White Paper: Resistive vs P-CAP Touch Screens

Introduction

It's easy to get lost in geek speak when you're looking for a new point of sales (POS) computer. If you've spent any time surfing the internet, you've probably seen phrases like "4 and 5 wire resistive touch screens," and "projective capacitive (P-CAP)," and if you are like most people, you are probably wondering what the difference is between these technologies.

Touch Screen Technology

Resistive Touch Screens

Resistive touch screens are a reliable and cost effective touch screen option for use in a POS environment, although you will want to be sure you understand your options before purchasing one to be sure you are getting the best technology for your specific needs.

Resistive touch screen technologies work by having two layers of transparent film coated on the inside with an electrically conductive material. The layers of the film are held separate from each other using a spacer with the conductive materials facing each other.

Electricity is applied so the current flows either up and down or side to side. As the current flows from one side to the other, it is slowing decreasing, so that when the screen is touched, the current can be measured at that position to find the X and Y coordinates.

There are several key differences among the different touch screen technologies. It's common to find 4, 5, and even eight wire resistive touch screens, and you may think that the the higher the number, the better the screen, but that is not the case.

Fortunately there is a clear leader in the resistive touch technology. 5 Wire resistive touch is the best balance between cost and functionality. Unlike the 4 and 8 wire configurations, the 5 wire doesn't conduct electricity across both layers of touch film. This means that you will not have the conductive material on both sides which can break down over time due to flexing from touch. 5 wire technology uses the stable bottom layer to conduct electricity instead of the top layer, and only uses the top layer to measure the current.

Projective Capacitive Touch Screens

P-CAP touch screens tend to be more reliable and last even longer than resistive touch screens. This means they tend to be more expensive than their resistive counterparts, but they offer longer life, less image distortion, a sharper and brighter display, and better response. For a point of reference, P-CAP screens are used in most smartphones and tablets in use today.

In a P-CAP touch screen, there are electrodes etched into the glass, and these electrodes emit an electrostatic field. When the screen is touched, the field is disturbed and the X and Y coordinates can be calculated from this disturbance. Since direct contact is not required in a P-CAP touch screen, there can be a protective layer of glass which does not breakdown over time like the resistive screen.

Conclusion

Although both types of touch screens are reliable and easy to use, it is important to weigh the cost benefits of each touch screen type. If you are running a business where you can take the time to properly maintain a touch screen, and it will not be subject to much abuse, the resistive screen may be the screen for you. However, if you are looking for a touch screen that will stand up better to abuse, has a longer lifespan, and fully maximises the potential of your POS-X all-in-one, the P-CAP is the best screen for you.

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