



TouchInternational

ExtremeTouch

Projected Capacitive Touch Screen Specification

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Last Revision Date: 4/11/2013
Document Number: 6500247
Revision: 2.7

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Document Revision History

Revision	Page	Content	Revised By	Date
2.2	1-10	Specification Re-Verification	Kevin Wade	09/29/2009
2.3	1-10	Format	Bhushan Vaidya	01/27/2010
2.4	7	Cosmetic Defects Updated	Kevin Wade	06/02/2010
2.5	7	Cosmetic Defects Updated	Kevin Wade	6/14/2010
2.6	6	Update Storage Temperature	Bhushan Vaidya	10/11/2010
2.7	7	Fix Corner/Edge Fragment Label & General Formatting	Kelly Leff	4/11/2013

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1.0 Scope (Range of Application)

This specification document applies to Projected Capacitive touchscreen products designed for finger input. This specification applies to a glass/glass sensor with or without a cover glass or a glass/film/film sensor with an integrated tail.

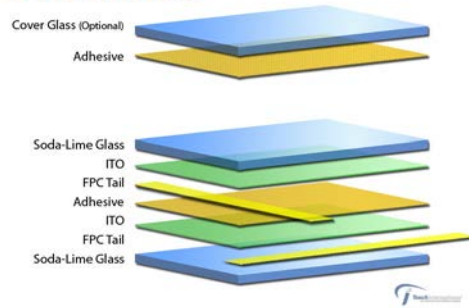
Note: Projected Capacitive touch sensors are offered with a customer defined choice of a first surface substrate. Therefore sensor thickness, cosmetic durability, flammability, chemical resistance and light transmission will differ based on the first surface material.

2.0 Mechanical / Electrical Characteristics

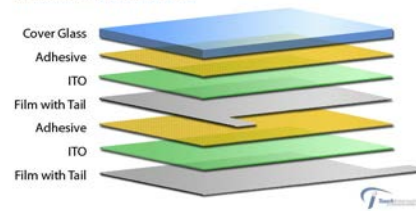
The specification data below applies to touch screens with the following properties:

- Customer defined first surface substrate. **See note above.*
- Single bottom conductive layer.
- Single top conductive layer.

Glass/Glass Touch Screen



Film/Film Touch Screen



2.1 Optical Characteristics

Total Visible Light Transmittance	Glass/Film/Film – 88% ± 2 (Typical) Glass/Glass – 89% ± 2 (Typical)
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2.2 Durability Characteristics

Touch Durability	300 million touches at a single point with 350 gram force.
Surface Hardness	Dependent upon first surface substrate.

2.3 Electrical Characteristics

Insulation Resistance	Exceeds 20M Ohm or more at DC 10V
Operation Voltage	3.3V to 5V DC
Positional Accuracy	± 1.5% in X & Y position within the viewing area (typical).

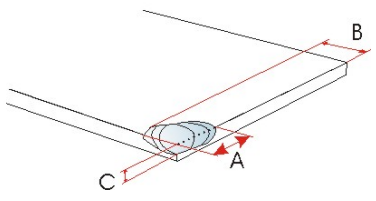
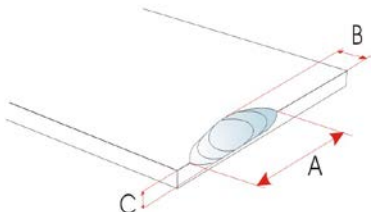
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2.0 Mechanical / Electrical Characteristics (Continued)

2.4 Environmental Characteristics		
Operation Conditions	High Temperature and Relative humidity (RH): Tested at +50 °C at 90% RH Non-Condensing for 240 Hours.	
	Low and High Temperature: -15°C~70 °C, 50% Relative Humidity, Non-Condensing	
Storage Conditions	Low and High Temperature: -40°C~80 °C, 50% Relative Humidity, Non-Condensing	
2.5 Touch Activation Characteristics		
Finger Simulated Stylus	25~50 Grams of Force	
Pen Stylus (Active)	25~50 Grams of Force	
2.6 Chemical Resistance		
Chemical Compounds: 6% HCL, 40% H2SO4, 10% NaOH, and 70% HNO3	Per ASTM F 1598-95	Industrial Chemicals: acetone, methyl chloride, methyl ethyl ketone, isopropyl alcohol, hexane, turpentine, mineral spirits, unleaded gas, diesel fuel, motor oil, transmission fluid, anti-freeze, etc.
	Per ASTM D 1308-87	Food service chemicals: vinegar, coffee, tea, grease, cooking oil, and salt, etc. Household and commercial cleansers, including ammonia-based glass cleaner and laundry detergent.
Cleaning Instructions	Lightly wipe the surface of the touch panel with isopropyl alcohol or neutral household cleaning solvent (ammonia-free).	

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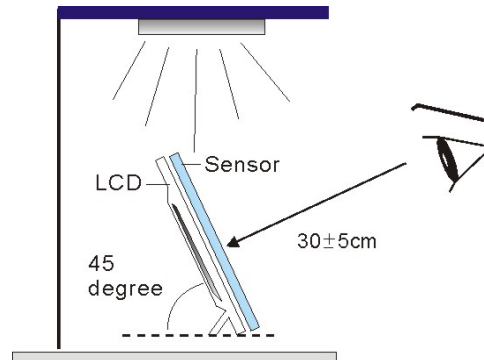
3.0 Cosmetic/Visual Specifications

Defect	Condition	Decision
Scratch	$W \leq 0.002''$	Ignore
	$W > 0.002'' - 0.004''$ $L \leq 0.5''$ $W > 0.004'' - 0.005''$ $L \leq 0.3''$	Max 5 Separated by 1.0''
Pits, Bubbles	$< 0.005''$	Ignore
	$< 0.02''$ Outside of the viewing area, defects are acceptable.	Max 5 Separated by 1.0''
Translucent Defects	$< 0.005''$	Ignore
	$< 0.03''$ Outside of the viewing area, defects are acceptable.	Max 5 Separated by 1.0''
Linear Foreign	$\leq 0.002''$	Ignore
	$W > 0.002'' - \leq 0.004''$ $L \leq 0.125''$ Outside of the viewing area, defects are acceptable.	Max 5 Separated by 1.0''
	Condition	Decision
Glass Fragment	 <p>Corner Fragment</p>	$a \leq .08''$ $b \leq .08''$ $c \leq t$ inch (t : Glass Thickness) No more than 2 is qualified (PASS)
	 <p>Edge Fragment</p>	$a \leq .12''$ $b \leq .08''$ $c \leq \frac{1}{2} t$ inch (t : Glass Thickness) Allow 3 fragments interval distance above .80'' every side is qualified (PASS)

3.0 Cosmetic/Visual Specifications (Continued)

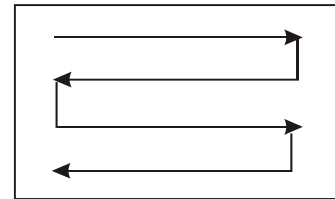
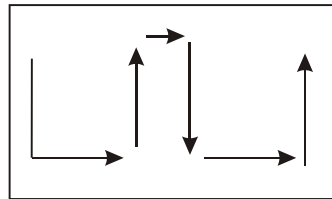
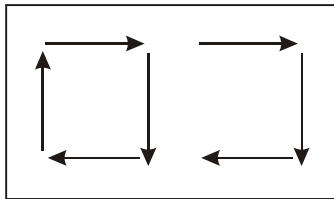
Light Source	1000-1400 LUX Fluorescent Lamps
Background	LCD: 15" 4:3 Aspect Ratio
White Light	250 +/- 50 cd\em2
Black Light	250 +/- 50 cd\em2

Viewing Time
15(±3) seconds on each cycle (Black / White)



Inspection Condition

Use either one of the following three patterns to aid your eye.



Note: Cosmetic defects outside of the viewing area are acceptable barring electrical failure due to the cosmetic defect. Latent defects are acceptable outside of viewing area.

Adhesive Imperfections Contamination and Other Discolorations

Use TI Inspection LCD 2800633 fixture. If contamination or other defects (other than bubbles) cannot be seen using this fixture, parts are acceptable. Any defects found outside of the viewing area are acceptable.



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4.0 Materials Handling and Usage Instructions

In order to prevent accidental use and be guaranteed the performance of product, you are requested to keep the following:

4.1 Storing

- Store the products at specified temperature and humidity range, per the Environmental Conditions section of this document.
- Store the products in the original packing materials.

4.2 Unpacking

- Do not hold or pull the tail to facilitate the removal of the touch screen component from the package.
- Check and heed the “UP/DOWN” mark prior to opening the package.
- Do not subdue the touch screen to heavy duty shock or pressure.

4.3 Handling

- Wear gloves when handling the touch screen in order to prevent finger prints or stains and to avoid injury due to sharp edges.
- Never hold the touch screen by the tail.
- Never place heavy objects or material on top of the touch screen.
- Never stack touch screens on top of each other.

4.4 Cleaning

- Never use organic solvents on the touch screen, except alcohol.
- Use dry cloth or soft cloth with alcohol, neutral detergent or ethanol for clearing the touch panel in case of dirt or residue.

5.0 Warranty Policy

This warranty policy applies to Touch International’s Projected Capacitive touch screen components. Touch International warrants all products to be free of workmanship or material defects as specified under the terms of the limited warranty policy per the guaranty period stated below.

5.1 Warranty Period

Touch International guarantees this product for 10 years from the date of purchase.

5.2 Warranty Exclusions

- Failure to adhere to the handling, storage, operating, assembly or other procedures and parameters outlined in this delivery specification.
- Accidental or purposeful abuse, neglect or acts of nature.
- Breakage or physical scratches to the touch screen.
- Other factors beyond the control of Touch International.

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