

TECHNICAL DATA SHEET

MEASURING LIGHT CURTAINS SENSOR Emitter and Receiver QLT series



Figure can vary

Contents

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



GB/T 19001-2016

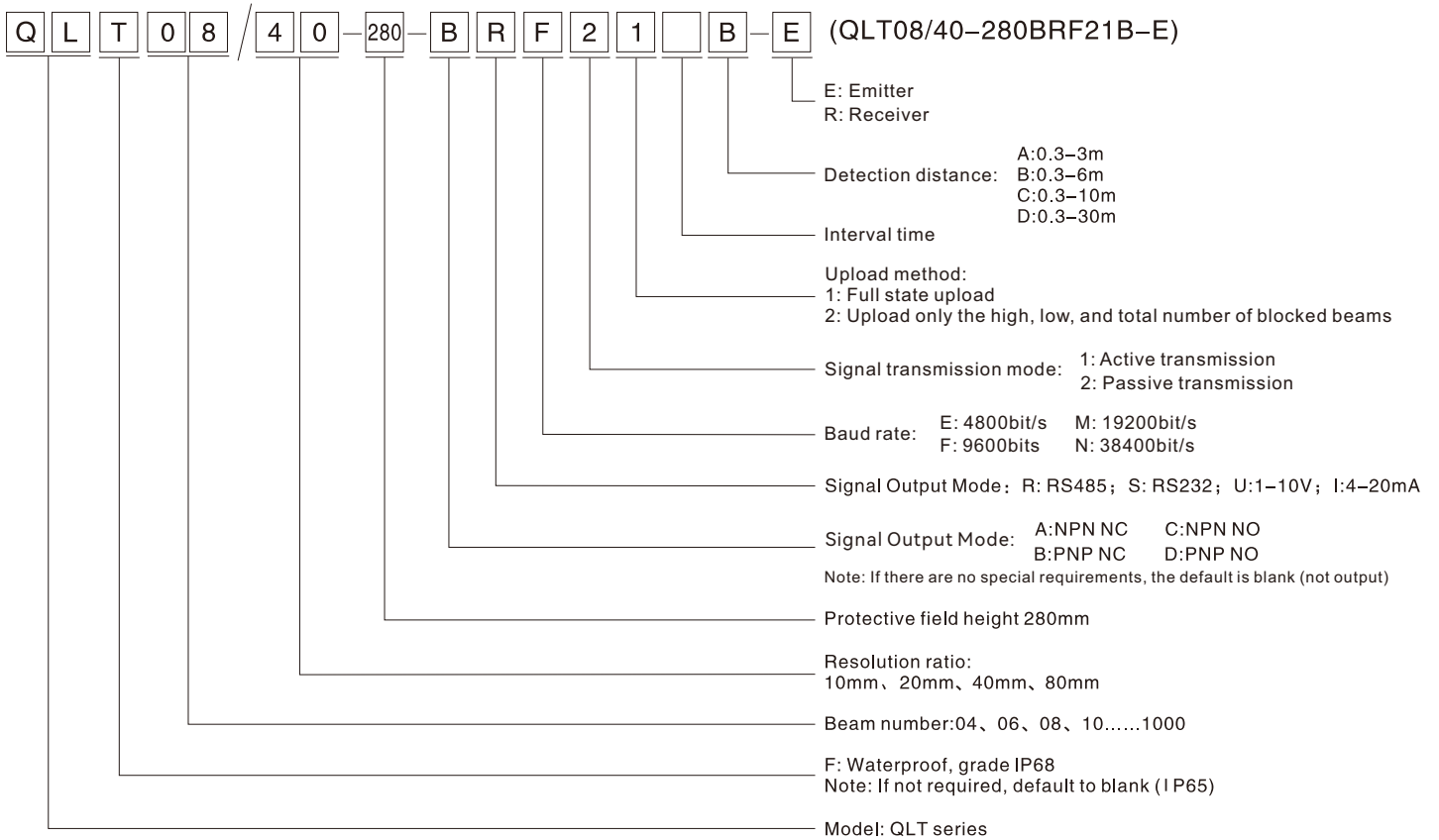
Product application

A. Conveyor Systems: Light curtains are utilized in conveyor systems to monitor the movement of objects or materials. They can detect jams, misalignments, or blockages on the conveyor belt and trigger corrective actions to maintain smooth operation.

B. Robotics: They help robots detect the presence of humans or obstacles within their work area, allowing them to stop or adjust their movements to prevent collisions.

C. Assembly Lines: Light curtains are used to optimize assembly line operations. They can accurately detect the position and movement of parts, ensuring precise alignment and preventing errors during the manufacturing process.

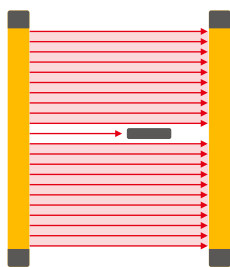
The specifications of QLT type measuring light curtain are as follows:



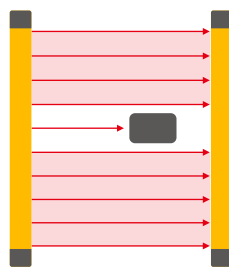
Resolution ratio

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

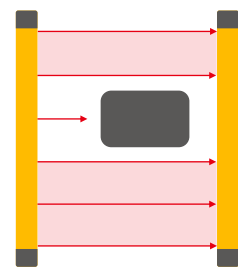
Opaque object detection:



Detection capability
10/20mm
diameter



Detection capability
40mm
diameter



Detection capability
80mm
diameter

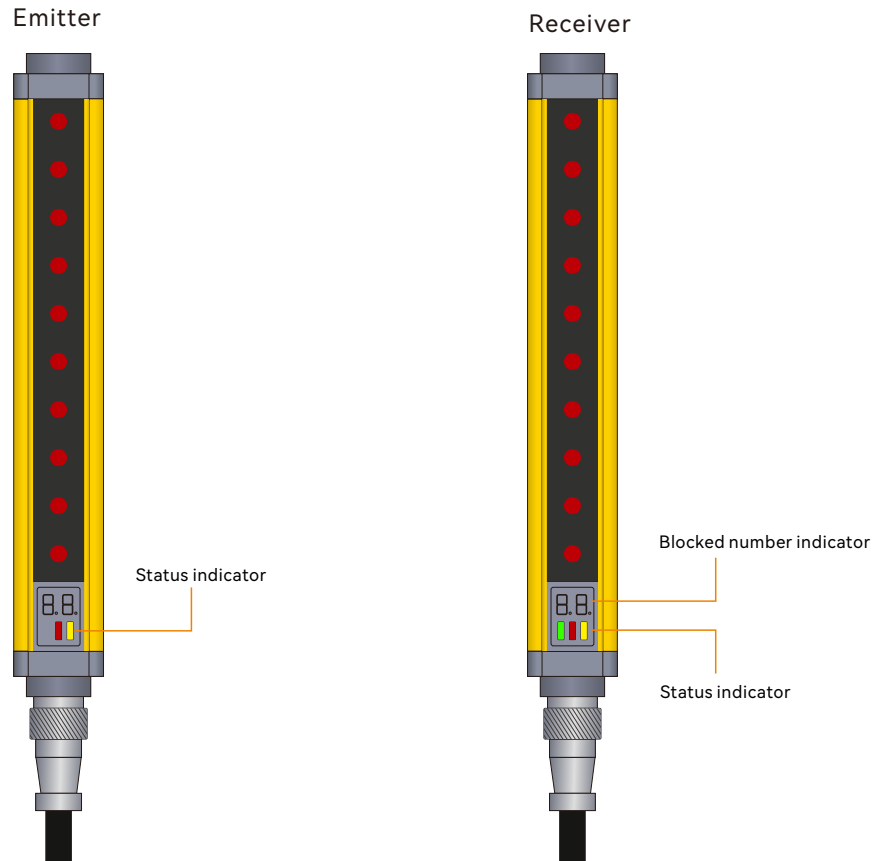
Technical data


Basic data of Receiver and Emitter





Standard packaging	
Product model	QLT 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, 40mm, 80mm
Check the accuracy	15mm, 25mm, 45mm, 85mm
Number of beams	04、06、08、10.....1000
Overall dimension	51mm*35mm*L, L is the length of emitter and receiver.
Detection distance	30-3000mm、30-6000mm、30-10000mm
Response time	≤15ms
Synchronization	
Consumption current	≤200mA
Output mode	RS485/RS232 output or analog voltage U: 1-10V/analog current I: 4-20mA output, with 1 circuit of PNP output
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)	1-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 output	Connection pin 4, WHITE OSSD NPN/PNP
Communication protocol	Connection pin 5, RED RS485A; Connection pin 6, GREEN RS485B
Certificate	
CETÜV	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

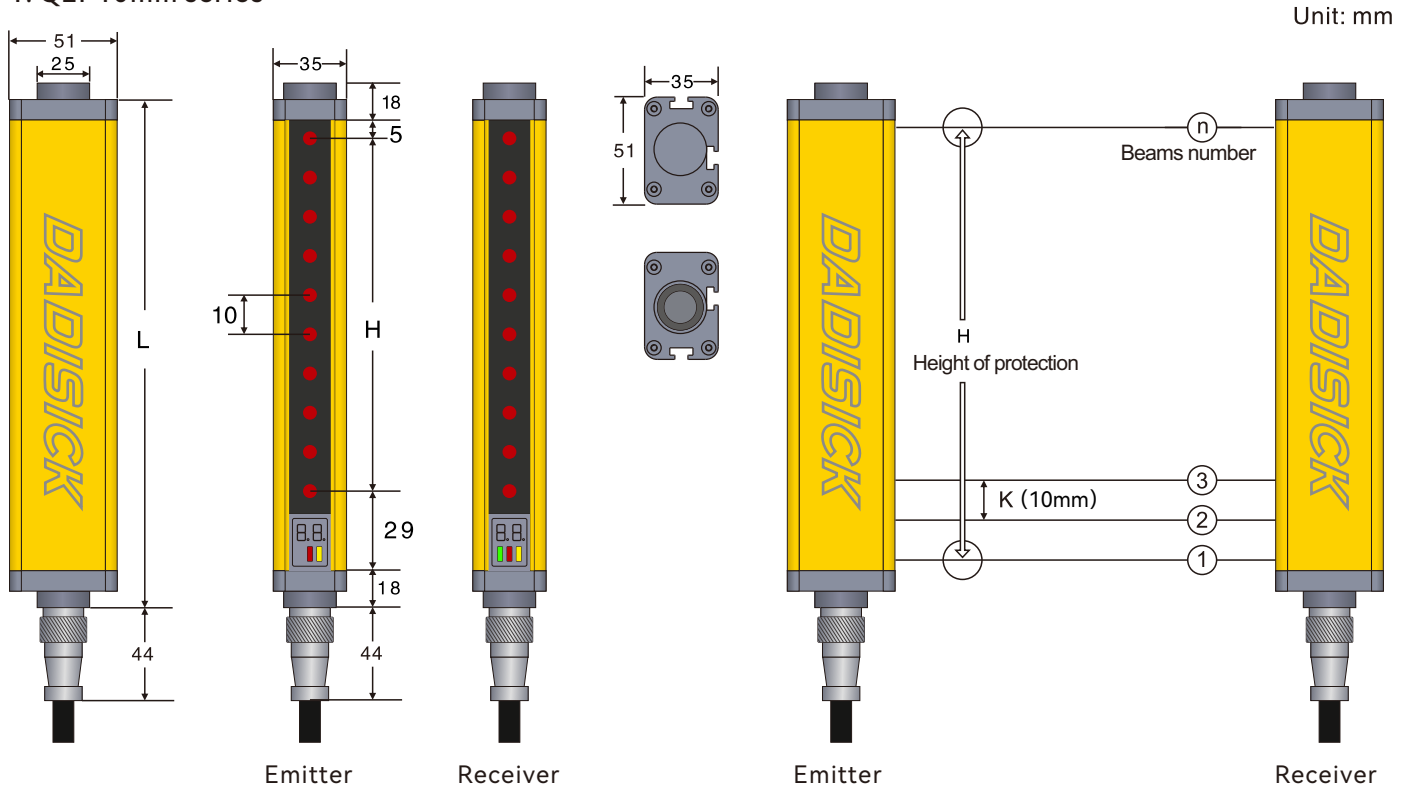


Status indicator	LED status Indicator	Explain
Emitter	 Red and Yellow, always on	Turns on the power

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

Dimensioned drawings

1. QLT 10mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

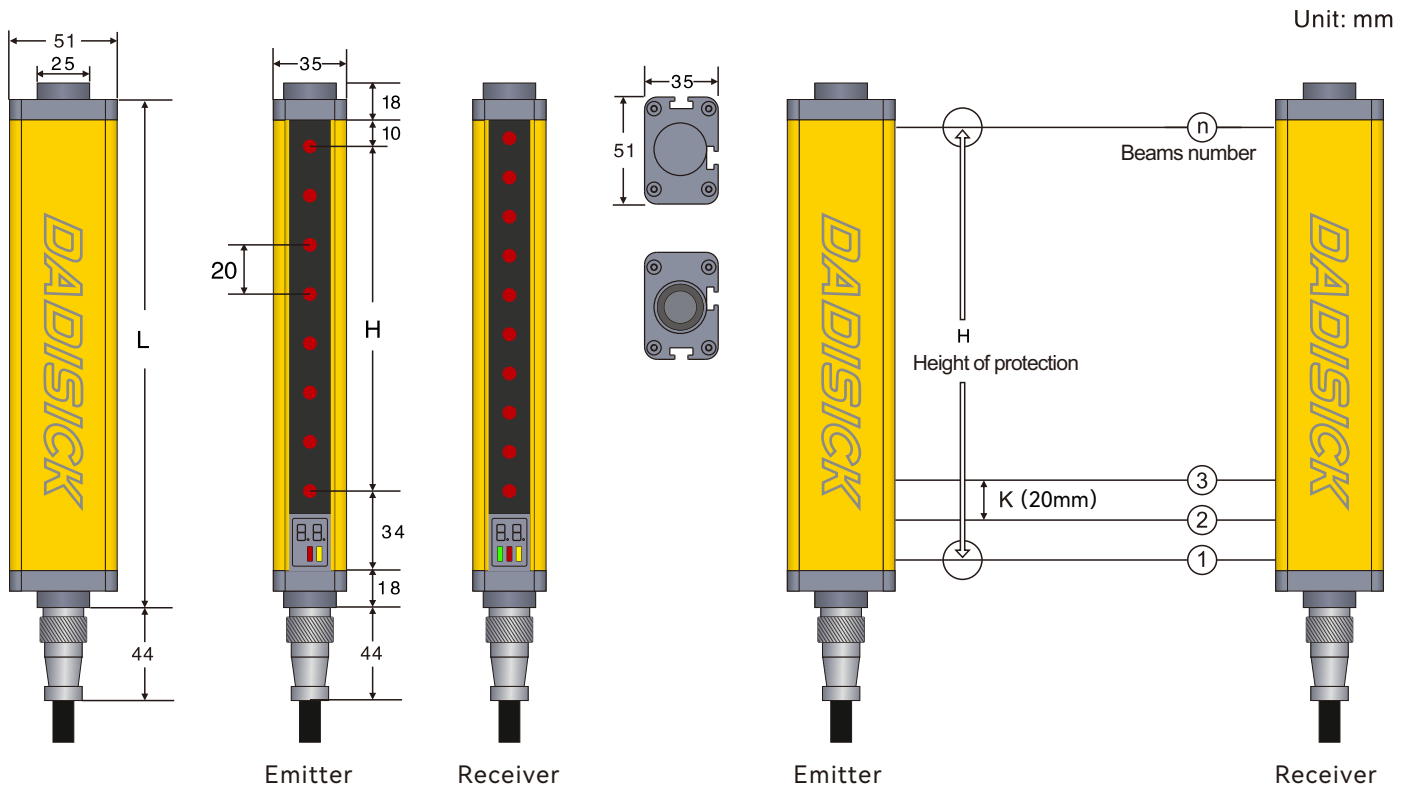
$L = 18 + 5 + H + 29 + 18$

$H = (n - 1) * 10$

QLT 10mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode			Detection range
					RS485	4-20mA	0-10V	
10mm (K)	8	70	140	QLT08/10-70	R	I	U	0.3-6m
	10	90	160	QLT10/10-90	R	I	U	0.3-6m
	12	110	180	QLT12/10-110	R	I	U	0.3-6m
	14	130	200	QLT14/10-130	R	I	U	0.3-6m
	16	150	220	QLT16/10-150	R	I	U	0.3-6m
	18	170	240	QLT18/10-170	R	I	U	0.3-6m
	20	190	260	QLT20/10-190	R	I	U	0.3-6m
	22	210	280	QLT22/10-210	R	I	U	0.3-6m
	24	230	300	QLT24/10-230	R	I	U	0.3-6m
	26	250	320	QLT26/10-250	R	I	U	0.3-6m
	28	270	340	QLT28/10-270	R	I	U	0.3-6m
	30	290	360	QLT30/10-290	R	I	U	0.3-6m
	32	310	380	QLT32/10-310	R	I	U	0.3-6m
	34	330	400	QLT34/10-330	R	I	U	0.3-6m

2. QLT 20mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

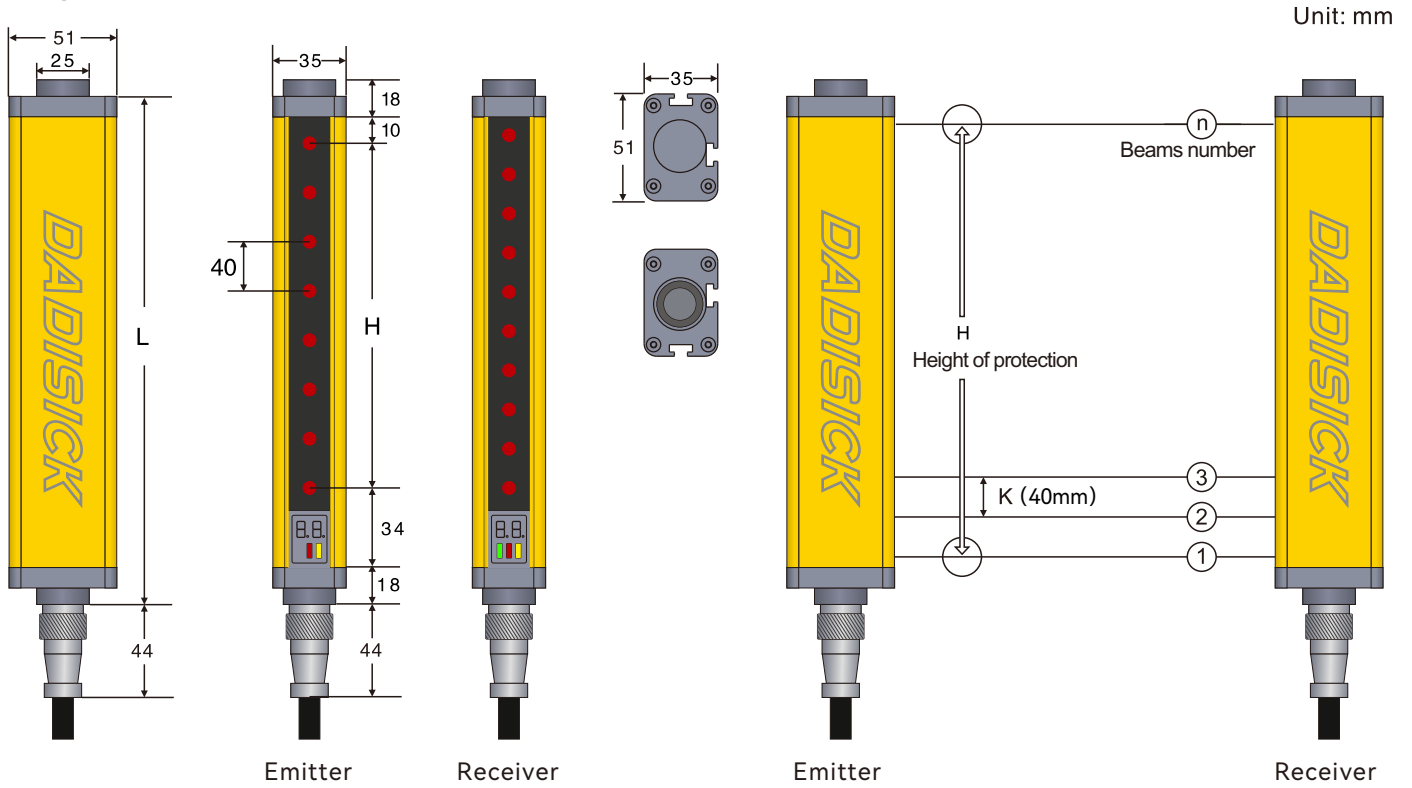
$$L = 18 + 10 + H + 34 + 18$$

$$H = (n - 1) * 20$$

QLT 20mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode			Detection range
					RS485	4-20mA	0-10V	
20mm (K)	4	60	140	QLT04/20-60	R	I	U	0.3-6m
	6	100	180	QLT06/20-100	R	I	U	0.3-6m
	8	140	220	QLT08/20-140	R	I	U	0.3-6m
	10	180	260	QLT10/20-180	R	I	U	0.3-6m
	12	220	300	QLT12/20-220	R	I	U	0.3-6m
	14	260	340	QLT14/20-260	R	I	U	0.3-6m
	16	300	380	QLT16/20-300	R	I	U	0.3-6m
	18	340	420	QLT18/20-340	R	I	U	0.3-6m
	20	380	460	QLT20/20-380	R	I	U	0.3-6m
	22	420	500	QLT22/20-420	R	I	U	0.3-6m
	24	460	540	QLT24/20-460	R	I	U	0.3-6m
	26	500	580	QLT26/20-500	R	I	U	0.3-6m
	28	540	620	QLT28/20-540	R	I	U	0.3-6m
	30	580	660	QLT30/20-580	R	I	U	0.3-6m
32	620	700	QLT32/20-620	R	I	U	0.3-6m	

3. QLT 40mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

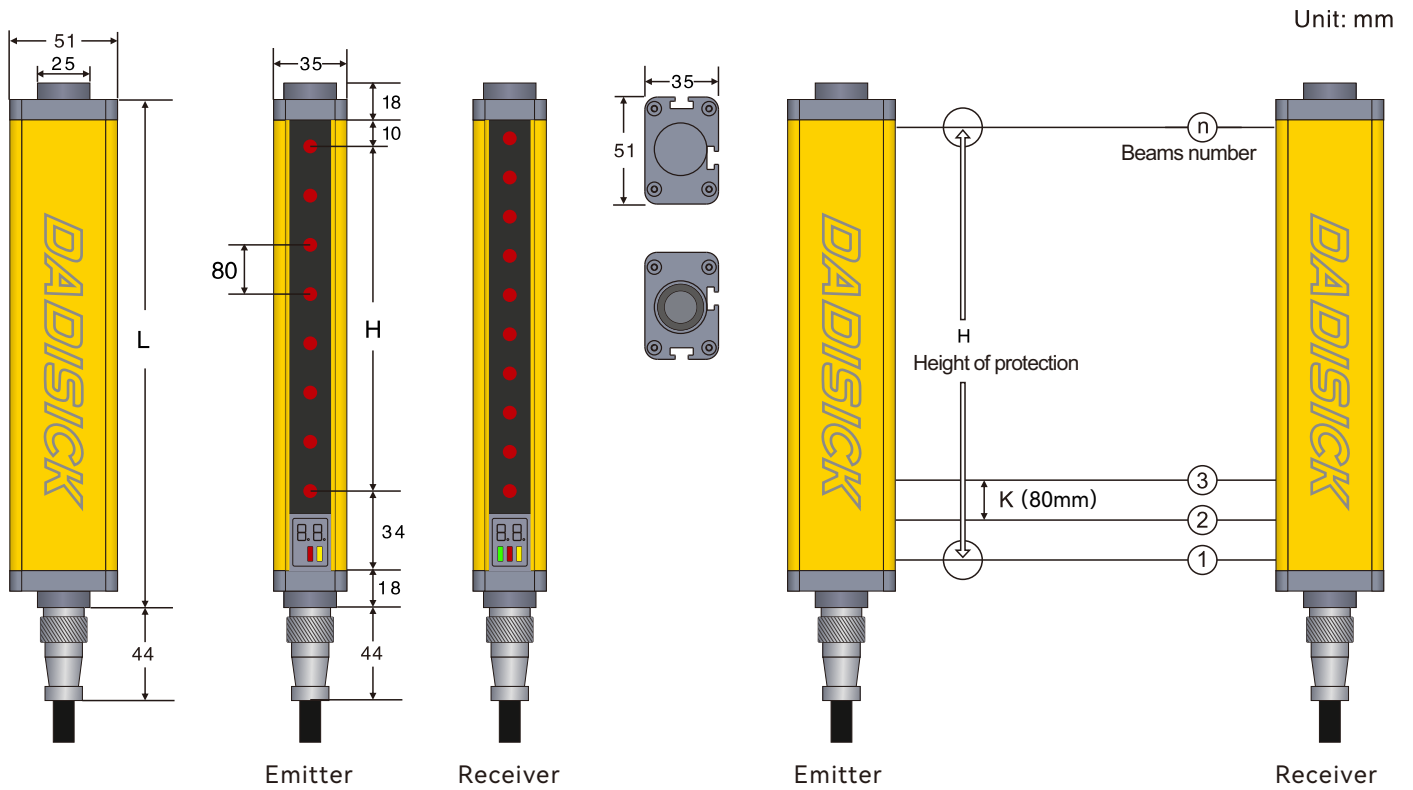
$$L = 18 + 10 + H + 34 + 18$$

$$H = (n - 1) * 40$$

QLT 40mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode			Detection range
					RS485	4-20mA	0-10V	
40mm (K)	4	120	200	QLT04/40-120	R	I	U	0.3-6m
	6	200	280	QLT06/40-200	R	I	U	0.3-6m
	8	280	360	QLT08/40-280	R	I	U	0.3-6m
	10	360	440	QLT10/40-360	R	I	U	0.3-6m
	12	440	520	QLT12/40-440	R	I	U	0.3-6m
	14	520	600	QLT14/40-520	R	I	U	0.3-6m
	16	600	680	QLT16/40-600	R	I	U	0.3-6m
	18	680	760	QLT18/40-680	R	I	U	0.3-6m
	20	760	840	QLT20/40-760	R	I	U	0.3-6m
	22	840	920	QLT22/40-840	R	I	U	0.3-6m
	24	920	1000	QLT24/40-920	R	I	U	0.3-6m
	26	1000	1080	QLT26/40-1000	R	I	U	0.3-6m
	28	1080	1160	QLT28/40-1080	R	I	U	0.3-6m
	30	1160	1240	QLT30/40-1160	R	I	U	0.3-6m
	32	1240	1320	QLT32/40-1240	R	I	U	0.3-6m
	34	1320	1400	QLT34/40-1320	R	I	U	0.3-6m
	36	1400	1480	QLT36/40-1400	R	I	U	0.3-6m
	38	1480	1560	QLT38/40-1480	R	I	U	0.3-6m
	40	1560	1640	QLT40/40-1560	R	I	U	0.3-6m
	42	1640	1720	QLT42/40-1640	R	I	U	0.3-6m
	44	1720	1800	QLT44/40-1720	R	I	U	0.3-6m
	46	1800	1880	QLT46/40-1800	R	I	U	0.3-6m
	48	1880	1960	QLT48/40-1880	R	I	U	0.3-6m
	50	1960	2040	QLT50/40-1960	R	I	U	0.3-6m
	52	2040	2120	QLT52/40-2040	R	I	U	0.3-6m
	54	2120	2200	QLT54/40-2120	R	I	U	0.3-6m
	56	2200	2280	QLT56/40-2200	R	I	U	0.3-6m
	58	2280	2360	QLT58/40-2280	R	I	U	0.3-6m
60	2360	2440	QLT60/40-2360	R	I	U	0.3-6m	
62	2440	2520	QLT62/40-2440	R	I	U	0.3-6m	
64	2520	2600	QLT64/40-2520	R	I	U	0.3-6m	
66	2600	2680	QLT66/40-2600	R	I	U	0.3-6m	
68	2680	2760	QLT68/40-2680	R	I	U	0.3-6m	
70	2760	2840	QLT70/40-2760	R	I	U	0.3-6m	
72	2840	2920	QLT72/40-2840	R	I	U	0.3-6m	

4. QLT 80mm series



Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

$$L = 18 + 10 + H + 34 + 18$$

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

QLT 80mm specification list

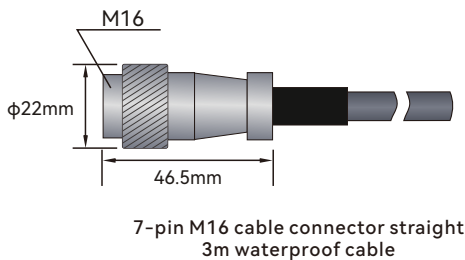
Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode			Detection range
					RS485	4-20mA	0-10V	
80mm (K)	4	240	320	QLT04/80-240	R	I	U	0.3-6m
	6	400	480	QLT06/80-400	R	I	U	0.3-6m
	8	560	640	QLT08/80-560	R	I	U	0.3-6m
	10	720	800	QLT10/80-720	R	I	U	0.3-6m
	12	880	960	QLT12/80-880	R	I	U	0.3-6m
	14	1040	1120	QLT14/80-1040	R	I	U	0.3-6m
	16	1200	1280	QLT16/80-1200	R	I	U	0.3-6m
	18	1360	1440	QLT18/80-1360	R	I	U	0.3-6m
	20	1520	1600	QLT20/80-1520	R	I	U	0.3-6m
	22	1680	1760	QLT22/80-1680	R	I	U	0.3-6m
	24	1840	1920	QLT24/80-1840	R	I	U	0.3-6m
	26	2000	2080	QLT26/80-2000	R	I	U	0.3-6m
	28	2160	2240	QLT28/80-2160	R	I	U	0.3-6m
	30	2320	2400	QLT30/80-2320	R	I	U	0.3-6m
	32	2480	2560	QLT32/80-2480	R	I	U	0.3-6m
	34	2640	2720	QLT34/80-2640	R	I	U	0.3-6m
	36	2800	2880	QLT36/80-2800	R	I	U	0.3-6m
38	2960	3040	QLT38/80-2960	R	I	U	0.3-6m	
40	3120	3200	QLT40/80-3120	R	I	U	0.3-6m	

Note: The sensing distance can reach up to 30m. For more information, please contact customer service

Electrical connection

Electrical interface	
Number of interfaces	2 (receiver and transmitter)
Type	M16 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

Cable description:



Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	-
5	RED	RS485A
6	GREEN	RS485B
7	YELLOW	Ground wire

Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	CP
4	WHITE	OSSD
5	RED	RS485A
6	GREEN	RS485B
7	YELLOW	Ground wire

1. Frame format

- Reference to Modbus RTU protocol customization, using RS485 communication;
- Baud rate 4800 bit / s, 9600 bit / s, 19200 BOT / s, 38400 bit / s, default 9600 bit / s;
- Data 8 bit; no parity check; 1 bit stop bit; 16 bit CRC check.

2. Active transmission mode of RS485/232 signal

Active access: By default, data is automatically uploaded to the host computer every 100 ms (speed and time can be set).

3. Passive transmission mode of RS485/232 signal

Passive access mode: multiple sets of light curtains are connected in parallel at the same time, and the upper computer sends instructions before uploading data. The address code can be modified arbitrarily.

4. RS485/232 Communication Protocol (Mode 1)

The communication mode uploads the status of all light points directly to the upper computer, which processes data directly according to the requirements of use.

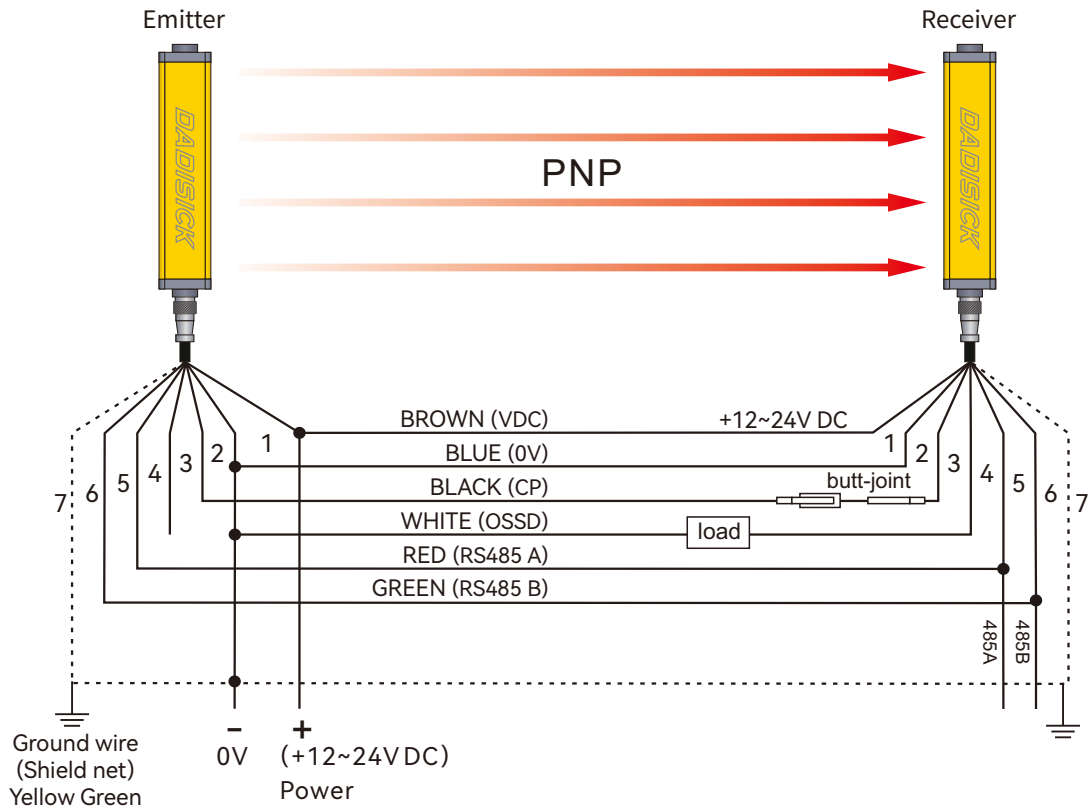
Free	0	1	2	3	---	N	N+1	N+2	Free
Starting position ≥10ms	Starting position 0x03H	Total number of spots	Single frame data volume	Data 1	---	Data N	CRC Check High Bytes	CRC Check Low Bytes	Stop bit ≥10ms

5. RS485/232 Communication Protocol (Mode 2)

The communication mode only uploads the data of the highest point, the lowest point and the total number of photovoltaic shielded to the upper computer directly, and the upper computer processes the data directly according to the use requirements.

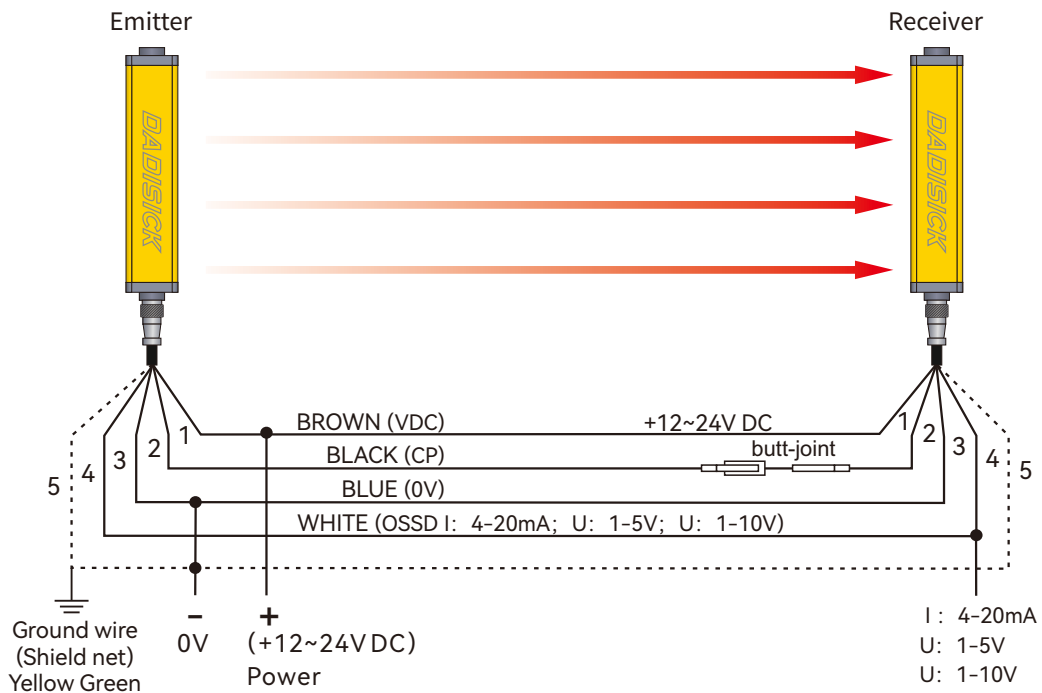
Free	First place	Second place	Third place	Fourth place	Fifth place	Sixth place	Seventh place	Free
Starting position ≥10ms	Starting position 0x03H	Total number of spots	Single frame data volume 0x07	The highest point of light screen occlusion	The lowest point of light screen occlusion	Total number of light screens	Check code	Stop bit ≥10ms

6. QLT series RS485/RS232 wiring diagram

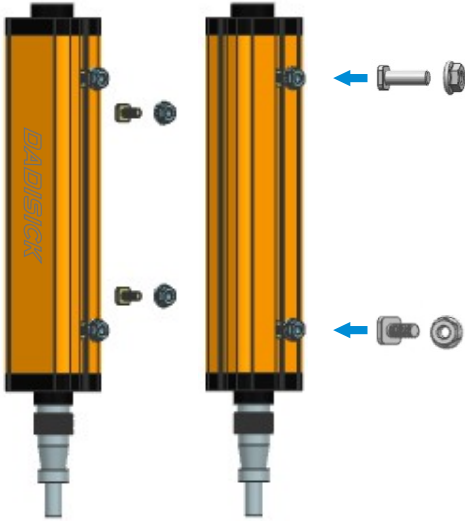


This figure is an example of PNP double output 7-pin wiring.

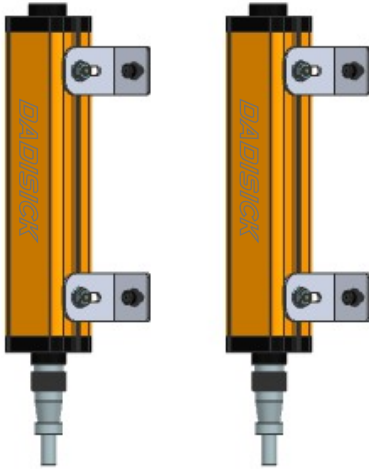
7. QLT series 5-pin analog U/I wiring diagram



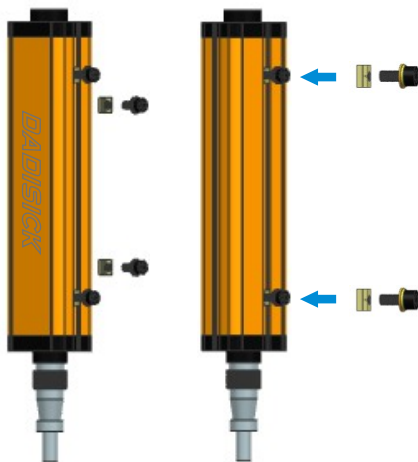
Accessories



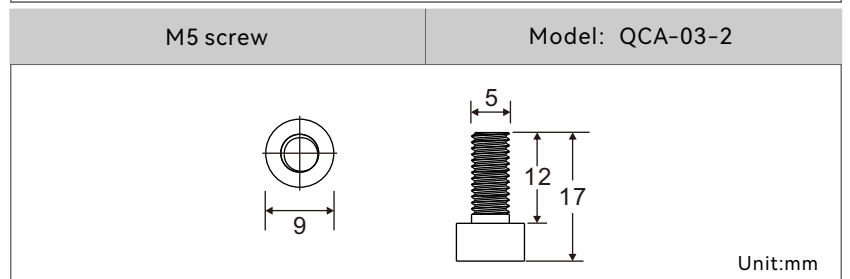
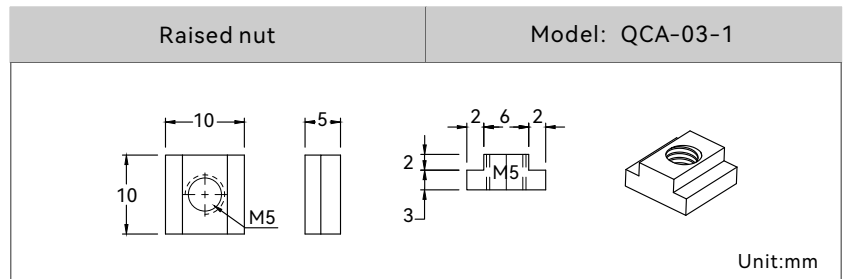
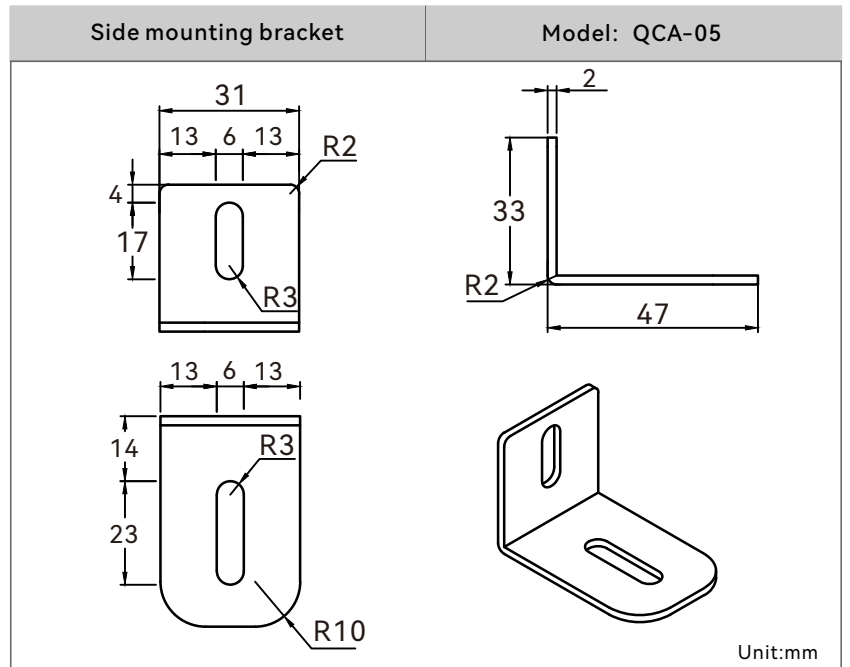
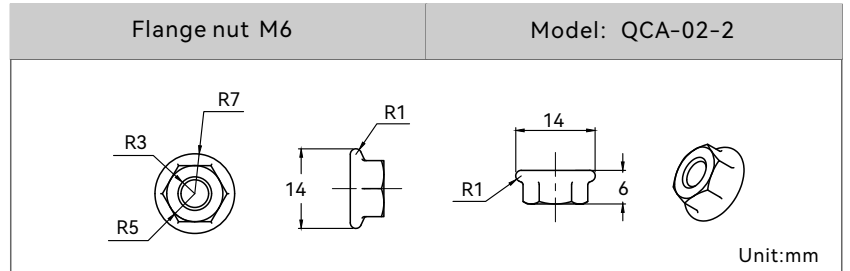
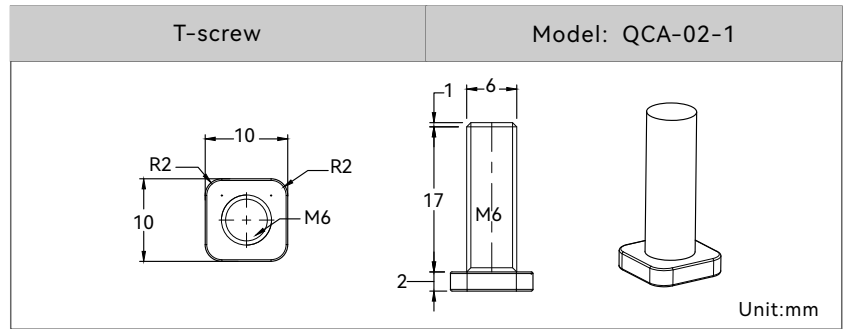
1. Installation method of T-shaped screws on the back
(Original accessories)

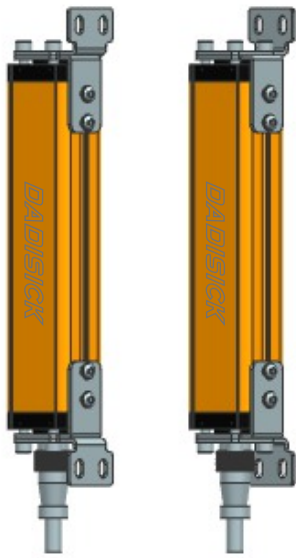


2. Installation method of side right angle bracket
(Original accessories)

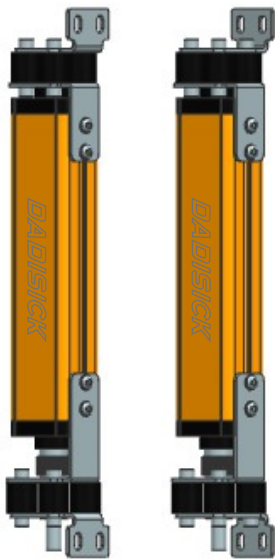


3. Installation method of convex nut
(Optional accessories)





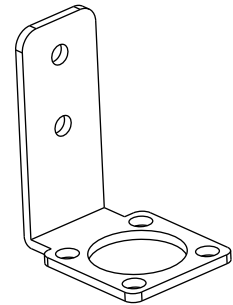
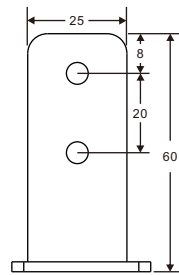
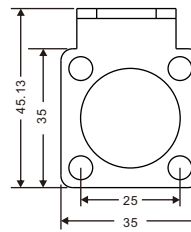
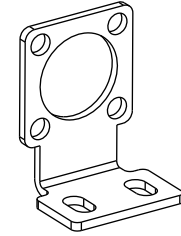
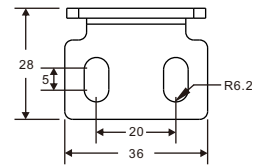
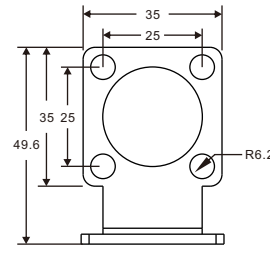
4. Installation method of right angle brackets at both ends
(Order separately)



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

Right angle brackets at both ends

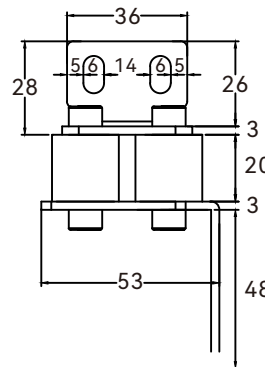
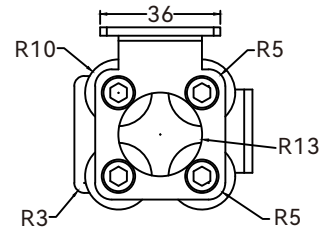
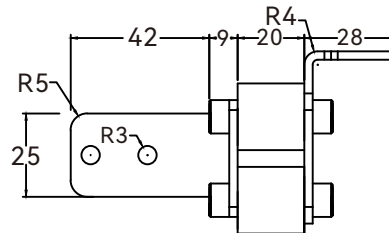
Model: QA-02



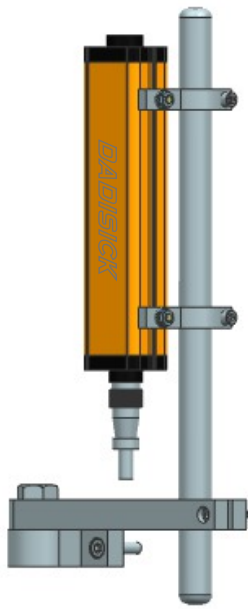
Unit:mm

Shockproof right angle brackets

Model: QA-01



Unit:mm



6. Stainless steel bracket installation
(Order separately)

Stainless steel bracket installation	Model: QCA-01
<p>Clip:</p>	
<p>Aluminum round:</p>	
<p>Aluminum arm:</p>	
<p>Steel pipe:</p> <p>Length: 400/500/600/700/800/1000 optional</p> <p style="text-align: right;">Unit:mm</p>	