General Specification Resistive Touch Panels

The specification in this document applies to standard and custom specific Resistive Touch Panels, with or without closed overlayer.
All of our Touch Panels are RoHS and Reach compliant.

1. Electrical:

Maximum Voltage	5 V (DC)
Maximum Current	35 mA
Maximum Capacitance	<100nF
Linearity	≤ 1,5 %
Insulation resistance	≥10 MΩ at 25 V (DC)

2. Mechanical:

Bounce (chattering) time	< 20 ms
Actuation force	10-100 gr (with Ø 2 mm Stylus Pen)
Light transmission without over layer	> 78 %
Light transmission with closed over layer	> 70 %
Live expectancy	Tapping durability > 10^6 activations Pen sliding durability > 10^5 activations

3. Materials:

Over layer	Autotype EBA180 µm
Adhesive	(OCA) Optical clear adhesive
Front Electrode (PET)	Clear or Anti Glare, Hard Coating, Anti Newton Ring (ANR) ITO Film
Spacer	Open source
Back Electrode (Glass)	ITO glass 0.55mm, 0.7mm, 1.1mm, 1.8mm, 3.0mm, On special request: Chemically strengthened: Thickness: 1.1mm, 1.8mm, 3.0mm
Backplate adhesive	3M 7957MP
Flex cable	FPC with or without connector. Technology: heat seal bonding

4.0 Screen printing overlayer and overall visual inspection:

4.1 The graphics are screen printed on the backside of the overlayer.
The texturing or varnish ink for windows is screen printed on the top side.

4.2 Screen printing color tolerance: ≤ DE 0, 75

4.3 Positioning tolerance: Overlayer / Touch panel: ± 0,5 mm

Overall visual inspection method:

4.4.1 Inspection distance: 50 cm
4.4.2 Inspection time: ≤ 10 sec
4.4.3 Inspection angle 45° (no reflection allowed)
4.4.4 Approval criteria: Inclusions / scratches or any foreign particle should not be noticed.

5. FPC:

FPC bending radius:	> R = 3 mm
Identification on FPC includes:	Manufacturing Date Touch Panel Type Company name

On customer specification:
FPC suitable for FFC connector
FPC with female connector pitch 2,54 mm.

6. Overlayer Embossing:
At 70 °C the embossing should not show any deformation.

7. Temperature range:

Operating temperature	-10°C … + 60°C
Storage temperature	-20°C … + 70°C

8. Water resistance:
IP 65 on top side

9. Humidity:
Tested at 60 °C / 90% RH, after 24 hours tolerance on pillowing and / or distortion on room conditions as specified below

10. Pillowing in display area of touch screen:

Touch Panel size	≤ 2.8"	2.8"~ ‹10.4"	≥10.4" ~ ‹15"	≥15"
Pillowing Tolerance	<0.2mm	<0.3mm	<0.4mm	<0.6mm

11. Chemical resistance:
Alcohols
Dilute acids
Dilute alkalis
Esters
Hydrocarbons
Ketones
Household cleaning agents

12. Packaging:

The goods are packed in a carton box.
The individual Touch Panel can not move in the box

On every separate carton box there is an identification label.
Please see example.

Order No:
Drawing No:
Rev. No:
Replacement No:
Quantity:
Date of Manufacture:

13. Test Report:

Together with the sample delivery a Sample Test Report (STR) is included.
Together with the mass production delivery a Production Test Report (PTR) is included.
In the PTR you can find a reference of the approval sample (Manufacturing date)
100% electrical and visual inspection is being performed before packing.

14. How to deliver digital information to Touchtronic:

In case of a standard Touchscreen please mention the drawing number from the Touchtronic drawing.

Overlayer artwork: Corel Draw minimum version 8
Illustrator 10
Freehand 10

All the different colors should be in separate layers
The text should be in curves.

Dimension drawing: Outline dimension overlayer, (or eventual housing)
Windows for display LCD
Windows for LED lamp
Holes
Outline dimension Touch panel
Viewing area
Active area
Cable output position
Cable length
With or without connector (Specification connector on the PCB pitch)
Pin Assignments
Pin 1 Position

Colors RAL / Pantone or color sample

15 Handling Remarks:

15.1 Storage:

- Store products at the temperature and humidity range as mentioned in the specification.
- Store products in the state of package.
- Do not expose the products directly to the sun.

15.2 Unpacking:

- Open the box after checking the “Up/Down” indicator.
- Do not hold onto the FPC tail when taking out the Touch panels from the package.

15.3 Handling:

- Use gloves when handling Touch Panels in order to avoid fingerprints on the viewing area.
- Handle Touch Panels at the outside of the viewing area and do not hold on to the FPC in order to avoid a disconnection of the heat - seal bonding.
- Do not pile up the individual Touch Panels in order to avoid scratches.
- Do not put heavy objects on the Touch Panels.

15.4 Design and Assembly:

- Take care at designing the housing or the carrier, that the toplayerfilm (ITO Film) isn’t subject to any stress when the Touch Panel and housing or carrier are assembled and in service. This includes the heat-seal bonding connection at the FPC output.
- Take care that the ITO Film and the FPC output (heat-seal connection) can move freely. Bare in mind the bending radius of the FPC should be ≥ 3 mm.
- Do not glue the ITO film or the FPC on or at any object (for example housing or carrier)
- Take into consideration that the non-input area from Touch Panels is > 3 mm from the spacertape border. Activation within these 3 mm may affect the linearity of the Touch Panel.
- Pay attention not to harm Touch Panels with tools that may be used for assembly.
- If the protective film is removed, make sure that the film and Touch Panel is dust- and particle free when the film is laminated again on the Touch Panel.
- Touchtronic reserves the right to decline claims regarding the functional or visual aspect of Touch Panels when these are:
  a) laminated with an overlayer by the customer.
  b) assembled onto a housing or carrier by the customer.

15.5 Outdoor use:

- In case of outdoor use (UV exposure) of Touch Panels, Touchtronic reserves the right to decline claims regarding the functional or visual aspect of these Touch Panels.

16.1 General:

- *In case of advise on design and or assembly of Touch Panels please do not hesitate to contact us.*