

USER'S MANUAL

SAFETY LIGHT CURTAIN SENSOR Emitter and Receiver DQT series



Solutions



GB/T 19001-2016

Thank you very much for purchasing DAIDISIKE products!

Please be familiar with the user manual and product manual before use.

For your safety, please be sure to follow the precautions in the safety precautions.

Please be sure to follow the instructions, product manual, DAIDISIKE website, and other precautions.

Please keep it properly for easy retrieval.

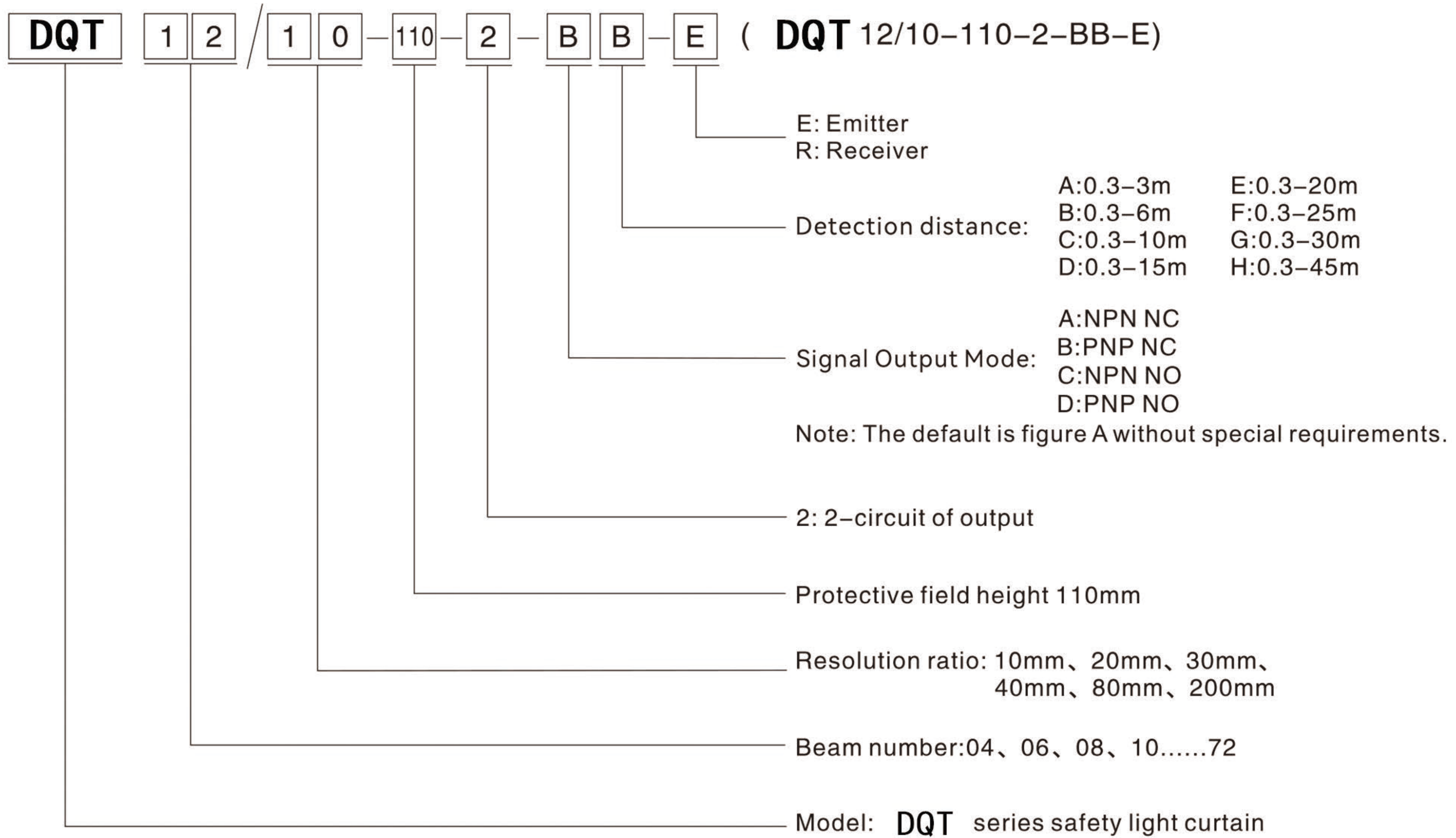
The specifications and external dimensions recorded in this manual are subject to change or discontinuation due to product improvements without prior notice.

Please confirm the latest information on the DAIDISIKE website.

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 DQT 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



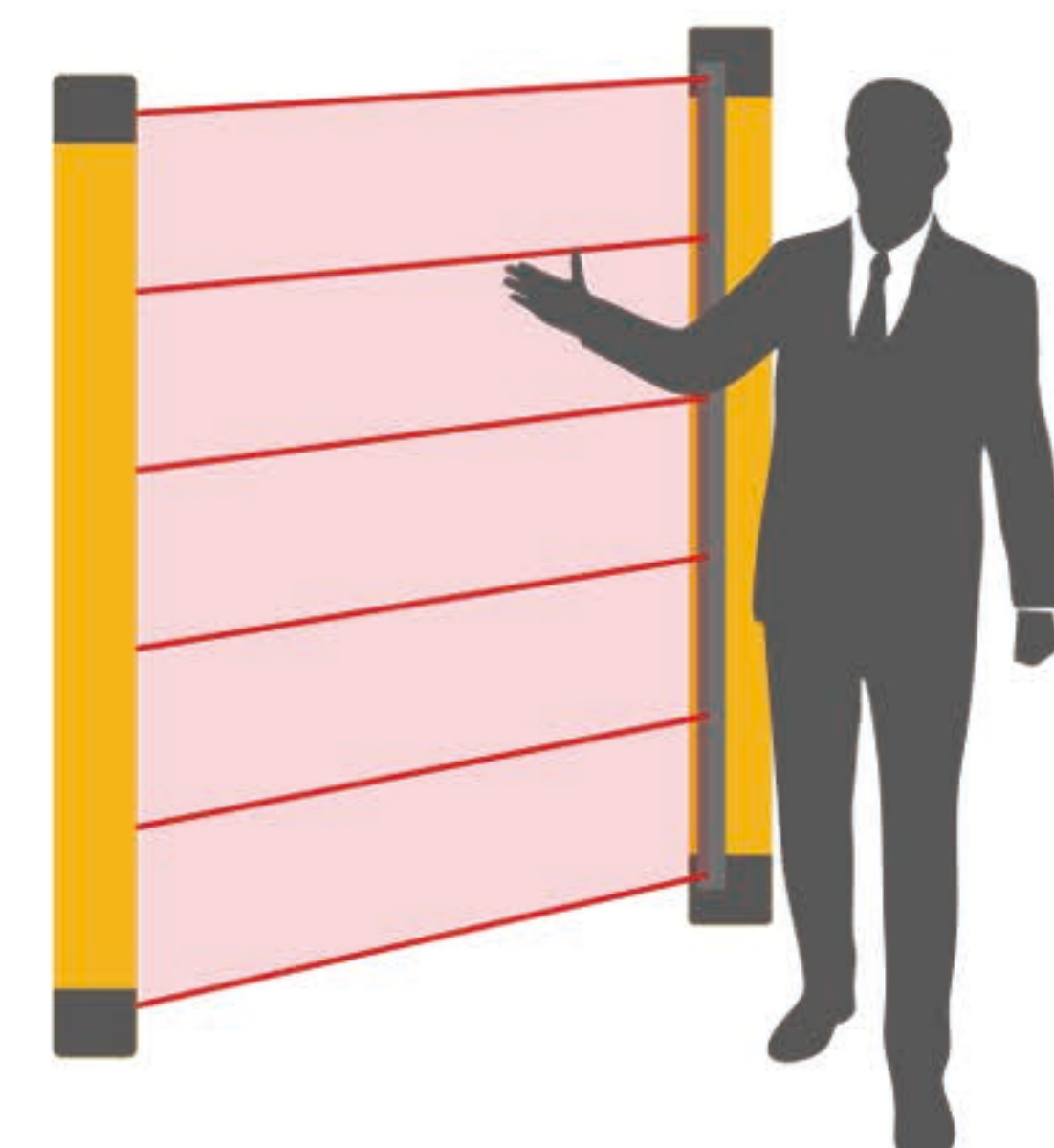
Detection capability
10mm
diameter

Hand protection



Detection capability
20/30/40mm
diameter

Arm/body protection



Detection capability
80/200mm
diameter

Technical data

Basic data of Receiver and Emitter

Standard packaging	
Product model	DQT 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	10mm, 20mm, 30mm, 40mm, 80mm, 200mm
Check the accuracy	18mm, 28mm, 38mm, 48mm, 88mm, 208mm
Number of beams	04、06、08、10.....72
Overall dimension	51mm*35mm*L, L is the length of emitter and receiver.
Detection distance	30-6000mm (Default 30-6000mm, customer service can be contacted to customize 30-45000mm.)
Response time	≤15ms

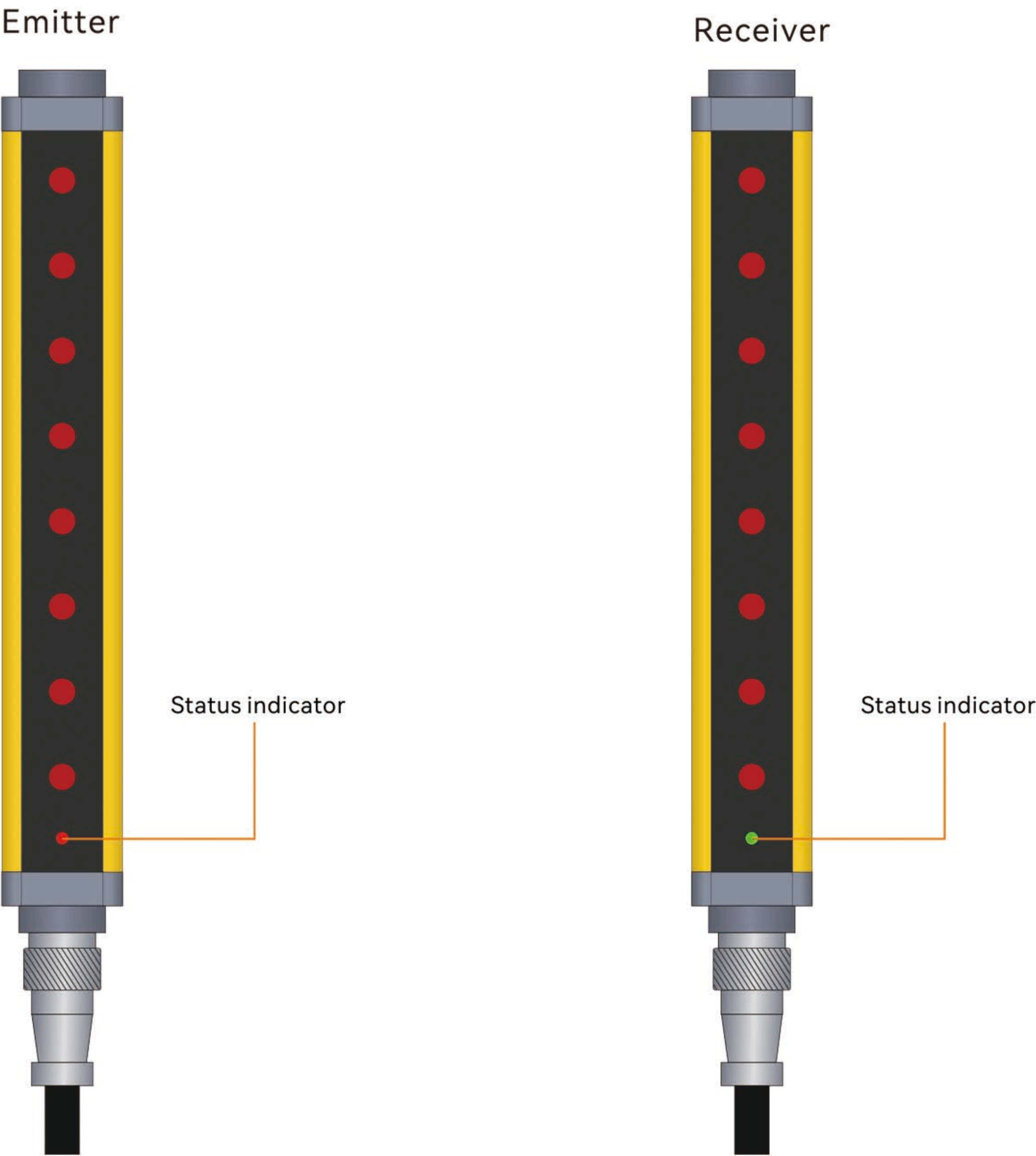
Synchronization	Line synchronization
Consumption current	≤200mA
Output mode	2-circuit of PNP, with current of 500mA and voltage below 1.5V, polarity, short circuit and over-cutting protection
Output status	ON (receiving indicator green light)
Indicator light	Transmitter: power indicator light (red); 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 °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)	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 5, 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

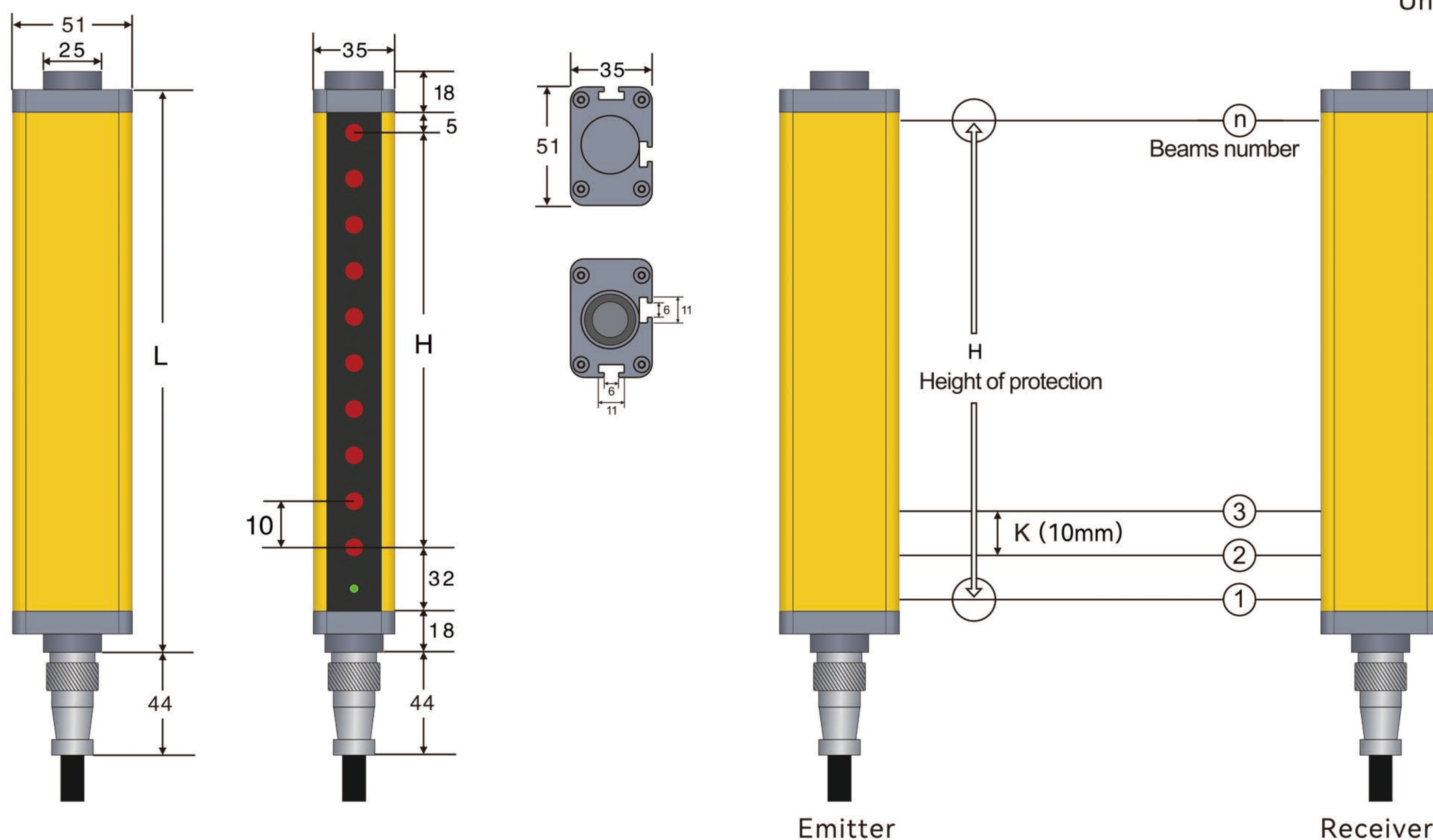


Normal operation of light curtain	LED Indicator status	Explain
Emitter	 Red, always on	Turns on the power
	 Receiver and emitter are red	Receiver and Emitter are not aligned
Receiver	 Green	All light paths are connected
	 Red	Light path shading
	 Lights flashing	Interference or overstep detection range

Dimensioned drawings

1. DQT 10mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

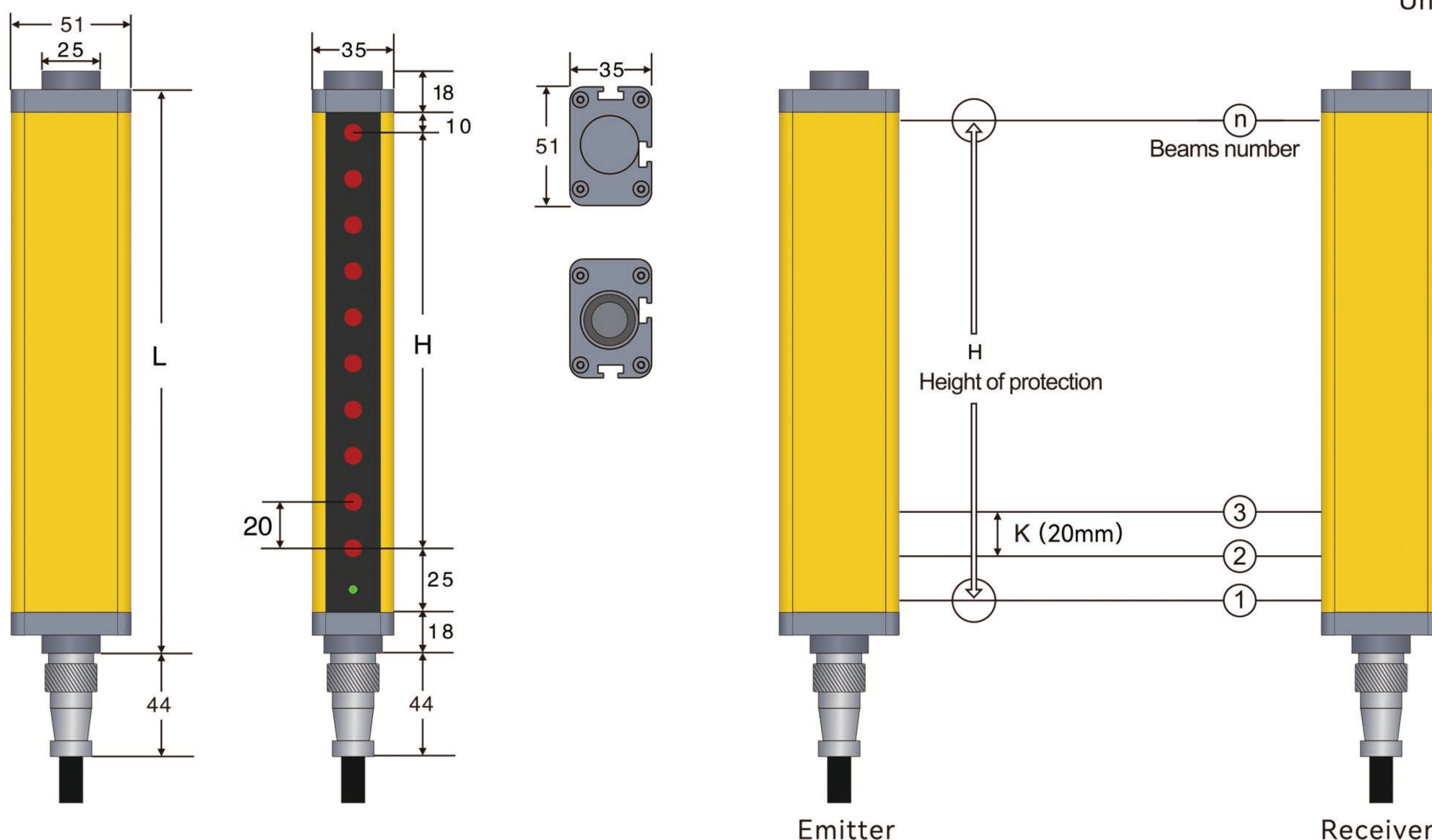
 $L = 18 + 5 + H + 32 + 18$
 $H = (n - 1) * 10$

DQT 10mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
10mm (K)	12	110	183	DQT12/10-110	2	PNP	0.3-6m
	14	130	203	DQT14/10-130	2	PNP	0.3-6m
	16	150	223	DQT16/10-150	2	PNP	0.3-6m
	18	170	243	DQT18/10-170	2	PNP	0.3-6m
	20	190	263	DQT20/10-190	2	PNP	0.3-6m
	22	210	283	DQT22/10-210	2	PNP	0.3-6m
	24	230	303	DQT24/10-230	2	PNP	0.3-6m
	26	250	323	DQT26/10-250	2	PNP	0.3-6m
	28	270	343	DQT28/10-270	2	PNP	0.3-6m
	30	290	363	DQT30/10-290	2	PNP	0.3-6m
	32	310	383	DQT32/10-310	2	PNP	0.3-6m
	34	330	403	DQT34/10-330	2	PNP	0.3-6m
	36	350	423	DQT36/10-350	2	PNP	0.3-6m
	38	370	443	DQT38/10-370	2	PNP	0.3-6m
	40	390	463	DQT40/10-390	2	PNP	0.3-6m
	42	410	483	DQT42/10-410	2	PNP	0.3-6m
	44	430	503	DQT44/10-430	2	PNP	0.3-6m
	46	450	523	DQT46/10-450	2	PNP	0.3-6m
	48	470	543	DQT48/10-470	2	PNP	0.3-6m
	50	490	563	DQT50/10-490	2	PNP	0.3-6m
	52	510	583	DQT52/10-510	2	PNP	0.3-6m
	54	530	603	DQT54/10-530	2	PNP	0.3-6m
	56	550	623	DQT56/10-550	2	PNP	0.3-6m
	58	570	643	DQT58/10-570	2	PNP	0.3-6m
	60	590	663	DQT60/10-590	2	PNP	0.3-6m
	62	610	683	DQT62/10-610	2	PNP	0.3-6m
	64	630	703	DQT64/10-630	2	PNP	0.3-6m
	66	650	723	DQT66/10-650	2	PNP	0.3-6m
	68	670	743	DQT68/10-670	2	PNP	0.3-6m
	70	690	763	DQT70/10-690	2	PNP	0.3-6m

2. DQT 20mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

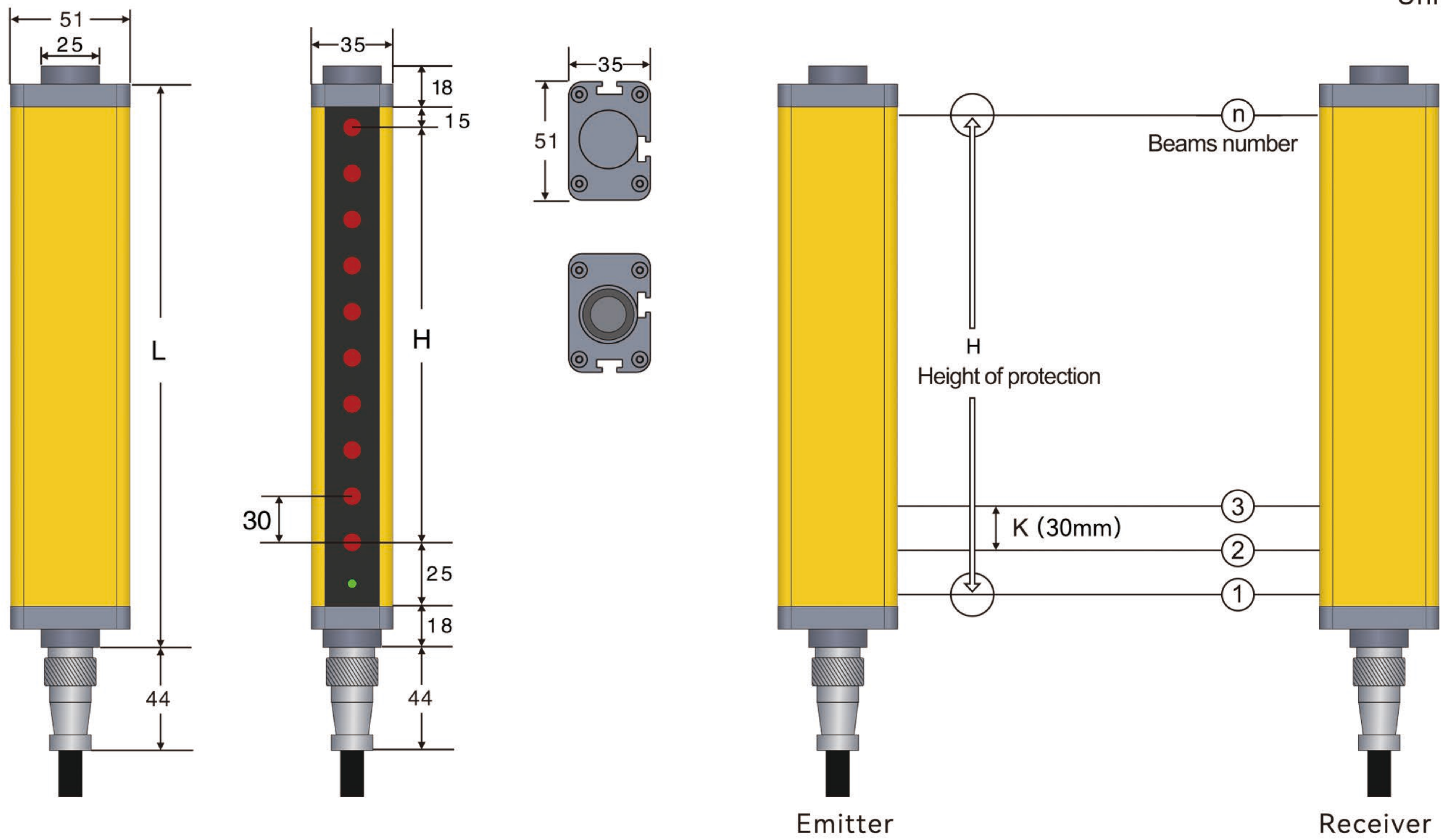
 $L = 18 + 10 + H + 25 + 18$
 $H = (n - 1) * 20$

DQT 20mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
20mm (K)	6	100	171	DQT06/20-100	2	PNP	0.3-6m
	8	140	211	DQT08/20-140	2	PNP	0.3-6m
	10	180	251	DQT10/20-180	2	PNP	0.3-6m
	12	220	291	DQT12/20-220	2	PNP	0.3-6m
	14	260	331	DQT14/20-260	2	PNP	0.3-6m
	16	300	371	DQT16/20-300	2	PNP	0.3-6m
	18	340	411	DQT18/20-340	2	PNP	0.3-6m
	20	380	451	DQT20/20-380	2	PNP	0.3-6m
	22	420	491	DQT22/20-420	2	PNP	0.3-6m
	24	460	531	DQT24/20-460	2	PNP	0.3-6m
	26	500	571	DQT26/20-500	2	PNP	0.3-6m
	28	540	611	DQT28/20-540	2	PNP	0.3-6m
	30	580	651	DQT30/20-580	2	PNP	0.3-6m
	32	620	691	DQT32/20-620	2	PNP	0.3-6m
	34	660	731	DQT34/20-660	2	PNP	0.3-6m
	36	700	771	DQT36/20-700	2	PNP	0.3-6m
	38	740	811	DQT38/20-740	2	PNP	0.3-6m
	40	780	851	DQT40/20-780	2	PNP	0.3-6m
	42	820	891	DQT42/20-820	2	PNP	0.3-6m
	44	860	931	DQT44/20-860	2	PNP	0.3-6m
	46	900	971	DQT46/20-900	2	PNP	0.3-6m
	48	940	1011	DQT48/20-940	2	PNP	0.3-6m
	50	980	1051	DQT50/20-980	2	PNP	0.3-6m
	52	1020	1091	DQT52/20-1020	2	PNP	0.3-6m
	54	1060	1131	DQT54/20-1060	2	PNP	0.3-6m
	56	1100	1171	DQT56/20-1100	2	PNP	0.3-6m
	58	1140	1211	DQT58/20-1140	2	PNP	0.3-6m
	60	1180	1251	DQT60/20-1180	2	PNP	0.3-6m
	62	1220	1291	DQT62/20-1220	2	PNP	0.3-6m
	64	1260	1331	DQT64/20-1260	2	PNP	0.3-6m
	66	1300	1371	DQT66/20-1300	2	PNP	0.3-6m
	68	1340	1411	DQT68/20-1340	2	PNP	0.3-6m
	70	1380	1451	DQT70/20-1380	2	PNP	0.3-6m
	72	1420	1491	DQT72/20-1420	2	PNP	0.3-6m

3. DQT 30mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

$$L = 18 + 15 + H + 25 + 18$$

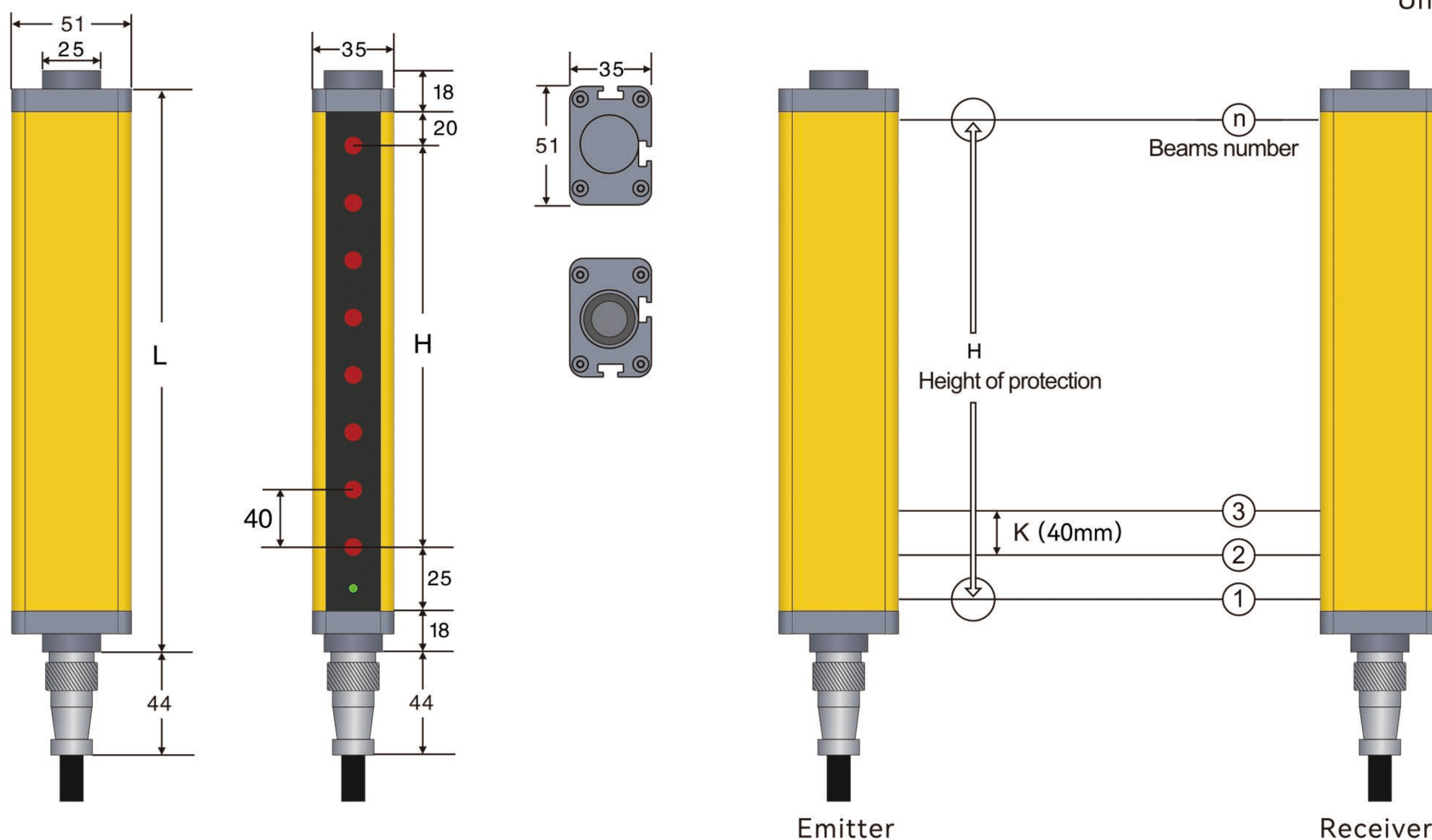
$$H = (n - 1) * 30$$

DQT 30mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection distance
					Two outputs	PNP output	
30mm (K)	4	90	166	DQT04/30-90	2	PNP	0.3-6m
	6	150	226	DQT06/30-150	2	PNP	0.3-6m
	8	210	286	DQT08/30-210	2	PNP	0.3-6m
	10	270	346	DQT10/30-270	2	PNP	0.3-6m
	12	330	406	DQT12/30-330	2	PNP	0.3-6m
	14	390	466	DQT14/30-390	2	PNP	0.3-6m
	16	450	526	DQT16/30-450	2	PNP	0.3-6m
	18	510	586	DQT18/30-510	2	PNP	0.3-6m
	20	570	646	DQT20/30-570	2	PNP	0.3-6m
	22	630	706	DQT22/30-630	2	PNP	0.3-6m
	24	690	766	DQT24/30-690	2	PNP	0.3-6m
	26	750	826	DQT26/30-750	2	PNP	0.3-6m
	28	810	886	DQT28/30-810	2	PNP	0.3-6m
	30	870	946	DQT30/30-870	2	PNP	0.3-6m
	32	930	1006	DQT32/30-930	2	PNP	0.3-6m
	34	990	1066	DQT34/30-990	2	PNP	0.3-6m
	36	1050	1126	DQT36/30-1050	2	PNP	0.3-6m
	38	1110	1186	DQT38/30-1110	2	PNP	0.3-6m
	40	1170	1246	DQT40/30-1170	2	PNP	0.3-6m
	42	1230	1306	DQT42/30-1230	2	PNP	0.3-6m
	44	1290	1366	DQT44/30-1290	2	PNP	0.3-6m
	46	1350	1426	DQT46/30-1350	2	PNP	0.3-6m
	48	1410	1486	DQT48/30-1410	2	PNP	0.3-6m
	50	1470	1546	DQT50/30-1470	2	PNP	0.3-6m
	52	1530	1606	DQT52/30-1530	2	PNP	0.3-6m
	54	1590	1666	DQT54/30-1590	2	PNP	0.3-6m
	56	1650	1726	DQT56/30-1650	2	PNP	0.3-6m
	58	1710	1786	DQT58/30-1710	2	PNP	0.3-6m
	60	1770	1846	DQT60/30-1770	2	PNP	0.3-6m
	62	1830	1906	DQT62/30-1830	2	PNP	0.3-6m
	64	1890	1966	DQT64/30-1890	2	PNP	0.3-6m
	66	1950	2026	DQT66/30-1950	2	PNP	0.3-6m
	68	2010	2086	DQT68/30-2010	2	PNP	0.3-6m
	70	2070	2146	DQT70/30-2070	2	PNP	0.3-6m
	72	2130	2206	DQT72/30-2130	2	PNP	0.3-6m

4. DQT 40mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

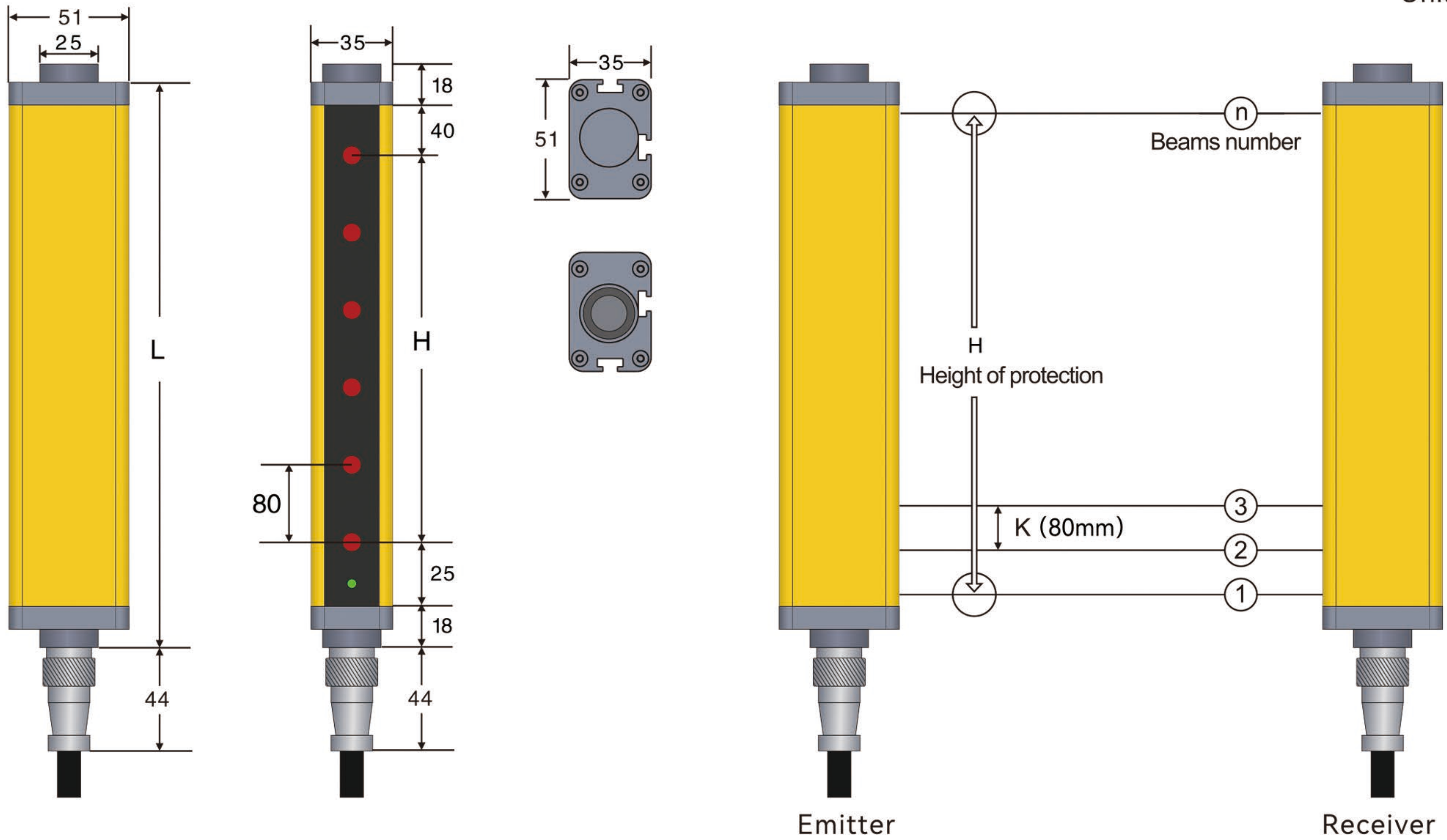
 $L = 18 + 20 + H + 25 + 18$
 $H = (n - 1) * 40$

DQT 40mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
40mm (K)	4	120	201	DQT04/40-120	2	PNP	0.3-6m
	6	200	281	DQT06/40-200	2	PNP	0.3-6m
	8	280	361	DQT08/40-280	2	PNP	0.3-6m
	10	360	441	DQT10/40-360	2	PNP	0.3-6m
	12	440	521	DQT12/40-440	2	PNP	0.3-6m
	14	520	601	DQT14/40-520	2	PNP	0.3-6m
	16	600	681	DQT16/40-600	2	PNP	0.3-6m
	18	680	761	DQT18/40-680	2	PNP	0.3-6m
	20	760	841	DQT20/40-760	2	PNP	0.3-6m
	22	840	921	DQT22/40-840	2	PNP	0.3-6m
	24	920	1001	DQT24/40-920	2	PNP	0.3-6m
	26	1000	1081	DQT26/40-1000	2	PNP	0.3-6m
	28	1080	1161	DQT28/40-1080	2	PNP	0.3-6m
	30	1160	1241	DQT30/40-1160	2	PNP	0.3-6m
	32	1240	1321	DQT32/40-1240	2	PNP	0.3-6m
	34	1320	1401	DQT34/40-1320	2	PNP	0.3-6m
	36	1400	1481	DQT36/40-1400	2	PNP	0.3-6m
	38	1480	1561	DQT38/40-1480	2	PNP	0.3-6m
	40	1560	1641	DQT40/40-1560	2	PNP	0.3-6m
	42	1640	1721	DQT42/40-1640	2	PNP	0.3-6m
	44	1720	1801	DQT44/40-1720	2	PNP	0.3-6m
	46	1800	1881	DQT46/40-1800	2	PNP	0.3-6m
	48	1880	1961	DQT48/40-1880	2	PNP	0.3-6m
	50	1960	2041	DQT50/40-1960	2	PNP	0.3-6m
	52	2040	2121	DQT52/40-2040	2	PNP	0.3-6m
	54	2120	2201	DQT54/40-2120	2	PNP	0.3-6m
	56	2200	2281	DQT56/40-2200	2	PNP	0.3-6m
	58	2280	2361	DQT58/40-2280	2	PNP	0.3-6m
	60	2360	2441	DQT60/40-2360	2	PNP	0.3-6m
	62	2440	2521	DQT62/40-2440	2	PNP	0.3-6m
	64	2520	2601	DQT64/40-2520	2	PNP	0.3-6m
	66	2600	2681	DQT66/40-2600	2	PNP	0.3-6m
	68	2680	2761	DQT68/40-2680	2	PNP	0.3-6m
	70	2760	2841	DQT70/40-2760	2	PNP	0.3-6m
	72	2840	2921	DQT72/40-2840	2	PNP	0.3-6m

5. DQT 80mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

$$L = 18 + 40 + H + 25 + 18$$

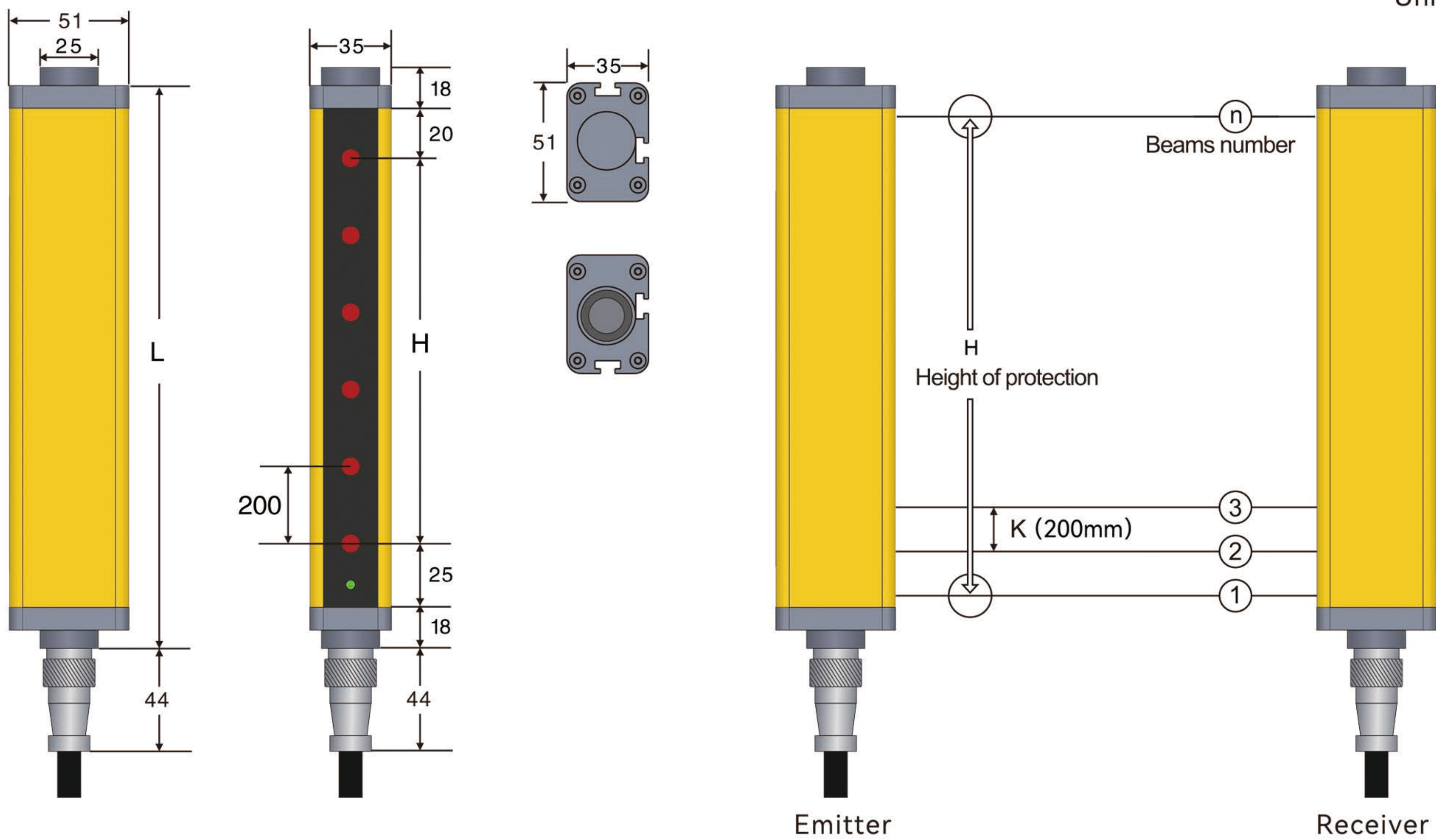
$$H = (n - 1) \times 80$$

DQT 80mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
80mm (K)	4	240	341	DQT04/80-240	2	PNP	0.3-6m
	6	400	501	DQT06/80-400	2	PNP	0.3-6m
	8	560	661	DQT08/80-560	2	PNP	0.3-6m
	10	720	821	DQT10/80-720	2	PNP	0.3-6m
	12	880	981	DQT12/80-880	2	PNP	0.3-6m
	14	1040	1141	DQT14/80-1040	2	PNP	0.3-6m
	16	1200	1301	DQT16/80-1200	2	PNP	0.3-6m
	18	1360	1461	DQT18/80-1360	2	PNP	0.3-6m
	20	1520	1621	DQT20/80-1520	2	PNP	0.3-6m
	22	1680	1781	DQT22/80-1680	2	PNP	0.3-6m
	24	1840	1941	DQT24/80-1840	2	PNP	0.3-6m
	26	2000	2101	DQT26/80-2000	2	PNP	0.3-6m
	28	2160	2261	DQT28/80-2160	2	PNP	0.3-6m
	30	2320	2421	DQT30/80-2320	2	PNP	0.3-6m
	32	2480	2581	DQT32/80-2480	2	PNP	0.3-6m
	34	2640	2741	DQT34/80-2640	2	PNP	0.3-6m
	36	2800	2901	DQT36/80-2800	2	PNP	0.3-6m
	38	2960	3061	DQT38/80-2960	2	PNP	0.3-6m
	40	3120	3221	DQT40/80-3120	2	PNP	0.3-6m

6. DQT 200mm series

Unit: mm



Remarks

L:Total length of light screen
 $L=18+20+H+25+18$

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

K:Resolution ratio

n:Beams number

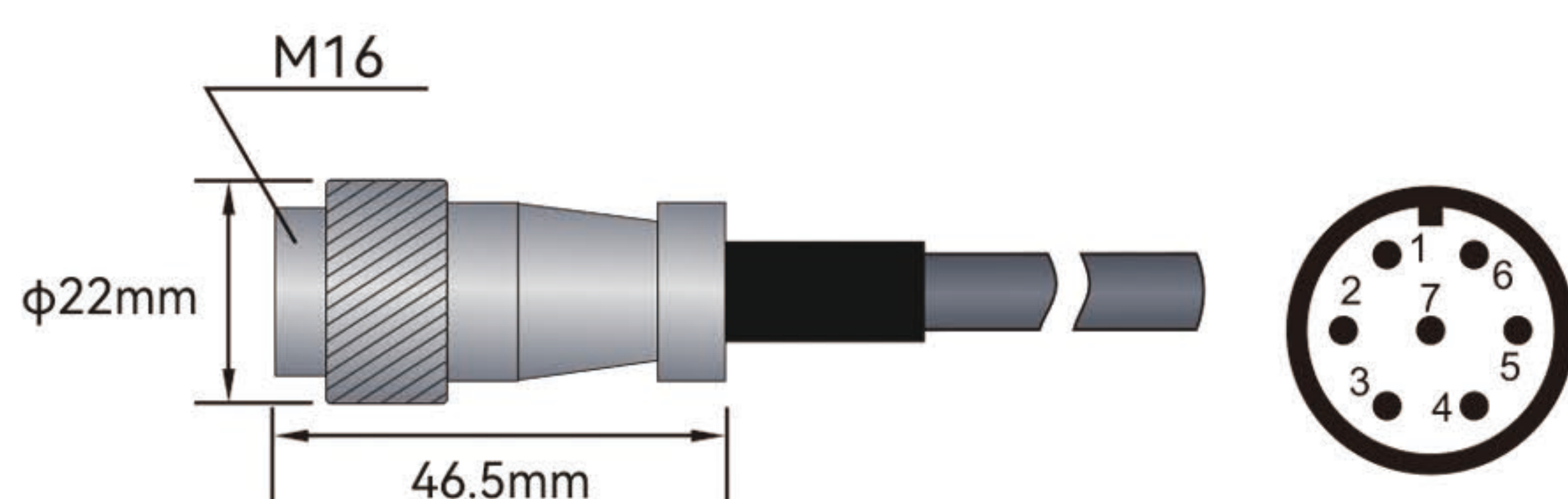
DQT 200mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
200mm (K)	4	600	681	DQT04/200-600	2	PNP	0.3-6m
	6	1000	1081	DQT06/200-1000	2	PNP	0.3-6m
	8	1400	1481	DQT08/200-1400	2	PNP	0.3-6m
	10	1800	1881	DQT10/200-1800	2	PNP	0.3-6m
	12	2200	2281	DQT12/200-2200	2	PNP	0.3-6m
	14	2600	2681	DQT14/200-2600	2	PNP	0.3-6m
	16	3000	3081	DQT16/200-3000	2	PNP	0.3-6m
	18	3400	3481	DQT18/200-3400	2	PNP	0.3-6m

Electrical connection

Electrical interface	
Number of interfaces	2 (receiver and transmitter)
Type	M16 connector, 7-pin
Interface metal	Copper nickel plating
Plug material	kirsite
Rated current (A)	5A
Contact DC (AC V)	Φ1*5
working voltage (AC V)	500V
pressurization (AC V)	1500V
contact resistance	5MΩ
insulation resistance	2000MΩ
Allowable typical conductor section	0.25mm ²
Maximum link cable	100M
Maximum allowable carrying current	4.9A
Cable material	PVC
Shielding	shielded

Cable description:



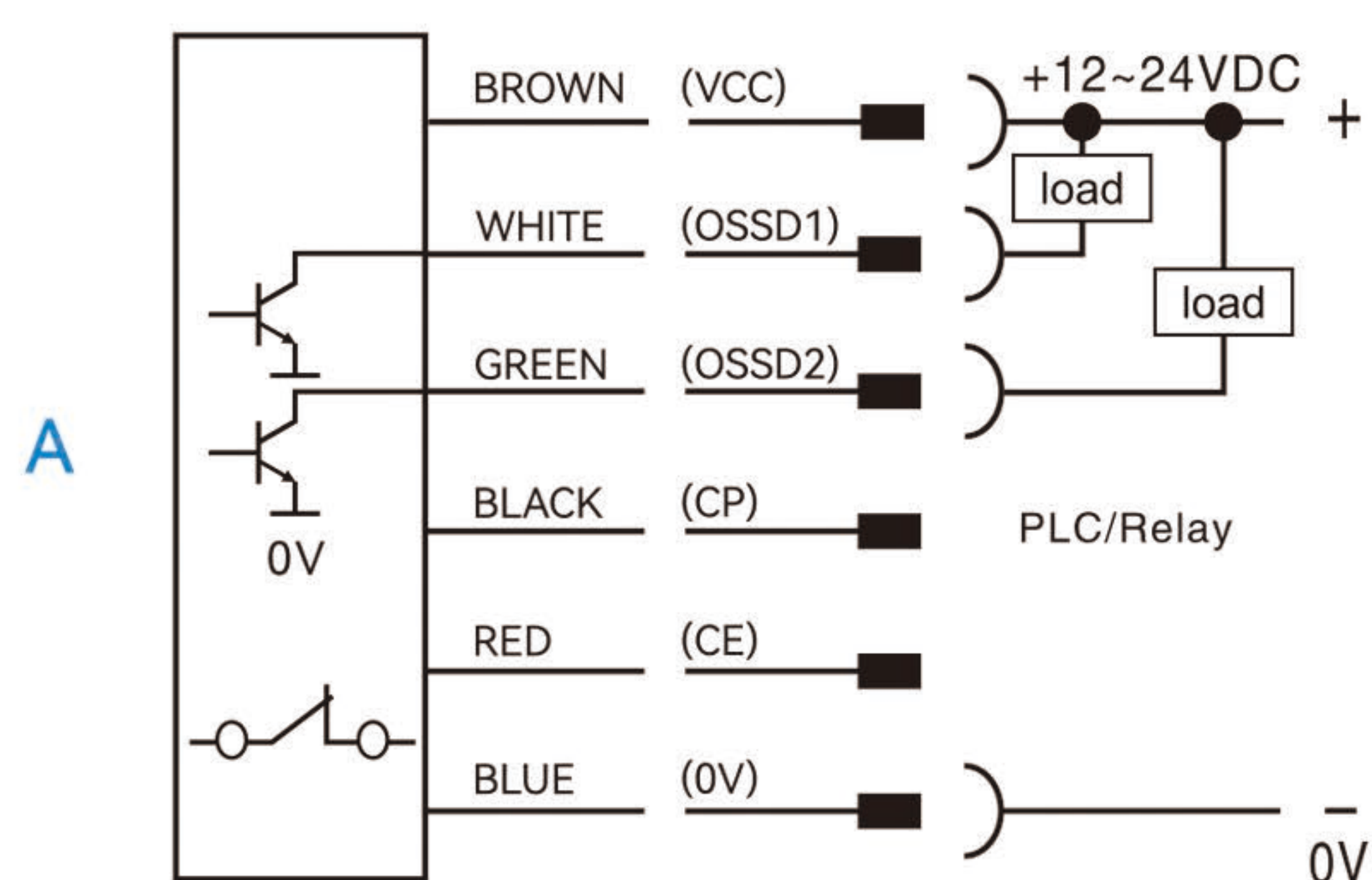
7-pin M16 cable connector straight
3m waterproof cable

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

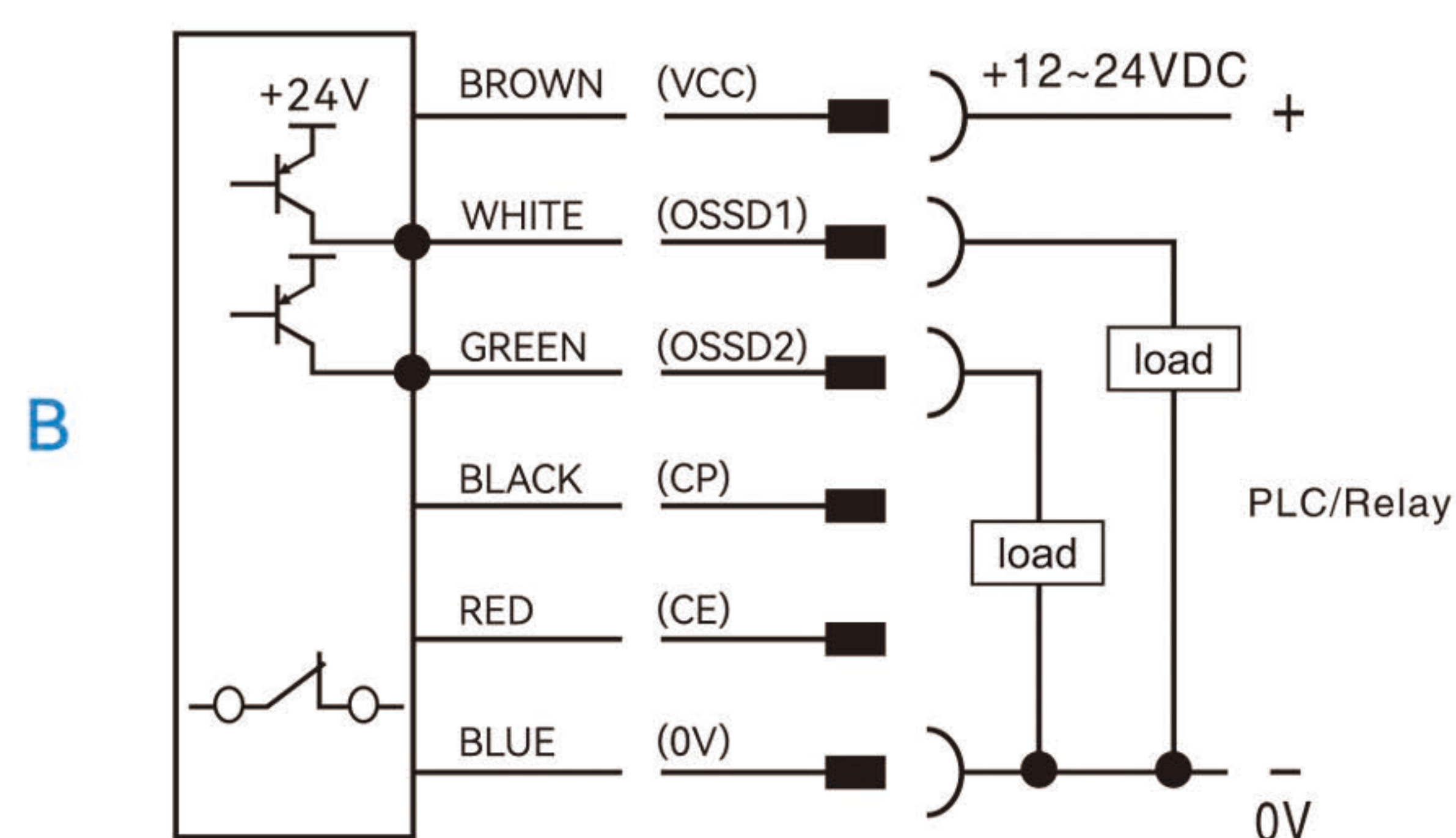
Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	RED	CE
5	WHITE	OSSD1
6	GREEN	OSSD2
7	YELLOW	Ground wire

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

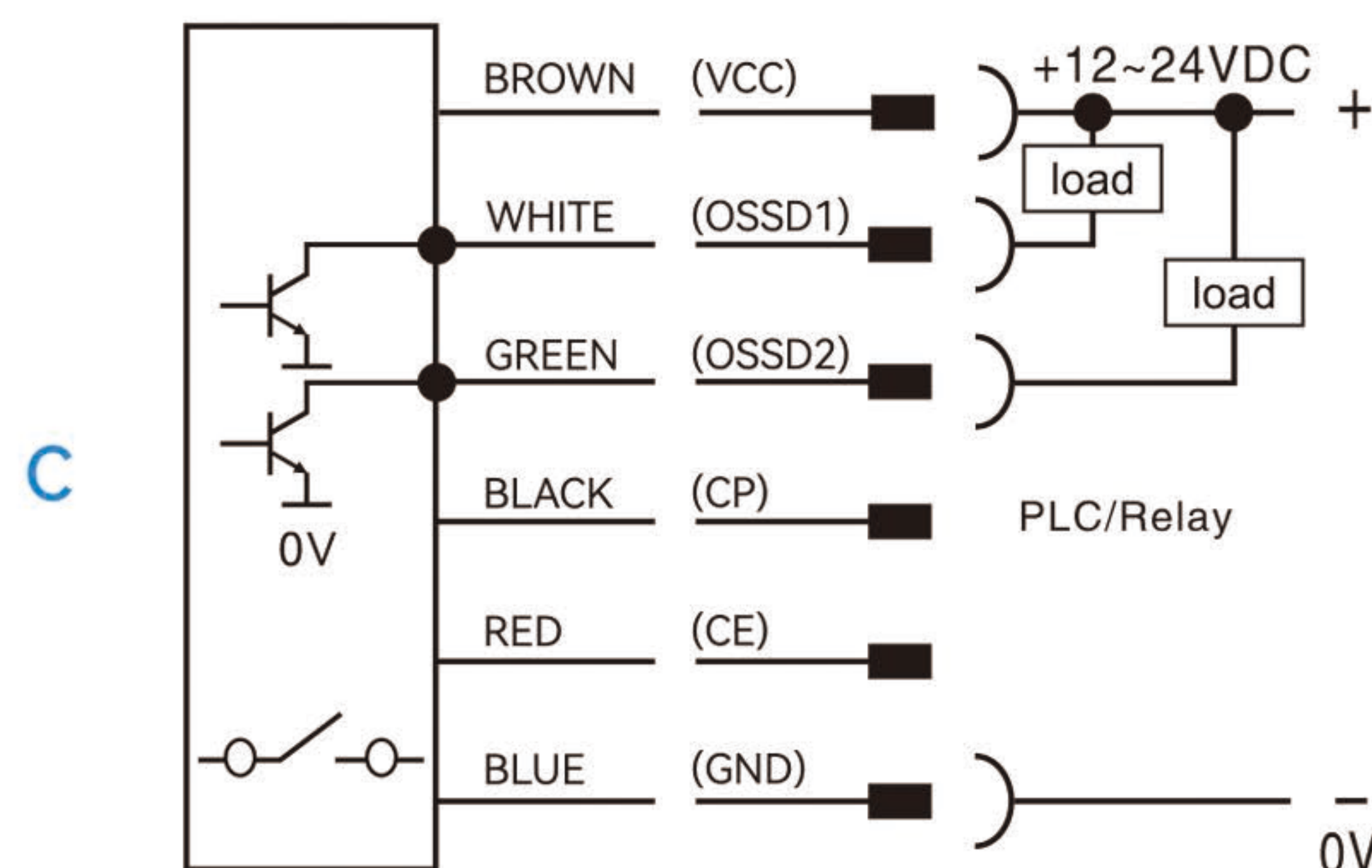
NPN NC



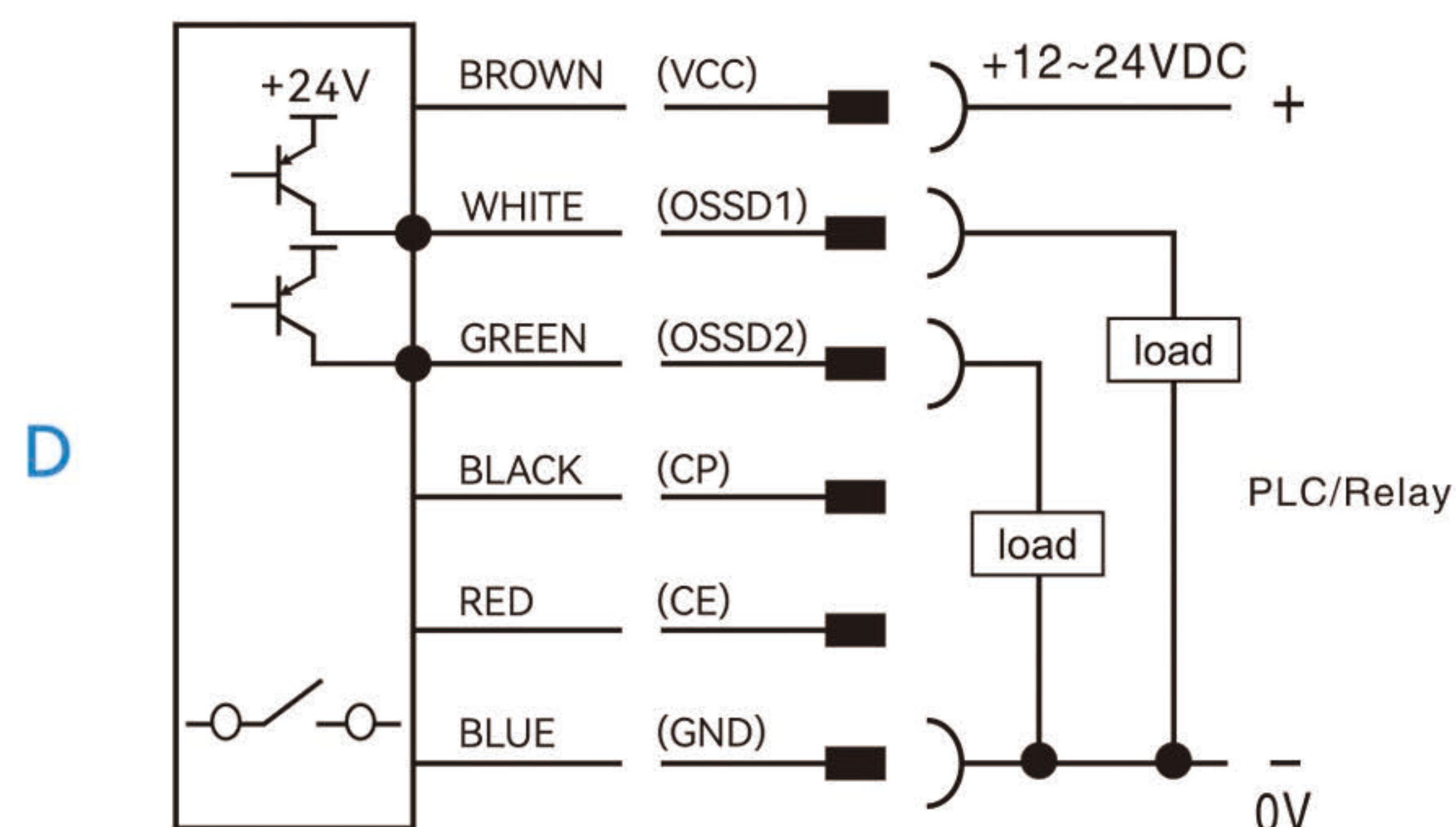
PNP NC



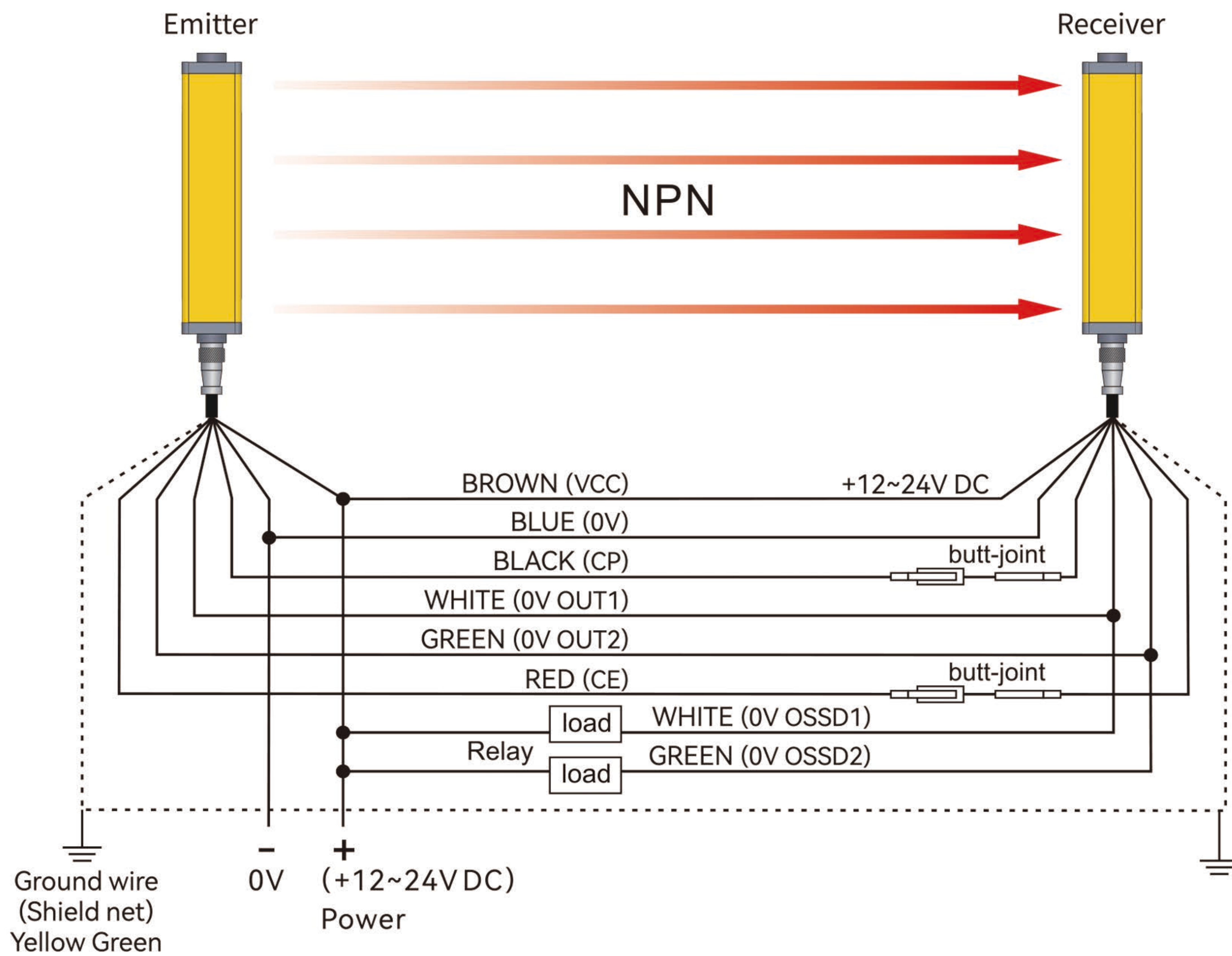
NPN NO



PNP NO

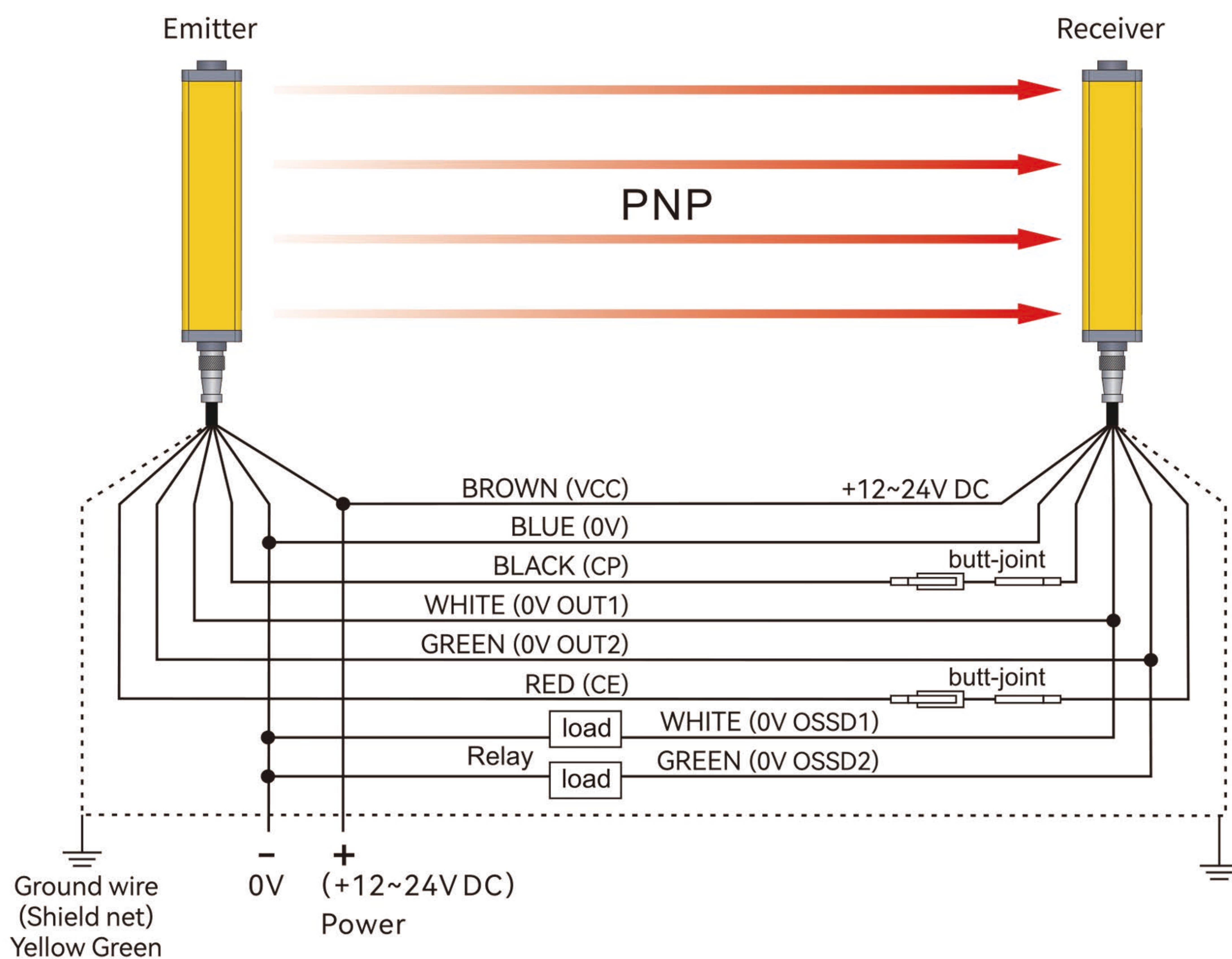


2. NPN output wiring diagram



This figure is an example of NPN double output 7-pin wiring.

3. PNP output wiring diagram

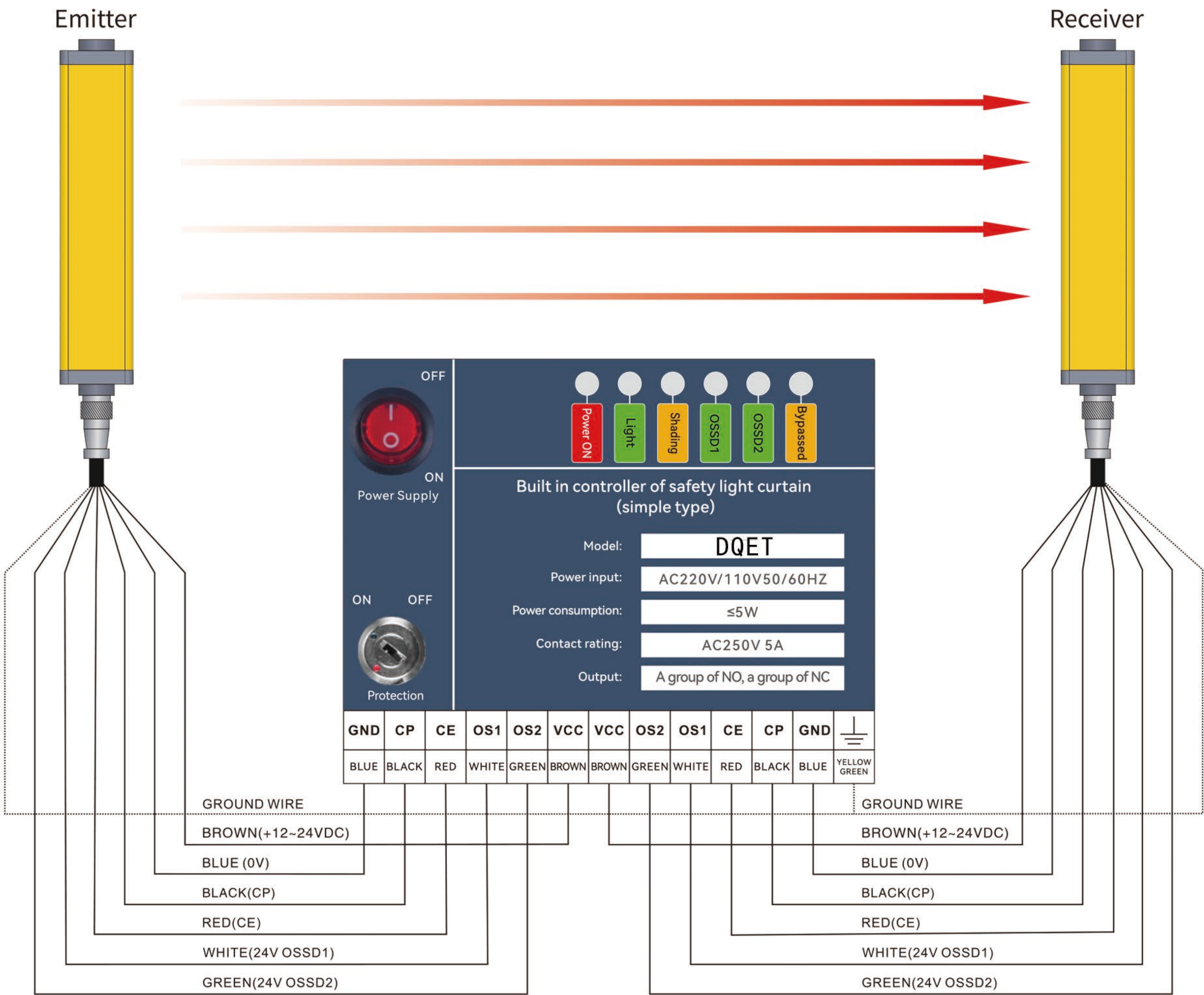


This figure is an example of PNP double output 7-pin wiring.

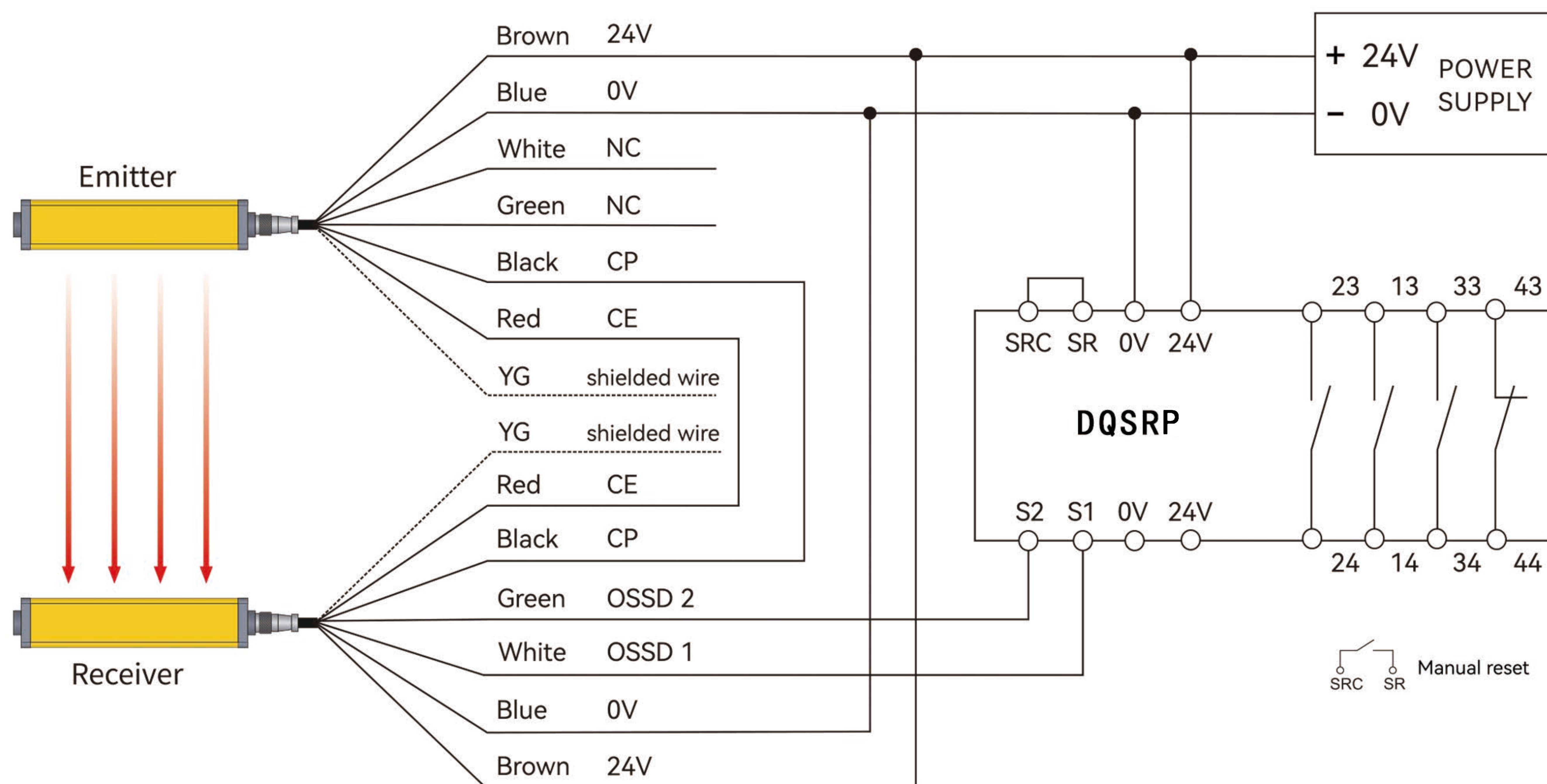
4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		DQET	Used to monitor the signal processing of DQET series light curtain, and output one group of NO and one group of NC.
Safety relay		DQSRP	DQSRP 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	DA31P	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		DQET-1	Output conversion between NC and NO for DQT series light curtain.

4.1 Wiring diagram of DQETbuilt-in controller

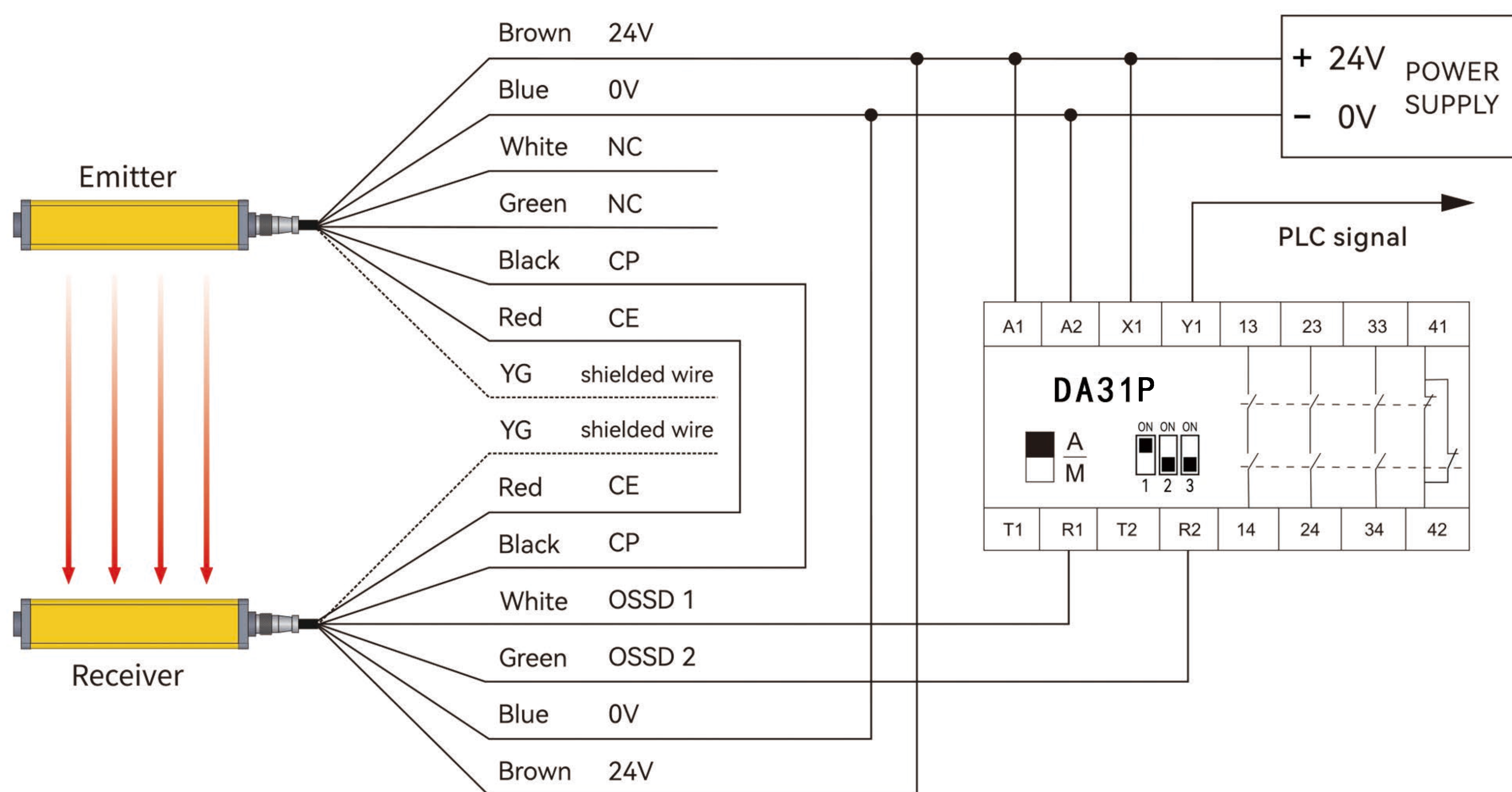


4.2 Wiring diagram of DQSRP safety relay

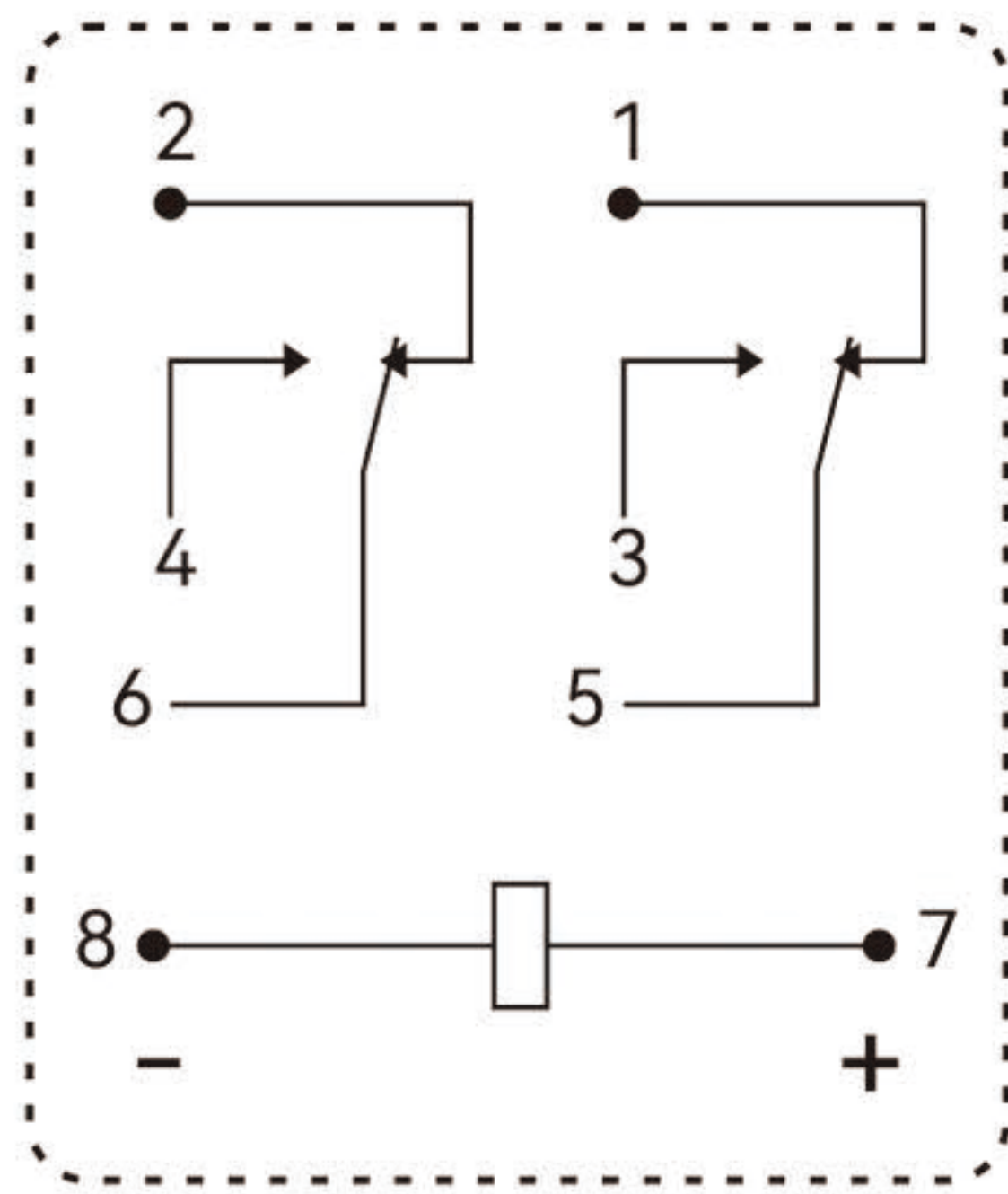


4.3 Wiring diagram of DA31P safety relay

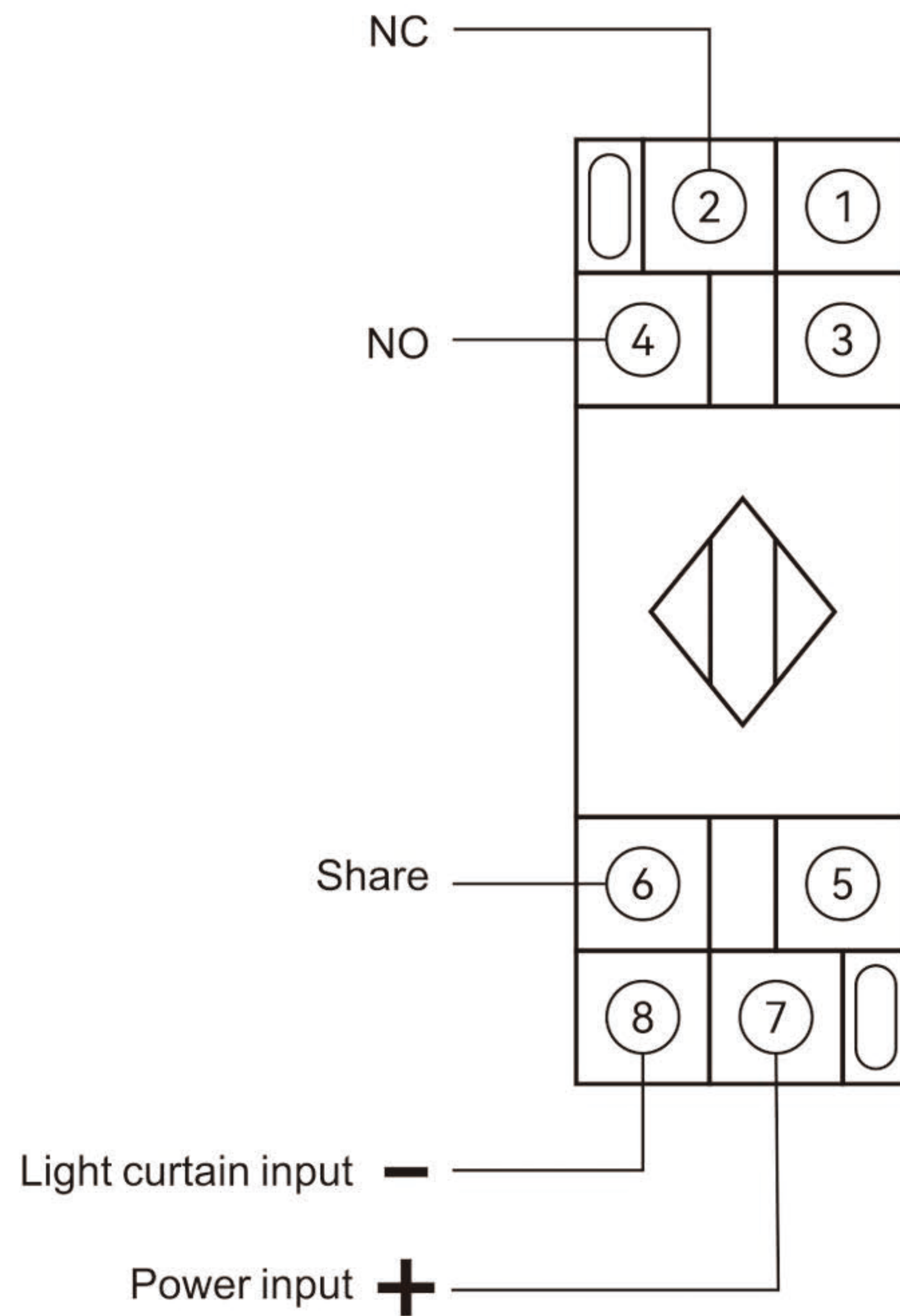
Dual channel light curtain PNP switch safety input, with automatic reset and PLC signal output.



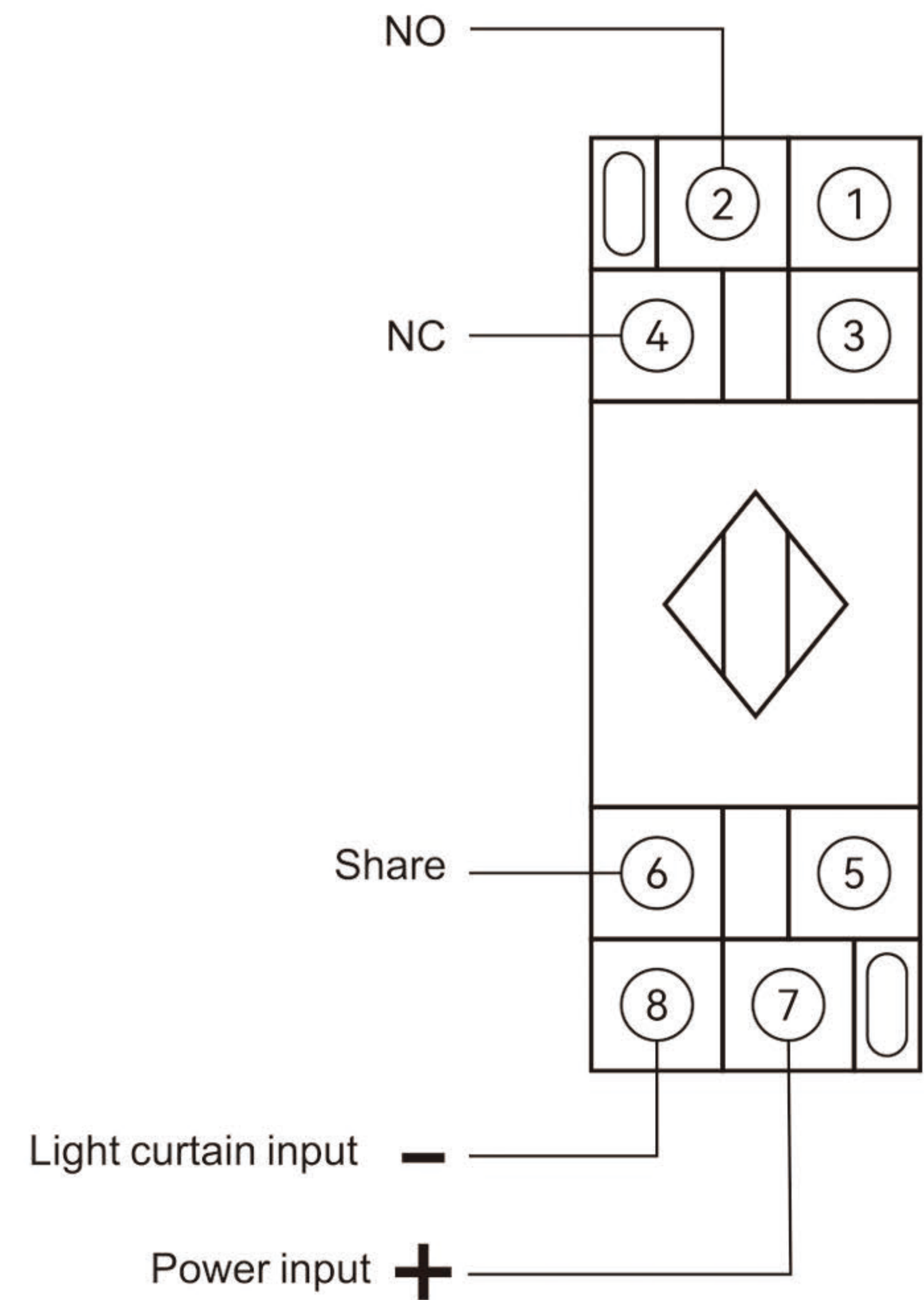
4.4 Wiring diagram of DQET-1 light curtain relay



Circuit diagram



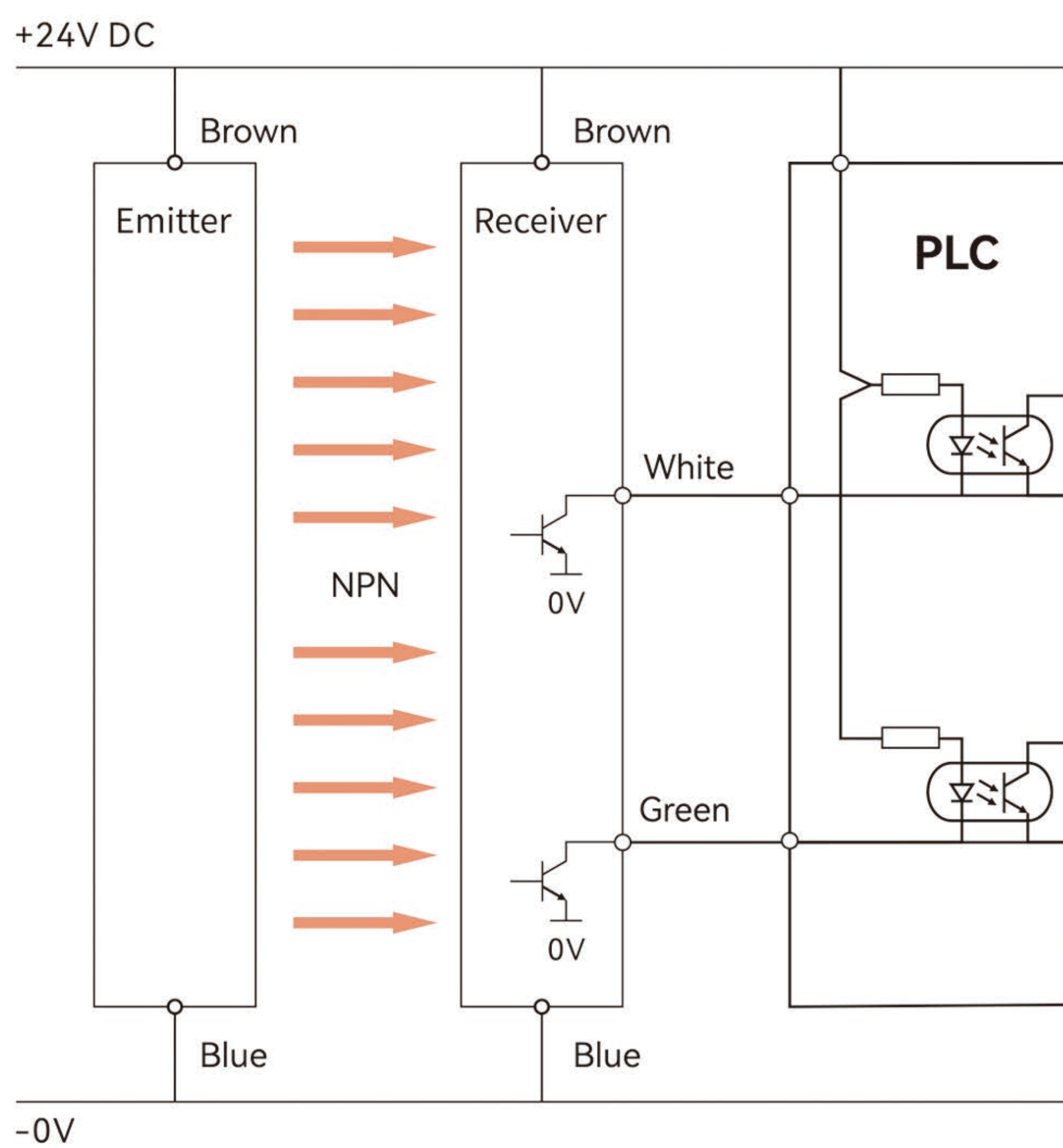
When not powered on



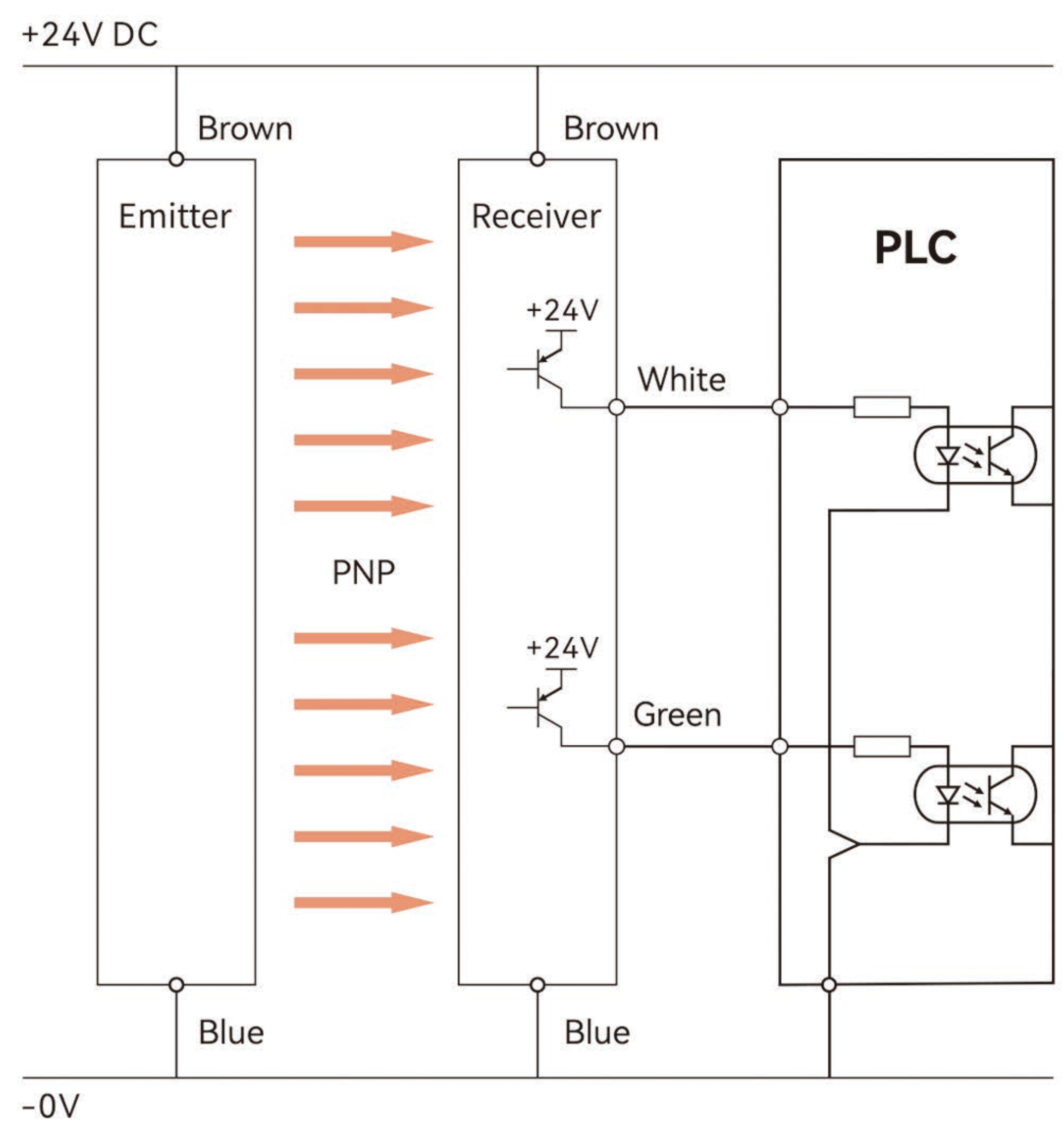
When powered on

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

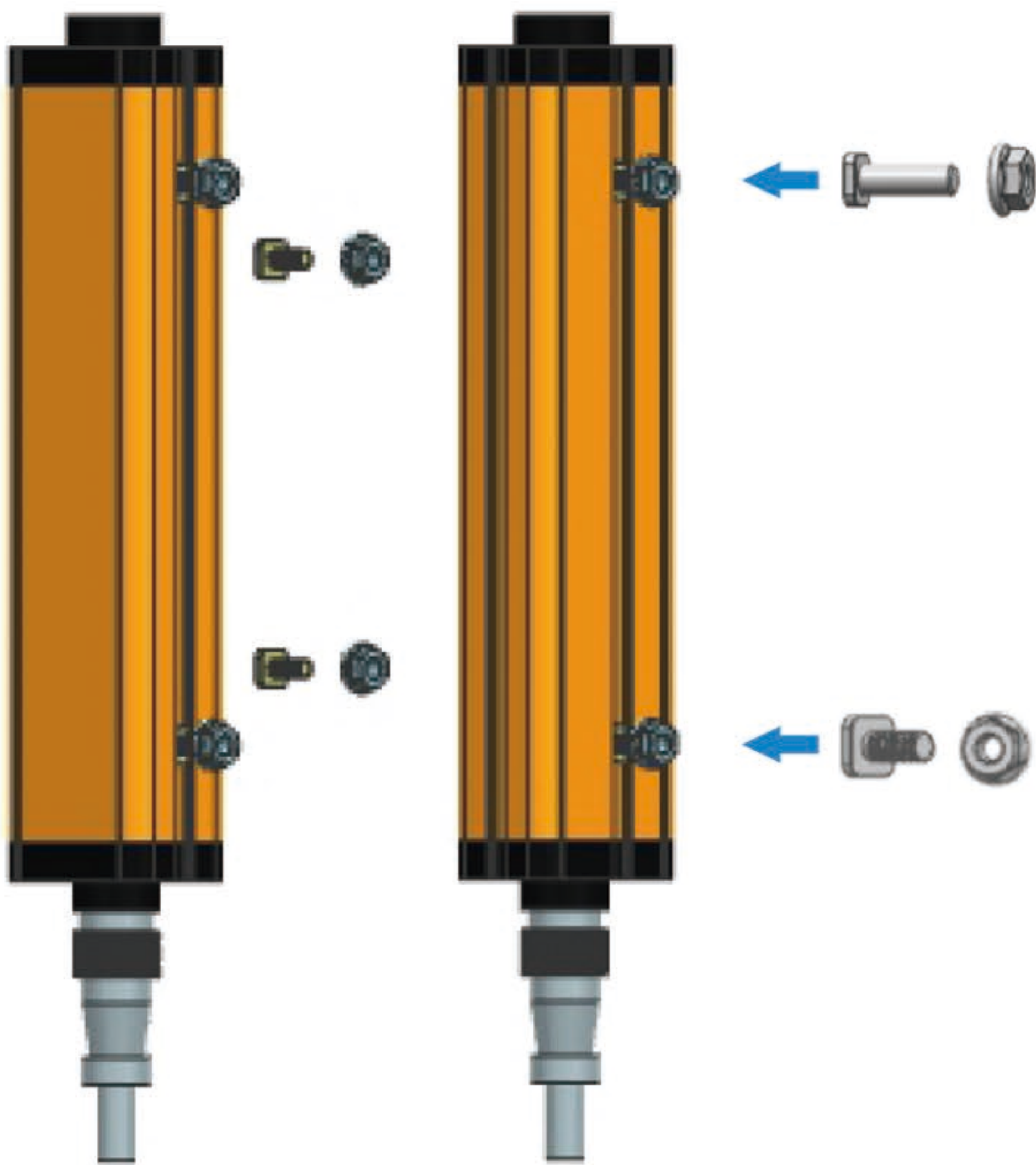
NPN wiring:



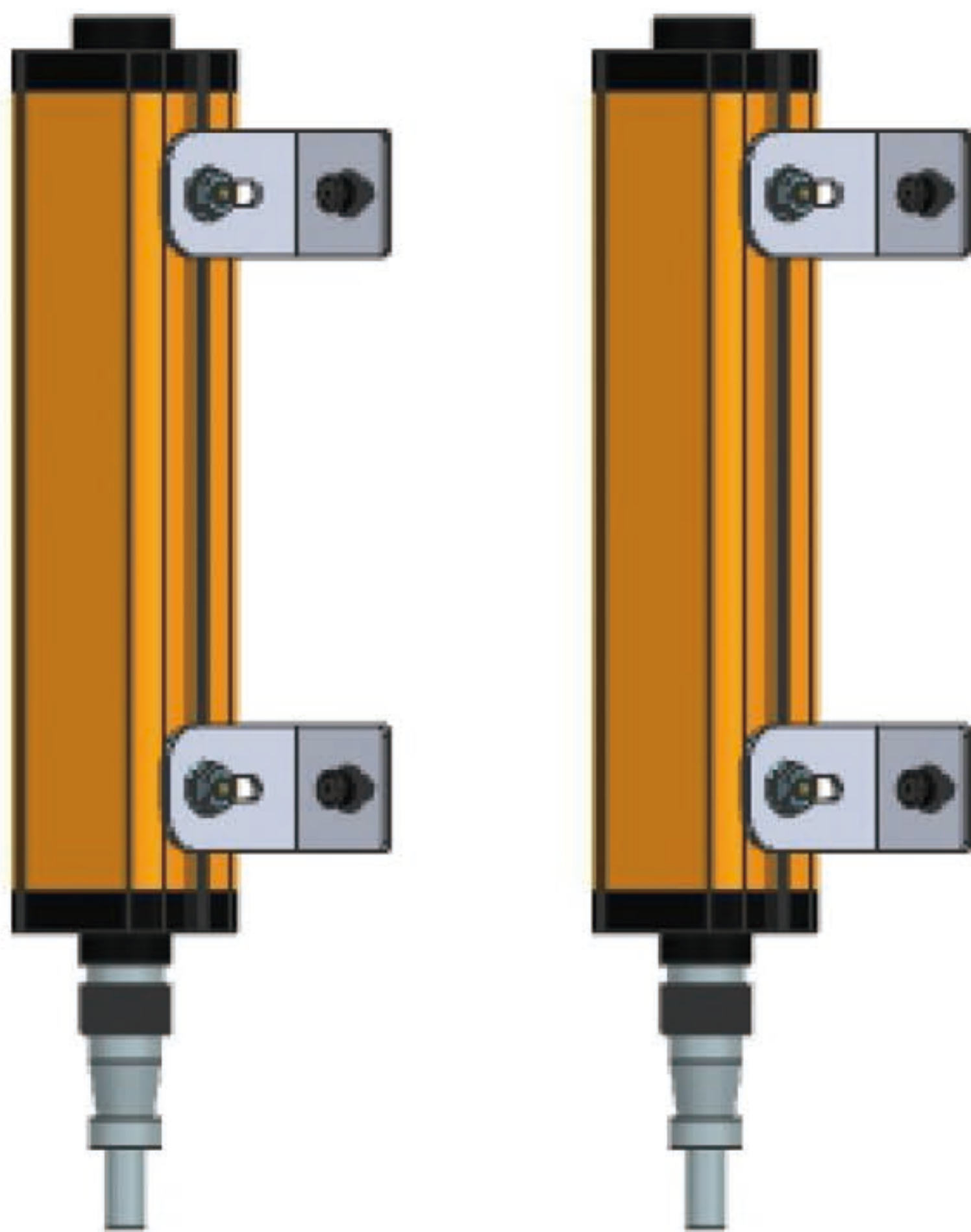
PNP wiring:



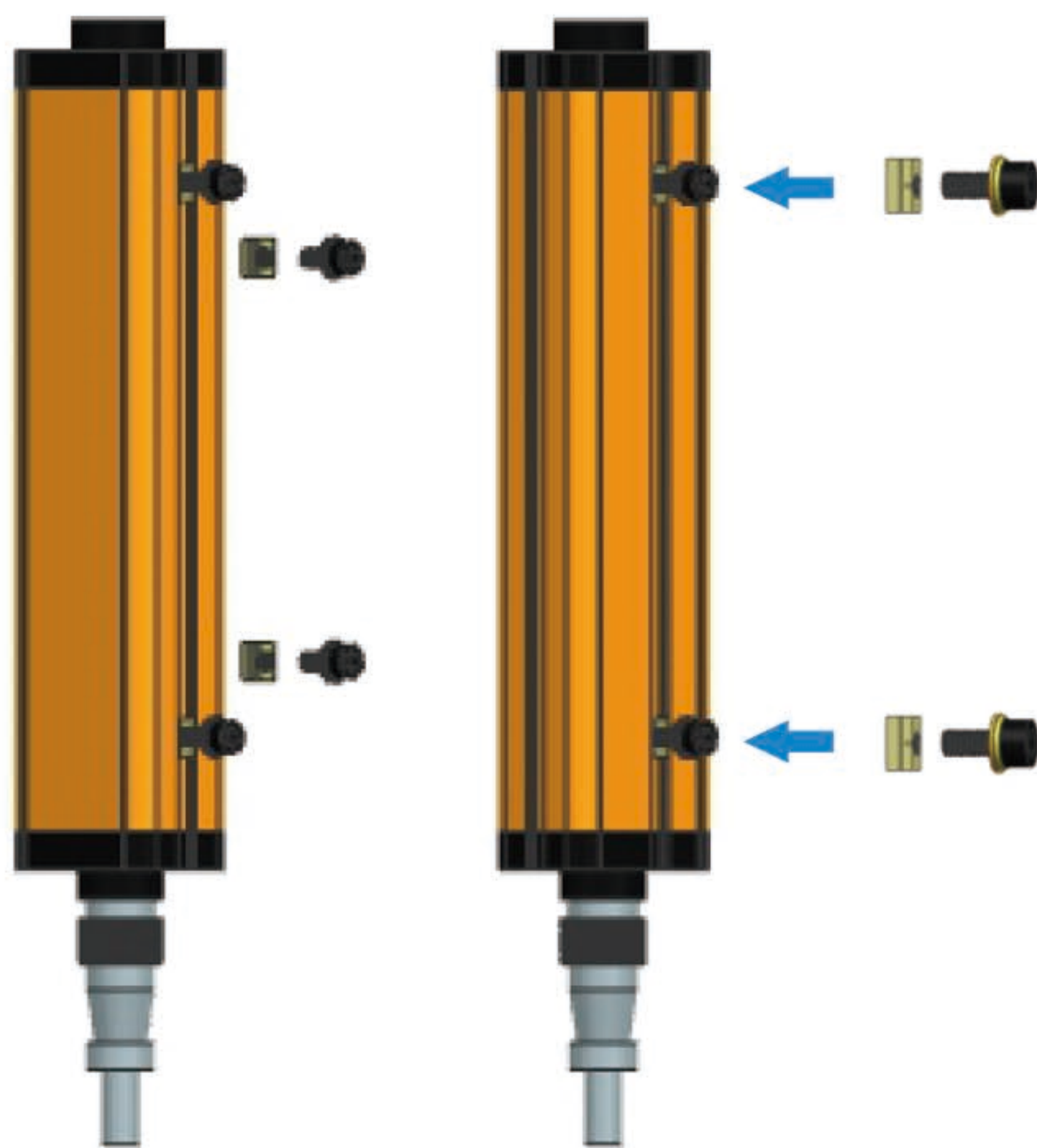
Accessories



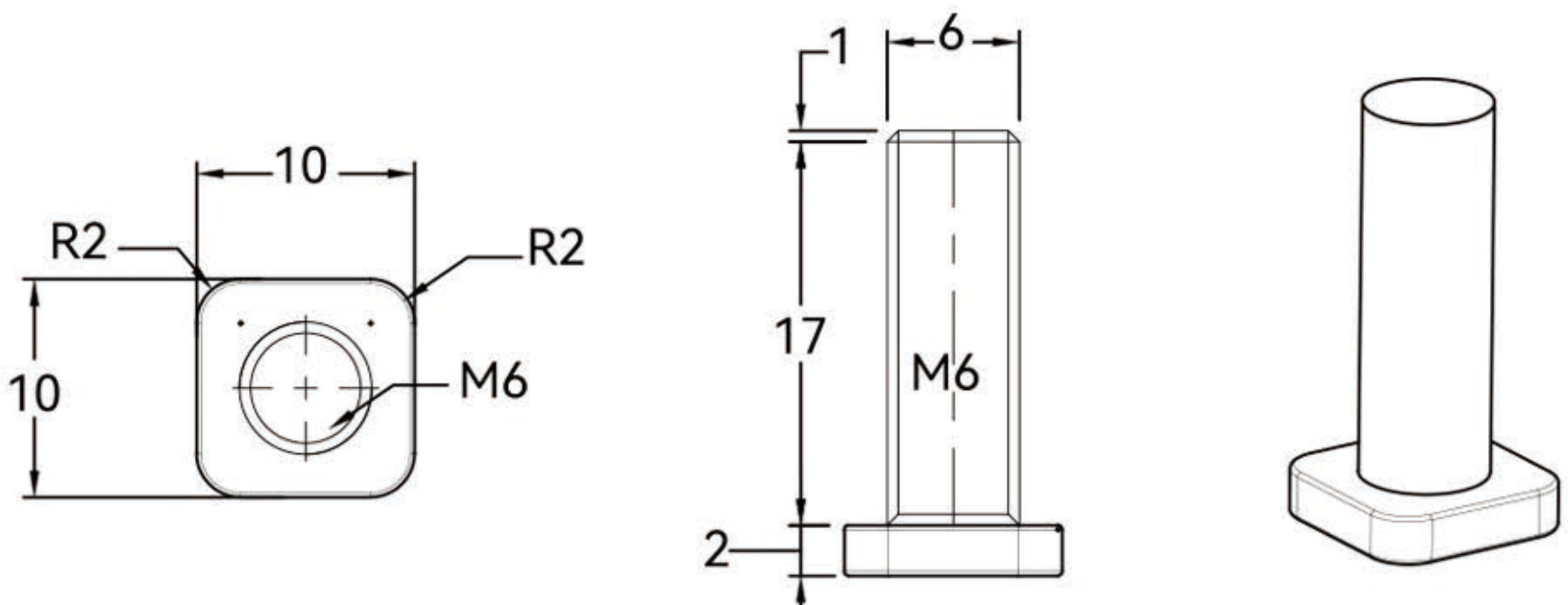
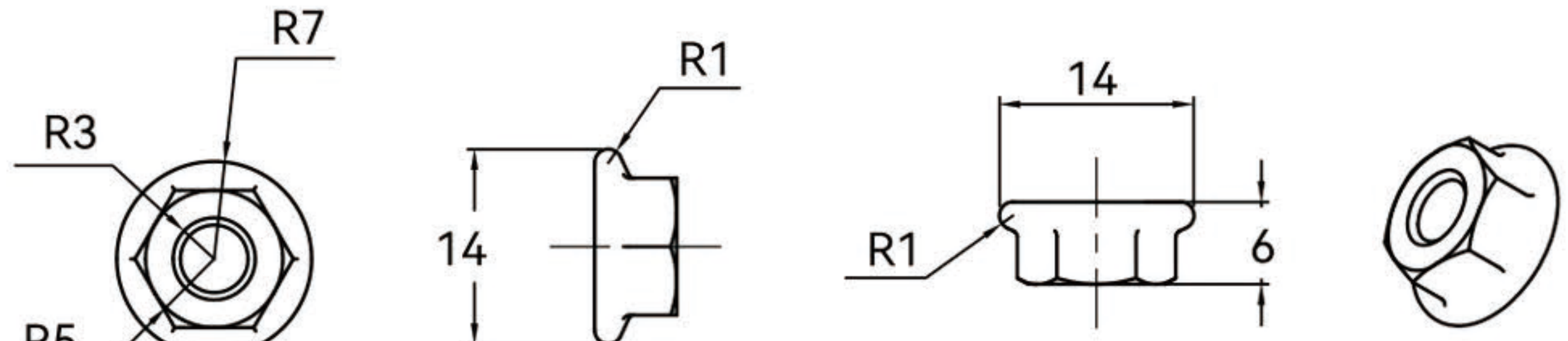
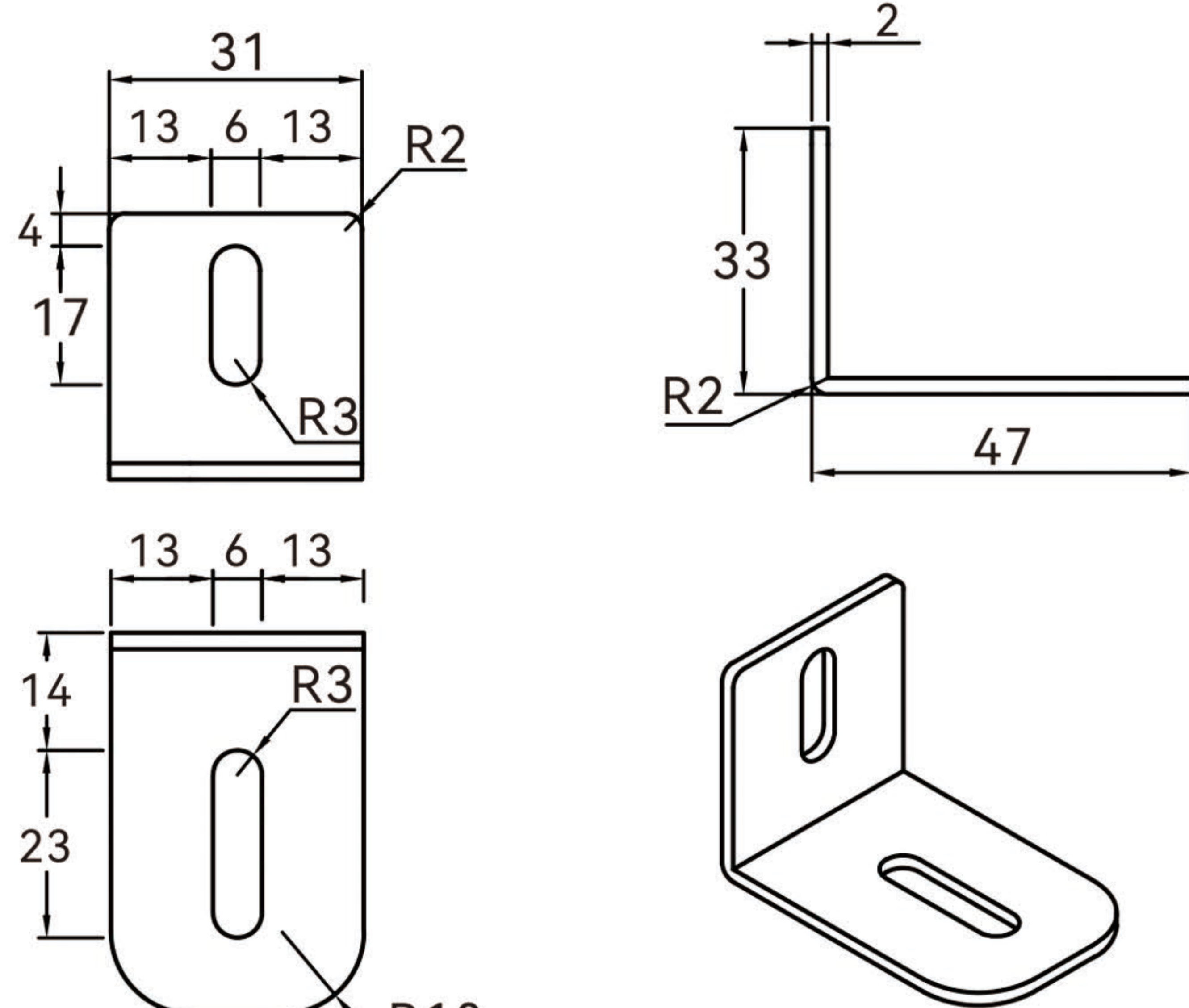
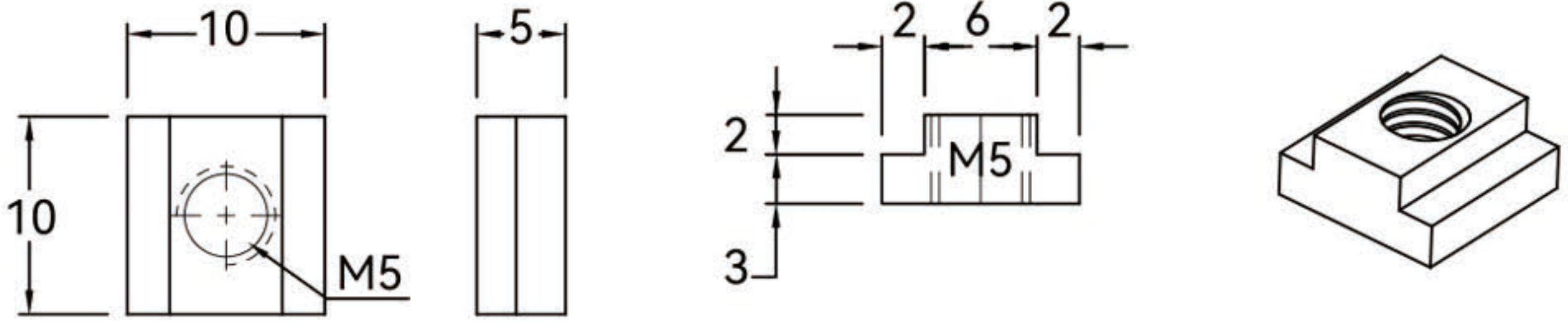
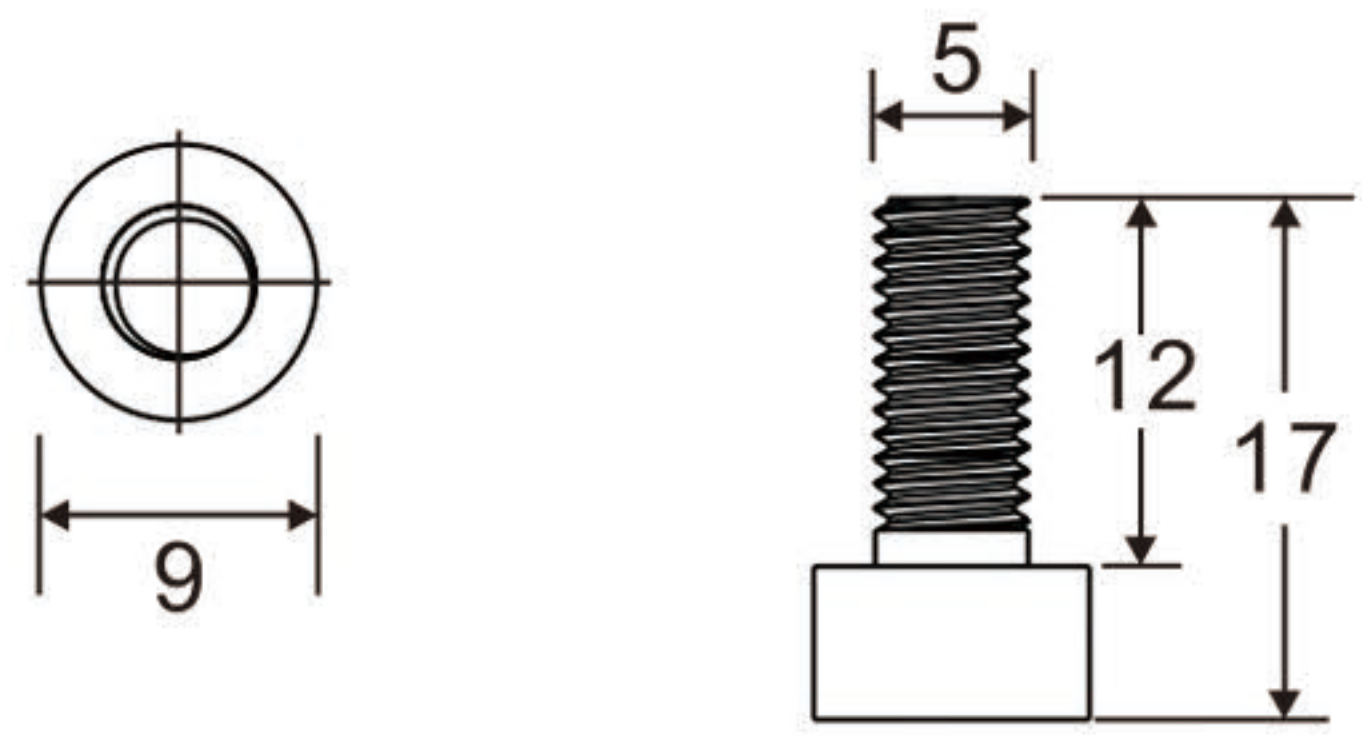
1. Installation method of T-shaped screws on the back
(Original accessories)

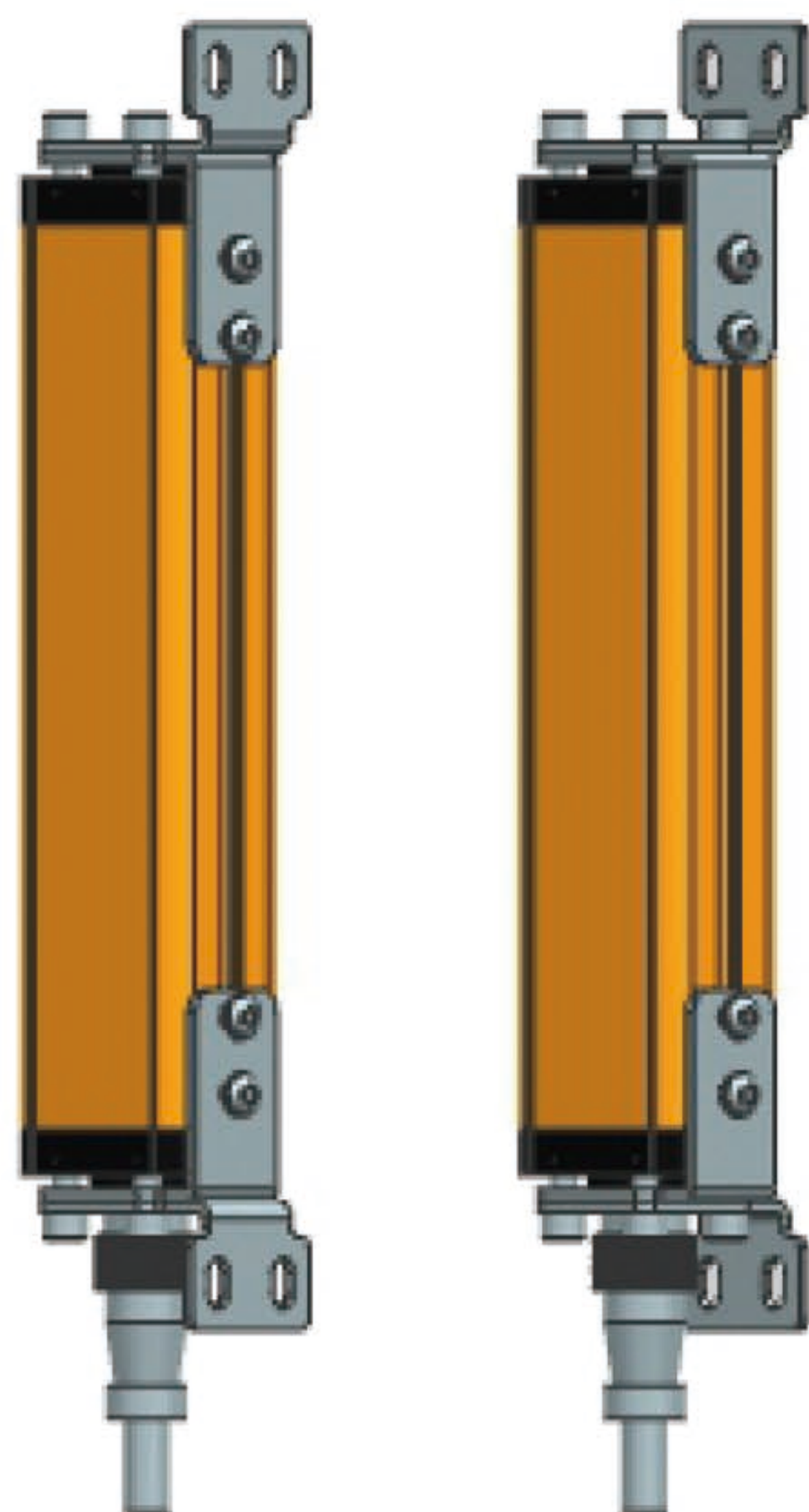


2. Installation method of side right angle bracket
(Original accessories)

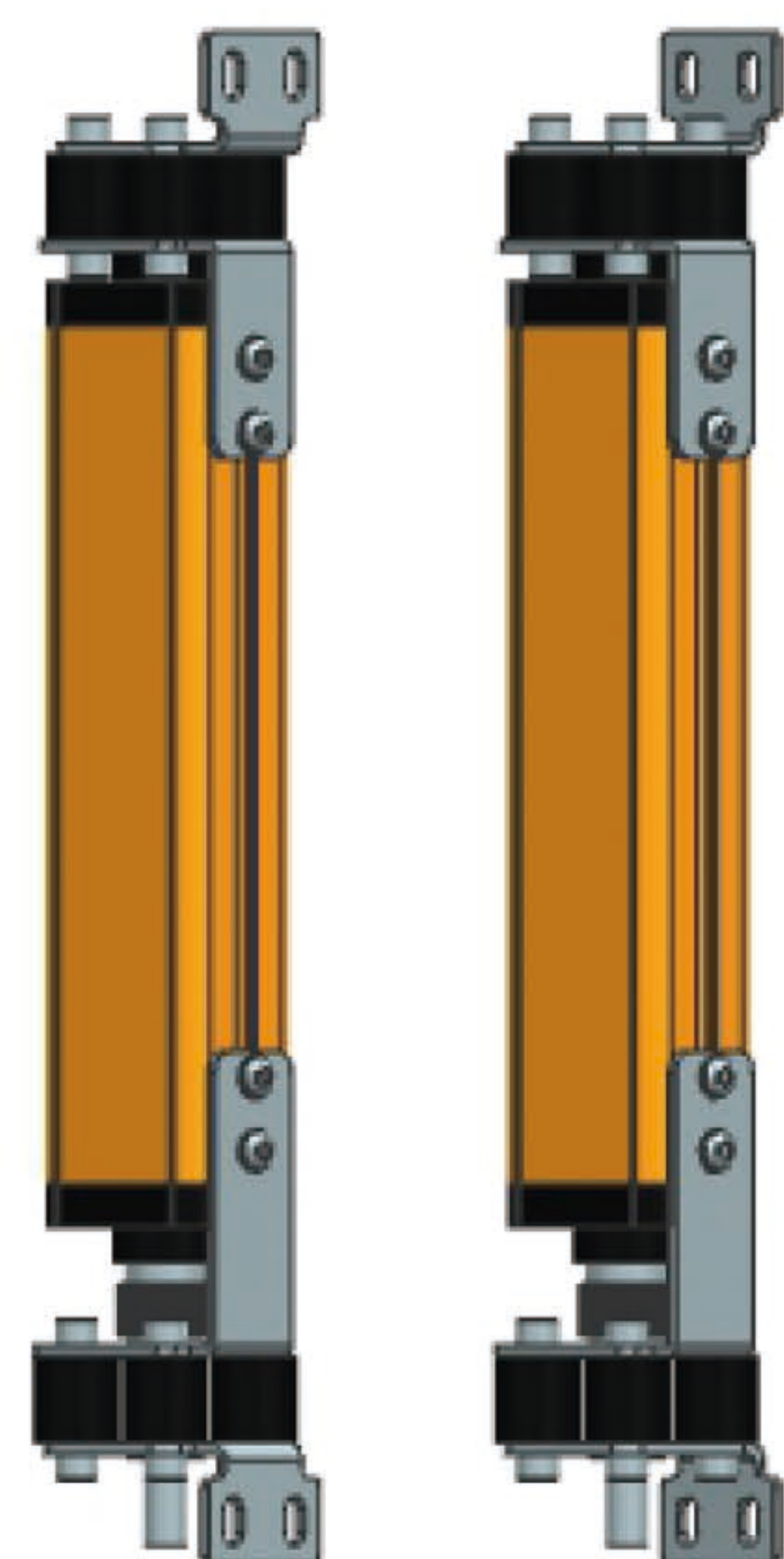


3. Installation method of convex nut
(Optional accessories)

T-screw	Model: DQCA-02-1
 Unit:mm	
Flange nut M6	Model: DQCA-02-2
 Unit:mm	
Side mounting bracket	Model: DQCA-05
 Unit:mm	
Raised nut	Model: DQCA-03-1
 Unit:mm	
M5 screw	Model: DQCA-03-2
 Unit:mm	



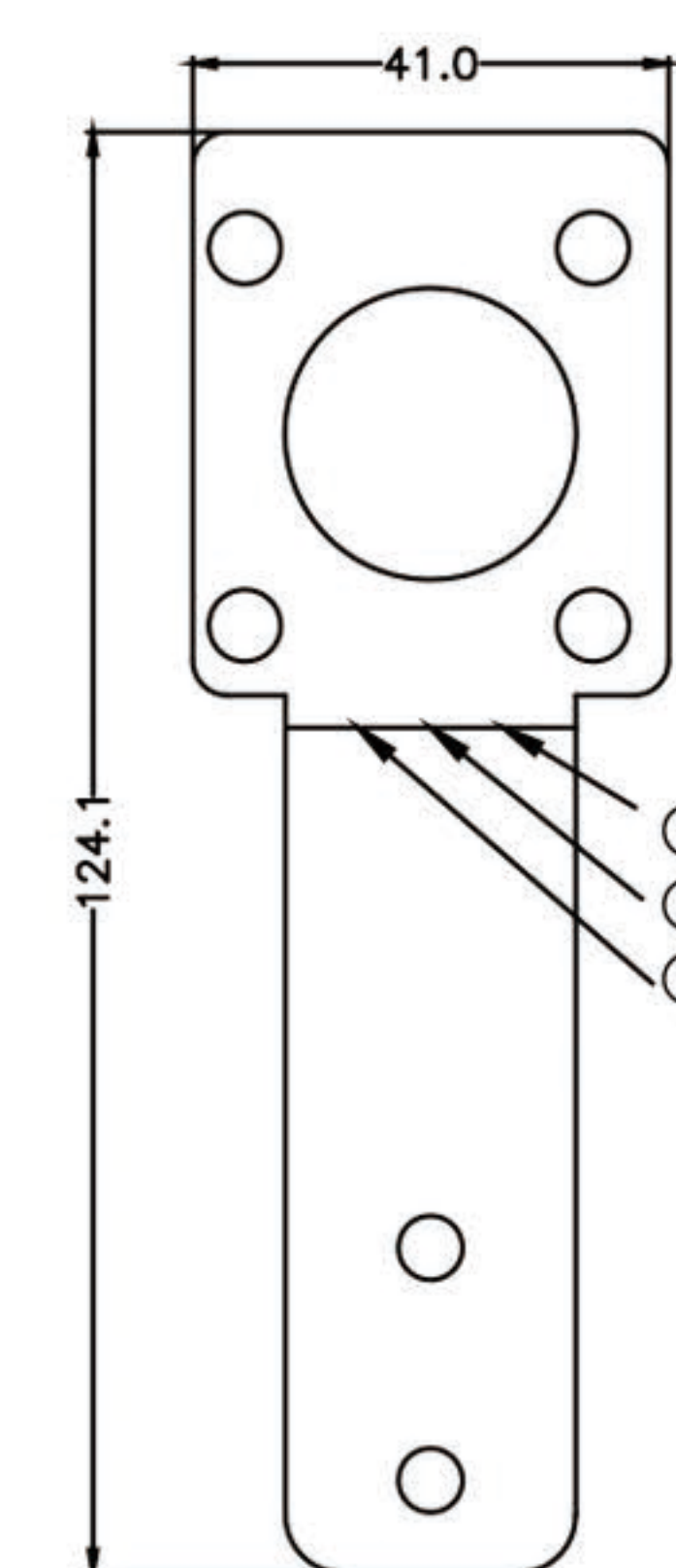
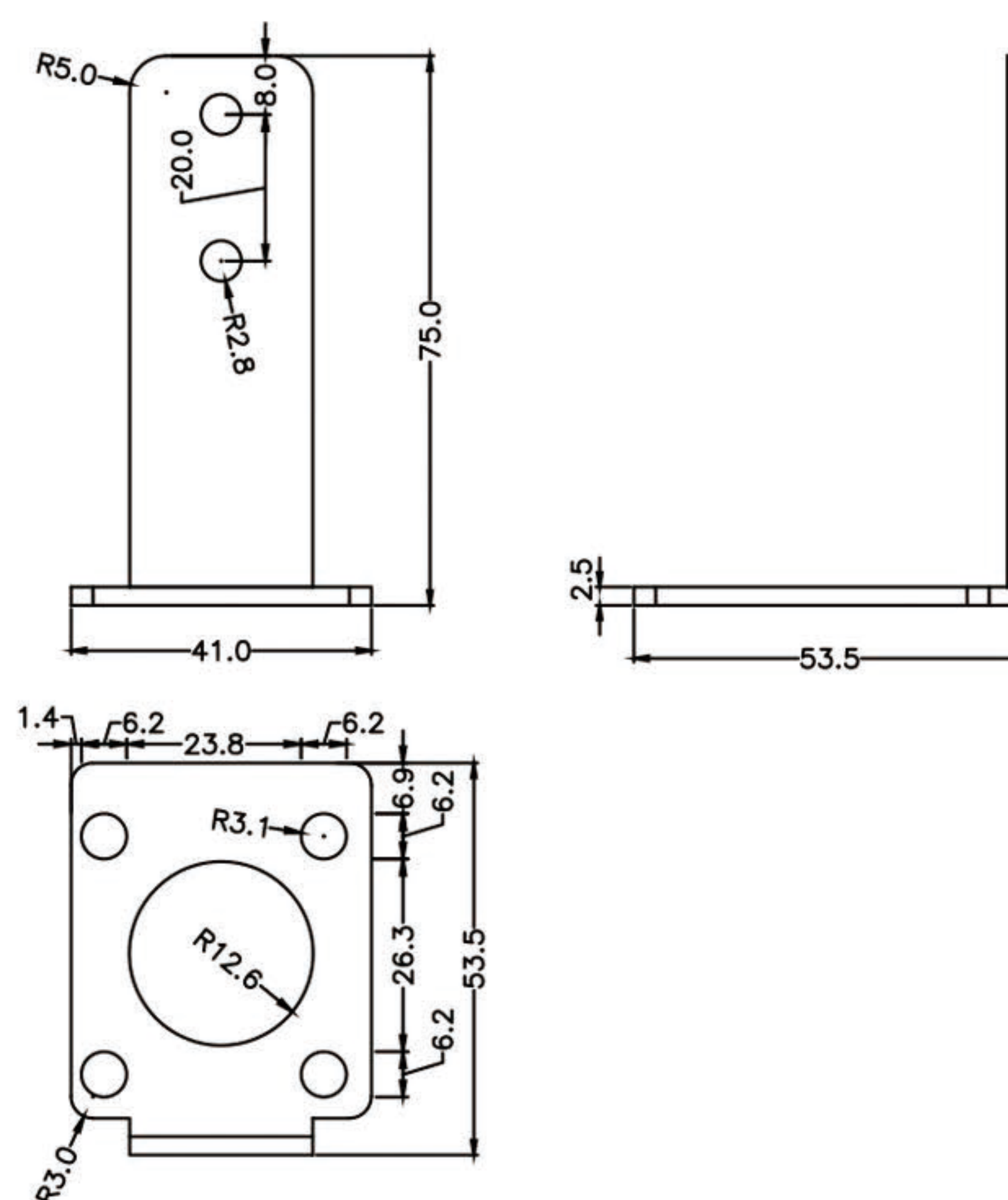
4.Installation method of right angle brackets at both ends
(Order separately)



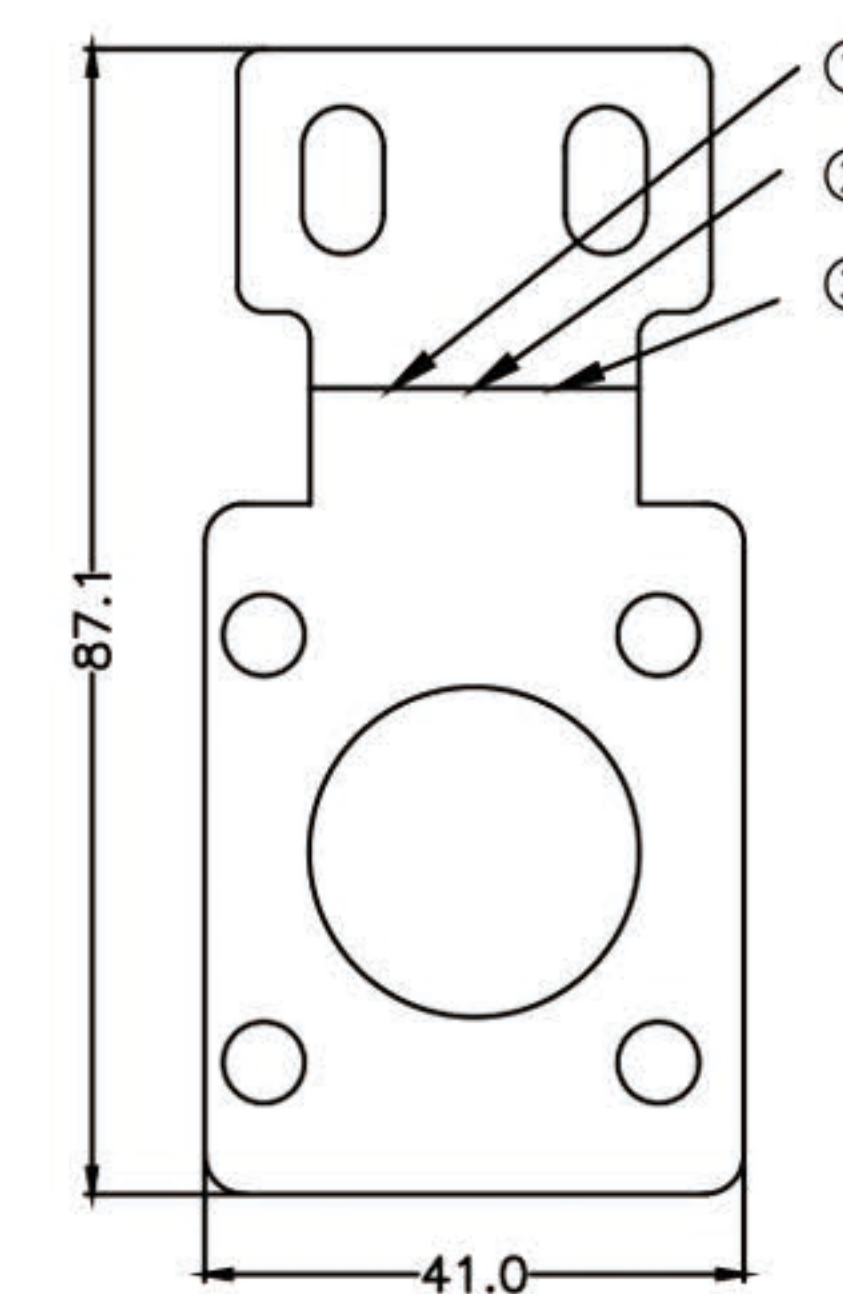
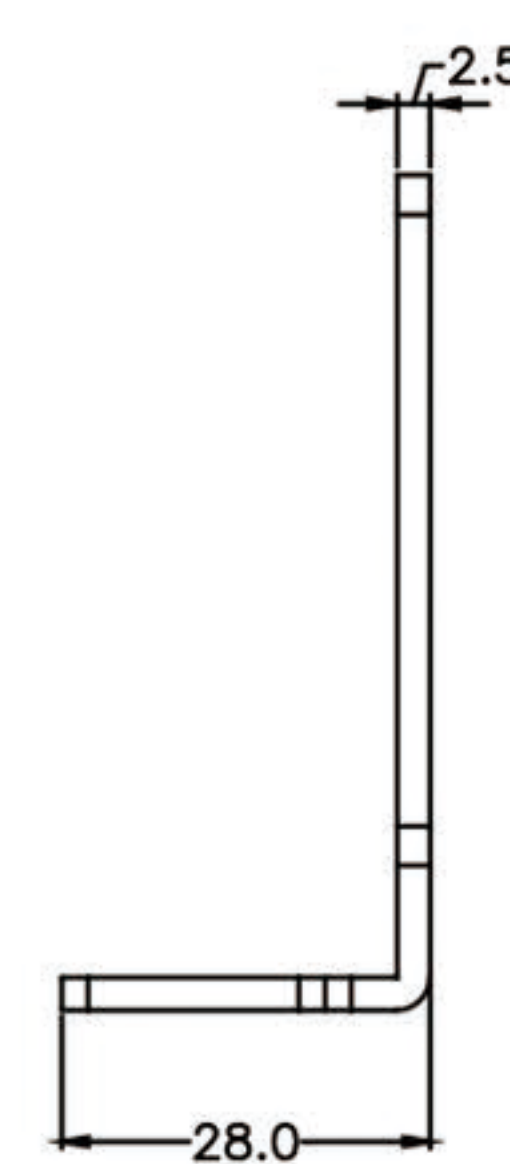
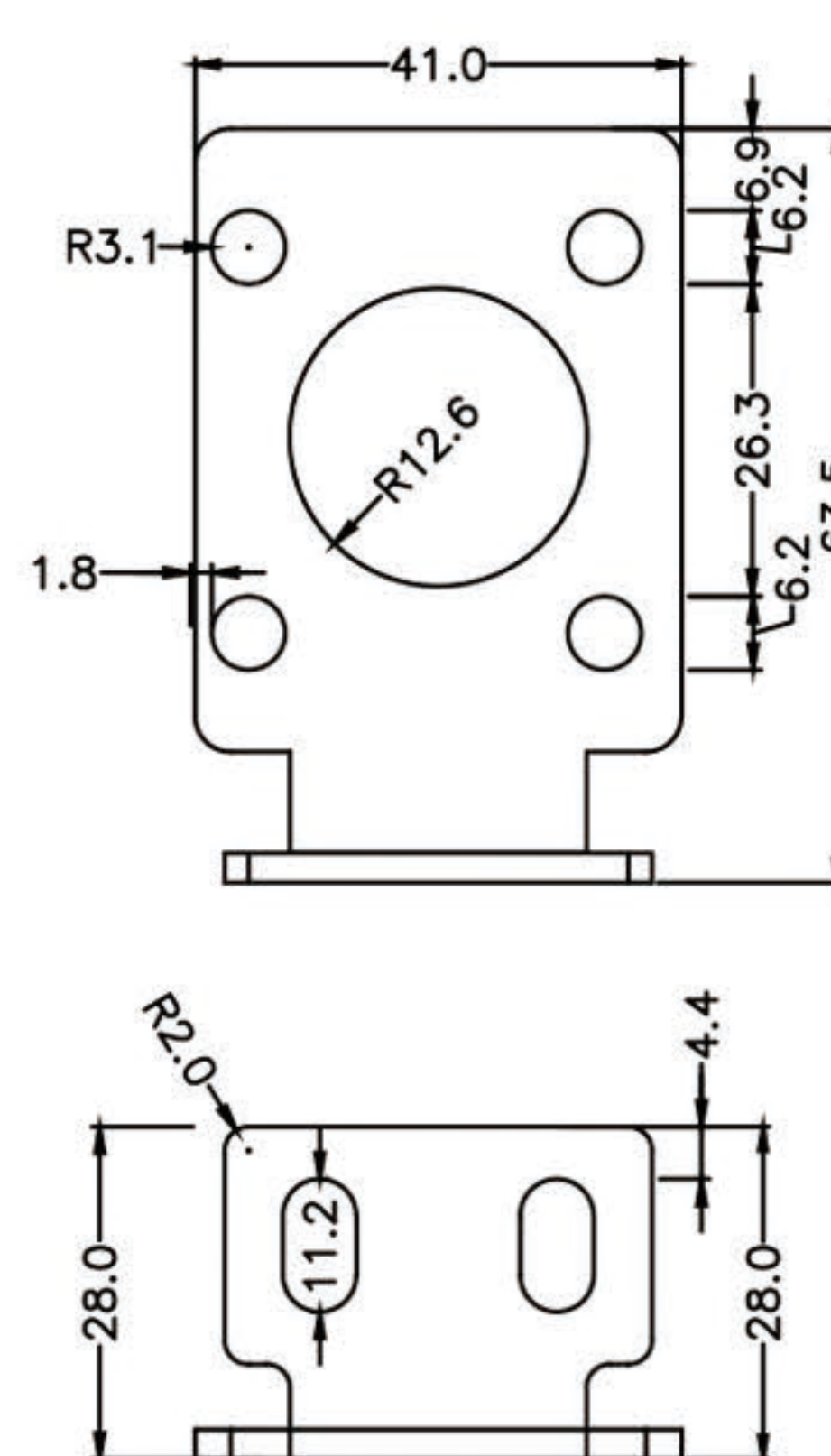
5.Shockproof installation method of right angle brackets at both ends
(Order separately)

Right angle brackets at both ends

Model: **DQA-02**



- ① Bending direction: downward
- ② Bending angle: 90°
- ③ Bending radius: 0.02

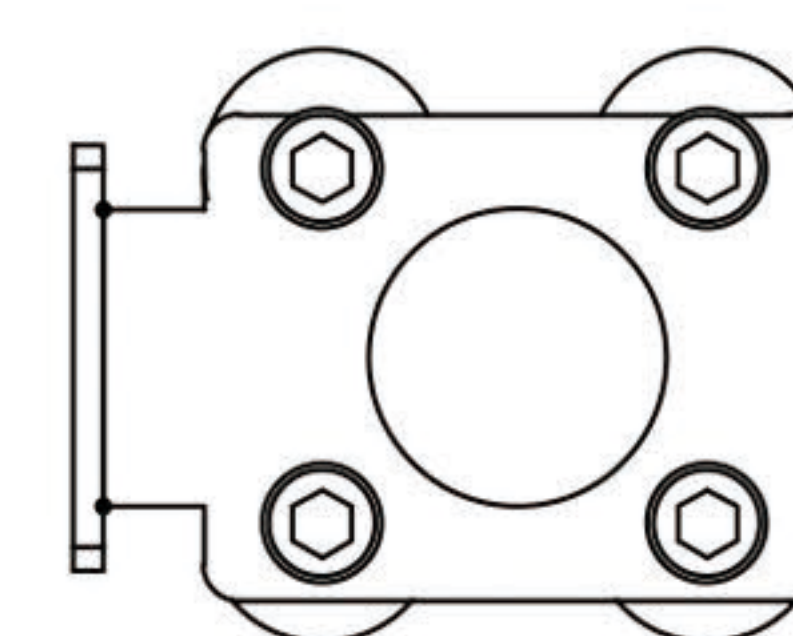
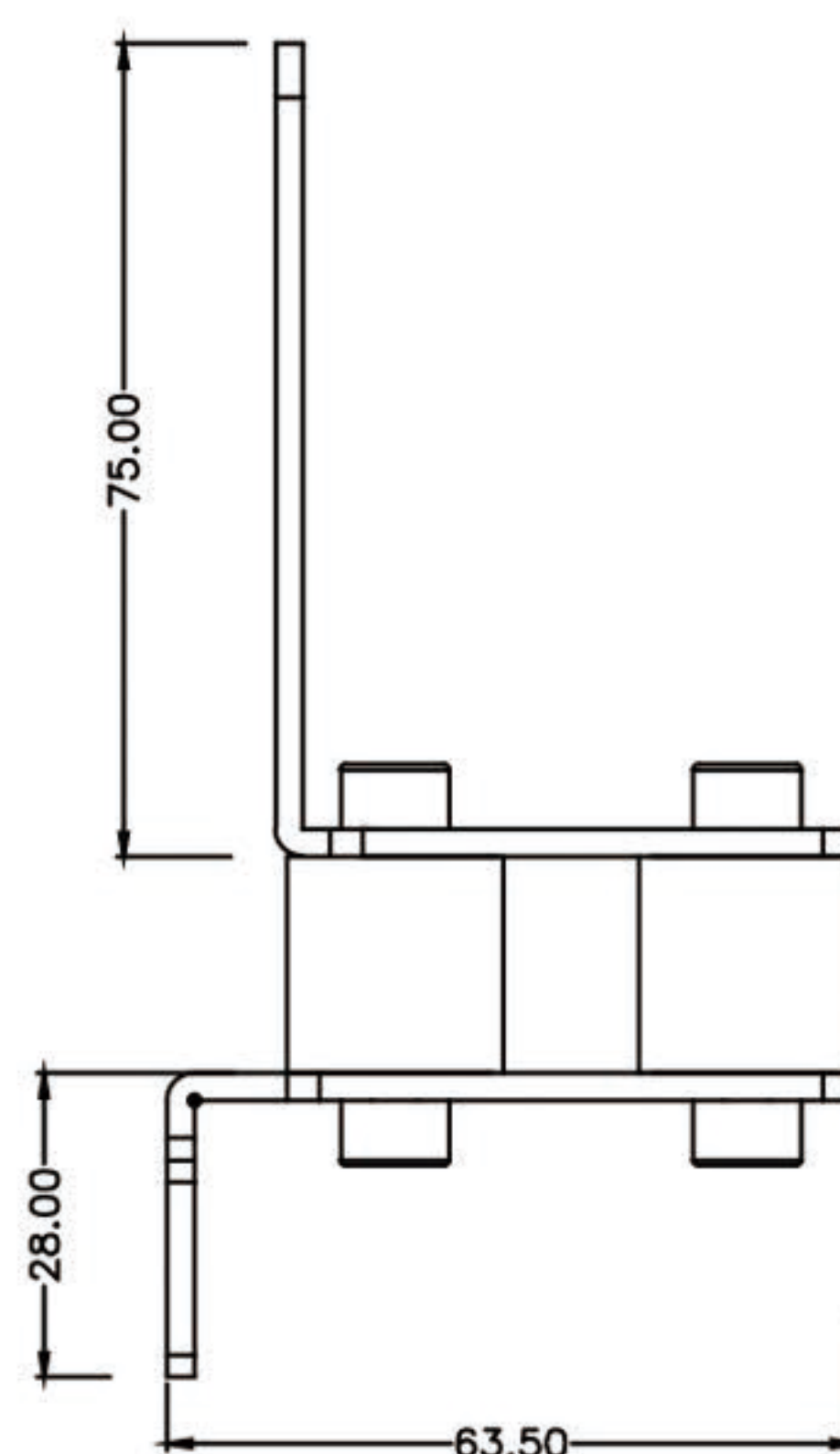
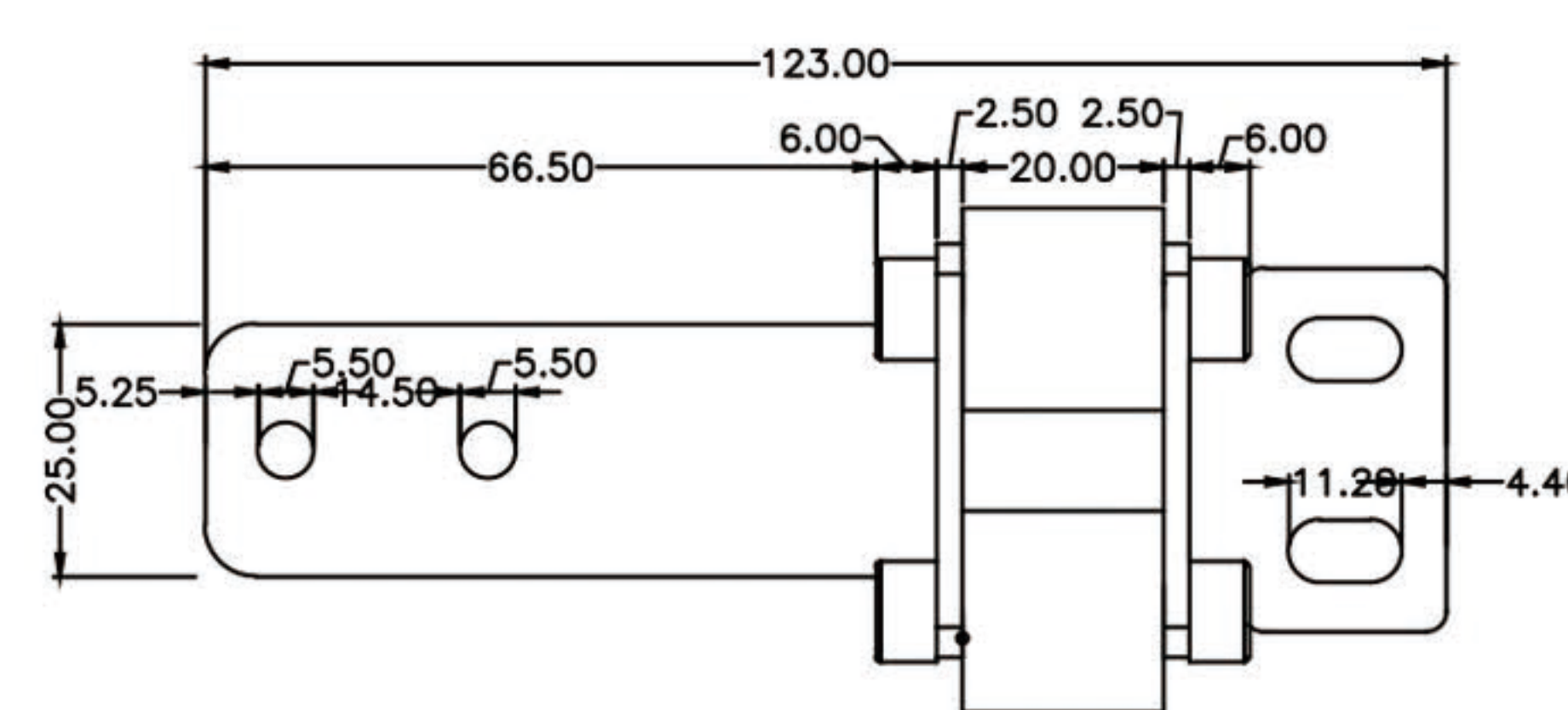
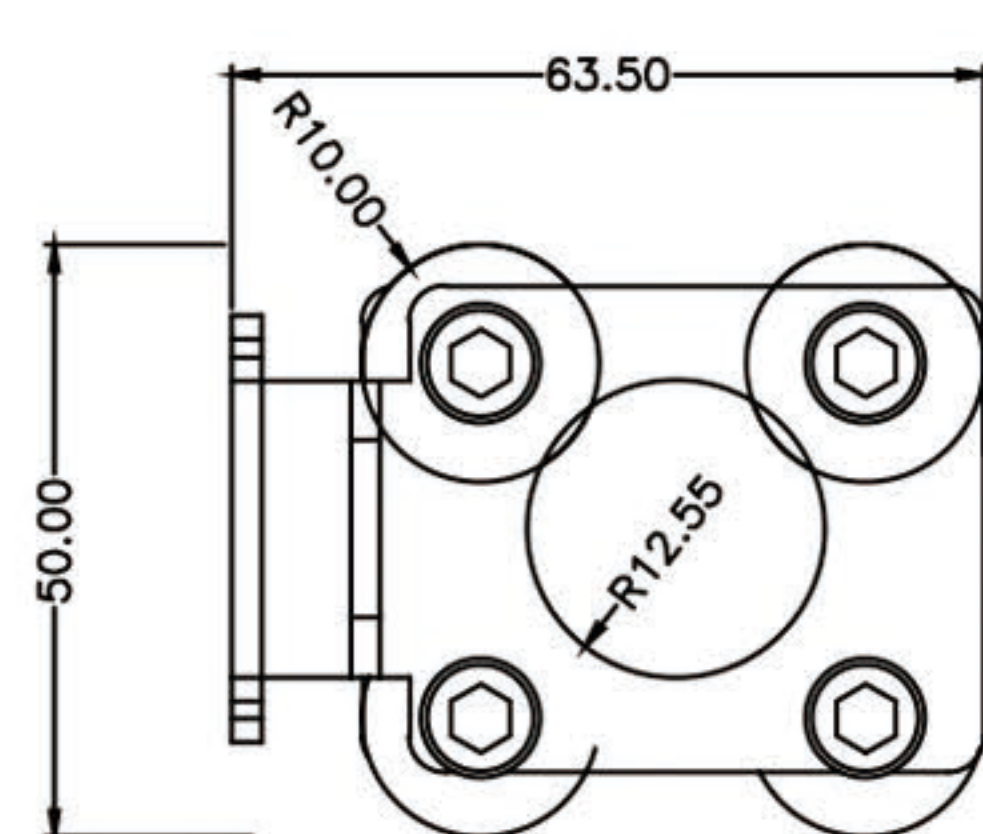


- ① Bending direction: downward
- ② Bending angle: 90°
- ③ Bending radius: 0.02

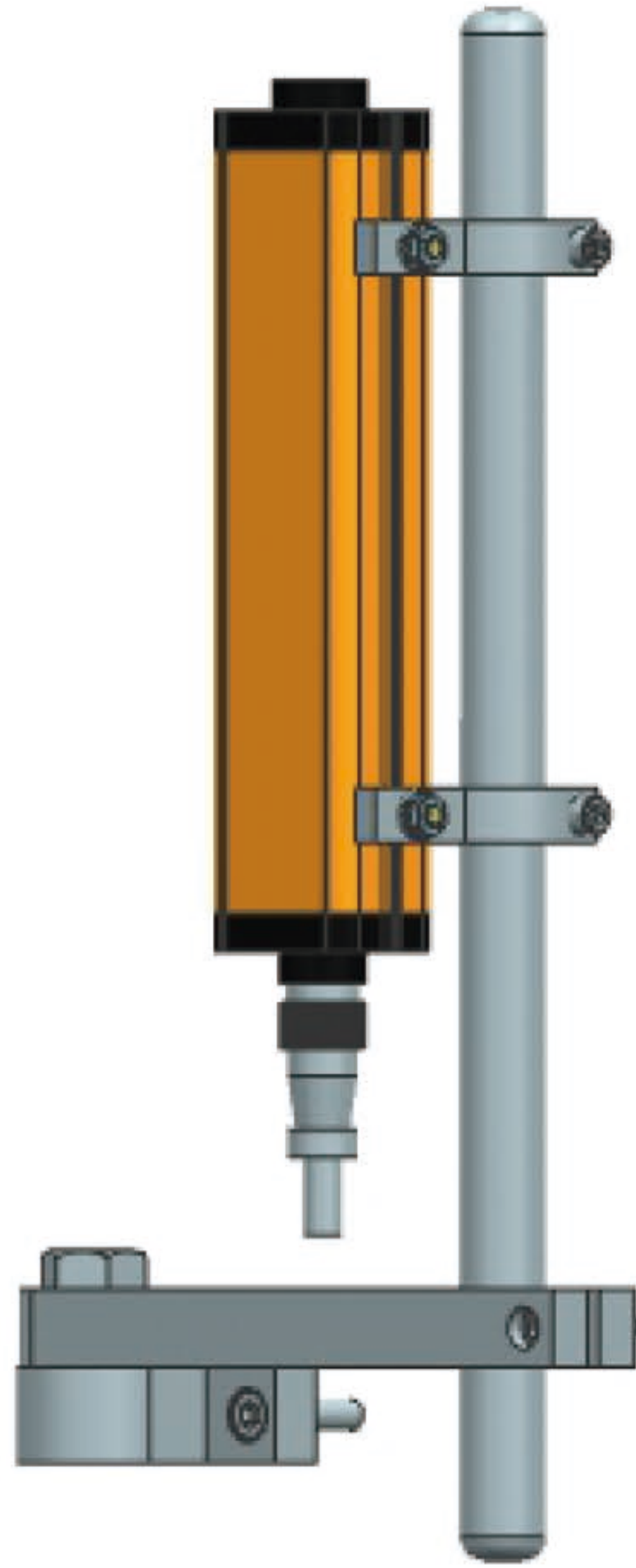
Unit:mm

Shockproof right angle brackets

Model: **DQA-01**



Unit:mm

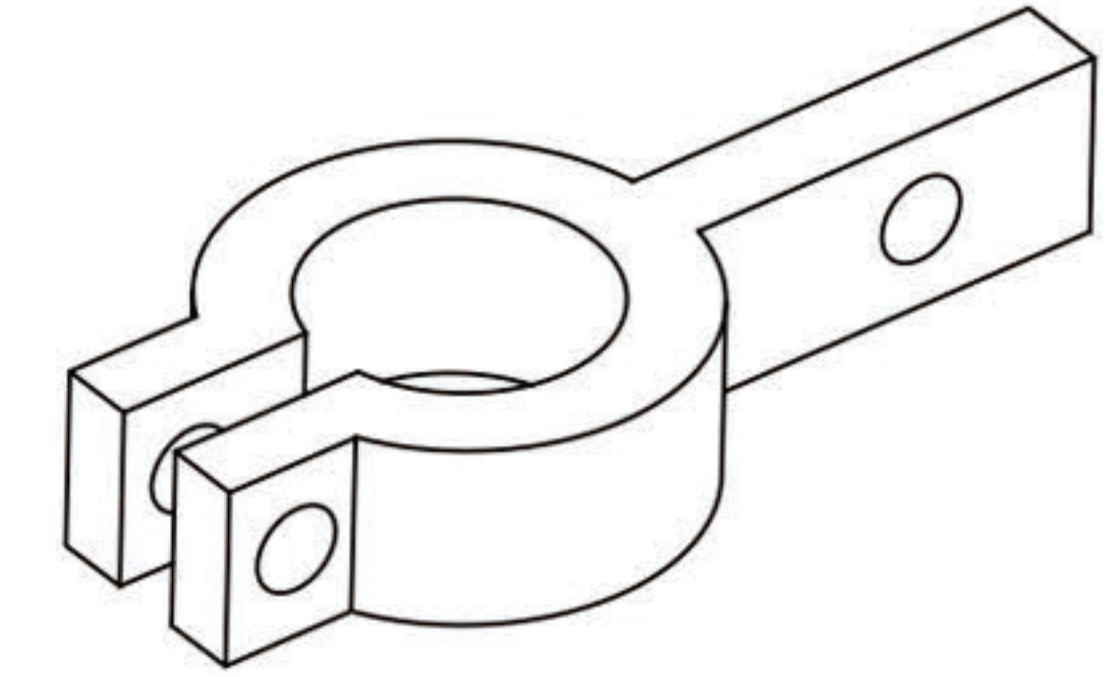
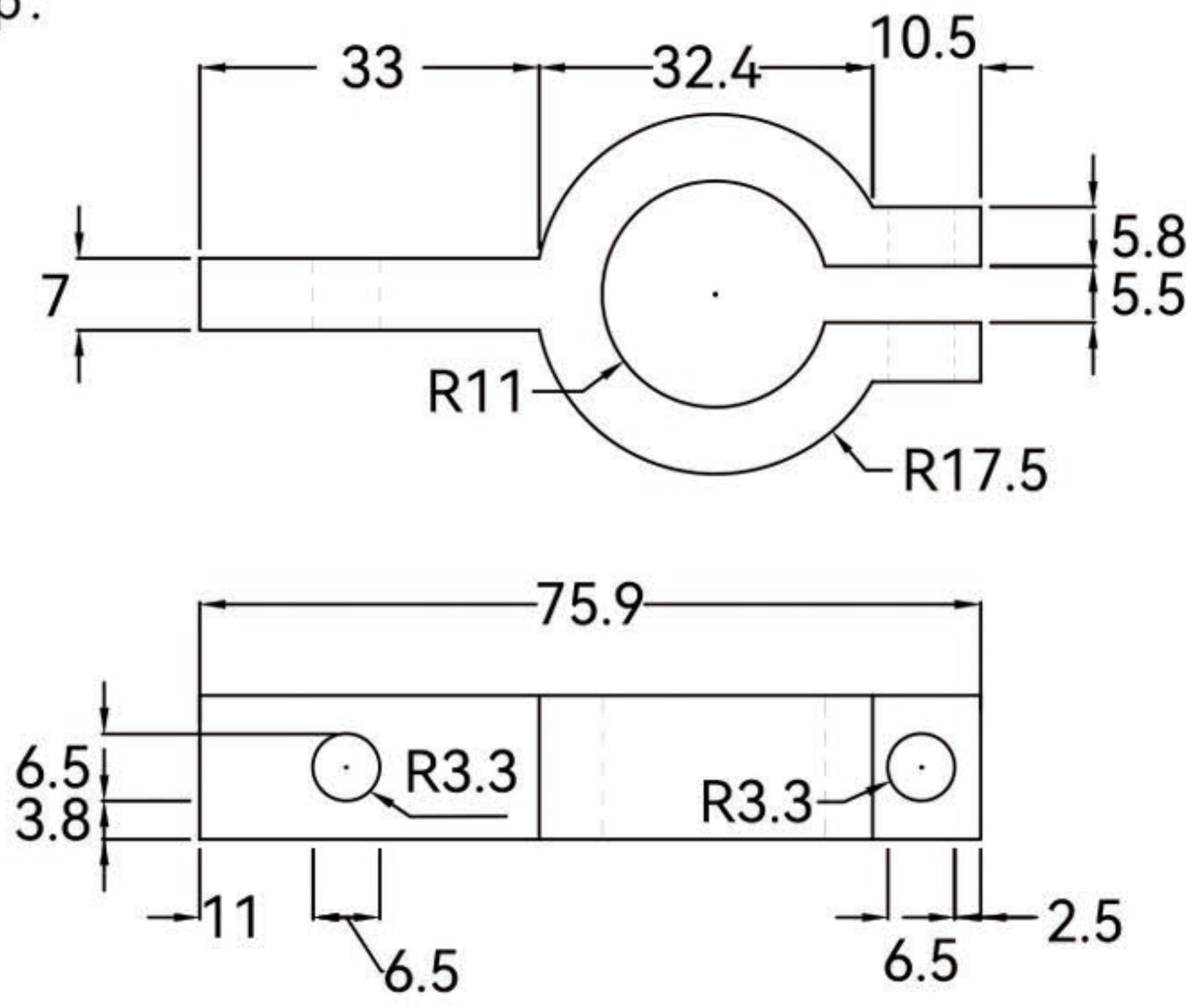


6. Stainless steel bracket installation
(Order separately)

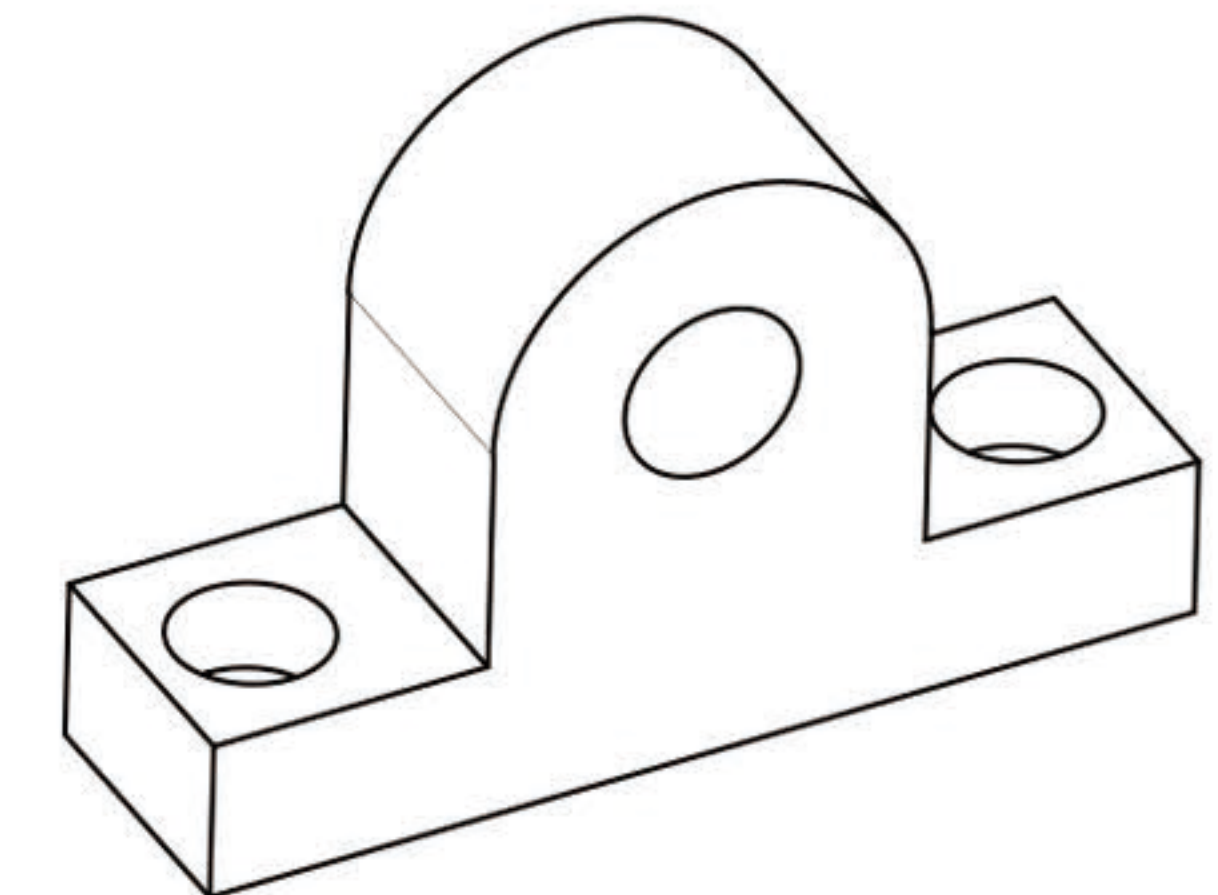
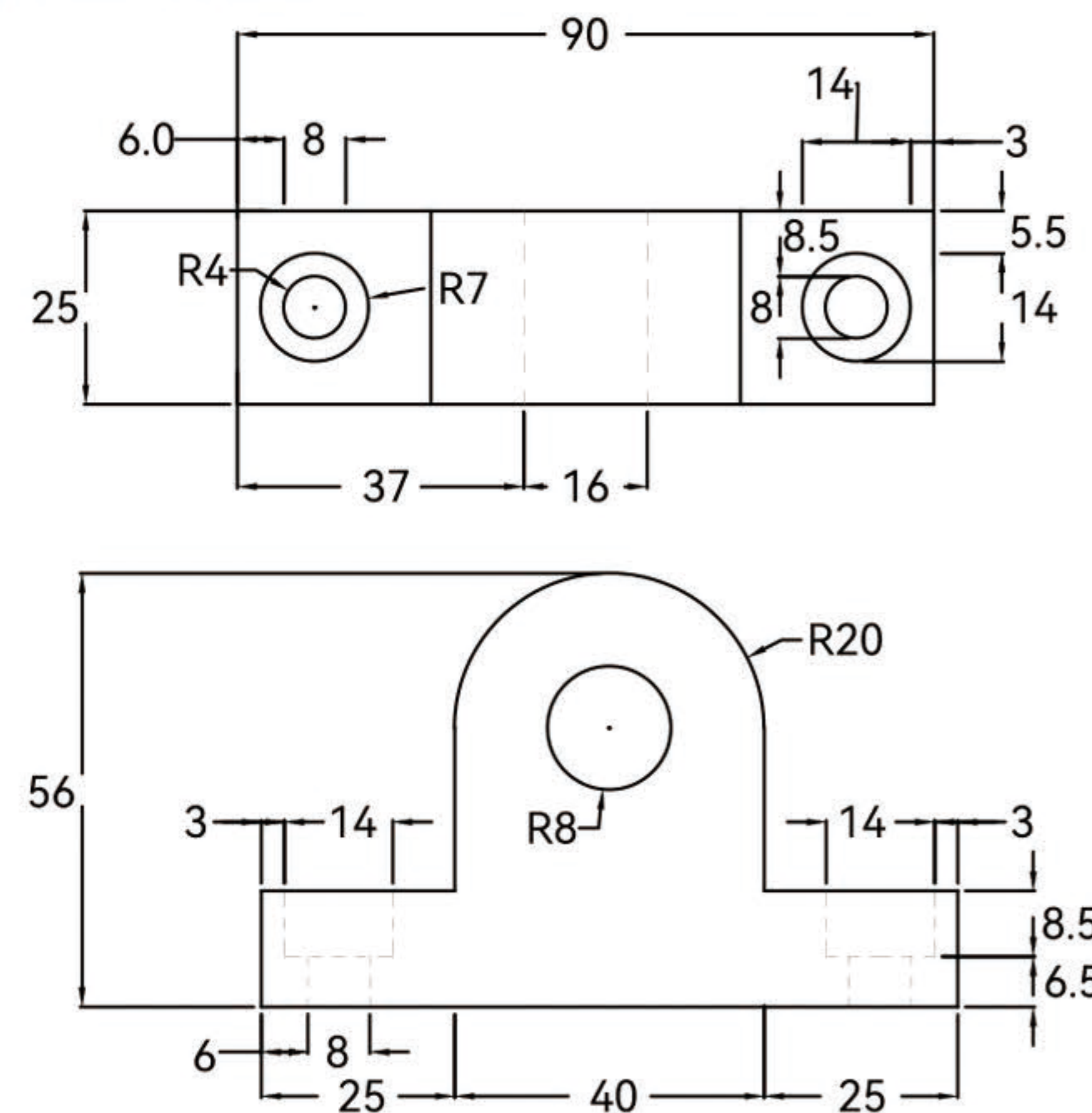
Stainless steel bracket installation

Model: **DQCA-01**

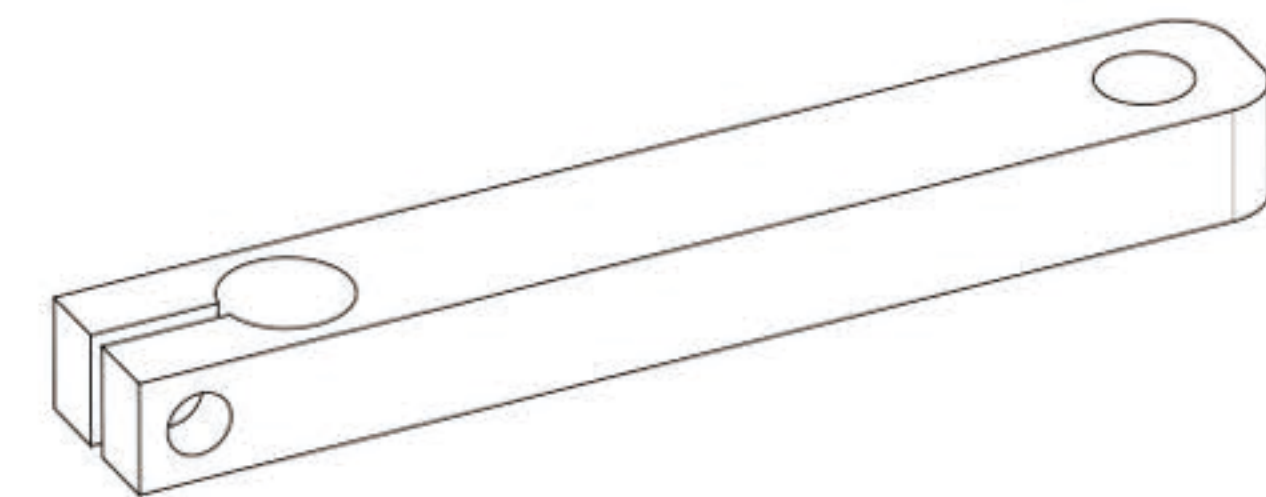
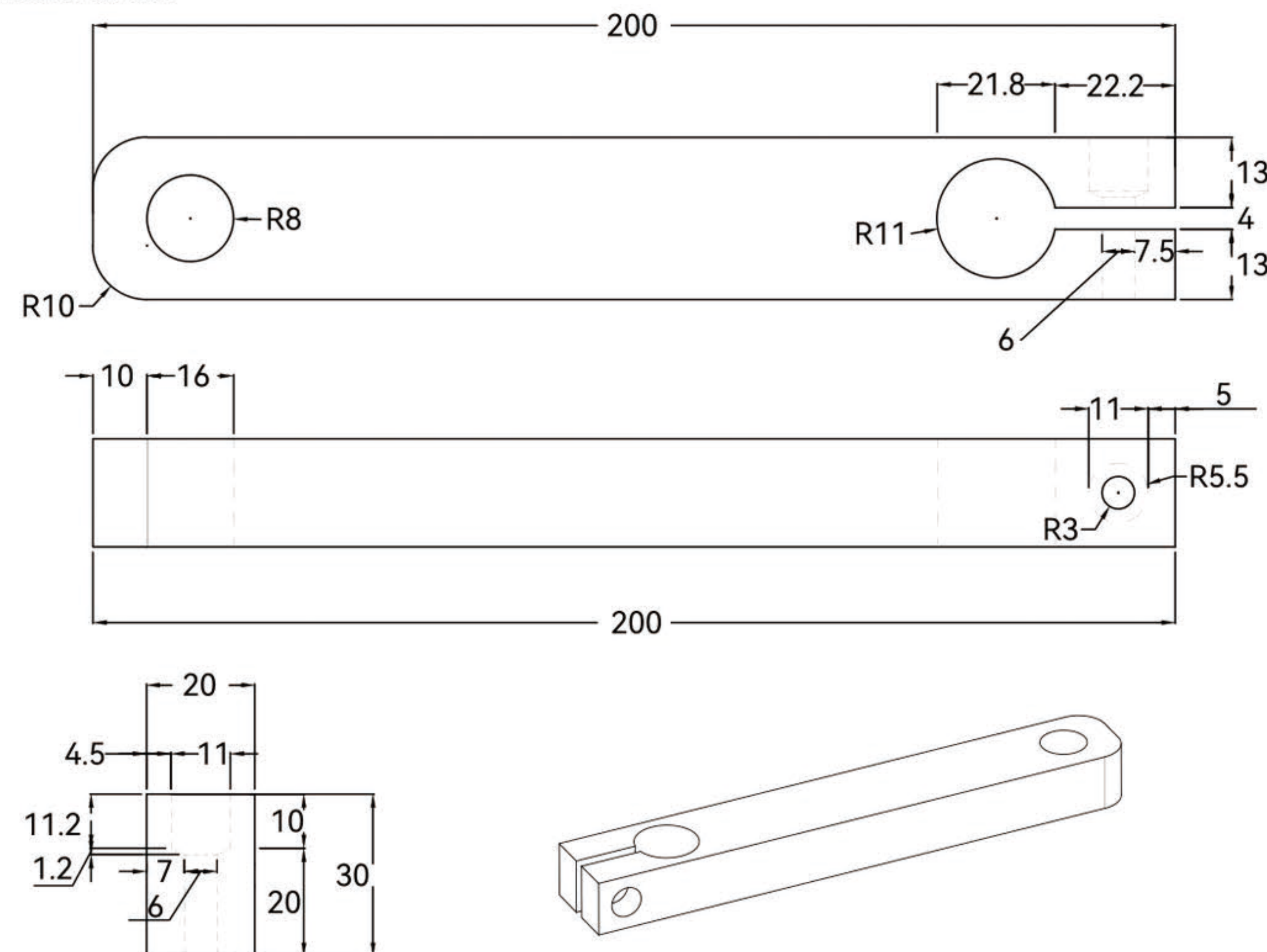
Clip:



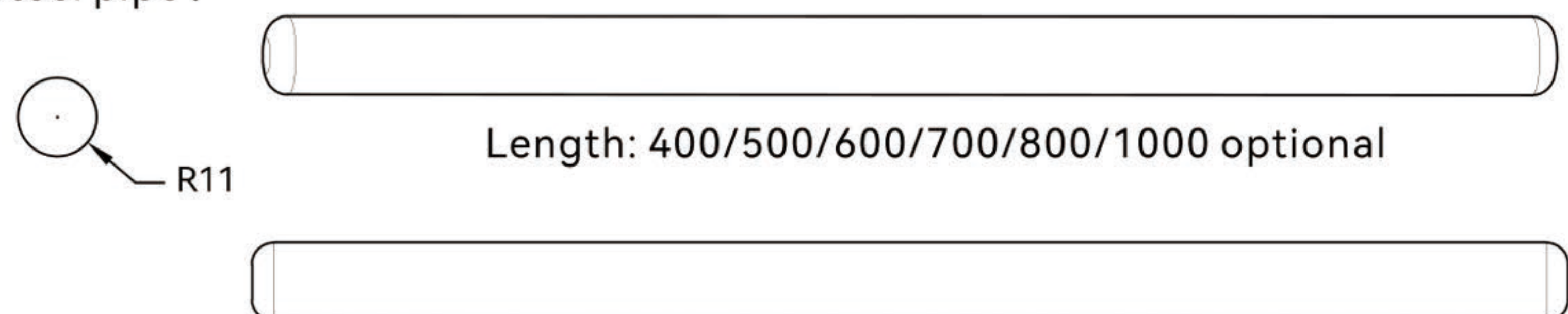
Aluminum round:



Aluminum arm:



Steel pipe:



Length: 400/500/600/700/800/1000 optional

Unit:mm