metal
Metal shell	Aluminium
Lens front screen material	Acrylic
Upper and lower cover materials	ABS reinforced nylon PA66+30% GF






Performance data	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC, -20...20%
Maximum current consumption	150mA
Fuse	2A half time interval

Environmental data	
Protection grade	IP65
Resistance to ambient light	Incandescent light: illumination of light-receiving surface 3000Lx; Sunlight: illumination of light-receiving surface 10000Lx
Ambient temperature	Working temperature: - 10~+40 °C (but not frozen), storage temperature: - 25 -+55 °C
Ambient humidity	Working time: 35~85% RH, saving time: 35~95% RH

Output	
Number of safe output circuits (OSSD)	2-circuit
Type	Safety circuit output circuit OSSD
Minimum switch voltage high	18V
Minimum switch voltage low	2.5V
Typical switching voltage	22.5V
Voltage type	DC
Maximum current load	380mA
Load inductance	two thousand
Load capacity	zero point three
Maximum residual current	0.2mA
Typical residual current	0.002MA
Voltage drop	1.5V
Safety switch output 1	Connection pin 4, WHITE OSSD1
Switching element	Transistor PNP
Safety switch output 2	Connection pin 3, BLACK OSSD2
Switching element	Transistor PNP
Certificate	
CE TÜV	No.E8A 104143 0001 Rev.00
ROHS certification	No.BSTDG180811032001CC
CE TYPE 4	No.ICR Polska/VC/HS221214
UL	No. 4790783741.1-S
GB/T	No. HIC180327 GB/T 19001-2016 idt ISO 9001:2015

## Operation and display

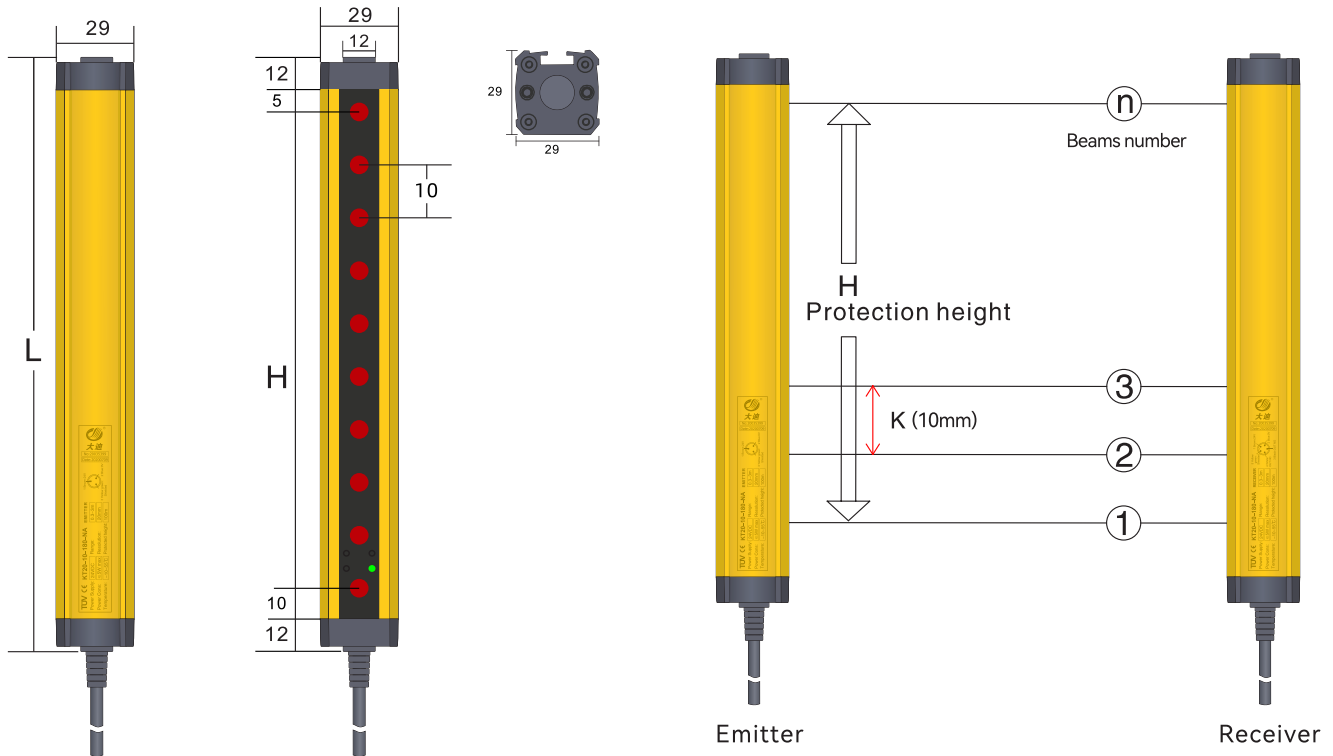


Normal operation of light curtain	LED Indicator status	Explain
Emitter	 Red, always on	Turns on the power
	 Receiver and emitter are red	Receiver and Emitter are not aligned
Receiver	 Green	All light paths are connected
	 Red	Light path shading
	 Lights flashing	Interference or overstep detection range

## Dimensioned drawings

Unit: mm

## 1. KT 10mm series



Remarks: L: Total length of light screen

H: Height of protected area

K: Resolution ratio

$$L = 12 + 5 + H + 10 + 12$$

$$H = (n - 1) * 10$$

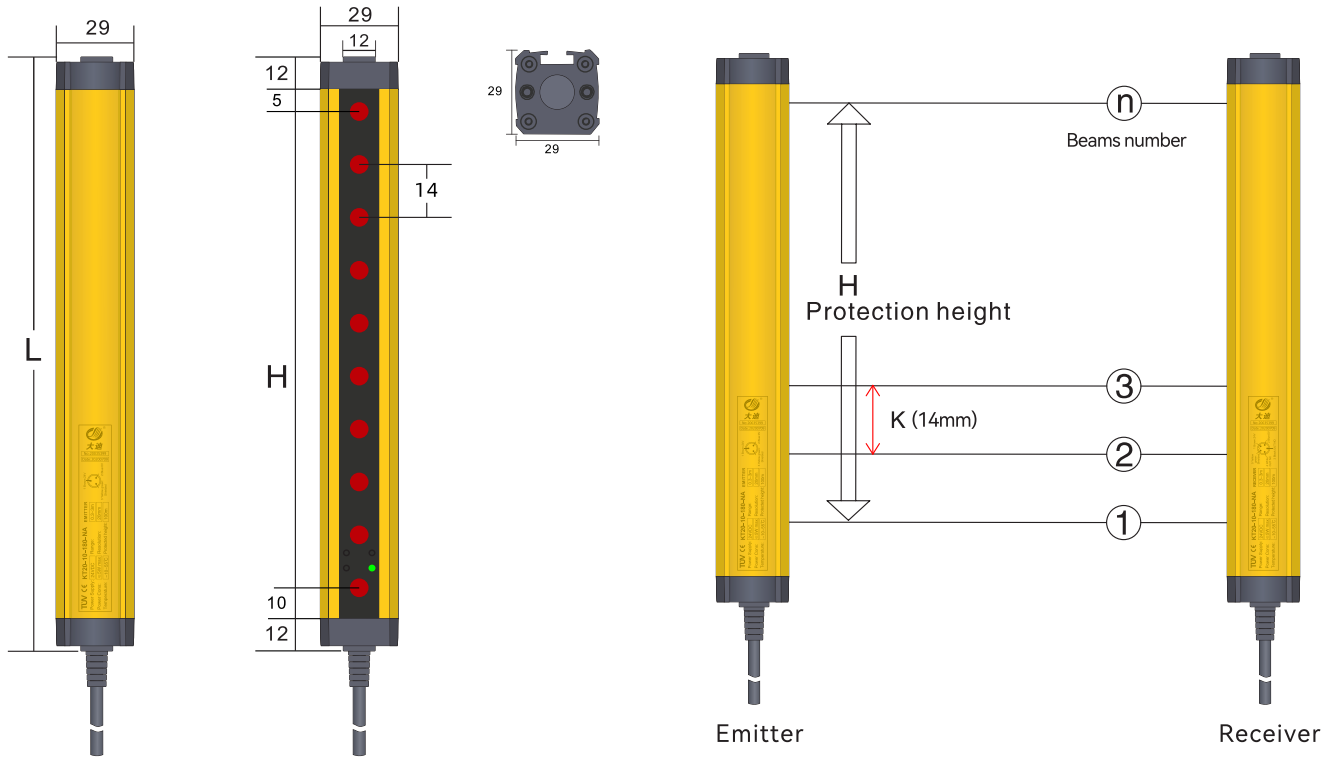
n: Beams number

## KT 10mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
10mm (K)	8	70	109	KT10/08-70	2	PNP	0.3-6m
	10	90	129	KT10/10-90	2	PNP	0.3-6m
	12	110	149	KT10/12-110	2	PNP	0.3-6m
	14	130	169	KT10/14-130	2	PNP	0.3-6m
	16	150	189	KT10/16-150	2	PNP	0.3-6m
	18	170	209	KT10/18-170	2	PNP	0.3-6m
	20	190	229	KT10/20-190	2	PNP	0.3-6m
	22	210	249	KT10/22-210	2	PNP	0.3-6m
	24	230	269	KT10/24-230	2	PNP	0.3-6m
	26	250	289	KT10/26-250	2	PNP	0.3-6m
	28	270	309	KT10/28-270	2	PNP	0.3-6m
	30	290	329	KT10/30-290	2	PNP	0.3-6m
	32	310	349	KT10/32-310	2	PNP	0.3-6m
	34	330	369	KT10/34-330	2	PNP	0.3-6m
	36	350	389	KT10/36-350	2	PNP	0.3-6m
	38	370	409	KT10/38-370	2	PNP	0.3-6m
	40	390	429	KT10/40-390	2	PNP	0.3-6m
	42	410	449	KT10/42-410	2	PNP	0.3-6m
	44	430	469	KT10/44-430	2	PNP	0.3-6m
	46	450	489	KT10/46-450	2	PNP	0.3-6m
48	470	509	KT10/48-470	2	PNP	0.3-6m	
50	490	529	KT10/50-490	2	PNP	0.3-6m	
52	510	549	KT10/52-510	2	PNP	0.3-6m	
54	530	569	KT10/54-530	2	PNP	0.3-6m	
...	...	...	...	...	2	PNP	0.3-6m
196	1950	1989	1989	KT10/196-1950	2	PNP	0.3-6m
198	1970	2009	2009	KT10/198-1970	2	PNP	0.3-6m
200	1990	2029	2029	KT10/200-1990	2	PNP	0.3-6m

## 2. KT 14mm series

Unit: mm



Remarks: L: Total length of light screen

H: Height of protected area

K: Resolution ratio

$$L = 12 + 5 + H + 10 + 12$$

$$H = (n - 1) * 14$$

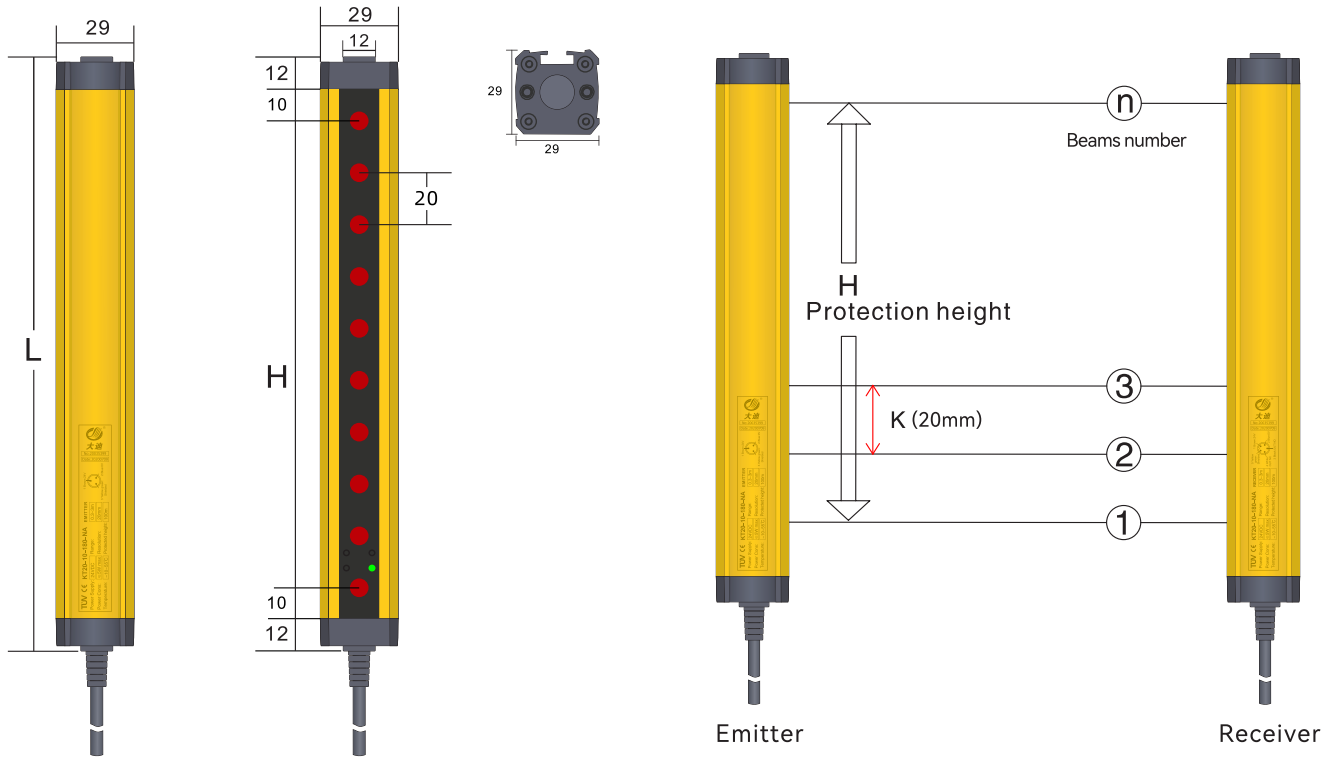
n: Beams number

## KT 14mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
14mm (K)	6	70	109	KT14/06-70	2	PNP	0.3-6m
	8	98	137	KT14/08-98	2	PNP	0.3-6m
	10	126	165	KT14/10-126	2	PNP	0.3-6m
	12	154	193	KT14/12-154	2	PNP	0.3-6m
	14	182	221	KT14/14-182	2	PNP	0.3-6m
	16	210	249	KT14/16-210	2	PNP	0.3-6m
	18	238	277	KT14/18-238	2	PNP	0.3-6m
	20	266	305	KT14/20-266	2	PNP	0.3-6m
	22	294	333	KT14/22-294	2	PNP	0.3-6m
	24	322	361	KT14/24-322	2	PNP	0.3-6m
	26	350	389	KT14/26-350	2	PNP	0.3-6m
	28	378	417	KT14/28-378	2	PNP	0.3-6m
	30	406	445	KT14/30-406	2	PNP	0.3-6m
	32	434	473	KT14/32-434	2	PNP	0.3-6m
	34	462	501	KT14/34-462	2	PNP	0.3-6m
	36	490	529	KT14/36-490	2	PNP	0.3-6m
	38	518	557	KT14/38-518	2	PNP	0.3-6m
	40	546	585	KT14/40-546	2	PNP	0.3-6m
	42	574	613	KT14/42-574	2	PNP	0.3-6m
	44	602	641	KT14/44-602	2	PNP	0.3-6m
46	630	669	KT14/46-630	2	PNP	0.3-6m	
48	658	697	KT14/48-658	2	PNP	0.3-6m	
50	686	725	KT14/50-686	2	PNP	0.3-6m	
52	714	753	KT14/52-714	2	PNP	0.3-6m	
...	...	...	...	...	2	PNP	0.3-6m
196	2730	2769	KT14/196-2730	2	PNP	0.3-6m	
198	2758	2797	KT14/198-2758	2	PNP	0.3-6m	
200	2786	2825	KT14/200-2786	2	PNP	0.3-6m	

## 3. KT 20mm series

Unit: mm



Remarks: L: Total length of light screen

H: Height of protected area

K: Resolution ratio

$$L = 12 + 10 + H + 10 + 12$$

$$H = (n - 1) * 20$$

n: Beams number

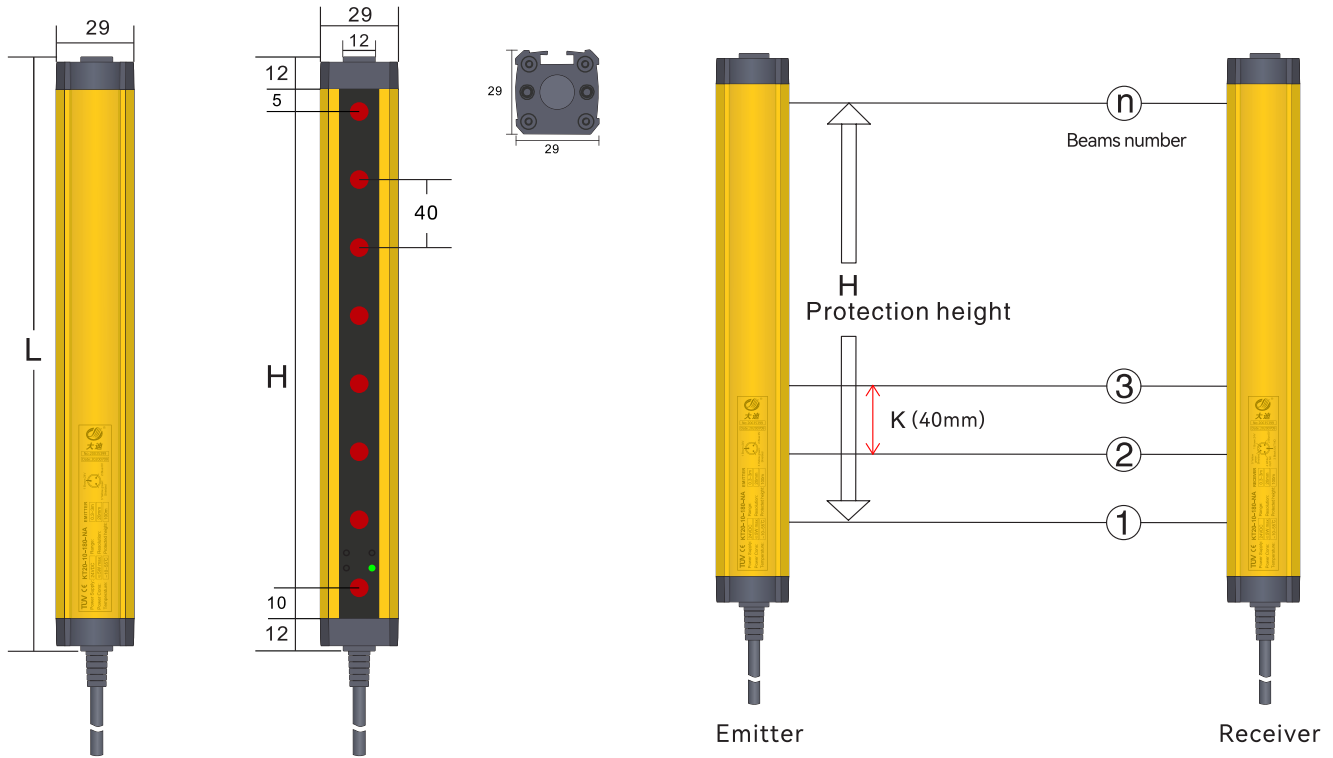
## KT 20mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
20mm (K)	6	100	144	KT20/06-100	2	PNP	0.3-6m
	8	140	184	KT20/08-140	2	PNP	0.3-6m
	10	180	224	KT20/10-180	2	PNP	0.3-6m
	12	220	264	KT20/12-220	2	PNP	0.3-6m
	14	260	304	KT20/14-260	2	PNP	0.3-6m
	16	300	344	KT20/16-300	2	PNP	0.3-6m
	18	340	384	KT20/18-340	2	PNP	0.3-6m
	20	380	424	KT20/20-380	2	PNP	0.3-6m
	22	420	464	KT20/22-420	2	PNP	0.3-6m
	24	460	504	KT20/24-460	2	PNP	0.3-6m
	26	500	544	KT20/26-500	2	PNP	0.3-6m
	28	540	584	KT20/28-540	2	PNP	0.3-6m
	30	580	624	KT20/30-580	2	PNP	0.3-6m
	32	620	664	KT20/32-620	2	PNP	0.3-6m
	34	660	704	KT20/34-660	2	PNP	0.3-6m
	36	700	744	KT20/36-700	2	PNP	0.3-6m
	38	740	784	KT20/38-740	2	PNP	0.3-6m
	40	780	824	KT20/40-780	2	PNP	0.3-6m
	42	820	864	KT20/42-820	2	PNP	0.3-6m
	44	860	904	KT20/44-860	2	PNP	0.3-6m
46	900	944	KT20/46-900	2	PNP	0.3-6m	
48	940	984	KT20/48-940	2	PNP	0.3-6m	
50	980	1024	KT20/50-980	2	PNP	0.3-6m	
52	1020	1064	KT20/52-1020	2	PNP	0.3-6m	
...	...	...	...	...	2	PNP	0.3-6m
196	3900	3944	3944	KT20/196-3900	2	PNP	0.3-6m
198	3940	3984	3984	KT20/198-3940	2	PNP	0.3-6m
200	3980	4024	4024	KT20/200-3980	2	PNP	0.3-6m



## 4. KT 40mm series

Unit: mm



Remarks: L: Total length of light screen  
 $L = 12 + 10 + H + 10 + 12$

H: Height of protected area  
 $H = (n - 1) * 40$

K: Resolution ratio  
 n: Beams number

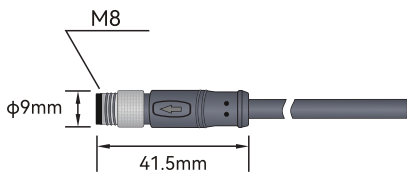
## KT 40mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
40mm (K)	4	120	164	KT40/04-120	2	PNP	0.3-6m
	6	200	244	KT40/06-200	2	PNP	0.3-6m
	8	280	324	KT40/08-280	2	PNP	0.3-6m
	10	360	404	KT40/10-360	2	PNP	0.3-6m
	12	440	484	KT40/12-440	2	PNP	0.3-6m
	14	520	564	KT40/14-520	2	PNP	0.3-6m
	16	600	644	KT40/16-600	2	PNP	0.3-6m
	18	680	724	KT40/18-680	2	PNP	0.3-6m
	20	760	804	KT40/20-760	2	PNP	0.3-6m
	22	840	884	KT40/22-840	2	PNP	0.3-6m
	24	920	964	KT40/24-920	2	PNP	0.3-6m
	26	1000	1044	KT40/26-1000	2	PNP	0.3-6m
	28	1080	1124	KT40/28-1080	2	PNP	0.3-6m
	30	1160	1204	KT40/30-1160	2	PNP	0.3-6m
	32	1240	1284	KT40/32-1240	2	PNP	0.3-6m
	34	1320	1364	KT40/34-1320	2	PNP	0.3-6m
	36	1400	1444	KT40/36-1400	2	PNP	0.3-6m
	38	1480	1524	KT40/38-1480	2	PNP	0.3-6m
	40	1560	1604	KT40/40-1560	2	PNP	0.3-6m
	42	1640	1684	KT40/42-1640	2	PNP	0.3-6m
44	1720	1764	KT40/44-1720	2	PNP	0.3-6m	
46	1800	1844	KT40/46-1800	2	PNP	0.3-6m	
48	1880	1924	KT40/48-1880	2	PNP	0.3-6m	
50	1960	2104	KT40/50-1960	2	PNP	0.3-6m	
...	...	...	...	...	2	PNP	0.3-6m
96	3800	3844	KT40/96-3800	2	PNP	0.3-6m	
98	3880	3924	KT40/98-3880	2	PNP	0.3-6m	
100	3960	4004	KT40/100-3960	2	PNP	0.3-6m	

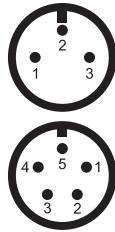
## Electrical connection

Electrical interface	
Number of interfaces	2 (receiver and emitter)
Type	Emitter with M8 connector 3-pin, Receiver with M8 connector 5-pin
Interface metal	Copper nickel plating
Plug material	GY384 gray 30P
Allowable typical conductor section	0.25mm <sup>2</sup>
Maximum link cable	100m
Maximum allowable cable load	4.9A
Cable material	PVC

### Cable description:



3-pin and 5-pin M8 cable connector straight  
3m waterproof cable

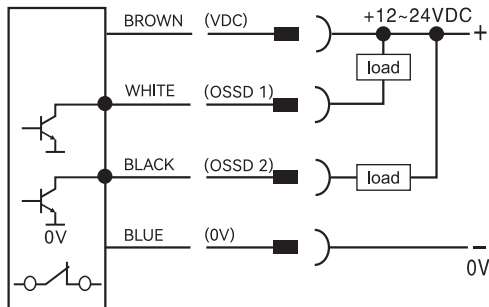


Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
-	-	-
-	-	-
3	YELLOW	Ground wire

Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	OSSD 2
4	WHITE	OSSD 1
5	YELLOW	Ground wire

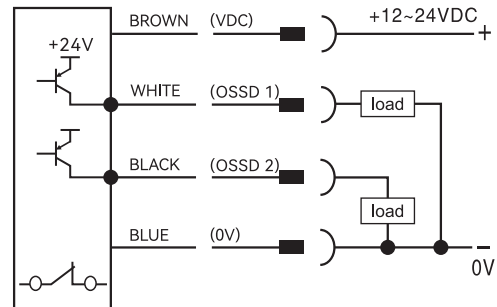
### 1. KT signal output selection (actual output of transistor working normally)

#### NPN NC



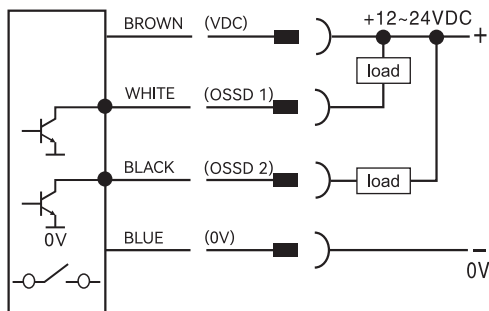
A

#### PNP NC



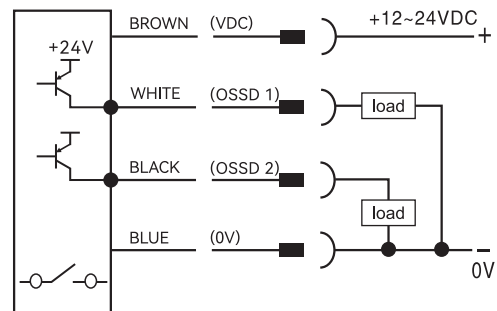
B

#### NPN NO



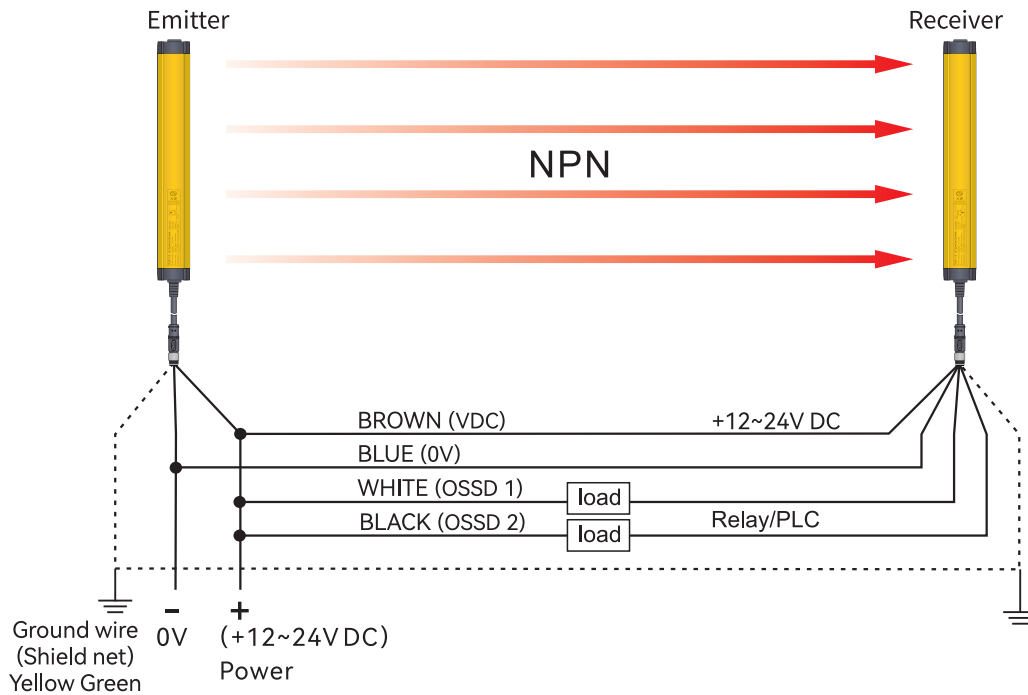
C

#### PNP NO



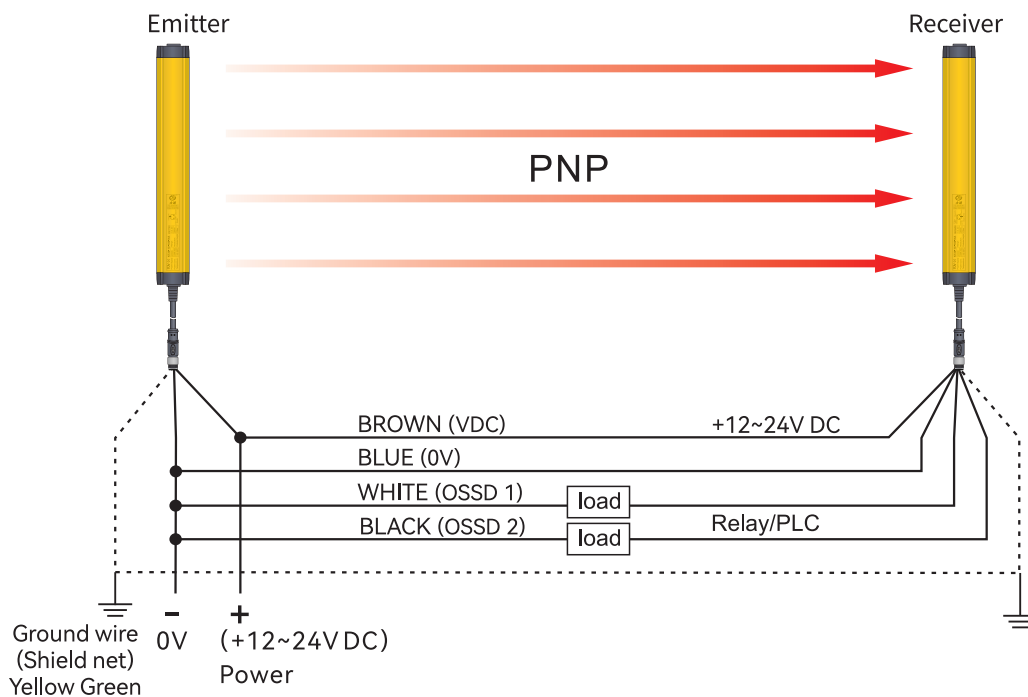
D

## 2. NPN output wiring diagram








This picture is an example of NPN output wiring

## 3. PNP output wiring diagram

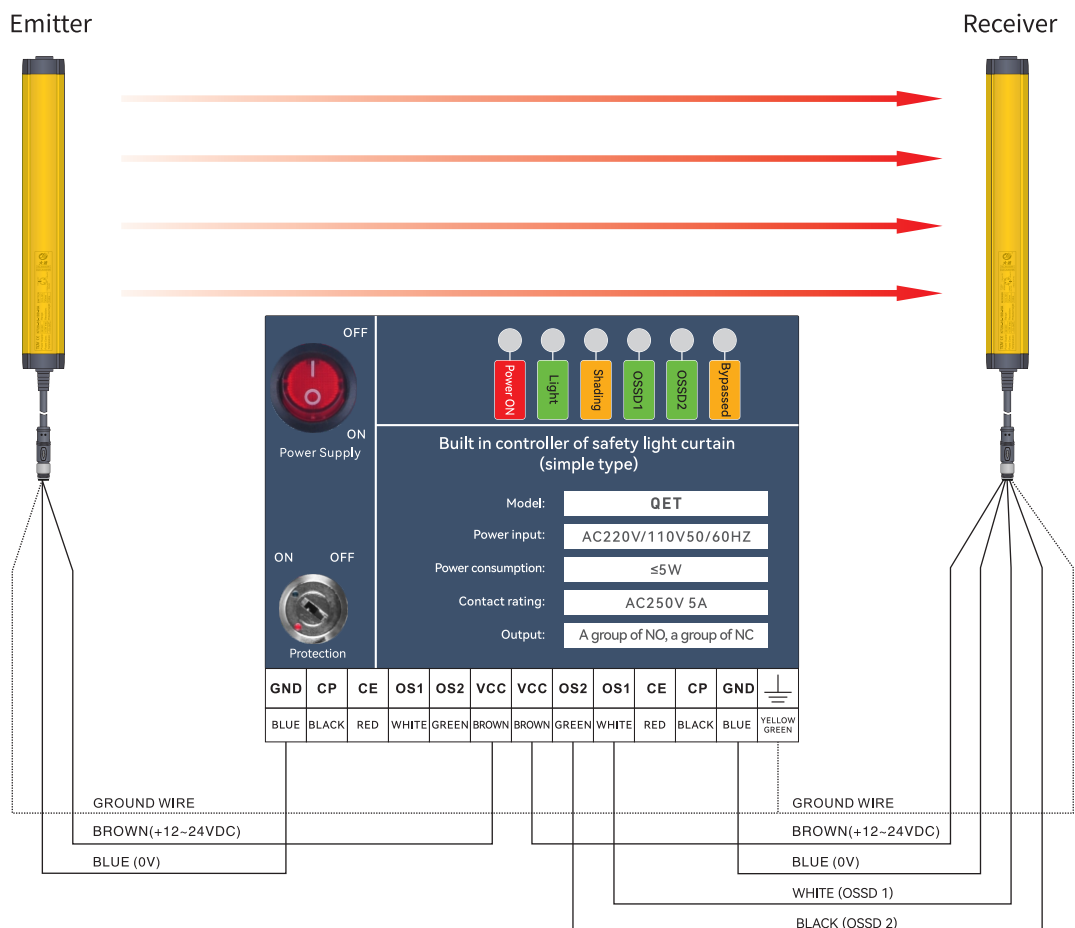


This picture is an example of PNP output wiring

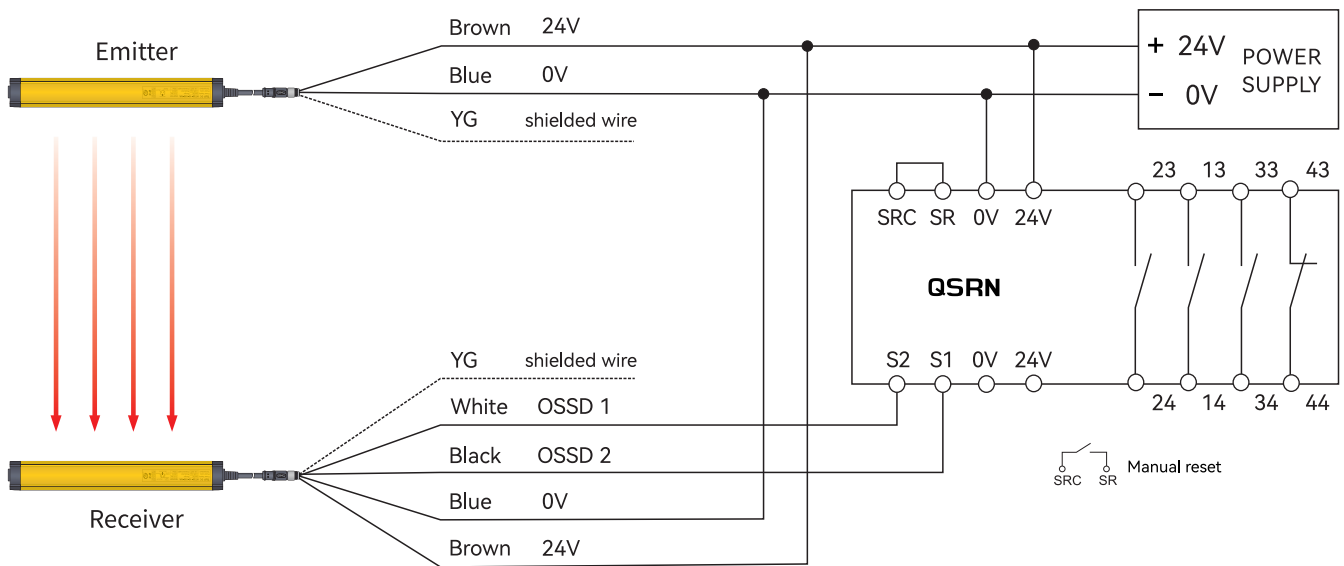
#### 4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		QET	Used to monitor the signal processing of KT series light curtain, and output one group of NO and one group of NC.
Safety relay		QSRN	QSRN safety relays have three groups of NO and one group of NC, with strong control capabilities. They are suitable for various signal monitoring in industrial places with high safety requirements, including emergency stop signals, safety door opening and closing signals, safety light curtain signals, and two-handed button signals.
Safety relay	  Multifunctional switching switch	Ter-A	Equipped with a mode switch, it can be used for most safety components, such as light curtains, safety switches, carpet contacts, two handed switches, etc. Automatic/manual reset paddles for quick configuration. Dual channel monitoring circuit, safe and reliable.
Light curtain relay		QET-1	Output conversion between NC and NO for KT series light curtain.

#### 4.1 Wiring diagram of QET built-in controller

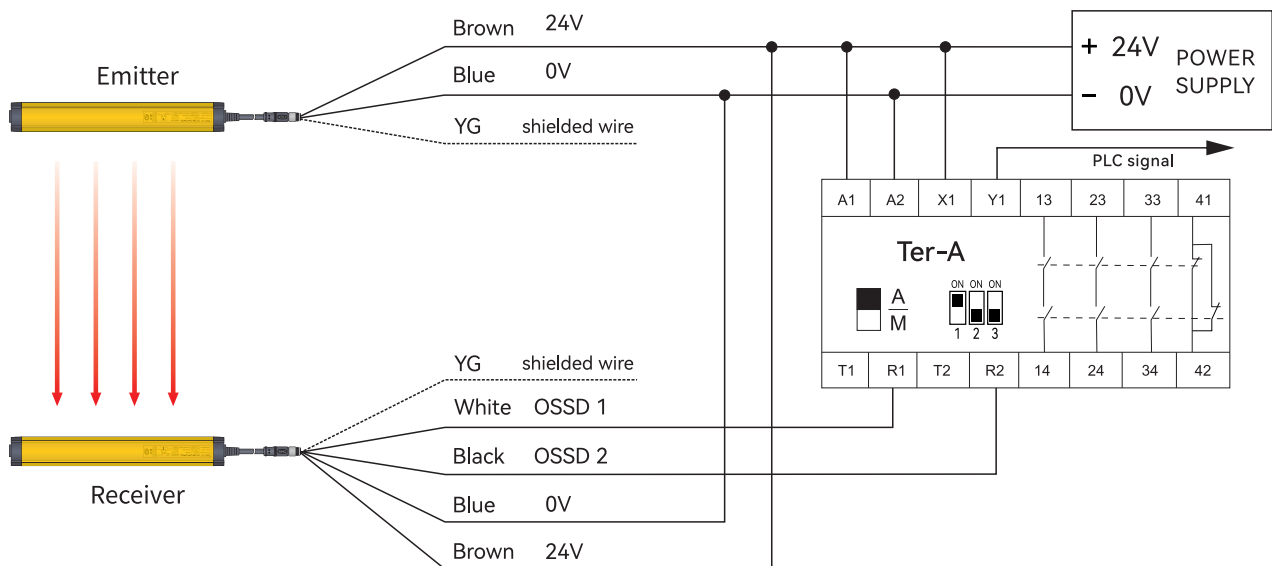


## 4.2 Wiring diagram of QSRN safety relay

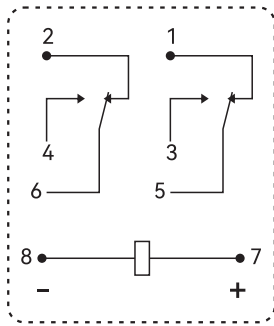


## 4.3 Wiring diagram of Ter-A safety relay

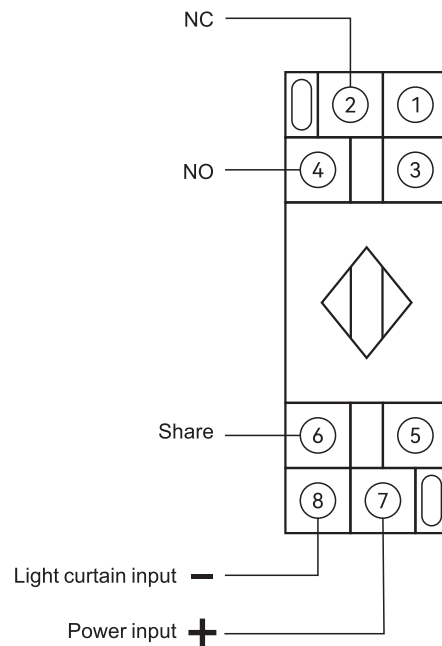
Dual channel light curtain PNP switch safety input, with automatic reset and PLC signal output.



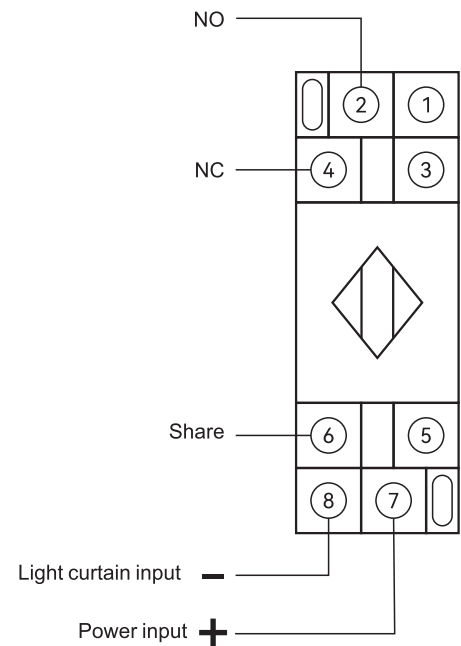
#### 4.4 Wiring diagram of QET-1 light curtain relay



Circuit diagram



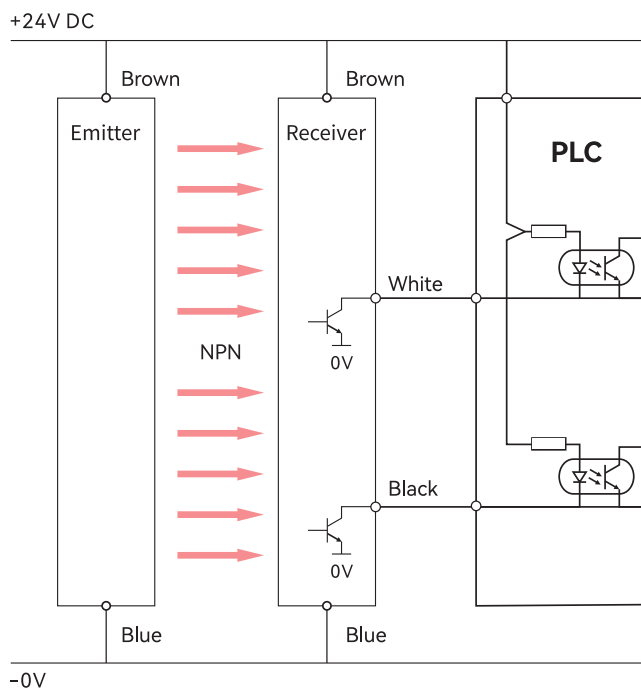
When not powered on



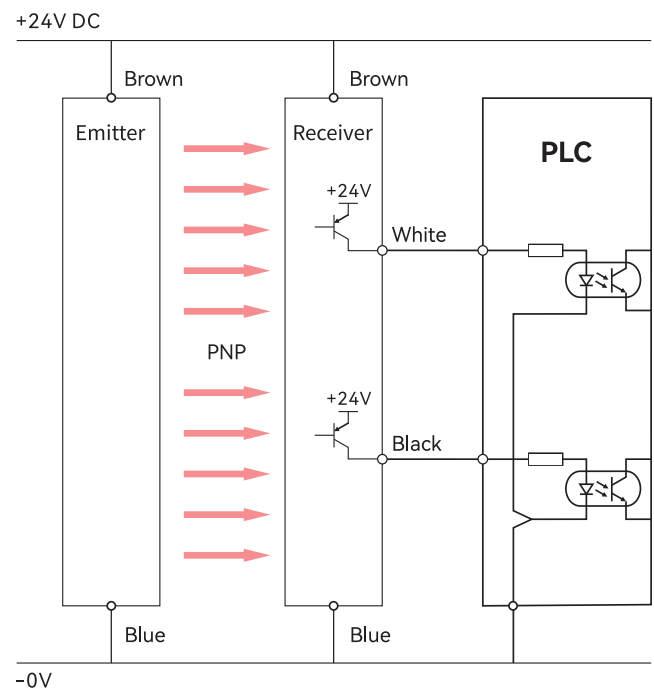
When powered on

#### 4.5 Wiring between light curtain and PLC and one-chip computer system

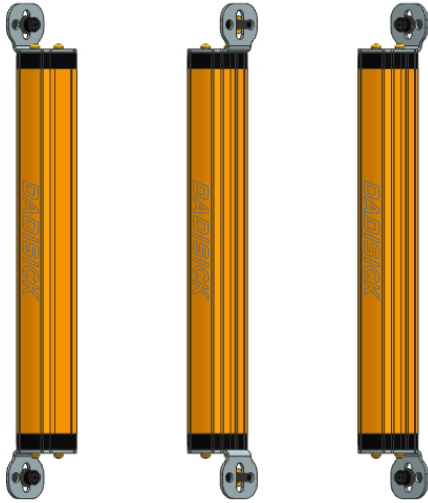
NPN wiring:



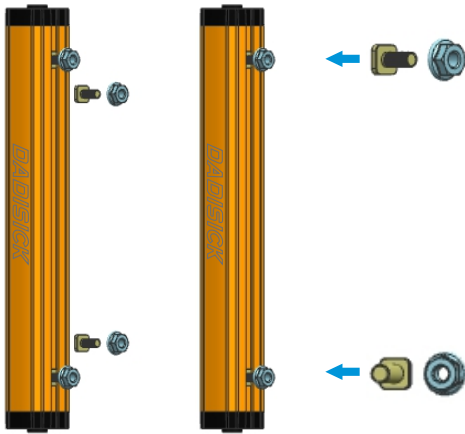
PNP wiring:



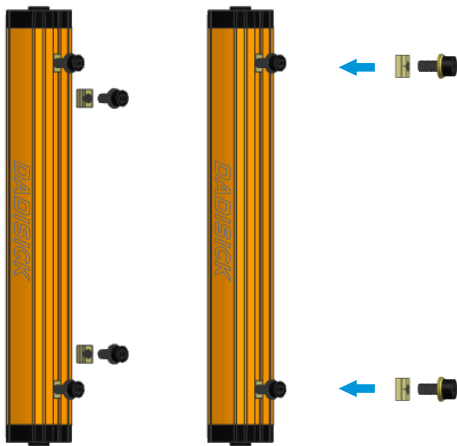
## Accessories



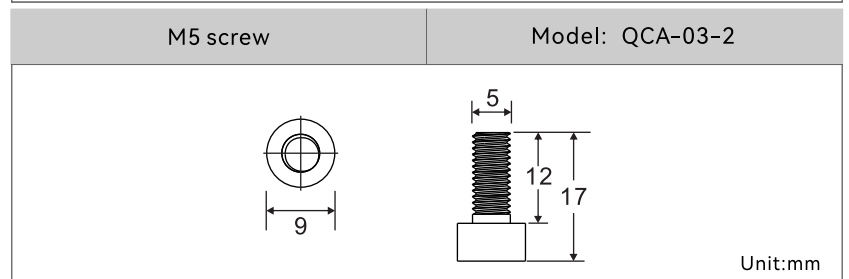
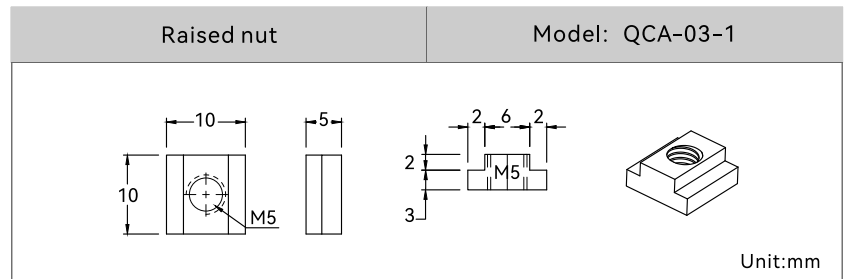
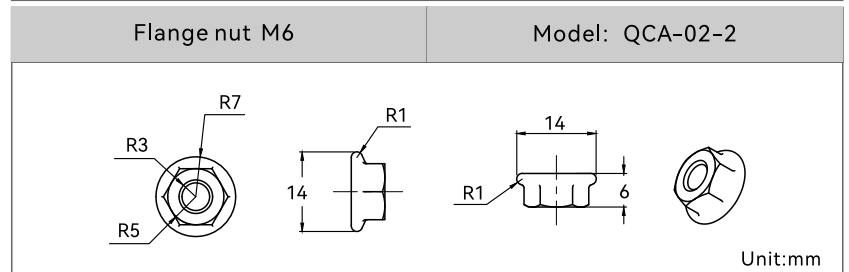
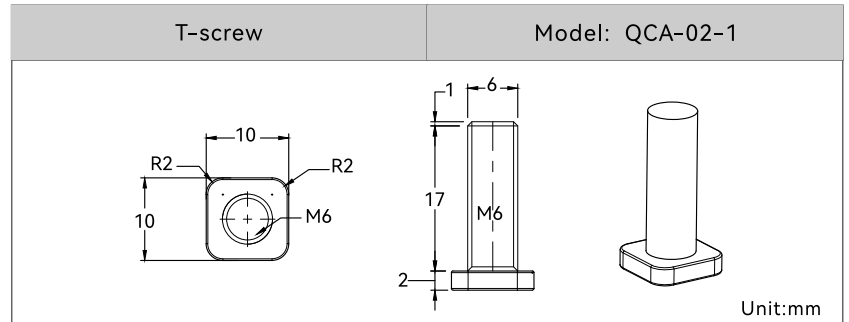
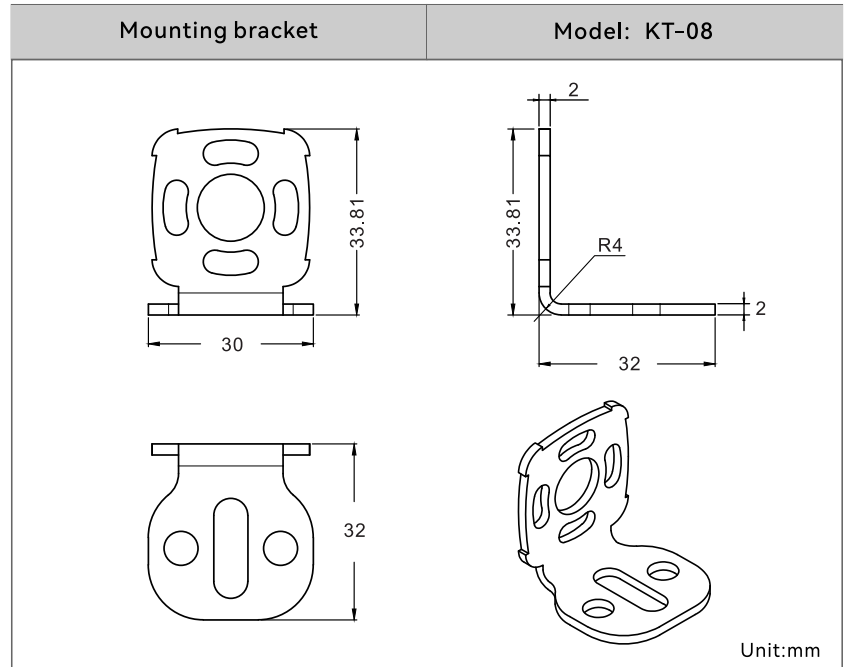
1. Installation method of right angle brackets  
(Original accessories)

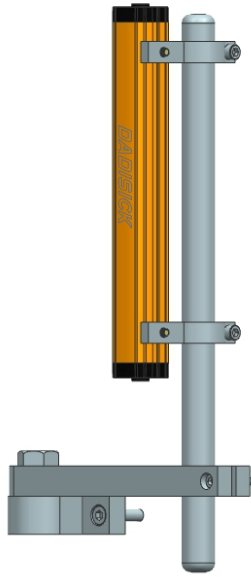


2. Installation method of T-shaped screws on the back  
(Original accessories)



3. Installation method of convex nut  
(Optional accessories)





4. Stainless steel bracket installation  
(Order separately)

