

# TECHNICAL DATA SHEET

## SWITCHES FOR SAFETY GATE MONITORING DX-D2 & DX-D3 series



For Illustration purposes only

### Contents

- Product features
- Technical data
- Electrical wiring
- Accessories
- Installation diagram
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- Safety door bolt



## Product Features

- The Safety Switches with locking function can ensure that the safety protection device door and other protective covers remain in a safe state even if the dangerous state is not eliminated.

## DX-D2 & D3 series

Full range of gold-plated contacts

Configure 5 contact structures

Suitable for standard and small loads

Adjust up to 8 directional key operation holes

Adapted to 11 operating keys

IEC/EN60947-5-1

GB14048.5-2017



### Suitable for monitoring safety doors and windows

High strength wear-resistant engineering plastic with built-in 304 stainless steel components

Forced mechanical interlocking self detection structure with extremely high reliability

### Product application

Used for monitoring places such as safety doors and windows.

- Automated production line
- Robot production line
- Hazard testing area
- Isolation places, etc



## Technical data

| Performance Specifications             |                                                                      |
|----------------------------------------|----------------------------------------------------------------------|
| Applicable standard                    | IEC/EN60947-5-1/GB14048.5-2017                                       |
| Protection level*1                     | IP65/IP67 (EN60947-5-1 key operation hole)                           |
| Service life*2                         | More than 1 million machinery/more than 300,000 times of electricity |
| Rated insulation voltage (Ui)          | 400V                                                                 |
| Rated impulse withstand voltage (Uimp) | 4KV                                                                  |
| Rated open thermal current (Ith)       | 8A                                                                   |
| use category                           | AC-15                                                                |
| Rated working voltage (Ue)             | AC400V                                                               |
| Rated operating current (Ie)           | 2A                                                                   |
| Rated limited short-circuit current    | 1000A                                                                |
| forced disengagement force             | ≥60N                                                                 |
| Forced breakaway distance              | ≥10mm                                                                |
| Operating frequency                    | ≤ 20 times/minute                                                    |
| Ambient temperature                    | -20°C~60°C (not freezing)                                            |
| Environment humidity                   | Below85%RH                                                           |

1. The above values are initial values.

2. The contacts of the switch are shared by standard and small loads, but the contacts that operate on a certain load cannot be connected to a load with a smaller capacity for use. Failure to do so may result in damage to the contact surface and reduced contact reliability.

3. Although the switch housing can prevent dust or water from entering, do not use the switch where foreign matter such as powder, water or medicine may enter the keyhole of the switch head, otherwise wear, damage or malfunction of the switch may occur.

4. The conditions for durability are an ambient temperature of 5°C to 35°C and an ambient humidity of 40% to 70%.



## Electrical wiring

### 1.Function and purpose

The use of safety door locks to monitor the status of safety doors can ensure reliable shutdown of equipment.

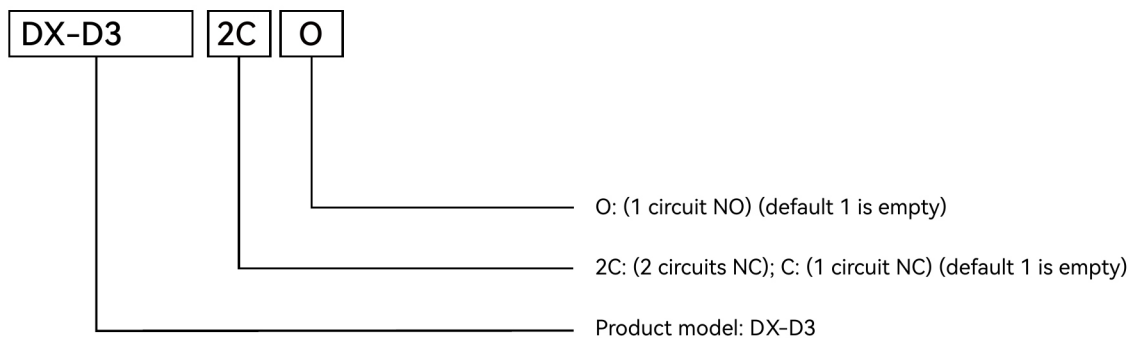


### 2.Connection example

The safety door lock can be connected to the safety relay to form a high-level safety circuit. Used to control reliable stopping and starting of equipment.



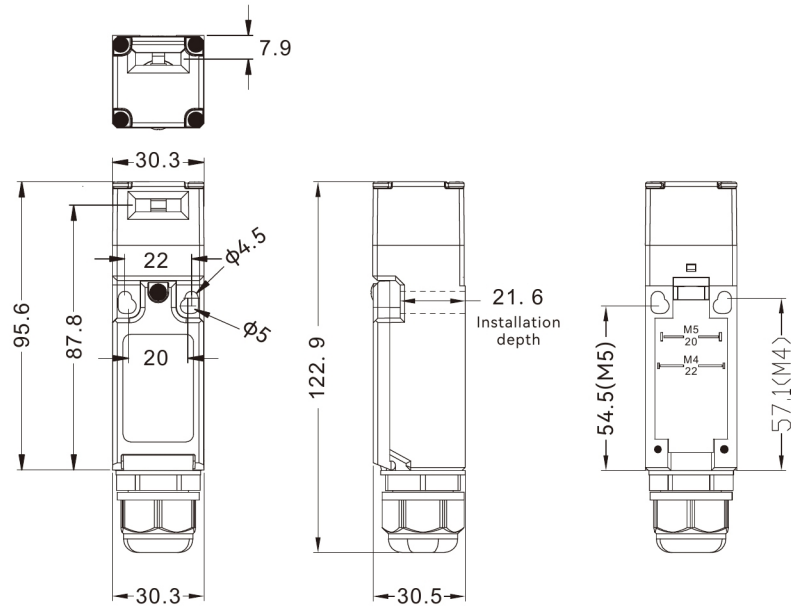
### Model Selection





## ● Overall dimensions

DX-D2&amp;D3 Series Lock Body Dimensional Drawing

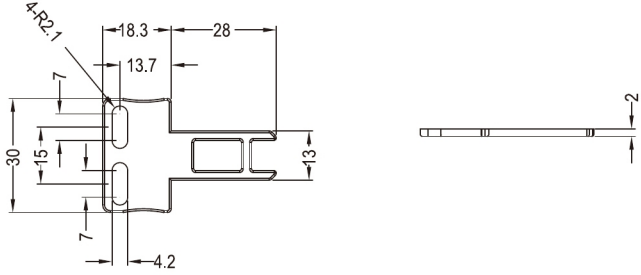
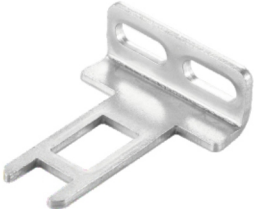
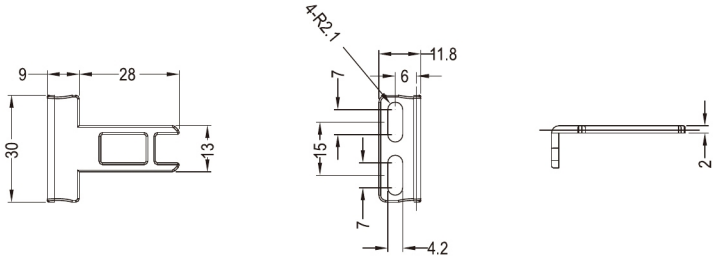
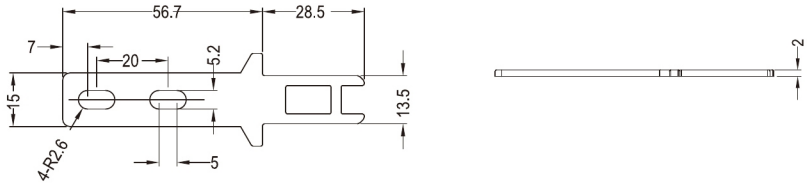
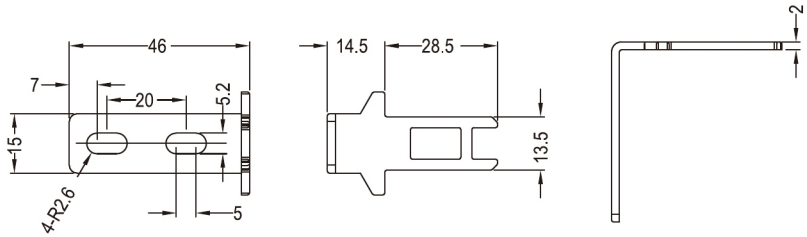


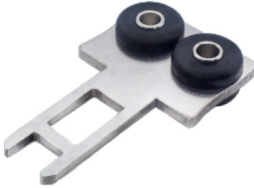
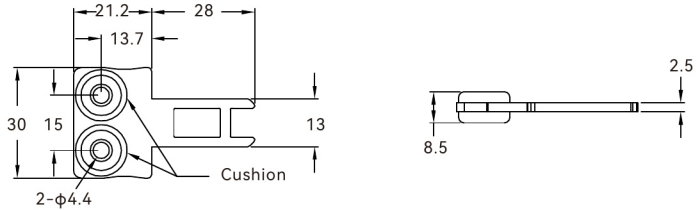
Unit: mm

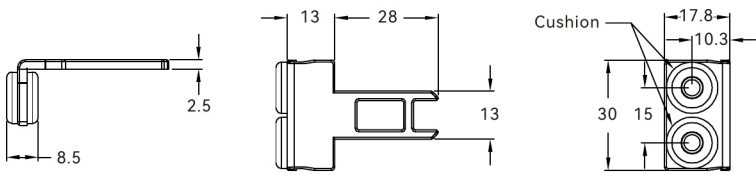
## ● The following wiring diagram shows inserting the operation key and being in the lock state

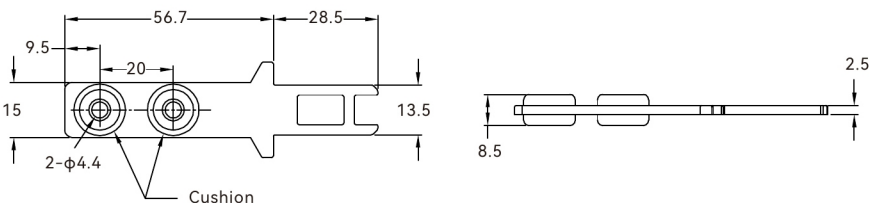
| Model     | Contact type | Wiring diagram                                        | Contact action                                  |                                  |
|-----------|--------------|-------------------------------------------------------|-------------------------------------------------|----------------------------------|
|           |              |                                                       | Operating the key<br>Fully inserted             | Operating the key<br>Pulling out |
|           |              |                                                       | <div> <div></div> : ON <div></div> : OFF </div> |                                  |
| DX-D2-CO  | 1NC+1NO      | $\ominus$ 11 12<br>$\ominus$ 23 24                    | 11--12<br>23--24                                |                                  |
| DX-D2-2C  | 2NC          | $\ominus$ 11 12<br>$\ominus$ 21 22                    | 11--12<br>21--22                                |                                  |
| DX-D3-2CO | 2NC+1NO      | $\ominus$ 11 12<br>$\ominus$ 21 22<br>$\ominus$ 33 34 | 11--12<br>21--22<br>33--34                      |                                  |
| DX-D3-3C  | 3NC          | $\ominus$ 11 12<br>$\ominus$ 21 22<br>$\ominus$ 31 32 | 11--12<br>21--22<br>31--32                      |                                  |

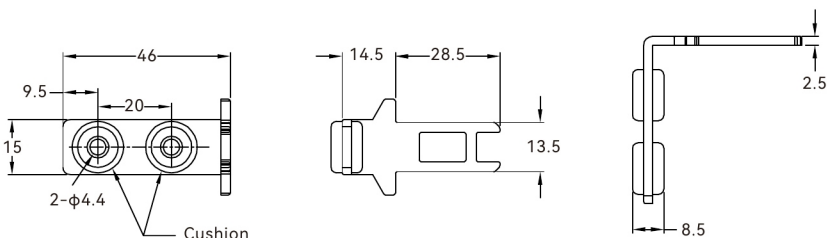
## Accessories

| T-shaped operation key                                                                                            | DX-K1 operating key size diagram                                                                     |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|  <p>(Optional accessories)</p>   |  <p>Unit: mm</p>   |
| L-shaped operation key                                                                                            | DX-K2 operating key size diagram                                                                     |
|  <p>(Optional accessories)</p>  |  <p>Unit: mm</p>  |
| Long T-shaped operating key                                                                                       | DX-K3 operating key size diagram                                                                     |
|  <p>(Optional accessories)</p> |  <p>Unit: mm</p> |
| Long L-shaped operating key                                                                                       | DX-K4 operating key size diagram                                                                     |
|  <p>(Optional accessories)</p> |  <p>Unit: mm</p> |

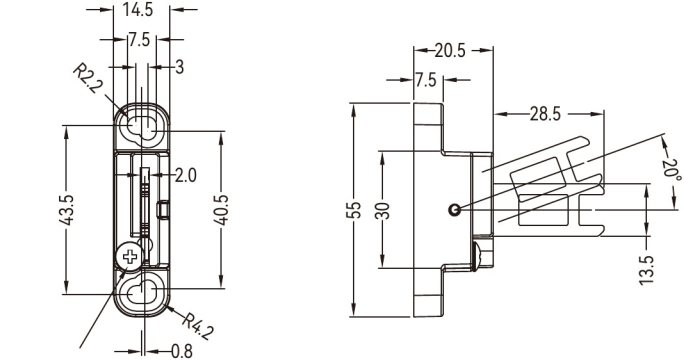
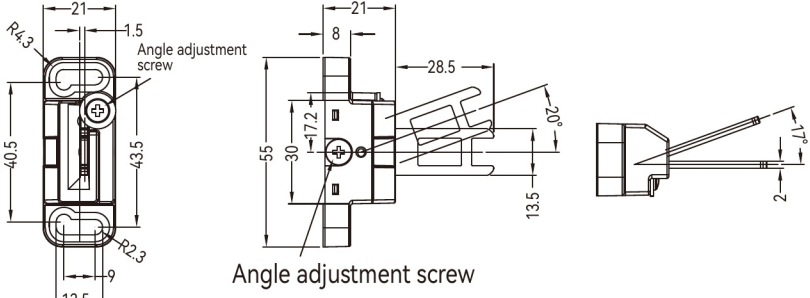
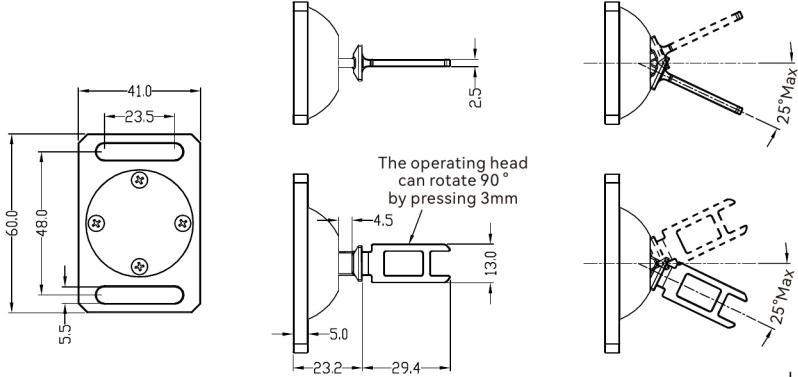
| T-shaped operation key                                                                                          | DX-K1D operating key size diagram                                                                  |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|  <p>(Optional accessories)</p> |  <p>Unit: mm</p> |

| L-shaped operation key                                                                                           | DX-K2D operating key size diagram                                                                  |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
|  <p>(Optional accessories)</p> |  <p>Unit: mm</p> |

| Long T-shaped operating key                                                                                       | DX-K3D operating key size diagram                                                                    |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|  <p>(Optional accessories)</p> |  <p>Unit: mm</p> |

| Long L-shaped operating key                                                                                       | DX-K4D operating key size diagram                                                                    |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|  <p>(Optional accessories)</p> |  <p>Unit: mm</p> |

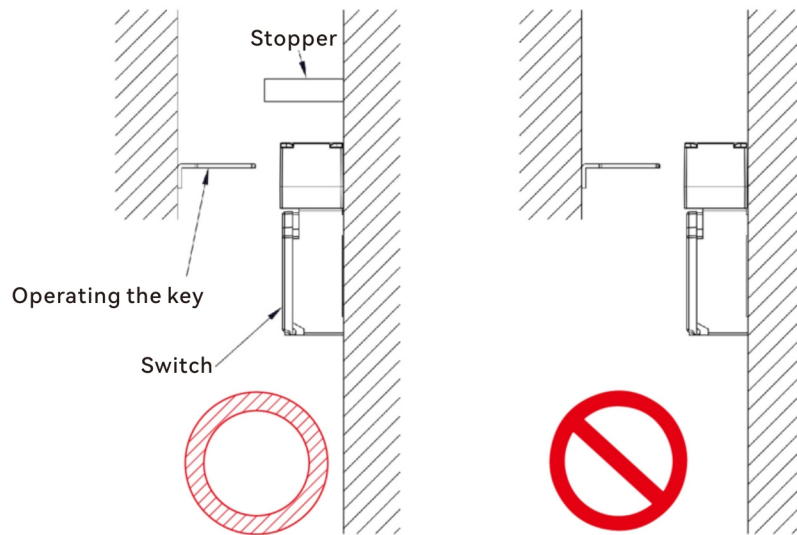


| Horizontal adjustable operating key                                                                                                             | DX-K5 operating key size diagram                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p data-bbox="181 651 424 680">(Optional accessories)</p>     |  <p data-bbox="662 640 906 672">Angle adjustment screw</p> <p data-bbox="1393 656 1476 678">Unit: mm</p>                                           |
| Horizontal/vertical adjustable operation key                                                                                                    | DX-K6 operating key size diagram                                                                                                                                                                                                     |
|  <p data-bbox="181 1187 424 1216">(Optional accessories)</p>  |  <p data-bbox="826 1115 1070 1146">Angle adjustment screw</p> <p data-bbox="1393 1187 1476 1209">Unit: mm</p>                                     |
| Horizontal/vertical adjustable operation key                                                                                                    | DX-K8 operating key size diagram                                                                                                                                                                                                     |
|  <p data-bbox="181 1722 424 1751">(Optional accessories)</p> |  <p data-bbox="978 1512 1129 1572">The operating head<br/>can rotate 90°<br/>by pressing 3mm</p> <p data-bbox="1393 1724 1476 1747">Unit: mm</p> |

## Installation diagram of DX-D2&D3 operation key

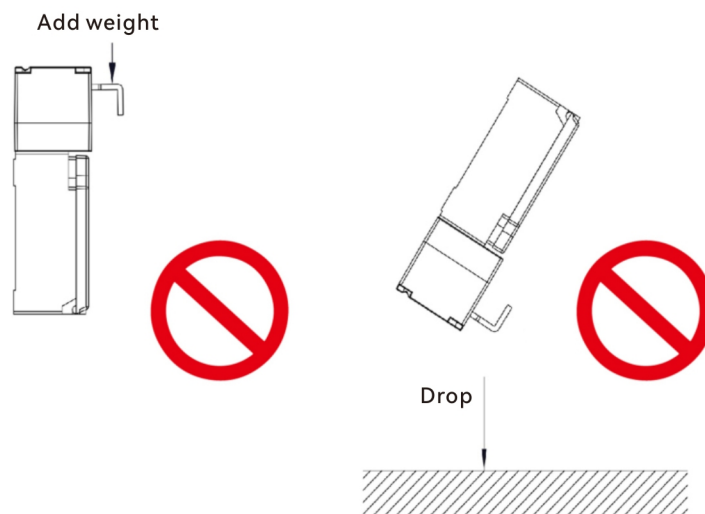
### ● Safety points

1. The operation key should be installed where the door will not touch the human body when the door is opened, otherwise it may cause personal injury.
- 2 Do not use the switch body as a stop element. Be sure to set the stop element as shown in the picture so that the edge of the operating key does not hit the switch head.

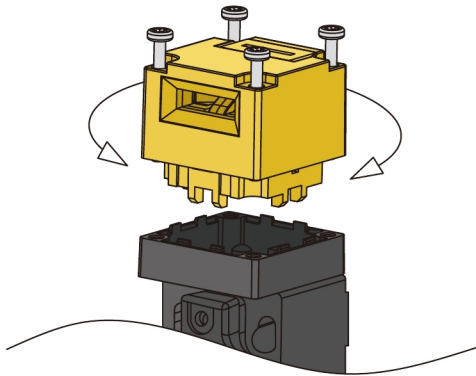


### ● Precautions for use

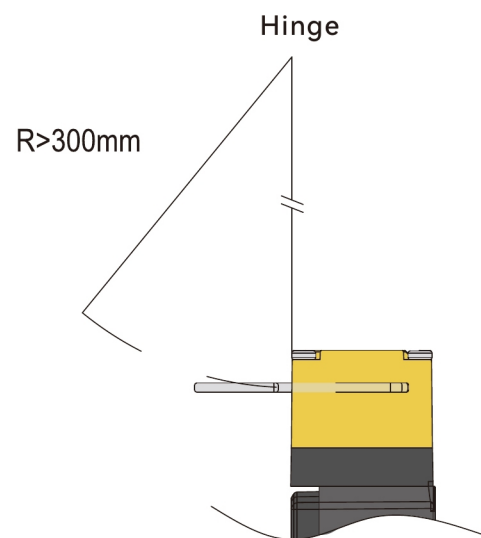
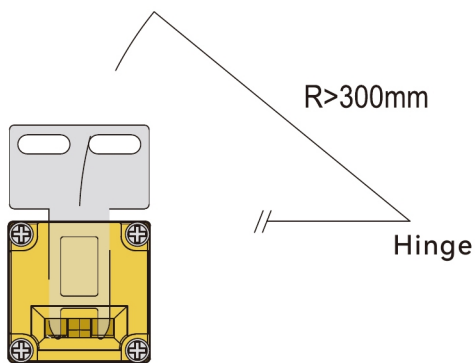
1. The safety door switch must be operated with the original special operation key. To ensure the safety of the equipment, please do not use tools other than the original operation key to operate the switch.
2. When the operation key is installed on the switch body, do not place gravity on the front end of the operation key or drop it, otherwise the switch may be deformed or damaged and directly affect the safety of use.



- Loosen the four screws at the top of the head, rotate the head direction to select the appropriate operating keyhole position, and then proceed with installation.

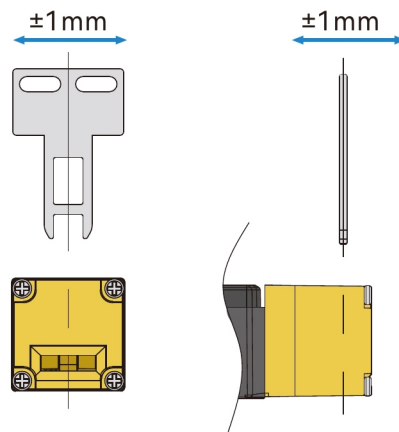
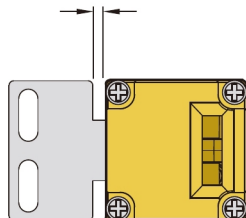


- When installed on a side hung door, it must be greater than the minimum radius.



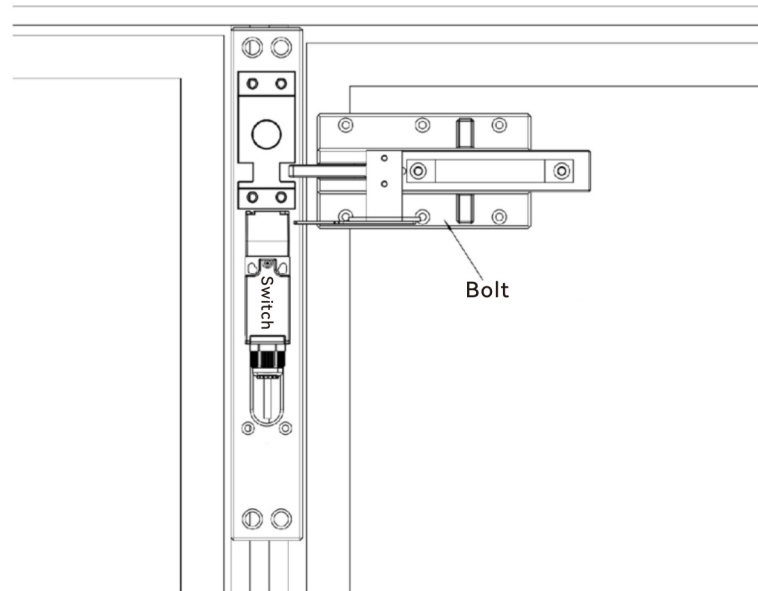
- Please install switches and operating keys within the prepared position range (1-3.5mm).
- The allowable error for the installation of the operating key is within  $\pm 1\text{mm}$  of the center of the operating key insertion hole.

Ready position: 1.0~3.5mm



## ● Safety points

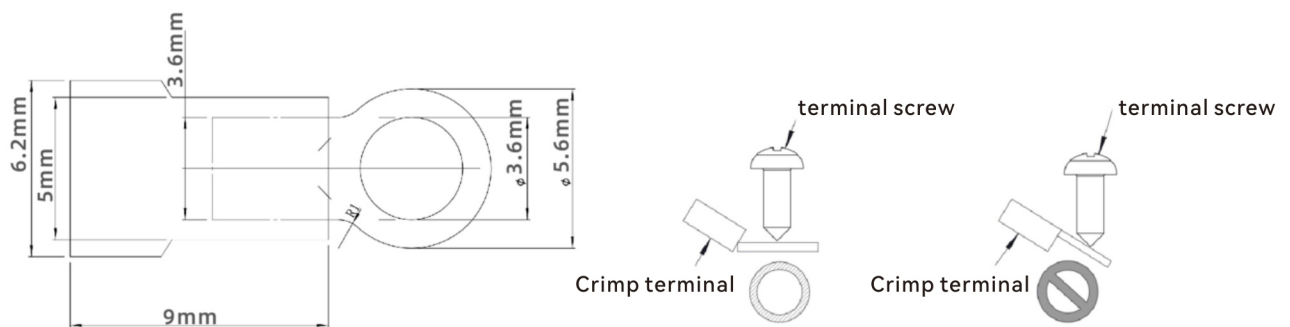
1. The operation key should be installed where the door will not touch the human body when the door is opened, otherwise it may cause personal injury.
- 2 Do not use the switch body as a stop element. Be sure to set the stop element as shown in the picture so that the edge of the operating key does not hit the switch head.



## ● With cable

### 1. About wiring

- ① When using the cable fixing head to connect to the terminal with M3.5 crimping terminal, the wiring should not exceed the shell and the protective cover.
- ② Applicable wire specification is (5~10mm outer diameter).
- ③ Excess wires touching the protective cover may cause the protective cover to float.
- ④ Do not insert crimp terminals, etc. into the gaps in the case, otherwise the case may be damaged or deformed.
- ⑤ Please use crimp terminals with a thickness of less than 0.8mm to prevent interference to the inside of the housing.



### 2. Treatment of outlet holes

- ① In order to ensure IP65 or IP67 protection performance, first loosen the plastic screw cap of the cable fixing head, and then tighten the screw cap until there is no gap after the wiring passes. Otherwise it will affect the sealing effect.
- ② Please select the wire material suitable for the inner diameter of the cable gland.

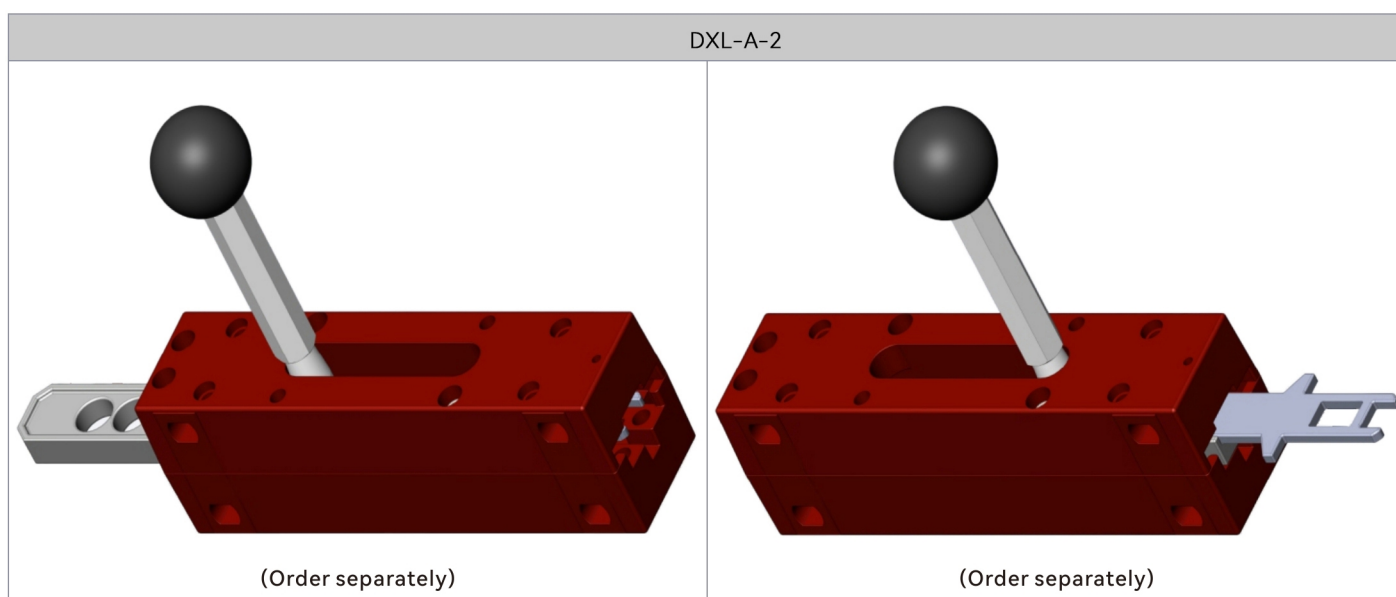
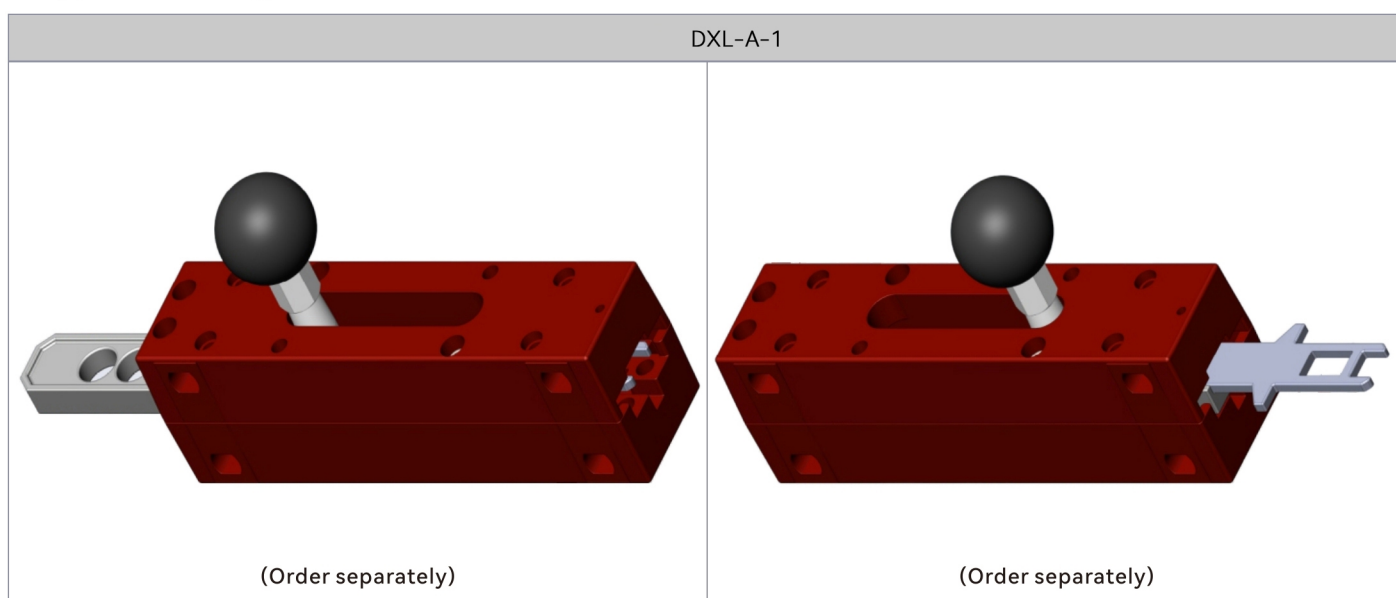


## Safety door handles

### Performance data

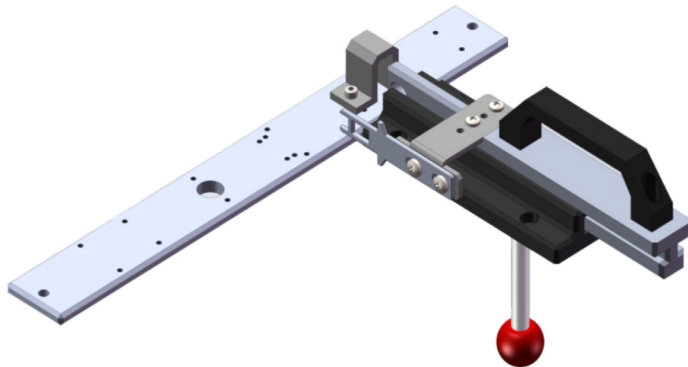
| Model                 | DXL-A-1                   | DXL-A-2 | DXL-B-1                   | DXL-B-2 |
|-----------------------|---------------------------|---------|---------------------------|---------|
| Mechanical life       | 1 x 10 <sup>6</sup> times |         | 1 x 10 <sup>6</sup> times |         |
| Installation location | Doors or fences           |         | Doors or fences           |         |
| Installation mode     | Left or right             |         | Left or right             |         |
| Base material         | Zinc alloy                |         | Aluminium alloy           |         |
| Slider material       | Zinc alloy                |         | Aluminium alloy           |         |
| Handle material       | Stainless steel           |         | Stainless steel           |         |
| Ball head material    | Plastic                   |         | Plastic                   |         |
| Weight                | 0.6kg                     |         | 0.95kg                    | 1.05kg  |

### • Appearance diagram

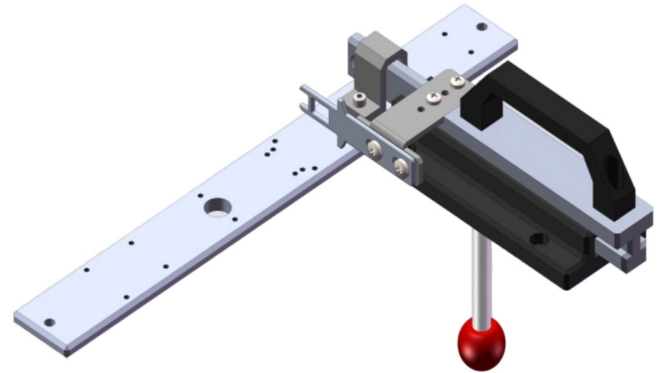


• Appearance diagram

DXL-B-1

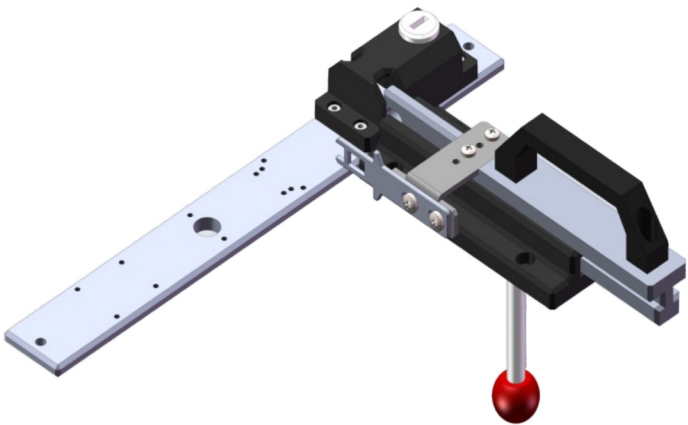


(Order separately)

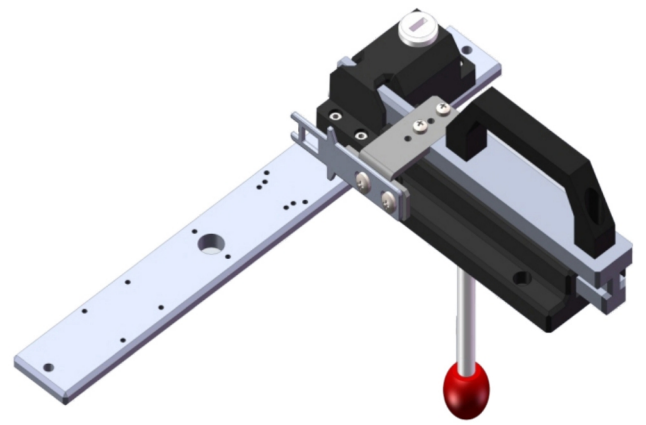


(Order separately)

DXL-B-2

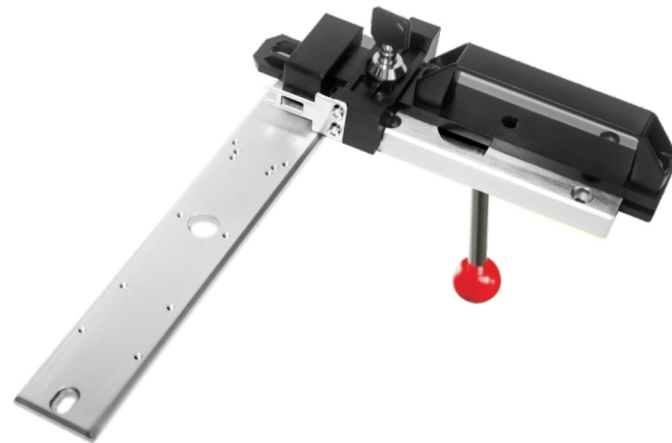


(Order separately)

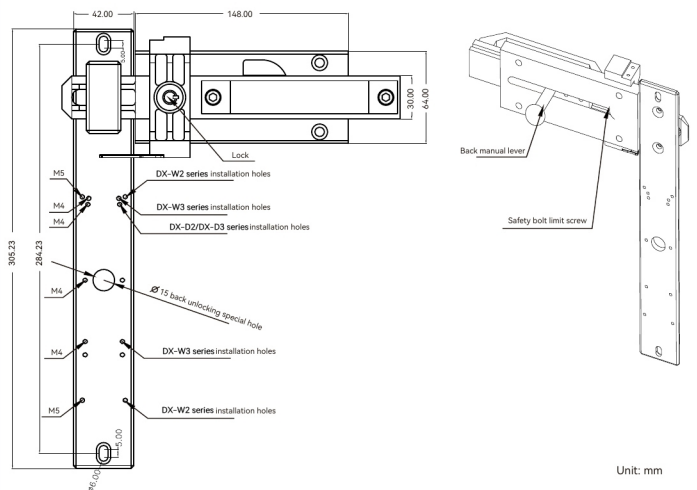


(Order separately)

DXL-B-3

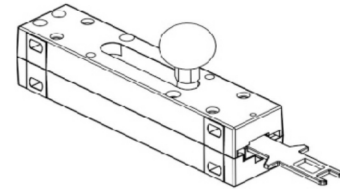
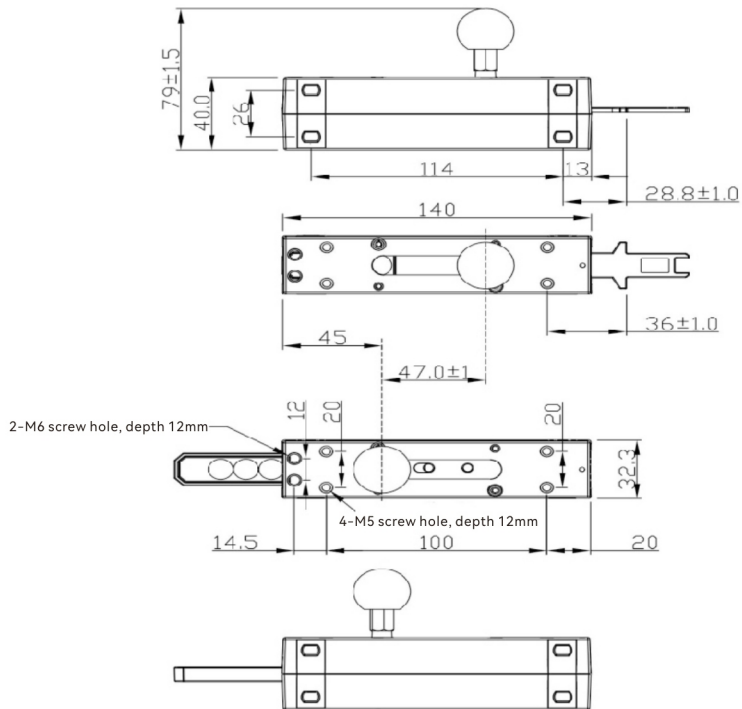


(Order separately)

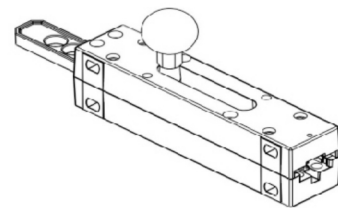


- Installation dimensions of safety door bolts

### DXL-A-1 installation dimensions



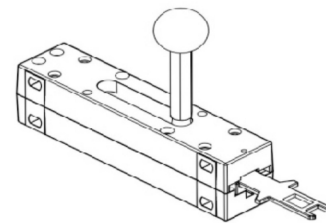
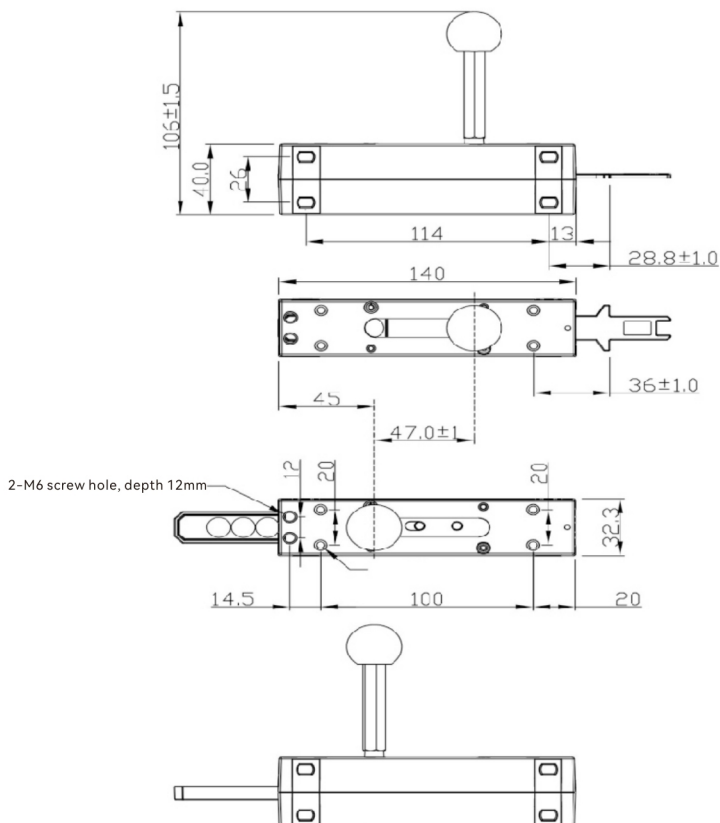
### Pushing out the key



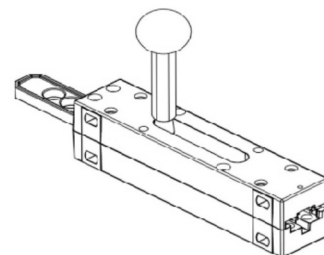
Retract key

Unit: mm

### DXL-A-2 installation dimensions



### Pushing out the key

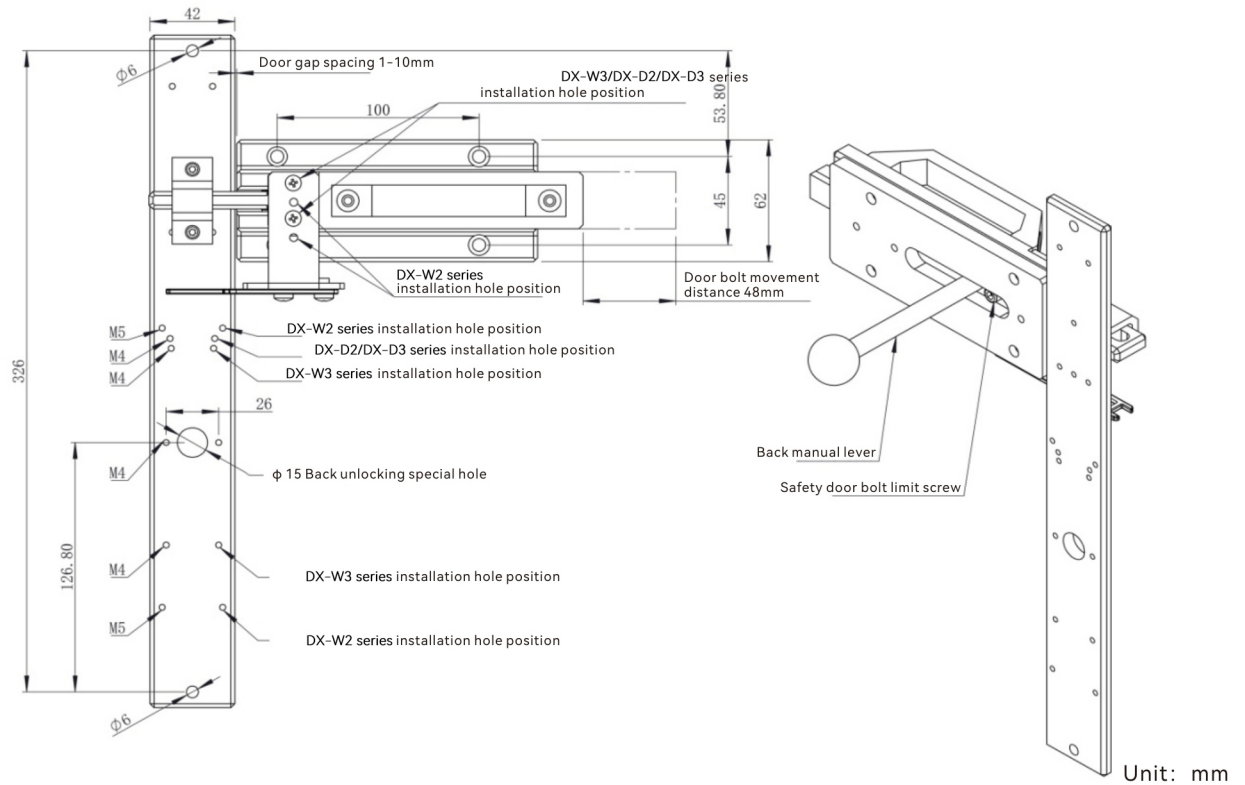


Retract key

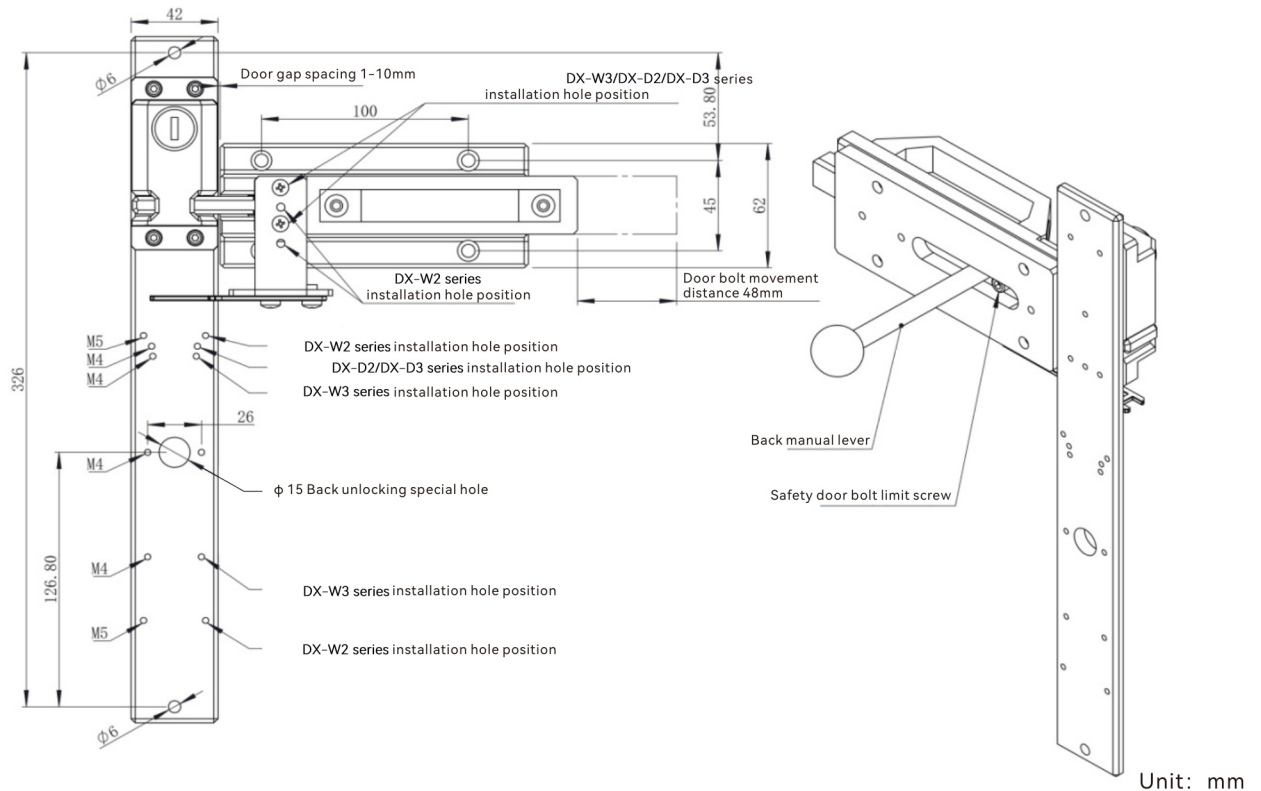
Unit: mm

● Installation dimensions of safety door bolts

DXL-B-1 installation dimensions



DXL-B-2 installation dimensions





DAIDISIKE is honored to provide you with safety protection.

Please be sure to thoroughly understand the content of the user manual before using our company's products.

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

The specifications and accessories recorded in this manual may be changed when necessary, during improvements, or for other reasons. Please consult our sales personnel to confirm the actual specifications of our products.

## SAFETY PRECAUTIONS

### **Warning (Violation of this item may result in death or serious injury)**

01. In order to protect personal safety and prevent safety accidents, please install multiple safety protection devices when using this product. Otherwise, it may cause personal injury or safety accidents.

02. Please configure a device administrator during the use of this product. The administrator's requirements are as follows:

---Operators familiar with the installation, setup, use, and maintenance of this product

---Personnel who are familiar with and comply with the regulations/systems/regulations of the country or region corresponding to the type of equipment used in this product

Except for equipment managers, personnel unfamiliar with this product who operate the equipment may pose a risk of personal injury or safety accidents.

03. After installing the product, please conduct debugging before the equipment is officially running and ensure that the product's functionality meets the expected protection requirements.

When the product is not set according to the expected action, it may cause personal injury or safety hazards.

04. It is prohibited to operate in places containing explosive, flammable, corrosive gases, with intense temperature changes, high humidity, and the possibility of condensation

Places, places with intense vibration, places with diluents, detergents, and other solvents for use.

Otherwise, there is a risk of explosion or fire, which may lead to a decrease in product performance.

05. The product has multiple modular coding functions. Please confirm the usage requirements before leaving the factory and select the appropriate model according to the usage requirements. Please do not allow any Intentionally transforming products.

Otherwise, there is a possibility of reducing product performance and causing damage to the switch.

06. Do not use the safety switch as a stop element for the door. Please be sure to set a mechanical stop element to limit the position of the door. Do not use the safety switch as a stop element

As the full switch is used as the door lock device, please add mechanical door bolts or other methods to set the door lock.

Otherwise, due to vibration or the door itself, the safety switch operation key may deviate and cannot be accurately inserted into the switch actuator, or even

There is a possibility of damaging the switch.

07. The safety switch of the power-on locking type remains locked when powered on, and unlocked when powered off. In case of emergency power outage or other accidents

In this case, the switch solenoid may be unlocked due to power outage, and the internal device may not be completely stopped due to inertia or other reasons. Please be sure to

It is necessary to confirm that the machine has completely stopped.

Otherwise, there may be a risk of personal injury.

08. When the safety switch is continuously energized by the solenoid, the maximum temperature of the switch panel is about 25 °C higher than the ambient temperature.

09. If the device is used while the emergency unlocking knob is in position , electromagnetic locking may not work, resulting in some devices stopping when they should be Still in operation at the end.

Before using the device, make sure to place the emergency unlocking knob in position . In addition, please check the status of the locking and safety circuits.

10. Before changing the head direction,  please make sure to set the emergency unlocking knob to the position or install the operation key. Otherwise, it may cause damage to the switch, resulting in some devices still operating when they should be stopped.

### **Attention (Violation of this item may result in personal injury or product damage)**

01. Before installation, confirm the wiring diagram before proceeding with the wiring.

02. Please use within the rated specification range.

03. Please correctly distinguish the polarity of the solenoid before wiring. Do not reverse the connection and do not apply voltage outside the rated voltage range.

04. When replacing the head, please prevent foreign objects from entering the interior of the switch and lock the fastening screws tightly.

05. When opening the protective cover, it is necessary to prevent debris, liquid, cable residue, and other foreign objects from entering the interior of the switch.

06. Please use reliable fixation methods such as welding and screws to secure the operating keys in a reasonable position to prevent detachment or displacement.

07. Do not perform unlocking operations when applying external forces such as pushing or pulling on the operating key (safety door).

08. When the door is open, please do not insert the operation key. Otherwise, the machine may move and cause injury.

09. Please use the dedicated operation key configured by our company's safety switch, and be careful to keep the backup operation key.

10. Do not use metal cable waterproof joints or metal conduits.