

easyTOUCH mXT640T PCAP USB controller

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1 Introduction

The easyTouch mXT640T Controller is designed as a part of the capacitive touch systems developed by Data Modul. It offers the possibility to connect a projective capacitive touch sensor to standard computers or embedded systems using USB. For the connection the customer can use the cable or connect the controller board via soldering pads on top of another PCB.

The controller is based on the Atmel maXTouch 640T which offers a very good touch performance and high noise resistance. To get the best touch performance with water and glove usage the mXT640T has integrated self-capacitance technology. In combination with the mutual-capacitance entity the controller is applicable for single- and multi-touch. Together with outstanding filter technology the maXTouch ICs are suitable for industrial, medical and other applications.

For the communication with the OS the controller uses Data Modul's Driverless firmware. The firmware connects as a Human Interface Device (HID) without an additional driver to the most popular operating systems like Windows XP, Windows 7 / 8, Windows CE5/6/7, OSX and Linux. For more information about the Data Modul Driverless firmware please refer to the *Driverless Controller User Guide*.

2 Controller specification

2.1 Mechanical features

Size	33x43x4.5 mm
Operating temperature	-30 to +85 °C
Storage temperature	-30 to +85 °C
Temperature slew rate	10 °C /minute (max.)
Relative humidity	95 % at 60 °C no condensation
RoHS compliant	Yes

2.2 Connection features

Protocol	HID mouse, HID digitizer
Multi touch	10 fingers (max.)
Single touch	HID mouse with right mouse button emulation
Resolution	4096 x 4096 (x/y)
Report rate	350 Hz (max. subject to configuration)
USB connector	MOLEX 53261-0971 or equivalent

2.3 Electrical features

Power supply	5 V± 5%
Vin ripple	±50 mV peak-peak (max.)
On board voltage	3.3 V and 6.6 V
Power consumption	200 mW (max. subject to configuration)

4 Connectors and signals

4.1 Connectors

Connector	Type	Connection
X1	1.25 mm pitch 9 pin header MOLEX 53261-0971	USB
X3	0.5 mm pitch 55 pin header	Flextail to touch sensor
Soldering pads LD1-9		Alternative connector of X1

4.2 X1 and soldering pads pin assignment

X1	Pad	Signal	Description
1	1	VDD_5V	USB power supply
2	2	USB DM	USB signal -
3	3	USB DP	USB signal +
4	4		Do not use
5	5		Do not use
6	6		Do not use
7	7		Do not use
8	-		Do not use
9	9	GND	Ground

Matching USB cable (length 2m): Article number **TP72241**

5 UL information

Part	Type	UL number
X1	1.25 mm pitch 9 pin header MOLEX 53261-0971	Molex 53261-xx71: E29179 or YeonHo 12505WR- xx: E108706
X3	0.5 mm pitch 55 pin header	Omron XF2M-xx15-1AH: LCP resin (UL94V-0)/natural LCP resin (UL94V-0)/black
PCB		Fuying: E315019

7 Appendix: Frequently asked questions

Touch coordinates are not stable and the cursor is “jumping around”?

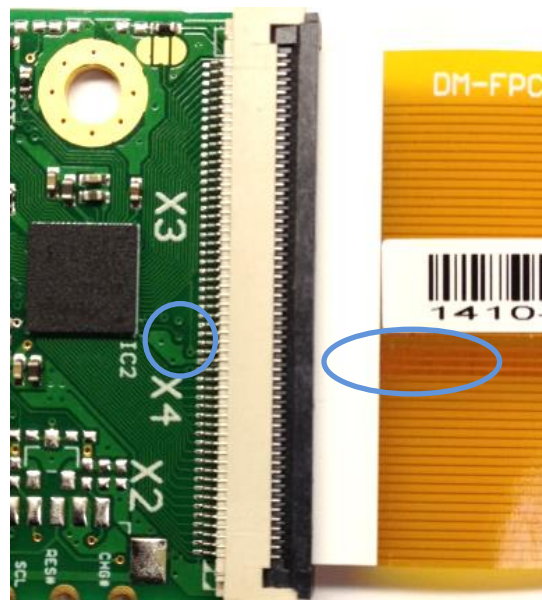
In mains-operated systems this can happen if the touch controller is missing the systems ground reference. Another reason can be an extreme amount of noise present that exceeds the touch threshold set in the controller.

Please connect the system ground reference to one of the mounting holes. For best touch performance the touch controller needs a low impedance AC connection to the person that operates the system to achieve a good current loop back to the controller.

If the instability is caused by a noise source like a display, a switching regulator or a RF antenna your system may have an integration issue. With proper settings the controller can most likely suppress the noise. However, eliminating the noise source should be the first thing to check. If you have any difficulties to find the correct settings, please contact Data Modul.

Connecting is done, but no touch function at all?

If the tail is inserted “upside-down” you will not get any touch event. Please check if the tail is connected correctly. When connecting the touch panel to the controller, do not let the golden finger side misleading you. Always check the alignment of the three ground connections on the tail (marked blue in the following picture) to make sure the connection is correct. Please always connect the tail first before you connect to USB. You also should check if you touch the correct side of the panel.



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