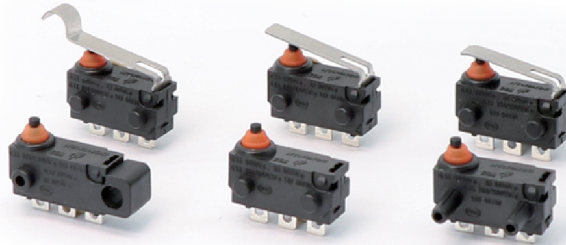


## WS5型防水開關系列 Waterproof switch series

### ◆ 特點和用途 Characteristics and usage

- 體形小巧，結構緊湊；長行程，防塵，防水。  
Small size, compact structure, long travel, dustproof, waterproof.
- 接線端子種類齊全，可配備各種導線。  
A variety of contact terminals, provide with variety kinds of wires.
- 配備各種形式動臂  
A variety of levers
- 可在汽車、家用電器、工業控制設備等有耐環境性能要求的場合及戶外設備、儀器中使用。  
It can be used in automobiles, home appliances, industrial control equipment and other places which haws environmental protection requirements, and outdoor equipments and instruments.



### ◆ 技術特性 Technical Characteristics

項目 Item		特性值 Value
工作速度 Operating speed		0.1mm ~ 1m/s (無動臂時no lever)
工作頻率 Operating Frequency		機械 60次/min; 電氣 25次/min Mechanical 60 cycles/min; electrical 25cycles/min
絕緣電阻 Insulation resistance		≥100MΩ (500VDC)
接觸電阻 Contact resistance		端子型Terminal type ≤50mΩ 導線型wire type ≤100mΩ (24#, L≤200mm)
耐電壓 Test voltage	同極不相接端子間 Between terminals of the same polarity	AC500V,50/60Hz, 1min
	帶電金屬零件與地(外殼)之間、接線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		耐久endurance: 1000m/s <sup>2</sup> (約100G approx.100G)max 誤動作Wrong action:300m/ s <sup>2</sup> (約30G approx.30G)max
防觸電保護等級 Electric shock proof protection grade		I 級class
外殼防護等級 Degree protection provided by enclosure		IEC IP67 (端子型的端子部位除外Besides terminal part of terminal type) 或其它等級Or other grades
壽命 life		機械 ≥500,000次 Mechanical ≥500,000 cycles 電氣 ≥100,000次 Electrical ≥100,000 cycles
安全認證 Safety approvals		UL/CUL、TUV、CE、CQC

微動開關系列  
MICRO SWITCH SERIES

KW3A

KW4A

KW4A(S)

KW10

MS1

MS2

MS3

MS5

MS10

防水開關系列  
WATERPROOF SWITCH SERIES

WS1

WS1L

WS2

WS3

WS4

WS5

WS6

WS7

電源開關系列  
POWER SWITCH SERIES

KDC-A11

KDC-A04

PS4

PS5

PS6

RS1

RS2

RS3

其他開關系列  
OTHER SWITCH SERIES

SP02

KXZ2

PRS1

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

WS5□-□ □ □-□ □ □-□ □-□  
 1 2 3 4 5 6 7 8 9 10

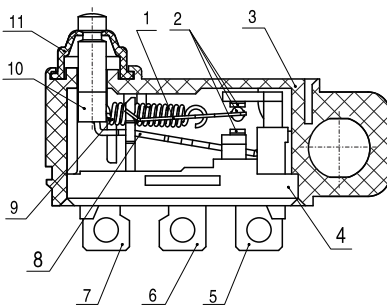
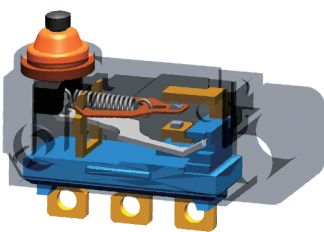
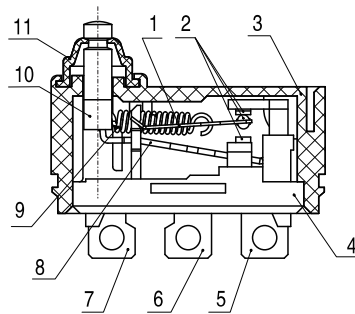
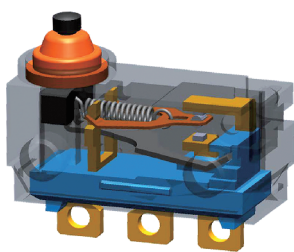
<b>微動開關系列</b> <small>MICRO SWITCH SERIES</small> KW3A KW4A KW4A(S) KW10 MS1 MS2 MS3 MS5 MS10		<b>1</b> 溫度等級 Degree of temperature 無標記No mark: 40T130	<b>7</b> 安裝構造 Mounting construction A:短定位銷(雙面各1); short dowel pin (each one for double sides); AL:左2; left 2; AR:右2; right 2; AA:雙面各2 each 2 for double sides B:M3螺釘固定 M3 screw fixed L:左側面固定銷 left side fixing pin R:右側面固定銷 right side fixing pin W:無孔無銷 without hole and pin	<b>8</b> 導綫型端子的導綫長度(毫米數) Wire length of wire type terminal (mm) 非導綫型該位置空缺 Vacant for non-wire type
<b>2</b> 額定值 Ratings 無標記No mark: 0.1A48VDC 125/250VAC; 3A 12VDC				
<b>3</b> 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)		<b>4</b> 驅動形式 Actuator forms 0:無動臂no lever 3:直動臂Straight lever 6:弧形動臂Arc lever □:非標準動臂not standard lever 注: 1) □表示非標準動臂的代號。 2) 若動臂為內安裝式, 則在動臂代號後加注字母N。 Note: 1) □ Indicate not standard lever. 2) If lever is amoundard inside, add letter "N" after the lever code.	<b>9</b> 防護等級 Degrees protection provided by enclosure 無標記No mark: IP67 (端子型,端子處除外terminal type, Except terminals) IP67 (導綫型 wire leads type) IP□□: 其它等級 Other class	
<b>5</b> 端子類型 Terminal types F:焊接端子solder terminal P:PCB端子PCB terminal PL:左側面PCB端子Left side PCB terminal PR:右側面PCB端子Right side PCB terminal B:底部導綫型Bottom wire type L:左面導綫型(左右的定義見圖示) Left side wire type (definition of right and left is shown in diagram) R:右面導綫型Right side wire type Y:非標準端子not standard terminal				
<b>6</b> 動作力(max) Operating force 100: 1.00N 130: 1.30N 195: 1.95N 220: 2.20N 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.		<b>10</b> 附加規格代號及導綫顏色配置代號 Degree protection provided by enclosure 適用於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. 3) 當導綫顏色不是默認的配置顏色時。 When the wire color is not the default color. ■ 附加規格代號用兩位阿拉伯數字表示, 如01、02、03……在沒有附加規格編號時, 該位置空缺。 Additional spec number shows as 01, 02, 03……If there is no additional numbers, the place is vacant. ■ 導綫顏色配置代號: 用三個英文字母按COM、NC、NO順序表示; 若是常開式或常閉式開關, 空缺位置用字母O表示。(顏色代號: 紅-R、白-W、黑-B、綠-G、藍-L、黃-M、灰-H、紫-P)。		
<b>防水開關系列</b> <small>WATERPROOF SWITCH SERIES</small> WS1 WS1L WS2 WS3 WS4 <b>WS5</b> WS6 WS7				
<b>電源開關系列</b> <small>POWER SWITCH SERIES</small> KDC-A11 KDC-A04 PS4 PS5 PS6 RS1 RS2 RS3				
<b>其他開關系列</b> <small>OTHER SWITCH SERIES</small> SP02 KXZ2 PRS1				

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

WS5□-□ □ □-□ □ □-□ □-□  
1 2 3 4 5 6 7 8 9 10

			<p><b>10</b> 附加規格代號及導線顏色配置代號 Degree protection provided by enclosure</p> <p>Wire color code: indicate with 3 letters , the order is COM、NC、NO; If NO or NC, vacant place shows 0. (Color code: red-R, white-W, black-B, green-G, blue-L, yellow-Y, grey-H, purple-P) 示例example: BWR , BOR , RWO</p> <p>■ 若同時有附加規格代號和導線顏色配置代號, 則導線顏色配置代號位于附加規格代號之後。If there are append specs code and wire color code at the same time, then the wire color code should be after the append specs code. 示例example: 02BWR</p> <p>■ 導線型開關的引線顏色默認配置規定如下Wire color of wire type switch is as follows: 公共端引線COM: 黑色 Common terminal wire COM: Black 常閉端引線NC: 紅色 Normally closed terminal wire NC: Red 常開端引線NO: 白色 Normally opened terminal wire NO: white</p>
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◆ 內部構造圖 Internal configuration drawing



- |         |               |
|---------|---------------|
| 1: 可動片  | Moving piece  |
| 2: 電觸點  | Contact       |
| 3: 外殼   | Base          |
| 4: 底座   | Case          |
| 5: 常閉端子 | NC terminal   |
| 6: 常開端子 | NO terminal   |
| 7: 支架   | Support       |
| 8: 杠杆   | Lever         |
| 9: 拉簧   | Pull spring   |
| 10: 按鈕  | Plunger       |
| 11 密封圈  | Hermetic loop |

微動開關系列  
MICRO SWITCH SERIES

KW3A

KW4A

KW4A(S)

KW10

MS1

MS2

MS3

MS5

MS10

防水開關系列  
WATERPROOF SWITCH SERIES

WS1

WS1L

WS2

WS3

WS4

WS5

WS6

WS7

電源開關系列  
POWER SWITCH SERIES

KDC-A11

KDC-A04

PS4

PS5

PS6

RS1

RS2

RS3

其他開關系列  
OTHER SWITCH SERIES

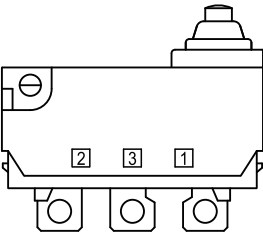
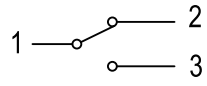
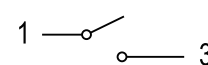
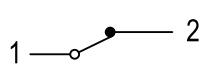
SP02

KXZ2

PRS1

**◆ 接觸形式說明圖 Circuit illustration**

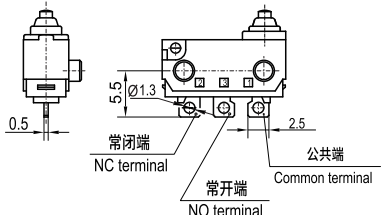
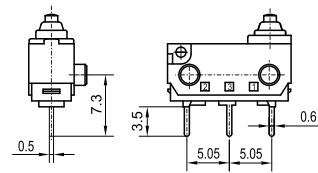
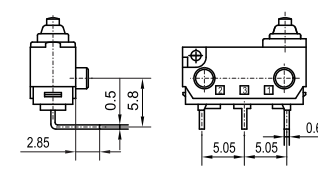
- 微動開關系列  
MICRO SWITCH SERIES
- KW3A
- KW4A
- KW4A(S)
- KW10
- MS1
- MS2
- MS3
- MS5
- MS10

	轉換式 SPDT	常開式 SPST-NO	常閉式 SPST-NC
			

**防水開關系列  
WATERPROOF SWITCH SERIES**

- WS1
- WS1L
- WS2
- WS3
- WS4
- WS5
- WS6
- WS7

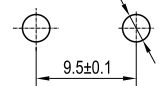
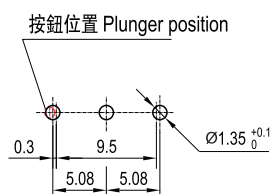
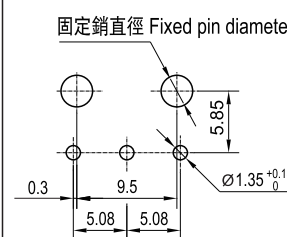
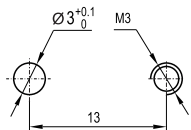
**◆ 接線端尺寸 Terminal dimensions**

焊接端子 Solder terminal	PCB 端子 PCB terminal	
		

**電源開關系列  
POWER SWITCH SERIES**

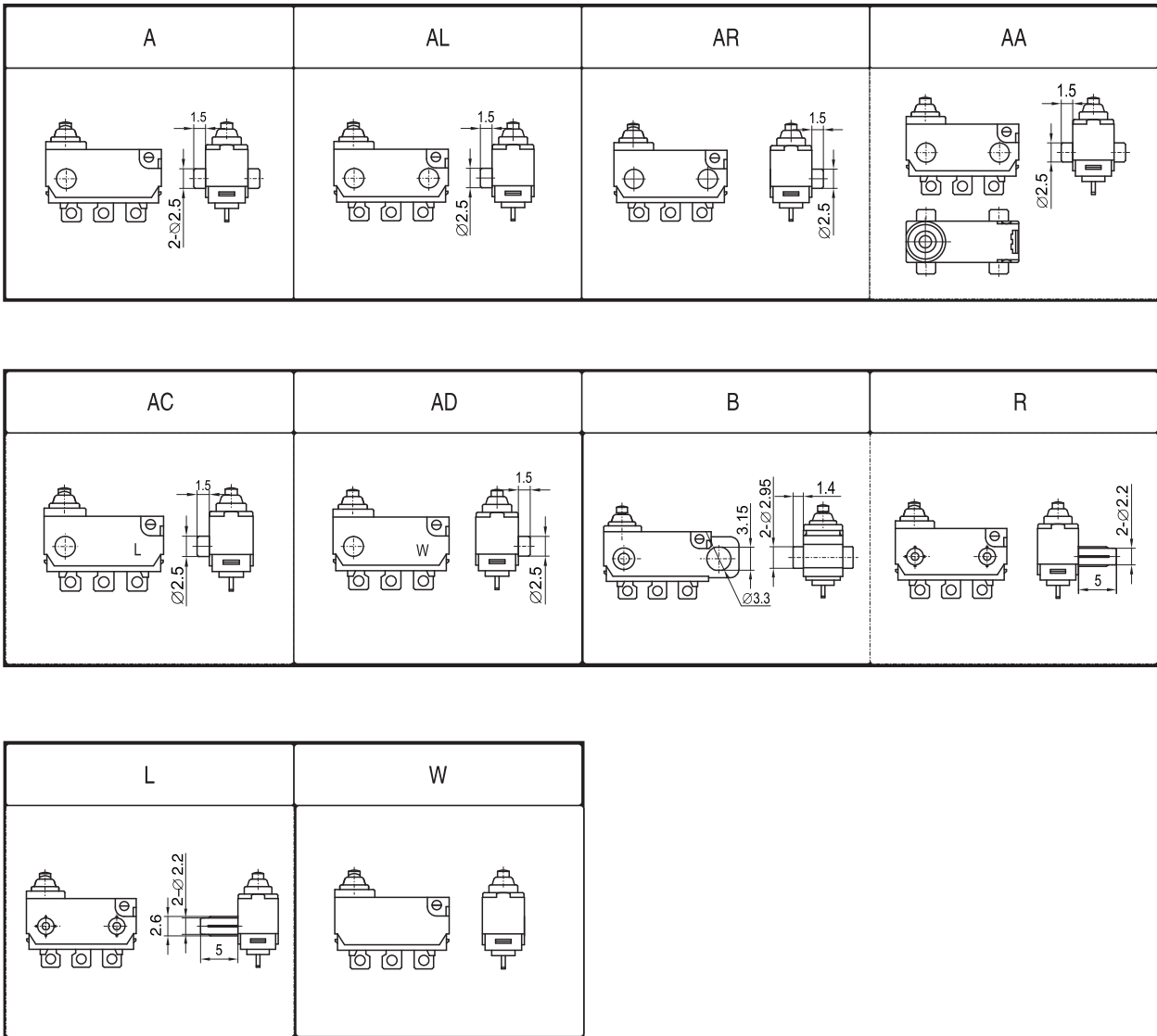
- KDC-A11
- KDC-A04
- PS4
- PS5
- PS6
- RS1
- RS2
- RS3
- 其他開關系列  
OTHER SWITCH SERIES
- SP02
- KXZ2
- PRS1

**◆ 安裝孔尺寸 Mounting hole dimension**

定位銷/固定銷間距 Dowel pin / fixed pin distance	直PCB端子安裝孔 Straight PCB terminal mounting hole	左右PCB端子安裝孔 Left and right PCB terminal mounting hole	M3螺釘安裝孔 M3 screw mounting hole
			

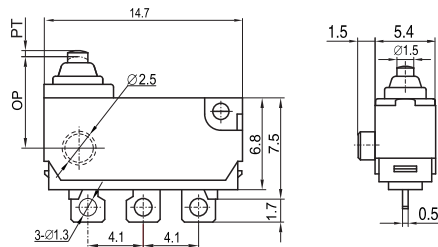
Since 1995, we focus on switches

◆ 安裝構造說明圖 Mounting construction illustration



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

WS5-ZO-F130AC



型號 Model	WS5-ZO-F130AC
OF Max(N)	1.30
RF Min(N)	0.13
OT Min(mm)	0.8
MD Max(mm)	0.8
FP Max(mm)	0.2
OP (mm)	6.7 ± 0.2

微動開關系列  
MICRO SWITCH SERIES

- KW3A
- KW4A
- KW4A(S)
- KW10
- MS1
- MS2
- MS3
- MS5
- MS10

防水開關系列  
WATERPROOF SWITCH SERIES

- WS1
- WS1L
- WS2
- WS3
- WS4
- WS5
- WS6
- WS7

電源開關系列  
POWER SWITCH SERIES

- KDC-A11
- KDC-A04
- PS4
- PS5
- PS6

RS1

RS2

RS3

其他開關系列  
OTHER SWITCH SERIES

SP02

KXZ2

PRS1

**◆ 外形尺寸和動作特性 Dimensions and operating characteristics**
**微動開關系列**  
MICRO SWITCH SERIES

- KW3A
- KW4A
- KW4A(S)
- KW10
- MS1
- MS2
- MS3
- MS5
- MS10

**防水開關系列**  
WATERPROOF SWITCH SERIES

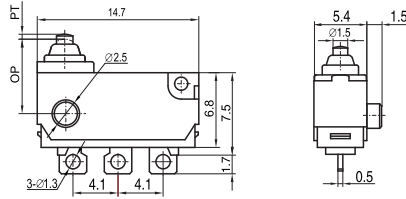
- WS1
- WS1L
- WS2
- WS3
- WS4
- WS5
- WS6
- WS7

**電源開關系列**  
POWER SWITCH SERIES

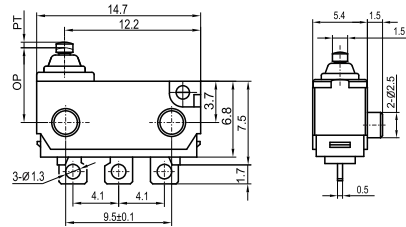
- KDC-A11
- KDC-A04
- PS4
- PS5
- PS6
- RS1
- RS2
- RS3

**其他開關系列**  
OTHER SWITCH SERIES

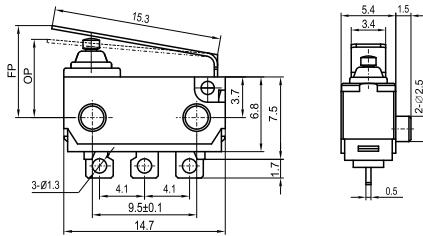
- SP02
- KXZ2
- PRS1

**WS5-Z0-F130AD**


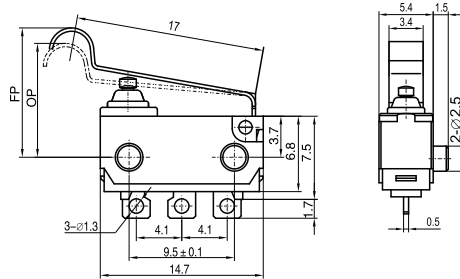
型號 Model	WS5-Z0-F130AD
OF Max(N)	1.30
RF Min(N)	0.13
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OP (mm)	6.7 ± 0.2

**WS5-Z0-F130AR**


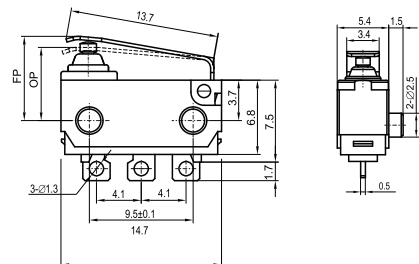
型號 Model	WS5-Z0-F130AR
OF Max(N)	1.30
RF Min(N)	0.13
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OP (mm)	6.7 ± 0.2

**WS5-Z3N-F130AR**


型號 Model	WS5-Z3N-F130AR
OF Max(N)	1.95
RF Min(N)	0.25
OT Min(mm)	1.35
MD Max(mm)	0.6
FP Max(mm)	10.5
OP (mm)	7.4 ± 0.6

**WS5-Z6N-F130AR**


型號 Model	WS5-Z6N-F130AR
OF Max(N)	1.80
RF Min(N)	0.20
OT Min(mm)	1.5
MD Max(mm)	0.7
FP Max(mm)	13.5
OP (mm)	10.7 ± 0.7

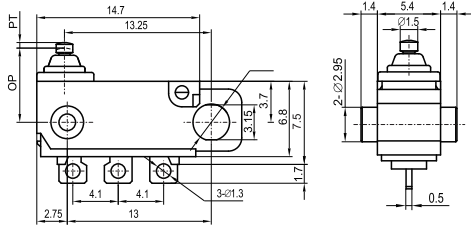
**WS5-ZAN-F130AR**


型號 Model	WS5-ZAN-F130AR
OF Max(N)	2.20
RF Min(N)	0.30
OT Min(mm)	0.8
MD Max(mm)	0.5
FP Max(mm)	9.4
OP (mm)	7.1 ± 0.5

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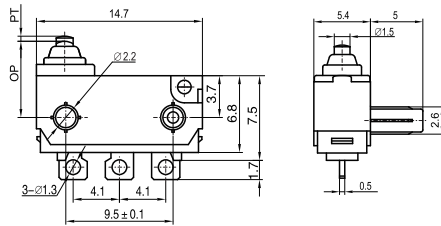
◆ 外形尺寸和動作特性 Dimensions and operating characteristics

WS5-ZO-F130B



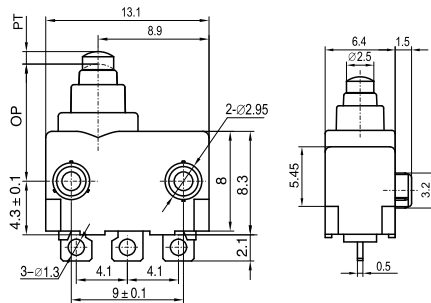
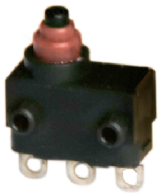
型號 Model	WS5-ZO-F130B
OF Max(N)	1.30
RF Min(N)	0.13
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OP (mm)	6.7 ± 0.2

WS5-ZO-F130R



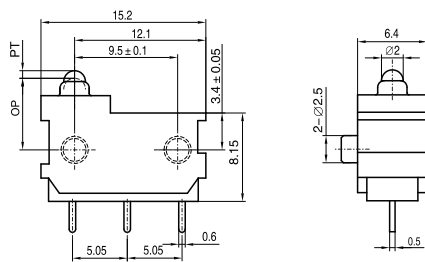
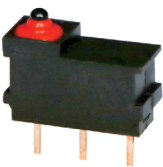
型號 Model	WS5-ZO-F130R
OF Max(N)	1.30
RF Min(N)	0.13
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OP (mm)	6.7 ± 0.2

WS5-ZO-F100AR



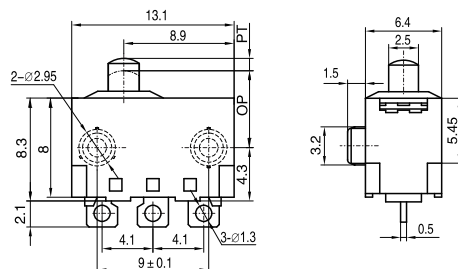
型號 Model	WS5-ZO-F100AR
OF Max(N)	1.00
RF Min(N)	0.20
PT Max(mm)	1.5
OT Min(mm)	0.7
MD Max(mm)	0.25
OP (mm)	9.4 ± 0.3

WS5-ZO-P100AL-□



型號 Model	WS5-ZO-P100AL-□
OF Max(N)	1.00
RF Min(N)	0.13
PT Max(mm)	0.8
OT Min(mm)	0.8
MD Max(mm)	0.2
OP (mm)	6.8 ± 0.2

WS5-ZO-F100AL-IP40-□



型號 Model	WS5-ZO-F100AL-IP40-□
OF Max(N)	1.00
RF Min(N)	0.08
PT Max(mm)	1.5
OT Min(mm)	0.7
MD Max(mm)	0.25
OP (mm)	6.2 ± 0.3

微動開關系列  
MICRO SWITCH SERIES

KW3A

KW4A

KW4A(S)

KW10

MS1

MS2

MS3

MS5

MS10

防水開關系列  
WATERPROOF SWITCH SERIES

WS1

WS1L

WS2

WS3

WS4

WS5

WS6

WS7

電源開關系列  
POWER SWITCH SERIES

KDC-A11

KDC-A04

PS4

PS5

PS6

RS1

RS2

RS3

其他開關系列  
OTHER SWITCH SERIES

SP02

KXZ2

PRS1