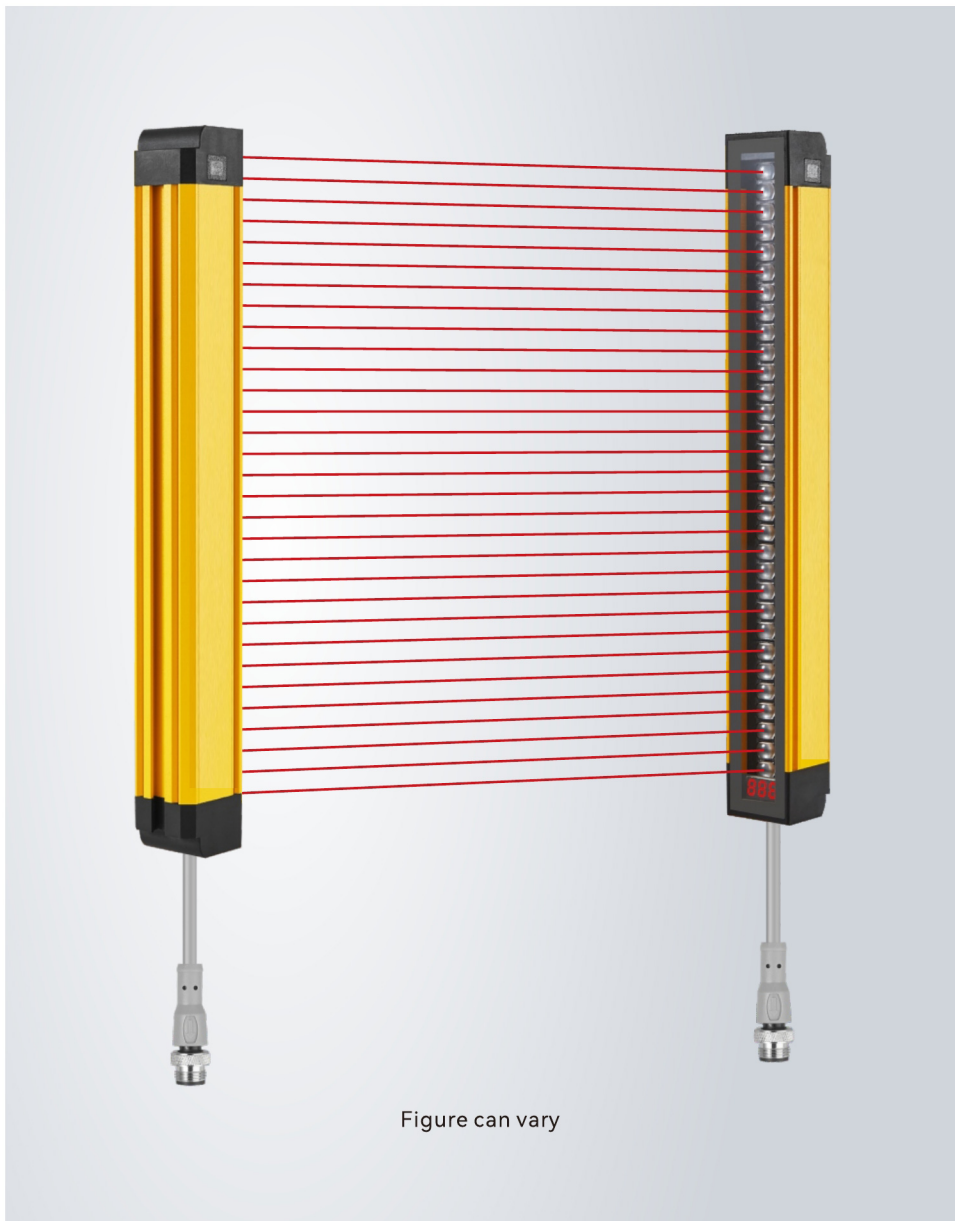


# TECHNICAL DATA SHEET

## SAFETY LIGHT CURTAIN SENSOR Emitter and Receiver **DQT4 series**



### Contents

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



Solutions

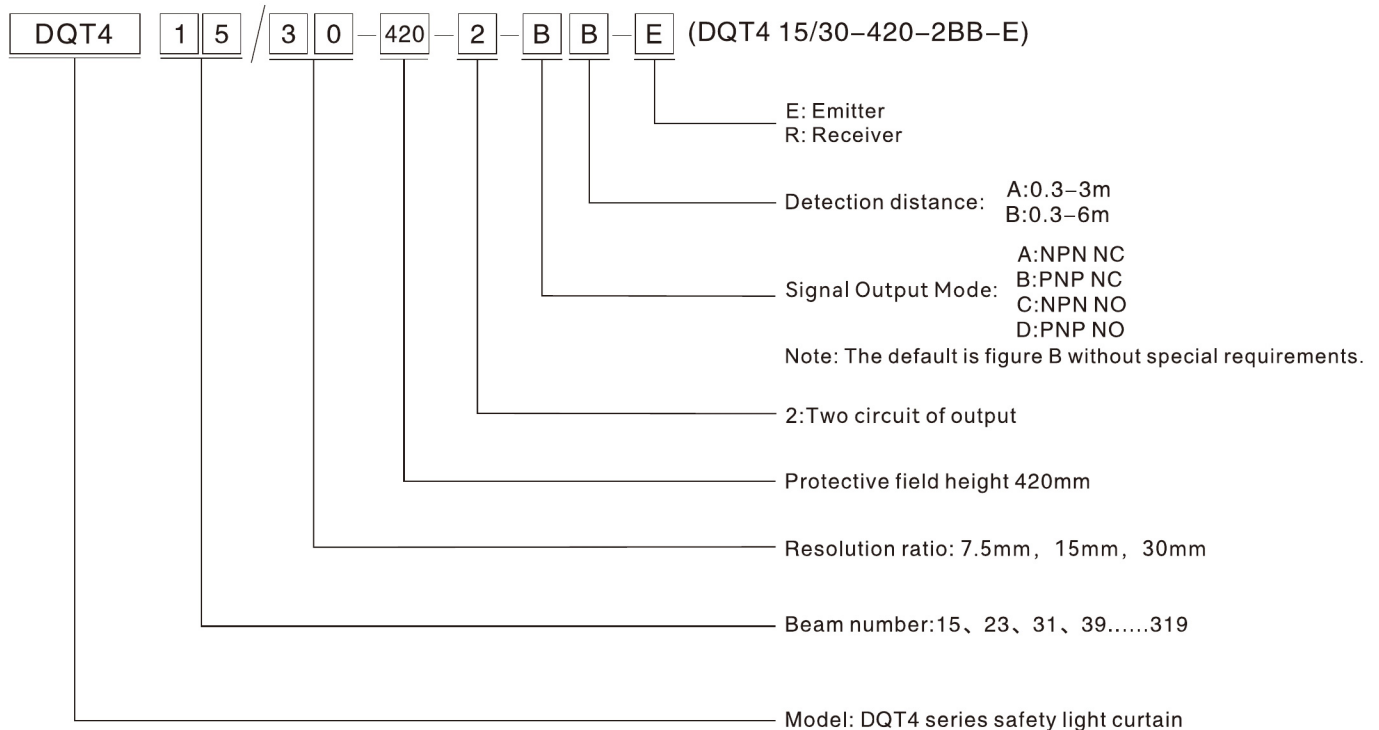


**GB/T 19001-2016**

## 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 DQT4 type safety light curtain are as follows:



## Resolution ratio

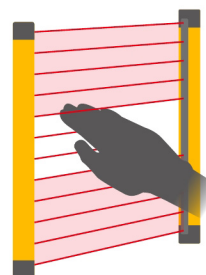
Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

### Finger protection



Detection capability  
**7.5/15mm**  
 diameter

### Hand protection



Detection capability  
**30mm**  
 diameter

## Technical data

### Basic data of Receiver and Emitter

| Standard packaging     |                                                                                             |
|------------------------|---------------------------------------------------------------------------------------------|
| Product model          | <b>DQT4 series</b>                                                                          |
| 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   | 7.5mm, 15mm, 30mm                                     |
| Check the accuracy | 14mm, 21mm, 36mm                                      |
| Number of beams    | 15、23、31、39.....319                                   |
| Overall dimension  | 30mm*30mm*L, L is the length of emitter and receiver. |
| Detection distance | 30-6000mm                                             |
| Response time      | ≤20ms                                                 |

| 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 |

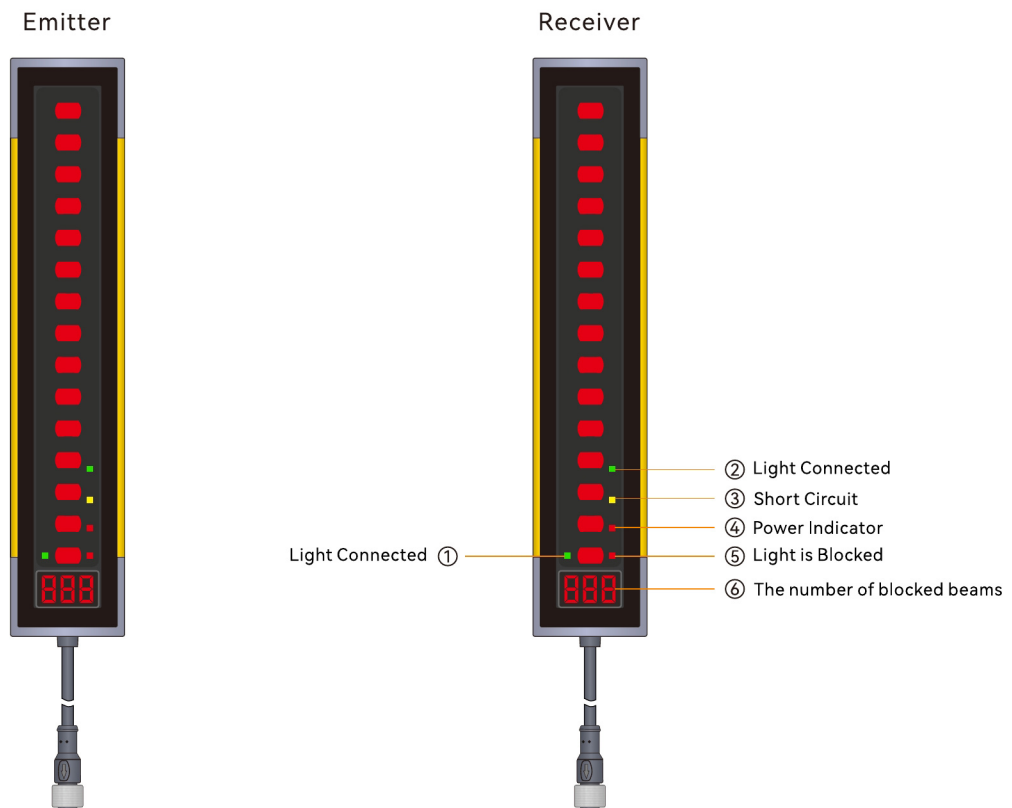
| Performance data            |                                                    |
|-----------------------------|----------------------------------------------------|
| Protection circuit          | Short circuit protection<br>Overvoltage protection |
| Supply voltage              | 24VDC, -20...20%                                   |
| 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 6, 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 |

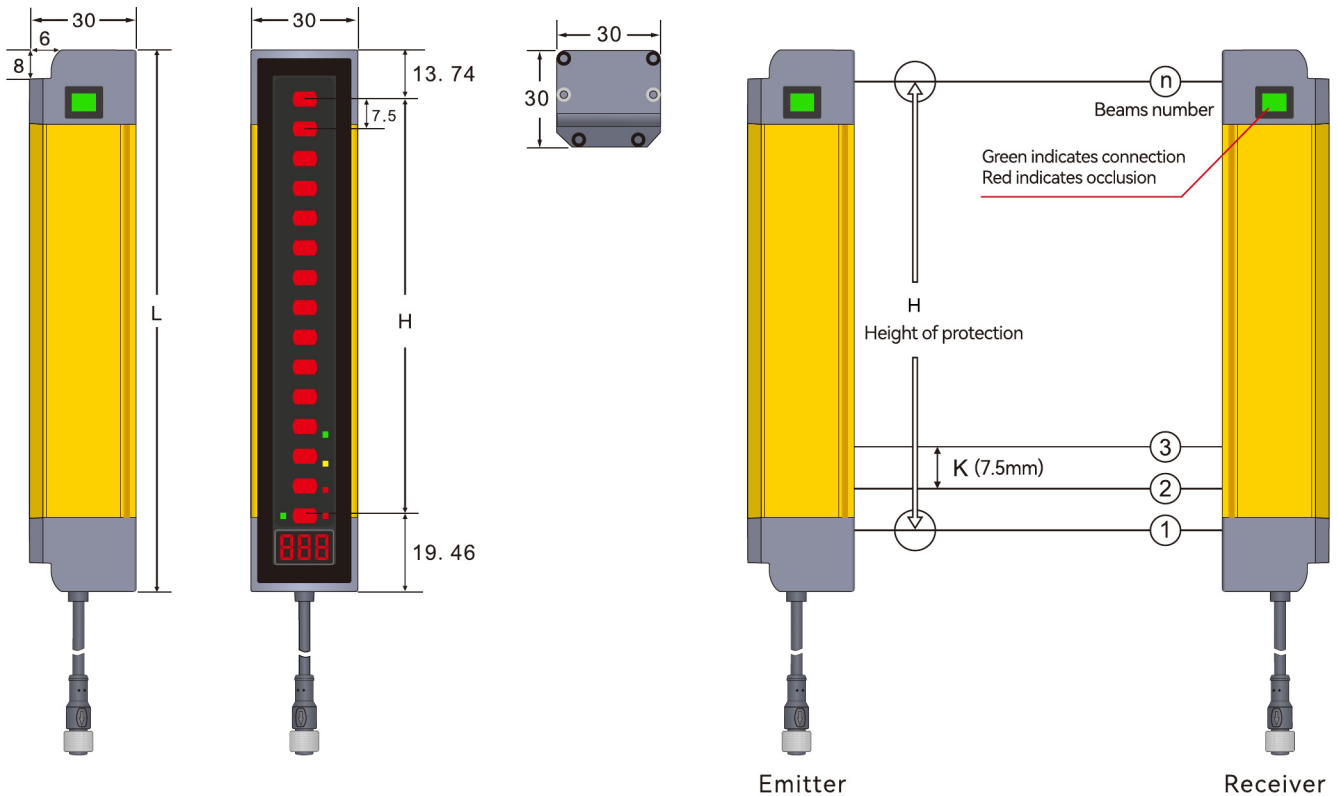
## Operation and display



| Status indicator     | LED status Indicator                                                                                 | Explain                                          |
|----------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| Emitter and Receiver |  ① ② Two green    | All light paths are connected                    |
|                      |  ③ Yellow         | Short-circuit                                    |
|                      |  ④ Red, always on | Turns on the power                               |
|                      |  ⑤ Red            | The light is blocked or misaligned               |
|                      |  ⑥ Digital Tube   | Real-time display of the number of blocked beams |

## Dimensioned drawings

### 1. DQT4 series 7.5mm Resolution



#### Remarks

L: Total length of light screen  
 $L = 13.74 + H + 19.46$

H: Height of protected area  
 $H = (n - 1) * 7.5$

K: Resolution ratio

n: Beams number

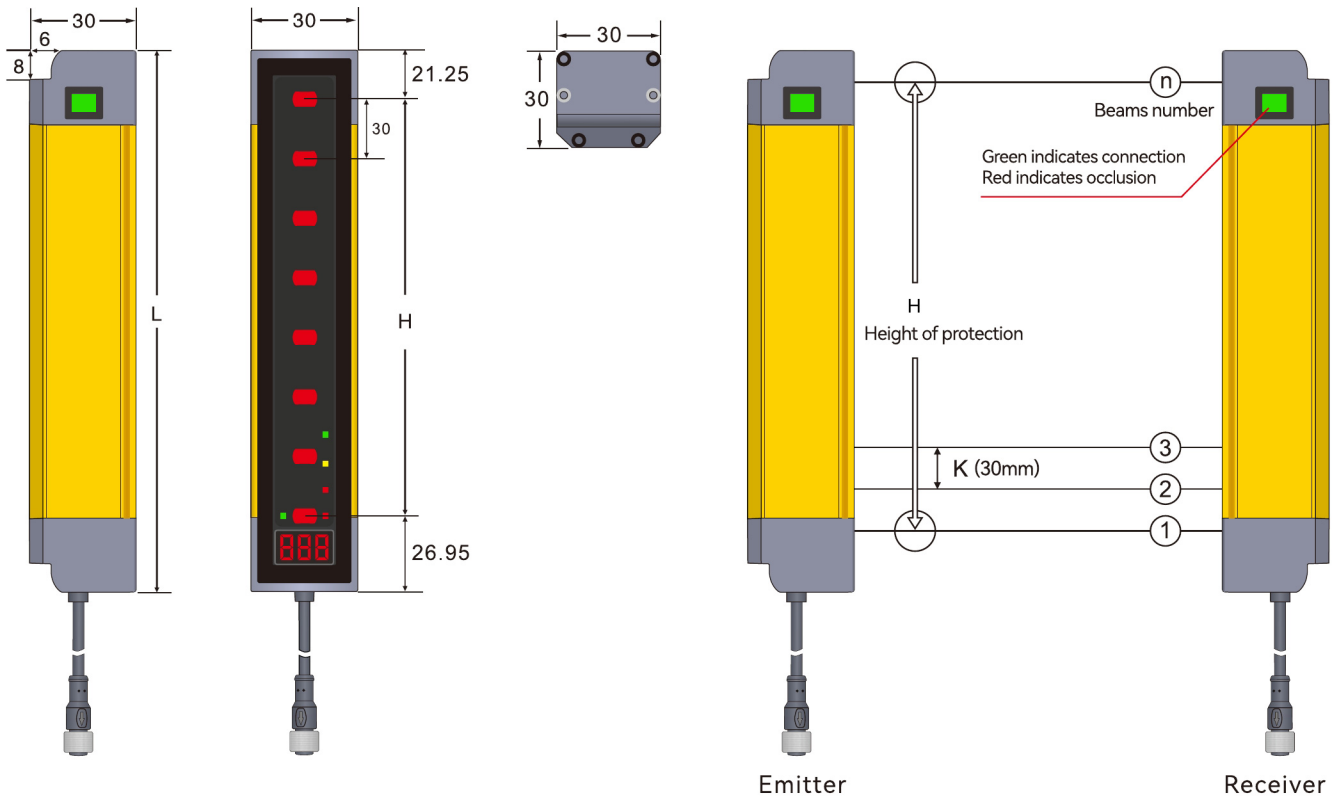
### DQT4 series 7.5mm specification list

| Resolution   | Light beam | Protection height (H) | Total height (L) | Product model     | Signal output mode |            | Detection range |
|--------------|------------|-----------------------|------------------|-------------------|--------------------|------------|-----------------|
|              |            |                       |                  |                   | Two outputs        | PNP output |                 |
| 7.5mm<br>(K) | 15         | 105                   | 138.2            | DQT4 15/7.5-105   | 2                  | PNP        | 0.3-6m          |
|              | 23         | 165                   | 198.2            | DQT4 23/7.5-165   | 2                  | PNP        | 0.3-6m          |
|              | 31         | 225                   | 258.2            | DQT4 31/7.5-225   | 2                  | PNP        | 0.3-6m          |
|              | 39         | 285                   | 318.2            | DQT4 39/7.5-285   | 2                  | PNP        | 0.3-6m          |
|              | 47         | 345                   | 378.2            | DQT4 47/7.5-345   | 2                  | PNP        | 0.3-6m          |
|              | 55         | 405                   | 438.2            | DQT4 55/7.5-405   | 2                  | PNP        | 0.3-6m          |
|              | 63         | 465                   | 498.2            | DQT4 63/7.5-465   | 2                  | PNP        | 0.3-6m          |
|              | 71         | 525                   | 558.2            | DQT4 71/7.5-525   | 2                  | PNP        | 0.3-6m          |
|              | 79         | 585                   | 618.2            | DQT4 79/7.5-585   | 2                  | PNP        | 0.3-6m          |
|              | 87         | 645                   | 678.2            | DQT4 87/7.5-645   | 2                  | PNP        | 0.3-6m          |
|              | 95         | 705                   | 738.2            | DQT4 95/7.5-705   | 2                  | PNP        | 0.3-6m          |
|              | 103        | 765                   | 798.2            | DQT4 103/7.5-765  | 2                  | PNP        | 0.3-6m          |
|              | 111        | 825                   | 858.2            | DQT4 111/7.5-825  | 2                  | PNP        | 0.3-6m          |
|              | 119        | 885                   | 918.2            | DQT4 119/7.5-885  | 2                  | PNP        | 0.3-6m          |
|              | 127        | 945                   | 978.2            | DQT4 127/7.5-945  | 2                  | PNP        | 0.3-6m          |
|              | 135        | 1005                  | 1038.2           | DQT4 135/7.5-1005 | 2                  | PNP        | 0.3-6m          |
|              | 143        | 1065                  | 1098.2           | DQT4 143/7.5-1065 | 2                  | PNP        | 0.3-6m          |
|              | 151        | 1125                  | 1158.2           | DQT4 151/7.5-1125 | 2                  | PNP        | 0.3-6m          |
|              | 159        | 1185                  | 1218.2           | DQT4 159/7.5-1185 | 2                  | PNP        | 0.3-6m          |
|              | 167        | 1245                  | 1278.2           | DQT4 167/7.5-1245 | 2                  | PNP        | 0.3-6m          |
|              | 175        | 1305                  | 1338.2           | DQT4 175/7.5-1305 | 2                  | PNP        | 0.3-6m          |
|              | 183        | 1365                  | 1398.2           | DQT4 183/7.5-1365 | 2                  | PNP        | 0.3-6m          |
|              | 191        | 1425                  | 1458.2           | DQT4 191/7.5-1425 | 2                  | PNP        | 0.3-6m          |
|              | 199        | 1485                  | 1518.2           | DQT4 199/7.5-1485 | 2                  | PNP        | 0.3-6m          |
|              | 207        | 1545                  | 1578.2           | DQT4 207/7.5-1545 | 2                  | PNP        | 0.3-6m          |
|              | 215        | 1605                  | 1638.2           | DQT4 215/7.5-1605 | 2                  | PNP        | 0.3-6m          |
|              | ...        | ...                   | ...              | ...               | 2                  | PNP        | 0.3-6m          |
|              | 303        | 2265                  | 2298.2           | DQT4 303/7.5-2265 | 2                  | PNP        | 0.3-6m          |
|              | 311        | 2325                  | 2358.2           | DQT4 311/7.5-2325 | 2                  | PNP        | 0.3-6m          |
|              | 319        | 2385                  | 2418.2           | DQT4 319/7.5-2385 | 2                  | PNP        | 0.3-6m          |



## Dimensioned drawings

### 3. DQT4 series 30mm Resolution



#### Remarks

L: Total length of light screen

H: Height of protected area

K: Resolution ratio

n: Beams number

$L = 21.25 + H + 26.95$

$H = (n - 1) \times 30$

### DQT4 series 30mm specification list

| Resolution  | Light beam | Protection height (H) | Total height (L) | Product model    | Signal output mode |            | Detection range |
|-------------|------------|-----------------------|------------------|------------------|--------------------|------------|-----------------|
|             |            |                       |                  |                  | Two outputs        | PNP output |                 |
| 30mm<br>(K) | 4          | 90                    | 138.2            | DQT4 04/30-90    | 2                  | PNP        | 0.3-6m          |
|             | 8          | 210                   | 258.2            | DQT4 08/30-210   | 2                  | PNP        | 0.3-6m          |
|             | 12         | 330                   | 378.2            | DQT4 12/30-330   | 2                  | PNP        | 0.3-6m          |
|             | 16         | 450                   | 498.2            | DQT4 16/30-450   | 2                  | PNP        | 0.3-6m          |
|             | 20         | 570                   | 618.2            | DQT4 20/30-570   | 2                  | PNP        | 0.3-6m          |
|             | 24         | 690                   | 738.2            | DQT4 24/30-690   | 2                  | PNP        | 0.3-6m          |
|             | 28         | 810                   | 858.2            | DQT4 28/30-810   | 2                  | PNP        | 0.3-6m          |
|             | 32         | 930                   | 978.2            | DQT4 32/30-930   | 2                  | PNP        | 0.3-6m          |
|             | 36         | 1050                  | 1098.2           | DQT4 26/30-1050  | 2                  | PNP        | 0.3-6m          |
|             | 40         | 1170                  | 1218.2           | DQT4 40/30-1170  | 2                  | PNP        | 0.3-6m          |
|             | 44         | 1290                  | 1338.2           | DQT4 44/30-1290  | 2                  | PNP        | 0.3-6m          |
|             | 48         | 1410                  | 1458.2           | DQT4 48/30-1410  | 2                  | PNP        | 0.3-6m          |
|             | 52         | 1530                  | 1578.2           | DQT4 52/30-1530  | 2                  | PNP        | 0.3-6m          |
|             | 56         | 1650                  | 1698.2           | DQT4 56/30-1650  | 2                  | PNP        | 0.3-6m          |
|             | 60         | 1770                  | 1818.2           | DQT4 60/30-1770  | 2                  | PNP        | 0.3-6m          |
|             | 64         | 1890                  | 1938.2           | DQT4 64/30-1890  | 2                  | PNP        | 0.3-6m          |
|             | 68         | 2010                  | 2058.2           | DQT4 68/30-2010  | 2                  | PNP        | 0.3-6m          |
|             | 72         | 2130                  | 2178.2           | DQT4 72/30-2130  | 2                  | PNP        | 0.3-6m          |
|             | 76         | 2250                  | 2298.2           | DQT4 76/30-2250  | 2                  | PNP        | 0.3-6m          |
|             | 80         | 2370                  | 2418.2           | DQT4 80/30-2370  | 2                  | PNP        | 0.3-6m          |
|             | 84         | 2490                  | 2538.2           | DQT4 84/30-2490  | 2                  | PNP        | 0.3-6m          |
|             | 88         | 2610                  | 2658.2           | DQT4 88/30-2610  | 2                  | PNP        | 0.3-6m          |
|             | 92         | 2730                  | 2778.2           | DQT4 92/30-2730  | 2                  | PNP        | 0.3-6m          |
|             | 96         | 2850                  | 2898.2           | DQT4 96/30-2850  | 2                  | PNP        | 0.3-6m          |
|             | 100        | 2970                  | 3018.2           | DQT4 100/30-2970 | 2                  | PNP        | 0.3-6m          |
|             | 104        | 3090                  | 3138.2           | DQT4 104/30-3090 | 2                  | PNP        | 0.3-6m          |
|             | ...        | ...                   | ...              | .....            | 2                  | PNP        | 0.3-6m          |
|             | 192        | 5730                  | 5778.2           | DQT4 192/30-5730 | 2                  | PNP        | 0.3-6m          |
|             | 196        | 5850                  | 5898.2           | DQT4 196/30-5850 | 2                  | PNP        | 0.3-6m          |
|             | 200        | 5970                  | 6018.2           | DQT4 200/30-5970 | 2                  | PNP        | 0.3-6m          |

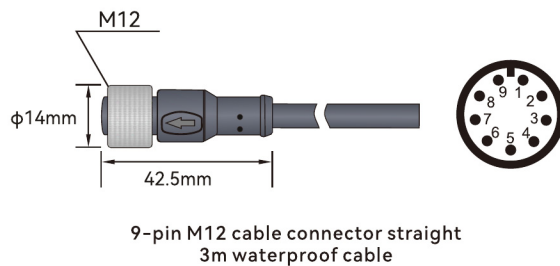
Foshan Daidisike Photoelectric Technology Co., Ltd.

Address : Workshop 1002, Gate A, Building 5, Jicheng Kechuang Park, Beijiao Town,  
Shunde District, Foshan, Guangdong, China

## Electrical connection

| Electrical interface                |                              |
|-------------------------------------|------------------------------|
| Number of interfaces                | 2 (receiver and transmitter) |
| Type                                | M12 connector, 9-pin         |
| Interface metal                     | Copper nickel plating        |
| Plug material                       | GY384 gray 30P               |
| Allowable typical conductor section | 0.25mm <sup>2</sup>          |
| Maximum link cable                  | 100m                         |
| Maximum allowable cable load        | 4.9A                         |
| Cable material                      | PVC                          |

### Cable description:

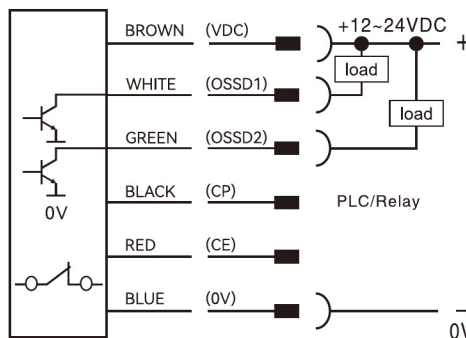


| Emitter Wiring diagram |            |             |
|------------------------|------------|-------------|
| Pin number             | Line color | Name        |
| 1                      | BROWN      | 24V DC      |
| 2                      | BLUE       | 0V          |
| 3                      | BLACK      | CP          |
| 4                      | WHITE      | NC          |
| 5                      | RED        | CE          |
| 6                      | GREEN      | NC          |
| 7                      | YELLOW     | NC          |
| 8                      | ORANGE     | NC          |
| 9                      | YG         | Ground wire |

| Receiver Wiring diagram |            |             |
|-------------------------|------------|-------------|
| Pin number              | Line color | Name        |
| 1                       | BROWN      | 24V DC      |
| 2                       | BLUE       | 0V          |
| 3                       | BLACK      | CP          |
| 4                       | WHITE      | OSSD1       |
| 5                       | RED        | CE          |
| 6                       | GREEN      | OSSD2       |
| 7                       | YELLOW     | AUX         |
| 8                       | ORANGE     | EDM         |
| 9                       | YG         | Ground wire |

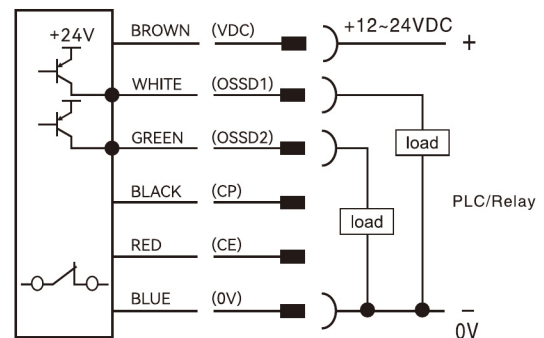
### 1. DQT4 signal output selection (actual output of transistor working normally)

#### NPN NC



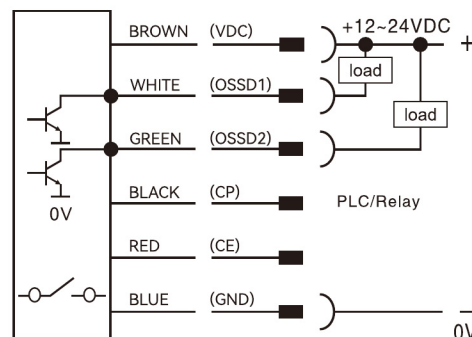
A

#### PNP NC



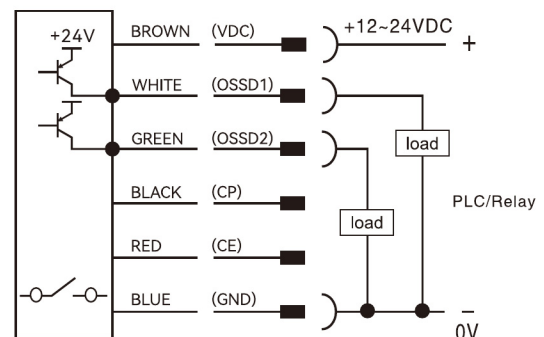
B

#### NPN NO



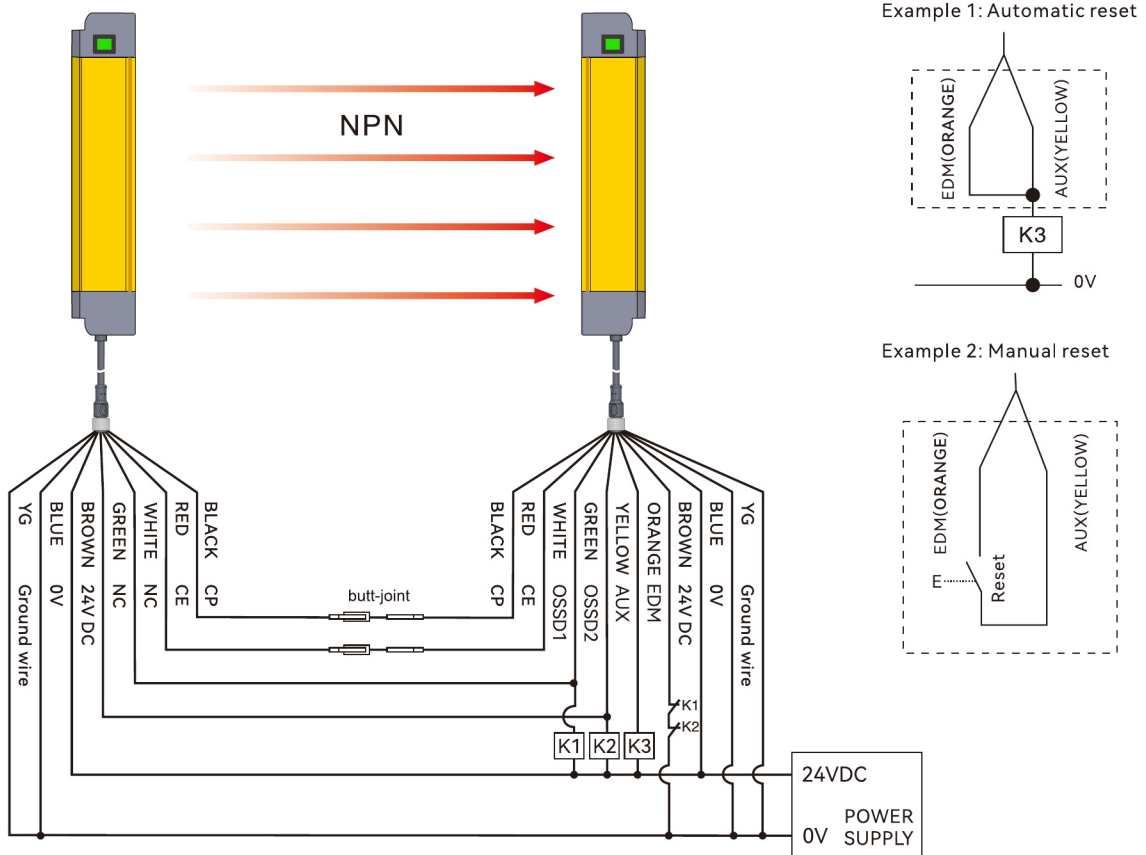
C

#### PNP NO

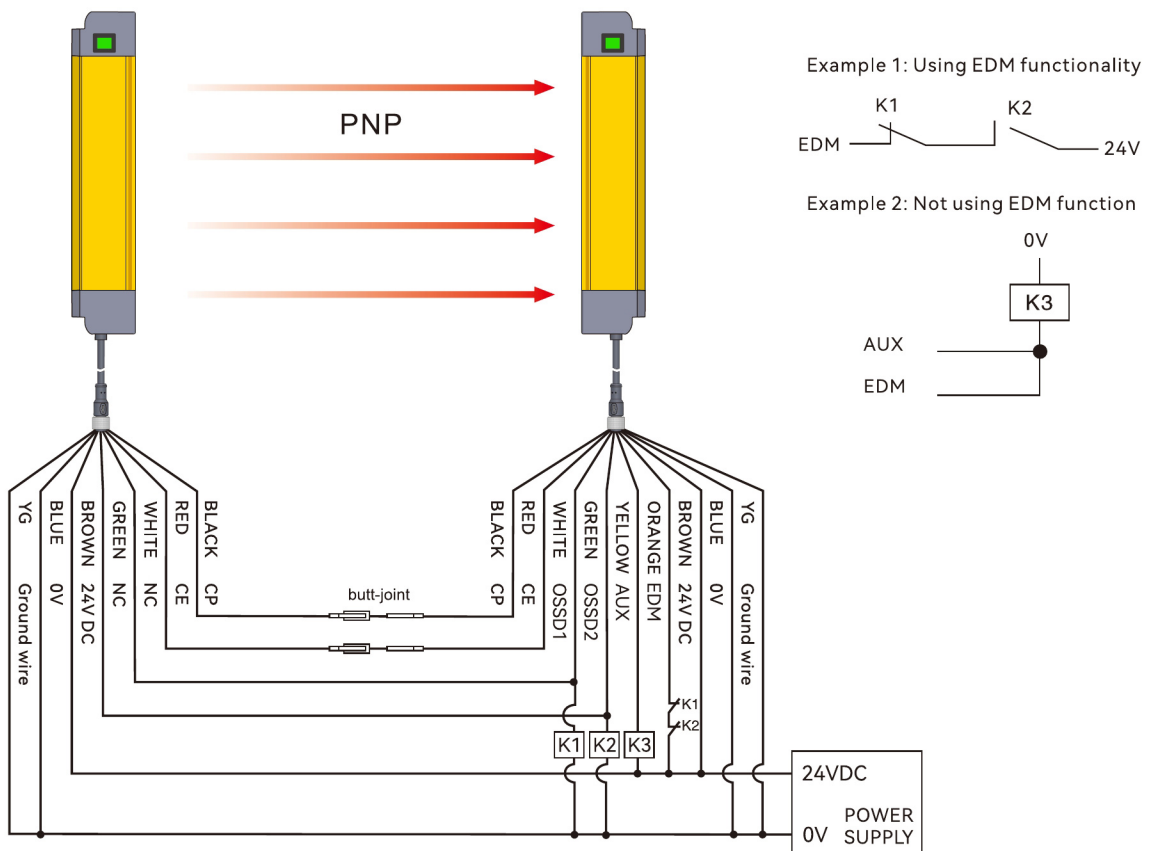


D

## 2. NPN output wiring diagram



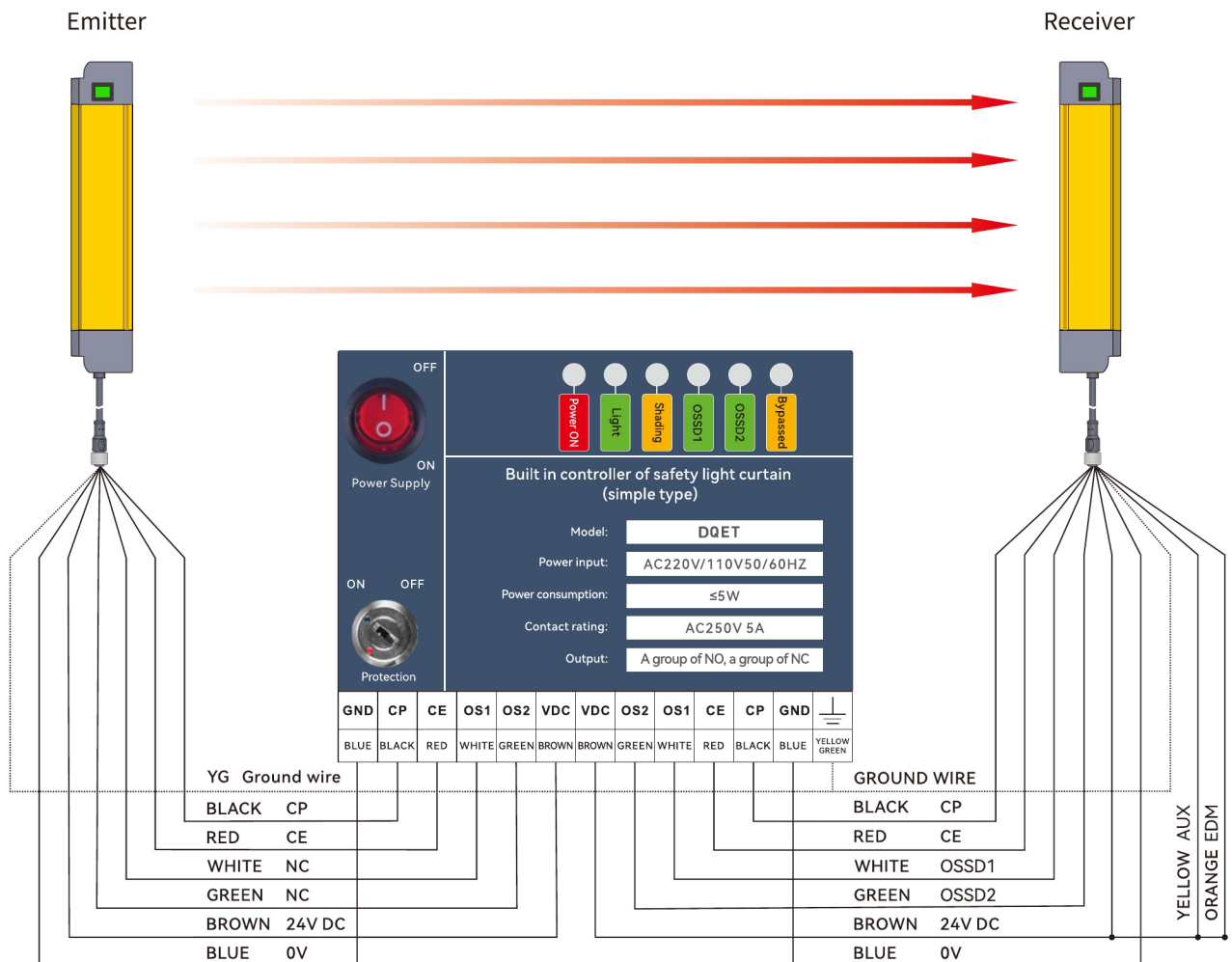
## 3. PNP output wiring diagram



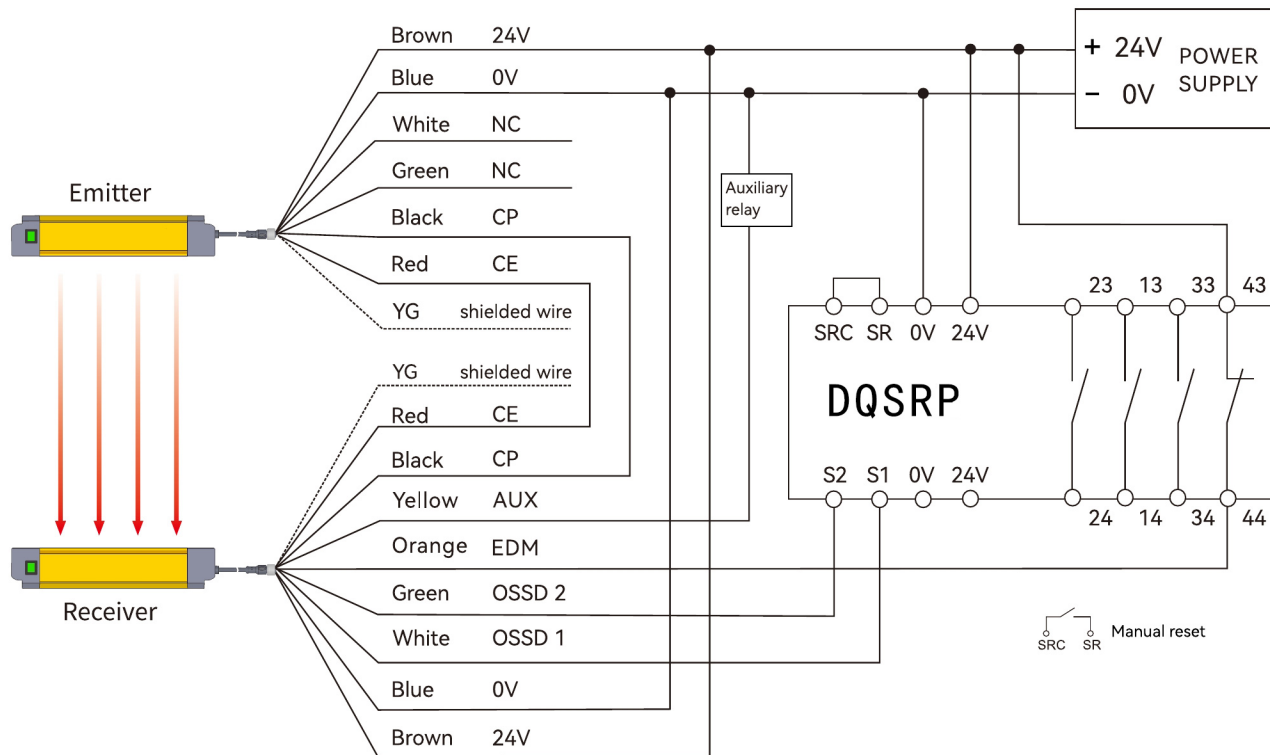
#### 4. Selection of safety light curtain controller

| Name                | Order separately                                                                  | Model  | Descriptions                                                                                                                                                                                                                                                                                                                                   |
|---------------------|-----------------------------------------------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Built-in controller |  | DQET   | Used to monitor the signal processing of DQT4 series light curtain, and output one group of NO and one group of NC.                                                                                                                                                                                                                            |
| Safety relay        |  | DQSRP  | DQSRP 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        |  | DA31P  | 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 |  | DQET-1 | Output conversion between NC and NO for DQT4 series light curtain.                                                                                                                                                                                                                                                                             |

#### 4.1 Wiring diagram of DQET built-in controller

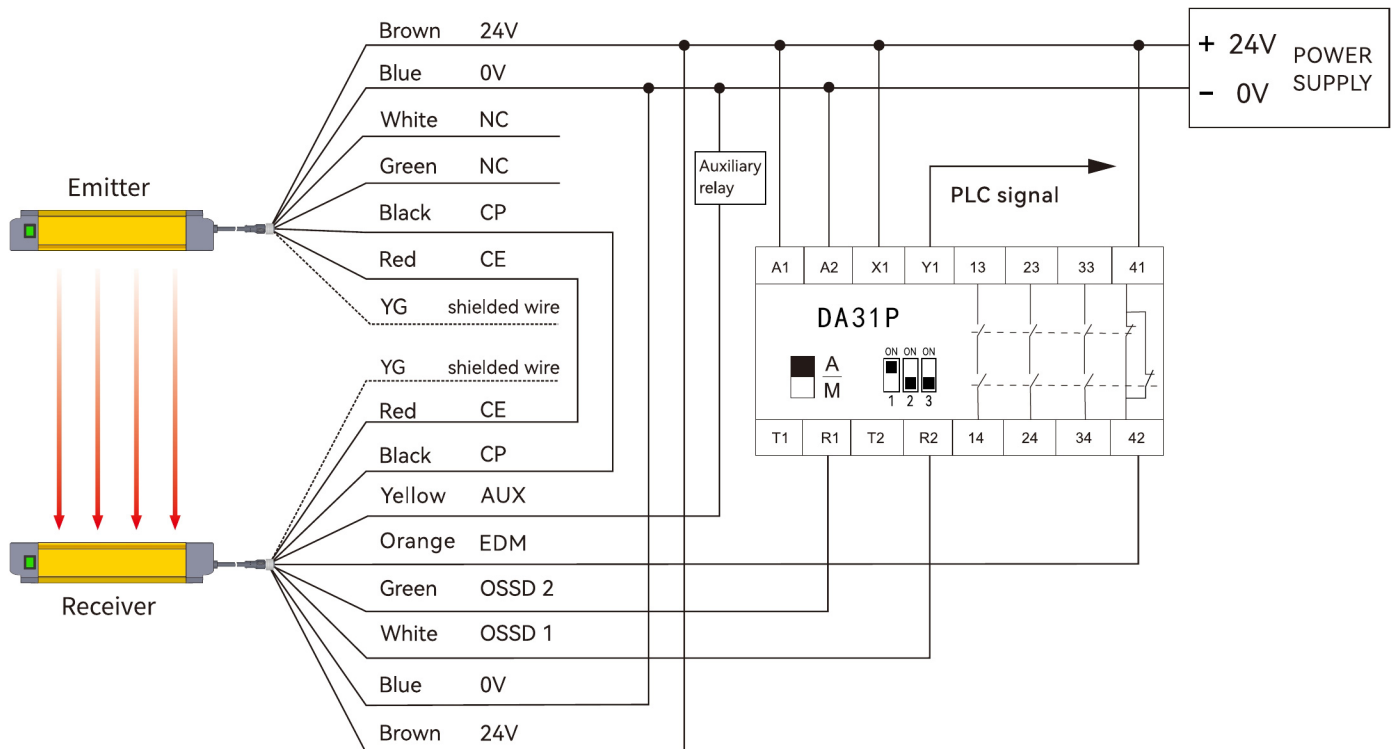


## 4.2 Wiring diagram of DQSRP safety relay

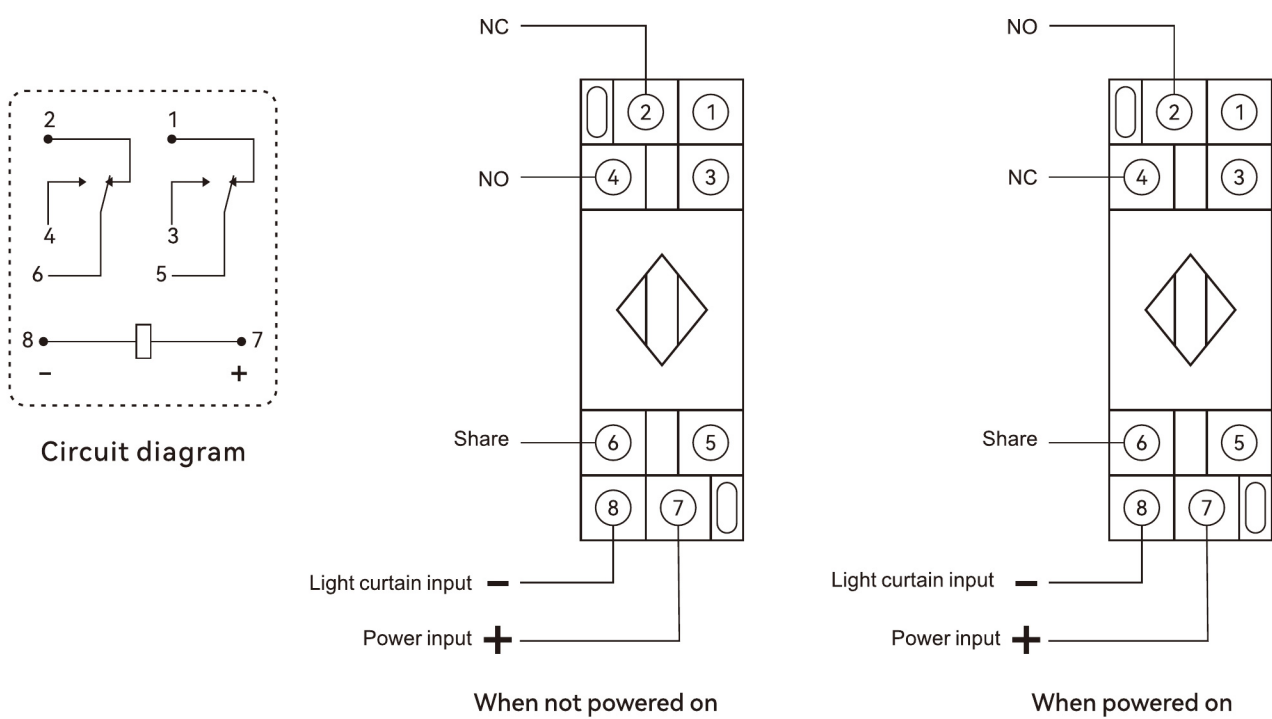


## 4.3 Wiring diagram of DA31P safety relay

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

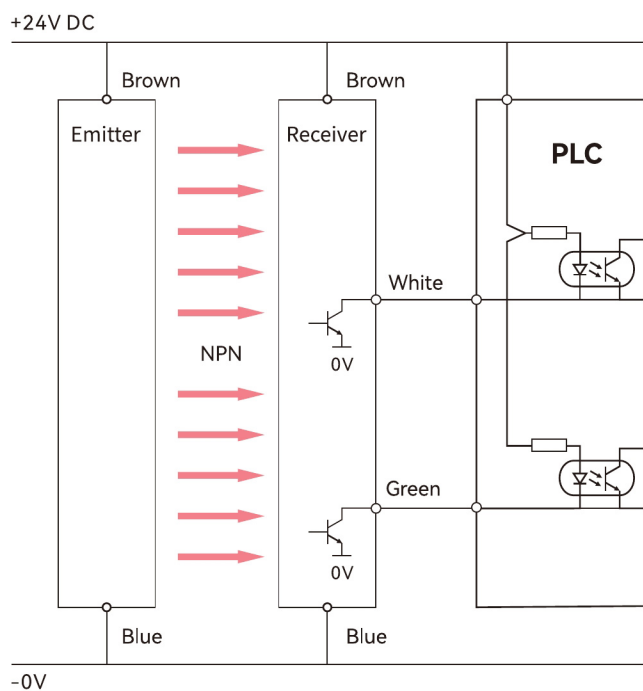


#### 4.4 Wiring diagram of DQET-1 light curtain relay

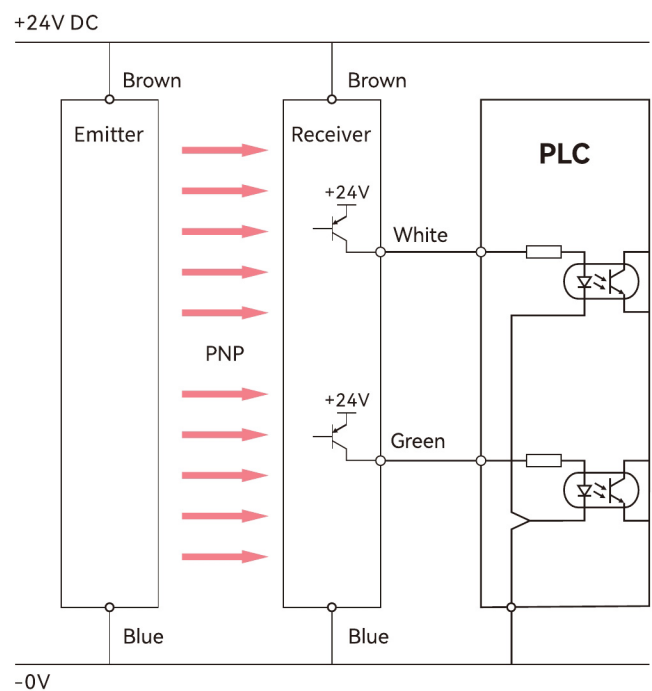


#### 4.5 Wiring between light curtain and PLC and one-chip computer system

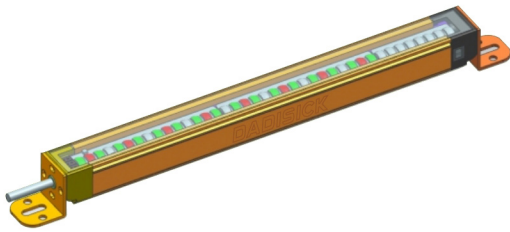
**NPN wiring:**



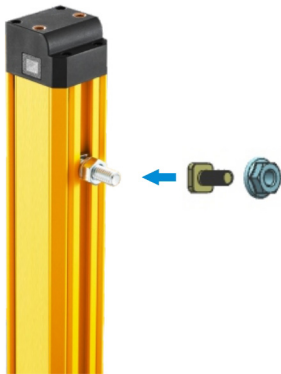
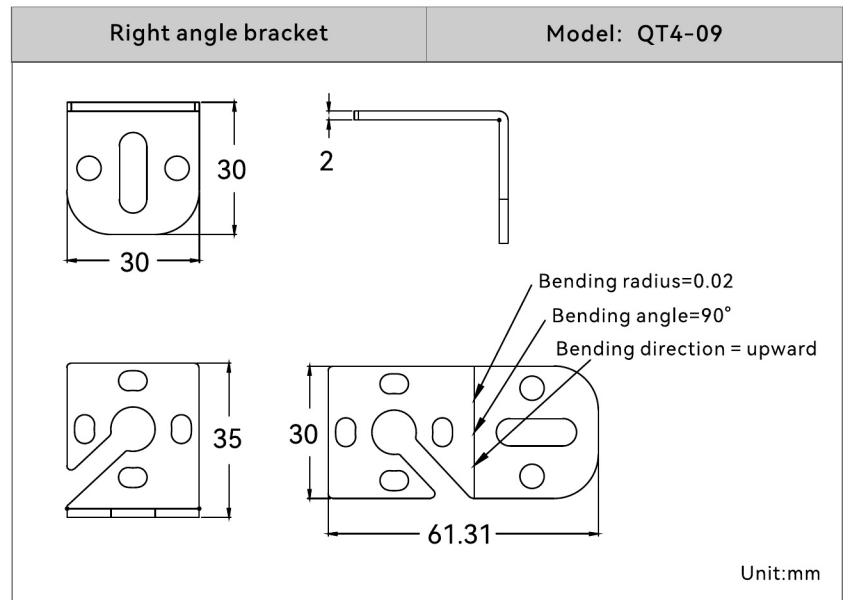
**PNP wiring:**



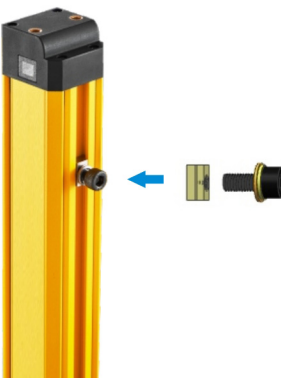
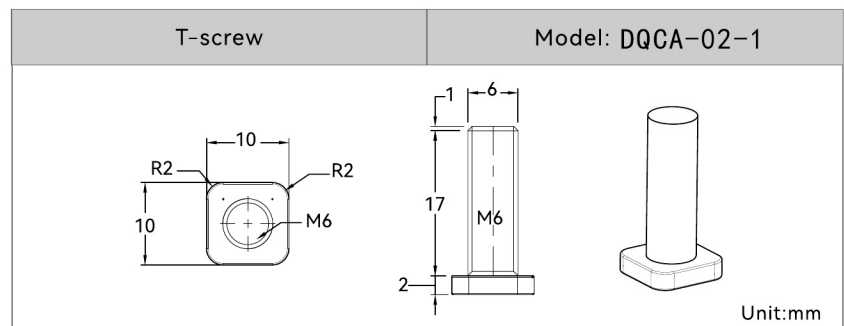
## Accessories



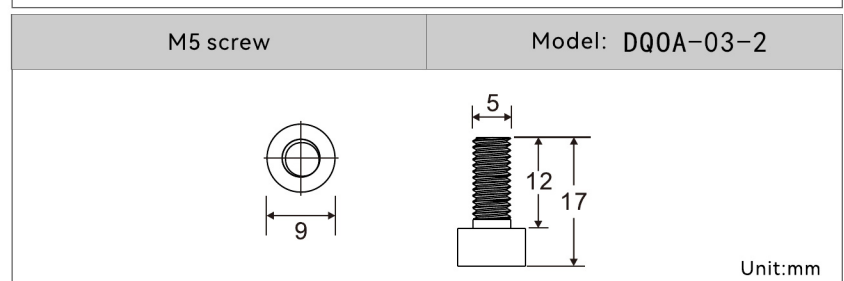
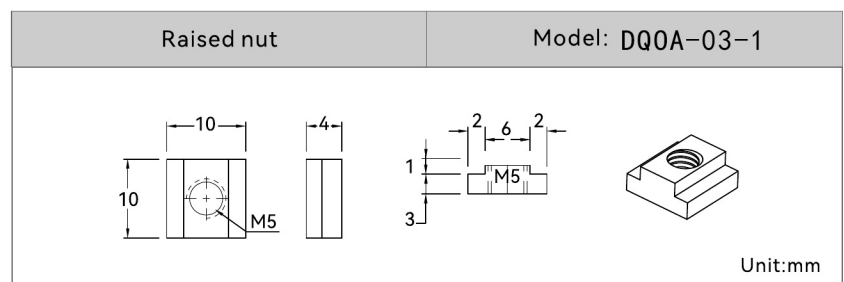
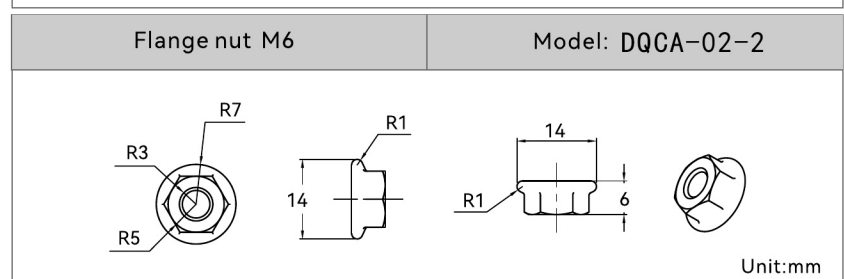
1. Installation method of right angle brackets  
at both ends  
(Original accessories)



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

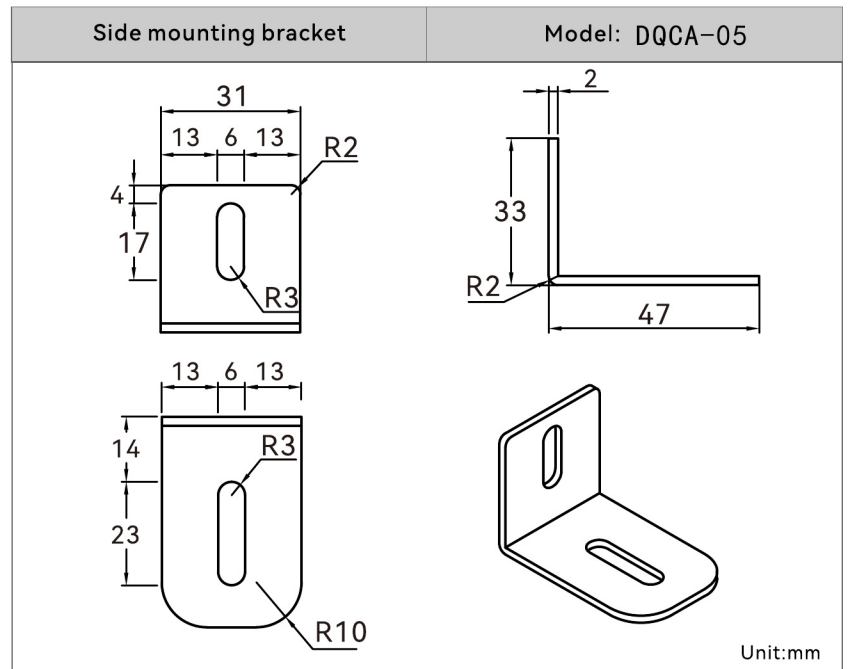


3. Installation method of convex nut  
(Optional accessories)



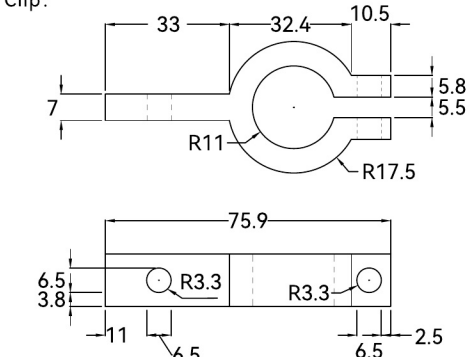
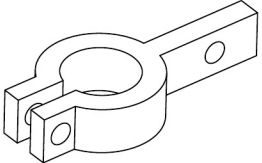
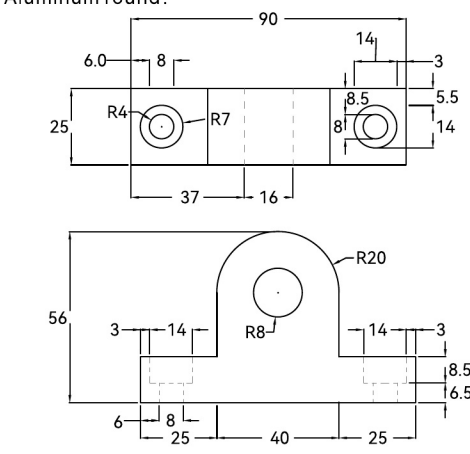
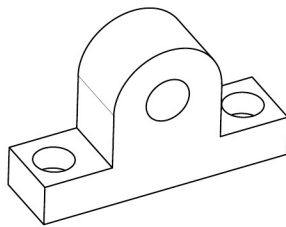
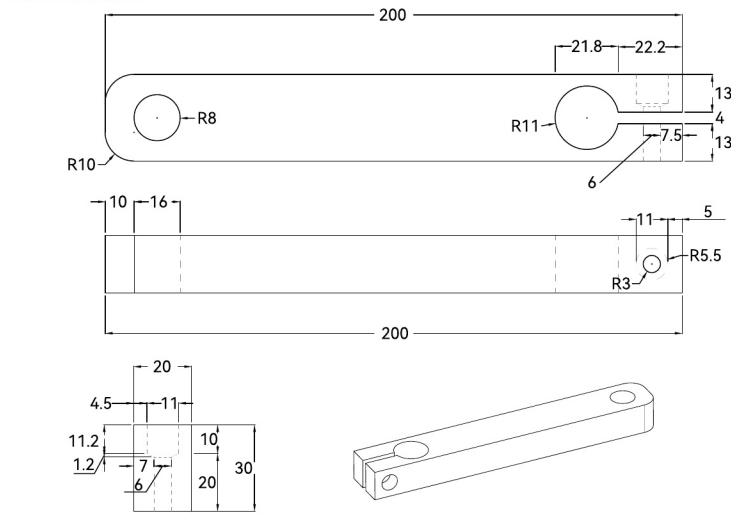
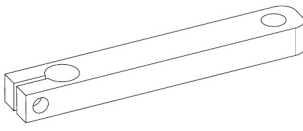
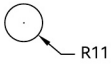
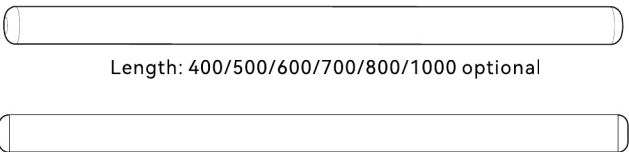


4. Installation method of side right angle bracket  
(Optional accessories)





5. Stainless steel bracket installation  
(Order separately)

| Stainless steel bracket installation                                                                       | Model: DQCA-01                                                                                      |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| <p>Clip:</p>             |                  |
| <p>Aluminum round:</p>  |                 |
| <p>Aluminum arm:</p>   |                |
| <p>Steel pipe:</p>      |  <p>Unit:mm</p> |