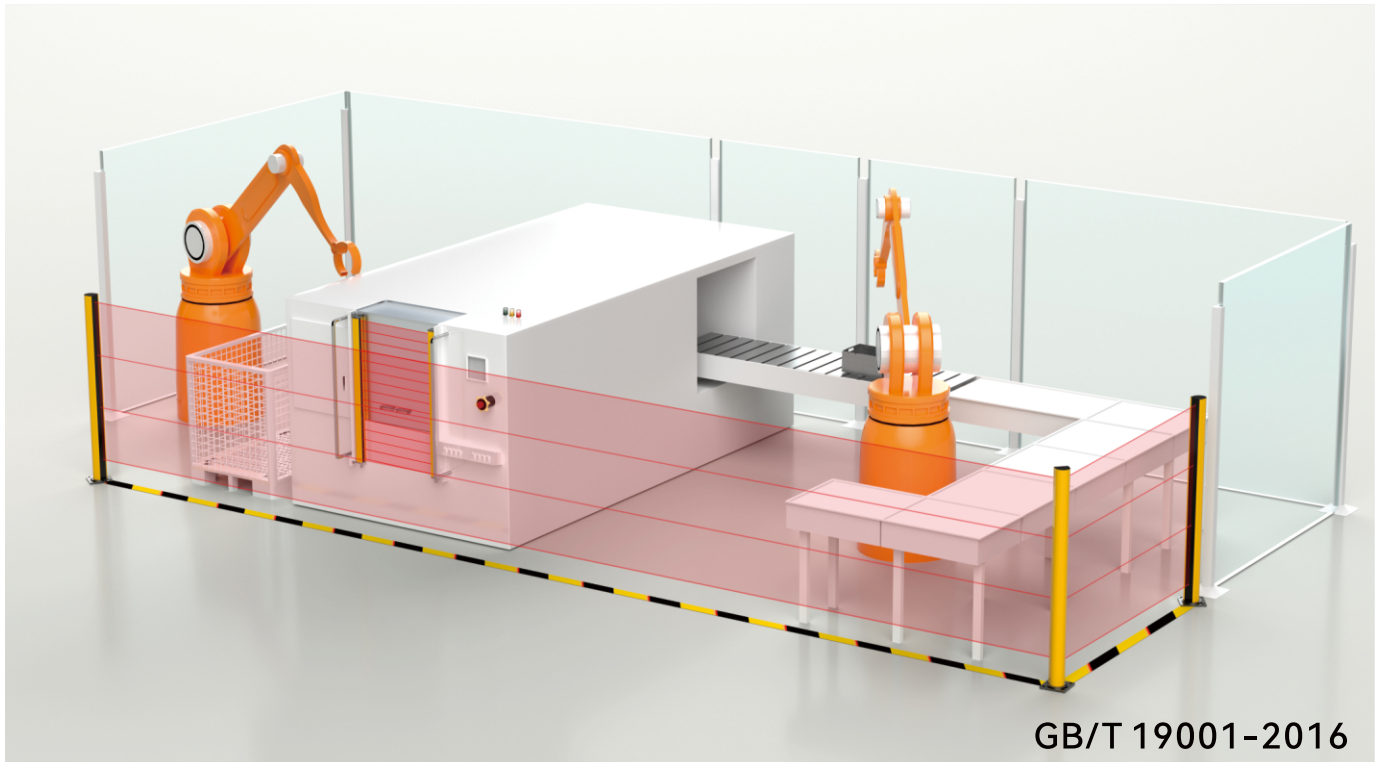


USER'S MANUAL

SAFETY LIGHT CURTAIN FOR REGIONAL PROTECTION WITH FLOOR STAND COLUMNS AND MIRROR **DK-QSA series**



Thank you very much for purchasing DADISICK products!

Please be familiar with the user manual and product manual before use.

For your safety, please be sure to follow the precautions in the safety precautions.

Please be sure to follow the instructions, product manual, DADISICK website, and other precautions.

Please keep it properly for easy retrieval.

The specifications and external dimensions recorded in this manual are subject to change or discontinuation due to product improvements without prior notice.

Please confirm the latest information on the DADISICK website.

SAFETY CONSIDERATIONS

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
-  Symbol indicates caution due to special circumstances in which hazards may occur.

 **Warning** Failure to follow instructions may result in serious injury or death.

01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
Failure to follow this instruction may result in personal injury, economic loss or fire.
02. Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
Failure to follow this instruction may result in explosion or fire.
03. Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in fire.
04. Check 'Connections' before wiring.
Failure to follow this instruction may result in fire.
05. Do not disassemble or modify the unit.
Failure to follow this instruction may result in fire.

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 **Caution** Failure to follow instructions may result in injury or product damage.

01. Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or product damage.
02. Use a dry cloth to clean the unit, and do not use water or organic solvent.
Failure to follow this instruction may result in fire.
03. Do not use a load over the range of rated relay specification.
Failure to follow this instruction may result in fire, relay broken, contact melt, insulation failure or contact failure.

CAUTIONS DURING USE

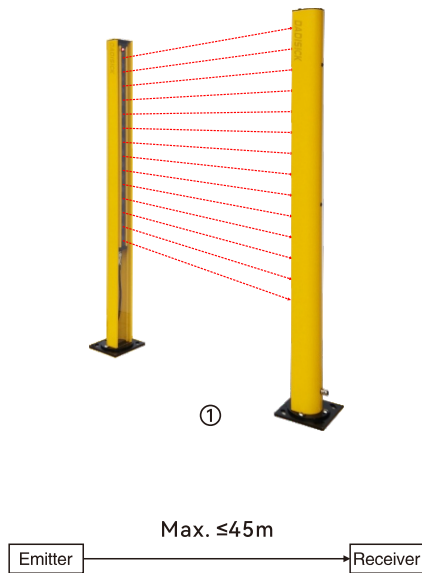
- Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
- 12 – 24 VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Use the product, 1 sec after supplying power. When using separate power supply for the sensor and load, supply power to sensor first.
- When using switching mode power supply to supply the power, ground FG. terminal and connect a condenser between 0 V and FG. terminal to remove noise.
- When connecting a DC relay or other inductive load, remove surge by using diodes or varistors.
- Wire as short as possible and keep away from high voltage lines or power lines, to prevent surge and inductive noise.
- This unit may be used in the following environments.
 - Indoors (in the environment condition rated in 'Specifications')
 - Altitude max. 2,000 m
 - Pollution degree 2
 - Installation category II

Product selection

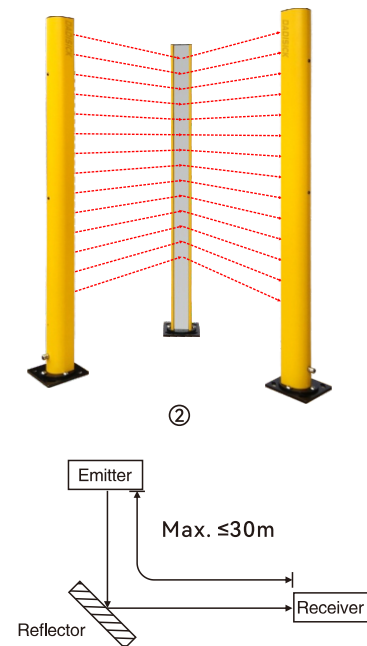
DK-QSA series photoelectric protection devices use mirrors to change the transmission direction of light to form 2-sided, 3-sided or 4-sided protection areas.

Detection distance optional: A:0.3-3m,B:0.3-6m,C:0.3-10m,D:0.3-15m,E:0.3-20m,F:0.3-25m,G:0.3-30m,H:0.3-45m.

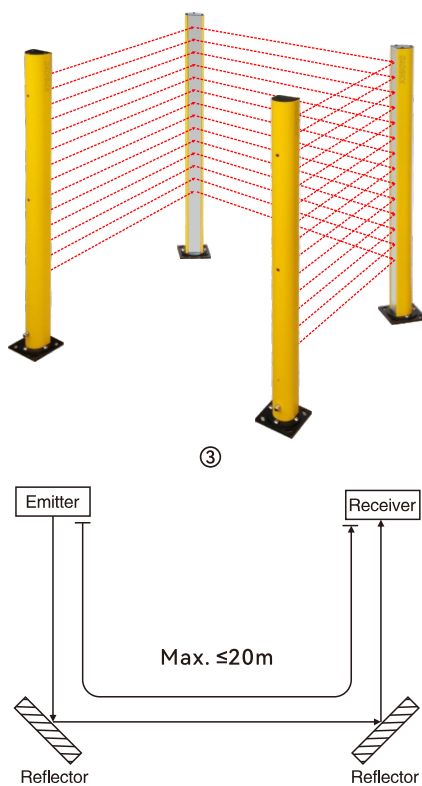
1. One-sided Long-distance Safety Protection



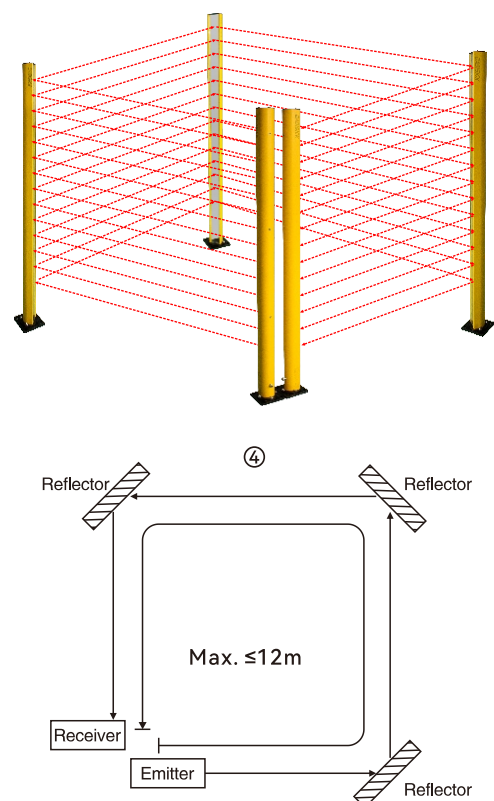
2. Two-sided Regional Safety Protection



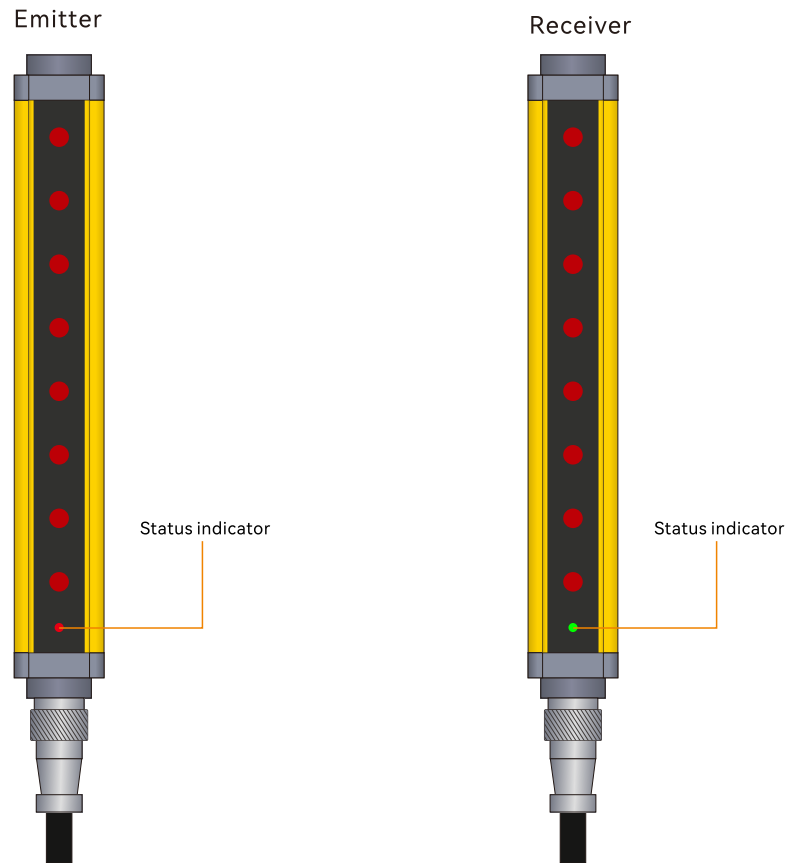
3. Three-sided Regional Safety Protection








4. Four-sided Regional Safety Protection



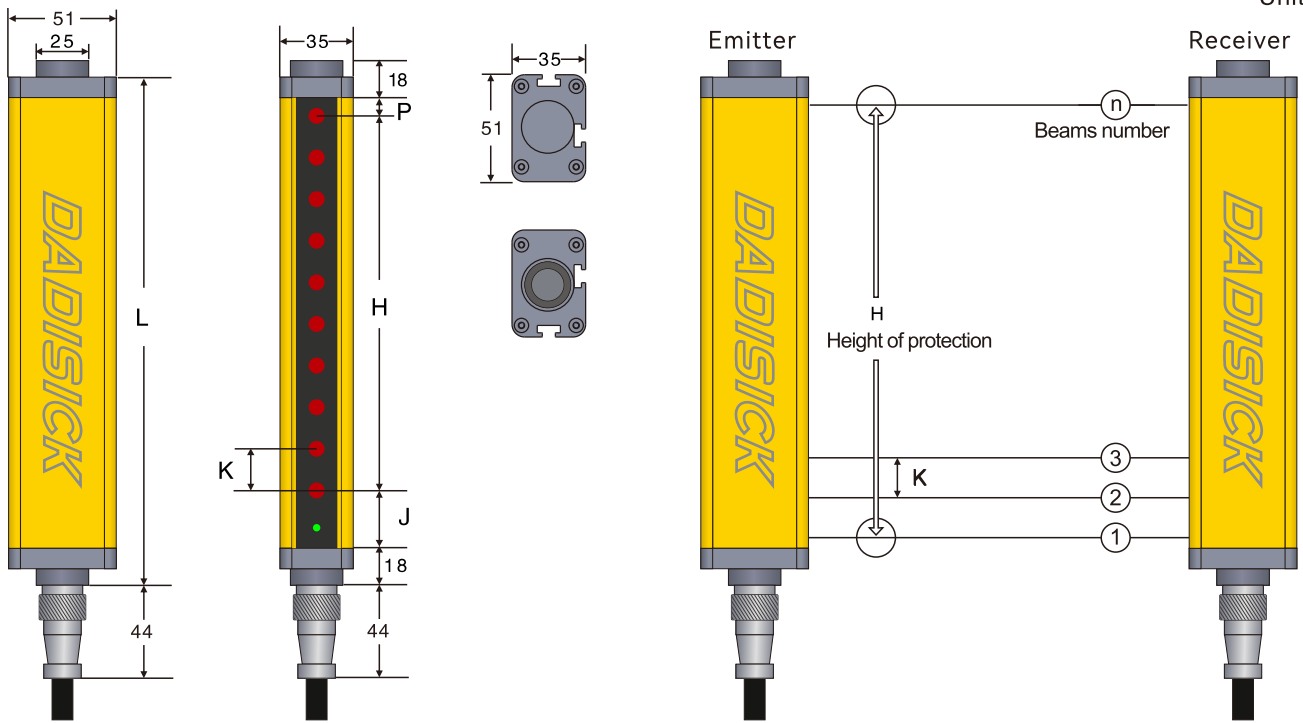
Operation and display



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

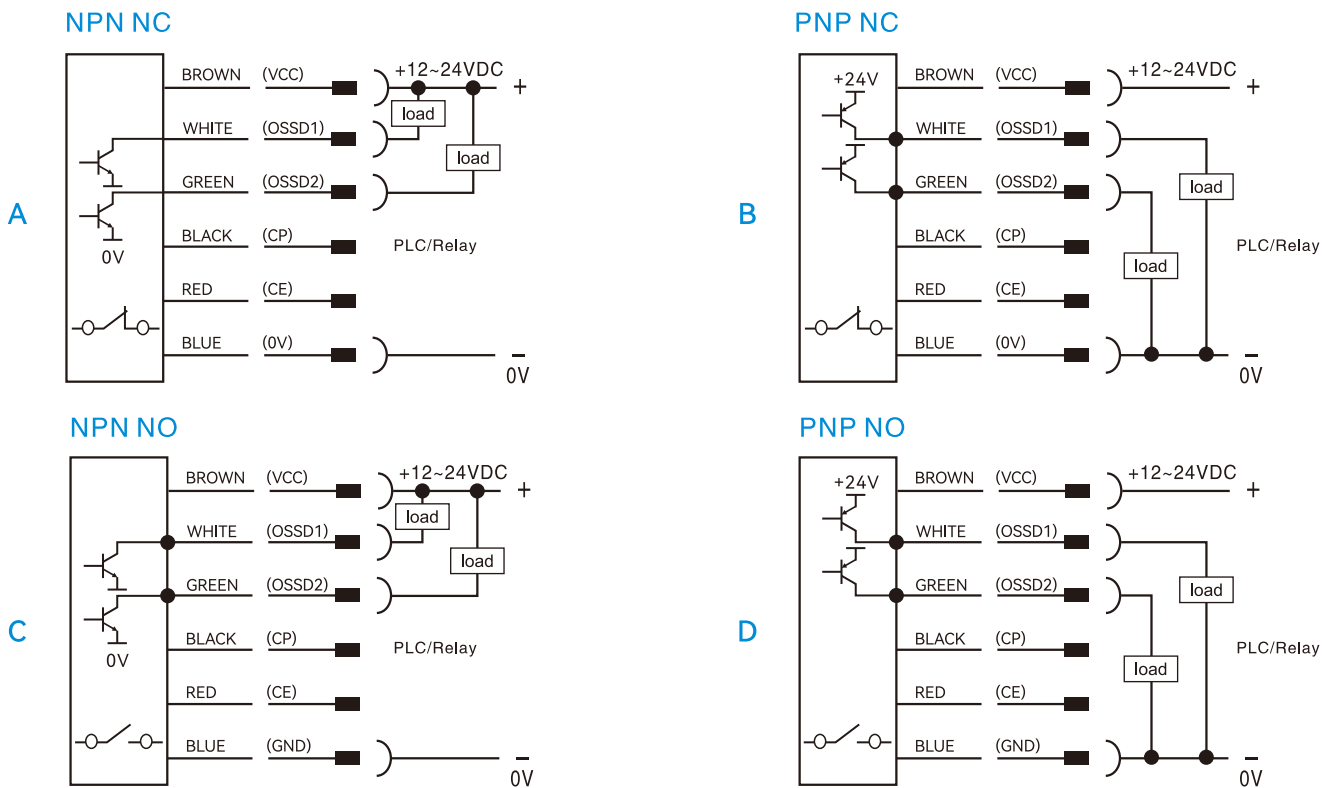
Unit: mm



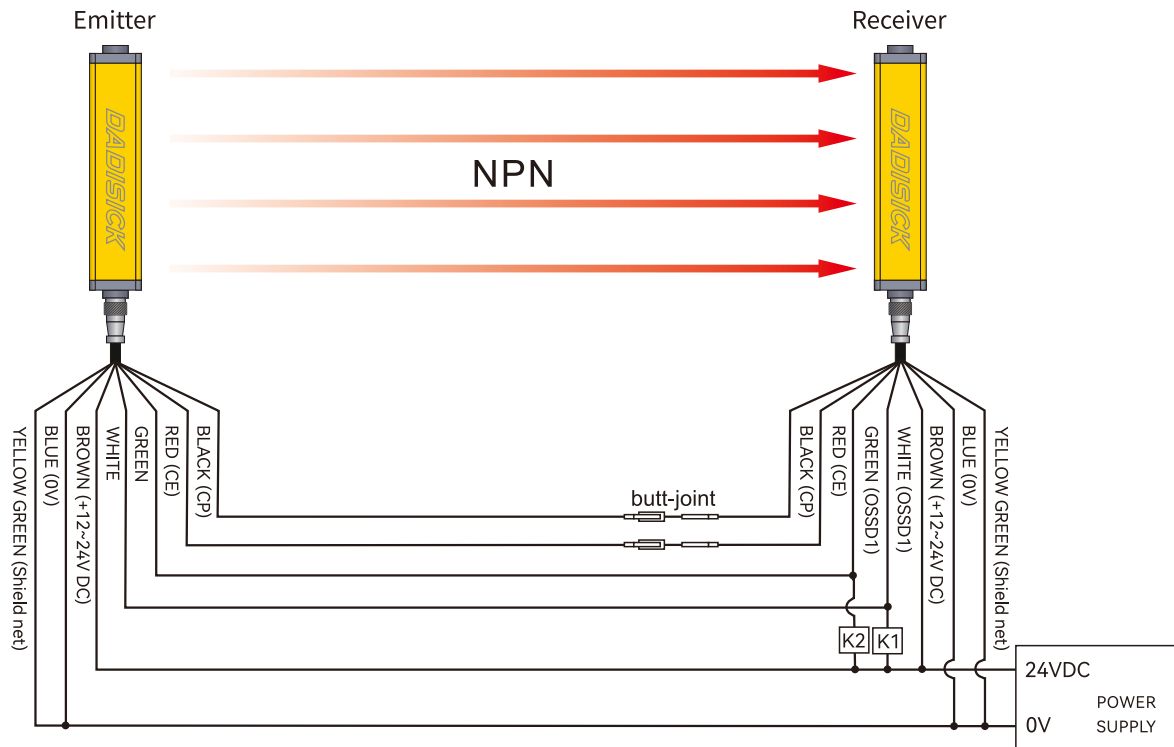
Remarks: L: Total length of light screen $L = 18 + P + H + J + 18$
 H: Height of protected area $H = (n - 1) * K$
 K: Resolution ratio
 n: Beams number

K (mm)	20	40	80	200
P (mm)	10	20	40	20
J (mm)	25	25	25	25

1. DK-QSA signal output selection (actual output of transistor working normally)

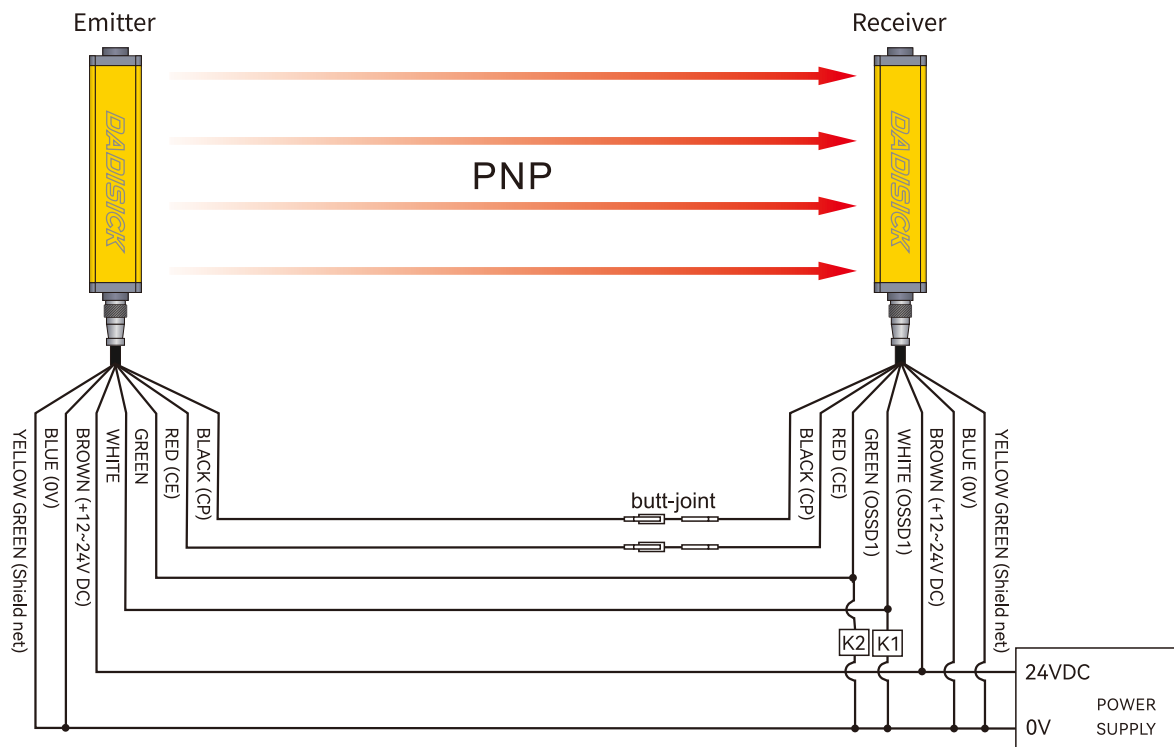


2. NPN output wiring diagram







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

3. PNP output wiring diagram

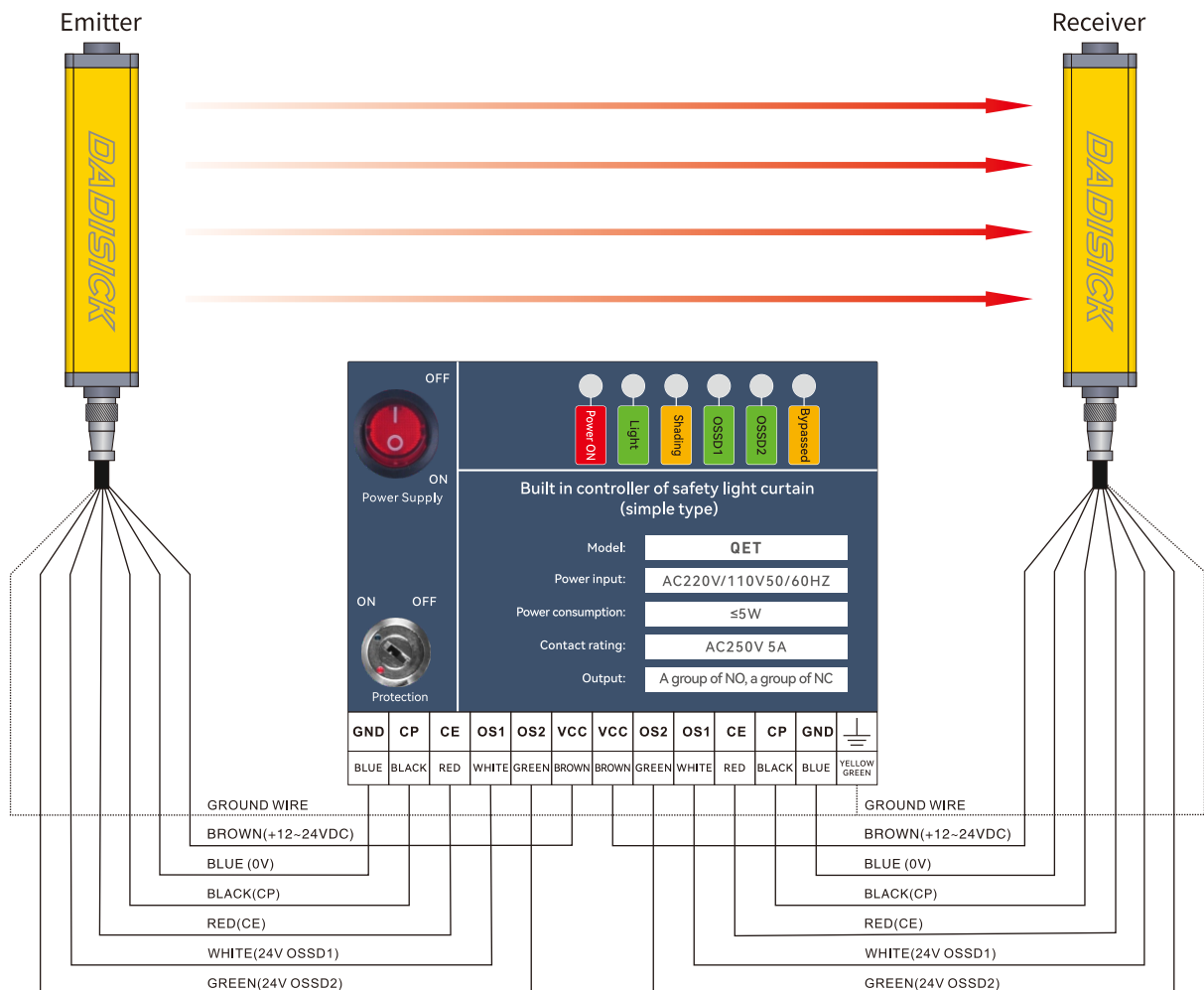


This figure is an example of PNP double output 7-pin wiring.

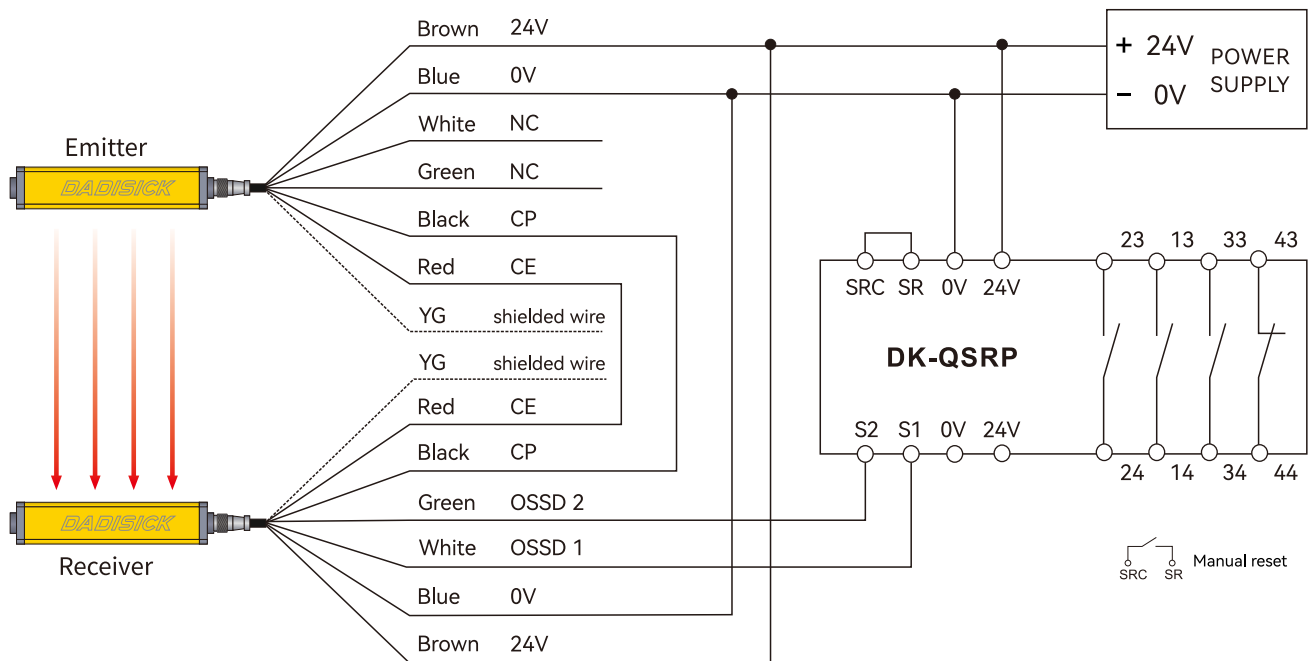
4. Selection of safety light curtain controller

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

4.1 Wiring diagram of QET built-in controller

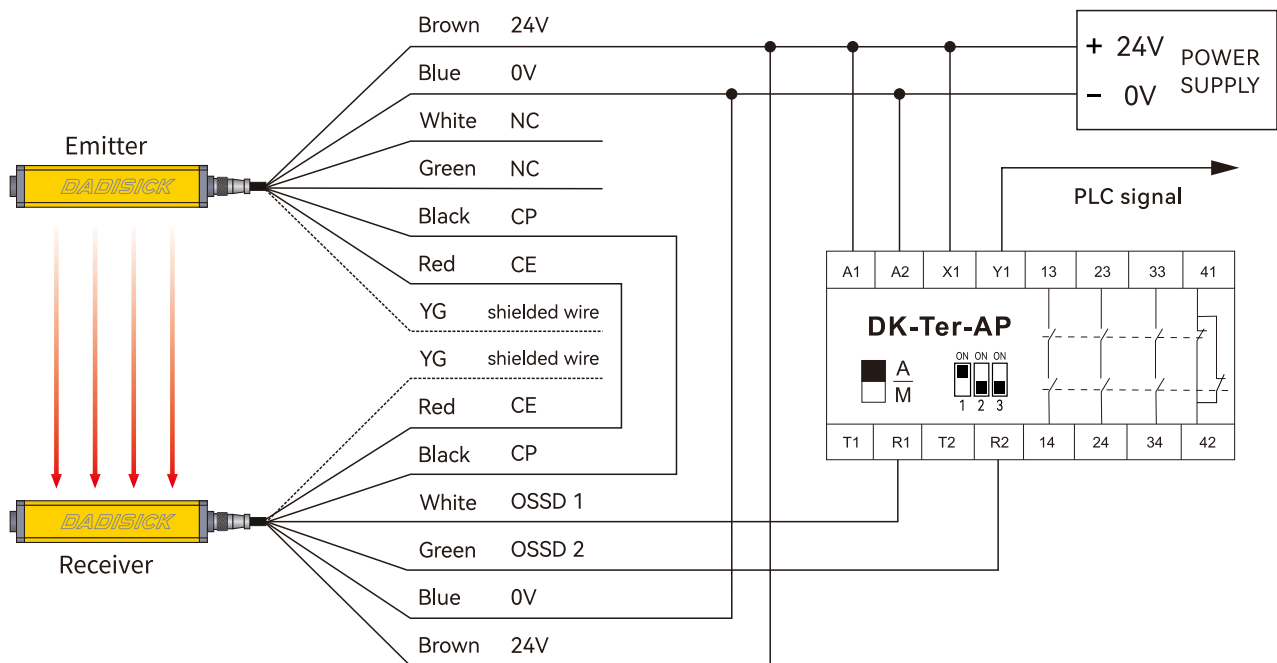


4.2 Wiring diagram of DK-QSRP safety relay

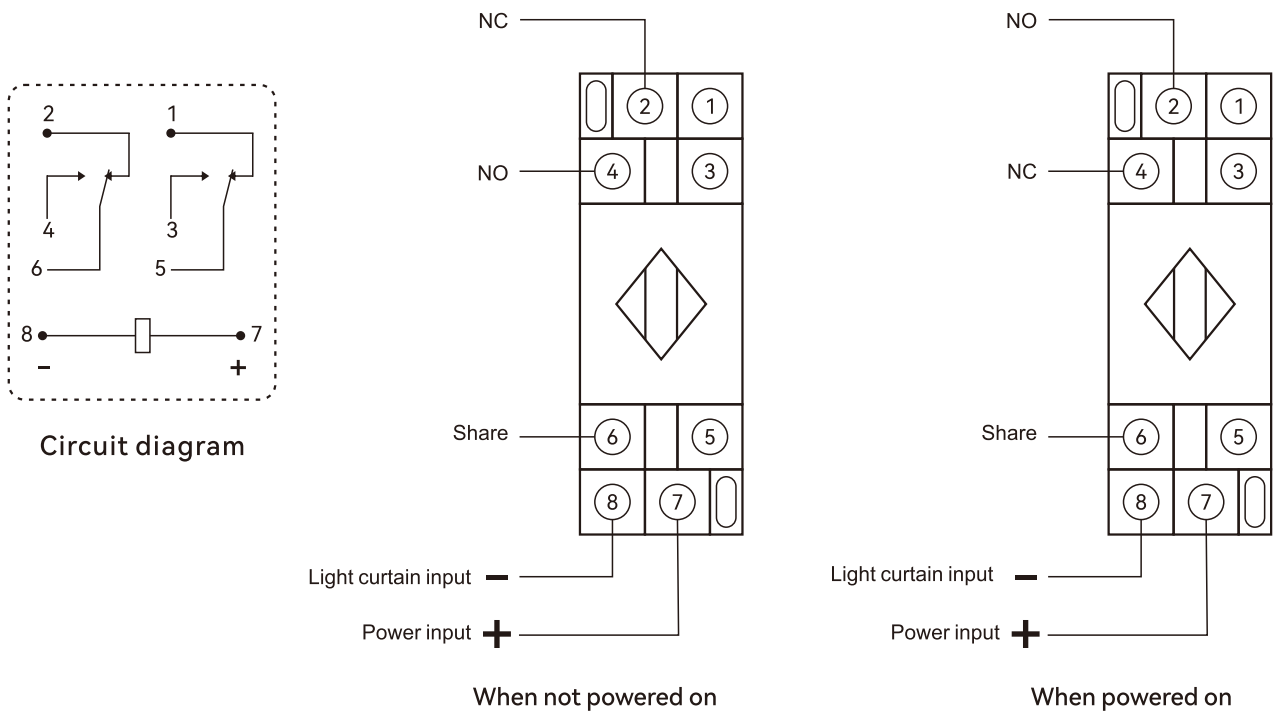


4.3 Wiring diagram of DK-Ter-AP safety relay

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

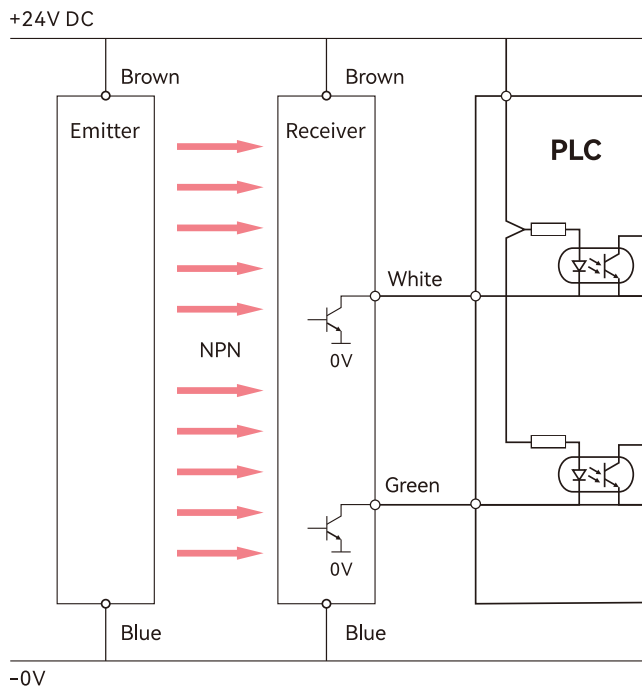


4.4 Wiring diagram of QET-1 light curtain relay

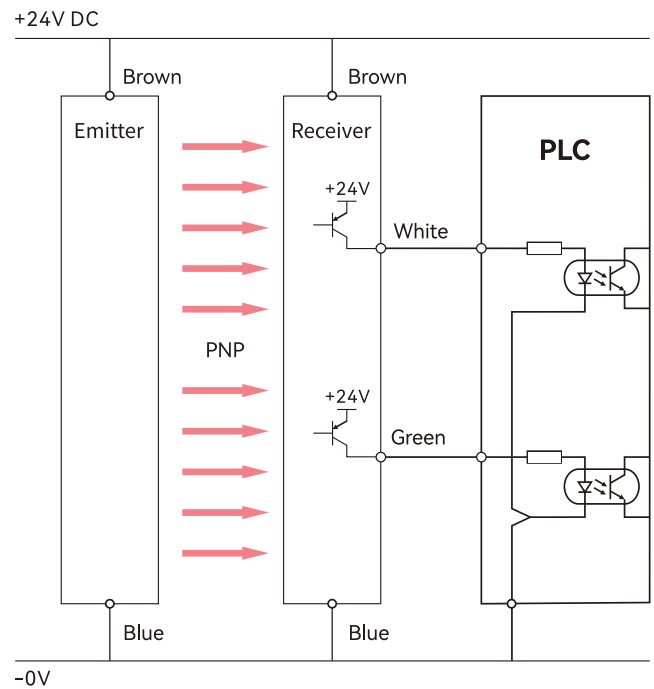


4.5 Wiring between light curtain and PLC and one-chip computer system


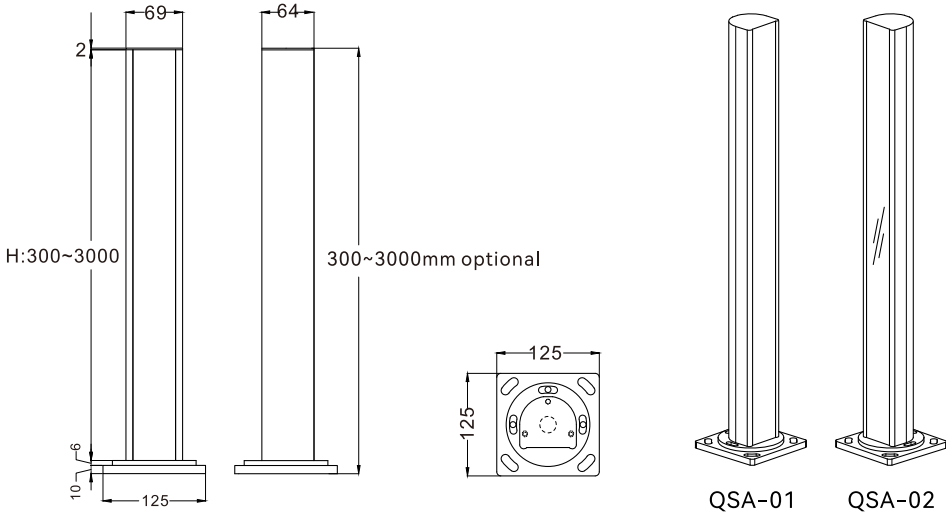

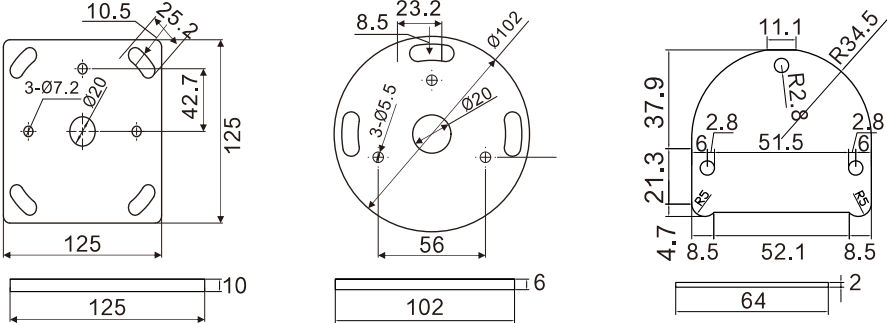

NPN wiring:



PNP wiring:

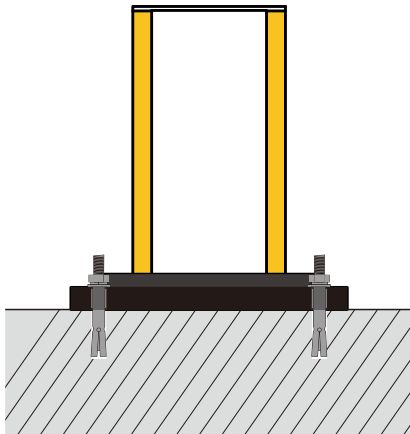


Outline size

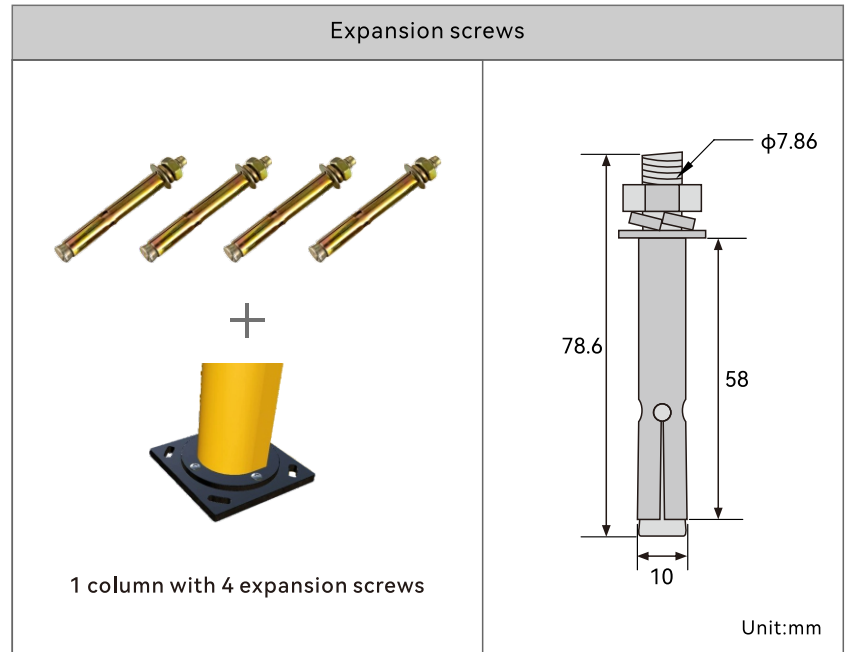
Columns appearance	Columns dimension (unit : mm)
 <p data-bbox="185 933 384 993">QSA-01 (Order separately)</p>	 <p data-bbox="1185 778 1417 804">QSA-01 QSA-02</p>
Mounting dimension (unit : mm)	
 <p data-bbox="185 1806 384 1867">QSA-02 (Order separately)</p>	
Details Picture	
	

Accessories

The equipment column can support independent installation of multiple beam safety gratings and safety light curtains on the ground, used for installing multiple side entrance and exit protective devices.



Concrete floor fixing expansion screws
(Original accessories)



Installation instructions

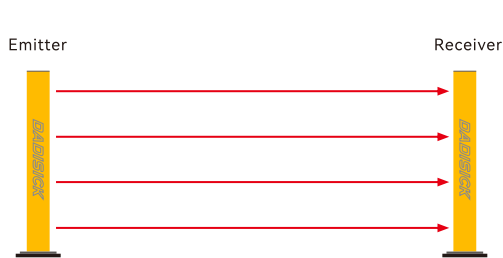
Before installation, please open the packing box first, check the packed components according to the packing list.

1、Installation direction

1.1 The emitter is equipped with a visible laser assisted positioning indicator.

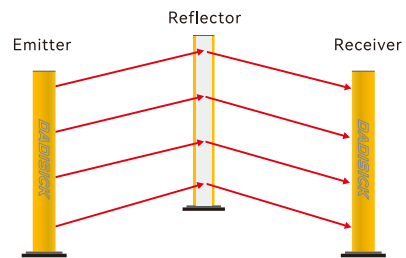


1.2 The installation direction of the transmitter and receiver should follow the required alignment.



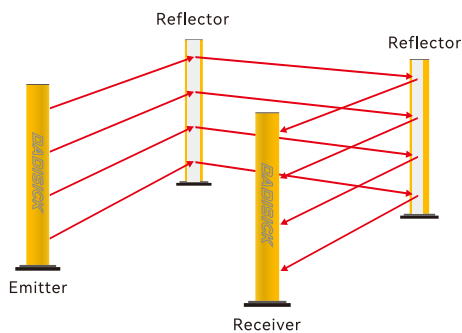
Protection distance Max. $\leq 45\text{m}$

① The emitter and receiver are in a straight horizontal line.



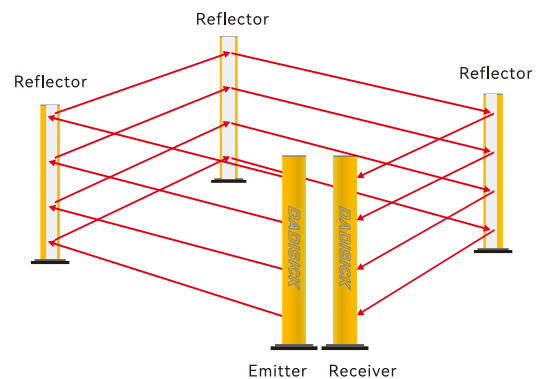
Protection distance Max. $\leq 30\text{m}$

② The emitter to the reflector and then to the receiver form a 90° right angle.



Protection distance Max. $\leq 20\text{m}$

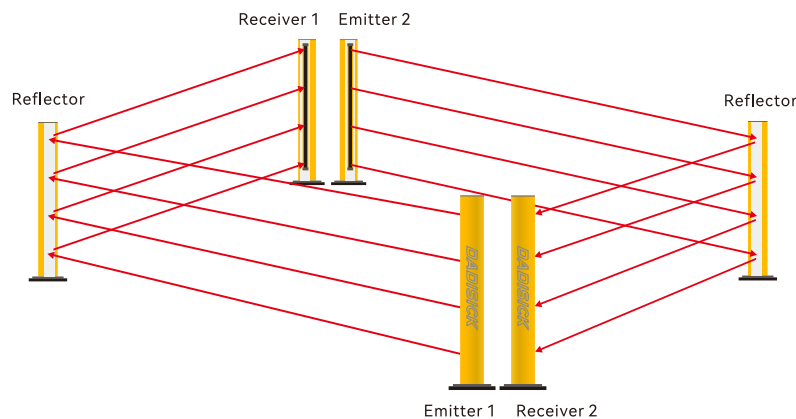
③ The emitter to the reflector and then to the receiver form a 90° right angle.



Protection distance Max. $\leq 12\text{m}$

④ The emitter to the reflector and then to the receiver form a 90° right angle.

1.3 If the protection distance cannot meet the needs, multiple sets of light curtain combinations can be selected.



Protection distance Max. $\leq 60\text{m}$

⑤ It is composed of two sets of safety light curtains and reflectors.

2、 Mounting instructions

1.1.Components (included in delivery):

- Emitter
- Reflector
- Receiver
- Expansion screws

1.2.Necessary tools:

- Allen key set
- Spirit level
- Hammer drill with 10mm concrete bit
- Hammer



1.3.Fasten the columns on the floor:

- Use the base plate to determine the installation midpoint of the column and mark it on the floor.
- Align it and mark the bore holes.
- Drill the fixing holes according to instructions and insert the floor anchors.
- Set the columns up and screw them on firmly.

