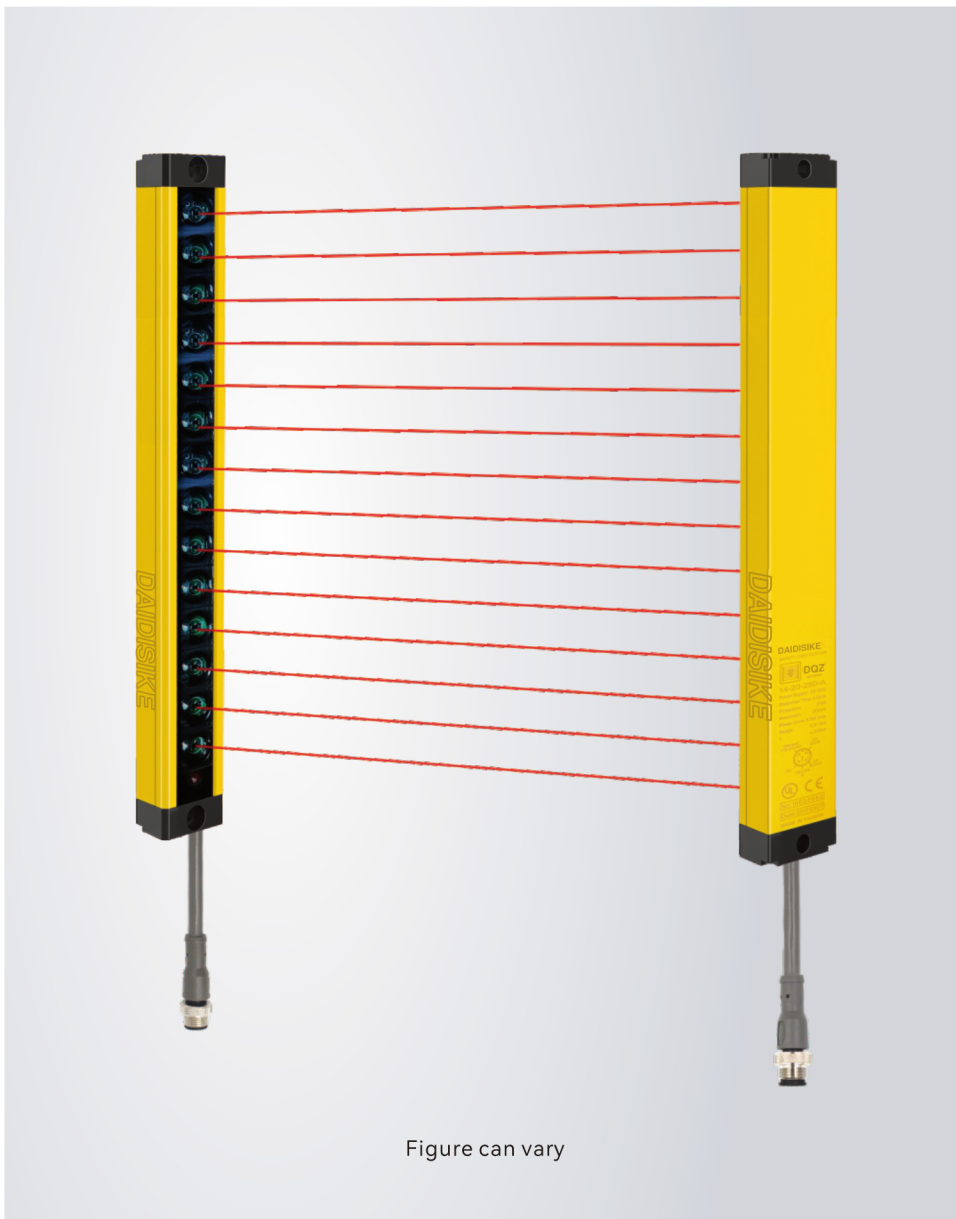


TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR Emitter and Receiver **DQZ series**



Contents

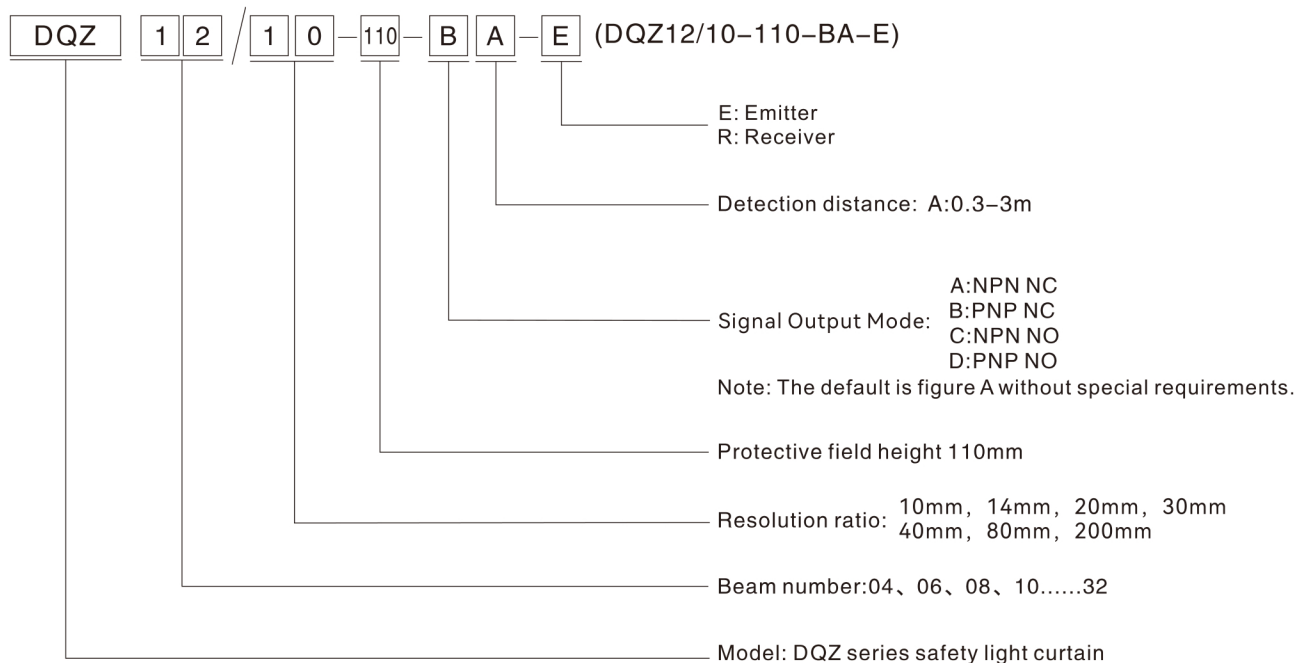
- Product application
- Resolution ratio
- Technical data
- Operation and display
- Dimensioned drawings
- Electrical connection
- Wiring diagram
- Accessories

**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 DQZ 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



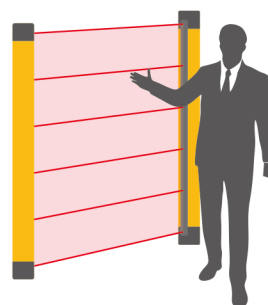
Detection capability
10/14/20mm
diameter

Hand protection



Detection capability
30/40mm
diameter

Arm/body protection



Detection capability
80/200mm
diameter

Technical data

Basic data of Receiver and Emitter

Standard packaging	
Product model	DQZ 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	
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

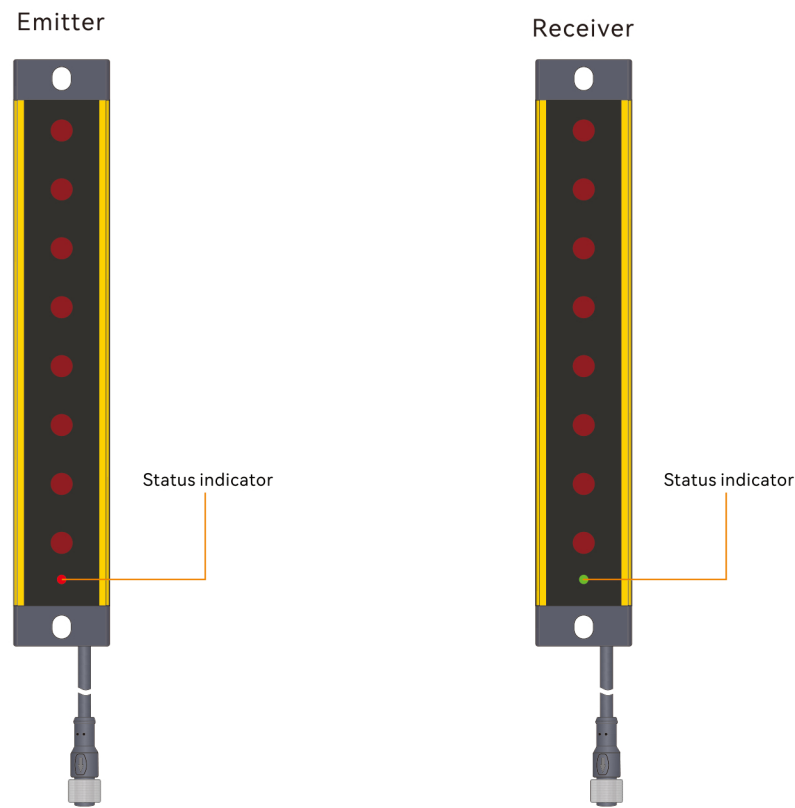
Performance data	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC, -20...20%
Maximum current consumption	150mA
Fuse	2A half time interval

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 °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)	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

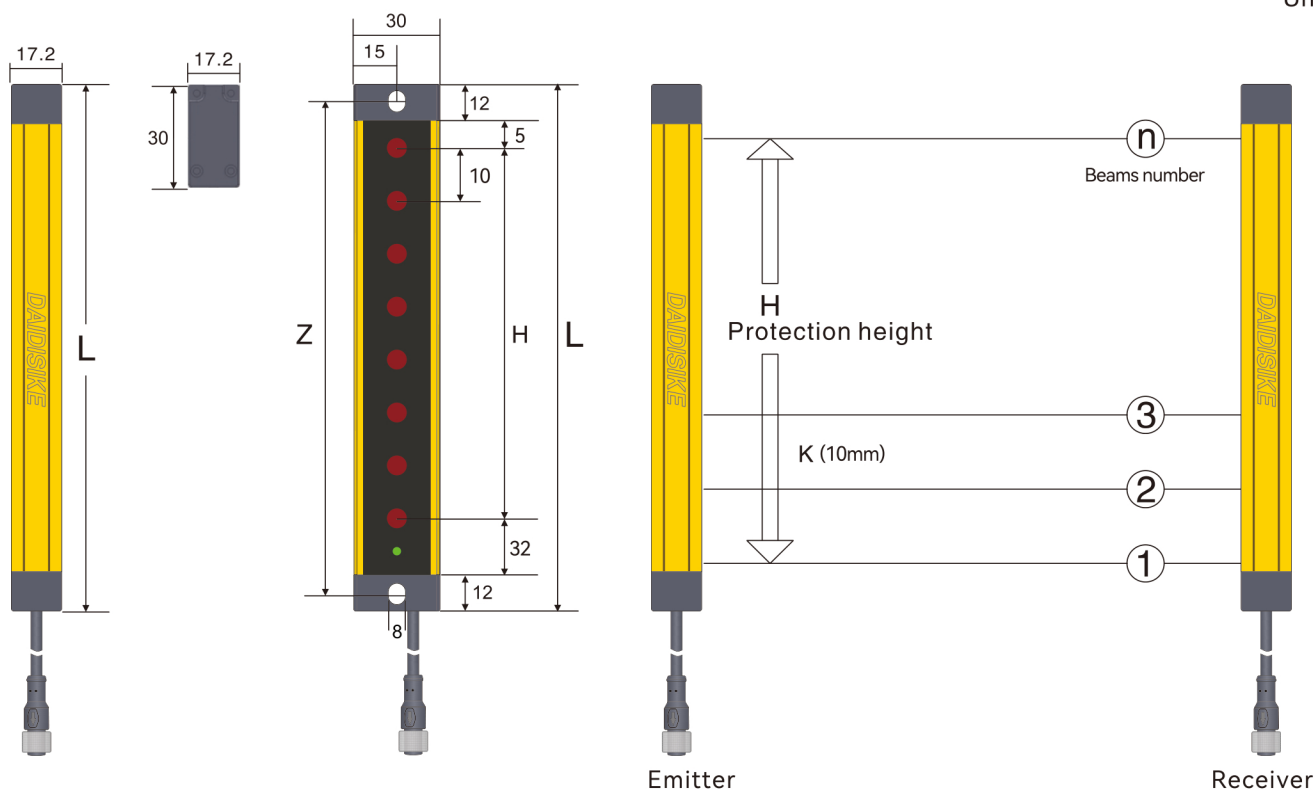


Normal operation of light curtain	LED Indicator status		Explain
Emitter		Red, always on	Turns on the power
		Receiver and emitter are red	Receiver and Emitter are not aligned
Receiver		Green	All light paths are connected
		Red	Light path shading
		Lights flashing	Interference or overstep detection range

Dimensioned drawings

1. DQZ 10mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

Z: Fixed hole center distance

 $L = 12 + 5 + H + 32 + 12$ $H = (n - 1) \times 10$ $Z = L - 11\text{mm}$

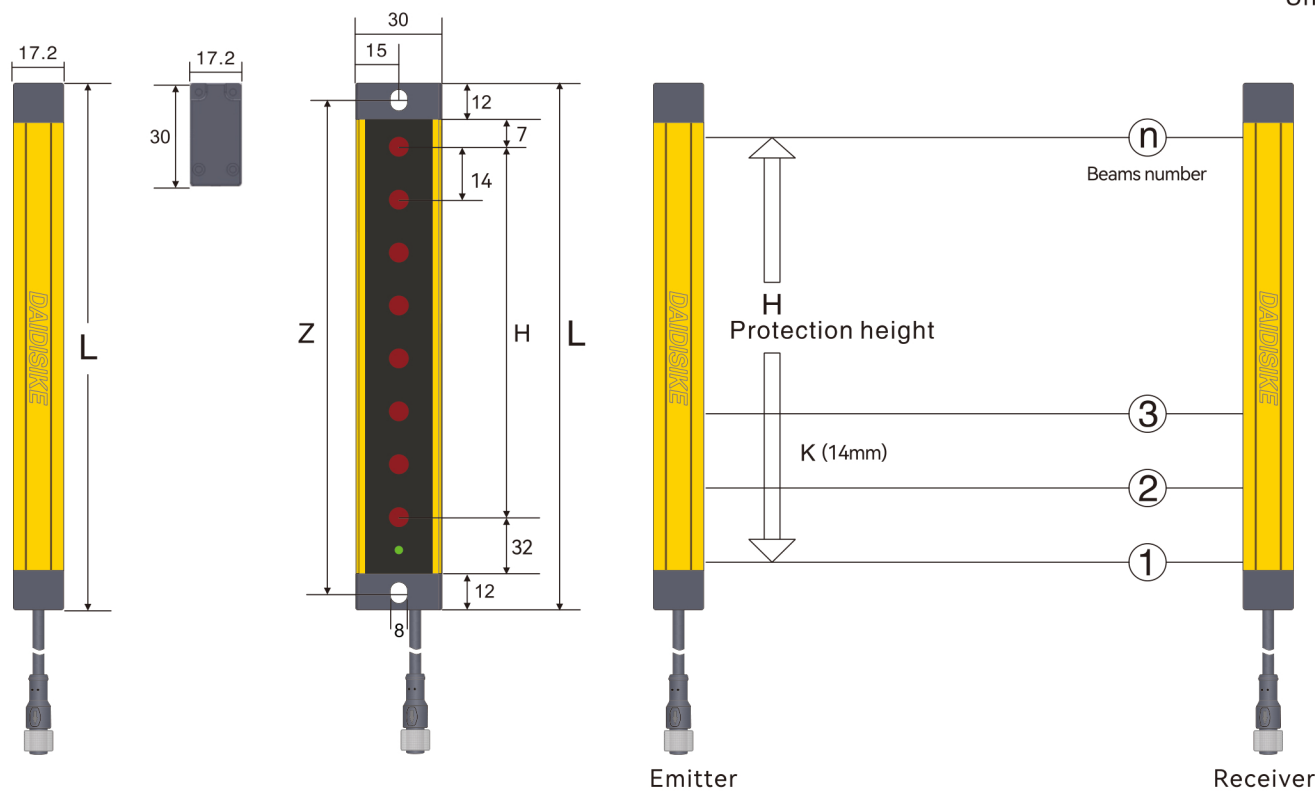
n: Beams number

DQZ 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	DQZ06/10-50	1	PNP	0.3-3m
	8	70	131	DQZ08/10-70	1	PNP	0.3-3m
	10	90	151	DQZ10/10-90	1	PNP	0.3-3m
	12	110	171	DQZ12/10-110	1	PNP	0.3-3m
	14	130	191	DQZ14/10-130	1	PNP	0.3-3m
	16	150	211	DQZ16/10-150	1	PNP	0.3-3m
	18	170	231	DQZ18/10-170	1	PNP	0.3-3m
	20	190	251	DQZ20/10-190	1	PNP	0.3-3m
	22	210	271	DQZ22/10-210	1	PNP	0.3-3m
	24	230	291	DQZ24/10-230	1	PNP	0.3-3m
	26	250	311	DQZ26/10-250	1	PNP	0.3-3m
	28	270	331	DQZ28/10-270	1	PNP	0.3-3m
	30	290	351	DQZ30/10-290	1	PNP	0.3-3m
	32	310	371	DQZ32/10-310	1	PNP	0.3-3m

2. DQZ 14mm series

Unit: mm



Remarks

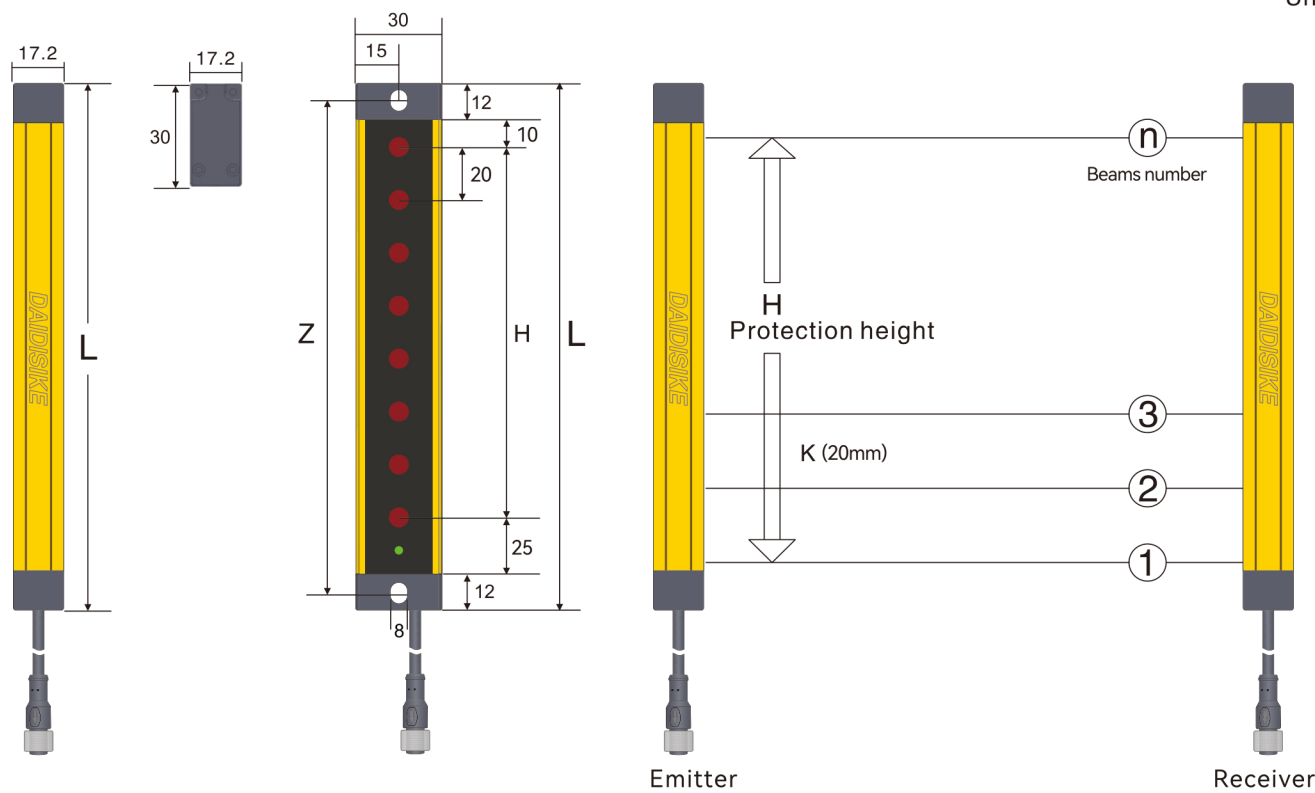
L: Total length of light screen
 $L = 12 + 7 + H + 32 + 12$
H: Height of protected area
 $H = (n - 1) \times 14$
K: Resolution ratio
 $Z = L - 11$ mm
Z: Fixed hole center distance
n: Beams number

DQZ 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	DQZ06/14-70	1	PNP	0.3-3m
	8	98	161	DQZ08/14-98	1	PNP	0.3-3m
	10	126	189	DQZ10/14-126	1	PNP	0.3-3m
	12	154	217	DQZ12/14-154	1	PNP	0.3-3m
	14	182	245	DQZ14/14-182	1	PNP	0.3-3m
	16	210	273	DQZ16/14-210	1	PNP	0.3-3m
	18	238	301	DQZ18/14-238	1	PNP	0.3-3m
	20	266	329	DQZ20/14-266	1	PNP	0.3-3m
	22	294	357	DQZ22/14-294	1	PNP	0.3-3m
	24	322	385	DQZ24/14-322	1	PNP	0.3-3m
	26	350	413	DQZ26/14-350	1	PNP	0.3-3m
	28	378	441	DQZ28/14-378	1	PNP	0.3-3m
	30	406	469	DQZ30/14-406	1	PNP	0.3-3m
	32	434	497	DQZ32/14-434	1	PNP	0.3-3m

3. DQZ 20mm series

Unit: mm



Remarks

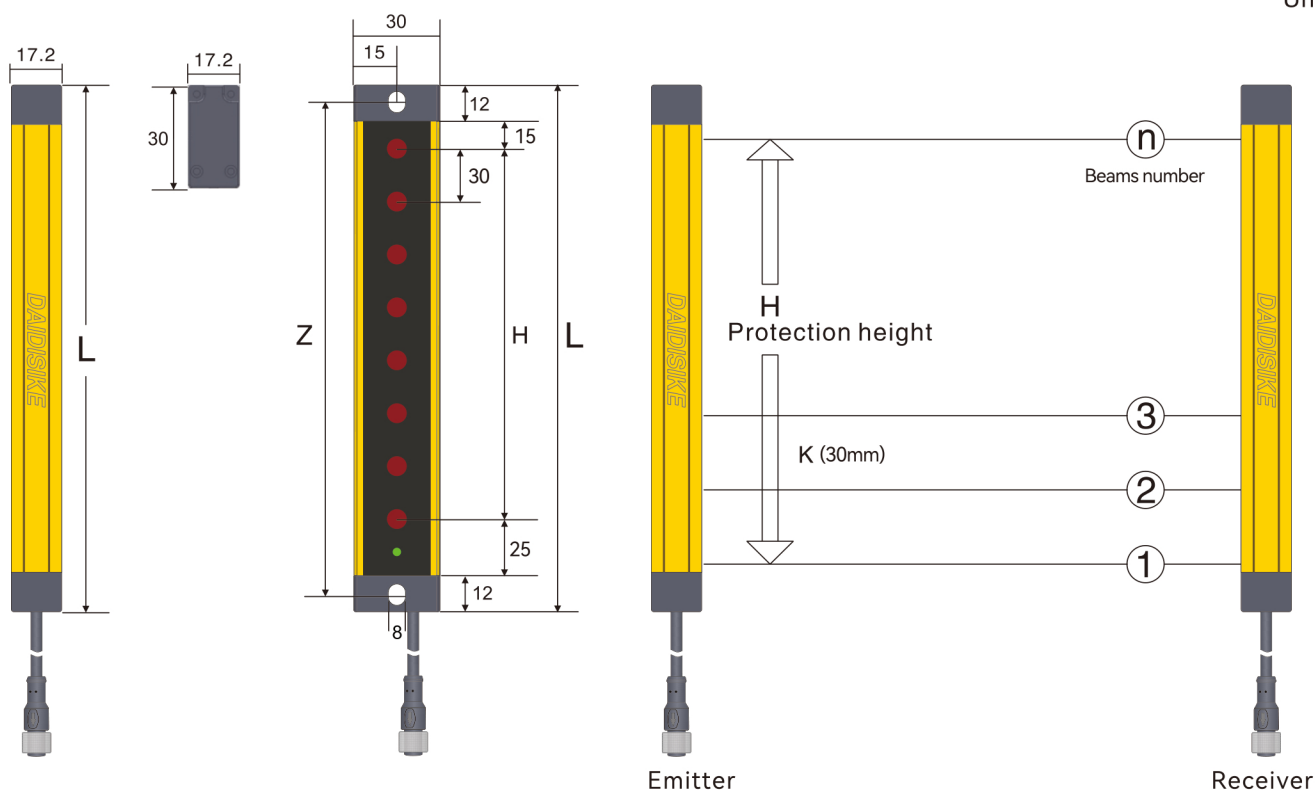
L:Total length of light screen H:Height of protected area K:Resolution ratio Z:Fixed hole center distance
L=12+10+H+25+12 H= (n-1) * 20 Z=L-11mm n:Beams number

DQZ 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	DQZ04/20-60	1	PNP	0.3-3m
	6	100	159	DQZ06/20-100	1	PNP	0.3-3m
	8	140	199	DQZ08/20-140	1	PNP	0.3-3m
	10	180	239	DQZ10/20-180	1	PNP	0.3-3m
	12	220	279	DQZ12/20-220	1	PNP	0.3-3m
	14	260	319	DQZ14/20-260	1	PNP	0.3-3m
	16	300	359	DQZ16/20-300	1	PNP	0.3-3m
	18	340	399	DQZ18/20-340	1	PNP	0.3-3m
	20	380	439	DQZ20/20-380	1	PNP	0.3-3m
	22	420	479	DQZ22/20-420	1	PNP	0.3-3m
	24	460	519	DQZ24/20-460	1	PNP	0.3-3m
	26	500	559	DQZ26/20-500	1	PNP	0.3-3m
	28	540	599	DQZ28/20-540	1	PNP	0.3-3m
	30	580	639	DQZ30/20-580	1	PNP	0.3-3m
	32	620	679	DQZ32/20-620	1	PNP	0.3-3m

4. DQZ 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

$$Z=L-11\text{mm}$$

Z:Fixed hole center distance

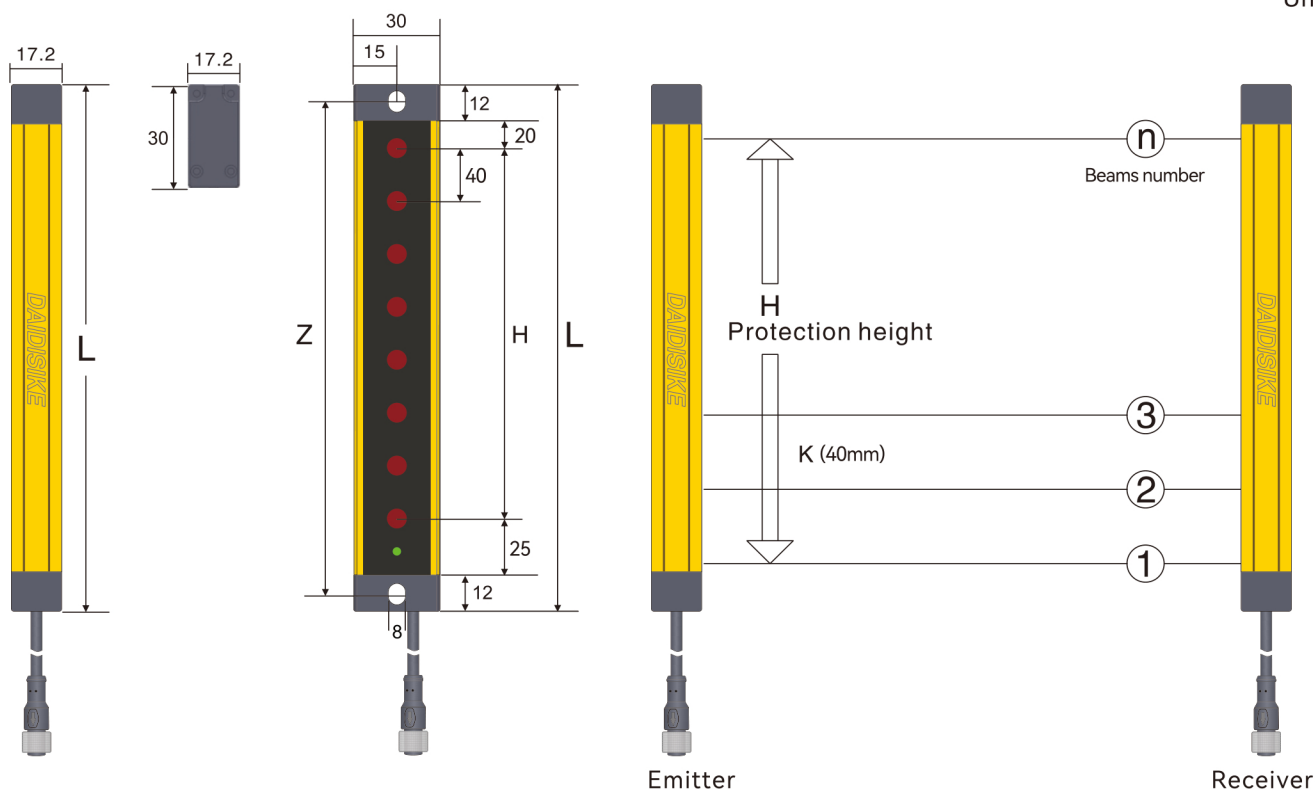
n:Beams number

DQZ 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	DQZ04/30-90	1	PNP	0.3-3m
	6	150	214	DQZ06/30-150	1	PNP	0.3-3m
	8	210	274	DQZ08/30-210	1	PNP	0.3-3m
	10	270	334	DQZ10/30-270	1	PNP	0.3-3m
	12	330	394	DQZ12/30-330	1	PNP	0.3-3m
	14	390	454	DQZ14/30-390	1	PNP	0.3-3m
	16	450	514	DQZ16/30-450	1	PNP	0.3-3m
	18	510	574	DQZ18/30-510	1	PNP	0.3-3m
	20	570	634	DQZ20/30-570	1	PNP	0.3-3m
	22	630	694	DQZ22/30-630	1	PNP	0.3-3m
	24	690	754	DQZ24/30-690	1	PNP	0.3-3m
	26	750	814	DQZ26/30-750	1	PNP	0.3-3m
	28	810	874	DQZ28/30-810	1	PNP	0.3-3m
	30	870	934	DQZ30/30-870	1	PNP	0.3-3m
	32	930	994	DQZ32/30-930	1	PNP	0.3-3m

5. DQZ 40mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

Z: Fixed hole center distance

 $L = 12 + 20 + H + 25 + 12$ $H = (n - 1) \times 40$ $Z = L - 11\text{mm}$

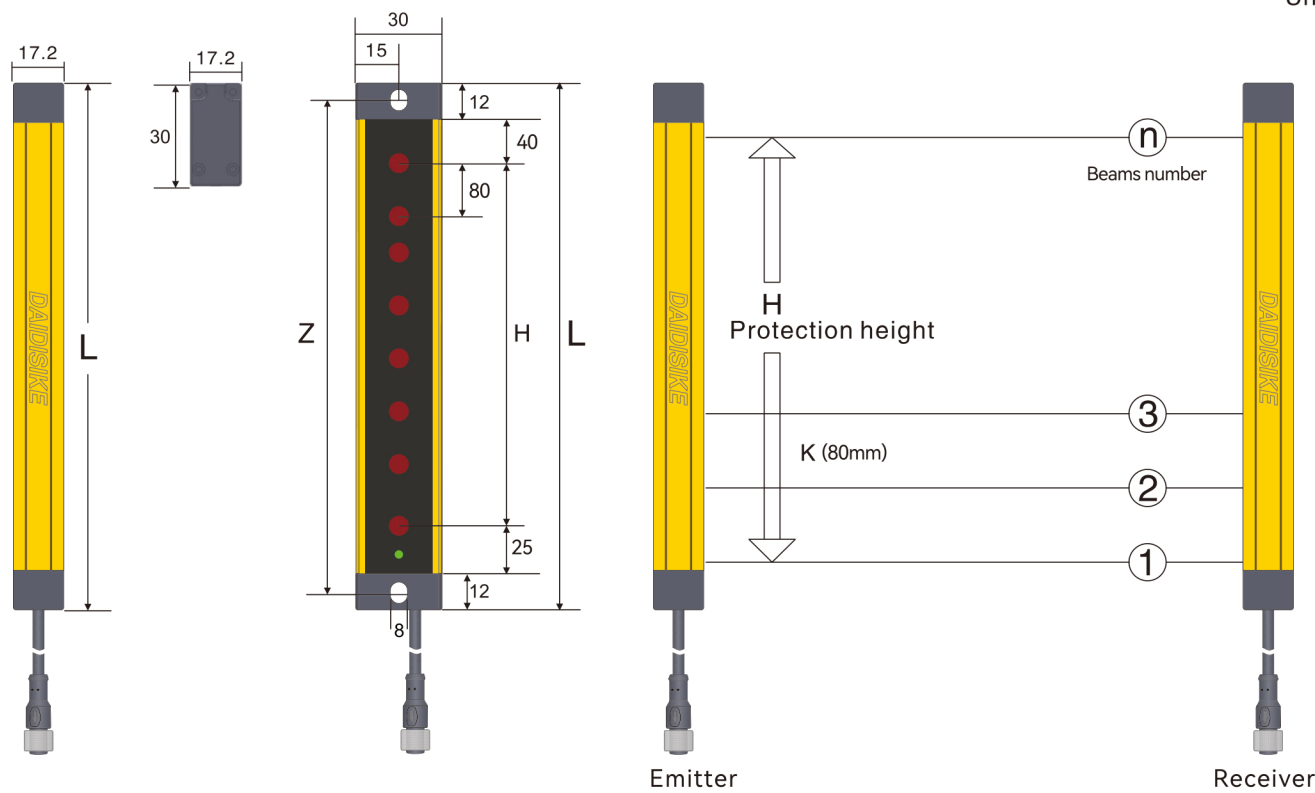
n: Beams number

DQZ 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	DQZ04/40-120	1	PNP	0.3-3m
	6	200	269	DQZ06/40-200	1	PNP	0.3-3m
	8	280	349	DQZ08/40-280	1	PNP	0.3-3m
	10	360	429	DQZ10/40-360	1	PNP	0.3-3m
	12	440	509	DQZ12/40-440	1	PNP	0.3-3m
	14	520	589	DQZ14/40-520	1	PNP	0.3-3m
	16	600	669	DQZ16/40-600	1	PNP	0.3-3m
	18	680	749	DQZ18/40-680	1	PNP	0.3-3m
	20	760	829	DQZ20/40-760	1	PNP	0.3-3m
	22	840	909	DQZ22/40-840	1	PNP	0.3-3m
	24	920	989	DQZ24/40-920	1	PNP	0.3-3m
	26	1000	1069	DQZ26/40-1000	1	PNP	0.3-3m
	28	1080	1149	DQZ28/40-1080	1	PNP	0.3-3m
	30	1160	1229	DQZ30/40-1160	1	PNP	0.3-3m
	32	1240	1309	DQZ32/40-1240	1	PNP	0.3-3m

6. DQZ 80mm series

Unit: mm



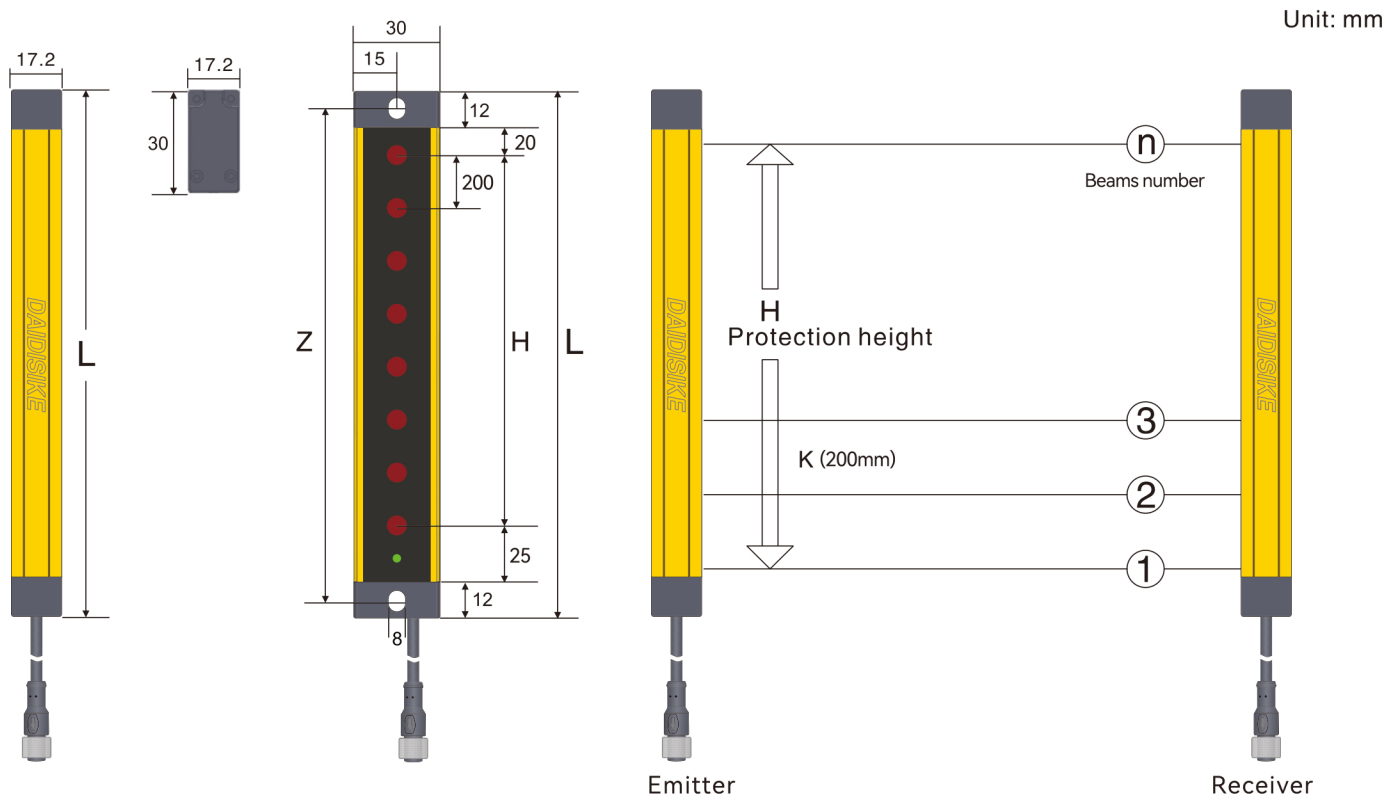
Remarks

L:Total length of light screen H:Height of protected area K:Resolution ratio Z:Fixed hole center distance
L=12+40+H+25+12 H= (n-1) * 80 Z=L-11mm n:Beams number

DQZ 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	DQZ04/80-240	1	PNP	0.3-3m
	6	400	489	DQZ06/80-400	1	PNP	0.3-3m
	8	560	649	DQZ08/80-560	1	PNP	0.3-3m
	10	720	809	DQZ10/80-720	1	PNP	0.3-3m
	12	880	969	DQZ12/80-880	1	PNP	0.3-3m
	14	1040	1129	DQZ14/80-1040	1	PNP	0.3-3m
	16	1200	1289	DQZ16/80-1200	1	PNP	0.3-3m
	18	1360	1449	DQZ18/80-1360	1	PNP	0.3-3m
	20	1520	1609	DQZ20/80-1520	1	PNP	0.3-3m
	22	1680	1769	DQZ22/80-1680	1	PNP	0.3-3m
	24	1840	1929	DQZ24/80-1840	1	PNP	0.3-3m
	26	2000	2089	DQZ26/80-2000	1	PNP	0.3-3m
	28	2160	2249	DQZ28/80-2160	1	PNP	0.3-3m
	30	2320	2409	DQZ30/80-2320	1	PNP	0.3-3m
	32	2480	2569	DQZ32/80-2480	1	PNP	0.3-3m

7. DQZ 200mm series



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

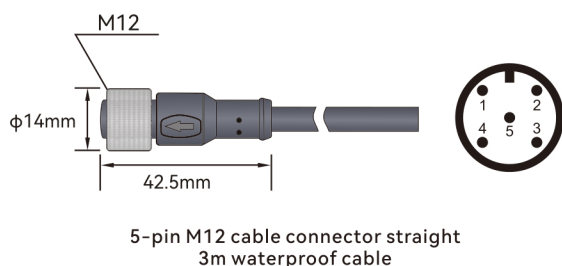
DQZ 200mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection distance
					Outputs	PNP output	
200mm (K)	4	600	669	DQZ04/200-600	1	PNP	0.3-3m
	6	1000	1069	DQZ06/200-1000	1	PNP	0.3-3m
	8	1400	1469	DQZ08/200-1400	1	PNP	0.3-3m
	10	1800	1869	DQZ10/200-1800	1	PNP	0.3-3m
	12	2200	2269	DQZ12/200-2200	1	PNP	0.3-3m
	14	2600	2669	DQZ14/200-2600	1	PNP	0.3-3m
	16	3000	3069	DQZ16/200-3000	1	PNP	0.3-3m
	18	3400	3469	DQZ18/200-3400	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	0.25mm ²
Maximum link cable	100m
Maximum allowable cable load	4.9A
Cable material	PVC

Cable description:

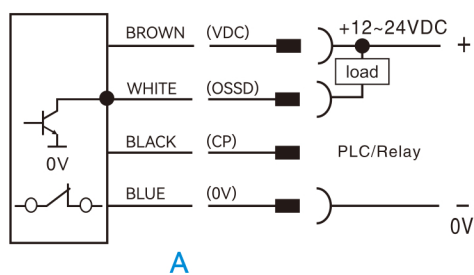


Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	NC
5	YELLOW	Ground wire

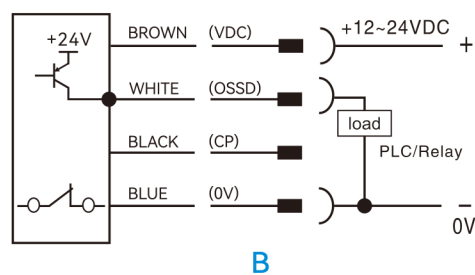
Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	OSSD
5	YELLOW	Ground wire

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

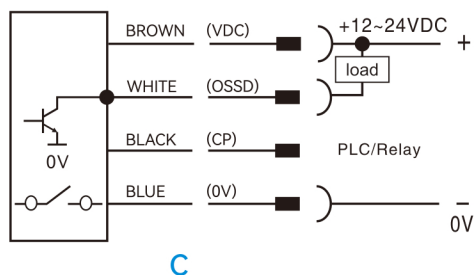
NPN NC



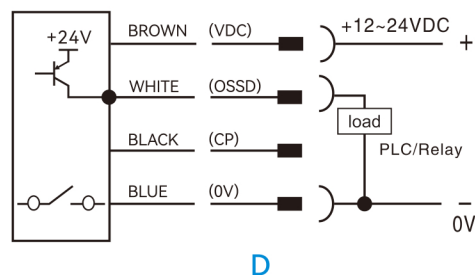
PNP NC



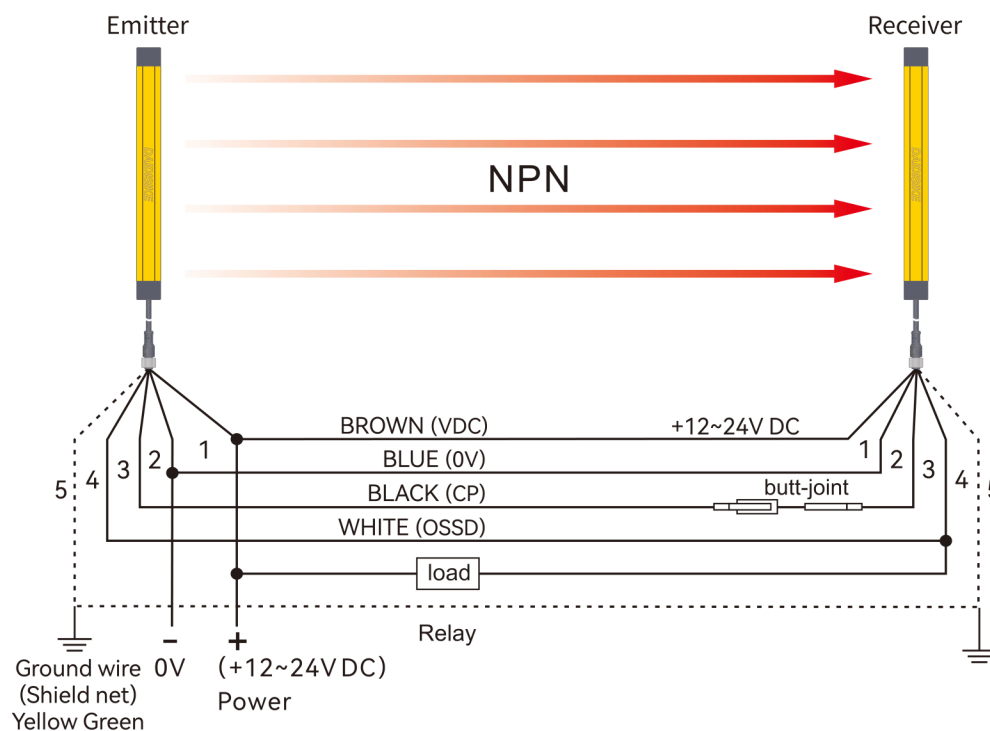
NPN NO



PNP NO

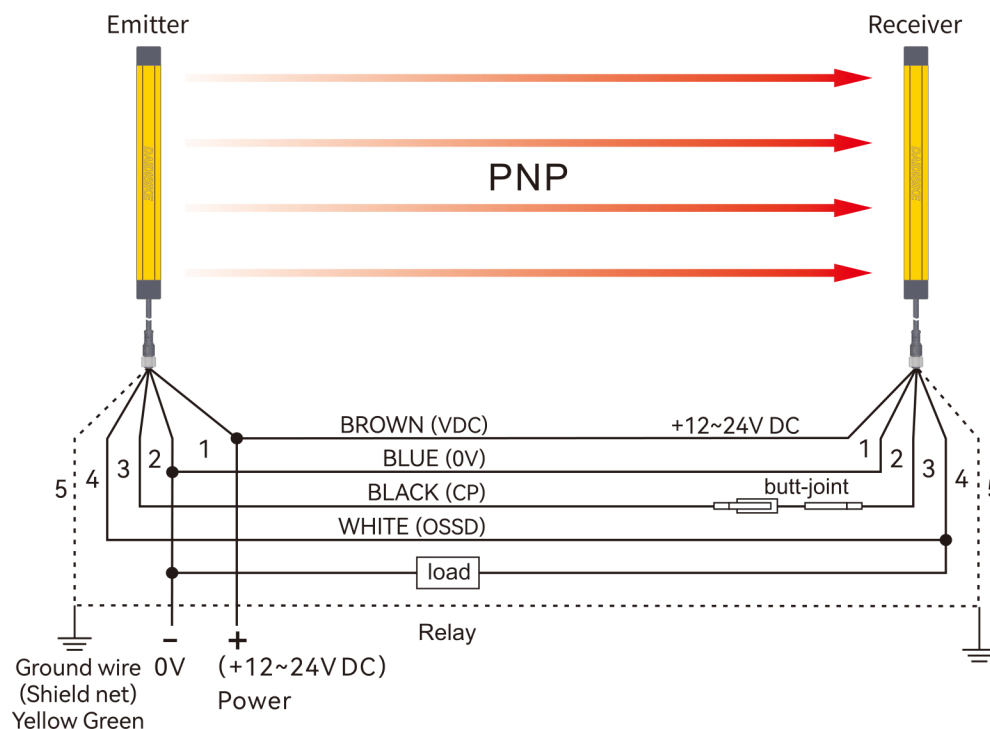


2. NPN output wiring diagram



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

3. PNP output wiring diagram

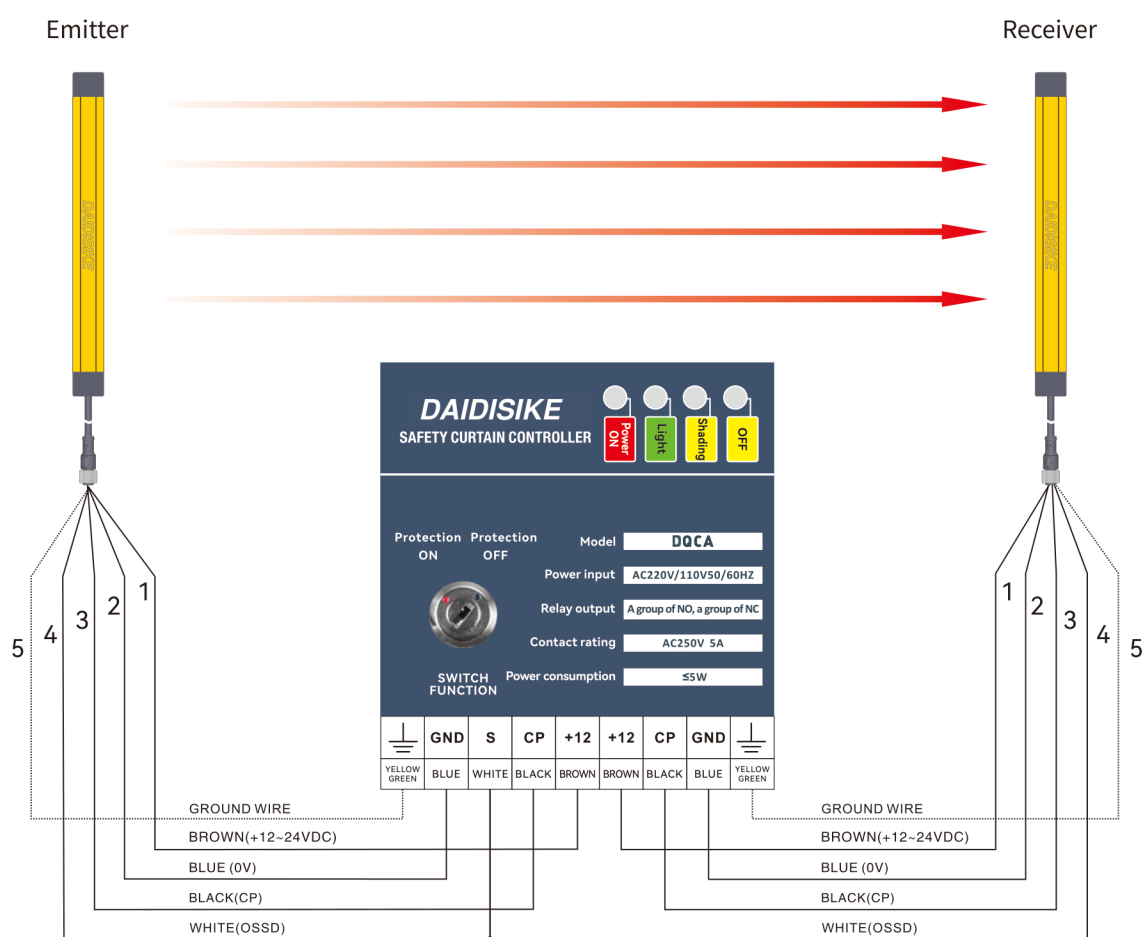


This figure is an example of PNP double output 5-pin wiring.

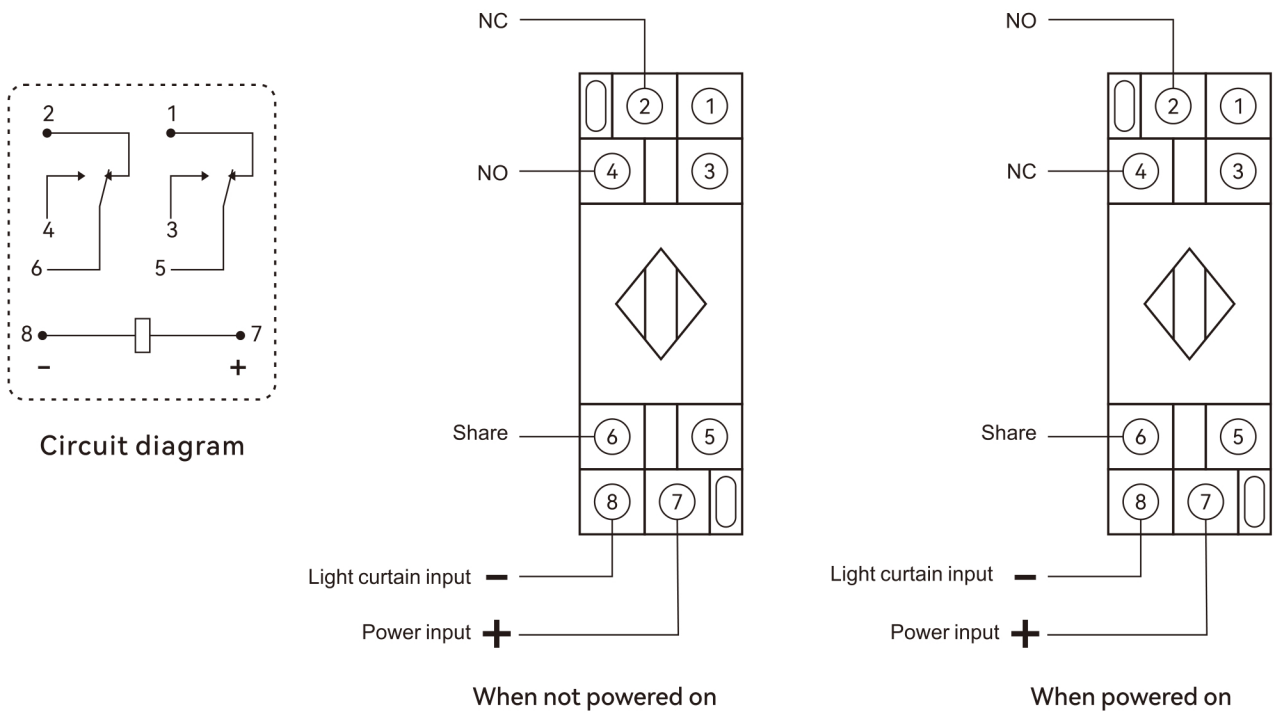
4. Selection of safety light curtain controller

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

4.1 Wiring diagram of DQCA built-in controller

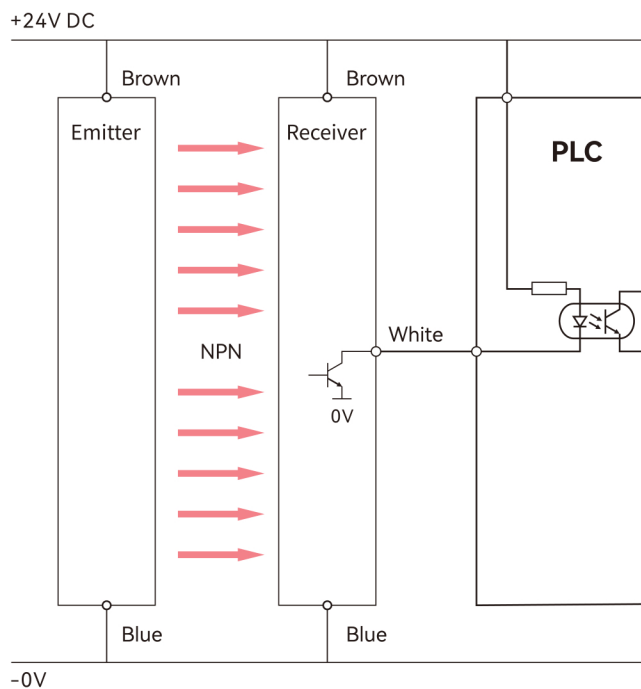


4.2 Wiring diagram of DQET-1 light curtain relay

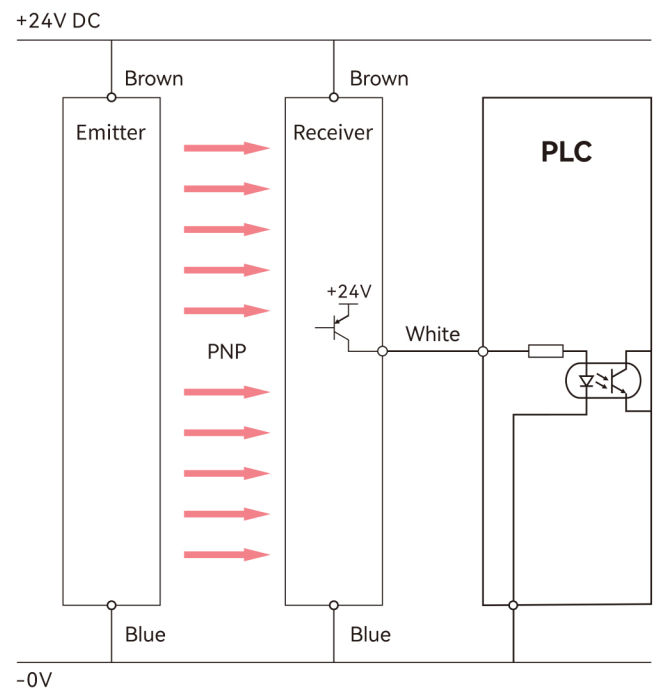


4.3 Wiring between light curtain and PLC and one-chip computer system

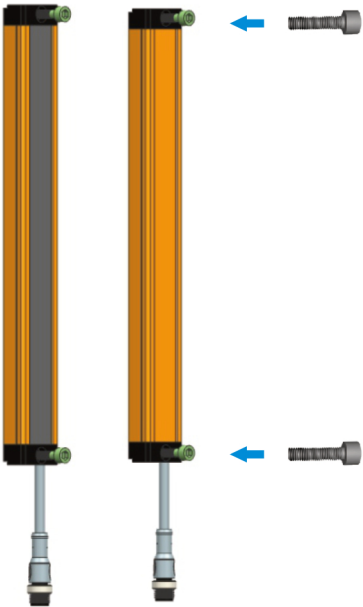
NPN wiring:



PNP wiring:



Accessories



Installation method for fixing hole screws
(Original accessories)

