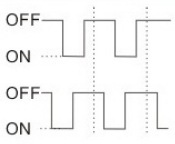
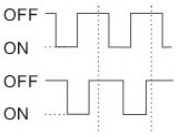
Explanation of Terms
编码器術語及使用注意事項說明

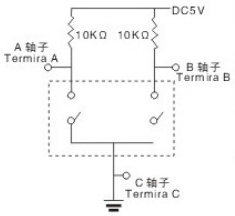
一、Explanation of Terms 术语解释
1、Output signal format 輸出訊號
2、Phase-different output signals (signal A and B). See the following <Fig. 1>,(The broken line shows detent position of encoders with detent type)
两想位差輸出訊號(A及B訊號)，詳細說明參見圖一。(虛線部份是带开关功能机型的开关位置圖示)

Shaft rotational direction 迴轉方向	Signal 信號	Output 輸出波形
C.W. 順時針方向A	(Terminal A-C) A(A-C端子間)	
C.C.W. 逆時針方向	B (Terminal B-C) B(B-C端子間)	

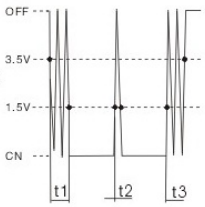
<Fig.1>

2、Resolution 分解能
Number of output pulses in 360° rotation.
旋轉360°輸出 脈波數目

3、Switching characteristics 電位轉換特性
Measurement should be made under following conditions:
3、（1）Shaft rotation speed 360°/sec.
3、（2）Test Circuit :see <Fig.2> shows
Note: Code"OFF" area:The area where the voltage is 3.5V and more.
Code"ON "area: The area where the voltage is 1.5V and less.
測量應按下列條件進行：
3、1.軸心旋轉速度360°/秒
3、2測試電路測试回路见图二
备注： OFF ：輸出電壓在3.5V以上區域
ON ：輸出電壓在1.5V以下區域



<Fig.2>

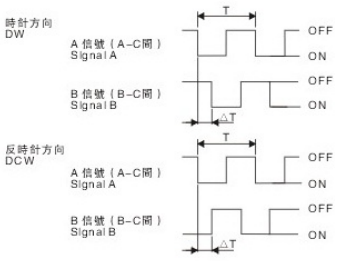


<Fig.3>

3、3Fluttering(Contact) 接觸彈跳雜訊
Specified by the signal’s passage time from 3.5V to 1.5V
or from 1.5V to 3.5V of each switching position (Code OFF→ON or ON→OFF)
訊號從3.5V切換到1.5V(t1)，或從1.5V切換到3.5V(t3)時所通过的時間 (編碼從OFF→ON or ON→OFF)。
3、4Sliding noise 滑動雜訊
Specified by the time of voltage level change drops to 1.5V and lower in code-ON area. When the sliding noise in code-ON area between t1 and t3 less than 2ms, they are regarded as one linked signal.
電壓轉換到1.5V以下的ON區域時，在t1及t3區域之間所發生的小於2ms的雜訊（t2）視為連續的訊號。

4、Phase-difference 相位差
Measurement should be made with the specified shaft rotation speed with 360°/sec
相位差测试軸心條款速速度爲360°/秒。

Note: This specification is changeable when shaft is operated by manual; please check the performance by using actual circuit and knob.
註：本項規格在以手動檢查時因轉速不穩定會有所變動，請配合實際電路及旋鈕來檢查其性能。



<Fig.4>

Encoder

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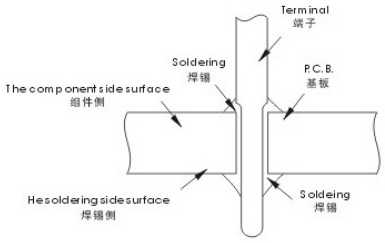
二、Caution for using 使用注意事项

1、Flux penetrating

焊劑滲入Please avoid soldering on upper surface (component side surface) of the P.C. Board as shown below.

請避免焊錫作業時將助焊劑滲入 (組件側面) P.C.B 的表面。請參考附圖。



2、Clean清洗

Please avoid cleaning of P.C. board because the flux used during the dip soldering process may enter the encoder and cause poor contact.

請避免清洗PCB板，由于浸入焊錫作業過程中，边焊劑有可能滲入編碼器內部，造成接觸不良。

3、Storage environment 存儲環境

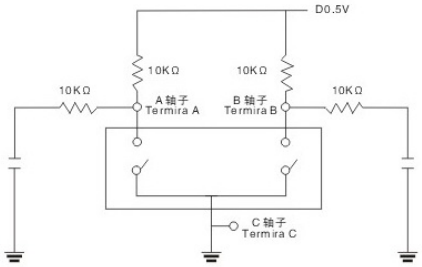
Storage in high temperature,high humid and corrosive gas environment should be avoided.

請避免存放於高溫、潮濕及具腐蝕性的場所。

4、RC Filter circuit RC濾波電路

For the implementation of the pulse count or menu control, always use the RC filter circuit shown as below.

在脈衝計算或選項控制的運用時，盡可能採用下圖所示的RC濾波電路過濾雜訊。



5、Pulse count operation 脈衝計數操作

For the pulse count operation, care should be taken with operational speed, sampling time and Masking time etc.

必須注意時脈計算處理的動作方式。注意操作速度、取樣時間及遮罩時間等。

6、Application 應用設計

For product of with-detent type, detent position is always aligned with A-OFF phase; therefore, it is strongly recommended that use A output signal for the reference of the software design.

附定位點的產品，每個定位點停駐位置為A輸出訊號OFF狀態，因此在產品應用的軟體設計上，最好以A相位為參考基準。

7、Waterproofing 防水設計

Care must be taken not to expose this product to water or dew to prevent possible problem in pulse output waveforms.

本製品的本體必須避免直接接觸到水或露水，以避免影響到輸出波形，造成輸出異常。

8、Radial pressure 徑向壓力

To avoid excessive radial pressure to the shaft, for best performance consideration, care must be taken when choosing knob for the product.

本製品的主軸無法承受過度的徑向壓力，因此在選用旋鈕時，必須考慮軸套的側向壓力，以確保本製品的機能。

9、Impact 撞擊

Excessive impact force may decrease the performance or even cause damage of the product. For best performance consideration, care must be taken to avoid excessive impact force.

本製品的主軸無法承受過度的撞擊力，為確保本製品的機能，請避免過度的撞擊。