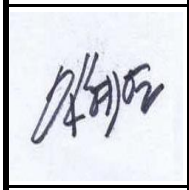
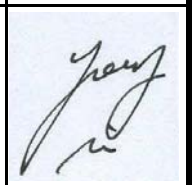
SPECIFICATIONS FOR APPROVAL

(ANALOG TOUCH PANEL)

Ver. 2.5

MODEL : HZ070A-NCJHD62

ISSUED : 11-May-07

DESIGN	CHECK	APRROVAL
		
H.Y.IM	K.B.KIM	Y.J.OH

(Q.A. : B.G.SONG )

APPROVED BY

Hantouch. com

www. Hanouch.com

CONTENTS

1. Scope

This specification is applied to HANTOUCH product no. HZ070A-NCJHD62

2. Warranty

Touch Panel products manufactured to this specification shall be warranted for a minimum period of 12 months from the date of shipping from HANTOUCH.COM when stored or used under specified normal condition within the contents of these sheets.

If Touch Panel products are not stored or used as specified herein, it will be void the 12 months warranty.

3. Shape

Shape, structure and dimension are to be referred to Counter Drawing.

4. Features

Type	4-Wire Analog Resistive Touch Panel	
Input Mode	Stylus or Finger	
Structure	ITO Film	175㎛/188㎛
	ITO Glass	0.7 T
Connector	FPC	

5. Rating

5.1 Maximum Voltage
Less than DC 7 volts

5.2 Operating Temperature Range
- 20℃ to 60 ℃ (Humidity : 20% RH to 90% RH, No condensation of dew)

5.3 Storage Temperature Range
- 30 ℃ to 70 ℃ (Humidity : 20% RH to 90% RH, No condensation of dew)

6. Electrical Characteristics

6.1 Resistance between Terminals
Direction "Y" : 100 ~ 1200 Ω
Direction "X" : 100 ~ 1200 Ω

6.2 Linearity
X axis : ± 1.5%
Y axis : ± 1.5%

6.3 Insulation Resistance
20 MΩ or more at DC 25 V

6.4 Chattering Time

10 msec or less at 100kΩ Pull-up

7. Mechanical Characteristics

7.1 Input Method

- Stylus or Finger

7.2 Actuation Force

- Stylus : 80 g or less (R 0.8 Polyacetal Pen)
- Finger : 250 g or less (R 8.0 HS40° Sillicon Rubber)

7.3 Surface Hardness

- 3H or more (according to JIS-K5400)

8. Optical Characteristics

8.1 Transmittance

80 % or more

* Measurement by SpectroPhotometer MINOLTA CM-3500d

9. Reliability

9.1 High Temperature Test

Touch Panel is put into a vessel at the condition of 80 ℃ for 240 hours.
Then it is left at room temperature for 24 hours or more.
The measurement must satisfy the following :

- ▶ Resistance between Terminals : According to Section 6.1
- ▶ Linearity : According to Section 6.2
- ▶ Insulation Resistance : According to Section 6.3

9.2 Low Temperature Test

Touch Panel is put into a vessel at the condition of - 40℃ for 240 hours.
Then it is left at room temperature for 24 hours or more.
The measurement must satisfy the following :

- ▶ Resistance between Terminals : According to Section 6.1
- ▶ Linearity : According to Section 6.2
- ▶ Insulation Resistance : According to Section 6.3

9.3 Temperature & Humidity Test

Touch Panel is put into a vessel at the condition of 60℃ and 90%RH for 240 hours. Then it is left at room temperature for 24 hours or more.
The measurement must satisfy the following :

- ▶ Resistance between Terminals : According to Section 6.1
- ▶ Linearity : According to Section 6.2
- ▶ Insulation Resistance : According to Section 6.3

9.4 Thermal Shock Test

Touch Panel is put into a vessel at the condition of – 40℃ for 30 minutes and then 80℃ for 30 minutes. This process is repeated for 10 cycles.
Then it is left at room temperature for 24 hours or more.
The measurement must satisfy the following :

- ▶ Resistance between Terminals : According to Section 6.1
- ▶ Linearity : According to Section 6.2
- ▶ Insulation Resistance : According to Section 6.3

10. Durability

10.1 Writing Fricition

Write 150,000 times in 30㎜ and measure the area.
Force : 250 gf, Speed : 60 mm/sec, Stylus : R0.8 Polyacetal tip
The measurement must satisfy the following :

- ▶ Resistance between Terminals : According to Section 6.1
- ▶ Linearity : According to Section 6.2
- ▶ Insulation Resistance : According to Section 6.3

10.2 Punching Life

Touch Panel is hit two million times with R8.0 silicon rubber and measure it.
Force : 250 gf, Speed : 2 times/sec
The measurement must satisfy the following :

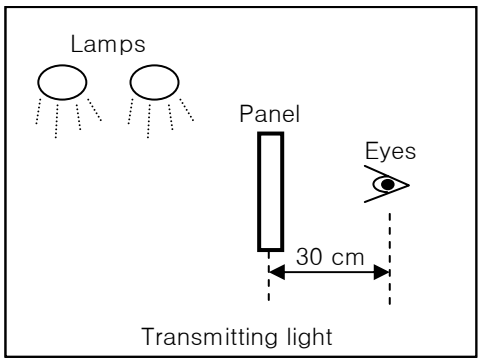
- ▶ Resistance between Terminals : According to Section 6.1
- ▶ Linearity : According to Section 6.2
- ▶ Insulation Resistance : According to Section 6.3

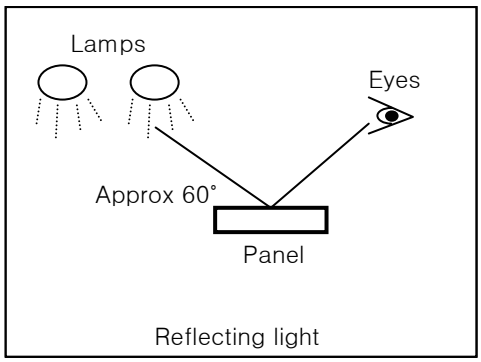
10.3 Heat Seal Peeling Strength
400 g/㎝ or more
(peeling upward by 90° in direction of X , speed : 50 mm/min)

11. Cosmetic Inspection Criteria

The following are applied to viewing area.
Any defects in invisible shall be ignored unless they affect electrical performance.

The Inspection shall be performed by using two 14W fluorescent lamps.
The panel shall be placed at 30cm away from eyes as shown below.

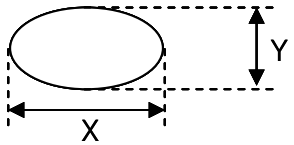




11.1 Scratch

W ≤ 0.03mm	In case of L≤ 5mm, it is disregarded.
0.03mm< W < 0.05mm	In case of L≤ 5mm, it is disregarded in case the object is in a distance of L< 15mm from any other objects or scratches. (2 or less) In case of L >5mm, it is regarded as defect.
W>0.05mm	In case L >5mm, it is regarded as defect.

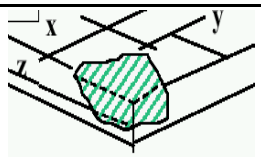
11.2 Granular Object

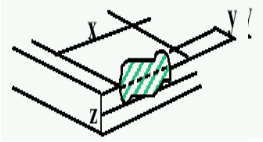
D≤ 0.2mm	Disregarded.
0.2mm < D ≤ 0.3mm	It is regarded as defect in case the object is in a distance of < 15mm from any other objects or scratches. (2 or less)
0.3mm < D	It is regarded as defect.
 D= (X+Y)/2	

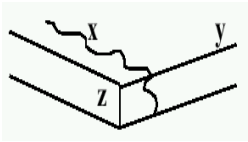
11.3 Linear Object

W ≤ 0.03mm	In case of L≤ 3mm, it is disregarded.
0.03mm< W < 0.05mm	In case of L≤ 3mm, it is disregarded in case the object is in a distance of L< 15mm from any other objects or scratches. (2 or less) In case of L >3mm, it is regarded as defect.
W>0.05mm	In case L >3mm, it is regarded as defect.

11.4 Glass Breakage

<table>
<tr><td></td><td>Criteria & Decisions</td></tr>
<tr><td>Corner Breakage</td><td> 

X ≤ 3.0mm and
Y ≤ 3.0mm and
Z ≤ t
It is ignored.</td></tr>
<tr><td>Side Breakage</td><td> 

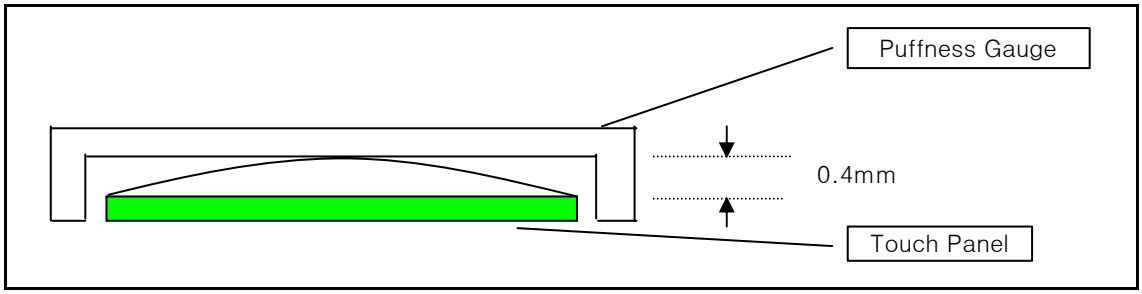
<table>
<tr><th>X(mm)</th><th>Y(mm)</th><th>Z(mm)</th><th>Decesion</th></tr>
<tr><td>≤ 3.0</td><td>≤ 3.0</td><td>≤ t</td><td rowspan="3">Ignored</td></tr>
<tr><td>≤ 5.0</td><td>≤ 1.0</td><td>≤ t</td></tr>
<tr><td>≤ 5.0</td><td>≤ 3.0</td><td>≤ 2/3t</td></tr>
</table></td></tr>
<tr><td>Progressive</td><td> 

It is regarded as defect.</td></tr>
</table>

※ t : Glass Thickness

11.5 Puffness

Check puffness with 0.4mm gauge



11.6 Newton's Ring

Subject to limited samples agreed between buyer and manufacturer

12. Inspection

12.1 Resistance between Terminals

Criteria : According to Section 6.1
All the Touch Panels are inspected in the first production lot.
Sampling inspection from the second lot.

12.2 Linearity

Criteria : According to Section 6.2
All the Test Touch Panels are inspected in the first production lot.
Sampling inspection from the second lot.

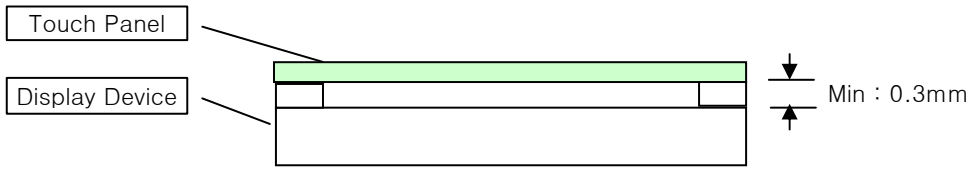
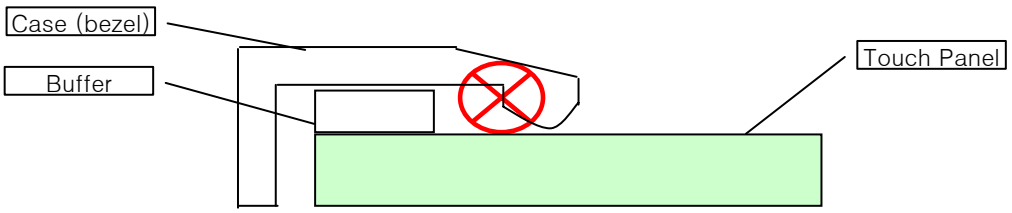
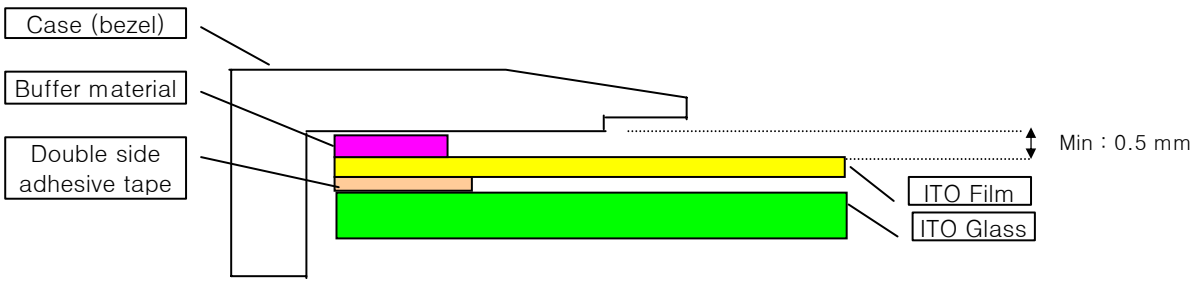
12.3 Insulation Resistance

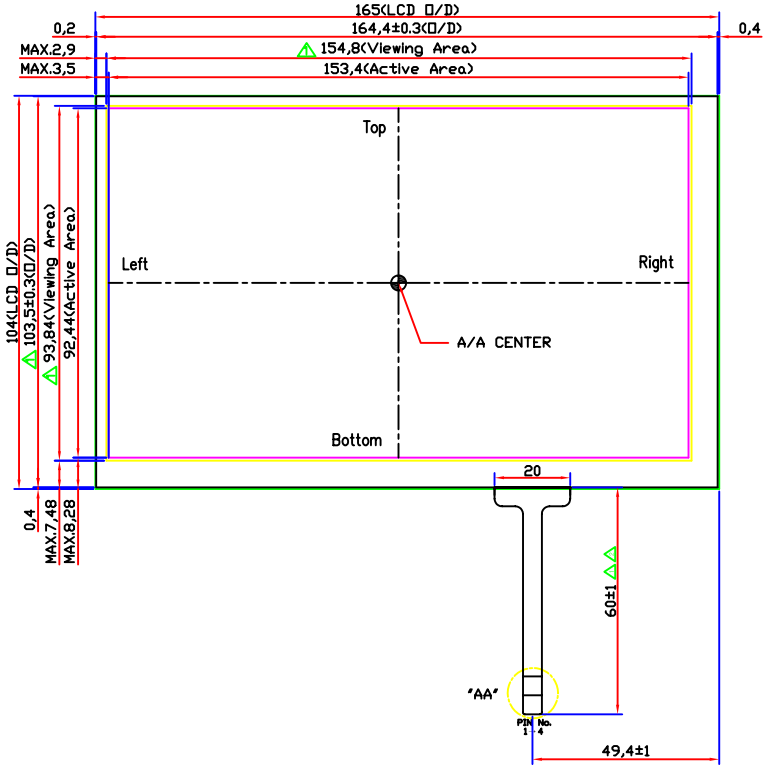
Criteria : According to Section 6.3
All the Touch Panels are inspected in the first production lot.
Sampling inspection from the second lot.

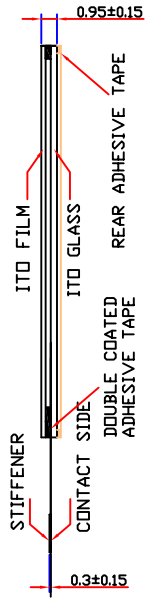
12.4 Appearance

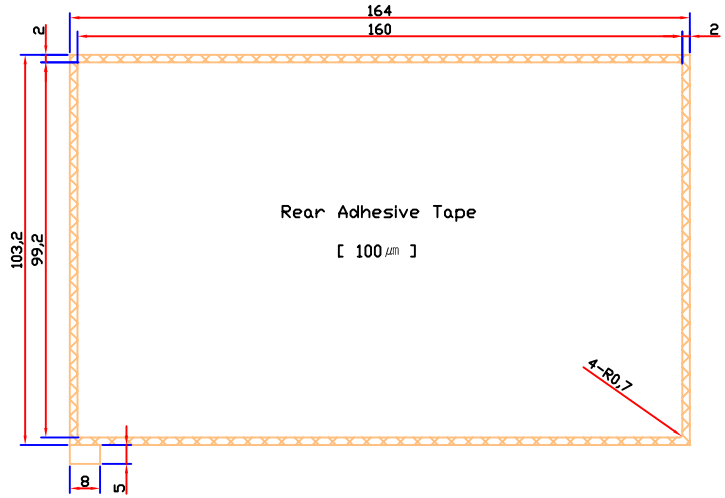
Criteria : According to Section 11
All the Touch Panels are inspected.

13. Handling Remark

Subject	Description
Storage	1. Always store touch panel in Storage Environment. (Ref. 5.3) 2. Do not expose touch panels to a direct ray of the sun. 3. Do not give shock and vibration to the products.
Unpacking	1. Open the box after checking the package is right side up 2. Do not grip and pull FPC when take out product. (in order to avoid disconnection.)
Handling	1. Use gloves and masks when handing touch panels. (in order to avoid leaving fingerprinters or spots.) 2. Do not touch where tails are heat-sealed in order to avoid disconnection. 3. Hold touch panels around outside of viewing area. 4. Clean off touch panel with soft cloth dampened with alcohol when surface on the panel is dirty 5. Do not use organic solvents except alcohol. 6. Do not pile touch panels onto other touch panels. (The edge of the touch panel cause scratches on the surface of the other touch panels.) 7. Do not put heavy objects on the panel. 8. Handle with care from panels sharp edges. (because glass edges are sharp)
Assembly	1. Please design housing which minimizes stress onto touch panels. 2. Please pay the best attention not to create any stress to the heat-sealed tails. (Heavy stress may cause disconnection) 3. Please pay attention not to harm touch panels with your tools which may be used for assembly.
Housing Design (Case Design)	1. Keep enough clearance (over 0.3mm) between the touch panel and flat-panel display to protect a display device and display surface. fig 1. 
	2. Avoid the bezel design as below. Because it can press the 'Active Area' of the touch panel. 
	3. We recommend the use of a buffer material between the touch panel and the bezel, and buffer material should be limited only on the busbar area. If it is out of busbar area, Touch Panel may occur a short. 
Prohibitions & Operation	1. Do not attach bezel inside of panel viewing area. 2. Prevent excessive force on the touch panel. 3. Do not use sharp things except finger or R0.8 stylus pen when operating. This may cause scratches to the touch panel's surface. 4. We recommend calibration after long time use.



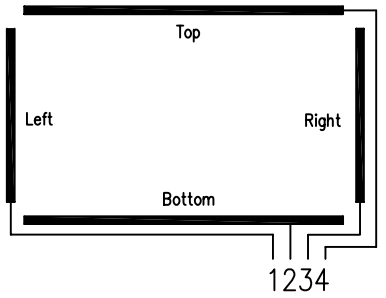




REMARK

1. Glass Thk: 0.7mm
2. Film Type: Non-Glare
3. Total Thk: 0.95±0.15mm
4. Linearity: ±1.5% or less
5. Transmittance: 80% or more
6. Resistance
   - 100 < Y < 1200 ohm
   - 100 < X < 1200 ohm
7. Connector: FPC
8. General Tolerance: ±0.5

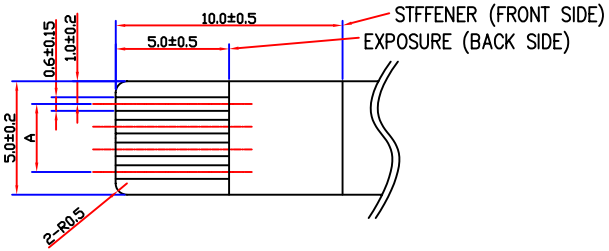
CIRCUIT DIAGRAM



SIGNAL ASSIGNMENT

Pin No	Signal
1	Left
2	Bottom
3	Right
4	Top

Detail "AA" ⚠1 ⚠2



A=P1.0*3=3.0±0.2

REV.No.	REVISED	DATE	DRAWN	CHECKED	APPROVED
⚠2	Changed FPC	07.04.25	H.Y.IM	K.B.KIM	Y.J.OH
⚠1	O/D, V/A, FPC Change	07.03.05	H.Y.IM	K.B.KIM	Y.J.OH
0	NEW DRAW	07.01.19	H.Y.IM	K.B.KIM	Y.J.OH

APPROVE		STD.TOL	UNIT	mm	DRAWING NO. HZ070A-NCJHD62-R
CHECK			SCALE	NONE	REV. 2
DESIGN		Hantouch.com	DESCRIPTION	7.0" TOUCH PANEL	SHEET 1/1
DRAW					