DADISICK®

TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR
Emitter and Receiver
DK-QZ series

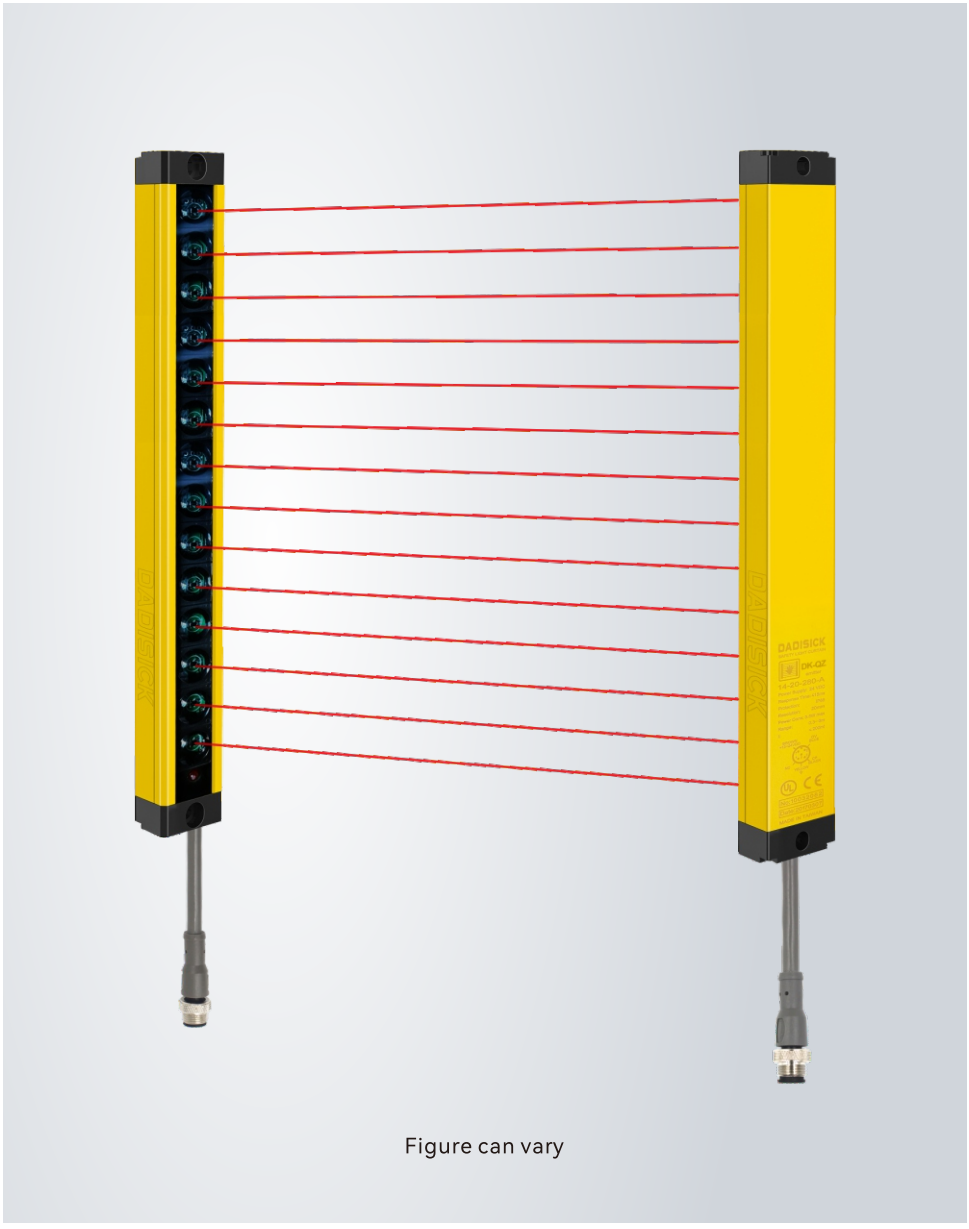

Figure can vary

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GB/T 19001-2016

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We reserve the right to make technical changes
2025-05-08

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-QZ type safety light curtain are as follows:

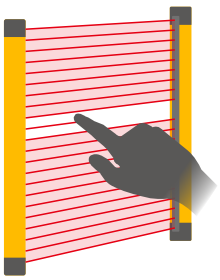
DK-QZ 12/10-110-BA-E (DK-QZ12/10-110-BA-E)

- E: Emitter
  R: Receiver
- Detection distance: A:0.3-3m
- Signal Output Mode: A:NPN NC
  B:PNP NC
  C:NPN NO
  D:PNP NO
  Note: The default is figure A without special requirements.
- Protective field height 110mm
- Resolution ratio: 10mm, 14mm, 20mm, 30mm
  40mm, 80mm, 200mm
- Beam number:04、06、08、10.....32
- Model: DK-QZ series safety light curtain

Resolution ratio

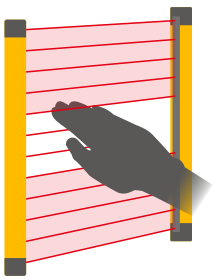
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

Finger protection



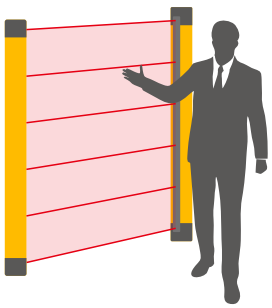
Detection capability
10/14/20mm
diameter

Hand protection



Detection capability
30/40mm
diameter

Arm/body protection



Detection capability
80/200mm
diameter

Technical data

Basic data of Receiver and Emitter

Standard packaging	
Product model	**DK-QZ 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，30mm，40mm，80mm，200mm
Check the accuracy	18mm，22mm，28mm，38mm，48mm，88mm，200mm
Number of beams	04、06、08、10.....32
Overall dimension	17.2mm*30mm*L，L is the length of emitter and receiver.
Detection distance	30-3000mm
Response time	≤15ms

Synchronization	Line synchronization
Consumption current	≤200mA
Output mode	1-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

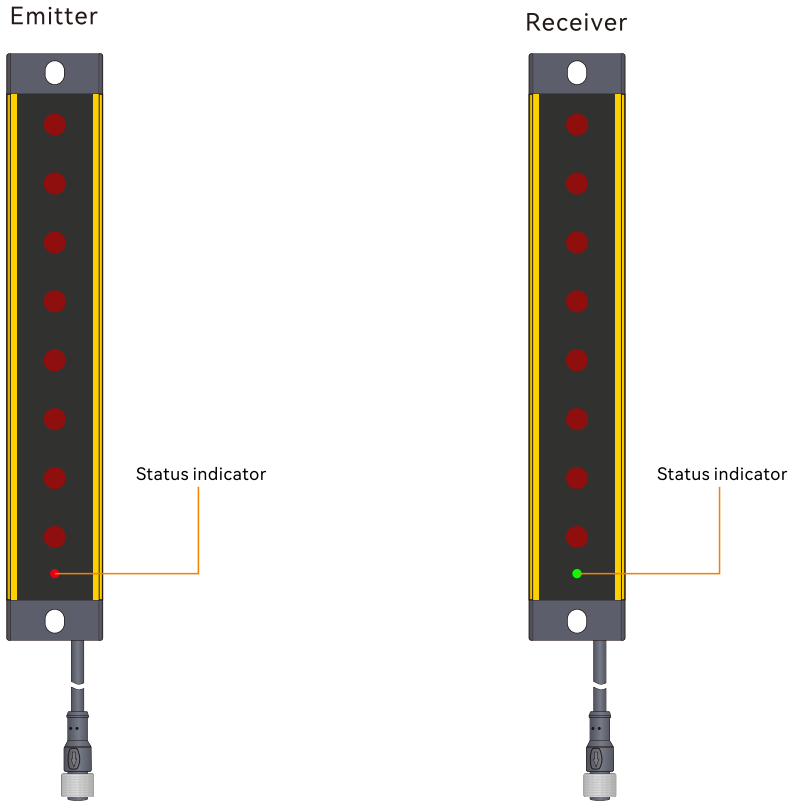
Performance data	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC,-20...20%
Maximum current consumption	150mA
Fuse	2A half time interval

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)	1-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	Connection pin 4, WHITE OSSD
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

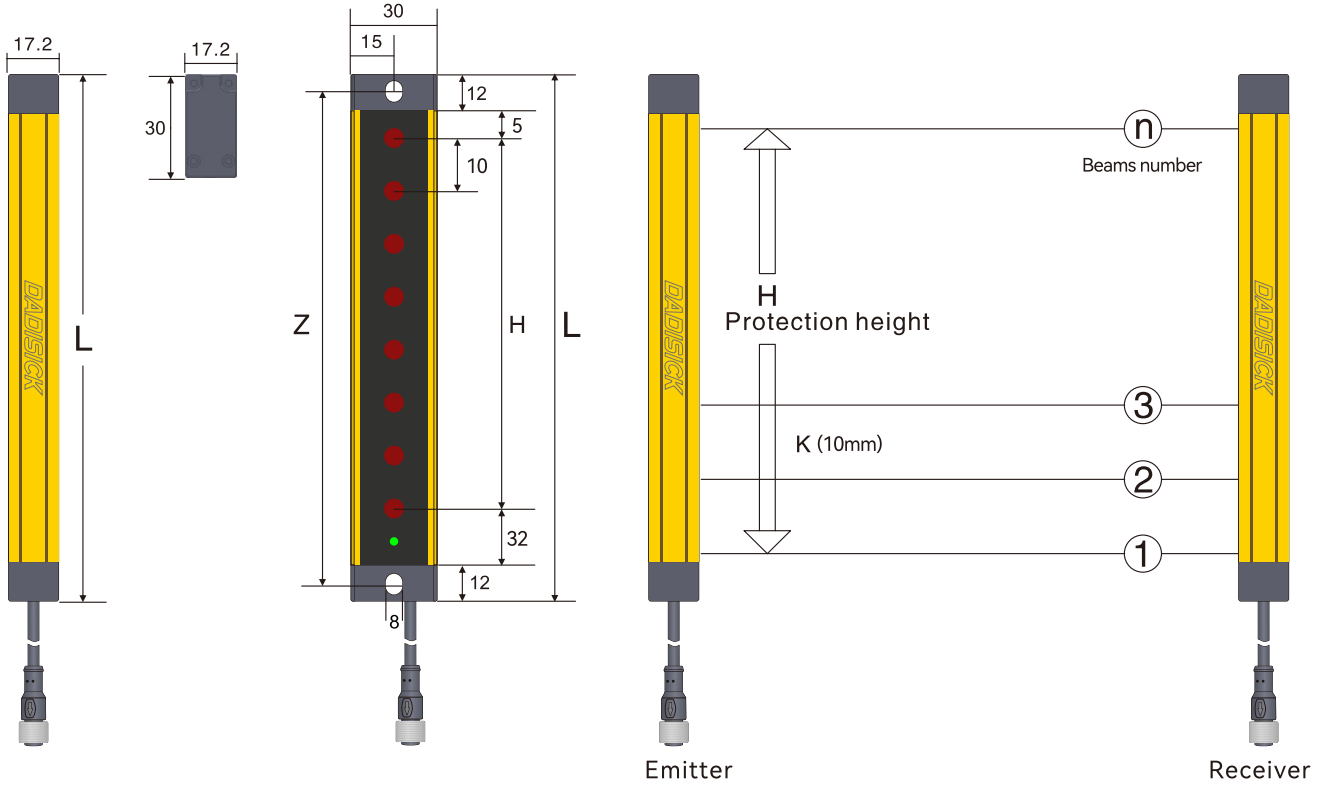


Normal operation of light curtain	LED Indicator status	Explain
Emitter	Red, always on	Turns on the power
	Receiver and emitter are red	Receiver and Emitter are not aligned
Receiver	Green	All light paths are connected
	Red	Light path shading
	Lights flashing	Interference or overstep detection range

Dimensioned drawings

1. DK-QZ 10mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+5+H+32+12

H:Height of protected area
H= (n–1) * 10

K:Resolution ratio
Z=L-11mm

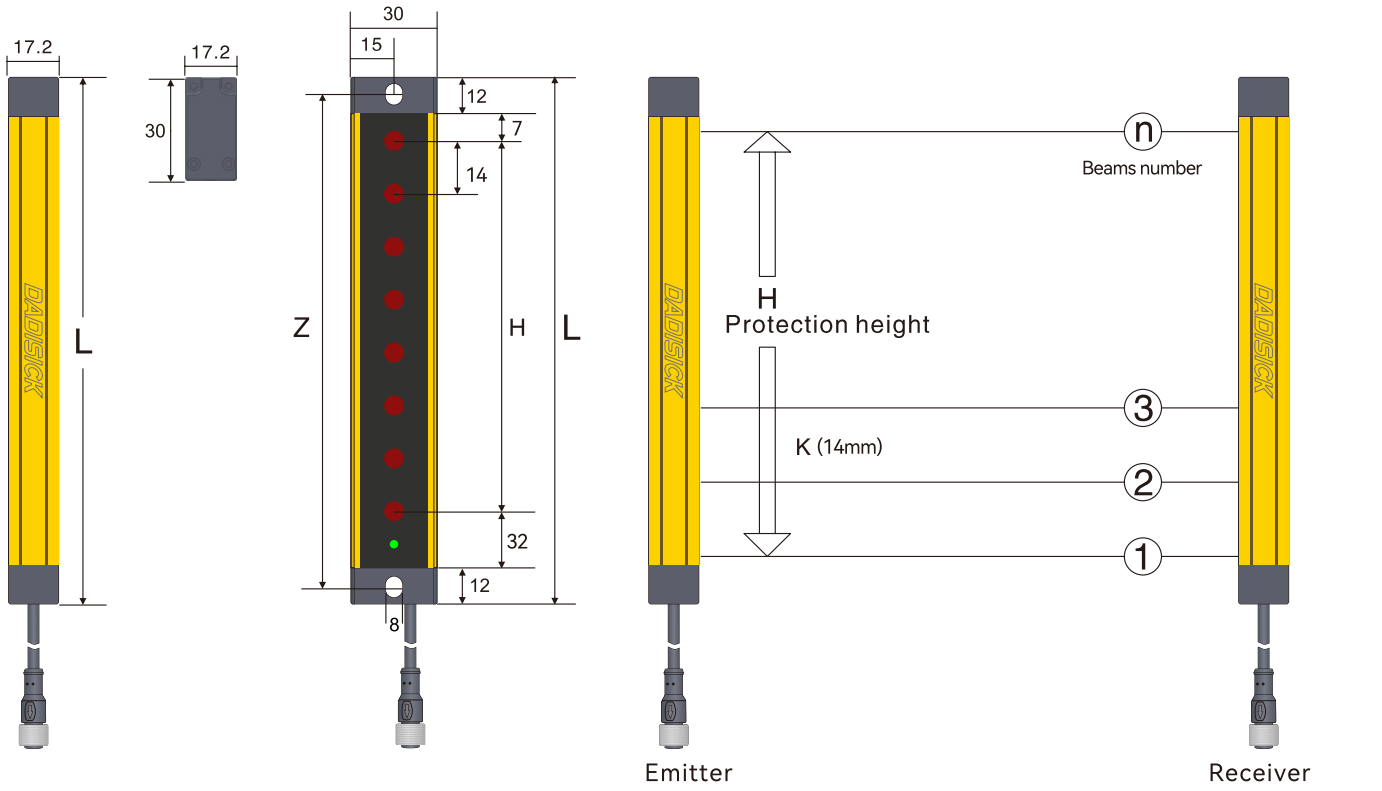
Z:Fixed hole center distance
n:Beams number

DK-QZ 10mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
10mm (K)	6	50	111	DK–QZ06/10–50	1	PNP	0.3-3m
	8	70	131	DK–QZ08/10–70	1	PNP	0.3-3m
	10	90	151	DK–QZ10/10–90	1	PNP	0.3-3m
	12	110	171	DK–QZ12/10–110	1	PNP	0.3-3m
	14	130	191	DK–QZ14/10–130	1	PNP	0.3-3m
	16	150	211	DK–QZ16/10–150	1	PNP	0.3-3m
	18	170	231	DK–QZ18/10–170	1	PNP	0.3-3m
	20	190	251	DK–QZ20/10–190	1	PNP	0.3-3m
	22	210	271	DK–QZ22/10–210	1	PNP	0.3-3m
	24	230	291	DK–QZ24/10–230	1	PNP	0.3-3m
	26	250	311	DK–QZ26/10–250	1	PNP	0.3-3m
	28	270	331	DK–QZ28/10–270	1	PNP	0.3-3m
	30	290	351	DK–QZ30/10–290	1	PNP	0.3-3m
	32	310	371	DK–QZ32/10–310	1	PNP	0.3-3m

2. DK-QZ 14mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+7+H+32+12

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

K:Resolution ratio
Z=L-11mm

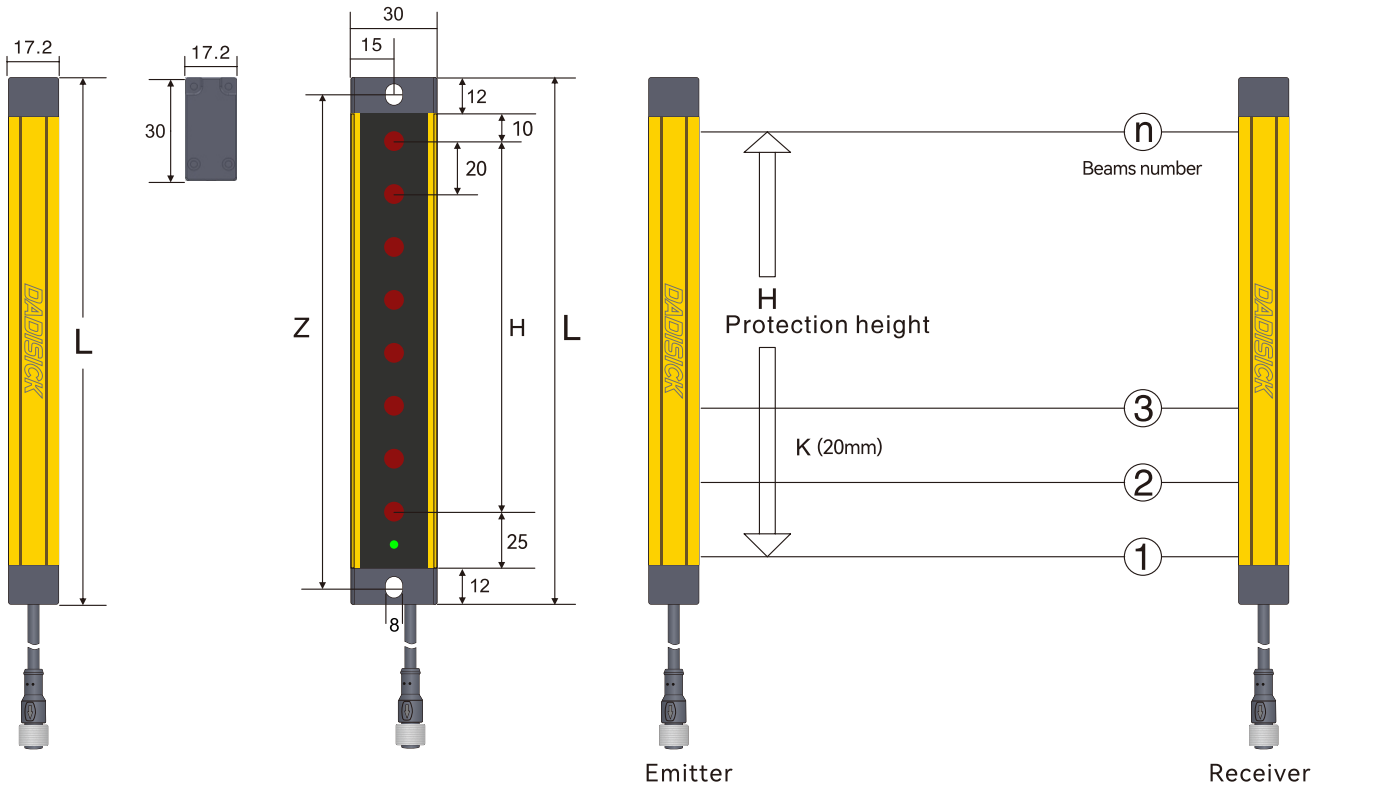
Z:Fixed hole center distance
n:Beams number

DK-QZ 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	133	DK–QZ06/14–70	1	PNP	0.3-3m
	8	98	161	DK–QZ08/14–98	1	PNP	0.3-3m
	10	126	189	DK–QZ10/14–126	1	PNP	0.3-3m
	12	154	217	DK–QZ12/14–154	1	PNP	0.3-3m
	14	182	245	DK–QZ14/14–182	1	PNP	0.3-3m
	16	210	273	DK–QZ16/14–210	1	PNP	0.3-3m
	18	238	301	DK–QZ18/14–238	1	PNP	0.3-3m
	20	266	329	DK–QZ20/14–266	1	PNP	0.3-3m
	22	294	357	DK–QZ22/14–294	1	PNP	0.3-3m
	24	322	385	DK–QZ24/14–322	1	PNP	0.3-3m
	26	350	413	DK–QZ26/14–350	1	PNP	0.3-3m
	28	378	441	DK–QZ28/14–378	1	PNP	0.3-3m
	30	406	469	DK–QZ30/14–406	1	PNP	0.3-3m
	32	434	497	DK–QZ32/14–434	1	PNP	0.3-3m

3. DK-QZ 20mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+10+H+25+12

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

K:Resolution ratio
Z=L-11mm

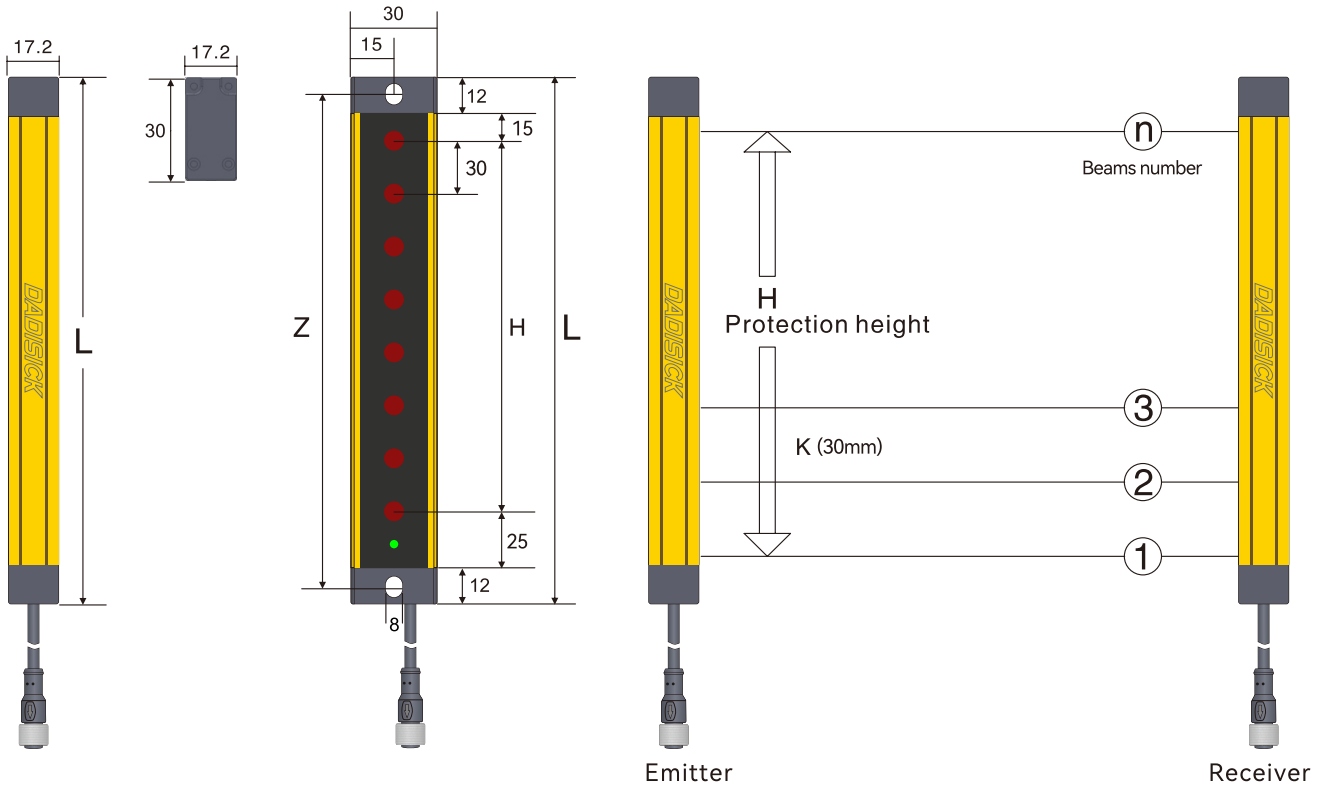
Z:Fixed hole center distance
n:Beams number

DK-QZ 20mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
20mm (K)	4	60	119	DK–QZ04/20–60	1	PNP	0.3-3m
	6	100	159	DK–QZ06/20–100	1	PNP	0.3-3m
	8	140	199	DK–QZ08/20–140	1	PNP	0.3-3m
	10	180	239	DK–QZ10/20–180	1	PNP	0.3-3m
	12	220	279	DK–QZ12/20–220	1	PNP	0.3-3m
	14	260	319	DK–QZ14/20–260	1	PNP	0.3-3m
	16	300	359	DK–QZ16/20–300	1	PNP	0.3-3m
	18	340	399	DK–QZ18/20–340	1	PNP	0.3-3m
	20	380	439	DK–QZ20/20–380	1	PNP	0.3-3m
	22	420	479	DK–QZ22/20–420	1	PNP	0.3-3m
	24	460	519	DK–QZ24/20–460	1	PNP	0.3-3m
	26	500	559	DK–QZ26/20–500	1	PNP	0.3-3m
	28	540	599	DK–QZ28/20–540	1	PNP	0.3-3m
	30	580	639	DK–QZ30/20–580	1	PNP	0.3-3m
	32	620	679	DK–QZ32/20–620	1	PNP	0.3-3m

4. DK-QZ 30mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+15+H+25+12

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

K:Resolution ratio
Z=L-11mm

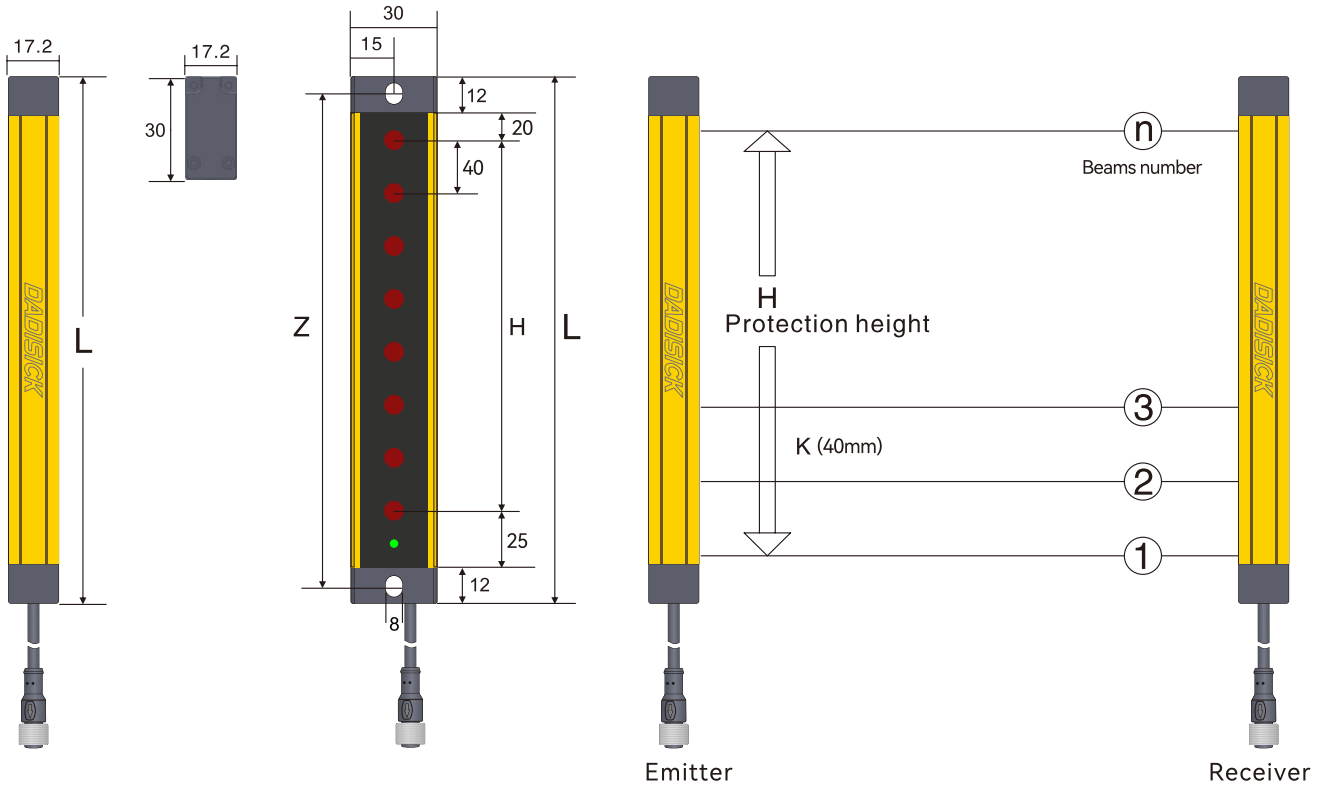
Z:Fixed hole center distance
n:Beams number

DK-QZ 30mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
30mm (K)	4	90	154	DK–QZ04/30–90	1	PNP	0.3-3m
	6	150	214	DK–QZ06/30–150	1	PNP	0.3-3m
	8	210	274	DK–QZ08/30–210	1	PNP	0.3-3m
	10	270	334	DK–QZ10/30–270	1	PNP	0.3-3m
	12	330	394	DK–QZ12/30–330	1	PNP	0.3-3m
	14	390	454	DK–QZ14/30–390	1	PNP	0.3-3m
	16	450	514	DK–QZ16/30–450	1	PNP	0.3-3m
	18	510	574	DK–QZ18/30–510	1	PNP	0.3-3m
	20	570	634	DK–QZ20/30–570	1	PNP	0.3-3m
	22	630	694	DK–QZ22/30–630	1	PNP	0.3-3m
	24	690	754	DK–QZ24/30–690	1	PNP	0.3-3m
	26	750	814	DK–QZ26/30–750	1	PNP	0.3-3m
	28	810	874	DK–QZ28/30–810	1	PNP	0.3-3m
	30	870	934	DK–QZ30/30–870	1	PNP	0.3-3m
	32	930	994	DK–QZ32/30–930	1	PNP	0.3-3m

5. DK-QZ 40mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+20+H+25+12

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

K:Resolution ratio
Z=L-11mm

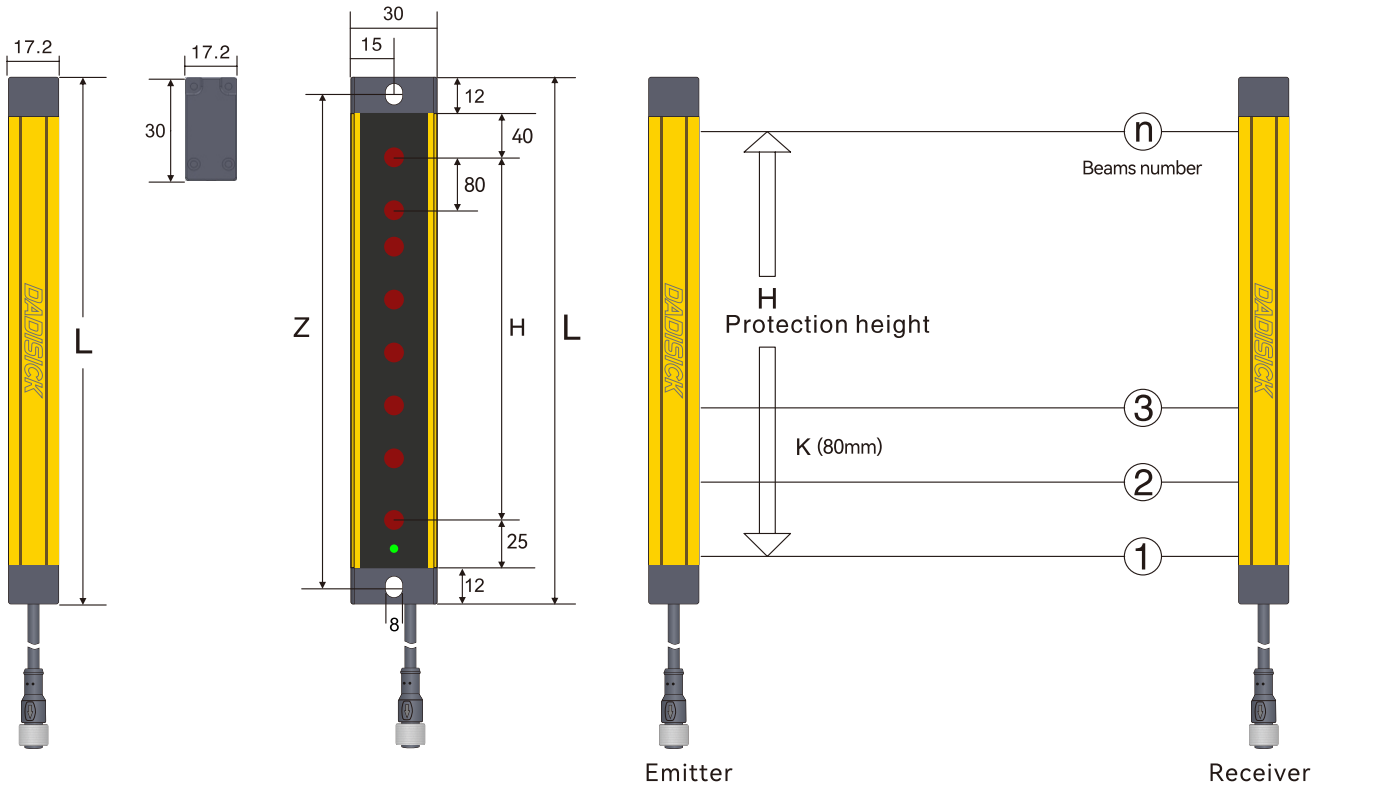
Z:Fixed hole center distance
n:Beams number

DK-QZ 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	189	DK–QZ04/40–120	1	PNP	0.3-3m
	6	200	269	DK–QZ06/40–200	1	PNP	0.3-3m
	8	280	349	DK–QZ08/40–280	1	PNP	0.3-3m
	10	360	429	DK–QZ10/40–360	1	PNP	0.3-3m
	12	440	509	DK–QZ12/40–440	1	PNP	0.3-3m
	14	520	589	DK–QZ14/40–520	1	PNP	0.3-3m
	16	600	669	DK–QZ16/40–600	1	PNP	0.3-3m
	18	680	749	DK–QZ18/40–680	1	PNP	0.3-3m
	20	760	829	DK–QZ20/40–760	1	PNP	0.3-3m
	22	840	909	DK–QZ22/40–840	1	PNP	0.3-3m
	24	920	989	DK–QZ24/40–920	1	PNP	0.3-3m
	26	1000	1069	DK–QZ26/40–1000	1	PNP	0.3-3m
	28	1080	1149	DK–QZ28/40–1080	1	PNP	0.3-3m
	30	1160	1229	DK–QZ30/40–1160	1	PNP	0.3-3m
	32	1240	1309	DK–QZ32/40–1240	1	PNP	0.3-3m

6. DK-QZ 80mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+40+H+25+12

H:Height of protected area
H= (n–1) * 80

K:Resolution ratio
Z=L-11mm

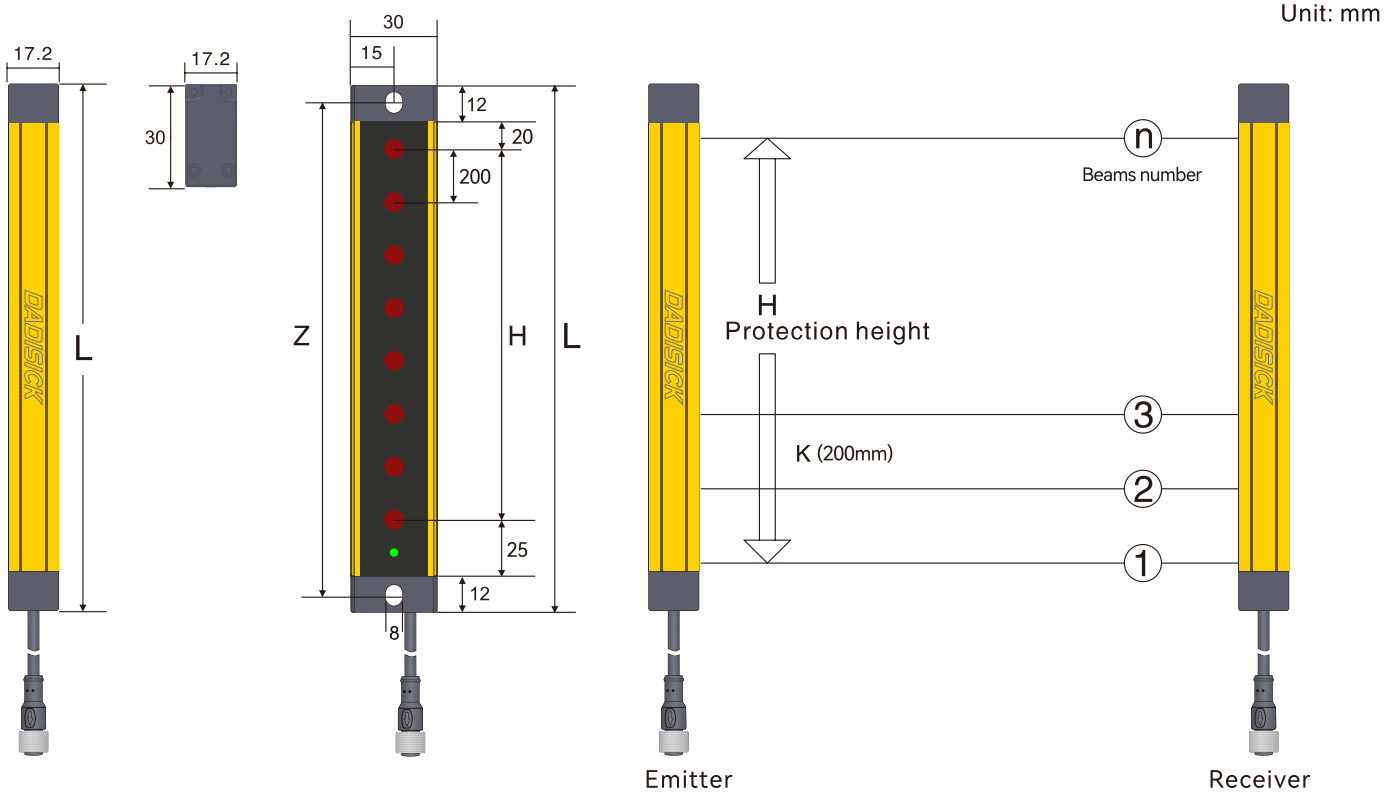
Z:Fixed hole center distance
n:Beams number

DK-QZ 80mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	PNP output	
80mm (K)	4	240	329	DK–QZ04/80–240	1	PNP	0.3-3m
	6	400	489	DK–QZ06/80–400	1	PNP	0.3-3m
	8	560	649	DK–QZ08/80–560	1	PNP	0.3-3m
	10	720	809	DK–QZ10/80–720	1	PNP	0.3-3m
	12	880	969	DK–QZ12/80–880	1	PNP	0.3-3m
	14	1040	1129	DK–QZ14/80–1040	1	PNP	0.3-3m
	16	1200	1289	DK–QZ16/80–1200	1	PNP	0.3-3m
	18	1360	1449	DK–QZ18/80–1360	1	PNP	0.3-3m
	20	1520	1609	DK–QZ20/80–1520	1	PNP	0.3-3m
	22	1680	1769	DK–QZ22/80–1680	1	PNP	0.3-3m
	24	1840	1929	DK–QZ24/80–1840	1	PNP	0.3-3m
	26	2000	2089	DK–QZ26/80–2000	1	PNP	0.3-3m
	28	2160	2249	DK–QZ28/80–2160	1	PNP	0.3-3m
	30	2320	2409	DK–QZ30/80–2320	1	PNP	0.3-3m
	32	2480	2569	DK–QZ32/80–2480	1	PNP	0.3-3m

7. DK-QZ 200mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+20+H+25+12

H:Height of protected area
H= (n–1) * 200

K:Resolution ratio
Z=L-11mm

Z:Fixed hole center distance
n:Beams number

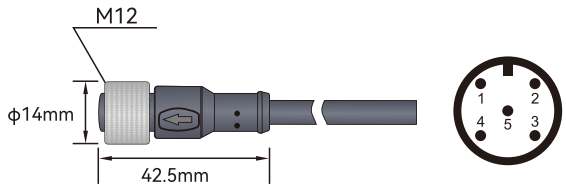
DK-QZ 200mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection distance
					Outputs	PNP output	
200mm (K)	4	600	669	DK–QZ04/200–600	1	PNP	0.3–3m
	6	1000	1069	DK–QZ06/200–1000	1	PNP	0.3–3m
	8	1400	1469	DK–QZ08/200–1400	1	PNP	0.3–3m
	10	1800	1869	DK–QZ10/200–1800	1	PNP	0.3–3m
	12	2200	2269	DK–QZ12/200–2200	1	PNP	0.3–3m
	14	2600	2669	DK–QZ14/200–2600	1	PNP	0.3–3m
	16	3000	3069	DK–QZ16/200–3000	1	PNP	0.3–3m
	18	3400	3469	DK–QZ18/200–3400	1	PNP	0.3–3m

Electrical connection

Electrical interface	
Number of interfaces	2 (receiver and transmitter)
Type	M12 connector, 5-pin
Interface metal	Copper nickel plating
Plug material	GY384 gray 30P
Allowable typical conductor section	0.25m ²
Maximum link cable	100m
Maximum allowable cable load	4.9A
Cable material	PVC

Cable description:



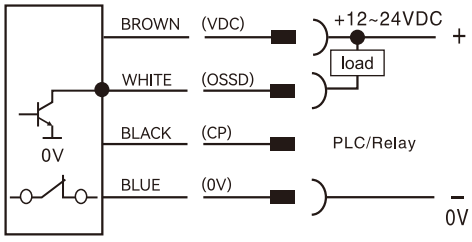
5-pin M12 cable connector straight
3m waterproof cable

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

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

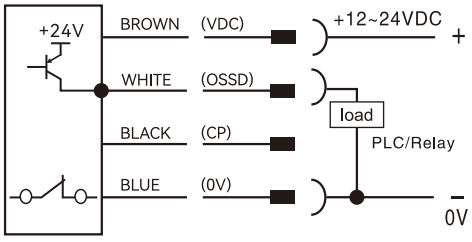
1. DK-QZ signal output selection (actual output of transistor working normally)

NPN NC



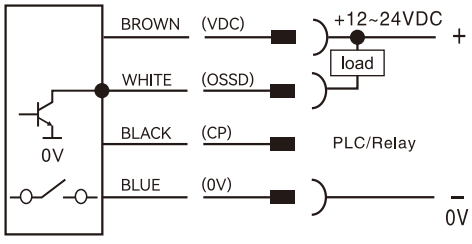
A

PNP NC



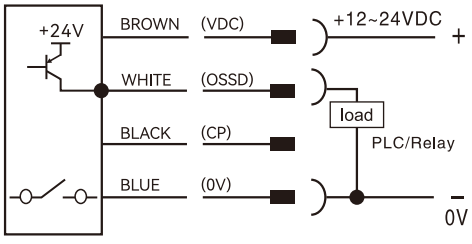
B

NPN NO



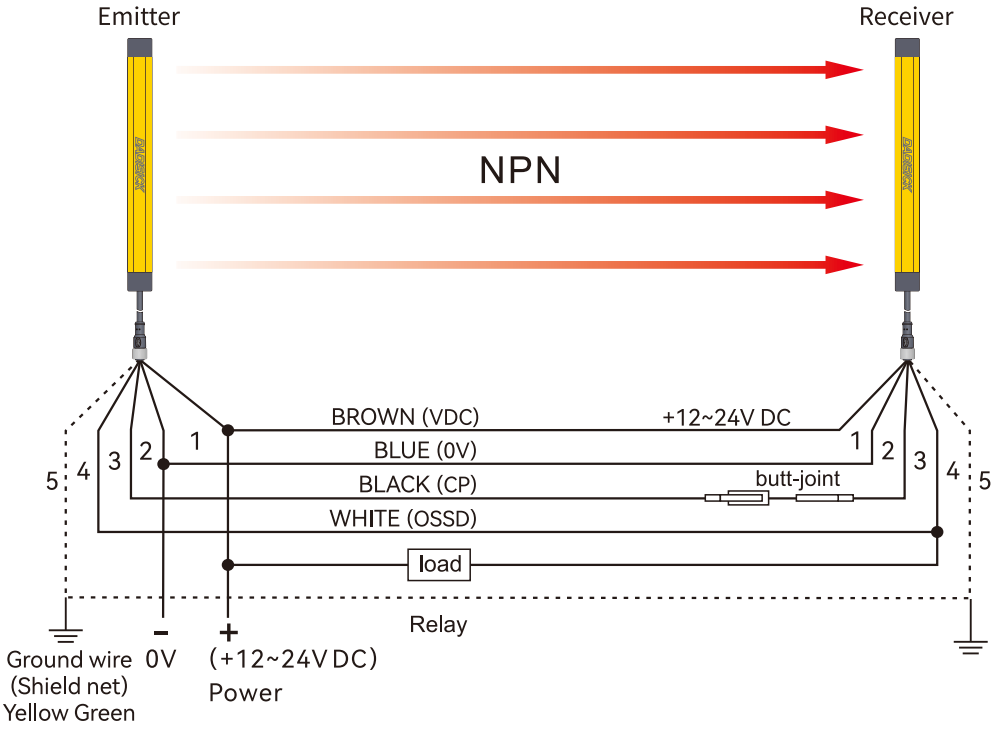
C

PNP NO



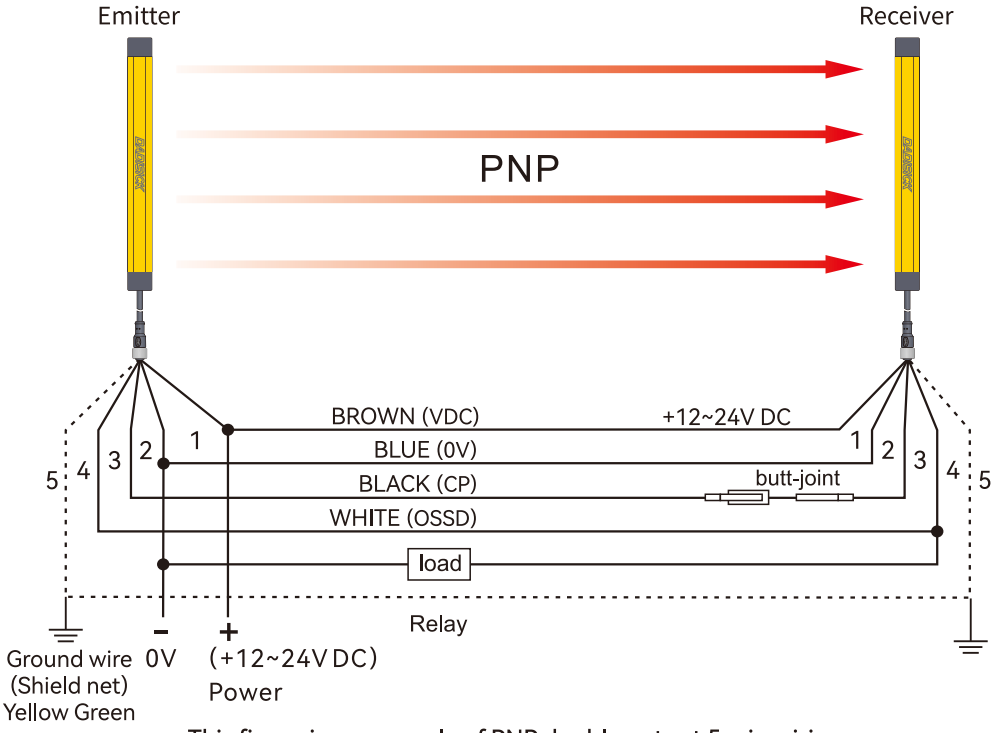
D

2. NPN output wiring diagram



This figure is an example of NPN double output 5-pin wiring.

3. PNP output wiring diagram

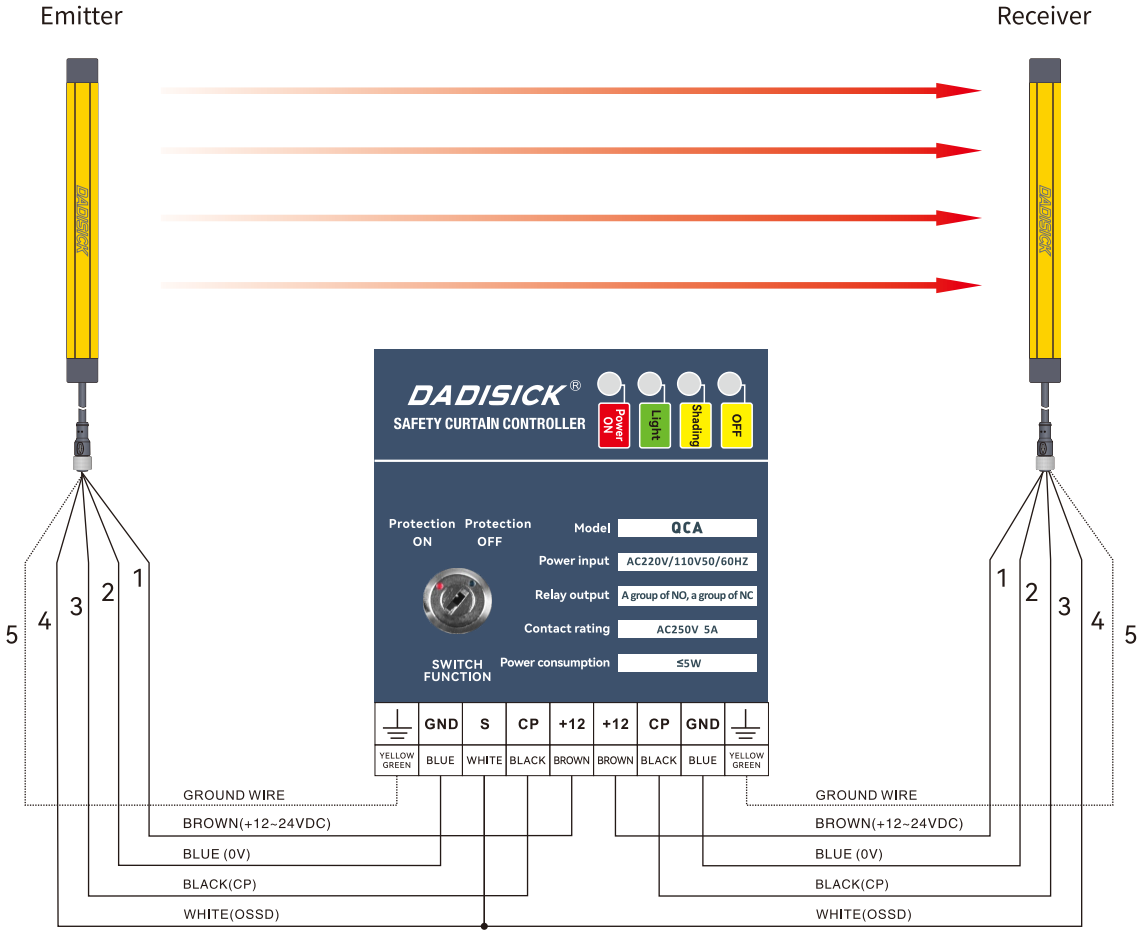


This figure is an example of PNP double output 5-pin wiring.

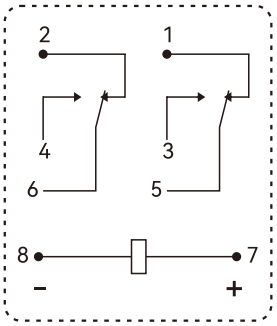
4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		QCA	Used to monitor the signal processing of DK-QZ series light curtain, and output one group of NO and one group of NC.
Light curtain relay		QET-1	Output conversion between NC and NO for DK-QZ series light curtain.

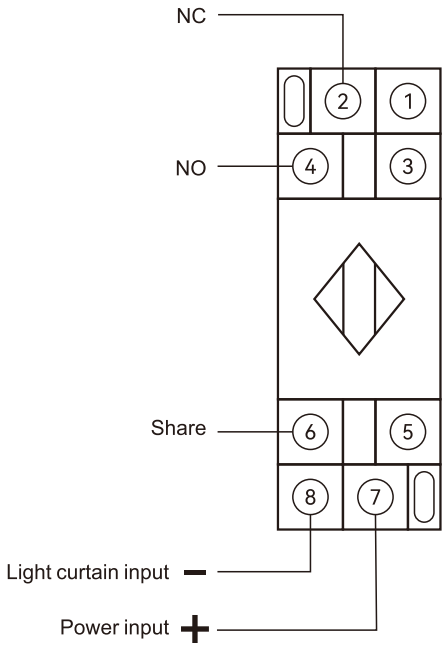
4.1 Wiring diagram of QCA built-in controller



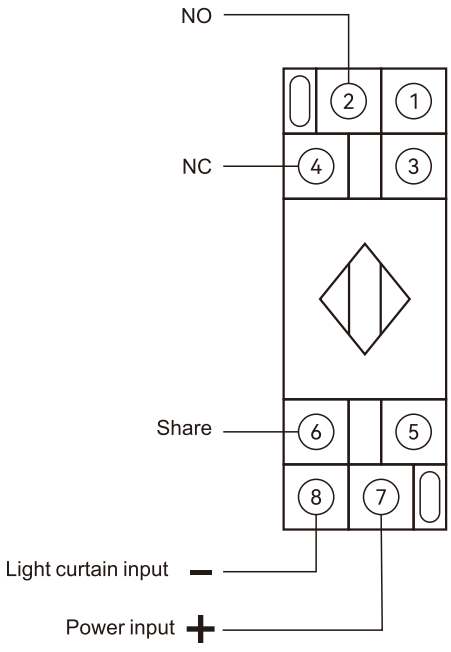
4.2 Wiring diagram of QET-1 light curtain relay



Circuit diagram



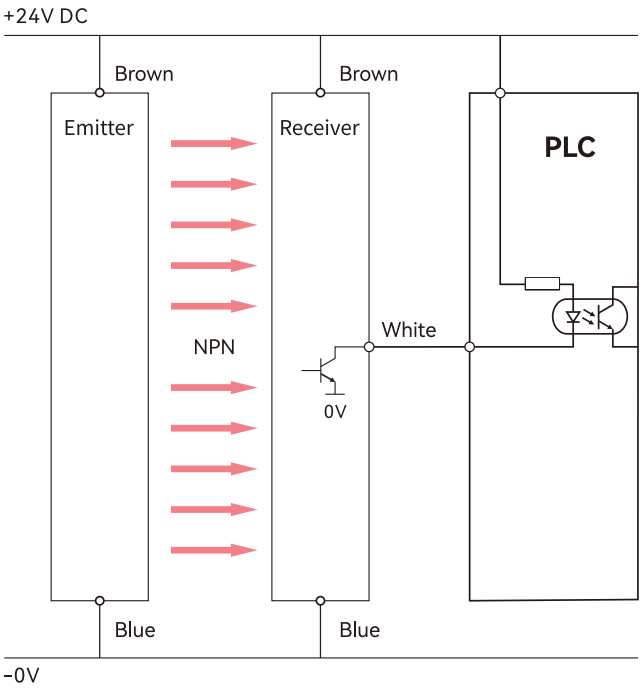
When not powered on



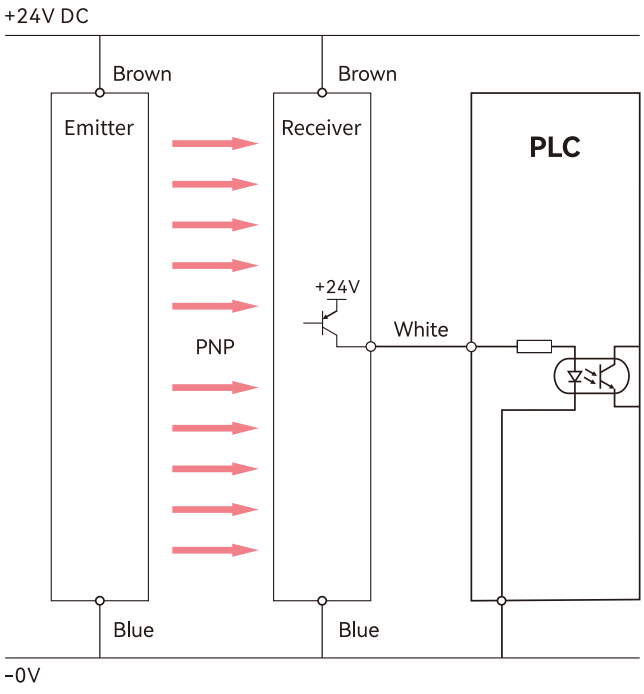
When powered on

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

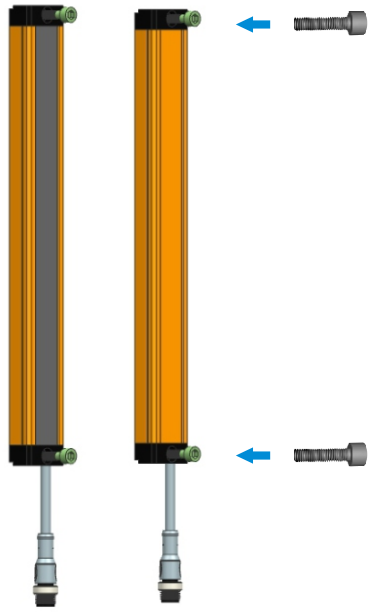
NPN wiring:



PNP wiring:

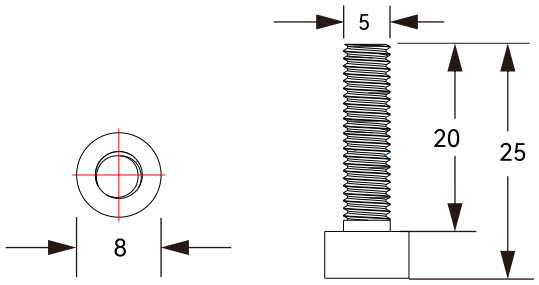


Accessories



Installation method for fixing hole screws
(Original accessories)

Circular screw	Model: QBZ-01



Unit: mm