nas Technologies Corp.
啟迪科技股份有限公司

Specification
of
NTP-070CM-AX1

Proposed By			Customer's Approval
Designed	Checked	Approved	

版本/Version	1.0

nas Technologies Corp.
啟迪科技股份有限公司

客戶名稱: Customer Name:	

啟迪型號: Nas Tech Model No.	

客戶型號: Customer Model No:	

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Model No:		Version
Issued date		
Revised date		

Approved	Checked	Prepared
日期 Date	日期 Date	日期 Date

本承認書內容貴公司確認無誤懇請於下方承認欄內簽章寄回。
Please confirm your acceptance of this approval sheet by return fax

客戶意見欄 Customer's Proposal	簽名 Signature	原因 Reason
□承認 Approval	日期 Date	
□不同意 Disagree	日期 Date	

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Revision History

Date	Rev.	Contents	Remark
201004012	1.0	New Create	*EricYeh*

Table of Contents

1. FEATURE 5
2. GENERAL SPECIFICATION 5
3. MECHANICAL DRAWING 7
4. ELECTRONICAL SPECIFICATION 9
5. PIN ASSIGNMENT 10
6. FIRMWARE PROTOCOL 11
7. INSPECTION CONDITIONS 13
8. INSPECTION STANDARDS 14
9. RELIABILITY 16
10. LINEARITY TEST.....18

1. Feature

The product is a 7.0” projective capacitive touch panel with 2 points gesture function. The touch panel is composed of customized coverlens, ITO sensor glass and FPCa with sensor IC. For which, the optical adhesive is applied for lamination between coverlens and senor glass to ensure good optical performance of touch panel.

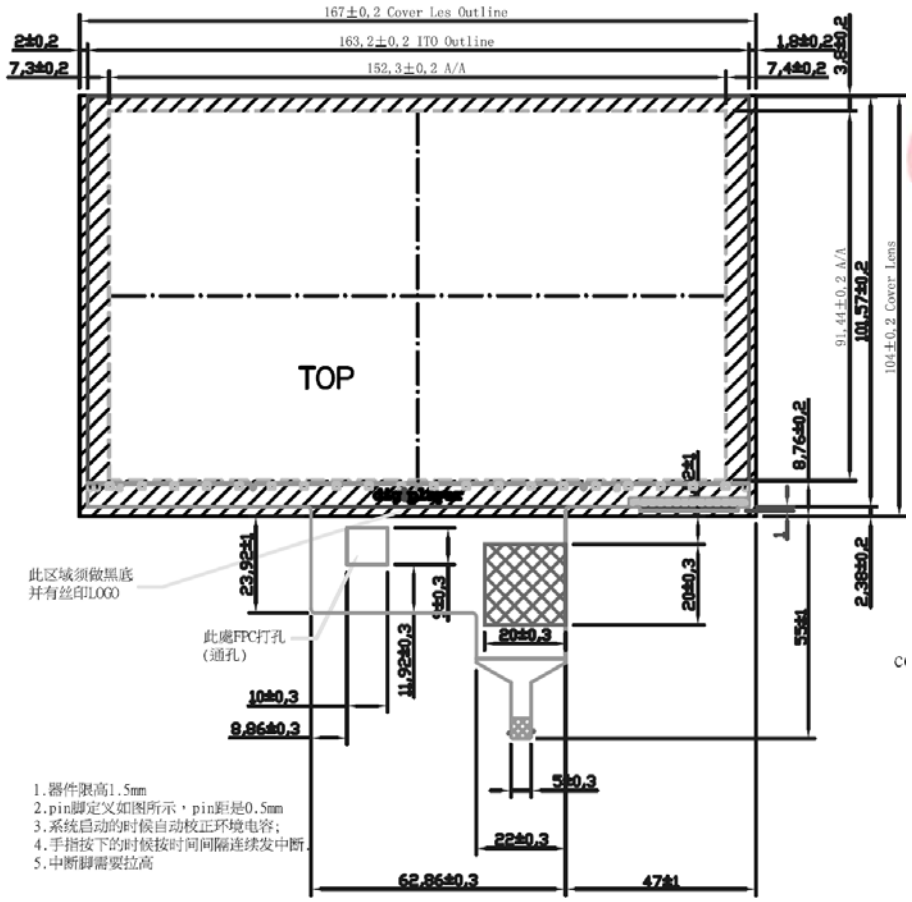
2. General Specification

2.1 Outline Specification

Item	Description	Unit
Size	7.0	inch
Coverlens View Area	152.30 ±0.2 * 91.44 ±0.2	mm
Coverlens Outline Area	167.00 ±0.2 * 104.00 ±0.2	mm
TP View Area	152.30 ±0.2 * 91.44 ±0.2	mm
TP Outline Area	163.20±0.2 * 101.57±0.2	mm
Transmittance	> 80%	-
TP Resolution	4096*4096	T.B.D.

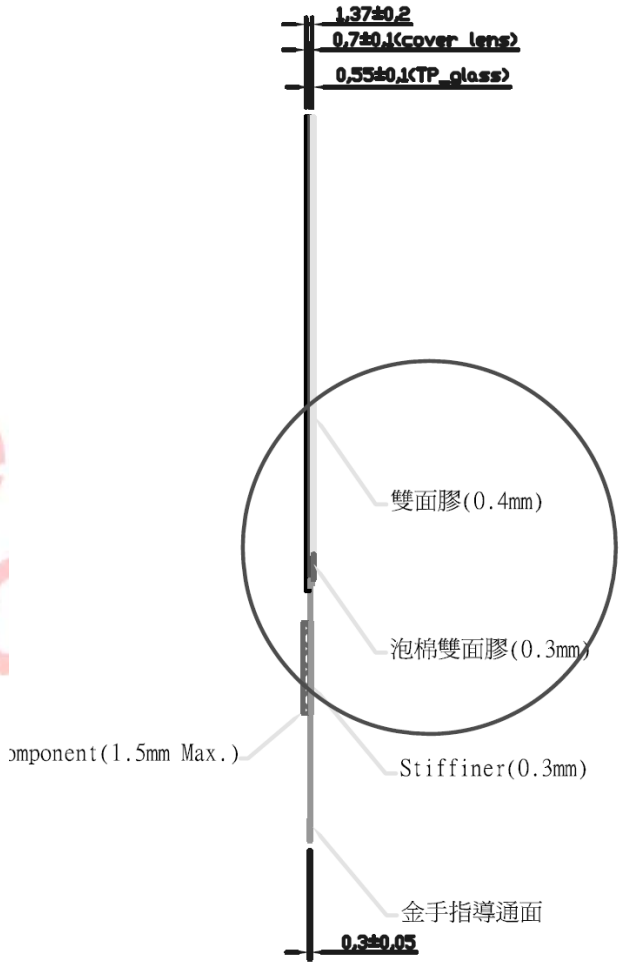
3. Mechanical Drawing

3.1 Front View



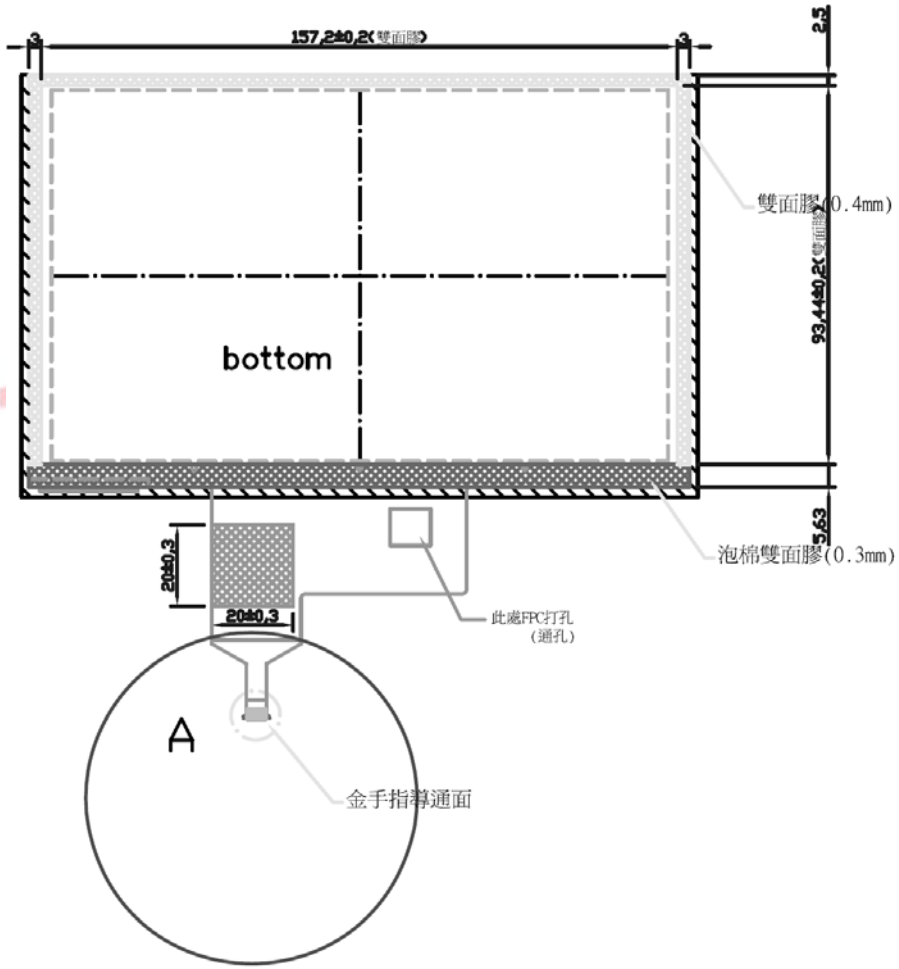
版本/Version	1.0

3.2 Side View



版本/Version	1.0

3.3 Back View



版本/Version	1.0

4. Electrical Specifications

4.1 Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Units	Notes
Storage Temperature	-65	-	+150	℃	Note1
Ambient Temperature with Power Applied	-30	-	+70	℃	-
Supply Voltage Relative to Vss	-3	-	4	V	-

Note1:
Higher storage temperatures reduce data retention time. Recommended storage temperature is +25℃.Extended duration storage temperatures above 65℃ degrade reliability.

4.2 DC Electrical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Units
Power Supply	VCC	1.8	3.3	3.6	V
Current Consumption For Operation	VCC = 3.3V	T.B.D.	T.B.D.	T.B.D.	mA
Current Consumption For Sleep Mode	VCC = 3.3V	T.B.D.	T.B.D.	T.B.D.	mA

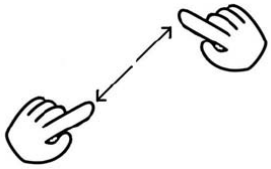
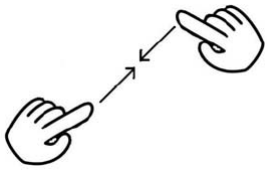
Note: It may cause permanent damage to the device due to over stress the maximum. Exposure to maximum rating conditions for extended periods may affect device reliability also.

5. Pin Assignment

Pin No.	Symbol	Description	Note
1	NC	No connection	
2	SCL	I2C clock	
3	SDA	I2C data	
4	NC	No connection	
5	ATTN	INT	
6	GND	Ground	
7	VCC	Power	
8	RST	Reset	
9	NC	No connection	

6. Firmware Protocol

6.1 Register Map Table

Gesture	Value	Description
No Gesture	T.B.D	Without finger on the touch sensor
Signal Touch Double-Click	T.B.D	
Signal Touch Pan Left	T.B.D	
Signal Touch Slide Right	T.B.D	
Signal Touch Slide Down	T.B.D	
Signal Touch Slide Up	T.B.D	
Multi Touch Zoom In	T.B.D	
Multi Touch Zoom Out	T.B.D	

版本/Version	1.0

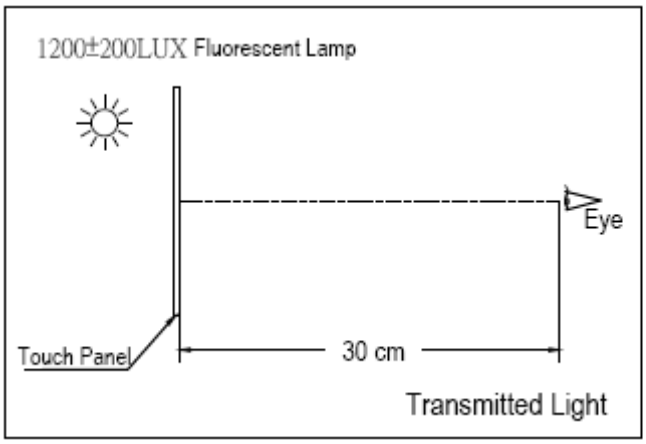
6.2 I²C Format

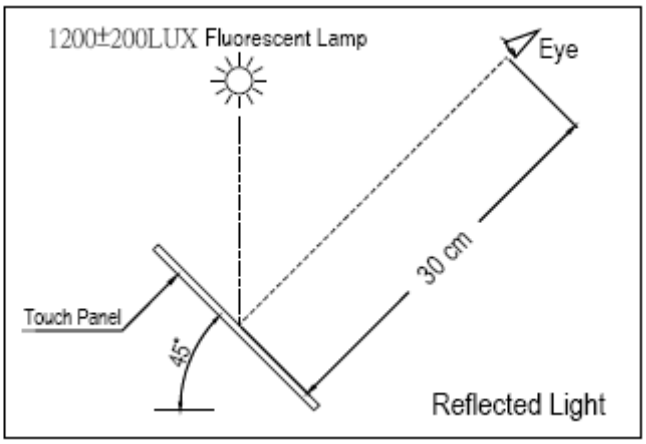
名稱	長 度 (Byte)	數值	意義
Head	2	16'hAAAA	觸摸資料資料包的包頭
Byte0	1	8'b00xx_xxxx	當前資料包的長度，由低 6bit 表示，代表當前傳送的資料包數目，即由 TP Module 發給 Host 的資料的 Byte 數目
Byte1	1	8'b0000_xxxx	當前的觸摸點數，由低 4bit 表示
Byte2	1	8'hXX	Unuse
X1	2	16'h0XXX	觸摸點 1 的橫坐標(12bit)，其值表示對應的顯示器上的圖元橫坐標點
Y1	2	16'h0XXX	觸摸點 1 的縱坐標(12bit)，其值表示對應的顯示器上的圖元縱坐標點
X2	2	16'h0XXX	觸摸點 2 的橫坐標
Y2	2	16'h0XXX	觸摸點 2 的縱坐標
X3	2	16'h0XXX	Unuse
Y3	2	16'h0XXX	Unuse
X4	2	16'h0XXX	Unuse
Y4	2	16'h0XXX	Unuse
X5	2	16'h0XXX	Unuse
Y5	2	16'h0XXX	Unuse
CRC	1	8'hXX	資料包前(N-1)個資料的 CRC 校驗碼，用於幫助 Host 檢驗這一個資料包的正確性.

7. Inspection Conditions

7.1 Environmental Conditions

- Observation distance: 30 cm
- View angle should be smaller than 45°

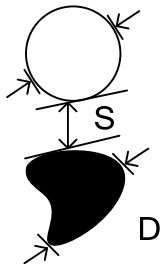
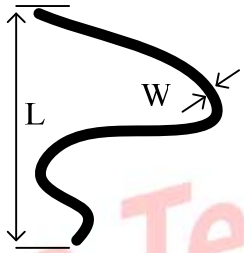
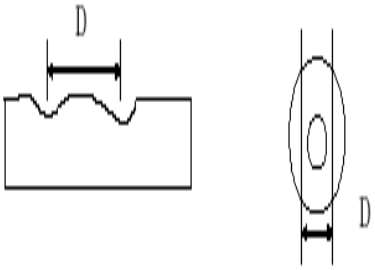
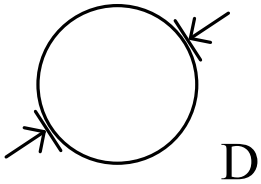




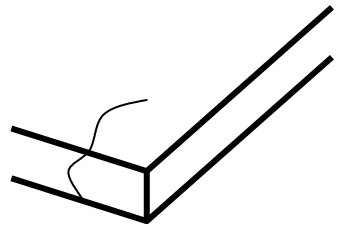
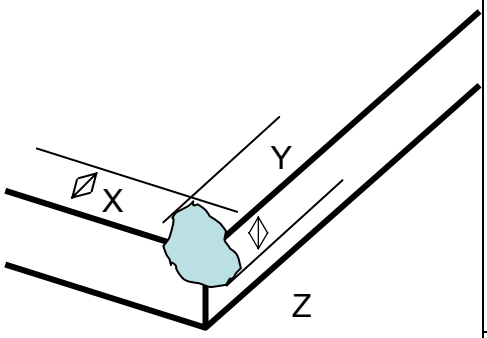
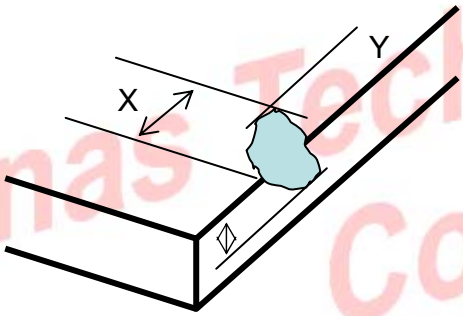
7.2 Inspection Plan

- Follow MIL-STD-105E, normal, level II, AQL = 1

8. Inspection Standards

Item	Inspection Criteria	Judgment
Black & White Spot 	The following black / white spot are within the viewing area Average Diameter: D (mm)	
	D≦ 0.3mm	Ignored
	0.3mm ＜ D ≦ 0.5mm S>10mm	5
	D ≧ 0.5mm	0
Scratch & Foreign Fiber 	The following black / white lines are within the viewing area. Width: W(mm), Length: L(mm)	
	W ≦ 0.05mm, L≦12mm	Ignored
	0.05mm ＜ W ≦ 0.07mm, L≦12mm	3
	W ＞ 0.07mm, L＞12mm	0
Fish eyes on film 	D < 0.1mm	Ignored
	0.1mm ≦ D ≦ 0.2mm	3
	0.2mm ＜ D ≦ 0.3mm	2
	0.3mm ＜ D ≦ 0.4mm	1
	D ＞ 0.4mm	0
Bubble / Dent / Bubble 	Bubbles within viewing area. Average diameter: D(mm)	
	D≦ 0.2mm	Ignored
	0.2mm ＜D≦ 0.3mm	3
	0.3mm ＜D≦ 0.5mm	1
	D＞ 0.4mm	0
水漬	Not Acceptable	-

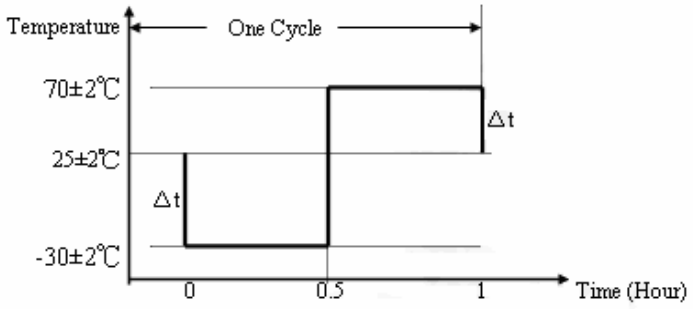
版本/Version	1.0

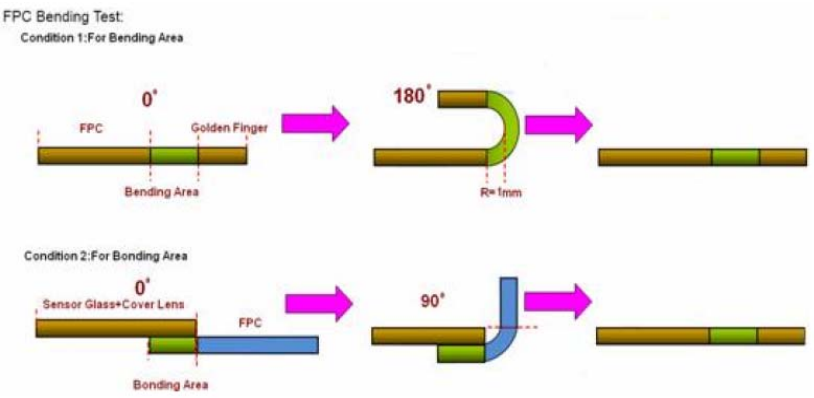
Finger Print	Not Acceptable	-
Crack 	Not Acceptable	-
Chipping on Glass 	Corner: X ＜ 4mm, Y＜ 4mm, Z ＜ t (Trace can not be damaged)	
	Edge: X ＜ 4mm, Y＜ 4mm, Z ＜ t (Trace can not be damaged)	

Note:

- Inspection area is TP active area
- The foreign material that can be blown out by air or washed out by wet cleaning are not regarded as a defect
- If we can not see any spot or line in appropriate operating condition of panel, it’s acceptable

9. Reliability

No.	ITEM	DESCRIPTION	NOTE
1	High Temperate Storage	80°C, 240 hrs. No malfunction or abnormal should be found. Linearity Error should be no larger than △20 coordinates before/after the test.	-
2	Low Temperate Storage	-30°C, 240 hrs. No malfunction or abnormal should be found. Linearity Error should be no larger than △20 coordinates before/after the test.	-
3	Temperate/ Humidity	60°C, 90%RH, 240 hrs. No malfunction or abnormal should be found. Linearity Error should be no larger than △20 coordinates before/after the test	-
4	Thermal Shock	-30°C / 70°C, 30min for each dwell stage, 50 cycles. Temperature transition Duration: 3 min, No malfunction or abnormal should be found. Linearity Error should be no larger than △20 coordinates before/after the test. 	-
5	FPC Bending Test	Connector side: Bending angle will be decided per different project. Touch Panel side: Bending angle will be decided per different project Minimum 10 cycles for each side - Condition1 for flex circuit - Condition 2 for glass Criterion: Normal performance after bending test. There shall be no damage on FPC	-

			
6	FPC connection Insert / Remove test	Condition: Insert / Remove flex circuit for 10 cycles Criterion: Normal performances after flex circuit connection insert / remove test.	-
7	Activation Force	Stylus R0.8, Avg: 5~50g	
8	Impact	Φ22.0mm steel ball, 45g, Height=30cm 1 time and no damage (Impact at the center area)	
9	Static Load	15Kg atΦ20mm area for 30sec	
10	Hardness	3H pencil, pressure 500g, 45° , ≧3H(JIS K5400)	
11	Finger Touch	1,000,000 times, R8, Silicon Rubber	
12	Pen Sliding	100,000 times, R0.8, Stylus	

10. Linearity Test

1. Test Condition:

Temperature:	25 ℃	
Drawing Speed:	mm / sec	
Test Head: (Size) :	mm	
Deep: (Loading/Gap)	R Type: (g)	C Type: (mm)
Drawing Lines:	Vertical: (lines)	Horizontal: (lines)
Resolution	Vertical: (dot)	Horizontal: (dot)

2. P/F Judgment:

Linearity Boundary: ☐ _____ (resolution) ☐ ± _____ (mm)

3. Test Result:

Item	Good	NG	Remark
Vertical direction P/F	☐ PASS	☐ FAIL	
Horizontal direction P/F	☐ PASS	☐ FAIL	
Dialog direction P/F	☐ PASS	☐ FAIL	

4. Drawing Plot: