

# Выключатели безопасности двери (6 контактов) SLM21

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## SLM21 Series

# Safety door switch



### SLM21 Series Safety Door Switch Introduction

SLM21 series safety door switch with many models for selection, optional key insertion direction make its easy to install. 1300N holding force and IP67 protection structure ensure its safely and widely use in different environment.

#### Product Feature

- Multiple contacts group for selection
- Holding force is up to 1300N
- IP67 protection rate
- Various inserting direction of key
- Support general load or micro-load



#### Reliable Safety Protection

- EN 60947-5-1/IEC60947-5-1
- GB/T 14048.5
- IEC 61508
- EN ISO14119



## Explanation model (example: SLM21-BPMF2)

SLM21 -       
 1    2    3    4    5

### 1. Switch contact(Door monitor + Lock monitor)

- A: 1NC/1NO(Slow action) + 1NC/1NO(Slow action)
- B: 1NC/1NO(Slow action) + 2NC(Slow action)
- C: 2NC (Slow action) + 1NC/1NO (Slow action)
- D: 2NC(Slow action) + 2NC(Slow action)
- E: 2NC/1NO(Slow action) + 1NC/1NO (Slow action)
- F: 2NC/1NO(Slow action)+ 2NC(Slow action)
- G: 2NC/1NO (Slow action)+ 2NC/1NO(Slow action)
- H: 3NC(Slow action) + 1NC/1NO(Slow action)
- I: 3NC(Slow action) + 2NC(Slow action)
- J: 3NC (Slow action) + 3NC(Slow action)
- K: 3NC(Slow action) + 2NC/1NO(Slow action)
- L: 2NC/1NO (Slow action) + 3NC(Slow action)

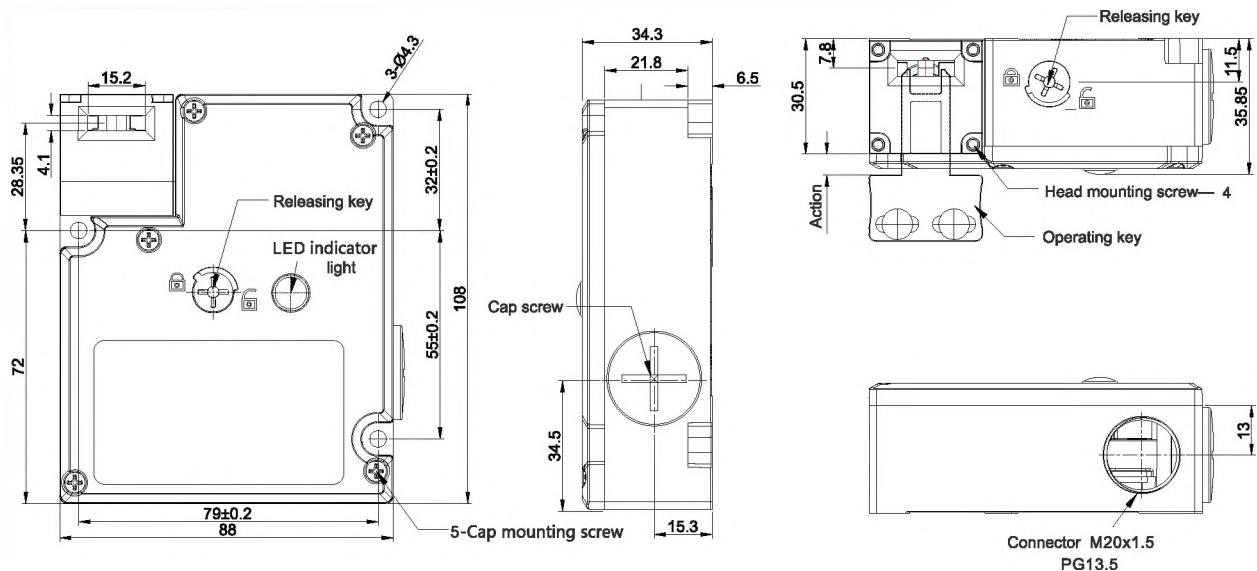
### 2. Head mounting direction/material

- P: 4 mounting direction as selection  
(front side as ex-work setting)/Plastic
- M: 4 mounting direction as selection  
(front side as ex-work setting)/Metal

### 3. Lock/Unlock method

- M: Mechanical lock/DC24V Power to release
- Y: Mechanical lock/AC110V Power to release
- E: DC24V Power to lock/Mechanical release
- X: AC110V Power to lock/Mechanical release

## Product Size



### 4. Direction of key insertion

- T: Top
- F: Front

### 5. Connector type

- 1: Pg13.5
- 2: M20

Note: 1. M20 is preferred for catheter port size.  
MOQ of PG13.5 is 500pcs.  
2. Switch head and parts are not sold separately.  
(SK key excepted).

# Safety Interlock Switch

## Technical Parameter

| Electromagnetic tube                 |   |       |
|--------------------------------------|---|-------|
| Rated operating voltage              | DC24V   |       |
| Power                                | 4.8W  |       |
| Rated current                        | approximate 200mA   |       |
| Insulation                           | Class B (130°C)   |       |
| LED indicator                        |   |       |
| Rated operating voltage              | DC24V   |       |
| Rated current                        | approximate 1mA   |       |
| Luminous color (LED)                 | Green   |       |
| Safety level                         |   |       |
| Certificate                          | CE, TUV   |       |
| Standard                             | EN60947-5-1、GB14048.5、IEC61508、EN ISO 14119   |       |
| Protection rate                      | IP67  |       |
| Material                             | PA66 fire retardant   |       |
| Mechanical lifespan                  | >1000000 times  |       |
| Electrical lifespan                  | 150,000 + times (AC240V3A, resistive load)  |       |
| Using type                           | AC-15   | DC-13 |
| Rated operating voltage(Ue)          | 240V  | 24V   |
| Rated operating current(Ie)          | 3A  | 2A    |
| Electrical parameters                |   |       |
| Contact resistance                   | <25mΩ   |       |
| Nominal discharge current(Ith)       | 10A   |       |
| Rated insulation voltage(Ui)         | 300V  |       |
| Anti-electric shock level            | Class II  |       |
| Pulse withstand voltage EN60947-5-1) | 2.5KV   |       |
| Insulation resistance                | >100mΩ  |       |
| Short-circuit protection             | 10A,250V requires a quick-break fuse  |       |
| Vibration resistance                 | 10-55HZ, double amplitude 1.5mm   |       |
| Impact resistance                    | Impact resistance Durability 1000 S <sup>2</sup> , Mal-operation 300m/ S <sup>2</sup> |       |
| Conditional short-circuit current    | 100A (EN 60947-5-1)   |       |
| Space of contact                     | Above 2x2mm   |       |
| Action characteristic                |   |       |
| Direct opening force                 | Minimum 60N   |       |
| Direct opening travel                | ≥10mm   |       |
| Allowed operating speed              | 0.1 m ~ 0.5m/s  |       |
| Allowed operating frequency          | Maximum 30 times/minutes  |       |
| Holding force                        | 1300N   |       |
| Environment                          |   |       |
| Operating environment                | 3 (EN60947-5-1)   |       |
| Operating temperature                | -10°C ~ + 55°C without freezing   |       |
| Operating humidity                   | <95%RH  |       |

## SLM21 series selection sheet

| Head material | Magnet voltage /indicator light | Lock/unlock method                  | Contact type<br>(door monitor + lock monitor) | Connector | Model       |
|---------------|---------------------------------|-------------------------------------|---|-----------|-------------|
| Plastic       | Electromagnet DC24V Green LED   | Mechanical lock<br>Power to release | 1NC/1NO + 1NC/1NO                             | PG13.5    | SLM21-APMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-APMF2 |
|               |                                 |                                     | 1NC/1NO + 2NC                                 | PG13.5    | SLM21-BPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-BPMF2 |
|               |                                 |                                     | 2NC + 1NC/1NO                                 | PG13.5    | SLM21-CPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-CPMF2 |
|               |                                 |                                     | 2NC + 2NC                                     | PG13.5    | SLM21-DPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-DPMF2 |
|               |                                 |                                     | 2NC/1NO + 1NC/1NO                             | PG13.5    | SLM21-EPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-EPMF2 |
|               |                                 |                                     | 2NC/1NO + 2NC                                 | PG13.5    | SLM21-FPMF1 |
|               |                                 | Power to lock<br>Mechanical release | M20   | PG13.5    | SLM21-FPMF2 |
|               |                                 |                                     | 2NC/1NO + 2NC/1NO                             | PG13.5    | SLM21-GPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-GPMF2 |
|               |                                 |                                     | 3NC + 1NC/1NO                                 | PG13.5    | SLM21-HPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-HPMF2 |
|               |                                 |                                     | 3NC + 2NC                                     | PG13.5    | SLM21-IPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-IPMF2 |
|               |                                 |                                     | 3NC + 3NC                                     | PG13.5    | SLM21-JPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-JPMF2 |
|               |                                 |                                     | 3NC + 2NC/1NO                                 | PG13.5    | SLM21-KPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-KPMF2 |
|               |                                 |                                     | 2NC/1NO + 3NC                                 | PG13.5    | SLM21-LPMF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-LPMF2 |
|               |                                 |                                     | 1NC/1NO + 1NC/1NO                             | PG13.5    | SLM21-APEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-APEF2 |
|               |                                 |                                     | 1NC/1NO + 2NC                                 | PG13.5    | SLM21-BPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-BPEF2 |
|               |                                 |                                     | 2NC + 1NC/1NO                                 | PG13.5    | SLM21-CPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-CPEF2 |
|               |                                 |                                     | 2NC + 2NC                                     | PG13.5    | SLM21-DPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-DPEF2 |
|               |                                 |                                     | 2NC/1NO + 1NC/1NO                             | PG13.5    | SLM21-EPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-EPEF2 |
|               |                                 |                                     | 2NC/1NO + 2NC                                 | PG13.5    | SLM21-FPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-FPEF2 |
|               |                                 |                                     | 2NC/1NO + 2NC/1NO                             | PG13.5    | SLM21-GPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-GPEF2 |
|               |                                 |                                     | 3NC + 1NC/1NO                                 | PG13.5    | SLM21-HPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-HPEF2 |
|               |                                 |                                     | 3NC + 2NC                                     | PG13.5    | SLM21-IPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-IPEF2 |
|               |                                 |                                     | 3NC + 3NC                                     | PG13.5    | SLM21-JPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-JPEF2 |
|               |                                 |                                     | 3NC + 2NC/1NO                                 | PG13.5    | SLM21-KPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-KPEF2 |
|               |                                 |                                     | 2NC/1NO + 3NC                                 | PG13.5    | SLM21-LPEF1 |
|               |                                 |                                     | M20   | PG13.5    | SLM21-LPEF2 |

# Safety Interlock Switch

## SLM21 series selection sheet

| Head material | Magnet voltage /indicator light | Lock/unlock method                  | Contact type<br>(door monitor + lock monitor) | Connector | Model       |
|---------------|---------------------------------|-------------------------------------|---|-----------|-------------|
| Metal         | Electromagnet DC24V Green LED   | Mechanical lock<br>Power to release | 1NC/1NO + 1NC/1NO                             | PG13.5    | SLM21-AMMF1 |
|               |                                 |                                     | M20   |           | SLM21-AMMF2 |
|               |                                 |                                     | 1NC/1NO + 2NC                                 | PG13.5    | SLM21-BMMF1 |
|               |                                 |                                     | M20   |           | SLM21-BMMF2 |
|               |                                 |                                     | 2NC + 1NC/1NO                                 | PG13.5    | SLM21-CMMF1 |
|               |                                 |                                     | M20   |           | SLM21-CMMF2 |
|               |                                 |                                     | 2NC + 2NC                                     | PG13.5    | SLM21-DMMF1 |
|               |                                 |                                     | M20   |           | SLM21-DMMF2 |
|               |                                 |                                     | 2NC/1NO + 1NC/1NO                             | PG13.5    | SLM21-EMMF1 |
|               |                                 |                                     | M20   |           | SLM21-EMMF2 |
|               |                                 |                                     | 2NC/1NO + 2NC                                 | PG13.5    | SLM21-FMMF1 |
|               |                                 |                                     | M20   |           | SLM21-FMMF2 |
|               |                                 |                                     | 2NC/1NO + 2NC/1NO                             | PG13.5    | SLM21-GMMF1 |
|               |                                 |                                     | M20   |           | SLM21-GMMF2 |
|               |                                 |                                     | 3NC + 1NC/1NO                                 | PG13.5    | SLM21-HMMF1 |
|               |                                 | Power to lock<br>Mechanical release | M20   |           | SLM21-HMMF2 |
|               |                                 |                                     | 3NC + 2NC                                     | PG13.5    | SLM21-IMMF1 |
|               |                                 |                                     | M20   |           | SLM21-IMMF2 |
|               |                                 |                                     | 3NC + 3NC                                     | PG13.5    | SLM21-JMMF1 |
|               |                                 |                                     | M20   |           | SLM21-JMMF2 |
|               |                                 |                                     | 3NC + 2NC/1NO                                 | PG13.5    | SLM21-KMMF1 |
|               |                                 |                                     | M20   |           | SLM21-KMMF2 |
|               |                                 |                                     | 2NC/1NO + 3NC                                 | PG13.5    | SLM21-LMMF1 |
|               |                                 |                                     | M20   |           | SLM21-LMMF2 |
|               |                                 |                                     | 1NC/1NO + 1NC/1NO                             | PG13.5    | SLM21-AMEF1 |
|               |                                 |                                     | M20   |           | SLM21-AMEF2 |
|               |                                 |                                     | 1NC/1NO + 2NC                                 | PG13.5    | SLM21-BMEF1 |
|               |                                 |                                     | M20   |           | SLM21-BMEF2 |
|               |                                 |                                     | 2NC + 1NC/1NO                                 | PG13.5    | SLM21-CMEF1 |
|               |                                 |                                     | M20   |           | SLM21-CMEF2 |
|               |                                 |                                     | 2NC + 2NC                                     | PG13.5    | SLM21-DMEF1 |
|               |                                 |                                     | M20   |           | SLM21-DMEF2 |
|               |                                 |                                     | 2NC/1NO + 1NC/1NO                             | PG13.5    | SLM21-EMEF1 |
|               |                                 |                                     | M20   |           | SLM21-EMEF2 |
|               |                                 |                                     | 2NC/1NO + 2NC                                 | PG13.5    | SLM21-FMEF1 |
|               |                                 |                                     | M20   |           | SLM21-FMEF2 |
|               |                                 |                                     | 2NC/1NO + 2NC/1NO                             | PG13.5    | SLM21-GMEF1 |
|               |                                 |                                     | M20   |           | SLM21-GMEF2 |
|               |                                 |                                     | 3NC + 1NC/1NO                                 | PG13.5    | SLM21-HMEF1 |
|               |                                 |                                     | M20   |           | SLM21-HMEF2 |
|               |                                 |                                     | 3NC + 2NC                                     | PG13.5    | SLM21-IMEF1 |
|               |                                 |                                     | M20   |           | SLM21-IMEF2 |
|               |                                 |                                     | 3NC + 3NC                                     | PG13.5    | SLM21-JMEF1 |
|               |                                 |                                     | M20   |           | SLM21-JMEF2 |
|               |                                 |                                     | 3NC + 2NC/1NO                                 | PG13.5    | SLM21-KMEF1 |
|               |                                 |                                     | M20   |           | SLM21-KMEF2 |
|               |                                 |                                     | 2NC/1NO + 3NC                                 | PG13.5    | SLM21-LMEF1 |
|               |                                 |                                     | M20   |           | SLM21-LMEF2 |

## Structure and action

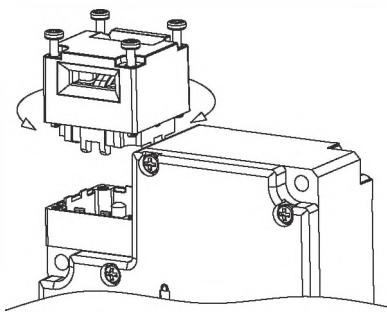
Below picture show status of switch with key inserting and locked (Terminal 2 & 41, 22 & 51/ 32 & 61 is inside connection)

| Model         | Contact type<br>(door monitor +<br>lock monitor) | Picture of wire connection |              | Contact action                                    |               |                              |
|---------------|--|----------------------------|--------------|---|---------------|------------------------------|
|               |  | door monitor               | lock monitor | [Orange box]: Contact ON [White box]: Contact OFF |               |                              |
|               |  |                            |              | Operation<br>key inserting                        | Action        | Operation<br>key pulling out |
| SLM21 - AP□□□ | 1NC/1NO + 1NC/1NO                                |                            |              | 11--42<br>33--34<br>53--54                        | Lock position |                              |
| SLM21 - BP□□□ | 1NC/1NO + 2NC                                    |                            |              | 11--42<br>33--34<br>51--52                        | Lock position |                              |
| SLM21 - CP□□□ | 2NC + 1NC/1NO                                    |                            |              | 11--42<br>31--32<br>53--54                        | Lock position |                              |
| SLM21 - DP□□□ | 2NC + 2NC  |                            |              | 11--42<br>31--32<br>51--52                        | Lock position |                              |
| SLM21 - EP□□□ | 2NC/1NO + 1NC/1NO                                |                            |              | 11--42<br>21--22<br>33--34<br>53--54              | Lock position |                              |
| SLM21 - FP□□□ | 2NC/1NO + 2NC                                    |                            |              | 11--42<br>21--22<br>33--34<br>51--52              | Lock position |                              |
| SLM21 - GP□□□ | 2NC/1NO + 2NC/1NO                                |                            |              | 11--42<br>21--52<br>33--34<br>53--54              | Lock position |                              |
| SLM21 - HP□□□ | 3NC + 1NC/1NO                                    |                            |              | 11--42<br>21--22<br>31--32<br>53--54              | Lock position |                              |
| SLM21 - IP□□□ | 3NC + 2NC  |                            |              | 11--42<br>21--22<br>31--32<br>51--52              | Lock position |                              |
| SLM21 - JP□□□ | 3NC + 3NC  |                            |              | 11--42<br>21--52<br>31--62                        | Lock position |                              |
| SLM21 - KP□□□ | 3NC + 2NC/1NO                                    |                            |              | 11--42<br>21--52<br>31--32<br>53--54              | Lock position |                              |
| SLM21 - LP□□□ | 2NC/1NO + 3NC                                    |                            |              | 11--42<br>21--52<br>33--34<br>61--62              | Lock position |                              |

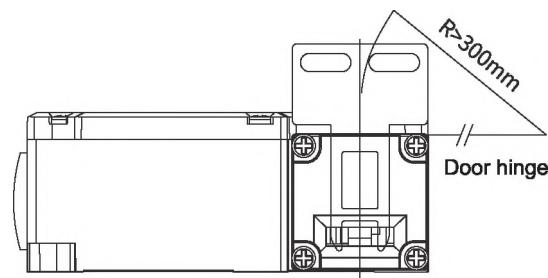
# Safety Interlock Switch

## Installation Method

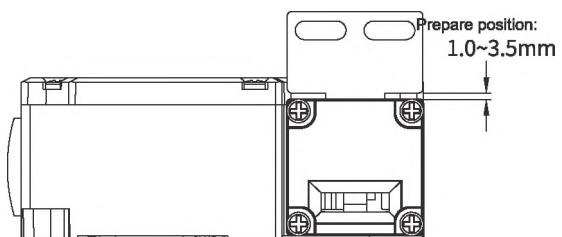
- ★ Releasing the 4 screws on top of the cap, spinning the direction of top cap until the suitable position for key inserting



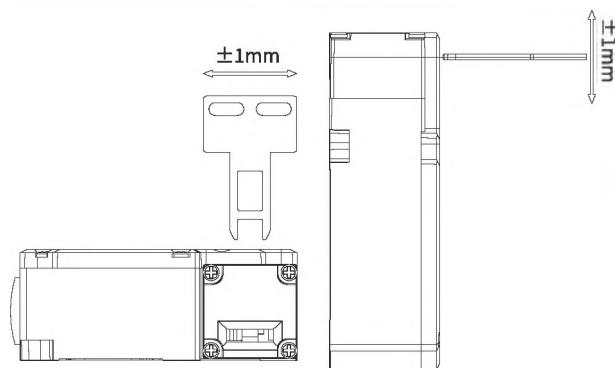
- ★ When install on side hung door, it should be over than semidiameter



- ★ Please install the safety switch door and insertion key under range 1-3.5mm



- ★ The installation of operation key allows  $\pm 1\text{mm}$  error within the key insertion center of the hole



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