

# PRODUCT SPECIFICATION

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- 1. PRODUCT : TOUCH PANEL
- 2. PART NUMBER : TTI : T010-1302-T253
- 3. ATTACHED DRAWING : Tech Bes TTI-13010

B

SIGNATURE FOR YOUR RECEIPT
DATE:

C

TRANSTOUCH TECHNOLOGY INC. (TTI)  
DOCUMENT No. : TTI PRODUCT TECHNOLOGY Dept.

MANAGER : \_\_\_\_\_ DATE: \_\_\_\_\_

D

TTI PRODUCT TECHNOLOGY Dept.  
3F No.50 Hwa-Ya 3<sup>rd</sup> Road ,Kwei-san Shian Tao-yuan ,Taiwan  
TEL(03)3978800 FAX(03)3978855



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					Title: Touch Panel Spec.	
					Draw No. Tech Bes TTI-13010	
					Cust	
ED	Date	Design	Check	Description		富晶通科技股份有限公司 Transtouch Technology Inc.
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**TOUCH PANEL SPECIFICATION**

TRANSTOUCH TECHNOLOGY INC.



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TOUCH PANEL SPECIFICATION

1. Application

This specification is applied to TOUCH PANEL made by TRANSTOUCH TECHNOLOGY INC. (TTI)

Product No.

Name	P/No.	Size	Remark
TOUCH PANEL	T010-1302-T253	9"	/ for finger & pen input RoHS

2. Function

LCD

TTI TOUCH PANEL is resistance type that customer uses with flat display as a LCD. Once user touches it by FINGER directly, the circuit for TOUCH PANEL sends coordinate point to PC from voltage at contact point.

3. Manufacturer

TRANSTOUCH TECHNOLOGY INC. (TTI)

: ( ) 50 3

Address: 3F No.50 Hwa-Ya 3<sup>rd</sup> Road ,Kwei-san Shian Tao-yuan ,Taiwan

4. Outline

4.1 Drawing

Please refer the last page of this spec.



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### 4.2 Definition of words

Words	Definition
Guaranteed active area	An area to be guaranteed all characteristics stated on this spec.
Boundary line of top enclosure	Recommended boundary line of top enclosure
View (transparent) area	A view area which is inside adhesive zone or electrode pattern. Top enclosure must not be fixed by this area.
Touch undetected	An area to protect miss-input when top enclosure edge touches the touch panel.

### 5. Characteristics

#### 5.1 Optical characteristics

	Item	Specification	Remarks
1	TRANSPARENCY	82% Typ ( ) (Inside of guaranteed active area)	JIS K-7105
2	HAZE	5% Typ.	JIS K-7105

#### 5.2 Environmental characteristics

	Item	Specification	Remarks
1	Operation temperature	-30°C ~ 80°C	Max. wet Temp. is 38°C(No dew)
2	Storage temperature	-40°C ~ 85°C	
3	Operation Humidity	20% ~ 90%RH	
4	Storage temperature	10% ~ 90%RH	



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5.3 Mechanical characteristics

Item	Specification	Remarks
1 Hardness of surface	3H Pencil hardness 3H.	JIS K-5600-5-4
2 FPC FPC peeling strength	5N 5N min	Peeling upward by 90°
3 FPC Bending	3	R1.0mm
4 FPC	5	
5 Minimum Input force	Finger  pen	Max: 80gf  5mm, Dot-Spacer  1 Test Area is 5mm inside of active area, but not on Dot-Spacer. Refer Note-1

5.4 Electrical characteristics

Item	Specification	Remarks
1 Rated Voltage	DC 7V max.	
2 Resistance	X axis 300Ω~ 1500Ω(GLASS ) Y axis 100Ω ~ 800Ω(FILM )	FPC At connector
3 Linearity	±1.5% max initial value ±3.0% max after environmental & life test	2 Refer Note-2 : 250gf
4 Chattering	10ms Max At connector pin	
5 Insulation Resistance	20MΩ (DC 25V) 20MΩ min(DC 25V)	

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1: Note-1

( 5mm)

Measurement condition of minimum input force(active area inside 5mm)

film X Y 2kΩ

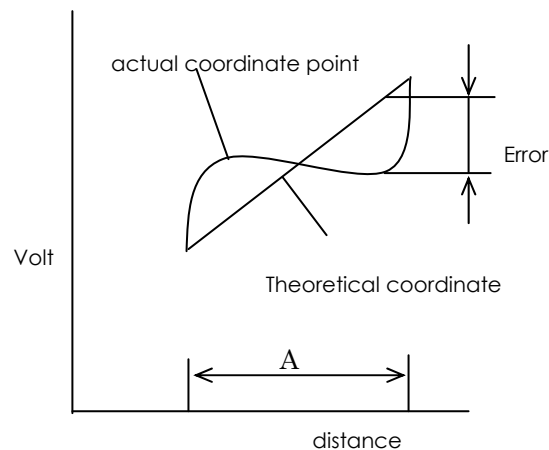
Resistance between X & Y axis must be equal or lower than 2kΩ Ron 2kΩ

2: Note-2

Measurement condition of Linearity

2mm X Y

Difference between actual voltage & Theoretical voltage is an error at any points. Linearity is the value max. error voltage divided by voltage difference on active area inside 2mm.

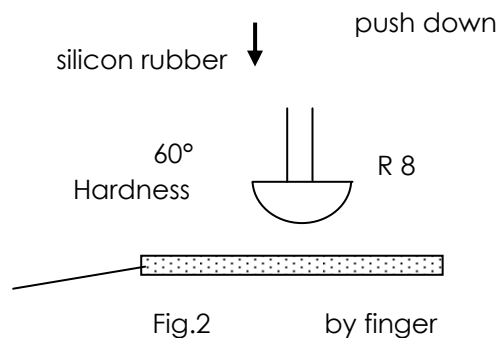
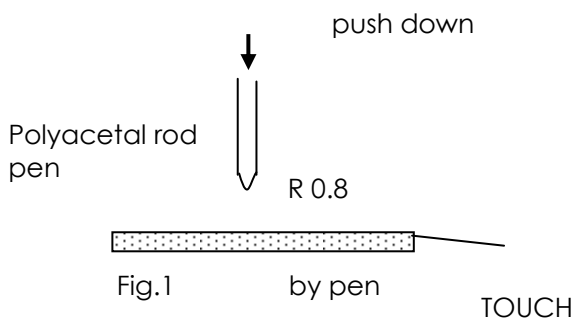


A: Guaranteed active area

6. life test condition

6.1 Mechanical characteristics

1	Notes life	10 10 <sup>5</sup> words min	5mm Within 5mm" guaranteed active area"
2	Input life	100 10 <sup>6</sup> times min	5mm Within 5mm" guaranteed active area"



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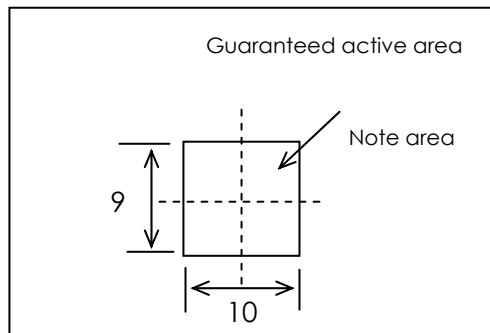
### Notes life test condition (by pen)

A.B.C...7.5 ×6.75mm

10 ×9mm

Notes area for pen notes life test is 10×9mm. Size of word is 7.5×6.75mm. Word is any A.B.C..... word. Center of each word is changed at random in notes area.

- Shape of pen end : R 0.8 (Refer Fig.1)
  - Materials of pen : Polyacetal
  - Load : 250g
  - Speed : 60mm/s
- Judge base



5.3,5.4

Operation force, Insulation resistance & Resistance stated before as 5.3 , 5.4 must be within spec.

( )

### Input life test condition( by finger )

By silicone rubber tapping at same point.

- Sharp of rubber end : R8      Hardness 60°(Refer fig.2)
  - Load : 200g
  - Frequency : 5Hz
- Judge base

5.3 , 5.4

Operation force , Insulation resistance & Resistance stated before as 5.3,5.4 must be within spec.



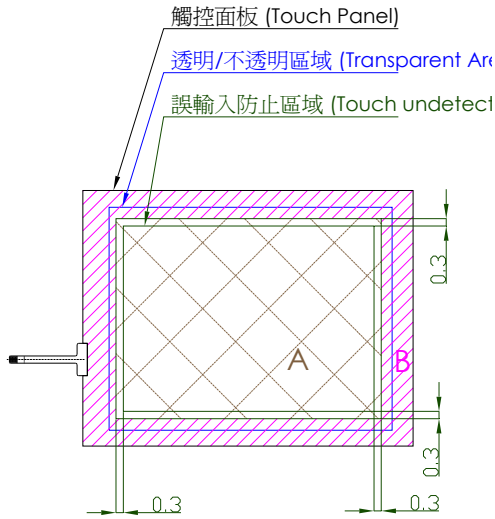
					Title: Touch Panel Spec.	
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### 6.2 Environmental test condition

Item	Specification	Remarks
1 High temperature storage	85°C, 240 hr (After 24 hr room temp. and test)	5.3 , 5.4 Operation force, Insulation resistance & Resistance stated before as 5.3, 5.4 must be within spec.
2 Low temperature storage	-40°C, 240 hr (After 24 hr room temp. and test)	
3 High temperature high humidity storage	60°C, 90%RH, 240 hr (After 24 hr room temp. and test)	
4 Temperature Cycling	-40°C ~ +85°C (0.5hr each), 50 cycles	

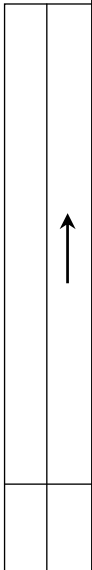
### 7. Appearance.

7.1 ( ) Scope of reject criteria.



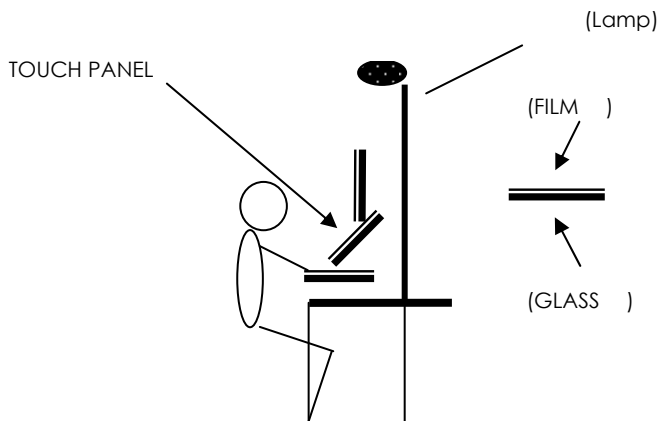
Area	Specification
A	7-2 Without any defect point to effect on normal operation.
B	None-specify.

A:Inspection area  
B:Without inspection



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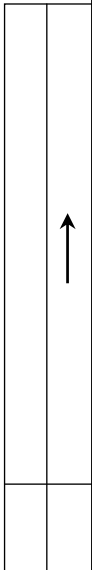
- 7.2 (Check environment):
- a. (Check time):15 (In 15 Seconds)
  - b. (Lamp illumination) :700~1000Lux
  - c. (Check distance): Touch Panel 20~30cm(From touch panel 20~30cm)



7.3 (Reject criteria):

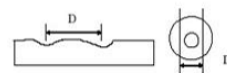
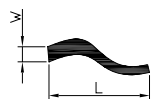
Description	Reject criteria
Film / Film / Glass Scratch Film / / Foreign material between glass & film	0.3mm < D : zero 0.1mm < D ≤ 0.3mm : Max: 2 points D ≤ 0.1mm : disregard
Film ( ) Film fish eye	0.25mm < D : zero D ≤ 0.25mm : Max: 2 points
Film / Film / Glass Scratch (Line type) FILM / Foreign material between glass & film(Line type)	0.05mm < W : zero 0.025mm < W ≤ 0.05mm & L ≤ 5mm : Max: 2 points W ≤ 0.025mm & L ≤ 10mm : disregard
Total Defects	4 points Max.
Minimum distances between defects	1mm Min.
Newton ring	Film Not seen from PANEL film side under fluorescent lamp, exclude from PANEL glass side .

D : Diameter[D=(長徑+短徑)/2], W : (Width), L : (Length)



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: W, L ※ (Fish Eye) :



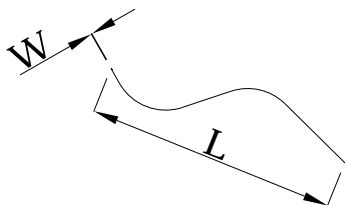
A

A

When a defect is difficult to judge, it will be judged as following:

(1) :

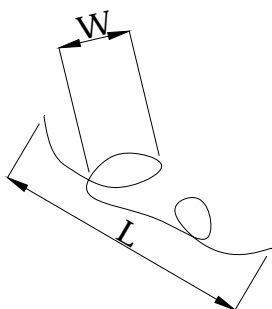
Defect type:



W:  
L:

B

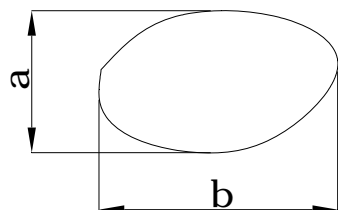
B



W:  
L:

C

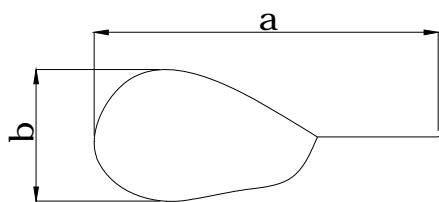
C



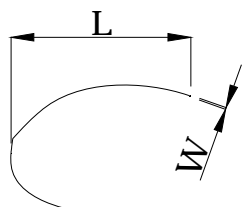
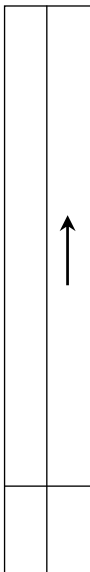
$D=(a+b)/2$

D

D



$D=(a+b)/2$

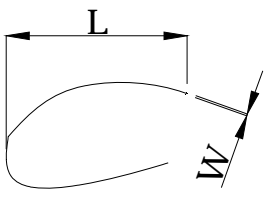


( )  
W:  
L:

E

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( )

W:

L:

(2)  $0.3\text{mm} < D$

$0.3\text{mm} < D$  as linear defect.

(3) :  $< 0.1\text{mm}$

$0.1\text{mm}$

In high density defect situation, the distance between each other of the defects  $< 0.1\text{mm}$  is just as one point-defect,  $0.1\text{mm}$  is just as many point-defects .

TP

Foreign objects/dirt/scratches can be cleared by air gun that is allowed.

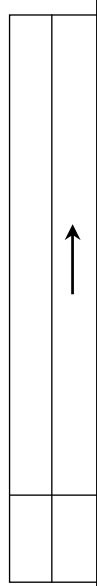
Protective sheet and protective sheet of rear DSA can't be checked that is allowed.

Panel

Panel can't be checked in front of the lamp.

10

Any defect is always checked by naked eye. When the defect can't be judged with naked eye. Please use ocular(x10 min.) to check the defect.



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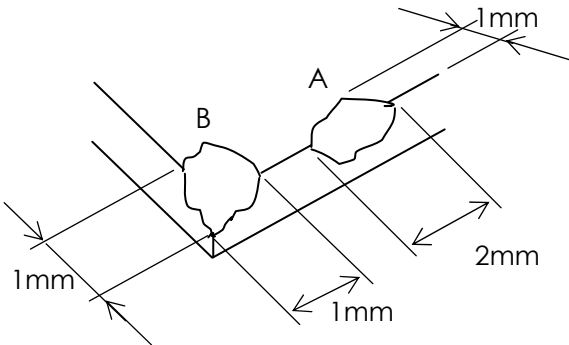
A

A

Description	Reject criteria
-------------	-----------------

Glass flaw

( )  
 To be no flaw which size is over the drawing  
 Specified as below. Number of flaw is none-specify.  
 Traveling flaw is none.  
 Flaw of thickness direction size is max.



B

B

Film  
 Film size

Film ( )  
 Film is in glass area (or size).  
 (Exclude double-side adhesive tape)

C

C

FPC /  
 Foreign material for  
 FPC

Cover Film  
 Foreign material can not short two patterns.

FPC  
 FPC Scratch

Scratch can not effect electrical characteristics

FPC  
 FPC Crumple

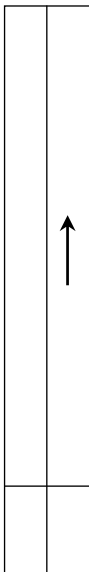
Crumples can not effect electrical characteristics  
 and no line crumples are allowed.

D

D

Adhesive Tape size

Adhesive Tape out of Panel Outline is excluded.



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8. Showing  
 Touch Panel  
 Showing to P/No., Production & Year/Month.

	Showing	Meaning	Notes
Product No.	1302-253	T010-1302-T253	
Production Lot No.	Film 13010001	(1, 2 ) (13: 2013 ); (3, 4 ) (01: 1 ); (5~8 )	Production Lot No.

(1)

Since touch panel is consist of Glass, pls. be careful your hand and other part from injury at handling. You must wear gloves at handling.

(2)

Do not put a heavy shock or stress on touch panel.

(3)

FPC

Do not lift Touch Panel by cable (FPC).

(4)

FILM ( : FILM )

Do not add any stress only film face.

(Ex. Don't transfer the panel by film face with vacuum)

(5)

Pls. use dry cloth or soft cloth with neutral detergent (after wring dry) or one with ethanol at cleaning. Do not use any organic solvent, acid or alkali solution.



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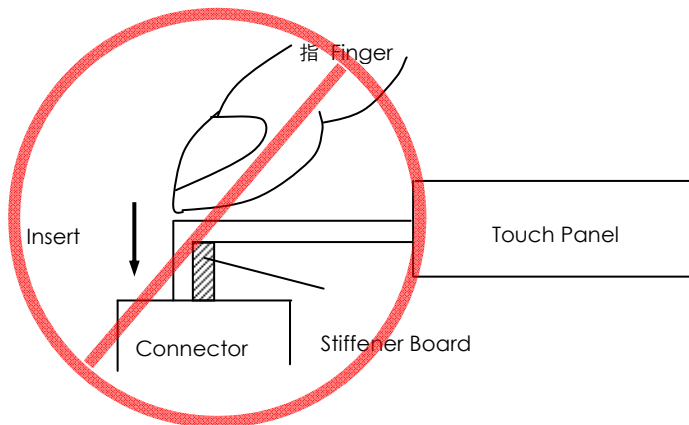
(6)

Do not pile Touch Panel. Do not put heavy goods on Touch Panel.

A

(7) FPC

Do not bend a cable of Touch Panel for prevent happen to line cut failure. Please don't use following method for inserting into FPC tail to connector.



B

(8)

Please pay attention for the matter as stated below at mounting design of touch panel & enclosure

C

-1.

( )

Enclosure support to fix touch panel must be out of view (transparent) area.(Do not design enclosure presses the view area to protect from miss input)

D

-2.

( )

Enclosure edge must be between view area & Guaranteed active area. (Enclosure edge must not touch with view area)

-3.

We recommend the material of support to fix touch panel is elastic material.

E



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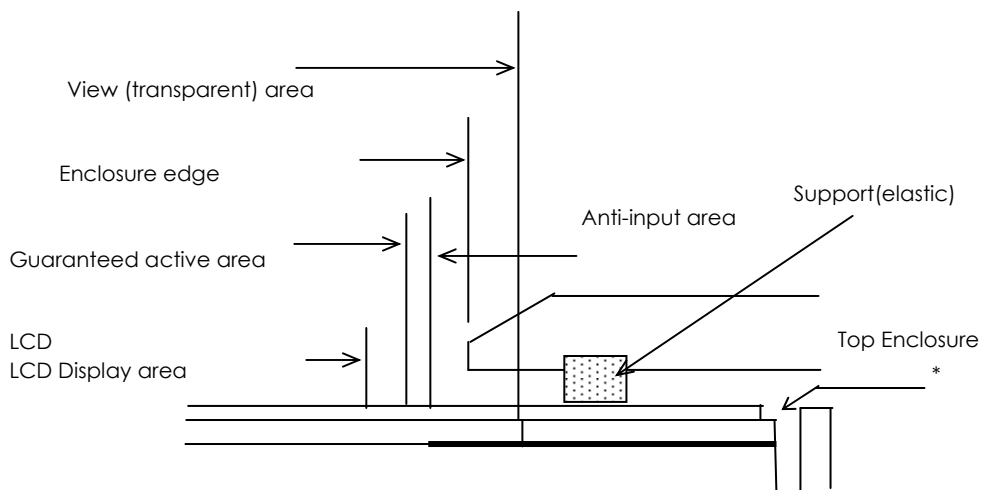
-4. (FILM)  
Do not bond top surface (film) of touch panel with enclosure.

-5.  
The corner parts (fig.\*) has conductivity. Do not touch any metal part after mounting.

-6.  
Special design is required for water resistance use.

-7. Air gun , Air 2kg/cm<sup>2</sup> ,  
FPC , FPC Air , .  
Cleaning Touch panel by Air gun, pressure 2kg/cm<sup>2</sup> below is suggested.  
This is preventing FPC to peel off when air is blowing to FPC from glass side.

Mounting condition example

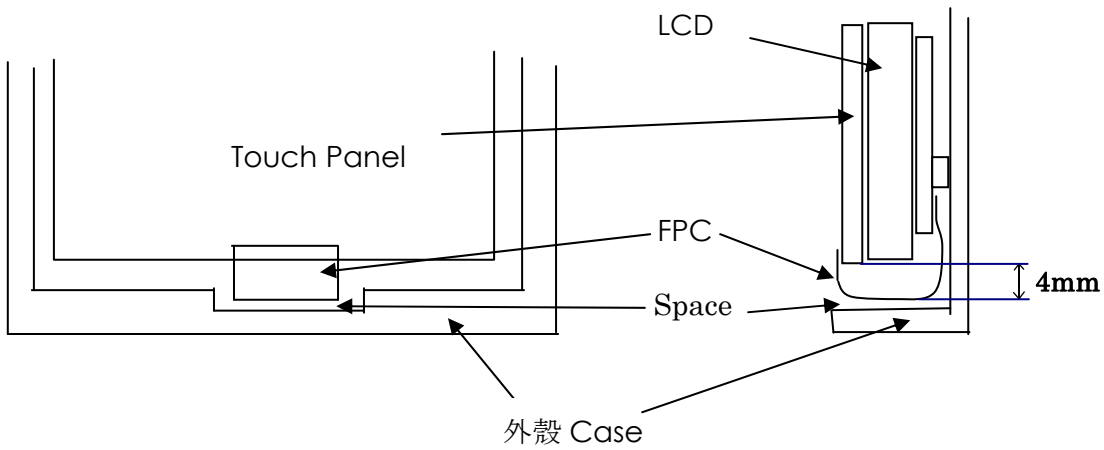


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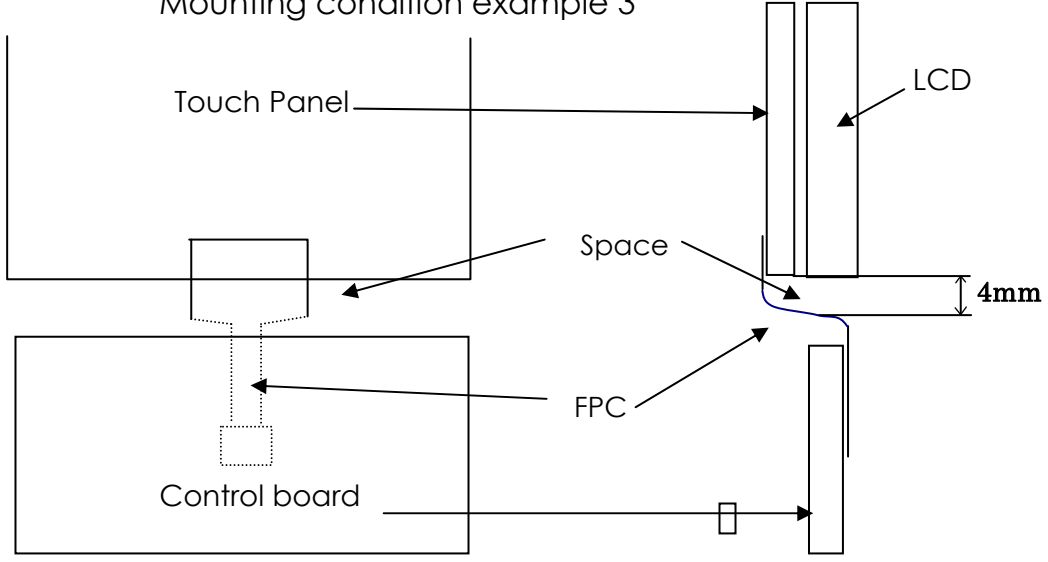
-8. FPC FPC ,  
FPC, FPC . 4mm .

The mounting structure must have a reserved space for the FPC tail and never touch or squeeze the FPC by case or another components preventing FPC to peel off. Assembly space is recommended at least 4mm. Refer to mounting condition example 2 & 3.

Mounting condition example 2



Mounting condition example 3



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-9.Touch Panel

Touch Panel has a year's guarantee. If the customer have special request, we can make a contract for it.

-10.VA

, ITO Crack

Avoid operating or writing on VA/Anti-Input Area ,to prevent ITO cracking. That will make a Linearity NG.

A

A

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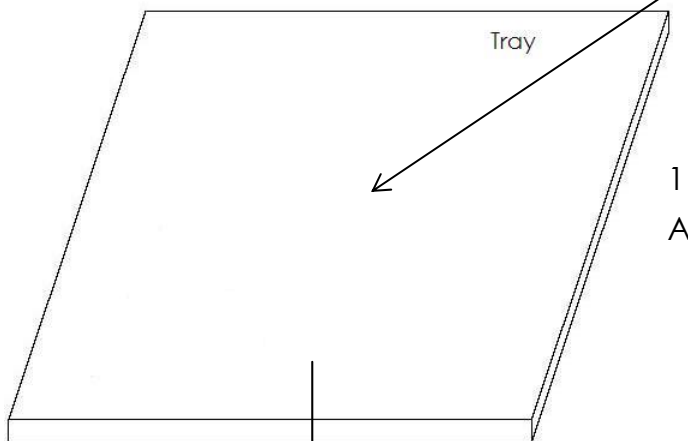
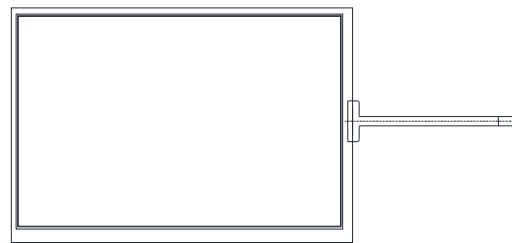


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9. Packing Method as drawing

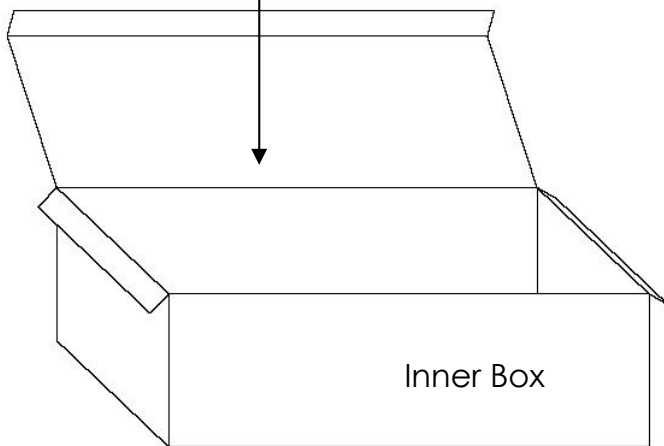
(Film )

Product (Protective sheets added on film side )



Tray

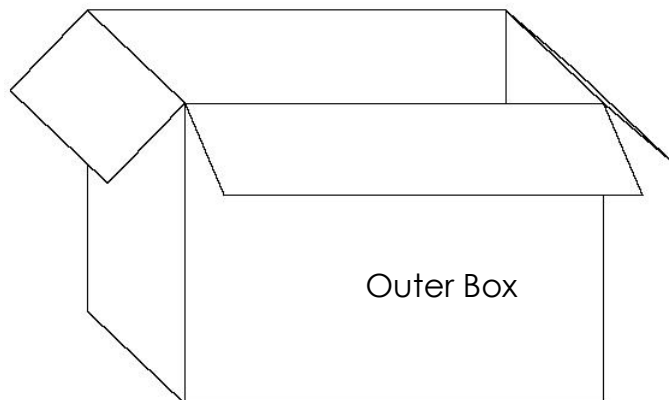
1 Tray 2  
A tray with 2 pieces of touch panels



Inner Box

21 Tray  
A inner box with 21 pieces of trays

2 Inner Box and Cushion



Outer Box

1 80  
A full outer box with 80 pieces of touch panels



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### RoHS

Two green RoHS marks stamped on both sides of one full carton

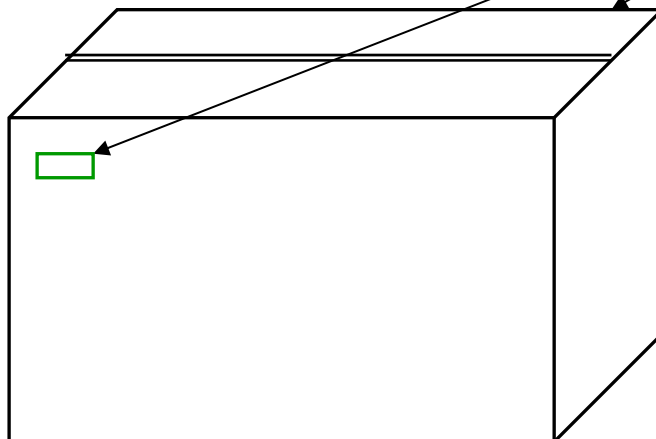
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**RoHS**

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