



PRODUCT SPECIFICATIONS

Customer :
Model :
Date :
Version:

Acceptance Sheet			
Onetouch Technologies Co., Ltd.			
(Supplier)		(Purchaser)	
Date	Approval Signature	Date	Approval Signature

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SPECIFICATION REVISION RECORD

Customer :

Issue Date : April 1st, 2008

Customer NO. :

Model :

NO.	Version	Issue Date	Summary of Changes	Page

< Remarks >

1. Circumscription

The specification applies to the 4 wire resistive touch panel (small size).

2. Features

Item	Specifications
(1) Type	4 wire resistive
(2) Input Method	Stylus or Finger or Similar
(3) Connector	FPC or Trail

3. General Specification

Item	Specifications
(1) Outside Dimensions	
(2) View Area	
(3) Active Area	
(4) Total Thickness	(Glass only, not including tape, wires and/or solder if used).
(5) Tail Length	

4. Environmental Conditions

Item	Specifications
(1) Operation Temperature	-10°C ~ +60°C
(2) Operation Humidity	20% RH ~ 90% relative humidity, non-condensing *
(3) Storage Temperature	-20°C ~ +70°C
(4) Storage Humidity	10% RH ~ 90% relative humidity, non-condensing *
(5) Waterproof	Not damaged by running water applied to the active area.

Note: *The environment is under normal atmosphere pressure.

*Testing in an atmosphere maintained at 23 +/- 2°C and 50 +/- 5% relative humidity.

5. Optical Characteristics

Item	Specifications	Conditions
(1) Light Transmission	$\geq 80\%$ (Inside of guaranteed active area)	Accordance with ASTM D 1003
(2) Haze	Clear surface $\leq 3\%$ Antiglare Surface $\leq 4\%$ Anti-Newton $\leq 10\%$	Accordance with ASTM D 1003

6. Electrical Characteristics

Item	Specifications
(1) Supply voltage	DC 7V max.
(2) Circuit Resistance	(1) X: 200~900 Ω , Y: 200~900 Ω (See Figure 1) 4 : 3 (2) X: 350~1300 Ω , Y: 120~450 Ω (See Figure 2) 16 : 9 (3) can produce as per customer's special circuit resistance request
(3) Linearity	$X \leq 1.5\%$, $Y \leq 1.5\%$
(4) Response	$\leq 10\text{ms}$
(5) Insulation Resistance	10M Ω min / 25V(DC)
(6) Endurance	No acting damage at DC50V / 60sec.

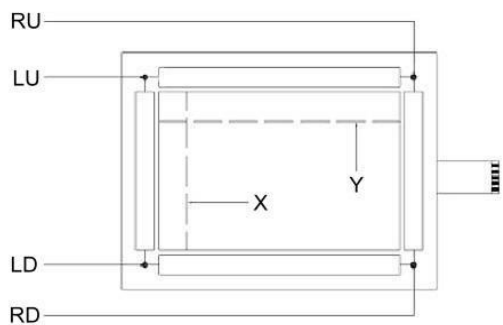


Figure 1

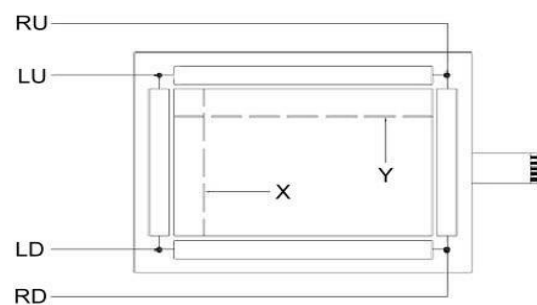


Figure 2

Note : Circuit Resistance X = short RU and RD, short LU and LD, measure the resistance between RU and LU.
Circuit Resistance Y = short RU and LU, short RD and LD, measure the resistance between RU and RD.

7. Mechanical Characteristics

Item	Specifications	Conditions
(1) Active Force	Finger Touch	Max: 50gf
	R0.8mm Pen Touch	
(2) Surface Hardness	Meets pencil hardness 3H per ASTM D 3363	$\geq 3H$
(3) Resolution	Based on controller resolution of 4096 x 4096	

8. Reliability

Item	Specifications	Conditions
(1) Constant Temperature/Humidity	35°C / 90% RH, 240 hrs and normalized for 4hrs	Satisfy this specification of Electrical Characteristics, but linearity $X \leq 2.0\%$, $Y \leq 2.0\%$ A rate not to exceed 20C per minute and with a one-hour soak at each temperature extreme
(2) High Temperature Cycle	70°C / 240 hrs	
(3) Low Temperature Cycle	-40°C / 240 hrs	
(4) Thermal Cycle	-40°C ~ 85°C [60 min./cycle]*10 cycles	

9. Durability

Item	Specifications
(1) Writing Durability	Operation tested to greater than 10 thousand writing (R0.8mm · exerting pressure 250g) · without failure
(2) Finger Touch Durability	Operation tested to greater than 1 million touches (R8mm · hardness 60ϕ · exerting pressure 250g) in one location without failure, with a stylus similar to a finger

10. Positional Accuracy

Item	Specifications	Conditions
Positional Accuracy	Reported touch coordinates are within 1.5% of true position (based on the diagonal dimension of the screen)	Satisfy this specification of Electrical Characteristics

11. Appearance Inspection

Item	Specifications	Conditions
(1) Appearance Inspection	The inspection was performed with 1*17W fluorescent lamp from back or side. The panel was placed 30cm away from eyes.	The flaws and impurities are allowed outside active area except for those affecting electrical functions.
(2) Defect size	Measurement tool of defect size	Magnification by Peak 1983-10X

12. Appearance Specifications

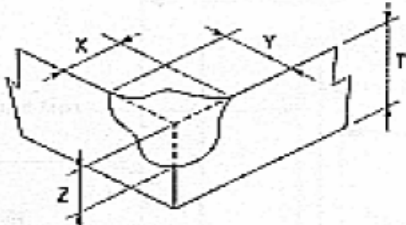
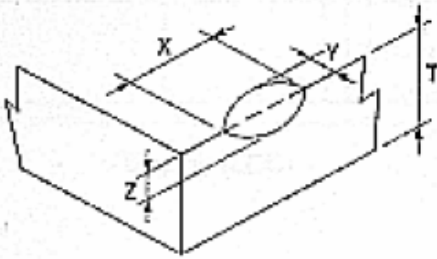
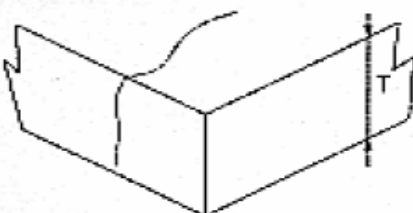
(1)

Item	Specifications
(1) Particle	$D > 0.4\text{mm} \rightarrow \text{NG}$ $D \leq 0.4\text{mm}$ (must be above 30mm apart between particles) $\rightarrow \text{OK}$
(2) Linear Object	$W > 0.1\text{mm}$, $L > 7\text{mm}$, total $L > 25\text{mm} \rightarrow \text{NG}$ Remark: the particle will be ignored when it is cleanable.
(3) Scratch	(1) $W \leq 0.05 \rightarrow \text{OK}$ (2) $0.05 < W \leq 0.1$ and $L \leq 7\text{mm}$, total $L \leq 25\text{mm} \rightarrow \text{OK}$ (3) $W > 0.1 \rightarrow \text{NG}$

< Remark >

1. D=Diameter
2. W=Width
3. L=Length
4. Each area contains= 20ϕ

(2) Glass Flaw

Item	Picture	Specification
Corner Flaw		$X \leq 3.0\text{mm}$ $Y \leq 3.0\text{mm}$ $Z \leq T$
Edge Flaw		$X \leq 3.0\text{mm}$ $Y \leq 3.0\text{mm}$ $Z \leq T$
Progressive Flaw		Note allowed

13. Attention of Mounting Condition

Item	Attentions
(1) Mounting	To mounting touch panels on the displays, the supports of touch panels must be on the outside of Viewable areas. To avoid pressing error on touch panel accidentally, please remain space between the surface of panel and the Bezel.
(2) Bezel	Bezel inner must be designed between Viewable area and Active area. Bezel inner must not touch Viewable area. We recommend to use double-sided adhesive spacer type between the touchscreen and the frame bezel.
(3) Support	We recommend the support on the frame side don't metal or any electric conductor. If it is electric conductor, you must use insulating materials spacer between the touchscreen and the support.
(4) Adhesive	Use double-sided adhesive spacer type to adhere the touchscreen to the display. In general, the adhesive type should be set back slightly from the edge of the active area of the touchscreen.
(5) Edge	The edges of touch panel are not insulated, they should not come into contact with conductive materials.
(6) Tail	Wrap tail smoothly. Do not twist the tail. Bend diameter of arc must be greater than 1mm
(7) Route	Don't route the touch screen cable or flex tail and power wires near the backlight inverter of the LCD panel.

14. Guaranty

Item	Range	Except
(1) Standard Guaranty	One year guaranty on all Onetouch products. Onetouch provide for repair and replacement without any charge during this guaranty period. Onetouch reserves the right in its sole discretion to determine the defects received, and will take the responsibility if there is any defect or damages.	<ol style="list-style-type: none"> 1. Damages caused by improper handling from clients, such as the shipping period or manufacturing processes. 2. Damages caused by either natural disaster or human factors after receiving the products. 3. Damage caused by self-repairs, and modifications or disassembling of Onetouch products from clients without prior notice.

15. Caution

Item	Specifications
(1) Storage	(1) Storage shall be under the temperature and humidity that mentioned in the specification. Do not expose the products to direct sunlight or piling caused damage on the surface.
(2) Unpacking	(1) Check for the correct vertical direction of the package before unpacking.
(3) Handling	(1) In order to prevent fingerprints or stain on the products, and get a cut by sharp edges of glass, clean finger sacks or glove and mask are required during handing. (2) Do not touch the viewing area of the panel. (3) Do not handle the tail (connector) of panel directly, when you handle the touch panel. It will cause the problem of combination and reliability
(4) Cleaning	(1) Clean and soft clothes with neutral detergent and with isopropyl alcohol may be used for cleaning. (2) Do not use any chemical solvent, acidic or alkali solution.
(5) Installing and Assembling	(1) Excessive force to the panel or strain to the tail is prohibited. (2) Provide a clearance of at least 0.3mm between panel and display module. (3) Insulation and spacer should be designed around the edges of the panel to prevent water and dust.
(6) Operating	(1) Use a finger. Sharp edged or hard articles are prohibited. (2) The gathering of dew in the panel may occur with abrupt temperature or humidity changes. A stable environment condition is recommended.
(7) Others	(1) Keep the surface clean. No adhesives should be applied. (2) Avoid high voltage and static charge. (3) Onetouch has the right to change the materials and specification.

16. Certificate

Item	Specifications
FCC Compliance	FCC ID: KOLSMCC-88 EN55 022:1994 class B, A1:1995-12, A2:1997-08 EN50 082-1:1992 (IEC801-2:1991, IEC801-3:1984, IEC801-4:1988)
CE Compliance (declaration of conformity)	For the evaluation regarding the Electromagnetic Compatibility, the FCC compliance was applied. For the evaluation of the compliance with the Low Voltage Directive 73/23/EEC and the Amendment Directive 93/68/EEC , the T _α V Compliance was applied.
ISO 9001 : 2000	File No.: Certificate number 03/0184