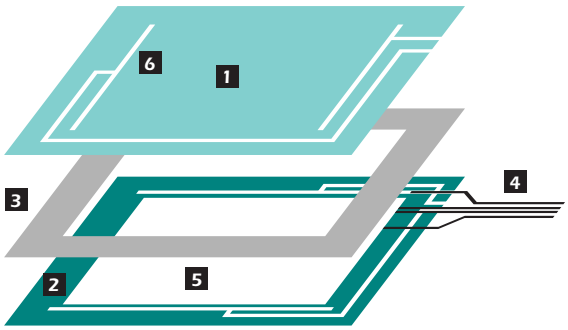
Introduction of Touch Panel

Structure

1 UPPER LAYER: Substratum is PET with hard coating. Transparent conductor is ITO.
2 LOWER LAYER: Made of glass.
3 GASKET: Double-sided adhesive tape
4 TAIL: Conductor is made of copper covered with solder.
5 MICRO SPACER DOTS: Made of insulated resin.
6 BUS BAR: Silver ink.



Specification

	Non-glare type ITO film	Clear type ITO film
Structure	Non-glare Layer PET Film ITO Layer	Hard Coated Surface (Plain) PET Film ITO Layer
Merit	No dazzling, Paper like write feeling, Excellent appearance and improved readability.	High light transmission.
Demerit	Comparatively low transmittance.	Dazzing, slippery write feeling.

Glass

Thickness of glass	Total thickness
0.7mm	1.1max.
1.1mm	1.5max.

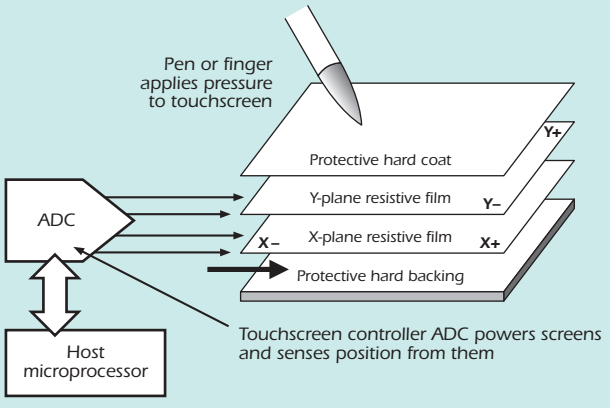
There are 2 types of touch panel technologies, Resistive (finger & stylus activated) and Capacitive (fingers only). 4-wire and 5-wire resistive touch panels are the most popular due to their low cost and simplicity.

For the touch panel to interface with the host processor, analog waveforms from the screen must first be converted to digital data. To accomplish that, designers must employ analog-to-digital converters (ADCs) customized for this application.

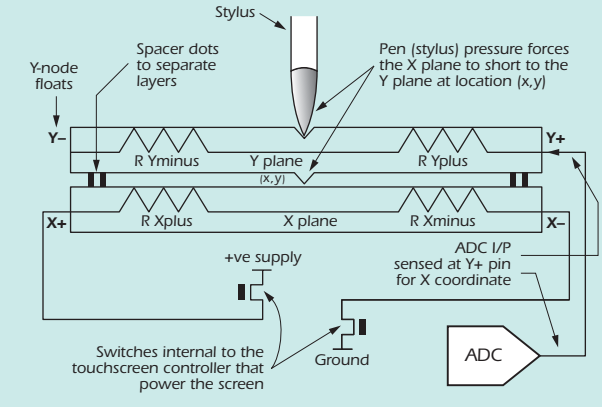
The touch panel is usually constructed from two layers of transparent resistive material, in most cases indium tin oxide or other resistive polyester material, with silver ink used for electrodes. The resistance of each layer can vary between vendors but typically ranges from 100 to 900Ω. The two layers are placed on top of each other on an insulating layer of glass.

For X coordinates, the X plane is powered, using the Y plane to sense the position (and vice versa for Y coordinates). When the pen depresses on the screen, the planes short at this location. The voltage detected on the sense plane is proportional to the location of the touch on the powered plane. Thus, X and Y coordinates can be digitized from the screen.

The touchscreen uses a multilayer sandwich of resistive films and protective coatings



Stylus interfacing with a 4-wire resistive touchscreen; X coordinate measurement is depicted



Voltage sensed - position