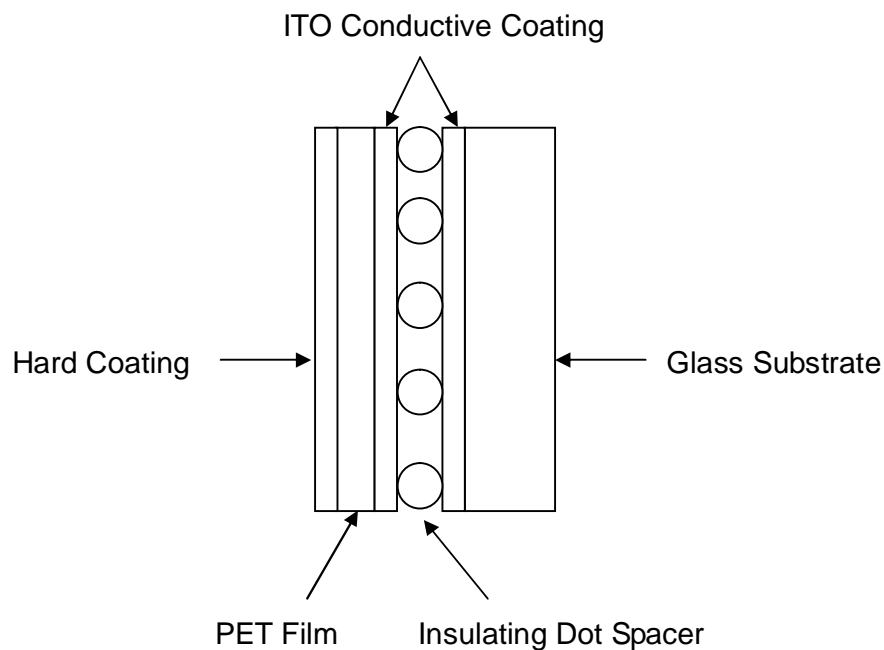


The Working Principle of 5 Wire Resistive Touchscreen

The Structure of Touchscreen

The 5 wire resistive touchscreen uses a glass panel with a uniform conductive ITO (indium tin oxide) coating on the one-side surface. A PET film is tightly suspended over the ITO coating surface of a glass panel . The glass substrate and the PET film are separated by tiny, transparent insulating dot spacers. The PET film has a hard coating on the outer side and a conductive ITO coating on the inner side.



Working Principle

1 When the screen is touched, it pushes the conductive ITO coating on the PET film against the ITO coating on the glass. That results the electrical contact, producing the voltages. It presents the position touched.

2 When the controller is waiting for a touch, the resistive layer of the touchscreen is biased at +5V through the four drive lines, and the PET film is grounded through a high resistance. When the touchscreen is not touched, the voltage on the PET film is zero. The voltage of the PET film is continuously converted by the A/D (analog-to-digital) converter and monitored by the microprocessor on the controller.

3 When the touchscreen is touched, the microprocessor detects the voltage of the PET film and begins generating the (X,Y) coordinates.

3-1 The microprocessor applies +5V to pins X and H on the X drive of the touchscreen ,and grounds pins Y and L. A voltage proportional to the X (horizontal) position of the touch appears on the PET film at pin S of the touchscreen connector. This voltage is digitized by the A/D Converter and subjected to an averaging algorithm. Then it is stored and transferred to the host. Hence, the X position is produced.

3-2 Secondly, the microprocessor applies +5V to pins Y and L on the Y drive of the touchscreen ,and grounds pins X and H. A voltage proportional to the Y (vertical) position of the touch appears on the PET film at pin S of the touchscreen connector. This signal is converted, and the Y position is produced.