

# Instruction Manual

## Safety Door Switch



### SVOX-D6 Series

Suitable for monitoring

- Safety doors
- Safety windows

Applicable industries

- Automated production lines
- Robotic production lines
- Dangerous test areas
- Isolated areas, etc.

### Forced safety output

- Forced safety outputAt least 2 NC contacts for safety monitoring
- Additional multiple auxiliary signal contact combinations are available

## 1. Product Features

- All-metal structure, strong, safe and durable;
- Multiple functions: with mechanism locking and monitoring functions;
- Multiple coding methods: unique coding and universal coding methods are optional.
- Independent redundant dual output: prevent safety hazards caused by failure of a single circuit;
- Cascade connection of door switches can reduce the number of input points;
- Small appearance: cross-sectional size 30mm\*30mm;
- Flexible installation: can be directly installed on an aluminum frame not exceeding 30mm

## 2. Model Description

Selection example: SVOX-D6-CR-SN-A

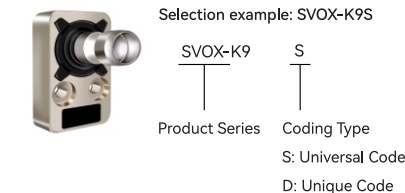


- ① Product model
- ② Locking method: C: Mechanical lock, electromagnetic unlock  
D: Electromagnetic lock, mechanical unlock
- ③ Configuration type R: Standard type H: High-function type
- ④ Coding type S: general coding D: unique coding
- ⑤ Output mode N: Dual NPN output P: Dual PNP output
- ⑥ Leading method A: Direct lead B: M12 male connector

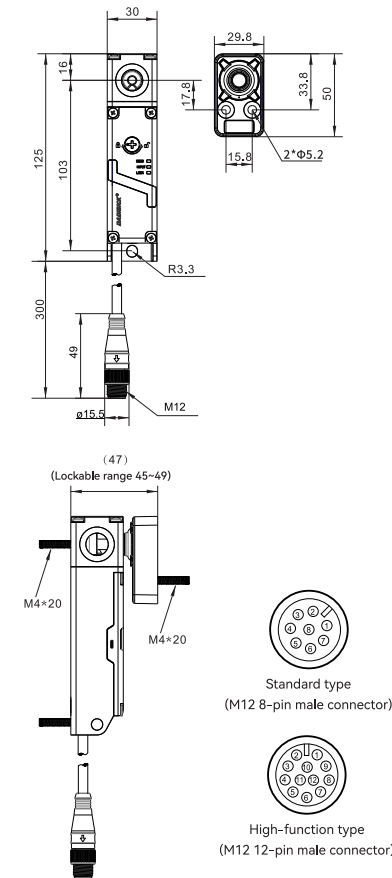
Note\* The default cable is 3m. If you need other lengths, please contact customer service

| The difference between standard type and high-function type |               |               |
|-------------------------------------------------------------|---------------|---------------|
|                                                             | Standard type | High-function |
| Safety output channel                                       | ●             | ●             |
| AUX output channel                                          | ●             | ●             |
| Safety input channel                                        | ●             | ●             |
| Lock input channel                                          | ●             | ●             |
| EDM                                                         |               | ●             |
| Reset                                                       |               | ●             |

### Actuator Model:



## 3.Product Dimensions



## 4. Technical Parameters

|                                |                                  |                                                                                                                                                                                                                           |
|--------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards                      |                                  | ISO13849-1 (Category 4/Plc); IEC/EN60947-5-3                                                                                                                                                                              |
| Certification                  |                                  | CE                                                                                                                                                                                                                        |
| Lock method                    |                                  | Mechanical lock/electromagnetic lock                                                                                                                                                                                      |
| Safety output                  |                                  | NPN*2/PNP*2                                                                                                                                                                                                               |
| Response time                  | Lock → Unlock                    | 100ms (independent work)                                                                                                                                                                                                  |
|                                | Unlock → Lock                    |                                                                                                                                                                                                                           |
| Lock                           | Lock holding force Fzh           | ≥2000N                                                                                                                                                                                                                    |
|                                | Lock bolt insertion deviation    | ≤2mm                                                                                                                                                                                                                      |
|                                | Mechanical durability            | >1 million times (door operation speed 1m/s)                                                                                                                                                                              |
|                                | Operation frequency              | 1Hz                                                                                                                                                                                                                       |
|                                | Minimum radius of revolving door | ≥220mm                                                                                                                                                                                                                    |
| Manual unlocking               |                                  | front, back                                                                                                                                                                                                               |
| Cascade connection             |                                  | up to 20 units                                                                                                                                                                                                            |
| Control output (OSSD output)   | Output type                      | Transistor output x2                                                                                                                                                                                                      |
|                                | Maximum load current             | ≤200mA                                                                                                                                                                                                                    |
|                                | Residual voltage (ON)            | <2.5V@200mA                                                                                                                                                                                                               |
|                                | Voltage when OFF                 | ≤2V@cable 5m                                                                                                                                                                                                              |
|                                | Leakage current                  | ≤0.5mA                                                                                                                                                                                                                    |
|                                | Maximum load capacity            | 2.2uF                                                                                                                                                                                                                     |
| Load connection resistance     |                                  | ≤2.5Ω                                                                                                                                                                                                                     |
| AUX output (non-safety output) | Output type                      | Transistor output                                                                                                                                                                                                         |
|                                | Number of outputs                | 1                                                                                                                                                                                                                         |
|                                | Maximum load current             | 50mA                                                                                                                                                                                                                      |
|                                | Residual voltage (when ON)       | ≤2.5V@50mA                                                                                                                                                                                                                |
| External input (break current) | Safety input                     | 1.5mA*2                                                                                                                                                                                                                   |
|                                | Reset/EDM input                  | About 10mA*1                                                                                                                                                                                                              |
|                                | Lock control input               | About 10mA*1                                                                                                                                                                                                              |
| Power supply                   | Operating voltage                | DC24V±15%                                                                                                                                                                                                                 |
|                                | Rated power                      | 4.6W (no load)                                                                                                                                                                                                            |
| Protection                     |                                  | Safety circuit breaker protection, current limit, overload protection, overvoltage protection, overheating protection stop and restart, reverse polarity protection, transient noise protection, failure pulse protection |
| Environmental resistance       | Enclosure protection grade       | IP65                                                                                                                                                                                                                      |
|                                | Action environment temperature   | -20°C~55°C (no freezing)                                                                                                                                                                                                  |
|                                | Storage environment temperature  | -25°C~70°C (no freezing)                                                                                                                                                                                                  |
|                                | Action environment humidity      | 5%~95%RH                                                                                                                                                                                                                  |
|                                | Storage environment humidity     | 5%~95%RH                                                                                                                                                                                                                  |
|                                | Vibration resistance             | 10 to 55Hz, double amplitude 2.0mm, 5 minutes in each direction of X, Y, and Z (IEC60947-5-3)                                                                                                                             |
| Impact resistance              |                                  | 30g 6 times in each direction of X, Y, and Z (IEC60947-5-3)                                                                                                                                                               |
| Risk time                      |                                  | 100ms                                                                                                                                                                                                                     |
| Start time                     |                                  | 3.5s                                                                                                                                                                                                                      |
| Material                       |                                  | Nylon/zinc alloy/stainless steel                                                                                                                                                                                          |

## 5. LED status during normal operation

|                             |  |                                                                                                                                                                          |                                                                                                                                                                                |
|-----------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Close the door and lock it  |  | Working status indicator: green light on<br>OSSD output indicator: green light on<br>INPUT input indicator: yellow light on<br>LOCK lock indicator: green light on       | 1. Detect that the key signal is normal,<br>2. Detect that the key is inserted in place and the door is closed<br>3. The input signal is normal<br>3. Lock and output normally |
| Unlock the door and open it |  | Working status indicator: red light on<br>OSSD output indicator: red light on<br>INPUT input indicator: yellow light on<br>LOCK lock indicator: off                      | 1. No key signal detected<br>2. Key not inserted properly, door opened<br>3. Input signal normal<br>3. Not locked and no output                                                |
| Close the door and lock it  |  | Working status indicator: red light on<br>OSSD output indicator: red light on<br>INPUT input indicator: yellow light on<br>LOCK lock indicator: green light low flashing | 1. Key signal not detected<br>2. Input signal normal<br>3. Locked but no output                                                                                                |
| Close the door and lock it  |  | Working status indicator: red light on<br>OSSD output indicator: red light on<br>INPUT input indicator: off<br>LOCK lock indicator: green light on                       | 1. No input signal<br>2. Locked but no output                                                                                                                                  |

| Working status   | Indicator light | Status description                                                                                                                                                   |
|------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OSSD error       |                 | 1. OSSD short circuit or incorrect wiring.<br>2. Inductive load causes voltage surge on OSSD.<br>3. OSSD is affected by electrical interference.<br>4. OSSD failure. |
| EDM error        |                 | EDM input is not wired correctly                                                                                                                                     |
| Lock abnormality |                 | Electromagnet error or optocoupler error                                                                                                                             |
| Hardware failure |                 | 1. Internal fault self-check error<br>2. Hardware failure                                                                                                            |

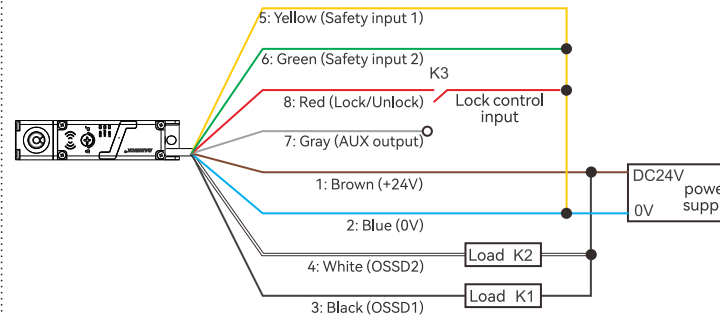
## 6. Indicator light status description



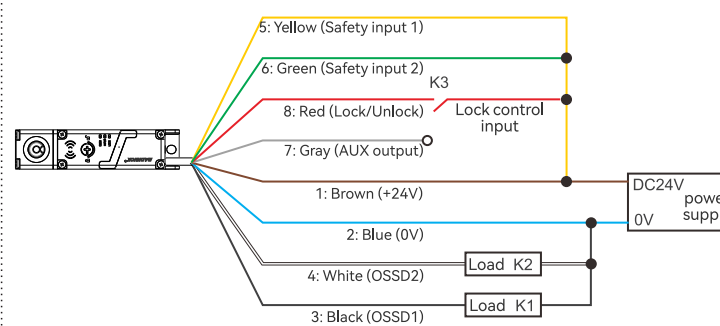
| Num | Name                   | Light color | Status description                                                                                                                                                                                                      |
|-----|------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   | Output indicator light | Red, Green  | OSSD output: green<br>OSSD off: red<br>OSSD error: red flashing (2Hz)<br>EDM error: red flashing (1Hz)                                                                                                                  |
| ②   | Input indicator light  | Green       | Normal input: on<br>No input (waiting for input): off<br>Waiting for RSET reset: 1Hz flashing                                                                                                                           |
| ③   | Lock indicator light   | Green       | Door locked: on<br>Lock abnormality: 2Hz flashing (electromagnet error, optocoupler error)<br>No RFD: 1Hz flashing<br>Unlocked: off                                                                                     |
| ④   | Status indicator light | Red, Green  | Locked and output: green light<br>No output: red light<br>Voltage error: red light flashing 2Hz<br>Internal fault self-check error: red light flashing 1Hz<br>Internal data calibration error: green light flashing 1Hz |

## 7. Product Wiring Diagram

safety door switch standard type (NPN, no cascade)

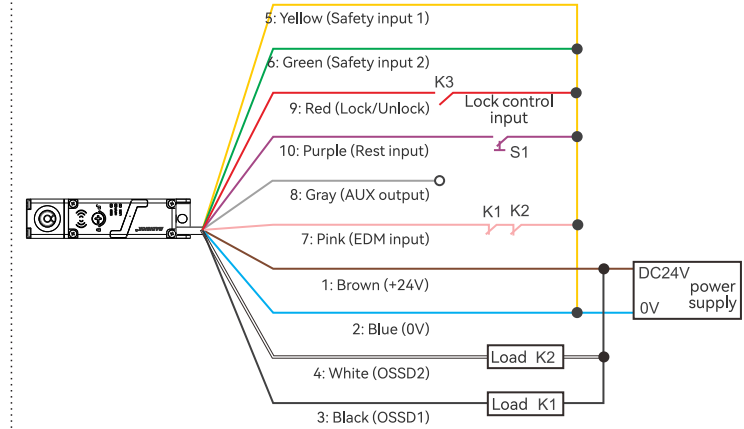


safety door switch standard type (PNP, no cascade)

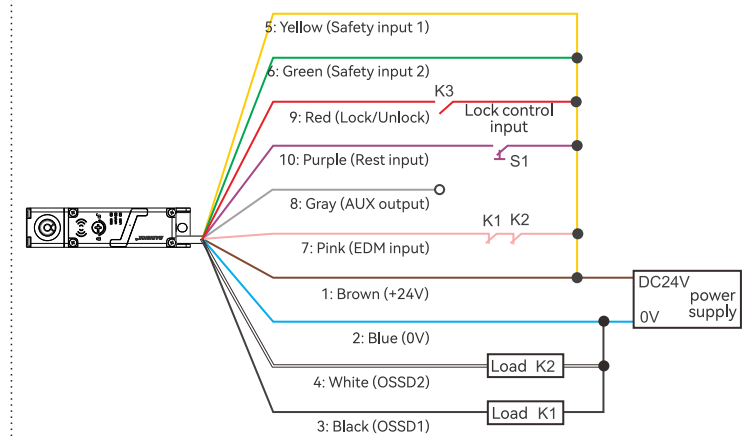


Lock control input:  
1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.

safety door switch high-function type (NPN, no cascade)



safety door switch high-function type (PNP, no cascade)



Lock control input:  
1. Electromagnetic lock, mechanical release: K3, switch closed lock state, switch open unlock state;  
2. Mechanical lock, electromagnetic release: K3, switch open lock state, switch closed unlock state.  
Note: When the EDM function is not in use, the pink line (EDM input) and the gray line (AUX output) can be short-circuited.