DADISICK®

TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR
Emitter and Receiver
DK-QT4 series

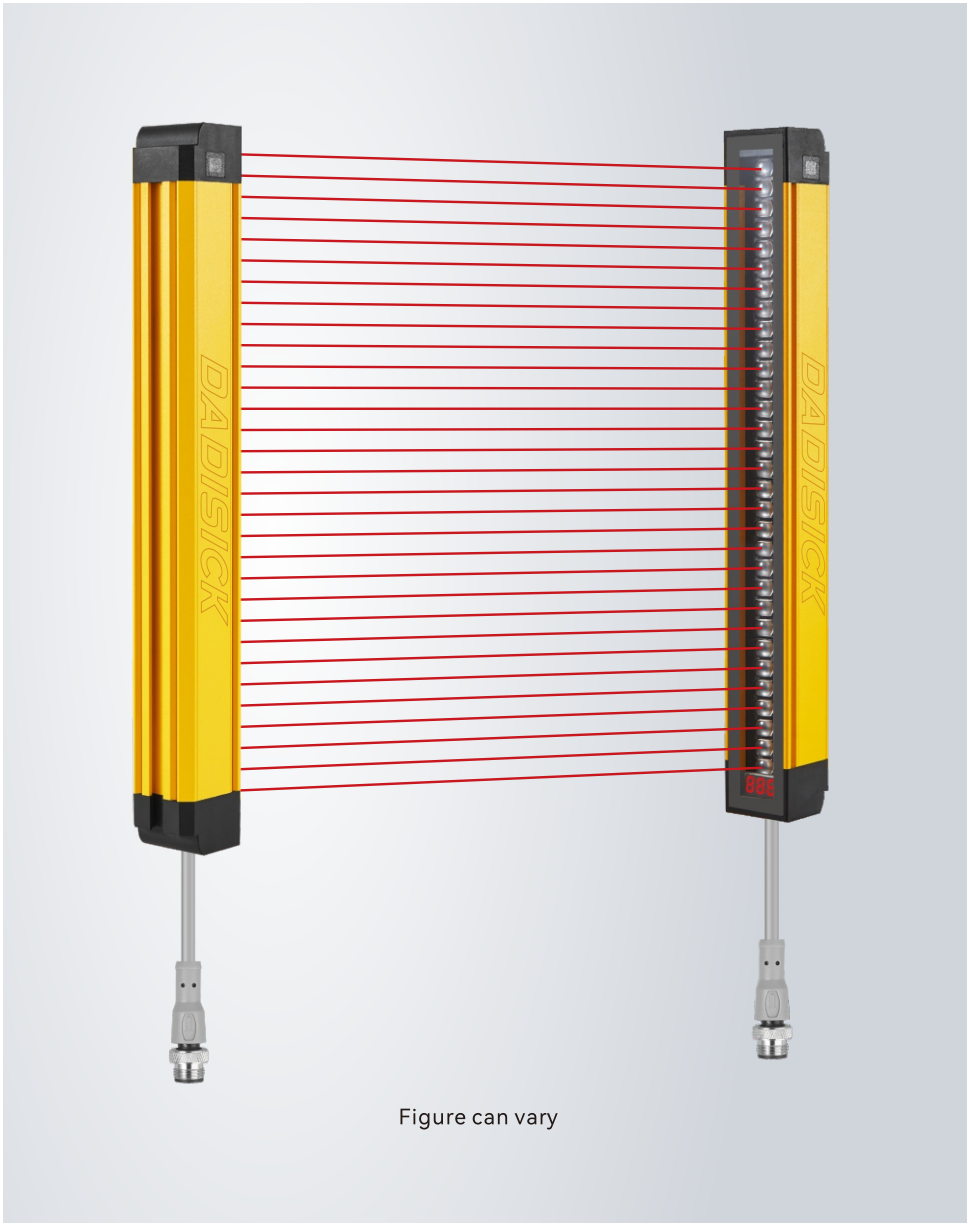

Figure can vary

Contents

GB/T 19001-2016

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We reserve the right to make technical changes
2025-04-06

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-QT4 type safety light curtain are as follows:

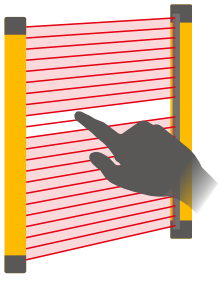
DK-QT4 | 15 | 30 | 420 | 2 | B | B | E (DK-QT4 15/30-420-2BB-E)

- E: Emitter
  R: Receiver
- Detection distance: A:0.3-3m
  B:0.3-6m
- Signal Output Mode: A:NPN NC
  B:PNP NC
  C:NPN NO
  D:PNP NO
  Note: The default is figure B without special requirements.
- 2:Two circuit of output
- Protective field height 420mm
- Resolution ratio: 7.5mm, 15mm, 30mm
- Beam number:15、23、31、39.....319
- Model: DK-QT4 series safety light curtain

Resolution ratio

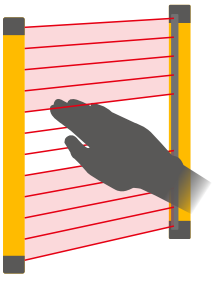
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

Finger protection



Detection capability
7.5/15mm
diameter

Hand protection



Detection capability
30mm
diameter

Technical data

Basic data of Receiver and Emitter

Standard packaging	
Product model	**DK-QT4 series**
Standard configuration	One receiver, one transmitter, 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	7.5mm，15mm，30mm
Check the accuracy	14mm，21mm，36mm
Number of beams	15、23、31、39.....319
Overall dimension	30mm*30mm*L，L is the length of emitter and receiver.
Detection distance	30-6000mm
Response time	≤20ms

Synchronization	Line 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

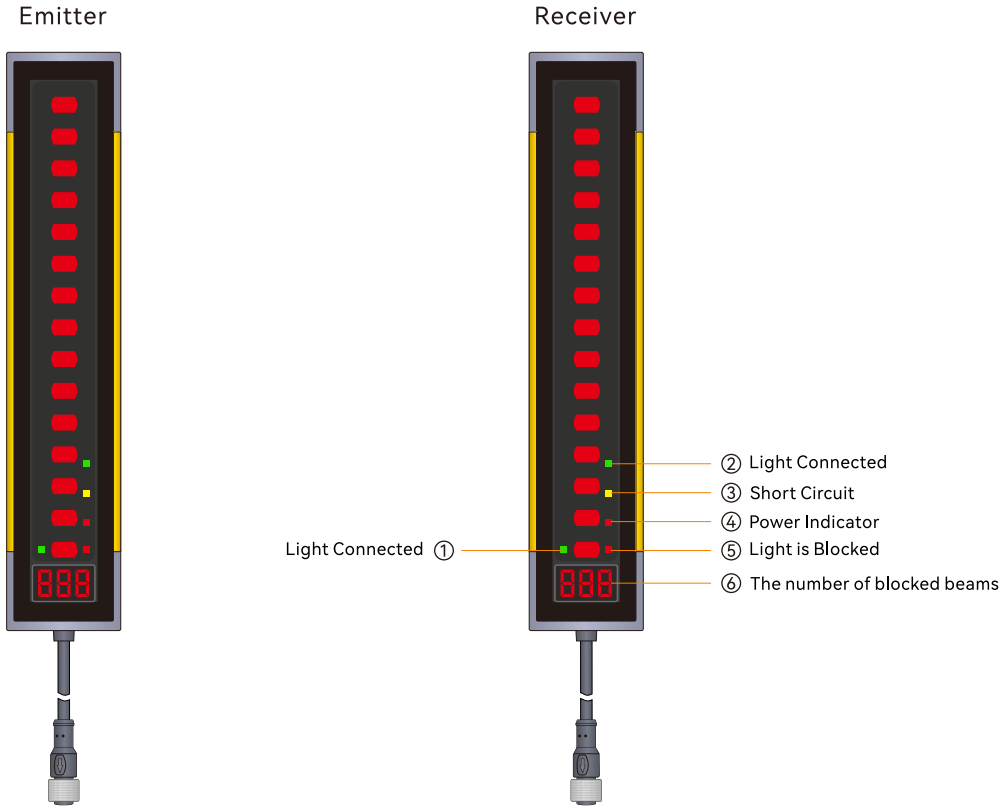
Performance data	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC,-20...20%
Maximum current consumption	150mA
Fuse	2A half time interval

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 6, GREEN 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

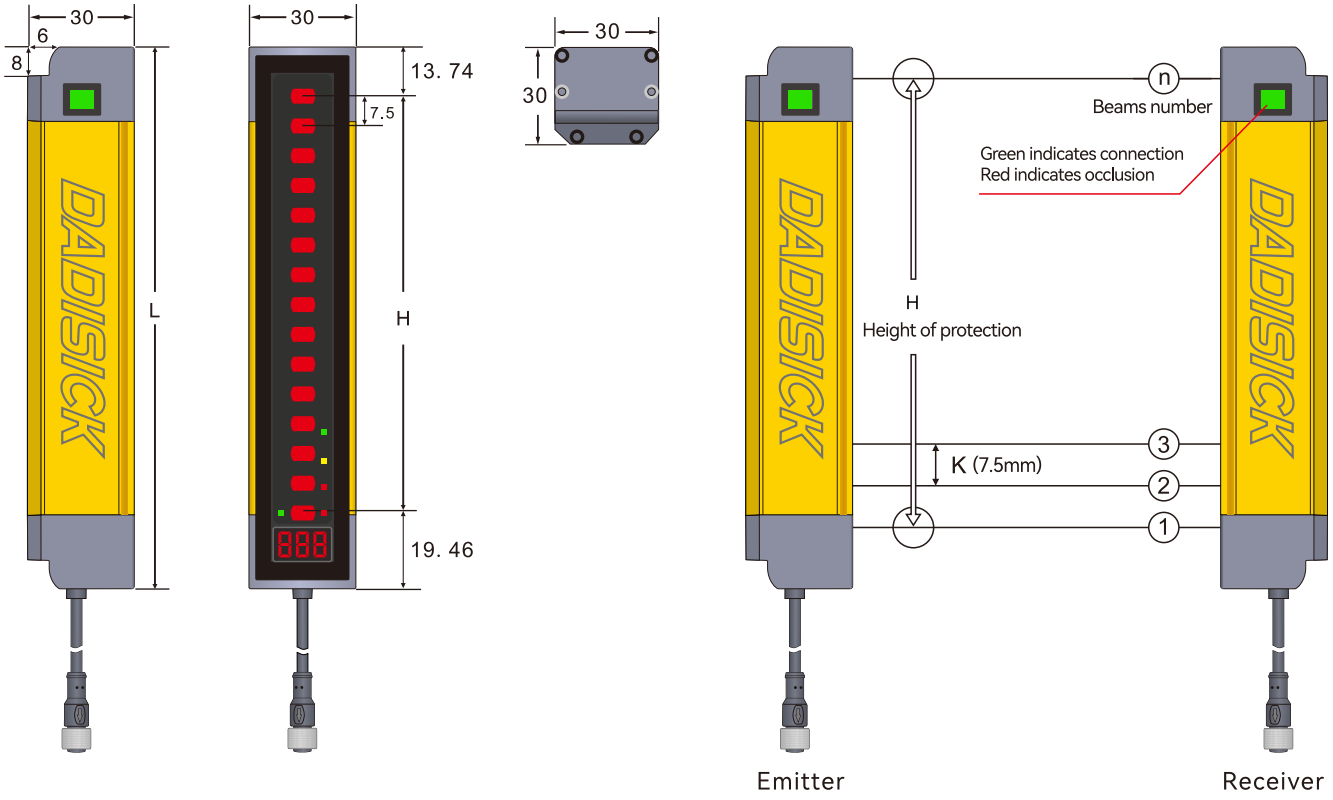
Operation and display



Status indicator	LED status Indicator	Explain
Emitter and Receiver	① ② Two green	All light paths are connected
	③ Yellow	Short-circuit
	④ Red, always on	Turns on the power
	⑤ Red	The light is blocked or misaligned
	⑥ Digital Tube	Real-time display of the number of blocked beams

Dimensioned drawings

1. DK-QT4 series 7.5mm Resolution



Remarks

L:Total length of light screen
L=13.74+H+19.46

H:Height of protected area
H= (n–1) * 7.5

K:Resolution ratio

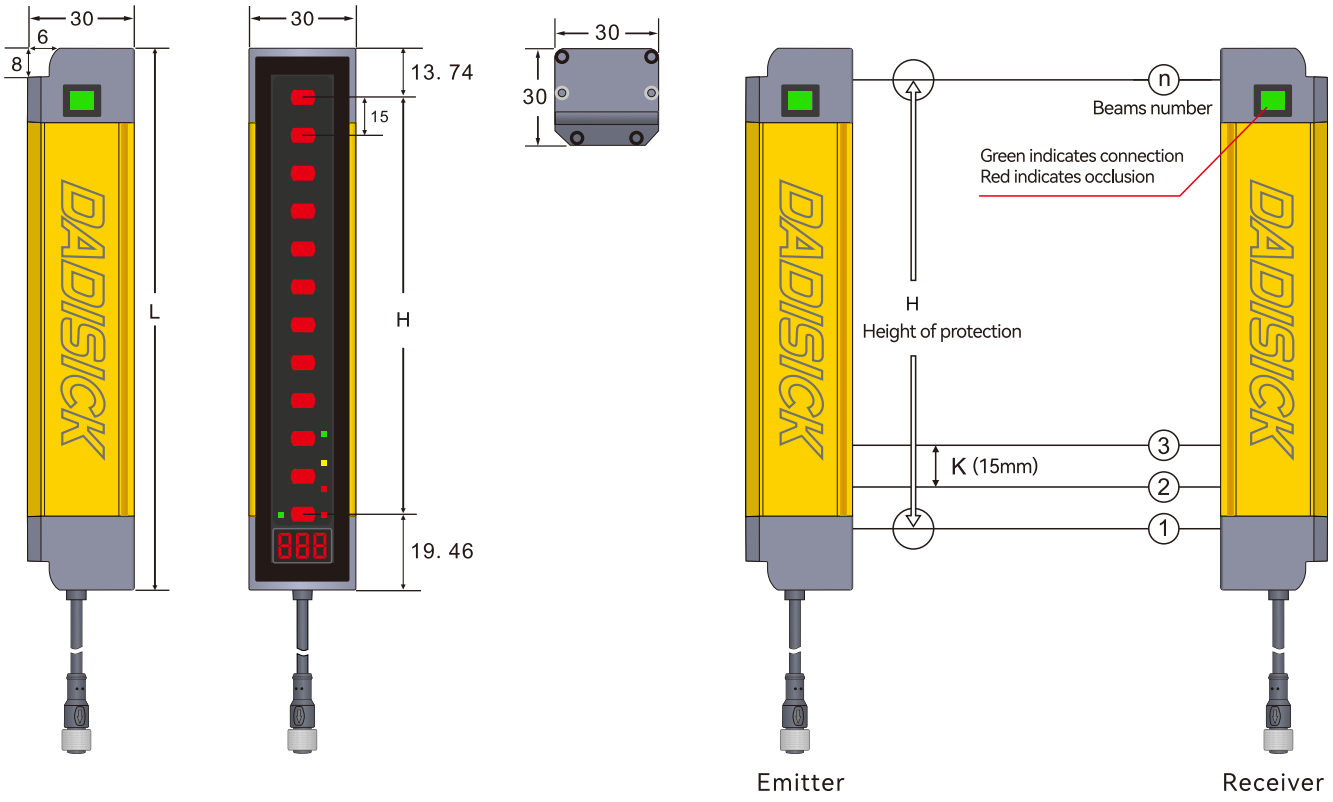
n:Beams number

DK-QT4 series 7.5mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
7.5mm (K)	15	105	138.2	DK-QT4 15/7.5-105	2	PNP	0.3-6m
	23	165	198.2	DK-QT4 23/7.5-165	2	PNP	0.3-6m
	31	225	258.2	DK-QT4 31/7.5-225	2	PNP	0.3-6m
	39	285	318.2	DK-QT4 39/7.5-285	2	PNP	0.3-6m
	47	345	378.2	DK-QT4 47/7.5-345	2	PNP	0.3-6m
	55	405	438.2	DK-QT4 55/7.5-405	2	PNP	0.3-6m
	63	465	498.2	DK-QT4 63/7.5-465	2	PNP	0.3-6m
	71	525	558.2	DK-QT4 71/7.5-525	2	PNP	0.3-6m
	79	585	618.2	DK-QT4 79/7.5-585	2	PNP	0.3-6m
	87	645	678.2	DK-QT4 87/7.5-645	2	PNP	0.3-6m
	95	705	738.2	DK-QT4 95/7.5-705	2	PNP	0.3-6m
	103	765	798.2	DK-QT4 103/7.5-765	2	PNP	0.3-6m
	111	825	858.2	DK-QT4 111/7.5-825	2	PNP	0.3-6m
	119	885	918.2	DK-QT4 119/7.5-885	2	PNP	0.3-6m
	127	945	978.2	DK-QT4 127/7.5-945	2	PNP	0.3-6m
	135	1005	1038.2	DK-QT4 135/7.5-1005	2	PNP	0.3-6m
	143	1065	1098.2	DK-QT4 143/7.5-1065	2	PNP	0.3-6m
	151	1125	1158.2	DK-QT4 151/7.5-1125	2	PNP	0.3-6m
	159	1185	1218.2	DK-QT4 159/7.5-1185	2	PNP	0.3-6m
	167	1245	1278.2	DK-QT4 167/7.5-1245	2	PNP	0.3-6m
	175	1305	1338.2	DK-QT4 175/7.5-1305	2	PNP	0.3-6m
	183	1365	1398.2	DK-QT4 183/7.5-1365	2	PNP	0.3-6m
	191	1425	1458.2	DK-QT4 191/7.5-1425	2	PNP	0.3-6m
	199	1485	1518.2	DK-QT4 199/7.5-1485	2	PNP	0.3-6m
	207	1545	1578.2	DK-QT4 207/7.5-1545	2	PNP	0.3-6m
	215	1605	1638.2	DK-QT4 215/7.5-1605	2	PNP	0.3-6m
	...	...	...	...	2	PNP	0.3-6m
	303	2265	2298.2	DK-QT4 303/7.5-2265	2	PNP	0.3-6m
	311	2325	2358.2	DK-QT4 311/7.5-2325	2	PNP	0.3-6m
	319	2385	2418.2	DK-QT4 319/7.5-2385	2	PNP	0.3-6m

Dimensioned drawings

2. DK-QT4 series 15mm Resolution



Remarks

L:Total length of light screen
L=13.74+H+19.46

H:Height of protected area
H= (n−1) * 15

K:Resolution ratio

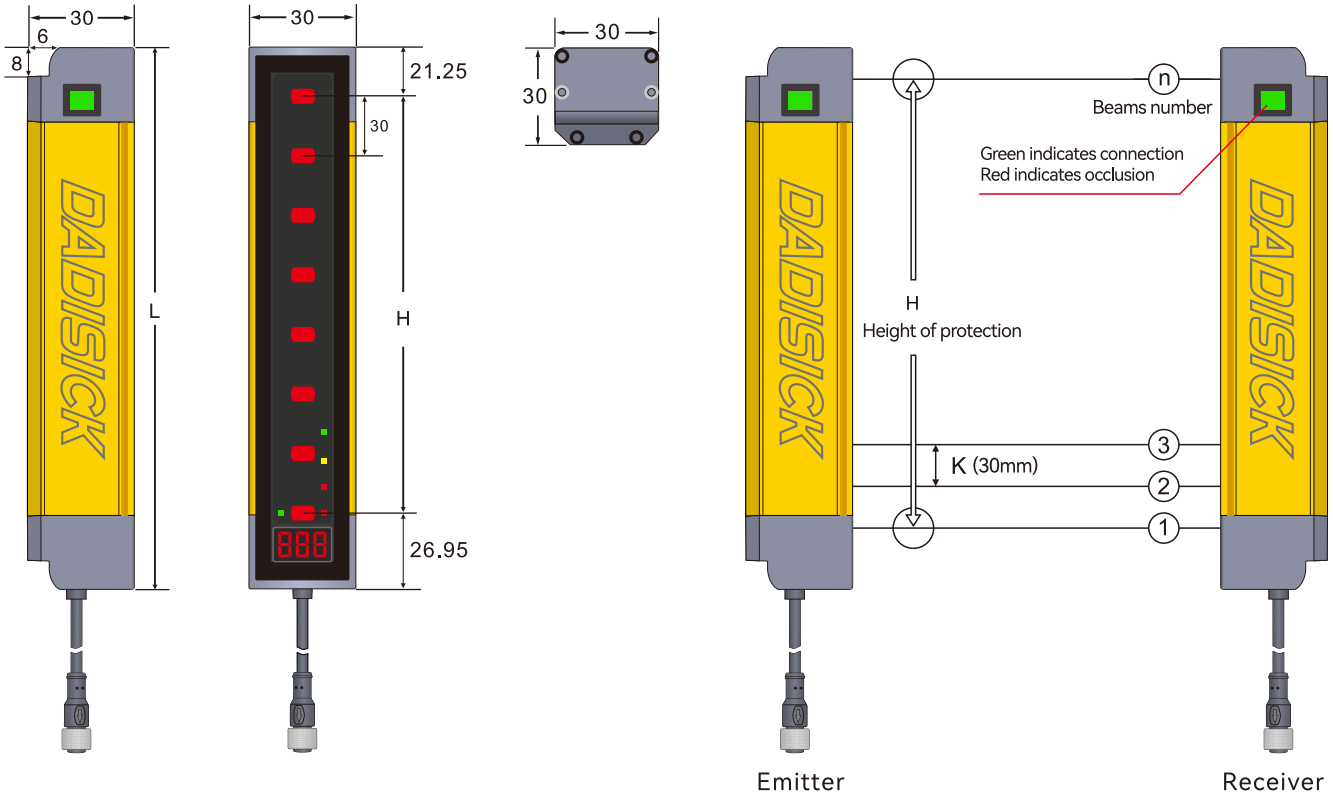
n:Beams number

DK-QT4 series 15mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
15mm (K)	8	105	138.2	DK-QT4 08/15-105	2	PNP	0.3-6m
	12	165	198.2	DK-QT4 12/15-165	2	PNP	0.3-6m
	16	225	258.2	DK-QT4 16/15-225	2	PNP	0.3-6m
	20	285	318.2	DK-QT4 20/15-285	2	PNP	0.3-6m
	24	345	378.2	DK-QT4 24/15-345	2	PNP	0.3-6m
	28	405	438.2	DK-QT4 28/15-405	2	PNP	0.3-6m
	32	465	498.2	DK-QT4 32/15-465	2	PNP	0.3-6m
	36	525	558.2	DK-QT4 36/15-525	2	PNP	0.3-6m
	40	585	618.2	DK-QT4 40/15-585	2	PNP	0.3-6m
	44	645	678.2	DK-QT4 44/15-645	2	PNP	0.3-6m
	48	705	738.2	DK-QT4 48/15-705	2	PNP	0.3-6m
	52	765	798.2	DK-QT4 52/15-765	2	PNP	0.3-6m
	56	825	858.2	DK-QT4 56/15-825	2	PNP	0.3-6m
	60	885	918.2	DK-QT4 60/15-885	2	PNP	0.3-6m
	64	945	978.2	DK-QT4 64/15-945	2	PNP	0.3-6m
	68	1005	1038.2	DK-QT4 68/15-1005	2	PNP	0.3-6m
	72	1065	1098.2	DK-QT4 72/15-1065	2	PNP	0.3-6m
	76	1125	1158.2	DK-QT4 76/15-1125	2	PNP	0.3-6m
	80	1185	1218.2	DK-QT4 80/15-1185	2	PNP	0.3-6m
	84	1245	1278.2	DK-QT4 84/15-1245	2	PNP	0.3-6m
	88	1305	1338.2	DK-QT4 88/15-1305	2	PNP	0.3-6m
	92	1365	1398.2	DK-QT4 92/15-1365	2	PNP	0.3-6m
	96	1425	1458.2	DK-QT4 96/15-1425	2	PNP	0.3-6m
	100	1485	1518.2	DK-QT4 100/15-1485	2	PNP	0.3-6m
	104	1545	1578.2	DK-QT4 104/15-1545	2	PNP	0.3-6m
	108	1605	1638.2	DK-QT4 108/15-1605	2	PNP	0.3-6m
	...	...	...	.....	2	PNP	0.3-6m
	192	2865	2898.2	DK-QT4 192/15-2865	2	PNP	0.3-6m
	196	2925	2958.2	DK-QT4 196/15-2925	2	PNP	0.3-6m
	200	2985	3018.2	DK-QT4 200/15-2985	2	PNP	0.3-6m

Dimensioned drawings

3. DK-QT4 series 30mm Resolution



Remarks

L:Total length of light screen
L=21.25+H+26.95

H:Height of protected area
H= (n−1) * 30

K:Resolution ratio

n:Beams number

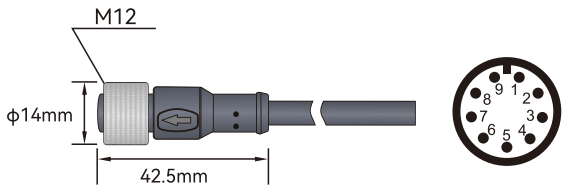
DK-QT4 series 30mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
30mm (K)	4	90	138.2	DK-QT4 04/30-90	2	PNP	0.3-6m
	8	210	258.2	DK-QT4 08/30-210	2	PNP	0.3-6m
	12	330	378.2	DK-QT4 12/30-330	2	PNP	0.3-6m
	16	450	498.2	DK-QT4 16/30-450	2	PNP	0.3-6m
	20	570	618.2	DK-QT4 20/30-570	2	PNP	0.3-6m
	24	690	738.2	DK-QT4 24/30-690	2	PNP	0.3-6m
	28	810	858.2	DK-QT4 28/30-810	2	PNP	0.3-6m
	32	930	978.2	DK-QT4 32/30-930	2	PNP	0.3-6m
	36	1050	1098.2	DK-QT4 26/30-1050	2	PNP	0.3-6m
	40	1170	1218.2	DK-QT4 40/30-1170	2	PNP	0.3-6m
	44	1290	1338.2	DK-QT4 44/30-1290	2	PNP	0.3-6m
	48	1410	1458.2	DK-QT4 48/30-1410	2	PNP	0.3-6m
	52	1530	1578.2	DK-QT4 52/30-1530	2	PNP	0.3-6m
	56	1650	1698.2	DK-QT4 56/30-1650	2	PNP	0.3-6m
	60	1770	1818.2	DK-QT4 60/30-1770	2	PNP	0.3-6m
	64	1890	1938.2	DK-QT4 64/30-1890	2	PNP	0.3-6m
	68	2010	2058.2	DK-QT4 68/30-2010	2	PNP	0.3-6m
	72	2130	2178.2	DK-QT4 72/30-2130	2	PNP	0.3-6m
	76	2250	2298.2	DK-QT4 76/30-2250	2	PNP	0.3-6m
	80	2370	2418.2	DK-QT4 80/30-2370	2	PNP	0.3-6m
	84	2490	2538.2	DK-QT4 84/30-2490	2	PNP	0.3-6m
	88	2610	2658.2	DK-QT4 88/30-2610	2	PNP	0.3-6m
	92	2730	2778.2	DK-QT4 92/30-2730	2	PNP	0.3-6m
	96	2850	2898.2	DK-QT4 96/30-2850	2	PNP	0.3-6m
	100	2970	3018.2	DK-QT4 100/30-2970	2	PNP	0.3-6m
	104	3090	3138.2	DK-QT4 104/30-3090	2	PNP	0.3-6m
	...	...	...	.....	2	PNP	0.3-6m
	192	5730	5778.2	DK-QT4 192/30-5730	2	PNP	0.3-6m
	196	5850	5898.2	DK-QT4 196/30-5850	2	PNP	0.3-6m
	200	5970	6018.2	DK-QT4 200/30-5970	2	PNP	0.3-6m

Electrical connection

Electrical interface	
Number of interfaces	2 (receiver and transmitter)
Type	M12 connector, 9-pin
Interface metal	Copper nickel plating
Plug material	GY384 gray 30P
Allowable typical conductor section	0.25mm²
Maximum link cable	100m
Maximum allowable cable load	4.9A
Cable material	PVC

Cable description:



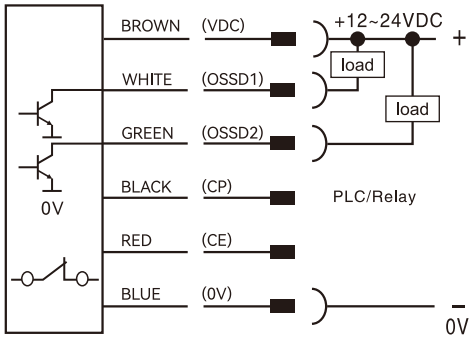
9-pin M12 cable connector straight
3m waterproof cable

Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	NC
5	RED	CE
6	GREEN	NC
7	YELLOW	NC
8	ORANGE	NC
9	YG	Ground wire

Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	OSSD1
5	RED	CE
6	GREEN	OSSD2
7	YELLOW	AUX
8	ORANGE	EDM
9	YG	Ground wire

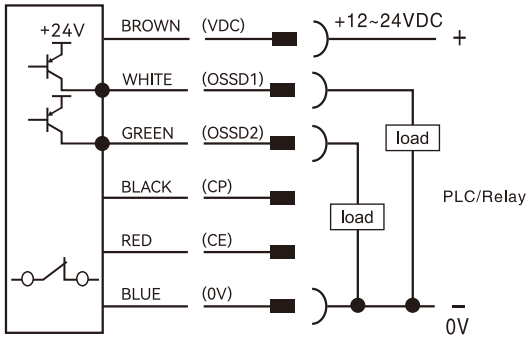
1. DK-QT4 signal output selection (actual output of transistor working normally)

NPN NC



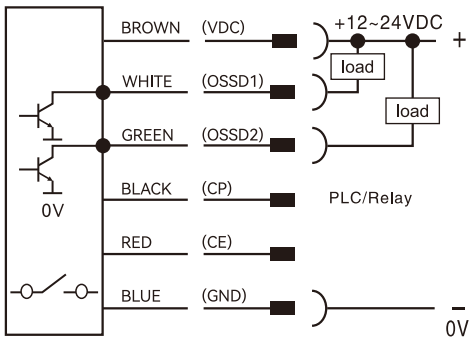
A

PNP NC



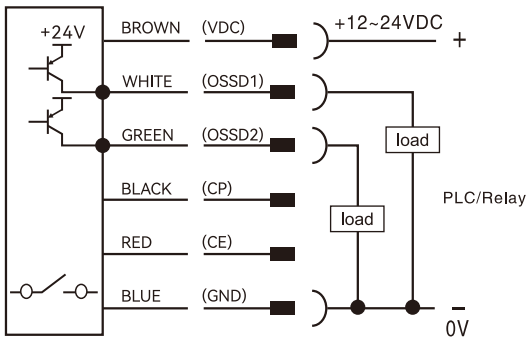
B

NPN NO



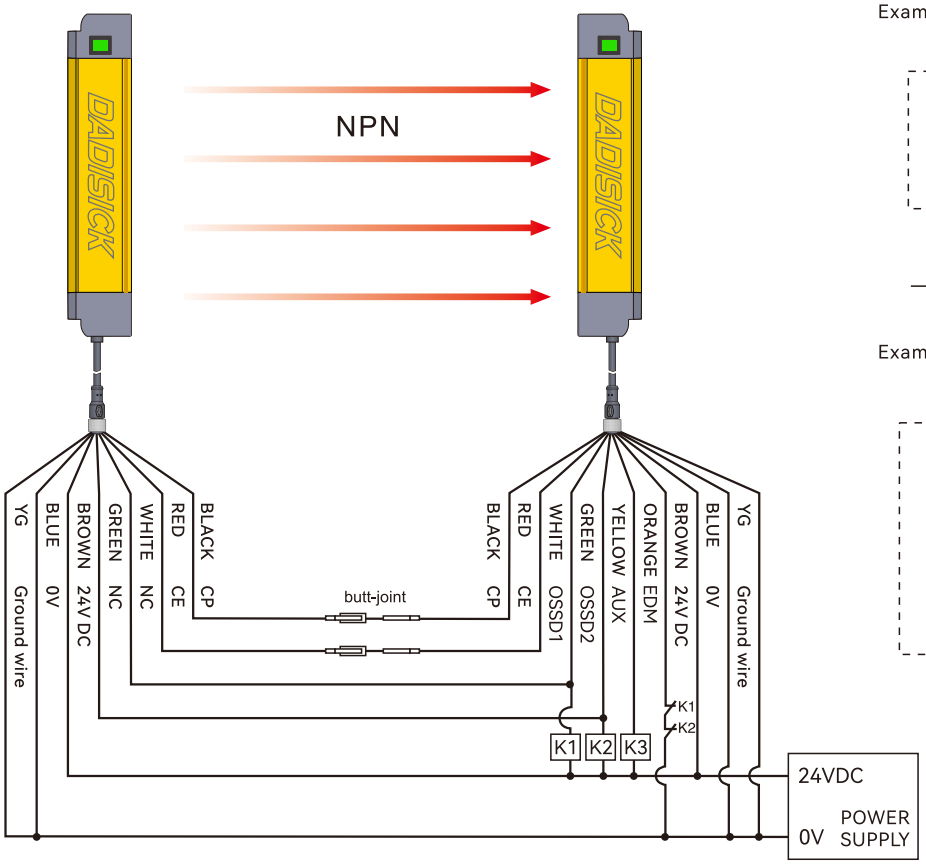
C

PNP NO

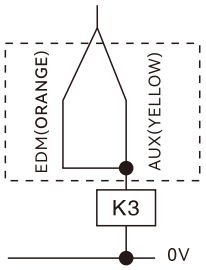


D

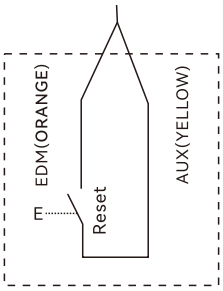
2. NPN output wiring diagram



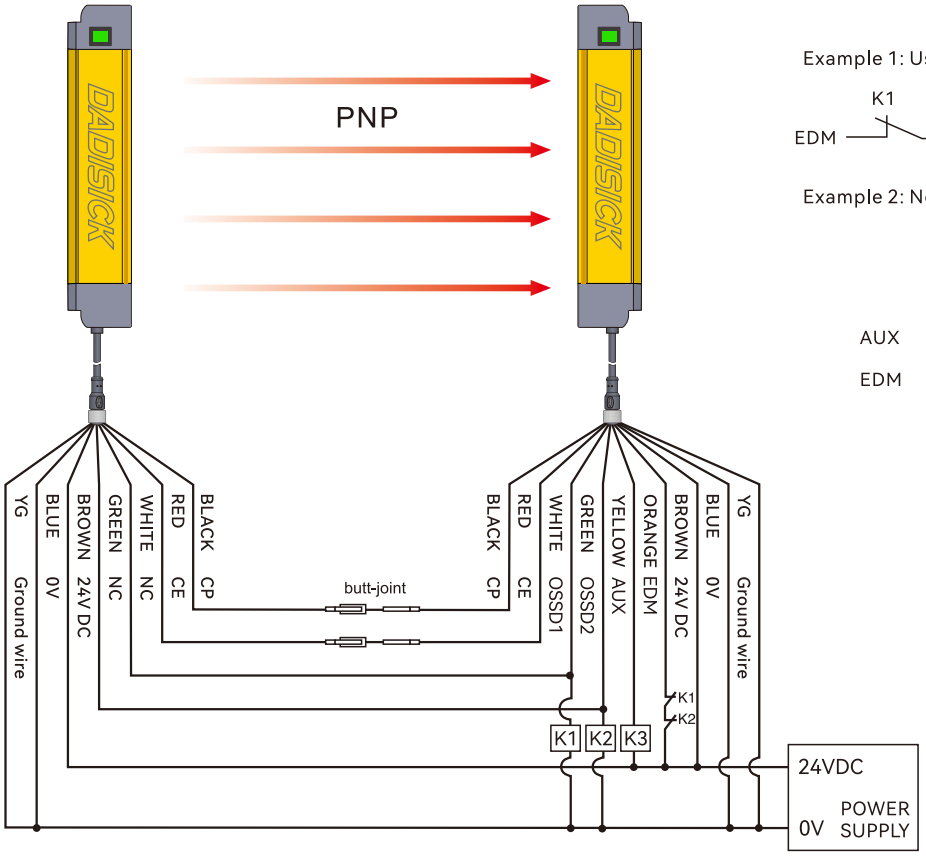
Example 1: Automatic reset



Example 2: Manual reset

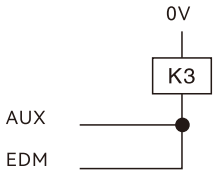


3. PNP output wiring diagram



Example 1: Using EDM functionality

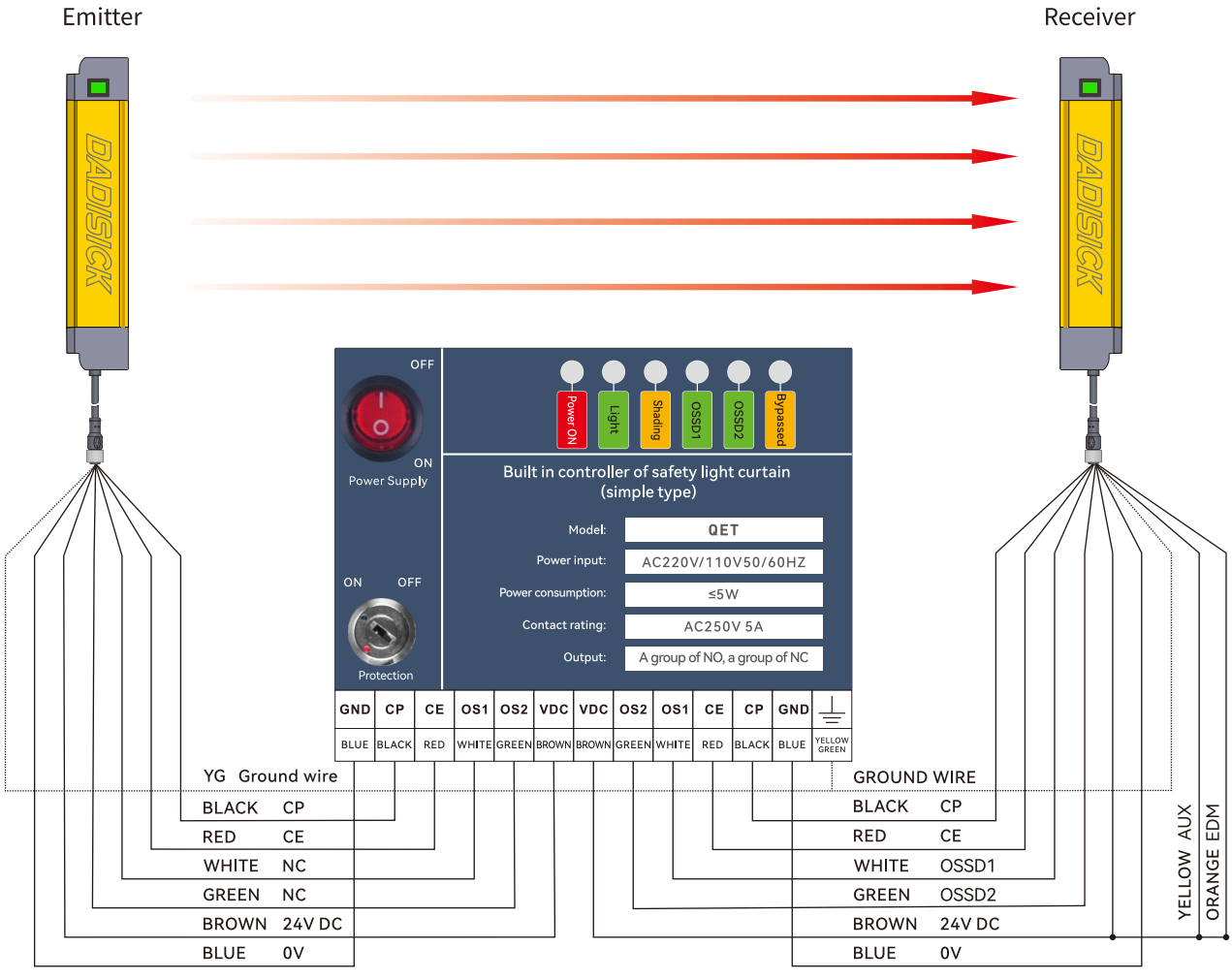
Example 2: Not using EDM function



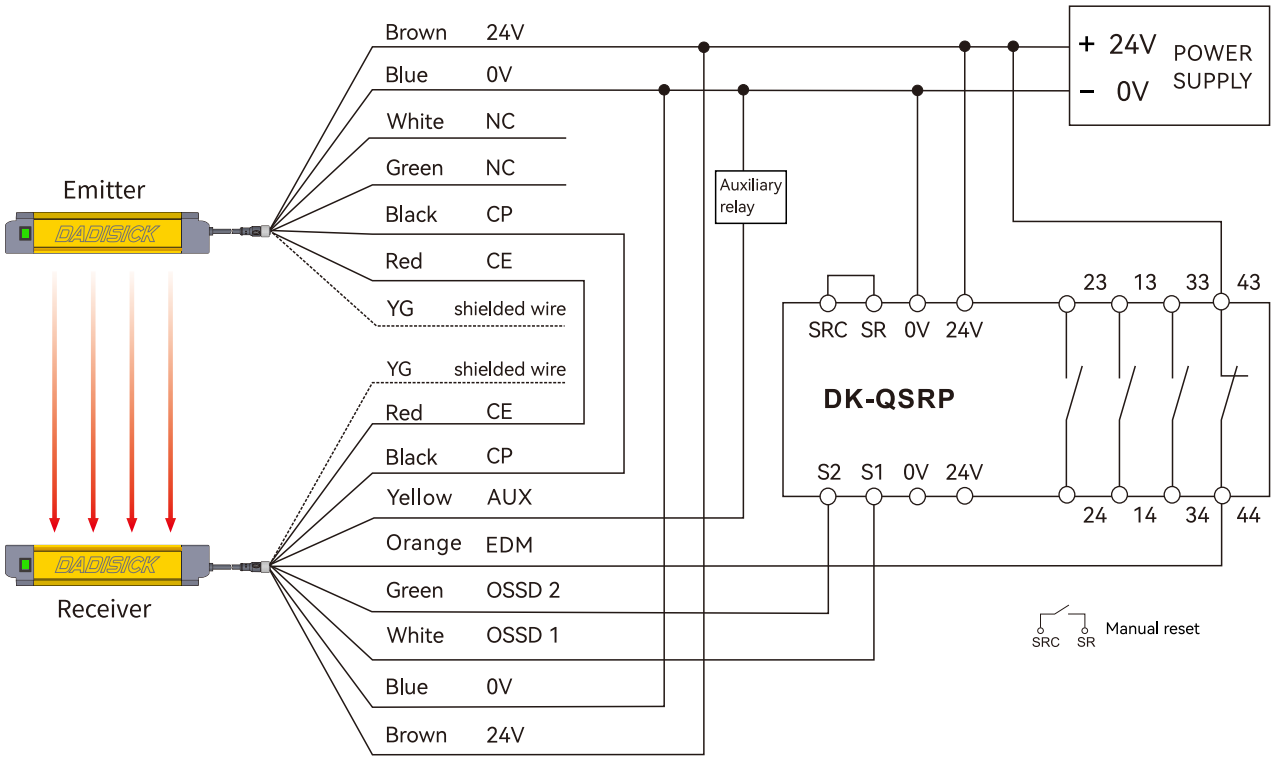
4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		QET	Used to monitor the signal processing of DK-QT4 series light curtain, and output one group of NO and one group of NC.
Safety relay		DK-QSRP	DK-QSRP 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-QT4 series light curtain.

4.1 Wiring diagram of QET built-in controller

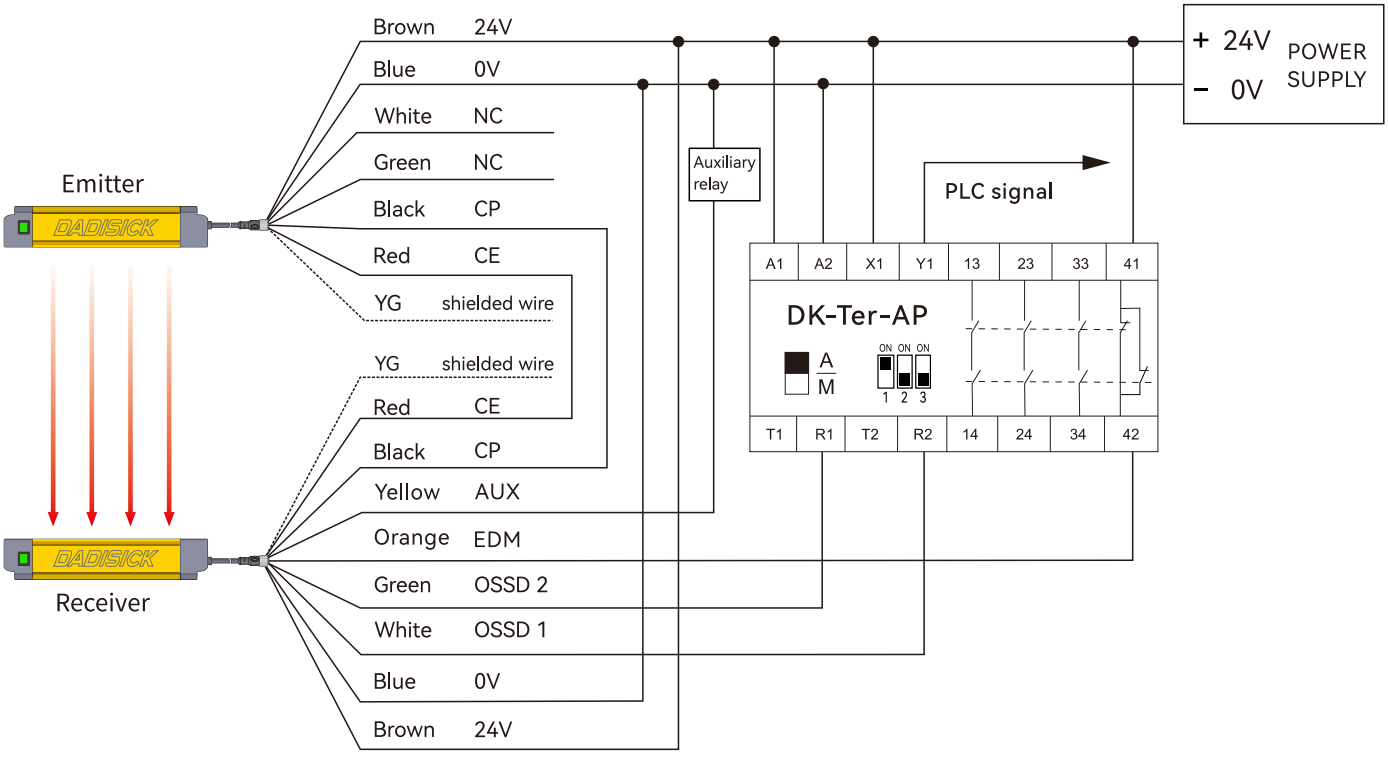


4.2 Wiring diagram of DK-QSRP safety relay

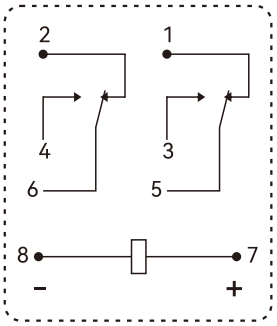


4.3 Wiring diagram of DK-Ter-AP safety relay

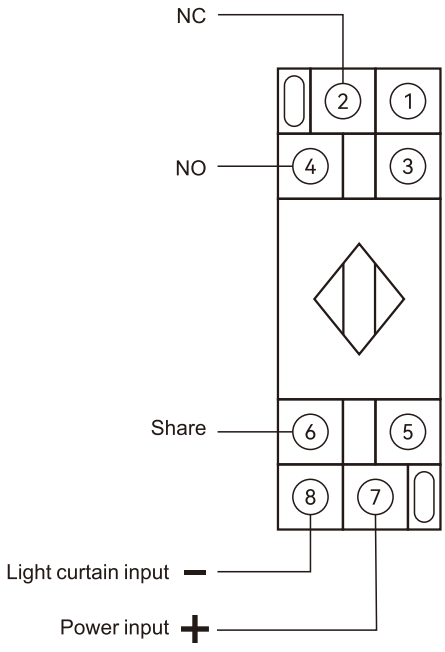
Dual channel light curtain PNP switch safety input, with automatic reset and PLC signal output.



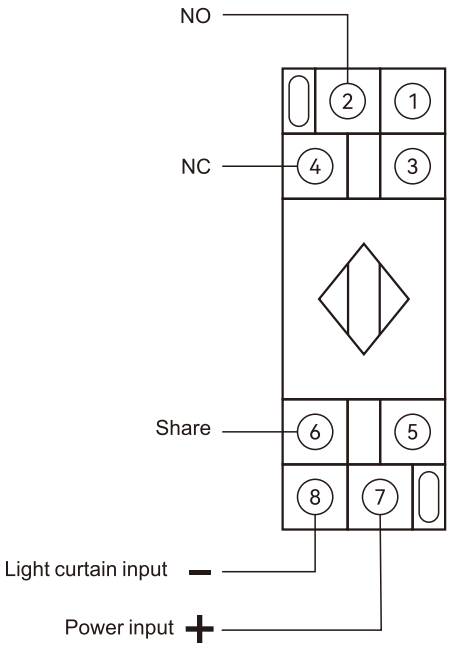
4.4 Wiring diagram of QET-1 light curtain relay



Circuit diagram



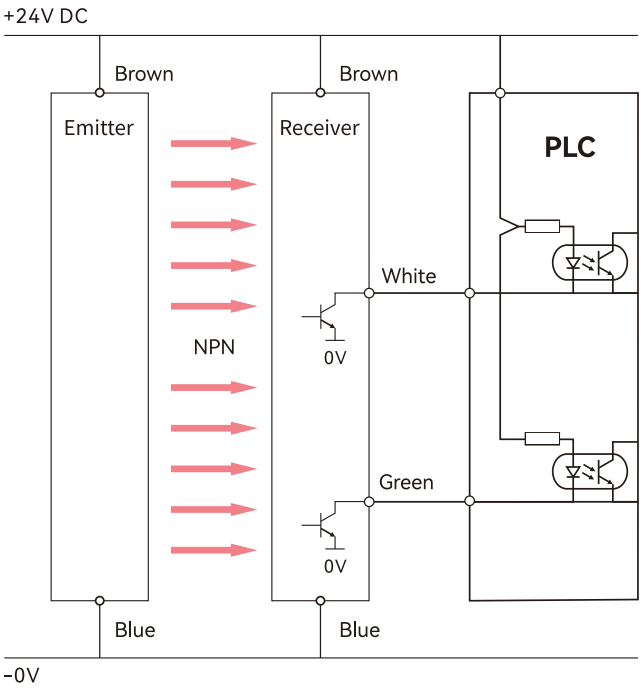
When not powered on



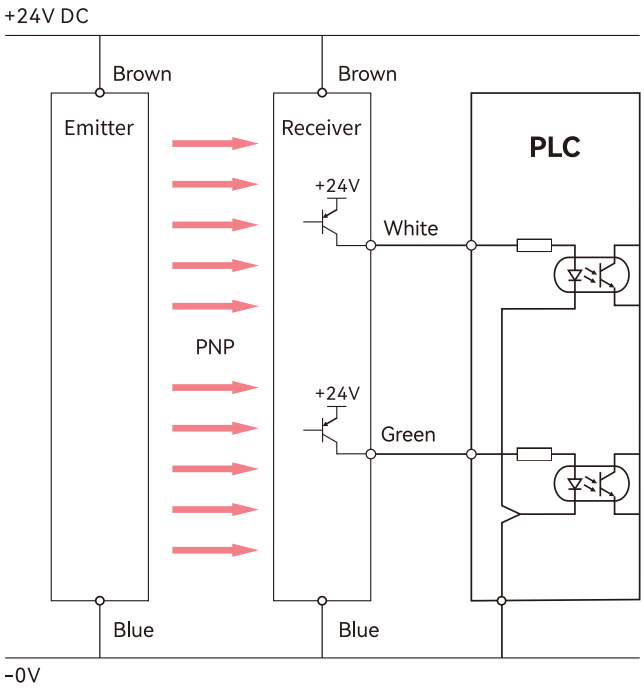
When powered on

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

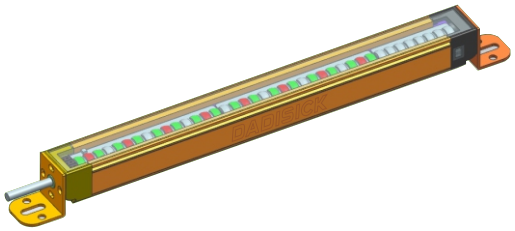
NPN wiring:



PNP wiring:

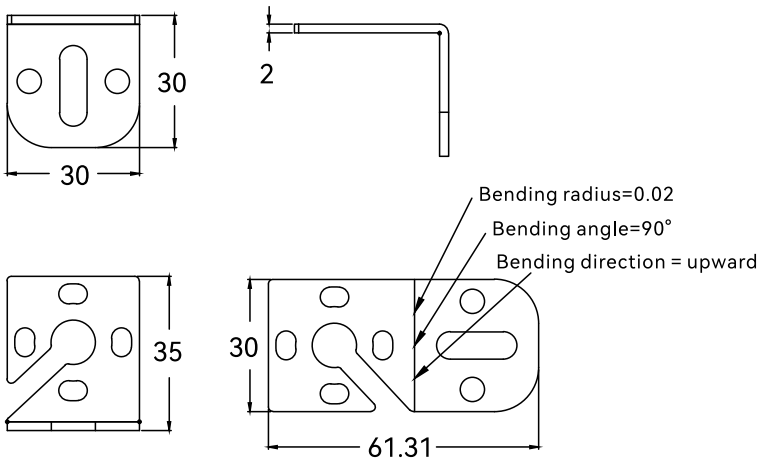


Accessories

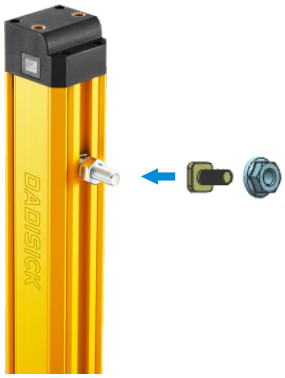


1. Installation method of right angle brackets at both ends (Original accessories)

Right angle bracket	Model: QT4-09

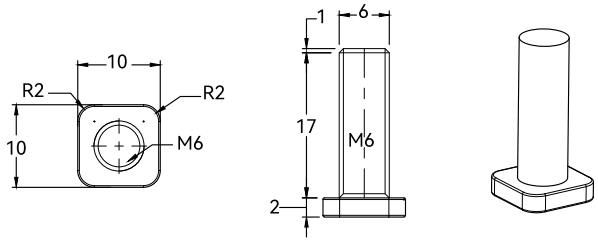


Unit:mm



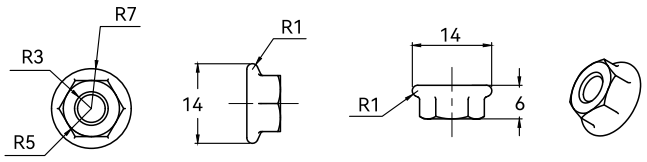
2. Installation method of T-shaped screws on the back (Original accessories)

T-screw	Model: QCA-02-1

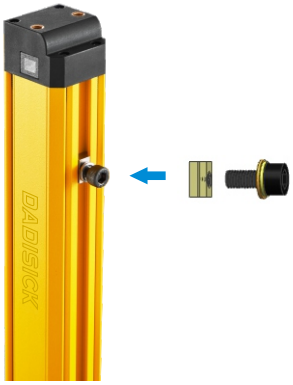


Unit:mm

Flange nut M6	Model: QCA-02-2

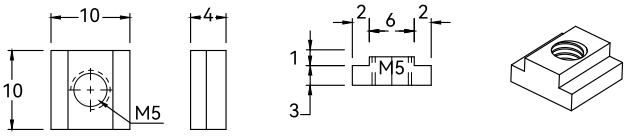


Unit:mm



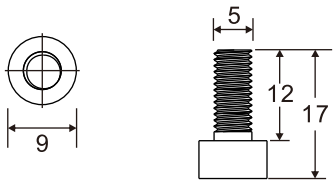
3. Installation method of convex nut (Optional accessories)

Raised nut	Model: QOA-03-1



Unit:mm

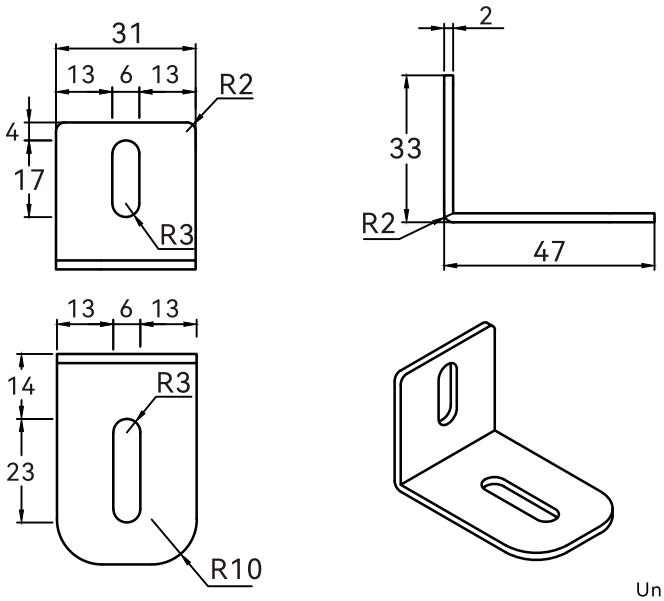
M5 screw	Model: QOA-03-2



Unit:mm

4. Installation method of side right angle bracket
(Optional accessories)

Side mounting bracket	Model: QCA-05

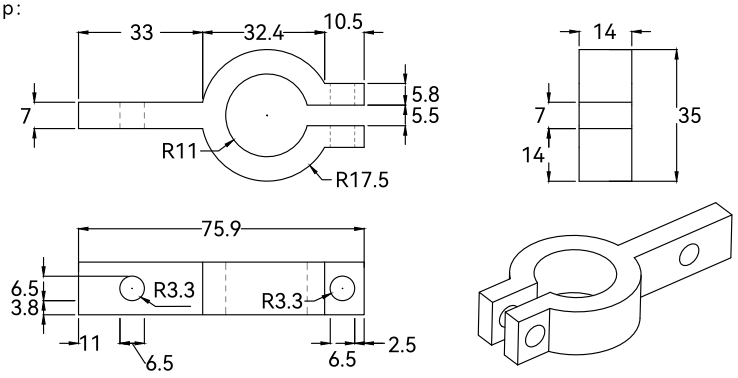


Unit:mm

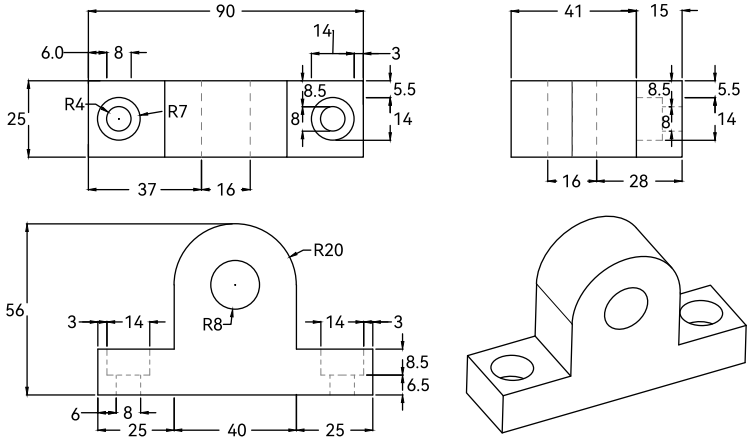
5.Stainless steel bracket installation
(Order separately)

Stainless steel bracket installation	Model: QCA-01

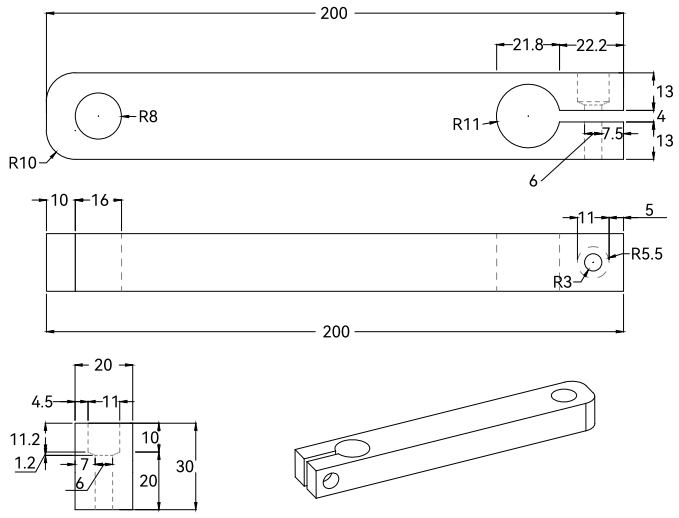
Clip:



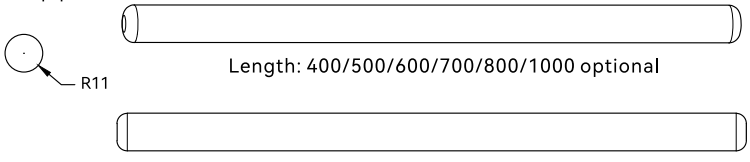
Aluminum round:



Aluminum arm:



Steel pipe:



Unit:mm