



### 特点 Features

- 产品触点结构种类多，有1NC/1NO、2NC、2NC/1NO和3NC等多种触点形式。（同时还可提供慢动型MBB触点形式）
- 产品具有强制断开功能，当触点发生熔焊故障时可以强制断开（仅NC触点具有该功能）
- 强化顶部密封结构，以提高密封性能
- There are many kinds of contact structures, including 1NC/1NO, 2NC, 2NC/1NO and 3NC and other contact forms. (Also available in slow motion MBB contact form)
- The product has a forced disconnect function, which can be forced to disconnect when the contact fails to fuse (only the NC contact has this function).
- Strengthen the top sealing structure to improve the sealing performance



### 选型说明 Model Designation

**C4N - □ □ □ N**

①      ②      ③      ④

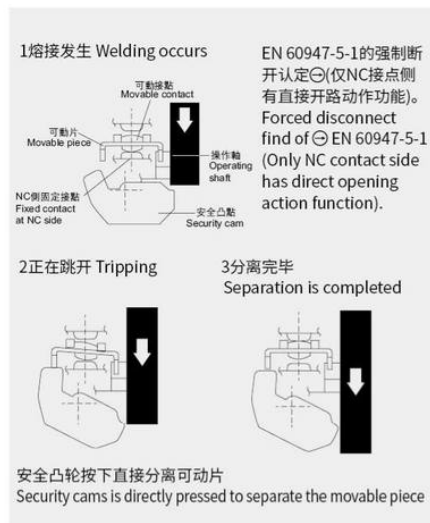
| 序号 No | 项目 Item                                      | 代号 Code | 说明 Description                                                     | 强制断开有 / 无 Forced disconnection Yes/No               |
|-------|----------------------------------------------|---------|--------------------------------------------------------------------|-----------------------------------------------------|
| ①     | 产品系列<br>Product series                       | C4N     | 立式安全限位开关 Vertical safety limit switch                              |                                                     |
| ②     | 导管 / 连接器<br>尺寸<br>Conduit/<br>connector size | 1       | Pg13.5(1 导管型 Conduit type)                                         |                                                     |
|       |                                              | 2       | G1/2(1 导管型 Conduit type)                                           |                                                     |
|       |                                              | 3       | Pg11(1 导管型 Conduit type)                                           |                                                     |
|       |                                              | 4       | M20(1 导管型 Conduit type)                                            |                                                     |
|       |                                              | 9       | M16(1 导管型 Conduit type)                                            |                                                     |
|       |                                              | 5       | Pg13.5(2 导管型 Conduit type)                                         |                                                     |
|       |                                              | 0       | Pg11(2 导管型 Conduit type)                                           |                                                     |
|       |                                              | 6       | G1/2(2 导管型 Conduit type)                                           |                                                     |
|       |                                              | 7       | M16(2 导管型 Conduit type)                                            |                                                     |
| ③     | 内藏开关<br>Hidden switch                        | 1       | 1NC/1NO( 速动型 Quick acting type)                                    |                                                     |
|       |                                              | 3       | 1NC/1NO( 慢动型 Slow motion type)                                     |                                                     |
|       |                                              | 4       | 2NC( 慢动型 Slow motion type)                                         |                                                     |
|       |                                              | 7       | 1NC/1NO( 慢动型 Slow motion type MBB)                                 |                                                     |
|       |                                              | 9       | 2NO( 慢动型 Slow motion type)                                         |                                                     |
| ④     | 头部及传动杆<br>Head and<br>drive rod              | 11      | 顶部柱塞型 Top plunger type                                             | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|       |                                              | 21      | 顶部金属柱塞型 Top metal plunger type                                     | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|       |                                              | 22      | 顶部柱塞横滚珠( 金属滚珠 ) 型<br>Top plunger horizontal ball (metal ball) type | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |

|   |                              |      |                                                                                                    |                                                     |
|---|------------------------------|------|----------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| ④ | 头部及传动杆<br>Head and drive rod | 23   | 顶部柱塞竖滚珠 (金属滚珠) 型<br>Top plunger vertical ball (metal ball) type                                    | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 32   | 顶部柱塞横滚珠 (金属头部) 型<br>Top plunger horizontal ball (metal head) type                                  | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 33   | 顶部柱塞竖滚珠 (金属头部) 型<br>Top plunger vertical ball (metal head) type                                    | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 15   | 单侧悬臂滚珠型 (水平)<br>Single side cantilever ball type (horizontal)                                      | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 16   | 单侧悬臂滚珠型 (垂直)<br>Single side cantilever ball type (vertical)                                        | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 04   | 滚珠摆杆型 (金属摆杆, 树脂滚珠)<br>Ball swing rod type (metal swing rod, resin ball)                            | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 04T  | 滚珠摆杆型 (金属摆杆, 树脂滚珠, 转轴金属)<br>Ball swing rod type (metal swing rod, resin ball, shaft metal)         | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 05   | 滚珠摆杆型 (金属摆杆, 金属滚珠)<br>Ball swing rod type (metal swing rod, metal ball)                            | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 05I  | 滚珠摆杆型 (金属摆杆, 金属滚珠, 转轴金属)<br>Ball swing rod type (metal swing rod, metal ball, shaft metal)         | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 07   | 可调棒式摆杆型<br>Adjustable rod swing rod type                                                           | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 08   | 可调滚珠摆杆 (金属摆杆, 树脂滚珠)<br>Adjustable ball swing rod (metal swing rod, resin ball)                     | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 08T  | 可调滚珠摆杆 (金属摆杆, 树脂滚珠, 转轴金属)<br>Adjustable ball swing rod (metal swing rod, resin ball, shaft metal)  | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 09   | 可调滚珠摆杆 (金属摆杆, 金属滚珠)<br>Adjustable ball swing rod (metal swing rod, metal ball)                     | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 09T  | 可调滚珠摆杆 (金属摆杆, 金属滚珠, 转轴金属)<br>Adjustable ball swing rod (metal swing rod, metal ball, shaft metal)  | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 04H  | 滚珠摆杆型 (金属摆杆, 橡胶滚珠)<br>Ball swing rod (metal swing rod, rubber ball)                                | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 08H  | 可调滚珠摆杆 (金属摆杆, 橡胶滚珠)<br>Adjustable ball swing rod (metal swing rod, rubber ball)                    | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 08HT | 可调滚珠摆杆 (金属摆杆, 橡胶滚珠, 转轴金属)<br>Adjustable ball swing rod (metal swing rod, rubber ball, shaft metal) | 仅 NC 端有强制断开<br>Only NC end has forced disconnection |
|   |                              | 66   | 塑料棒型 Plastic rod type                                                                              | 无 None                                              |
|   |                              | 67   | 盘簧型 Coil spring type                                                                               | 无 None                                              |
|   |                              | 68   | 金属杆盘簧型 Metal rod coil spring type                                                                  | 无 None                                              |
|   |                              | 69   | 触须型 Tentacle type                                                                                  | 无 None                                              |

## 强制断开构造 Forced Disconnecting Mechanism

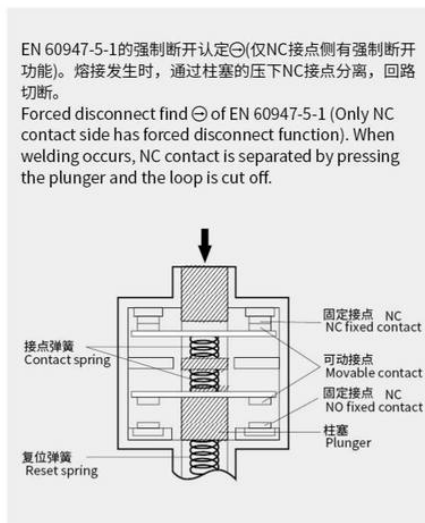
### 1NC/1NO接点(速动型)

1NC and 1NO contacts (snap-action)



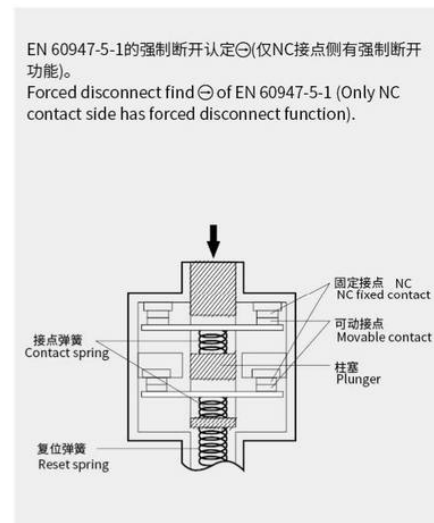
### 1NC/1NO接点(慢动型)

1NC and 1NO contacts (slow-action)



### 2NC接点(慢动型)

2NC contacts (slow-action)



接点形式 Contact Form

| 型号<br>Model | 接点<br>Contact                                          | 接点形式<br>Contact form | 动作模式<br>Operation mode | 说明<br>Explanation                                                                                                                                                                     |
|-------------|--------------------------------------------------------|----------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C4N-□1□N    | 1NC/1NO(速动型)<br>1NC/1NO<br>(Snap-action)               |                      |                        | 仅NC接点(31-32)具有强制断开功能(⊖)。<br>Only NC contact (31-32) has forced disconnect function (⊖)<br>接点(13-14)和(31-32) 可作异极使用。<br>Contacts (13-14) and (31-32) can be used as heteropoles.       |
| C4N-□3□N    | 1NC/1NO(慢动型)<br>1NC/1NO<br>(Slow-action)               |                      |                        | 仅NC接点(11-12)具有强制断开功能(⊖)。<br>Only NC contact (11-12) has forced disconnect function (⊖)<br>接点(11-12)和(33-34) 可作异极使用。<br>Contacts (11-12) and (33-34) can be used as heteropoles.       |
| C4N-□4□N    | 2NC(慢动型)<br>2NC<br>(Slow-action)                       |                      |                        | 仅NC接点(11-12、31-32)具有强制断开功能(⊖)。<br>Only NC contact (31-32) has forced disconnect function (⊖)<br>接点(11-12)和(31-32) 可作异极使用。<br>Contacts (11-12) and (31-32) can be used as heteropoles. |
| C4N-□7□N    | 1NC/1NO MBB*<br>(慢动型)<br>1NC/1NO MBB*<br>(Slow-action) |                      |                        | 仅NC接点(11-12)具有强制断开功能(⊖)。<br>Only NC contact (11-12) has forced disconnect function (⊖)<br>接点(11-12)和(33-34) 可作异极使用。<br>Contacts (11-12) and (33-34) can be used as heteropoles.       |
| C4N-□9□N    | 2NO(慢动型)<br>2NO<br>(Slow-action)                       |                      |                        | 接点(13-14)和(33-34) 可作异极使用。<br>Contacts (13-14) and (33-34) can be used as heteropoles.                                                                                                 |

注1: 端子编号依据EN 50013, 接点形式依据EN 60947-5-1。\* MBB接点具有重叠结构, 即在常闭接点(NC)开路前常开接点(NO)闭路的构造。

注2: 2NC、2NO的接点闭路、开路动作同时性存在偏差, 使用时请确认。 “

Note 1: The terminal number is in accordance with EN 50013 and the contact form is in accordance with EN 60947-5-1. \* The MBB contact has an overlapping structure, that is, the normally open contact (NO) is closed before the normally closed contact (NC) is open.

Note 2: 2NC, 2NO contact closed-circuit, open-circuit operation of the simultaneous deviation, please confirm when using. “

结构 Structure

安全导向摆杆设定  
(Form-lock结构)  
为摆杆和转动轴分别设计了咬合槽,  
可有效防止摆杆和转动轴打滑。  
有树脂摆杆和金属摆杆两种类型。  
Safety guide swing bar setting  
(Form-lock structure)  
An occlusal groove is designed for  
the swing rod and the rotating shaft respectively,  
which can effectively prevent the swing rod  
and spin the shaft to slip. There are two types of  
resin pendulum rod and metal pendulum rod.

内置开关  
内置开关采用了当NC侧出现接点熔断等异常时,  
可以强制离开接点的强制断开构造。  
Built-in switch  
The built-in switch uses  
when the NC side is abnormal, such as contact fuse.  
a forced-break construct that can be  
forced away from a contact.

外盖  
外盖的下部为铰链构造,  
只需一个螺钉即可打开, 便于维护和接线。  
Outer cover  
The lower part of the outer  
cover is hinged and requires only one screw  
a forced-break construct that can be  
open for easy maintenance and wiring.

头部  
开关头部可朝4个方向任意变化。  
(滚珠柱塞型可以在成90°角的2个不同方向进行安装。)  
Head  
The switch head can be changed in 4 directions.  
ball plunger type can be made  
90° Angle of 2 different directions for installation.

导管口  
备有各种导管类型, 详见选型说明。  
Catheter opening  
Various catheter types are available,  
see selection instructions for details.

注: 没有适用于3接点开关的M12连接器型。  
Note: There is no M12 connector type for 3 contact switches.

## 特性 Characteristics

|                                                      |                                                                                         |                                                                               |
|------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 保护等级<br>Protection level                             | IP67                                                                                    |                                                                               |
| 寿命<br>Life                                           | 电气<br>Electrical                                                                        | 50万次以上(AC250V 3A、阻性负载)<br>More than 500,000 times (AC250V 3A, resistive load) |
| 操作速度<br>Operating speed                              | 1mm-0.5m/s(C4N-4103型)                                                                   |                                                                               |
| 动作频率<br>Operating frequency                          | 电气: 30次/分<br>Electrical: 30 operations/min                                              |                                                                               |
| 接触电阻<br>Contact resistance                           | 25mΩ 以下 ( 初期 )<br>25mΩmax. (initial value)                                              |                                                                               |
| 绝缘电阻<br>Insulation resistance                        | 100MΩ 以上 ( 在 500VDC 以下 )<br>100MΩ min.(at 500VDC)                                       |                                                                               |
| 最小使用负载<br>Minimum working load                       | DC24V 10mA 以上<br>Min DC24V 10mA                                                         |                                                                               |
| 额定绝缘电压(Ui)<br>Rated insulation voltage (Ui)          | 500V                                                                                    |                                                                               |
| 防触电保护等级<br>Electric shock protection grade           | Class II (双重绝缘)<br>Class II (double insulated)                                          |                                                                               |
| 污染度(使用环境)<br>Pollution degree (Using conditions)     | 污染度3(EN 60947-5-1)<br>Pollution degree 3 (EN 60947-5-1)                                 |                                                                               |
| 耐电压<br>Withstand voltage<br>(EN 60947-5-1)           | 同极端子间: 2.5kV<br>Between homopolar terminals: 2.5kV                                      |                                                                               |
|                                                      | 异极端子间: 4kV<br>Between heteropolar terminals: 4kV                                        |                                                                               |
|                                                      | 各端子和非充电金属部件: 6kV<br>Between terminals and uncharged metal parts: 6kV                    |                                                                               |
|                                                      |                                                                                         |                                                                               |
| 接点间隙<br>Contact gap                                  | 最小2×0.5mm速动型<br>最小2×2mm慢动型<br>Minimum 2×0.5mm snap-action,<br>Minimum 2×2mm slow-action |                                                                               |
| 振动<br>Vibration                                      | 误动作<br>Malfunction                                                                      | 10~55Hz 0.75mm单振幅<br>10~55Hz 0.75mm single amplitude                          |
| 冲击<br>Impact                                         | 耐久<br>Duration                                                                          | 1,000m/s <sup>2</sup>                                                         |
|                                                      | 误动作<br>Malfunction                                                                      | 300m/s <sup>2</sup>                                                           |
| 约定自由空气发热电流Ith<br>Convention free air heating current | 10A                                                                                     |                                                                               |
| 环境温度<br>Ambient temperature                          | 使用时: -20~+70°C(没有结冰)<br>Using: -20~+70°C(With no icing)                                 |                                                                               |
| 环境湿度<br>Ambient humidity                             | 95%RH以下<br>Less than 95% RH                                                             |                                                                               |

注1. 上述值为初始值。

注2. 有些型号中可能与上述内容不同, 请另外垂询。

\*1.该保护结构基于标准(EN69047-5-1)规定的测试方法, 请根据使用环境、使用条件来事先确认密封性。

\*2.寿命的条件为环境温度25~35°C、环境湿度40~70%RH时的数值。

Note 1. The above values are initial values.

Note 2. Values of some models may be different from the above, please contact us for details.

\*1.The protection structure is tested based on method predetermined by standard (EN69047-5-1), please confirm the sealing in advance according to the operating environment and conditions.

\*2.The conditions of life are the values under the ambient temperature of 25~35°C and humidity of 40 to 70% RH. For other detailed conditions, please contact us.

## 国际认证规格 International Certification Specifications

| 认证规格<br>Certification specifications | 规格<br>Specifications | 文件No.<br>Document                                         |
|--------------------------------------|----------------------|-----------------------------------------------------------|
| CCC                                  | GB/T 14048.5         | 请咨询昌得代表处<br>Please consult the CNTD Representative Office |
| TUV                                  | EN 60947-5-1         |                                                           |
| CE                                   |                      |                                                           |

## 安全标准认证额定规格 Safety Standard Certification Rated Specifications

TUV (EN 60947-5-1), CCC(GB/T 14048.5)

| 项目 Item                          | 使用类型 Usage type | AC-15 | DC-13 |
|----------------------------------|-----------------|-------|-------|
| 额定工作电流 Rated working current(Ie) |                 | 3A    | 0.3A  |
| 额定工作电压 Rated working voltage(Ue) |                 | 250V  | 220V  |

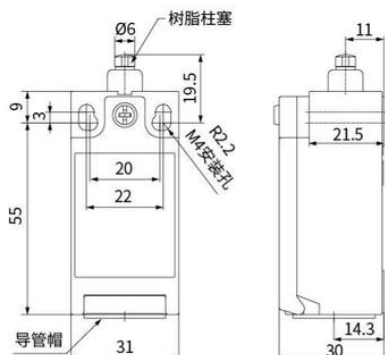
注: 请使用符合IEC60269的gI或gG型10A保险丝作为短路保护装置。开关内未配保险丝。

Note: Please use gI or gG 10A fuses that comply with IEC60269 as short-circuit protection devices. The switch is not equipped with a fuse.

外观和尺寸 Appearance and Dimension

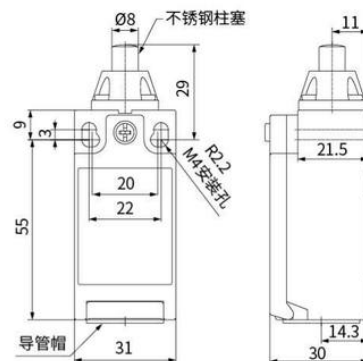
**C4N-□□11N**

顶部柱塞  
Top plunger type



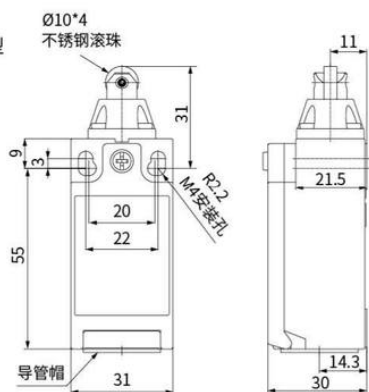
**C4N-□□21N**

顶部金属柱塞型  
Top metal plunger type



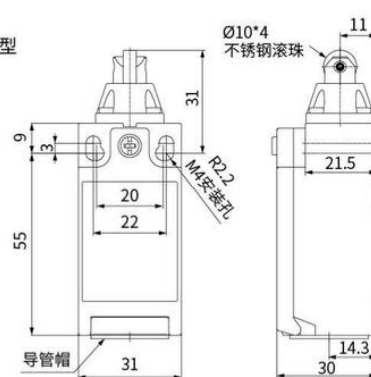
**C4N-□□22N**

顶部柱塞横滚珠 (金属滚珠) 型  
Top plunger horizontal ball (metal ball) type



**C4N-□□23N**

顶部柱塞竖滚珠 (金属滚珠) 型  
Top plunger vertical ball (metal ball) type



速动型(1NC/1NO), 慢动型(2NC)(2NO)

| 动作特性<br>Operating Characteristics |              | C4N-□111N<br>C4N-□411N<br>C4N-□911N | C4N-□121N<br>C4N-□421N<br>C4N-□921N | C4N-□122N<br>C4N-□422N<br>C4N-□922N | C4N-□123N<br>C4N-□423N<br>C4N-□923N |
|-----------------------------------|--------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 动作力                               | OF(最大Max.)*1 | 10N                                 | 10N                                 | 10N                                 | 10N                                 |
|                                   | OF(最大Max.)   | 15N                                 | 15N                                 | 15N                                 | 15N                                 |
| 释放力                               | RF(最小Min.)   | 1.5N                                | 1.5N                                | 1.5N                                | 1.5N                                |
| 预行程                               | PT           | 1.7±0.3mm                           | 1.7±0.3mm                           | 1.7±0.3mm                           | 1.7±0.3mm                           |
| 运动差异*1                            | MD           | 0.8±0.2mm                           | 0.8±0.2mm                           | 0.8±0.2mm                           | 0.8±0.2mm                           |
| 总行程*2                             | TT           | (6mm)                               | (6mm)                               | (6mm)                               | (6mm)                               |
| 动作位置*2*4                          | OP           | (17.5mm)                            | (27mm)                              | (29mm)                              | (29mm)                              |
| 强制断开行程*3                          | DOT(最小Min.)  | 3.5mm                               | 3.5mm                               | 3.5mm                               | 3.5mm                               |
| 强制断开力*3                           | DOF(最小Min.)  | 20N                                 | 20N                                 | 20N                                 | 20N                                 |

注: 2NC 和 2NO 的开路 / 闭路动作的同时性会有差异。  
开关动作参数特性在垂直加力方向测得。

- \*1、仅支持速动型；
- \*2、为参考值；
- \*3、2NO 无强制脱离功能；
- \*4、信号切换。

Note: The open/closed action of 2NC and 2NO contacts will be different at the sametime.  
The operating parameters of the switch are measured in the vertical afterforce direction.

- \*1. Only quick action type is supported;
- \*2. Reference value;
- \*3. 2NO no forced disengagement function;
- \*4. Signal switching.

慢动型(1NC/1NO)

| 动作特性<br>Operating Characteristics |             | C4N-□311N<br>C4N-□711N | C4N-□321N<br>C4N-□721N | C4N-□322N<br>C4N-□722N | C4N-□323N<br>C4N-□723N |
|-----------------------------------|-------------|------------------------|------------------------|------------------------|------------------------|
| 动作力                               | OF(最大Max.)  | 15N                    | 15N                    | 15N                    | 15N                    |
| 释放力                               | RF(最小Min.)  | 1.5N                   | 1.5N                   | 1.5N                   | 1.5N                   |
| 预行程                               | PT1*4       | 1.7±0.3mm              | 1.7±0.3mm              | 1.7±0.3mm              | 1.7±0.3mm              |
|                                   | PT2*3       | 2.5±0.3mm              | 2.5±0.3mm              | 2.5±0.3mm              | 2.5±0.3mm              |
|                                   | PT1*1*4     | 2.2±0.3mm              | 2.2±0.3mm              | 2.2±0.3mm              | 2.2±0.3mm              |
|                                   | PT2*1*3     | 1±0.3mm                | 1±0.3mm                | 1±0.3mm                | 1±0.3mm                |
| 总行程*2                             | TT          | (6mm)                  | (6mm)                  | (6mm)                  | (6mm)                  |
| 动作位置*2                            | OP*3        | (16.7mm)               | (26.2mm)               | (28.2mm)               | (28.2mm)               |
|                                   | OP*1*4      | (17mm)                 | (26.5mm)               | (28.5mm)               | (28.5mm)               |
| 强制断开行程                            | DOT(最小Min.) | 3.5mm                  | 3.5mm                  | 3.5mm                  | 3.5mm                  |
| 强制断开动作力                           | DOF(最小Min.) | 20N                    | 20N                    | 20N                    | 20N                    |

注: 开关动作参数特性在垂直加力方向测得。

- \*1、仅支持 MBB 型；
- \*2、为参考值；
- \*3、NO 接通；
- \*4、NC 断开。

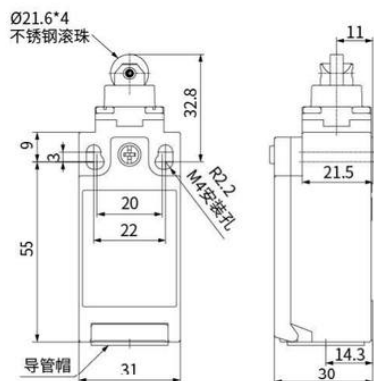
Note: The operating parameters of the switch are measured in the vertical afterforce direction.

- \*1. Only MBB type is supported;
- \*2. Reference value;
- \*3. NO is connected;
- \*4. NC is disconnected.

## 外观和尺寸 Appearance and Dimension

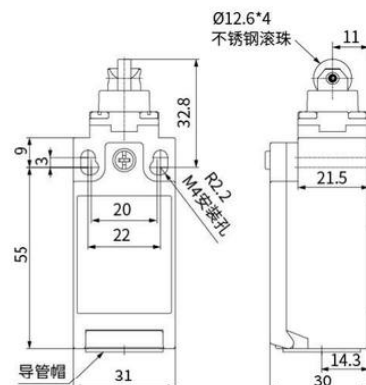
### C4N-□□32N

顶部柱塞横滚珠  
(金属头部) 型  
Top plunger horizontal  
ball (metal head) type



### C4N-□□33N

顶部柱塞竖滚珠  
(金属头部) 型  
Top plunger vertical ball  
(metal head) type



## 速动型(1NC/1NO), 慢动型(2NC)(2NO)

| 动作特性<br>Operating<br>Characteristics |              | C4N-□132N<br>C4N-□432N<br>C4N-□932N | C4N-□133N<br>C4N-□433N<br>C4N-□933N |
|--------------------------------------|--------------|-------------------------------------|-------------------------------------|
| 动作力                                  | OF(最大Max.)*1 | 10N                                 | 10N                                 |
|                                      | OF(最大Max.)   | 15N                                 | 15N                                 |
| 释放力                                  | RF(最小Min.)   | 1.5N                                | 1.5N                                |
| 预行程                                  | PT           | 1.7±0.3mm                           | 1.7±0.3mm                           |
| 运动差异*1                               | MD           | 0.8±0.2mm                           | 0.8±0.2mm                           |
| 总行程*2                                | TT           | (6mm)                               | (6mm)                               |
| 动作位置*2*4                             | OP*4         | (30.8mm)                            | (30.8mm)                            |
| 强制断开行程*3                             | DOT(最小Min.)  | 3.5mm                               | 3.5mm                               |
| 强制断开力*3                              | DOF(最小Min.)  | 20N                                 | 20N                                 |

注: 2NC 和 2NO 的开路 / 闭路动作的同时性会有差异。

开关动作参数特性在垂直加力方向测得。

\*1、仅支持速动型；

\*2、为参考值；

\*3、2NO 无强制脱离功能；

\*4、信号切换。

Note: The open/closed action of 2NC and 2NO contacts will be different at the sametime. The operating parameters of the switch are measured in the vertical afterforce direction.

\*1. Only quick action type is supported;

\*2. Reference value;

\*3. 2NO no forced disengagement function;

\*4. Signal switching.

## 慢动型(1NC/1NO)

| 动作特性<br>Operating<br>Characteristics |             | C4N-□332N<br>C4N-□732N | C4N-□333N<br>C4N-□733N |
|--------------------------------------|-------------|------------------------|------------------------|
| 动作力                                  | OF(最大Max.)  | 15N                    | 15N                    |
| 释放力                                  | RF(最小Min.)  | 1.5N                   | 1.5N                   |
| 预行程                                  | PT1*4       | 1.7±0.3mm              | 1.7±0.3mm              |
|                                      | PT2*3       | 2.5±0.3mm              | 2.5±0.3mm              |
|                                      | PT1*1*4     | 2.2±0.3mm              | 2.2±0.3mm              |
|                                      | PT2*1*3     | 1±0.3mm                | 1±0.3mm                |
| 总行程*2                                | TT          | (6mm)                  | (6mm)                  |
| 动作位置*2                               | OP*3        | (30mm)                 | (30mm)                 |
|                                      | OP*1*4      | (30.3mm)               | (30.3mm)               |
| 强制断开行程                               | DOT(最小Min.) | 3.5mm                  | 3.5mm                  |
| 强制断开动作力                              | DOF(最小Min.) | 20N                    | 20N                    |

注: 开关动作参数特性在垂直加力方向测得。

\*1、仅支持 MBB 型；

\*2、为参考值；

\*3、NO 接通；

\*4、NC 断开。

Note: The operating parameters of the switch are measured in the vertical afterforce direction.

\*1. Only MBB type is supported;

\*2. Reference value;

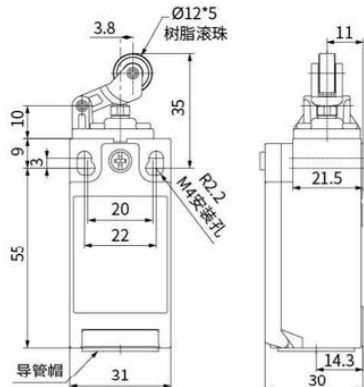
\*3. NO is connected;

\*4. NC is disconnected.

## 外观和尺寸 Appearance and Dimension

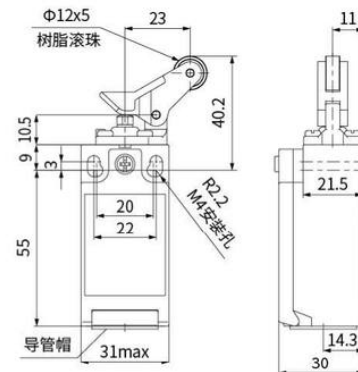
### C4N-□□15N

单侧悬臂滚珠型 (水平)  
Single side cantilever ball type (horizontal)



### C4N-□□16N

单侧悬臂滚珠型 (垂直)  
Single side cantilever ball type (vertical)



## 速动型(1NC/1NO), 慢动型(2NC/2NO)

| 动作特性<br>Operating Characteristics |              | C4N-□115N<br>C4N-□415N<br>C4N-□915N | C4N-□116N<br>C4N-□416N<br>C4N-□916N |
|-----------------------------------|--------------|-------------------------------------|-------------------------------------|
| 动作力                               | OF(最大Max.)*1 | 8N                                  | 8N                                  |
|                                   | OF(最大Max.)   | 10N                                 | 10N                                 |
| 释放力                               | RF(最小Min.)   | 1.5N                                | 1.5N                                |
| 预行程                               | PT           | 2±0.5mm                             | 2.4±0.5mm                           |
| 运动差异*1                            | MD           | 1±0.3mm                             | 1.2±0.3mm                           |
| 总行程*2                             | TT           | (8mm)                               | (8.5mm)                             |
| 动作位置*2*4                          | OP           | (32.5mm)                            | (42mm)                              |
| 强制断开行程*3                          | DOT(最小Min.)  | 5mm                                 | 5mm                                 |
| 强制断开力*3                           | DOF(最小Min.)  | 20N                                 | 20N                                 |

注: 2NC 和 2NO 的开路 / 闭路动作的同时性会有差异。  
15 头部结构开关的动作参数在垂直加力方向测得。  
16 头部结构开关的动作参数在水平加力方向测得。

- \*1、仅支持速动型；
- \*2、为参考值；
- \*3、2NO 无强制脱离功能；
- \*4、信号切换。

Note: The open/closed action of 2NC and 2NO contacts will be different at the sametime.  
The action parameters of the 15 head structure switch are measured in the vertical force direction.

The operating parameters of the 16-head structure switch are measured in the horizontal force application direction.

- \*1. Only quick action type is supported;
- \*2. Reference value;
- \*3. 2NO no forced disengagement function;
- \*4. Signal switching.

## 慢动型(1NC/1NO)

| 动作特性<br>Operating Characteristics |             | C4N-□315N<br>C4N-□715N | C4N-□316N<br>C4N-□716N |
|-----------------------------------|-------------|------------------------|------------------------|
| 动作力                               | OF(最大Max.)  | 10N                    | 10N                    |
| 释放力                               | RF(最小Min.)  | 1.5N                   | 1.5N                   |
| 预行程                               | PT1*4       | 2±0.5mm                | 2.4±0.5mm              |
|                                   | PT2*3       | 3.2±0.5mm              | 3.5±0.5mm              |
|                                   | PT1*1*4     | 2.8±0.5mm              | 3.2±0.5mm              |
|                                   | PT2*1*3     | 1.2±0.5mm              | 1.4±0.5mm              |
| 总行程*2                             | TT          | (8mm)                  | (8.5mm)                |
| 动作位置*2                            | OP*3        | (31.3mm)               | (42mm)                 |
|                                   | OP*1*4      | (31.7mm)               | (42.5mm)               |
| 强制断开行程                            | DOT(最小Min.) | 5mm                    | 5mm                    |
| 强制断开力                             | DOF(最小Min.) | 20N                    | 20N                    |

注: 开关动作参数特性在垂直加力方向测得。  
15 头部结构开关的动作参数在垂直加力方向测得。  
16 头部结构开关的动作参数在水平加力方向测得。

- \*1、仅支持 MBB 型；
- \*2、为参考值；
- \*3、NO 接通；
- \*4、NC 断开。

Note: The operating parameters of the switch are measured in the vertical afterforce direction.

The action parameters of the 15 head structure switch are measured in the vertical force direction.

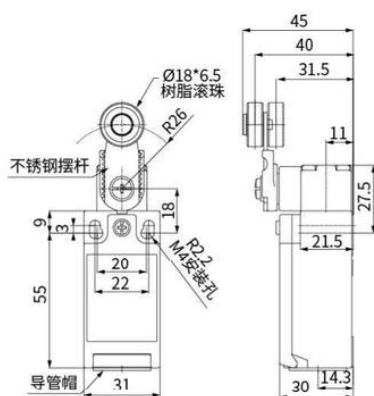
The operating parameters of the 16-head structure switch are measured in the horizontal force application direction.

- \*1. Only MBB type is supported;
- \*2. Reference value;
- \*3. NO is connected;
- \*4. NC is disconnected.

## 外观和尺寸 Appearance and Dimension

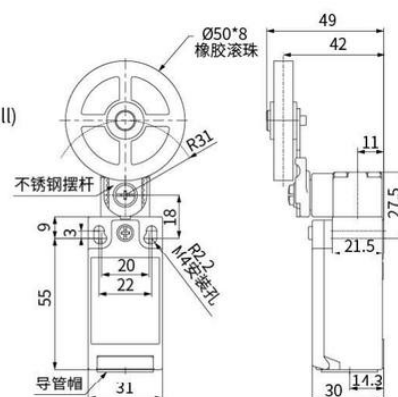
### C4N-□□04N

滚珠摆杆型  
(金属摆杆, 树脂滚珠)  
Ball swing rod type  
(metal swing rod, resin ball)



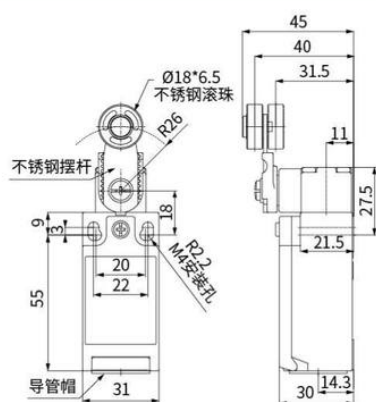
### C4N-□□04HN

滚珠摆杆型  
(金属摆杆, 橡胶滚珠)  
Ball swing rod  
(metal swing rod, rubber ball)



### C4N-□□05N

滚珠摆杆型  
(金属摆杆, 金属滚珠)  
Ball swing rod type  
(metal swing rod, metal ball)



## 速动型(1NC/1NO), 慢动型(2NC)(2NO)

| 动作特性<br>Operating<br>Characteristics |             | C4N-□104N<br>C4N-□404N<br>C4N-□904N | C4N-□104HN<br>C4N-□404HN<br>C4N-□904HN | C4N-□105N<br>C4N-□405N<br>C4N-□905N |
|--------------------------------------|-------------|-------------------------------------|----------------------------------------|-------------------------------------|
| 动作力                                  | OF(最大Max.)  | 8N                                  |                                        |                                     |
| 释放力                                  | RF(最小Min.)  | 0.5N                                |                                        |                                     |
| 预行程                                  | PT          | 25°±5°                              |                                        |                                     |
| 运动差异*1                               | MD          | 12°±2°                              |                                        |                                     |
| 总行程*2                                | TT          | (80°)                               |                                        |                                     |
| 强制断开行程*3                             | DOT(最小Min.) | 50°                                 |                                        |                                     |
| 强制断开力*3                              | DOF(最小Min.) | 20N                                 |                                        |                                     |

注: 2NC 和 2NO 的开路 / 闭路动作的同时性会有差异。

\*1、仅支持速动型;

\*2、为参考值;

\*3、2NO 无强制脱离功能。

Note: The open/closed action of 2NC and 2NO contacts will be different at the sametime.

\*1. Only quick action type is supported;

\*2. Reference value;

\*3. 2NO no forced disengagement function.

## 慢动型(1NC/1NO)

| 动作特性<br>Operating<br>Characteristics |             | C4N-□304N<br>C4N-□704N | C4N-□304HN<br>C4N-□704HN | C4N-□305N<br>C4N-□705N |
|--------------------------------------|-------------|------------------------|--------------------------|------------------------|
| 动作力                                  | OF(最大Max.)  | 8N                     |                          |                        |
| 释放力                                  | RF(最小Min.)  | 0.5N                   |                          |                        |
| 预行程                                  | PT1*4       | 25°±5°                 |                          |                        |
|                                      | PT2*3       | 40°±5°                 |                          |                        |
|                                      | PT1*1*4     | 35°±5°                 |                          |                        |
|                                      | PT2*1*3     | 20°±5°                 |                          |                        |
| 总行程*2                                | TT          | (80°)                  |                          |                        |
| 强制断开行程                               | DOT(最小Min.) | 50°                    |                          |                        |
| 强制断开力                                | DOF(最小Min.) | 20N                    |                          |                        |

\*1、仅支持 MBB 型;

\*2、为参考值;

\*3、NO 接通;

\*4、NC 断开。

\*1. Only MBB type is supported;

\*2. Reference value;

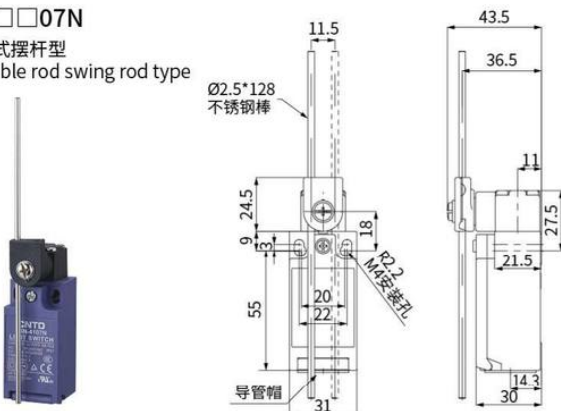
\*3. NO is connected;

\*4. NC is disconnected.

外观和尺寸 Appearance and Dimension

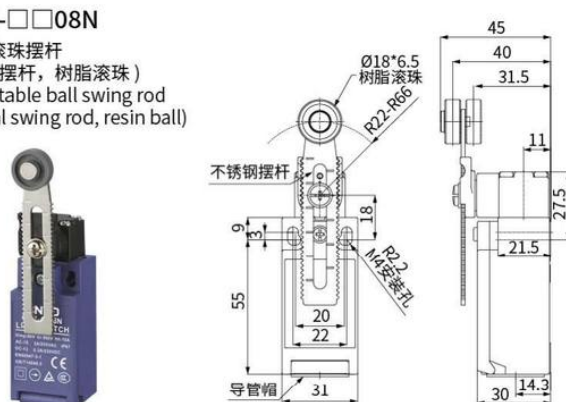
**C4N-□□07N**

可调棒式摆杆型  
Adjustable rod swing rod type



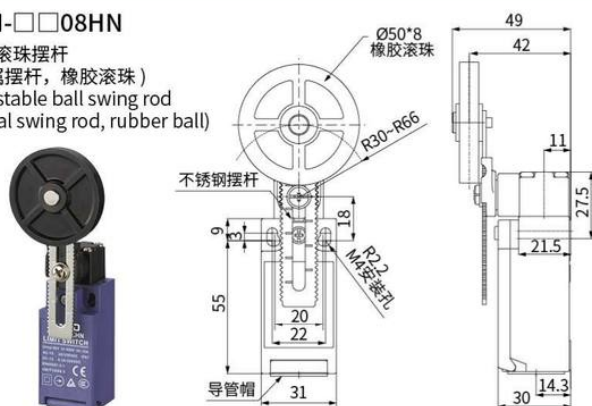
**C4N-□□08N**

可调滚珠摆杆  
(金属摆杆, 树脂滚珠)  
Adjustable ball swing rod  
(metal swing rod, resin ball)



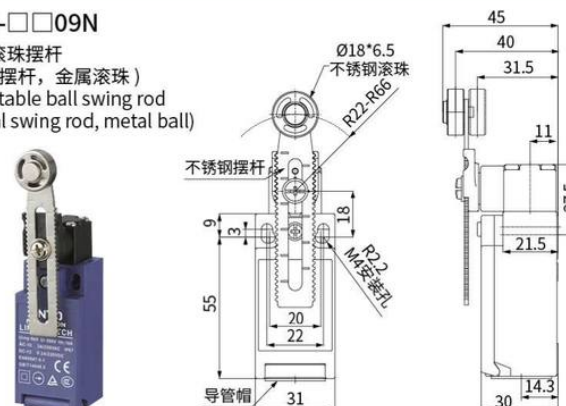
**C4N-□□08HN**

可调滚珠摆杆  
(金属摆杆, 橡胶滚珠)  
Adjustable ball swing rod  
(metal swing rod, rubber ball)



**C4N-□□09N**

可调滚珠摆杆  
(金属摆杆, 金属滚珠)  
Adjustable ball swing rod  
(metal swing rod, metal ball)



速动型(1NC/1NO), 慢动型(2NC/2NO)

| 动作特性<br>Operating<br>Characteristics | C4N-□□07N<br>C4N-□□07N<br>C4N-□□07N | C4N-□□08N<br>C4N-□□08N<br>C4N-□□08N | C4N-□□08HN<br>C4N-□□08HN<br>C4N-□□08HN | C4N-□□09N<br>C4N-□□09N<br>C4N-□□09N |
|--------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|-------------------------------------|
| 动作力                                  | OF(最大Max.)                          | 8N                                  |                                        |                                     |
| 释放力                                  | RF(最小Min.)                          | 0.5N                                |                                        |                                     |
| 预行程                                  | PT                                  | 25°±5°                              |                                        |                                     |
| 运动差异*1                               | MD                                  | 12°±2°                              |                                        |                                     |
| 总行程*2                                | TT                                  | (80°)                               |                                        |                                     |
| 强制断开行程*3                             | DOT(最小Min.)                         | 50°                                 |                                        |                                     |
| 强制断开力*3                              | DOF(最小Min.)                         | 20N                                 |                                        |                                     |

注: 2NC 和 2NO 的开路 / 闭路动作的同时性会有差异。  
开关动作参数特性在可调摆杆设定在 35mm 时测得。

\*1、仅支持速动型;

\*2、为参考值;

\*3、2NO 无强制脱离功能。

Note: The open/closed action of 2NC and 2NO contacts will be different at the sametime.  
The switch action parameter characteristics are measured when the adjustable pendulum rod is set at 35mm.

\*1. Only quick action type is supported;

\*2. Reference value;

\*3. 2NO no forced disengagement function.

慢动型(1NC/1NO)

| 动作特性<br>Operating<br>Characteristics | C4N-□□07N<br>C4N-□□07N<br>C4N-□□07N | C4N-□□08N<br>C4N-□□08N<br>C4N-□□08N | C4N-□□08HN<br>C4N-□□08HN<br>C4N-□□08HN | C4N-□□09N<br>C4N-□□09N<br>C4N-□□09N |
|--------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|-------------------------------------|
| 动作力                                  | OF(最大Max.)                          | 8N                                  |                                        |                                     |
| 释放力                                  | RF(最小Min.)                          | 0.5N                                |                                        |                                     |
| 预行程                                  | PT1*4                               | 25°±5°                              |                                        |                                     |
|                                      | PT2*3                               | 40°±5°                              |                                        |                                     |
|                                      | PT1*1*4                             | 35°±5°                              |                                        |                                     |
|                                      | PT2*1*3                             | 20°±5°                              |                                        |                                     |
| 总行程*2                                | TT                                  | (80°)                               |                                        |                                     |
| 强制断开行程                               | DOT(最小Min.)                         | 50°                                 |                                        |                                     |
| 强制断开力                                | DOF(最小Min.)                         | 20N                                 |                                        |                                     |

注: 开关动作参数特性在可调摆杆设定在 35mm 时测得。

\*1、仅支持 MBB 型;

\*2、为参考值;

\*3、NO 接通;

\*4、NC 断开。

Note: The switch action parameter characteristics are measured when the adjustable pendulum rod is set at 35mm.

\*1. Only MBB type is supported;

\*2. Reference value;

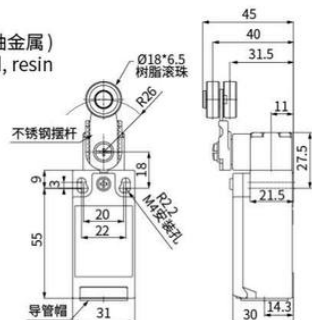
\*3. NO is connected;

\*4. NC is disconnected.

## 外观和尺寸 Appearance and Dimension

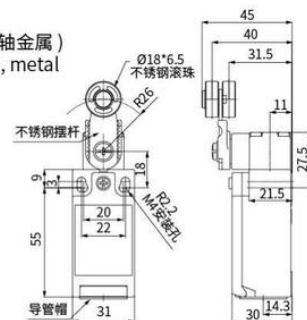
### C4N-□□04TN

滚珠摆杆型 (金属摆杆, 树脂滚珠, 转轴金属)  
Ball swing rod type (metal swing rod, resin ball, shaft metal)



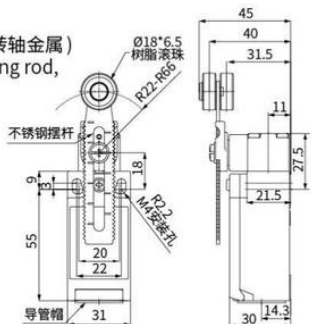
### C4N-□□05TN

滚珠摆杆型 (金属摆杆, 金属滚珠, 转轴金属)  
Ball swing rod type (metal swing rod, metal ball, shaft metal)



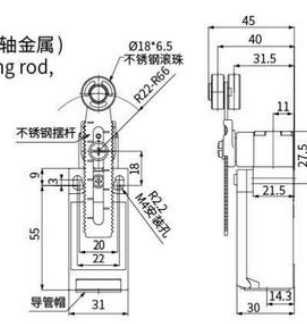
### C4N-□□08TN

可调滚珠摆杆 (金属摆杆, 树脂滚珠, 转轴金属)  
Adjustable ball swing rod (metal swing rod, resin ball, shaft metal)



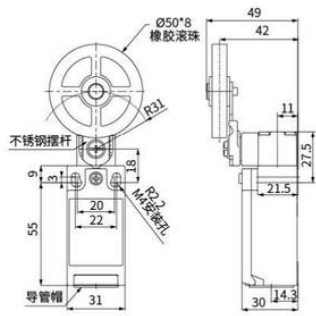
### C4N-□□09TN

可调滚珠摆杆 (金属摆杆, 金属滚珠, 转轴金属)  
Adjustable ball swing rod (metal swing rod, metal ball, shaft metal)



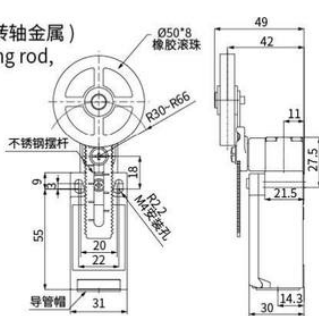
### C4N-□□04HTN

滚珠摆杆型 (金属摆杆, 橡胶滚珠, 转轴金属)  
Ball swing rod (metal swing rod, rubber ball, shaft metal)



### C4N-□□08HTN

可调滚珠摆杆 (金属摆杆, 橡胶滚珠, 转轴金属)  
Adjustable ball swing rod (metal swing rod, rubber ball, shaft metal)



## 速动型(1NC/1NO), 慢动型(2NC/2NO)

| 动作特性<br>Operating Characteristics | C4N-□104TN<br>C4N-□404TN<br>C4N-□904TN | C4N-□105TN<br>C4N-□405TN<br>C4N-□905TN | C4N-□108TN<br>C4N-□408TN<br>C4N-□908TN | C4N-□109TN<br>C4N-□409TN<br>C4N-□909TN | C4N-□104HTN<br>C4N-□404HTN<br>C4N-□904HTN | C4N-□108HTN<br>C4N-□408HTN<br>C4N-□908HTN |
|-----------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|-------------------------------------------|-------------------------------------------|
| 动作力                               | OF(最大Max.)                             |                                        |                                        | 8N                                     |                                           |                                           |
| 释放力                               | RF(最小Min.)                             |                                        |                                        | 0.5N                                   |                                           |                                           |
| 预行程                               | PT                                     |                                        |                                        | 25°±5°                                 |                                           |                                           |
| 运动差异*1                            | MD                                     |                                        |                                        | 12°±2°                                 |                                           |                                           |
| 总行程*2                             | TT                                     |                                        |                                        | (80°)                                  |                                           |                                           |
| 强制断开行程*3                          | DOT(最小Min.)                            |                                        |                                        | 50°                                    |                                           |                                           |
| 强制断开力*3                           | DOF(最小Min.)                            |                                        |                                        | 20N                                    |                                           |                                           |

注: 2NC 和 2NO 的开路 / 闭路动作的同时性会有差异。  
开关动作参数特性在可调摆杆设定在 35mm 时测得。

- \*1、仅支持速动型;
- \*2、为参考值;
- \*3、2NO 无强制脱离功能。

Note: The open/closed action of 2NC and 2NO contacts will be different at the sametime.  
The switch action parameter characteristics are measured when the adjustable pendulum rod is set at 35mm.

- \*1. Only quick action type is supported;
- \*2. Reference value;
- \*3. 2NO no forced disengagement function.

## 慢动型(1NC/1NO)

| 动作特性<br>Operating Characteristics | C4N-□104TN<br>C4N-□404TN<br>C4N-□904TN | C4N-□105TN<br>C4N-□405TN<br>C4N-□905TN | C4N-□108TN<br>C4N-□408TN<br>C4N-□908TN | C4N-□109TN<br>C4N-□409TN<br>C4N-□909TN | C4N-□104HTN<br>C4N-□404HTN<br>C4N-□904HTN | C4N-□108HTN<br>C4N-□408HTN<br>C4N-□908HTN |
|-----------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|----------------------------------------|-------------------------------------------|-------------------------------------------|
| 动作力                               | OF(最大Max.)                             |                                        |                                        | 8N                                     |                                           |                                           |
| 释放力                               | RF(最小Min.)                             |                                        |                                        | 0.5N                                   |                                           |                                           |
| 预行程                               | PT1*4                                  |                                        |                                        | 25°±5°                                 |                                           |                                           |
|                                   | PT2*3                                  |                                        |                                        | 40°±5°                                 |                                           |                                           |
|                                   | PT1*1*4                                |                                        |                                        | 35°±5°                                 |                                           |                                           |
|                                   | PT2*1*3                                |                                        |                                        | 20°±5°                                 |                                           |                                           |
| 总行程*2                             | TT                                     |                                        |                                        | (80°)                                  |                                           |                                           |
| 强制断开行程                            | DOT(最小Min.)                            |                                        |                                        | 50°                                    |                                           |                                           |
| 强制断开力                             | DOF(最小Min.)                            |                                        |                                        | 20N                                    |                                           |                                           |

注: 开关动作参数特性在可调摆杆设定在 35mm 时测得。

- \*1、仅支持 MBB 型;
- \*2、为参考值;
- \*3、NO 接通;
- \*4、NC 断开。

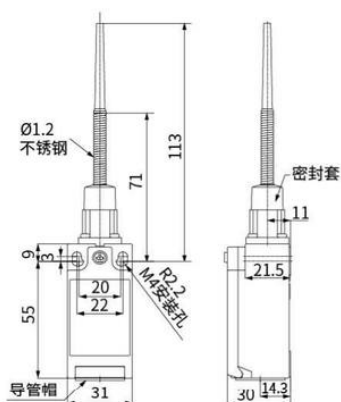
Note: The switch action parameter characteristics are measured when the adjustable pendulum rod is set at 35mm.

- \*1. Only MBB type is supported;
- \*2. Reference value;
- \*3. NO is connected;
- \*4. NC is disconnected.

外观和尺寸 Appearance and Dimension

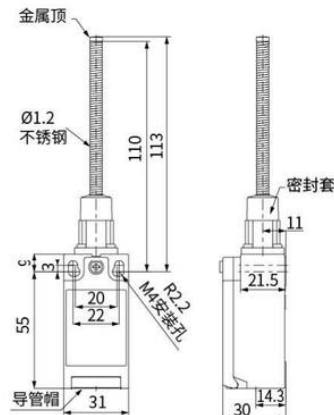
**C4N-□□66N**

塑料棒型  
Plastic rod type



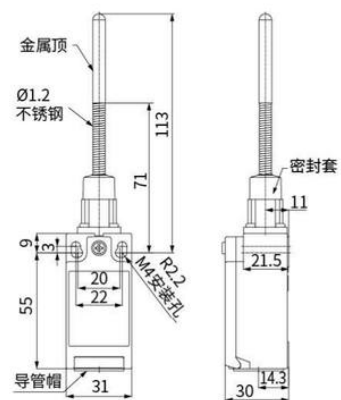
**C4N-□□67N**

盘簧型  
Coil spring type



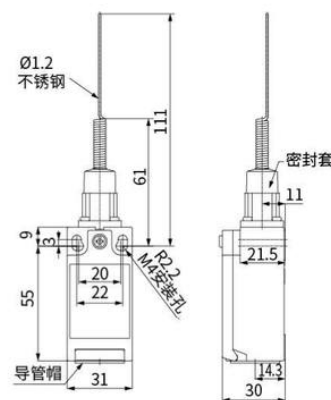
**C4N-□□68N**

金属杆盘簧型  
Metal rod coil spring type



**C4N-□□69N**

触须型  
Tentacle type



速动型(1NC/1NO), 慢动型(2NC)(2NO)

| 动作特性<br>Operating<br>Characteristics |            | C4N-□166N<br>C4N-□466N<br>C4N-□966N | C4N-□167N<br>C4N-□467N<br>C4N-□967N | C4N-□168N<br>C4N-□468N<br>C4N-□968N | C4N-□169N<br>C4N-□469N<br>C4N-□969N |
|--------------------------------------|------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 动作力                                  | OF(最大Max.) | 3N                                  | 3N                                  | 3N                                  | 8N                                  |
| 释放力                                  | RF(最小Min.) | 0.5N                                | 0.5N                                | 0.5N                                | 0.5N                                |
| 预行程                                  | PT         | 15°±5°                              | 15°±5°                              | 15°±5°                              | 15°±5°                              |

注: 2NC 和 2NO 的开路 / 闭路动作的同时性会有差异。  
开关动作参数特性在头弹簧 2/3 处测得 (头弹簧无弯曲)。

Note: The open/closed action of 2NC and 2NO contacts will be different at the sametime.

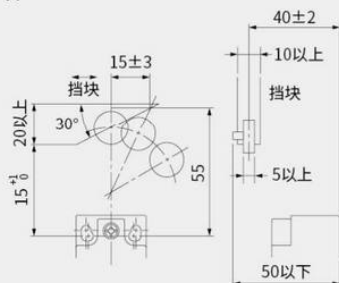
The switch action parameter characteristics are measured at 2/3 of the head spring (the head spring is not bent);

## 摆杆 Appearance and Dimension

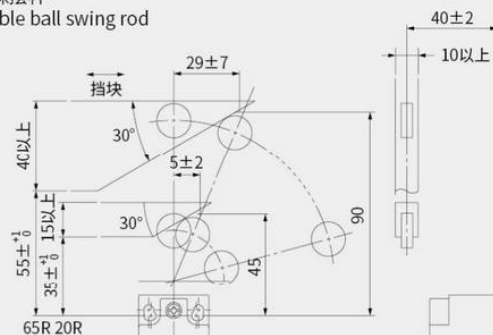
挡块的角度、位置请参见下图 (来源: EN50047) :

Please refer to the following figure for the Angle and position of the block (source: EN50047) :

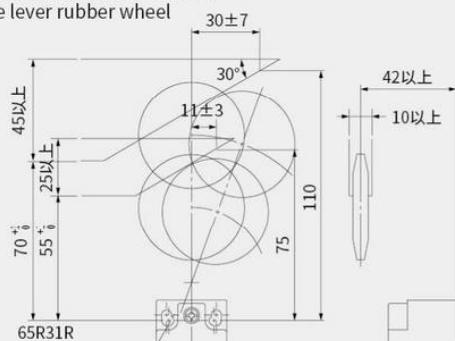
滚珠摆杆型  
Ball swing rod type



可调滚珠摆杆  
Adjustable ball swing rod



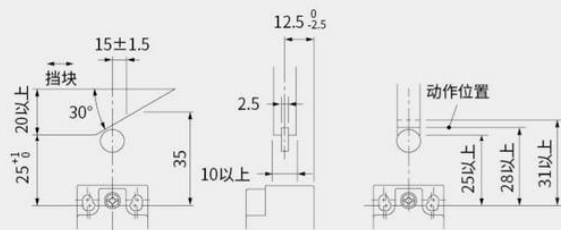
可调滚珠摆杆橡胶轮 (C4N-□□08H)  
Adjustable lever rubber wheel



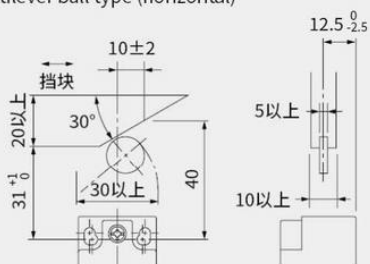
顶部柱塞型  
Top plunger type



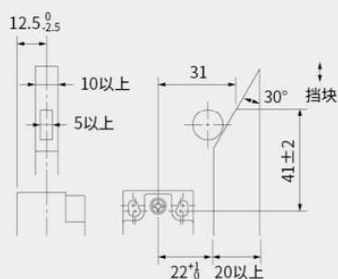
顶部柱塞横滚珠型  
Top plunger horizontal ball type



单侧悬臂滚珠型 (水平)  
Single side cantilever ball type (horizontal)



单侧悬臂滚珠型 (垂直)  
Single side cantilever ball type (vertical)



## 安全注意事项 Safety Precautions

请避免在油渍或积水环境中使用本开关，因为这可能导致油或水渗入开关内部，损害其功能。虽然本开关具有 IP67 防护级别，但长时间置于水中仍可能导致渗水。

在接线工作完成并准备使用开关之前，确保外壳已经正确安装到位。切勿在外壳未封闭的状态下启动开关，以避免触电风险。

不建议同时控制两个或以上的标准负载电路（AC250V, 3A），因为这样可能会削弱开关的绝缘性能。

确保传动杆已经推至完全锁定的位置，未锁定可能导致传动杆脱落或其他安全问题。

使用完毕后，请务必手动对开关进行复位操作，避免损坏复位机制。

Avoid using this switch in environments with oil spills or standing water, as it could lead to oil or water infiltration inside the switch, compromising its functionality. Despite having an IP67 rating, prolonged submersion in water may still result in water ingress.

Before using the switch after completing the wiring, ensure the outer casing is correctly installed. Do not activate the switch when its cover is not properly closed to prevent the risk of electric shock.

It is not advisable to simultaneously control two or more standard load circuits (AC250V, 3A), as it might weaken the insulation properties of the switch.

Make sure the drive rod is fully locked into position, as failing to do so could result in detachment of the rod or other safety hazards.

Always manually reset the switch after use to avoid damaging its reset mechanism.

## 安装方式 Installation Method

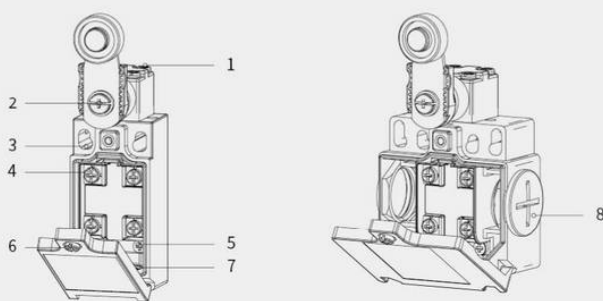
正确的紧固转矩

请按照正确转矩对螺钉进行紧固。螺钉松动可能导致开关早期故障

Correct tightening torque

Please tighten the screws according to the correct torque. Loose screws may cause early switch failure

| 编号<br>Number | 类型<br>Types of                         | 正确紧固转矩<br>Correct tightening torque |
|--------------|----------------------------------------|-------------------------------------|
| 1            | 头部安装螺钉 Head mounting screws            | 0.5~0.7N.m(ST2.9)/0.3~0.5N.m(ST2.5) |
| 2            | 摆杆安装螺钉 Swing rod installation screw    | 1.2~1.4N.m                          |
| 3            | 本体安装螺钉 Body mounting screws            | 0.5~0.7N.m                          |
| 4            | 端子螺钉 Terminal screw                    | 0.5~0.6N.m                          |
| 5            | 触点模块安装螺钉 Contact module mounting screw | 0.5~0.7N.m                          |
| 6            | 外盖安装螺钉 Outer cover installation screws | 0.5~0.6N.m                          |
| 7            | 连接器，M12 转接器 Connector, M12 adapter     | 1.8~2.2N.m                          |
| 8            | 螺钉帽 Screw cap                          | 1.3~1.7N.m                          |



## 适用导线 Applicable Conductor

| 电线名称<br>Wire name                                                             | 推荐使用电线 Wire is recommended          |                         |                      |
|-------------------------------------------------------------------------------|-------------------------------------|-------------------------|----------------------|
|                                                                               | 线芯数<br>Number of cores              | 导体<br>Conductor         | 成品外径<br>Nom OD       |
| 塑料橡皮绝缘软电线<br>Plastic rubber insulated flexible wire                           | 2芯 2-core<br>3芯 3-core<br>4芯 4-core | 0.5~0.75mm <sup>2</sup> | 圆形 Circular<br>φ6~φ9 |
| 600V 塑料绝缘<br>塑料外皮电缆(VVF)<br>600V plastic insulation<br>Plastic sheathed cable | 2芯 2-core                           | φ1/φ1.2/φ1.6            |                      |

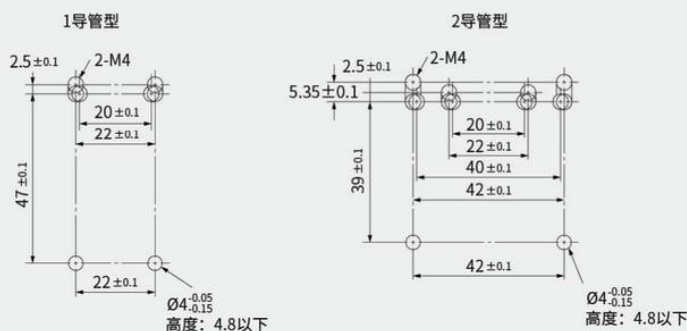
若电线含有硅油，可能会导致接触不良。为确保电气设备的正常运行，请避免使用含硅油的产品。

The presence of silicone oil in wire may result in inadequate contact. To ensure the proper functioning of electrical equipment, please refrain from using products containing silicone oil.

## 开关安装 Switch installation

当安装开关时, 请使用 M4 尺寸的螺钉和弹簧垫圈, 并按照推荐的扭矩值紧固螺钉。为了确保安全, 建议使用难以松动的螺钉或采取其他等效的安全措施, 以保证开关的稳固和可靠。此外, 您也可以使用两个高度不超过 4.8mm、直径为 4mm 的螺栓, 插入开关底部的孔中, 采用四点固定方式来实现更加稳固的安装。

When mounting the switch, use M4 screws with spring washers and tighten them to the recommended torque. For safety, it's advisable to use screws that are not easily loosened or implement equivalent safety measures to ensure the switch's secure and reliable installation. Additionally, you can use two bolts, each less than 4.8mm in height and 4mm in diameter, inserted into the holes at the bottom of the switch for a more secure four-point installation.



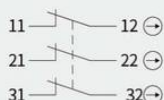
## 接点排列 Contact arrangement

接点排列如下图所示。

The arrangement of contacts is shown in the following figure.

### 螺钉式端子型 Screw terminal type

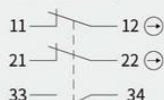
C4N-□6□□ (3NC)



C4N-□4□□ (2NC)  
C4N-□2□□ (2NC 速动型)



C4N-□5□□ (2NC/1NO)  
C4N-□8□□ (2NC/1NO MBB)



C4N-□3□□ (1NC/1NO)  
C4N-□7□□ (1NC/1NO MBB)



C4N-□1□□ (1NC/1NO 速动)

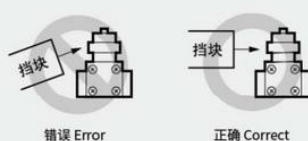


确保挡块以正确角度接触传动杆。

如果斜向地向开关的传动杆(滚珠)施加负载, 会导致传动杆及运转轴的变形、折损。

Ensure that the stop contacts the transmission rod at the correct angle.

If a load is applied diagonally to the transmission rod (ball) of the switch, it will cause deformation and damage to the transmission rod and operating shaft.



## 接线 Wire

请在断电状态下进行开关接线操作，通电状态下接线可能会造成触电危险。

接线时务必注意，不要让导线的细小碎片或其他微粒进入开关内部。

使用绝缘管和 M3.5 压接端子连接时，按照图示正确放置压接端子，避免压迫到外壳或外盖。适用的导线尺寸为 AWG20 至 AWG18 或 0.5 至 0.75mm<sup>2</sup>。

选用适当长度的导线以确保外盖平整关闭且牢固。切勿将压接端子塞进外壳缝隙，这可能导致外壳损坏或变形。

为防止端子与开关外壳内部接触，使用厚度不超过 0.5mm 的端子。

Always wire the switch with the power off to avoid the risk of electric shock.

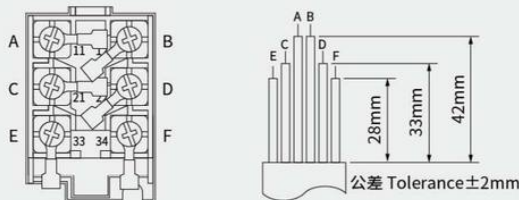
Ensure no small wire fragments or particles enter the switch during wiring.

When connecting with an insulated tube and M3.5 crimp terminals, position the terminals as shown in the diagram to avoid pressing against the casing or cover. The suitable wire size is AWG20 to AWG18 or 0.5 to 0.75mm<sup>2</sup>.

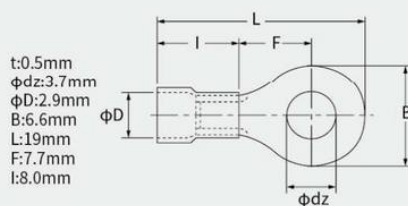
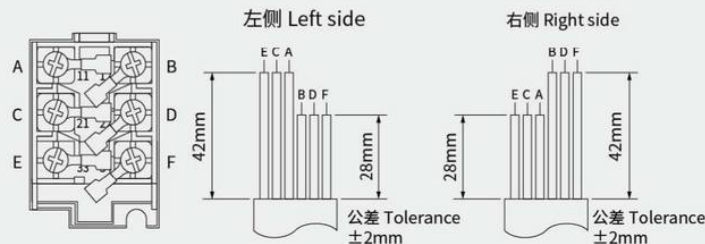
Use wires of appropriate length to ensure the cover closes smoothly and securely. Do not stuff the crimp terminals into gaps in the casing, as this may cause damage or deformation.

To prevent contact between the terminals and the interior of the switch housing, use terminals with a thickness of no more than 0.5mm.

1 导管型 (3 极) 1 Conduit type (3 poles)



2 导管型 (3 极) 2 Conduit type (3 poles)



## 调整摆杆位置 Adjusting Swing Rod Position

通过在摆杆上安装螺钉，摆杆的位置可以在 360° 范围内以 7.5° 为单位进行精确设定。摆杆和旋转轴上的凹槽设计可以有效地防止摆杆从旋转轴上滑落。此外，通过松开螺钉，还可以调整可调式滚珠摆杆型的摆杆长度。

在将摆杆进行正反向（正 / 反）安装时，应先卸下摆杆正面的螺钉，这样可以确保在操作过程中摆杆的活动范围不会超过水平 180°。

## 导管接口 Conduit Interface

请使用建议的连接器和适当的扭矩进行安装。使用过大的扭矩可能会导致外壳损坏。同时，请确保使用与连接器相匹配外径的电缆。

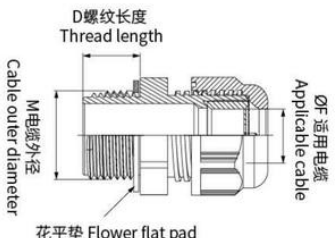
在接线过程中，对于未使用的导管口，请装上并紧固导管盖。确保按照推荐的扭矩值紧固导管盖。本开关配备有导管盖（适用于双导管型）。

Please install using the recommended connectors and appropriate torque to avoid damaging the casing due to excessive torque. Also, ensure that the cable used matches the outer diameter requirements of the connector.

During wiring, for any unused conduit openings, fit and tighten the conduit caps. The caps should be tightened to the specified torque. This switch is equipped with conduit caps, suitable for models with two conduit interfaces.

连接器 Connector

为了符合 IP67 标准，请使用推荐的连接器  
To comply with the IP67 standard, please use the recommended connector

| 连接器图片<br>Connector picture                                                                                                                              |                                  |                           |                                               | 连接器尺寸<br>Connector size                                                                                                                                                         |                   |                        |                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------|---------------------------------------|
|  <div>M16*1.5-07      M18*1.5-07      M20*1.5-07      M20*1.5-09</div> |                                  |                           |                                               |  <div>D 螺纹长度<br/>Thread length<br/>F 适用电缆<br/>Applicable cable<br/>花平垫 Flower flat pad</div> |                   |                        |                                       |
| 连接器型号<br>Connector model                                                                                                                                | 螺纹规格 M<br>Thread specification M | 螺纹长度 D<br>Thread length D | 适用电缆外径 F<br>Applicable cable outer diameter F | 连接器防护等级<br>Connector protection grade                                                                                                                                           | 温度<br>Temperature | 密封垫类型<br>Gasket type   | 颜色<br>Color                           |
| M20*1.5-07                                                                                                                                              | M20*1.5                          | 10mm                      | Ø4-7mm                                        | IP67                                                                                                                                                                            | -25~80℃           | 花平垫<br>Flower flat pad | 灰色 / 黑色可选<br>Grey / Black<br>Optional |
| M20*1.5-09                                                                                                                                              | M20*1.5                          | 10mm                      | Ø5-9mm                                        | IP67                                                                                                                                                                            |                   | 花平垫<br>Flower flat pad |                                       |
| M18*1.5-07                                                                                                                                              | M18*1.5                          | 10mm                      | Ø4-7mm                                        | IP67                                                                                                                                                                            |                   | 花平垫<br>Flower flat pad |                                       |
| M16*1.5-07                                                                                                                                              | M18*1.5                          | 10mm                      | Ø4-7mm                                        | IP67                                                                                                                                                                            |                   | 花平垫<br>Flower flat pad |                                       |

C4N- □ N 系列产品，常规导管螺纹默认为 M20\*1.5，请使用建议的连接器和密封垫，并按照正确的扭矩进行固定。同时，请使用与连接器相匹配外径的电缆。建议使用的连接器螺纹长度不长于 10mm，否则螺纹会在开关盒内凸起或连接器按装不紧，从而干扰其他元件及防护等级，需其他导管螺纹的产品定制生产，同时需匹配相对应的连接器。

For the C4N- □ N series products, the default standard conduit thread is M20\*1.5. Please use the recommended connectors and gaskets and fix them according to the correct torque. At the same time, please use a cable with an outer diameter that matches the connector. It is recommended that the thread length of the connector used should not exceed 10mm; otherwise, the thread may protrude inside the switch box or the connector may not be installed tightly, thereby interfering with other components and the protection level. For products that require other conduit threads, customized production is necessary, and corresponding connectors should also be matched.

微小负载型的使用 Applications Under Minimal Load

开关接点可用于一般负载或微小负载。但是，已经连接过一般负载的接点，就不能用于连接更小容量的负载。否则，可能导致接触面的糙化，而且可能失去接触可靠性。

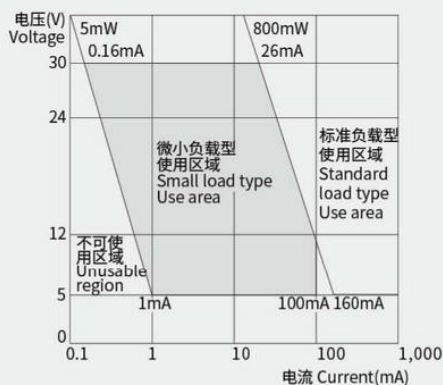
如果在开关微小负载电路时使用一般负载用开关，可能会引起接触不良。下图为开关负载区域范围定义。本目录册内产品适用于 DC24V 10mA 以上范围，当使用负载小于 DC24V 10mA 以下时，可能存在由于电流过小无法击破触点表面氧化膜或硫化膜的现象，从而导致开关接触不良。所以当使用负载小于 DC24V 10mA 以下时，请咨询昌得电气科技有限公司进行产品定制。

请设置 CR 电路等吸收电路，防止震荡和抖动所导致的噪声和脉冲缺失，对于开关时会产生冲击电流的负载，请插入接点保护电路，以免导致耐久性降低。

Switch contacts can be used for general loads or small loads. However, contacts that have already been connected to general loads cannot be used to connect smaller capacity loads. Otherwise, it may lead to roughness of the contact surface and loss of contact reliability.

If a general load switch is used when switching a small load circuit, poor contact may be caused. The following diagram shows the switching load area range definition. The products in this catalog are suitable for DC24V 10mA or above. When the load is less than DC24V 10mA or below, the oxidized film or vulcanized film on the contact surface may be unable to be broken due to too small current, resulting in poor switch contact. Therefore, when the load is less than DC24V 10mA, please consult CNTD Electrical Technology Co., Ltd. for product customization.

Please set the absorption circuit such as CR circuit to prevent noise and pulse loss caused by shock and jitter, for the load that will produce impulse current on the switch, please insert the contact protection circuit to avoid reducing durability.



### 使用注意事项 Using Precautions

本公司产品是作为工业产品而设计生产，严格遵守工业产品标准。我司明确声明，除非经过特殊设计并得到我司明确书面确认，我司产品不适用于以下应用场合：

- 要求极高可靠性的应用场合，包括核能、燃气、电力等要求长期稳定运行的系统。
- 要求极高安全性的应用场合，涉及人身安全与财产的情况。
- 苛刻条件、严酷环境的应用场合，包括室外、存在化学污染、电磁、振动或冲击影响的环境。
- 有火灾或爆炸风险的应用场合，包括存在易燃易爆性气体、强酸强碱化学品等物质的环境。
- 涉及军工用途、航天航空项目的应用场合。

The company's products are designed and produced as industrial products, in strict compliance with industrial product standards. We expressly declare that, unless specifically designed and expressly confirmed by us in writing, our products are not intended for the following applications:

- Applications that require high reliability, including nuclear, gas, electric and other systems that require long-term stable operation.
- Applications requiring very high security, situations involving personal safety and property.
- Applications in harsh conditions, harsh environments, including outdoor, chemical contamination, electromagnetic, vibration or shock effects.
- Applications where there is a risk of fire or explosion, including environments where flammable and explosive gases, strong acids and alkali chemicals are present.
- Applications involving military use and aerospace projects.