

TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR Emitter and Receiver QT series

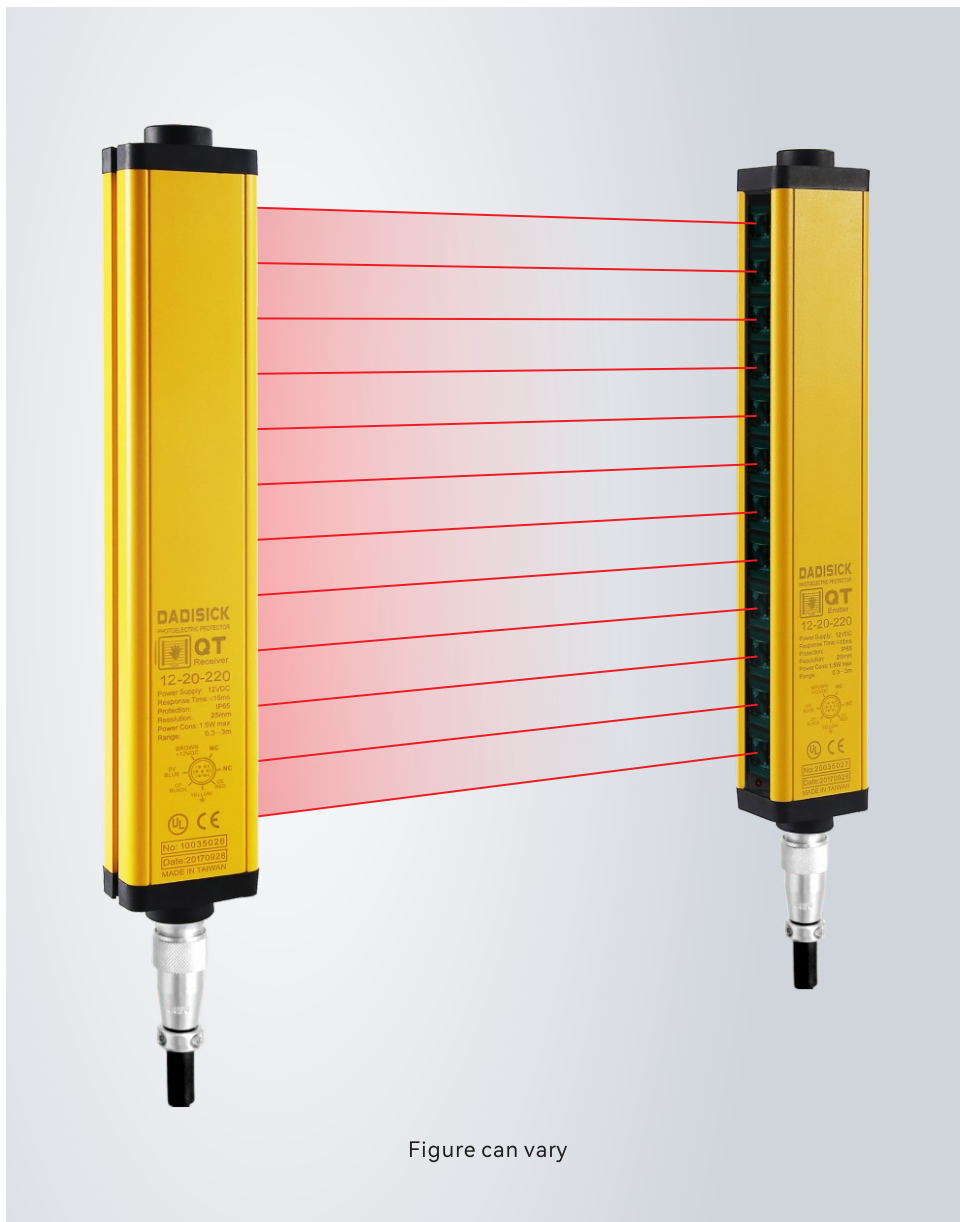


Figure can vary

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Solutions

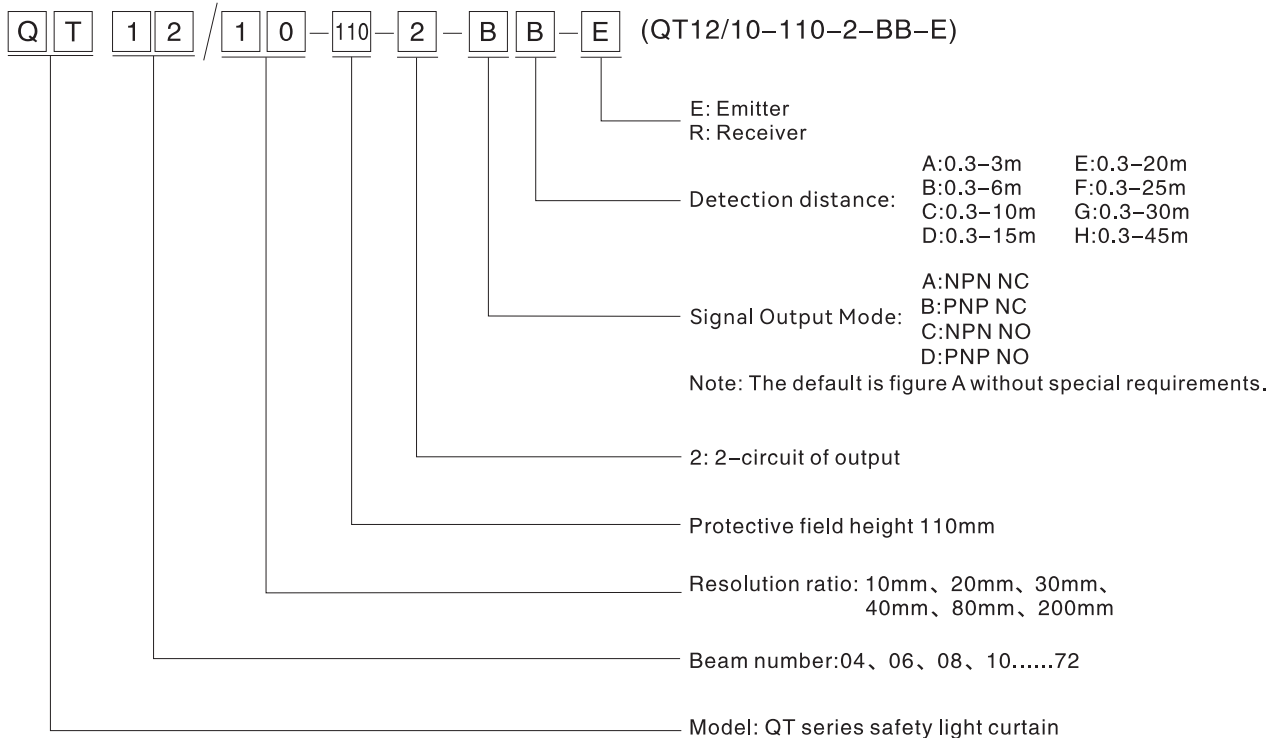


GB/T 19001-2016

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 QT type safety light curtain are as follows:



Resolution ratio

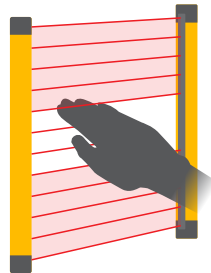
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

Finger protection



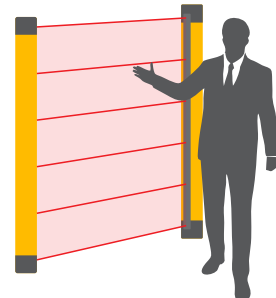
Detection capability
10mm
diameter

Hand protection



Detection capability
20/30/40mm
diameter

Arm/body protection



Detection capability
80/200mm
diameter

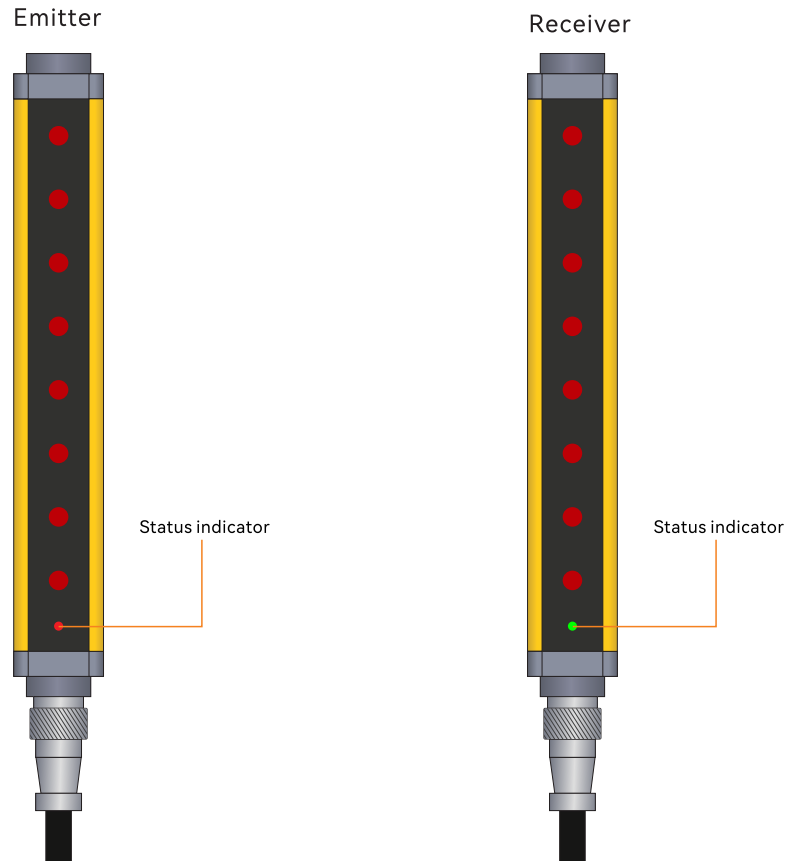
Technical data






Basic data of Receiver and Emitter

Standard packaging	
Product model	QT 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	
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/HS221214
UL	No. 4790783741.1-S
GB/T	No. HIC180327 GB/T 19001-2016 idt ISO 9001:2015

Operation and display

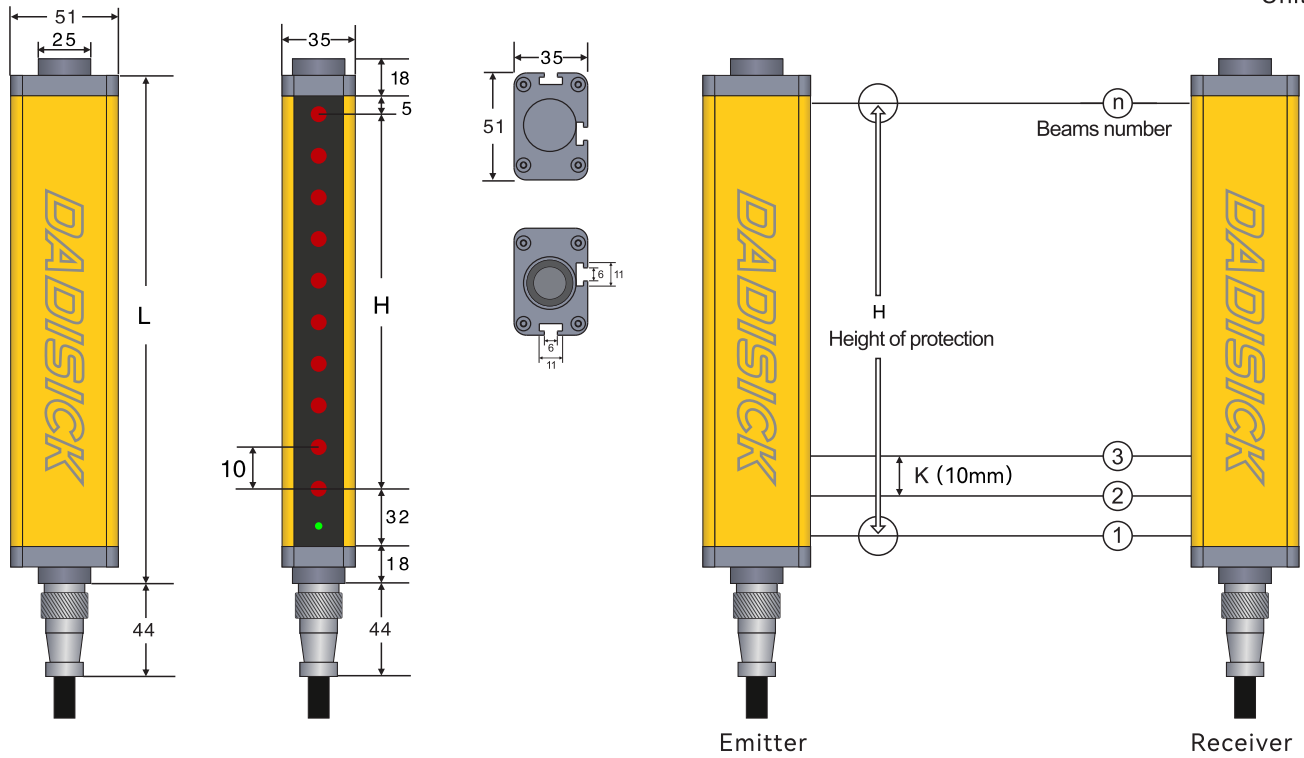


Normal operation of light curtain	LED Indicator status	Explain
Emitter	 Red, always on	Turns on the power
	 Receiver and emitter are red	Receiver and Emitter are not aligned
Receiver	 Green	All light paths are connected
	 Red	Light path shading
	 Lights flashing	Interference or overstep detection range

Dimensioned drawings

1. QT 10mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

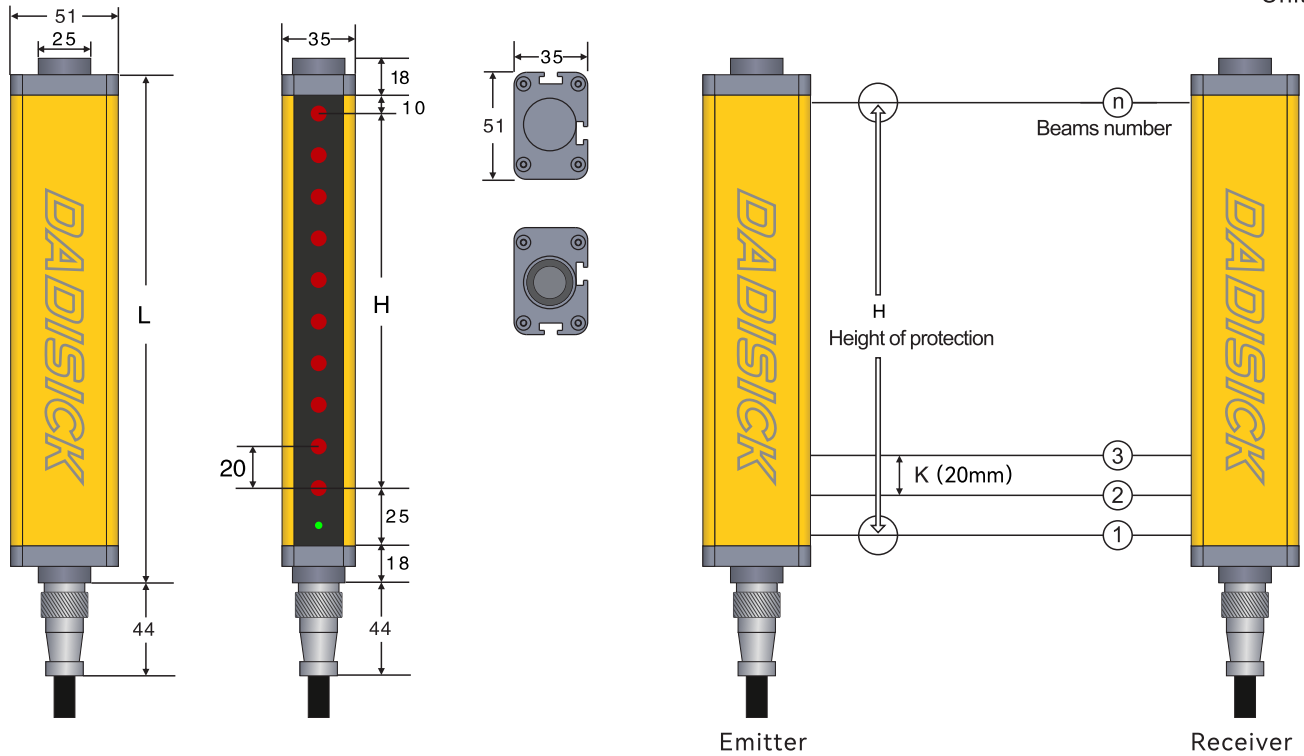
 $L = 18 + 5 + H + 32 + 18$ $H = (n - 1) * 10$

QT 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	QT12/10-110	2	PNP	0.3-6m
	14	130	203	QT14/10-130	2	PNP	0.3-6m
	16	150	223	QT16/10-150	2	PNP	0.3-6m
	18	170	243	QT18/10-170	2	PNP	0.3-6m
	20	190	263	QT20/10-190	2	PNP	0.3-6m
	22	210	283	QT22/10-210	2	PNP	0.3-6m
	24	230	303	QT24/10-230	2	PNP	0.3-6m
	26	250	323	QT26/10-250	2	PNP	0.3-6m
	28	270	343	QT28/10-270	2	PNP	0.3-6m
	30	290	363	QT30/10-290	2	PNP	0.3-6m
	32	310	383	QT32/10-310	2	PNP	0.3-6m
	34	330	403	QT34/10-330	2	PNP	0.3-6m
	36	350	423	QT36/10-350	2	PNP	0.3-6m
	38	370	443	QT38/10-370	2	PNP	0.3-6m
	40	390	463	QT40/10-390	2	PNP	0.3-6m
	42	410	483	QT42/10-410	2	PNP	0.3-6m
	44	430	503	QT44/10-430	2	PNP	0.3-6m
	46	450	523	QT46/10-450	2	PNP	0.3-6m
	48	470	543	QT48/10-470	2	PNP	0.3-6m
	50	490	563	QT50/10-490	2	PNP	0.3-6m
52	510	583	QT52/10-510	2	PNP	0.3-6m	
54	530	603	QT54/10-530	2	PNP	0.3-6m	
56	550	623	QT56/10-550	2	PNP	0.3-6m	
58	570	643	QT58/10-570	2	PNP	0.3-6m	
60	590	663	QT60/10-590	2	PNP	0.3-6m	
62	610	683	QT62/10-610	2	PNP	0.3-6m	
64	630	703	QT64/10-630	2	PNP	0.3-6m	
66	650	723	QT66/10-650	2	PNP	0.3-6m	
68	670	743	QT68/10-670	2	PNP	0.3-6m	
70	690	763	QT70/10-690	2	PNP	0.3-6m	

2. QT 20mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

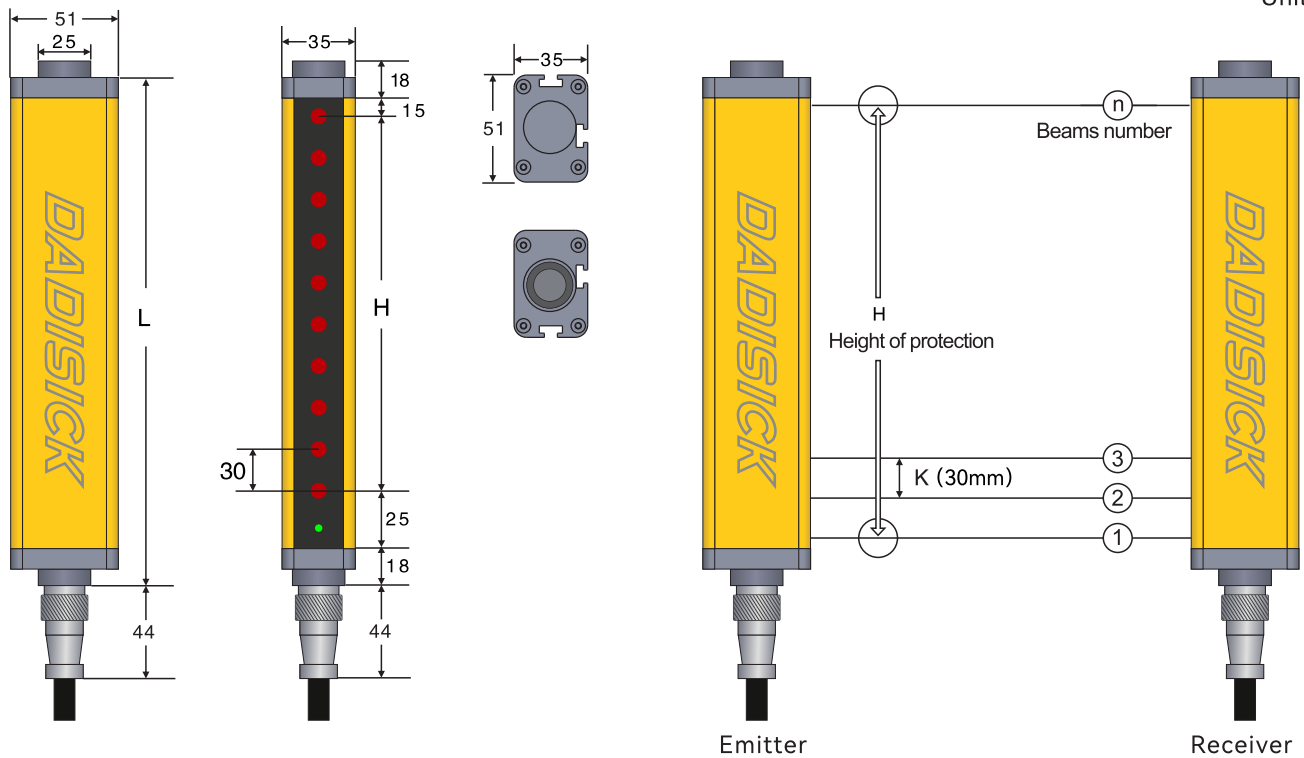
 $L = 18 + 10 + H + 25 + 18$ $H = (n - 1) * 20$

QT 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	QT06/20-100	2	PNP	0.3-6m
	8	140	211	QT08/20-140	2	PNP	0.3-6m
	10	180	251	QT10/20-180	2	PNP	0.3-6m
	12	220	291	QT12/20-220	2	PNP	0.3-6m
	14	260	331	QT14/20-260	2	PNP	0.3-6m
	16	300	371	QT16/20-300	2	PNP	0.3-6m
	18	340	411	QT18/20-340	2	PNP	0.3-6m
	20	380	451	QT20/20-380	2	PNP	0.3-6m
	22	420	491	QT22/20-420	2	PNP	0.3-6m
	24	460	531	QT24/20-460	2	PNP	0.3-6m
	26	500	571	QT26/20-500	2	PNP	0.3-6m
	28	540	611	QT28/20-540	2	PNP	0.3-6m
	30	580	651	QT30/20-580	2	PNP	0.3-6m
	32	620	691	QT32/20-620	2	PNP	0.3-6m
	34	660	731	QT34/20-660	2	PNP	0.3-6m
	36	700	771	QT36/20-700	2	PNP	0.3-6m
	38	740	811	QT38/20-740	2	PNP	0.3-6m
	40	780	851	QT40/20-780	2	PNP	0.3-6m
	42	820	891	QT42/20-820	2	PNP	0.3-6m
	44	860	931	QT44/20-860	2	PNP	0.3-6m
	46	900	971	QT46/20-900	2	PNP	0.3-6m
	48	940	1011	QT48/20-940	2	PNP	0.3-6m
	50	980	1051	QT50/20-980	2	PNP	0.3-6m
	52	1020	1091	QT52/20-1020	2	PNP	0.3-6m
	54	1060	1131	QT54/20-1060	2	PNP	0.3-6m
	56	1100	1171	QT56/20-1100	2	PNP	0.3-6m
58	1140	1211	QT58/20-1140	2	PNP	0.3-6m	
60	1180	1251	QT60/20-1180	2	PNP	0.3-6m	
62	1220	1291	QT62/20-1220	2	PNP	0.3-6m	
64	1260	1331	QT64/20-1260	2	PNP	0.3-6m	
66	1300	1371	QT66/20-1300	2	PNP	0.3-6m	
68	1340	1411	QT68/20-1340	2	PNP	0.3-6m	
70	1380	1451	QT70/20-1380	2	PNP	0.3-6m	
72	1420	1491	QT72/20-1420	2	PNP	0.3-6m	

3. QT 30mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

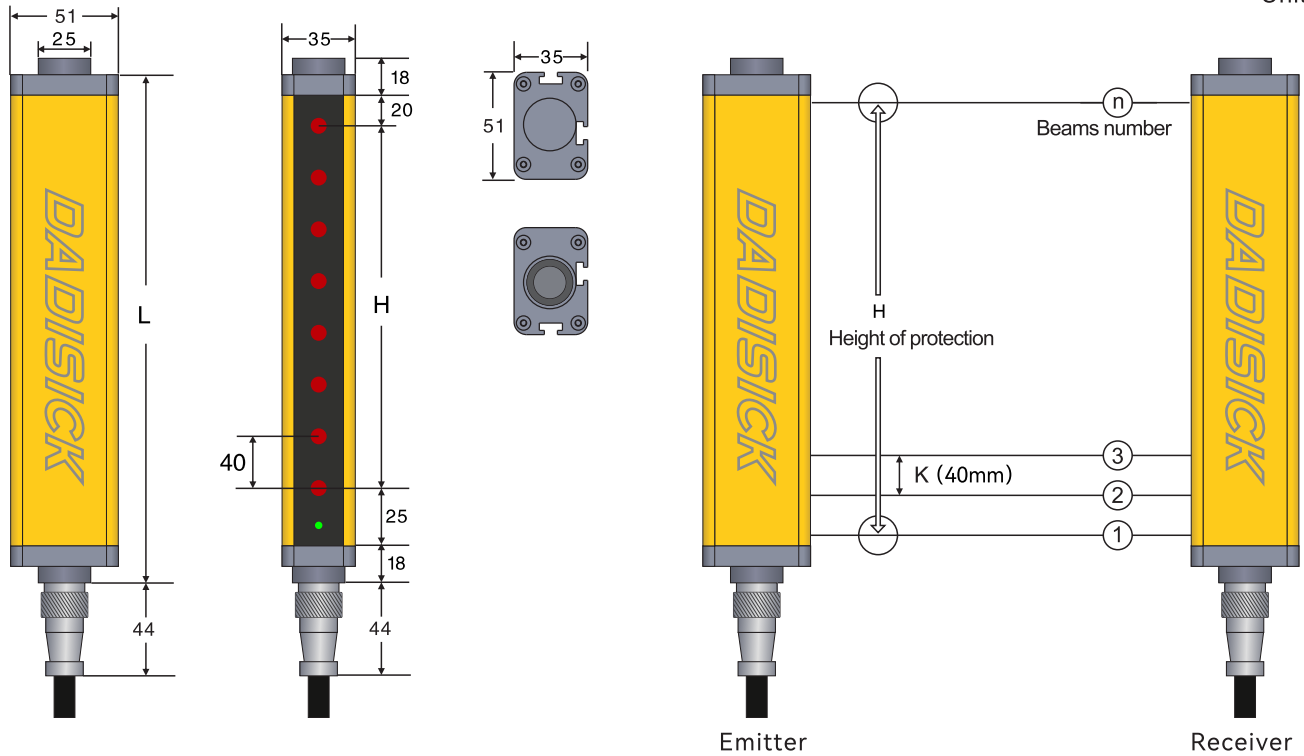
 $L = 18 + 15 + H + 25 + 18$ $H = (n - 1) * 30$

QT 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	QT04/30-90	2	PNP	0.3-6m
	6	150	226	QT06/30-150	2	PNP	0.3-6m
	8	210	286	QT8/30-210	2	PNP	0.3-6m
	10	270	346	QT10/30-270	2	PNP	0.3-6m
	12	330	406	QT12/30-330	2	PNP	0.3-6m
	14	390	466	QT14/30-390	2	PNP	0.3-6m
	16	450	526	QT16/30-450	2	PNP	0.3-6m
	18	510	586	QT18/30-510	2	PNP	0.3-6m
	20	570	646	QT20/30-570	2	PNP	0.3-6m
	22	630	706	QT22/30-630	2	PNP	0.3-6m
	24	690	766	QT24/30-690	2	PNP	0.3-6m
	26	750	826	QT26/30-750	2	PNP	0.3-6m
	28	810	886	QT28/30-810	2	PNP	0.3-6m
	30	870	946	QT30/30-870	2	PNP	0.3-6m
	32	930	1006	QT32/30-930	2	PNP	0.3-6m
	34	990	1066	QT34/30-990	2	PNP	0.3-6m
	36	1050	1126	QT36/30-1050	2	PNP	0.3-6m
	38	1110	1186	QT38/30-1110	2	PNP	0.3-6m
	40	1170	1246	QT40/30-1170	2	PNP	0.3-6m
	42	1230	1306	QT42/30-1230	2	PNP	0.3-6m
	44	1290	1366	QT44/30-1290	2	PNP	0.3-6m
	46	1350	1426	QT46/30-1350	2	PNP	0.3-6m
	48	1410	1486	QT48/30-1410	2	PNP	0.3-6m
	50	1470	1546	QT50/30-1470	2	PNP	0.3-6m
52	1530	1606	QT52/30-1530	2	PNP	0.3-6m	
54	1590	1666	QT54/30-1590	2	PNP	0.3-6m	
56	1650	1726	QT56/30-1650	2	PNP	0.3-6m	
58	1710	1786	QT58/30-1710	2	PNP	0.3-6m	
60	1770	1846	QT60/30-1770	2	PNP	0.3-6m	
62	1830	1906	QT62/30-1830	2	PNP	0.3-6m	
64	1890	1966	QT64/30-1890	2	PNP	0.3-6m	
66	1950	2026	QT66/30-1950	2	PNP	0.3-6m	
68	2010	2086	QT68/30-2010	2	PNP	0.3-6m	
70	2070	2146	QT70/30-2070	2	PNP	0.3-6m	
72	2130	2206	QT72/30-2130	2	PNP	0.3-6m	

4. QT 40mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

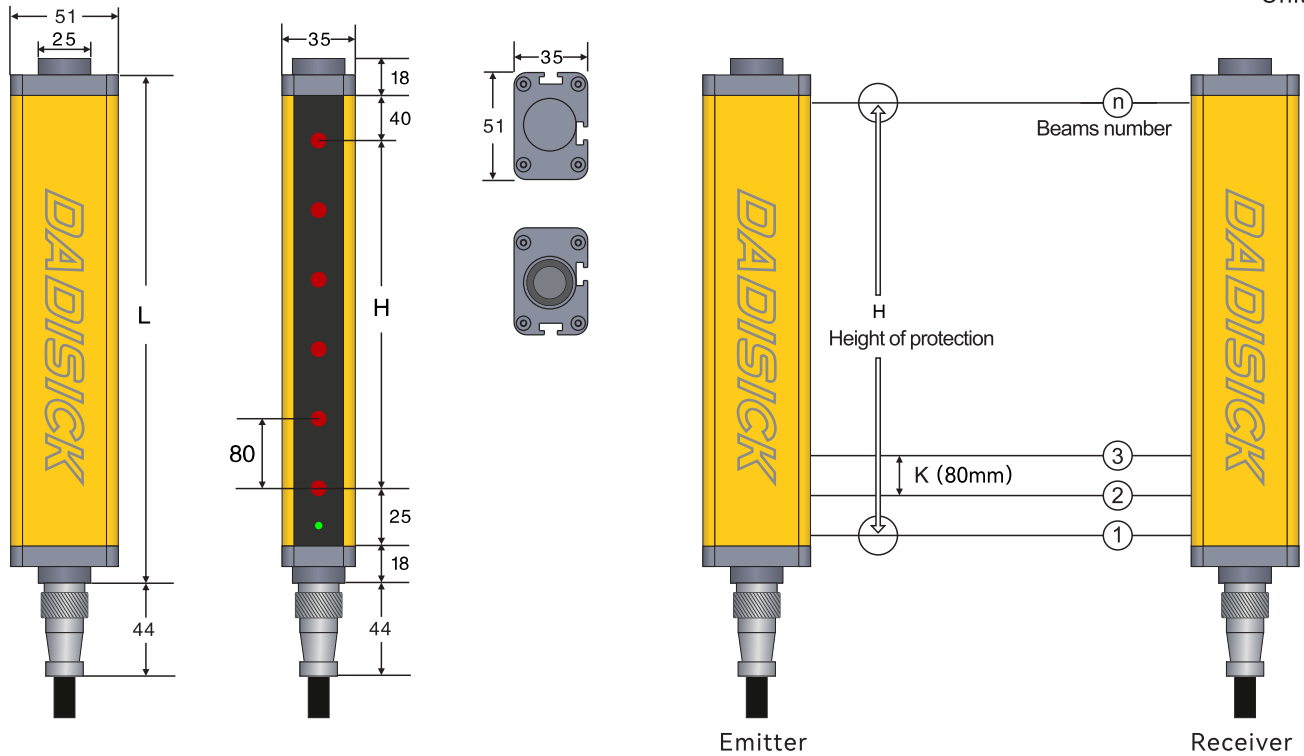
 $L = 18 + 20 + H + 25 + 18$ $H = (n - 1) * 40$

QT 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	QT04/40-120	2	PNP	0.3-6m
	6	200	281	QT06/40-200	2	PNP	0.3-6m
	8	280	361	QT08/40-280	2	PNP	0.3-6m
	10	360	441	QT10/40-360	2	PNP	0.3-6m
	12	440	521	QT12/40-440	2	PNP	0.3-6m
	14	520	601	QT14/40-520	2	PNP	0.3-6m
	16	600	681	QT16/40-600	2	PNP	0.3-6m
	18	680	761	QT18/40-680	2	PNP	0.3-6m
	20	760	841	QT20/40-760	2	PNP	0.3-6m
	22	840	921	QT22/40-840	2	PNP	0.3-6m
	24	920	1001	QT24/40-920	2	PNP	0.3-6m
	26	1000	1081	QT26/40-1000	2	PNP	0.3-6m
	28	1080	1161	QT28/40-1080	2	PNP	0.3-6m
	30	1160	1241	QT30/40-1160	2	PNP	0.3-6m
	32	1240	1321	QT32/40-1240	2	PNP	0.3-6m
	34	1320	1401	QT34/40-1320	2	PNP	0.3-6m
	36	1400	1481	QT36/40-1400	2	PNP	0.3-6m
	38	1480	1561	QT38/40-1480	2	PNP	0.3-6m
	40	1560	1641	QT40/40-1560	2	PNP	0.3-6m
	42	1640	1721	QT42/40-1640	2	PNP	0.3-6m
	44	1720	1801	QT44/40-1720	2	PNP	0.3-6m
	46	1800	1881	QT46/40-1800	2	PNP	0.3-6m
	48	1880	1961	QT48/40-1880	2	PNP	0.3-6m
	50	1960	2041	QT50/40-1960	2	PNP	0.3-6m
52	2040	2121	QT52/40-2040	2	PNP	0.3-6m	
54	2120	2201	QT54/40-2120	2	PNP	0.3-6m	
56	2200	2281	QT56/40-2200	2	PNP	0.3-6m	
58	2280	2361	QT58/40-2280	2	PNP	0.3-6m	
60	2360	2441	QT60/40-2360	2	PNP	0.3-6m	
62	2440	2521	QT62/40-2440	2	PNP	0.3-6m	
64	2520	2601	QT64/40-2520	2	PNP	0.3-6m	
66	2600	2681	QT66/40-2600	2	PNP	0.3-6m	
68	2680	2761	QT68/40-2680	2	PNP	0.3-6m	
70	2760	2841	QT70/40-2760	2	PNP	0.3-6m	
72	2840	2921	QT72/40-2840	2	PNP	0.3-6m	

5. QT 80mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

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

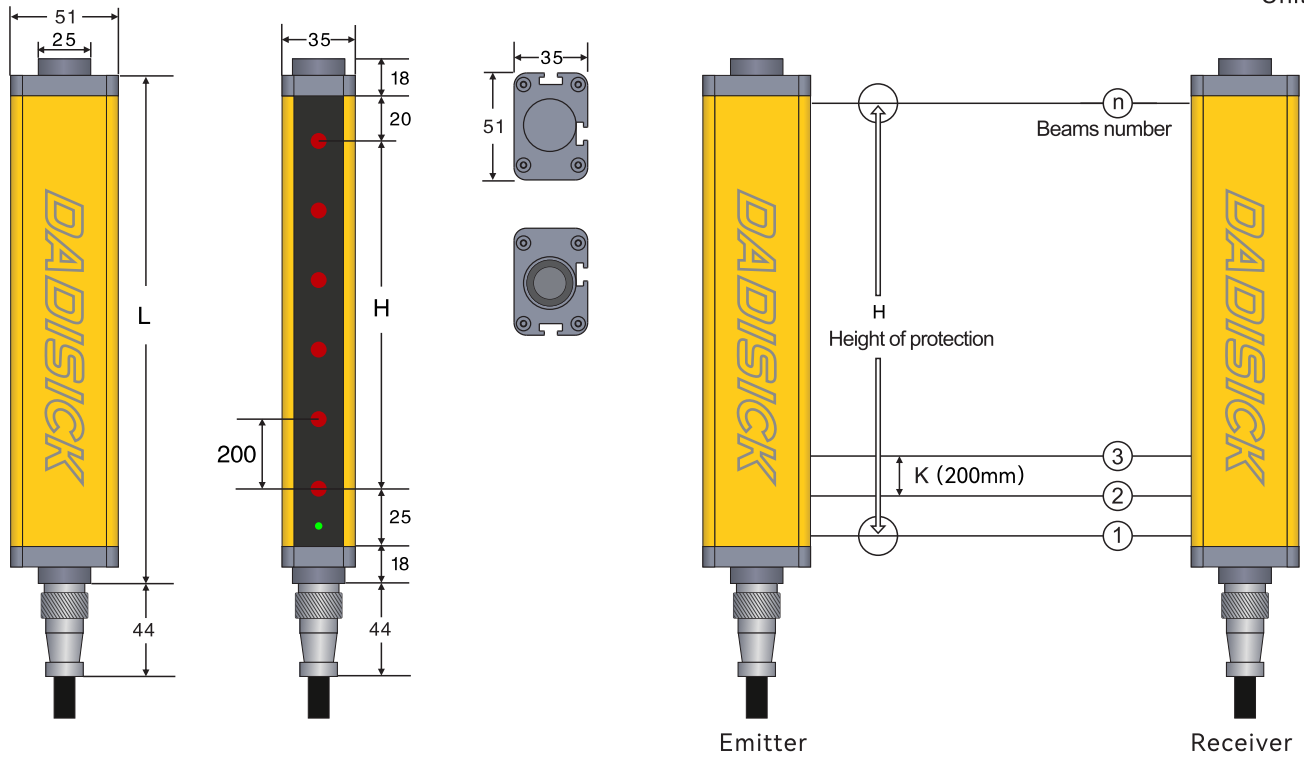
$$H = (n - 1) * 80$$

QT 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	QT04/80-240	2	PNP	0.3-6m
	6	400	501	QT06/80-400	2	PNP	0.3-6m
	8	560	661	QT08/80-560	2	PNP	0.3-6m
	10	720	821	QT10/80-720	2	PNP	0.3-6m
	12	880	981	QT12/80-880	2	PNP	0.3-6m
	14	1040	1141	QT14/80-1040	2	PNP	0.3-6m
	16	1200	1301	QT16/80-1200	2	PNP	0.3-6m
	18	1360	1461	QT18/80-1360	2	PNP	0.3-6m
	20	1520	1621	QT20/80-1520	2	PNP	0.3-6m
	22	1680	1781	QT22/80-1680	2	PNP	0.3-6m
	24	1840	1941	QT24/80-1840	2	PNP	0.3-6m
	26	2000	2101	QT26/80-2000	2	PNP	0.3-6m
	28	2160	2261	QT28/80-2160	2	PNP	0.3-6m
	30	2320	2421	QT30/80-2320	2	PNP	0.3-6m
	32	2480	2581	QT32/80-2480	2	PNP	0.3-6m
	34	2640	2741	QT34/80-2640	2	PNP	0.3-6m
	36	2800	2901	QT36/80-2800	2	PNP	0.3-6m
38	2960	3061	QT38/80-2960	2	PNP	0.3-6m	
40	3120	3221	QT40/80-3120	2	PNP	0.3-6m	

6. QT 200mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

 $L = 18 + 20 + H + 25 + 18$ $H = (n - 1) * 200$

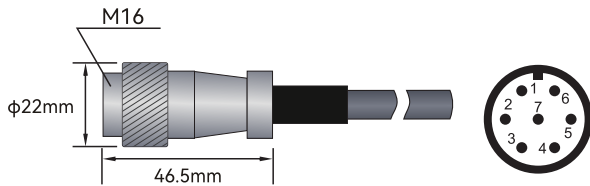
QT 200mm specification list

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	QT04/200-600	2	PNP	0.3-6m
	6	1000	1081	QT06/200-1000	2	PNP	0.3-6m
	8	1400	1481	QT08/200-1400	2	PNP	0.3-6m
	10	1800	1881	QT10/200-1800	2	PNP	0.3-6m
	12	2200	2281	QT12/200-2200	2	PNP	0.3-6m
	14	2600	2681	QT14/200-2600	2	PNP	0.3-6m
	16	3000	3081	QT16/200-3000	2	PNP	0.3-6m
	18	3400	3481	QT18/200-3400	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:



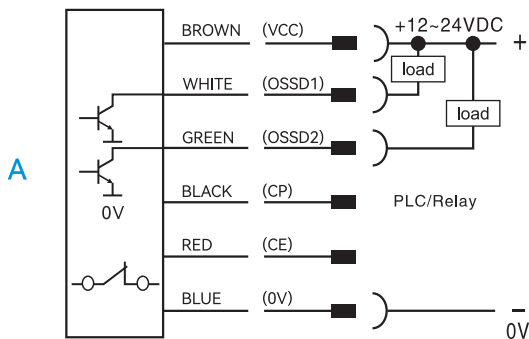
7-pin M16 cable connector straight
3m waterproof cable

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

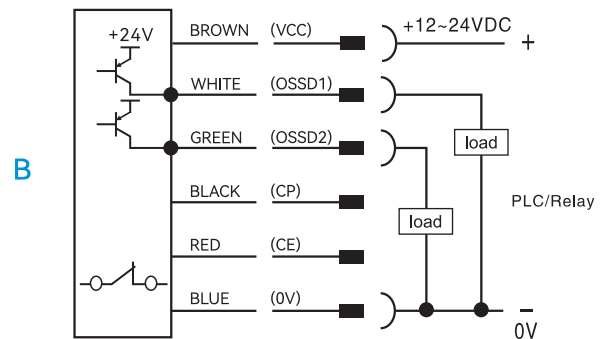
Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	RED	CE
5	WHITE	OSSD1
6	GREEN	OSSD2
7	YELLOW	Ground wire

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

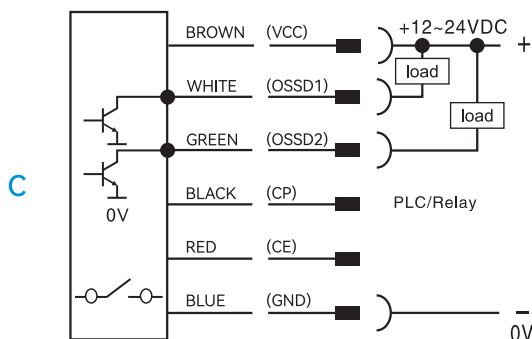
NPN NC



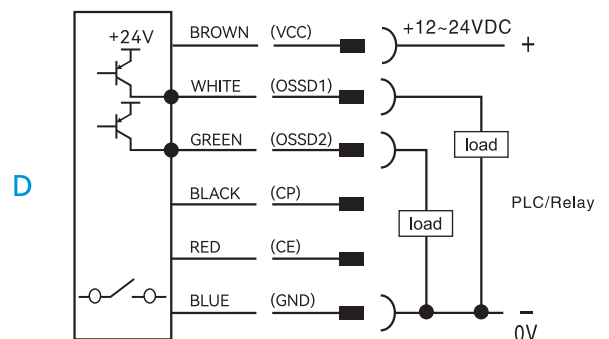
PNP NC



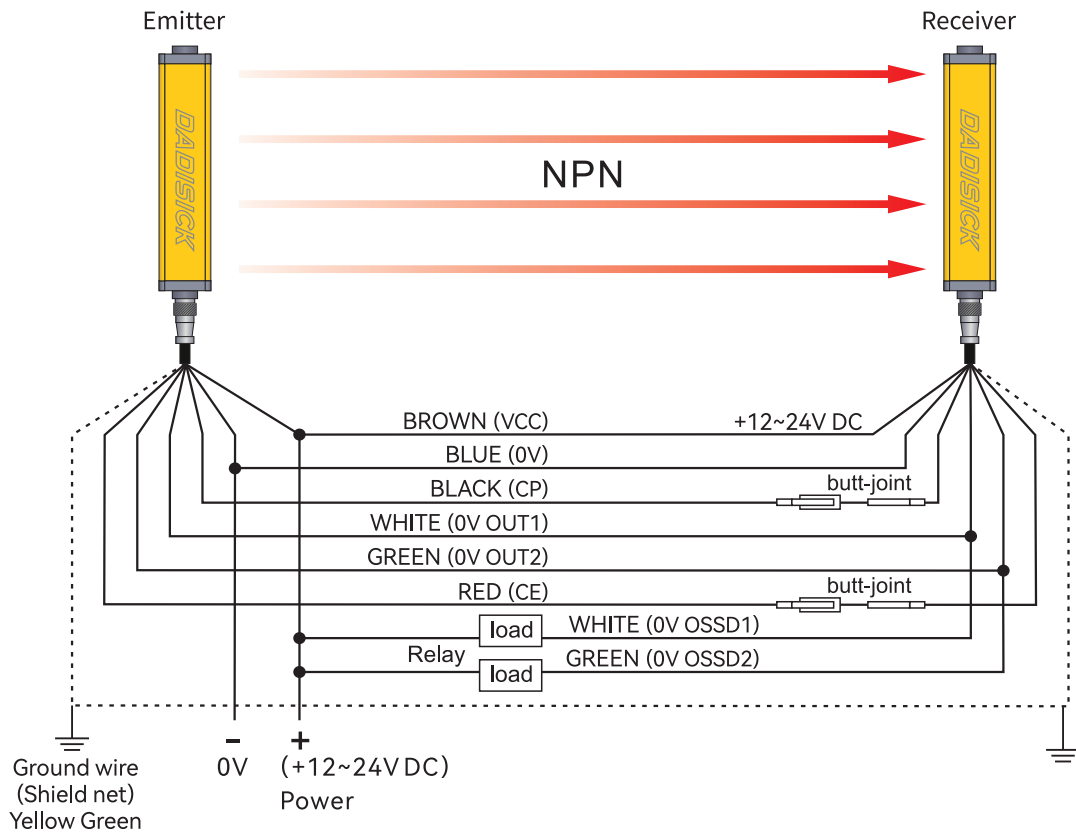
NPN NO



PNP NO

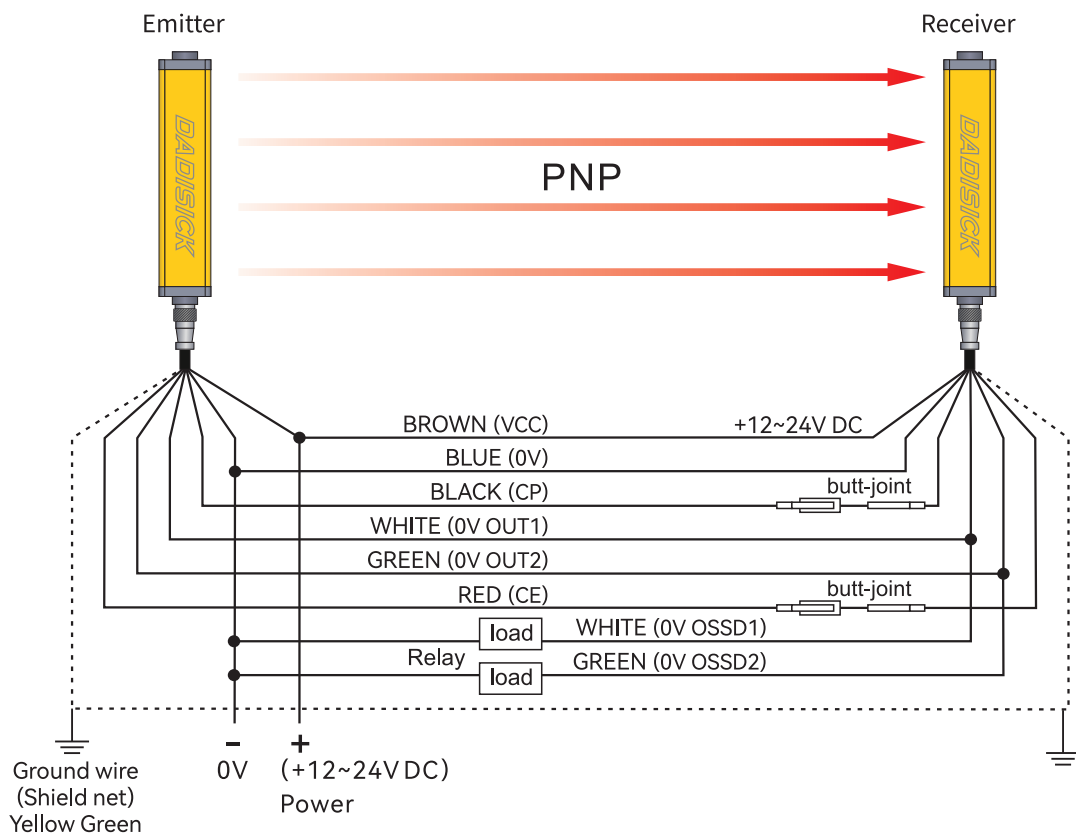


2. NPN output wiring diagram








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

3. PNP output wiring diagram

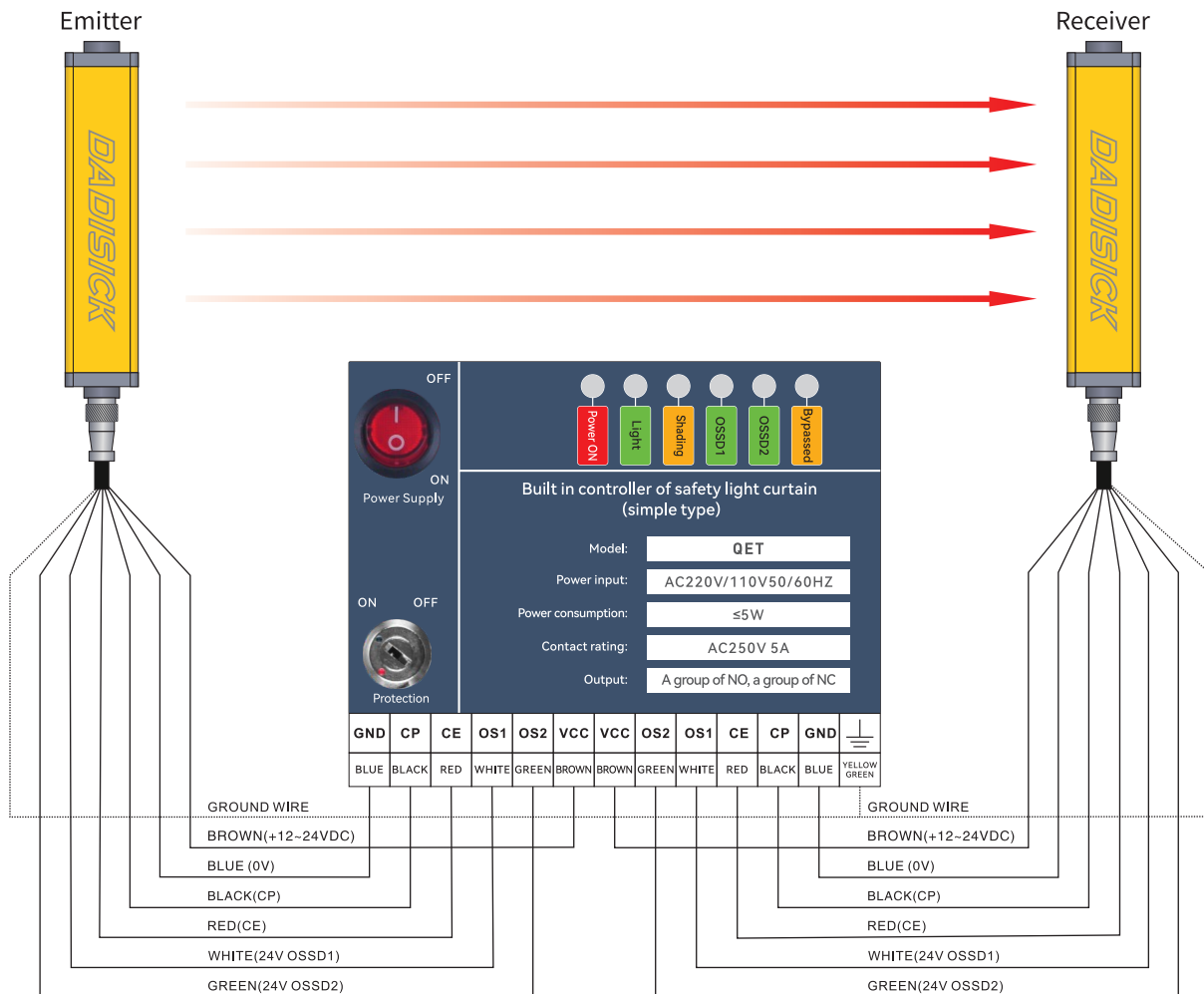


This figure is an example of PNP double output 7-pin wiring.

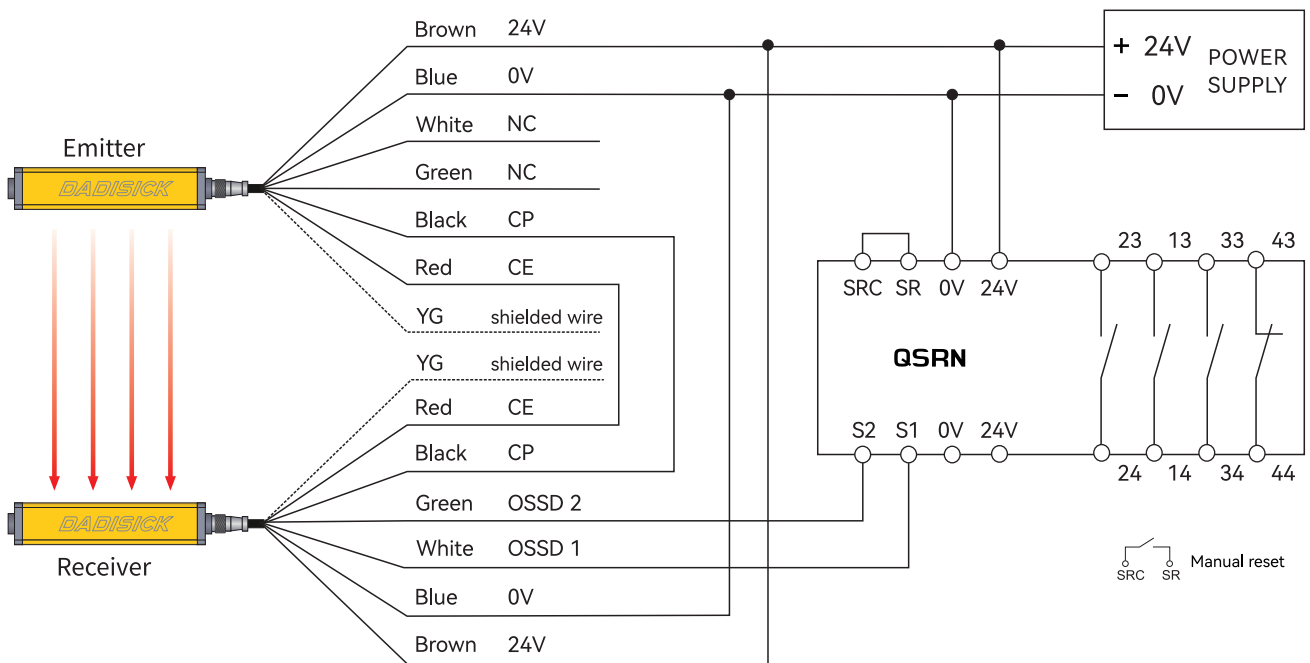
4. Selection of safety light curtain controller

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

4.1 Wiring diagram of QET built-in controller

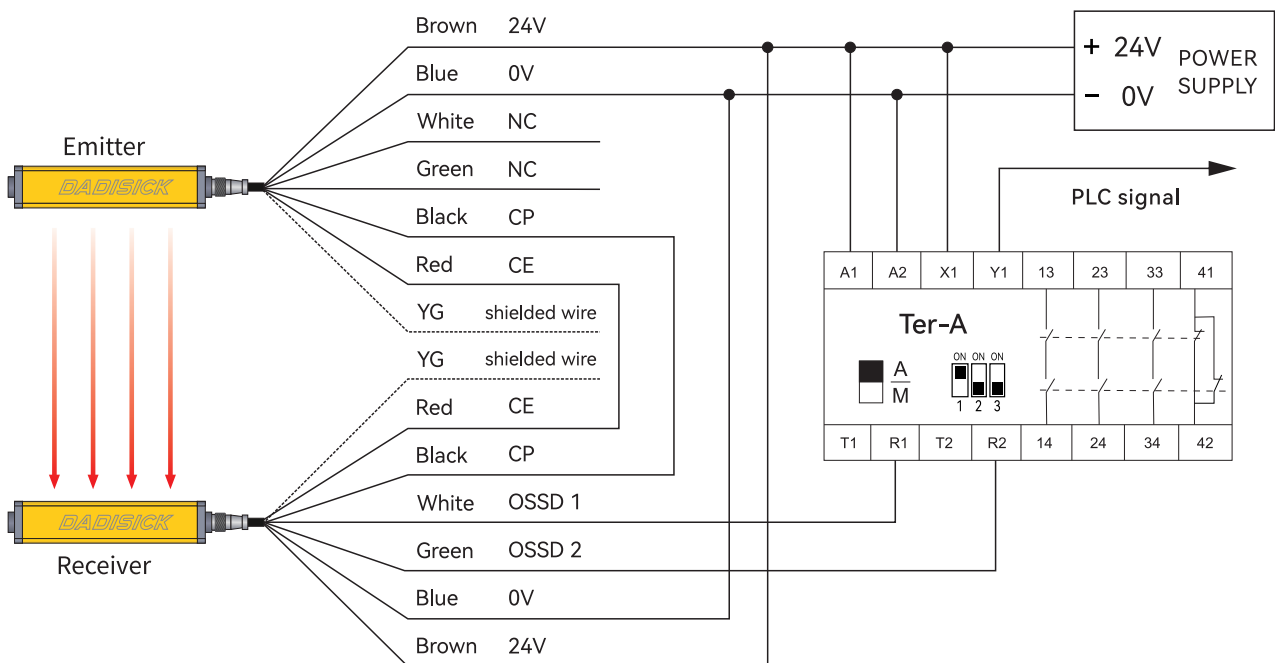


4.2 Wiring diagram of QSRN safety relay

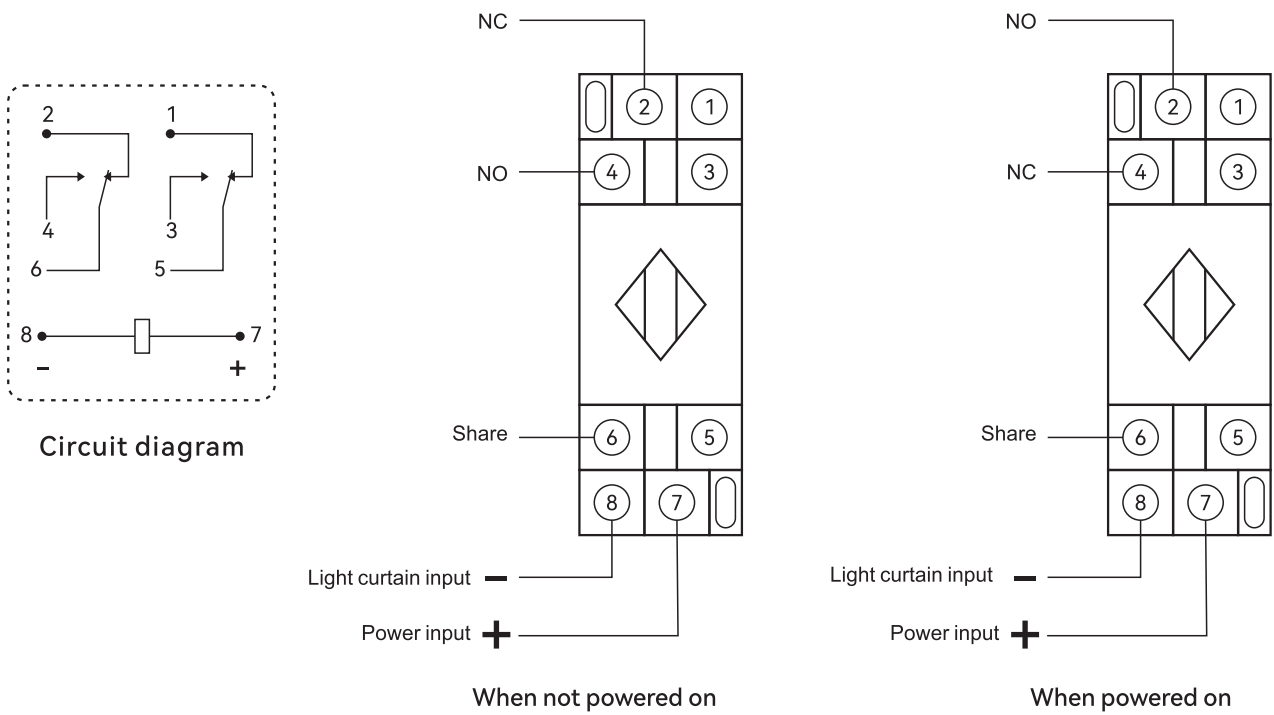


4.3 Wiring diagram of Ter-A safety relay

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

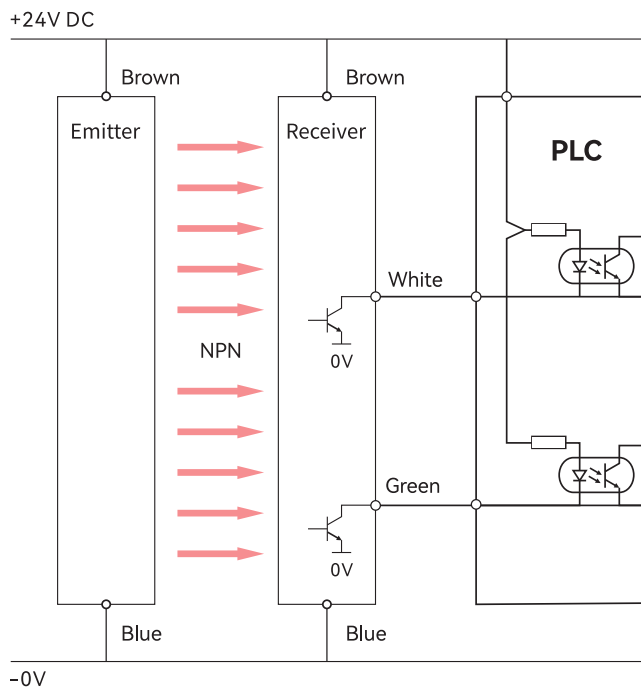


4.4 Wiring diagram of QET-1 light curtain relay

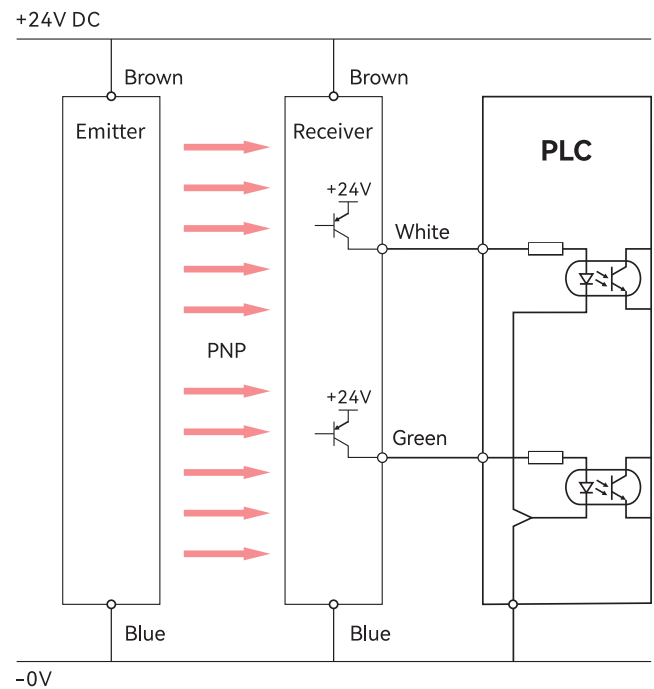


4.5 Wiring between light curtain and PLC and one-chip computer system

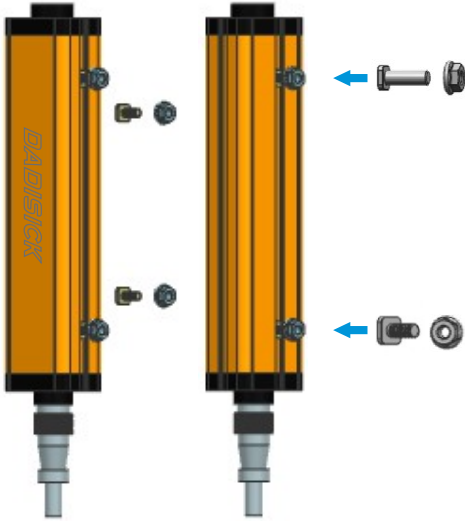
NPN wiring:



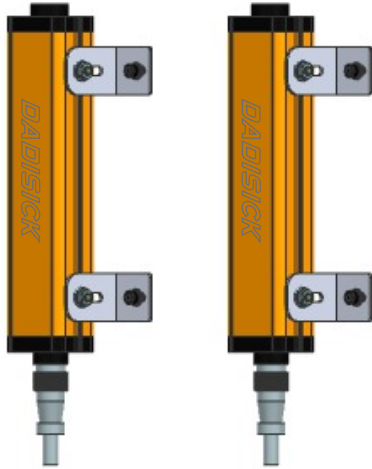
PNP wiring:



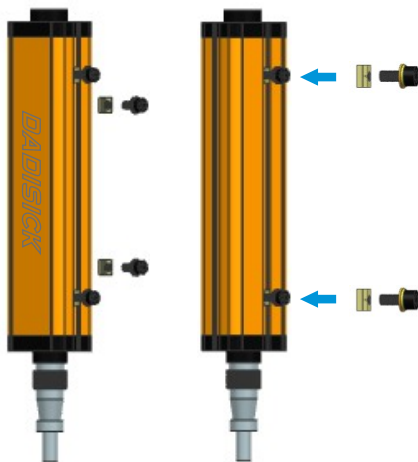
Accessories



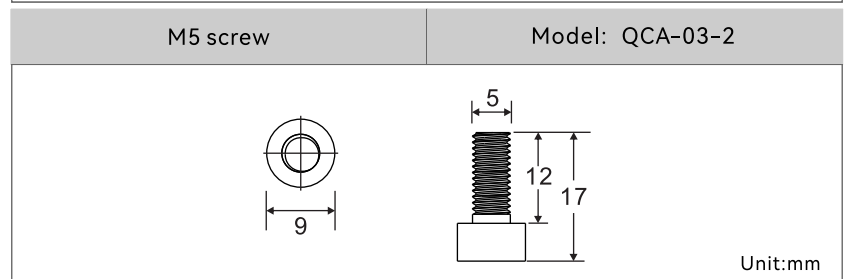
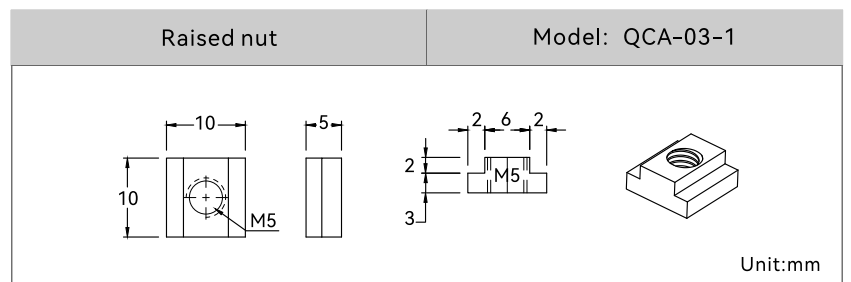
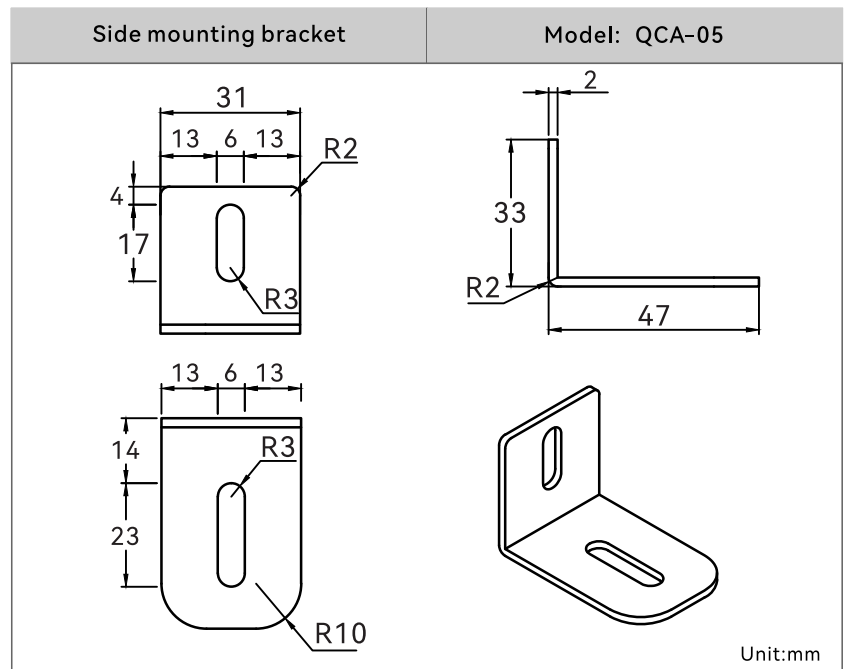
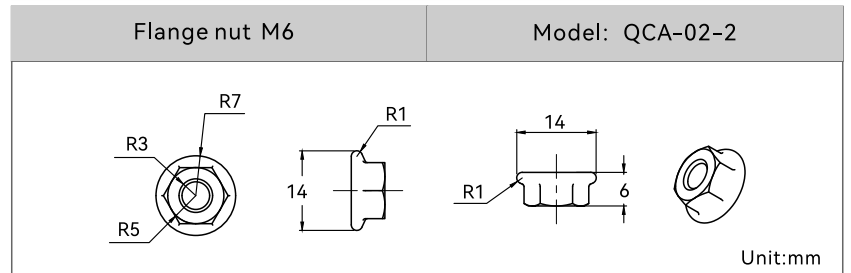
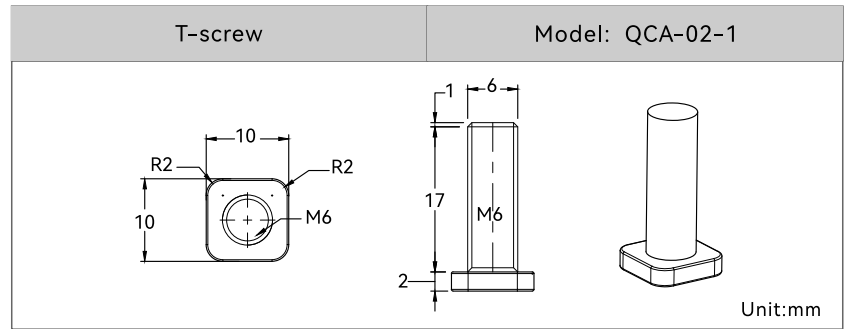
1. Installation method of T-shaped screws on the back
(Original accessories)

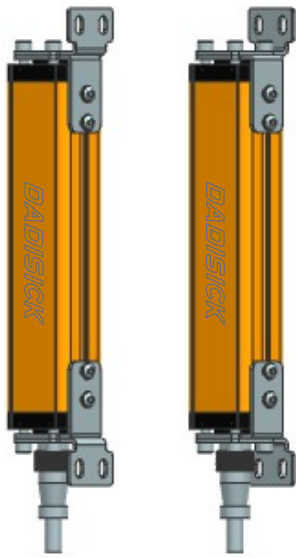


2. Installation method of side right angle bracket
(Original accessories)

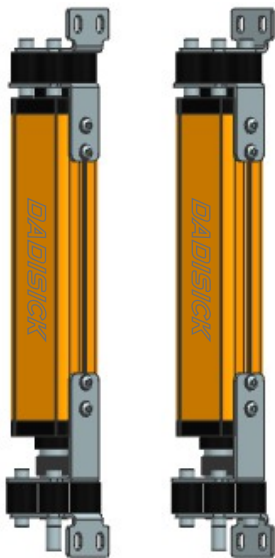


3. Installation method of convex nut
(Optional accessories)





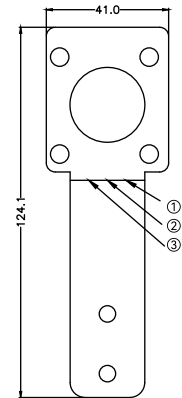
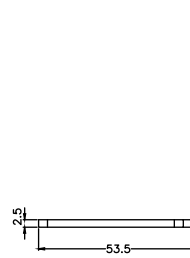
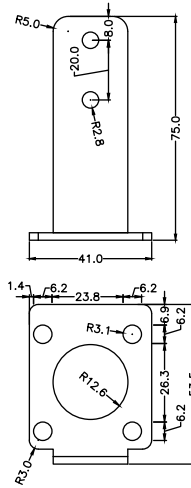
4. Installation method of right angle brackets at both ends
(Order separately)



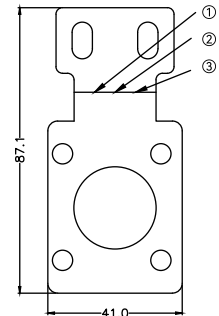
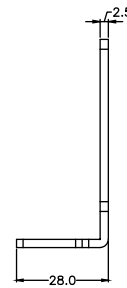
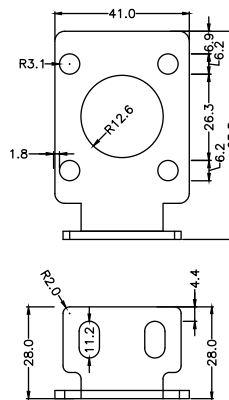
5. Shockproof installation method of right angle brackets at both ends
(Order separately)

Right angle brackets at both ends

Model: QA-02



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

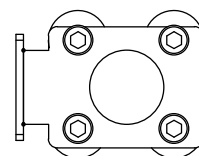
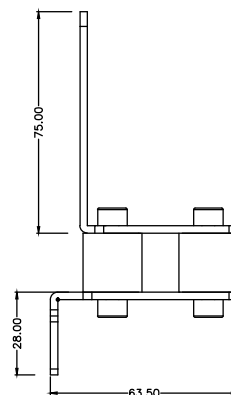
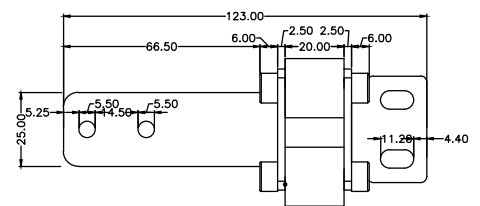
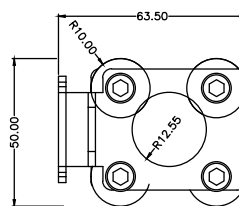


- ① Bending direction: downward
- ② Bending angle: 90°
- ③ Bending radius: 0.02

Unit:mm

Shockproof right angle brackets

Model: QA-01



Unit:mm



6. Stainless steel bracket installation
(Order separately)

