

## WS1L型防水開關系列 Waterproof switch series

### ◆ 特點和用途 Characteristics and usage

- 通過橡膠密封圈和環氧樹脂填封達到穩定的密封性。可以在會淋水或多塵埃的地方使用。

To be stably sealed by sealed rubber ring and epoxy resin.

Can be used in wet or dusty places.

- 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 wire.

- 配備各種形式動臂

A variety of levers.

- 可在汽車、自動售貨機、冰箱、制冰機、浴室設備、熱水器、空調等有耐環境性要求的場合及戶外設備、儀器使用。

Can be used in environment resistant places application, outdoor apparatus such as automobile, vending machine, refrigerator, ice machine, bath equipment, water heater and air-conditioner etc.



### ◆ 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 25 cycles/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
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)
壽命 Life		機械 ≥1,000,000次; Mechanical ≥1,000,000 cycles 電氣 ≥50,000次; Electrical ≥50,000 cycles
安全認證 Safety approvals		UL、CUL、ENEC、DEMKO

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

WS1L □-□□□-□□□□□-□  
1 2 3 4 5 6 7 8 9 10

<p><b>1</b> 溫度等級 Degree of temperature</p>	<p>無標記 No mark: 20T85 T:40T85</p>	<p><b>6</b> 動作力(max) Operating force</p>	<p>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.</p>
<p><b>2</b> 額定值 Ratings</p>	<p>無標記 No mark: 5A125VAC 5GPA125/250VAC 5(2)A125/250VAC 4A30VDC 1/4hp250VAC WS1L-B: 3A125VAC 3GPA125/250VAC 3(1)A125/250VAC WS1L-C: 1A125VAC 1GPA125/250VAC 1(0.3)A125/250VAC WS1L-F: 0.1A125/250VAC 0.1GPA125/250VAC</p>	<p><b>7</b> 按鈕規格 Plunger specs</p>	<p>無標記 No mark: 標準按鈕 Standard plunger □:非標準按鈕 Not standard plunger 注: □表示非標準按鈕的代號 Note: □Indicate not standard plunger</p>
<p><b>3</b> 接觸形式 Circuit</p>	<p>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)</p>	<p><b>8</b> 導線方向及長度 Wire direction and length</p>	<p>R□:導線在按鈕遠端引出 Wire be educed at the distance of plunger L□:導線在按鈕近端引出 Wire be educed at the close of plunger D□:導線在開關下方引出 Wire be educed at the lower part of switch (□為導線長度毫米數) (□ Is the length number- "mm" of the wire)</p>
<p><b>4</b> 驅動形式 Actuator forms</p>	<p>0:無動臂 No Lever 1:短動臂 Short Lever 2:長動臂 Long Lever 3:中動臂 Middle Lever 4:短滾輪臂 Short Roller 5:長滾輪臂 Long Roller 6:弧形動臂 Arc Lever □:標準動臂 Not standard lever 注: □表示非標準動臂的代號 Note: □indicate not standard lever</p>	<p><b>9</b> 防護等級 Degree protection provided by enclosure</p>	<p>無標記 No mark: IP67 IP□□:其它等級 Other degrees</p>
<p><b>5</b> 端子類型 Terminal types</p>	<p>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快捷端子 110 quick-connect Y:非標準端子 Not standard terminal W:導線型 Wire type</p>	<p><b>10</b> 附加規格代號及 導線顏色配置代號 Append specs code and wire color code</p>	<p>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)當導線顏色不是默認的配置顏色時。 When the wire color is not the default color. ■ 附加規格代號用阿拉伯數字表示, 在沒有附加規格編號時, 該位置空缺。 Additional specs number shows by Arabic numerals. If there is no additional numbers, the place is vacant. ■ 導線顏色配置代號: 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)。 Wire color code:indicate with 3 letters, the order is COM、NC、NO;If NO or NC,vacant place shows O. (Color code:red-R,white-W,black-B,green-G,blue-L,yellow-Y,grey-H,purple-P) 示例example: BWR, BOR, RWO ■ 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: O2BWR</p>

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

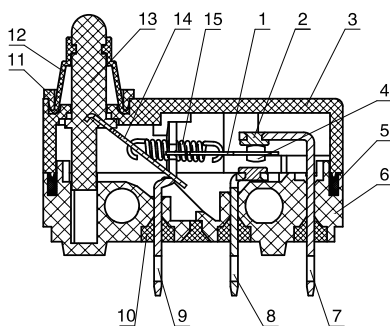
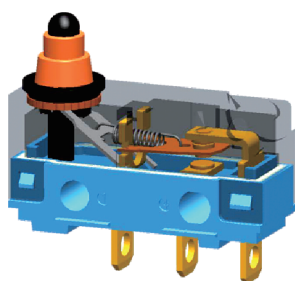
其他開關系列  
OTHER SWITCH SERIES

SP02

KXZ2

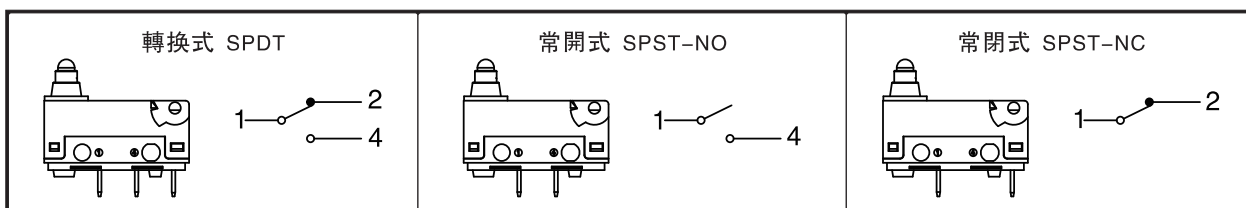
PRS1

◆ 內部構造圖 Internal configuration drawing

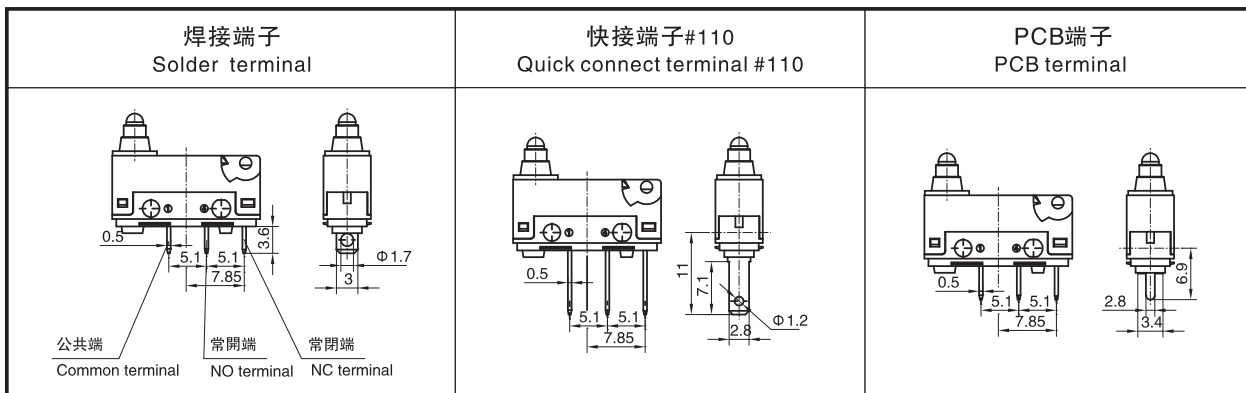


- |          |               |
|----------|---------------|
| 1: 可動片   | Moving piece  |
| 2: 電觸點   | Contact       |
| 3: 蓋     | Cover         |
| 4: 電觸點   | Contact       |
| 5: 橡膠    | Rubber        |
| 6: 基座    | Case          |
| 7: 常閉端子  | NC terminal   |
| 8: 常開端子  | NO terminal   |
| 9: 支架    | Support       |
| 10: 環氧樹脂 | Epoxide resin |
| 11: 壓環   | Clasp ring    |
| 12: 密封圈  | Hermetic loop |
| 13: 按鈕   | Plunger       |
| 14: 杠杆   | Lever         |
| 15: 拉簧   | Pull spring   |

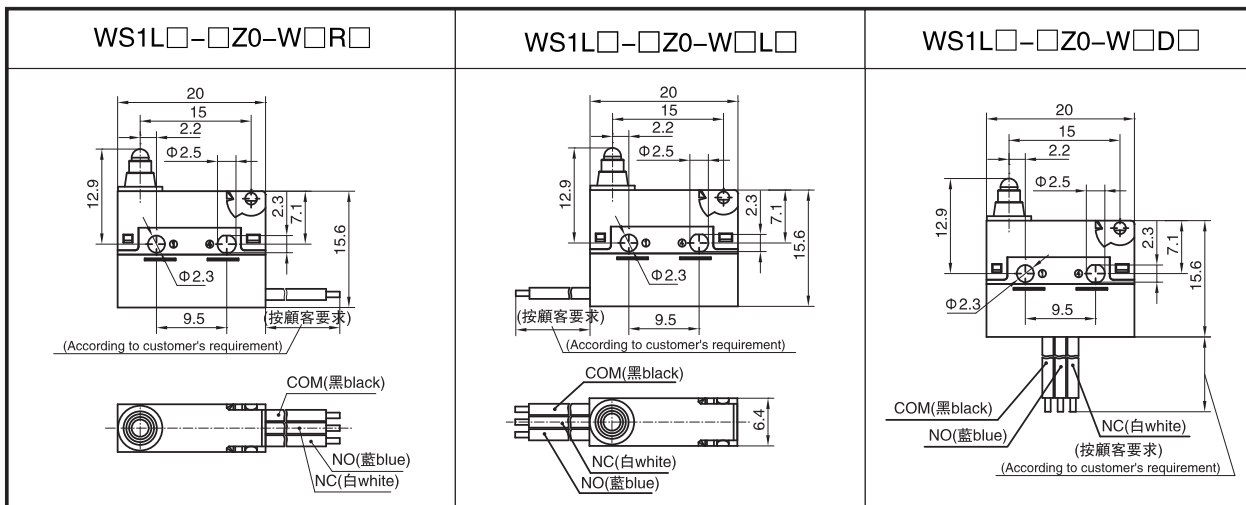
◆ 接觸形式說明圖 Circuit illustration



◆ 接線端尺寸 Terminal dimensions

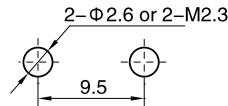


◆ 導線型外形圖 Outline drawing of wire type

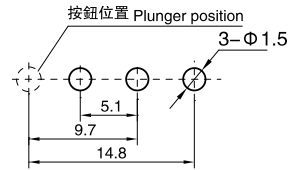


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◆ 安裝孔尺寸 Mounting hole dimensions

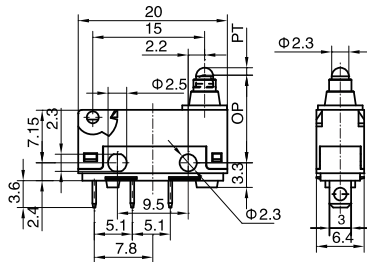
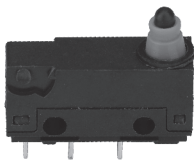


PCB端子 PCB terminal



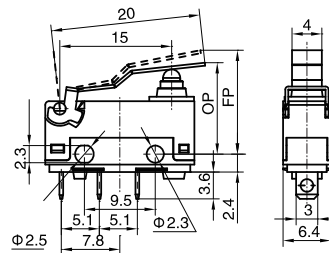
◆ 外形尺寸和動作特性 Dimensions and operating characteristics

WS1L-□Z0-F150  
WS1L-□Z0-F200



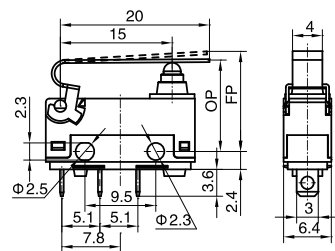
型號 Model	WS1L-□Z0-F150	WS1L-□Z0-F200
OF Max(N)	1.50	2.00
RF Min(N)	0.30	0.40
PT Max(mm)	1.6	
OT Min(mm)	1.8	
MD Max(mm)	1.9	
OP (mm)	11.7 ± 0.4	

WS1L-□ZE-F150  
WS1L-□ZE-F200



型號 Model	WS1L-□ZE-F150	WS1L-□ZE-F200
OF Max(N)	1.50	2.00
RF Min(N)	0.30	0.40
OT Min(mm)	2.0	
MD Max(mm)	1.0	
FP Max(mm)	14.5	
OP (mm)	12.6 ± 0.8	

WS1L-□ZF-F150  
WS1L-□ZF-F200



型號 Model	WS1L-□ZF-F150	WS1L-□ZF-F200
OF Max(N)	1.50	2.00
RF Min(N)	0.30	0.40
OT Min(mm)	2.0	
MD Max(mm)	1.0	
FP Max(mm)	13.5	
OP (mm)	12.3 ± 0.8	

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