

### Milestone

- 2005/11 Abon Touchsystems Inc. founded.
- 2006/08 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-Glare Solution for 5-Wire Resistive Touch Panel developed.
- 2007/10 Attended 2007 Tallentics Autumn Taipei Trade Show.
- 2007/11 Achievement of ISO 14000: Certification.
- 2007/02 ERP Officially Launch.
- 2009/04 DYNamic Invested 100% in Abon Touchsystems Inc.
- 2010/10 Develop 5-Wires Resistive Touch Windows (Dezeless).
- 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.



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### 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 low temperature process in productivity efficiency 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 areas of all kind of applications. As our research and development of advanced innovation technology continue in progress which reach a great future in future.

### Basic Profile

Date of establishment: November, 2005  
 President/CEO: Ho-Mo Yu  
 Vice President: T.K. Chang  
 Employees: 210  
 Capital: Over USD \$ 7 million  
 Company and factory: Fien Lung Tsai Industrial Park  
 Land area: 10,000sqd  
 Products:
 

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

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



### Investor Intro: DYNamic Electronics Co., Ltd.

Founded 1988  
 IPO:2005 in TPE (Taiwan Stock Exchange)  
 Business PCB Spinoff  
 Operating Revenue: 4.9B USD  
 Projected Net Profit: 425 Million USD  
 Capital Expenditure: 1.6Billion USD in China Plant  
 300K SQ FT in Taiwan Plant



### Advantage

With an advanced manufacturing process, special equipment, and high-level R&D, Abontouch always able to meet customer's variable quality, excellent quality / low "warranty" need. It is our commitment to provide excellent product in all applications.

- Cost-effective Price
- High Temperature Process Equipment
- Professional Staff
- Capitalize Production Capacity
- Specific customer on-hand human-machine interface
- Complete RMA system

# PRODUCT SPECIFICATIONS

## 產品規格書

**Model No. (型號) :** TPM-42

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

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 Yilan County 26950, Taiwan  
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# RECORD OF REVISIONS

## 變更紀錄

客戶名稱:		Model No:	TPM-32	
NO. [項次]	Version. [版本]	Date [變更發行日期]	Summary of Changes [變更內容摘要]	Page [變更頁碼]
1	C01	2011.05.11	First Draft [第一版]	
2	C02	2012.04.02	全面性改版，修正排版、新增項目 02. 特性: 新增支援點數 04. 產品尺寸: 新增 3-4 總厚度、3-6 基板種類，刪除原 3-7 重量 07. 電子特性: 修正 7-2 電性資訊，新增 7-4 敏感度 新項目: 03. 操作系統、10. 靜電測試 13. 注意事項 15. 包裝資訊	1~11 page
<Remarks> [備註欄]				

## 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]	28mm
2-4	Touch Point [支援點數]	MAX: 10 point [最多 30 ]點

## 03. Operating System [操作系統]

OS	Version 版本	Interface [通訊介面]
Windows	Windows 7 Windows Embedded Windows Vista,XP/2000, 9x/ME Windows CE 2.12/3.0/.net/5.0/6.0 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]	42"
3-2	Frame Size [框尺寸]	625.00 ± 0.20 984.00 ± 0.20 mm
3-3	NAMEPLATE [可視區]	524.00 ± 0.20 931.00 ± 0.20 mm
3-4	Total Thickness [總厚度]	3.50 ± 0.20 mm
3-5	Substrate thickness [基板厚度]	3.20 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]	≥ 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]

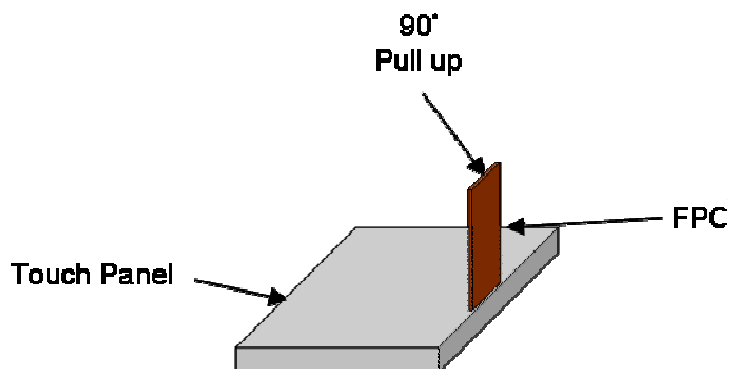
CONNECTOR PINOUT	
PIN NO.	DESIGNATION
1	VCC
2	D-
3	D+
4	GND

### 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]

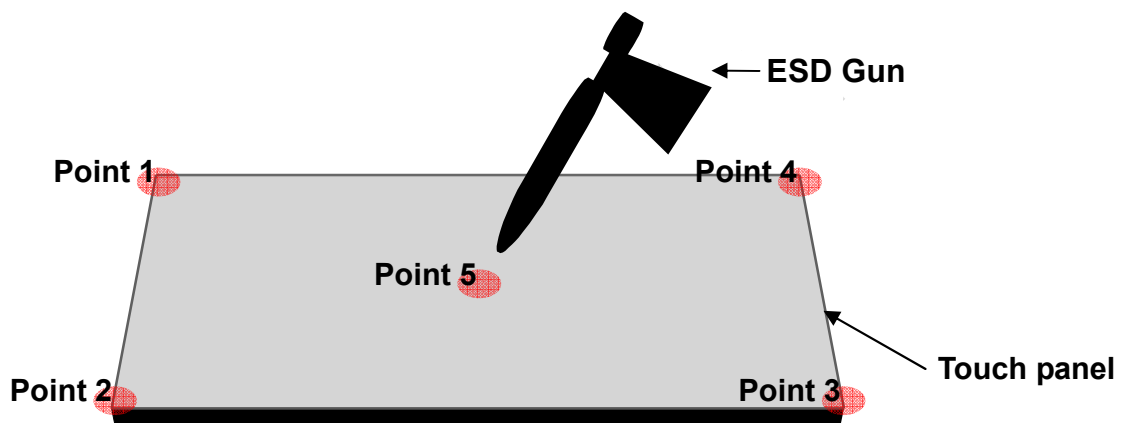


## 09. Reliability [可靠度]

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]

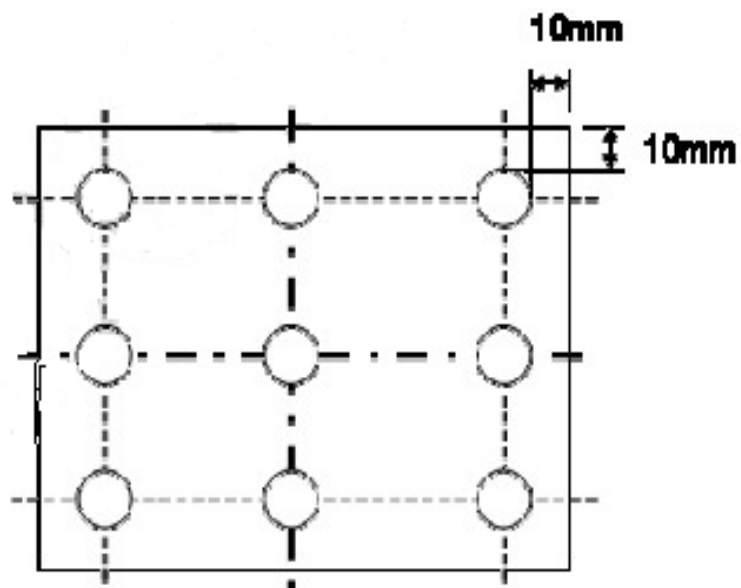
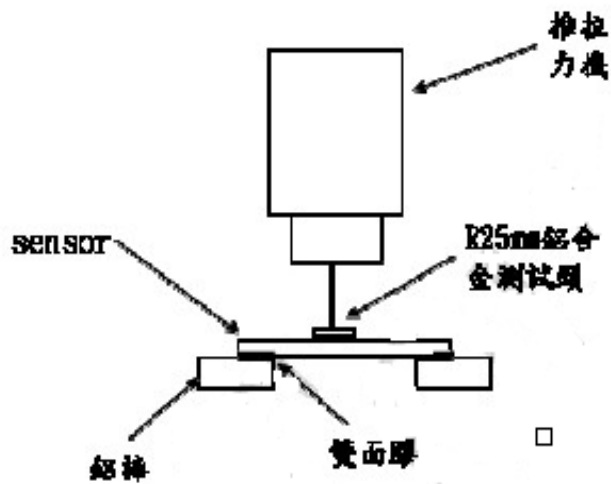
Item [項目]	Specification [規格]	
<b>ESD Test</b> [靜電測試]	Unit is non-operating and ground [未接地與未作動中測試] Discharge interval : 1 second [放電間隔 : 1 sec] Polarity of the output voltage : Positive and negative [放出電壓極性 : 正電極與負電極]	Contact Discharge : ±8KV [接觸放電 : ±8KV]
	Number of discharge : Discharge +/- for 10 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]





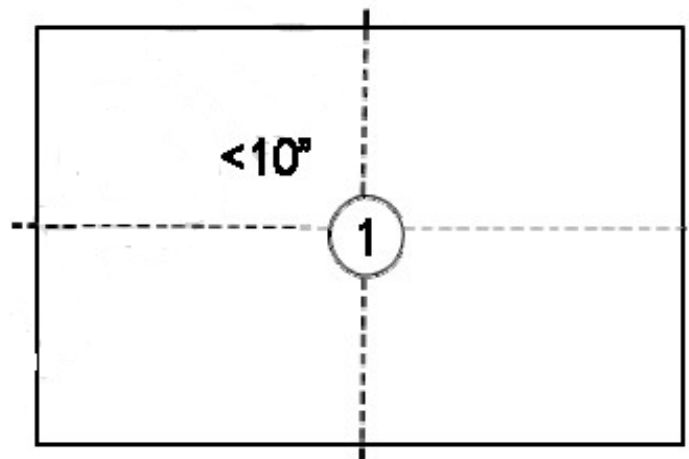
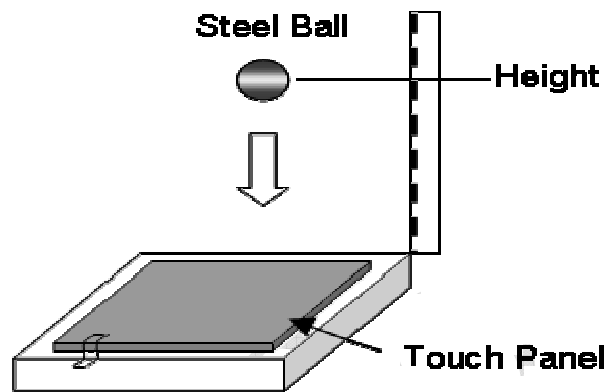
## 11. Impact Test[衝擊測試]

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 1142">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 1142 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 1400">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</li> <li data-bbox="421 1400 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 1917">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>

性失效的發生

## 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]

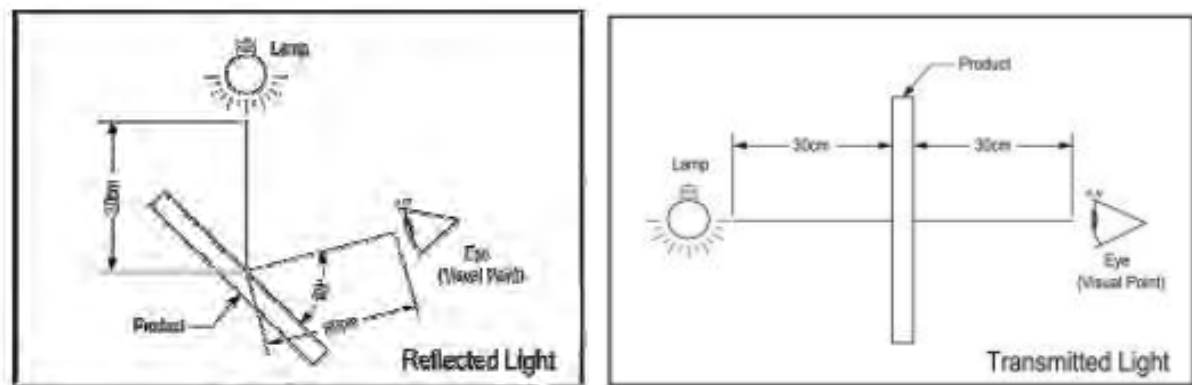
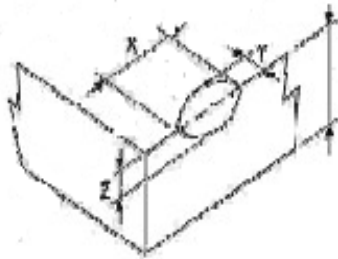


Figure 12.1

14-3 Glass Flaw [玻璃瑕疵]

$$X < 3, Y < 2, Z \leq 0.5T$$



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)]

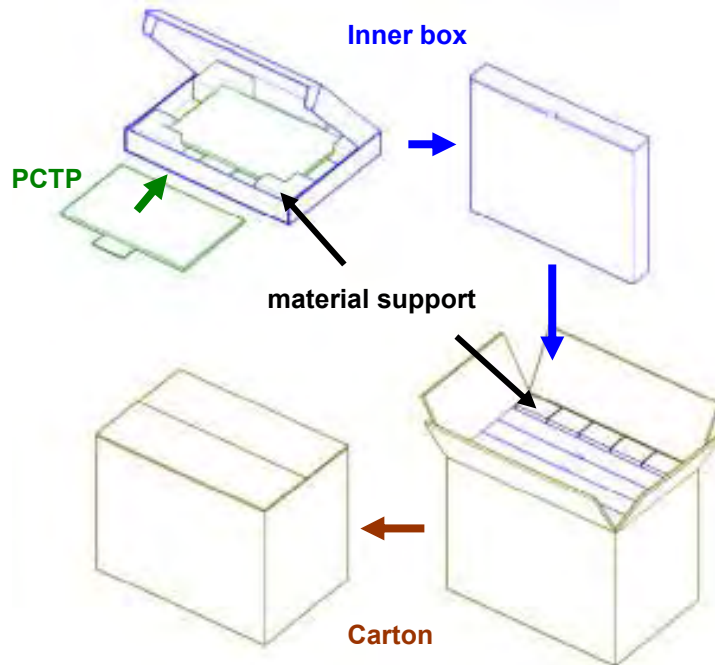
[Appendix I]

**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]

### 15-1 Package [包裝方式]



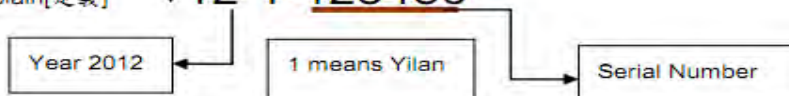
### 15-2 Quantity and Size [數量與尺寸]

PCTP	Inner box		Carton			
	Size	TP QTY (pcs)	Inner box size (cm)	Inner box QTY (box)	Carton size (cm)	Total (pcs)
42		1	70x100x10	1	70x100x10	1

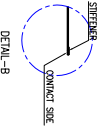
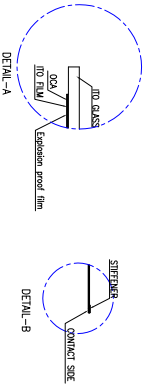
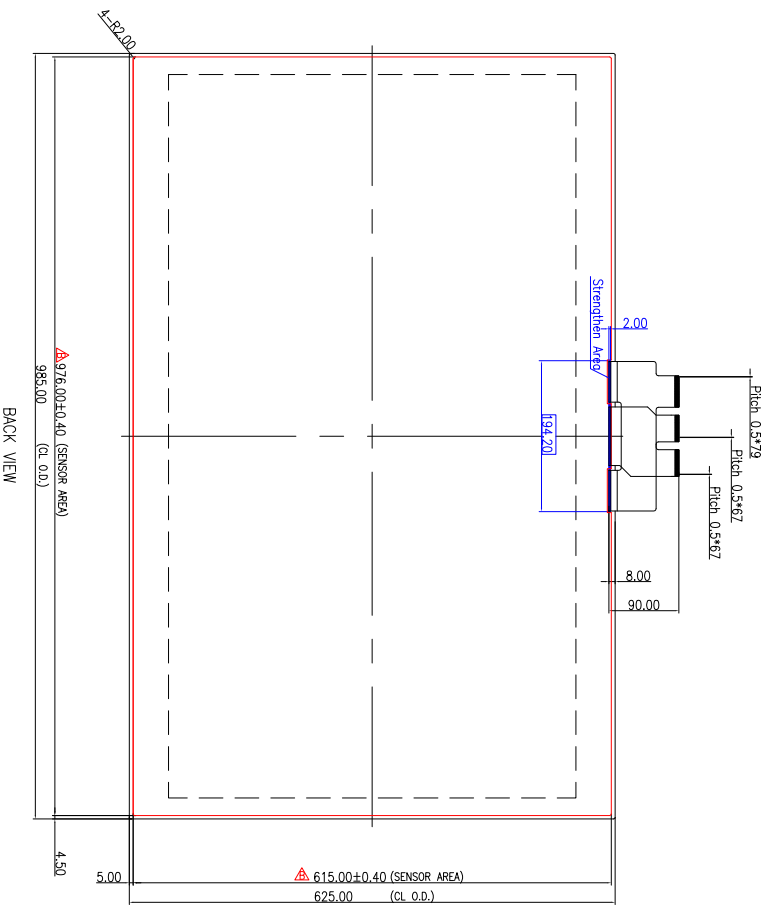
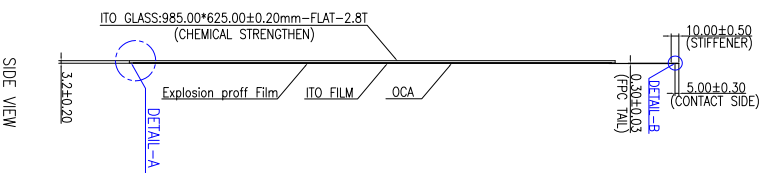
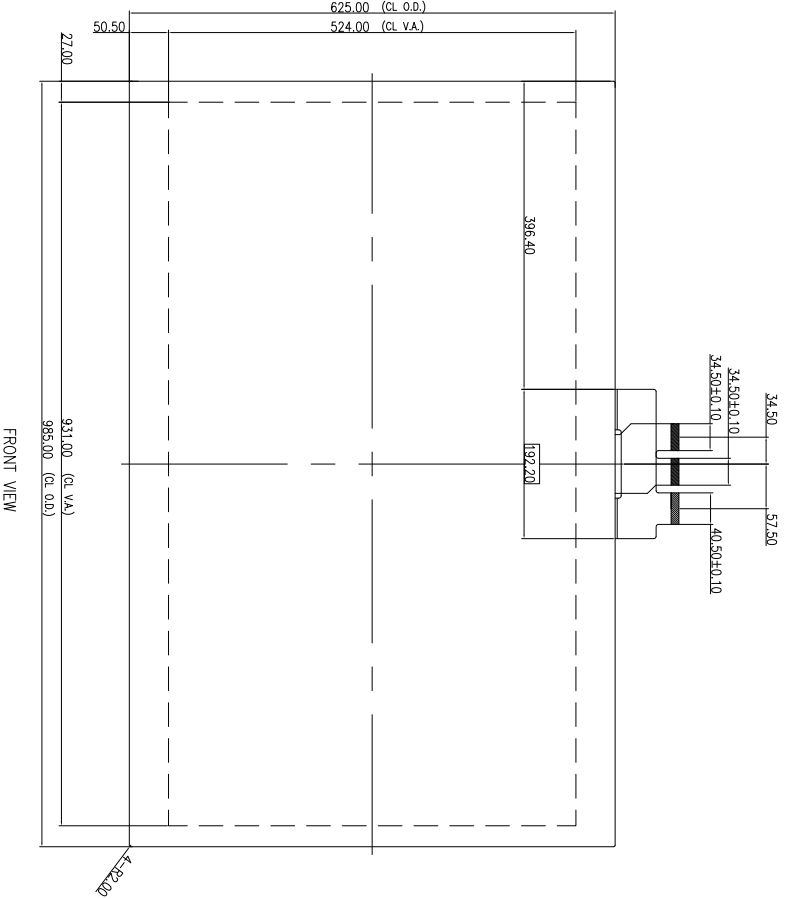
#### 2.1.3 Shipping Number [出貨編號]

Paste Site [黏貼處] FPC

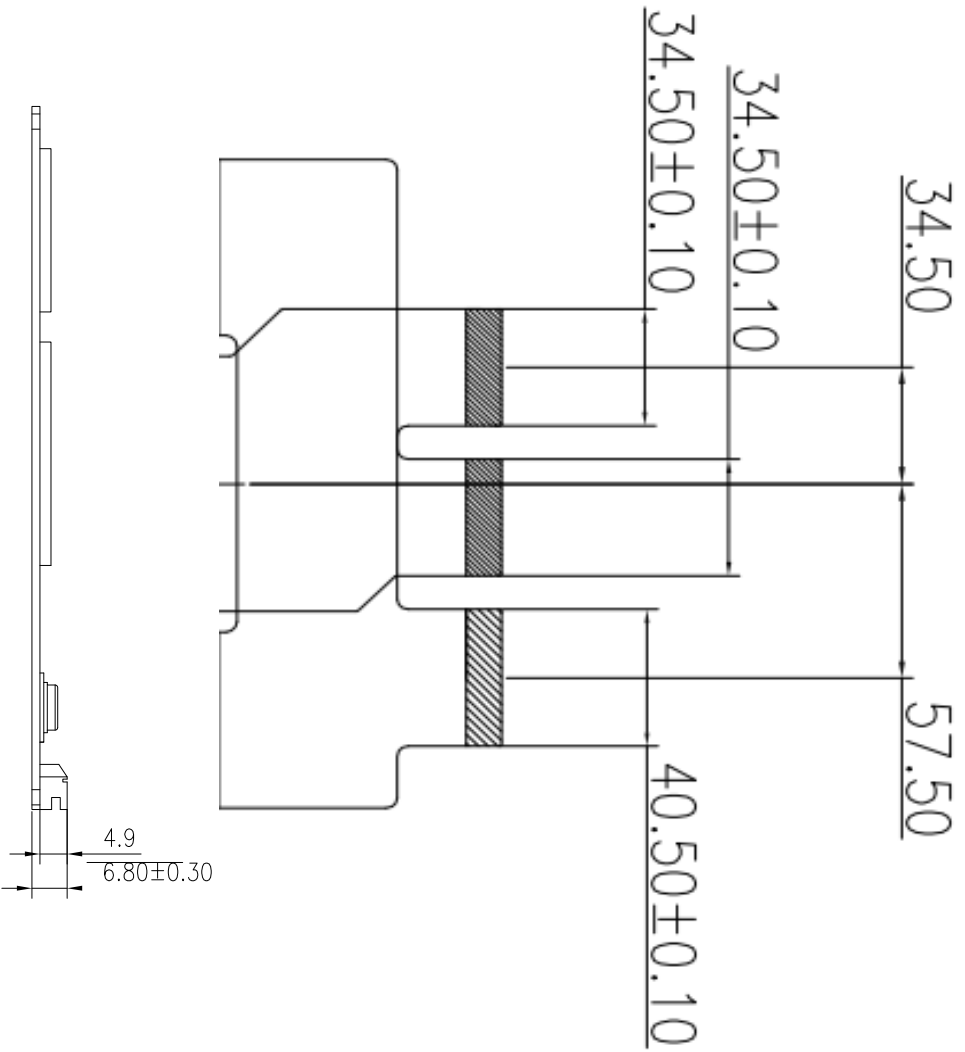
Explain[定義] : 12-1-123456



Rev.	Date	Description
A	2013/04/16	First Release
B	2013/05/28	Drawing Modify
C	2013/06/07	COB標準変更



CUSTOMER NAME		PROJECTION		TPM PART NO.	
CUSTOMER'S APPROVAL		GENERAL TOLERANCE		TPM-42	
DRWN	<i>Miranda</i>	DATE	2013.06.07	TP MODEL/COB	58420030000
CHK	<i>Gloria</i>	DATE	2013.06.07	AB-5842003022128210900/4004201550	
APVD	<i>Eg Shuang</i>	DATE	2013.06.07	UNIT: mm	SHEET 1/1
				REV.	C



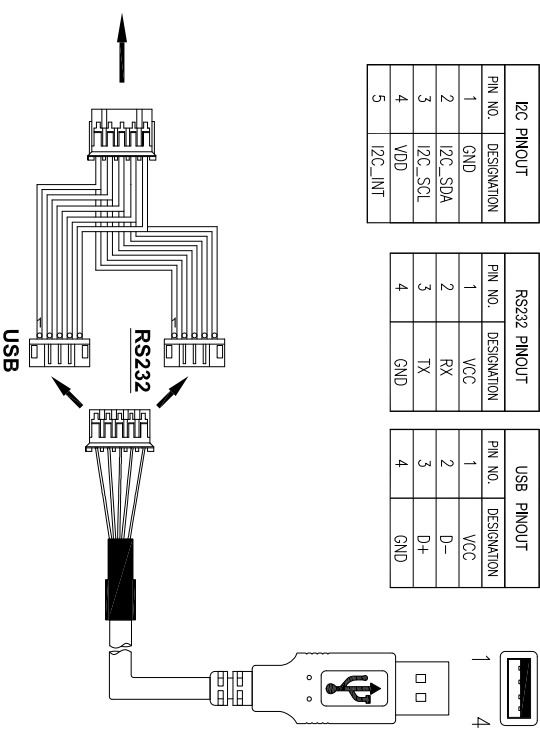
Rev.	Date	Description
A	12.04.24	First Release

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

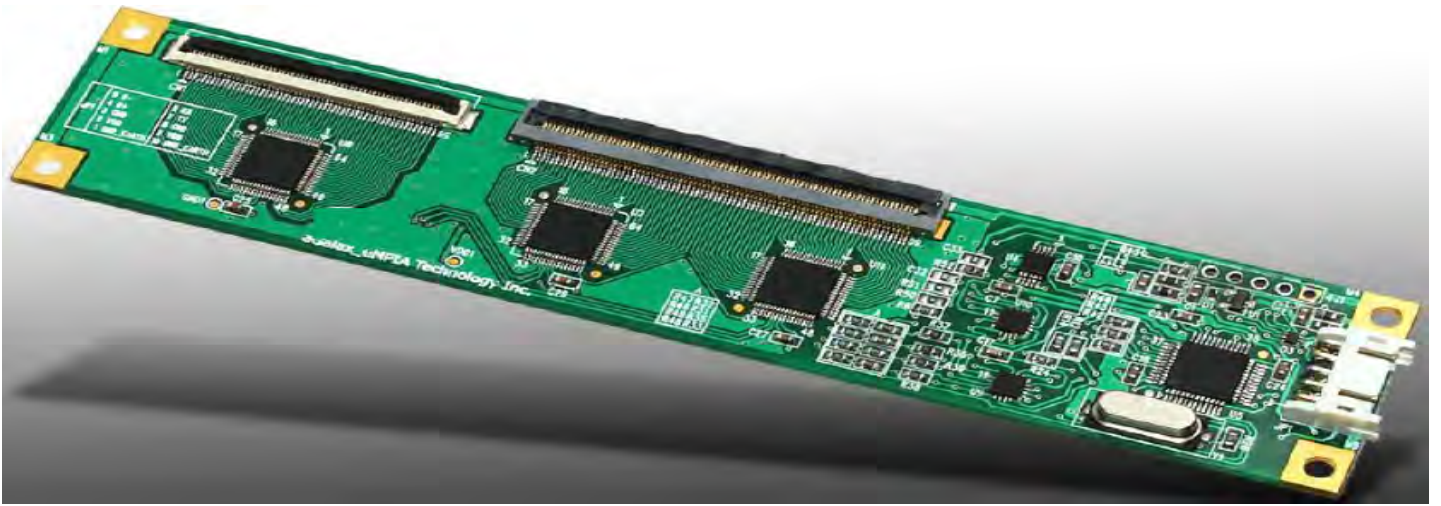
USB PINOUT	
PIN NO.	DESIGNATION
1	VCC
2	D-
3	D+
4	GND

USB PINOUT  
RS232 PINOUT

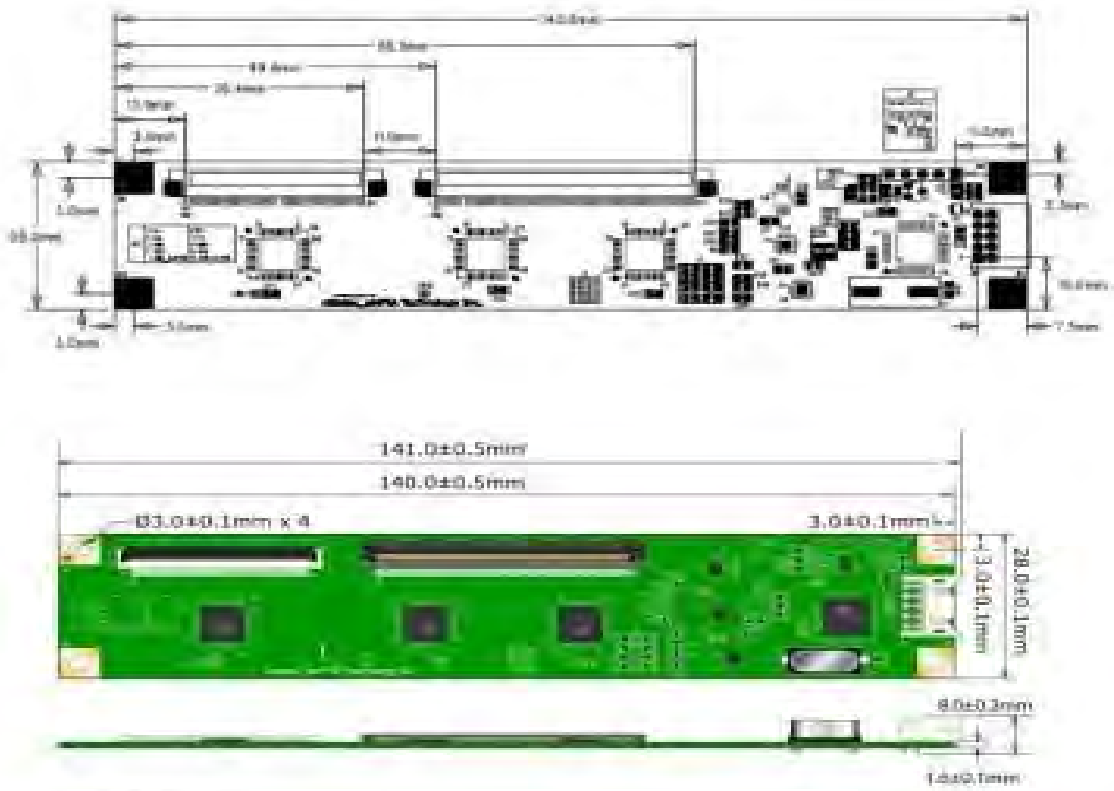


CYPRESS		MODEL	DESCRIPTION
APPROVED	<i>qy Marany</i>	DATE: 2012.04.24	PART NO.
CHECK	<i>glavita</i>	DATE: 2012.04.24	
DESIGN	<i>Martin</i>	DATE: 2012.04.24	COB
SCALE 1/1	UNIT: mm	REV. A	TMA396





2.5 Dimension

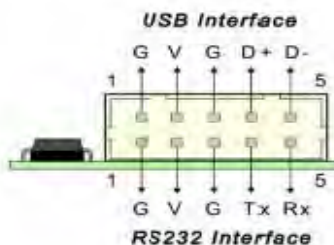


2.6.2 USB/RS232 Combo connector

**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**



20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	No.	Name	
	Y14	Y13	Y12	Y11	Y10	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0	Extra_Y2	Extra_Y1	Shield_Y1	NC	NC	No.	Name
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
	Y34	Y33	Y32	Y31	Y30	Y29	Y28	Y27	Y26	Y25	Y24	Y23	Y222	Y21	Y20	Y19	Y18	Y17	Y16	Y15	Y14	Y13
					55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
				Shield_Y2	Y49	Y48	Y47	Y46	Y45	Y44	Y43	Y42	Y41	Y40	Y39	Y38	Y37	Y36	Y35			

**CN2 Connector**



20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	No.	Name	
	X18	X17	X16	X15	X14	X13	X12	X11	X10	X9	X8	X7	X6	X5	X4	X3	X2	X1	Shield_X1	NC	No.	Name
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18
	X38	X37	X36	X35	X34	X33	X32	X31	X30	X29	X28	X27	X26	X25	X24	X23	X22	X21	X20	X19	X18	X17
60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38
	X58	X57	X56	X55	X54	X53	X52	X51	X50	X49	X48	X47	X46	X45	X44	X43	X42	X41	X40	X39	X38	X37
80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58
	Shield_X2	Extra_16	Extra_15	Extra_14	Extra_13	Extra_12	Extra_11	Extra_10	Extra_9	Extra_8	Extra_7	Extra_6	Extra_5	Extra_4	Extra_3	Extra_2	Extra_1	X61	X60	X59	X58	X57



