

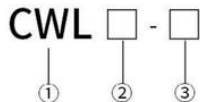


特点 Features

- 双回路型限位开关
- 具有高机械强度的一体铸造铝合金外壳
- 具耐油、防水和防压结构
- 引动器种类多, 方便使用
- 内藏接点座有双簧片设计, 机械寿命长
- Double-circuit type of limit switch
- High mechanical strength, mainly consists of aluminum cast
- Water-proof and oil-proof construction
- Various actuators for different applications
- Built-in contact box with double spring mechanism, longer mechanical life



选型说明 Model Designation



序号 No	项目 Item	代号 Code	说明 Description
①	产品系列 Product series	CWL	立式限位开关 Vertical limit switch
②	头部结构 Head structure	D	顶部柱塞型 Top plunger type
		D1	竖轮柱塞型 Vertical wheel plunger type
		D2	横轮柱塞型 Cross wheel plunger type
		D3	顶部球式柱塞型 Top ball plunger type
		CA2-2	滚轮摆杆型 Roller rocker type
		CA2-2G	塑胶滚轮摆杆型 Plastic roller swing rod type
		CL	可调棒式摆杆型 Adjustable rod swing rod type
		CA12-2-Q	可调摆杆滚轮型 Adjustable swing rod roller type
		CA12-2-QG	可调摆杆塑胶滚轮型 Adjustable swing rod plastic roller type
		CA12-2-QD	可调摆杆橡胶滚轮型 Adjustable swing rod rubber roller type
		CA32-41	叉式摆杆锁定型 (两侧塑胶滚轮) Fork type swing rod locking type (plastic rollers on both sides)
		CA32-41M	叉式摆杆锁定型 (两侧金属滚轮) Fork type swing rod locking type (metal rollers on both sides)
		CA32-42	叉式摆杆锁定型 (单侧塑胶滚轮) Fork type swing rod locking type (single side plastic roller)
		CA32-42M	叉式摆杆锁定型 (单侧金属滚轮) Fork type swing rod locking type (single side metal roller)
		NJ	盘簧型 Coil spring type
		NJ-30	金属棒盘簧型 Metal rod coil spring type
		NJ-2	塑料杆盘簧型 Plastic rod coil spring type
		NJ-S2	触须型 Tentacle type
③	导管尺寸 Catheter size	无 None	M20(1 导管型) M20 (1 catheter type)
		P	PG13.5(1 导管型) PG13.5 (1 catheter type)

特性 Characteristics

操作速度 Operation speed	1mm 至 1m/s(CWLCA2-2 型) 1mm-1m/s
动作频率 Operating frequency	电气:30次/分 Electical: 30 operations/min
接触电阻 Contact resistance	25mΩ 以下 (初期) 25mΩmax. (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	10A
电介强度 Dielectric strength	非连续端子间1000VAC, 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1500VAC, 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1500VAC, 50/60Hz持续1分钟 500VAC, 50/60 HZ for 1 minute between each terminal and ground
振动 Vibration	10至55Hz, 1.5mm双振幅 10-55Hz,1.5mm double amplitude
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)*1 Mechanical durable: 1, 000m/Sec ² (about 100G' S) Malfunction: 300m/Sec ² (about 30G' S)*1
周围温度 Ambient temperature	使用时 :-20~+80°C (没有结冰) Using: -20~+80°C (With no icing)
湿度 Humidity	95%RH 以下 <95% RH
电气寿命 Electrical life	50万次以上(AC240V/3A阻性负载) More than 500,000 cycles (AC240V/3A resistive load) 30万次以上(AC240V/6A阻性负载) More than 300,000 cycles (AC240V/6A resistive load)
保护构造 Protection level	IP66

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. 盘簧型除外

*2. 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。

*3. 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.

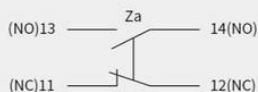
Note 2. Values of some models may be different from the above, please contact us for details.

*1: Except coil spring type

*2.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.

*3.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.

接点型式 Contact Form



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)		6A	0.3A
额定工作电压 Rated working voltage(Ue)		250V	220V

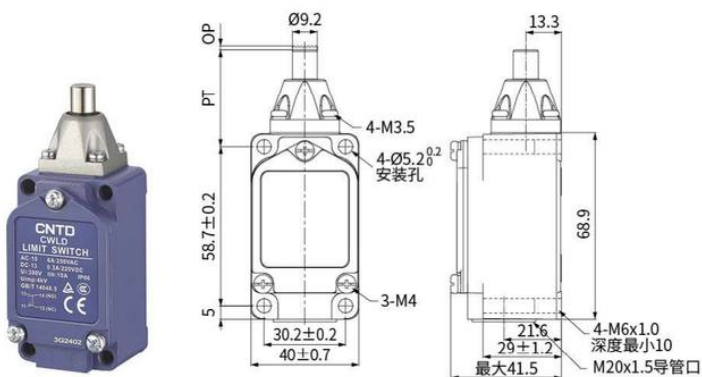
注: 请使用符合IEC60269的gI或gG型10A保险丝作为短路保护装置。开关内未配保险丝。

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

CWLD

顶部柱塞型
Top plunger type

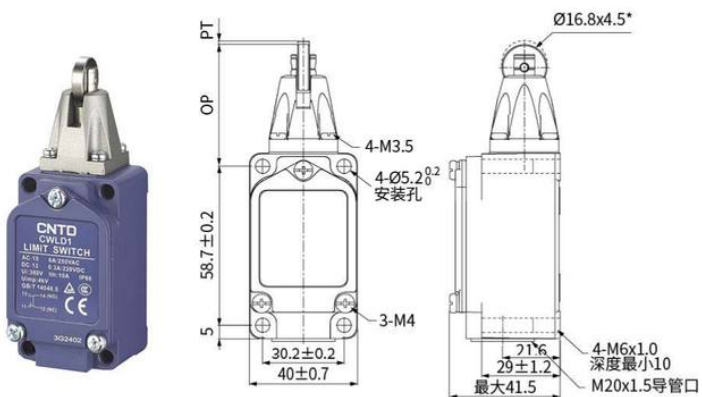


动作特性 Operating Characteristics	CWLD
动作力 OF (最大Max.)	26.6N
释放力 RF (最小Min.)	8.9N
预行程 PT	1.7mm
过行程 OT (最小Min.)	6.4mm
运动差异 MD (最大Max.)	1mm
动作位置 OP	34±0.8mm

*不锈钢烧结滚珠 Stainless steel sintered ball

CWLD1

竖轮柱塞型
Vertical wheel plunger type

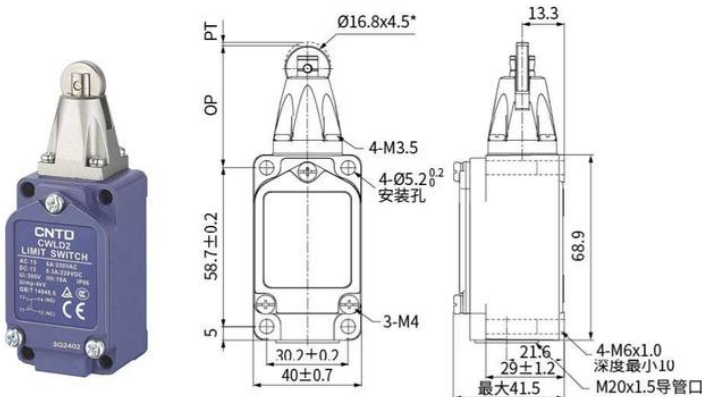


动作特性 Operating Characteristics	CWLD1
动作力 OF (最大Max.)	26.6N
释放力 RF (最小Min.)	8.9N
预行程 PT	1.7mm
过行程 OT (最小Min.)	5.6mm
运动差异 MD (最大Max.)	1mm
动作位置 OP	44±0.8mm

*不锈钢烧结滚珠 Stainless steel sintered ball

CWLD2

横轮柱塞型
Cross wheel plunger type



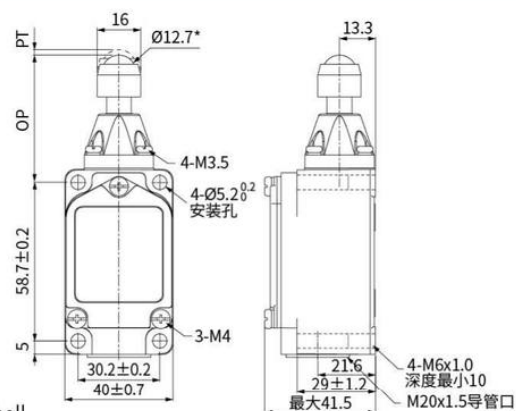
动作特性 Operating Characteristics	CWLD2
动作力 OF (最大Max.)	26.6N
释放力 RF (最小Min.)	8.9N
预行程 PT	1.7mm
过行程 OT (最小Min.)	5.6mm
运动差异 MD (最大Max.)	1mm
动作位置 OP	44±0.8mm

*不锈钢烧结滚珠 Stainless steel sintered ball

外观和尺寸 Appearance and Dimension

CWLD3

顶部球式柱塞型
Top ball plunger type

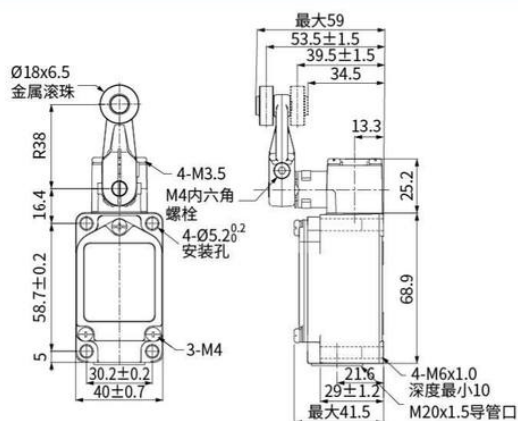


动作特性 Operating Characteristics	CWLD3
动作力 OF (最大Max.)	26.6N
释放力 RF (最小Min.)	8.9N
预行程 PT	1.7mm
过行程 OT (最小Min.)	4mm
运动差异 MD (最大Max.)	1mm
动作位置 OP	44.5 ± 0.8 mm

*不锈钢烧结滚珠 Stainless steel sintered ball

CWLCA2-2

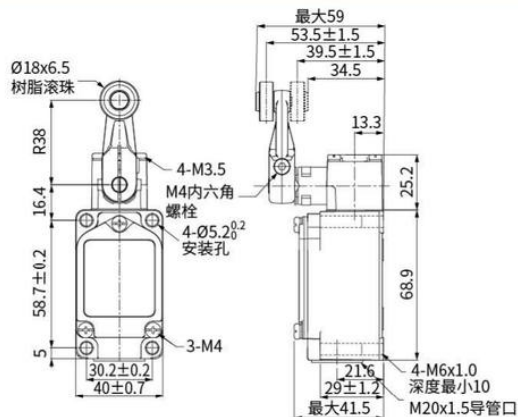
滚轮摆杆型
Roller rocker type



动作特性 Operating Characteristics	CWLCA2-2
动作力 OF (最大Max.)	13.3N
释放力 RF (最小Min.)	2.2N
预行程 PT	15 $^\circ \pm 5^\circ$
过行程 OT (最小Min.)	70 $^\circ$
运动差异 MD (最大Max.)	12 $^\circ$

CWLCA2-2G

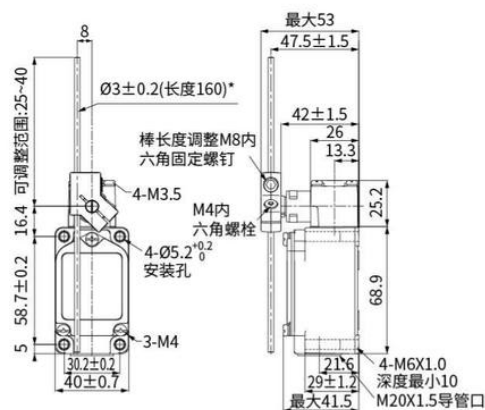
塑胶滚轮摆杆型
Plastic roller swing rod type



动作特性 Operating Characteristics	CWLCA2-2G
动作力 OF (最大Max.)	13.3N
释放力 RF (最小Min.)	2.2N
预行程 PT	15 $^\circ \pm 5^\circ$
过行程 OT (最小Min.)	70 $^\circ$
运动差异 MD (最大Max.)	12 $^\circ$

CWLCL

可调棒式摆杆型
Adjustable rod swing rod type

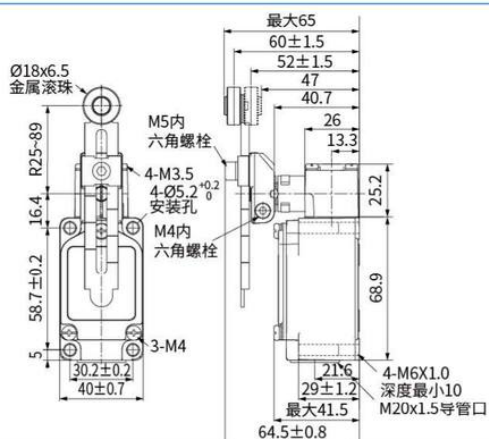


动作特性 Operating Characteristics	CWLCL
动作力 OF (最大Max.)	1.4N
释放力 RF (最小Min.)	0.27N
预行程 PT	15 $^\circ \pm 5^\circ$
过行程 OT (最小Min.)	70 $^\circ$
运动差异 MD (最大Max.)	12 $^\circ$

外观和尺寸 Appearance and Dimension

CWLCA12-2-Q

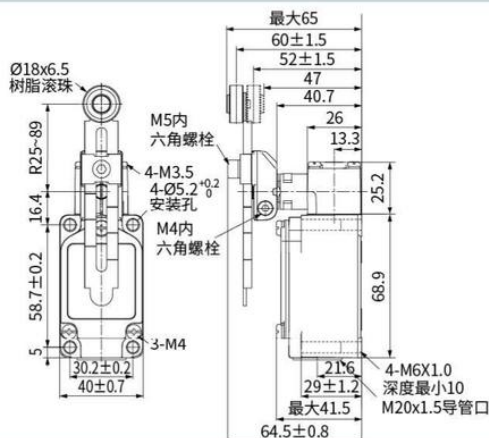
可调摆杆滚轮型
Adjustable swing
rod roller type



动作特性 Operating Characteristics	CWLCA12-2-Q
动作力 OF (最大Max.)	13.3N
释放力 RF (最小Min.)	2.2N
预行程 PT	15° ± 5°
过行程 OT (最小Min.)	70°
运动差异 MD (最大Max.)	12°

CWLCA12-2-QG

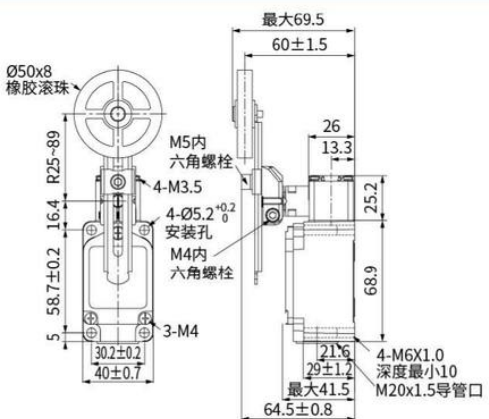
可调摆杆滚轮型
Adjustable swing
rod roller type



动作特性 Operating Characteristics	CWLCA12-2-QG
动作力 OF (最大Max.)	13.3N
释放力 RF (最小Min.)	2.2N
预行程 PT	15° ± 5°
过行程 OT (最小Min.)	70°
运动差异 MD (最大Max.)	12°

CWLCA12-2-QD

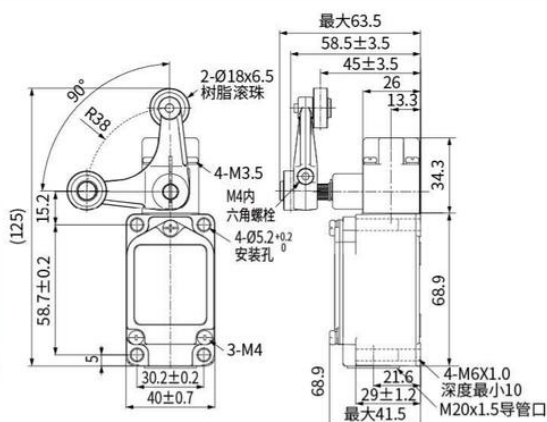
可调摆杆橡胶
滚轮型
Adjustable
swing rod
rubber
roller type



动作特性 Operating Characteristics	CWLCA12-2-QD
动作力 OF (最大Max.)	13.3N
释放力 RF (最小Min.)	2.2N
预行程 PT	15° ± 5°
过行程 OT (最小Min.)	70°
运动差异 MD (最大Max.)	12°

CWLCA32-41

叉式摆杆锁定型
(两侧塑胶滚轮)
Fork type swing
rod locking type
(plastic rollers on
both sides)

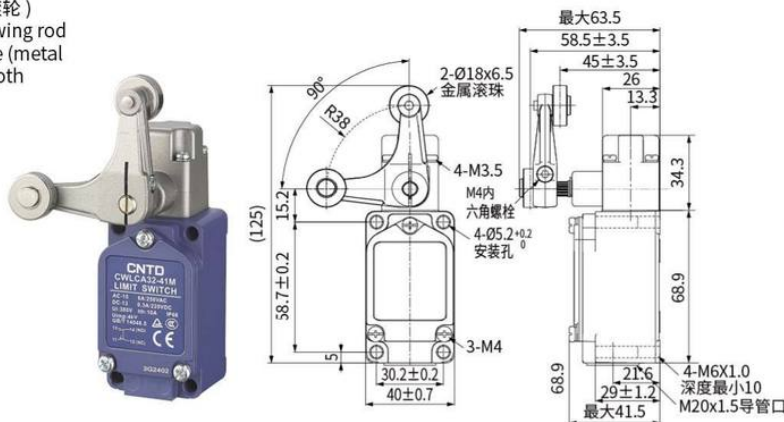


动作特性 Operating Characteristics	CWLCA32-41
摆杆反转力 (最大Max.)	11.8N
摆杆反转预行程	50° ± 5°
预行程 PT (最大Max.)	55°
过行程 OT (最小Min.)	35°

外观和尺寸 Appearance and Dimension

CWLCA32-41M

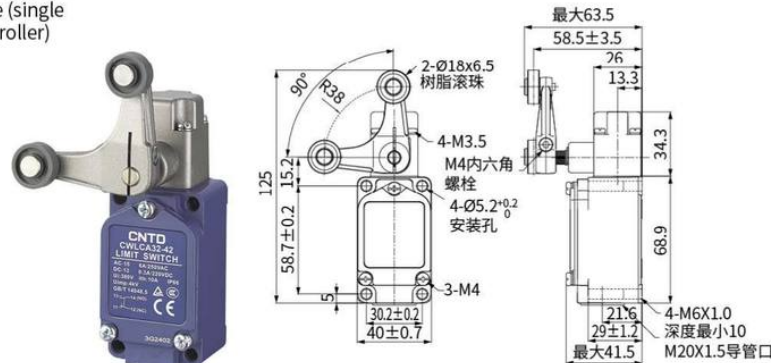
叉式摆杆锁定型
(两侧金属滚轮)
Fork type swing rod
locking type (metal
rollers on both
sides)



动作特性	CWLCA32-41M
Operating Characteristics	
摆杆反转力 (最大Max.)	11.8N
摆杆反转预行程	50°±5°
预行程 PT (最大Max.)	55°
过行程 OT (最小Min.)	35°

CWLCA32-42

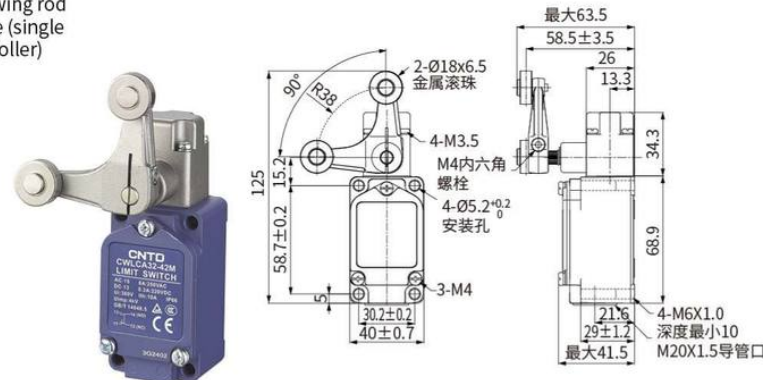
叉式摆杆锁定型
(单侧塑胶滚轮)
Fork type swing rod
locking type (single
side plastic roller)



动作特性	CWLCA32-42
Operating Characteristics	
摆杆反转力 (最大Max.)	11.8N
摆杆反转预行程	50°±5°
预行程 PT (最大Max.)	55°
过行程 OT (最小Min.)	35°

CWLCA32-42M

叉式摆杆锁定型
(单侧金属滚轮)
Fork type swing rod
locking type (single
side metal roller)

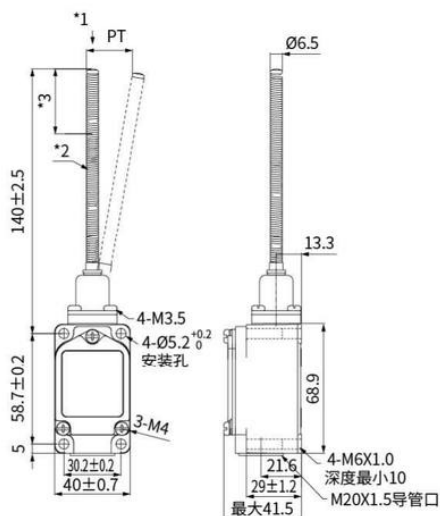


动作特性	CWLCA32-42M
Operating Characteristics	
摆杆反转力 (最大Max.)	11.8N
摆杆反转预行程	50°±5°
预行程 PT (最大Max.)	55°
过行程 OT (最小Min.)	35°

外观和尺寸 Appearance and Dimension

CWLNJ

盘簧型
Coil spring type

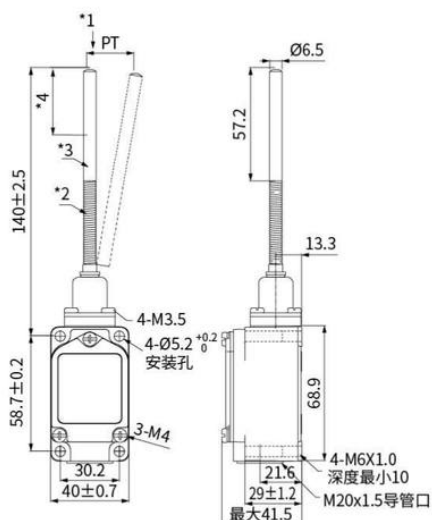


动作特性 Operating Characteristics	CWLNJ
动作力OF(最大Max.)	1.47N
预行程 PT	15±5°

- *1. 除了轴芯方向(↓), 钢丝可在任意方向运动;
- *2. 不锈钢钢丝盘簧;
- *3. 操作体的使用范围为从弹簧前端到弹簧全长的1/3以内。
- *1. In addition to the axis direction(↓), the steel wire can move in any direction;
- *2. Stainless steel wire coil spring;
- *3. The operating body is used from the front end of the spring to less than 1/3 of the total length of the spring.

CWLNJ-30

金属杆盘簧型
Metal rod coil spring type

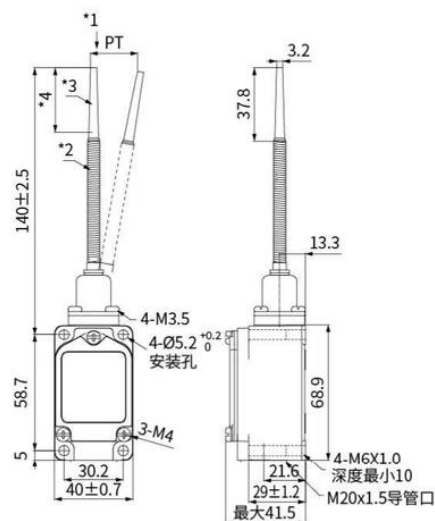


动作特性 Operating Characteristics	CWLNJ-30
动作力OF(最大Max.)	1.47N
预行程 PT	15±5°

- *1. 除了轴芯方向(↓), 钢丝可在任意方向运动;
- *2. 不锈钢钢丝盘簧;
- *3. 金属棒;
- *4. 操作体的使用范围为从弹簧前端到弹簧全长的1/3以内。
- *1. In addition to the axis direction(↓), the steel wire can move in any direction;
- *2. Stainless steel wire coil spring;
- *3. Metal rod;
- *4. The operating body is used from the front end of the spring to less than 1/3 of the total length of the spring.

CWLNJ-2

塑料杆盘簧型
Plastic rod coil spring type

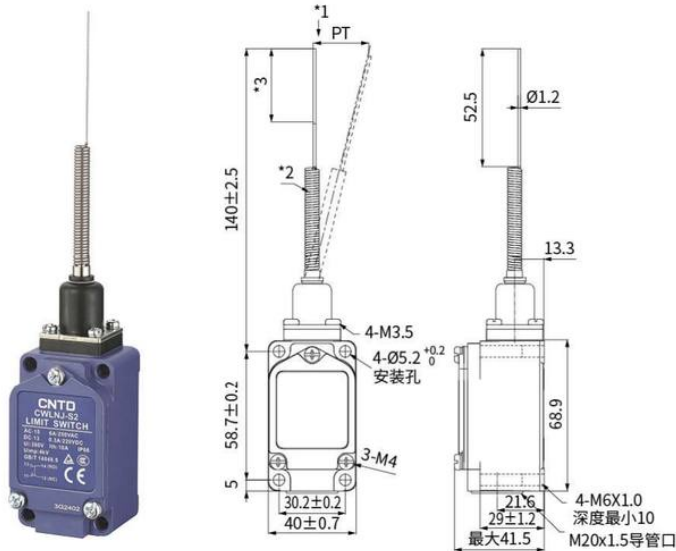


动作特性 Operating Characteristics	CWLNJ-2
动作力OF(最大Max.)	1.47N
预行程 PT	15±5°

- *1. 除了轴芯方向(↓), 钢丝可在任意方向运动;
- *2. 不锈钢钢丝盘簧;
- *3. 树脂棒;
- *4. 操作体的使用范围为从弹簧前端到弹簧全长的1/3以内。
- *1. In addition to the axis direction(↓), the steel wire can move in any direction;
- *2. Stainless steel wire coil spring;
- *3. Resin rod;
- *4. The operating body is used from the front end of the spring to less than 1/3 of the total length of the spring.

外观和尺寸 Appearance and Dimension

CWLNJ-S2
触须型
Tentacle type



动作特性	CWLNJ-S2
Operating Characteristics	
动作力OF(最大Max.)	0.28N
预行程 PT	15±5°

- *1. 除了轴芯方向 (↓), 钢丝可在任意方向运动;
- *2. 不锈钢钢丝盘簧;
- *3. 操作体的使用范围为从弹簧前端到弹簧全长的 1/3 以内。
- *1. In addition to the axis direction (↓), the steel wire can move in any direction;
- *2. Stainless steel wire coil spring;
- *3. The operating body is used from the front end of the spring to less than 1/3 of the total length of the spring.

安全注意事项 Safety Precautions

- 请务必避免接触动力杆端部的金属杆或导线，以降低受伤风险。
- 为预防电路发生短路而可能对开关造成的损害，请在开关电路中串联一只按额定电流1.5到2倍计算的保险丝。
- 在达到EN认证标准的额定使用条件下，建议使用符合IEC60269标准，型号为gl或gG的10A保险丝。
- Ensure not to make contact with the metal rod or wire at the end of the actuator rod to minimize the risk of injury.
- To guard against potential damage to the switch from circuit short-circuiting, include a fuse in the switch circuit with a cut-off current value calculated at 1.5 to 2 times the rated current of the switch.
- When operating within the rated specifications certified by EN standards, it is advised to use a gl or gG type 10A fuse compliant with the IEC60269 standard.

使用注意事项 Using Precautions

- 在连接端子螺丝时，务必使用符合M4标准的圆形压接端子，并且按照推荐的扭矩值紧固。如果接线不当，比如使用未经保护的导线、不合规的压接端子，或扭矩不足，都可能会引起开关故障、电流泄露或损坏。
- 在内部接线时要特别小心，以避免造成短路或损坏，确保开关内部不会受到油、水、有害气体或粉尘的侵入。
- 正确选择和操作接插件至关重要，错误的做法可能会导致设备故障或损坏。操作前应确保了解所有相关的安全措施。
- 请注意，即使连接正确，电缆的末端与开关内部也是相连的，因此防止油、水或有害气体从电缆末端进入同样重要，以防可能出现的设备故障或损坏。
- When affixing to terminal screws, ensure the use of circular crimp terminals that are sized for M4, securing them with the recommended torque. Inadequate wiring practices, such as unprotected wires, unsuitable crimp terminals, or insufficient torque, may lead to switch malfunctions, leakage, or damage.
- Utmost caution is required when performing internal wiring to prevent any short-circuiting or damage, and to ensure that substances like oil, water, harmful gases, or dust do not infiltrate the switch.
- Proper selection and handling of connectors are crucial, as mistakes in this area could result in equipment malfunctions or damage. All relevant safety measures should be understood before proceeding.
- Be aware that even with correct connections, the ends of the cables remain linked to the inside of the switch, so it is equally important to prevent the ingress of oil, water, or harmful gases from the cable ends to avoid potential equipment malfunctions or damage.

关于使用环境 Regarding the Usage Environment

在户外环境或存在特殊切削油、化学溶剂、药品等条件下，密封件的性能可能会下降。在使用前，务必根据具体的使用环境来评估维护和更换的需求。安装开关时，选择一个避免直接暴露于切削屑或粉尘的位置至关重要。同时，需定期检查并清除驱动杆和开关表面的任何切削残留物和类似泥土的物质，以保证开关正常工作。

In outdoor settings or areas exposed to specific cutting fluids, chemical solvents, or pharmaceuticals, the performance of sealing components can be compromised. Prior to use, it's essential to assess the need for maintenance and replacement based on the specific operational environment. When installing the switch, it's crucial to position it away from direct exposure to cutting debris or dust. Regular inspection and cleaning of any residues or mud-like substances on the drive rod and the body of the switch are necessary to maintain its proper functioning.



在环境中频繁振动或受到冲击的情况下，开关可能会出现由于摩擦而产生的微粒，这些微粒可引起接触问题和性能退化，例如接触不良和响应不稳定。在剧烈振动或强烈冲击的情况下，触点可能会出现错误动作或遭受损害。为此，应避免在易受振动和冲击影响的地点安装开关，尤其是那些可能导致共振的位置。开关使用的物理接点在特定条件下可能受到环境中的硅气体影响。当电弧发生时，这些硅气体可能与之反应，在接点处形成氧化硅沉积，导致接触困难。如果开关附近有使用硅基材料（如硅油、硅胶、硅质电缆等），则应考虑采用接点保护电路来减少电弧产生，并消除硅气体的释放。

When a switch is subject to frequent vibrations or impacts, particulate matter generated from friction can cause contact issues and a decline in performance, such as poor connectivity and unstable response. In cases of severe vibration or intense impact, the contacts might malfunction or sustain damage. Therefore, it is crucial to avoid installing switches in areas prone to vibration and shock, especially where resonance could occur. The physical contacts used in switches can be affected by silicon gases present in certain environments. When an electrical arc occurs, these gases can react, leading to the formation of silicon dioxide deposits at the contact points, making connection difficult. If there are silicon-based materials nearby (such as silicone oil, silicone gels, or silicon-insulated cables), it's necessary to consider using contact protection circuits to reduce the occurrence of electrical arcs and eliminate the release of silicon gases.

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。

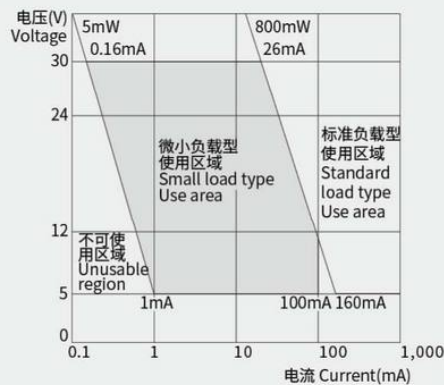
如果在开关微小负载电路时使用一般负载用开关，可能会引起接触不良。下图为开关负载区域范围定义。本目录册内产品适用于 DC24V 10mA 以上范围，当使用负载小于 DC24V 10mA 以下时，可能存在由于电流过小无法击破触点表面氧化膜或硫化膜的现象，从而导致开关接触不良。所以当使用负载小于 DC24V 10mA 以下时，请咨询昌得电气科技有限公司进行产品定制。

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.



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。

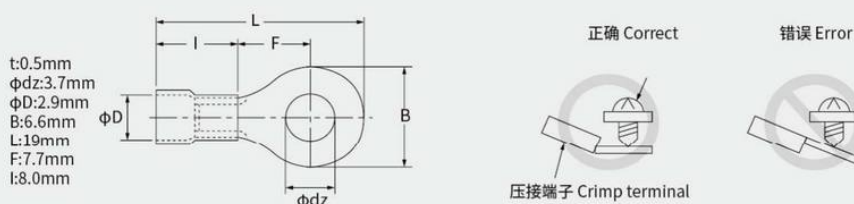
Always wire the switch with the power off to avoid the risk of electric shock.

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

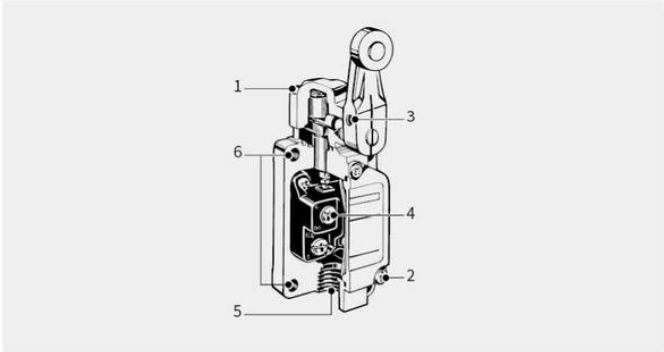
电线名称 Wire name	推荐使用电线 Wire is recommended		
	线芯数 Number of cores	导体 Conductor	成品外径 Nom OD
塑料橡皮绝缘软电线 Plastic rubber insulated flexible wire	2芯 2-core 3芯 3-core 4芯 4-core	0.5~0.75mm ²	圆形 Circular φ6~φ9
600V 塑料绝缘 塑料外皮电缆(VVF) 600V plastic insulation Plastic sheathed cable	2芯 2-core	φ1/φ1.2/φ1.6	

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.

正确的固定扭矩 Correct Fixing Torque

松动的螺丝可能导致设备提前故障。请确保各部件的螺丝根据规定的扭矩紧固，以保障设备的稳定性和安全性。特别是在改变头部方向时，必须重新确认上述扭矩，并保证所有螺丝均匀紧固。同时，要注意防止异物进入内部。
Loose screws may lead to premature equipment failure. Ensure that screws on each component are tightened to the specified torque for stability and safety. It is crucial to reconfirm the specified torque and ensure that all screws are evenly tightened, especially after adjusting the orientation of the head. Additionally, take precautions to prevent the entry of foreign objects into the product.

编号 Number	类型 Types of	正确紧固扭矩 Correct tightening torque
1	头部安装螺钉 Head mounting screws	0.78~0.88N·m
2	盖安装螺钉 Cover mounting screws	1.18~1.37N·m
3	六角螺栓(摆杆定位螺钉) Hexagonal bolt (swing rod positioning screw)	1.90~2.88N·m
4	端子螺钉 Terminal screw	0.59~0.78N·m
5	接插件 Connector	1.77~2.16N·m
6	本体安装螺钉 Body mounting screws	4.90~5.88N·m



触点模块说明 Contact Box Guidance

请勿拆卸或更换产品中的触点模块。触点模块的位置若有所偏移，可能导致设备功能出现异常。同时，如果隔离板的位置安装不当，也可能会影响设备的绝缘性能。
Do not disassemble or replace the contact box in the product. Any displacement of the contact box can result in malfunctions of the equipment. Additionally, improper placement of the separator board may compromise the insulation performance of the device.

安装建议 Installation Advice

在安装产品时，应根据具体指导对面板进行适当加工。在安装过程中，请确保使用合适的紧固扭矩，以维持设备的稳定性和安全性。
When installing the product, the panel should be processed appropriately following specific instructions. Make sure to use the proper tightening torque during the installation process to ensure the stability and safety of the equipment.

CLM5所有型号 CLM5 All Models	安装位置 Installation position
正面安装/背面安装 Positive Installation/ Back Install 正面安装: 4-$\varnothing 5.2^{+0.2}_0$ 孔 Front mounting: 4-$\varnothing 5.2^{+0.2}_0$ hole 背面安装: 4-M6 螺纹孔 Rear mounting: 4-M6 threaded holes 58.7 ± 0.15 30.2 ± 0.15	

关于旋转摆杆型设定位置的说明 Regarding the Setting Position of the Rotary Pendulum Type

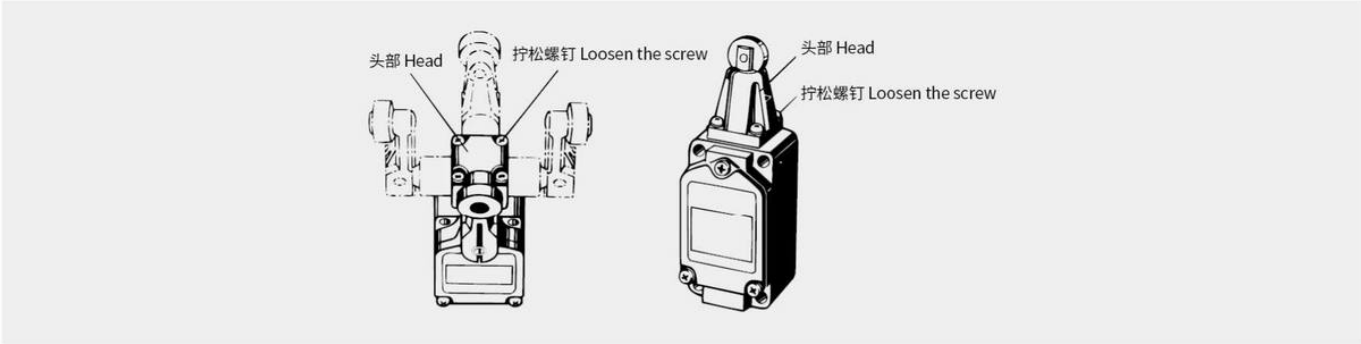
旋转摆杆型，除了叉式摆杆锁定型外，均配有设定位置的指示板。在操作完成后，指示板上的指针应位于轴承凸出部分的区域内。
For the rotary pendulum type, except for the fork-type swing rod lock version, all come with an indicator board for the set position. After operation, the pointer on this indicator board should be located within the area of the bearing's protrusion.

使用开关时 When using switches

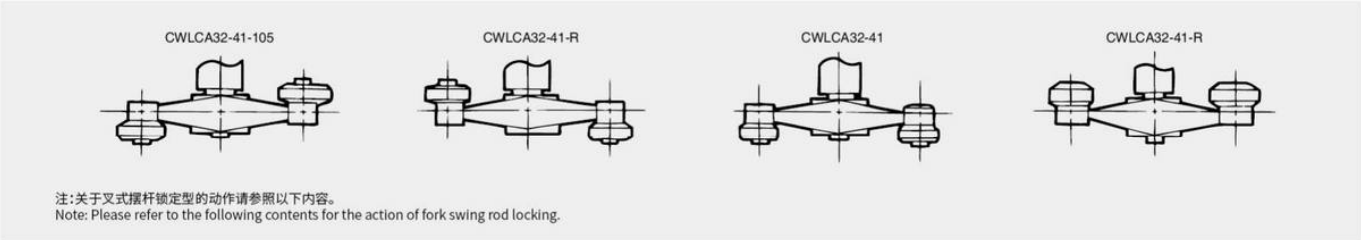
项目 Term	适用機種、適用驱动杆 Applicable models and driving rods
驱动杆的安装位置可以改变 松开驱动摆杆上的内六角螺栓， 可以将驱动杆在 360 °任意方向安装。 The installation position of the drive rod can be changed Loosen the hexagonal bolt on the drive swing rod to install the drive rod in any direction at 360 degrees.	滚轮摆杆型 Roller rocker type: CWLCA2-2 可调摆杆滚轮型 Adjustable swing rod roller type: CWLCA12-2-Q、CWLCA12-2-QG 可调棒式摆杆型 Adjustable rod swing rod type: CWLCL



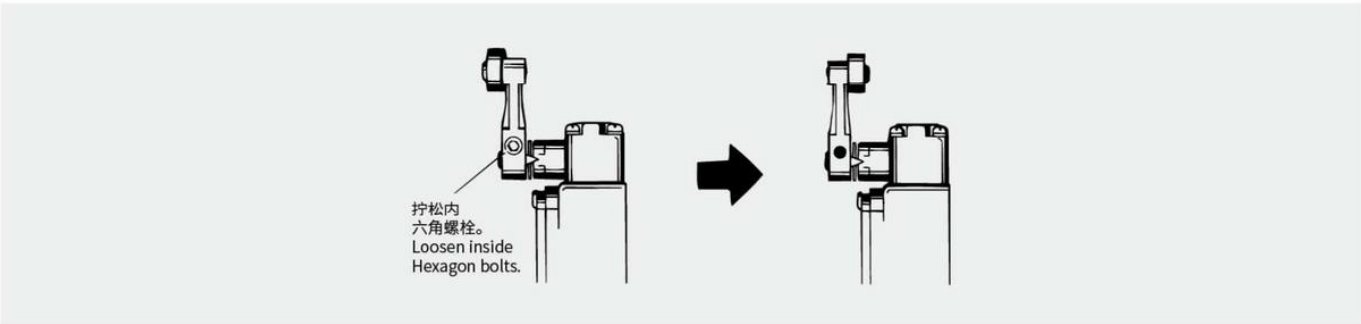
项目 Term	适用機種、適用驱动杆 Applicable models and driving rods
驱可以改变头部方向 取下头部 4 角的螺钉， 可以将头部安装为 4 个方向中的任一方向。此时，请同时改变内部操作柱塞。(仅过行程型的一般型、高灵敏度型不需要改变操作柱塞。) 此外， 滚珠柱塞型可安装在相差 90°的 2 个位置。 Drive can change the direction of the head Remove the screws at the four corners of the head to install it in any of the four directions. At this point, please also change the internal operating plunger. In addition, the ball plunger type can be installed in 2 positions with a difference of 90° degrees.	滚轮摆杆型 Roller rocker type: CWLCA2-2 可调摆杆滚轮型 Adjustable swing rod roller type: CWLCA12-2-Q、CWLCA12-2-QG 可调棒式摆杆型 Adjustable rod swing rod type: CWLCL 滚珠柱塞型 Ball plunger type: CWLD1、CWLD2



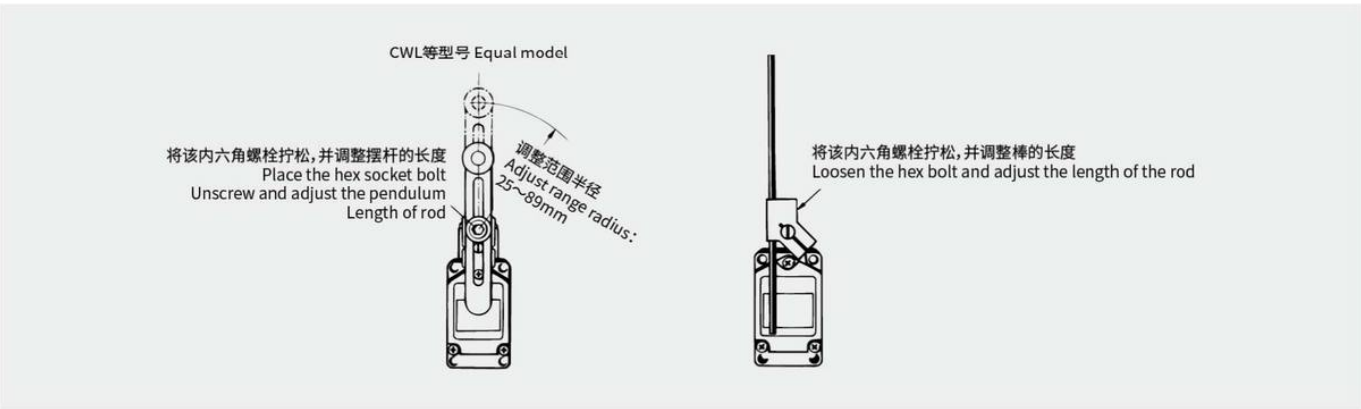
项目 Term	适用機種、適用驱动杆 Applicable models and driving rods
可选择滚珠位置 根据滚珠的位置， 叉式摆杆锁定型共有 4 种类型。 Optional ball position According to the position of the ball, there are four types of fork type swing rod locking types.	叉式摆杆锁定型 Fork type swing rod locking type: CWLCA32-41、CWLCA32-42



项目 Term	适用机种、适用驱动杆 Applicable models and driving rods
可以将滚珠安装在内侧 将滚珠摆杆型反向安装，可以将滚珠安装在内侧。（将动作设定为在水平180°范围内结束。） Ball bearings can be installed on the inside Reverse the installation of the ball swing rod, which can rotate the ballInstalled on the inside. (Set the action to be horizontal End within 180 degrees Celsius)	滚轮摆杆型 Roller rocker type: CWLCA2-2 但不包括可调摆杆滚轮型、叉式摆杆锁定型 But excluding the adjustable swing rod roller type and the fork-type swing rod locking type: CWLCA32-41、CWLCA32-42



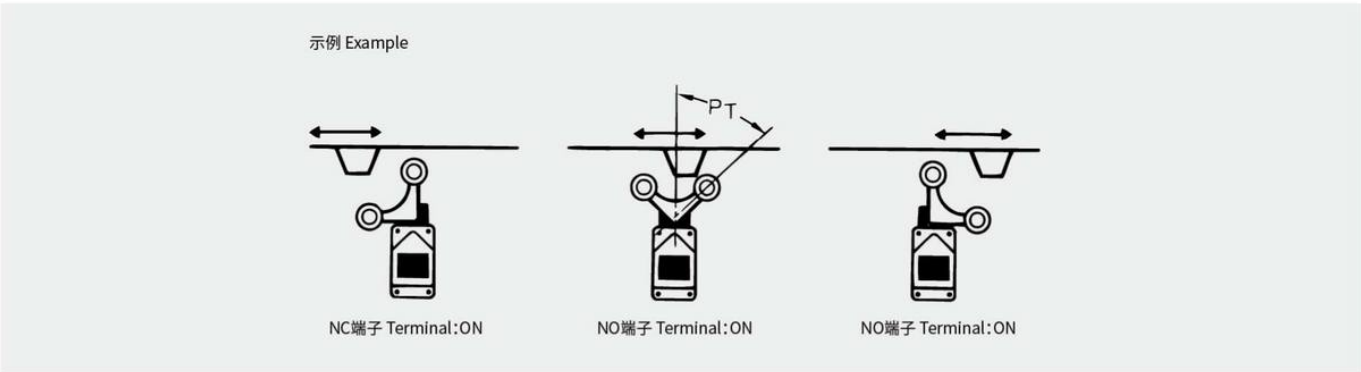
项目 Term	适用机种、适用驱动杆 Applicable models and driving rods
可以调节摆杆、棒的长度拧松内六角螺栓，可以调节摆杆和棒的长度。 The length of the swing rod and rod can be adjusted Loosen the hexagonal bolt to adjust the length of the swing rod and rod.	可调摆杆滚轮型 Adjustable swing rod roller type: CWLCA12-2-Q、CWLCA12-2-QG 可调棒式摆杆型 Adjustable rod swing rod type: CWLCL



关于叉式摆杆锁定型的摆杆操作说明 Regarding the Operation of the Fork Type Swing Rod Locking Mechanism

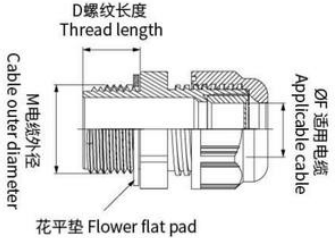
在叉式摆杆锁定型中，当挡块压下摆杆时会导致输出反转，即使挡块移动过程中超出预定行程，也能保持这种反转输出。当挡块以相反方向压下摆杆时，系统能够恢复到反转前的原始状态。

In the fork type swing rod locking mechanism, pressing the stop against the swing rod reverses the output, and this reversal is maintained even if the stop exceeds its intended travel distance. When the stop is pressed in the opposite direction against the swing rod, the system can revert to its original state prior to the reversal.



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

CWL 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 CWL 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.

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.