本手册采用生态纸印刷

東南爲您提供專業的微動開關解決方案
DONGNAN provide you professional micro switch solutions.

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DN-SWITCH

DONGNAN SINCE 1987, WE FOCUSEDON SWITCHES

2022

MICRO SWITCH

微動開關

產品畫册 PRODUCT BROCHURE

東南電子股份有限公司
DONGNAN ELECTRONICS CO.,LTD.

TO PROVIDE A SAFE AND RELIABLE ON-OFF SERVICE, LET ELECTRIC APPLIANCES MORE PERFECT

www.switch-china.com

我們的歷史
OUR HISTORY

Since 1987 樂清縣東南電子元件廠成立，主要從事輕觸開關和撥動開關的生産
Yueqing County DONGNAN Electronic Component Factory established, mainly engaged in tact switches and toggle switches

1995 更名爲樂清市東南電子有限公司，開始KDC–A11、KDC–A04、PS4電源開關的生産，
産品主要應用于彩色電視機和計算機
Renamed as Yueqing DONGNAN Electronics Co., Ltd., and started production of KDC–A11, KDC–A04, and PS4 power switches
Products are mainly used in color TV sets and computers

全部開關産品通過CCEE長城認證；
All switch products passed the CCEE certification;

開始與日本日立（福建）公司合作，向其提供電視機用電源開關。
Cooperated with Japan's Hitachi (Fujian) Co., Ltd., to provide it power switch for TV use.

1996 開始KW3A、KW4A微動開關的研發和生産
Started development and production of KW3A and KW4A micro switches.

1997 開始與希貴、晶石公司合作，研發生産應用于微波爐的系列開關
We started to cooperate with Heygey and JENS, develop and produce switch series for microwave ovens

1999 電源開關部和微動開關部搬遷至樂成鎮金溪工業區
Power switch department and micro switch department moved to Jinxi Industrial Zone, Yuecheng Town

通過ISO9002質量體系認證
Approved by ISO9002

微動開關通過“美的”的認可并開始合作
Our micro switch was approved by Midea and started to cooperate

2000 KW3A、KW4A、KDC–A11、PS4等各系列産品通過了德國VDE、瑞典SEMKO、芬蘭FIMKO、丹麥DEMKO
挪威NEMKO、歐盟CE認證
KW3A, KW4A, KDC–A11, PS4 and other series of switches got VDE, SEMKO, FIMKO, DEMKO, NEMKO & CE certifications in succession

2001 UL目擊試驗室成立。所有産品通過了美國UL認證
UL Witness Laboratory established. All of our products got UL certification

2002 電飯煲開關 獲實用新型專利，專利號ZL 01 2 38192.6 。
The rice cooker switch obtained the utility model patent, with patent No. of ZL 01 2 38192.6.

KW4A（S）微動開關開發成功并投産
KW4A(S) micro switches developed and put into production

與墨西哥H3公司合作開發了電烤箱門控開關SP02系列和電壓轉換器開關KHZ2系列
Cooperated with Mexico H3 company, we developed electric oven door switch SP02 and voltage converter switch KHZ2

質量體系認證改版爲ISO9001：2000版
Revised to ISO9001: 2000 version

榮獲美的公司頒發的2002年度“優秀供應商”稱號
Won 2002 “Excellent Supplier”, issued by Midea

2003 KW10系列微動開關開發成功并通過了美國UL、德國TUV認證
KW10 series micro switches developed and got UL and TUV certification

所有産品的CCEE認證全部改版爲CQC認證
All our CCEE certifications revised to CQC certification

2003 企業注册資金增至200萬元，并獲得了企業自營出口權
Registered capital of our company increased to RMB2, 000,000, and obtained the right of export independently

通過SAMSUNG公司的認可并開始合作
Approved by SAMSUNG and started cooperation

榮獲了美的公司頒發的2003年度“優秀供應商”稱號
Won 2003 “Excellent Supplier” by Midea

2004 KDC–A04系列電源開關通過了美國UL認證
KDC–A04 series of power switches got UL certification

公司與自動化研究所合作開發并制作了“開關特性測試分選機”，提高了産品的出廠合格率，
開啓了自動化生産的進程
Our company cooperated with Automation Research Institute, developed and produced “switch characteristic test sorting machine”, which improved ex–factory qualification rate of products, and we start process of automatic production

開發了MS1系列微動開關
Developed MS1 series of micro switch

2005 經過多年的積累，我們擁有了自己的試驗室、模具制造設備、衝壓設備及自動化生産設備
After years of accumulation, we have our own laboratory, tooling manufacturing equipment, stamping equipment and automatic production equipment

開發了第一款防水型微動開關WS1
The first waterproof micro switch series WS1 was developed

2006 與九陽小家電建立了合作關系
We established cooperation with Joyoung

與格蘭仕建立了合作關系
We established cooperation with Galanz

防水型微動開關WS1通過了德國TUV認證
Waterproof micro switch WS1 series got TUV certification

8月成立了樂清市東南電子有限公司工會
The union of Yueqing DONGNAN Electronics Co., LTD established in August

第一次參加了德國慕尼黑電子元器件博覽會
Attend electronica 2006 in Munich, Germany

2007 先後與機頂盒行業領軍者天柏，百一，同洲等公司建立了合作關系
We established cooperation with set–top box industry leader DVN, Prime, COSHIP etc.

第二款防水微動開關WS2誕生并通過了德國TUV認證
The second series of waterproof micro switch WS2 developed and got TUV certification

5月成立了樂清市東南電子有限公司黨支部
Party branch of Yueqing DONGNAN Electronics Co., LTD established in May

2008 樂清經濟開發區緯七路新廠房破土動工
New factory on Weiqi Rd, Yueqing Economic Development Zone start construction

按鈕開關 獲實用新型專利，專利號ZL 2007 2 000035463.7
Our push button switch obtained utility model patent, patent No. ZL 2007 2 000035463.7

參加了俄羅斯莫斯科國際電子元器件博覽會
Attend Expo electronica 2008 in Moscow, Russia

我們的歷史
OUR HISTORY

2008
注册資金由200萬元增至1100萬元
Registered capital increased from RMB 2 million to RMB11, 000,000

通過鬆下Panasonic的承認
Approved by Panasonic

參加臺灣海峽兩岸秋季電子展
Attend Taiwan cross strait Electronic Exhibition

第二次參加了德國慕尼黑電子元器件博覽會
Attend electronica 2008 in Munich, Germany

KW3A微動開關 25(10)A 250VAC通過了TUV認證
KW3A micro switch 25 (10) A 250VAC got TUV certification

2009
東南電子(順德）辦事處成立
DONGNAN Electronics (Shunde) office established

參加了南美巴西國際電子元器件博覽會
Attend electronicAmericas 2009 in Sao Paulo, Brazil

樂清經濟開發區緯七路288號新建廠房竣工并驗收通過
New plant at No. 288, Weiqi Road, Yueqing Economic Development Zone be completed and accepted

宋湖工業區分廠、西金路分廠搬遷至樂清經濟開發區新廠，公司整體搬遷開始啓動
Songhu Industrial District Branch, Xijin Road Branch moved to our new factory in Yueqing Economic Development Zone, and overall relocation of the company starts

2010
公司總部遷入新建廠區—樂清經濟開發區緯七路288號
Our headquarters moved to newly-built factory—No. 288, Weiqi Road, Yueqing Economic Development Zone

通過了艾美特AMT承認
Approved by AIRMATE AMT

通過了“美的空調”承認
Approved by Midea Air Conditioner

KW3A自鎖開關獲發明專利，專利號 ZL200610029542.7
KW3A self-lock switch obtained invention patent, patent No. ZL200610029542.7

2011
建立ISO14001環境管理體系、OHSAS18001職業健康安全體系
We approved by ISO14001 & OHSAS18001

2013
微動開關、防水開關系列共獲10項實用新型專利
In 2013, micro switch and waterproof switch series won 10 utility model patents

2014
獲“樂清市名牌商標”稱號
We won the title of "Yueqing Famous Brand Trademark "

2015
獲得美的厨房電器“精誠合作15年供方奖”
We won “Supplier Award for 15 years of sincere cooperation “by Midea Kitchen Appliance

我們追求卓越，樹立品牌，先後獲得開關各類專利30多項，更獲得了國内外各大公司的認可
We pursue excellence and establish the image of our brand. We have successively obtained more than 30 patents for switches, and have been recognized by major companies domestic and abroad.

注册資金增至5000萬元，并獲得“温州市知名商標”稱號
Registered capital increased to RMB 50,000,000, and won “Wenzhou Famous Trademark"

獲得鬆下優秀供應商稱號
We obtained Excellent Supplier title from Panasonic.

2015
開發設計充電槍及椿端、車端電控組件并取得專利
Develop and design charging gun, charging point, automotive electronic control components and obtained patents

2016
更名爲東南電子股份有限公司，登陸新三板，股票代碼：839543
Renamed as Dongnan Electronics Co., Ltd, listed on the New 3 board, stock code: 839543

2017
獲國家高新技術企業稱號及省著名商標稱號。被評爲温州市企業技術研究開發中心，市級企業技術中心
We won the title of National High-tech Enterprise & Provincial Famous Trademark. Be named as Wenzhou Enterprise Technology Research and Development Center & Municipal Enterprise Technology Center.

通過Whirlpool承認
Approved by Whirlpool

通過B/S/H承認
Approved by B/S/H

獲得泓首翔電器優秀供應商稱號
We obtained Excellent Supplier title from Home Culture Appliance

獲得億達電器優秀供應商稱號
We obtained Excellent Supplier title from Yida Home Appliances

獲得美的厨房電器戰略供應商稱號
We obtained Strategic Supplier title from Midea Kitchen Appliances

獲樂清名牌産品稱號，注册資金增至6258萬
We won the title of Yueqing Famous brand Product, registered capital increased to RMB62, 580,000

2018
參加日本國際電子元器件、材料及生産設備展覽會
Attend Internepcon Japan 2018 in Tokyo Japan.

5月14日我司緯十一路新廠區建設項目正式開工，并舉行了隆重的開工儀式
Our new plant construction project on Weishiyi Rd started on 14th May, and a grand ceremony was held.

2019
通過HITACHI 承認
Approved by HITACHI

參加印度國際電子元器件及生産設備博覽會
Attend ep India 2019 in India

取得IATF16949 汽車行業質量管理體系
Approved by IATF16949

針對汽車市場推出一系列開關
Introducing a series of micro switches for automobile market

2020
企業被認定爲浙江省企業技術中心，獲得樂清制造50强第三十一名。
Be recognized as Enterprise Technology Center of Zhejiang Province
The 31st of TOP 50 of Yueqing Manufacturing Enterprises

獲得美的戰略金鼎奖
We obtained Midea Strategy Golden Tripod

2021
獲得樂清制造50强第二十六名。
The 26th of TOP 50 of Yueqing Manufacturing Enterprises

6月25日公司總部遷入新建廠區-樂清經濟開發區緯十一路218號
Our headquarters moved to new plant--No.218 Weishiyi Rd, YueQing Economic Development Zone on June 25th.

安全 環保
Safety and environmental protection

Since 1987，we focus on switches

企業願景 Our vision

造就開關行業的全球領先者
To be the global leader of switch industry

企業使命 Our mission

提供安全、可靠的通斷服務，讓電器更完美
To provide a safe and reliable on–off service, let electric appliances more perfect

企業價值觀 Our values

團結 誠信 創新 發展
Unity Integrity Innovation Development

符合RoHS 2.0指令
Accord with RoHS 2.0 Directive

標有“符合RoHS”的產品中限制以下所述的10種物質的使用
Products marked “RoHS ” limit using following 10 materials

RoHS 2.0 限制物質 Restriction of Hazardous Substances	Limit value	限制值 Limit value
鎘及其化合物 Cadmium compound	(Cd)	100 ppm
鉛及其化合物 Blumbum compound	(Pb)	1,000 ppm
水銀及其化合物 Hydrargyrum compound	(Hg)	1,000 ppm
六價鉻化合物 Hexavalent chromium	(Cr^{+6})	1,000 ppm
多溴化聯苯類 Polybrominated Biphenyls	(PBB)	1,000 ppm
多溴二苯醚類 Polybrominated Dipheny l Ethers	(PBDE)	1,000 ppm
鄰苯二甲酸二（2–乙基己基）Bis(2–ethylhexyl) phthalate	(DEHP)	1,000 ppm
鄰苯二甲酸丁酸苯甲酯 Butyl benzyl phthalate	(BBP)	1,000 ppm
鄰苯二甲酸二丁酯 Dibutyl phthalate	(DBP)	1,000 ppm
鄰苯二甲酸二异丁酯 Diisobutyl phthalate	(DIBP)	1,000 ppm

完全按照RoHS2.0指令，限制10種有害物質的使用。
Entirely according to RoHS Directive, restrict using 10 hazardous materials.

爲了生產出全球都能安心使用的產品，東南電子采取了全球性的對環境有害的化學物質的控制。針對2006年7月起執行的RoHS指令(電子電氣設備中有害物質使用禁止令)，我們已在2006年1月起嚴格執行RoHS指令。

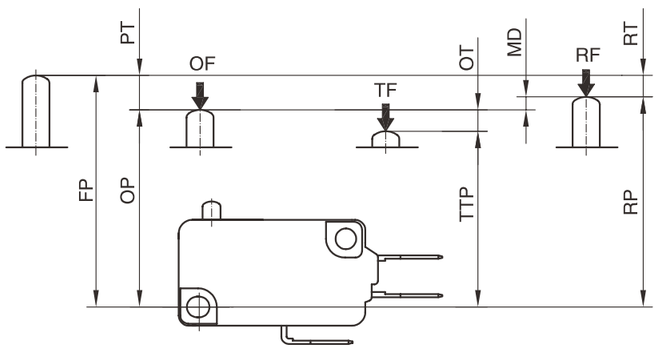
In order to produce safe products for whole world’s use, we DongNan Electronics strictly control chemistry materials which do harm to the world. RoHS Directive (Restriction of the use of certain hazardous substances in electrical and electronic equipment) carried out after July 2006, and we have carried out after January 2006.

認證標誌一覽表
Certification mark table

認證標誌 Mark	國家 Country
CQC	中國 China
CE EN 15	歐洲 Europe
DVE	德國 Germany
c UL us	美國 USA 加拿大 Canada
K	韓國 Korea
N	挪威 Norway
FI	芬蘭 Finland
D	丹麥 Denmark
S	瑞典 Sweden

代號 Code	參數名稱 Name	含 義 Meanings
PT	動作行程(預行程) Pretravel	驅動件從自由位置到動作位置間的位移 The displacements of actuator from free position to operating position.
OT	超行程 Overtravel	驅動件從動作位置到全行程位置間的位移 The displacements of actuator from operating position to total travel position.
MD	差動行程 Movement differential travel	驅動件從動作位置到釋放位置或釋放位置到動作位置間的位移 The displacements of actuator from operating position to release position.
RT	釋放行程 Release travel	驅動件從釋放位置到自由位置間的位移 The displacements of actuator from release position to free position.
OF	動作力 Operating force	驅動件從自由位置移動到動作位置所必須的操作力 The force of displacements of actuator from free position to operating position.
TF	全行程力 Total travel force	驅動件在全行程位置所承受的最小操作力 The smallest force of displacements of actuator on total travel position.
RF	釋放力 Release force	驅動件自正向動作位置返回到釋放位置，操作力必須減小到的數值 The force must be smallest when the actuator moved back to release position from obverse operating position.
TTP	全行程位置 Total travel position	驅動件被止動時所處的位置 The position where the actuator be stopped.
OP	動作位置 Operating position	驅動件在速動機構發生正向動作瞬間所處的位置 The position where the actuator moved obverse on quick–moving parts.
RP	釋放位置 Release position	驅動件在速動機構發生反向動作瞬間所處的位置 The position where the actuator moved reversely on quick–moving parts.
FP	自由位置 Free position	驅動件在不承受操作力以及力不足以引起位移時所處的位置 The position where the actuator lead the displacements when its out of force is not enough.

◆ 微動開關動作特性圖解 Operating characteristic diagramming



開關額定值標識說明
Switch rating identification

標記示例 Marking example	含義 Meaning	備注 Remark
16(4)A	電阻性負載額定電流16A （電動機負載額定電流4A） Resistive load rated current 16A (motor load rated current 4A)	
16GPA	功率因數不小于0.75的感性負載額定電流16A Inductive load rated current is 16A with power factor not less than 0.75	北美風格符號 North American style symbol UL61058
hp	馬力horsepower	
4A/128A	電阻性負載和電容性負載額定電流4A/ 峰值浪涌電流128A Resistive load and capacitive load rated current 4A/ Peak inrush current 128A	
10T105	額定環境温度範圍–10℃~+105℃ Rated ambient temperature range	
5E4	額定操作循環數5×10^4=50000（科學計數法 Scientific notation) Rated operating cycle number	
μ	微斷開Micro disconnect	

共通注意事項 Common Points for Attention

◆ 關于開關的使用 Concerning how to use switches

資料中標明的額定性能值，在没有特别指明的情况下，是指在標準試驗狀態(温度15～35℃、相對濕度25～75%、氣壓86～106kPa)下的數值。在用實際設備進行測試時，請確認不僅是負載條件要相同，使用環境也應和實際使用狀態的條件相同。

The rating values listed in the documents refers to the value under standard testing condition(i.e.temperature 15~35℃,relative humidity 25~75%,air pressure 86~106kPa)if no other conditions specified. When testing with actual equipment, please confirm not only the loading condition but also the using environment should be the same as the actual using condition.

◆ 正確選擇開關 How to choose switch properly

請根據使用環境和負載條件選擇合適的開關使用。

Please choose the proper switch according to the using environment and the loading condition.

- 請根據額定電流、操作力、驅動杆(動臂)的種類、環境條件，在產品目録中選擇適合的開關。

  Please choose the suitable switch in catalogue according to the type of current,operating force,driving rod(levers) and the environment condition.

- 用較大電流的開關代替微小電流開關使用會影響觸點接觸的可靠性,因此請盡量避免;在可能被水等液體澆淋的,雜質、塵埃較多的環境中，請使用密封型開關。

  Using big current switch instead of small current switch will affect the contact reliability,so please try to avoid it. If the environment is easily be poured with liquid(such as water),or have much impurity and dust,please select the sealed switch.

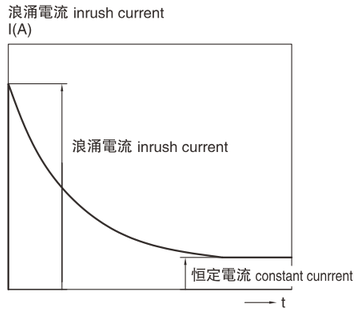
共通
Common Points For Attention

◆ 電氣事項 Electrical Issue

(1) 關于使用負載 Concerning the working load

- 同一開關用于交流電路和直流電路的控制能力相差很大。直流場合控制容量非常小，這主要是由于直流時一旦產生電弧後就很難消除，導致電弧時間變長；此外還會引起觸點材料的遷移，造成觸點無法斷開；也容易產生誤動作。因此請確認額定值。采購時，請明示開關是用于直流還是交流。

  The control capability of the same switch used in the AC circuit or DC circuit is different. The DC control capacity is small, this is mainly because when it is in DC current, once electric arc occurred, it is very difficult to eliminate and the electric arc time will be longer. Besides, the contact material will move and the contact cannot be separated which will cause wrong actions to occur. Thus,please confirm the rated value you require. When placing order, please indicate whether the switch is used in DC or AC current.



- 各種額定值的條件如下：Each rating conditions as follows:

  感性負載：功率因數0.4以上(交流)，時間常數7ms以下(直流)

  Inductive load: power factor more than 0.4 (AC), time constant less than 7ms (DC)

  燈泡負載：有相當于恒定電流10倍的浪涌電流

  Lamp load: have the inrush current which equals to 10 times of constant current

  電動機負載：有相當于恒定電流6倍的浪涌電流

  Motor load: have the inrush current which equals to 6 times of constant current

(2) 關于在電子回路中使用開關 Concerning using switch in electronic loop

微動開關在觸點切換時，會產生跳動、震顫，從而引起電子回路和音響設備的噪聲幹擾和脉衝出錯等故障。爲了避免這種影響，請采取下面措施：

Jumpiness and tremor will occur in changing contact of micro switch,this will cause failure in electronic loop,noise disturbing in acoustic equipment and the pulse mistake etc. In order to avoid this kind of influence, please take the following measures:

- 設計電路時，設置CR電路等浪涌吸收電路；

  Set up CR electric circuit and other swrge absorption circuits when designing circuit

- 選用采用了鍍金觸點的微小負載用開關，這種開關不易受到環境影響。

  Selected small load switch with gold–plated contact, this kind of switch will not easily affected by environment.

(3) 關于微小負載的使用 Concerning tiny load uses

如果在微小負載電路中使用一般負載用開關，可能會導致接觸不良，請選用使用區域内的開關，并根據需要插入正確的觸點保護電路(浪涌抑制器)；請選用采用了鍍金觸點的微小負載用開關。

If general load switch is used in the tiny load circuit,it may cause unstable contact.Please select the switch within the using region and insert the correct contact protection circuit (inrush suppresser) accordingly. Please select tiny load switch with gold–plated contact.

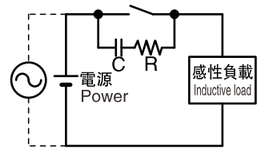
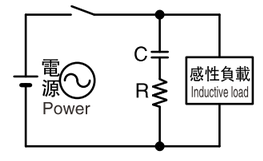
(4) 關于接點保護電路 Regarding contact protection circuit

- 爲了延長接點的壽命，防止噪聲，以及減少電弧引起的碳化物、硝酸的生成，可以使用接點保護電路(浪涌抑制器)，但如果使用不正確則適得其反。下面介紹接點保護電路(浪涌抑制器)的代表例。另外，在濕度高的環境中，由易產生電弧的負載(例如開關感性負載時)的電弧生成的NO_3和水分會生成硝酸(HNO_3)，腐蝕内部金屬部分并導致動作故障。在高頻率且產生電弧的電路條件下使用時，請根據下表使用接點保護電路(浪涌抑制器)。此外使用接點保護電路（浪涌抑制器）時，請注意負載的動作時間可能多少會變慢。

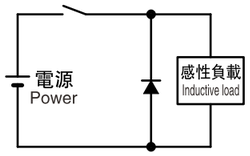
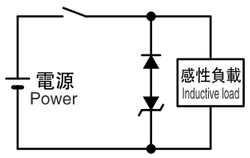
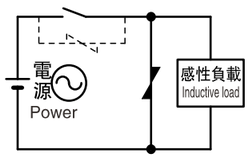
Contact protection circuit (inrush suppressor) can be used for the purpose to extend contact life, prevent noise and reduce carbides & nitric acid caused by electric arc. However, if it is used incorrectly, it will take effect on the contrary. Contact protection circuit (inrush suppressor) example is illustrated below. In addition, arc load (e.g. when switch is in inductive load) can easily generated NO_3 & moisture generated nitrate acid (HNO_3) under high humidity environment and internal corrosion in metal parts caused malfunction action. When it is used in high frequency and circuit arcing conditions, please use contact protection circuit (inrush suppressor) according to below table. Besides, when using contact protection circuit (inrush suppressor), please note that operation time for loading may be slower.

接點保護電路(浪涌抑制器)的代表例

Contact protection circuit (inrush suppressor) representative example

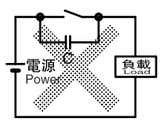
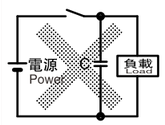
電路舉例 Circuit example		適用 application AC	適用 application DC	特點、其它 characteristics, others	元件的選擇方法 Selection method of the component
CR方式 CR method		△*	○	*AC電壓下使用時，負載的阻抗必須比C、R的阻抗小得多。 When it is used under AC voltage, load resistance must be smaller than CR'S resistance.	CR的標準是 CR standard C：接點電流1A爲1~0.5(μF) contact current 1A is 1~0.5(μF) R：接點電壓1V爲0.5~1(Ω) contact voltage 1V is 0.5~1(Ω) 根據負載的性質，可能不一致。可以認爲C影響接點斷開時的放電抑制效果，R起到下次通電時限制電流的作用，請在試驗中加以確認。C的耐壓一般使用200~300V的產品，AC電路請使用AC用電容器（無極性）。 但是直流高電壓時接點間電弧的斷路能力有問題時，在接點間連接C、R可能要比在負載間連接效果好，請實機確認。 According to the nature of load, it may be inconsistent. It is believed that C influence the discharge inhibitory effect of contact disconnection, R can limit electric current when the power is switched on next time, please confirm this point by testing. The withstand voltage of C is generally used for 200~300V product, please use AC capacitor for AC circuit (non–polarity). However, when it is in DC high voltage and there is problem with the ability of arcing to cutoff, to connect C, R with contact may be better than load connection, please confirm this point by actual machine.
		○	○	負載爲繼電器、螺綫管等的情况下動作時間變慢，電源電壓爲24～48V時連接在負載之間，100～200V時連接在接點間，效果比較好。 Operating time of loading under relay & solenoid conditions will be slower, when power voltage is 24~48V it is connected between the load, when it is 100~200V, it is connected between the contacts, it will enhance effectiveness.	

注意事項 共通
Common Points For Attention

二極管方式 Diode method		×	○	儲存在綫圈中的能量通過并聯二極管，以電流的形式流向綫圈，在感性負載的電阻部分作爲熱能消耗掉。此方法比CR方式的復位時間更慢。 Energy stored in the coil connected parallel with diode flows to the coil in the form of electric current be used as heat energy in inductive load resistance component. Release time by this method is slower than by CR method.	請使用反向擊穿電壓爲電路電壓的10倍以上，且正向電流超過負載電流的二極管。 Please use opposite breakdown voltage that is above 10 times of circuit and forward current exceed load current diode.
二極管+齊納二極管方式 Diode + Zener diode method		×	○	二極管方式下復位時間太慢的情況下使用有效。 It is effective to use if release time is too slow by diode method.	有些環境下負載可能無法工作，因此請使用齊納電壓爲電源電壓1.2倍左右的齊納二極管。 Loading may not perform under some circumstances, please use zener diode with zener voltage that is 1.2 times of power voltage.
可變電阻方式 Variable resistance method		○	○	利用可變電阻的定壓特性，確保施加于接點間的電壓不至于過高的一種方法。這種方法下復位時間多少會變慢。電源電壓爲24~48V時連接在負載間，100~200V時連接在接點間，效果比較好。 Using the constant pressure characteristics of variable resistance is the way is to ensure that the voltage between the contacts will not be too high. Release time will slow down under this method. When power voltage is 24~48V it is connected between the load, when it is 100~200V, it is connected between the contacts, it will enhance effectiveness.	可變電阻的截斷電壓Vc請根據下面的條件選擇。交流時必須爲$\sqrt{2}$倍。 Vc＞(電源電壓×1.5) 但是，如果Vc設定得過高，高壓就無法截斷，效果也將變差。 Please choose from below conditions for the cutoff voltage of variable resistor. (Vc)Alternating must be$\sqrt{2}$ times. Vc＞ (power voltage × 1.5) However, if Vc setting is too high, high pressure can't be cutoff, the results will becomes worse.

請不要如下使用接點保護電路(浪涌抑制器)

Please don't use contact protection circuit (inrush suppressor) as below.

	對于斷路時的消弧非常有效，但接點開路時C中儲存了容量，因此接點接通時C出現短路電流，接點很容易熔接。 It is effective to remove arcing when circuit breaking, however, C stored capacity when contact open. Thus, when contact is switched on, short circuit current will appear on C, contact will easily weld.		對于斷路時的消弧非常有效，但接點接通時出現流向C的帶電電流，因此接點很容易熔接。 It is effective to remove arcing when circuit breaking, however, when contact is switched on, electric current with power flow towards C. Thus, contact will easily weld.

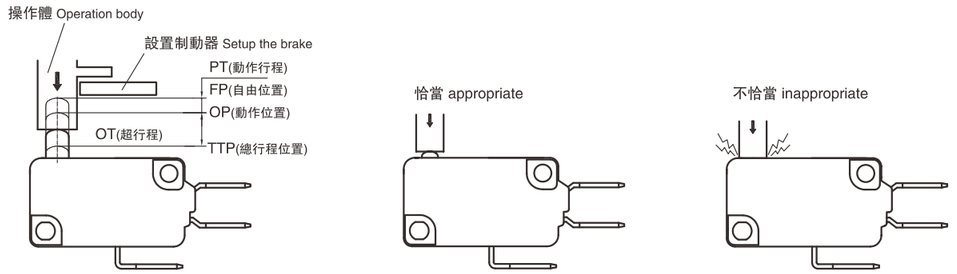
◆ 機械事項 Mechanical Issue

(1) 關于操作行程的設定 Concerning the operating travel setup

操作行程的設定將影響開關的可靠性，要得到高可靠性，開關必須在合適的接觸力範圍内使用 。因此安裝開關時，請特別注意：

The setup of operating travel will affect the reliability of the switch, if you want to obtain high reliability, the switch must be used in the appropriate contact force scope. Please pay special attention to the followings when installing the switch:

- 使用常閉(NC)觸點時，操作體設定必須保證驅動杆(按鈕或動臂)能返回到自由位置；使用常開(NO)觸點時，請以過行程(OT)值的70 ~ 100%爲標準來安裝。
  When using NC contact, operation body setup should ensure the driving rod (button or lever) can return to free position; When using NO contact, please install it according to 70 ~ 100% of the over travel(OT).
- 行程設定在動作位置(OP)和復位位置(RP)附近時，觸點間接觸力會較小且不穩定，無法保證較高的接觸可靠性，也容易由于振動和衝擊産生誤動作。
  When the travel setup is near the operating position (OP) and release position (RP) , the contact force between the contacts will be small and unstable i.e. high contact reliability cannot be ensured and vibration and impact will cause wrong action easily
  行程設定超過了全行程，即操作體在全行程位置(TTP)之下時，可能由于操作體的慣性力造成驅動杆和開關本體的損壞，同時加到内部可動彈簧的應力也會變大，由此導致開關的壽命縮短。
  When the travel setup exceed the total travel i.e. the operation body is below the total travel position (TTP), may be the inertia force of the operation body caused damage to the driving rod and switch body and also the moving spring stress inside will be bigger,then the switch life will be shortened.



- 特別提醒：請正確理解“全行程位置”的含義，它是指驅動件(按鈕或動臂)允許到達的最低位置(此位置能保持開關特性正常)，而并非驅動件所能到達的機械極限位置(在這個位置，開關會受到損傷)。特別是在開關安裝有動臂(擺杆)的情況下，操作體如果强行將動臂驅動到超過全行程的位置，則不僅損傷開關内部零件，而且會使動臂嚴重變形，導致開關失效，請避免發生此現象。
  Special attention: please comprehend the meaning of "total travel position" correctly, it means the lowest position (the position can ensure normal switch specifications) of driving rod (button and lever) allowed, it does not mean the driving rod can reach mechanical limit position (switch will be damaged in this position) . Especially under the condition of driving lever (rod) mounted on the switch, if operation body moves the lever to surpass the total travel position forcefully, not only the parts inside will be damaged, but also the lever will be distorted heavily, then the switch will fail, please avoid this situation.

(2) 關于操作速度和操作頻率 Concerning operation speed and operation frequency

操作速度和頻率的設定，會影響開關的性能。請注意以下要點：

Operation speed and operation frequency setup will affect switch functions. Please pay attention to the followings:

- 操作速度極慢，則觸點的切换將不穩定，可能導致接觸不良和熔接。
  If the operating speed is too slow, then the contact change will be unstable which may cause the bad contact and fusion.
- 操作速度極快，則會變成衝擊動作，引起早期損壞。
  If the operating speed is too fast which will turn to impact movement, and it will cause early damage.
- 操作頻率太高，則觸點的切换可能會跟不上。
  If the operating frequency is too high, then the contact change may not be able to follow up.
- 操作頻率極低(1次以下/月)，觸點表面會産生氧化膜，導致接觸不良。
  The operating frequency is extremely low (for less then 1 time/month), the contact surface will be oxide, which will cause bad contact.

容許操作速度、容許工作頻率是用來保證開關的可靠性的，開關的壽命是在特定操作速度下的數值。

Allowed operating speed & operating frequency is used to guarantee switch reliability; switch life is under the specific operating speed value.

(3) 關于使用狀態 Concerning the using status

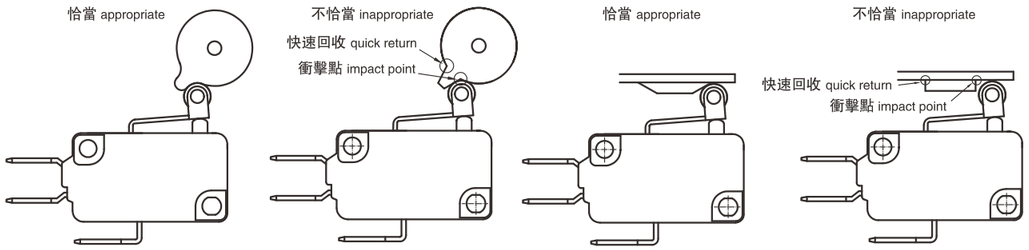
請不要在一直按下的狀態下長期使用，否則會加快彈性零件的劣化，改變其特性。

Please avoid using it when pressing continuously for a long time, otherwise, it will speed up the deterioration of elastic parts and change its characteristic.

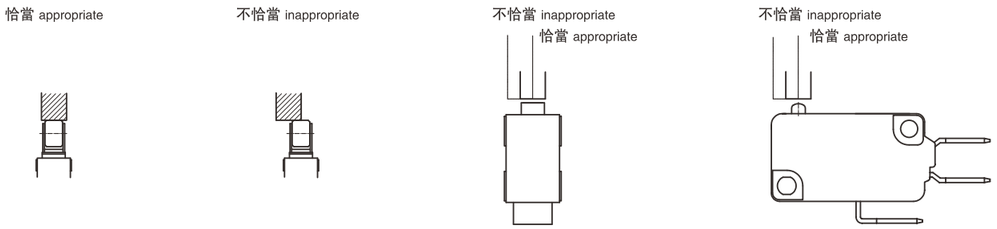
(4) 關于開關的操作方法 Regarding the way how to operate the switch

開關的操作方法直接影響開關的性能。操作時應注意：
Switch performance directly influenced by the way to operate switch. Please pay attention to the followings when operating switch:

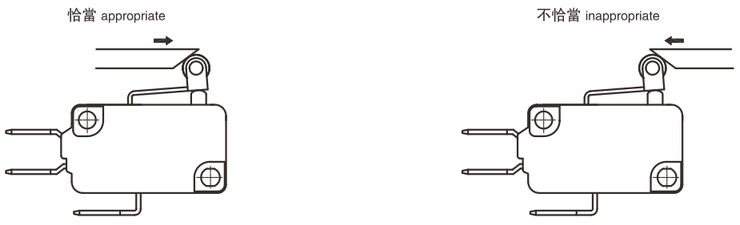
- 請使用形狀平滑的開關操作體(凸輪、擋塊等)。開關的驅動杆快速回收受到衝擊時，可能導致驅動杆的破損和壽命的縮短。
  Please use the smooth shaped switch operation body (cam,stop piece etc.).When switch driving rod return quickly under impact which may cause driving rod breakage and life reduction.



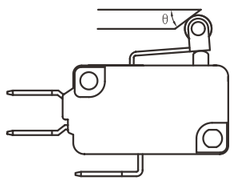
- 操作時請不要在驅動杆上施加偏負荷。否則，局部摩擦可能導致驅動杆的破損和壽命的縮短。
  Please do not add leaning load on the driving rod when it is in operation. Otherwise, the part friction may cause driving rod breakage and life reduction.



- 請根據驅動杆的動作方向進行操作。
  Please operate according to the movement direction of driving rod.



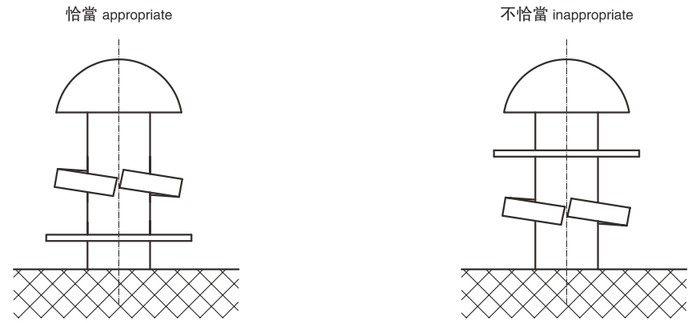
- 在針狀按鈕型中，請垂直按下按鈕。
  For the needle button type, please press button vertically.
- 滾輪擋塊的角度θ請設定在30°～45°的範圍內。角度過大，會對動臂造成异常的橫向應力。
  The roller stop piece's angle θ please setup between 30° to 45°. If angle is oversized, it will cause moving arm unusual lateral force to the lever.



◆ 關于安裝 Concerning installation

(1) 開關的固定 Switch fixing

- 安裝開關時，使用安裝螺釘應配合平墊圈和彈簧墊圈。不能將彈簧墊圈直接壓在開關外殼上,以免損壞外殼。此外，緊固螺釘時，轉矩過大會導致觸點黏着和開關破損 。請選用與開關安裝孔相應尺寸的螺釘，螺釘直徑太小會造成安裝位置的不一致性。
  When installing switch , mounting screw have to match with the plain washer and the spring washer . Do not press the spring washer directly to the switch cover,in order not to damage the cover. In addition, when fastening screw,torque oversized will cause the contact to stick together and switch breakage . Please choose corresponding sized screw with the switch mounting hole . If the screw diameter is too small, it will cause nonconformity of mounting position.



- 請不要對開關本體進行擴大安裝孔等加工。
  Please do not add processing on the switch body such as expand mounting hole.
- 關于固定劑的使用：使用黏合劑、固定劑時，請不要使其附着在開關的可動部位或進入開關內部，否則可能導致動作不良、接觸障礙。此外有些種類可能産生有毒氣體造成惡劣影響，因此請充分確認後使用。
  Concerning fixing dosage using : When use adhesive , fixing dosage , please do not let it stick to moving parts or enter into the switch , otherwise , it may cause bad movement & bad contact . In addition , it may produce harmful gas in some cases which cause bad influence, thus, please use it after full consideration.
- 配綫方法：配綫時請不要在導綫上施加拉力。
  Wiring method: When wiring, please do not add pulling force on the wire.
- 安裝場所：請安裝在不容易引起開關誤當作的場所。
  Install place: Please install it in place where it will not cause switch mis-operation easily.
- 維護、檢查：安裝時請確保其容易檢查，便于更換。
  Maintenance check: When installing, please guarantee that it is easy to check and changed easily.
- 安裝方向：在低荷重(動作力)型開關上安裝長動臂(擺杆)時，請注意安裝方向，應保證動臂的自重不會直接對按鈕産生壓力，否則可能導致開關復位不良。
  Install directions: When assembling the long lever (rod) on the switch which is low load (operating force) , please pay attention to install direction and should guarantee that the lever weight will not cause pressure to button directly , otherwise , it may cause bad release of the switch.

(2) 關于和端子的連接 Concerning the connection with terminals

- 焊接端子：用烙鐵進行焊接時，烙鐵頭的温度請控制在380℃以下。如果開關在焊接不良的情况下使用，可能會引起异常發熱，燒毁。焊接温度和時間爲380℃・3s以内。長時間加熱可能導致外殼軟化熔解，導綫表皮燒焦和内部結構變化等，造成開關特性下降。
  Soldering terminal : When jointing with the soldering irons , please control the soldering iron tip , temperature below 380℃. If the switch uses in the bad jointing condition, it may cause exceptional heat, then burning. Jointing temperature and time: 380℃・3s. If it is heated for a long time , it may cause cover soften & melt , wire surface burn , the inside structure change and so on , will cause reduction in switch characteristics.
- 快接端子：請使用標準形狀的插套直向插入端子 。如果從端子的横向或上下方向施加過大的外力 ，可能造成端子的變形和外殼破損。
  Quick connect terminal : Please use the standard shaped inserter to insert straightly to the terminal . If exert oversized external force transverse or above-below direction from the terminal, it may cause the terminal distort and the cover breakage.
- 隔板的使用：擔心絶緣距離無法確保或附近有其他金屬部件和銅綫時，請使用絶緣隔板來確保絶緣距離。
  Using of separator: If you’re worry that the insulation distance are unable to be guaranteed or there are other metal parts and the copper wire nearby, please use insulator board to guarantee the insulation distance.

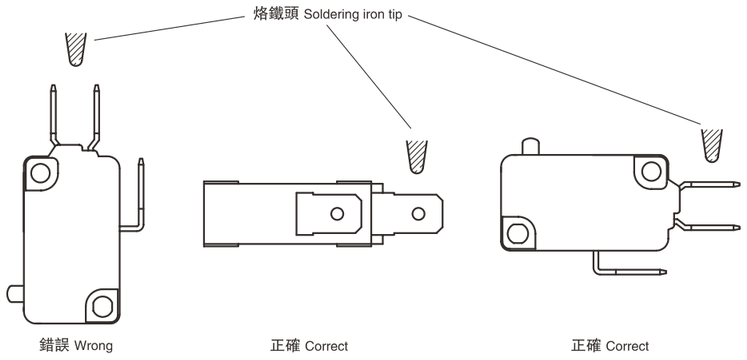
共通
Common Points For Attention

Since 1987，we focus on switches

(3) 焊接注意事項 Soldering issue

- 手工焊接時，將端子橫放(與地面平行)，用熱容量合適的電烙鐵和適量的焊錫迅速焊接，還要注意用換氣扇等排放焊劑揮發的氣體。防止烙鐵頭碰觸到開關本體等導致焊劑流入開關內部。焊劑氣體進入開關內部，可能引起接觸不良。焊接後請不要立刻向導綫和端子部位施力。

  When jointing with hands，please put the terminal flat（parallel with ground），jointing rapidly with suitable thermal capacity electric soldering iron and suitable soldering tin，attention should be paid to use of ventilating fan so as to discharge the solder volatility gas. Avoid the soldering iron tip touch the switch body which will cause soldering dosage flows into switch inside. Soldering dosage gas enters into the switch may cause bad contact. After jointing, do not press the wire and terminal immediately.



- 自動焊接時，請調節好焊劑的量，不要讓焊劑漫到基板上。焊劑進入開關內部可能導致接觸不良。

  When joint automatically, please measure the solder dosage quantity, do not let it flow to the base plate. Soldering dosage flow inside the switch may cause bad contact.

◆ 使用和儲存環境 Using and storage environment

(1) 關于使用 Concerning usage

請不要往按鈕部位、驅動部位等運動部位加油，否則可能引起工作失常、接觸不良。

Please do not oil on the button and driving part, otherwise, it maybe will cause switch works abnormally, bad contact.

(2) 關于使用環境 Concerning the using environment

- 一般開關都不是防水結構。因此在水等液體飛散、噴射的環境中請對開關采取保護措施。

  Normal switch are not waterproof，thus，please take protective measures to switch against liquid such as water disperse or spraying environment.

- 請不要在對開關連續施加振動和衝擊的狀態下使用。隨着磨損粉屑的産生，可能導致觸點故障和工作失常、壽命縮短等。此外，如果施加過大的振動或衝擊，觸點可能發生誤動作、黏着、破損等。請在不産生共振的方向和没有振動、衝擊的位置上安裝。

  Please do not use the switch under condition of exert vibration and continuous impact. Attrition dust produce may cause contact failure，malfunction and life shortened etc. Furthermore，if there is oversized vibration or impact，the contact may be mis-operated，stick together, breakage and so on. Please install it in the position with no resonating direction, no vibration and no impact.

- 請不要在有硫化氣體(H_2S、SO_2)、氨氣(NH_3)、硝酸氣體(HNO_3)、氯氣(CL_2)等有害氣體和高温、高濕的環境中使用，否則可能會由于觸點接觸不良和腐蝕導致破損等功能故障。

  Please do not use it with exposure to harmful gas such as H_2S、SO_2、NH_3、HNO_3、CL_2,high temperature and high humidity condition, otherwise, it may cause breakage and failures by bad contact and corrosion.

- 請在開關規定的使用温濕度範圍内使用。在高温下使用可能會導致特性改變。如果温度急劇變化，也會導致特性的變化。建議您盡量安裝在離熱源遠的地方以免受到影響。

  Please use it in the stipulated temperature scope.If it is used in high temperature,the characteristic of switch will change.If temperature changed rapidly，it will also cause switch characteristic change. We suggest installing in place as far as possible from the heat in order to avoid the influence.

(3) 關于儲存環境 Concerning storage environment

保存開關時，爲了防止由于鍍銀端子的硫化變色，請裝入聚乙烯袋中。

When keep switches, please pack it in polyethylene bag to prevent silver plated terminal vulcanization and change color.

請避免保存在會産生有害氣體的場所和高温、高濕度場所。在有些保存場所，建議您對出廠後超過3-6個月的産品進行重新檢查後再使用。

Please do not store it in places where there is harmful gas,high temperature and high humidity. In some storage places,we suggest you to re-inspect it before use when it is out of factory over 3-6 months.

微動開關系列 Micro Switch Series

防水開關系列 Waterproof Switch Series

DONGNAN provide you professional micro switch solutions.

其他開關系列 Other Switch Series

索引 INDEX

KW3A 型微動開關系列 Micro switch series

◆ 安全可靠的基本開關 Safe, reliable basic switch

- 外形美觀，結構緊凑。具有微小觸點間隙，快速動作、高靈敏和微小動作行程的特點。
  Nice appearance,tight configuration.Characteristic:small contact clearance, quick action, high sensitivity and small operating travel.
- 長壽命，高可靠。
  Long life, high reliability.
- 接綫端子種類齊全
  A variety of contact terminals
- 動作力範圍寬
  A variety of models with low operating force to high operating force are available
- 多種温度等級
  A variety of temperature degree
- 配備各種形式動臂
  A variety of levers
- 採用熱固性或熱塑性塑料
  Adopt thermosetting plastic or thermoplastic
- 廣泛應用于各種家用電器、電子設備、自動化設備、通訊設備、汽車電子、儀器儀表、電動工具等領域。
  Widely used in home appliance,electronic equipment,automatic machine,communication equipment,car electron,apparatus and instrument, electric motion tool etc.
- 可提供直流大間隙規格開關。
  Direct current large gap switch can be provided.

◆ 技術特性 Technical Characteristics

項目 Item		特性值 Value
工作速度 Operating speed		0.1mm ~ 1m/s (與驅動方式有關)(Related with actuator forms)
工作頻率 Operating Frequency		機械 60次/min; 電氣 25次/min Mechanical 60 cycles/min; Electrical 25cycles/min
絶緣電阻 Insulation resistance		≥100MΩ (500VDC)
接觸電阻 Contact resistance		動作力OF > 0.75N：≤50 mΩ 動作力OF≤0.75N：≤100mΩ (初始值initial value)
耐電壓 Test voltage	同極不相接端子間 Between terminals of the same polarity	AC1000V,50/60Hz，1min
	帶電金屬零件與地(外殼)之間、接綫端與不帶電金屬件之間 Between current–carrying metal parts and ground (case), and between each terminal and non–current –carrying metal parts.	AC3750V，50/60Hz，1min
抗振動 Vibration resistance		10 ~ 55Hz，1.5mm 雙振幅 Double amplitude
抗衝擊 Shock resistance		破壞:動作力>0.5N: 1000m/s²(約100G)max 動作力≤0.5N: 400m/s²(約40G)max 故障:動作力>0.5N: 200m/s²(約20G)max 動作力≤0.5N: 100m/s²(約10G)max Destruction: OF>0.5N: 1000m/s²(approx.100G)max OF≤0.5N: 400m/s²(approx.40G)max Malfunction: OF>0.5N: 200m/s²(approx.20G)max OF≤0.5N: 100m/s²(approx.10G)max
壽命 Life		機械≥2,000,000次; Mechanical ≥2,000,000 cycles 電氣≥50,000次 Electrical ≥50,000 cycles
質量 Weight		約6.2g(無動臂型) Approx. 6.2g(No lever)
安全認證 Safety approvals		UL、CUL、VDE、ENEC、SEMKO、DEMKO、NEMKO、FIMKO、CE、EK、CQC

◆ 型號規格命名及含義 Model number legend and meanings

KW3A □– □ □ □ □ □– □ □ □ □ – (□)
1 2 3 4 5 6 7 8 9 10 11

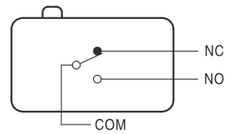
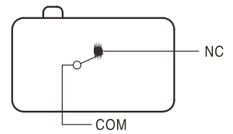
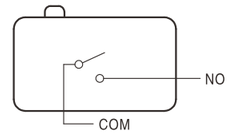
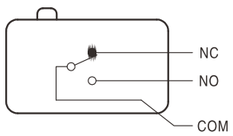
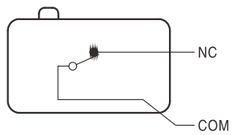
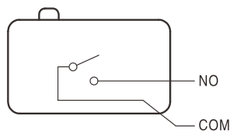
1 温度等級 Degree of temperature	無標記 No mark: T85,10T105 T:T125 H:T150 G:T200		
2 額定值 Ratings	KW3A: 16A125VAC 16GPA125/250VAC 16(4)A125/250VAC 10A30VDC 1/3hp125VAC 16(10)A125/250VAC 16(8)A250VAC KW3A-25: 25RA125/250VAC 25(10)A125/250VAC 1hp125VAC 2hp250VAC KW3A-25(10): 1hp125VAC 2hp250VAC 25(10)A250VAC KW3A-21: 21GPA125/250VAC 21(4)A125/250VAC 12A30VDC 1hp125VAC 2hp250VAC KW3A-10: 10A125VAC 10GPA125/250VAC 10(3)A125/250VAC 6A30VDC 10(8)A125/250VAC 10(6)A250VAC KW3A-5: 5A125VAC 5GPA125/250VAC 5(2)A125/250VAC 4A30VDC KW3A-1: 1A125VAC 1GPA 125/250VAC 1(0.3)A125/250VAC KW3AT-21: 21A125VAC 21GPA125/250VAC 21(4)A125/250VAC 12A30VDC 1hp125VAC 2hp250VAC KW3AT-16: 16A125VAC 16GPA125/250VAC 10A30VDC 1/3hp125VAC 16(4)A125/250VAC	**2** 額定值 Ratings	KW3AT-10: 10A125VAC 10GPA125/250VAC 6A30VDC 10(3)A125/250VAC KW3AT-05: 5A125VAC 5GPA125/250VAC 4A30VDC 5(2)A125/250VAC KW3AT-01: 1A125VAC 1GPA125/250VAC 1(0.3)A125/250VAC KW3AH-22: 22GPA125/250VAC 22A125/250VAC KW3AH: 16GPA125/250VAC 16A125/250VAC KW3AH-10: 10.1A125VAC 10.1GPA125/250VAC 10(3)A125/250VAC KW3AH-05: 5A125VAC 5GPA125/250VAC 5(2)A125/250VAC 0.1/1A30VDC KW3AH-01: 1A125VAC 1GPA125/250VAC 1(0.3)A125/250VAC 0.1/1A30VDC KW3AG-22: 22GPA125/250VAC 22A125/250VAC KW3AG: 16GPA125/250VAC 16A125/250VAC KW3AG-10: 10.1A125VAC 10.1GPA125/250VAC 10(3)A125/250VAC KW3AG-05: 5A125VAC 5GPA125/250VAC 5(2)A125/250VAC 0.1/1A30VDC KW3AG-01: 1A125VAC 1GPA125/250VAC 1(0.3)A125/250VAC 0.1/1A30VDC KW3A–20E：20A 36VDC KW3A–16E：16A 36VDC KW3A–12E：12A 36VDC KW3A–10E：10A 36VDC KW3A–5E：5A 36VDC

◆ 型號規格命名及含義 Model number legend and meanings

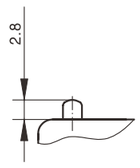
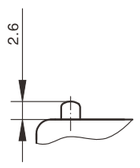
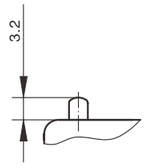
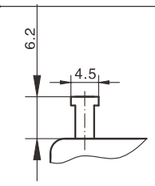
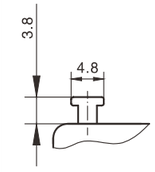
KW3A □– □ □ □ □ □– □ □ □ □ – (□)
1 2 3 4 5 6 7 8 9 10 11

2 額定值 Ratings	KW3A–15F：15A 48VDC KW3A–10F：10A 48VDC KW3A–5F：5A 48VDC KW3A–20G：20A 60VDC KW3A–15G：15A 60VDC KW3A–25H：25A 84VDC KW3A–20H：20A 84VDC KW3A–5J：5A 250VDC ……	**7** 端子類型 Terminal types	D: 焊接/187共用端子 Solder/187 common terminal E: 螺孔端子 Screw terminal F: 焊接端子 Solder terminal L: 左側面PCB端子 Left side PCB terminal R: 右側面PCB端子 Right side PCB terminal H: 250快接端子之二 250Quick terminal No.2 Y: 非標準端子 Not standard terminal
3 接觸形式 Circuit	Z: 轉換式 SPDT T: 常開(按通)式 SPST–NO D: 常閉(按斷)式 SPST–NC (見說明圖 See illustration)	**8** 動作力(max) Operating force	015: 0.15N 025: 0.25N 050: 0.5N 100: 1N 150: 1.5N 200: 2N 300: 3N 400: 4N 注：若是非標準動作力，用此動作力上限值表示。 Note: if it is not standard operating force,indicate with the upper limit.
4 驅動形式 Actuator forms	0:無動臂 No lever A1/1: 短動臂 Short lever A2/2: 長動臂 Long lever A3/3: 中動臂 Middle lever A4/4: 短滾輪臂 Short roller A5/5: 長滾輪臂 Long roller A6/6: 弧形動臂 Arc lever A□/□: 非標準動臂 Not standard lever 注： 1)A 表示動臂安裝在靠近按鈕位置，無字母A表示動臂安裝在離按鈕較遠位置。 2)□表示非標準動臂的代號，詳見動臂外形尺寸圖。 Note: 1) A indicate the lever near to the plunger, no A indicate the lever far away from the plunger. 2)□ Indicate not standard lever,details see outline dimension drawings.	**9** 按鈕規格 Plunger spec	無標記 No mark：標準按鈕 standard plunger A: 短按鈕 Short plunger B: 中長按鈕 Middle plunger C: 長按鈕 Long plunger D: 平端按鈕 Flat plunger (見說明圖see illustration) 注：若用本表中未列入的非標準按鈕，則用此新增按鈕的規格代號（本公司確認）表示。 Note: If adopt other not standard plunger, then indicate with the new spec (confirmed by our company.)
5 外殼材質 Case material	無標記 No mark 熱塑性 thermoplastic G：熱固性 thermosetting	**10** 觸點間隙 Contact gap	無標記 No mark: 0.5mm X: 1mm Y: 3mm
6 外形特徵 Outline characteristic	無標記 No mark 基本形 basic form B：平端形 flat terminal C：公共端側面形 side common terminal	**11** 附加規格編號和外殼顏色代號，適用于： Additional specs numb–ers and case color code apply to:	1)當開關使用了非標準零件如非標準端子時； When used not standard parts such as not standard terminals; 2)當顧客有特殊動作特性值或其它要求時； Whe customer has particular operating value or other requirements; 3)當開關外殼顏色不是默認的灰色時，如黑色用字母B表示。 Whe the case is not grey, for example,black shows asB. 附加規格編號用阿拉伯數字或拉丁字母表示，字母代號位于數字之後。在没有附加規格編號時，該位置空缺。 Additional specs number shows by Arabic numerals or Latin, color code after the numbers. If there is no additional numbers, the place is vacant.
7 端子類型 Terminal types	A: 250 快接端子 Quick–connect terminal B: 187 快接端子 (厚0.8mm) 187 quick–connect terminal (thick 0.8mm) C: 187 快接端子 (厚0.5mm) 187 quick–connect terminal (thick 0.5mm)		

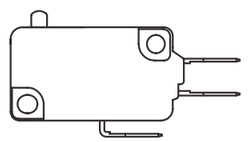
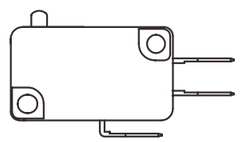
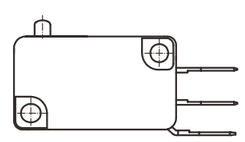
◆ 接觸形式說明圖 Circuit illustration

公共端類型 Common terminal types	轉換式 SPDT	常閉式 SPST–NC	常開式 SPST–NO
公共端在底部 Bottom common terminal			
公共端在側面 Side common terminal			

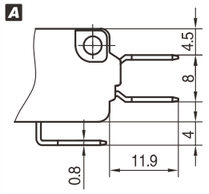
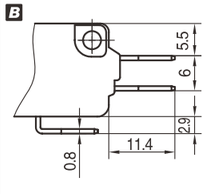
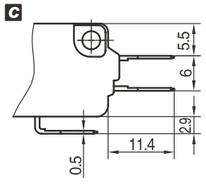
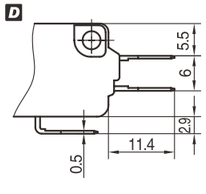
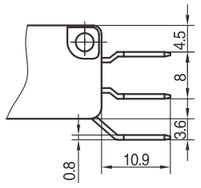
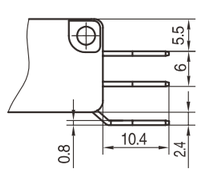
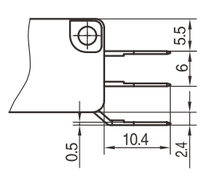
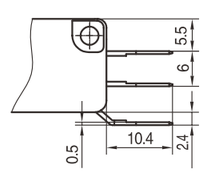
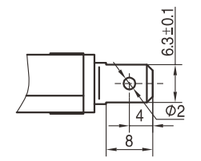
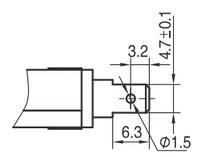
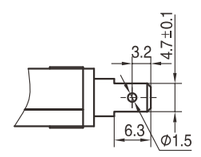
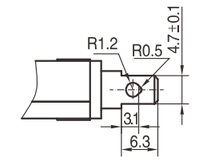
◆ 按鈕規格說明圖 Plunger spec illustration

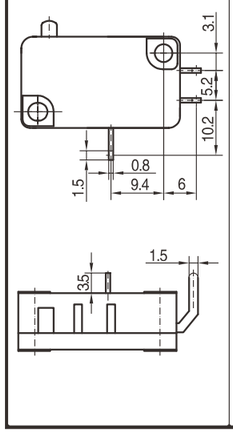
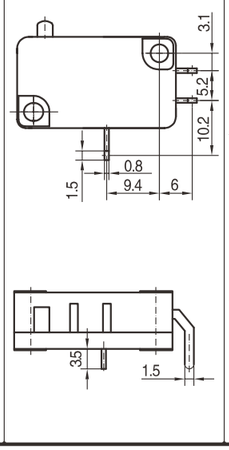
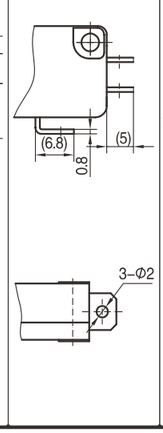
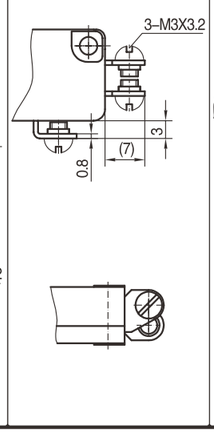
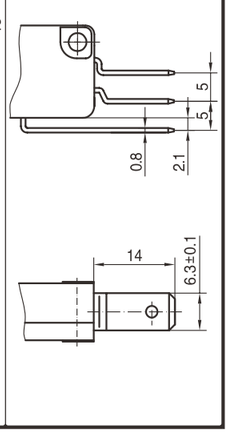
按鈕標記 Mark on plunger	無標記 No mark	A	B	C	D
按鈕尺寸 Plunger dimension					

◆ 外形特徵說明圖 Outline characteristic illustration

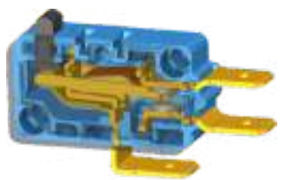
基本形 Basic form	平端形 Flat form	公共端側面形 Side common terminal
		

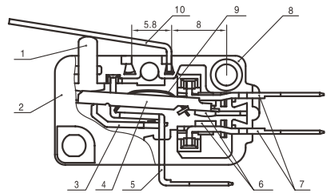
◆ 接綫端尺寸 Connect terminal dimensions

端子種類 Terminal types	快接端子#250 Quick–connect terminal #250	快接端子#187(t=0.8) Quick–connect terminal #187	快接端子#187(t=0.5) Quick–connect terminal #187	焊接/快接#187共用端子 Solder/Quick–connect terminal #187
下公共端 Bottom common terminal	A 	B 	C 	D 
側公共端 Side common terminal				
端子尺寸 Terminal dimenesions				

左側面PCB端子 Left side PCB terminal	右側面PCB端子 Right side PCB terminal	焊接端子 Solder terminal	螺孔端子 Screw terminal	快接端子#250之二 Quick connect terminal #250 No.2
L 	R 	F 	E 	H 

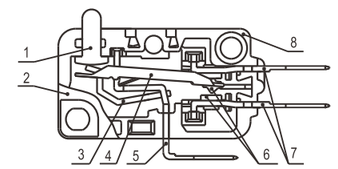
◆ 内部構造圖 Internal configuration drawing





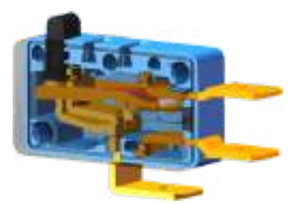
1 按鈕	Plunger
2 蓋	Cover
3 杠杆	Lever
4 可動片	Moving piece
5 支架	Support
6 電觸點	Contact
7 端子	Terminal
8 基座	Case
9 簧片	Spring sheet
10 動臂(杠杆)	lever

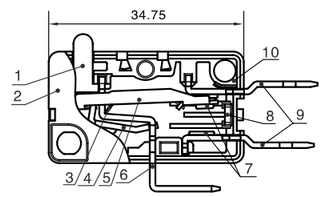
◆KW3A輕動作力內部構造圖 Internal structure diagram of light operating force



1 按鈕	Plunger
2 蓋	Cover
3 杠杆	Lever
4 可動片	Moving piece
5 支架	Support
6 電觸點	Contact
7 端子	Terminal
8 基座	Case

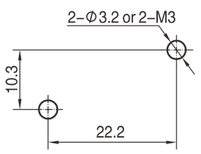
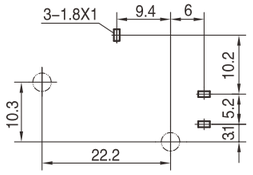
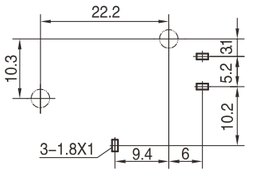
◆KW3A直流大間隙內部構造圖 Internal structure diagram of DC large gap





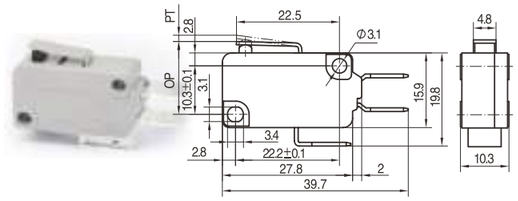
1 按鈕	Plunger
2 蓋	Cover
3 簧片	Spring sheet
4 杠杆	Lever
5 可動片	Moving piece
6 支架	Support
7 電觸點	Contact
8 磁鐵	Magnet
9 端子	Terminal
10 基座	Case

◆ 安裝孔尺寸 Mounting hole dimensions

	右側面PCB端子 Right side PCB terminal	左側面PCB端子 Left side PCB terminal
		

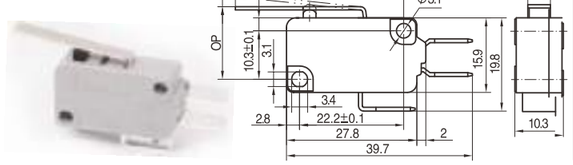
◆ 外形尺寸和動作特性 Dimensions and operating characteristics

KW3A-16Z1□-A100
KW3A-16Z1□-A150
KW3A-16Z1□-A200
KW3A-16Z1□-A300



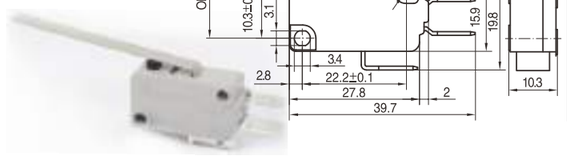
型號 Model	KW3A-16Z1□-A100	KW3A-16Z1□-A150	KW3A-16Z1□-A200	KW3A-16Z1□-A300
OF Max(N)	1.00	1.50	2.00	3.00
RF Min(N)	0.20	0.30	0.50	0.70
PT Max(mm)	1.4			
OT Min(mm)	1.0			
MD Max(mm)	0.5			
OP(mm)	15.8±0.5			

KW3A-16Z3□-A100
KW3A-16Z3□-A150
KW3A-16Z3□-A200
KW3A-16Z3□-A300



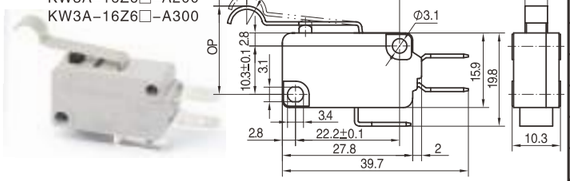
型號 Model	KW3A-16Z3□-A100	KW3A-16Z3□-A150	KW3A-16Z3□-A200	KW3A-16Z3□-A300
OF Max(N)	0.50	0.70	0.90	1.30
RF Min(N)	0.10	0.15	0.20	0.30
PT Max(mm)	4.0			
OT Min(mm)	2.0			
MD Max(mm)	1.0			
OP(mm)	16.3±1.2			

KW3A-16Z2□-A100
KW3A-16Z2□-A150
KW3A-16Z2□-A200
KW3A-16Z2□-A300



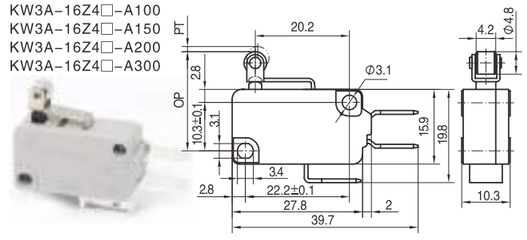
型號 Model	KW3A-16Z2□-A100	KW3A-16Z2□-A150	KW3A-16Z2□-A200	KW3A-16Z2□-A300
OF Max(N)	0.25	0.37	0.50	0.75
RF Min(N)	0.05	0.10	0.15	0.20
PT Max(mm)	8.0			
OT Min(mm)	4.0			
MD Max(mm)	2.0			
OP(mm)	17.2±2.5			

KW3A-16Z6□-A100
KW3A-16Z6□-A150
KW3A-16Z6□-A200
KW3A-16Z6□-A300



型號 Model	KW3A-16Z6□-A100	KW3A-16Z6□-A150	KW3A-16Z6□-A200	KW3A-16Z6□-A300
OF Max(N)	0.54	0.80	1.05	1.60
RF Min(N)	0.10	0.15	0.20	0.30
PT Max(mm)	4.0			
OT Min(mm)	2.0			
MD Max(mm)	1.0			
OP(mm)	19.5±1.2			

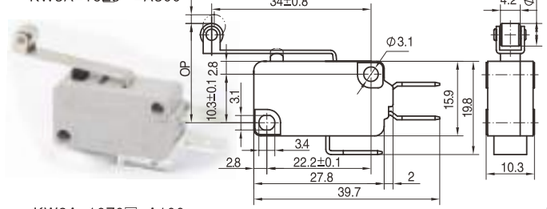
KW3A-16Z4□-A100
KW3A-16Z4□-A150
KW3A-16Z4□-A200
KW3A-16Z4□-A300



型號 Model	KW3A-16Z4□-A100	KW3A-16Z4□-A150	KW3A-16Z4□-A200	KW3A-16Z4□-A300
OF Max(N)	1.10	1.60	2.20	3.20
RF Min(N)	0.15	0.30	0.40	0.60
PT Max(mm)	1.4			
OT Min(mm)	1.0			
MD Max(mm)	0.4			
OP(mm)	21.4±0.6			

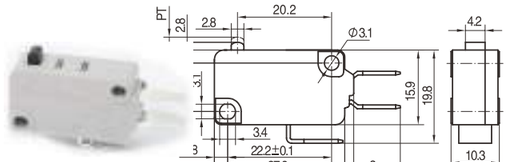
◆ 外形尺寸和動作特性 Dimensions and operating characteristics

KW3A-16Z5□-A100
KW3A-16Z5□-A150
KW3A-16Z5□-A200
KW3A-16Z5□-A300



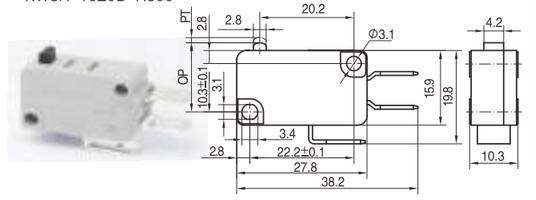
型號 Model	KW3A-16Z5□-A100	KW3A-16Z5□-A150	KW3A-16Z5□-A200	KW3A-16Z5□-A300
OF Max(N)	0.50	0.80	1.10	1.60
RF Min(N)	0.10	0.15	0.20	0.30
PT Max(mm)	4.0			
OT Min(mm)	2.0			
MD Max(mm)	1.0			
OP(mm)	21.4±1.2			

KW3A-16Z0□-A100
KW3A-16Z0□-A150
KW3A-16Z0□-A200
KW3A-16Z0□-A300



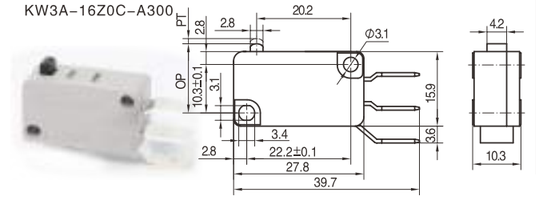
型號 Model	KW3A-16Z0□-A100	KW3A-16Z0□-A150	KW3A-16Z0□-A200	KW3A-16Z0□-A300
OF Max(N)	1.00	1.50	2.00	3.00
RF Min(N)	0.20	0.30	0.50	0.70
PT Max(mm)	1.4			
OT Min(mm)	1.0			
MD Max(mm)	0.4			
OP(mm)	14.9±0.4			

KW3A-16Z0B-A100
KW3A-16Z0B-A150
KW3A-16Z0B-A200
KW3A-16Z0B-A300



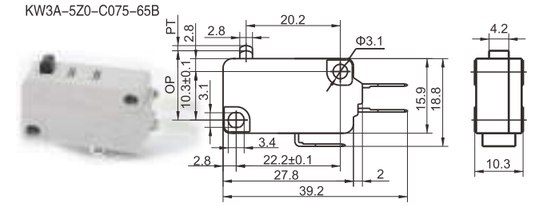
型號 Model	KW3A-16Z0B-A100	KW3A-16Z0B-A150	KW3A-16Z0B-A200	KW3A-16Z0B-A300
OF Max(N)	1.00	1.50	2.00	3.00
RF Min(N)	0.20	0.35	0.50	0.80
PT Max(mm)	1.2			
OT Min(mm)	1.0			
MD Max(mm)	0.4			
OP(mm)	14.9±0.4			

KW3A-16Z0C-A100
KW3A-16Z0C-A150
KW3A-16Z0C-A200
KW3A-16Z0C-A300



型號 Model	KW3A-16Z0C-A100	KW3A-16Z0C-A150	KW3A-16Z0C-A200	KW3A-16Z0C-A300
OF Max(N)	1.00	1.50	2.00	3.00
RF Min(N)	0.20	0.30	0.50	0.70
PT Max(mm)	1.4			
OT Min(mm)	1.0			
MD Max(mm)	0.4			
OP(mm)	14.9±0.4			

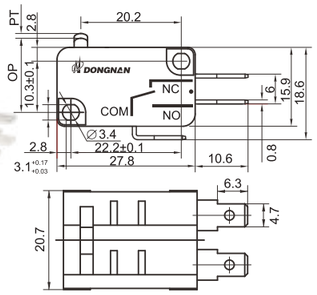
KW3A-5Z0-C020-65B
KW3A-5Z0-C050-65B
KW3A-5Z0-C075-65B



型号 Model	KW3A-5Z0-C020-65B	KW3A-5Z0-C050-65B	KW3A-5Z0-C075-65B
OF Max (N)	0.20	0.50	0.75
RF Min (N)	0.05	0.10	0.20
PT Max (mm)		1.4	
OT Min (mm)		1.0	
MD Max (mm)		0.4	
OP (mm)		14.9±0.4	

◆ 外形尺寸和動作特性 Dimensions and operating characteristics

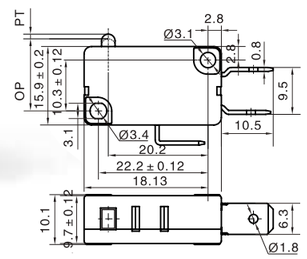
KW3A雙聯開關 Double switch
KW3A–16Z0B–B400–22



Schematic diagram

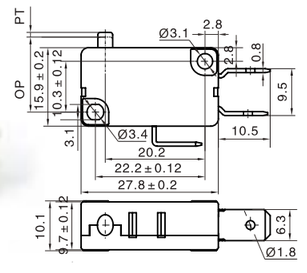
型 號 Model	KW3A–16Z0B–B400–22
OF Max (N)	4.00
RF Min (N)	1.00
PT Max (mm)	1.4
OT Min (mm)	1.0
MD Max (mm)	0.4
OP (mm)	14.9 ± 0.5

KW3A–15FZ0D–A750Z4
KW3A–15FZ0D–A1000Z4
直流開關 DC Switch



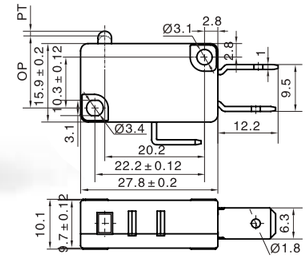
型 號 Model	KW3A–15FZ0D–A750Z4	KW3A–15FZ0D–A1000Z4
OF Max(N)	7.50	10.00
RF Min(N)	2.0	3.0
PT Max(mm)	1.2	
OT Min(mm)	1.0	
MD Max(mm)	0.8	
OP(mm)	14.3 ± 0.5	

KW3A–15FZ0E–A550Z5
KW3A–20FZ0E–A550Z5
直流開關 DC Switch



型 號 Model	KW3A–15FZ0E–A550Z5	KW3A–20FZ0E–A550Z5
OF Max(N)	5.50	5.50
RF Min(N)	1.50	1.50
PT Max(mm)	1.2	
OT Min(mm)	1.0	
MD Max(mm)	0.8	
OP(mm)	14.8 ± 0.5	

KW3A–15FZ0F–A550Z4
KW3A–15FZ0F–A850Z4
直流開關 DC Switch



型 號 Model	KW3A–15FZ0F–A550Z4	KW3A–15FZ0F–A850Z4
OF Max(N)	5.50	8.50
RF Min(N)	1.50	2.5
PT Max(mm)	1.2	
OT Min(mm)	1.0	
MD Max(mm)	1.0	
OP(mm)	14.6 ± 0.5	

KW3A 微動開關組件 Micro switch groupware

◆ 特點和用途 Characteristic and usage

- 自鎖式或按鈕式，大電流。
  Self locked or button type, big current
- 結構緊凑，體積小。
  Tight configuration, small size.
- 可直接用手操動
  Can be operated by hand
- 用于特殊場合的電源通斷和電氣控制
  Applied to power on/off and electric control in special situations

◆ 技術特性 Technical Characteristics

項 目 Item		特性值 Value	
		按鈕型 Button type	自鎖型 Self lock
温度等級 Degrees of temperature		T105	
額定電壓 Rated voltage		AC250V	
絶緣電阻 Insulation resistance		≥100MΩ (500VDC)	
接觸電阻 Contact resistance		≤30mΩ (初始值 initial value)	
耐電壓 Test voltage	同極不相接端子間 Between terminals of the same polarity	AC1000V，50/60Hz，1min	
	帶電金屬零件與地(外殼)之間、接綫端與不帶電金屬件之間 Between current–carrying metal parts and ground(case), and between each terminal and non–current–carrying metal parts.	AC3750V，50/60Hz，1min	
電氣壽命 Electrical life		50,000次/cycles	10,000次/cycles

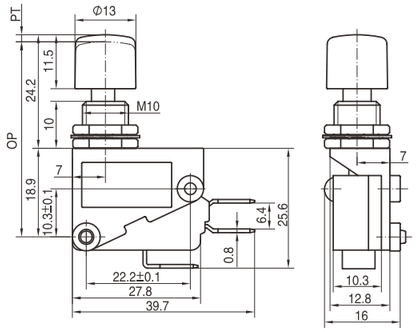
◆ 型號規格命名及含義 Model number legend and meanings

KW3A – □ □ □ □ □ – (□)
1 2 3 4 5 6

1 結構型式 Configuration types	A: 按鈕型 Button type B: 自鎖型 Self lock	**4** 端子類型 Terminal types	見P13表格中7端子類型 Please see the 7 terminal types in the form of page 13
2 額定值 Ratings	見P12表格中額定值 Please see the rating in the form of Page12	**5** 按鈕顏色 Button color	R:紅色 Red G:綠色 Green B:藍色 Blue (僅適用于按鈕型 Only used in Button type)
3 接觸形式 Circuit	Z: 轉換式 SPDT T: 常開(按通)式 SPST–NO D: 常閉(按斷)式 SPST–NC	**6** 附加規格編號 Additional spec numbers	適用于:當開關組件與標準規格有某些差別時。 Apply to: When switch components have some difference with standard specifications. 附加規格編號用阿拉伯數字表示，在没有附加規格編號時，該位置空缺。 Additional specs number shows by Arabic numerals. If there is no additional numbers,the place is vacant.

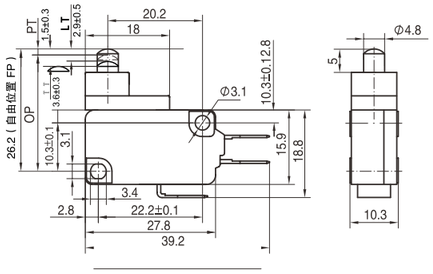
◆ 外形和安装尺寸 Outline and mounting dimensions

KW3A–A□ZA□



OF (N)	1.50–2.00
RF Min (N)	0.40
PT Max (mm)	1.2
OT Min (mm)	1.0
MD Max (mm)	0.4
OP (mm)	42 ± 0.5

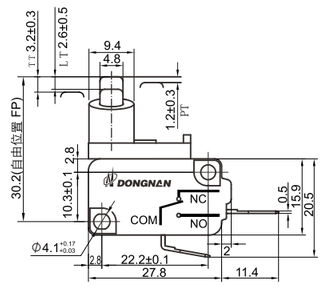
KW3A–B□ZC

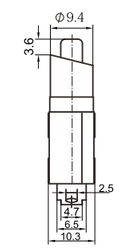


Total travel

OF (N)	2.00-4.00
RF min(N)	3.6±0.3
PT (mm)	2.9±0.5
TT (mm)	1.5±0.3

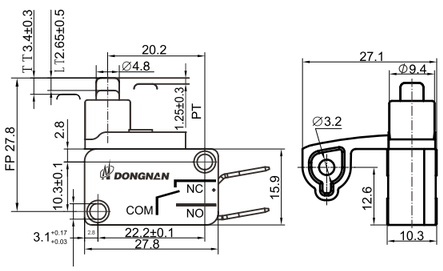
KW3A-B16TD-02





OF (N)	2.00-4.00
TT (mm)	3.2±0.3
LT (mm)	2.6±0.5
PT (mm)	1.2±0.3

KW3A-B16TD-1003



OF (N)	2.00-4.00
TT (mm)	3.4±0.3
LT (mm)	2.65±0.5
PT (mm)	1.25±0.3

KW3A 微動開關組件貳 Micro switch groupware

特點和用途 Characteristic and usage

- 防傾倒式，大電流。
  Dumping prevention type, big current
- 可利用開關方向和位置的變化，實現電源通斷的自動切換。
  Using the change of switch direction and position then automatically control the power on or off.

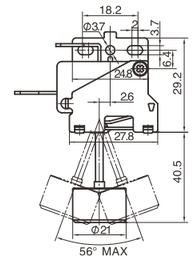
型號規格命名及含義 Model number legend and meanings

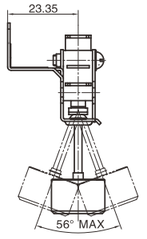
KW3A– □ □ □ □–□□□□— (□)
1 2 3 6 7 8 9 10 11

1 結構型式 Configuration types	2 額定值 Ratings	3 接觸形式 Circuit	6-11
C–防傾倒式 Ⅰ Oumping prevention type Ⅰ D– 防傾倒式 Ⅱ Oumping prevention type Ⅱ	見P12表格中額定值 Please see the rating in the form of Page12	Z: 轉換式 SPDT T: 常開(按通)式 SPST–NO D: 常閉(按斷)式 SPST–NC	含義同KW3A基本型相應編號6–11,見本目錄第8頁。 Same meaning with KW3A basic part number naming (6–11), see catalogue page 8.

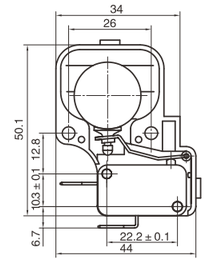
外形和安装尺寸 Outline and mouting dimentions

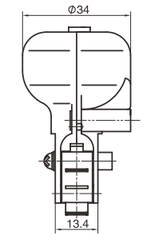
KW3A–C□DB–A120A





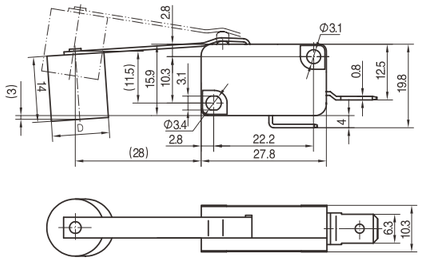
KW3A–D□DB–A70B





防傾倒式 Safety type Ⅲ

KW3A–16TA□9B–A080A



KW3A–G型晾衣架開關組件 Clothes hanger switch assembly

◆ 特點和用途 Characteristic and usage

- 產品性能可靠，動作無异響
  Reliable product performance, no abnormal sound during the action
- 外形體積小巧，適合各個角度隨意安裝
  Small size, suitable for random installation at all angles
- 產品結構簡潔，安裝拆解方便
  Product structure is simple, easy to install and disassemble

◆ 技術特性 Specifications

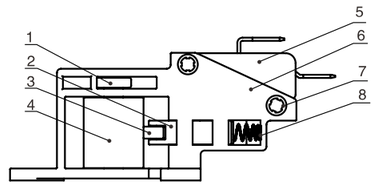
項目 Item		特性值 Value
工作速度 Operating speed		0.1mm ~ 1m/s (與驅動方式有關)(related with actuator forms)
工作頻率 Operating Frequency		機械 60次/min; 電氣 15次/min Mechanical 60 cycles/min; electrical 15cycles/min
絕緣電阻 Insulation resistance		≥100MΩ (500VDC)
接觸電阻 Contact resistance		≤30mΩ (初始值 initial value)
耐電壓 Test voltage	同極不相接端子間 Between terminals of the same polarity	AC1000V,50/60Hz，1min
	帶電金屬零件與外殼之間、接綫端與易觸及的不帶電金屬件之間 Between electrification mental parts and case , between connect terminal and non electrification mental parts .	AC1500V，50/60Hz，1min
抗振動 Vibration resistance		10 ~ 55Hz，1.5mm 雙振幅 Double amplitude
抗衝擊 Shock resistance		破壞：動作力>0.5N—1000m/s2(約100G)max 動作力≤0.5N—400m/s2(約40G)max 故障：動作力>0.5N—200m/s2(約20G)max 動作力≤0.5N—100m/s2(約10G)max Destruction：OP>0.5N—1000m/s2(approx.100G)max OP≤0.5N—400m/s2(approx.40G)max Malfunction：OP>0.5N—200m/s2(approx.20G)max OP≤0.5N—100m/s2(approx.10G)max
壽命 Life		機械≥200,000次; Mechanical ≥2,000,000 cycles 電氣≥50,000次 Electrical ≥50,000 cycles
質量 Weight		約25g(無動臂型)Approx. 25g(No lever)
安全認證 Safety approvals		UL、TUV、CE、CQC

◆ 型號規格命名及含義 Model number legend and meanings

KW3A–G □
1 2

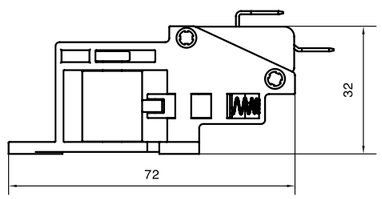
1 組件規格 Component specifications	G：晾衣架開關用組件 G: Components for clothes hanger switches
2 KW3A微動開關 KW3A Micro switch	同KW3A微動開關命名規則 Same as KW3A microswitch naming rules

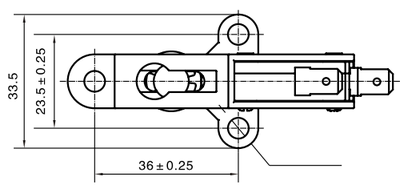
◆ 产品構造圖 Internal configuration drawing



1: 銷軸	Pin
2: 推杆	Push rod
3: 滾子	Roller
4: 滾輪	Roller
5: 微動開關	Micro switch
6: 固定座	Fixed seat
7: 固定銷	Fixed pin
8: 復位彈簧	Reset spring

◆ 外形和安裝尺寸 Outline and mounting dimensions

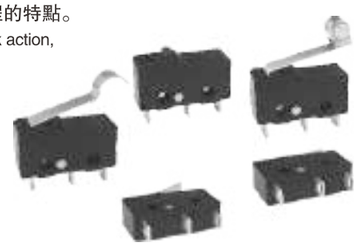




KW4A型微動開關系列 Micro switch series

◆ 安全可靠的小型開關 Safe, reliable miniature switch

- 結構緊凑。具有微小觸點間隙，快速動作、高靈敏和微小動作行程的特點。
  Nice appearance, tight configuration. Characteristic: small contact gap, quick action, high sensitivity and small operating travel.
- 長壽命，高可靠。
  Long life, high reliability.
- 接綫端子種類齊全
  A variety of contact terminals
- 配備各種形式動臂
  A variety of levers.
- 采用熱固性或熱塑性塑料外殼
  Adopt thermosetting plastic or thermoplastic case.
- 廣泛應用于各種家用電器、電子設備、自動化設備、通訊設備、汽車電子、儀器儀表等領域。
  Widely used in home appliance,electronic equipment,automatic machine,communication equipment,car electron,apparatus and instrument etc.



◆ 技術特性 Technical Characteristics

項目 Item		特性值 Value
工作速度 Operating speed		0.1mm ~ 1m/s (與驅動方式有關) (Related with actuator forms)
工作頻率 Operating frequency		機械 60次/min;電氣 25次/min Mechanical 60 cycles/min;Electrical 25 cycles/min
絶緣電阻 Insulation resistance		≥100MΩ (500VDC)
接觸電阻 Contact resistance		動作力>0.5N: ≤30mΩ (見注) 動作力≤0.5N: ≤50mΩ (見注) OF>0.5N: ≤30mΩ (see note) OF≤0.5N: ≤50mΩ (see note)
耐電壓 Test voltage	同極不相接端子間 Between terminals of the same polarity	AC1000V,50/60Hz，1min
	帶電金屬零件與地(外殼)之間、接綫端與不帶電金屬件之間 Between current–carrying metal parts and ground(case), and between each terminal and non–current–carrying metal parts.	AC1500V ，50/60Hz，1min
抗振動 Vibration resistance		10 ~ 55Hz，1.5mm 雙振幅 Double amplitude
抗衝擊 Shock resistance		破壞:動作力>0.5N: 1000m/s²(約100G)max 動作力≤0.5N: 500m/s²(約50G)max 故障:動作力>0.5N: 300m/s²(約30G)max 動作力≤0.5N: 200m/s²(約20G)max Destruction: OF>0.5N: 1000m/s²(approx.100G)max OF≤0.5N: 500m/s²(approx.50G)max Malfunction: OF>0.5N: 300m/s²(approx.30G)max OF≤0.5N: 200m/s²(approx.20G)max
壽命 Life		機械 ≥1,000,000次; Mechanical ≥1,000,000 cycles 電氣 ≥10,000次; Electrical ≥10,000 cycles
質量 Weight		約1.6g(無動臂型) Approx. 1.6g(No lever)
安全認證 Safety approvals		UL、CUL、VDE、TUV、ENEC、DEMKO、CE、EK、CQC

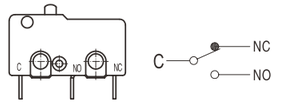
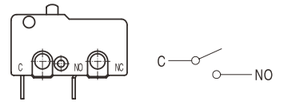
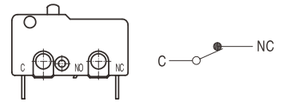
注：指無動臂時按鈕上的動作力。 Note: Refers to the operating force of no lever.

◆ 型號規格命名及含義 Model number legend and meanings

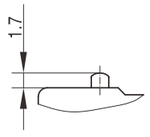
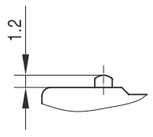
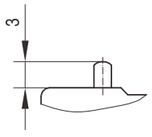
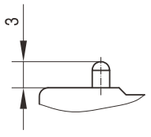
KW4A □– □ □ □ □ □ □ □ – (□)
1 2 3 4 5 6 7 8 9

1 温度等級 Degrees of temperature	無標記 No mark: 10T85 10T105 25T125
2 額定值 Ratings	無標記 No mark: 5A125/250VAC 5(2)A250VAC 5(3)A125/250VAC 5GPA125/250VAC 1/4hp250VAC,4A30VDC KW4A–A: 10(4)A125/250VAC 10(3)A250VAC 10GPA125/250VAC 1/2hp250VAC 4A30VDC
3 接觸形式 Circuit	Z: 轉換式 SPDT T: 常開(按通)式 SPST–NO D: 常閉(按斷)式 SPST–NC (見説明圖 See illustration)
4 驅動形式 Actuator forms	0: 無動臂 No lever 1: 短動臂 Short lever 2: 長動臂 Long lever 3: 中動臂 Middle lever 5: 滾輪臂 Roller 6: 弧形動臂 Arc lever □: 非標準動臂 Not standard lever 注:□表示非標準動臂的代號，詳見動臂外形尺寸圖。 Note: □ Indicate not standard lever, details see outline measurement drawings.
5 外殼材質 Case material	G: 熱固性 Thermosetting S: 熱塑性 Thermoplastic
6 端子類型 Terminal type	F: 焊接端子 Solder terminal P: PCB端子 PCB terminal L: 左側面PCB端子 Left side PCB terminal R: 右側面PCB端子 Right side PCB terminal T: 110快接端子 Quick–connect terminal Y: 非標準端子 Not standard terminal
7 動作力(max) Operating force	050: 0.5N 100: 1N 150: 1.5N 200: 2N 300: 3N 注：若是非標準動作力，用此動作力上限值表示。 Note: if it is not standard operating force, indicate with the upper limit.
8 按鈕規格 Plunger spec	無標記: 標準按鈕 No mark: standard plunger A: 短按鈕 Short plunger B: 長按鈕 Long plunger D: 异形按鈕 Abnormity plunger (見説明圖 see illustration) 注：若采用本表中未列入的非標準按鈕，則用此新增按鈕的規格代號(本公司確認)表示。 Note: if adopt other not standard plunger,then indicate with the new spec (confirmed by our company).
9 附加規格編號 適用于： Additional spec numbers, apply to:	1)當開關使用了非標準零件如非標準端子時; When used not standard parts such as not standard terminal; 2)當顧客有特殊動作特性值或其它要求時。 When customer has particular operating value or other requirements. 附加規格編號用阿拉伯數字表示，在没有附加規格編號時，該位置空缺。 Additional specs number shows by Arabic numerals. If there is no additional numbers, the place is vacant.

◆ 接觸形式説明圖 Circuit illustration

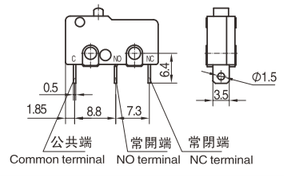
轉換式 SPDT	常開式 SPST–NO	常閉式 SPST–NC
		

◆ 按鈕規格說明圖 Plunger spec illustration

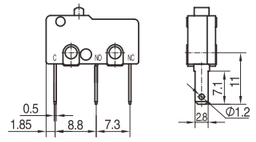
按鈕標記 Mark on plunger	無標記 No mark	A	B	D
按鈕尺寸 Plunger dimensions				

◆ 接綫端尺寸 Terminal dimensions

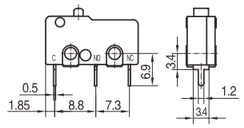
F 焊接端子 Solder terminal



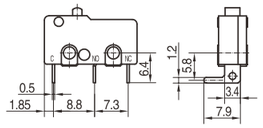
T 快接端子#110 Quick connect terminal #110



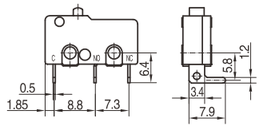
P PCB端子 PCB terminal



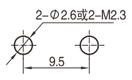
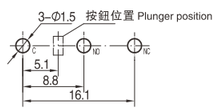
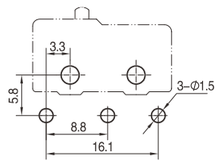
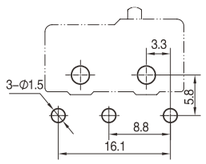
L 左側面PCB端子 Left side PCB terminal



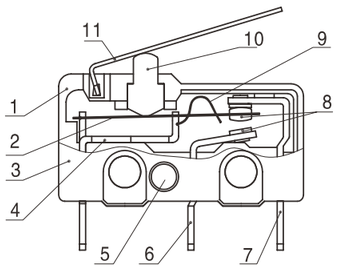
R 右側面PCB端子 Right side PCB terminal



◆ 安裝孔尺寸 Mounting hole dimensions

	PCB端子 PCB terminal	左側面PCB端子 Left side PCB terminal	右側面PCB端子 Right side PCB terminal
			

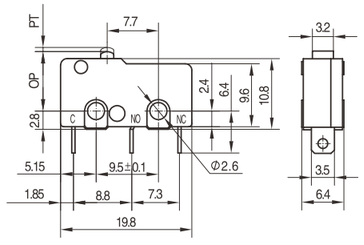
◆ 內部構造圖 Internal configuration drawing



1	基座	Case
2	可動片	Moving piece
3	蓋	Cover
4	支架	Support
5	鉚釘	Rivet
6	常開端子	NO terminal
7	常閉端子	NC terminal
8	電觸點	Contact
9	簧片	Spring
10	按鈕	Plunger
11	動臂(杠杆)	Lever

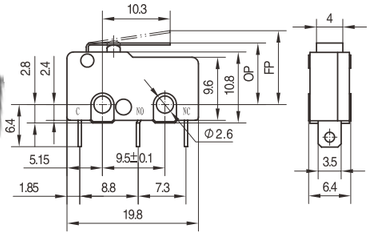
◆ 外形尺寸和動作特性 Dimensions and operating characteristics

KW4A-Z0□F100
KW4A-Z0□F150
KW4A-Z0□F200
KW4A-Z0□F300



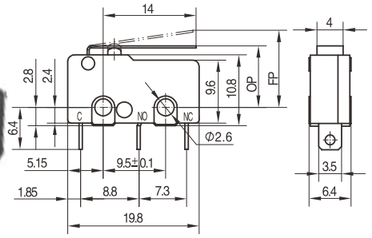
型號 Model	KW4A-Z0□F100	KW4A-Z0□F150	KW4A-Z0□F200	KW4A-Z0□F300
OF Max(N)	1.00	1.50	2.00	3.00
RF Min(N)	0.20	0.35	0.50	0.80
PT Max(mm)	0.8			
OT Min(mm)	0.5			
MD Max(mm)	0.2			
OP(mm)	9.1±0.4			

KW4A-Z1□F100
KW4A-Z1□F150
KW4A-Z1□F200
KW4A-Z1□F300



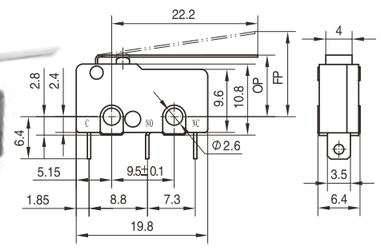
型號 Model	KW4A-Z1□F100	KW4A-Z1□F150	KW4A-Z1□F200	KW4A-Z1□F300
OF Max(N)	0.35	0.60	0.80	1.00
RF Min(N)	0.05	0.15	0.20	0.35
OT Min(mm)	1.5			
MD Max(mm)	0.6			
FP Max(mm)	12.0			
OP(mm)	9.5±0.8			

KW4A-Z3□F100
KW4A-Z3□F150
KW4A-Z3□F200
KW4A-Z3□F300



型號 Model	KW4A-Z3□F100	KW4A-Z3□F150	KW4A-Z3□F200	KW4A-Z3□F300
OF Max(N)	0.30	0.45	0.60	0.85
RF Min(N)	0.05	0.10	0.15	0.20
OT Min(mm)	1.0			
MD Max(mm)	0.8			
FP Max(mm)	13.0			
OP(mm)	9.8±1			

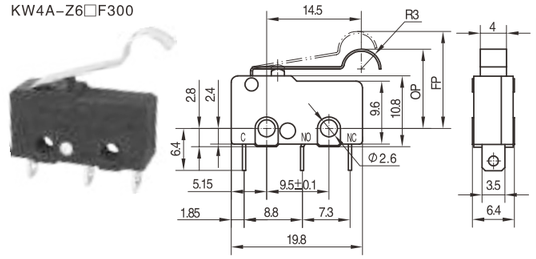
KW4A-Z2□F100
KW4A-Z2□F150
KW4A-Z2□F200
KW4A-Z2□F300



型號 Model	KW4A-Z2□F100	KW4A-Z2□F150	KW4A-Z2□F200	KW4A-Z2□F300
OF Max(N)	0.20	0.30	0.40	0.60
RF Min(N)	0.03	0.08	0.10	0.18
OT Min(mm)	2.0			
MD Max(mm)	1.5			
FP Max(mm)	16.0			
OP(mm)	10±1.5			

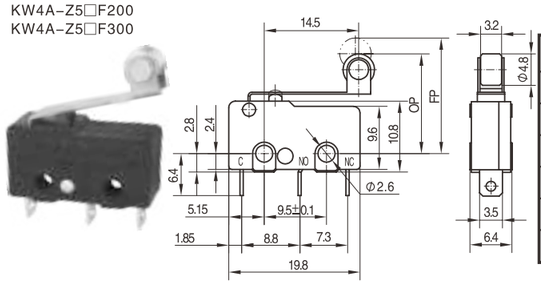
◆ 外形尺寸和動作特性 Dimensions and operating characteristics

KW4A-Z6□F100
KW4A-Z6□F150
KW4A-Z6□F200
KW4A-Z6□F300



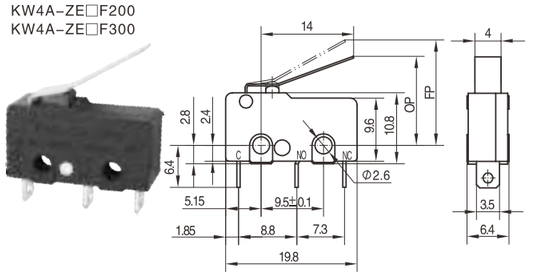
型號 Model	KW4A-Z6□F100	KW4A-Z6□F150	KW4A-Z6□F200	KW4A-Z6□F300
OF Max(N)	0.30	0.45	0.60	0.85
RF Min(N)	0.05	0.10	0.15	0.20
OT Min(mm)	1.2			
MD Max(mm)	0.8			
FP Max(mm)	17.5			
OP(mm)	14.5±1			

KW4A-Z5□F100
KW4A-Z5□F150
KW4A-Z5□F200
KW4A-Z5□F300



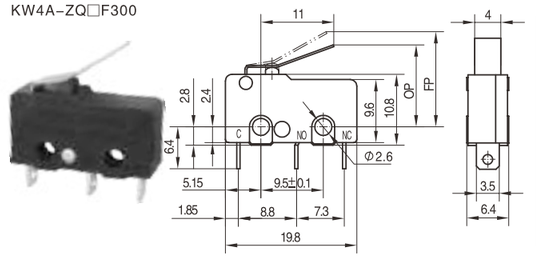
型號 Model	KW4A-Z5□F100	KW4A-Z5□F150	KW4A-Z5□F200	KW4A-Z5□F300
OF Max(N)	0.30	0.45	0.60	0.85
RF Min(N)	0.05	0.10	0.15	0.20
OT Min(mm)	1.2			
MD Max(mm)	0.8			
FP Max(mm)	19.0			
OP(mm)	16.2±1			

KW4A-ZE□F100
KW4A-ZE□F150
KW4A-ZE□F200
KW4A-ZE□F300



型號 Model	KW4A-ZE□F100	KW4A-ZE□F150	KW4A-ZE□F200	KW4A-ZE□F300
OF Max(N)	0.30	0.45	0.60	0.85
RF Min(N)	0.05	0.10	0.15	0.20
OT Min(mm)	1.2			
MD Max(mm)	0.8			
FP Max(mm)	17.5			
OP(mm)	14±1			

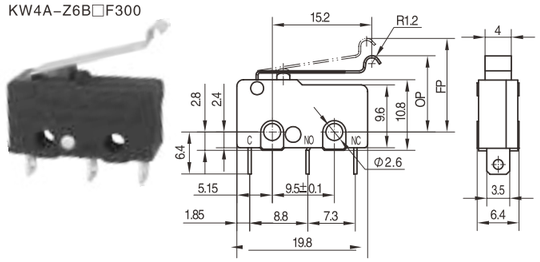
KW4A-ZQ□F100
KW4A-ZQ□F150
KW4A-ZQ□F200
KW4A-ZQ□F300



型號 Model	KW4A-ZQ□F100	KW4A-ZQ□F150	KW4A-ZQ□F200	KW4A-ZQ□F300
OF Max(N)	0.32	0.50	0.65	1.00
RF Min(N)	0.05	0.10	0.15	0.20
OT Min(mm)	1.2			
MD Max(mm)	0.8			
FP Max(mm)	15.5			
OP(mm)	13.2±1			

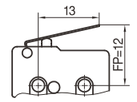
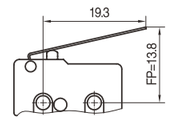
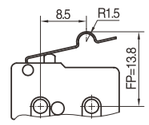
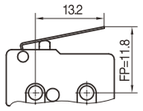
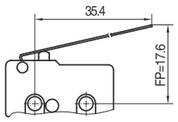
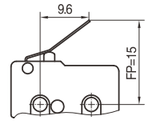
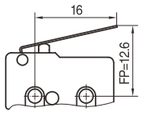
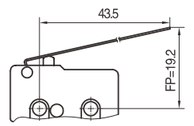
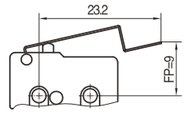
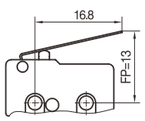
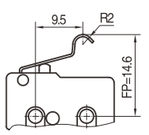
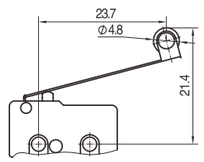
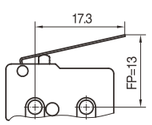
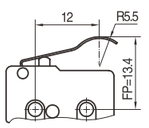
◆ 外形尺寸和動作特性 Dimensions and operating characteristics

KW4A-Z6B□F100
KW4A-Z6B□F150
KW4A-Z6B□F200
KW4A-Z6B□F300



型號 Model	KW4A-Z6B□F100	KW4A-Z6B□F150	KW4A-Z6B□F200	KW4A-Z6B□F300
OF Max(N)	0.25	0.40	0.50	0.75
RF Min(N)	0.05	0.10	0.15	0.20
OT Min(mm)	1.2			
MD Max(mm)	0.8			
FP Max(mm)	16.5			
OP(mm)	13±1.2			

◆ 可供選擇的非標準動臂代號和外形特徵尺寸 Not standard levers for choose and outline characteristic dimensions

動臂代號 Lever code	外形特徵尺寸 Outline characteristic dimensions	動臂代號 Lever code	外形特徵尺寸 Outline characteristic dimensions	動臂代號 Lever code	外形特徵尺寸 Outline characteristic dimensions
3A		C		K	
N		G		Q1	
J		F1		S1	
J1		6A		5A	
J2		6C			

◆ 請正確使用 Please use it correctly

【共通注意事項】請參閱相關頁
【Common use】please refer to related pages

- 關于和端子的連接 Concerning the connection with terminals

(1) 將導綫焊接到端子上時，請先將導綫穿過端子孔後再進行焊接。
When jointing the wire to the terminal, please thread through the wire to the hole of the terminal first.
(2) 烙鐵的容量應爲60W以下，焊接時間在3s之内。若操作温度過高或時間過長，可能導致開關特性劣化。
The iron capacity should be below 60W,joint time within 3s.If operate temperature is too high or time is too long,switch characteristic may be worsen
(3) 請采用手工焊接。因爲如果采用焊槽焊接，焊錫可能進入開關内部而導致接觸不良。
Please joint with hands. If joint with wave soldering, soldering tin may come inside the switch, then bad contact will happen.
(4) 對于快接式端子，插套插入插片時，應避免在端子的横向加力，以免引起端子變形和外殼破損。
Regarding the quick connect terminal,when insert slipcover into the insert piece,please do not exert transverse press to the terminal, in order to avoid terminal distort and cover breakage.

- 關于絶緣距離 Concerning insulation distance

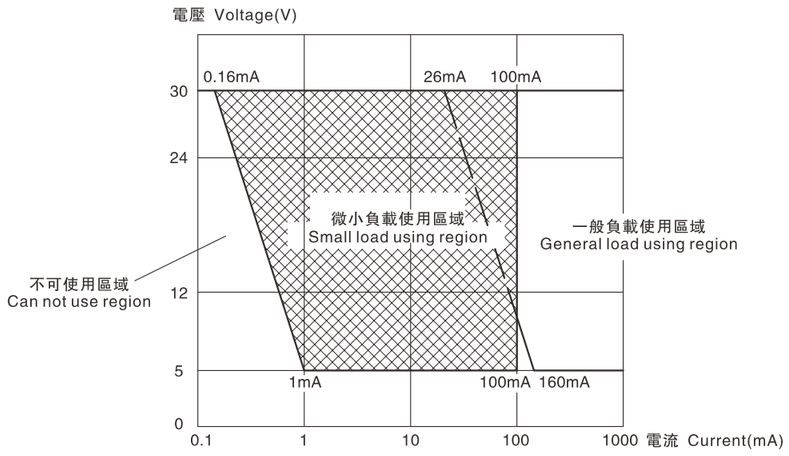
根據IEC 61058–1/EN 61058–1/GB 15092.1之規定，本開關的最小絶緣層厚度爲1.1mm，端子和安裝板之間的最小空間距離爲1.6mm。如果無法確保零部件所要求的絶緣距離，請使用絶緣護罩或隔板來保證絶緣距離。
According to IEC 61058–1/EN 61058–1/GB 15092.1,the least thickness insulation layer should be 1.1mm,the smallest space distance between the terminal and install board is 1.6mm. If the parts insulation distance cannot be guaranteed please use insulate cover or the guard board to guarantee the insulation distance.

- 關于安裝 Concerning installation

(1) 開關的安裝、拆卸和配綫作業以及維護檢查時，請務必斷開電源，否則會引起觸電和燒毁。
Please turn off the power when installing, disassembling, wiring work and maintenance check, otherwise, electric shock and burn will happen.
(2) 安裝時，使用2個M2.3螺釘，用平墊圈、彈簧墊圈等緊固，并請使用0.23～0.26N・m的緊固轉矩。
When installing, please use 2 M2.3 screws,then tight it with flat washer, spring washer,and also tight with 0.23~0.26N·m torque.
(3) 開關請安裝在平面上。如果安裝面凹凸不平，可能導致開關歪斜、動作失常和外殼破損。
Please install switch on flat surface. If it is installed in uneven surface, switch deflection, malfunction and cover breakage will happen.

- 關于微小負載電路中的使用 Concerning use in small load circuit

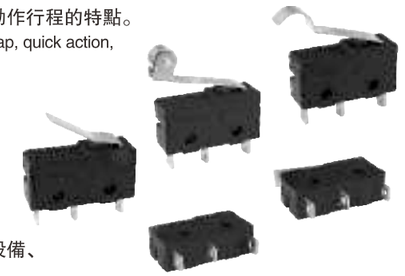
如果在開關微小負載電路中使用一般負載用開關，可能會引起接觸不良。
Use general load switch in small load circuit, bad contact maybe happen.
請參考下圖在使用區域的範圍内使用開關，并根據需要插入觸點保護電路。
Please refer to the chart below, use switch within using region, and insert contact to protect circuit according to the needs.



KW4A(S)型微動開關系列 Micro switch series

◆ 安全可靠的小型開關 Safe, reliable miniature switch

- 結構緊凑。具有微小觸點間隙，快速動作、高靈敏和微小動作行程的特點。
  Nice appearance, tight configuration. Characteristic: small contact gap, quick action, high sensitivity and small operating travel.
- 長壽命，高可靠。
  Long life, high reliability.
- 接綫端子種類齊全
  A variety of contact terminals
- 配備各種形式動臂
  A variety of levers
- 廣泛應用于各種家用電器、電子設備、自動化設備、通訊設備、汽車電子、儀器儀表等領域。
  Widely used in home appliance, electronic equipment, automatic machine, communication equipment, car electron, apparatus and instrument etc.



◆ 技術特性 Technical Characteristics

項目 Item		特性值 Value
工作速度 Operating speed		0.1mm～1m/s (與驅動方式有關) (Related with actuator forms)
工作頻率 Operating frequency		機械 60次/min;電氣 25次/min Mechanical 60 cycles/min;Electrical 25 cycles/min
絶緣電阻 Insulation resistance		≥100MΩ (500VDC)
接觸電阻 Contact resistance		動作力>0.5N: ≤30mΩ (見注) OF>0.5N: ≤30mΩ (see note) 動作力≤0.5N: ≤50mΩ (見注) OF≤0.5N: ≤50mΩ (see note)
耐電壓 Test voltage	同極不相接端子間 Between terminals of the same polarity	AC1000V,50/60Hz，1min
	帶電金屬零件與地(外殼)之間、接綫端與不帶電金屬件之間 Between current–carrying metal parts and ground(case), and between each terminal and non–current–carrying metal parts.	AC1500V，50/60Hz，1min
抗振動 Vibration resistance		10～55Hz，1.5mm雙振幅 Double amplitude
抗衝擊 Shock resistance		破壞:動作力>0.5N: 1000m/s²(約100G)max 動作力≤0.5N: 500m/s²(約50G)max 故障:動作力>0.5N: 300m/s²(約30G)max 動作力≤0.5N: 200m/s²(約20G)max Destruction: OF>0.5N: 1000m/s²(approx.100G)max OF≤0.5N: 500m/s²(approx.50G)max Malfunction: OF>0.5N: 300m/s²(approx.30G)max OF≤0.5N: 200m/s²(approx.20G)max
壽命 Life		機械≥1,000,000次； Mechanical ≥1,000,000 cycles 電氣≥10,000次； Electrical ≥10,000 cycles 電氣≥50,000次(TUV,CQC); Electrical ≥50,000 cycles(TUV,CQC)
質量 Weight		約1.6g(無動臂型) Approx. 1.6g(No lever)
安全認證 Safety approvals		UL、CUL、VDE、TUV、SEMKO、ENEC、DEMKO、CE、EK、CQC

注：指無動臂時按鈕上的動作力。 Note: Refers to the operating force of no lever.