DADISICK®

TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR
Emitter and Receiver
DK-KT series

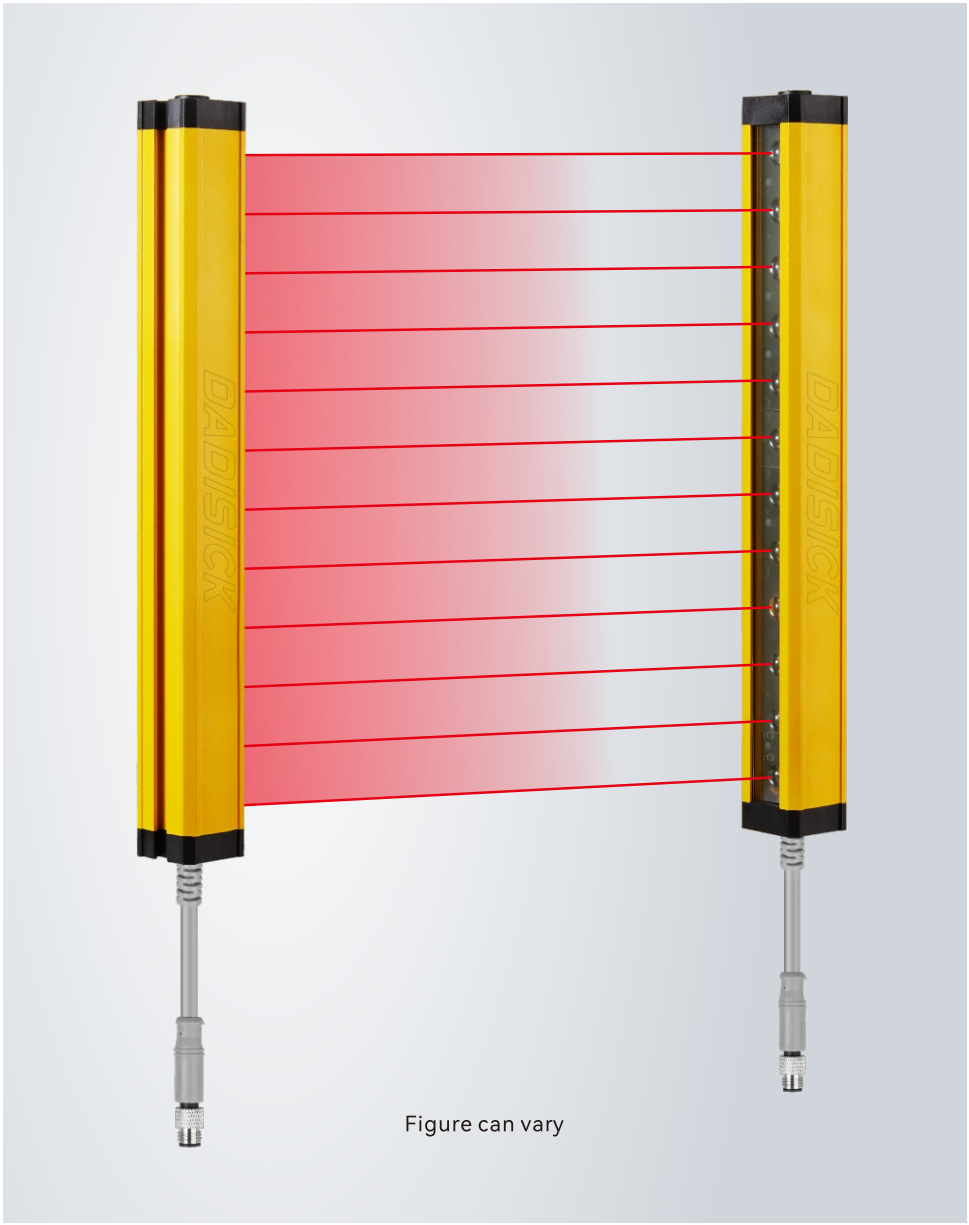

Figure can vary

Contents

GB/T 19001-2016

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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 DK-KT type safety light curtain are as follows:

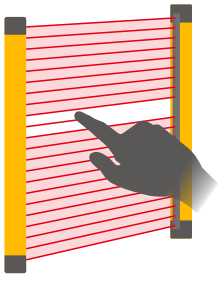
DK–KT 1 0 / 0 8 – 70 – 2 – B B – E (DK-KT10/08–70–2BB–E)

- 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: DK–KT series safety light curtain

Resolution ratio

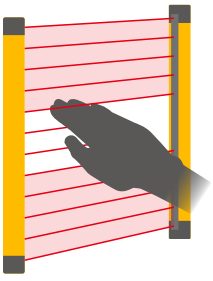
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

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	**DK-KT 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

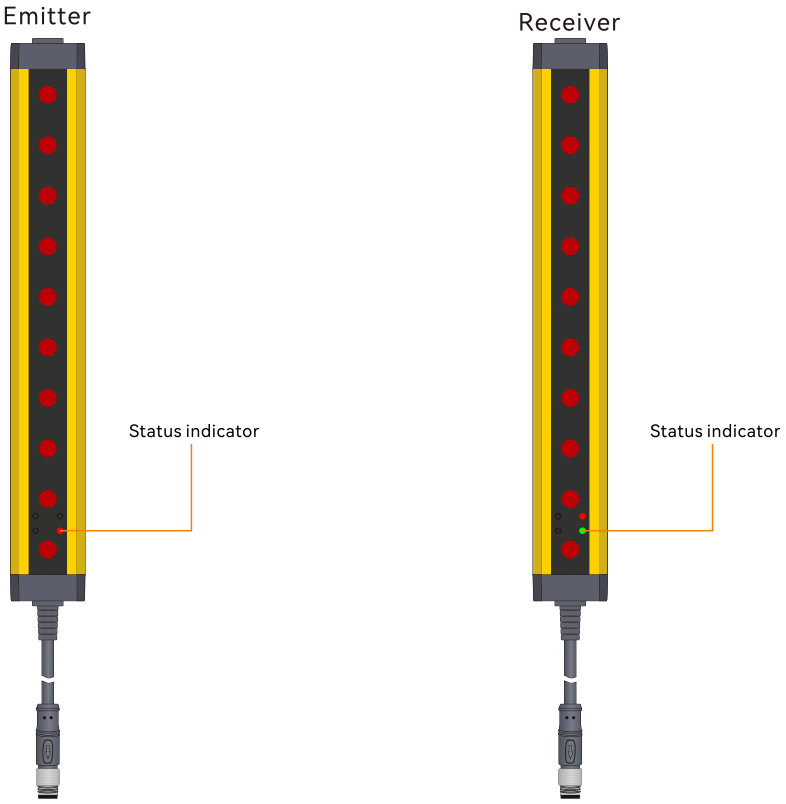
Performance data	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC,-20...20%
Maximum current consumption	150mA
Fuse	2A half time interval

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



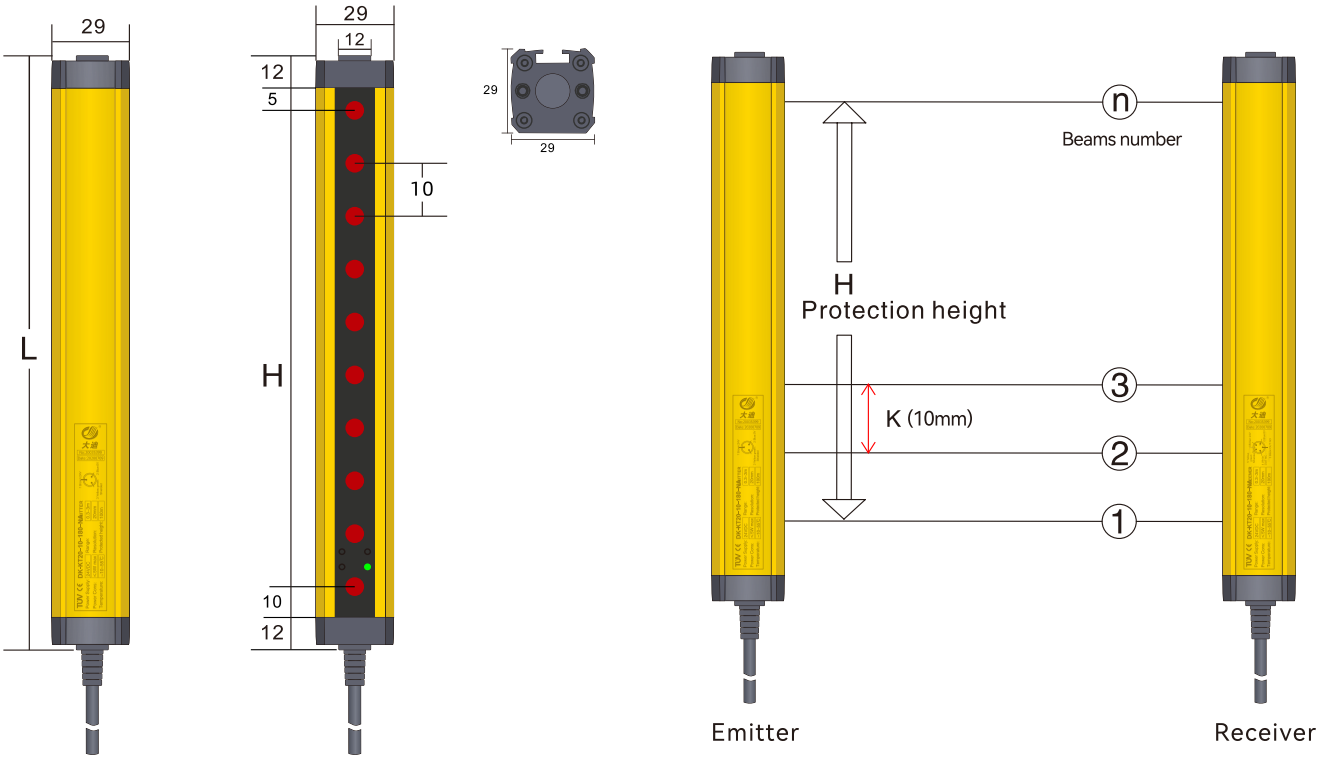
Normal operation of light curtain	LED Indicator status	Explain
Emitter	Red, always on	Turns on the power
	Receiver and emitter are red	Receiver and Emitter are not aligned
Receiver	Green	All light paths are connected
	Red	Light path shading
	Lights flashing	Interference or overstep detection range

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. DK-KT 10mm series



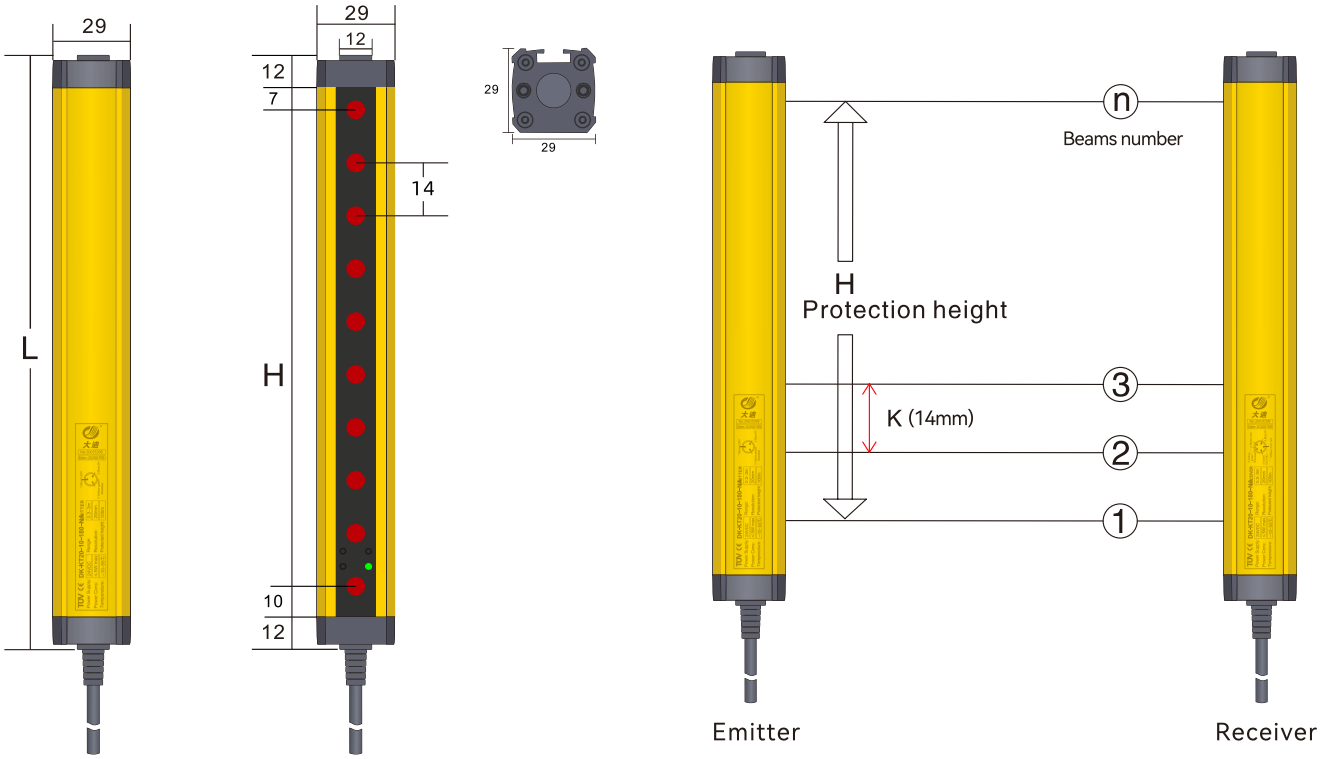
Remarks: L:Total length of light screen L=12+5+H+10+12 H:Height of protected area H= (n–1) * 10 K:Resolution ratio n:Beams number

DK-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	DK–KT10/08–70	2	PNP	0.3–6m
	10	90	129	DK–KT10/10–90	2	PNP	0.3–6m
	12	110	149	DK–KT10/12–110	2	PNP	0.3–6m
	14	130	169	DK–KT10/14–130	2	PNP	0.3–6m
	16	150	189	DK–KT10/16–150	2	PNP	0.3–6m
	18	170	209	DK–KT10/18–170	2	PNP	0.3–6m
	20	190	229	DK–KT10/20–190	2	PNP	0.3–6m
	22	210	249	DK–KT10/22–210	2	PNP	0.3–6m
	24	230	269	DK–KT10/24–230	2	PNP	0.3–6m
	26	250	289	DK–KT10/26–250	2	PNP	0.3–6m
	28	270	309	DK–KT10/28–270	2	PNP	0.3–6m
	30	290	329	DK–KT10/30–290	2	PNP	0.3–6m
	32	310	349	DK–KT10/32–310	2	PNP	0.3–6m
	34	330	369	DK–KT10/34–330	2	PNP	0.3–6m
	36	350	389	DK–KT10/36–350	2	PNP	0.3–6m
	38	370	409	DK–KT10/38–370	2	PNP	0.3–6m
	40	390	429	DK–KT10/40–390	2	PNP	0.3–6m
	42	410	449	DK–KT10/42–410	2	PNP	0.3–6m
	44	430	469	DK–KT10/44–430	2	PNP	0.3–6m
	46	450	489	DK–KT10/46–450	2	PNP	0.3–6m
	48	470	509	DK–KT10/48–470	2	PNP	0.3–6m
	50	490	529	DK–KT10/50–490	2	PNP	0.3–6m
	52	510	549	DK–KT10/52–510	2	PNP	0.3–6m
	54	530	569	DK–KT10/54–530	2	PNP	0.3–6m
	...	...	...	...	2	PNP	0.3–6m
	196	1950	1989	DK–KT10/196–1950	2	PNP	0.3–6m
	198	1970	2009	DK–KT10/198–1970	2	PNP	0.3–6m
	200	1990	2029	DK–KT10/200–1990	2	PNP	0.3–6m

2. DK-KT 14mm series

Unit: mm



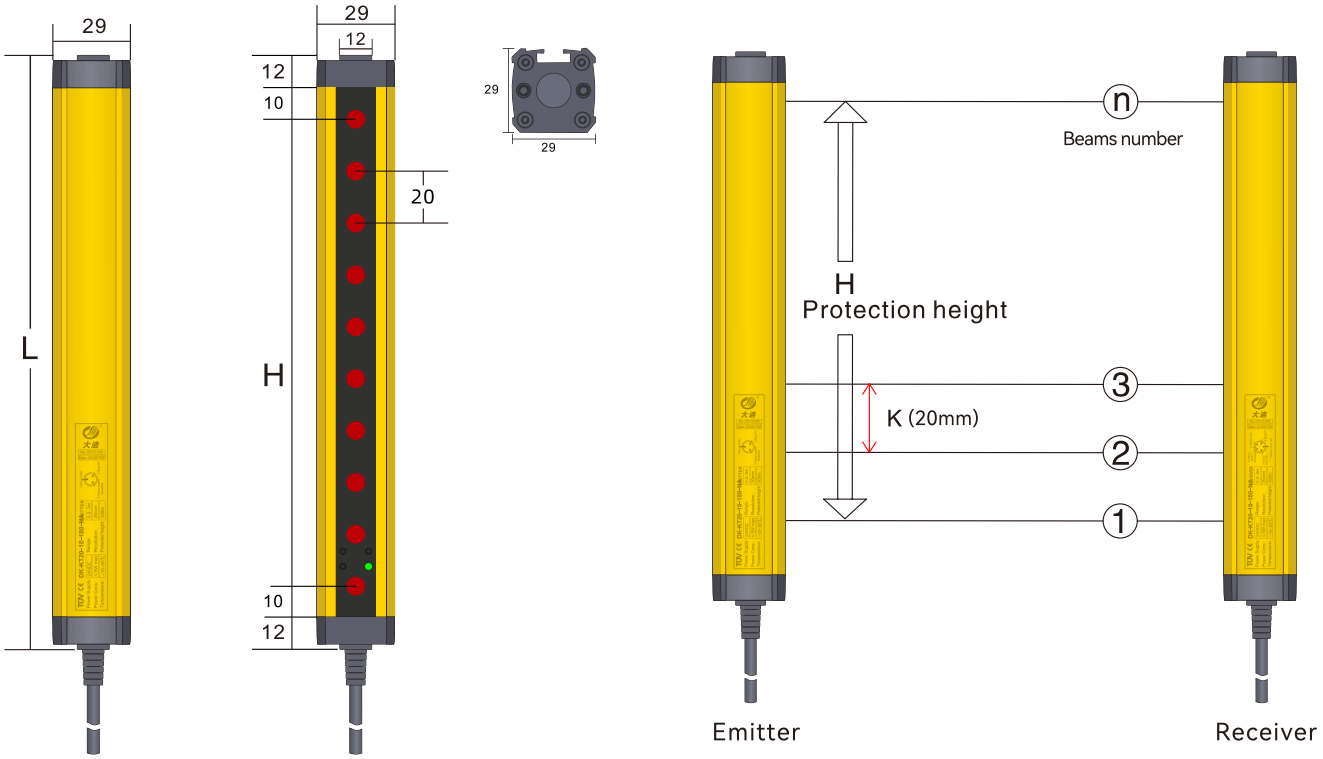
Remarks: L:Total length of light screen L=12+7+H+10+12 H:Height of protected area H= (n–1) * 14 K:Resolution ratio n:Beams number

DK-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	111	DK–KT14/06–70	2	PNP	0.3–6m
	8	98	139	DK–KT14/08–98	2	PNP	0.3–6m
	10	126	167	DK–KT14/10–126	2	PNP	0.3–6m
	12	154	195	DK–KT14/12–154	2	PNP	0.3–6m
	14	182	223	DK–KT14/14–182	2	PNP	0.3–6m
	16	210	251	DK–KT14/16–210	2	PNP	0.3–6m
	18	238	279	DK–KT14/18–238	2	PNP	0.3–6m
	20	266	307	DK–KT14/20–266	2	PNP	0.3–6m
	22	294	335	DK–KT14/22–294	2	PNP	0.3–6m
	24	322	363	DK–KT14/24–322	2	PNP	0.3–6m
	26	350	391	DK–KT14/26–350	2	PNP	0.3–6m
	28	378	419	DK–KT14/28–378	2	PNP	0.3–6m
	30	406	447	DK–KT14/30–406	2	PNP	0.3–6m
	32	434	475	DK–KT14/32–434	2	PNP	0.3–6m
	34	462	503	DK–KT14/34–462	2	PNP	0.3–6m
	36	490	531	DK–KT14/36–490	2	PNP	0.3–6m
	38	518	559	DK–KT14/38–518	2	PNP	0.3–6m
	40	546	587	DK–KT14/40–546	2	PNP	0.3–6m
	42	574	615	DK–KT14/42–574	2	PNP	0.3–6m
	44	602	643	DK–KT14/44–602	2	PNP	0.3–6m
	46	630	671	DK–KT14/46–630	2	PNP	0.3–6m
	48	658	699	DK–KT14/42–658	2	PNP	0.3–6m
	50	686	727	DK–KT14/42–686	2	PNP	0.3–6m
	52	714	755	DK–KT14/42–714	2	PNP	0.3–6m
	...	...	...	...	2	PNP	0.3–6m
	196	2730	2771	DK–KT14/196–2730	2	PNP	0.3–6m
	198	2758	2799	DK–KT14/198–2758	2	PNP	0.3–6m
	200	2786	2827	DK–KT14/200–2786	2	PNP	0.3–6m

3. DK-KT 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

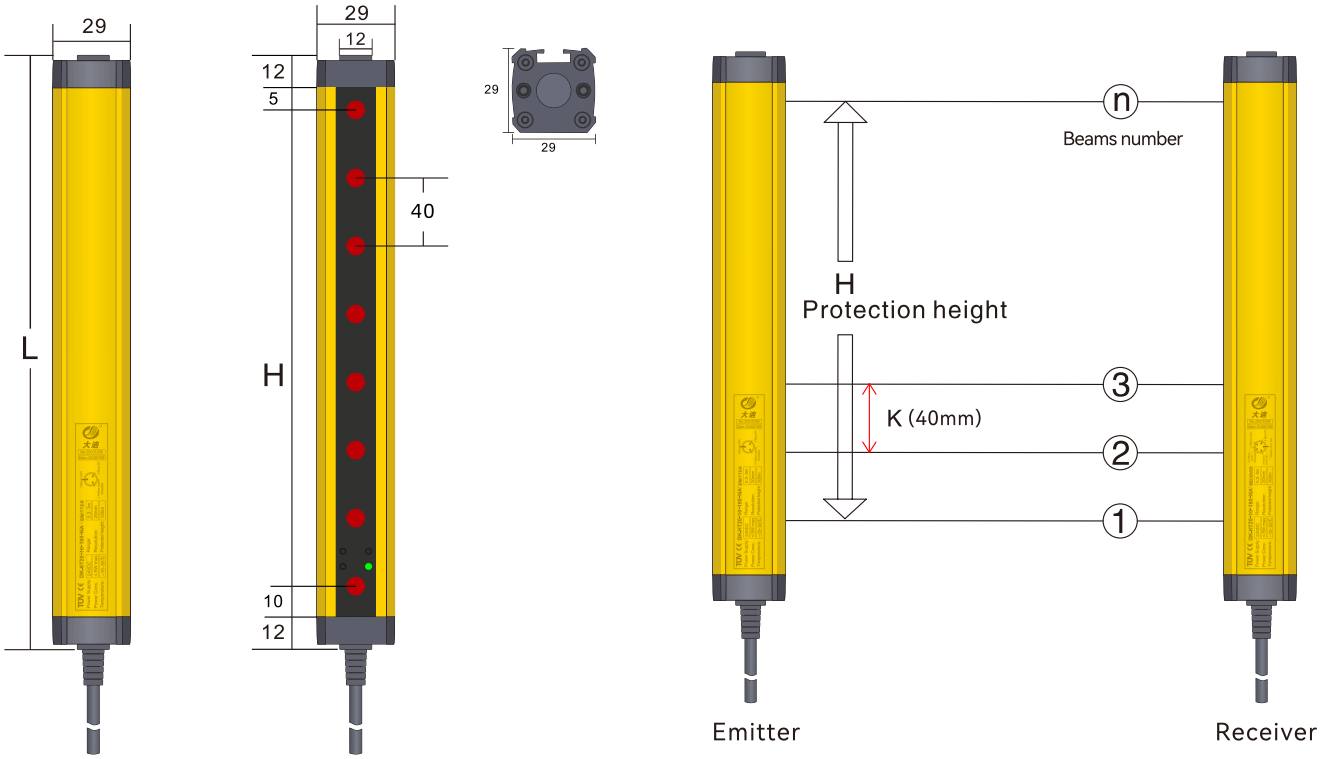
K:Resolution ratio
n:Beams number

DK-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	DK–KT20/06–100	2	PNP	0.3–6m
	8	140	184	DK–KT20/08–140	2	PNP	0.3–6m
	10	180	224	DK–KT20/10–180	2	PNP	0.3–6m
	12	220	264	DK–KT20/12–220	2	PNP	0.3–6m
	14	260	304	DK–KT20/14–260	2	PNP	0.3–6m
	16	300	344	DK–KT20/16–300	2	PNP	0.3–6m
	18	340	384	DK–KT20/18–340	2	PNP	0.3–6m
	20	380	424	DK–KT20/20–380	2	PNP	0.3–6m
	22	420	464	DK–KT20/22–420	2	PNP	0.3–6m
	24	460	504	DK–KT20/24–460	2	PNP	0.3–6m
	26	500	544	DK–KT20/26–500	2	PNP	0.3–6m
	28	540	584	DK–KT20/28–540	2	PNP	0.3–6m
	30	580	624	DK–KT20/30–580	2	PNP	0.3–6m
	32	620	664	DK–KT20/32–620	2	PNP	0.3–6m
	34	660	704	DK–KT20/34–660	2	PNP	0.3–6m
	36	700	744	DK–KT20/36–700	2	PNP	0.3–6m
	38	740	784	DK–KT20/38–740	2	PNP	0.3–6m
	40	780	824	DK–KT20/40–780	2	PNP	0.3–6m
	42	820	864	DK–KT20/42–820	2	PNP	0.3–6m
	44	860	904	DK–KT20/44–860	2	PNP	0.3–6m
	46	900	944	DK–KT20/46–900	2	PNP	0.3–6m
	48	940	984	DK–KT20/48–940	2	PNP	0.3–6m
	50	980	1024	DK–KT20/50–980	2	PNP	0.3–6m
	52	1020	1064	DK–KT20/52–1020	2	PNP	0.3–6m
	...	...	...	...	2	PNP	0.3–6m
	196	3900	3944	DK–KT20/196–3900	2	PNP	0.3–6m
	198	3940	3984	DK–KT20/198–3940	2	PNP	0.3–6m
	200	3980	4024	DK–KT20/200–3980	2	PNP	0.3–6m

4. DK-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

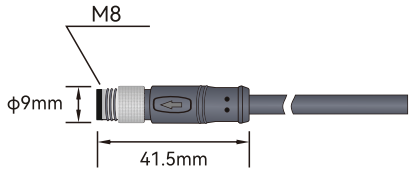
K:Resolution ratio
n:Beams number

DK-KT 40mm specification list

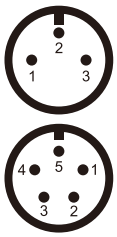
Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
40mm (K)	4	120	164	DK–KT40/04–120	2	PNP	0.3–6m
	6	200	244	DK–KT40/06–200	2	PNP	0.3–6m
	8	280	324	DK–KT40/08–280	2	PNP	0.3–6m
	10	360	404	DK–KT40/10–360	2	PNP	0.3–6m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

Electrical connection

Cable description:



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

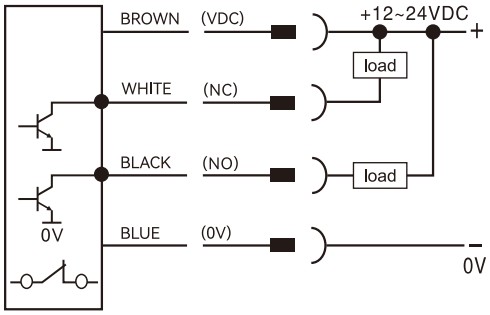


Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
-	-	-
-	-	-
3	YELLOW	Ground wire

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

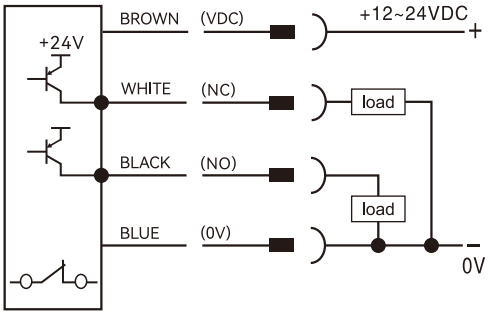
1. DK-KT signal output selection (actual output of transistor working normally)

NPN NO+NC



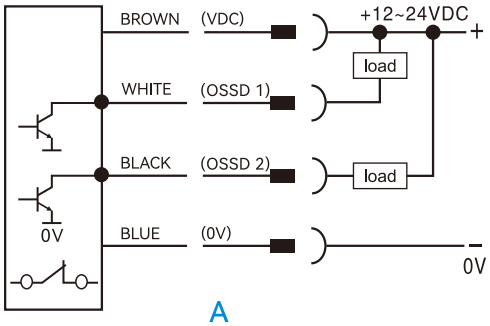
N

PNP NO+NC



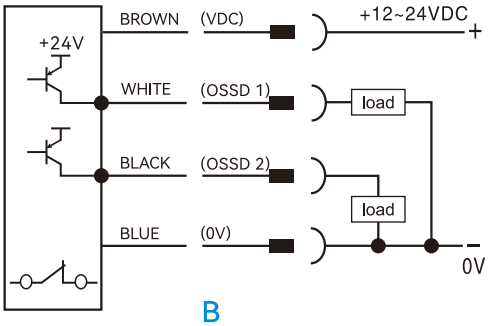
P

NPN NC



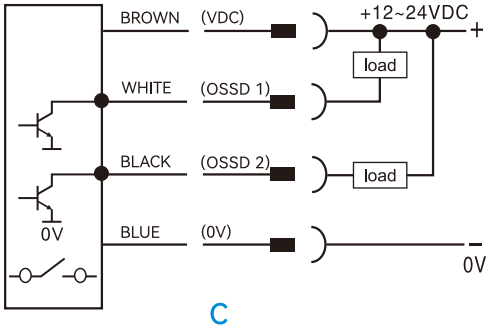
A

PNP NC



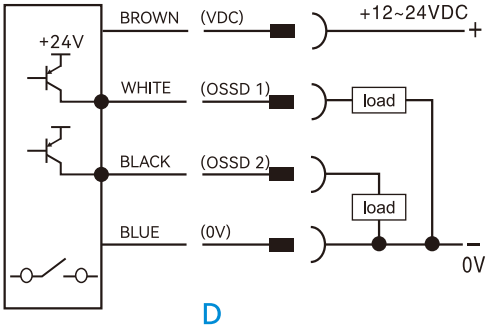
B

NPN NO



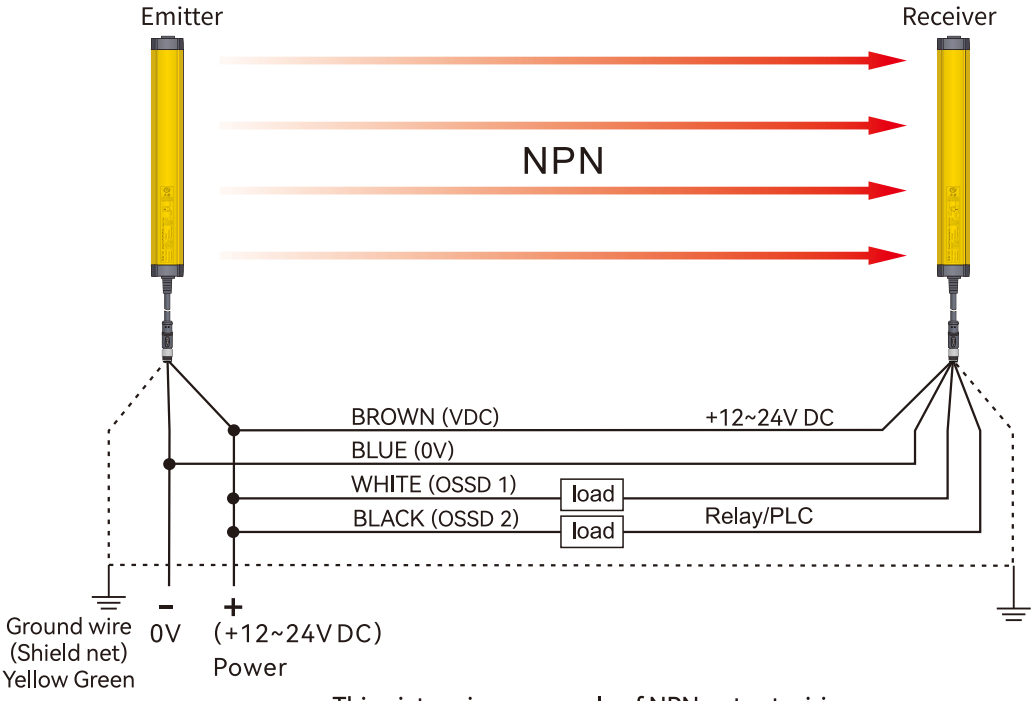
C

PNP NO



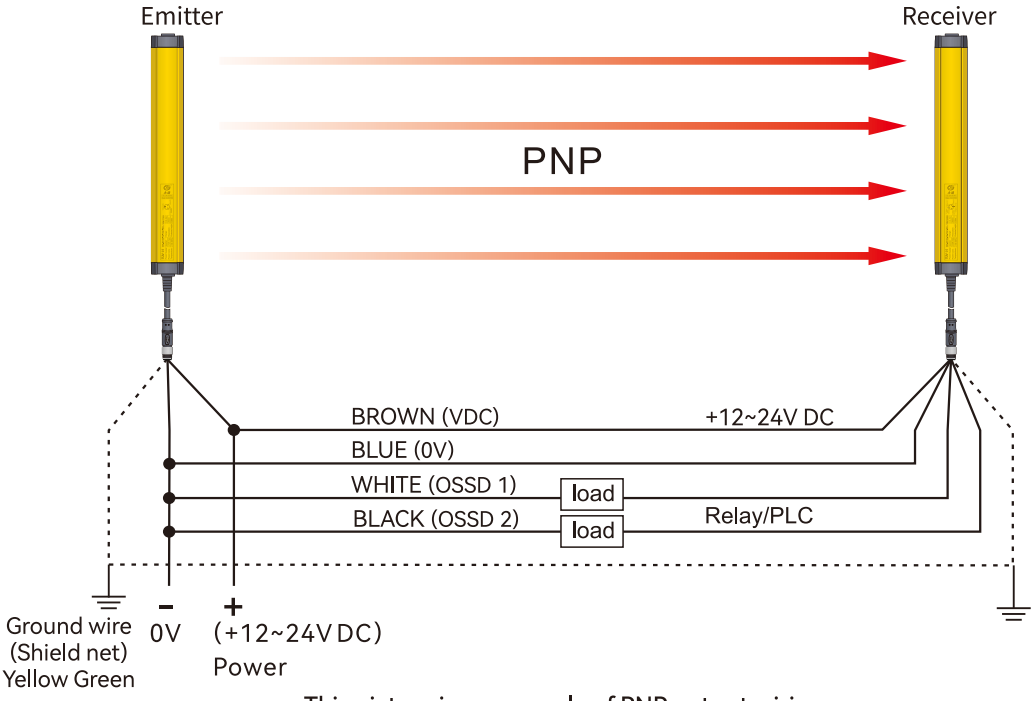
D

2. NPN output wiring diagram



This picture is an example of NPN output wiring

3. PNP output wiring diagram

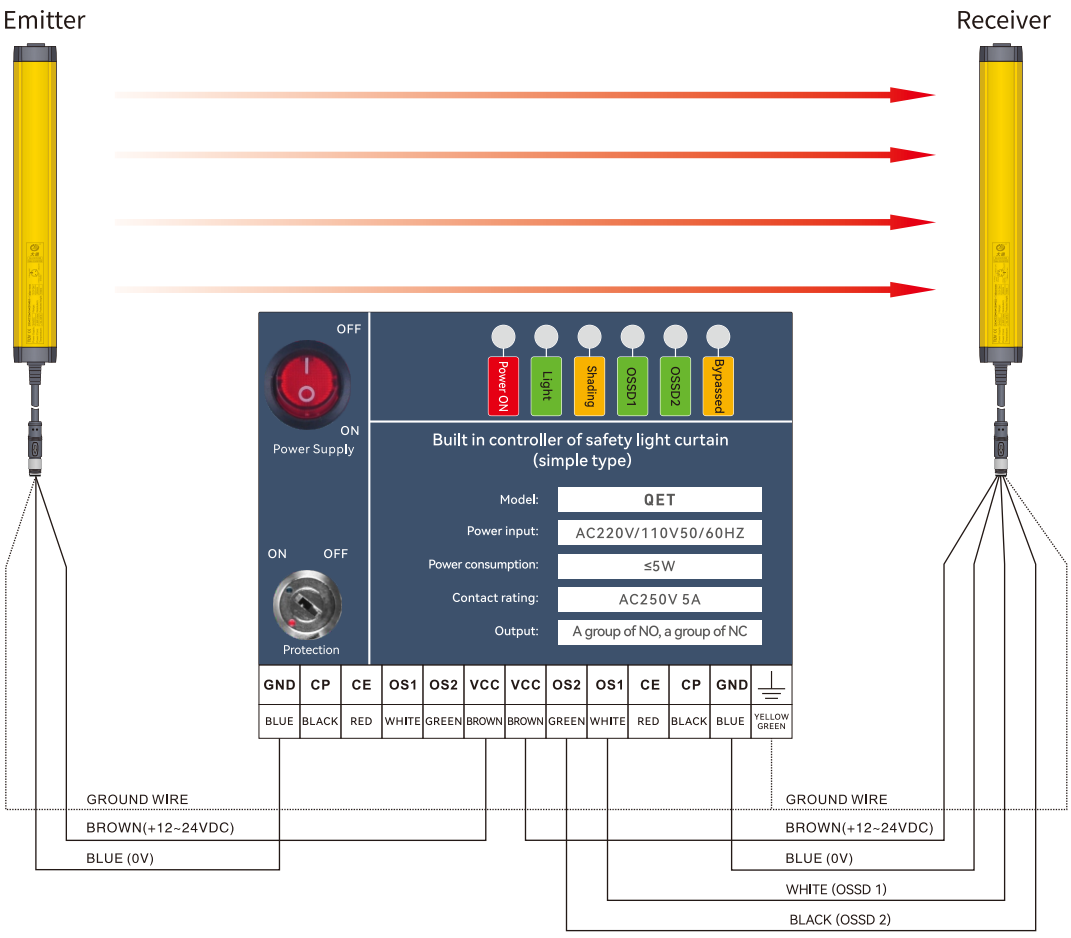


This picture is an example of PNP output wiring

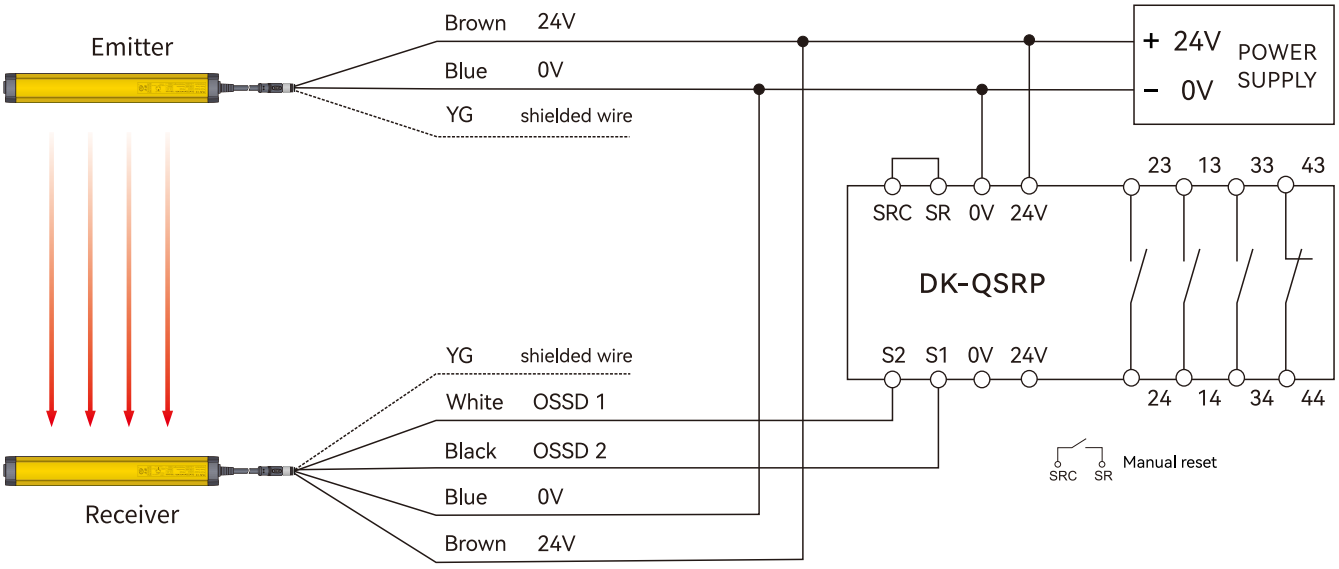
4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		QET	Used to monitor the signal processing of DK-KT series light curtain, and output one group of NO and one group of NC.
Safety relay		DK-QSRP	DK-QSR 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	DK-Ter-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 DK-KT series light curtain.

4.1 Wiring diagram of QET built-in controller

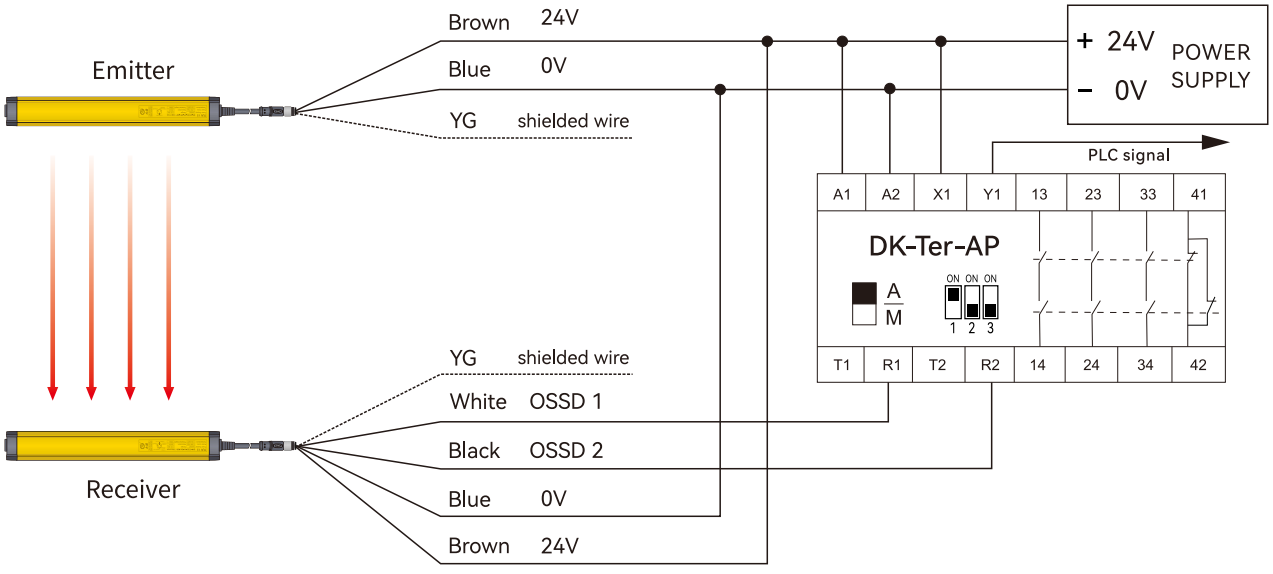


4.2 Wiring diagram of DK-QSRP safety relay

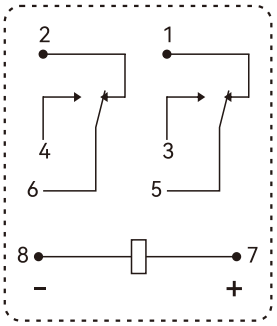


4.3 Wiring diagram of DK-Ter-AP safety relay

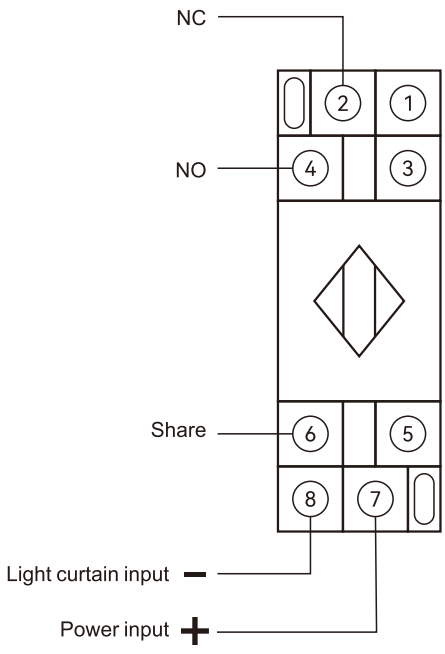
Dual channel light curtain PNP switch safety input, with automatic reset and PLC signal output.



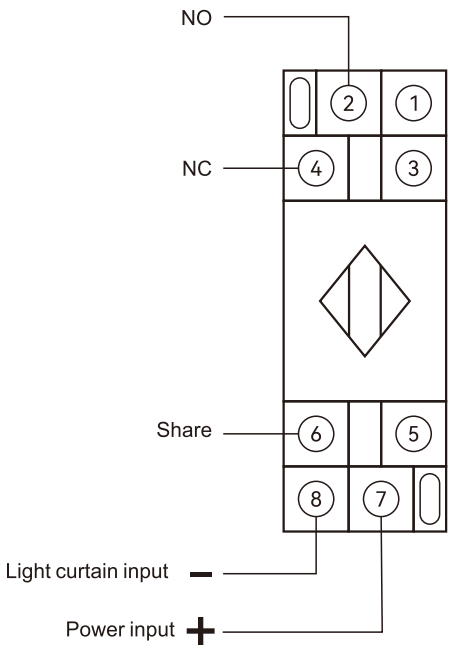
4.4 Wiring diagram of QET-1 light curtain relay



Circuit diagram



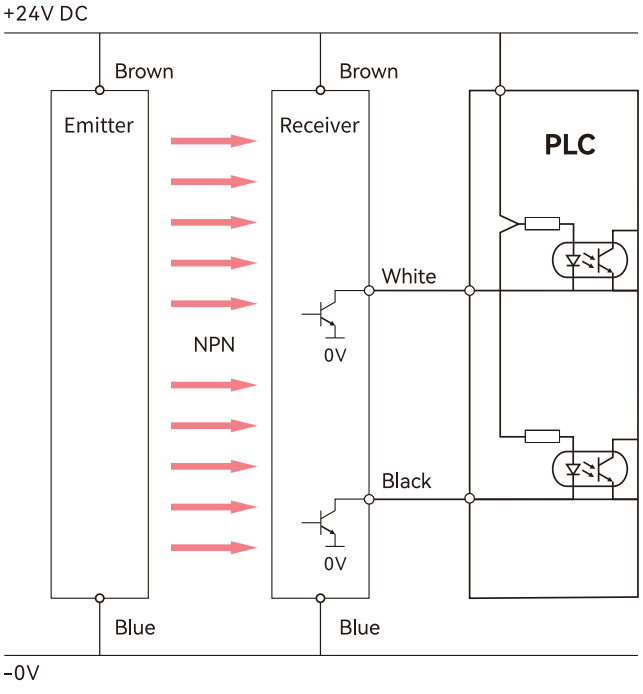
When not powered on



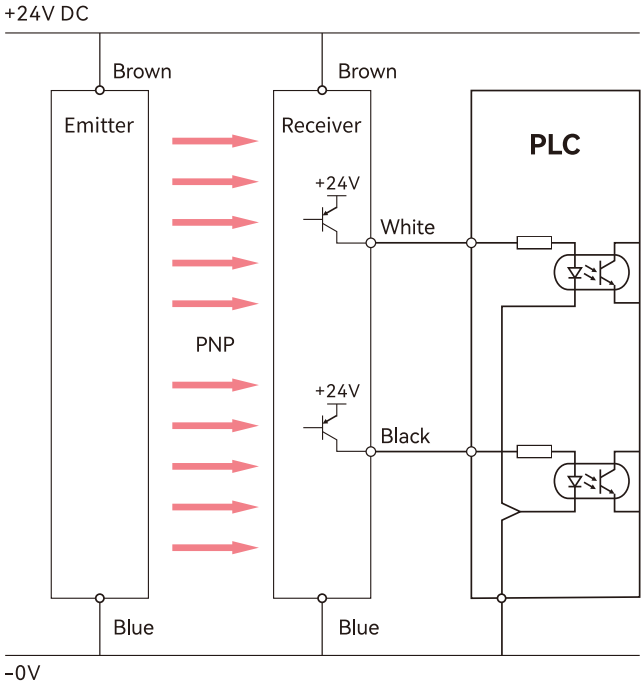
When powered on

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

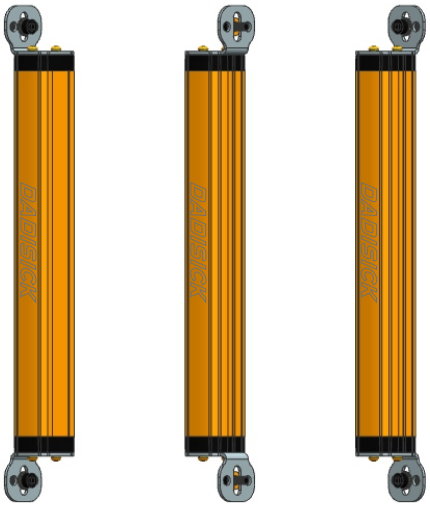
NPN wiring:



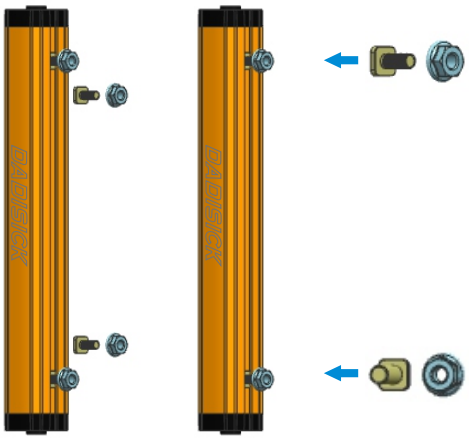
PNP wiring:



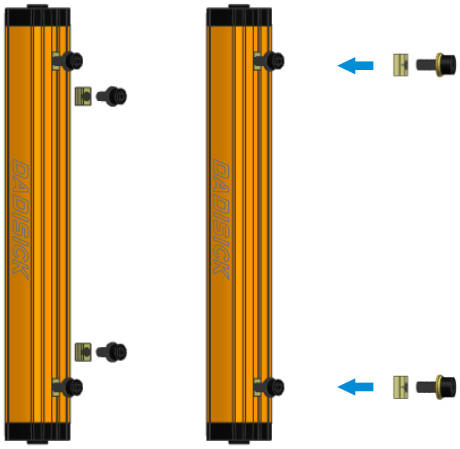
Accessories



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

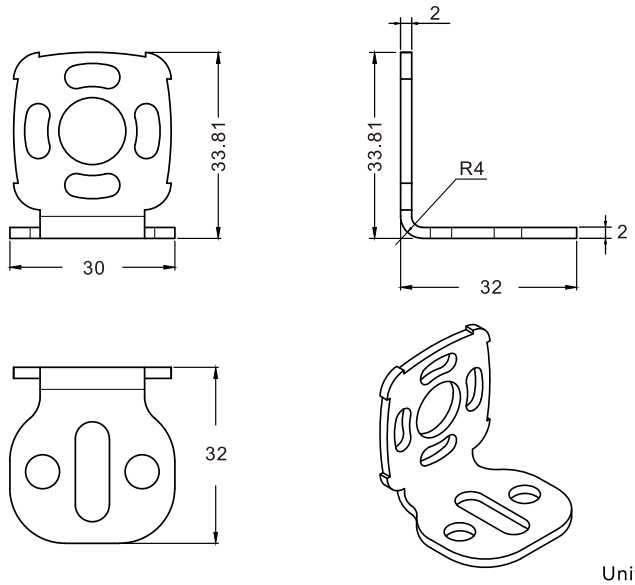


2. Installation method of T-shaped screws on the back
(Original accessories)



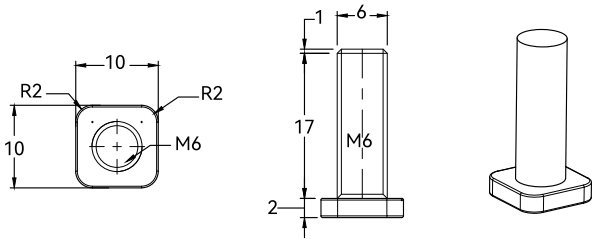
3. Installation method of convex nut
(Optional accessories)

Mounting bracket	Model: KT-08



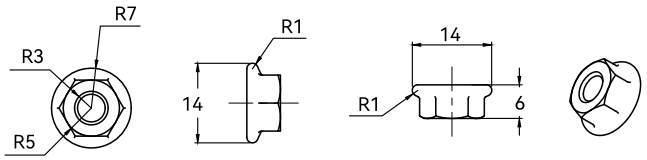
Unit:mm

T-screw	Model: QCA-02-1



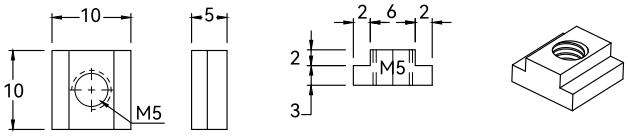
Unit:mm

Flange nut M6	Model: QCA-02-2



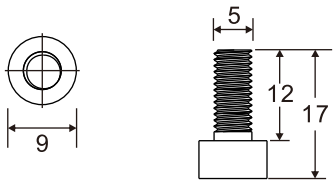
Unit:mm

Raised nut	Model: QCA-03-1

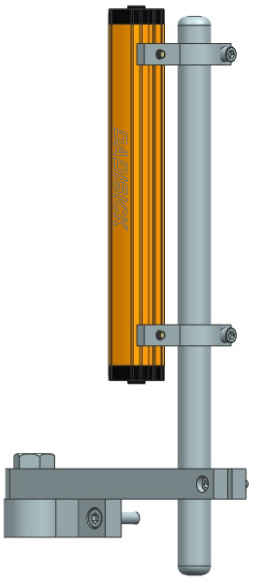


Unit:mm

M5 screw	Model: QCA-03-2



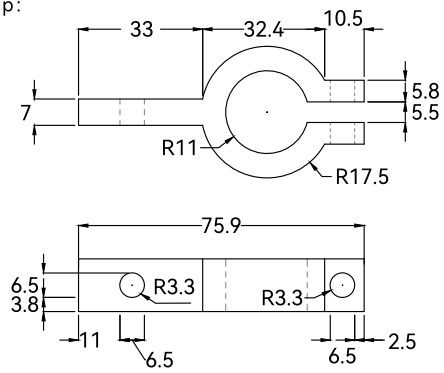
Unit:mm



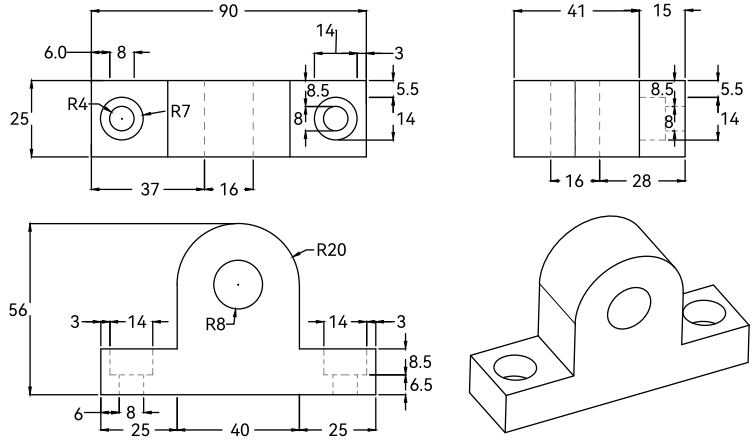
4.Stainless steel bracket installation
(Order separately)

Stainless steel bracket installation	Model: QCA-01

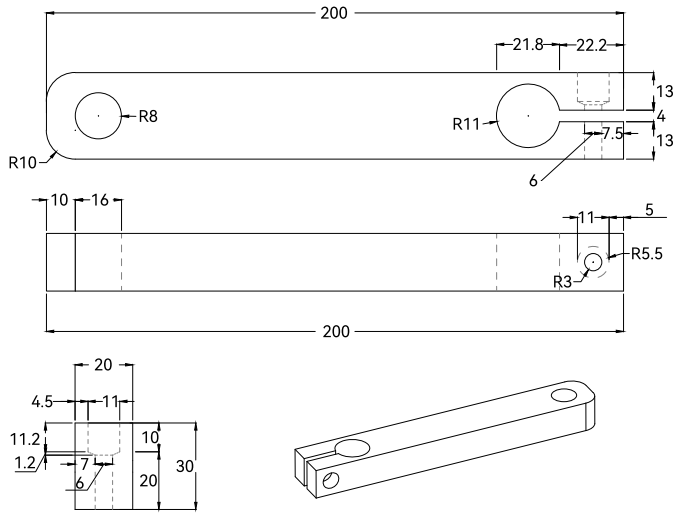
Clip:



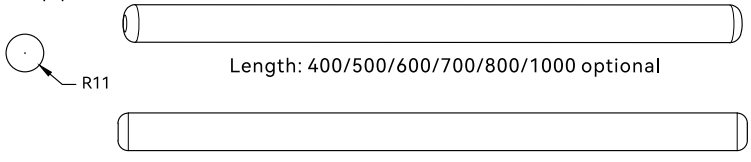
Aluminum round:



Aluminum arm:



Steel pipe:



Unit:mm