DADISICK®

TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR
Emitter and Receiver
EQCE series

Figure can vary

Contents

GB/T 19001-2016

DADISICK TECHNOLOGY LIMITED

Website: ru.dadisick.com

We reserve the right to make technical changes

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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 EQCE type safety light curtain are as follows:

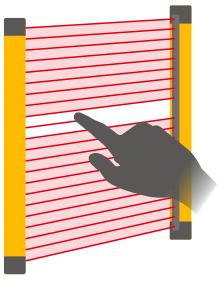
EQCE 12/10–110–2–BB–E (EQCE12/10–110–2–BB–E)

- E: Emitter
  R: Receiver
- Detection distance: A:0.3–3m
  B:0.3–6m
- Signal Output Mode: A:NPN NC
  B:PNP NC
  C:NPN NO
  D:PNP NO
  Note: The default is figure A without special requirements.
- 2: 2–circuit of output
- Protective field height 110mm
- Resolution ratio: 10mm、20mm、30mm
  40mm、80mm、200mm
- Beam number:04、06、08、10.....72
- Model: EQCE series safety light curtain

Resolution ratio

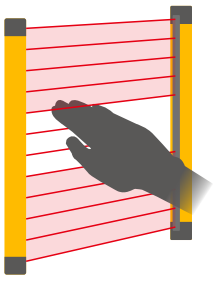
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

Finger protection



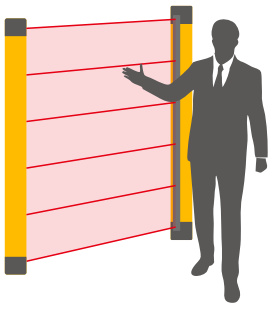
Detection capability
10/14/20mm
diameter

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	**EQCE 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	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

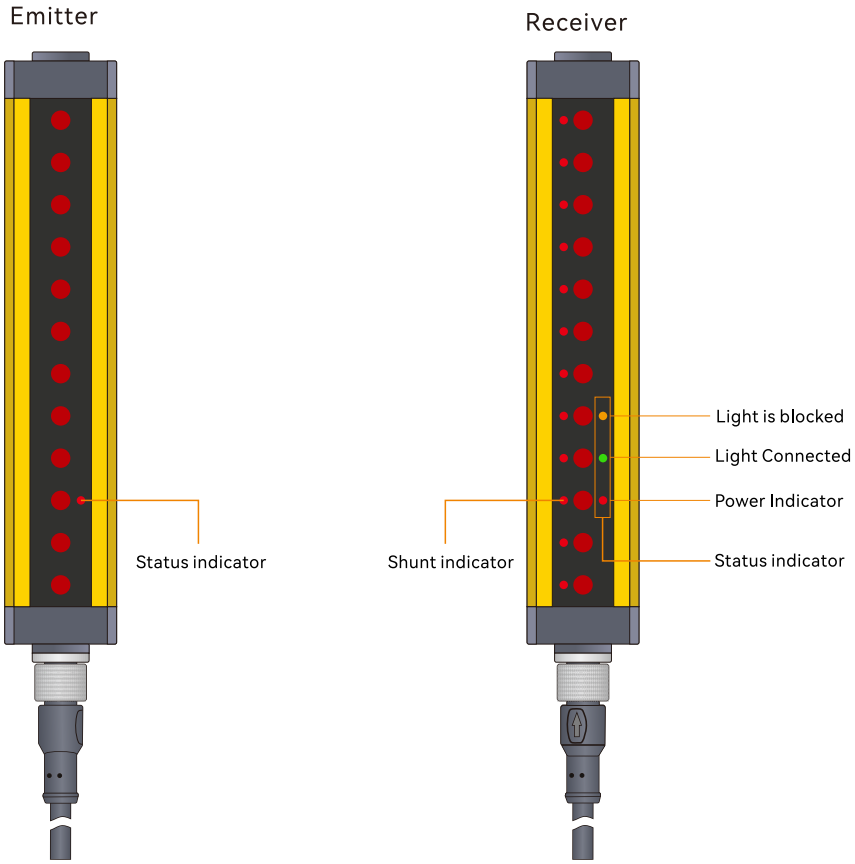
Performance data	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC,-20...20%
Maximum current consumption	150mA
Fuse	2A half time interval

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 ℃ (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)	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

Operation and display



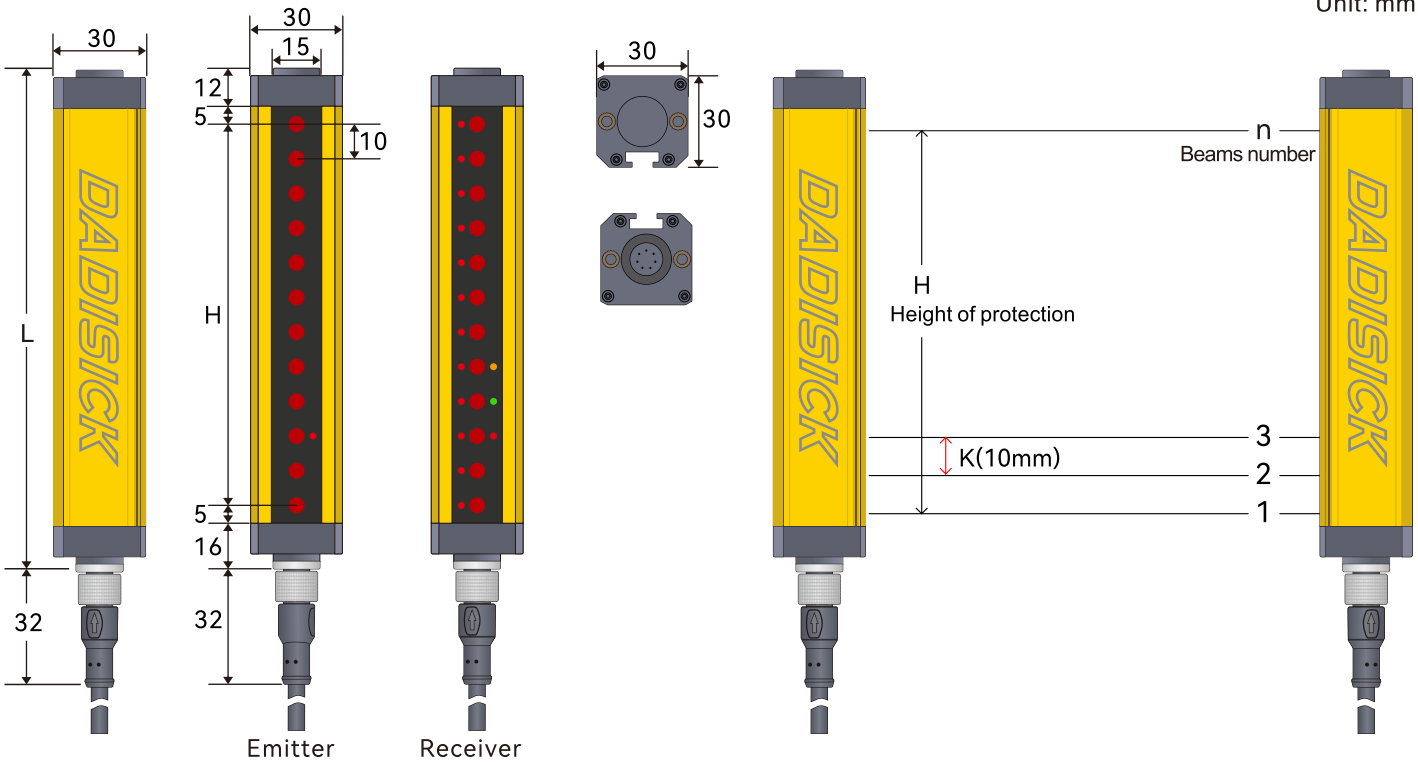
Status indicator	LED status Indicator	Explain
Emitter	Red, always on	Turns on the power
Receiver	Red, always on	Turns on the power
	Green	All light paths are connected
	Yellow	The light is blocked or misaligned
	Lights flashing	Interference or overstep detection range

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. EQCE 10mm series

Unit: mm



Remarks

L:Total length of light screen

L=12+5+H+5+16

H:Height of protected area

H= (n–1) * 10

K:Resolution ratio

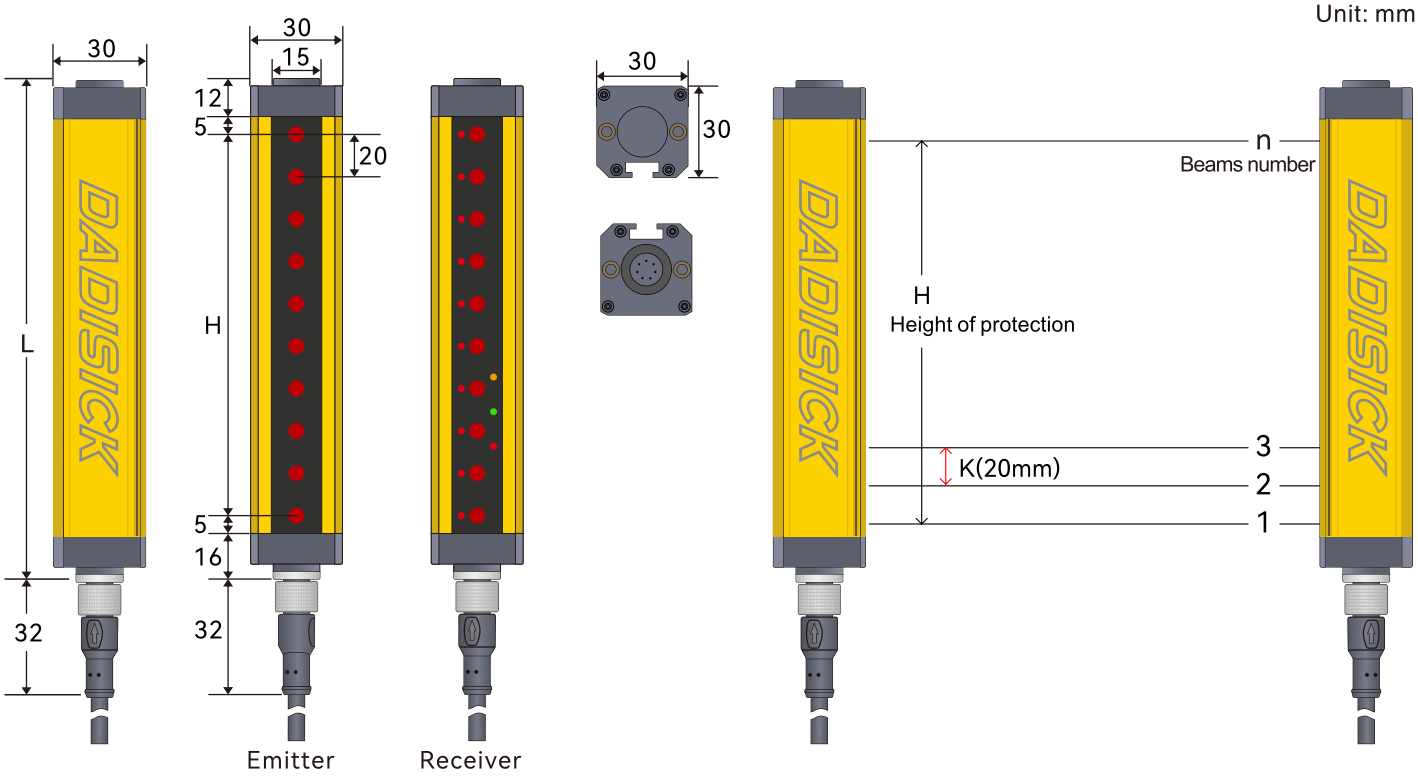
n:Beams number

EQCE 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	EQCE12/10–110	2	PNP	0.3-6m
	14	130	168	EQCE14/10–130	2	PNP	0.3-6m
	16	150	188	EQCE16/10–150	2	PNP	0.3-6m
	18	170	208	EQCE18/10–170	2	PNP	0.3-6m
	20	190	228	EQCE20/10–190	2	PNP	0.3-6m
	22	210	248	EQCE22/10–210	2	PNP	0.3-6m
	24	230	268	EQCE24/10–230	2	PNP	0.3-6m
	26	250	288	EQCE26/10–250	2	PNP	0.3-6m
	28	270	308	EQCE28/10–270	2	PNP	0.3-6m
	30	290	328	EQCE30/10–290	2	PNP	0.3-6m
	32	310	348	EQCE32/10–310	2	PNP	0.3-6m
	34	330	368	EQCE34/10–330	2	PNP	0.3-6m
	36	350	388	EQCE36/10–350	2	PNP	0.3-6m
	38	370	408	EQCE38/10–370	2	PNP	0.3-6m
	40	390	428	EQCE40/10–390	2	PNP	0.3-6m
	42	410	448	EQCE42/10–410	2	PNP	0.3-6m
	44	430	468	EQCE44/10–430	2	PNP	0.3-6m
	46	450	488	EQCE46/10–450	2	PNP	0.3-6m
	48	470	508	EQCE48/10–470	2	PNP	0.3-6m
	50	490	528	EQCE50/10–490	2	PNP	0.3-6m
	52	510	548	EQCE52/10–510	2	PNP	0.3-6m
	54	530	568	EQCE54/10–530	2	PNP	0.3-6m
	56	550	588	EQCE56/10–550	2	PNP	0.3-6m
	58	570	608	EQCE58/10–570	2	PNP	0.3-6m
	60	590	628	EQCE60/10–590	2	PNP	0.3-6m
	62	610	648	EQCE62/10–610	2	PNP	0.3-6m
	64	630	668	EQCE64/10–630	2	PNP	0.3-6m
	66	650	688	EQCE66/10–650	2	PNP	0.3-6m
	68	670	708	EQCE68/10–670	2	PNP	0.3-6m
	70	690	728	EQCE70/10–690	2	PNP	0.3-6m

2. EQCE 20mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+5+H+5+16

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

K:Resolution ratio

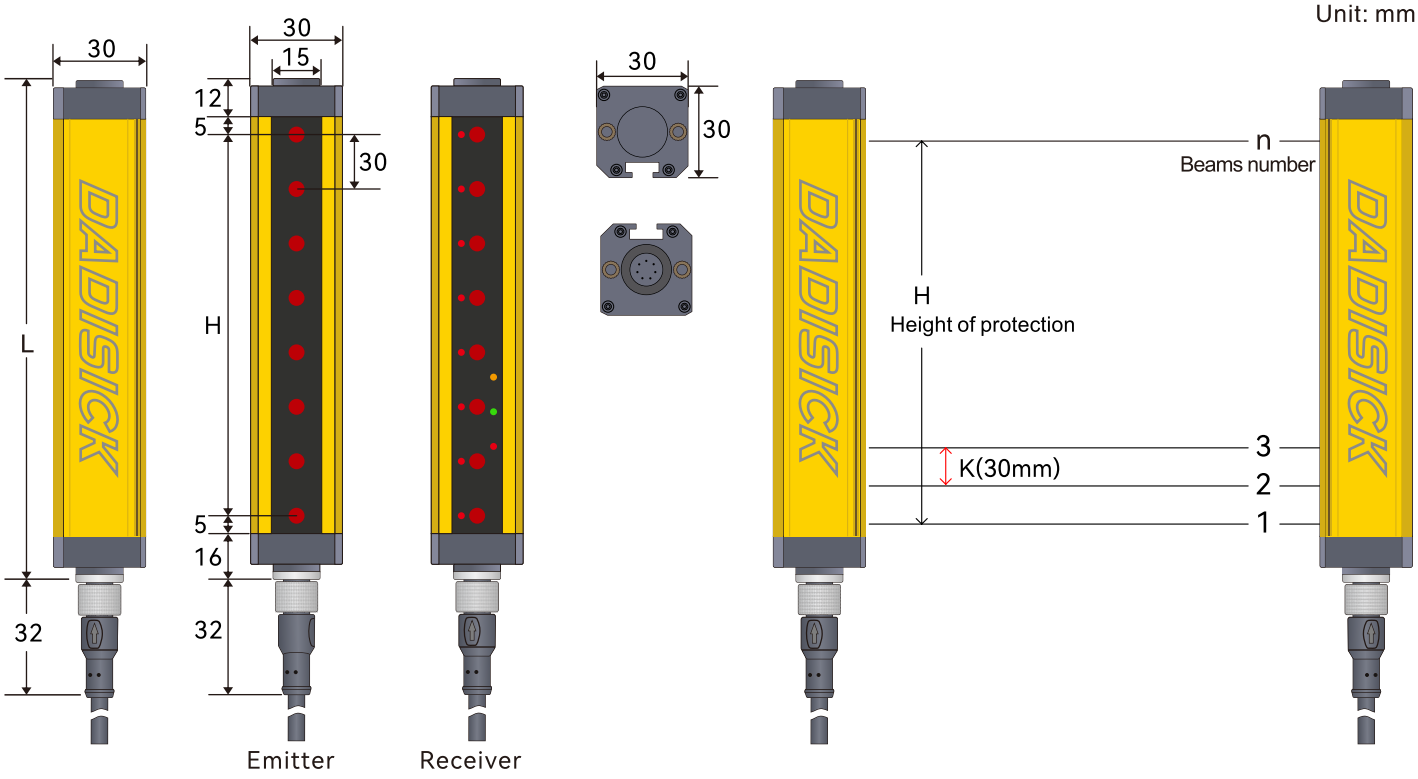
n:Beams number

EQCE 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	EQCE06/20–100	2	PNP	0.3–6m
	8	140	178	EQCE08/20–140	2	PNP	0.3–6m
	10	180	218	EQCE10/20–180	2	PNP	0.3–6m
	12	220	258	EQCE12/20–220	2	PNP	0.3–6m
	14	260	298	EQCE14/20–260	2	PNP	0.3–6m
	16	300	338	EQCE16/20–300	2	PNP	0.3–6m
	18	340	378	EQCE18/20–340	2	PNP	0.3–6m
	20	380	418	EQCE20/20–380	2	PNP	0.3–6m
	22	420	458	EQCE22/20–420	2	PNP	0.3–6m
	24	460	498	EQCE24/20–460	2	PNP	0.3–6m
	26	500	538	EQCE26/20–500	2	PNP	0.3–6m
	28	540	578	EQCE28/20–540	2	PNP	0.3–6m
	30	580	618	EQCE30/20–580	2	PNP	0.3–6m
	32	620	658	EQCE32/20–620	2	PNP	0.3–6m
	34	660	698	EQCE34/20–660	2	PNP	0.3–6m
	36	700	738	EQCE36/20–700	2	PNP	0.3–6m
	38	740	778	EQCE38/20–740	2	PNP	0.3–6m
	40	780	818	EQCE40/20–780	2	PNP	0.3–6m
	42	820	858	EQCE42/20–820	2	PNP	0.3–6m
	44	860	898	EQCE44/20–860	2	PNP	0.3–6m
	46	900	938	EQCE46/20–900	2	PNP	0.3–6m
	48	940	978	EQCE48/20–940	2	PNP	0.3–6m
	50	980	1018	EQCE50/20–980	2	PNP	0.3–6m
	52	1020	1058	EQCE52/20–1020	2	PNP	0.3–6m
	54	1060	1098	EQCE54/20–1060	2	PNP	0.3–6m
	56	1100	1138	EQCE56/20–1100	2	PNP	0.3–6m
	58	1140	1178	EQCE58/20–1140	2	PNP	0.3–6m
	60	1180	1218	EQCE60/20–1180	2	PNP	0.3–6m
	62	1220	1258	EQCE62/20–1220	2	PNP	0.3–6m
	64	1260	1298	EQCE64/20–1260	2	PNP	0.3–6m
	66	1300	1338	EQCE66/20–1300	2	PNP	0.3–6m
	68	1340	1378	EQCE68/20–1340	2	PNP	0.3–6m
	70	1380	1418	EQCE70/20–1380	2	PNP	0.3–6m
	72	1420	1458	EQCE72/20–1420	2	PNP	0.3–6m

3. EQCE 30mm series

Unit: mm



Remarks

L:Total length of light screen

L=12+5+H+5+16

H:Height of protected area

H= (n–1) * 30

K:Resolution ratio

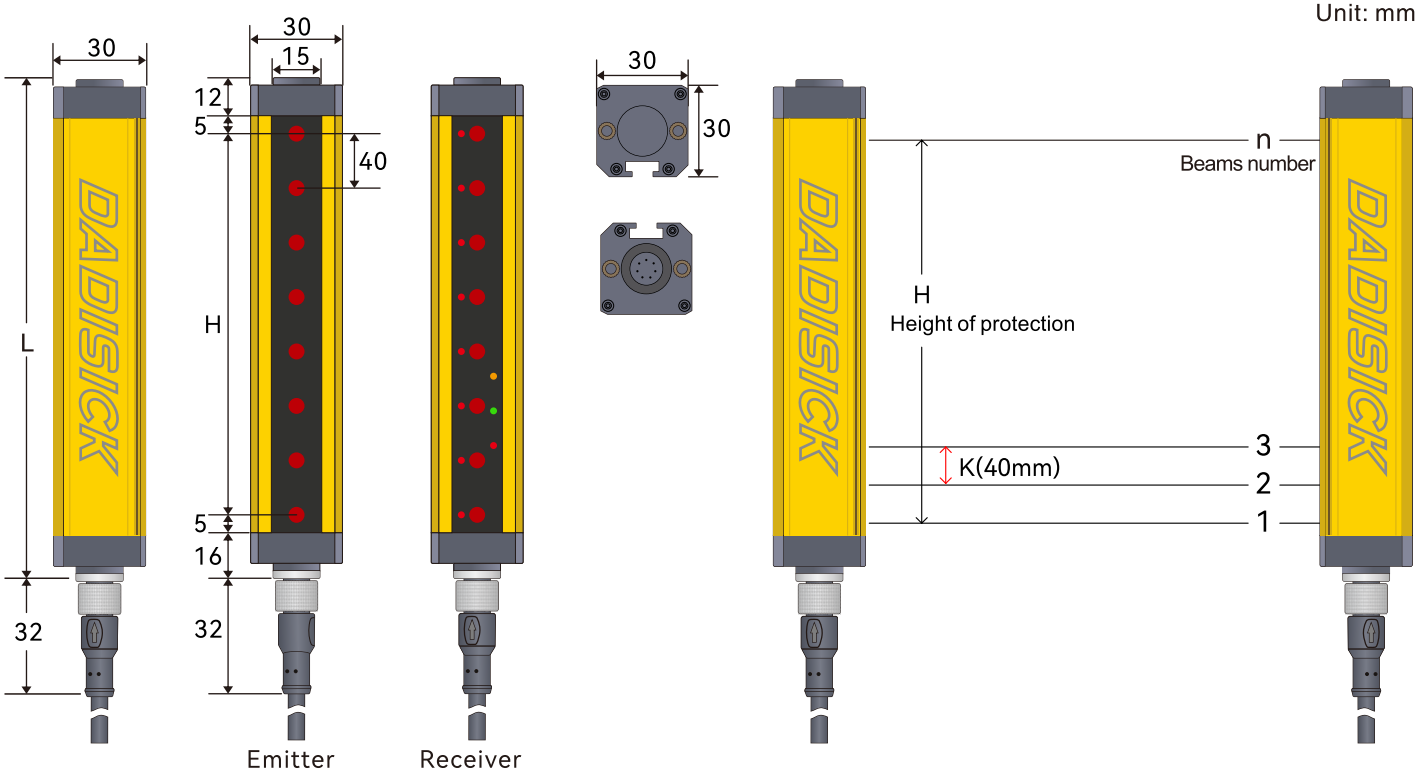
n:Beams number

EQCE 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	EQCE04/30–90	2	PNP	0.3–6m
	6	150	188	EQCE06/30–150	2	PNP	0.3–6m
	8	210	248	EQCE8/30–210	2	PNP	0.3–6m
	10	270	308	EQCE10/30–270	2	PNP	0.3–6m
	12	330	368	EQCE12/30–330	2	PNP	0.3–6m
	14	390	428	EQCE14/30–390	2	PNP	0.3–6m
	16	450	488	EQCE16/30–450	2	PNP	0.3–6m
	18	510	548	EQCE18/30–510	2	PNP	0.3–6m
	20	570	608	EQCE20/30–570	2	PNP	0.3–6m
	22	630	668	EQCE22/30–630	2	PNP	0.3–6m
	24	690	728	EQCE24/30–690	2	PNP	0.3–6m
	26	750	788	EQCE26/30–750	2	PNP	0.3–6m
	28	810	848	EQCE28/30–810	2	PNP	0.3–6m
	30	870	908	EQCE30/30–870	2	PNP	0.3–6m
	32	930	968	EQCE32/30–930	2	PNP	0.3–6m
	34	990	1028	EQCE34/30–990	2	PNP	0.3–6m
	36	1050	1088	EQCE36/30–1050	2	PNP	0.3–6m
	38	1110	1148	EQCE38/30–1110	2	PNP	0.3–6m
	40	1170	1208	EQCE40/30–1170	2	PNP	0.3–6m
	42	1230	1268	EQCE42/30–1230	2	PNP	0.3–6m
	44	1290	1328	EQCE44/30–1290	2	PNP	0.3–6m
	46	1350	1388	EQCE46/30–1350	2	PNP	0.3–6m
	48	1410	1448	EQCE48/30–1410	2	PNP	0.3–6m
	50	1470	1508	EQCE50/30–1470	2	PNP	0.3–6m
	52	1530	1568	EQCE52/30–1530	2	PNP	0.3–6m
	54	1590	1628	EQCE54/30–1590	2	PNP	0.3–6m
	56	1650	1688	EQCE56/30–1650	2	PNP	0.3–6m
	58	1710	1748	EQCE58/30–1710	2	PNP	0.3–6m
	60	1770	1808	EQCE60/30–1770	2	PNP	0.3–6m
	62	1830	1868	EQCE62/30–1830	2	PNP	0.3–6m
	64	1890	1928	EQCE64/30–1890	2	PNP	0.3–6m
	66	1950	1988	EQCE66/30–1950	2	PNP	0.3–6m
	68	2010	2048	EQCE68/30–2010	2	PNP	0.3–6m
	70	2070	2108	EQCE70/30–2070	2	PNP	0.3–6m
	72	2130	2168	EQCE72/30–2130	2	PNP	0.3–6m

4. EQCE 40mm series

Unit: mm



Remarks

L:Total length of light screen

L=12+5+H+5+16

H:Height of protected area

H= (n–1) * 40

K:Resolution ratio

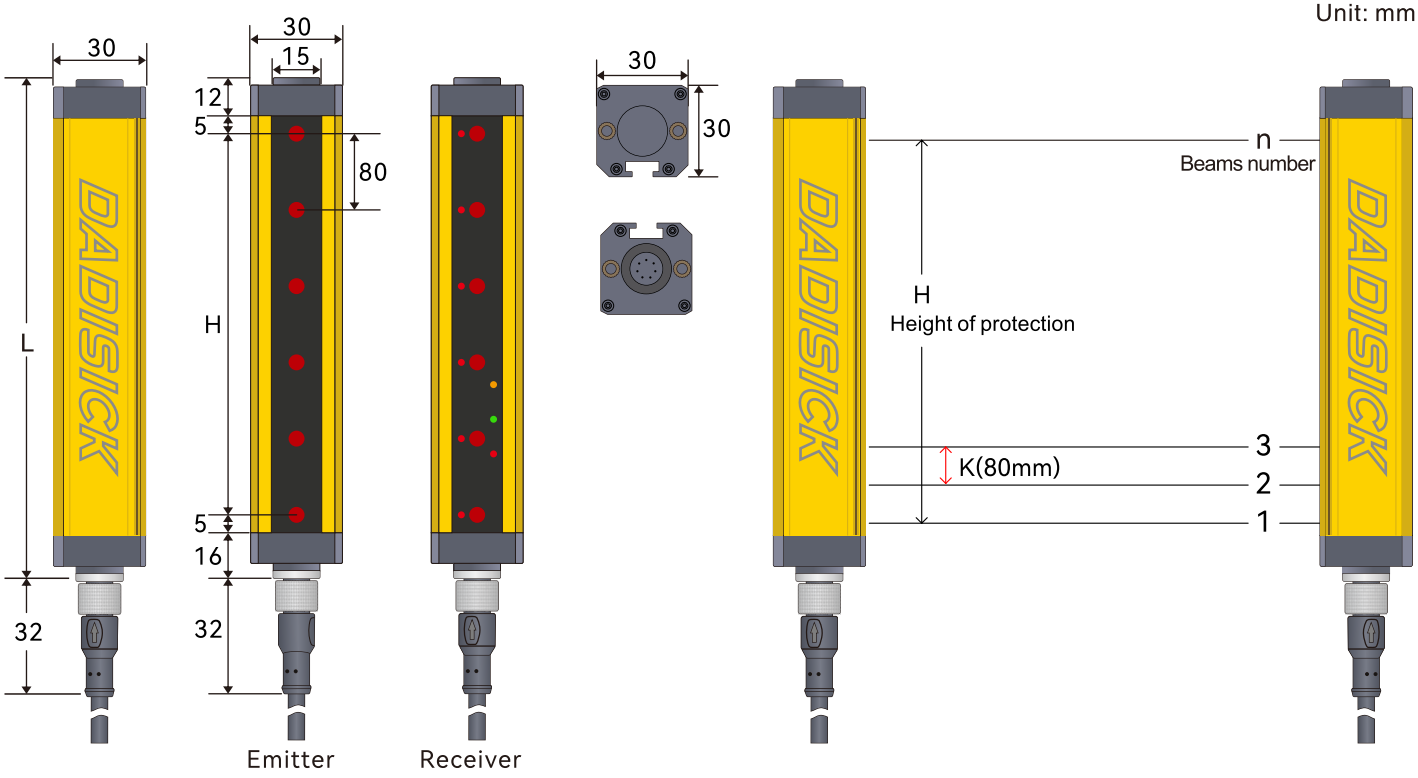
n:Beams number

EQCE 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	EQCE04/40–120	2	PNP	0.3–6m
	6	200	238	EQCE06/40–200	2	PNP	0.3–6m
	8	280	318	EQCE08/40–280	2	PNP	0.3–6m
	10	360	398	EQCE10/40–360	2	PNP	0.3–6m
	12	440	478	EQCE12/40–440	2	PNP	0.3–6m
	14	520	558	EQCE14/40–520	2	PNP	0.3–6m
	16	600	638	EQCE16/40–600	2	PNP	0.3–6m
	18	680	718	EQCE18/40–680	2	PNP	0.3–6m
	20	760	798	EQCE20/40–760	2	PNP	0.3–6m
	22	840	878	EQCE22/40–840	2	PNP	0.3–6m
	24	920	958	EQCE24/40–920	2	PNP	0.3–6m
	26	1000	1038	EQCE26/40–1000	2	PNP	0.3–6m
	28	1080	1118	EQCE28/40–1080	2	PNP	0.3–6m
	30	1160	1198	EQCE30/40–1160	2	PNP	0.3–6m
	32	1240	1278	EQCE32/40–1240	2	PNP	0.3–6m
	34	1320	1358	EQCE34/40–1320	2	PNP	0.3–6m
	36	1400	1438	EQCE36/40–1400	2	PNP	0.3–6m
	38	1480	1518	EQCE38/40–1480	2	PNP	0.3–6m
	40	1560	1598	EQCE40/40–1560	2	PNP	0.3–6m
	42	1640	1678	EQCE42/40–1640	2	PNP	0.3–6m
	44	1720	1758	EQCE44/40–1720	2	PNP	0.3–6m
	46	1800	1838	EQCE46/40–1800	2	PNP	0.3–6m
	48	1880	1918	EQCE48/40–1880	2	PNP	0.3–6m
	50	1960	1998	EQCE50/40–1960	2	PNP	0.3–6m
	52	2040	2078	EQCE52/40–2040	2	PNP	0.3–6m
	54	2120	2158	EQCE54/40–2120	2	PNP	0.3–6m
	56	2200	2238	EQCE56/40–2200	2	PNP	0.3–6m
	58	2280	2318	EQCE58/40–2280	2	PNP	0.3–6m
	60	2360	2398	EQCE60/40–2360	2	PNP	0.3–6m
	62	2440	2478	EQCE62/40–2440	2	PNP	0.3–6m
	64	2520	2558	EQCE64/40–2520	2	PNP	0.3–6m
	66	2600	2638	EQCE66/40–2600	2	PNP	0.3–6m
	68	2680	2718	EQCE68/40–2680	2	PNP	0.3–6m
	70	2760	2798	EQCE70/40–2760	2	PNP	0.3–6m
	72	2840	2878	EQCE72/40–2840	2	PNP	0.3–6m

5. EQCE 80mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+5+H+5+16

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

K:Resolution ratio

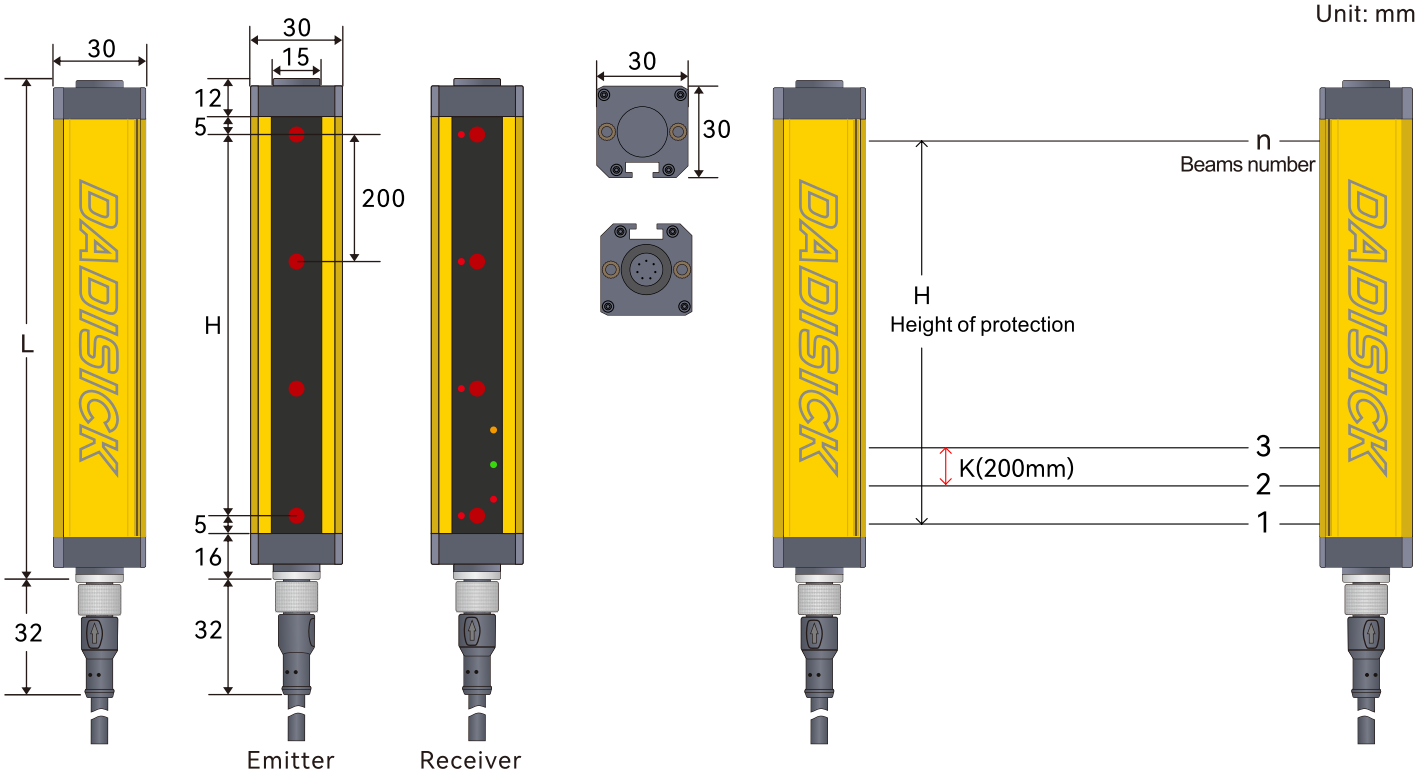
n:Beams number

EQCE 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	EQCE04/80–240	2	PNP	0.3–6m
	6	400	438	EQCE06/80–400	2	PNP	0.3–6m
	8	560	598	EQCE08/80–560	2	PNP	0.3–6m
	10	720	758	EQCE10/80–720	2	PNP	0.3–6m
	12	880	918	EQCE12/80–880	2	PNP	0.3–6m
	14	1040	1078	EQCE14/80–1040	2	PNP	0.3–6m
	16	1200	1238	EQCE16/80–1200	2	PNP	0.3–6m
	18	1360	1398	EQCE18/80–1360	2	PNP	0.3–6m
	20	1520	1558	EQCE20/80–1520	2	PNP	0.3–6m
	22	1680	1718	EQCE22/80–1680	2	PNP	0.3–6m
	24	1840	1878	EQCE24/80–1840	2	PNP	0.3–6m
	26	2000	2038	EQCE26/80–2000	2	PNP	0.3–6m
	28	2160	2198	EQCE28/80–2160	2	PNP	0.3–6m
	30	2320	2358	EQCE30/80–2320	2	PNP	0.3–6m
	32	2480	2518	EQCE32/80–2480	2	PNP	0.3–6m

6. EQCE 200mm series

Unit: mm



Remarks

L:Total length of light screen
L=12+5+H+5+16

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

K:Resolution ratio

n:Beams number

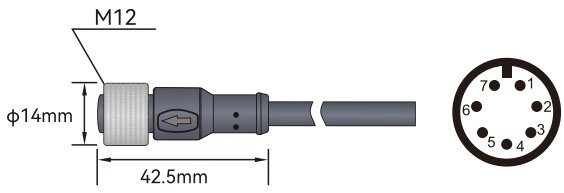
EQCE 200mm specification list

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	EQCE04/200–600	2	PNP	0.3–6m
	6	1000	1038	EQCE06/200–1000	2	PNP	0.3–6m
	8	1400	1438	EQCE08/200–1400	2	PNP	0.3–6m
	10	1800	1838	EQCE10/200–1800	2	PNP	0.3–6m
	12	2200	2238	EQCE12/200–2200	2	PNP	0.3–6m
	14	2600	2638	EQCE14/200–2600	2	PNP	0.3–6m
	16	3000	3038	EQCE16/200–3000	2	PNP	0.3–6m
	18	3400	3438	EQCE18/200–3400	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:



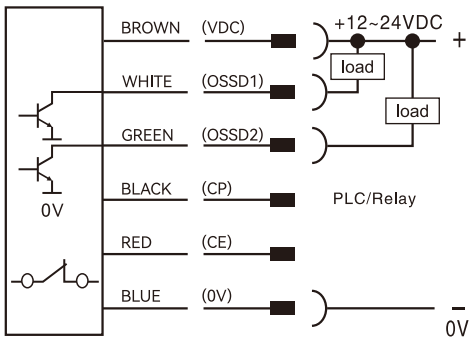
7-pin M12 cable connector straight
3m waterproof cable

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

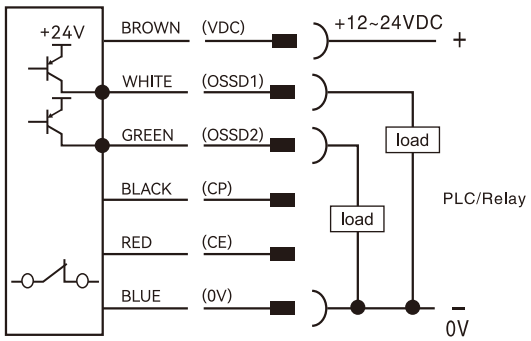
1.EQCE signal output selection (actual output of transistor working normally)

NPN NC



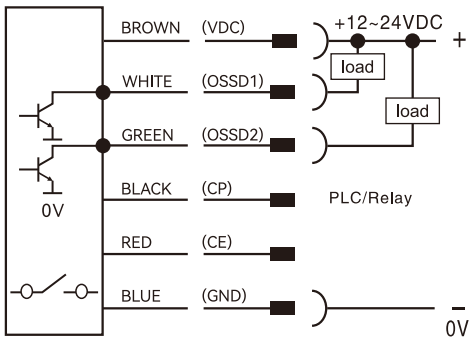
A

PNP NC



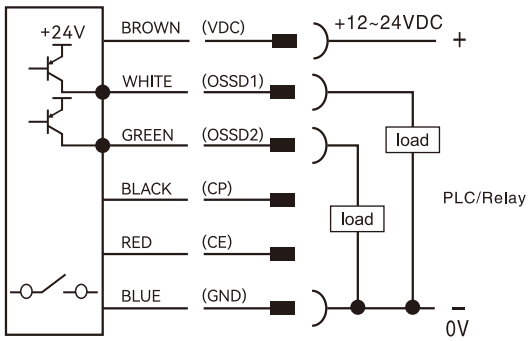
B

NPN NO



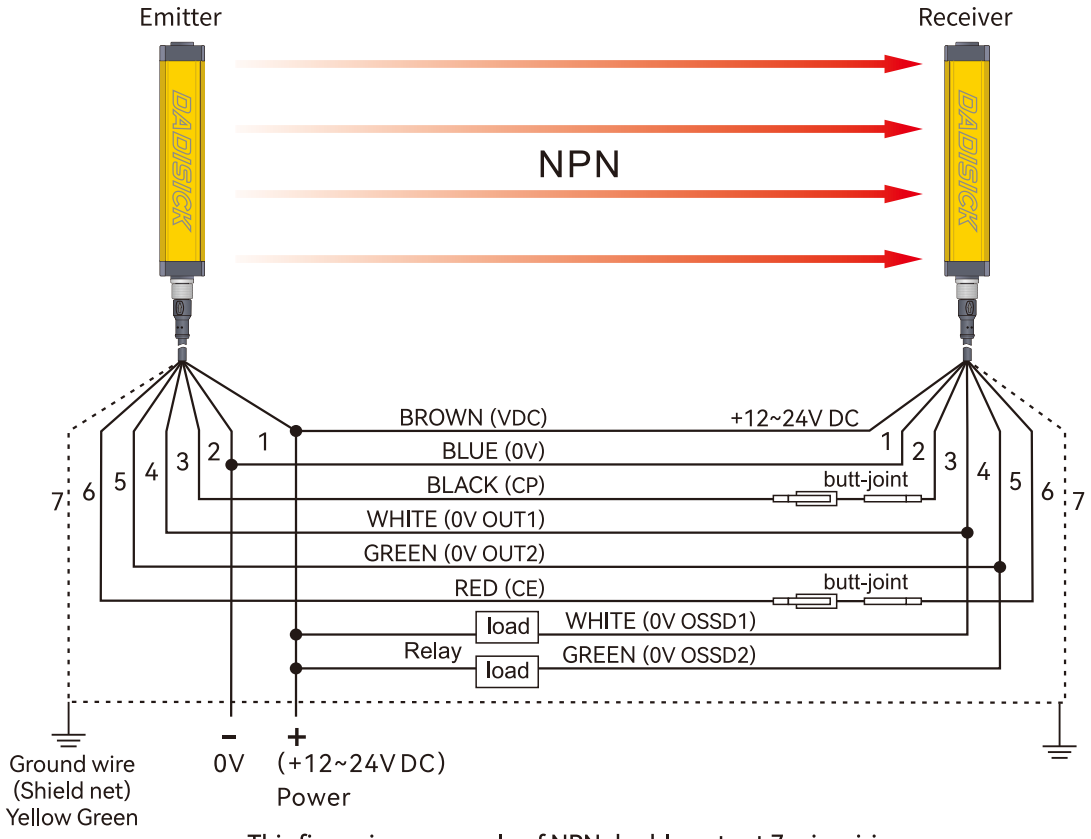
C

PNP NO



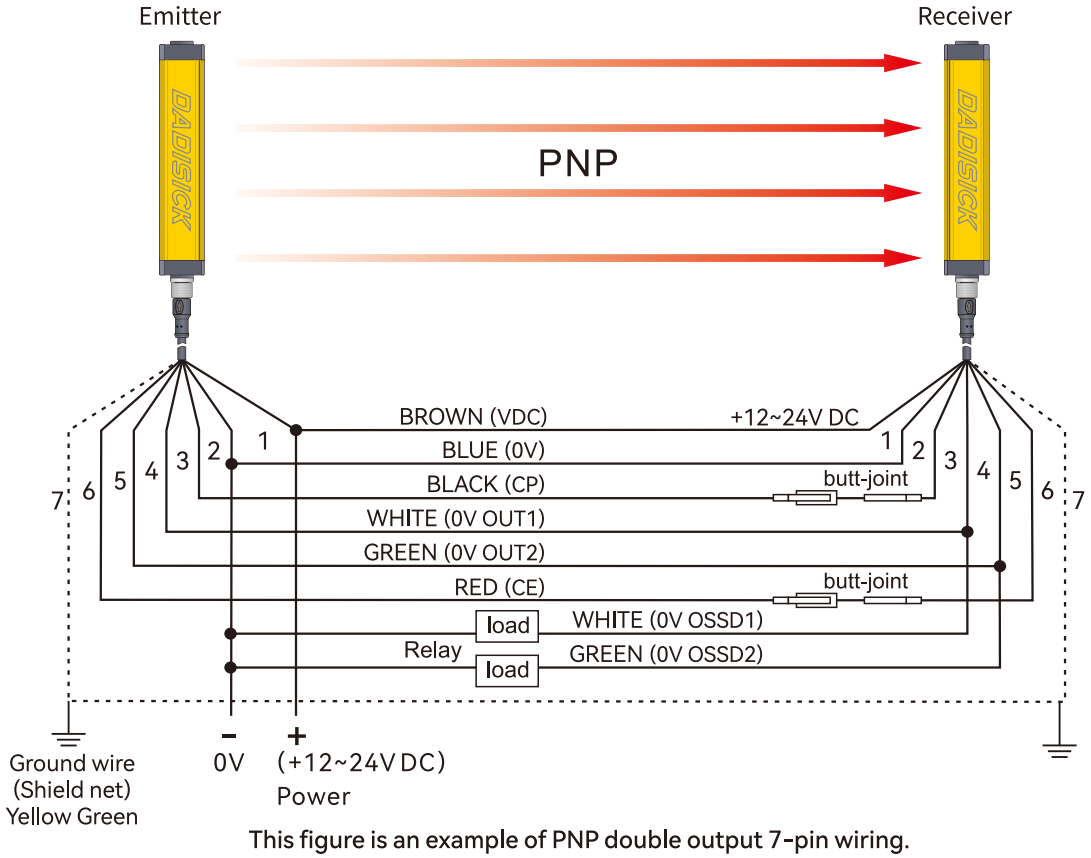
D

2.NPN output wiring diagram



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

3.PNP output wiring diagram

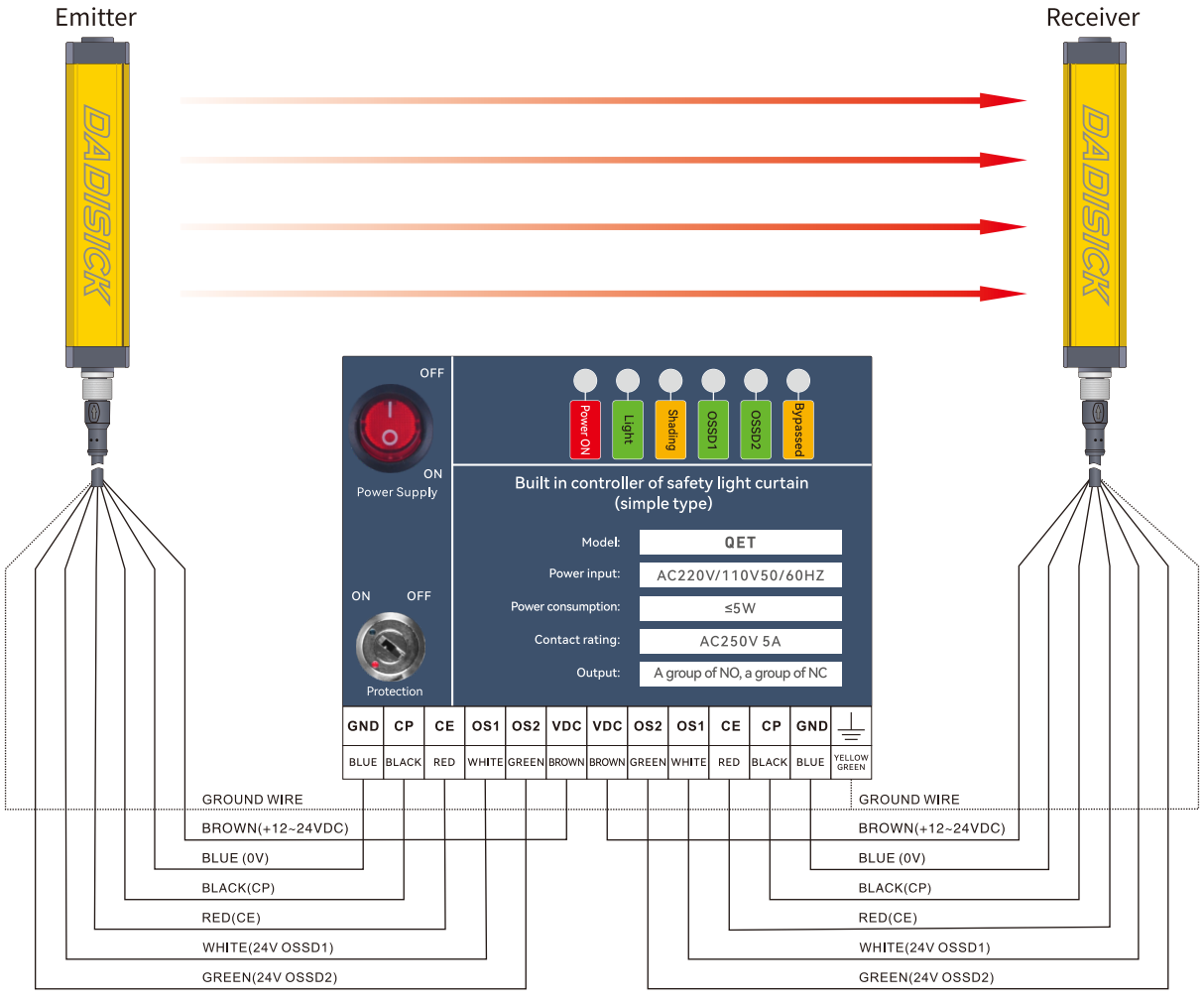


This figure is an example of PNP double output 7-pin wiring.

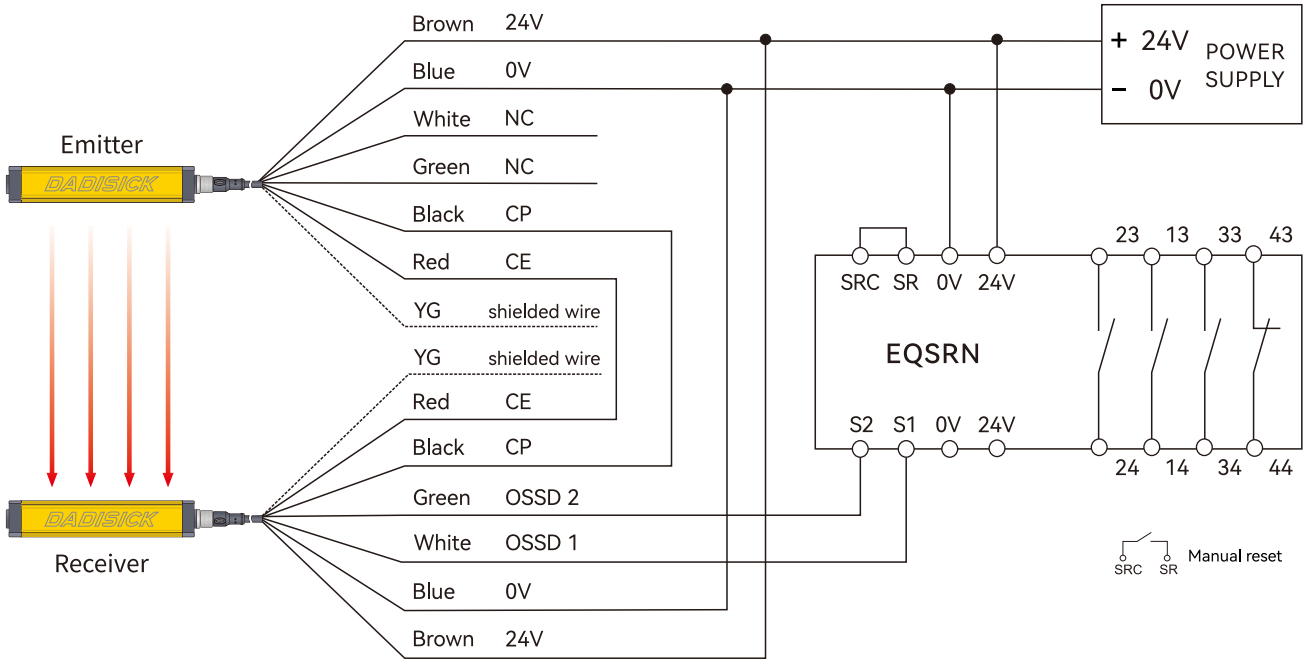
4.Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		QET	Used to monitor the signal processing of EQCE series light curtain, and output one group of NO and one group of NC.
Safety relay		EQSR	QSR 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	ETer-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 EQCE series light curtain.

4.1Wiring diagram of QET built-in controller

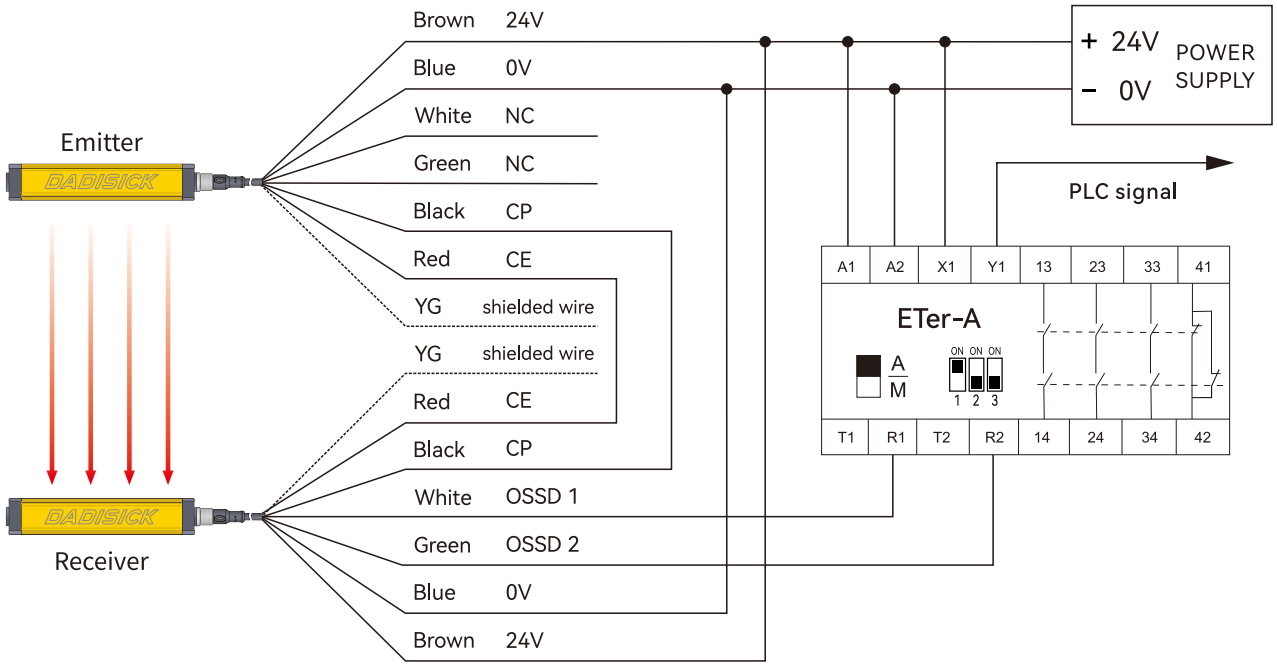


4.2 Wiring diagram of EQSRN safety relay

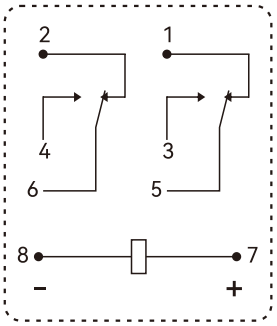


4.3 Wiring diagram of ETer-A safety relay

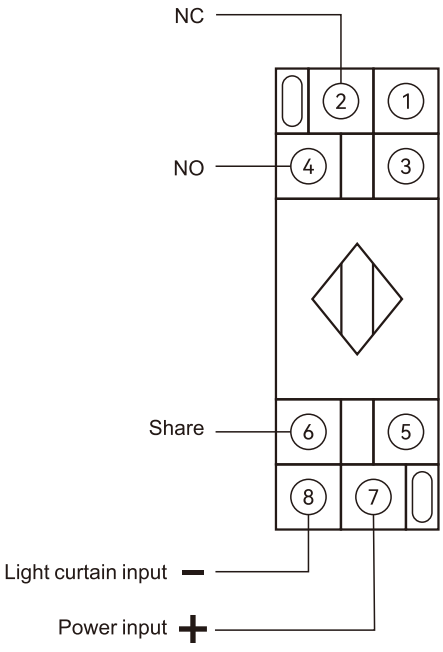
Dual channel light curtain PNP switch safety input, with automatic reset and PLC signal output.



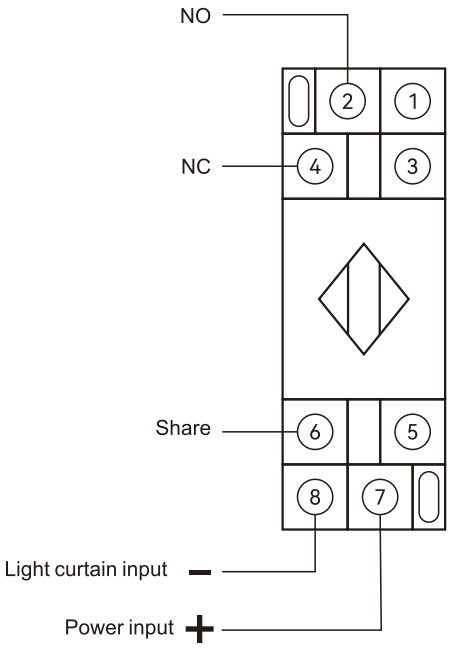
4.4 Wiring diagram of EQET-1 light curtain relay



Circuit diagram



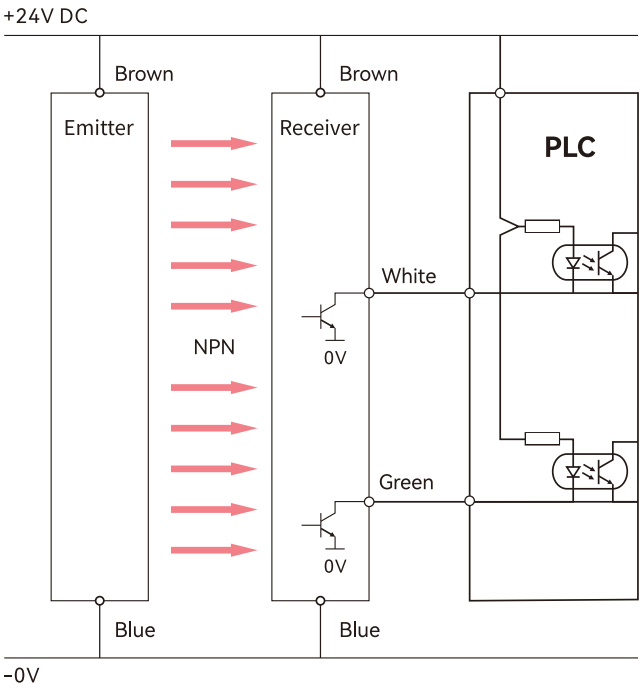
When not powered on



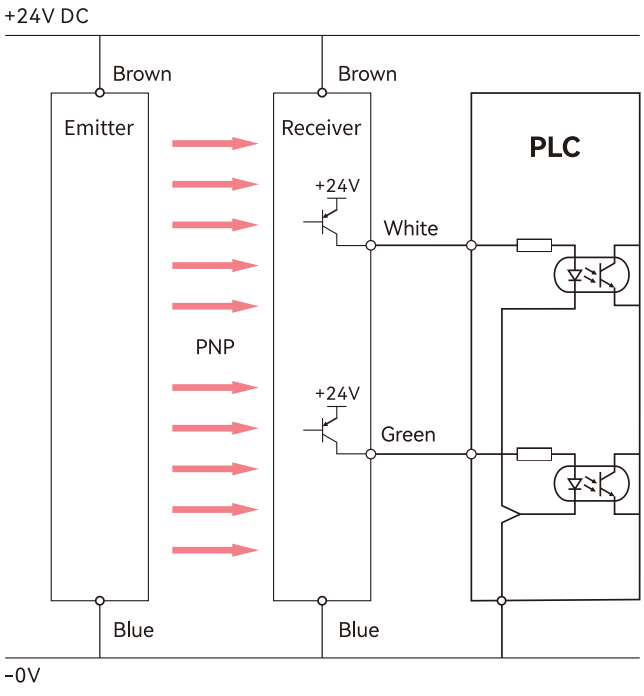
When powered on

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

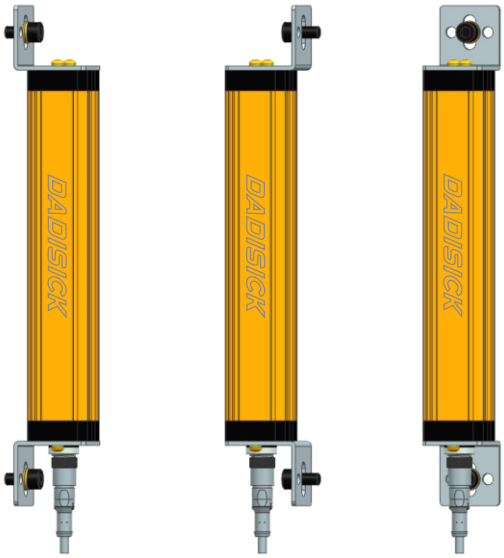
NPN wiring:



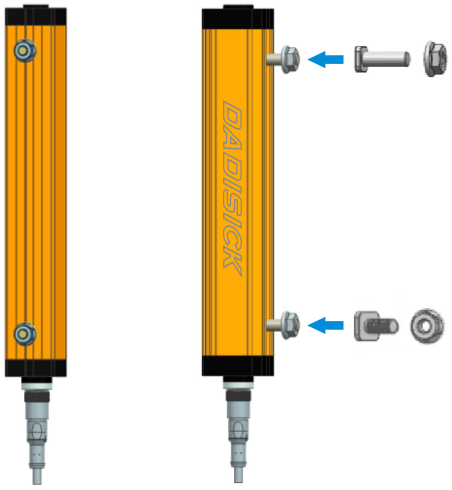
PNP wiring:



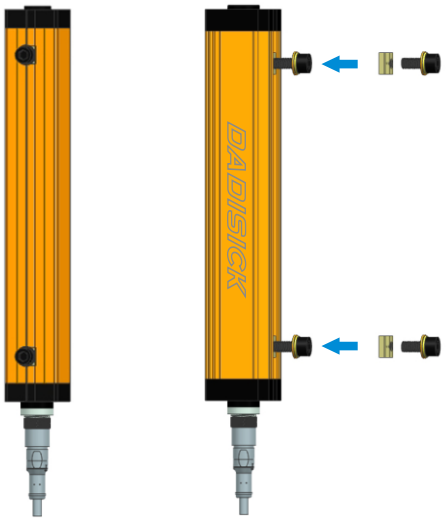
Accessories



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

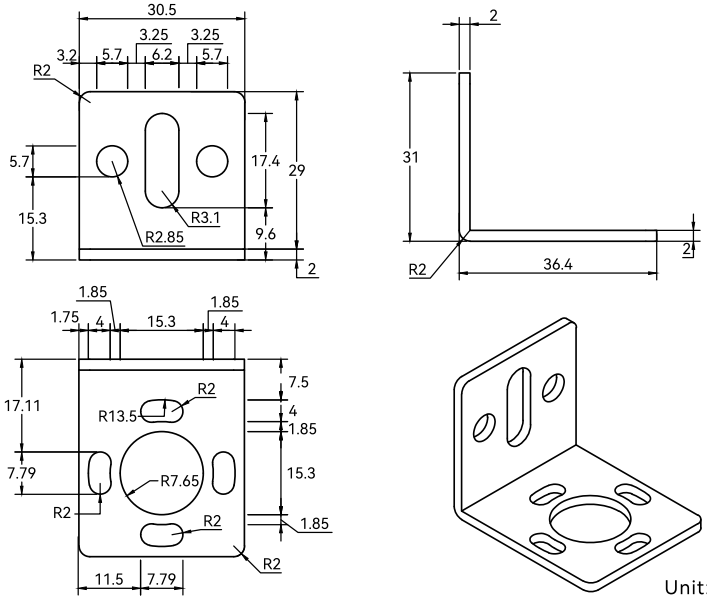


2. T-screw installation method
(Original accessories)



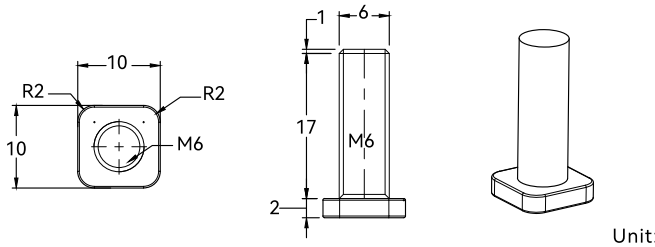
3. Installation method of convex nut
(Optional accessories)

EQCE series right angle frame	Model: QCA-04



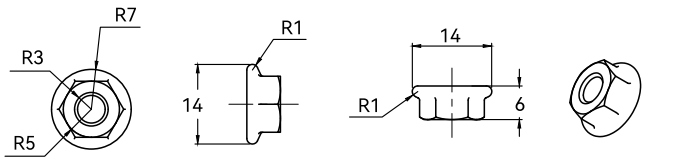
Unit:mm

T-screw	Model: QCA-02-1



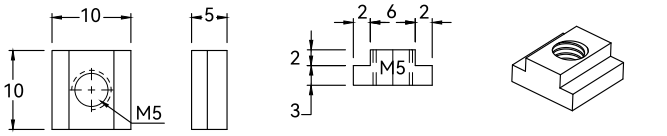
Unit:mm

Flange nut M6	Model: QCA-02-2



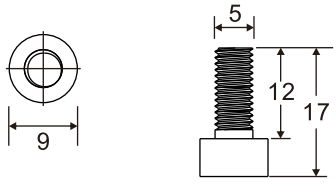
Unit:mm

Raised nut	Model: QCA-03-1

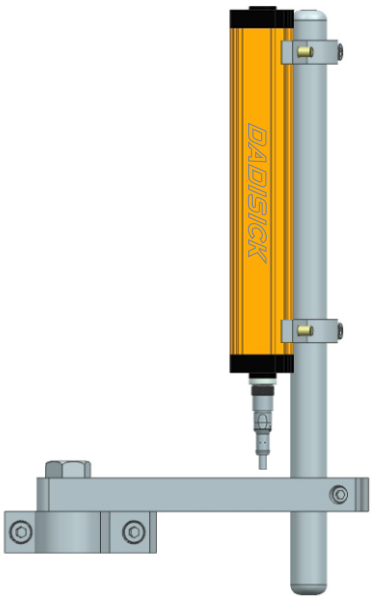


Unit:mm

M5 screw	Model: QCA-03-2



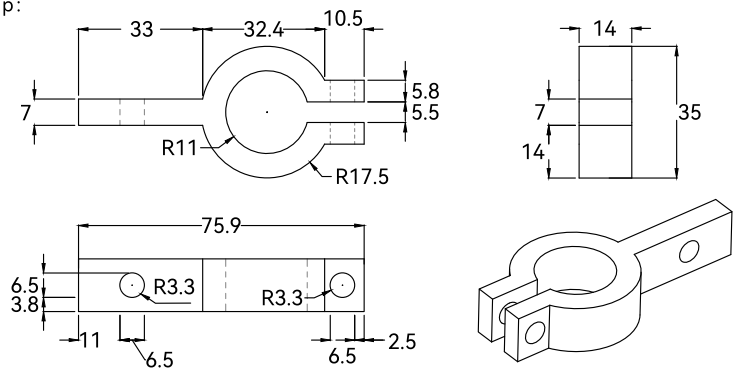
Unit:mm



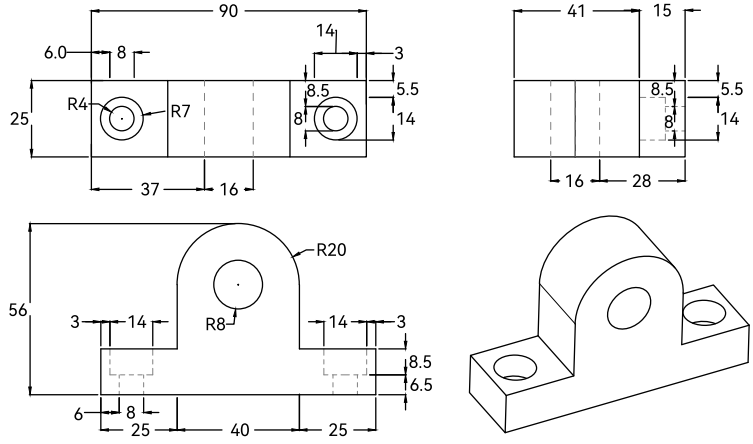
4.Stainless steel bracket installation
(Order separately)

Stainless steel bracket installation	Model: QCA-01

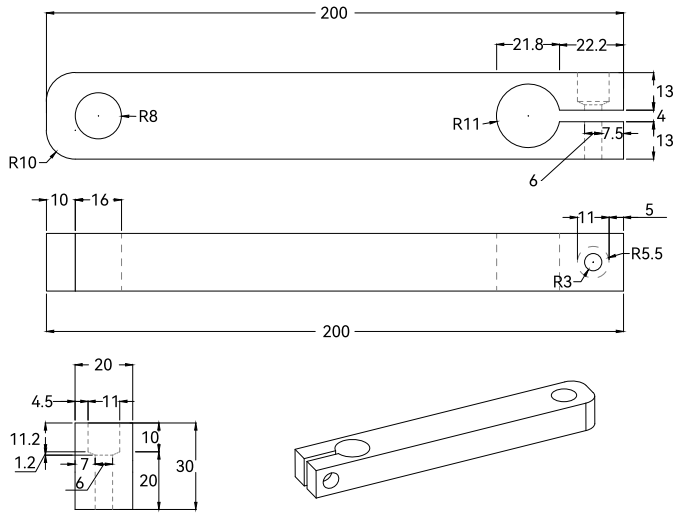
Clip:



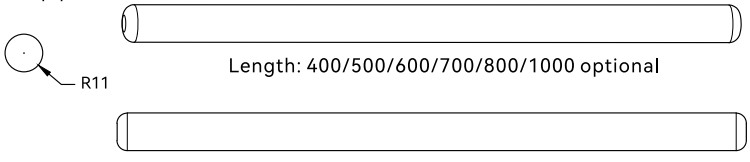
Aluminum round:



Aluminum arm:



Steel pipe:



Unit:mm