

PENMOUNT PM6602 CONTROL BOARD DATASHEET

Version 1.0
2024 / 3 / 6

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Revision history

Rev.	Date	By	Summary	Remark
1.0	2024/3/6	Ken Hsu	New Release	

1.0 Introduction

The PenMount PM6602 control board is a high specification (Resistive Multiple Touch) touch panel controller product introduced by PenMount. The PenMount PM6602 can be applied in the consumer, commercial and industrial fields.

The PenMount PM6602 provides four types of interfaces, USB, I²C, UART, RS232 and supports touch panels sizes up to 21.5” . The PenMount PM6602 also supports a wide range of operating systems such as Windows and Linux.

Resistive Multiple Touch combine the advantages of resistive touch panels with multi-touch gestures through a matrix panel design with multiple resistive circuit grids 10mm -13mm in width to enable the detection of multiple analog signals. This allows single touch line drawing, multi-point operation, and two-finger gestures in Windows and Linux.

There are five connectors on this board: 80Pins & 60Pins ZIF connectors for Resistive Multiple Touch screen FPC cables, one USB connector for 4-pin USB cable (optional) , and one I²C/UART connector for 7-pin I²C cable (optional) , and one RS232 connector for 5-pin RS232 cable (optional)

2.0 Specifications

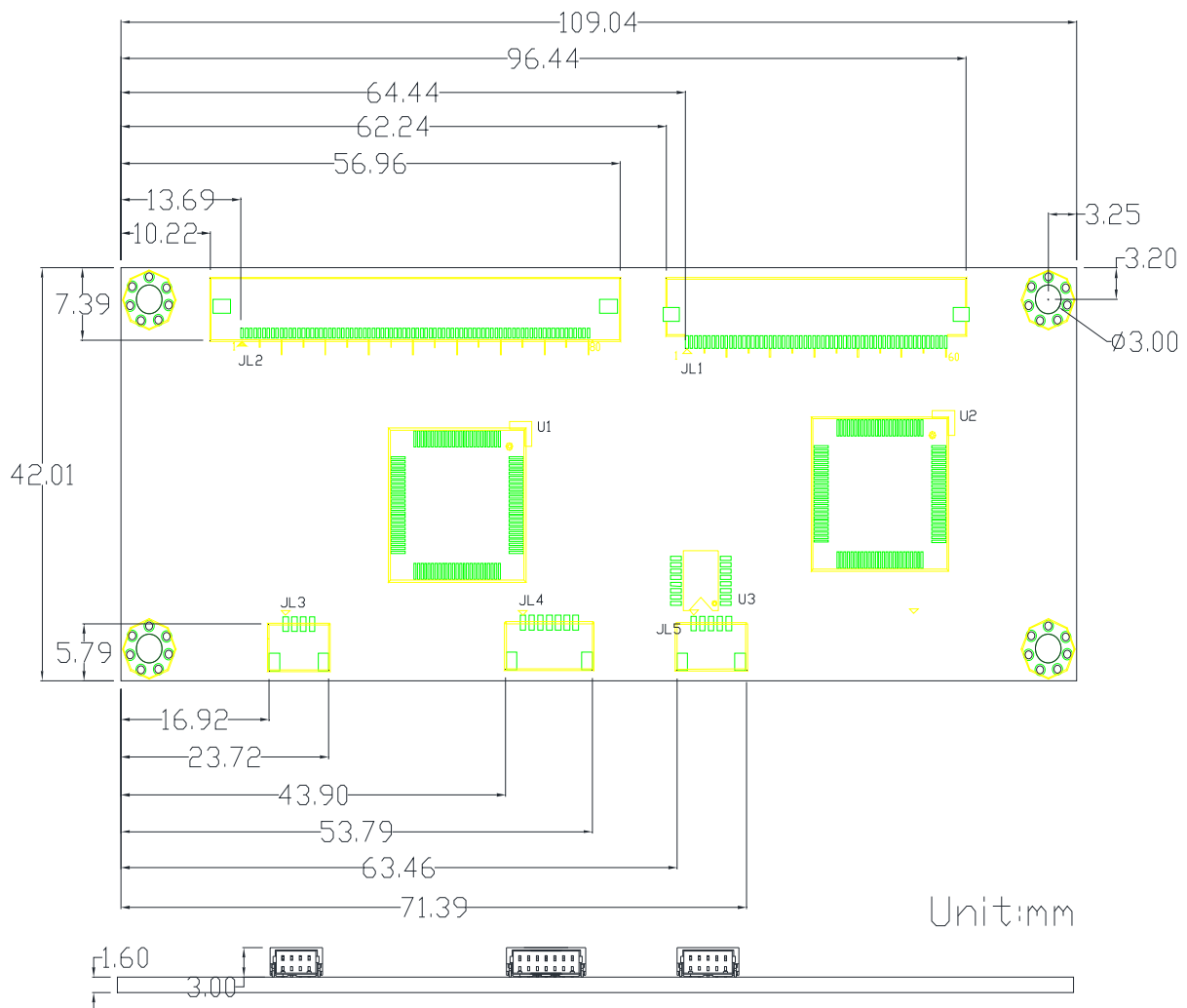
Parameter		Feature
Touch Screen		For Resistive Multiple Touch screen
Controller part number		PenMount P2-10 Controller IC
Supporting touch panel size		≤ 21.5" (Pitch ~ 13mm)
Interface	USB	Full-speed, 12Mbps
	UART/RS232	38400 baud rate / 8bit data / non parity / one stop bit / non-PnP
	I ² C	Slave, 400 kHz
Resolution		1024 x 1024 (Typical)
Sampling rate	One finger touch	150Hz(Typical)
	Two fingers touch	120Hz(Typical)
Operating voltage		+5Vdc, ±5 %
Finger resolution		> two Pitches
Power consumption	Working mode	53.0mA @ 5Vdc
	Idle mode	26.0mA @ 5Vdc
	Sleep mode	5.0mA @ 5Vdc
Operating temperature		-40°C ~ +85°C
Storage temperature		-40°C ~ +85°C
Relative humidity range		95% RH at 60°C. RH Non-condensing
Electro Static Discharge (ESD)		Air Discharge 15KV , Contact Discharge 8KV
Watchdog Timer		Support WDT function through firmware programming

Note :

Power consumption and sample rate will vary according to different firmware versions.

3.0 Mechanical Drawing

3.1 Mechanical size



3.2 Touch line pin definition

JL2 80Pin ZIF , PH 0.5mm ; ACES 50520-08001-001							
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND	21	ADC	41	ADC / GPIO	61	ADC / GPIO
2	ADC	22	ADC	42	ADC / GPIO	62	ADC / GPIO
3	ADC	23	ADC	43	ADC / GPIO	63	ADC / GPIO
4	ADC	24	ADC	44	ADC / GPIO	64	ADC / GPIO
5	ADC	25	ADC	45	ADC / GPIO	65	ADC / GPIO
6	ADC	26	ADC	46	ADC / GPIO	66	ADC / GPIO
7	ADC	27	ADC	47	ADC / GPIO	67	ADC / GPIO
8	ADC	28	ADC	48	ADC / GPIO	68	ADC / GPIO
9	ADC	29	ADC	49	ADC / GPIO	69	ADC / GPIO
10	ADC	30	ADC	50	ADC / GPIO	70	ADC / GPIO
11	ADC	31	ADC	51	ADC / GPIO	71	ADC / GPIO
12	ADC	32	ADC	52	ADC / GPIO	72	ADC / GPIO
13	ADC	33	ADC	53	ADC / GPIO	73	ADC / GPIO
14	ADC	34	ADC / GPIO	54	ADC / GPIO	74	ADC / GPIO
15	ADC	35	ADC / GPIO	55	ADC / GPIO	75	ADC / GPIO
16	ADC	36	ADC / GPIO	56	ADC / GPIO	76	ADC / GPIO
17	ADC	37	ADC / GPIO	57	ADC / GPIO	77	ADC / GPIO
18	ADC	38	ADC / GPIO	58	ADC / GPIO	78	ADC / GPIO
19	ADC	39	ADC / GPIO	59	ADC / GPIO	79	ADC / GPIO
20	ADC	40	ADC / GPIO	60	ADC / GPIO	80	GND

JL1 60Pin ZIF , PH 0.5mm ; ACES 52561-05001-001							
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND	16	ADC / GPIO	31	ADC / GPIO	46	ADC
2	ADC	17	ADC / GPIO	32	ADC / GPIO	47	ADC
3	ADC	18	ADC / GPIO	33	ADC / GPIO	48	ADC
4	ADC	19	ADC / GPIO	34	ADC / GPIO	49	ADC
5	ADC	20	ADC / GPIO	35	ADC / GPIO	50	ADC
6	ADC	21	ADC / GPIO	36	ADC / GPIO	51	ADC
7	ADC	22	ADC / GPIO	37	ADC / GPIO	52	ADC
8	ADC	23	ADC / GPIO	38	ADC / GPIO	53	ADC
9	ADC	24	ADC / GPIO	39	ADC / GPIO	54	ADC
10	ADC	25	ADC / GPIO	40	ADC / GPIO	55	ADC
11	ADC	26	ADC / GPIO	41	ADC / GPIO	56	ADC
12	ADC	27	ADC / GPIO	42	ADC / GPIO	57	ADC
13	ADC	28	ADC / GPIO	43	ADC / GPIO	58	ADC
14	ADC / GPIO	29	ADC / GPIO	44	ADC / GPIO	59	ADC
15	ADC / GPIO	30	ADC / GPIO	45	ADC / GPIO	60	GND

3.3 Interface pin definition

PM6602 includes USB/I2C/UART/RS232 communication interfaces, intends to maximize application flexibility and reliability, and minimizes cost through elimination of external components.

JL3 / 4PIN / ACES 50224-00401-001						
PIN NO.	USB	Description	Min	Typ	Max	Unit
1	VCC	Positive power supply	4.75	5	5.25	V
2	D-	D- pin of internal USB transceiver		3.3		V
3	D+	D+ pin of internal USB transceiver		3.3		V
4	GND	Ground		0		V

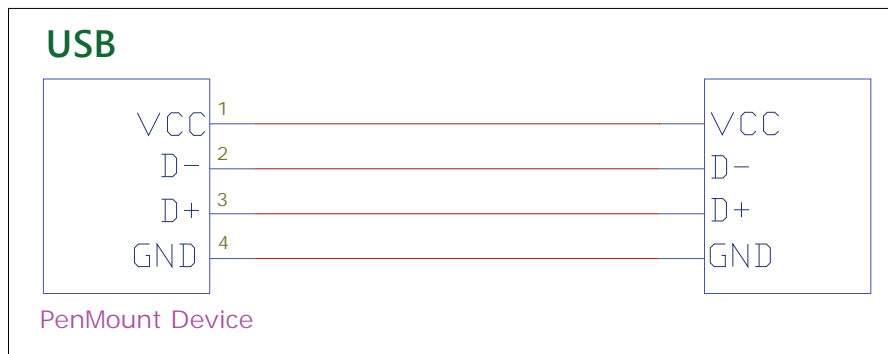


Figure1 USB interface

JL5 / 5PIN / ACES 50224-00501-001						
PIN NO.	RS232	Description	Min	Typ	Max	Unit
1	VCC	Positive power supply	4.75	5	5.25	V
2	RXD	RS232 receive	-25		+25	V
		input threshold low	0.8	1.5		
		input threshold high		1.8	2.4	
3	TXD	RS232 transmit	-13.2		+13.2	V
		output Voltage low			0.4	
		output Voltage high	4.4	4.9		
4	GND	Ground		0		V
5	GND	Ground		0		V

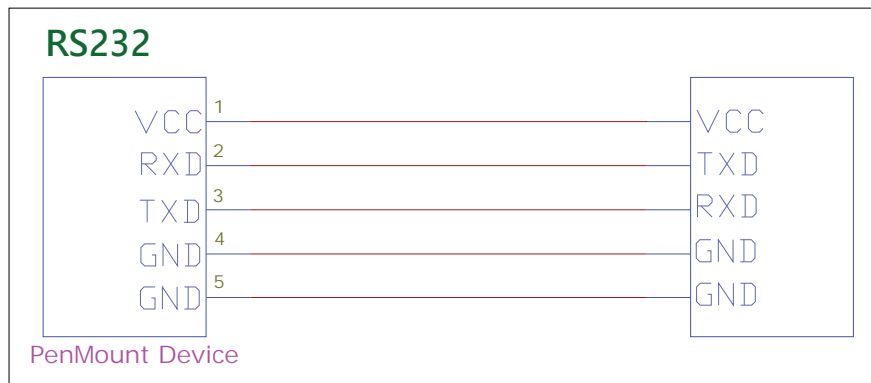


Figure2 RS232 interface

JL4 / 7PIN ; ACES 50224-00701-001			
PIN NO.	SYMBOL	PIN ASSIGNMENT	
		I ² C	UART
1	VCC	VCC	VCC
2	GND	Ground	Ground
3	SCL / RXD	SCL	RXD
4	SDA / TXD	SDA	TXD
5	nRESET	N.C.	N.C.
6	nDETECT	N.C.	Low
7	nINT	nINT	Low

PIN NO.	Type	Description	Min	Typ	Max	Unit
VCC	P	Positive power supply	4.75	5	5.25	V
GND	P	Ground		0		V
SCL	I/O	Serial clock line for I2C. Open drain requires external pull-up to 3.3V.		3.3		V
SDA	I/O	Serial data line for I2C. Open drain requires external pull-up to 3.3V		3.3		V
RXD	I	UART receive		3.3		V
TXD	O	UART transmit		3.3		V
nRESET	I	Open-drain and active low to reset PM6602 and must be driven low for 5 μ s (typical) to be valid. Leave the pin unconnected if not used.				V
nDETECT	I	Pull low when selecting UART interface float when selecting I2C interface		0		V
nINT	O	Processor Interrupt. This pin is active low, open drain requires external pull-up to 3.3V.		3.3		V

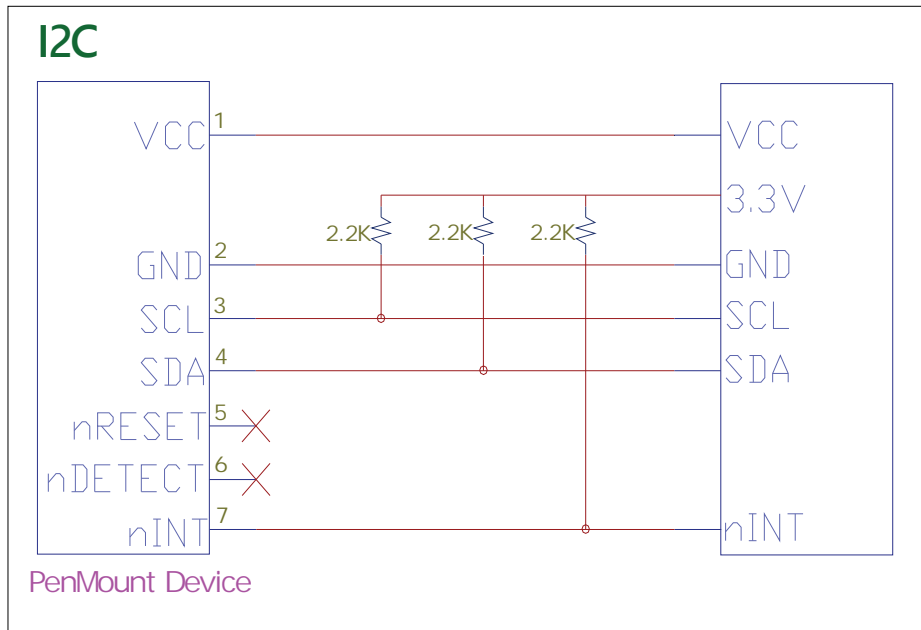


Figure2 I²C interface

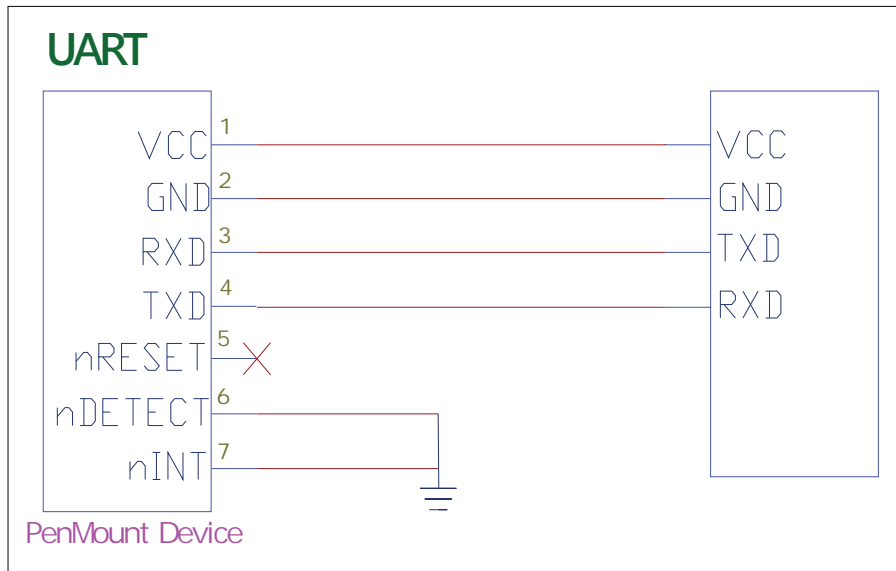
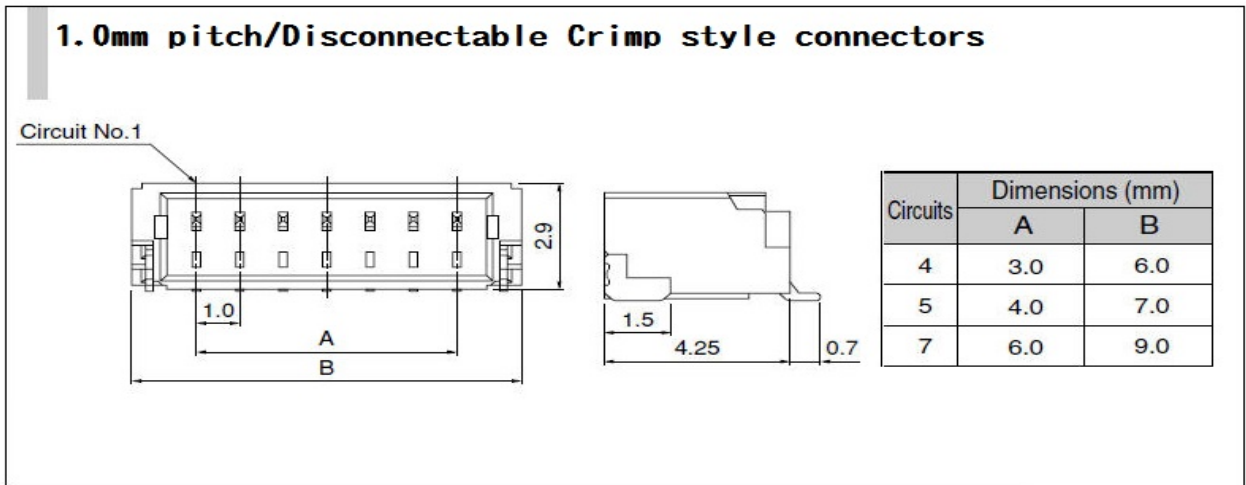


Figure3 UART interface

3.4 Connector Drawing



4.0 Drivers and utilities

4.1 Drivers

For USB

- Windows 7, 8, 10, 11: Inbox HID driver
- Windows XP / Embedded Standard 2009: Single touch, PenMount Device Driver.
- Windows Embedded Compact 7 / 2013 : Single touch, PenMount Device Driver.
- Linux: Inbox HID driver after kernel 3.4.
- Other Platforms: by request.

For UART/ RS-232

- Windows 7, 8, 10, 11: Dual touch, PenMount Device Driver.
- Windows XP / Embedded Standard 2009: Single touch, PenMount Device Driver.
- Windows Embedded Compact 7 / 2013 : Single touch, PenMount Device Driver.
- Linux: Inbox driver after kernel 3.2.
- Other Platforms: by request.

For I²C

- Windows 8, 10, 11: Inbox HID driver. (with HID over I2C protocol enabled)
- Linux: Inbox HID driver after kernel 3.8. (with HID over I2C protocol enabled)
- Windows Embedded Compact 7 / 2013: With NDA, we provide a driver and SDK example of our I2C communication protocol for reference.

(Provide source code for integration if any)

Note:

All drivers and utilities are available on PenMount websites. Please contact us for further information.

5.0 Others

5.1 ROHS compliance

This control board is ROHS compliant

5.2 Noise protection

To achieve good noise interference protection capabilities, PenMount requires paired interface cables possess comprehensive EMI shielding.

The cable should have a woven or spirally copper shield with 360 ° shield coverage
The shield must be terminated to the receptacle and be connected to ground plane carefully.

Below is an example for 4-pin USB cable diagram. For other implementation, please follow the same design rules.

