

General specification Silicone Keypad with Copper/Kapton circuitry.

The specifications in this document applies to membrane switches only.
All our membrane switches are ROHS and ECHA / REACH compliant.

1.0 Electrical:

1.1 Operating Voltage:	max. 35VDC
1.2 Operating Current:	max. 100mA
1.3 Insulation Resistance:	>100 MΩ at 50V (DC)
1.4 Power Consumption:	≤ 1W
1.5 Closed Loop Resistance:	<10 Ω

2.0 Mechanical:

2.1 Bounce time key with metal dome as actuator:	< 10 mS
2.2 Bounce time with Silicone Keypad as actuator:	< 10 mS
2.3 Actuation force:	Specified on drawing
2.4 Life expectancy key:	>10 ⁶ activations
2.5 Contact surface:	Gold/Gold (Metal Dome) Gold/Carbon Pill (Silicon Keypad)

3.0 Materials:

3.1 Silicone Keypad:	Application dependable.
3.2 Circuitry:	Base material: Polyamide 25 - 35μm Adhesive 20μm Copper: 35μm
3.3 Adhesives:	Open source or as specified on drawing
3.4 Dome retain when applicable:	Polyester 100μm.
3.5 EMC Shielding:	On request.
3.6 Backplate:	Open Source Specific types on request.
3.7 Metal dome when applicable:	Gold plated with dimple. Other types on request.
3.8 LEDs:	General SMD type. Low Current Leds: on request.

4.0 Colors and Graphics:

- 4.1 Silicon Keypad can be colored by adding pigments or spraycoating.
- 4.2 Graphics are patterned by laser-etching or screenprinting.
- 4.3 Color tolerance: *DE 1*.

5.0 Product visual inspection:

- 5.1 Complete Product Visual Inspection Method:
- 5.2 Inspection Distance: 50 cm
- 5.3 Inspection Time: ≤ 10 sec.
- 5.4 Inspection Angle 45° (no reflection allowed)
- 5.5 Approval Criteria
Inclusions / scratches or any foreign particles, should not be noticed.

6.0 FPC output

- 6.1 Cable output bending radius: > R=2 mm.
- 6.2 Identification on FPC includes: Company Name.
Drawing number and Revision.
Manufacturing Date.
Replacement number.
- 6.3 FPC connection: Type of connection on request
- 6.4 Pitch: Standard ≥ 0.5mm.
- 6.5 Closed Border: Closed border on request.

7.0 Temperature range:

- 7.1 Operating temperature: -30°C ... + 80°C
- Storage temperature: -40°C ... + 85°C

8.0 Humidity Testing Conditions)

- 8.1 Climate Chamber: 60 °C / 90% RH
- 8.2 Testing time: 250 hrs.
- 8.3 Operating Voltage: 30Vdc.

9.0 Packaging:

- 9.1 The goods are in a carton box with plastic bags or blisterpackaging.
- 9.2 On every plastic back is a label.
- 9.3 On every carton box is the same label.
- 9.4 Example.

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

10.0 Testing:

- 10.1 Together with the sample delivery there is always a Sample test report (STR)
- 10.2 Together with the mass production there is always a Production test report (PTR)
- 10.3 In the PTR you find a reference of the approve sample (Manufacturing date)
- 10.4 Standard: electrical test 100 %

11.0 How to deliver digital data to Touchtronic:

- 11.1 Over layer: Corel Draw minimum version 8
- 11.2 Artwork:
 - Illustrator 10
 - Freehand 10
 - All the different colours should be in separate layers
 - The text should be in curves.
- 11.3 Colors: Ral/Pantone or Color Sample.

11.4.0 Dimension drawing:

- 11.4.1 Outline dimension, (or eventually housing)
- 11.4.2 Windows for display LCD or LED
- 11.4.3 Windows for LED lamp (LED colour, when LED is integrated)
- 11.4.5 Holes.
- 11.4.6 Key, FPC, and shielding position.
- 11.4.7 FPC length.
- 11.4.8 FPC connection
- 11.4.9 Pin 1 position
- 11.4.10 Electrical plan
- 11.4.11 Gerber File in case of a copper circuitry with components.

12.0 Handling Remarks:

12.1 *Please read the handling remarks before assembly in order to have the optimum function!*

13.0 Storage:

13.1 Store products not beyond the temperature and humidity range as mentioned in the specification.

13.2 Store products in the state of package.

14.0 Unpacking:

14.1 Do not take out the Keypad from the package on FPC.

15.0 Handling:

15.1 Don't push any key when the Keypad is not properly supported.

15.2 Pay attention not to harm the Keypad with tools which can cause malfunction.

15.3 Do not put heavy objects on the Keypad.

16.0 Assembly:

16.1 Please take care that the carrier or the housing is properly cleaned before assembly the keypad.

16.3 Please take care that the Keypad is assembled without air entrapments between the Keypad and the carrier or housing.

16.4 As it is impossible to remove a Keypad without damaging it, the product should be assembled in one process.

16.6 Pay the highest attention to avoid any stress to the FPC.

16.7 Don't touch the adhesive on the backside.

17.0 General:

17.1 If you need advise on design and or assembly, do not hesitate to contact Touchtronic GmbH.