

TECHNICAL DATA SHEET

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



Contents

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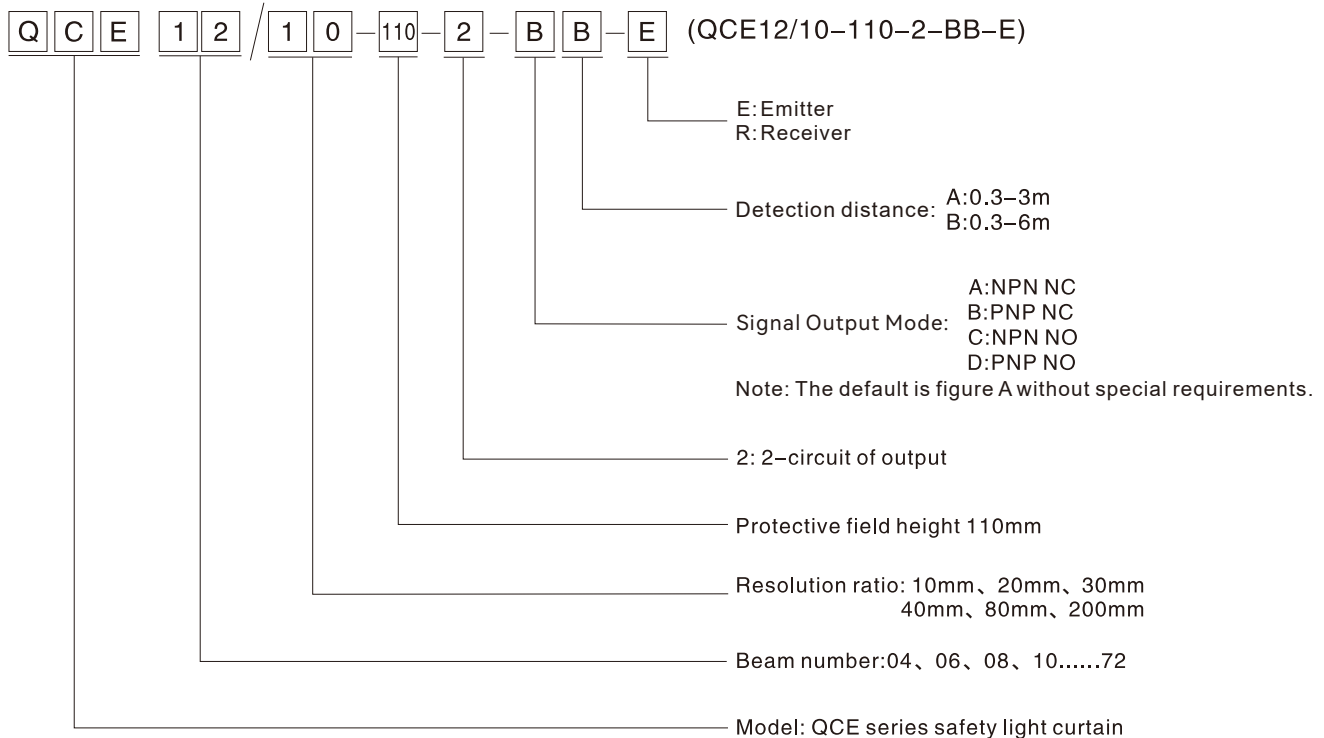


GB/T 19001-2016

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.

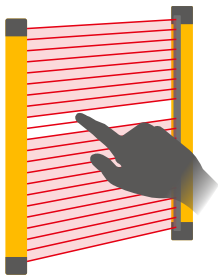
The specifications of QCE type safety light curtain are as follows:



Resolution ratio

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

Finger protection



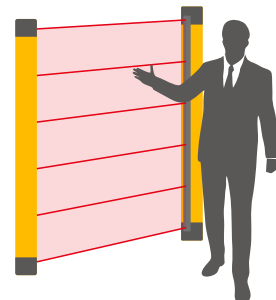
Detection capability
10/14/20mm
diameter

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	QCE 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	30mm*30mm*L, L is the length of emitter and receiver.
Detection distance	30-6000mm
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

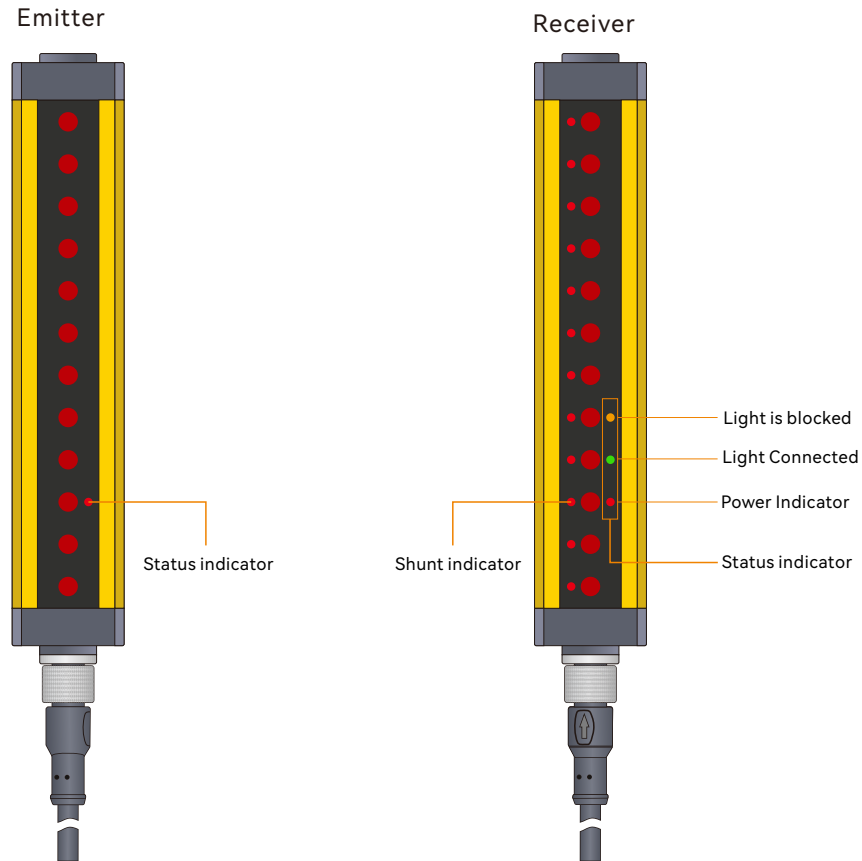
Mechanical data	
Housing material	Metal
Metal shell	Aluminium
Lens front screen material	Acrylic
Upper and lower cover materials	ABS reinforced nylon PA66+30% GF

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

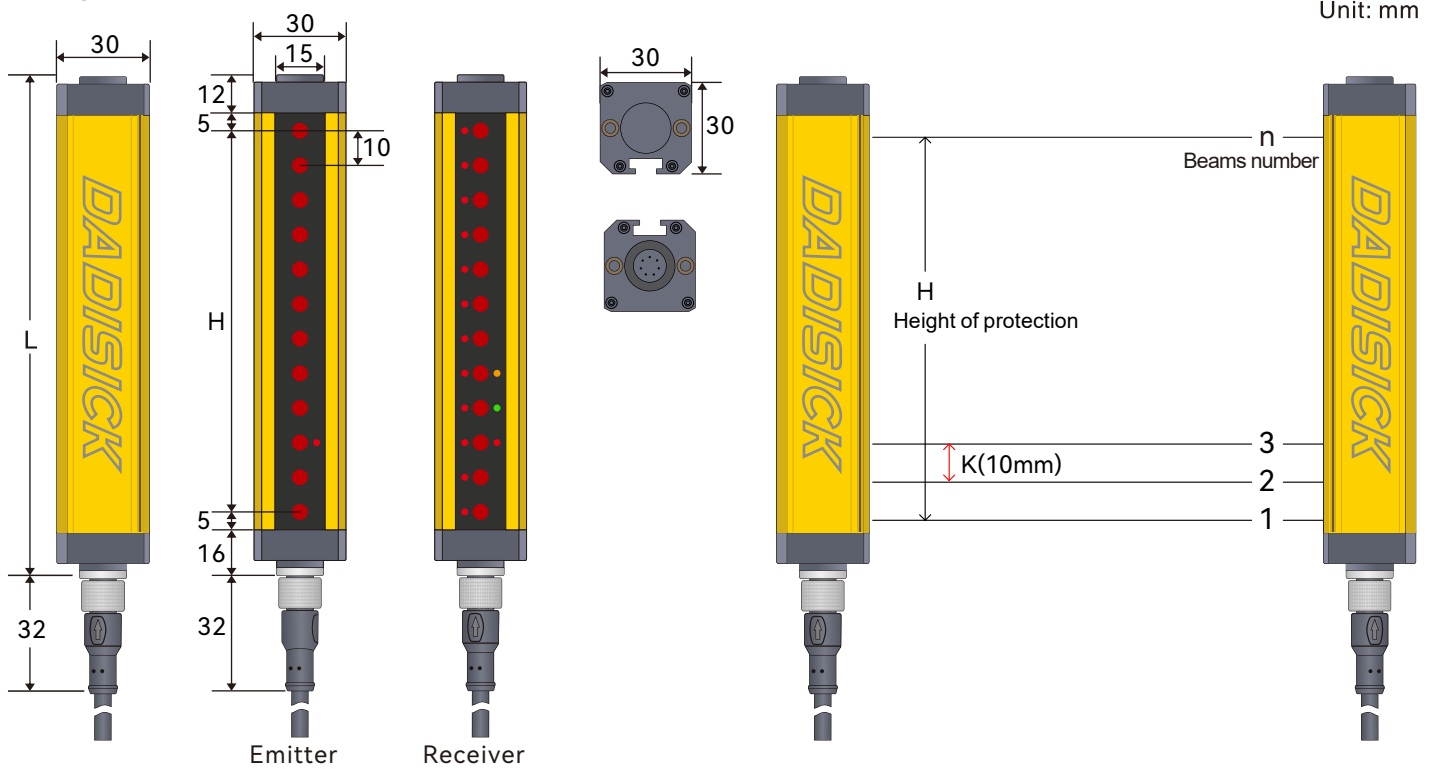


Status indicator	LED status Indicator	Explain
Emitter	Red, always on	Turns on the power
Receiver	Red, always on	Turns on the power
	Green	All light paths are connected
	Yellow	The light is blocked or misaligned
	Lights flashing	Interference or overstep detection range

Shunt indicator	LED shunt Indicator	Explain
Receiver	Red light up	The light is blocked or misaligned
	Red light out	The light paths are connected

Dimensioned drawings

1. QCE 10mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

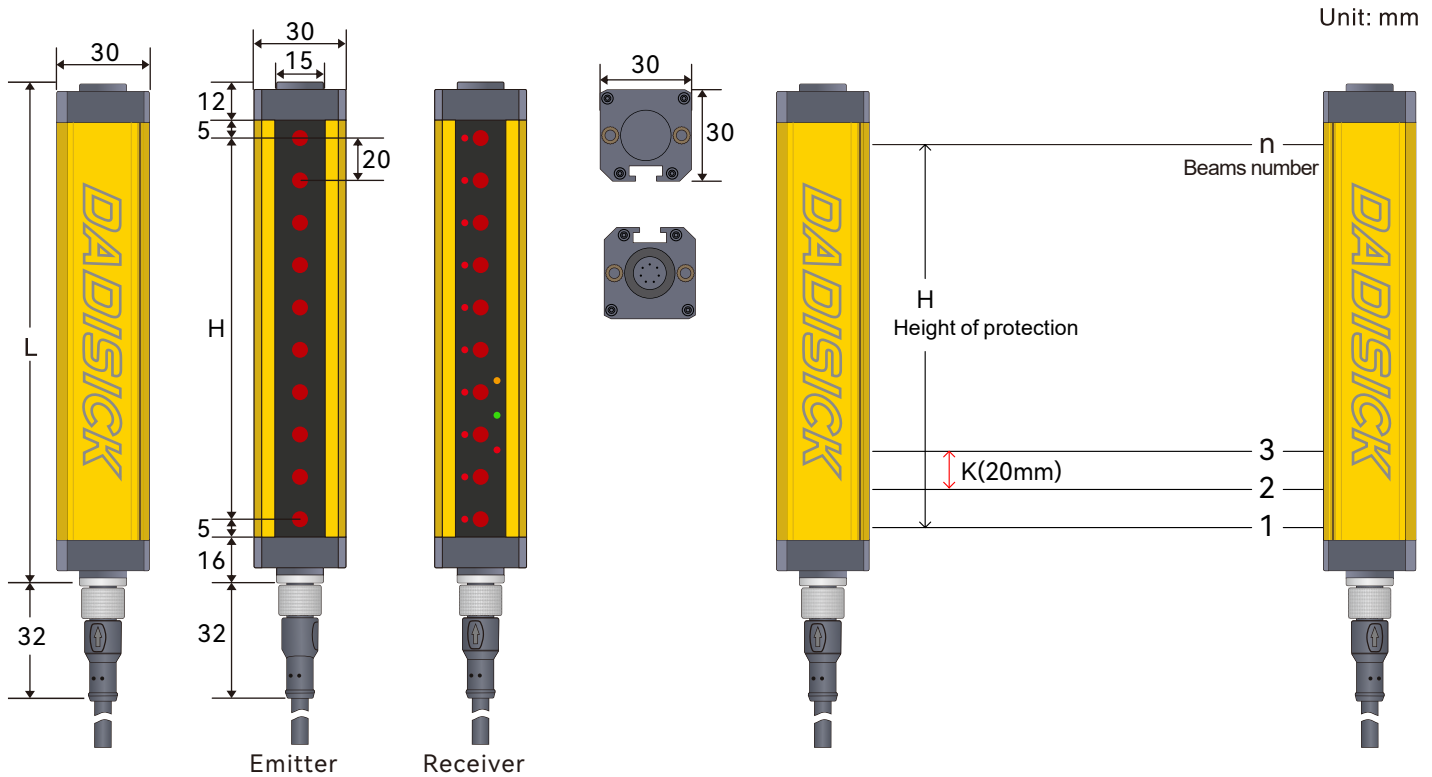
$$L = 12 + 5 + H + 5 + 16$$

$$H = (n - 1) * 10$$

QCE 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	148	QCE12/10-110	2	PNP	0.3-6m
	14	130	168	QCE14/10-130	2	PNP	0.3-6m
	16	150	188	QCE16/10-150	2	PNP	0.3-6m
	18	170	208	QCE18/10-170	2	PNP	0.3-6m
	20	190	228	QCE20/10-190	2	PNP	0.3-6m
	22	210	248	QCE22/10-210	2	PNP	0.3-6m
	24	230	268	QCE24/10-230	2	PNP	0.3-6m
	26	250	288	QCE26/10-250	2	PNP	0.3-6m
	28	270	308	QCE28/10-270	2	PNP	0.3-6m
	30	290	328	QCE30/10-290	2	PNP	0.3-6m
	32	310	348	QCE32/10-310	2	PNP	0.3-6m
	34	330	368	QCE34/10-330	2	PNP	0.3-6m
	36	350	388	QCE36/10-350	2	PNP	0.3-6m
	38	370	408	QCE38/10-370	2	PNP	0.3-6m
	40	390	428	QCE40/10-390	2	PNP	0.3-6m
	42	410	448	QCE42/10-410	2	PNP	0.3-6m
	44	430	468	QCE44/10-430	2	PNP	0.3-6m
	46	450	488	QCE46/10-450	2	PNP	0.3-6m
	48	470	508	QCE48/10-470	2	PNP	0.3-6m
	50	490	528	QCE50/10-490	2	PNP	0.3-6m
52	510	548	QCE52/10-510	2	PNP	0.3-6m	
54	530	568	QCE54/10-530	2	PNP	0.3-6m	
56	550	588	QCE56/10-550	2	PNP	0.3-6m	
58	570	608	QCE58/10-570	2	PNP	0.3-6m	
60	590	628	QCE60/10-590	2	PNP	0.3-6m	
62	610	648	QCE62/10-610	2	PNP	0.3-6m	
64	630	668	QCE64/10-630	2	PNP	0.3-6m	
66	650	688	QCE66/10-650	2	PNP	0.3-6m	
68	670	708	QCE68/10-670	2	PNP	0.3-6m	
70	690	728	QCE70/10-690	2	PNP	0.3-6m	

2. QCE 20mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

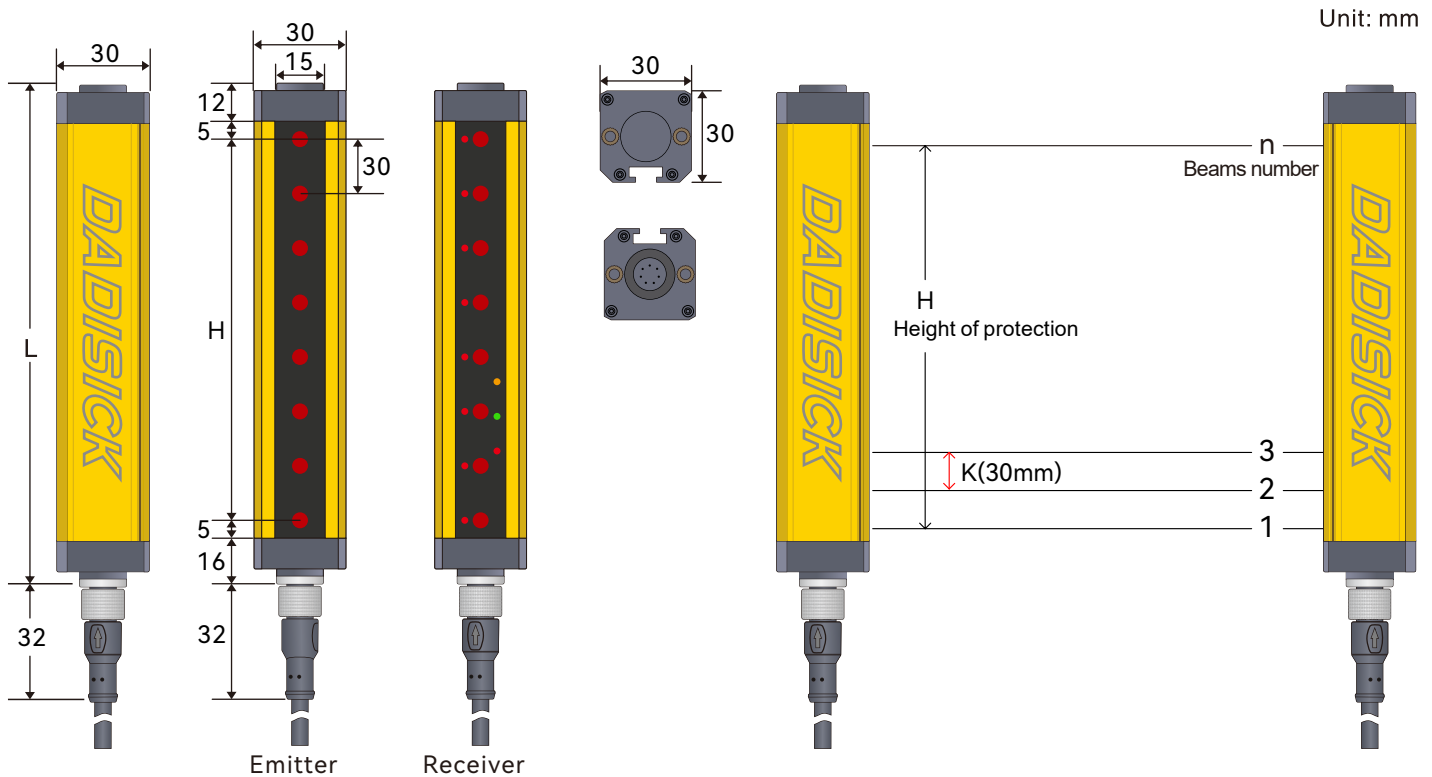
n: Beams number

 $L = 12 + 5 + H + 5 + 16$ $H = (n - 1) * 20$

QCE 20mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection distance
					Two outputs	PNP output	
20mm (K)	6	100	138	QCE06/20-100	2	PNP	0.3-6m
	8	140	178	QCE08/20-140	2	PNP	0.3-6m
	10	180	218	QCE10/20-180	2	PNP	0.3-6m
	12	220	258	QCE12/20-220	2	PNP	0.3-6m
	14	260	298	QCE14/20-260	2	PNP	0.3-6m
	16	300	338	QCE16/20-300	2	PNP	0.3-6m
	18	340	378	QCE18/20-340	2	PNP	0.3-6m
	20	380	418	QCE20/20-380	2	PNP	0.3-6m
	22	420	458	QCE22/20-420	2	PNP	0.3-6m
	24	460	498	QCE24/20-460	2	PNP	0.3-6m
	26	500	538	QCE26/20-500	2	PNP	0.3-6m
	28	540	578	QCE28/20-540	2	PNP	0.3-6m
	30	580	618	QCE30/20-580	2	PNP	0.3-6m
	32	620	658	QCE32/20-620	2	PNP	0.3-6m
	34	660	698	QCE34/20-660	2	PNP	0.3-6m
	36	700	738	QCE36/20-700	2	PNP	0.3-6m
	38	740	778	QCE38/20-740	2	PNP	0.3-6m
	40	780	818	QCE40/20-780	2	PNP	0.3-6m
	42	820	858	QCE42/20-820	2	PNP	0.3-6m
	44	860	898	QCE44/20-860	2	PNP	0.3-6m
	46	900	938	QCE46/20-900	2	PNP	0.3-6m
	48	940	978	QCE48/20-940	2	PNP	0.3-6m
	50	980	1018	QCE50/20-980	2	PNP	0.3-6m
	52	1020	1058	QCE52/20-1020	2	PNP	0.3-6m
54	1060	1098	QCE54/20-1060	2	PNP	0.3-6m	
56	1100	1138	QCE56/20-1100	2	PNP	0.3-6m	
58	1140	1178	QCE58/20-1140	2	PNP	0.3-6m	
60	1180	1218	QCE60/20-1180	2	PNP	0.3-6m	
62	1220	1258	QCE62/20-1220	2	PNP	0.3-6m	
64	1260	1298	QCE64/20-1260	2	PNP	0.3-6m	
66	1300	1338	QCE66/20-1300	2	PNP	0.3-6m	
68	1340	1378	QCE68/20-1340	2	PNP	0.3-6m	
70	1380	1418	QCE70/20-1380	2	PNP	0.3-6m	
72	1420	1458	QCE72/20-1420	2	PNP	0.3-6m	

3. QCE 30mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

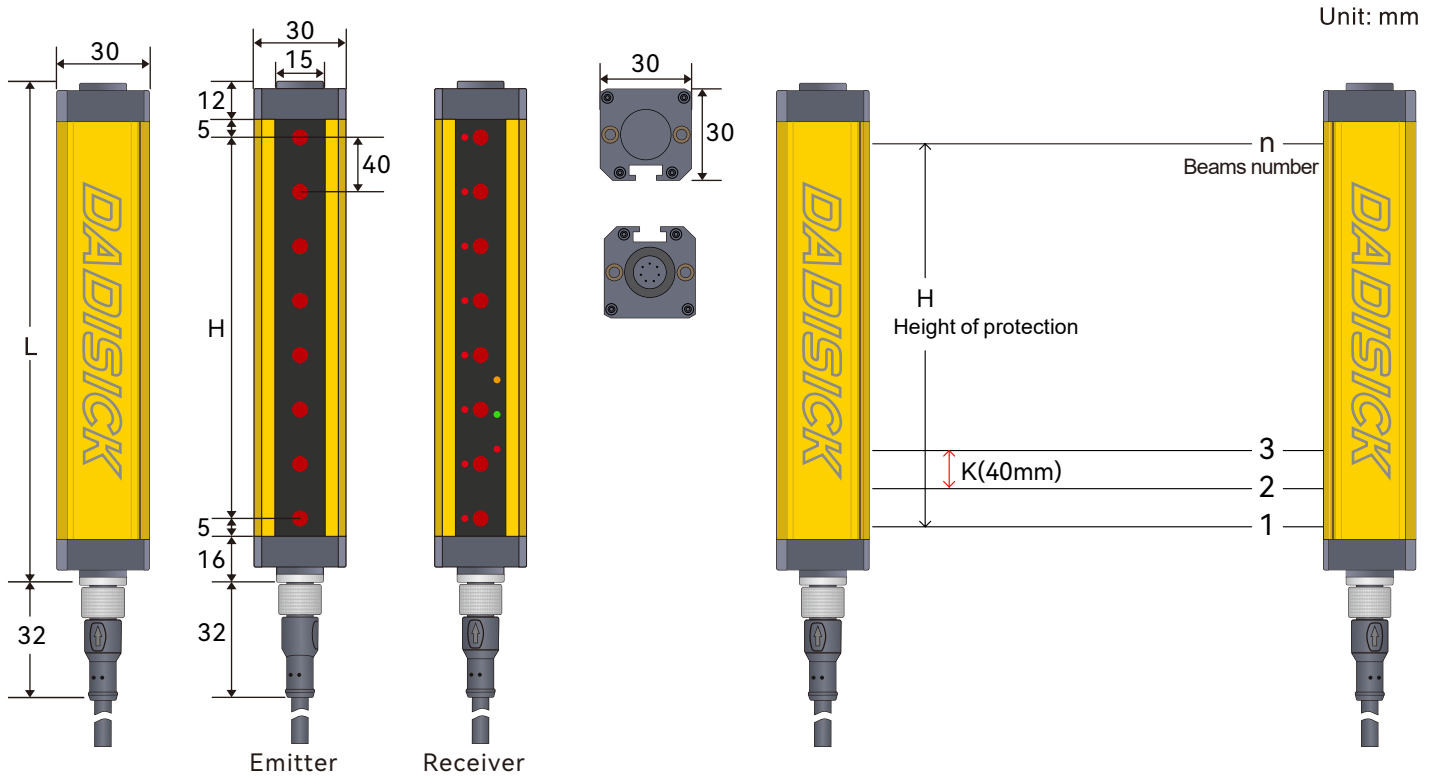
n: Beams number

 $L = 12 + 5 + H + 5 + 16$ $H = (n - 1) * 30$

QCE 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	128	QCE04/30-90	2	PNP	0.3-6m
	6	150	188	QCE06/30-150	2	PNP	0.3-6m
	8	210	248	QCE8/30-210	2	PNP	0.3-6m
	10	270	308	QCE10/30-270	2	PNP	0.3-6m
	12	330	368	QCE12/30-330	2	PNP	0.3-6m
	14	390	428	QCE14/30-390	2	PNP	0.3-6m
	16	450	488	QCE16/30-450	2	PNP	0.3-6m
	18	510	548	QCE18/30-510	2	PNP	0.3-6m
	20	570	608	QCE20/30-570	2	PNP	0.3-6m
	22	630	668	QCE22/30-630	2	PNP	0.3-6m
	24	690	728	QCE24/30-690	2	PNP	0.3-6m
	26	750	788	QCE26/30-750	2	PNP	0.3-6m
	28	810	848	QCE28/30-810	2	PNP	0.3-6m
	30	870	908	QCE30/30-870	2	PNP	0.3-6m
	32	930	968	QCE32/30-930	2	PNP	0.3-6m
	34	990	1028	QCE34/30-990	2	PNP	0.3-6m
	36	1050	1088	QCE36/30-1050	2	PNP	0.3-6m
	38	1110	1148	QCE38/30-1110	2	PNP	0.3-6m
	40	1170	1208	QCE40/30-1170	2	PNP	0.3-6m
	42	1230	1268	QCE42/30-1230	2	PNP	0.3-6m
	44	1290	1328	QCE44/30-1290	2	PNP	0.3-6m
	46	1350	1388	QCE46/30-1350	2	PNP	0.3-6m
	48	1410	1448	QCE48/30-1410	2	PNP	0.3-6m
	50	1470	1508	QCE50/30-1470	2	PNP	0.3-6m
	52	1530	1568	QCE52/30-1530	2	PNP	0.3-6m
	54	1590	1628	QCE54/30-1590	2	PNP	0.3-6m
	56	1650	1688	QCE56/30-1650	2	PNP	0.3-6m
	58	1710	1748	QCE58/30-1710	2	PNP	0.3-6m
	60	1770	1808	QCE60/30-1770	2	PNP	0.3-6m
	62	1830	1868	QCE62/30-1830	2	PNP	0.3-6m
	64	1890	1928	QCE64/30-1890	2	PNP	0.3-6m
	66	1950	1988	QCE66/30-1950	2	PNP	0.3-6m
68	2010	2048	QCE68/30-2010	2	PNP	0.3-6m	
70	2070	2108	QCE70/30-2070	2	PNP	0.3-6m	
72	2130	2168	QCE72/30-2130	2	PNP	0.3-6m	

4. QCE 40mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

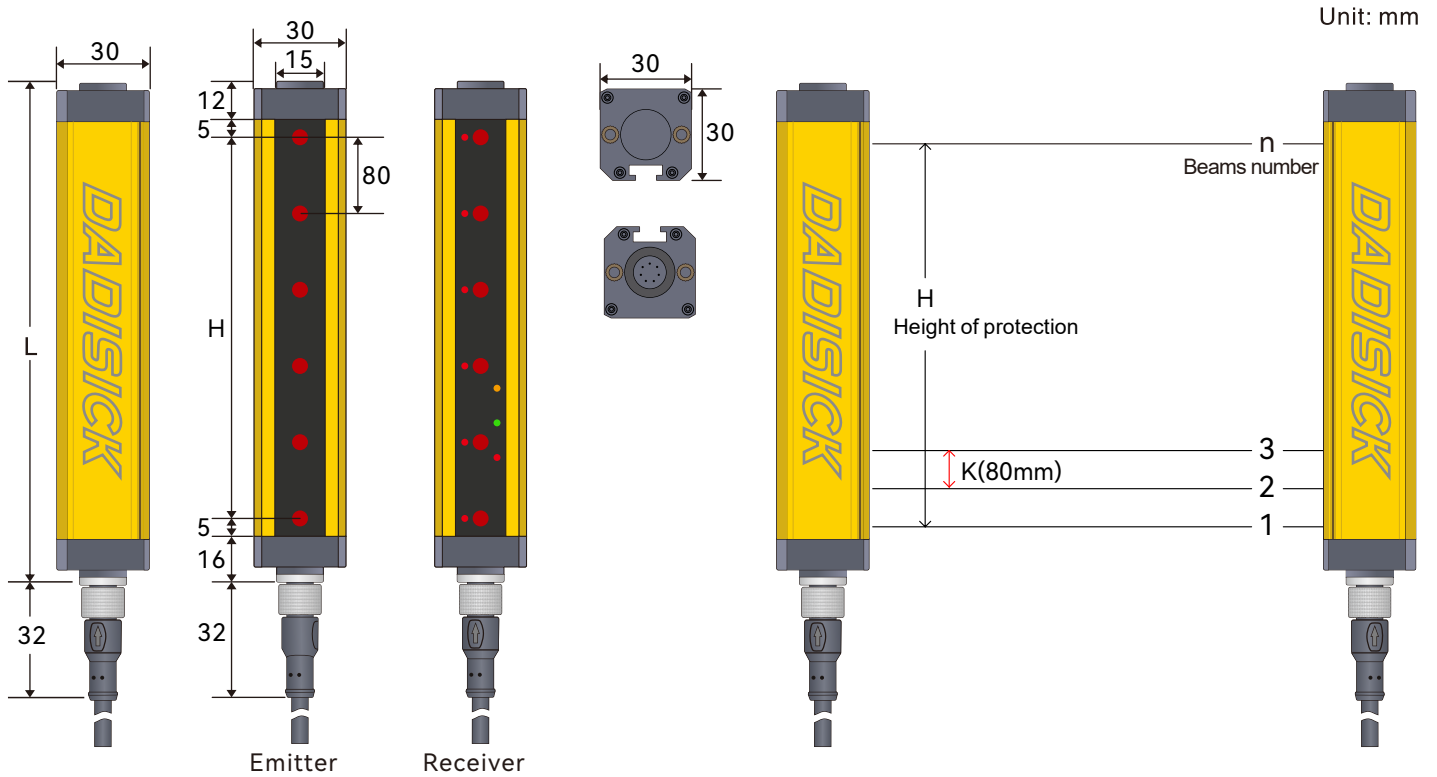
n: Beams number

 $L = 12 + 5 + H + 5 + 16$ $H = (n - 1) * 40$

QCE 40mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection distance
					Two outputs	PNP output	
40mm (K)	4	120	158	QCE04/40-120	2	PNP	0.3-6m
	6	200	238	QCE06/40-200	2	PNP	0.3-6m
	8	280	318	QCE08/40-280	2	PNP	0.3-6m
	10	360	398	QCE10/40-360	2	PNP	0.3-6m
	12	440	478	QCE12/40-440	2	PNP	0.3-6m
	14	520	558	QCE14/40-520	2	PNP	0.3-6m
	16	600	638	QCE16/40-600	2	PNP	0.3-6m
	18	680	718	QCE18/40-680	2	PNP	0.3-6m
	20	760	798	QCE20/40-760	2	PNP	0.3-6m
	22	840	878	QCE22/40-840	2	PNP	0.3-6m
	24	920	958	QCE24/40-920	2	PNP	0.3-6m
	26	1000	1038	QCE26/40-1000	2	PNP	0.3-6m
	28	1080	1118	QCE28/40-1080	2	PNP	0.3-6m
	30	1160	1198	QCE30/40-1160	2	PNP	0.3-6m
	32	1240	1278	QCE32/40-1240	2	PNP	0.3-6m
	34	1320	1358	QCE34/40-1320	2	PNP	0.3-6m
	36	1400	1438	QCE36/40-1400	2	PNP	0.3-6m
	38	1480	1518	QCE38/40-1480	2	PNP	0.3-6m
	40	1560	1598	QCE40/40-1560	2	PNP	0.3-6m
	42	1640	1678	QCE42/40-1640	2	PNP	0.3-6m
	44	1720	1758	QCE44/40-1720	2	PNP	0.3-6m
	46	1800	1838	QCE46/40-1800	2	PNP	0.3-6m
	48	1880	1918	QCE48/40-1880	2	PNP	0.3-6m
	50	1960	1998	QCE50/40-1960	2	PNP	0.3-6m
	52	2040	2078	QCE52/40-2040	2	PNP	0.3-6m
	54	2120	2158	QCE54/40-2120	2	PNP	0.3-6m
	56	2200	2238	QCE56/40-2200	2	PNP	0.3-6m
	58	2280	2318	QCE58/40-2280	2	PNP	0.3-6m
60	2360	2398	QCE60/40-2360	2	PNP	0.3-6m	
62	2440	2478	QCE62/40-2440	2	PNP	0.3-6m	
64	2520	2558	QCE64/40-2520	2	PNP	0.3-6m	
66	2600	2638	QCE66/40-2600	2	PNP	0.3-6m	
68	2680	2718	QCE68/40-2680	2	PNP	0.3-6m	
70	2760	2798	QCE70/40-2760	2	PNP	0.3-6m	
72	2840	2878	QCE72/40-2840	2	PNP	0.3-6m	

5. QCE 80mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

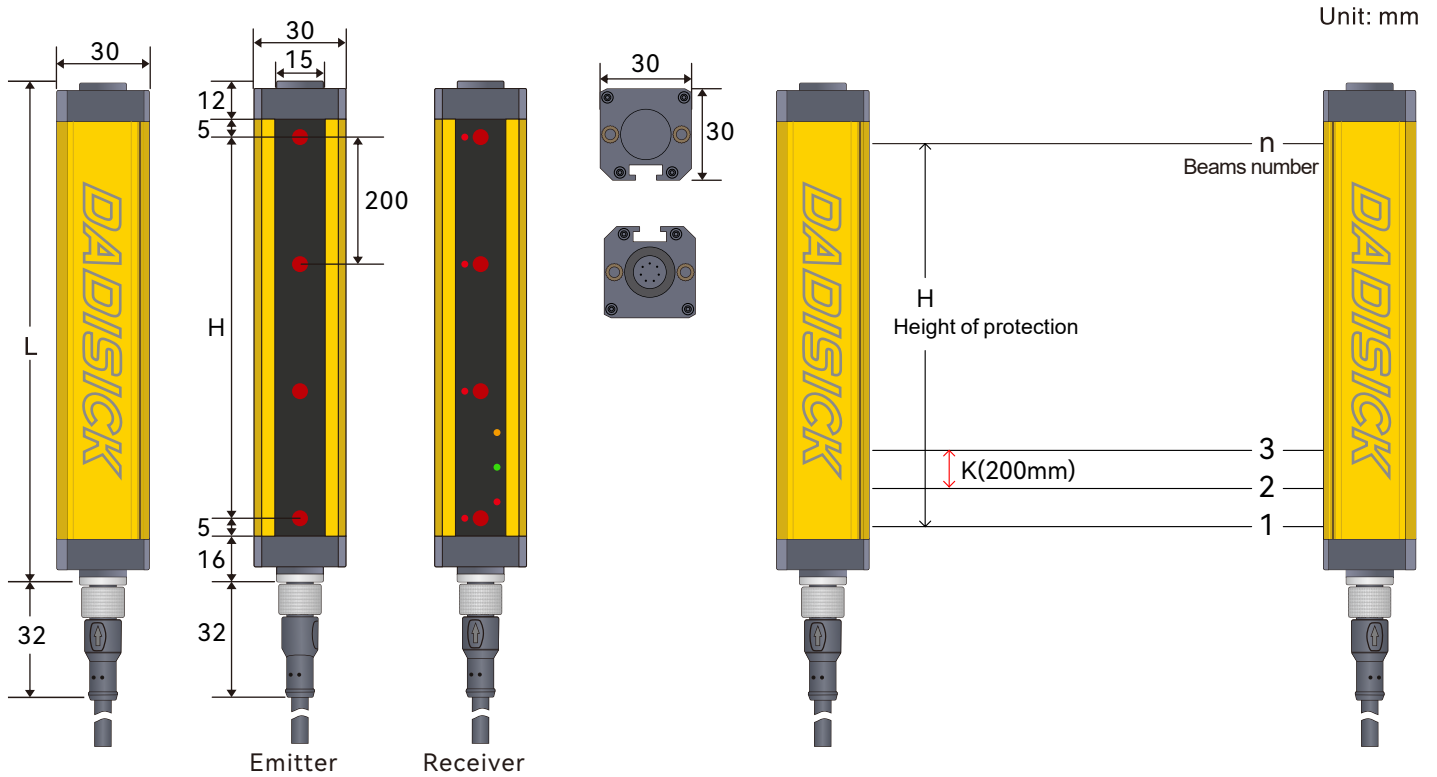
$$L = 12 + 5 + H + 5 + 16$$

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

QCE 80mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection distance
					Two outputs	PNP output	
80mm (K)	4	240	278	QCE04/80-240	2	PNP	0.3-6m
	6	400	438	QCE06/80-400	2	PNP	0.3-6m
	8	560	598	QCE08/80-560	2	PNP	0.3-6m
	10	720	758	QCE10/80-720	2	PNP	0.3-6m
	12	880	918	QCE12/80-880	2	PNP	0.3-6m
	14	1040	1078	QCE14/80-1040	2	PNP	0.3-6m
	16	1200	1238	QCE16/80-1200	2	PNP	0.3-6m
	18	1360	1398	QCE18/80-1360	2	PNP	0.3-6m
	20	1520	1558	QCE20/80-1520	2	PNP	0.3-6m
	22	1680	1718	QCE22/80-1680	2	PNP	0.3-6m
	24	1840	1878	QCE24/80-1840	2	PNP	0.3-6m
	26	2000	2038	QCE26/80-2000	2	PNP	0.3-6m
	28	2160	2198	QCE28/80-2160	2	PNP	0.3-6m
	30	2320	2358	QCE30/80-2320	2	PNP	0.3-6m
32	2480	2518	QCE32/80-2480	2	PNP	0.3-6m	

6. QCE 200mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

 $L = 12 + 5 + H + 5 + 16$ $H = (n - 1) * 200$

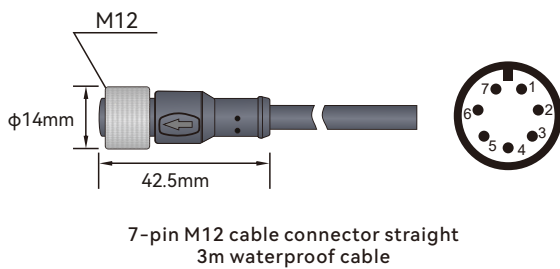
QCE 200mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection distance
					Two outputs	PNP output	
200mm (K)	4	600	638	QCE04/200-600	2	PNP	0.3-6m
	6	1000	1038	QCE06/200-1000	2	PNP	0.3-6m
	8	1400	1438	QCE08/200-1400	2	PNP	0.3-6m
	10	1800	1838	QCE10/200-1800	2	PNP	0.3-6m
	12	2200	2238	QCE12/200-2200	2	PNP	0.3-6m
	14	2600	2638	QCE14/200-2600	2	PNP	0.3-6m
	16	3000	3038	QCE16/200-3000	2	PNP	0.3-6m
	18	3400	3438	QCE18/200-3400	2	PNP	0.3-6m

Electrical connection

Electrical interface	
Number of interfaces	2 (receiver and transmitter)
Type	M12 connector, 7-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
Shielding	shielded

Cable description:

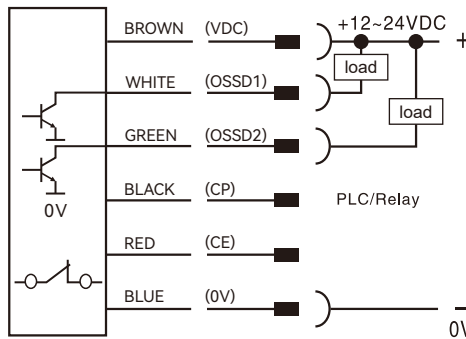


Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	NC
5	GREEN	NC
6	RED	CE
7	YELLOW	Ground wire

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

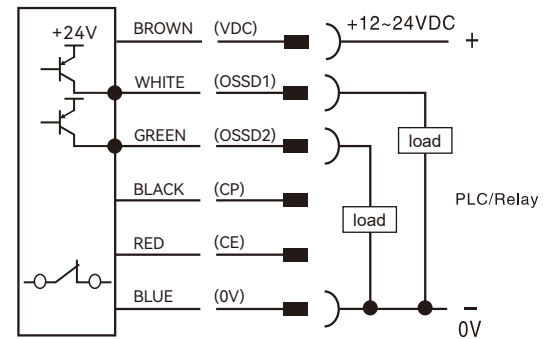
1.QCE signal output selection (actual output of transistor working normally)

NPN NC



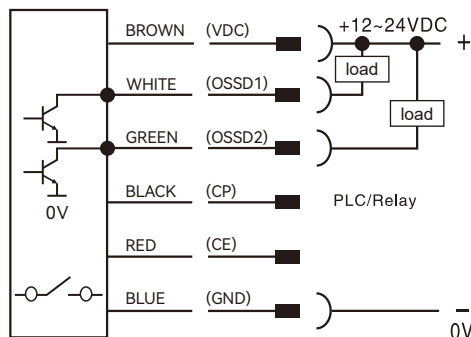
A

PNP NC



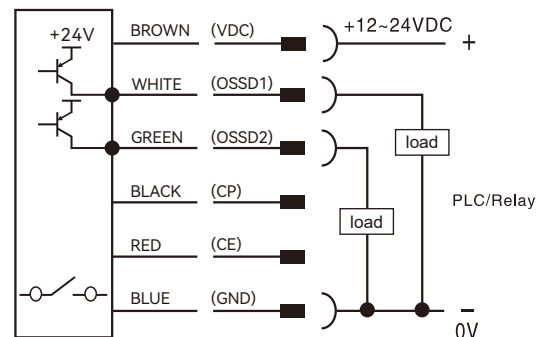
B

NPN NO



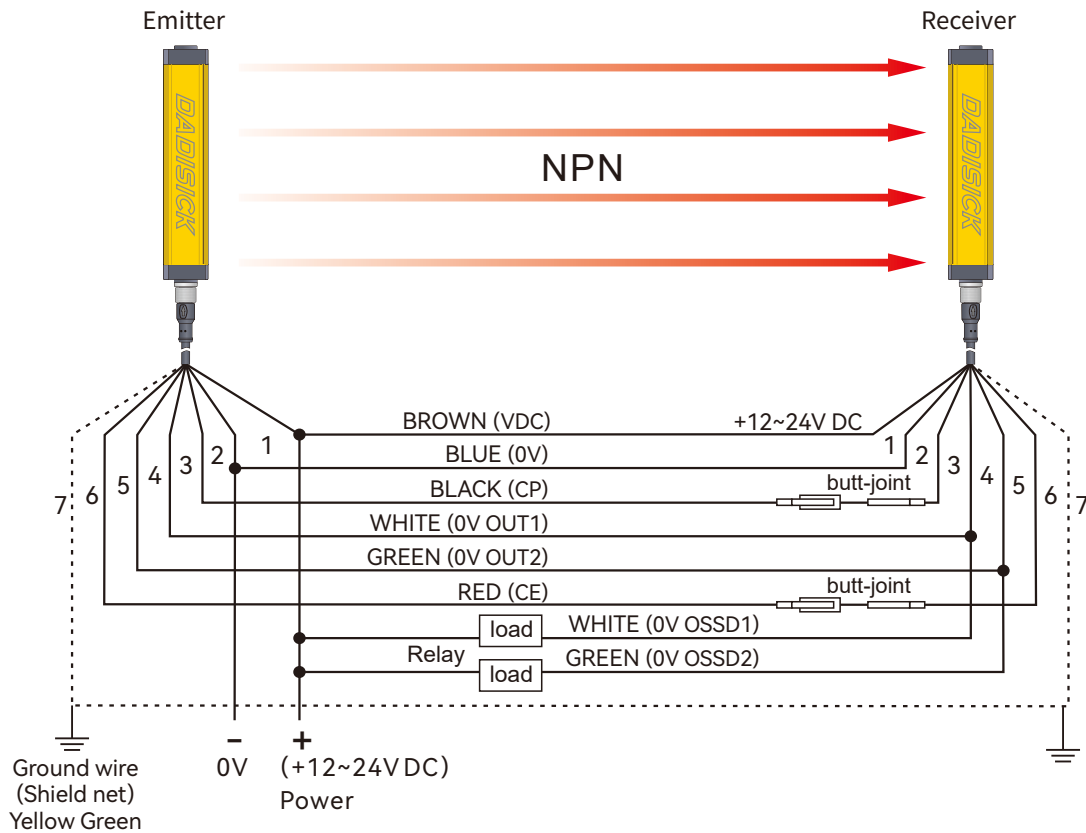
C

PNP NO



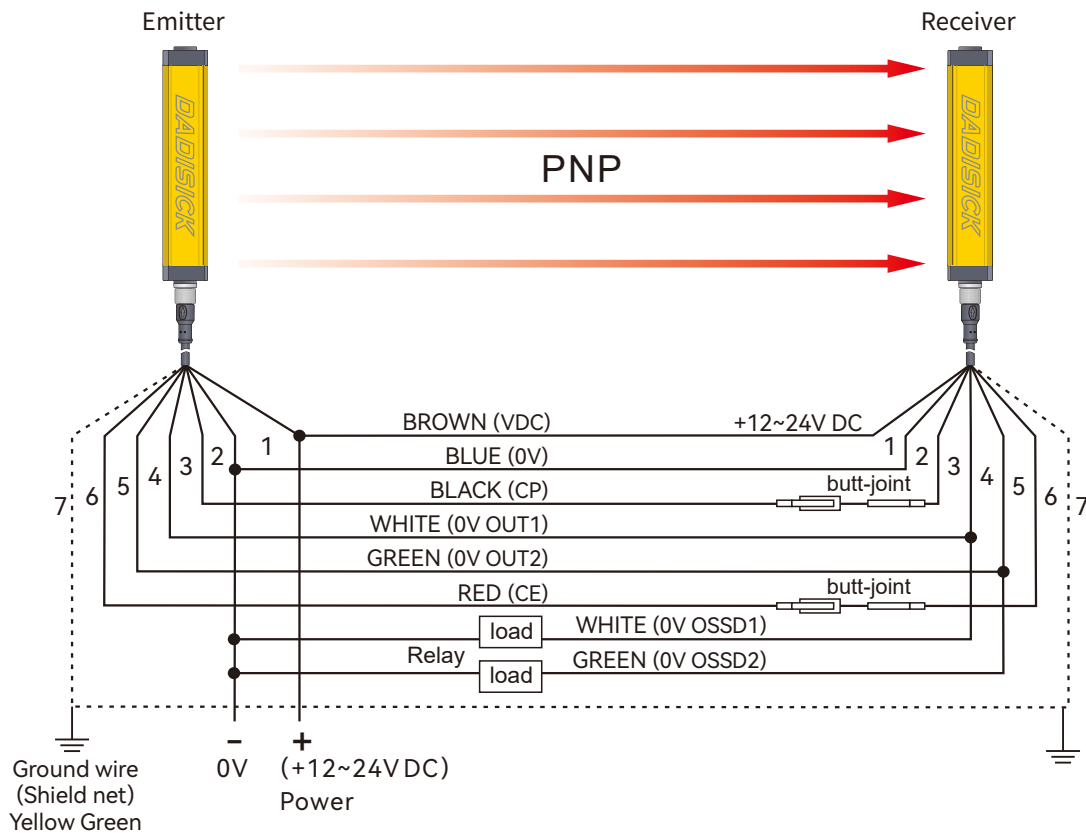
D

2.NPN output wiring diagram








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

3.PNP output wiring diagram

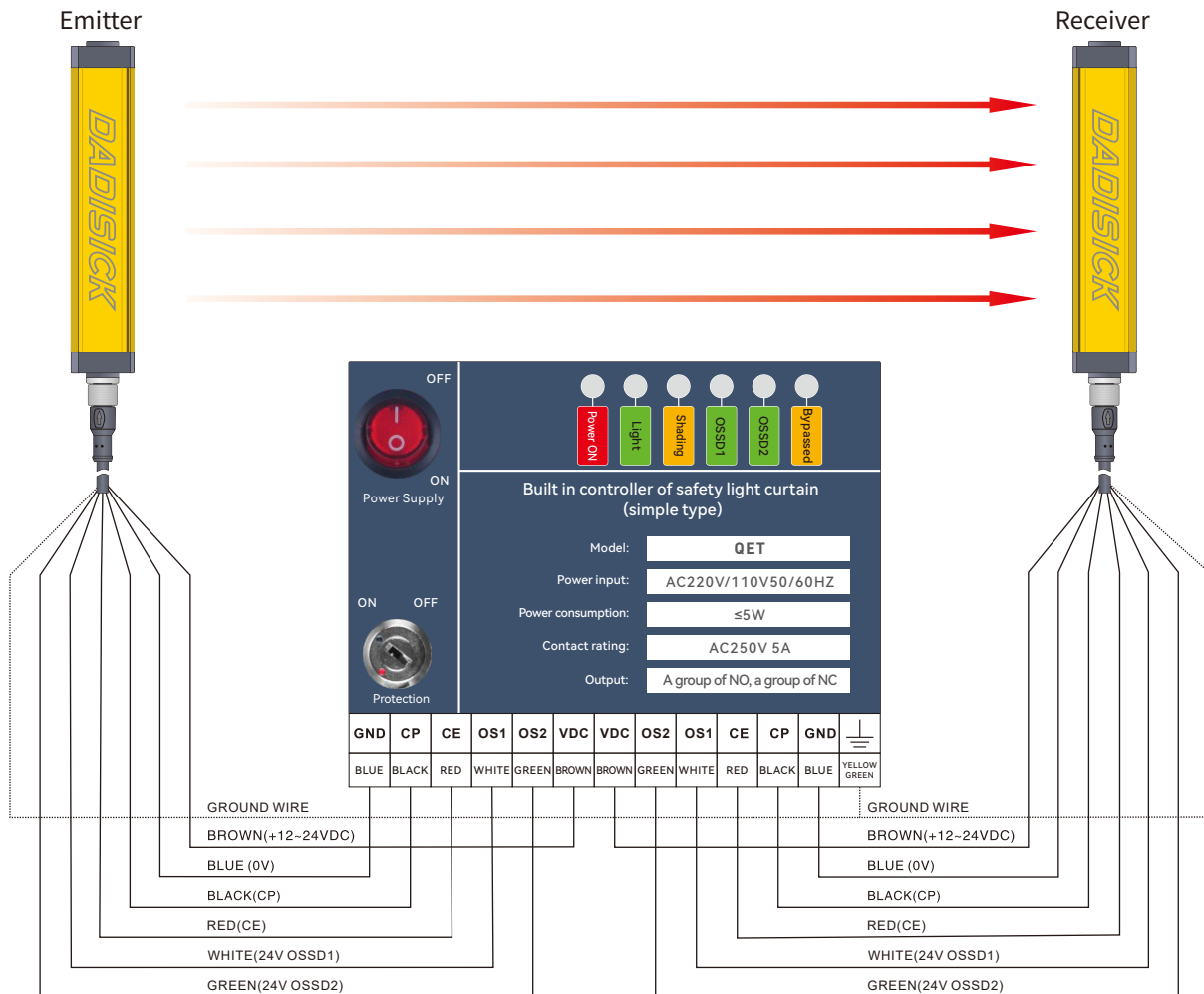


This figure is an example of PNP double output 7-pin wiring.

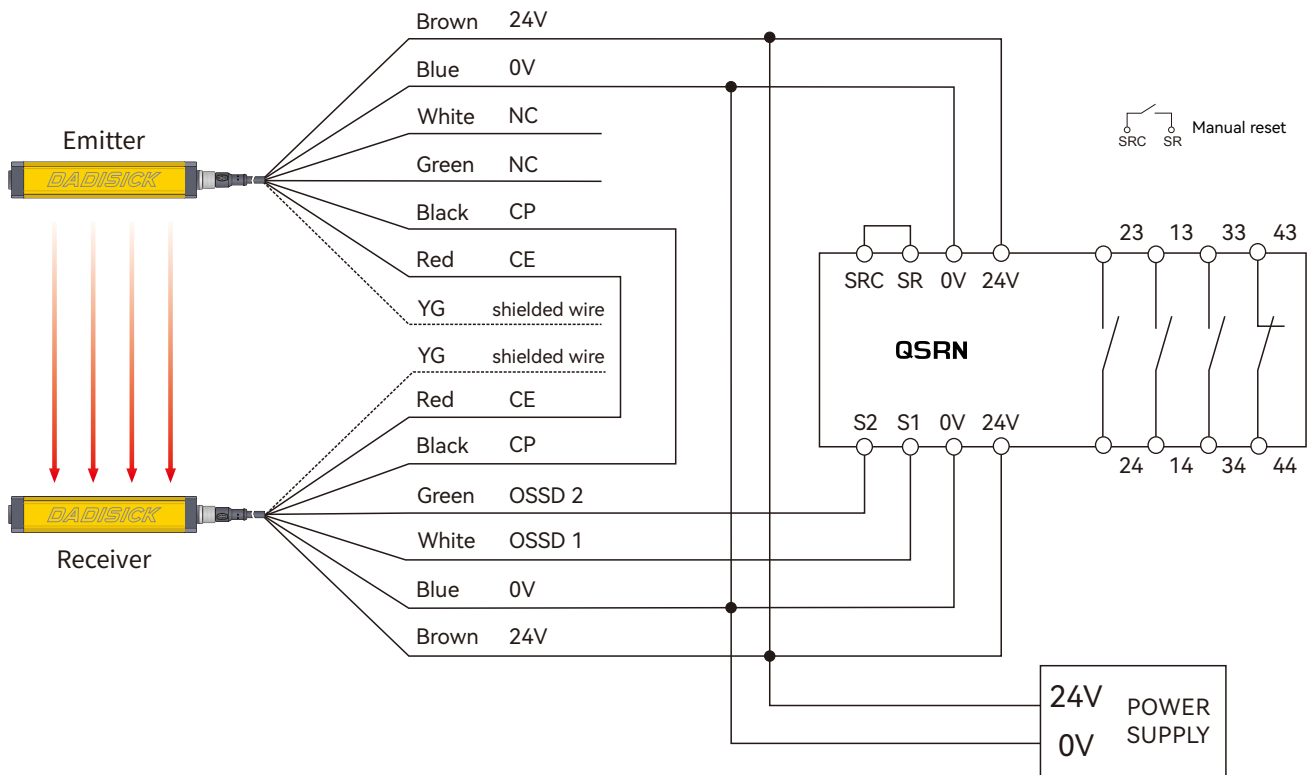
4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		QET	Used to monitor the signal processing of QCE 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 QCE series light curtain.

4.1 Wiring diagram of QET built-in controller

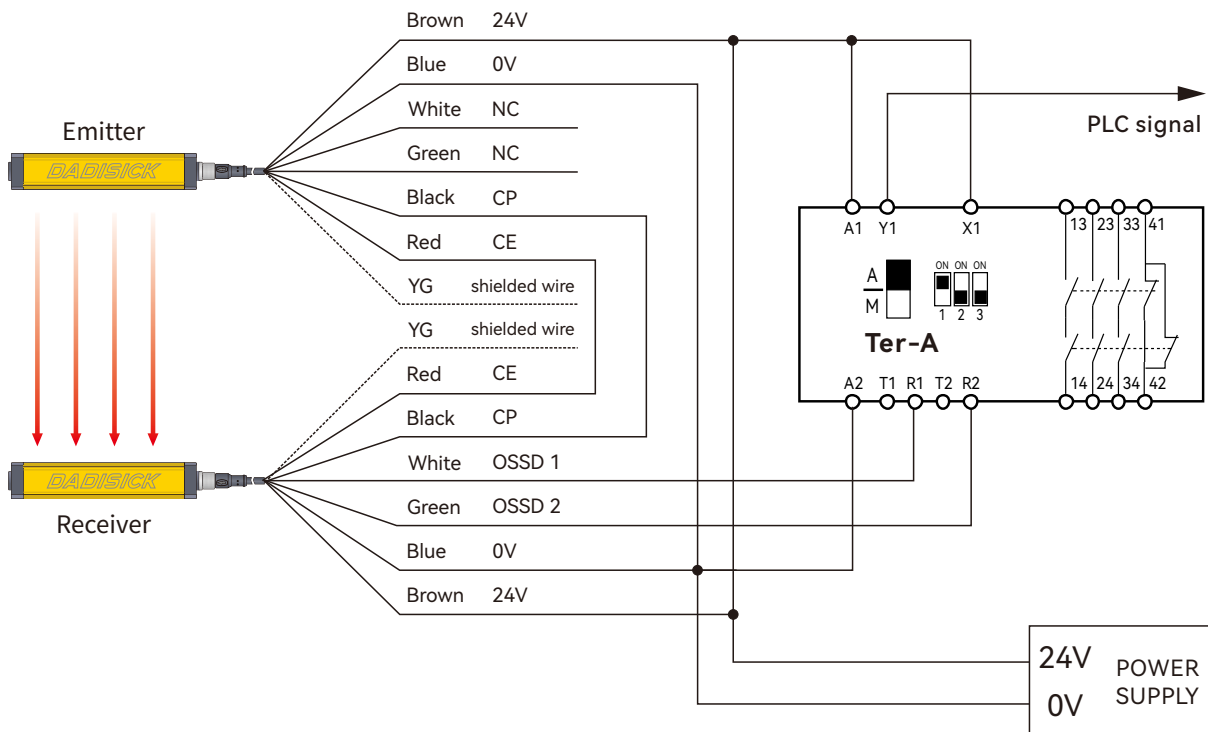


4.2 Wiring diagram of QSRN safety relay

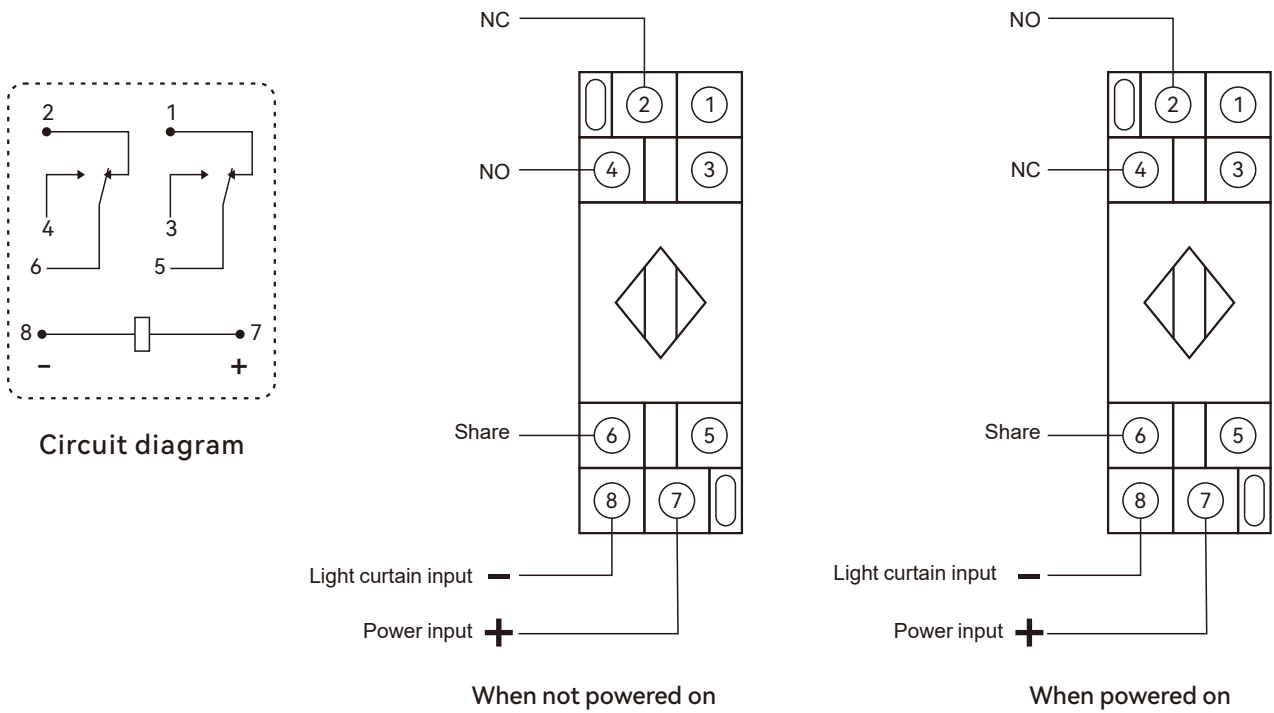


4.3 Wiring diagram of Ter-A safety relay

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

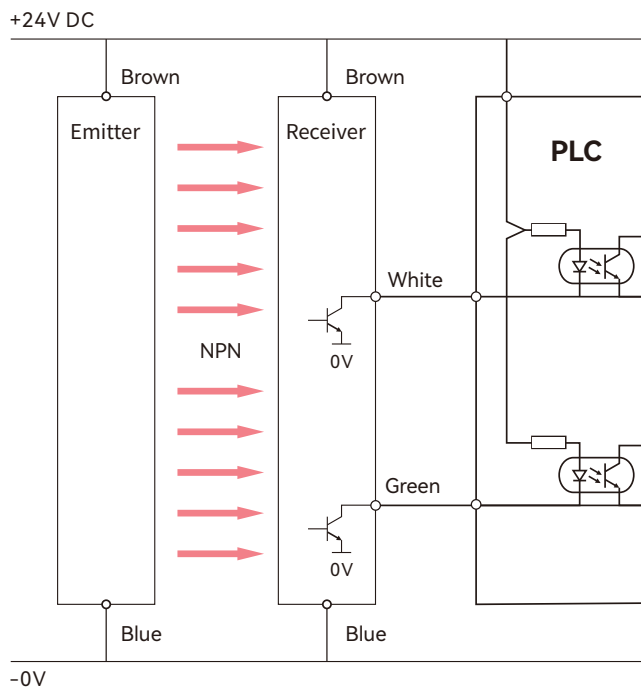


4.4 Wiring diagram of QET-1 light curtain relay

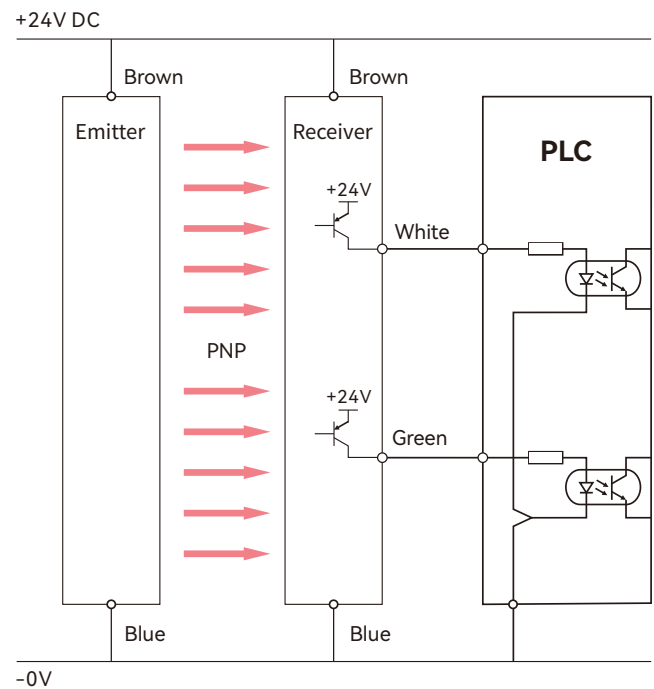


4.5 Wiring between light curtain and PLC and one-chip computer system

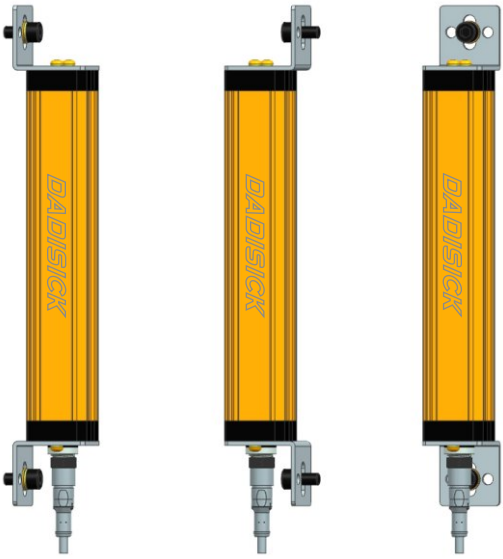
NPN wiring:



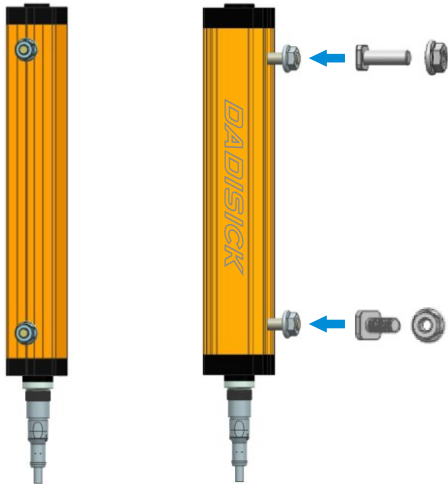
PNP wiring:



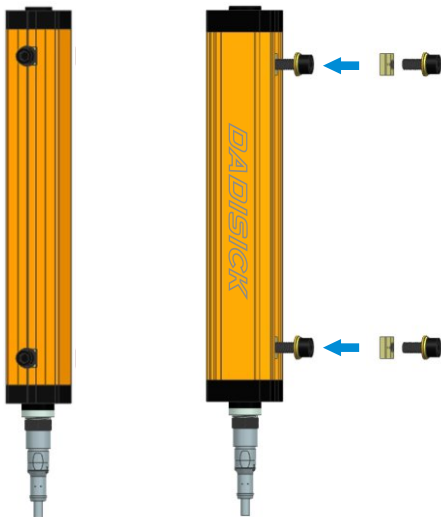
Accessories



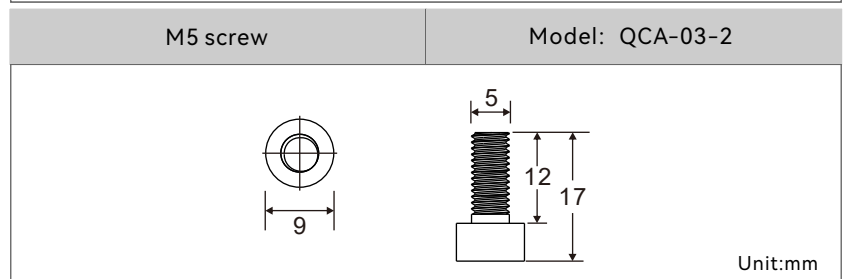
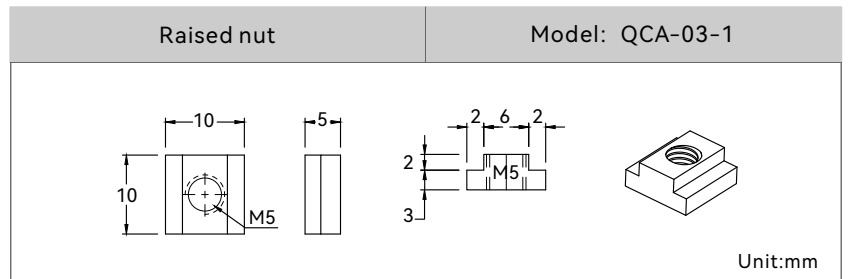
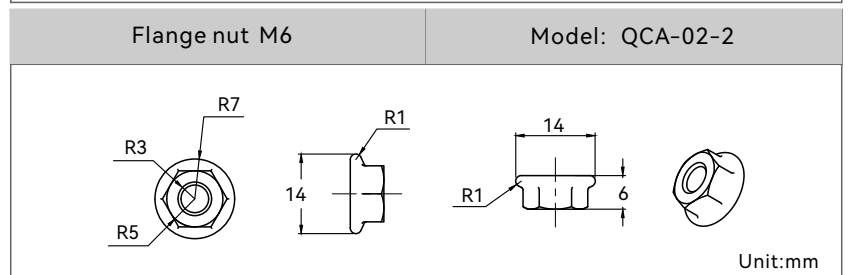
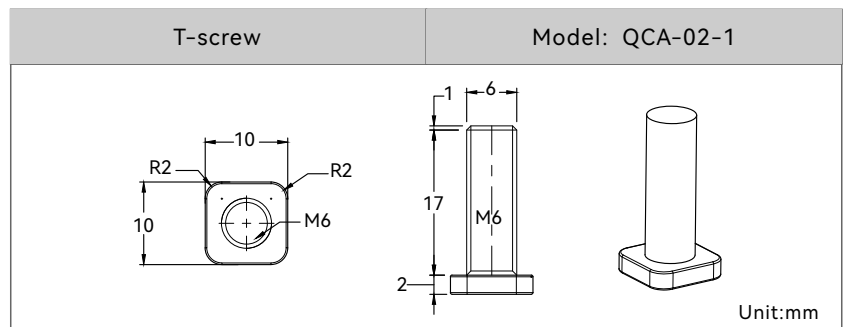
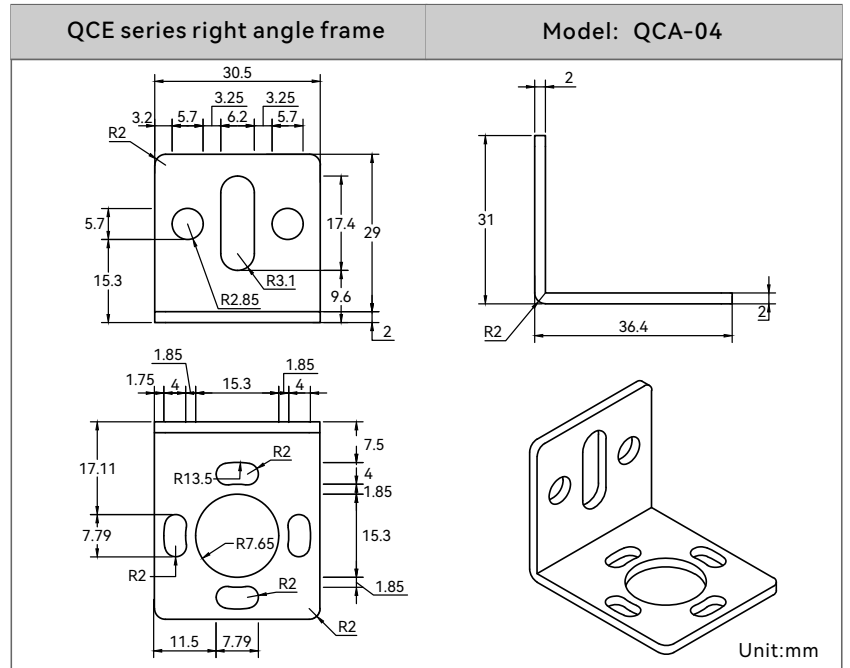
1. Installation method of lower right angle bracket
(Original accessories)

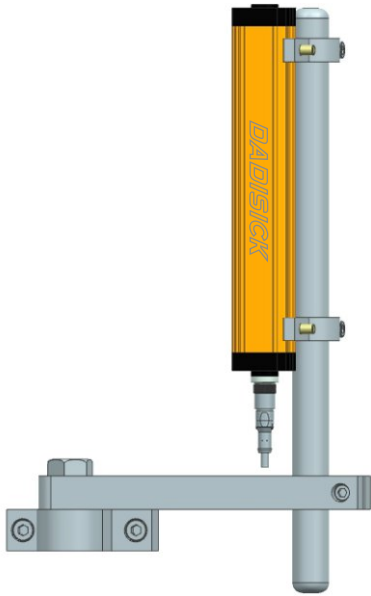


2. T-screw installation method
(Original accessories)



3. Installation method of convex nut
(Optional accessories)





4. Stainless steel bracket installation
(Order separately)

