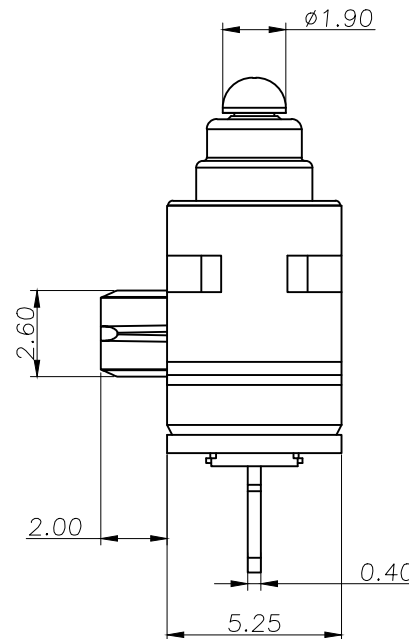
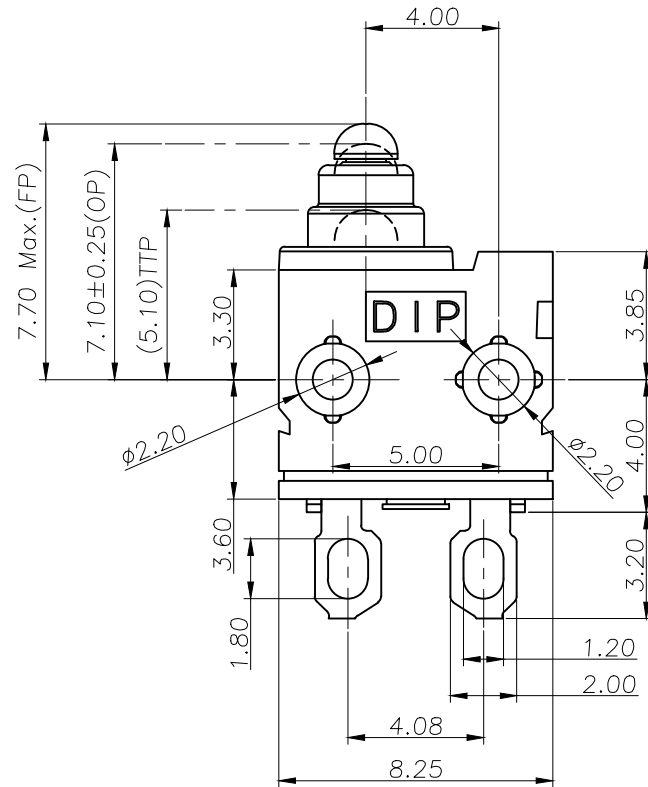
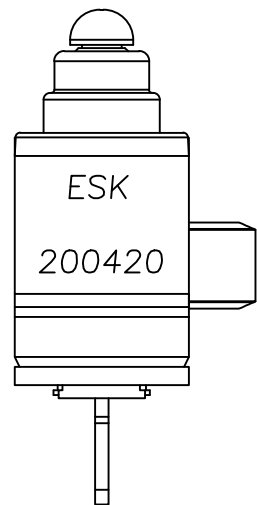
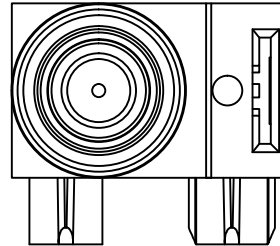


Specifications

1. Rating : 1mA 5V DC~50mA 16V DC
2. Initial contact resistance : 1Ω Max.
3. Insulation resistance : 100MΩ min. 500V DC
4. Dielectric strength : 500V AC for 1 minute.
5. Operating force : 160gf Max.(1.57N Max.)
6. Operating life : 300,000 Cycles Min.(DC5V 1mA)
200,000 Cycles Min.(DC12V 50mA)
150,000 Cycles Min.(DC16V 50mA)
7. GENERAL TOLERANCES ±0.2mm



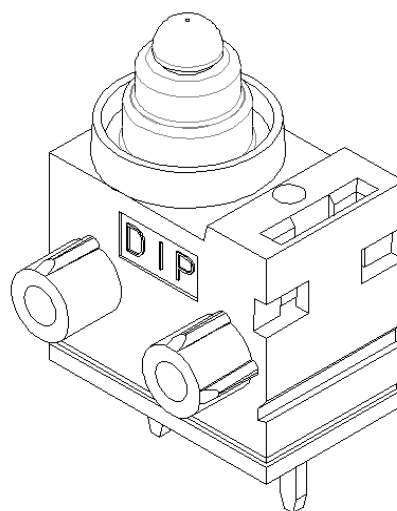
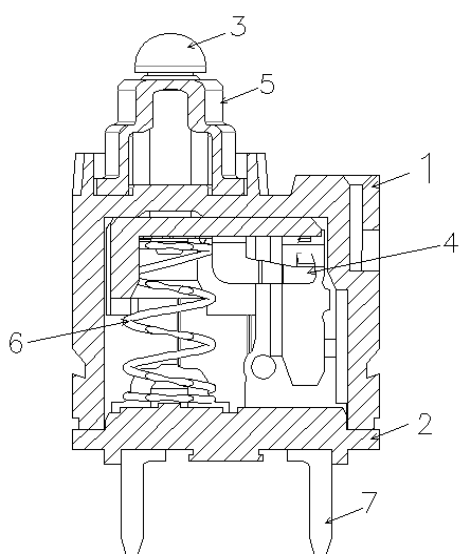
Circuit Diagram



△				
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△				
△	A1	REL.DWG	2021.09.24	
ZONE	REV.	DESCRIPTION.	DATE.	APPD.

APPD:	Q'TY:	 圓達實業股份有限公司 DIPTRONICS MANUFACTURING INC.		PART NAME:
CHKD:	SCALE: 4:1			Detector Switch
DR: Michelle 2021.09.24	REV: A1	UNITS: mm	PART NO: ESK-P3JWGV	MAT'L:
DESIGN: Michelle 2020.01.14			FINISH:	DWG NO:

ITEM	DESC.	Q'TY	MATERIALS	TREATMENT	REMARK
1	COVER	1	HIGH TEMP THERMOPLASTIC	BLACK	-
2	BASE	1	HIGH TEMP THERMOPLASTIC	WHITE	-
3	BUTTON	1	HIGH TEMP THERMOPLASTIC	BLACK	-
4	CONTACT	1	COPPER	Ag PLATING	-
5	RUBBER	1	SILICONE RUBBER	ORANGE	-
6	SPRING	1	STAINLESS STEEL	Ag PLATING	-
7	TERMINAL	1	BRASS	Ag PLATING	-



ESK - P 3 J □ □ □

Actuator: _____
P = Pin Plunger

Contact Form: _____
3= SPST(Normal Open)

Posts: _____
J = Short Posts on Left

V = Lead Free

Plating:
G = Silver Plating

Terminal Type:
H = PCB Terminal
W = Solder Terminal

				TITLE: DETECTOR SWITCH (ESK)	APPD. : 林嚴政
				PROD. NO. : ESK-P3J_GV	CHKD. : 張志瑋
A	DWG.REL			FILE NO. : E-V-CT94	PR. : Michelle
REV.	ECO. NO.				REV. : A

Product specification of ESK SERIES

林后謙

2020.11.12

[illegible]

ESK SERIES Reference Specification

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REV. : A2
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1.General(一般事項):

1.1 Operating Temperature Range (使用之溫度範圍): -40°C ~ +85°C

1.2 Storage Temperature Range(儲存之溫度範圍): -40°C ~ +85°C

1.3 Test conditions(測試狀態)

Unless otherwise specified, the test and measurements shall be carried out as follows.

除非另有說明，測試與測量應如下條件進行.

Ambient temperature(環境溫度) : 5 ~ 35 °C

Relative humidity(相對溼度) : 25 ~ 85 %

Air pressure(氣壓) : 86 ~ 106 kPa

However, if doubt arises on the decision based on the measured values under the above-mentioned conditions, the following conditions shall be employed.

無論如何，如果上述條件量測時有疑慮時，應在下列條件使用

Ambient temperature(環境溫度) : 20± 2°C

Relative humidity(相對溼度) : 65±5 %

Air pressure(氣壓) : 86 ~ 106 kPa

2. Rating(額定負載):

1 mA 5V DC ~ 50mA 16V DC

3. Type of Actuation : Auto Return (類型：自動回復式)

4. IP Code : IP 67

5. Operating Characteristic 動作特性

Characteristics(No Lever)特性(無推柄)	Special Leaf lever 規格
Operating Force max. 最大荷重(OF)最大	160gf Max.(1.57N Max.)
Free Position. Max. 自由位置(FP)最大	7.7mm Max.
Operating Position 動作位置(OP)	7.1±0.25mm
Total Travel Position (Reference value) 動作限制位置(T.T.P)參考值	(5.1mm)

※The above feature is based on the direction operation of vertical button

以上特性為垂直按鈕方向操作為基準

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6. Test Sequence(測試項目) :

	Item	Description	Test Conditions	Requirements
Appearance 外觀	1	Visual Examination 目視檢查	By visual examination check without any out pressure & testing. 在未施加任何外力及試驗前, 以目視方式檢測	There shall be no defects that affect the serviceability of the product. 產品的外觀不能有影響產品功能之不良缺點
	2	Contact Resistance 接觸阻抗	Shall be measured at 1 kHz±200 Hz (20mV Max. 50 mA Max.), small current contact resistance meter 將以 1 kHz±200 Hz(20mV Max,50 mA Max)規格的微電流阻抗計, 量測接觸阻抗值	500mΩ Max. (initial)
Electrical Performance 電氣特性	3	Insulation Resistance 絕緣阻抗	500V DC, 1 minute ± 5 sec. 直流電壓 500V, 1 分鐘±5 秒	100MΩ Min.
	4	withstand Voltage 耐電壓	1. Adjacent terminal AC 500V 1Min. 2. Terminal and metal actuator AC 1500V 1Min. 1. 兩相鄰端子施以 500V 的交流電, 並保持 1 分鐘之加壓狀態 2. 端子與金屬推柄施以 1500V 的交流電, 並保持 1 分鐘之加壓狀態	No dielectric breakdown shall be occurred 成品不得有故障, 跳火及絕緣體破壞等不良現象
Durability 耐久性	5	Life Test 壽命測試	Measurements shall be made following the test forth below: ①50mA, 16V DC 150,000 cycles Min. 50mA 12 VDC 200,000 cycles Min. 1mA 5VDC 300,000 cycles Min. ②Applying a static load the operating force to the center of the stem in the direction of operation Static Load = OF Max. ③Rate of Operation: 20 operation per minute 測試時需按照下列所設定之情況 ①施以 50mA, 16V DC 壽命 150,000 次以上 施以 50mA 12V DC 壽命 200,000 次以上 施以 1mA 5V DC 壽命 300,000 次以上 ②測定需於開關操作方向以 OF 上限的靜態荷重施於按鈕中央處 ③作動速度: 連續作動每分鐘 20 次	1) Operating Force: 160gf Max. 2) Operating Position: 7.1±0.25mm 3) Insulation Resistance: 10MΩ Min. 4) withstand voltage: AC 500V 1Min. 5) Contact resistance value 5Ω below 1) 最大荷重 160gf 2) 動作位置: 7.1±0.25mm 3) 絕緣 10MΩ 以上 4) 耐電壓 500V 的交流電最少 1 分鐘 5) 接觸阻抗值 5Ω 以下

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Environmental Endurance 環境測試

	6	Vibration 振動測試	①Frequency : 10 - 55 - 10 Hz 1 minute/cycle. ②Total amplitude : 1.5 mm ③Direction: 3 vertical directions including the direction of operation. 4)Test Time: 2 hours each direction. ①頻率: 10 - 55 - 10 Hz 的頻率循環測試, 週期 1 分鐘 ②全震幅 : 1.5 mm ③振動方向: 以 X, Y, Z 三軸向, 包含推鈕操作之方向 4)測試時間: 每一方向 2 小時	Instantaneous break 10ms below 瞬斷 10ms 以下
	7	Shock 衝擊試驗	①Acceleration : 100 G. ②Testing Direction : 6 sides. ②Test cycle : 3 times in each direction (18 times in total) ①加速度 : 100 G ②受測方向 : 以成品全周 6 個方向做測試 ②受測次數 : 每一方向 3 次, 合計 18 次	
	8	Cold Resistance 耐寒性	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made : 1)Temperature : -40°C±2°C. 2)Time: 500 hours. 請依照下列所設定的條件測試後, 並於常溫常濕中放置 1 小時後測定 1)受測溫度:-40±2°C 2)受測時間:500 小時	1)Operating Force: 160gf Max. 2) Operating Position: 7.1±0.25mm 3) Insulation Resistance: 10MΩ Min. 4) withstand voltage: AC 500V 1Min. 5) Contact resistance value 5Ω below 1)最大荷重 160gf 2)動作位置: 7.1±0.25mm 3)絕緣 10MΩ 以上 4)耐電壓 500V 的交流電最少 1 分鐘 5)接觸阻抗值 5Ω 以下
	9	Heat Resistance 耐熱性	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made : 1)Temperature : 85°C±2°C 2)Time: 500 hours 請依照下列所設定的條件測試後, 並於常溫常濕中放置 1 小時後測定 1)受測溫度:85±2°C 2)受測時間:500 小時	

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Environmental Endurance 環境測試	10	Humidity Resistance 耐濕性	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made : 1)Temperature : 40°C±2°C 2)Relative Humidity : 95% 3)Time: 500 hour 請依照下列所設定的條件測試後, 於常溫常濕中放置 1 小時後測定 1)受測溫度:40±2°C 2)相對濕度: 95% 3)受測時間:500 小時	1)Operating Force: 160gf Max. 2) Operating Position: 7.1±0.25mm 3) Insulation Resistance: 10MΩ Min. 4) withstand voltage: AC 500V 1Min. 5) Contact resistance value 5Ω below 1)最大荷重 160gf 2)動作位置: 7.1±0.25mm 3)絕緣 10MΩ 以上 4)耐電壓 500V 的交流電最少 1 分鐘 5)接觸阻抗值 5Ω 以下
	11	IP6x equivalent 相當於 IP6x	Dust protection 1) Dust : Talc 2) Density : 2kg/m3 3) Temperature : 20±15 °C (Ambient temperature) 4) Relative humidity : 45 ~ 85 % 5) Duration of test : 8 hour 6) Dusts shall be removed before test 塵埃防護 滑石粉塵密度為 2kg/m3, 室溫 20±15°C, 相對濕度 45~85%, 測試八小時後取出並將外部擦拭之後測試接觸阻抗	1)Contact resistance :500mΩ Max. 1)接觸阻抗最大 500 mΩ
	12	IPx7	water protection 1) liquid : water 2) Temperature : 20±15 °C (Ambient temperature) 3) Immersion depth : 1M 4) Duration of test : 30 minute. Water around the switch shall be removed by the moisture absorbing material, then expose the switch in the ambient temperature for 1 hour before checking. * Temperature difference between ambient and liquid shall be 5° C Max. 水防護 測試之液體為淡水, 室溫需在 20±15°C, 放入水中 1 公尺深靜置 30 分鐘後, 取出將開關外部周圍水分擦拭除去, 於室溫放置 1 小時之後測試絕緣阻抗, (開關和水之間的溫度差不超過 5°C)	1) withstand voltage: AC 500V 1Min. 1)耐電壓 500V 的交流電最少 1 分鐘
Terminal strength 端子強度	13	Terminal Strength 端子強度	The terminal pushes in 4 directions and pulls in 1 direction must conform to 6N Min. 端子由 4 方向推及 1 方向拉須符合最少 6N	1) Terminal deformation is allowed. 2)Operating Force: 160gf Max. 3) Operating Position: 7.1±0.25mm 1)允許端子變形 2)最大荷重 160gf 3)動作位置: 7.1±0.25mm

7.Soldering Conditions(鐸錫條件):

- Manual Soldering(手工鐸錫)

Soldering Temperature(鐸錫溫度)	Max.350°C
Continuous Soldering Time(連續鐸錫時間)	Max. 3 seconds
Capacity of soldering iron (烙鐵功率)	Max. 15W

8. Precautions in Handling(使用上的注意事項):

8.1

Under manual soldering condition, please use the electric iron with the temperature adjustment, the head of the electric iron set up 350°C and finish the operation within 3 seconds, do not force to the terminal during operation.

(Please blanking 1 second at least on heating time of per terminal)

手焊接的情況下，請使用帶溫度調節的電烙鐵，電烙鐵頭部的溫度應設定在350°C以下，並在3秒內完成作業，並注意作業中請勿在端子部上施加力。(各個端子的加熱時間請間隔1秒以上)。

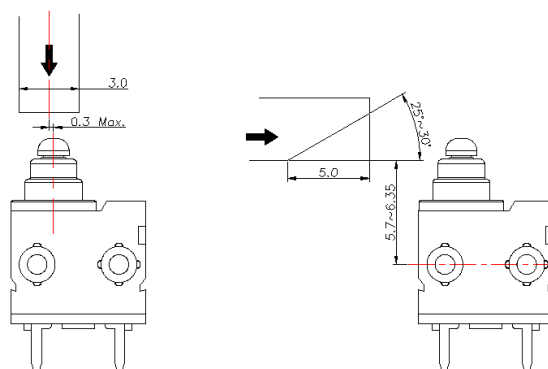
8.2

- a. Using swing type condition, please do not over force to the opposite direction and level direction.

使用擺杆型的情況下，請勿從動作相反方向及水平方向施加過度載重。

- b. Correct operation direction as below suggestion:

正確操作方向建議如下:



- 8.3 Please do not press the activator to outside the action limit position(T.T.P) or it will cause the action abnormal.

請勿將開關按至動作限度位置(T.T.P)範圍外，否則會引起動作異常。

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9. Notes on storage conditions(儲存條件的注意事項):

Do not store in the following environment or it may affect product's function and solderability:

當物品被儲存於以下的情形與條件它可能會影響產品功能變差及吃錫性等..

應避免儲存於下列情形

- 9.1 temperature of -10 (max)、 +40 (min) °C & humidity at 85% (min)

溫度在-10(Max.)、+40(Min.)&濕度在 85%(Min.)的地方

- 9.2 environment with corrosive gas

在有腐蝕性氣體的地方

- 9.3 storage over 6 months

長時間儲存超過 6 個月

- 9.4 place of direct sunlight

陽光直接照射的地方

- 9.5 Store with proper packaging conditions and to avoid loading heavy force.

以包裝的狀態儲存以避免重力承載

- 9.6 We suggest to use the products within 3 months or at least 6 months.

請儘快使用我們建議 3 個月之內最多 6 個月內使用完畢

- 9.7 After opening the package, the rest products must be stored in the appropriate moisture-proof & airtight environment

打開包裝後, 要將未使用完剩餘產品存放在適當的防潮&密閉環境中

10. NOTE(備註):

10-1 Please use the product under the specification, if there is failed occur due to not following the specification, and then we will not guarantee the quality.

請在規格書的規定條件下使用，如果由於未在所列條件下使用導致故障，我們將不予保證

10-2 Max. operating cycle rate: 120 cycles/minute

最大開閉頻率：120 回/分鐘

Mouser Electronics

Authorized Distributor

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