

# Non-contact safety door switch

## OX-H1 series



### Features

- Non-contact zero-wear detection, shock and vibration resistance, long service life
- Use code actuators to prevent human modification and effectively protect
- 3 sides can be sensed, suitable for L-shaped (vertical) installation
- Provides universal encoding and unique encoding options
- Can support cascading use of 30 door switches

### Selection example

#### ■ Cascade type

**E** Support cascade    **F** not supported

#### ■ Output type

**N** NPN output    **P** PNP output

#### ■ encoding type

**S** Universal encoding    **D** Unique code

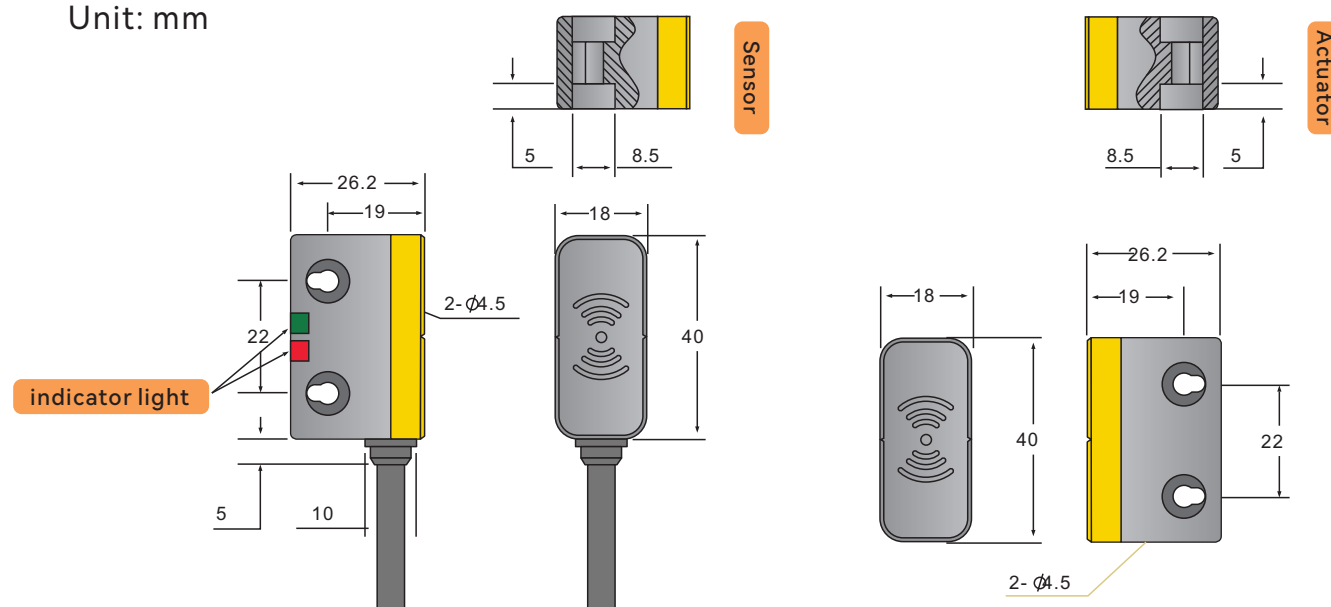
#### ■ Factory configuration

**P1** Complete set    **P2** Actuator

**P3** Sensor

### OX-H1 series size chart

Unit: mm



### OX-H1 series sensing distance

Sensor and actuator location	Safe conduction distance (X direction)	Safe disconnection distance (X direction)
	0-10mm	≥25mm
	0-6mm	≥15mm
	0-6mm	≥15mm

⚠ Note | It is not recommended to use when the deviation in the Y direction exceeds ±5mm.

### OX-H1 series indicator status

LED display	Signal status		Status description
	Input	Output	
●	Valid/invalid	Open	No actuator or not fully aligned (universal coding)
● ● ●	Valid/invalid	Open	No actuator or not fully aligned (unique code)
● ● ● ●	Valid	Open	Output overload
●	Invalid	Open	No input signal (dual output is not applicable)
●	Valid	Path	Induction is normal
● ● ● ●	Valid/invalid	Open	Tag not registered

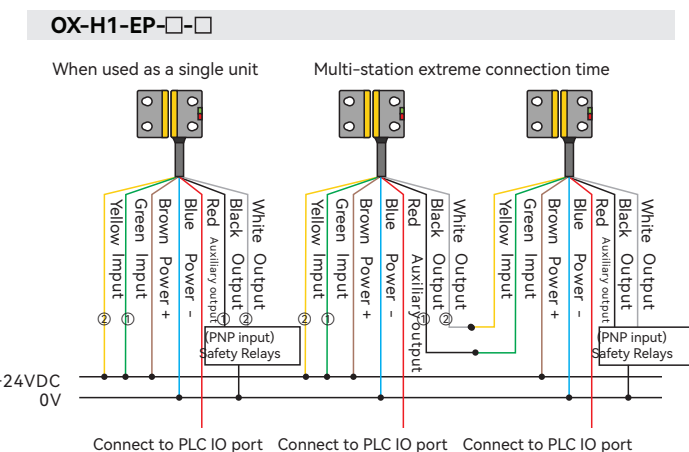
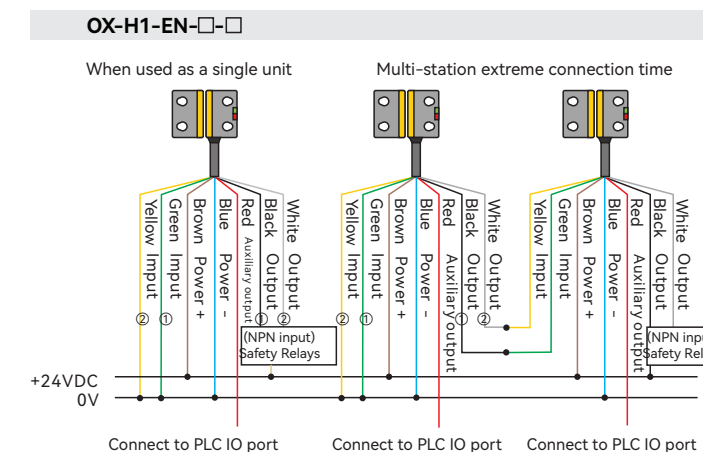
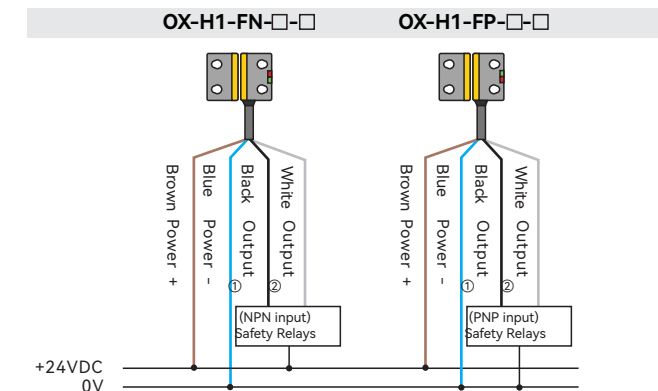
⚠ Note | The unique code requires pairing when used for the first time. After the safety switch is installed OK and the door is closed and powered on for 5 seconds, the safety switch displays a steady green light, indicating successful pairing.

## OX-H1 series model specifications

Characteristic				
Universal coding type	OX-H1-FN-S-□	OX-H1-FP-S-□	OX-H1-EN-S-□	OX-H1-EP-S-□
Unique encoding type	OX-H1-FN-D-□	OX-H1-FP-D-□	OX-H1-EN-D-□	OX-H1-EP-D-□
Output type	NPN	PNP	NPN	PNP
Cascade	Cascading is not supported		Support cascade	
Horizontal conduction distance	0-10mm			
Horizontal break distance	> 25mm			
Vertical conduction distance	0-6mm			
Vertical break distance	> 15mm			
Repeatability	0.5mm			
Operating voltage	24VDC			
Working current	30mA			
Safe output current	150mA			
Auxiliary output current	50mA			
Response time	60ms			
Protection level	IP67(EN60947-5-1)			
Coding level	Universal encoding	Low level coded (ISO 14119)		
	Unique code	High level coded (ISO 14119)		
Interlocking type	Type 4(ISO14119)			
Operating frequency	1Hz			
Operating temperature	-10C°~+55C°			
Relative humidity	5%-95%			
Material	Thermoplastic PBT			
cascade	Support cascade model optional			
diagnostic output	Support			
Connection method	Direct outlet, cable length 3 meters			

**⚠ Note** Please strictly follow the current and voltage parameters for debugging and use. Exceeding the specifications will cause damage to the switch and is not covered by the warranty!

## OX-H1 series wiring method



- When using a single unit, please connect safety inputs 1 and 2 to 0V, and safety outputs 1 and 2 to the safety controller.
- When multiple units are cascaded, please connect safety inputs 1 and 2 of the first unit to 0V, safety outputs 1 and 2 of the first unit to the safety input of the second unit, and so on. The safety outputs 1 and 2 of the last unit are connected to the safety controller;
- The auxiliary output is connected to the IO port of the PLC to monitor the current status of the safety door.

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## OX-H1 series precautions for use

### ⚠ PRECAUTIONS

Do not use it at altitudes above 2000m.  
Do not use it in an environment with flammable or explosive gases.  
Do not use it in an environment with corrosive gas.  
Do not drop the product or subject it to vibration or impact that exceeds specifications. Otherwise it may cause malfunction or malfunction.  
Do not allow oil or solvent to adhere to the product. If oil or solvent adheres, it may cause the mark to disappear and the parts to deteriorate.  
Do not use in water or in environments with regular exposure to water. Otherwise, water may enter the product.  
(Protection levels do not guarantee long-term performance in this environment.)

Do not store or install it in the following locations as it may cause malfunction or malfunction.  
- Use at temperatures other than -10C~+55C  
- Stored at temperatures other than -10C~+55C  
- Use in an environment with humidity above 95%  
- Use in an environment exposed to direct sunlight  
- Places with drastic temperature changes  
- Places with high humidity and possible condensation

Due to the presence of devices such as RFID systems, proximity sensors, motors, frequency converters, and switching power supplies that generate strong radio waves or magnetic fields, they may not operate properly. When using near these devices, please confirm their impact beforehand.  
Do not use this product as a door stop. Otherwise the safety function may be affected.  
Auxiliary output is not a safety output. Do not use the auxiliary output solely as a safety function.  
The risk time does not change depending on the number of series connections, please wire according to the wiring example.  
When replacing the product, be sure to turn off the power before starting the operation. Otherwise, danger may occur due to unexpected movement.  
Wiring should comply with the requirements specified in IEC60204-1 Section 9.4.3 to prevent malfunction caused by grounding of the OSSD output line.  
Do not connect products different from this product in series. Otherwise, the input and output waveforms may be interfered with, and the safety function may be affected.

When installing, please try to ensure that the indicator light of the safety door switch can be seen. Otherwise, it may be misjudged.  
Danger may occur due to the status of the safety door switch.  
When multiple units of this product are used adjacent to each other, malfunction may occur due to mutual interference. When using them adjacently, please keep a distance of 50mm.  
Please use both OSSD1 and OSSD2 outputs at the same time to build a safe system. If only one is connected, the safety function may be affected due to a single fault. Please wire according to the wiring examples, and the operation must be confirmed. Please strictly debug and use according to the current and voltage parameters. If the range is exceeded, the switch will be damaged and will not be covered by the warranty.  
Wrong safety door switches connected in series will not change the risk of the machine, so please follow the wiring examples for correct wiring. To achieve the purpose of reducing machine risks.  
When determining the safe distance, please consider the delay in the output of this product corresponding to the response time. Otherwise, workers may reach the danger source before it stops and be seriously injured. When switches and triggers are installed on metal parts, the operating distance may be affected. When installing it on a metal part, please confirm its impact before use.  
When installing, please confirm that the sensor and actuator will not come into contact due to door position deviation. (Otherwise, product performance may be reduced due to impact caused by door opening and closing.)  
Due to reasons such as wiring errors, setting errors, switch failures, etc., the safety function cannot operate normally, but the equipment continues to operate, which may lead to personal accidents.  
Be sure to confirm that the safety function operates properly before starting operation.  
Please make sure the "responsible person" confirms whether the installation, inspection, and maintenance of this product are performed correctly. The "responsible person" refers to the relevant person who has the qualifications, responsibilities and authority to ensure safety at all stages of machinery design, installation, operation, maintenance and disposal.  
Do not pull or bend the cable excessively. Otherwise, malfunction may occur due to disconnection.  
Be sure to perform daily inspections and inspections every 6 months. Otherwise, the system may operate abnormally and even cause serious personal injury. Please do not disassemble, repair or modify it. Otherwise, the original safety function may be affected.