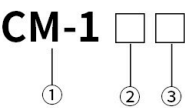




- 特点 Features
- 高精度，广泛操作速度范围，高开闭容量(15A)
 - 引动器种类广泛，且有动作位置可调整之设计 (如CM-1701)
 - High accuracy,Wide range of operation speed,High switch on and off capacity(15A)
 - Virous of actuators, action position is adjustable(such as CM-1701)



选型说明 Model Designation



序号 No	项目 Item	代号 Code	说明 Description
①	系列号 Serial number	CM-1	标准型 Standard type
②	头部结构 Head structure	701	长压板型 Long platen type
		702	短压板型 Short platen type
		703	滚轮压板型 Roller pressing plate type
		703M	金属滚轮压板型 Metal roller pressing plate type
		704	滚轮短压板型 Roller short pressing plate type
		704M	金属滚轮短压板型 Metal roller short pressing plate type
		705	小型线型压板型 Small linear pressing plate type
		706	带弯曲摆杆型 Type with curved swing bar
		306	弹簧短柱塞型 Spring short plunger type
		307	面板安装柱塞型 Panel mounted plunger type
		308	面板安装滚轮柱塞型 Panel mounting roller plunger type
		309	面板安装横向滚轮柱塞型 Panel mounted lateral roller plunger type
		308X	小竖轮柱塞型 Small vertical wheel plunger type
		713	大塑胶滚轮长压板型 Large plastic roller long pressing plate type
		743	单向动作滚轮短压板型 One way action roller short pressing plate type
		743M	单向动作金属滚轮短压板型 One way action metal roller short pressing plate type

②	头部结构 Head structure	300	针状柱塞型 Needle plunger type
		301	板簧型 Leaf spring type
		303	滚轮板簧型 Roller leaf spring type
		303M	金属滚轮板簧型 Metal roller leaf spring type
		305	弹簧细柱塞型 Spring thin plunger type
③	外壳材质 Shell material	无 None	酚醛模塑料 Phenolic molding compound

国际认证规格 International Certification Specifications

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

安全规格认证额定值 Safety Specification Certification Rating

CCC (GB14048.5), TUV (EN 60947-5-1)

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

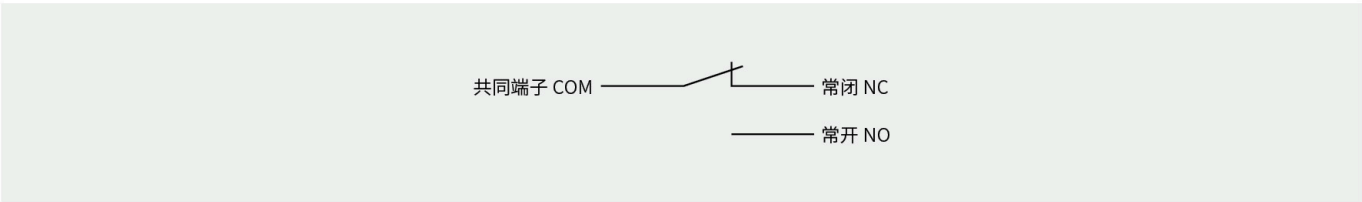
UL(UL508、CSA C22.2 No.14)

类型与额定值 Type and Rating
AC 15A/250V

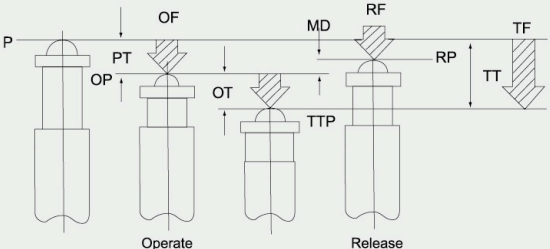
额定值 Ratings

额定电压 Rated Voltage	非电感性负载 Noninductive Load (A)				电感性负载 Inductive Load (A)				突入电流 (A) Inrush Current	
	电阻性负载 Resistance Load		灯泡负载 Lamp Load		电感性负载 Inductive Load		马达负载 Motor Load		NC	NO
	NC	NO	NC	NO	NC	NO	NC	NO		
125VAC	15		3	1.5	15		5	2.5	30 以下 max.	15 以下 max.
250VAC	15		2.5	1.25	15		3	1.5		
500VAC	3		1.5	0.75	2.5		1.5	0.75		
8VDC	15		3	1.5	15		5	2.5		
14VDC	15		3	1.5	10		5	2.5		
30VDC	6(2)		3	1.5	5		5	2.5		
125VDC	0.4		0.4	0.4	0.05		0.05	0.05		
250VDC	0.2		0.2	0.2	0.03		0.03	0.03		

接点型式 Contact Form



动作特性 Operating Characteristics



OF: 动作力

RF: 回复力

TF: 总行程动作力

FP: 自由位置

OP: 动作位置

RP: 返回位置

TTP: 总行程位置

PT: 预行程位置

OT: 过行程

MD: 响应差的行程

TT: 总行程

OF: Operating Force

RF: Releasing Force

TF: Total Force

FP: Free Position

OP: Operating Position

RP: Releasing Position

TTP: Total Tavel Position

PT: Pre Travel

OT: Over Travel

MD: Movement Differential

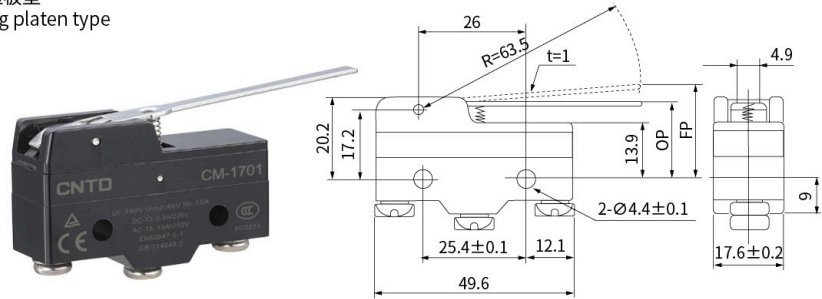
TT: Total Tavel

特性 Characteristics

操作速度 Operation speed	0.05mm/s-1m/s (plunger type)
动作频率 Operating frequency	电气:20次/分 Electical: 20 operations/min.
接点电阻 Contact resistance	25mΩ 以下 (初期) 25mΩ max. (initial value)
绝缘电阻 Insulation resistance	100MΩ 以上 (在 500VDC 以下) 100MΩ min. (at 500VDC)
最小使用负载 Minimum working load	DC24V 10mA 以上 Min DC24V 10mA
额定绝缘电压UI Rated insulation voltage	380V
额定冲击耐受电压Uimp Rated impulse withstand voltage	4kV
约定自由空气发热电流Ith Convention free air heating current	15A
电介强度 Dielectric strength	非连续端子间1,000VAC, 50/60Hz持续1分钟 1000VAC, 50/60 Hz for 1 minute between terminals of the same polarity
	载电流与无载电流零件间1,500VAC, 50/60Hz持续1分钟 1500VAC, 50/60 HZ for 1 minute between current-carrying and non-current-carrying metal parts
	端子和接地之间1,500VAC, 50/60Hz持续1分钟 1500VAC, 50/60 HZ for 1 minute between each terminal and ground
振动 Vibration	(*10至20Hz): 1.5mm 变振幅动作耐久: 10至55Hz (*10 to 20Hz): 1.5 Vibration amplitude action duration: 10 to 55Hz
冲击 Shock	机械耐久 :1,000m/Sec ² (约 100G' S) 误动作耐久 :300m/Sec ² (约 30G' S) Mechanical durable: 1,000m/Sec ² (about 100G' S) Malfunction: 300m/Sec ² (about 30G' S)
周围温度 Ambient temperature	使用时: -20~+80℃ (没有结冰) Using: -20~+80℃ (With no icing)
湿度 Humidity	General type: 85%RH maximum; separately specified sealed type: 95%RH maximum.
电气寿命 Electrical life	300,000次以上 (AC 250V/15A纯阻性负载) 300,000 operations above (AC 250V/15A pure resistive load)

外观和尺寸 Appearance and Dimension

CM-1701
长压板型
Long platen type

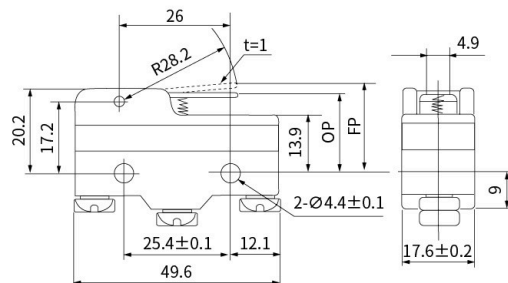


动作特性 Operating Characteristics	CM-1701
操作力 OF (最大Max.)	0.7N
回弹力 RF (最小Min.)	0.14N
预行程 PT (最大Max.)	10mm
过行程 OT (最小Min.)	5.6mm
行程移动分辨率 MD (最大Max.)	1.27mm
FP最大 (Max.)	28.2mm
动作位置 OP(mm.)	19±0.8

外观和尺寸 Appearance and Dimension

CM-1702

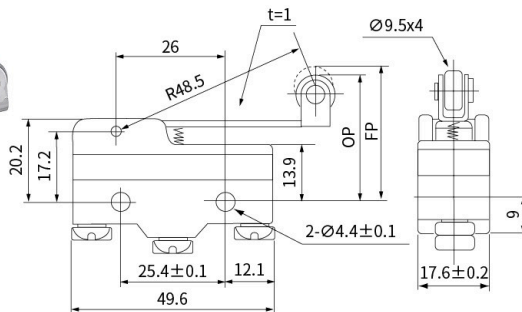
短压板型
Short platen type



动作特性 Operating Characteristics	CM-1702
操作力 OF (最大Max.)	1.6N
回弹力 RF (最小Min.)	0.28N
预行程 PT (最大Max.)	5mm
过行程 OT (最小Min.)	2mm
行程移动分辨率 MD (最大Max.)	1mm
FP最大 (Max.)	24.8mm
动作位置 OP(mm.)	19±0.4

CM-1703

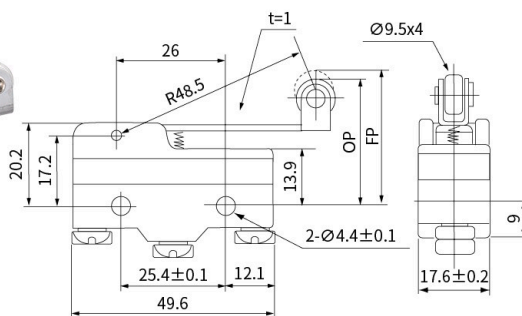
滚轮压板型
Roller pressing plate type



动作特性 Operating Characteristics	CM-1703
操作力 OF (最大Max.)	1N
回弹力 RF (最小Min.)	0.22N
预行程 PT (最大Max.)	7.1mm
过行程 OT (最小Min.)	4mm
行程移动分辨率 MD (最大Max.)	1.02mm
FP最大 (Max.)	36.5mm
动作位置 OP(mm.)	30.2±0.8

CM-1703M

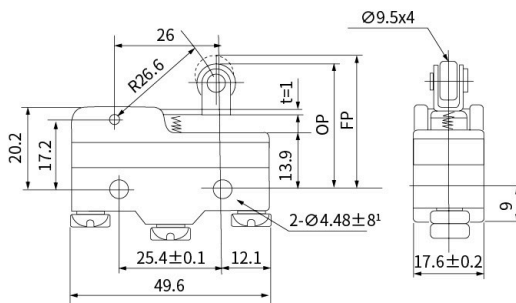
金属滚轮压板型
Metal roller pressing plate type



动作特性 Operating Characteristics	CM-1703M
操作力 OF (最大Max.)	1N
回弹力 RF (最小Min.)	0.22N
预行程 PT (最大Max.)	7.1mm
过行程 OT (最小Min.)	4mm
行程移动分辨率 MD (最大Max.)	1.02mm
FP最大 (Max.)	36.5mm
动作位置 OP(mm.)	30.2±0.8

CM-1704

滚轮短压板型
Roller short pressing plate type

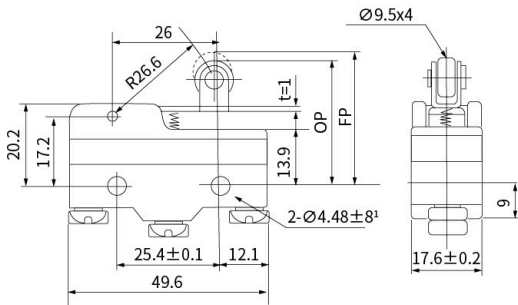


动作特性 Operating Characteristics	CM-1704
操作力 OF (最大Max.)	1.6N
回弹力 RF (最小Min.)	0.42N
预行程 PT (最大Max.)	10mm
过行程 OT (最小Min.)	5.6mm
行程移动分辨率 MD (最大Max.)	1.27mm
FP最大 (Max.)	32.5mm
动作位置 OP(mm.)	30.2±0.4

外观和尺寸 Appearance and Dimension

CM-1704M

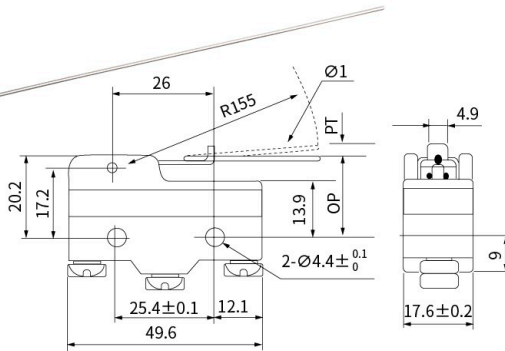
金属滚轮短压板型
Metal roller short pressing plate type



动作特性 Operating Characteristics	CM-1704M
操作力 OF (最大Max.)	1.6N
回弹力 RF (最小Min.)	0.42N
预行程 PT (最大Max.)	10mm
过行程 OT (最小Min.)	5.6mm
行程移动分辨率 MD (最大Max.)	1.27mm
FP最大 (Max.)	32.5mm
动作位置 OP(mm.)	30.2 $\pm$ 0.4

CM-1705

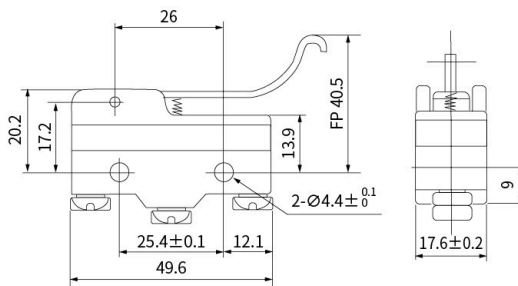
小型线型压板型
Small linear pressing plate type



动作特性 Operating Characteristics	CM-1705
操作力 OF (最大Max.)	0.1N
回弹力 RF (最小Min.)	0.03N
预行程 PT (最大Max.)	20mm
过行程 OT (最小Min.)	5.6mm
行程移动分辨率 MD (最大Max.)	3mm
FP最大 (Max.)	-
动作位置 OP(mm.)	19 $\pm$ 0.8

CM-1706

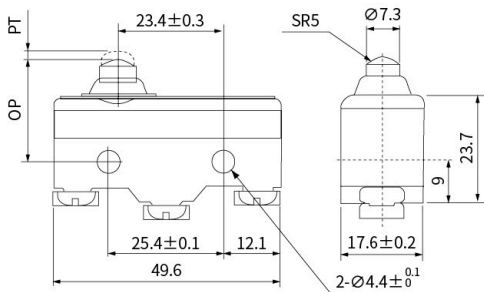
带弯曲摆杆型
Type with curved
swing bar



动作特性 Operating Characteristics	CM-1706
操作力 OF (最大Max.)	0.7N
回弹力 RF (最小Min.)	0.14N
预行程 PT (最大Max.)	10mm
过行程 OT (最小Min.)	5.6mm
行程移动分辨率 MD (最大Max.)	1.27mm
FP最大 (Max.)	42mm
动作位置 OP(mm.)	37.2 $\pm$ 0.8

CM-1306

弹簧短柱塞型
Spring short
plunger type

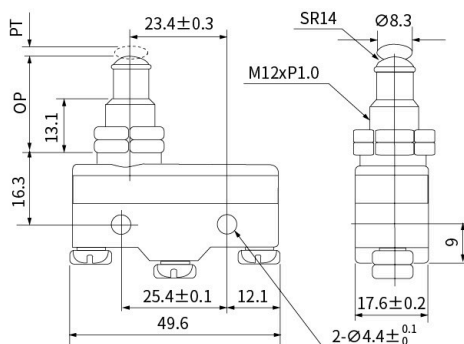


动作特性 Operating Characteristics	CM-1306
操作力 OF (最大Max.)	3.5N
回弹力 RF (最小Min.)	1.14N
预行程 PT (最大Max.)	0.4mm
过行程 OT (最小Min.)	1.6mm
行程移动分辨率 MD (最大Max.)	0.05mm
FP最大 (Max.)	-
动作位置 OP(mm.)	21.5 $\pm$ 0.5

外观和尺寸 Appearance and Dimension

CM-1307

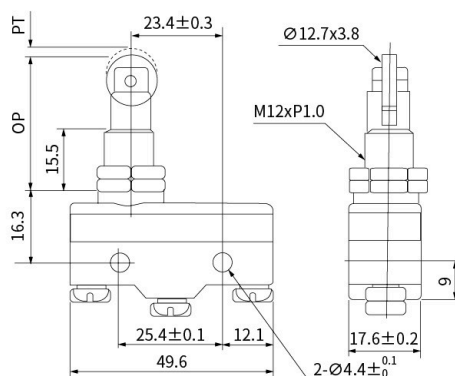
面板安装柱塞型
Panel mounted plunger type



动作特性 Operating Characteristics	CM-1307
操作力 OF (最大Max.)	3.5N
回弹力 RF (最小Min.)	1.14N
预行程 PT (最大Max.)	0.4mm
过行程 OT (最小Min.)	5.5mm
行程移动分辨率 MD (最大Max.)	0.05mm
FP最大 (Max.)	-
动作位置 OP(mm.)	21.8±0.8

CM-1308

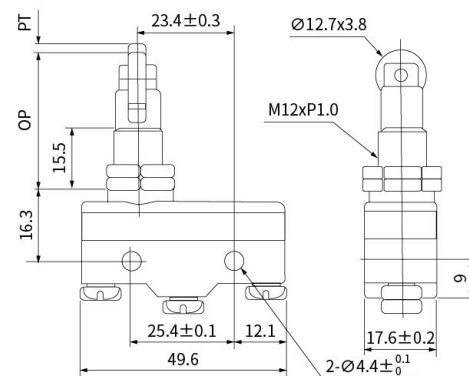
面板安装滚轮
柱塞型
Panel
mounting
roller plunger
type



动作特性 Operating Characteristics	CM-1308
操作力 OF (最大Max.)	3.5N
回弹力 RF (最小Min.)	1.14N
预行程 PT (最大Max.)	0.4mm
过行程 OT (最小Min.)	3.58mm
行程移动分辨率 MD (最大Max.)	0.05mm
FP最大 (Max.)	-
动作位置 OP(mm.)	33.4±1.2

CM-1309

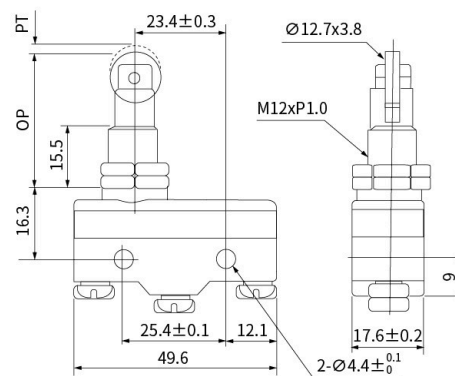
面板安装横向
滚轮柱塞型
Panel
mounted
lateral roller
plunger type



动作特性 Operating Characteristics	CM-1309
操作力 OF (最大Max.)	3.5N
回弹力 RF (最小Min.)	1.14N
预行程 PT (最大Max.)	0.4mm
过行程 OT (最小Min.)	3.58mm
行程移动分辨率 MD (最大Max.)	0.05mm
FP最大 (Max.)	-
动作位置 OP(mm.)	33.4±1.2

CM-1308X

Panel-mount
small vertical
roller plunger

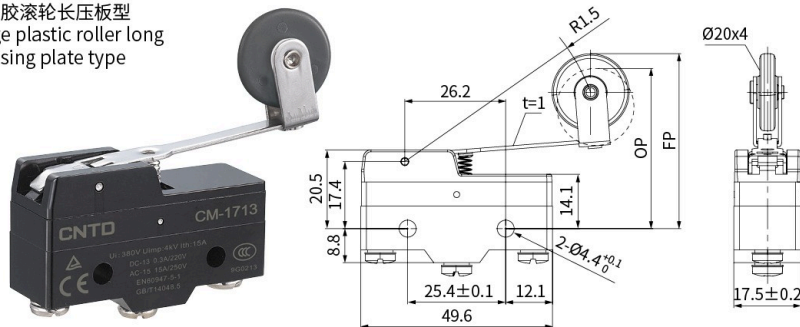


动作特性 Operating Characteristics	CM-1308X
操作力 OF (最大Max.)	3.5N
回弹力 RF (最小Min.)	1.14N
预行程 PT (最大Max.)	0.4mm
过行程 OT (最小Min.)	3.58mm
行程移动分辨率 MD (最大Max.)	0.05mm
FP最大 (Max.)	-
动作位置 OP(mm.)	33.4±1.2

外观和尺寸 Appearance and Dimension

CM-1713

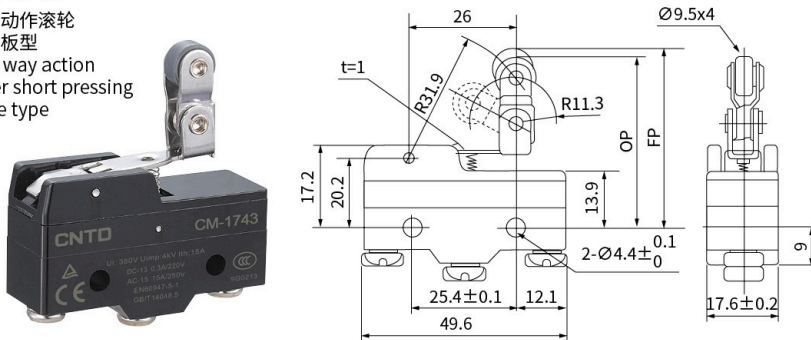
大塑胶滚轮长压板型
Large plastic roller long pressing plate type



动作特性 Operating Characteristics	CM-1713
操作力 OF (最大Max.)	1N
回弹力 RF (最小Min.)	0.2N
预行程 PT (最大Max.)	7.1mm
过行程 OT (最小Min.)	4mm
行程移动分辨率 MD (最大Max.)	1.6mm
FP最大 (Max.)	47.5mm
动作位置 OP(mm.)	41.2±0.8mm

CM-1743

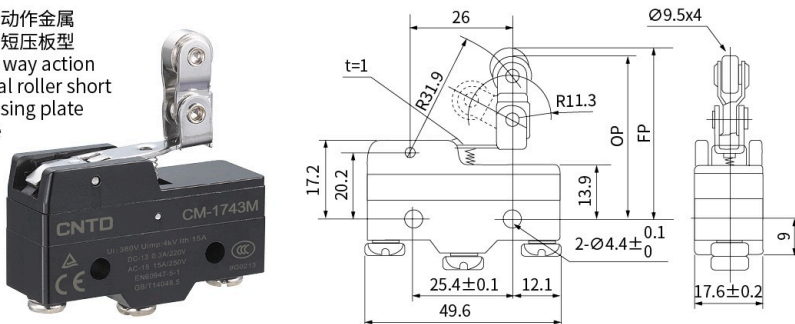
单向动作滚轮
短压板型
One way action roller short pressing plate type



动作特性 Operating Characteristics	CM-1743
操作力 OF (最大Max.)	1.6N
回弹力 RF (最小Min.)	0.42N
预行程 PT (最大Max.)	2.7mm
过行程 OT (最小Min.)	2.4mm
行程移动分辨率 MD (最大Max.)	0.5mm
FP最大 (Max.)	43.6mm
动作位置 OP(mm.)	43.1±0.8

CM-1743M

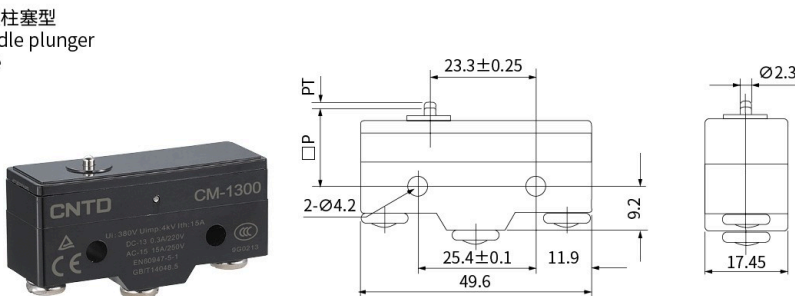
单向动作金属
滚轮短压板型
One way action metal roller short pressing plate type



动作特性 Operating Characteristics	CM-1743M
操作力 OF (最大Max.)	1.6N
回弹力 RF (最小Min.)	0.42N
预行程 PT (最大Max.)	2.7mm
过行程 OT (最小Min.)	2.4mm
行程移动分辨率 MD (最大Max.)	0.5mm
FP最大 (Max.)	43.6mm
动作位置 OP(mm.)	43.1±0.8

CM-1300

针状柱塞型
Needle plunger type

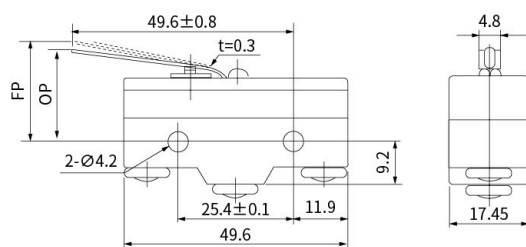


动作特性 Operating Characteristics	CM-1300
操作力 OF (最大Max.)	3.5N
回弹力 RF (最小Min.)	1.14N
预行程 PT (最大Max.)	0.4mm
过行程 OT (最小Min.)	0.13mm
行程移动分辨率 MD (最大Max.)	0.05mm
FP最大 (Max.)	-
动作位置 OP(mm.)	15.9±0.4

外观和尺寸 Appearance and Dimension

CM-1301

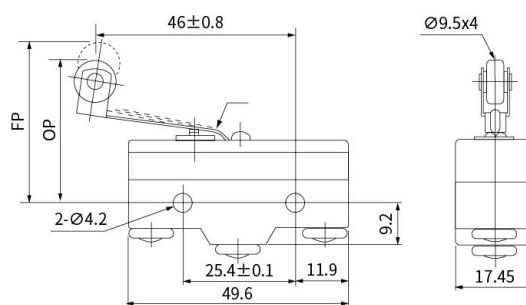
板簧型
Leaf spring type



动作特性 Operating Characteristics	CM-1301
操作力 OF (最大Max.)	1.5N
回弹力 RF (最小Min.)	0.14N
预行程 PT (最大Max.)	4mm
过行程 OT (最小Min.)	1.6mm
行程移动分辨率 MD (最大Max.)	1.3mm
FP最大 (Max.)	20.6mm
动作位置 OP(mm.)	17.4±0.8

CM-1303

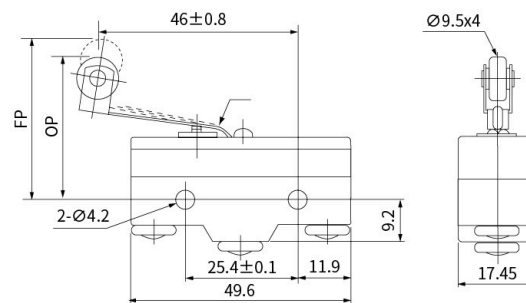
滚轮板簧型
Roller leaf spring type



动作特性 Operating Characteristics	CM-1303
操作力 OF (最大Max.)	1.5N
回弹力 RF (最小Min.)	0.14N
预行程 PT (最大Max.)	4mm
过行程 OT (最小Min.)	1.6mm
行程移动分辨率 MD (最大Max.)	1.3mm
FP最大 (Max.)	31.8mm
动作位置 OP(mm.)	28.6±0.8

CM-1303M

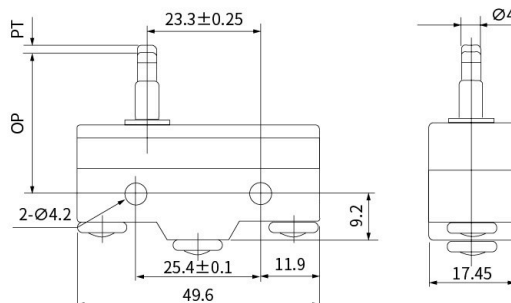
金属滚轮板簧型
Metal roller leaf spring type



动作特性 Operating Characteristics	CM-1303M
操作力 OF (最大Max.)	1.5N
回弹力 RF (最小Min.)	0.14N
预行程 PT (最大Max.)	4mm
过行程 OT (最小Min.)	1.6mm
行程移动分辨率 MD (最大Max.)	1.3mm
FP最大 (Max.)	31.8mm
动作位置 OP(mm.)	28.6±0.8

CM-1305

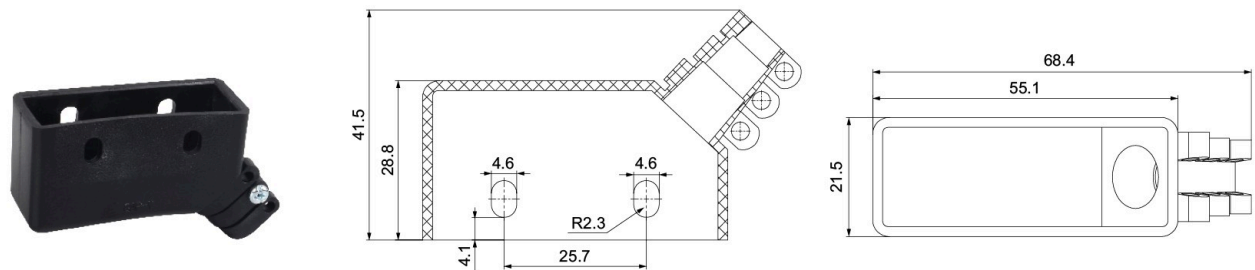
弹簧细柱塞型
Spring thin plunger type



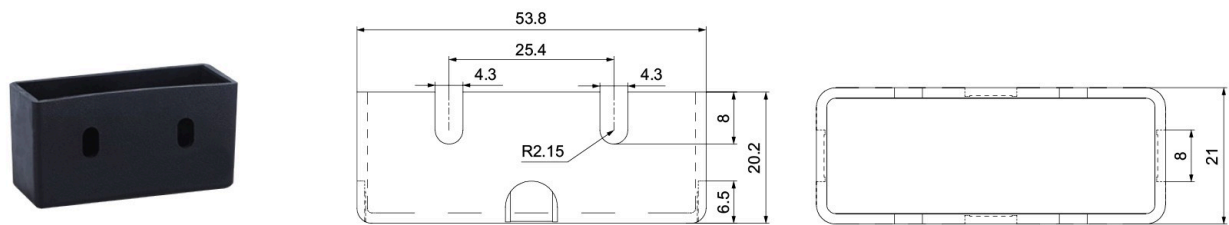
动作特性 Operating Characteristics	CM-1305
操作力 OF (最大Max.)	3.5N
回弹力 RF (最小Min.)	1.14N
预行程 PT (最大Max.)	0.4mm
过行程 OT (最小Min.)	1.6mm
行程移动分辨率 MD (最大Max.)	0.05mm
FP最大 (Max.)	-
动作位置 OP(mm.)	28.2±0.5

外观和尺寸 Appearance and Dimension

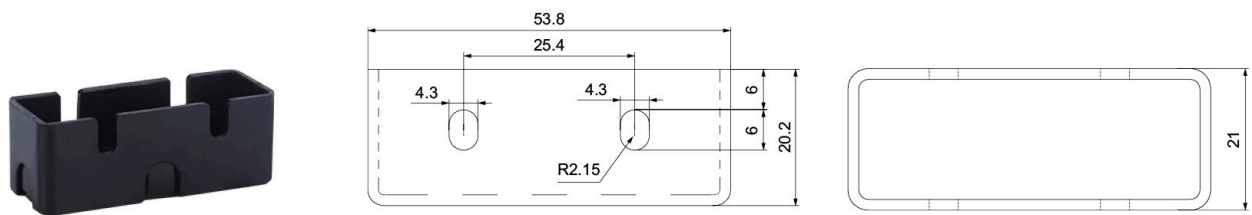
CAP-Y



CAP-C



CAP-B

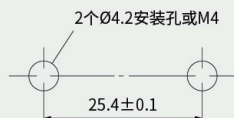


安全注意事项 Safety Precautions

安装 Install

安装时使用 M4 螺钉, 使用平垫圈、弹簧垫等牢固安装。此时请使用 1.18-1.47N·m 的紧固转矩。

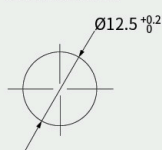
M4 screws are used for installation, and flat washers and spring washers are used for secure installation. In this case, please use 1.18-1.47N·m tightening torque.



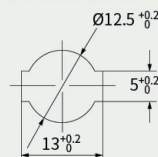
安装到面板上时, 请用 2.94-4.9N·m 的紧固转矩拧紧驱动杆的六角螺母。

When mounting to the panel, use 2.94-4.9N·m tightening torque to tighten the hexagon nut of the drive rod.

面板安装柱塞型



面板安装滚珠柱塞型



端子连接 Terminal Connections

将导线焊接到开关上时, 请确保烙铁的瓦特数不超过 60W。焊接开关任何部件不要超过 5 秒钟。如果对开关的任何部件使用瓦特数超过 60W 的烙铁 5 秒钟或更长时间, 开关的性能将降低。

When soldering the wire to the switch, ensure that the wattage of the soldering iron does not exceed 60W. Do not weld any parts of the switch for more than 5 seconds. If a soldering iron with a wattage exceeding 60W is used on any component of the switch for 5 seconds or longer, the performance of the switch will be reduced.

操作 Operate

请在容许操作频率或操作速度范围内使用。

1. 操作速度极度滞后时, 接点切换将处于不稳定状态, 会造成接触故障, 引起熔化。
2. 操作速度极快时, 冲击性动作将造成破损。此外, 频率较高时, 接点切换将丧失随动性。允许的额定操作速度和频率表示开关的操作可靠性。开关的寿命是由指定的操作速度确定的。寿命因操作速度和频率而异 (即使在允许范围内)。为了确定某个开关型号在特定应用中的寿命, 最好在实际条件下使用该型号的样品, 以进行适当的寿命测试。

确保驱动杆行程不超过过行程 (OT)。必须将操作行程设置为额定 OT 值的 70 ~ 100%。

Please use within the allowable operating frequency or operating speed range.

When the operating speed is extremely lagging, the contact switching will be in an unstable state, which can cause contact failure and cause melting.

When the operating speed is extremely fast, the impact action will cause damage. In addition, when the frequency is high, the contact switching will lose follow-up. The allowable rated operating speed and frequency indicate the operational reliability of the switch. The lifespan of a switch is determined by the specified operating speed. The lifespan varies depending on the operating speed and frequency (even within the allowable range). In order to determine the lifespan of a certain switch model in a specific application, it is best to use samples of that model under actual conditions for appropriate lifespan testing.

Ensure that the travel of the drive rod does not exceed the over travel (OT). The operating stroke must be set to 70-100% of the rated OT value.

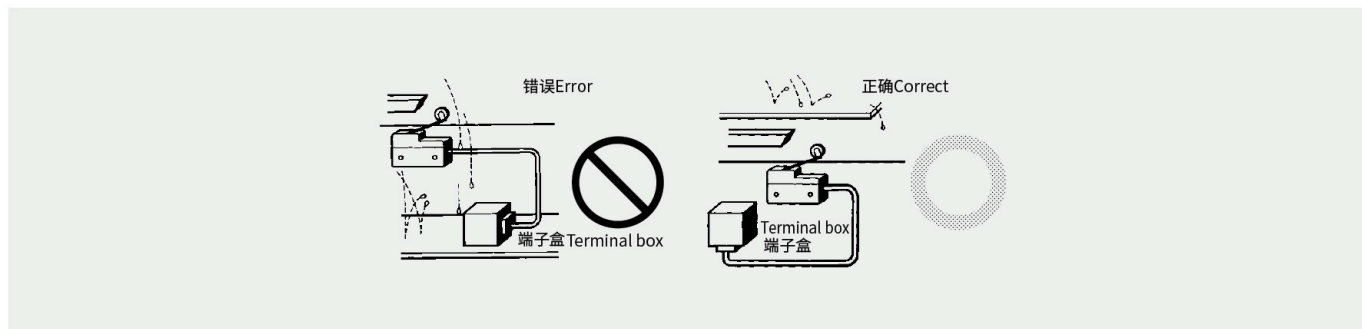
安装场所 Installation Site

请不要在易燃性气体、爆炸性气体等环境中单独使用开关。开合时产生的电弧和热量等可能导致着火或爆炸。

开关不是防水密封结构，因此在油或水飞溅、飞散或者有尘埃附着的地方，请用保护盖来防止直接飞沫。

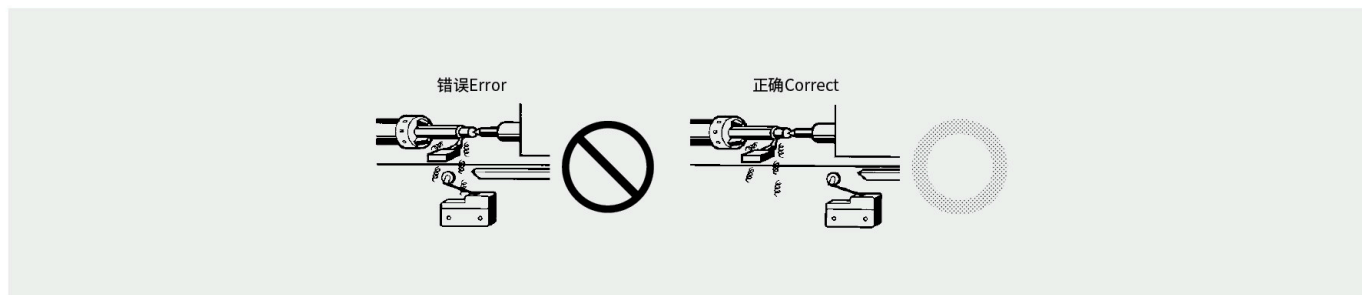
Please do not use the switch alone in flammable gases, explosive gases, and other environments. The electric arc and heat generated during opening and closing may cause ignition or explosion.

The switch is not a waterproof sealed structure, so in areas where oil or water splashes, splashes, or dust adheres, please use a protective cover to prevent direct droplets.



请将开关安装在不会直接接触到切屑或尘埃的位置。必须保证驱动杆和开关本体上不会堆积切削屑和泥状物质。

Please install the switch in a location that will not directly come into contact with chips or dust. It is necessary to ensure that there is no accumulation of cutting chips and mud like substances on the drive rod and switch body.



请不要在有热水（60℃以上）的地方和水蒸气中使用。

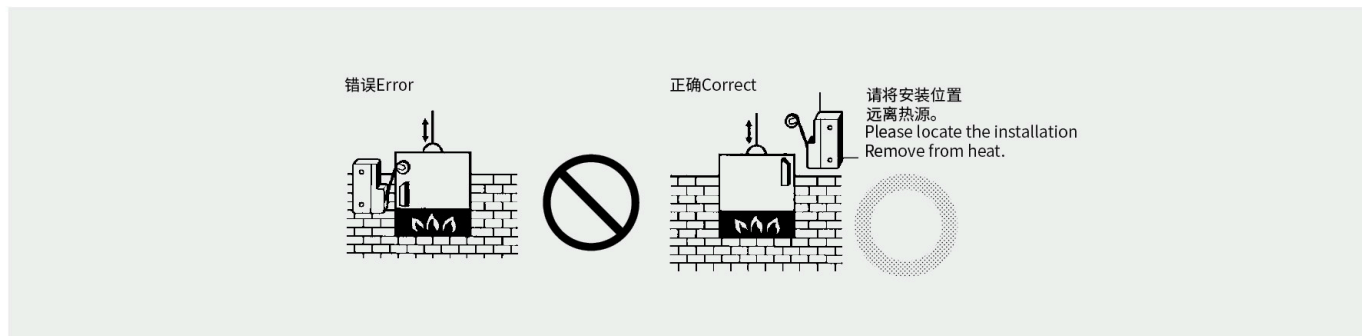
请不要在规定外的温度、户外空气条件下使用开关。

各机种允许的环境温度不同。（请确认正文中的规格）。如果有急剧的温度变化，热冲击会导致开关松动，造成故障。

Please do not use in areas with hot water (above 60 °C) or in water vapor.

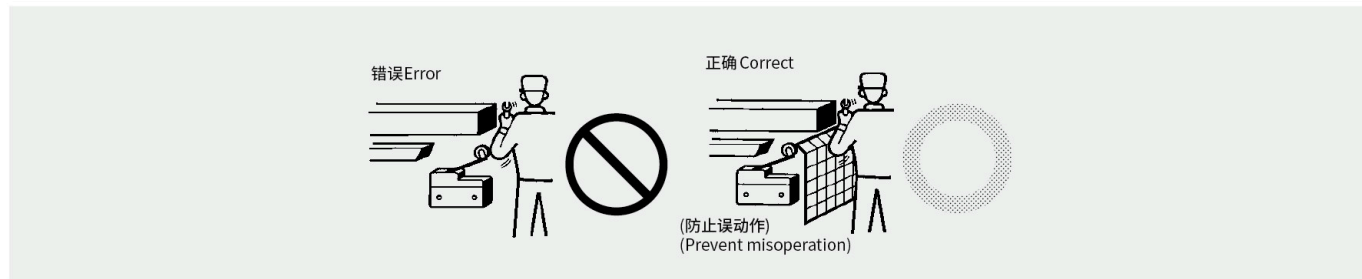
Please do not use the switch outside the specified temperature and outdoor air conditions.

The allowable ambient temperature varies among different models. (Please confirm the specifications in the main text). If there is a sharp temperature change, thermal shock will cause the switch to become loose, resulting in failure.



操作人员不小心将开关安装在易发生误动作或事故的地方时, 请加装外罩。

When the operator accidentally installs the switch in a location prone to misoperation or accidents, please install a cover.



开关受到连续的振动和冲击时, 产生的磨损粉末可能导致接点接触不良和动作失常、耐久性下降等问题。此外, 如有过大的振动和冲击, 可能会发生接点的误动作和破损等, 因此请将其安装在不会受到振动和冲击的位置和不会发生共振的方向上。

使用银系接点时如果长期处于低频率使用或者微小负载使用状态, 接点表面生成的硫化膜不会被破坏, 导致接点接触不良, 因此请使用镀金的接点和微小负载用的开关。

请不要在硫化气体 (H_2S , SO_2), 氨气 (NH_3), 硝酸气体 (HNO_3), 氯气 (Cl_2) 等恶性气体和高温多湿环境中使用开关, 以免发生接点接触不良和腐蚀引起的破损等功能障碍。

环境中如果存在硅气体, 则电弧能量会使得二氧化硅 (SiO_2) 堆积在接点上, 导致接触不良。开关周围有硅油、硅填充剂、硅电线等硅制品时, 请通过接点保护电路来抑制电弧并消除产生硅气体的源头。

When the switch is subjected to continuous vibration and impact, the generated wear powder may cause problems such as poor contact and abnormal operation of the contacts, and decreased durability. In addition, if there is excessive vibration and impact, it may cause misoperation and damage of the contact points. Therefore, please install it in a position that will not be affected by vibration and impact and in a direction that will not resonate.

When using silver contacts, if they are used at low frequencies or under small loads for a long time, the vulcanized film generated on the contact surface will not be damaged, resulting in poor contact. Therefore, please use gold-plated contacts and switches for small loads.

Please do not use switches in hazardous gases such as sulfide gas (H_2S , SO_2), ammonia gas (NH_3), nitric acid gas (HNO_3), chlorine gas (Cl_2), and high temperature and humidity environments to avoid poor contact and damage caused by corrosion and other functional impairments.

If silicon gas is present in the environment, the arc energy will cause silicon dioxide (SiO_2) to accumulate on the contact points, resulting in poor contact. When there are silicon products such as silicone oil, silicon fillers, and silicon wires around the switch, please use contact protection circuits to suppress arc and eliminate the source of silicon gas generation.

安装 Install

在对开关进行安装、拆卸或布线作业以及进行维护前, 电源请务必 OFF。否则会引起触电或烧损。

Before installing, disassembling, or wiring the switch, as well as performing maintenance, please ensure that the power supply is turned off. Otherwise, it may cause electric shock or burning.

操作 Operate

请在容许操作速度、容许操作频率范围内使用。

1. 操作速度极度滞后时, 接点切换将处于不稳定状态, 会造成接触故障, 引起熔化。
2. 操作速度极快时, 冲击性动作将造成破损。此外, 频率较高时, 接点切换将丧失随动性。此外, 容许操作速度和容许操作频率表示开关的可靠性。允许的额定操作速度和频率表示开关的操作可靠性。

开关的寿命是由指定的操作速度确定的。寿命因操作速度和频率而异 (即使在允许范围内)。在使用开关之前务必在实际条件下进行适当的寿命测试。设置时, 请勿超过驱动杆的过行程 (OT)。请将操作行程设置为 OT 标准值的 70 ~ 100%。

Please use within the allowable operating speed and frequency range.

When the operating speed is extremely lagging, the contact switching will be in an unstable state, which can cause contact failure and cause melting.

When the operating speed is extremely fast, the impact action will cause damage. In addition, when the frequency is high, the contact switching will lose follow-up. In addition, the allowable operating speed and allowable operating frequency indicate the reliability of the switch.

The allowable rated operating speed and frequency indicate the operational reliability of the switch.

The lifespan of a switch is determined by the specified operating speed. The lifespan varies depending on the operating speed and frequency (even within the allowable range). Before using the switch, it is important to conduct appropriate life tests under actual conditions.

When setting, do not exceed the over travel (OT) of the drive lever. Please set the operating stroke to 70-100% of the OT standard value.

接线 Wire

接线时，请使用与施加电压、通电电流相符的电线尺寸。

使用烙铁焊接时，烙铁尖部温度应为 380℃以下。在焊接不完全的状态下使用时，会引起异常发热，造成烧损。

焊接温度与时间应为 350℃、5s 以内，或 380℃、3s 以内。如长时间加热，会使外壳熔化，导线外皮烧焦等，使开关性能劣化

When wiring, please use wire sizes that match the applied voltage and current.

When using soldering iron for welding, the temperature at the tip of the soldering iron should be below 380 °C . When used in an incomplete welding state, it can cause abnormal heating and cause burning damage.

The welding temperature and time should be within 350 °C , 5 seconds, or 380 °C , 3 seconds. If heated for a long time, it will cause the shell to melt, the wire skin to burn, and deteriorate the performance of the switch

接线注意事项 Wiring precautions

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 0.75mm²。

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。

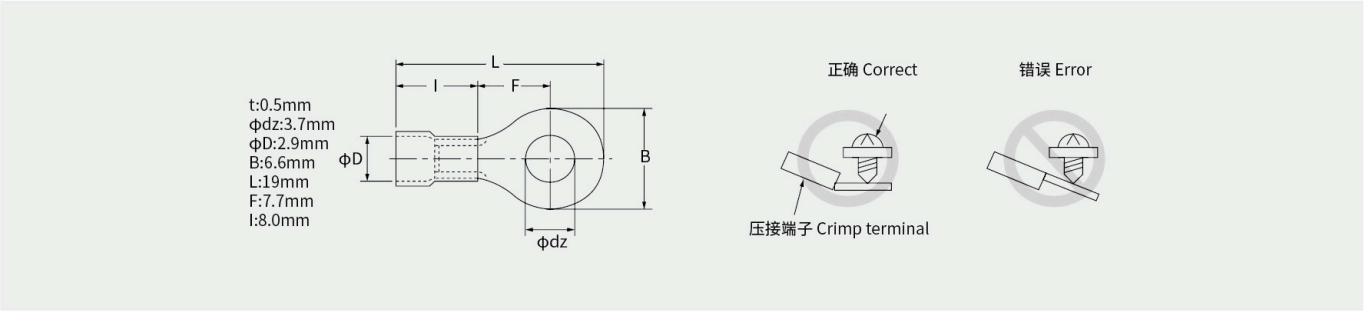
Always wire the switch with the power off to avoid the risk of electric shock.

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 0.75mm².

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.



适用导线 Applicable conductor

电线名称 Wire name	推荐使用电线 Wire is recommended		
	线芯数 Number of cores	导体 Conductor	成品外径 Nom OD
塑料橡皮绝缘软电线 Plastic rubber insulated flexible wire	2芯 2-core 3芯 3-core 4芯 4-core	0.5~0.75mm²	圆形 Circular φ6~φ9
600V 塑料绝缘, 塑料外皮电缆(VVF) 600V plastic insulation, 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.

面板安装型（CM-1307、CM-1308、CM-1309）
Panel mounting type (CM-1307、CM-1308、CM-1309)

将面板安装式柱塞型在侧面螺钉安装中固定时，挡块角度、操作速度过大可能导致开关的损坏。

将面板安装式柱塞型在侧面螺钉安装中使用，请不要施加 1,000 m/s² 以上的冲击。否则开关可能损坏。

将面板安装式柱塞型在侧面螺钉安装中使用，请拆除驱动部位的六角螺母。

When fixing the panel mounted plunger type in the side screw installation, excessive block angle and operating speed may cause damage to the switch.

When using the panel mounted plunger type in the installation of side screws, please do not apply an impact of more than 1000 m/s². Otherwise, the switch may be damaged.

When using the panel mounted plunger type in the side screw installation, please remove the hex nut from the drive area.

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。

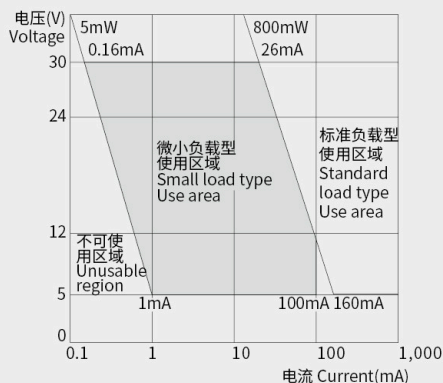
如果在开关微小负载电路时使用一般负载用开关, 可能会引起接触不良。下图为开关负载区域范围定义。本目录册内产品适用于 DC24V 10mA 以上范围, 当使用负载小于 DC24V 10mA 以下时, 可能存在由于电流过小无法击破触点表面氧化膜或硫化膜的现象, 从而导致开关接触不良。所以当使用负载小于 DC24V 10mA 以下时, 请咨询昌得电气科技有限公司进行产品定制。

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.

A general-load switch can make unreliable contact in a small-load circuit. Standard contacts require at least 24VDC, 10mA. Below this load, current may be too small to break oxide or sulphide films on the contact surface, causing poor contact. Select an appropriate low-load configuration for smaller signals. Contacts previously used on general loads must not be reassigned to small-signal service.

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.