How To Select the Ideal Touch Screen Monitor

Touch screen monitors seem to be everywhere. The great thing about them is that they are extremely easy to use. A **touch screen** functions like an invisible keyboard, but it displays only as much data and button choices as users need to complete a task, or set of tasks. That explains their popularity in devices from cell phones to kiosks and industrial machinery.

The most important decision in selecting the best **touch screen monitor** for your application will be the type of **touch screen** technology to use. There are several types, each with its own advantages and disadvantages. We will cover the three most common types:

Resistive Technology

A **resistive touch screen monitor** is composed of a glass panel covered with thin conductive and resistive metallic layers, separated by a thin space. When a user touches the screen, the 2 layers touch at that point. The computer detects the change in the electrical field and calculates the touch point.

Resistive touch screens are generally the most affordable, but they only offer approximately 75-80% image clarity. The touch can be activated with nearly any type of object (stylus, gloved finger, etc.), but the outer surface can be damaged with sharp objects.

Surface Capacitive Technology

In **surface capacitive touch screen monitor**, a layer that stores a continuous electrical current is placed on top of the monitor's glass panel. When an exposed finger touches the monitor screen, some of the electrical charge transfers to the user. This decrease in capacitance is detected and located by circuits located at each corner. The computer then determines the touch point.

Surface capacitive touch screens are a durable technology that is often used in kiosks, point-of-sale systems and industrial machinery. **Surface capacitive touch screens** have a higher clarity than resistive-type (88-92%), and have greater endurance (up to 225 million touches) than a Resistive-type. However, **surface capacitive** screens can only be activated with an exposed finger (no gloves, pointers, etc.), and are slightly more expensive than a resistive touch screen.

Projected Capacitive Technology

A **projected capacitive** touch screen is comprised of a sheet of glass with embedded transparent electrode films and an IC chip, which creates a three dimensional electrostatic field. When a finger comes into contact with the screen, the ratios of the electrical currents change and the computer is able to detect the touch points.

Projected Capacitive is similar to Surface Capacitive, but it offers two primary advantages: in addition to a bare finger, it can also be activated with surgical gloves or thin cotton gloves; and it enables multi-touch activation (simultaneous input from two to ten fingers).

SAW Technology

SAW (Surface Acoustic Wave) **touch screen** monitors utilize a series of transducers and reflectors along the sides of the monitor's glass plate to create an invisible grid of ultrasonic waves on the surface. When the panel is touched, a portion of the wave is absorbed. The receiving transducer locates the touch point, and sends this data to the controller.

SAW touch screens have no layers on the screen, thus enabling over 90% image clarity, and can display high-detail graphics. They can be activated by a finger, gloved hand or soft-tip stylus. However, **SAW** panels are the most expensive of the three, and contaminants on the surface (moving liquids or condensation) can cause false-triggers; solid contaminants on the screen can create non-touch areas, until they are removed.

Infrared Touch Screen Monitors

IR (Infrared) **touch screen** monitors do not overlay the display with an additional screen or screen sandwich. Instead, infrared monitors use IR emitters and receivers to create an invisible grid of light beams across the screen. This ensures the best possible image quality. When an object interrupts the invisible infrared light beam, the sensors are able to locate the touch point.

IR touch technology is mainly found on larger LCD monitors. It has excellent image clarity since the IR is projected onto the surface of the monitor, and it has excellent touch life. It can be activated with nearly any object, but may therefore be susceptible to false triggering (similar to SAW technology) from liquids, condensation, and solid contaminants on the surface until they are removed. **Infrared** supports multi touch and palm rejection.

Other Technologies

Optical imaging is gaining popularity for larger (22”+) displays.

Other Considerations

Other factors to consider in your selection process include:

Interface: Touch screen panels must communicate with the computer. The most common interface types are RS-232 and USB. New HID-compliant touch screen monitors eliminate the need for drivers.

Mounting: Options include panel mount, rack mount and free-standing. If free-standing, be sure that it uses a heavy-duty stand designed for touch screen; standard table top bases will topple over.

Environment: Touch screen monitors are available in standard, stainless steel and waterproof enclosures for a variety of environments.

Screen Size: Touch screen monitors are available from 7" to 55". The most common sizes are 15"-19", and 32"-42" for large control rooms. The aspect ratio (4:3 or 16:9) should also be considered.

The type of touch screen monitor you select will be contingent upon many factors, including type of data to be displayed (video, graphics, text), the intended users, the operating environment and where/how it will be mounted. Chosen correctly, touch screen monitors will be an excellent addition to your system.