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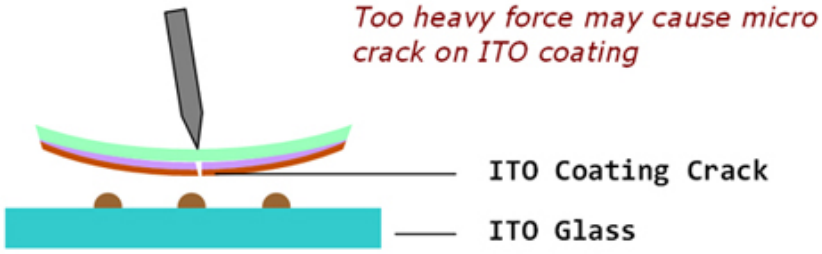
AMT's Resistive Touch Screen Durability

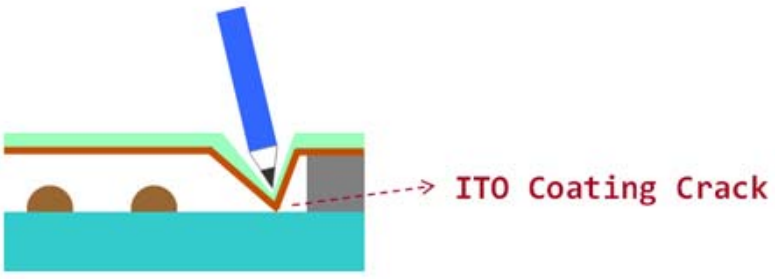
Nowadays with the advancement of science and technology, the touch screens are used in numerous applications, ranging from mobile phone to 50 inch digitial signage. These applications use different types of input device, including stylus and finger. Different input force will affect the durability of touch screen, and they are the tapping and pen sliding test mentioned in our product specification.

AMT is the leader in the field of resistive touch screen, our 4-,8-wire design has a specification of 10,000,000 times for a single point finger activation; and for our 5-wire design, it can reach as high as 36,000,000 times. AMT guarantees these specifications when activation force of no more than 250grams is used to operate the touch screen. It is not necessary to use high force to operate a touch screen as the required force to activate the touch screen range from 0.1 ~ 0.8 Newton, i.e. 10 ~ 80grams only. When using high force to operate the touch screen, it is possible to cause micro cracks to the ITO coating on the conductive film. This phenomenon will increase the surface resistance value in the conductive coating and in-turn increase the required force to activate the touch screen. When touch screen user increase the force during operation, it would cause the micro-cracks to crack even further, creating a need to increase further the activation force to operate the touch screen.

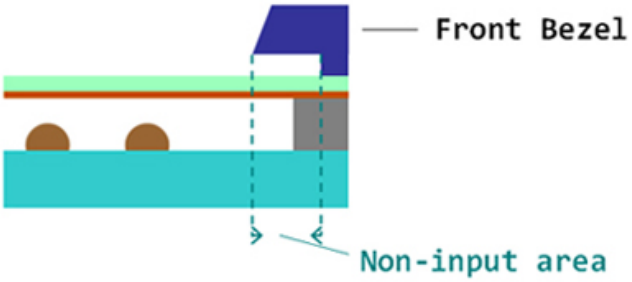


This is similar to an example in our daily life, if we turn off the water faucet too tight every time, its rubber seal will start to wear out and in the course of time would necessitate using higher force to turn off the water faucet. This phenomenon is identical to the high touch operating force situation.

The stylus writing durability specification for 4-, 8-wire designed touch screen is 200,000 times with 250g force back and forth on a distance of 1inch in the Active Area of the touch screen. This specification does not apply to the Non-Input area that forbids the use of stylus pen or hard objects to draw lines. This region is along the edge of the double-sided adhesive spacer, where the ITO coating can crack by sharp input devices and cause inaccurate outcomes, as shown in the figure below.



The high activation force and inaccurate phenomenon on the edges of the touch screen are due to the physical properties of the material. In AMT, we undertake innumerable material testing to address this high activation force issue. Now we proudly introduce the ‘Enhanced ITO Conductive Film’; this enhanced film can endure much more force and times of touches. If your application has special activation force needs, this new material will be a good choice. As to the edge-inaccurate phenomenon, it is highly recommended that in your design / assembly, do ensure to have this “Non-Input Area” protected in your product front bezel frame in order to prevent users from drawing lines in this region.



Touch screen stylus pen must avoid to be too sharp to cause damages to the surface of the touch screen. It is generally suggested that the stylus tip be designed with a radius of 0.8mm and it is highly recommended that in the system’s user manual, notifications of proper usage to touch screen must be included and warning about not to draw lines along the edges of the front bezel frame is a must. If you have any question, please feel free to contact us.

Furthermore, the AMT team wishes you a prosperous year of the Tiger which starts February 14. AMT will be closed for the Chinese New Year holiday from February 13 to February 21. Our bi-weekly AMT NEWS EXPRESS next publication will be published as scheduled, on the last Wednesday of February.

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Advance to the future with AMT's touch solutions.

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