DADISICK®

TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR
Emitter and Receiver
EKT series

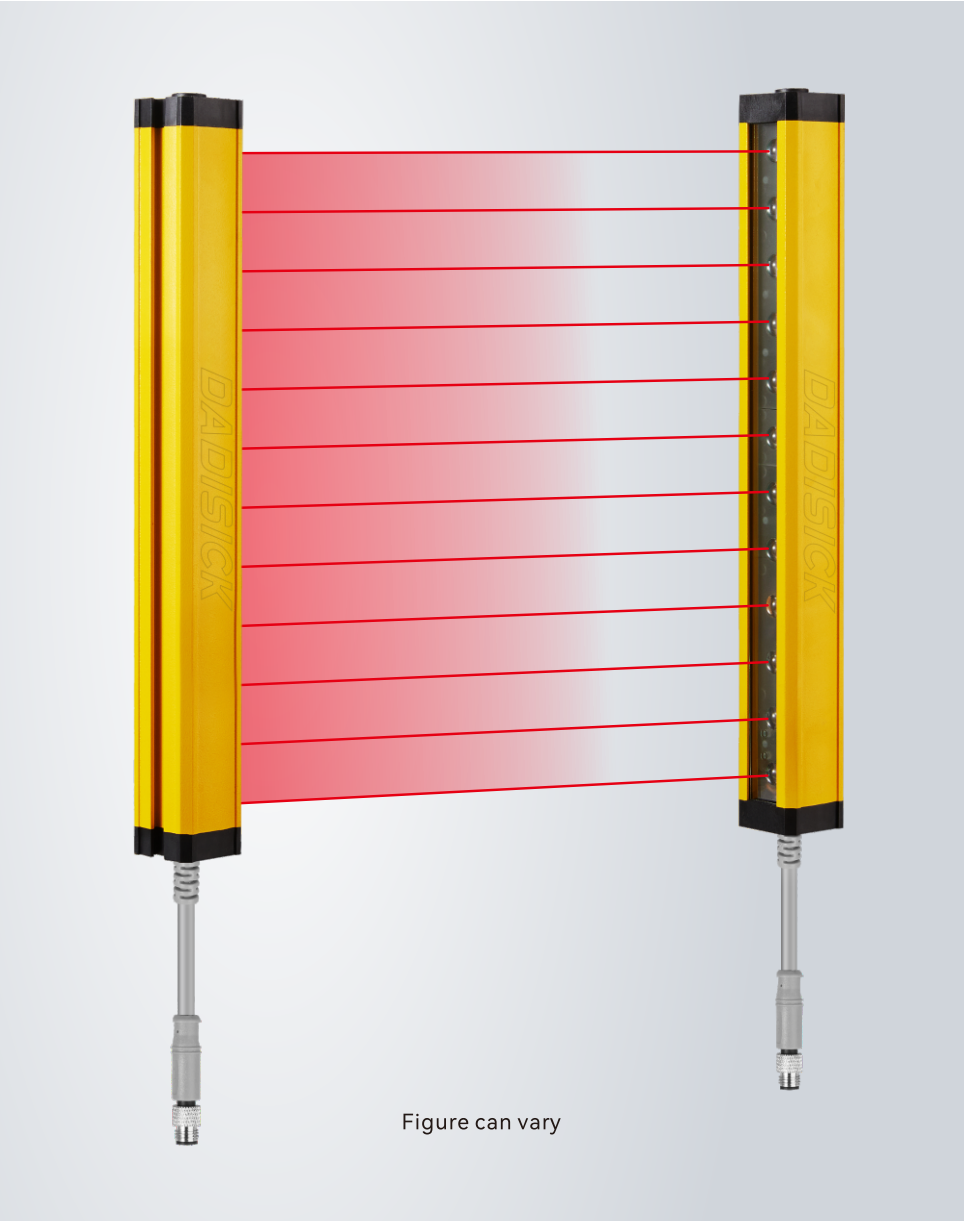

Figure can vary

Contents

GB/T 19001-2016

DADISICK TECHNOLOGY LIMITED
Website: ru.dadisick.com

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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 EKT type safety light curtain are as follows:

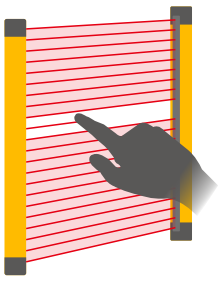
EKT 10/08–70–2BB–E (EKT10/08–70–2BB–E)

- E: Emitter
  R: Receiver
- Detection distance: A:0.3–3m
  B:0.3–6m
- Signal Output Mode: N:NPN NO+NC P:PNP NO+NC
  A:NPN NC B:PNP NC
  C:NPN NO D:PNP NO
  Note: The default is figure A without special requirements.
- 2:Two circuit of output
- Protective field height 70mm
- Beam number:04、06、08、10.....200
- Resolution ratio: 10mm，14mm，20mm，40mm
- Model: EKT series safety light curtain

Resolution ratio

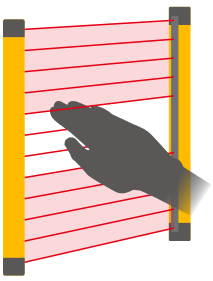
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

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	**EKT series**
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	Optical 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

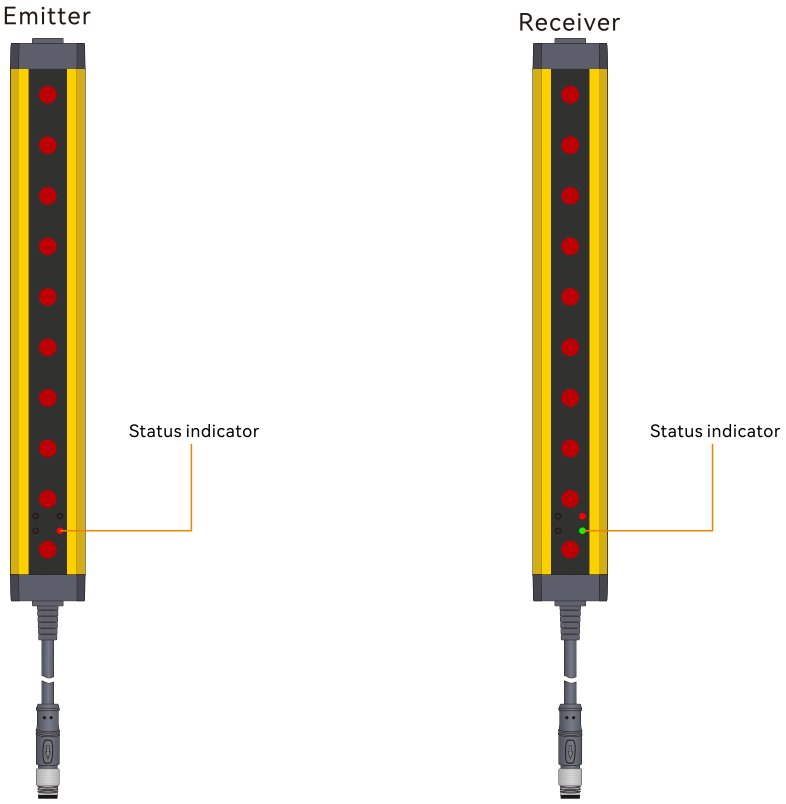
Performance data	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC,-20...20%
Maximum current consumption	150mA
Fuse	2A half time interval

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 ℃ (but not frozen), storage temperature: - 25 -+55 ℃
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/HS221222
UL	No. 4790783741.1-S
ISO	No. HIC180327 GB/T 19001-2016 / ISO 9001:2015

Operation and display



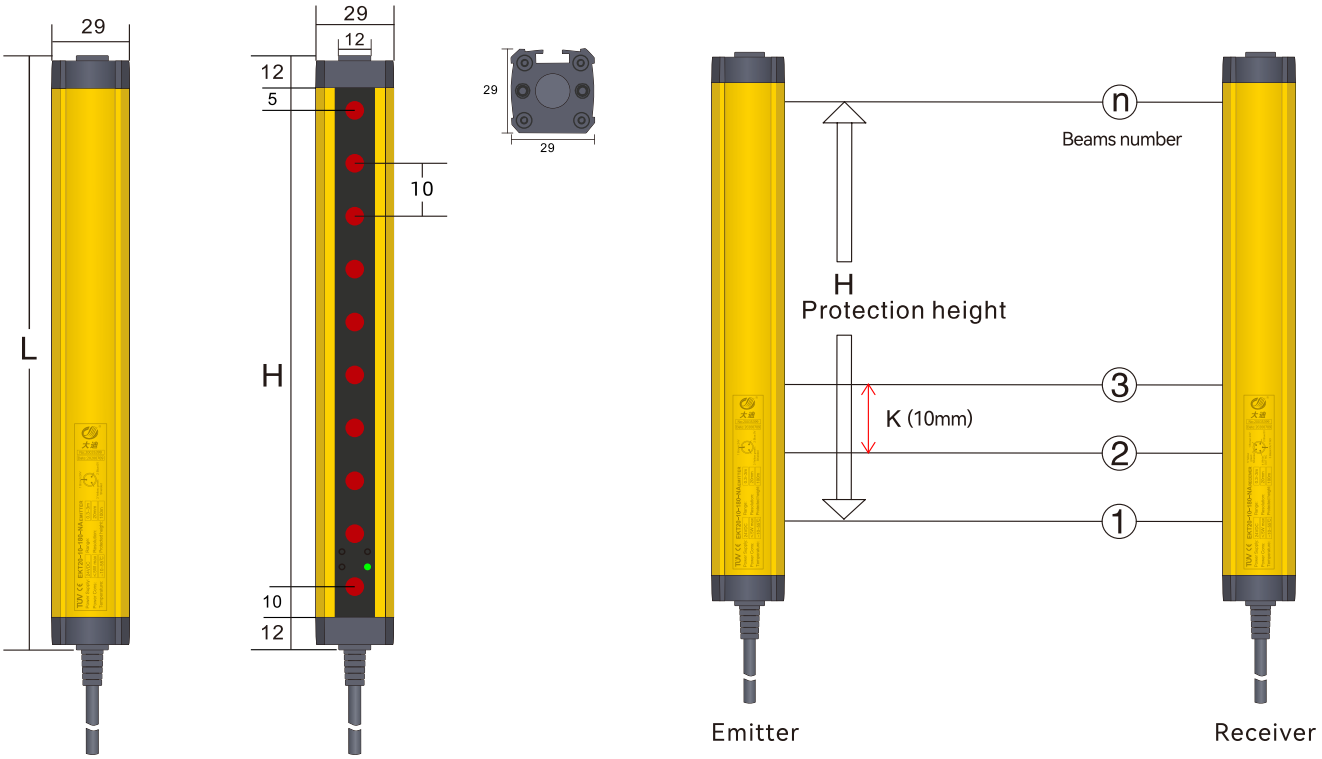
Normal operation of light curtain	LED Indicator status	Explain
Emitter	Red, always on	Turns on the power
	Receiver and emitter are red	Receiver and Emitter are not aligned
Receiver	Green	All light paths are connected
	Red	Light path shading
	Lights flashing	Interference or overstep detection range

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^2
Maximum link cable	100m
Maximum allowable cable load	4.9A
Cable material	PVC

Dimensioned drawings

Unit: mm

1. EKT 10mm series



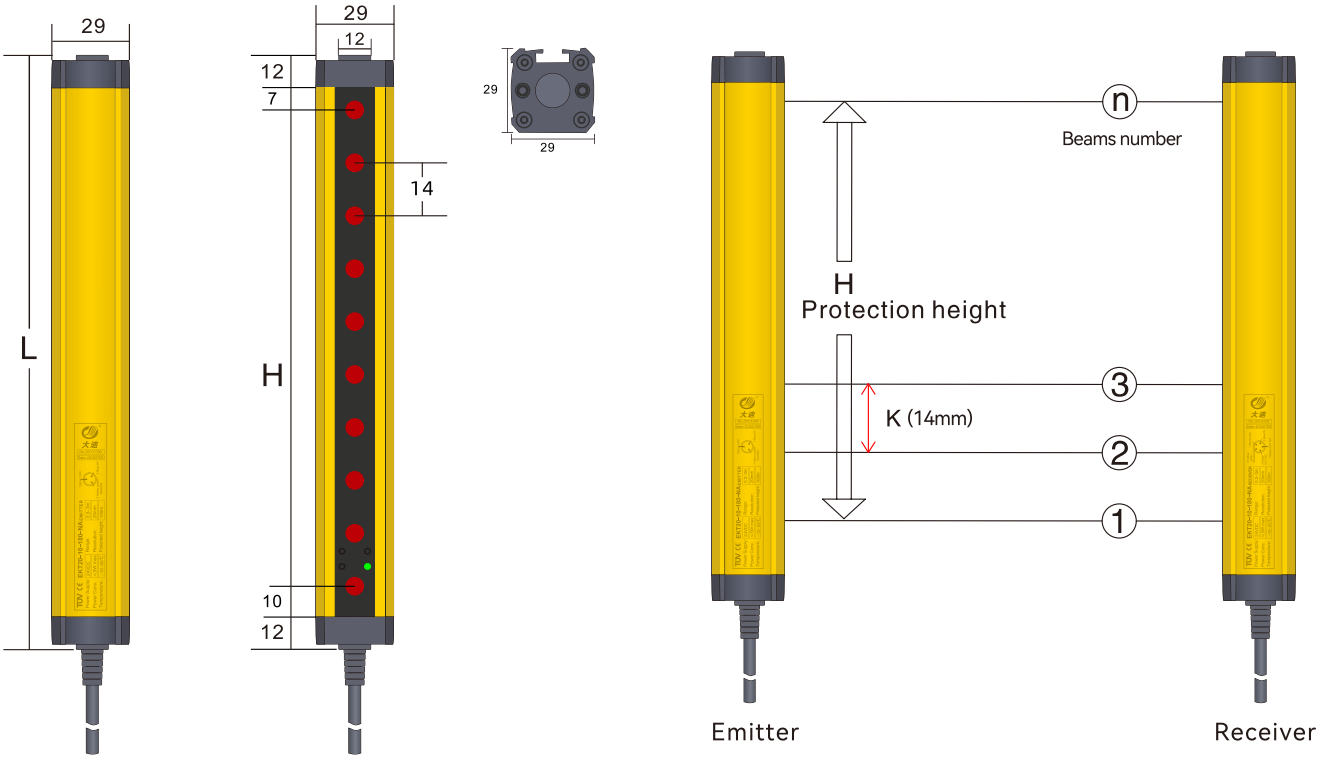
Remarks: L:Total length of light screen L=12+5+H+10+12 H:Height of protected area H= (n–1) * 10 K:Resolution ratio n:Beams number

EKT 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	EKT10/08–70	2	PNP	0.3–6m
	10	90	129	EKT10/10–90	2	PNP	0.3–6m
	12	110	149	EKT10/12–110	2	PNP	0.3–6m
	14	130	169	EKT10/14–130	2	PNP	0.3–6m
	16	150	189	EKT10/16–150	2	PNP	0.3–6m
	18	170	209	EKT10/18–170	2	PNP	0.3–6m
	20	190	229	EKT10/20–190	2	PNP	0.3–6m
	22	210	249	EKT10/22–210	2	PNP	0.3–6m
	24	230	269	EKT10/24–230	2	PNP	0.3–6m
	26	250	289	EKT10/26–250	2	PNP	0.3–6m
	28	270	309	EKT10/28–270	2	PNP	0.3–6m
	30	290	329	EKT10/30–290	2	PNP	0.3–6m
	32	310	349	EKT10/32–310	2	PNP	0.3–6m
	34	330	369	EKT10/34–330	2	PNP	0.3–6m
	36	350	389	EKT10/36–350	2	PNP	0.3–6m
	38	370	409	EKT10/38–370	2	PNP	0.3–6m
	40	390	429	EKT10/40–390	2	PNP	0.3–6m
	42	410	449	EKT10/42–410	2	PNP	0.3–6m
	44	430	469	EKT10/44–430	2	PNP	0.3–6m
	46	450	489	EKT10/46–450	2	PNP	0.3–6m
	48	470	509	EKT10/48–470	2	PNP	0.3–6m
	50	490	529	EKT10/50–490	2	PNP	0.3–6m
	52	510	549	EKT10/52–510	2	PNP	0.3–6m
	54	530	569	EKT10/54–530	2	PNP	0.3–6m
	...	...	...	...	2	PNP	0.3–6m
	196	1950	1989	EKT10/196–1950	2	PNP	0.3–6m
	198	1970	2009	EKT10/198–1970	2	PNP	0.3–6m
	200	1990	2029	EKT10/200–1990	2	PNP	0.3–6m

2. EKT 14mm series

Unit: mm



Remarks: L:Total length of light screen L=12+7+H+10+12

H:Height of protected area H= (n–1) * 14

K:Resolution ratio

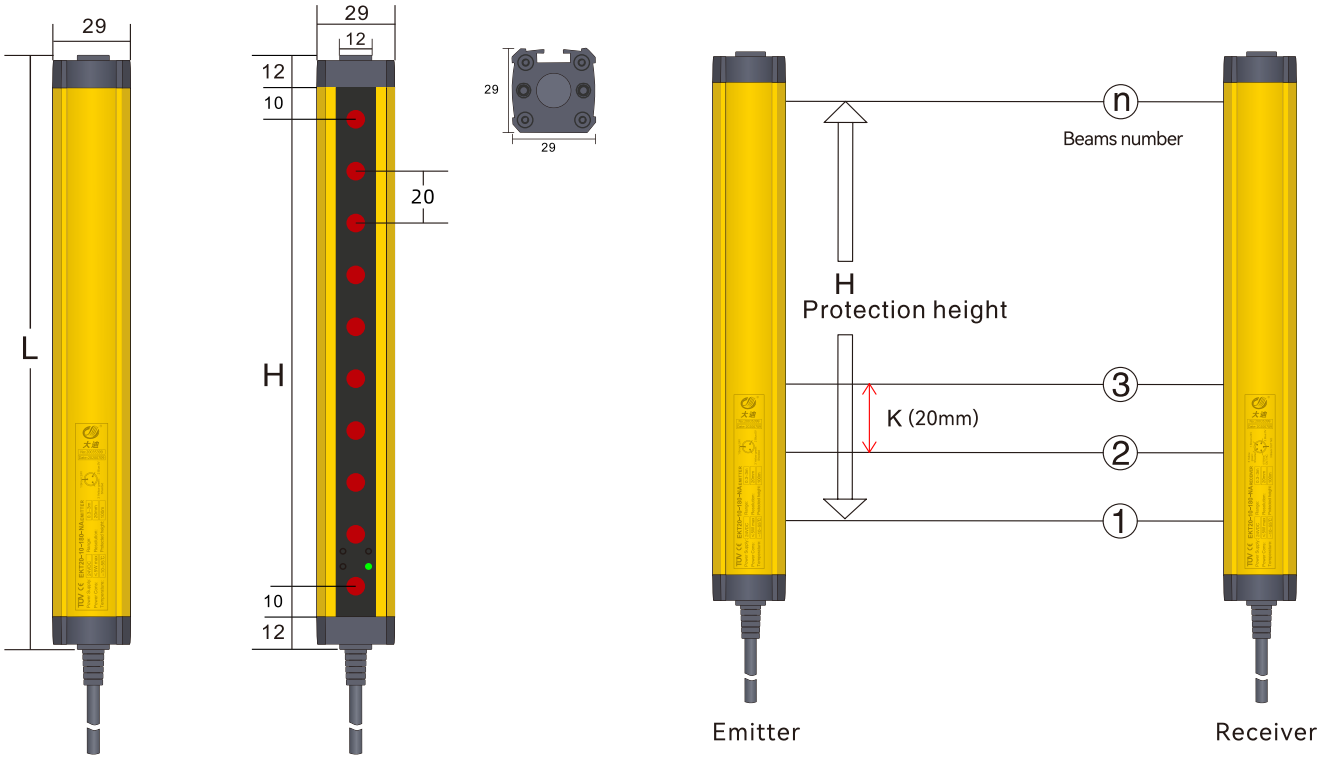
n:Beams number

EKT 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	111	EKT14/06–70	2	PNP	0.3–6m
	8	98	139	EKT14/08–98	2	PNP	0.3–6m
	10	126	167	EKT14/10–126	2	PNP	0.3–6m
	12	154	195	EKT14/12–154	2	PNP	0.3–6m
	14	182	223	EKT14/14–182	2	PNP	0.3–6m
	16	210	251	EKT14/16–210	2	PNP	0.3–6m
	18	238	279	EKT14/18–238	2	PNP	0.3–6m
	20	266	307	EKT14/20–266	2	PNP	0.3–6m
	22	294	335	EKT14/22–294	2	PNP	0.3–6m
	24	322	363	EKT14/24–322	2	PNP	0.3–6m
	26	350	391	EKT14/26–350	2	PNP	0.3–6m
	28	378	419	EKT14/28–378	2	PNP	0.3–6m
	30	406	447	EKT14/30–406	2	PNP	0.3–6m
	32	434	475	EKT14/32–434	2	PNP	0.3–6m
	34	462	503	EKT14/34–462	2	PNP	0.3–6m
	36	490	531	EKT14/36–490	2	PNP	0.3–6m
	38	518	559	EKT14/38–518	2	PNP	0.3–6m
	40	546	587	EKT14/40–546	2	PNP	0.3–6m
	42	574	615	EKT14/42–574	2	PNP	0.3–6m
	44	602	643	EKT14/44–602	2	PNP	0.3–6m
	46	630	671	EKT14/46–630	2	PNP	0.3–6m
	48	658	699	EKT14/42–658	2	PNP	0.3–6m
	50	686	727	EKT14/42–686	2	PNP	0.3–6m
	52	714	755	EKT14/42–714	2	PNP	0.3–6m
	...	...	...	...	2	PNP	0.3–6m
	196	2730	2771	EKT14/196–2730	2	PNP	0.3–6m
	198	2758	2799	EKT14/198–2758	2	PNP	0.3–6m
	200	2786	2827	EKT14/200–2786	2	PNP	0.3–6m

3. EKT 20mm series

Unit: mm



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

H:Height of protected area
H= (n–1) * 20

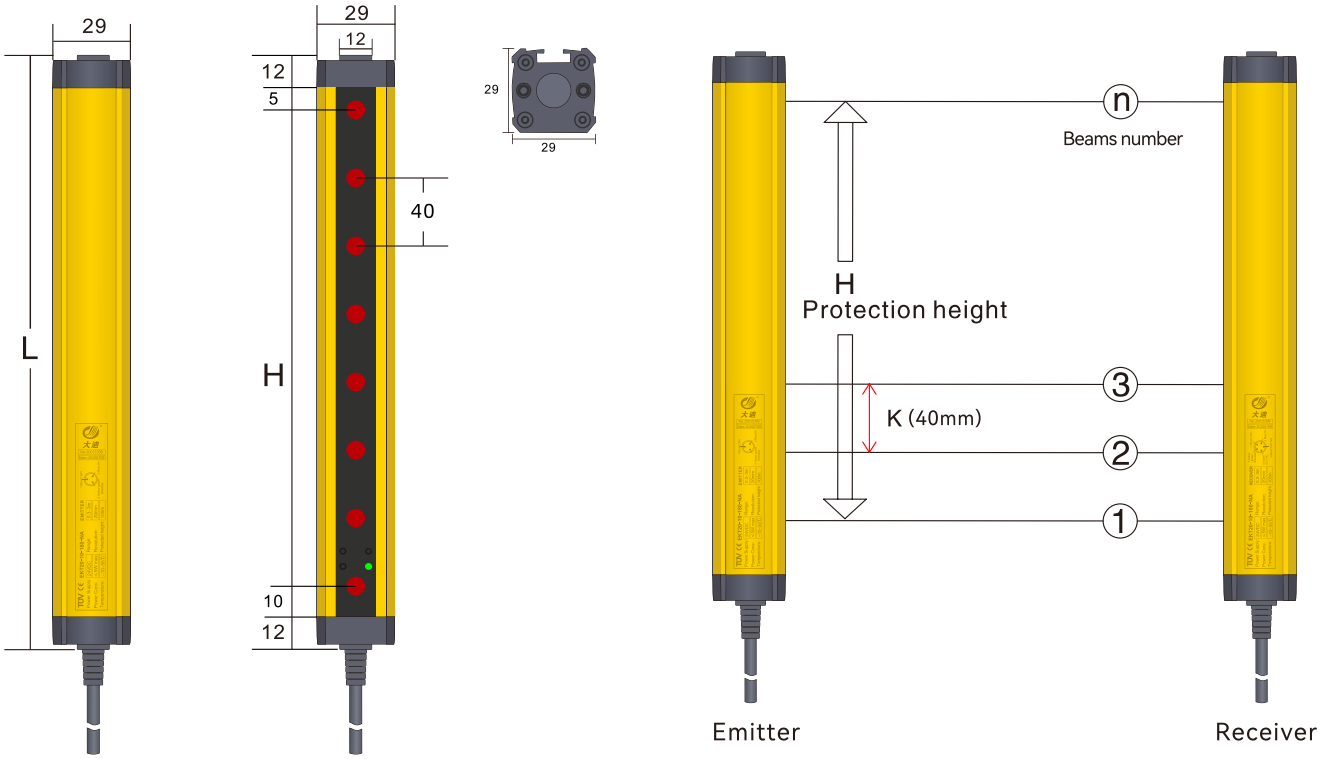
K:Resolution ratio
n:Beams number

EKT 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	EKT20/06–100	2	PNP	0.3–6m
	8	140	184	EKT20/08–140	2	PNP	0.3–6m
	10	180	224	EKT20/10–180	2	PNP	0.3–6m
	12	220	264	EKT20/12–220	2	PNP	0.3–6m
	14	260	304	EKT20/14–260	2	PNP	0.3–6m
	16	300	344	EKT20/16–300	2	PNP	0.3–6m
	18	340	384	EKT20/18–340	2	PNP	0.3–6m
	20	380	424	EKT20/20–380	2	PNP	0.3–6m
	22	420	464	EKT20/22–420	2	PNP	0.3–6m
	24	460	504	EKT20/24–460	2	PNP	0.3–6m
	26	500	544	EKT20/26–500	2	PNP	0.3–6m
	28	540	584	EKT20/28–540	2	PNP	0.3–6m
	30	580	624	EKT20/30–580	2	PNP	0.3–6m
	32	620	664	EKT20/32–620	2	PNP	0.3–6m
	34	660	704	EKT20/34–660	2	PNP	0.3–6m
	36	700	744	EKT20/36–700	2	PNP	0.3–6m
	38	740	784	EKT20/38–740	2	PNP	0.3–6m
	40	780	824	EKT20/40–780	2	PNP	0.3–6m
	42	820	864	EKT20/42–820	2	PNP	0.3–6m
	44	860	904	EKT20/44–860	2	PNP	0.3–6m
	46	900	944	EKT20/46–900	2	PNP	0.3–6m
	48	940	984	EKT20/48–940	2	PNP	0.3–6m
	50	980	1024	EKT20/50–980	2	PNP	0.3–6m
	52	1020	1064	EKT20/52–1020	2	PNP	0.3–6m
	...	...	...	...	2	PNP	0.3–6m
	196	3900	3944	EKT20/196–3900	2	PNP	0.3–6m
	198	3940	3984	EKT20/198–3940	2	PNP	0.3–6m
	200	3980	4024	EKT20/200–3980	2	PNP	0.3–6m

4. EKT 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

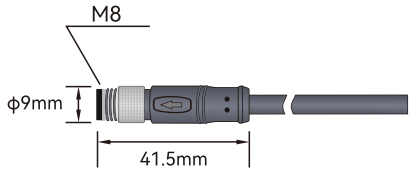
K:Resolution ratio
n:Beams number

EKT 40mm specification list

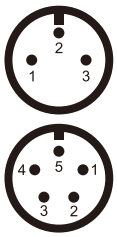
Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
40mm (K)	4	120	164	EKT40/04–120	2	PNP	0.3–6m
	6	200	244	EKT40/06–200	2	PNP	0.3–6m
	8	280	324	EKT40/08–280	2	PNP	0.3–6m
	10	360	404	EKT40/10–360	2	PNP	0.3–6m
	12	440	484	EKT40/12–440	2	PNP	0.3–6m
	14	520	564	EKT40/14–520	2	PNP	0.3–6m
	16	600	644	EKT40/16–600	2	PNP	0.3–6m
	18	680	724	EKT40/18–680	2	PNP	0.3–6m
	20	760	804	EKT40/20–760	2	PNP	0.3–6m
	22	840	884	EKT40/22–840	2	PNP	0.3–6m
	24	920	964	EKT40/24–920	2	PNP	0.3–6m
	26	1000	1044	EKT40/26–1000	2	PNP	0.3–6m
	28	1080	1124	EKT40/28–1080	2	PNP	0.3–6m
	30	1160	1204	EKT40/30–1160	2	PNP	0.3–6m
	32	1240	1284	EKT40/32–1240	2	PNP	0.3–6m
	34	1320	1364	EKT40/34–1320	2	PNP	0.3–6m
	36	1400	1444	EKT40/36–1400	2	PNP	0.3–6m
	38	1480	1524	EKT40/38–1480	2	PNP	0.3–6m
	40	1560	1604	EKT40/40–1560	2	PNP	0.3–6m
	42	1640	1684	EKT40/42–1640	2	PNP	0.3–6m
	44	1720	1764	EKT40/44–1720	2	PNP	0.3–6m
	46	1800	1844	EKT40/46–1800	2	PNP	0.3–6m
	48	1880	1924	EKT40/48–1880	2	PNP	0.3–6m
	50	1960	2104	EKT40/50–1960	2	PNP	0.3–6m
	...	...	...	...	2	PNP	0.3–6m
	96	3800	3844	EKT40/96–3800	2	PNP	0.3–6m
	98	3880	3924	EKT40/98–3880	2	PNP	0.3–6m
	100	3960	4004	EKT40/100–3960	2	PNP	0.3–6m

Electrical connection

Cable description:



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

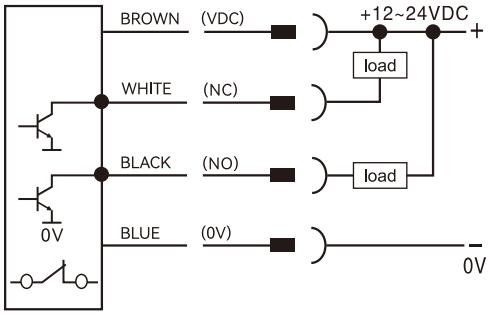


Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
-	-	-
-	-	-
3	YELLOW	Ground wire

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

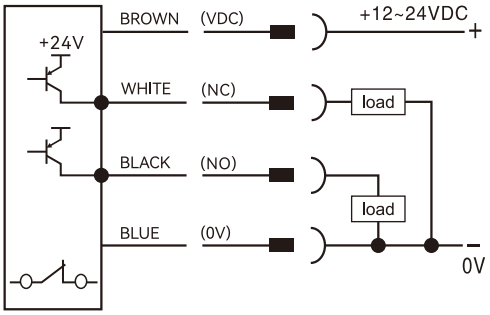
1. EKT signal output selection (actual output of transistor working normally)

NPN NO+NC



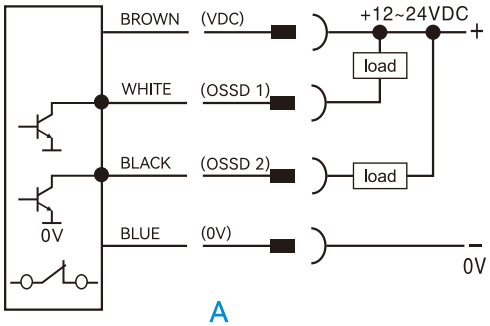
N

PNP NO+NC



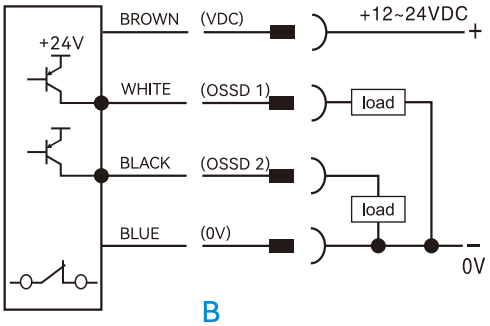
P

NPN NC



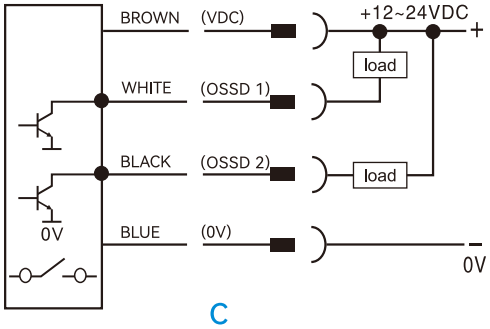
A

PNP NC



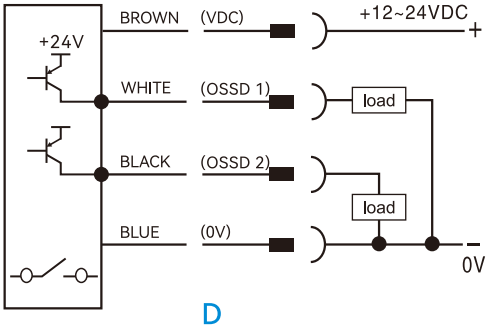
B

NPN NO



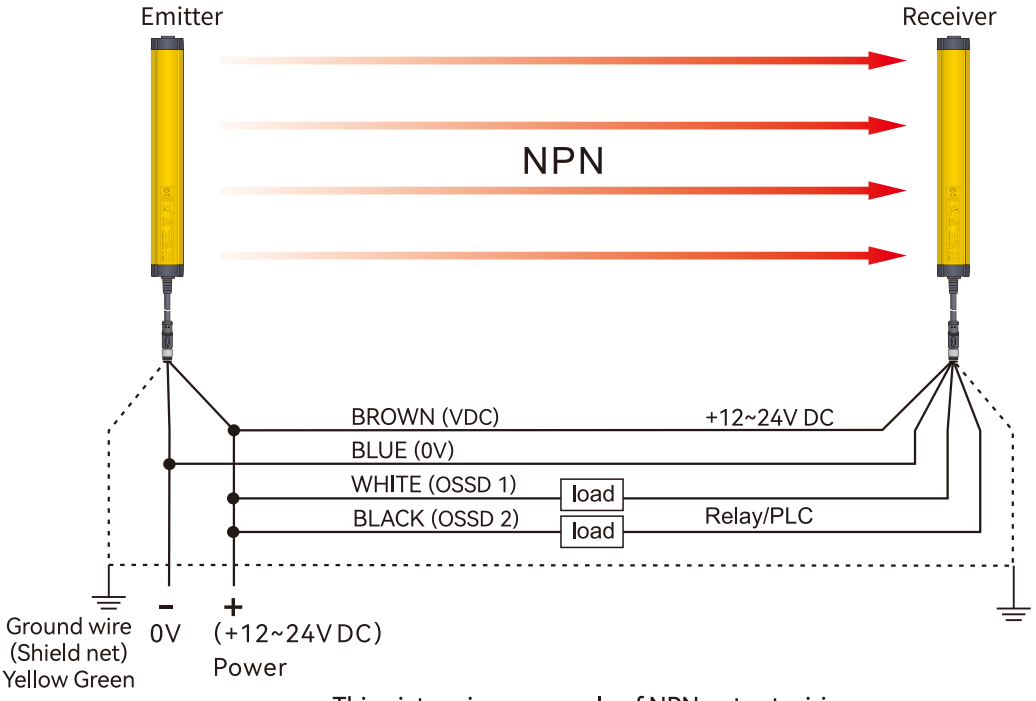
C

PNP NO



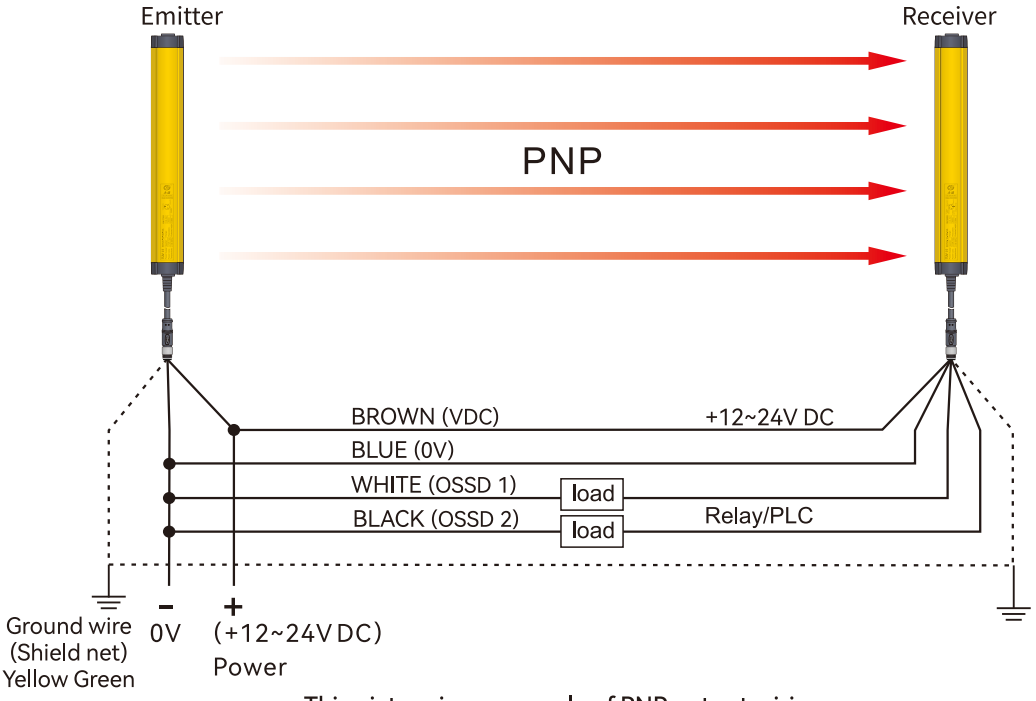
D

2. NPN output wiring diagram



This picture is an example of NPN output wiring

3. PNP output wiring diagram

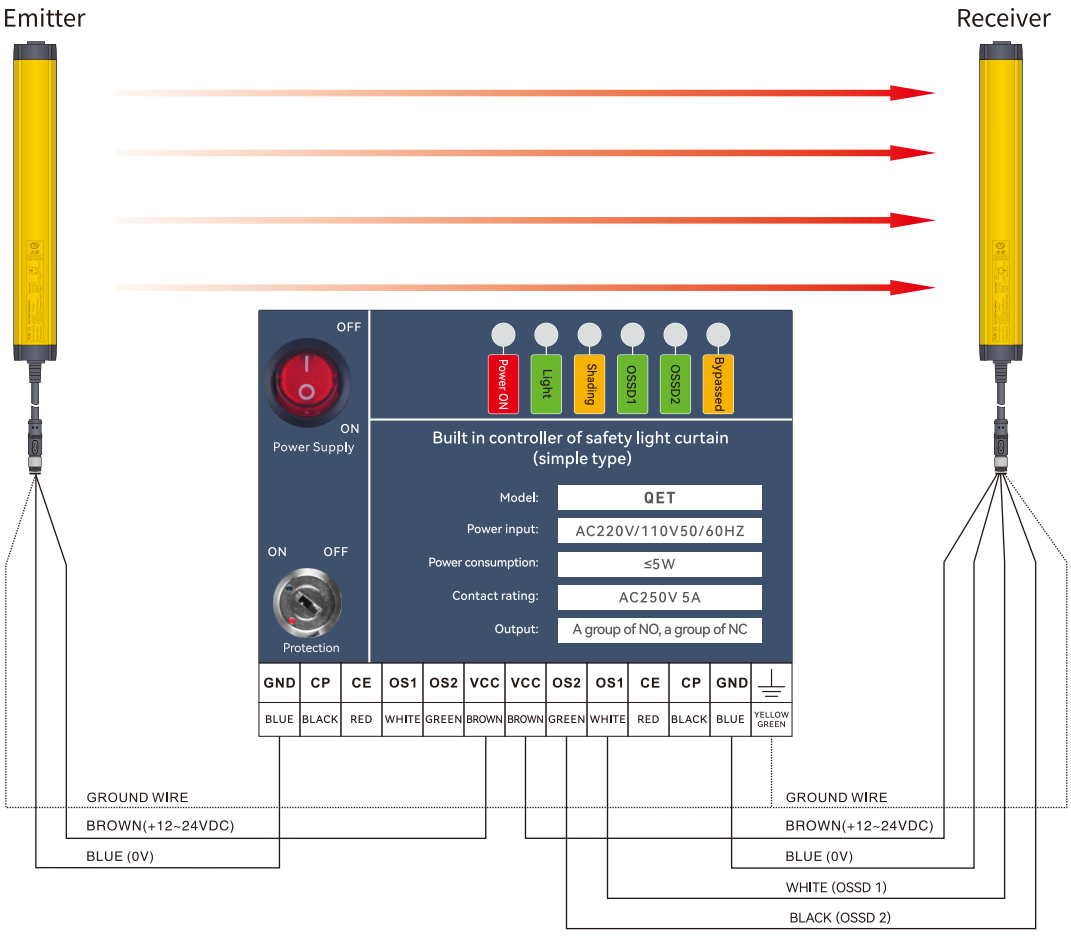


This picture is an example of PNP output wiring

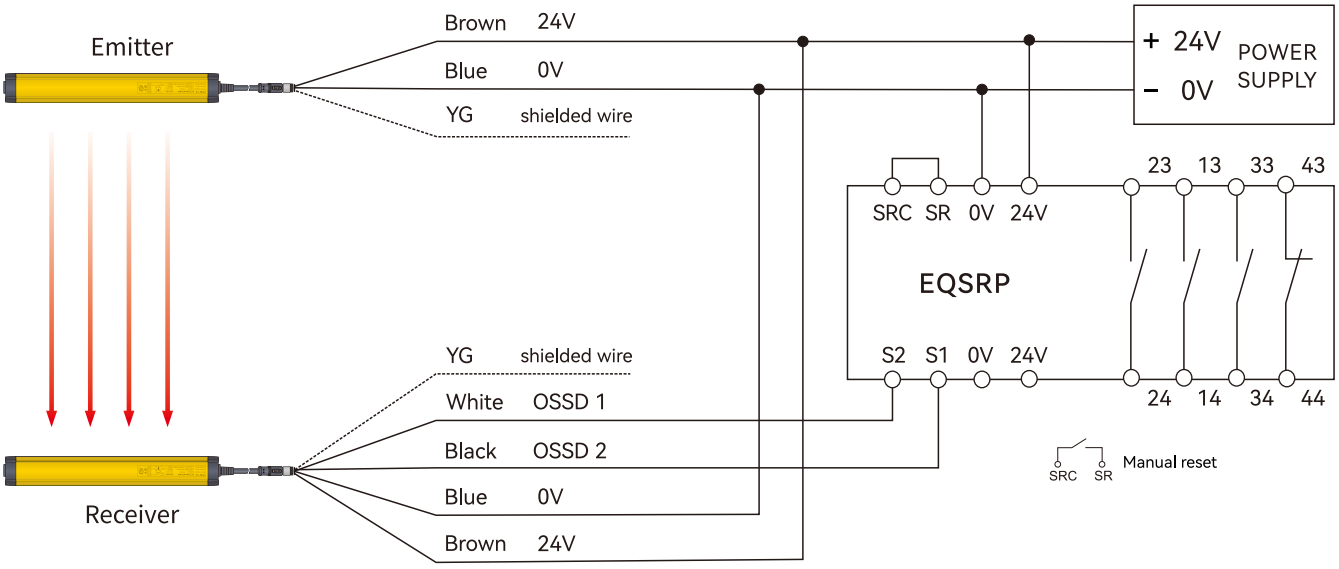
4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		QET	Used to monitor the signal processing of EKT series light curtain, and output one group of NO and one group of NC.
Safety relay		EQSRP	EQSR 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	ETer-AP	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 EKT series light curtain.

4.1 Wiring diagram of QET built-in controller

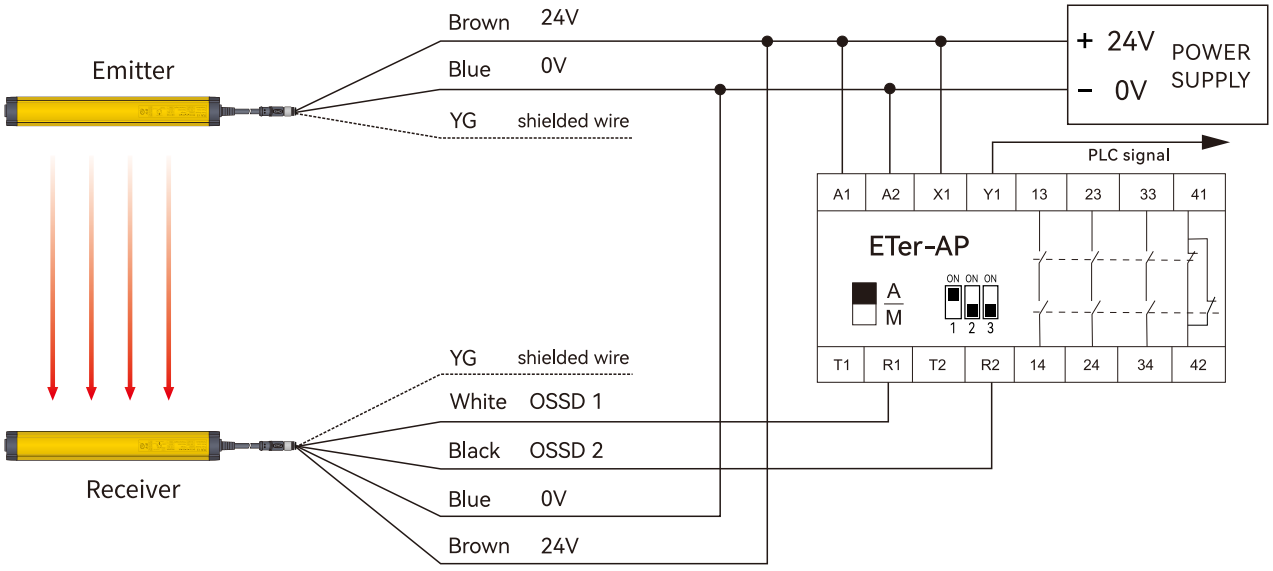


4.2 Wiring diagram of EQSRP safety relay

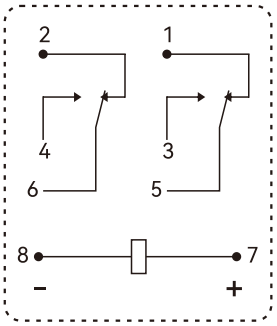


4.3 Wiring diagram of ETer-AP safety relay

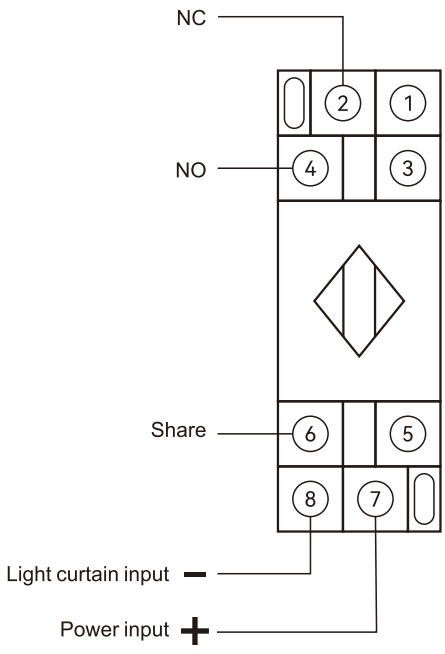
Dual channel light curtain PNP switch safety input, with automatic reset and PLC signal output.



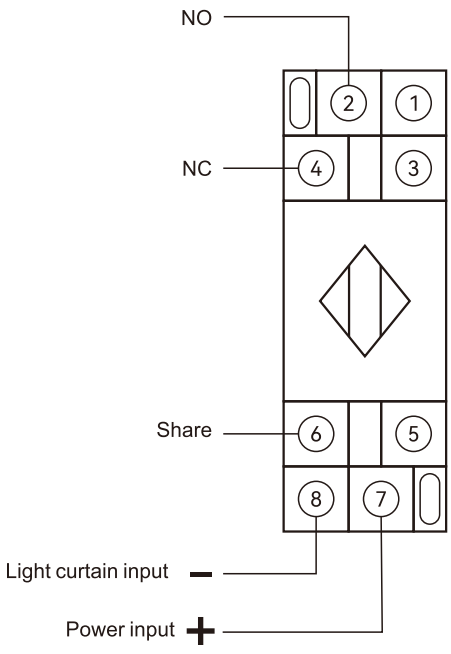
4.4 Wiring diagram of QET-1 light curtain relay



Circuit diagram



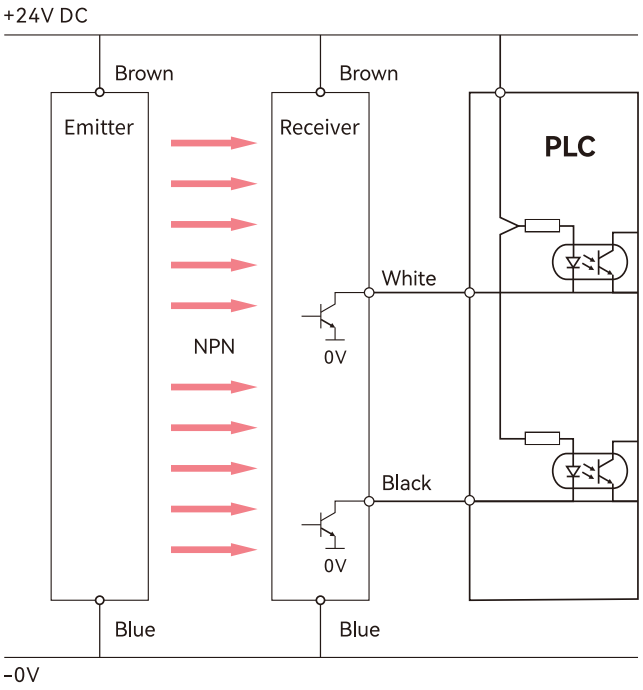
When not powered on



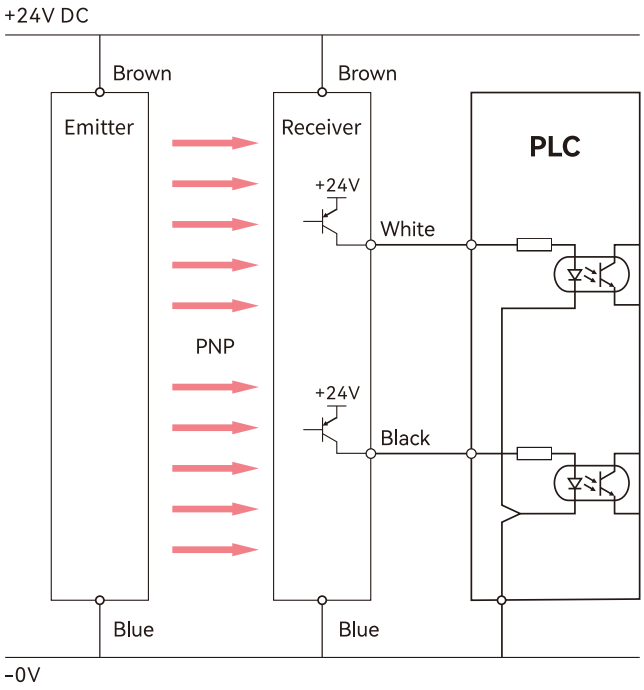
When powered on

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

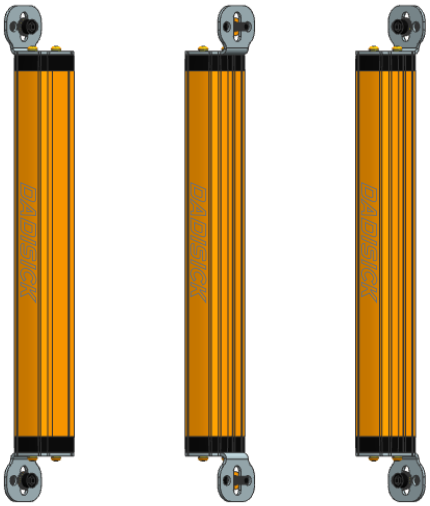
NPN wiring:



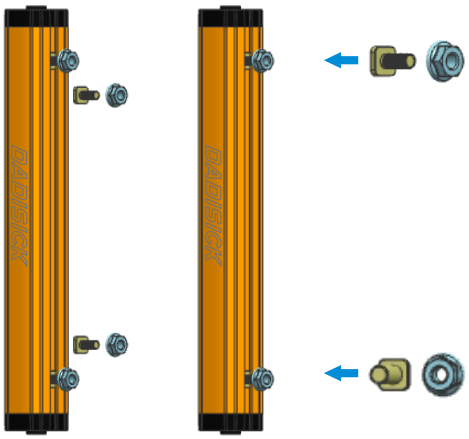
PNP wiring:



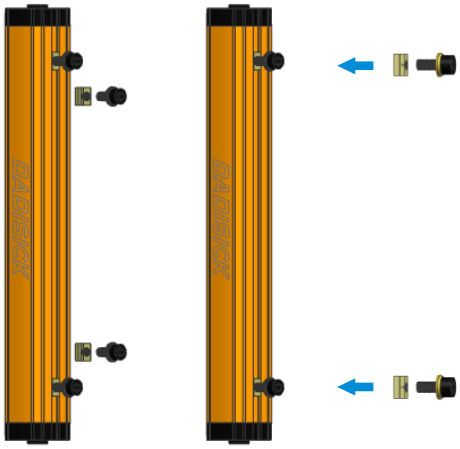
Accessories



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

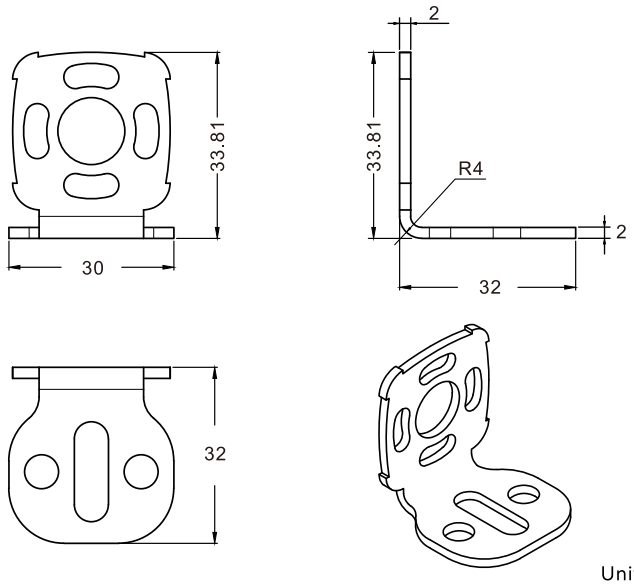


2. Installation method of T-shaped screws on the back (Original accessories)



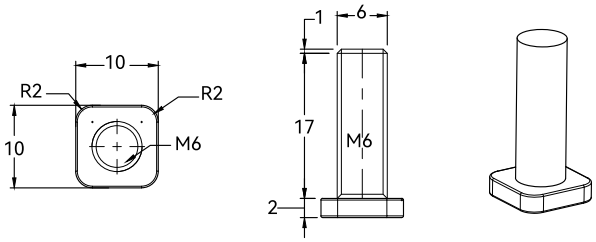
3. Installation method of convex nut (Optional accessories)

Mounting bracket	Model: KT-08



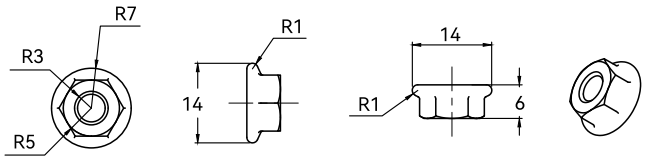
Unit:mm

T-screw	Model: QCA-02-1



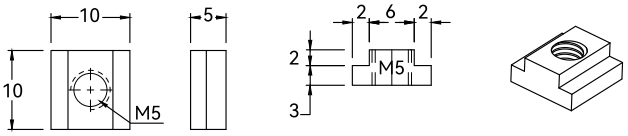
Unit:mm

Flange nut M6	Model: QCA-02-2



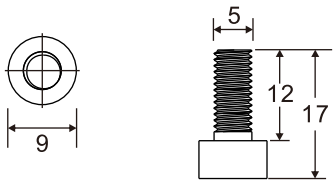
Unit:mm

Raised nut	Model: QCA-03-1

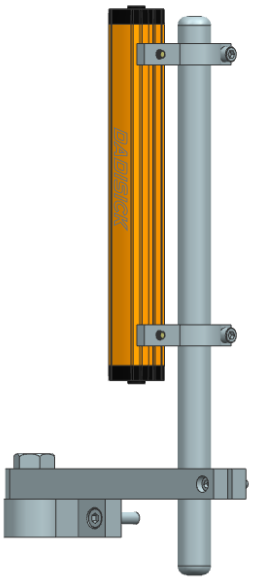


Unit:mm

M5 screw	Model: QCA-03-2



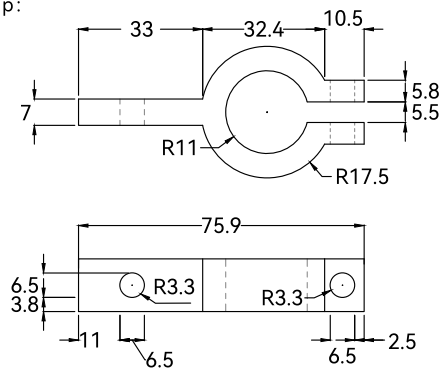
Unit:mm



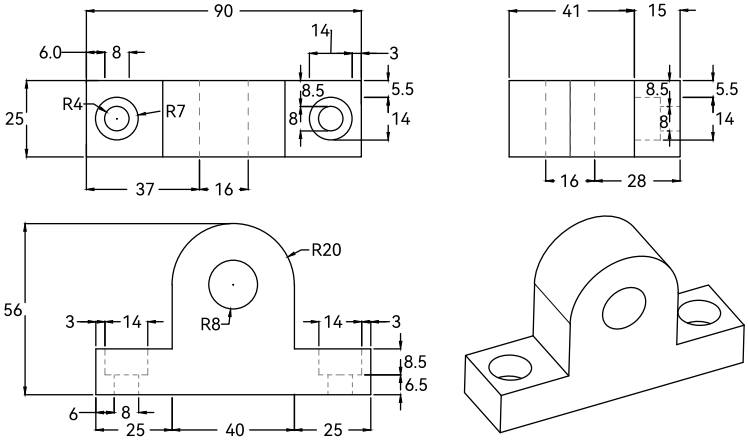
4.Stainless steel bracket installation
(Order separately)

Stainless steel bracket installation	Model: QCA-01

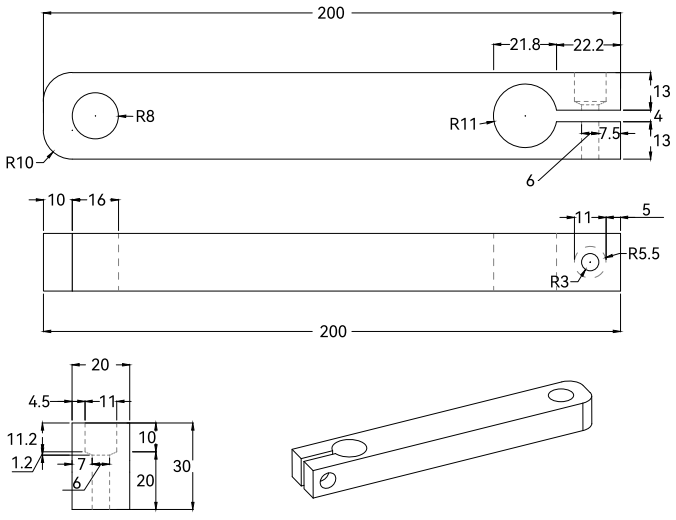
Clip:



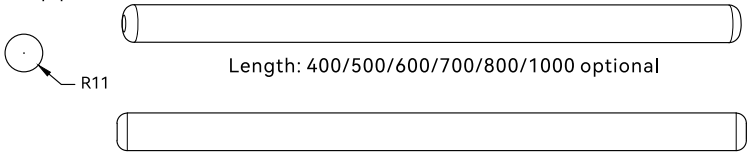
Aluminum round:



Aluminum arm:



Steel pipe:



Unit:mm