



Touch Screen Overview and Buyers Guide

Capacitive (Surface Capacitance)

A thin transparent, metallic coating is bonded on the external surface of a glass panel overlay and a very low-level current is passed through the conductive coating. As the screen is touched, the finger acts as the capacitor, drawing current from the four corners of the screen. The controller measures the current drop and calculates the touch coordinates on the X and Y axes. **Available Sizes 10.4" to 32".**

Pros	Cons	Applications
Not affected by dirt and moisture	More expensive than resistive	POS
Fast, sensitive touch response with excellent dragging performance	Must have a conductive input, usually your finger	Kiosks
85% -90% translucent	Doesn't work with pointed objects or gloves	Gaming/amusement

Dispersive Signal Technology (DST)

Sensors detect the Piezoelectricity in the glass that occurs due to a touch. Complex algorithms then interpret this information and provide the actual location of the touch. **Available Sizes 32" to 55"**

Pros	Cons	Applications
Unaffected by dust and scratches	Cannot detect a motionless finger	Digital Signage
Any object can be used to generate touch events, including fingers and stylus	Size is limited to 32" to 55" displays	
Objects or hands resting on the screen or on-screen contaminants do not affect the performance of the touch screen		

Infrared (IR)

Infrared uses an array of X-Y infrared LED and photo detector pairs around the edges of the screen to detect a disruption in the pattern of LED beams. These LED beams cross each other in vertical and horizontal patterns. This helps the sensors pick up the exact location of the touch. A major benefit of such a system is that it can detect essentially any input including a finger, gloved finger, stylus, or pen. **Available Sizes 30" to 100+".**

Pros	Cons	Applications
Withstands severe environments	Subject to false touch	Digital Signage
Adjusts to changing light conditions, including direct sunlight		Indoor/outdoor kiosks
Vandal- and abrasion-resistant screens, ideal for rugged applications		Hospital operating rooms
Available as multi-touch		



Projected Capacitive

Projected capacitive technology enables touches to be sensed through a protective layer in front of a display, allowing touch monitors to be installed behind store windows or vandal-resistant glass. **Available Sizes 5.7" to 100" plus.**

Pros	Cons	Applications
Works with glove, through-glass and under-counter applications	Higher cost	Outdoor kiosks
Works even if glass is scratched or broken		Ticketing machines
Available as multi-touch		

Resistive

A glass panel that is covered with a conductive and a resistive metallic layer. These two layers are held apart by spacers, then a scratch-resistant layer is placed on top of the whole setup. An electrical current runs through the two layers. When a user touches the screen, the two layers make contact in that exact spot. The change in the electrical field is noted and the coordinates of the point of contact are calculated. **Available Sizes 10.4" to 21.3" .**

Pros	Cons	Applications
Any pointing device can be used including gloved hands	Highly sensitive to scratches	Industrial Solutions
Usually inexpensive	Poor visibility in sunlight	Point-of-Sale Solutions
Much more accurate than capacitive		Transportation Solutions

Surface Acoustic Wave (SAW)

Two transducers (one receiving and one sending) are placed along the x and y axes of the monitor's glass plate. Also placed on the glass are reflectors -- they reflect an electrical signal sent from one transducer to the other. The receiving transducer is able to tell if the wave has been disturbed by a touch event at any instant, and can locate it accordingly. 100-percent light throughput and perfect image clarity. This makes the surface acoustic wave system best for displaying detailed graphics. **Available Sizes 10" to 52" .**

Pros	Cons	Applications
Superior image clarity, resolution, and light transmission	Usually the most expensive	Kiosks
Scratch-resistant glass surface continues to work if scratched	Transducers on top of the glass more vulnerable to damage	Gaming
Finger, gloved hand, and soft stylus activation allowing a touch with almost any object except hard and small objects like a pen tip	Contaminants; dirt, dust, etc., can cause SAW screens to perform with decreased sensitivity or create performance issues with the touch screen.	Multimedia marketing
Fast response to touch		Banking



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Summary of TSItouch Touch Technologies

	Capacitive	DST	IR	Projected Capacitive	Resistive	SAW
Cost	\$\$	\$\$\$\$	\$\$\$\$	\$\$\$\$\$	\$	\$\$\$
Durability (1-4)	3	4	4	4	1	2
Accuracy	High	Higher	Lower	Mid	Higher	High
Max Size	32"	32" to 55" only	100"+	100"+	21.3"	52"
Multi-Touch	No	No	Yes	Yes	No	No
Finger/Glove/Stylus	F/S	F/G/S	F/G/S	F/G	F/G	F/G/S