

特点 Features

- 本产品系列创新采用1NC/1NO及2NC双版本接点结构配置，旨在为客户提供多元化的选型解决方案，充分满足不同应用场景下的个性化适配需求，助力客户实现更灵活的系统集成方案；
- 适用于标准负载和微小负载。

- This product series innovatively adopts a dual-version contact structure configuration of 1NC/1NO and 2NC, aiming to provide customers with diversified selection solutions, fully meeting the personalized adaptation requirements in different application scenarios, and helping customers achieve more flexible system integration solutions;
- Suitable for standard loads and small loads.

选型说明 Model Designation

CZ-93 □ □ + □

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 Product series	CZ-93	设计代号 Design code	
②	接点型式 Contact type	B	2NC	
		C	1NC1NO	
③	导管 / 连接器尺寸 Built-in Switch	PM	M20X1.5	
		PG	PG 11	仅 NC 端有强制断开 Only NC end has forced disconnection
④	钥匙类型 Key type	无	无附钥匙 No key attached	仅 NC 端有强制断开 Only NC end has forced disconnection
		K1	水平安装 Horizontal installation	仅 NC 端有强制断开 Only NC end has forced disconnection
		K2	垂直安装 Vertical installation	仅 NC 端有强制断开 Only NC end has forced disconnection
		K3	可调安装 (水平) Adjustable installation (horizontal)	仅 NC 端有强制断开 Only NC end has forced disconnection
		K5	可调安装 (水平 / 垂直) Adjustable installation (horizontal/vertical)	仅 NC 端有强制断开 Only NC end has forced disconnection

特性 Characteristics

额定电流 Rating	3A 250VAC (A300)
操作速度 Operating speed	0.05m~0.5m/s
动作频率 Operating frequency	50/60Hz
接点电阻 Contact resistance	25mΩ以下(初期)25mΩ max. (initial)
绝缘电阻 Insulation resistance	100mΩ以上(在500VDC以下) 100mΩ min. (at 500VDC)
绝缘电压 Rated insulation voltage(UI)	600V
电介强度 Dielectric strength	Uimp 2.5KV
振动 Vibration	10至55HZ，1.5mm双振幅 10 to 55Hz, 1.5mm double amplitude
冲击 Impact	机械耐久: 1000m/s^{2}以上(约100G以上) 误动作耐久: 300m/s^{2}以上(约30G以上) Mechanical: Approx. 1000m/s^2 (Approx. 100G's) Electrical: Approx. 300m/s^2 (Approx. 30G's)
环境温度 Ambient temperature	-25°C~70°C
环境湿度 Ambient Humidity	< 95% RH
电气寿命 Electrical life	15 万次以上 150,000 operations/min
防水等级 Protection level	IP65 (IEC规格 Standard)

额定值 Ratings

额定电压(V) Rated voltage (V)		非感性负载(A) Non-inductive load (A)				感性负载(A) Inductive load (A)			
		阻性负载 Resistive load		灯负载 Lamp load		感性负载 Inductive load		电动机负载 Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
AC	125	10		3	1.5	10		5	2.5
	250	10		2	1	10		3	1.5
	400	10		1.5	0.8	3		1.5	0.8
DC	8	10		6	3	10		6	
	14	10		6	3	10		6	
	30	6		4	3	6		4	
	125	0.8		0.2	0.2	0.8		0.2	
	250	0.4		0.1	0.1	0.4		0.1	

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
CE	EN 60947-5-1	

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

CCC (GB14048.5)

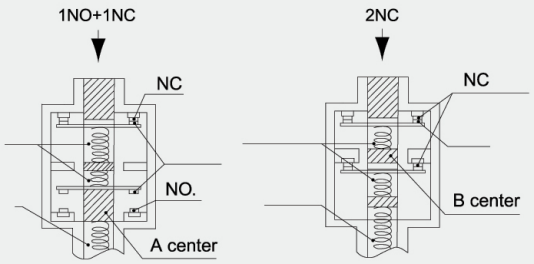
项目 Item	使用类型 Usage type	AC-15
额定工作电流 Rated working current(Ie)		3A
额定工作电压 Rated working voltage(Ue)		250V

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.

类型与额定值 Type and Rating
250V/3A 阻性负载 Resistive load

强制断开机构 Forced Disconnecting Mechanism

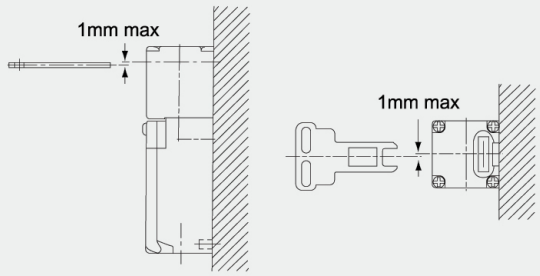
NC接点的强制脱离机构，作用是当接点发生熔着时，下压钥匙机构中心，可将接点强制推开，使回路切断。(EN60947-5-1强制脱离认定)。
When the contact block get fire, press on the middle of the key structure, the NC strict leaving structure can push the contact block a way cut off the movement.

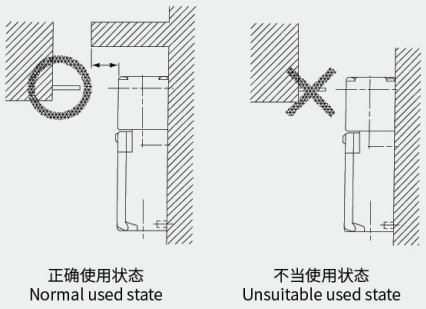


使用注意事项 Cautions

钥匙与插入孔之中心上下左右位置应在1mm以内，以避免机构磨耗和破坏。
To prevent the wear and the space should be within 1mm between the key and middle of the insert hole.

使用开关时，应于上方设置一挡板，以防止钥匙过于插入使机构损坏。而挡板与开关间a之距离应在3mm以下，以防止不动作。
When in use,there should put a plate on the top to prevent the key overinsert.To prevent nonmovement, the space between the plate and the switch should be under 3 mm.

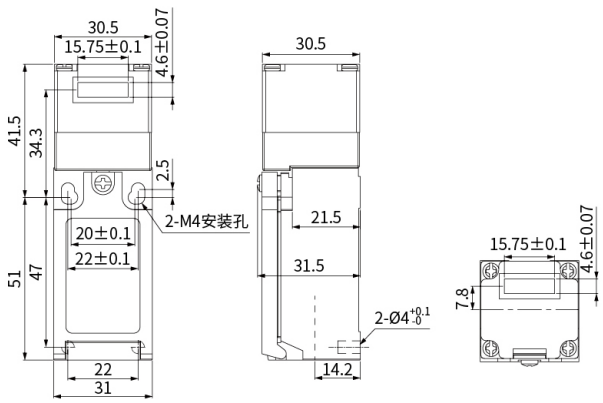




外观和尺寸 Appearance and Dimension

CZ-93CPM
标准型
Standard type



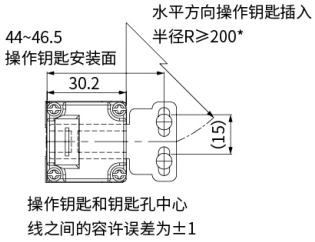


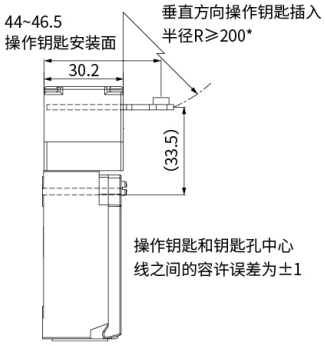
动作特性 Operating Characteristics	CZ-93CPM
操作钥匙插入力 (最大Max.)	15N
操作钥匙拔出力 (最大Max.)	30N
预行程 PT	6±3mm
总行程 TT	28mm

外观和尺寸 Appearance and Dimension

CZ-93CPM+K1
水平安装
Horizontal installation



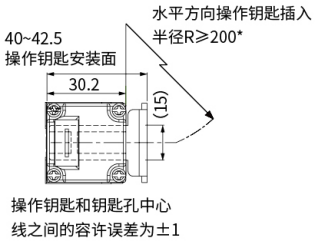


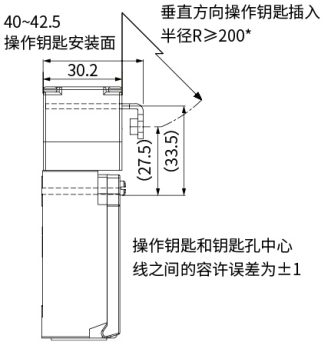


动作特性 Operating Characteristics	CZ-93CPM+K1
操作钥匙插入力 (最大Max.)	15N
操作钥匙拔出力 (最大Max.)	30N
预行程 PT	6±3mm
总行程 TT	28mm

CZ-93CPM+K2
垂直安装
Vertical installation



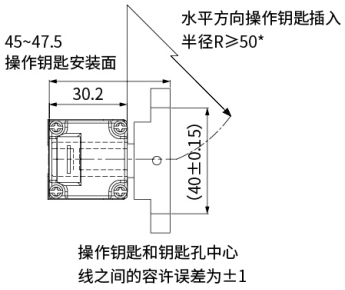


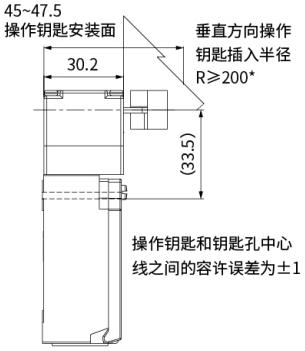


动作特性 Operating Characteristics	CZ-93CPM+K2
操作钥匙插入力 (最大Max.)	15N
操作钥匙拔出力 (最大Max.)	30N
预行程 PT	6±3mm
总行程 TT	28mm

CZ-93CPM+K3
可调安装
Adjustable installation



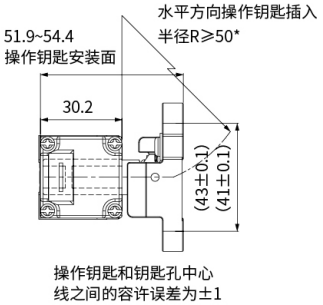


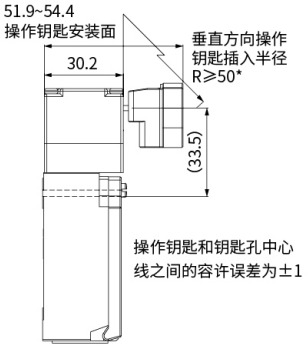


动作特性 Operating Characteristics	CZ-93CPM+K3
操作钥匙插入力 (最大Max.)	15N
操作钥匙拔出力 (最大Max.)	30N
预行程 PT	6±3mm
总行程 TT	28mm

CZ-93CPM+K5
可调安装
Adjustable installation



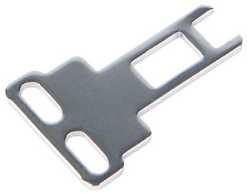


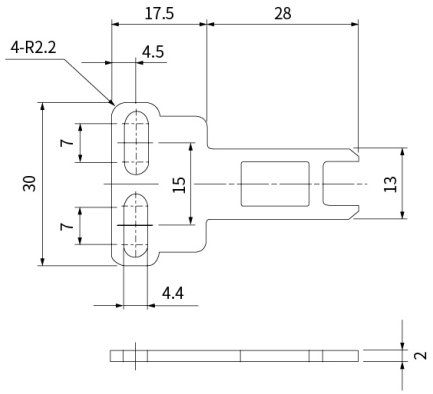


动作特性 Operating Characteristics	CZ-93CPM+K5
操作钥匙插入力 (最大Max.)	15N
操作钥匙拔出力 (最大Max.)	30N
预行程 PT	6±3mm
总行程 TT	28mm

外观和尺寸 Appearance and Dimension

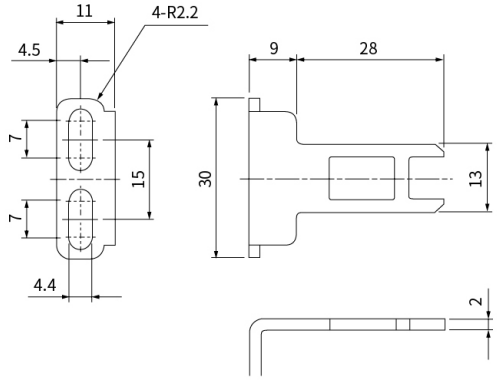
K1
水平安装 Horizontal installation





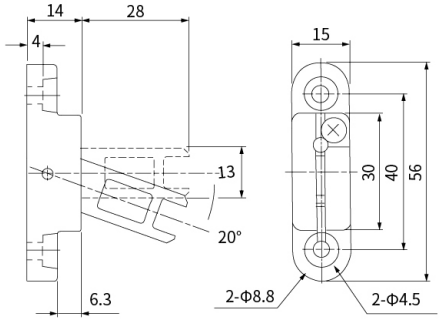
K2
垂直安装 Vertical installation





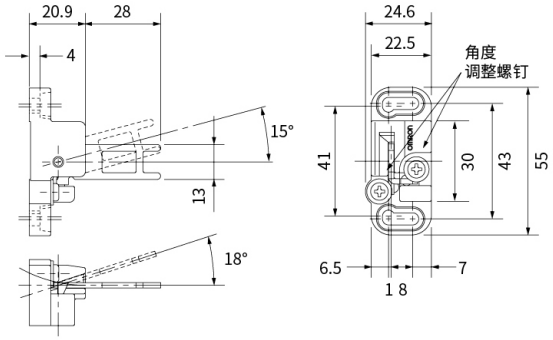
K3
可调安装 (水平)
Adjustable installation
(Horizontal)





K5
可调安装 (水平 + 垂直)
Adjustable mounting
(Horizontal + vertical)

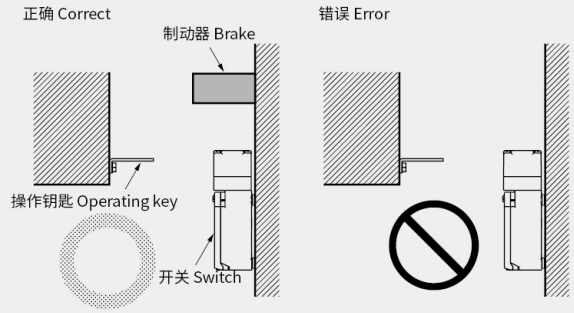




制动器安装 Brake Installation

请勿将开关当制动器使用。为了确保操作钥匙的底座不触碰开关头，请务必如下图所示安装制动器，并调节制动器使操作钥匙使其位于底座的设置区域内 (0.5~3mm)。请勿使开关受到超过其耐冲击值 (1000m/s^2) 的冲击。

Do not use the switch as a brake. To ensure that the base of the operating key does not touch the switch, it is necessary to install the brake as shown in the following figure and adjust the brake so that the operating key is located within the setting area of the base (0.5-3mm). Do not subject the switch to impacts exceeding its impact resistance value (1000m/s^2).



安装方式 Installation Method

正确的紧固转矩 Correct tightening torque

螺钉松动可能会导致故障。按照指定转矩将螺钉旋紧。

Loose screws may cause malfunctions. Tighten the screws according to the specified torque.

端子螺钉 Terminal screw	0.6~0.8N-m
外盖安装螺钉 Outer cover installation screws	0.5~0.7N-m
头部安装螺钉 Head mounting screws	0.5~0.6N-m
操作钥匙安装螺钉 Operating key mounting screws	2.4~2.8N-m
本体安装螺钉 Body mounting screws	0.5~~0.7N-m
电缆防水接头 Cable waterproof joint	1.8~2.2N-m
罩盖螺钉 Cover screws	1.3~1.7N-m

使用电动螺丝刀或类似工具按下螺钉头部拧松螺钉时，请勿将螺钉拧过至螺纹脱扣的位置。否则，可能损坏螺纹尾端。

When using an electric screwdriver or similar tool to press the screw head and loosen the screw, do not tighten the screw until the thread is released. Otherwise, the tail end of the thread may be damaged.

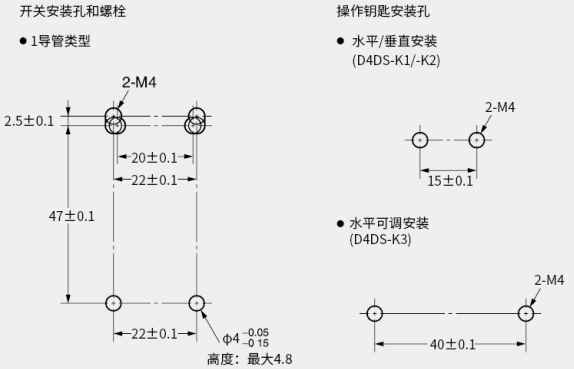
安装孔 Mounting Hole

请使用 M4 螺钉和弹簧垫圈安装开关和操作钥匙，并用适当的转矩拧紧。为了安全，请使用不会被轻易移除的螺钉或采取类似措施防止开关和操作钥匙被轻易移除。

如下所示，可以使用 2 个高度为 4.8mm 以下，直径为 $4^{-0.05}_{-0.15}$ mm 的螺栓，插入开关下部的孔内，以便采用 4 点固定保证更牢固地安装。

Please use M4 screws and spring washers to install the switch and operating key, and tighten with appropriate torque. For safety reasons, please use screws that will not be easily removed or take similar measures to prevent switches and operating keys from being easily removed.

As shown below, two bolts with a height of 4.8mm or less and a diameter of $4^{-0.05}_{-0.15}$mm can be used to insert them into the holes in the lower part of the switch, in order to use 4-point fixation to ensure a more secure installation.



配置操作钥匙时应使其在操作钥匙孔中心的 1mm 范围内。若操作钥匙偏离此位置或成一角度则可能导致加速磨损或断裂。
请遵守操作钥匙的指定插入半径，并将其垂直插入操作钥匙孔中

When configuring the operation key, it should be within 1mm of the center of the operation keyhole. If the operating key deviates from this position or forms an angle, it may cause accelerated wear or fracture.
Please observe the specified insertion radius for the operating key and insert it vertically into the operating key hole

关于操作钥匙 About Operating Keys

必须使用指定的操作钥匙。头部已设计为不能用起子等工具操作的构造。使用指定操作钥匙以外的工具操作可能损坏开关或影响机器的安全性。
必须使用指定的欧姆龙操作钥匙，使用其它操作钥匙可能导致开关损坏或破坏系统安全性。
在操作钥匙插入开关的状态下，如果在钥匙前端过度施力或使其掉落，可能导致钥匙变形或开关损坏。

The specified operation key must be used. The head has been designed as a structure that cannot be operated with tools such as a screwdriver. Using tools other than the designated operating key may damage the switch or affect the safety of the machine.
The designated Omron operating key must be used, and using other operating keys may cause switch damage or compromise system security.
If excessive force is applied to the front end of the key or it drops while operating the key insertion switch, it may cause the key to deform or the switch to be damaged.

关于头部方向的改变 Regarding Changes In Head Direction

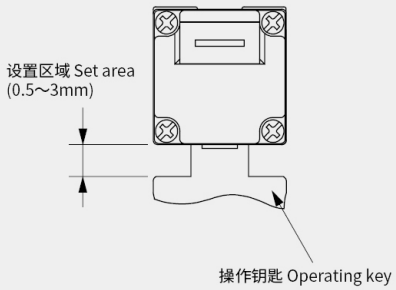
可以通过松开开关头部四角的头部安装螺钉调节开关头部，向四个方向中任意方向旋转。请确保没有异物进入开关头部。
请勿在开关头部取下时插入或取出操作钥匙。否则，可能无法插入操作钥匙

The switch head can be adjusted to rotate in any of the four directions by loosening the head mounting screws at the four corners of the switch head. Please ensure that no foreign objects enter the switch head.
Do not insert or remove the operating key when the switch head is removed. Otherwise, it may not be possible to insert the operating key

关于门的固定 Regarding the Fixing of Doors

关门时 (操作钥匙插入状态)，由于门的自重、设备振动或门的缓冲用橡胶等，操作钥匙可能会被推回到设置区域外。
请使用定位件等来固定门，保证操作钥匙能保持在设置区域内。

When closing the door (with the operating key inserted), due to the weight of the door, equipment vibration, or the use of rubber for door cushioning, the operating key may be pushed back out of the set area.
Please use positioning components to secure the door, ensuring that the operating key can be kept within the designated area.



接线 Wire

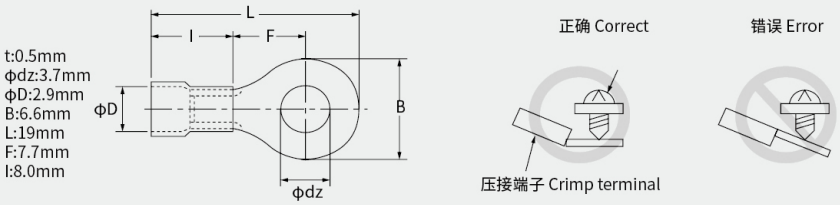
请在断电状态下进行开关接线操作，通电状态下接线可能会造成触电危险。
接线时务必注意，不要让导线的细小碎片或其他微粒进入开关内部。
使用绝缘管和 M3.5 压接端子连接时，按照图示正确放置压接端子，避免压迫到外壳或外盖。适用的导线尺寸为 AWG20 至 AWG18 或 0.5 至 0.75mm^2。
选用适当长度的导线以确保外盖平整关闭且牢固。切勿将压接端子塞进外壳缝隙，这可能导致外壳损坏或变形。
为防止端子与开关外壳内部接触，使用厚度不超过 0.5mm 的端子。

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^2.
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.

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 0.75mm^2。
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。
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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^2.
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	0.75mm^2	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.

导管接口 Conduit Interface

请使用外径与所用电缆防水接头匹配的电缆。
Please use a cable with an outer diameter that matches the waterproof joint of the cable used.

电缆防水接头 Cable Waterproof Joint

请使用市场上销售的连接器。
为了避免与开关内部接触， 请使用螺纹部分长度为 9mm 以下的电缆防水接头 .
Please use commercially available connectors.
To avoid internal contact with the switch, please use a cable waterproof joint with a threaded length of 9mm or less.

使用注意事项 Using Precautions

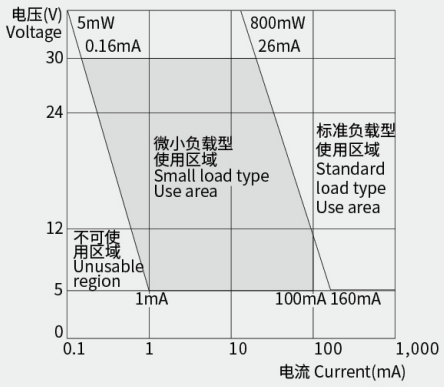
开关接点可用于一般负载或微小负载。但是，已经连接过一般负载的接点，就不能用于连接更小容量的负载。否则，可能导致接触面的糙化，而且可能失去接触可靠性。

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.

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.