3M™ Multi-Touch PX5*nnn* Controller Specification

Projected Capacitive Technology

3M Standard Product

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Document Title *3M™ Multi-Touch PX5nnn Controller Specification*
Document Number: TSD-48146, Version B

3M™ Multi-Touch PX5*nnn* Controller Specifications

The controller specifications listed below were validated in test systems containing 3M components. These specifications may not be valid if configured with components from suppliers other than 3M. All components in the manufacture of electronic controllers are RoHS Directive compliant (2011/65/EU).

Description	Specification		
Physical Dimensions	PX5515	2.701 in x 7.472 in x 0.374 in (68.61 mm x 189.79 mm x 9.50 mm)	
	PX5410	2.701 in x 7.472 in x 0.374 in (68.61 mm x 189.79 mm x 9.50 mm)	
	PX5333	3.375 in x 3.250 in x 0.374 in (85.73 mm x 82.55 mm x 9.50 mm)	
	PX531A	2.750 in x 5.375 in x 0.372 in (69.85 mm x 136.53 mm x 9.45 mm)	
	PX5218	2.730 in x 4.825 in x 0.374 in (69.34 mm x 122.56 mm x 9.50 mm)	
	PX5210	1.570 in x 6.100 in x 0.372 in (39.88 mm x 154.94 mm x 9.45 mm)	
	PX521A	2.780 in x 4.000 in x 0.374 in (70.61 mm x 101.60 mm x 9.50 mm)	
	PX521C	1.969 in x 6.496 in x 0.372 in (50.01 mm x 165.00 mm x 9.45 mm)	
	PX521F	1.969 in x 6.496 in x 0.557 in (50.01 mm x 165.00 mm x 14.15 mm)	
	PX521D	1.575 in x 6.102 in x 0.376 in (40.01 mm x 154.99 mm x 9.55 mm)	
	PX521E	1.574 in x 6.102 in x 0.372 in (39.98 mm x 154.99 mm x 9.45 mm)	
Board Level Functions			
Power	USB-only	PX5515	USB Vbus = 5 VDC (206mA max)
	USB-only	PX5410	USB Vbus = 5 VDC (195mA max)
	USB or RS232	PX5333	USB Vbus = 5 VDC (145mA max)
	USB-only	PX531A	USB Vbus = 5 VDC (133mA max)
	USB-only	PX5218	USB Vbus = 5 VDC (110mA max)
	USB-only	PX5210	USB Vbus = 5 VDC (116mA max)
	USB-only	PX521A	USB Vbus = 5 VDC (120mA max)
	USB-only	PX521C	USB Vbus = 5 VDC (125mA max)
	USB-only	PX521F	USB Vbus = 5 VDC (125mA max)
	USB-only	PX521D	USB Vbus = 5 VDC (133mA max)
	USB-only	PX521E	USB Vbus = 5 VDC (102mA max)

Regulatory Requirements	**Performance**		
CE			Compliant
• Radiated Emissions – EN 55022:2010	Class B*		Compliant
• AC Mains Conducted Emissions – EN 55022:2010	Class B		Compliant
• Telco Lines Conducted Emissions	N/A		N/A
• ITE Immunity – EN 55024:2010			Compliant
• RFI – EN 61000-4-3 / ENV 50140	Class A		Compliant
• CRFI – EN 61000-4-6	Cable < 3 meters long		N/A
• EFT (Burst Immunity) – EN 61000-4-4	Class B		Compliant
• ESD Susceptibility – IEC 61000-4-2	Class 1		Compliant
• Surge – EN 61000-4-5	Class B		Compliant
• Harmonics – EN 61000-3-2	Class A		Compliant
• Flicker – EN 61000-3-3			Compliant
• Power Frequency Magnetic Field – EN 61000-4-8	Class A		Compliant
• Voltage Dips – EN 61000-4-11	Class B	< 5% V	Compliant
	Class C	< 70% V	Compliant
• Voltage Interruptions – EN 61000-4-11	Class C		Compliant

FCC Class B / CISPR22 Class B	Class B	Compliant
VCCI Class B ITE Emissions (Japan)	Class B	Compliant
AS/NZS 3548:1995/CISPR 22 Class B ITE Emissions (Aus.)	Class B	Compliant
UL 60950 / EN 60950 / IEC 60950		Compliant

* EMC performance is dependent upon proper integration. Refer to the *3M Multi-Touch System Projected Capacitive Series Integration Guide* (TSD-48194)

Ambient Operating And Storage Environmental Conditions
(All Humidity is Non-Condensing)

Operating Temperature Range	- 10°C to +70°C
Operating Humidity Range	< 36°C 0-90% RH ≥ 36°C see Figure 1 below
Storage Temperature Range	- 40°C to +75°C
Storage Humidity Range	< 36°C 0-80% RH ≥ 36°C see Figure 1 below

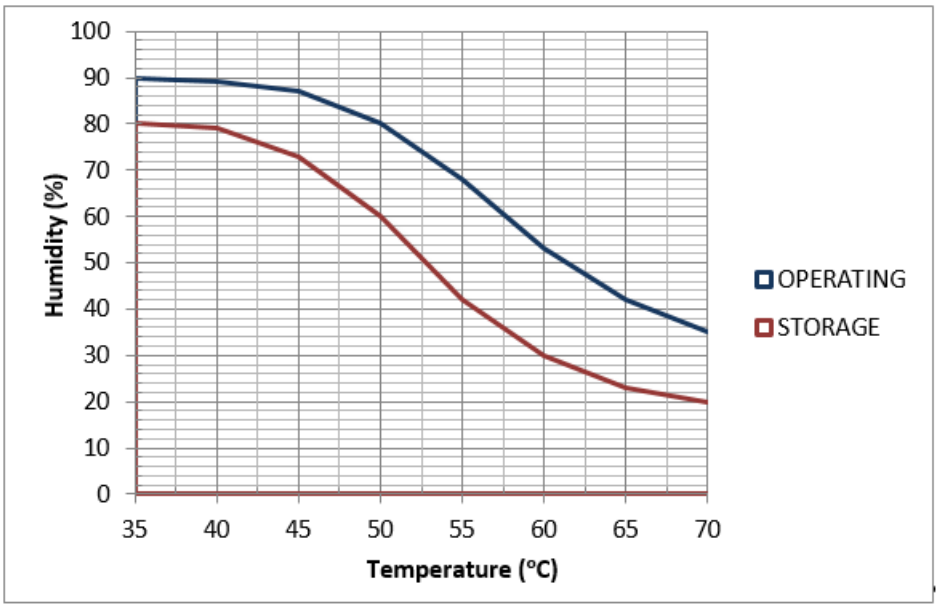
Performance & Reliability

Touch Point Rate (USB)	
7" – 15" active view area	≤ 5ms for USB controller systems supporting 20 simultaneous inputs when integrated with a 3M PCT Sensor
16" – 65" active view area	≤ 10ms for USB controller systems supporting 20 simultaneous inputs when integrated with a 3M PCT Sensor
Touch Point Rate (Serial)	≤ 12ms for Serial controller systems supporting 20 simultaneous inputs when integrated with a 3M PCT Sensor
Touch Resolution – (Maximum number of addressable coordinates generated by the controller)	32K x 32K
ESD Susceptibility	
±8 kV Contact Discharge* Class 2 per section 9 of IEC 61000-4-2 1 false touch allowed	Compliant
±15 kV Air Discharge* Class 1 per section 9 of IEC 61000-4-2 Normal Operation – No false touches	Compliant
*ESD discharges to a 3M touch screen connected to the controller	
MTBF (by MIL Std. 217F Calculation)	1,000,000 hours

Touch Parameters

Accuracy (Ambient)	≥ 99.0%
Touch Screen Compatibility	3M™ Multi-Touch Projected Capacitive Touch Screens
Communications Protocol	Either USB or RS232

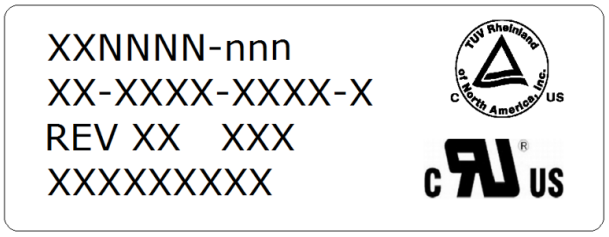
Figure 1: Storage and Operating Temperature with Humidity Conditions



Label Nomenclature

The 3M Patent Label is located on the PCB.
The Product Number Label is defined below:

Product Number Label



1ST Line = First two digits (XX) identify Product Family / Digits 3 - 6 (NNNN) designate model variations
1ST Line = Digits 7 - 9 (nnn) Optional – designate custom model variations
2nd Line = Controller part number
3rd Line = Rev (XX) and Vendor ID (XXX). The Vendor ID can be 2 or 3 characters
4th Line: = Controller "Legacy" top level part number (if present)

Warranty Period

3M Multi-Touch PX5nnn Controllers are warranted to meet the specifications listed in section "3M Multi-Touch PX5nnn Controller Specifications" of this Product Specification when used with a properly grounded and designed integrated controller. Unless otherwise agreed upon in writing by 3M, this product is warranted for the period of three (3) years. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product.

End of Specification