

General Specifications G081015
Projected Capacitive Sensors

General:

- a) The specification in this document applies to standard and custom specific Projected Capacitive Touchscreens. This includes also the Pcap controller hard- and software.

- b) Projected Capacitive Touchscreens exists of following components:
 - Sensor
 - Coverglass
 - Controller

- c) All Touchtronic Pcap products are ROHS and REACH compliance.

- d) Abbreviations:
 - Pcap > Projected Capacitive Touchscreen
 - FF > Film/Film
 - GFF > Glass/Film/Film
 - DITO > Double Side ITO glass
 - CG > Cover glass
 - COF > Chip on Flex

- e) Main IC / Controller **brands**:
 - Elan
 - Focaltech
 - Goodix
 - EETI

1.0 Controller Characteristics:

1.1 Voltage (Interface dependable):	3.3 - 5V (DC)
1.2 Current (Controller dependable):	Max.50 mA
1.3 Multiple Touch Inputs:	Max.10 Point Touch.
1.4 Gesturing:	Flick, Pinch, Zoom, Rotate, Tap, Click.
1.4 Operating System support: (Controller Dependable)	Win 7 and 8 Linux Android
1.5 Interface Support:	USB I ² C

2.0 Sensor Mechanical Characteristics:

2.1 Main Sensor types	Film/Film thickness <0.4 mm Glass/Glass thickness < 2.4 mm DITO Glass thickness < 1.1 mm
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3.0 Sensor Optical Characteristics:

3.1 Transparency	Film type ≥ 85% Glass type ≥ 90%
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4.0 Materials:

4.1 Coverglass:	
4.1.1 Surface:	Clear or Anti Glare
4.1.2 Thickness:	1.1 / 1.8 and 3 mm
4.1.3 Tempering:	Chemical Strengthened
4.1.4 Hardness:	7H
4.2 Adhesives:	Optical Clear Adhesive (film) Optical Clear Adhesive (liquid) (open source)
4.3 Sensor FF type:	ITO Film (open source)
4.5 Sensor GG or G type:	ITO glass (open source)
4.5 FPC:	FPC with or without connector
4.6 FPC Connection Technology:	Heat Seal Bonding
4.7 Acrylic Adhesive:	Adhesive is a “clean type” acrylic.

5.0 Screenprinting Coverglass and Overall Visual Inspection:

- 5.1 The graphics are screenprinted on the backside of the Coverglass.
- 5.2 Screenprinting Color tolerance: ≤ DE 0, 75
- 5.3 Positioning tolerance: CG / Sensor : ± 0,3 mm

5.4.0 Overall Visual Inspection Method:

- 5.4.1 Inspection Distance: 50 cm
- 5.4.2 Inspection Time: ≤ 10 sec.
- 5.4.3 Inspection Angle 45° (no reflection allowed)
- 5.4.4 Approval Criteria
Inclusions / scratches or any foreign particle should not be noticed.

6.0 FPC and heat seal bonding:

- 6.1 FPC bending radius: $\geq R=3$ mm
- 6.2 Identification on FPC includes: Drawing number
Manufacturing Date
Company name
Replacement number
- 6.3 Identification: Identification should always be printed on the FPC at the side where the contrast is at the highest level.

7.0 Temperature range:

- 7.1 Operating temperature $-20^{\circ}\text{C} \dots + 80^{\circ}\text{C}$
- 7.2 Storage temperature $-25^{\circ}\text{C} \dots + 85^{\circ}\text{C}$
- 7.3 Humidity $\leq 85\%$ RH

8. Water resistance:

- 8.1 IP number IP 65 on Coverglass side.
- 8.2 Functional aspects with liquids on customers demand

9.0 Ball Drop test:

on customers demand

10.0 ESD:


- 10.1 Air ± 8 kV (on functional side)
- 10.2 Contact ± 4 kV (on functional side)
 ≤ 2 kV on IC only
- 10.3 Other noise immunity requirements: On customers demand

11.0 Chemical resistance:

- 11.1 Alcohols
- 11.2 Dilute acids
- 11.3 Dilute alkalis
- 11.3 Esters
- 11.4 Hydrocarbons
- 11.5 Ketones
- 11.6 Household cleaning agent

12.0 Packaging:

- 12.1 The goods are packed in a carton box.
- 12.2 The individual Products cannot move in the box.
- 12.3 On every separate carton box there is an identification label (see example).


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

13.0 Test Reports:

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

14.0 How to deliver digital information to Touchtronic:

- 14.1 In case of a standard touch panel please mention the drawing number from the Touchtronic drawing.

14.2 Overlayer Artwork:

- 14.2.1 Corel Draw minimum version 8
- 14.2.2 Illustrator 10
- 14.2.3 Freehand 10
- 14.2.4 All the different colors should be in separate layers
- 14.2.5 The text should be in curves.

14.3 Dimension info on drawing:

- 14.3.1 Outline dimension overlayer (or eventual housing)
- 14.3.2 Windows for display LCD
- 14.3.3 Windows for LED
- 14.3.4 Holes
- 14.3.5 Outline dimension PCT
- 14.3.6 Viewing area
- 14.3.7 Active area
- 14.3.8 Cable output position
- 14.3.9 Cable length
- 14.3.10 With or without connector (Specification connector on the PCB)
- 14.3.11 Pin Assignments
- 14.3.12 Pin 1 Position
- 14.3.13 Colors in RAL / Pantone or Color sample

15.0 General Handling Remarks:

15.1.0 Storage:

- 15.1.1 Store products at the temperature and humidity range as mentioned in the specification.
- 15.1.2 Store products in the state of package.

15.2.0 Unpacking:

- 15.2.1 Open the box after checking the "Up/Down" indicator.
- 15.3.2 Do not hold onto the FPC tail when taking out the Pcaps out of the package.

15.3.0 Handling:

- 15.3.1 Use gloves when handling Pcaps.
- 15.3.2 Handle Pcaps on the outside of the viewing area.
- 15.3.3 Do not pile up the individual Pcaps in order to avoid scratches.
- 15.3.4 Do not put heavy objects on the Pcap.

16.1.0 Design and Assembly:

- 16.1.1 Take care that the FPC can move freely.
- 16.1.2 The bending radius of the flex cable should be ≥ 3 .
- 16.1.3 Do not glue the FPC on- or at any object, for example housing or carrier.
- 16.1.4 If the protective film is removed for assembly, make sure that the film and Pcap is dust- and particle free when the film is laminated again on the Pcap.

17.0 Support:

- 17.1 *If advice is needed on design, assembly, or if there is need on additional specifications, please contact Touchtronic.*

18.0 Revisionlist:

Revision	Item	Description
A	General Item E	Renamed: Supplier into brands
	5	Changed visual inspection