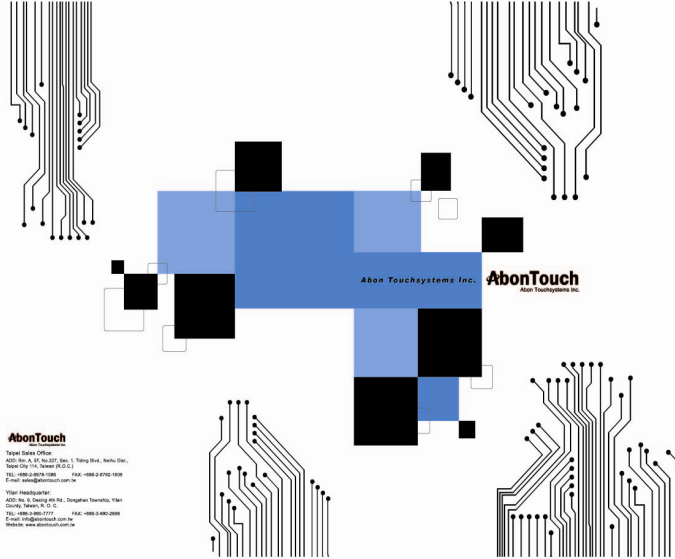


### Milestone

- 2005/11 Abon Touchsystems Inc. founded.
- 2006/06 Factory production line complete.
- 2006/08 Launch mass production of Film/Glass 5-Wire Resistive & Surface Capacitive Touch Panel.
- 2006/09 CE / FCC & RoHS Certification.
- 2007/03 Factory Grand Opening Ceremony.
- 2007/08 Achievement of ISO 9001:2000 certification.
- 2007/08 Laminated Robust 5-Wire Resistive Touch Panel developed.
- 2007/10 Anti-EMI Solution for 5-Wire Resistive Touch Panel developed.
- 2007/10 Attended 2007 Electronics Autumn Taipei Trade Show.
- 2007/11 Achievement of ISO 14000 Certification.
- 2007/02 ERP Officially Launch.
- 2009/04 D'ynamic Invested 100% in Abon Touchsystems Inc.
- 2010/10 Develop 5-Wires Resistive Touch Windows (bezels).
- 2010/10 Develop small-and medium-sized projective capacitive.
- 2011/06 2011 Computex Taipei.
- 2011/10 Develop large-size (15" to 32") projective capacitive.
- 2011/11 The 7th China (Shenzhen) International Touchscreen Exhibition 2011.
- 2012/02 Develop a full-size 10-touch projective capacitive.
- 2012/05 The success research and development support the Win8 projective capacitive touch panel.

**AbonTouch**  
Abon Touchsystems Inc.

**AbonTouch**  
Abon Touchsystems Inc.

**AbonTouch**  
Abon Touchsystems Inc.

### Introduction


Abontouch was established in November 2005, mainly engaged in manufacturing and sales of projective capacitive touch sensor and 5-wire resistive touch panel. Optimizing the production process of high-temperature technology touch panel, compare to the low-temperature process in functionality, durability and lack of reliability of weather resistance. High-temperature process technology makes its long product life, high stability and product advantage of good weather resistance. It has been highly appreciated in many market users at all kind of applications. As our research and development of advanced innovation technology continued in progress which leads a global layout in future.

### Basic Profile

Date of establishment: November, 2005  
 President: Kao Min Yu  
 Vice President: T.S. Chang  
 Employees: 210  
 Capital: One USD \$ 7 million  
 Company and factory: Yilan Long Te Industrial Park  
 Land area: 28,000sq  
 Products:
 

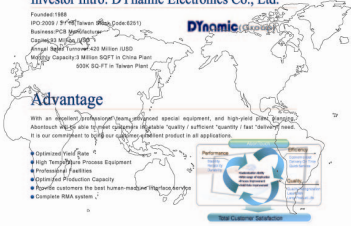
- Projective Capacitive Touch Panel
- 5-Wire Resistive Touch Window
- 5-Wire Resistive Touch Panel

 Certificates: ISO9001 / ISO14001 / RoHS Compliance / CE / FCC




### Investor Intro: D'ynamic Electronics Co., Ltd.

Founded 1989  
 IPO: 2003 / 99% (Hawaii) / 100% (USA)  
 Business PCB (Japan/USA)  
 Capitalized: 200,000,000 US\$  
 Assets: 1,000,000,000 US\$  
 Annual Sales Turnover: 220 Million US\$  
 Capacity: 2 Million SMT in China Plant  
 800 SQ FT in Taiwan Plant



### Advantage

- With an advanced technology (advanced special equipment and advanced P&M, Europe)
- Abontouch will also be able to provide the quality / sufficient quantity / fast customer service.
- It is not convenient to find such a capable industrial product in all applications.



# PRODUCT SPECIFICATIONS

## 產品規格書

**Model No. (型號) :** TPM-18.5

**Mode (種類) :** Projected Capacitive Multi-Touch Panel

No.9, Desing 4th Rd., Dongshan Township,  
 Yilan County 26950, Taiwan  
 台灣 (26950)宜蘭縣冬山鄉德興四路 9 號  
 ten:021-51601623-808X806

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## 01. Scope[範圍]

This specification is applied to Cypress ODM manufacturer

## 02. Features[特性]

Item [項目]		Specifications [規格]
2-1	Type [型式]	Projected Capacitive Multi-Touch Panel [電容式多點觸控面板]
2-2	Input Mode [操作模式]	Multi Finger [手觸] Stylus [電容筆]
2-3	The closest distance between 2 points [兩指間最小距離]	21mm
2-4	Touch Point [支援點數]	MAX: 10 point [最多 10 點]

## 03. Operating System [操作系統]

OS	Version   版本]	Interface [通訊介面]
Windows	Windows 7 Windows Vista,XP/2000, 9x/ME Windows CE 2.12/3.0/.net/5.0/6.0 Windows Embedded Windows XP Tablet PC edition	USB / RS232
Linux	Mandrake (Mandrake 9.1/9.2/10, Mandriva 2005, Mandriva 2006) Red Hat (7.3/8.0/9.0) Fedora (Core I / II / III / IV / V / VI) Yellow Dog (3.X) SuSE (9.2/9.3/10/10.1) Ubuntu (5.1/6.06) Debian (3.1, Kernel 2.4)	USB / RS232 (up to Kernel 2.6.x)
	Android 4.0 – Google Moblin V2/Meego – Intel	USB / RS232 / I2C
Mac	Mac OS9, Mac OS X (IBM, intel CPU)	USB
QNX	QNX RTOS v6.3	USB / RS232

#### 04. Dimensions [產品尺寸]

Item [項目]		Specifications [規格]
3-1	Screen Size [螢幕尺寸]	18.5"
3-2	Frame Size [框尺寸]	294.60 ± 0.20 458.00 ± 0.20 mm
3-3	NAMEPLATE [可視區]	231.60 ± 0.20 411.00 ± 0.20 mm
3-4	Total Thickness [總厚度]	2.10 ± 0.20 mm
3-5	Substrate thickness [基板厚度]	1.85 T
3-6	Substrate Material [基板種類]	Chemical Strengthen
3-7	Resolution [解析度]	4096*4096 dot

#### 05. Environmental Characteristics [環境特性]

Item [項目]		Specifications [規格]	
		Temperature [溫度]	Humidity [濕度] (Non Condensing) [未凝結]
5-1	Operation [操作]	-30°C ~ +70°C	20%~90% RH at max 50°C
5-2	Storage [儲存]	-40°C ~ +80°C	20%~90% RH at max 50°C
Note: All terms under 1 atmosphere. [註:於正常的 1 大氣壓下]			

#### 06. Optical Characteristics [光學特性]

Item [項目]		Specifications [規格]
6-1	Transparency [透光度]	$\geq 88\%$ (measured by BYK-Gardner at 550nm, and the test method accorded to ASTM D1003)

## 07. Electrical Characteristics [電子特性]

### 7-1 Absolute Maximum Rating [最大輸入電壓範圍]

Item [項目]		Specifications [規格]
7-1.1	Touch Panel Power Voltage [TP IC 供應電壓]	D.C. +5V  (50mA typical, 50mV peak to peak maximum ripple and noise)

### 7-2 Electrical Characteristics [電性]

Item [項目]		Specifications [規格]	Condition [條件]
7-2.1	Touch Panel Power Supply [TP IC 電源供應電壓]	3.5 V~5.5V	VDD-5V, Touch Panel In Normal Operation Condition [供給 5V 的電於 TP 時]
7-2.2	Touch Panel Power Supply current at Normal Operation Mode [TP IC 於一般動作耗電流]	MAX 60mA	
7-2.3	Touch Panel Power consumption [TP IC 電源消耗功率]	MAX 300mW	

### 7-3 Pin Assignment [訊號內容]

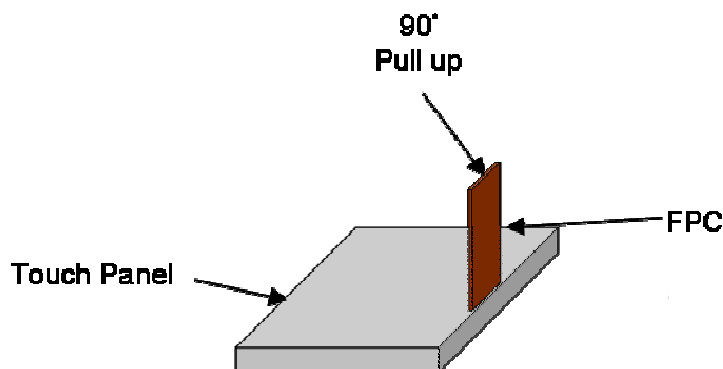
CONNECTOR PINOUT	
PIN NO.	DESIGNATION
1	VCC
2	D-
3	D+
4	GND

### 7-4 Chattering time [作動時間]

Item [項目]		Specifications [規格]
7-4.1	Report rate(points/sec) [每秒報點率]	>100 Hz
7-4.2	Response time [反應時間]	Max : 25 ms
Note : Report rate will vary by channel number, cover thickness and other parameters. [註: 基板厚度和其他參數會影響報點率]		

## 08. Mechanical Characteristics [機械特性]

Item [項目]		Specification [規格]
8-1	FPC [連結線] Peeling [剝離]	>600g by 90 degrees ,speed 25mm/min [>600g , 90°, 拉伸速度 25 mm/min]

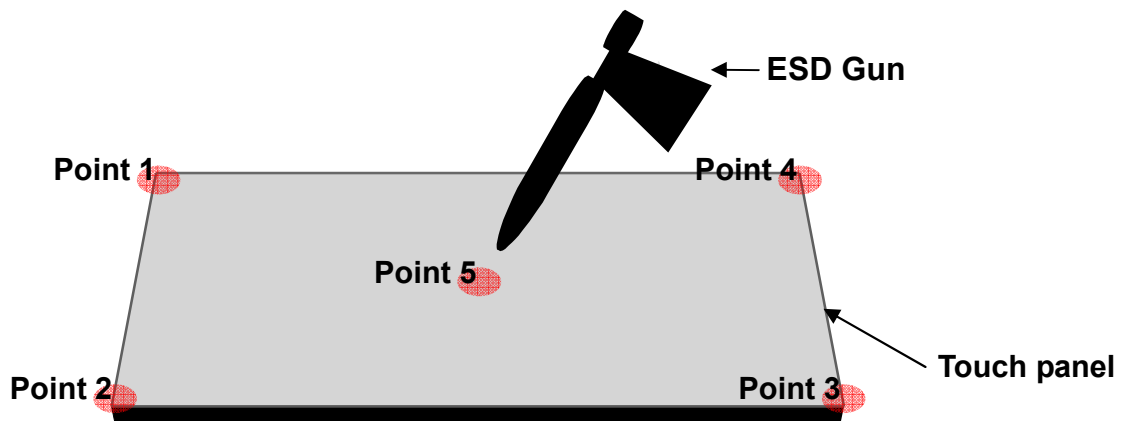


## 09. Reliability [可靠度]

Item [項目]		Specification [規格]	Condition [條件]
Panel [螢幕區]	High temperature /humidity [恆溫恆濕]	60°C / 90%RH, 240 hrs, allow panel stays in normal environment for 12 hrs [60°C /90%RH 240 小時，回常溫 12 小時後始可測試]	Reliability test may cause the film puffed yet the electric characteristic stays intact. Satisfy of Item 6-1 [符合項目 6-1]
	High temperature [高溫]	80°C /240 hrs allow panel stays in normal environment for 12 hrs [80°C /240 小時，回常溫 12 小時後始可測試]	
	Low temperature [低溫]	-40°C /240 hrs allow panel stays in normal environment for 12 hrs [-40°C /240 小時，回常溫 12 小時後始可測試]	
	Thermal Cycle [冷熱循環]	-40°C ~80°C [60 min/cycle] *50 cycles allow panel stays in normal environment for 12 hrs [-40°C ~80°C，每循環 60 分鐘，共 50 次循環，回常溫 12 小時後始可測試]	

## 10. Electro Static Discharge Test[靜電測試]

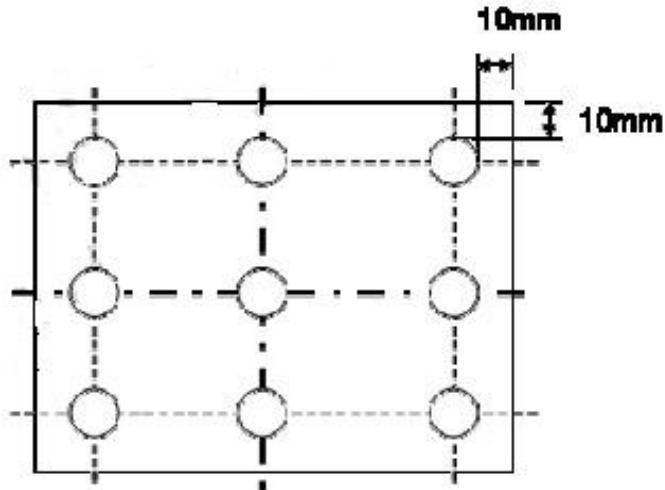
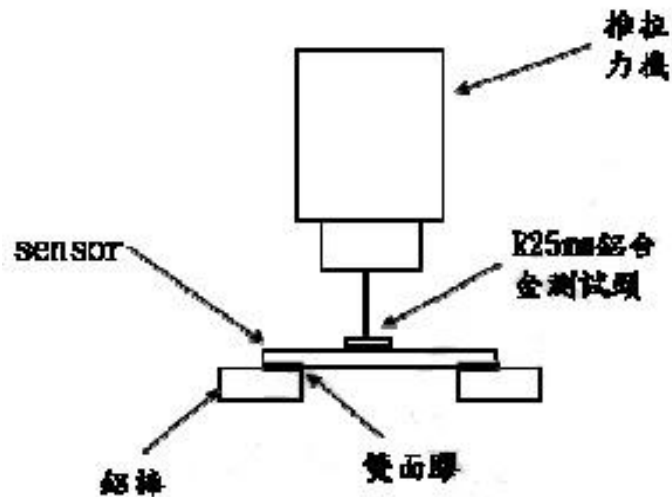
Item [項目]	Specification [規格]	
<b>ESD Test</b> [靜電測試]	Unit is non-operating and ground [未接地與未作動中測試] Discharge interval : 1 second [放電間隔 : 1 sec] Polarity of the output voltage : Positive and negative [放出電壓極性 : 正電極與負電極]	Contact Discharge : ±8KV [接觸放電 : ±8KV]
	Number of discharge : Discharge +/- for 10 times for each test point (Total of 5 points) [放電 : 放電+ / - 每個測試點 10 次 (共 5 點)]	Air Discharge : ±15KV [空氣放電 : ±15KV]





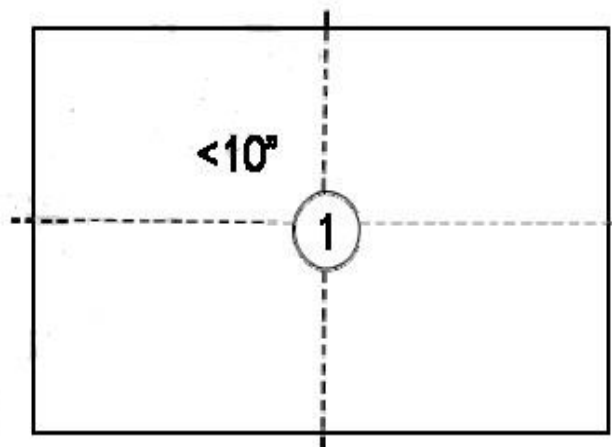
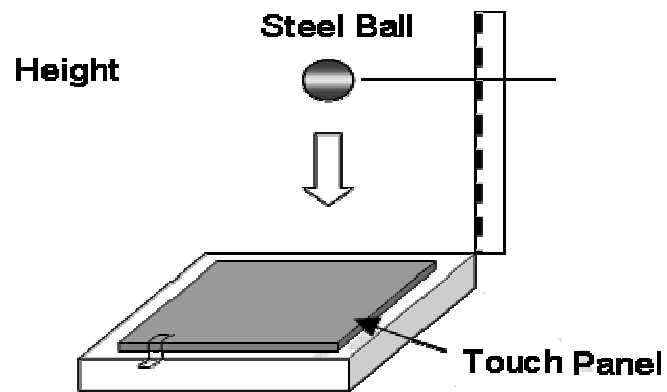
## 11. Impact Test[衝擊測試]

Item [項目]	Specification [規格]	Condition [條件]
<b>Impact Test</b> [衝擊測試]	Aluminum alloy Head R25mm ,9 Point , Speed 10 mm/min , Load 30 Kgf [鋁合金測試頭 R25mm, 9 點, 速度 10 mm/min, 重力 30 Kgf]	NO any crack on TP after test [TP 於測試後不得破裂]



## 12. Ball Drop Test[落球測試]

Item [項目]	Specification [規格]	Condition [條件]
Ball Drop Test [落球測試]	Steel ball $\Phi$ 32 mm, 130 g , 1 Drop Points , Height 40cm [鋼球 $\Phi$ 32 mm, 130 g, 1 個落點, 高度 40cm]	NO any crack on TP after test [TP 於測試後不得破裂]



### 13. Attention [注意事項]

Item [項目]	EXPLANATION [說明]
13-1 Storage [儲存]	<ol style="list-style-type: none"> <li data-bbox="421 315 1407 459">1. A touch panel should be stored under the environment temperature and humidity controlled as suggested. [觸控面板必須被儲存放置在一如規格書所建議的從事環境溫度與濕度控制的區域內]</li> <li data-bbox="421 459 1407 504">2. Do not store a touch panel in direct sunlight. [不可將觸控面板直接曝曬在陽光下]</li> </ol>
13-2 Cleaning [清潔]	<ol style="list-style-type: none"> <li data-bbox="421 517 1407 600">1. Prevent using any kind of the chemical solvent, acidic or alkali solution when cleaning. [若要清潔觸控面板，請盡量避免使用諸如強酸或強鹼之類的任何化學溶劑]</li> <li data-bbox="421 600 1407 694">2. Neutral detergent or isopropyl alcohol was suggested if the panel is cleaned. [若要清潔觸控面板，我們建議使用中性的清潔劑或異丙醇和酒精等等]</li> </ol>
13-3 Assembly [組裝]	<ol style="list-style-type: none"> <li data-bbox="421 707 1407 840">1. Do not apply rough force such as bending or twisting to the touch panel during assembly. [觸控面板在組裝時，請不要過度施力導致玻璃表面發生諸如變形或扭曲等形變現象的發生]</li> <li data-bbox="421 840 1407 929">2. Excessive force or strain to the panel or FPC/COF is prohibited. [對於 FPC 或 COF 的作業時，過度的拉力或繃緊作業是必須被禁止與避免的]</li> <li data-bbox="421 929 1407 1131">3. Past VHB tape or sponge with adhesive on the gap between a touch panel and a LCD module to segregate water and dust contamination. [請在觸控面板與 TFT-LCD 面板的中間間隙處選用適合的雙面膠帶或是具有黏性的泡棉加以阻絕外在水份與汙染源的干擾]</li> <li data-bbox="421 1131 1407 1243">4. Suggest that the touch panel and screen spacing 0.5mm. [建議觸控面板與螢幕之間留有0.5m的距離]</li> </ol>
13-4 Operation [操作]	<ol style="list-style-type: none"> <li data-bbox="421 1256 1407 1444">1. The panel must be operated in a steady environment, the abrupt change of the environment conditions may cause the malfunction of the panel. [觸控面板必須在穩定的環境狀況下被使用，環境狀態的突然急遽變化有可能會導致觸控面板的機能性失效的發生]</li> <li data-bbox="421 1444 1407 1691">2. In order to guarantee all functions of a touch panel stable, please make sure that system is grounded or a power adapter is connected correctly to ground loop (Connection to earth ground is suggested). [為確保觸控面板的功能得以穩定有效的發揮呈現，請務必確認系統的接地迴路與電源供應器的接地迴路被正確的銜接與執行(與大地作共地的接地迴路是最佳的設計)]</li> <li data-bbox="421 1691 1407 1780">3. Do not pull the interface connector in or out while the touch panel is operating. [觸控面板在操作的過程中，請勿任意插拔觸控面板與系統端的界面連接器]</li> <li data-bbox="421 1780 1407 1919">4. Any sharp edged or hard objects are interdiction to hitting when touch panel operation. [觸控面板在操作的過程中，請務必禁止與避免使用任何尖銳或硬質物體去敲擊碰觸]</li> </ol>

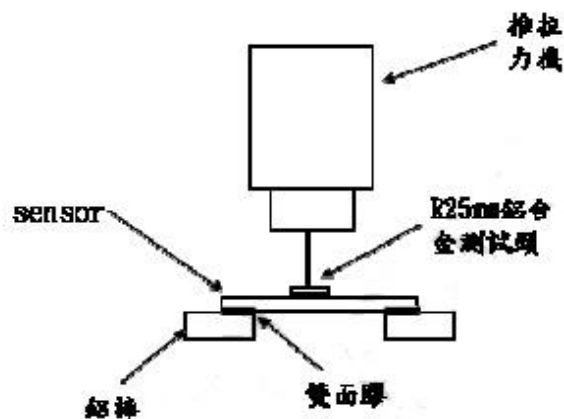
## 14. Appearance Inspection[外觀檢查]

14-1 The inspection shall be performed by using one 600~1000 Lux fluorescent lamp as back or side light. The panel shall be placed at 30cm away from eyes as shown below. Detail settings are shown in Figures 12.1.

[12-1 檢測始用之燈光為一盞 600~1000 Lux 白熾燈光，並於面板後側或上側照射，檢測時須放置在離眼睛 30cm 處 (Figure 12.1)]

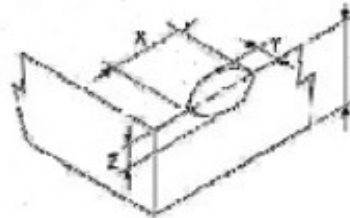
14-2 Minor impurities outside viewing area(VA) are acceptable unless their existence affect electrical functions.

[12-2 只要不影響電器功能性，可視區(VA)外之外觀瑕疵是可以被允許的]



14-3 Glass Flaw [玻璃瑕疵]  
 $X < 3$ ,  $Y < 2$ ,  $Z \leq 0.5T$

Figure 12.1



Note: T=Glass thickness [玻璃厚度]

14-4 Please refer to Appendix I: Appearance Specification.

[11-4 外觀規格請詳見(附註 1)]

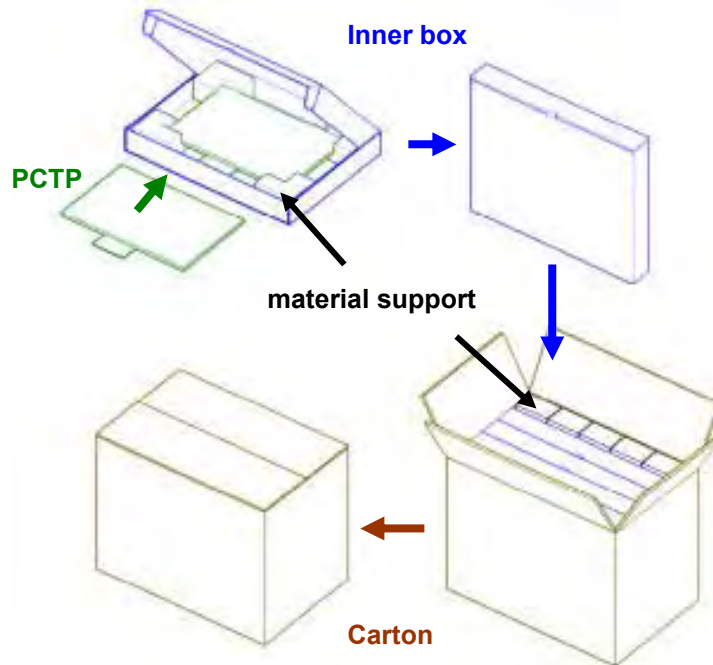
[Appendix I]

**Appearance Specification [外觀規格]**

Item [項目]	Specification [規格]
<b>Spot/Dots</b> [污點/顆粒異物]	(1) $0.7 < D \leq 0.9 \text{mm}$ , Max:2 points (2) $0.5 < D \leq 0.7 \text{mm}$ , Max:4 points (3) $D \leq 0.5 \text{mm}$ , Ignored (4) $D > 0.9 \text{mm}$ , NG
<b>Scratch</b> [刮傷]	(1) $0.15 < W \leq 0.2 \text{mm}$ , $L \leq 8 \text{mm}$ , Max:2 points (2) $0.1 < W \leq 0.15 \text{mm}$ , $L \leq 8 \text{mm}$ , Max:4 points (3) $W \leq 0.1 \text{mm}$ , Ignored (4) $W > 0.2 \text{mm}$ , NG
<b>Bubble</b> [氣泡]	(1) $0.7 < D \leq 0.9 \text{mm}$ , Max:2 points (2) $0.5 < D \leq 0.7 \text{mm}$ , Max:4 points (3) $D \leq 0.5 \text{mm}$ , Ignored (4) $D > 0.9 \text{mm}$ , NG
<p>&lt; Remark &gt; [備註欄]</p> <p>D=Diameter=直徑                      W=Width=寬度                      N=個數                      L=Length=長度                      Unit: mm</p> <p>Note 1: Particle, Stain or Linear Object that can be clean out easily within 3 times is disregard.                      註(一):異物、髒污、條狀物正常擦拭 3 次可去除 即可允收。</p> <p>Note 2: The defect on back side is ignored except of Nameplate                      註(二): 背面可視區以外可忽略。</p>	

## 15. Packaging information [包裝資訊]

### 15-1Package [包裝方式]

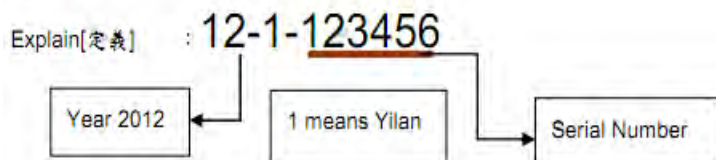


### 15-2 Quantity and Size [數量與尺寸]

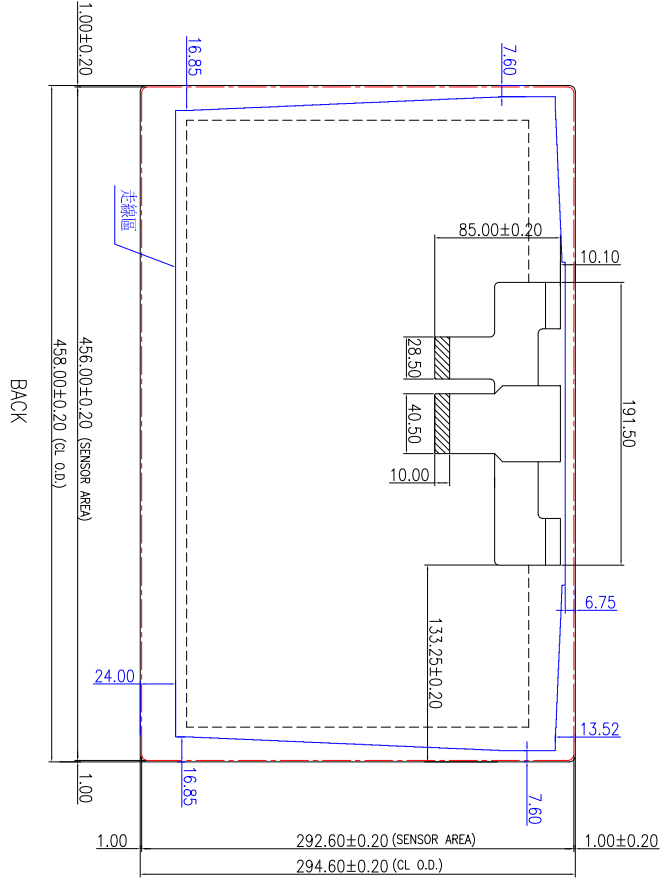
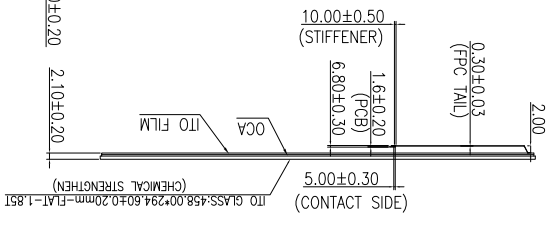
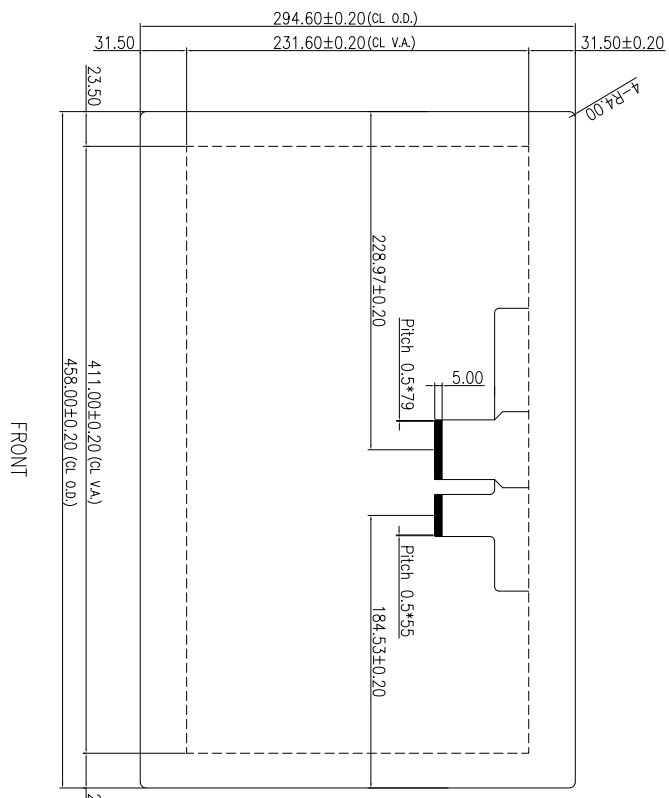
PCTP	Inner box		Carton		
Size	TP QTY (pcs)	Inner box size (cm)	Inner box QTY (box)	Carton size (cm)	Total (pcs)
18.5	5	54*39*7	4	56*35*45	20

### 2.1.3 Shipping Number [出貨編號]

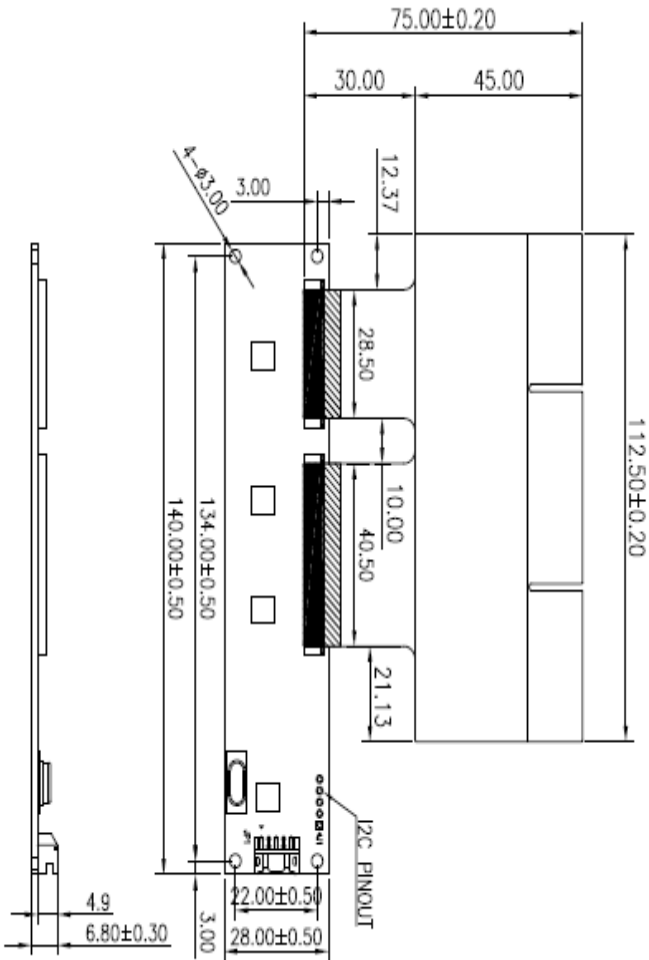
Paste Site [黏貼處] FPC



Rev.	Date	Description
A	2012.04.24	First Release



TPM		MODEL	TPM-18.5
APPROVED	<i>Ey Shuang</i>	DATE	2012.04.24
CHECK	<i>Erie</i>	DATE	2012.04.24
DESIGN	<i>Sheniv</i>	DATE	2012.04.24
SCALE	1/1	UNIT:	mm
		REV.	A
		PART NO.	
		DESCRIPTION	

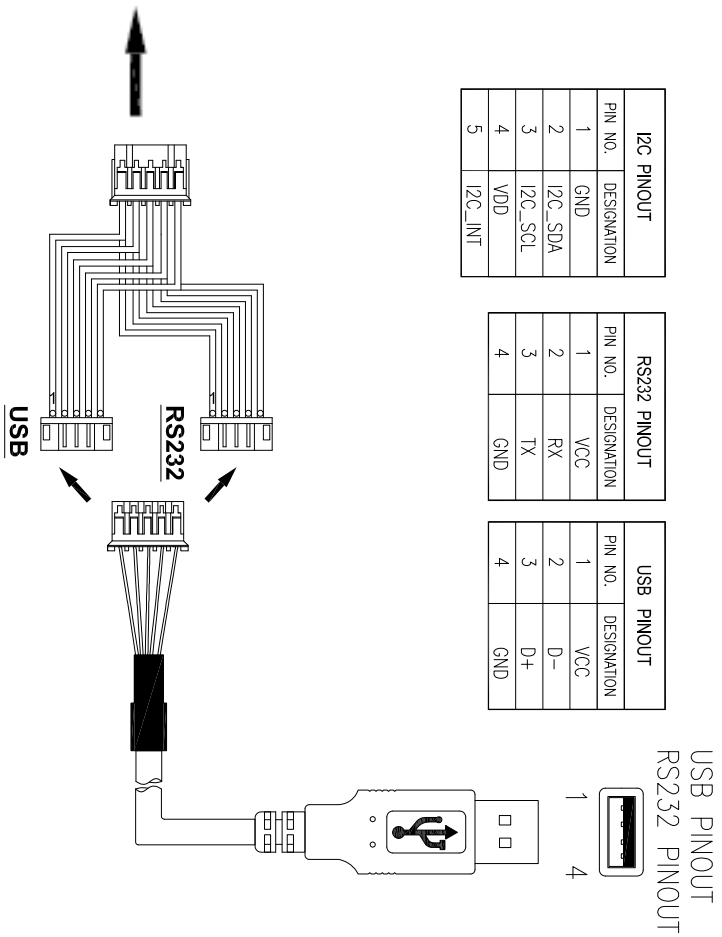


Rev.	Date	Description
A	2012.04.24	First Release

I2C PINOUT	
PIN NO.	DESIGNATION
1	GND
2	I2C_SDA
3	I2C_SCL
4	VDD
5	I2C_INT

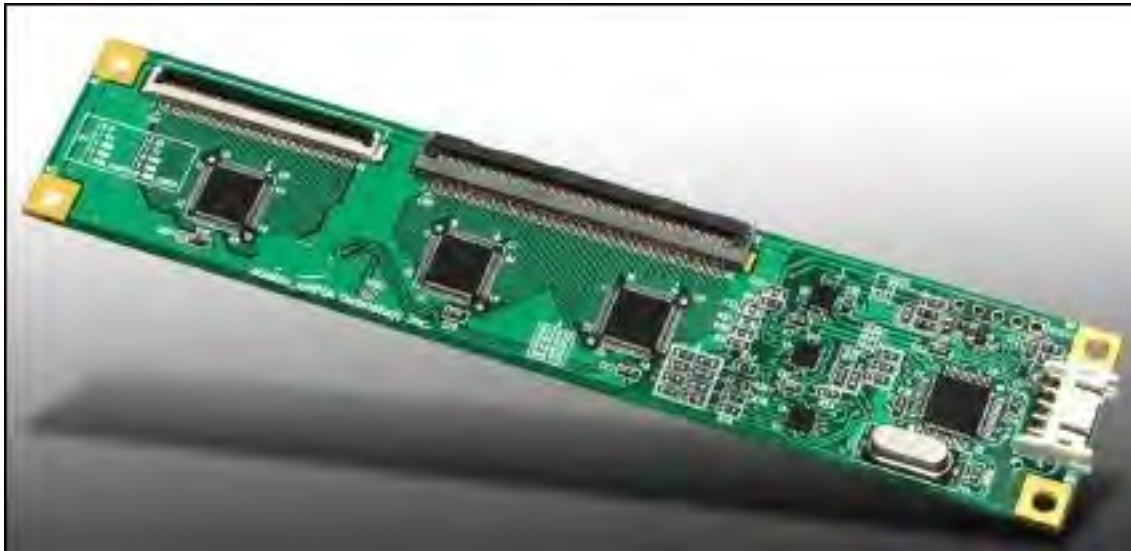
RS232 PINOUT	
PIN NO.	DESIGNATION
1	VCC
2	RX
3	TX
4	GND

USB PINOUT	
PIN NO.	DESIGNATION
1	VCC
2	D-
3	D+
4	GND

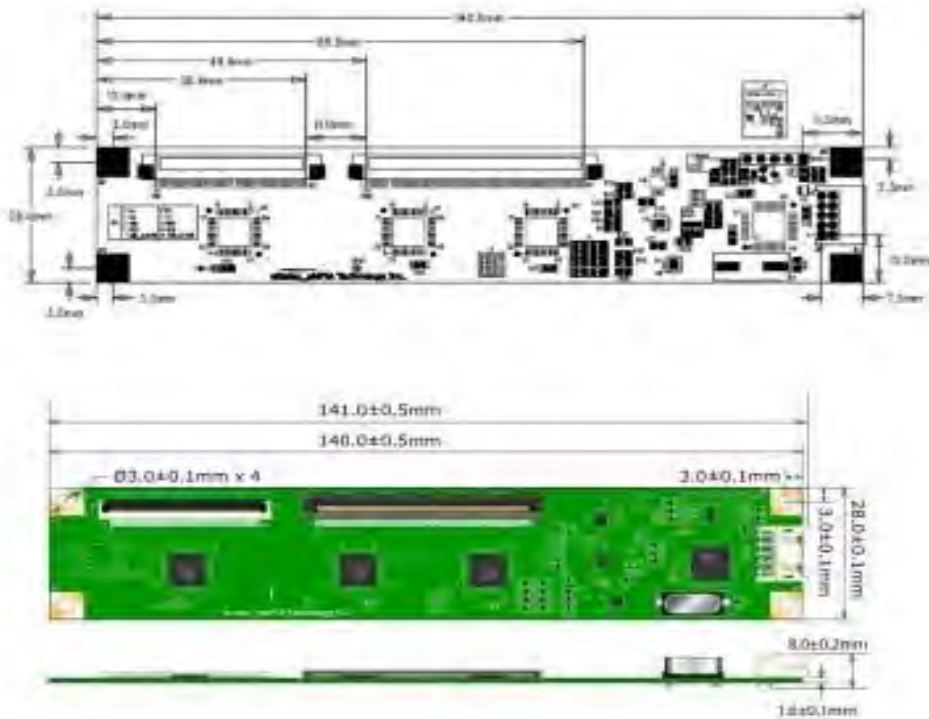


CYPRESS		MODEL	DESCRIPTION
APPROVED	<i>Egy. Shamsy</i>	DATE	2012.04.24
CHECK	<i>Glennia</i>	DATE	2012.04.24
DESIGN	<i>Martin</i>	DATE	2012.04.24
SCALE	1/1	UNIT:	mm
REV.	A	REV.	A
		PART NO.	COB
			TMA-393





2.5 Dimension

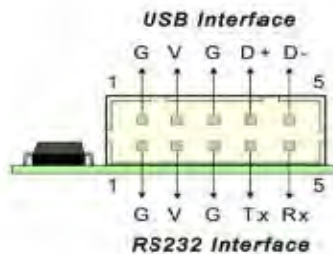


2.6.2 USB/RS232 Combo connector

**USB/RS232 Combo Connector Pin Assignment:**



**USB&RS232 interface:**



**I2C interface:**

- 1 GND\_EARTH
- 2 I2C\_SDA
- 3 I2C\_SCL
- 4 VDD
- 5 I2C\_INT



## 2.6 Pin Assignment

### 2.6.1 FPC Connector

#### 2.6.1.1 CN1

**CN1 Connector**



Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
01	NC	12	Y15	14	Y35
02	NC	13	Y16	15	Y36
03	Shield_Y1	14	Y17	16	Y37
04	Extra_Y1	15	Y18	17	Y38
05	Extra_Y2	16	Y19	18	Y39
06	Y0	17	Y20	19	Y40
07	Y1	18	Y21	20	Y41
08	Y2	19	Y22	21	Y42
09	Y3	20	Y23	22	Y43
10	Y4	21	Y24	23	Y44
11	Y5	22	Y25	24	Y45
12	Y6	23	Y26	25	Y46
13	Y7	24	Y27	26	Y47
14	Y8	25	Y28	27	Y48
15	Y9	26	Y29	28	Y49
16	Y10	27	Y30	29	Shield_Y2
17	Y11	28	Y31		
18	Y12	29	Y32		
19	Y13	30	Y33		
20	Y14	31	Y34		

**CN2 Connector**



Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name	Pin No.	Pin Name
01	Shield_X1	12	X19	14	X39	16	X59
02	X0	13	X20	15	X40	17	X60
03	X1	14	X21	16	X41	18	X61
04	X2	15	X22	17	X42		Extra_1
05	X3	16	X23	18	X43		Extra_2
06	X4	17	X24	19	X44		Extra_3
07	X5	18	X25	20	X45		Extra_4
08	X6	19	X26	21	X46		Extra_5
09	X7	20	X27	22	X47		Extra_6
10	X8	21	X28	23	X48		Extra_7
11	X9	22	X29	24	X49		Extra_8
12	X10	23	X30	25	X50		Extra_9
13	X11	24	X31	26	X51		Extra_10
14	X12	25	X32	27	X52		Extra_11
15	X13	26	X33	28	X53		Extra_12
16	X14	27	X34	29	X54		Extra_13
17	X15	28	X35	30	X55		Extra_14
18	X16	29	X36	31	X56		Extra_15
19	X17	30	X37	32	X57		Extra_16
20	X18	31	X38	33	X58		Shield_X2

DC  
OK

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