

TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR

Emitter: QMT90/20-1780-2BE-E

Receiver: QMT90/20-1780-2BE-R



Contents

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



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.

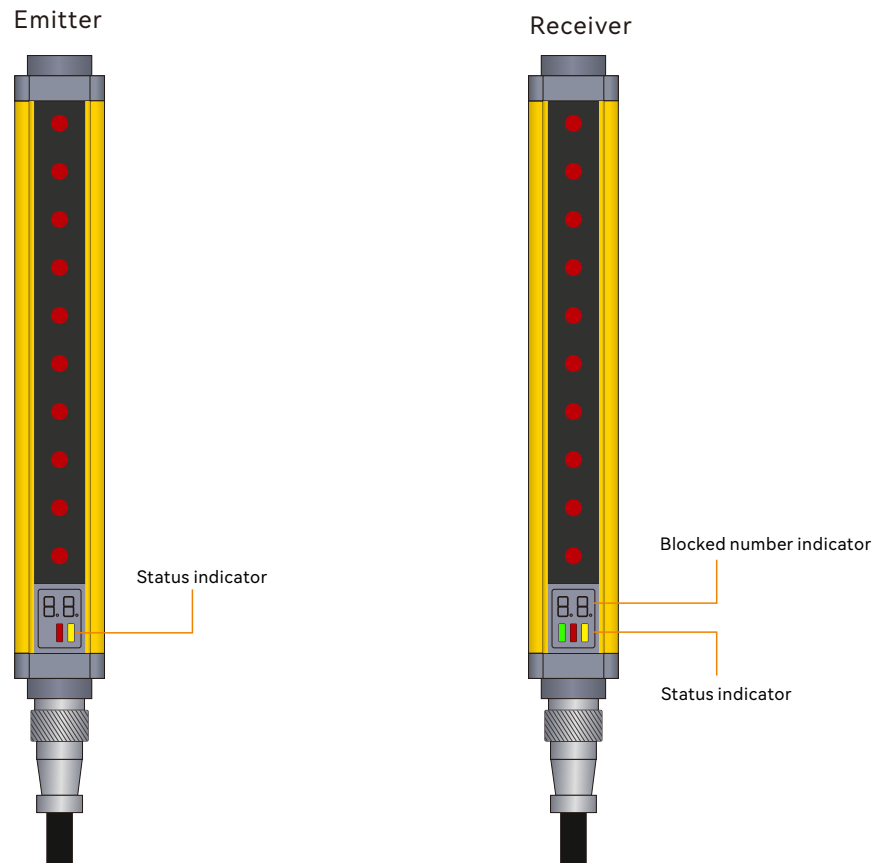
Technical data

Basic data of Receiver and Emitter

Standard packaging	
Product model	QMT90/20-1780-2BE-E and QMT90/20-1780-2BE-R
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 – finger protection
Features	
Resolution ratio	20mm
Check the accuracy	25mm
Number of beams	90
Protection height	1780mm
Total height	1860mm
Detection distance	30-20000mm
Response time	≤15ms
Synchronization	
Line 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	
Overall dimension	51*35*1860mm
Housing material	Metal
Metal shell	Aluminium
Lens front screen material	Acrylic
Upper and lower cover materials	ABS reinforced nylon PA66+30% GF
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

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



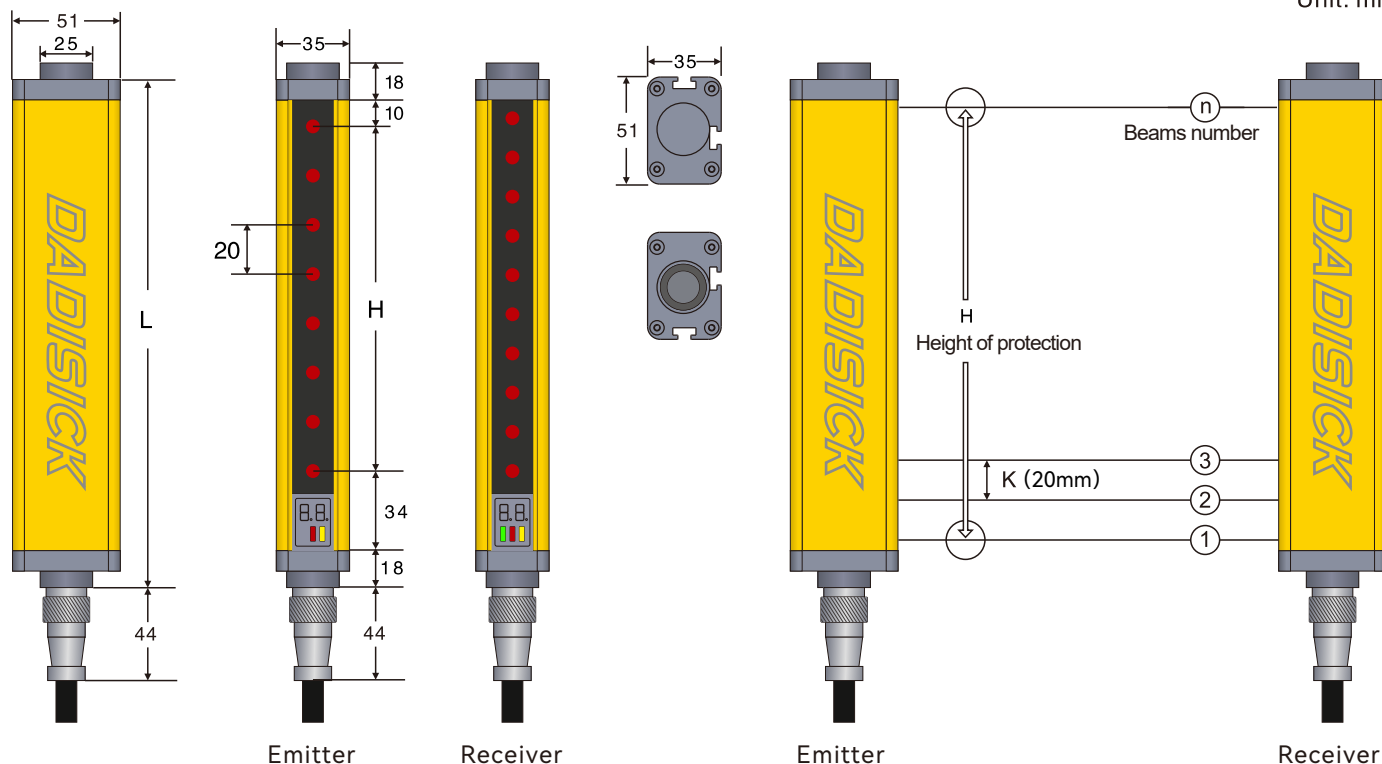
Status indicator	LED status Indicator	Explain
Emitter	 Red and Yellwo, always on	Turns on the power

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

Dimensioned drawings

QMT 20mm series

Unit: mm



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

 $L = 18 + 10 + H + 34 + 18$ $H = (n - 1) \times 20$

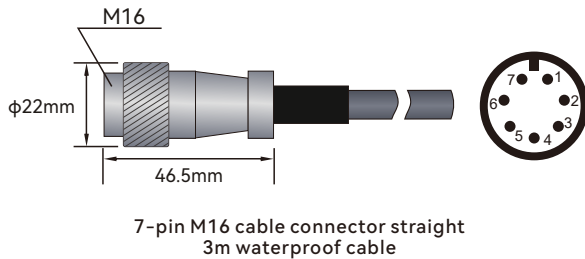
QMT 20mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Two outputs	PNP output	
20mm (K)	4	60	140	QMT04/20-60	2	PNP	0.3-20m
	6	100	180	QMT06/20-100	2	PNP	0.3-20m
	8	140	220	QMT08/20-140	2	PNP	0.3-20m
	10	180	260	QMT10/20-180	2	PNP	0.3-20m
	12	220	300	QMT12/20-220	2	PNP	0.3-20m
	14	260	340	QMT14/20-260	2	PNP	0.3-20m
	16	300	380	QMT16/20-300	2	PNP	0.3-20m
	18	340	420	QMT18/20-340	2	PNP	0.3-20m
	20	380	460	QMT20/20-380	2	PNP	0.3-20m
	22	420	500	QMT22/20-420	2	PNP	0.3-20m
	24	460	540	QMT24/20-460	2	PNP	0.3-20m
	26	500	580	QMT26/20-500	2	PNP	0.3-20m
	28	540	620	QMT28/20-540	2	PNP	0.3-20m
	30	580	660	QMT30/20-580	2	PNP	0.3-20m
	32	620	700	QMT32/20-620	2	PNP	0.3-20m
	34	660	740	QMT34/20-660	2	PNP	0.3-20m
	36	700	780	QMT36/20-700	2	PNP	0.3-20m
	38	740	820	QMT38/20-740	2	PNP	0.3-20m
	40	780	860	QMT40/20-780	2	PNP	0.3-20m
	42	820	900	QMT42/20-820	2	PNP	0.3-20m
	44	860	940	QMT44/20-860	2	PNP	0.3-20m
	46	900	980	QMT46/20-900	2	PNP	0.3-20m
	48	940	1020	QMT48/20-940	2	PNP	0.3-20m
	50	980	1060	QMT50/20-980	2	PNP	0.3-20m
	52	1020	1100	QMT52/20-1020	2	PNP	0.3-20m
	54	1060	1140	QMT54/20-1060	2	PNP	0.3-20m
	...	...	...	...	2	PNP	0.3-20m
	196	3900	3980	QMT196/20-3900	2	PNP	0.3-20m
	198	3940	4020	QMT198/20-3940	2	PNP	0.3-20m
	200	3980	4060	QMT200/20-3980	2	PNP	0.3-20m

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 (ACV)	Φ1*5
working voltage (ACV)	500V
pressurization (ACV)	1500V
contact resistance	5MΩ
insulation resistance	2000MΩ
Allowable typical conductor section	0.25mm²
Maximum link cable	100M
Maximum allowable carrying current	4.9A
Cable material	PVC
Shielding	shielded

Cable description:

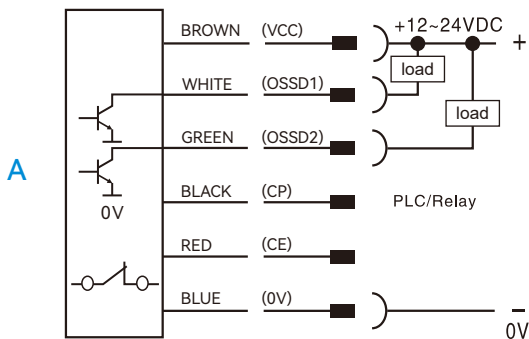


Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	NC
5	GREEN	NC
6	RED	CE
7	YELLOW	Ground wire

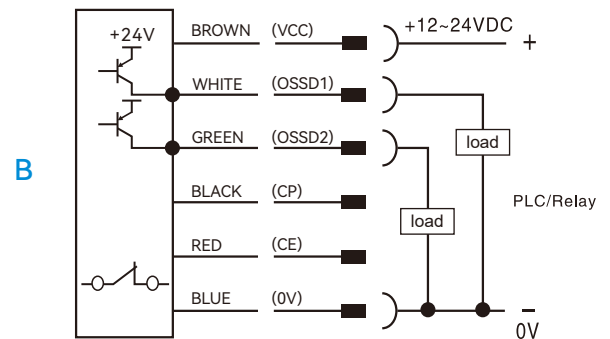
Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	OSSD1
5	GREEN	OSSD2
6	RED	CE
7	YELLOW	Ground wire

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

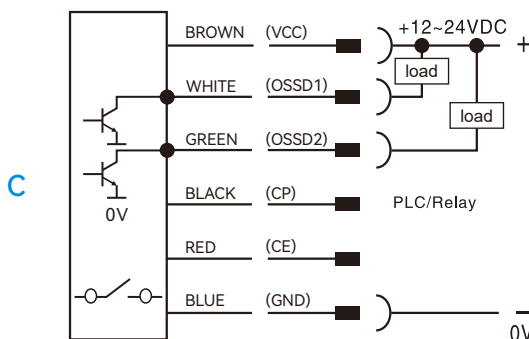
NPN NC



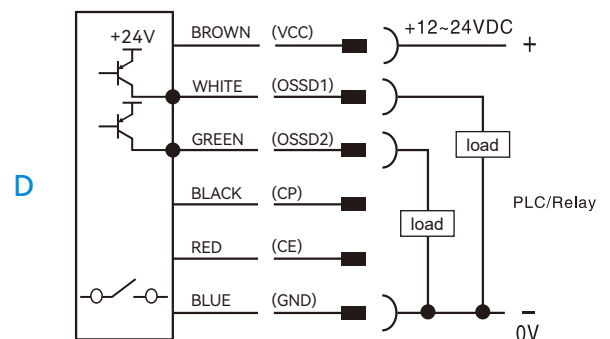
PNP NC



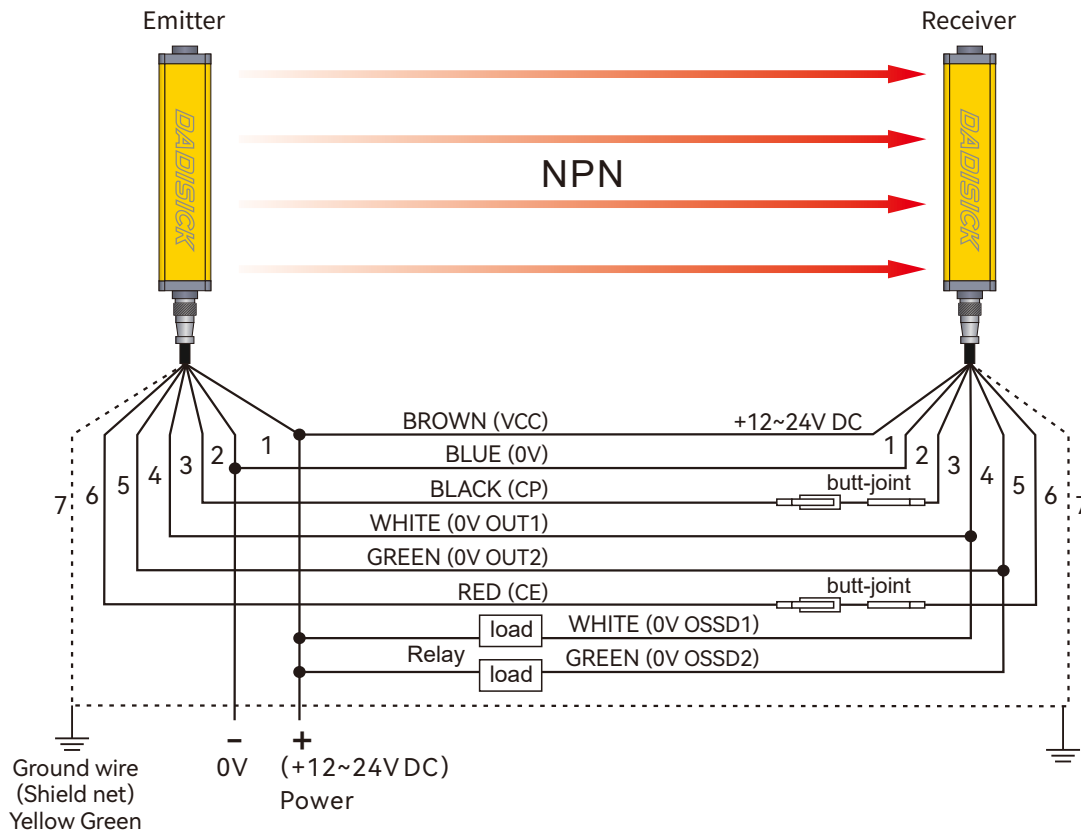
NPN NO



PNP NO

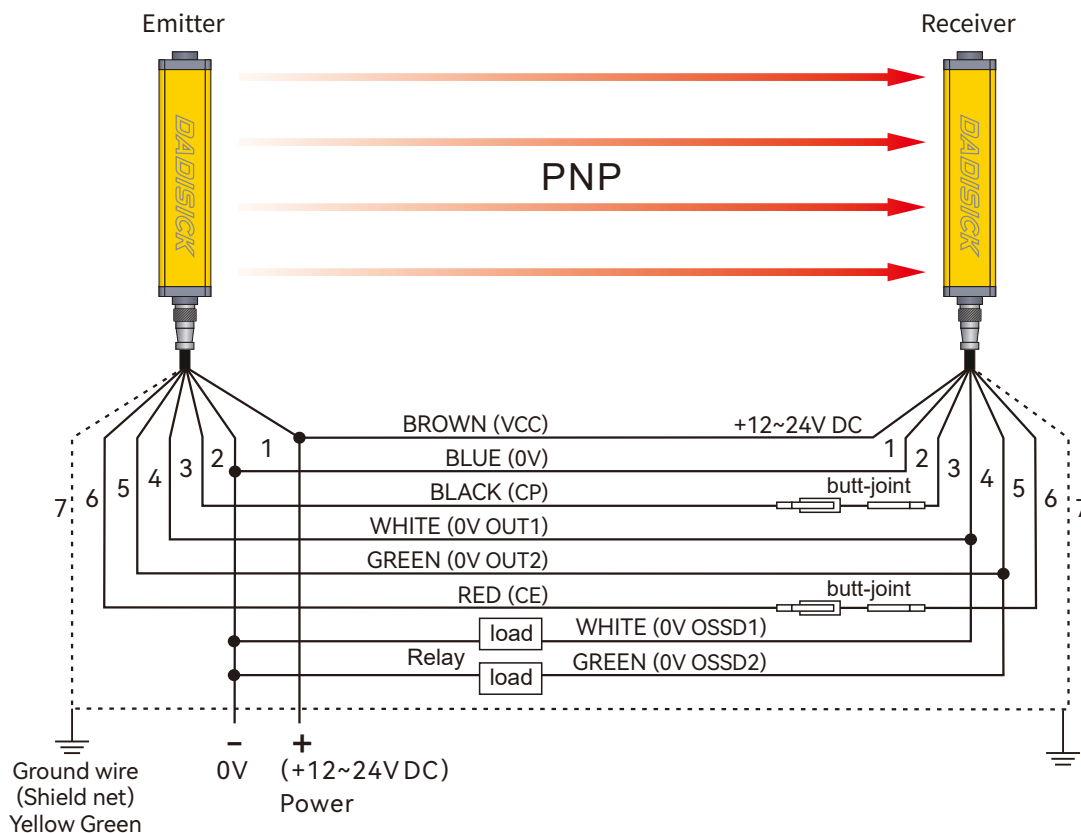


2. NPN output wiring diagram



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

3. PNP output wiring diagram

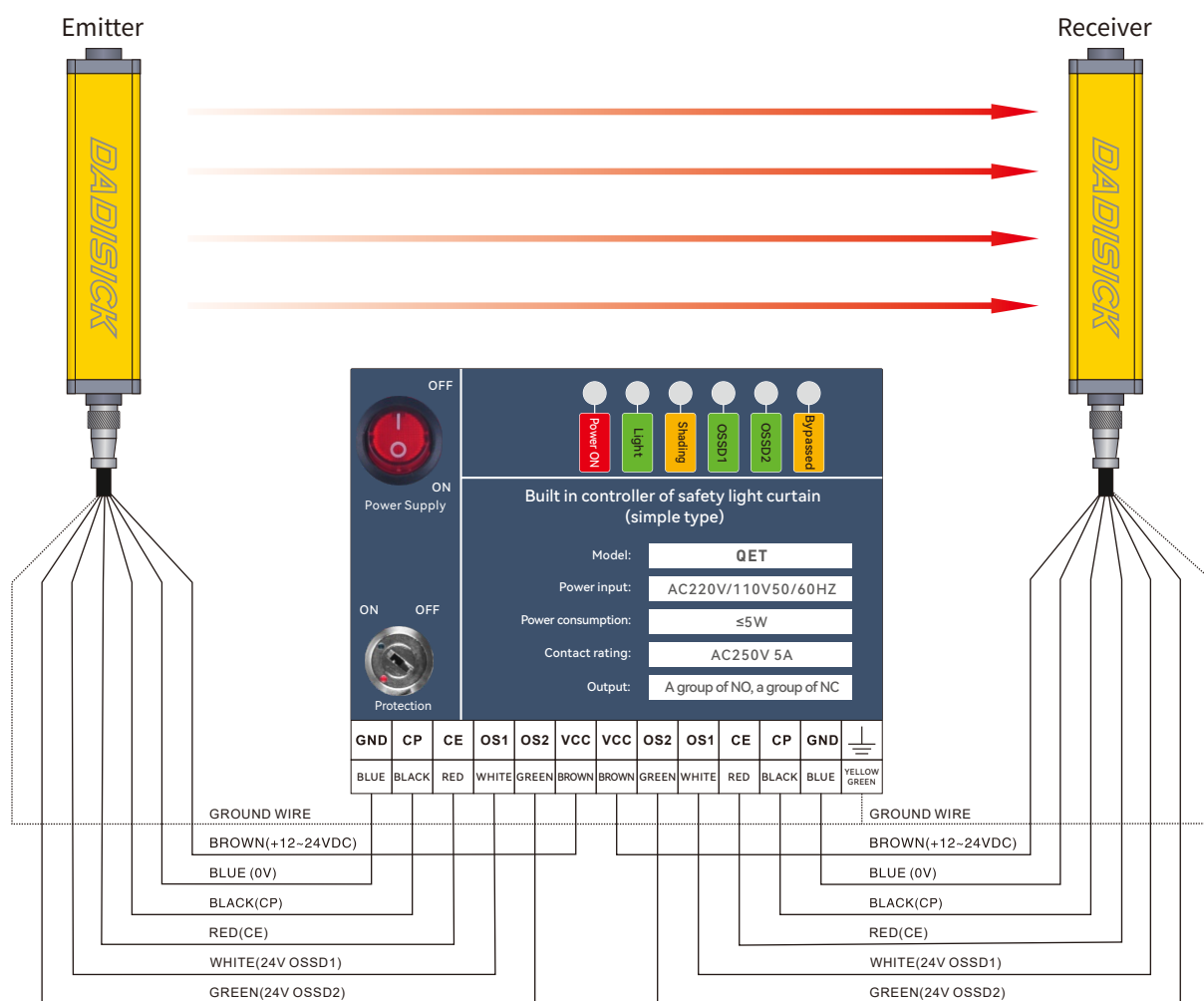


This figure is an example of PNP double output 7-pin wiring.

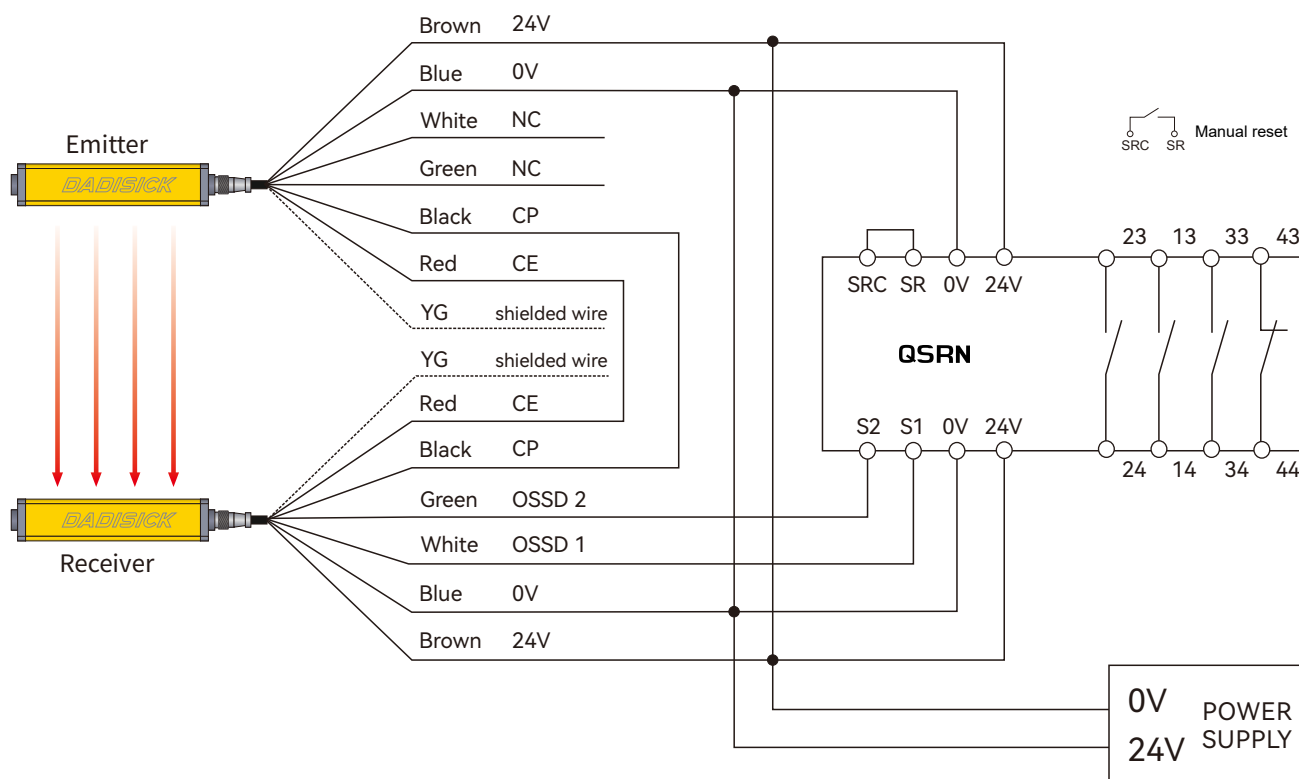
4. Selection of safety light curtain controller

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

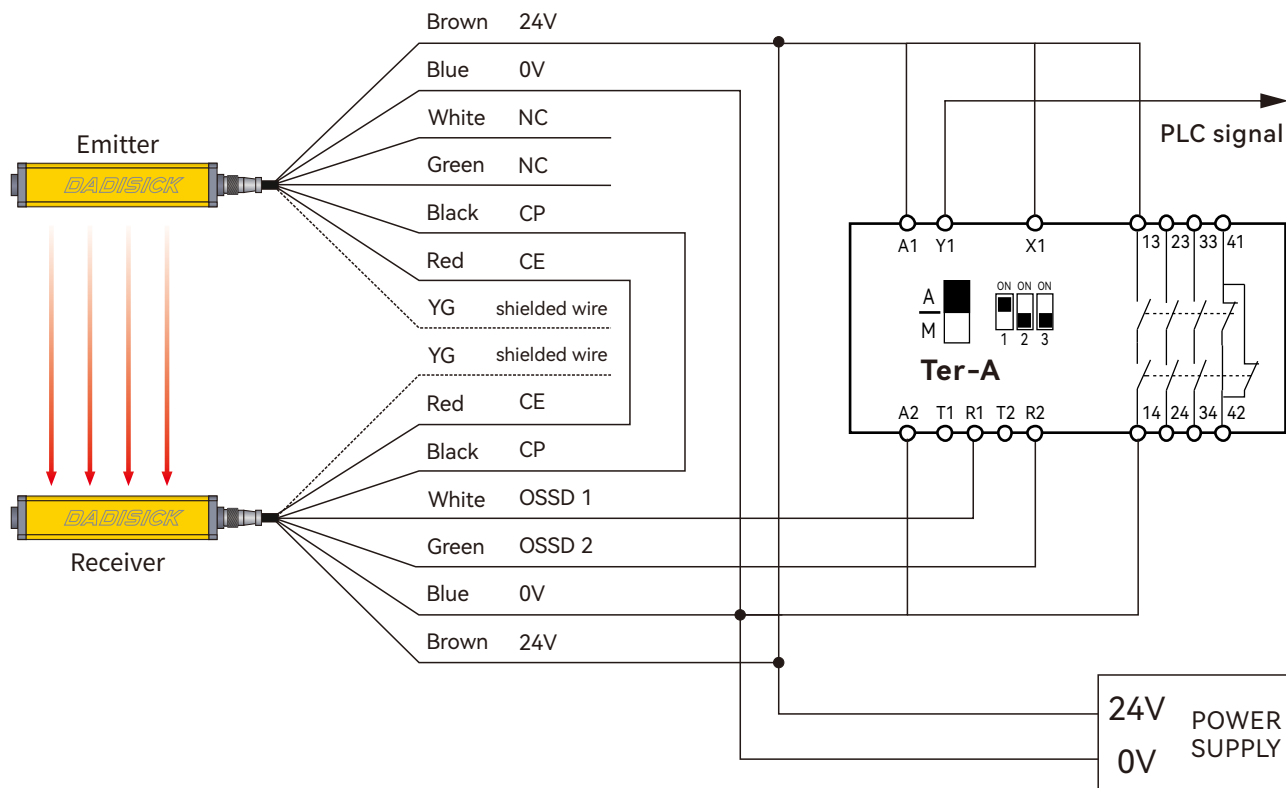


4.2 Wiring diagram of QSRN safety relay

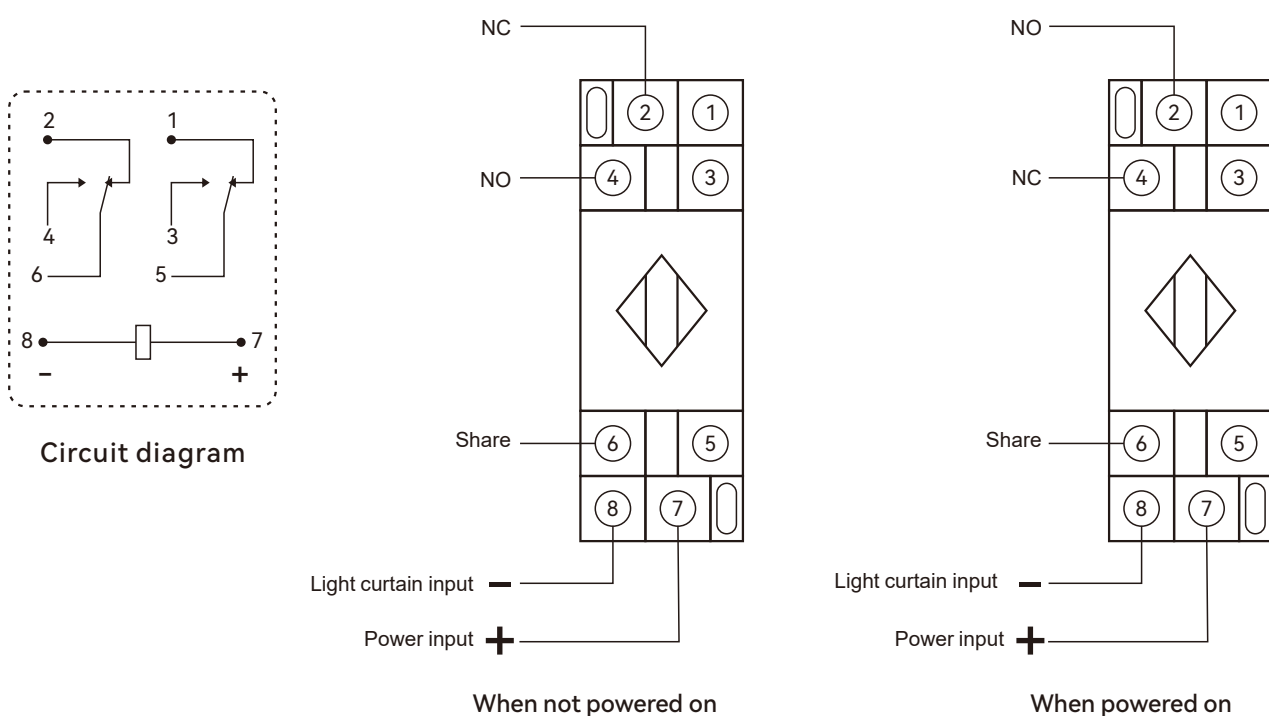


4.3 Wiring diagram of Ter-A safety relay

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

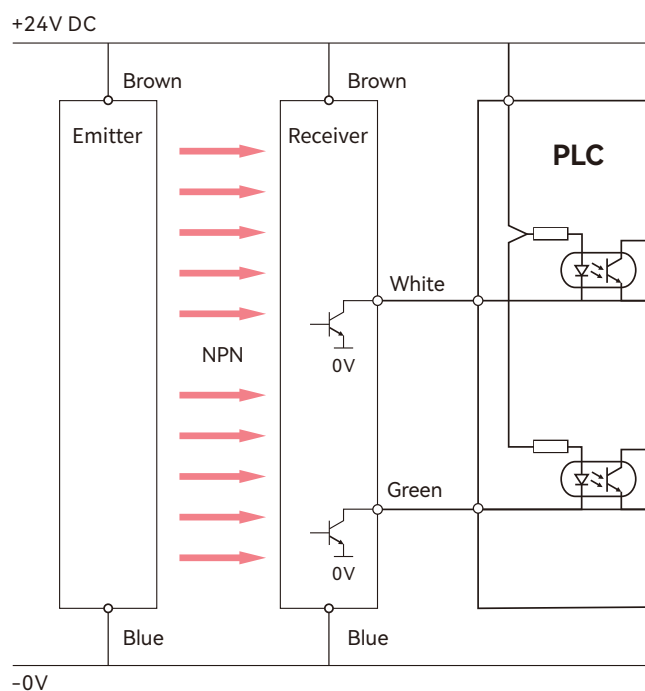


4.4 Wiring diagram of QET-1 light curtain relay

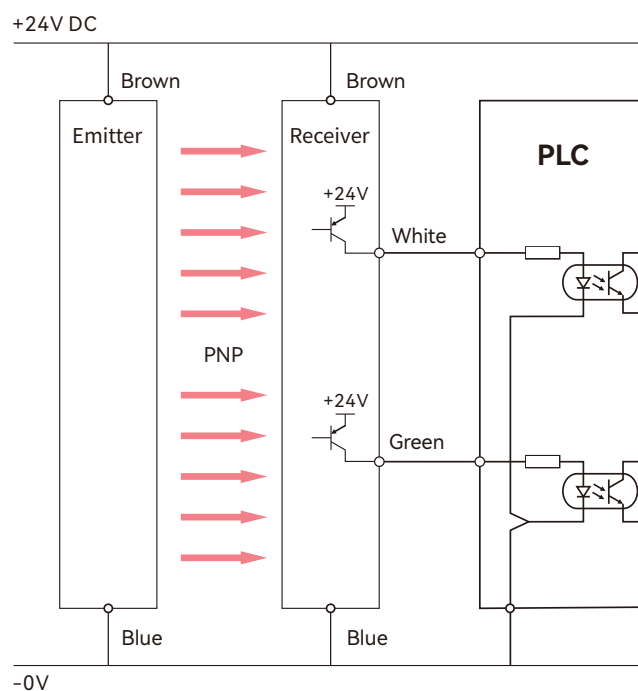


4.5 Wiring between light curtain and PLC and one-chip computer system

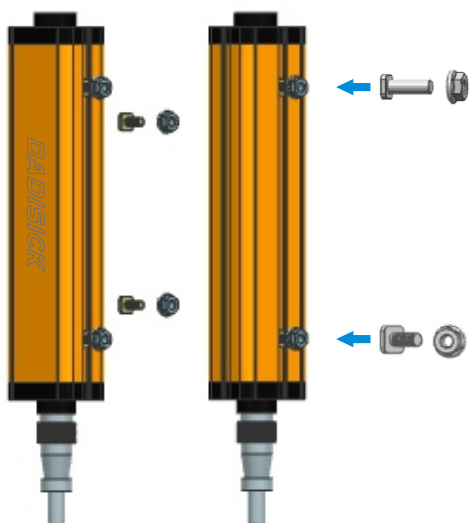
NPN wiring:



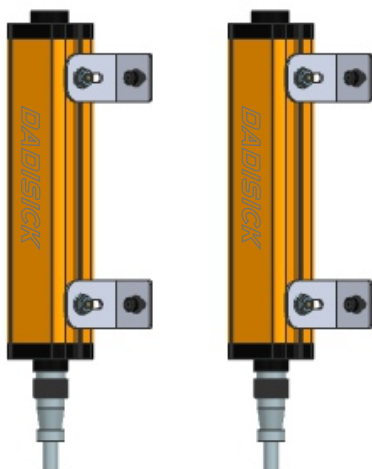
PNP wiring:



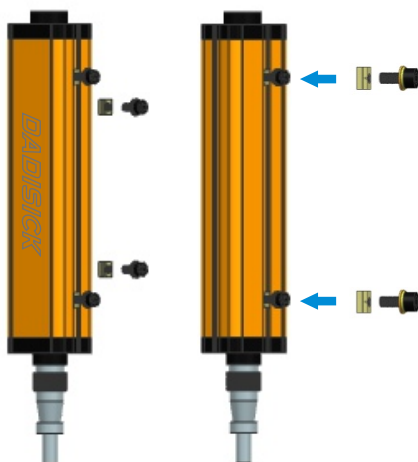
Accessories



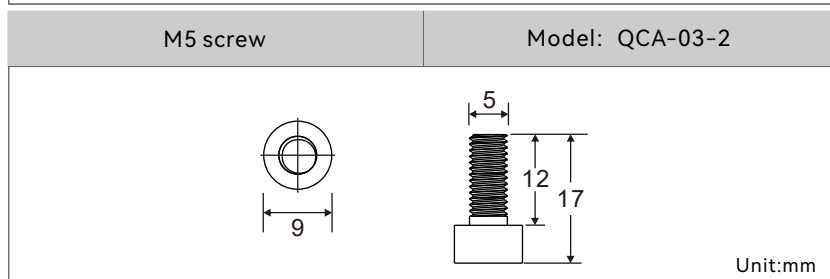
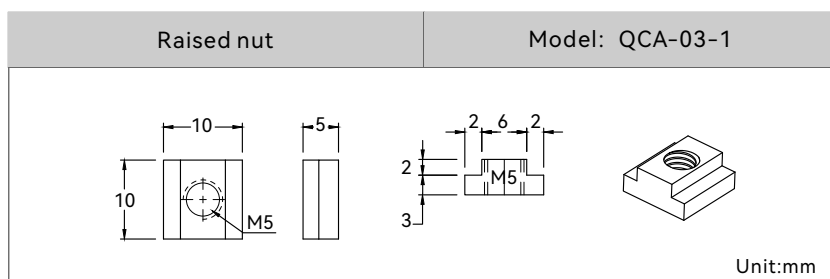
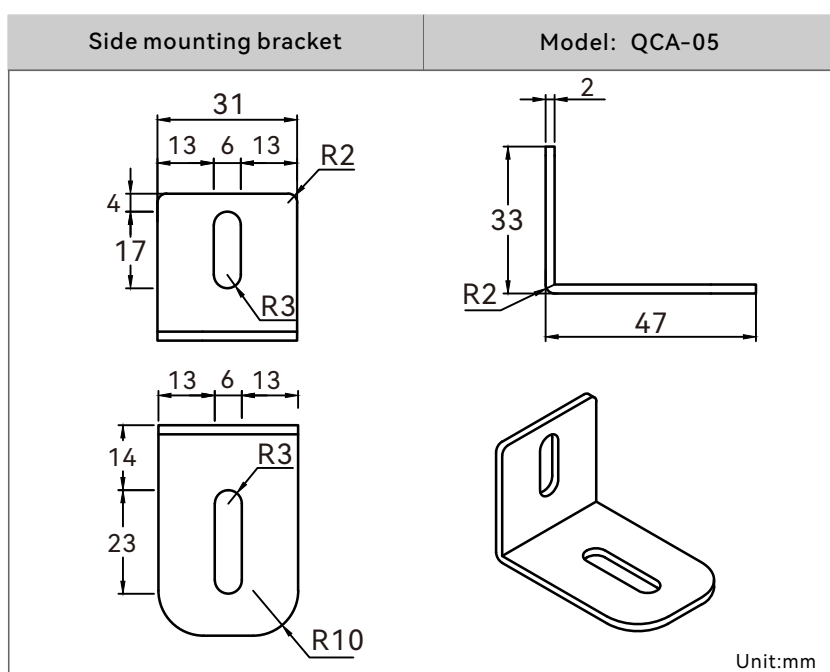
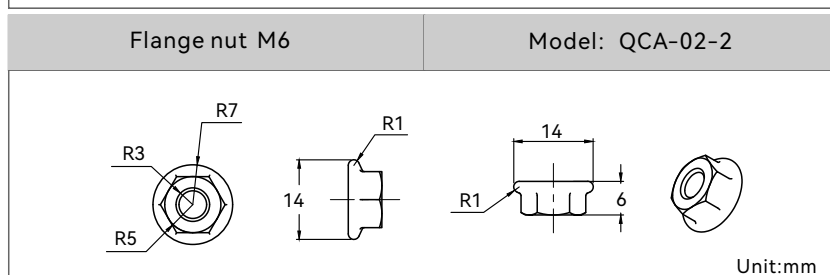
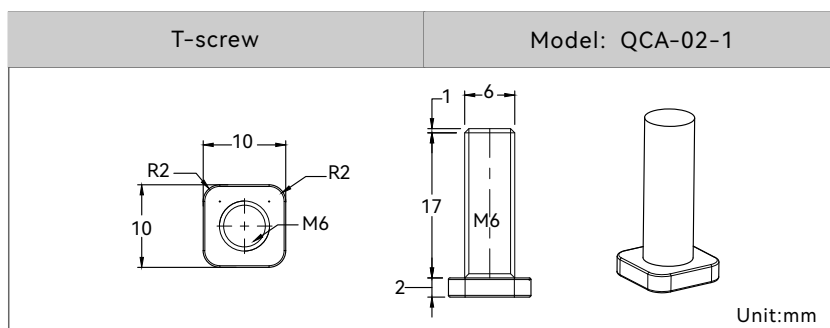
1. Installation method of T-shaped screws on the back
(Original accessories)

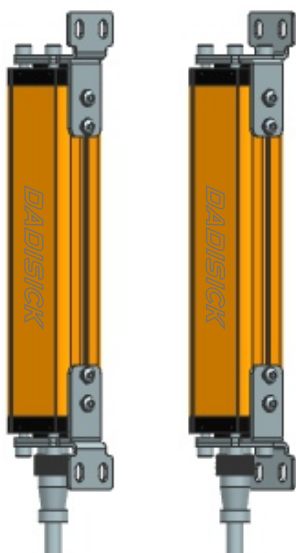


2. Installation method of side right angle bracket
(Original accessories)

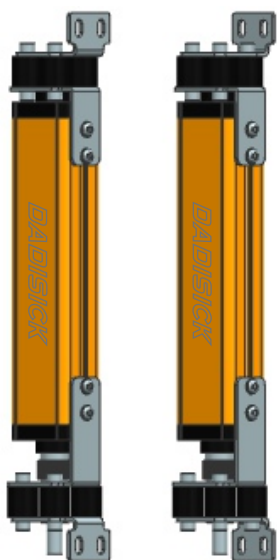


3. Installation method of convex nut
(Optional accessories)





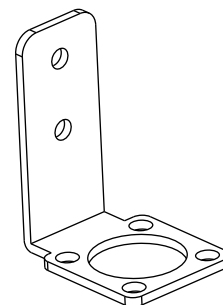
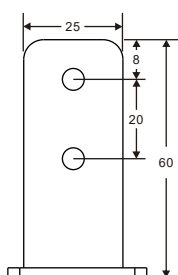
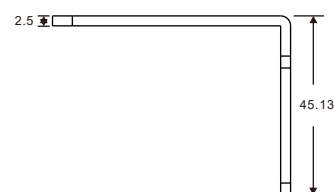
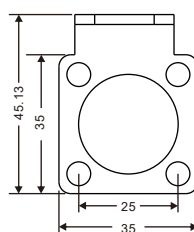
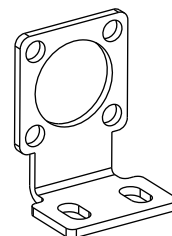
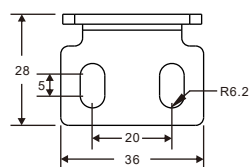
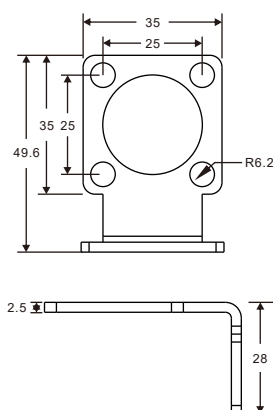
4. Installation method of right angle brackets at both ends
(Order separately)



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

Right angle brackets at both ends

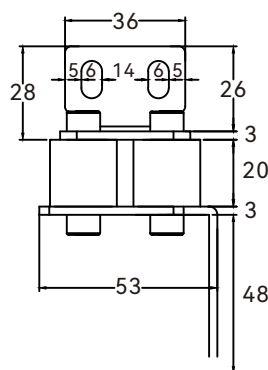
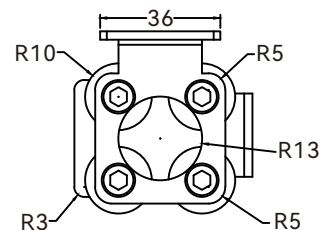
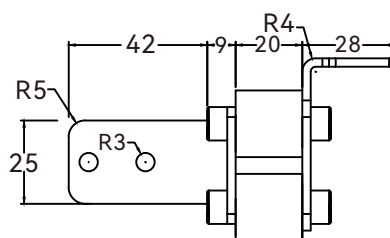
Model: QA-02



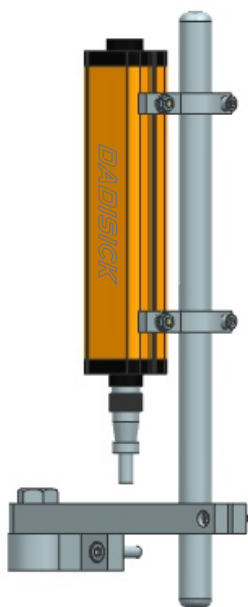
Unit:mm

Shockproof right angle brackets

Model: QA-01



Unit:mm

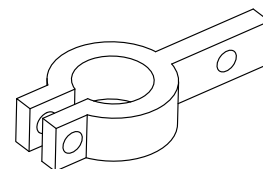
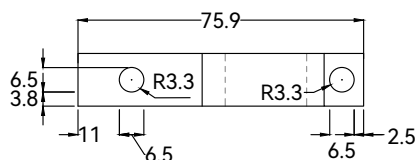
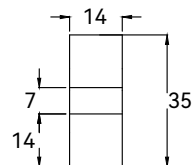
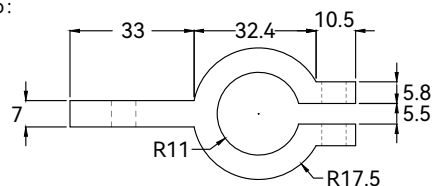


6. Stainless steel bracket installation
(Order separately)

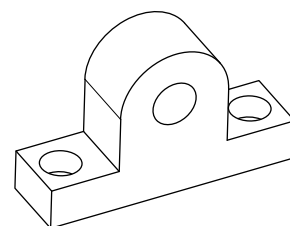
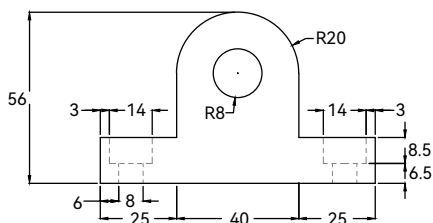
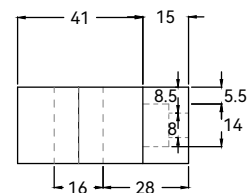
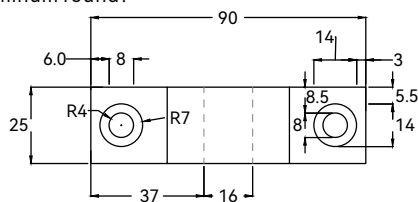
Stainless steel bracket installation

Model: QCA-01

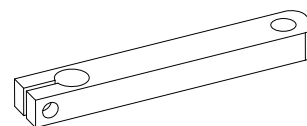
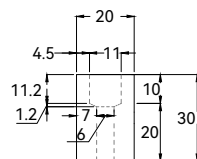
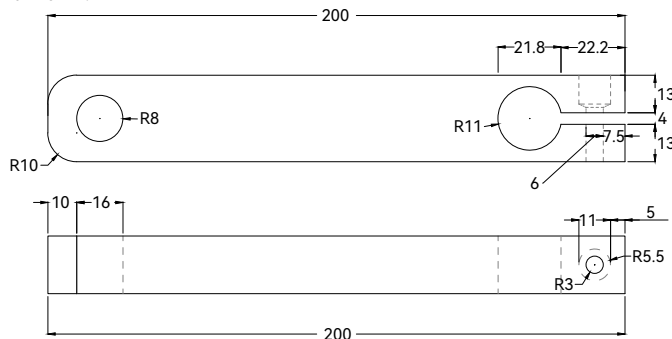
Clip:



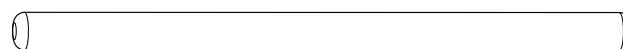
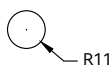
Aluminum round:



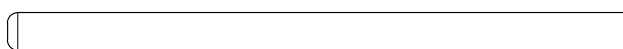
Aluminum arm:



Steel pipe:



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



Unit:mm