

A Touch Technologies Co., Ltd.



Specification of Surface Acoustic Wave Touch Panel

A. Application

This specification applies to the **Surface Acoustic Wave Touch Panel**.

Three types of offerings available :

- **Standard SAW**
3mm glass with beveled edge.
- **Tempered SAW**
Break Resistance, meets IK07 standard, by 4mm heat tempered glass.
Break Resistance, meets UL-60950, by 6mm heat tempered glass.
- **Protected SAW**
Break Resistance, Dustproof, Waterproof

B. Environmental Conditions

1. Operating Temperature Range

-20°C ~ 50°C

2. Operating Humidity Range

90% RH at 40°C (no dew falls)

3. Storage Temperature Range

-40°C ~ 70°C

4. Altitude

Operating : 10,000 feet (3048m)

Storage / Transport : 50,000 feet (15,240m)

5. Chemical Resistance

The active area of the touch panel is resistant to the damage of chemicals which do not influence glass, such as acetone, toluene, methyl ethyl ketone, isopropyl alcohol, methyl alcohol, ethyl acetate, ammonia-based glass cleaners, gasoline, kerosene, vinegar.



C. Electrical Characteristics

1. Supply Voltage

+5VDC

2. Electrostatic Protection

Per EN 61000-4-2, 1995 : Meets Level 4
(15 kV air / 8 kV contact discharges).

3. Resolution

Based on controller resolution of 4096 x 4096.

D. Mechanical Characteristics

1. Construction

There are four transducers attached to the beveled edge of the glass.

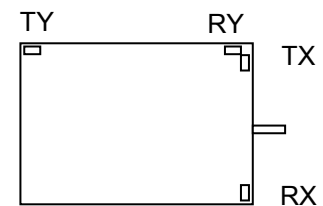
1×TY on left side upper corner

1×RY on right side upper corner

1×TX on right side upper corner

1×RX on right side down corner

(Based on the cable exiting from the right side)



2. Cable and Connector

Cable typically exits from the right side, with a 2 x 6, 0.635 mm square post receptacle.

3. Touch Activation Force

Less than 85 grams.

4. Positional Accuracy

Standard deviation of error is less than $\pm 1\%$.

5. Life Performance

More than 50 million touches in one location.
(Tested by a stylus similar as finger).

6. Input Medium

Finger or gloved hand (rubber, cloth or leather).

7. Surface Durability

Optical glass surface, Mohs' hardness rating : 7.



For Tempered SAW only

1. Construction

Pure 4mm-thickness or 6mm-thickness heat strengthened glass with transducers attached to the beveled edge of the glass.

2. Break Resistance, by 4mm heat tempered glass.

Meets IK07 Steel Ball Drop Test

A 500 grams steel ball drop from height of 40 cm onto the center of the glass without breaking.

3. Break Resistance, by 6mm heat tempered glass.

Meets UL-60950 Steel Ball Drop Test

A 1-pound steel ball drops from height of 130 cm onto the center of the glass without breaking.

For Protected SAW only

1. Construction

Pure 6mm-thickness heat strengthened glass with transducers attached on the edge of the glass surface.

The reflectors and transducers are sealed inside the ABS plastic frame.

2. Break Resistance

Meets UL-60950 Steel Ball Drop Test

3. Dustproof

The ABS plastic frame around the panel prevents dust and dirt from accumulating on the reflectors and transducers.

4. Waterproof

Special glue is applied to the gap between the ABS plastic frame and glass substrate to prevent water infiltration.

Test Method : Set the touchscreen horizontally, and pour water on the panel surface without overflow over the ABS plastic frame. The panel surface is soaked in water for 1 hour. The panel is in normal condition after water poured out and dried.



E. Optical Performance

Light Transmission 90% (per ASTM D1003)

F. Glass Substrate Quality

1. Circular Defects

Description	Length {mm}	Comments {mm}
Glass defects spots, stains, etch defects, surface chips	>0.51	None allowed
	$\geq 0.38, \leq 0.51$	2 per 50.8 diameter circle
	<0.38	Accumulated length must be less than 1.27 in a 50.8 diameter circle
	When evaluating defects with distortion include the entire distorted area when measuring.	

2. Linear Defects

Description	Width {mm}	Comments {mm}
Glass scratch	>0.102	None allowed
	0.102	12.7max length w/ minimum separation of 6.35
	0.076	25.4 max length w/ minimum separation of 3.81
	0.051	38.1 max length w/ minimum separation of 1.27
	< 0.051	Disregard

3. Edge Chips

Description	Comments {mm}
Four edges excluding four corners	1.27 W × 1.27 L × 1/3 glass thickness
Four corners	2.54 W × 5.08 L × 1/2 glass thickness