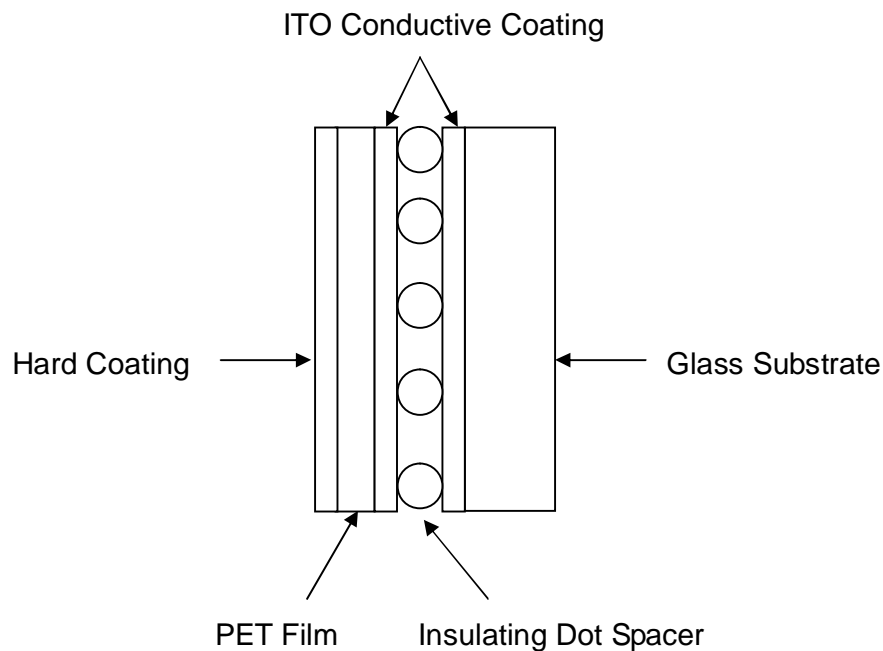


# The Working Principle of 4 Wire Resistive Touchscreen

## The Structure of Touchscreen

The 4 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. The structure is film-glass process. The early process is film-film-glass structure.



## 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 The pins (X left) and (X right) are on the glass panel, and the pins (Y up) and (Y down) are the PET film.
- 3 The microprocessor applies +5V to pin (X left) on the glass panel, and the voltage is uniformly decreasing to pin (X right) for 0V because of the resistive ITO coating on the

glass substrate, and the PET film is grounded . When the touchscreen is not touched , the controller detects the voltage on the PET film is zero. The next electric cycle, the microprocessor applies +5V to pin (Y up) on the PET film, and the voltage is uniformly decreasing to pin (Y down) for 0V. When the touchscreen is not touched, the controller detects the voltage on the glass panel is zero.

4. When the touchscreen is touched, a voltage on the glass substrate proportional to the X (horizontal) position of the touch appears on the PET film. 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.

The next electric cycle, a voltage on the PET film proportional to the Y (vertical) position of the touch appears on the glass substrate. 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 Y position is produced.

