

1.0 Product

PenMount 1401 control board is one of the cutting-edge innovations from PenMount. A collectively integrated feature with USB / RS232 / UART interface supporting 11.0" to 15.0" projected capacitive touch screens; complemented by the superbly developed PenMount drivers which can be used directly in Windows 8.

PenMount 1401 Control Board uses Microcontroller, which is a capacitive sensing IC designed for AMT Projected Capacitive Input (PCI) touch panel and other projected capacitive touch panel. It is designed for PCI touch screen size up to 15.0". PenMount 1401 Control Board has the programmable filter, gain amplifier; with the functions of single, dual touch; and the gestures of one and two fingers. There are Six connectors on this board: 40Pin & two 30 Pins ZIF connectors for PCI touch screen FPC cable, one USB connector for 4-pin USB cable (optional) , and one RS232 connector for 5-pin RS232 cable (optional) , and one UART connector for 7-pin UART cable (optional).

2.0 Specifications

- 2.1 Controller part no : P2-04x1,P2-02x1
- 2.2 Supporting Projected Capacitive touch panel size:
Projected capacitive type, size is 11.0" to 15.0"
- 2.3 Interface: USB, UART, RS-232
USB: Full-speed, 12Mbps
UART,RS-232 : 38400 baud rate / 8bit data / non parity / one stop bit / non-PnP
- 2.4 ADC resolution: 10bits
- 2.5 Max Touch Line : 46 Driving lines, 35 Sensing line
- 2.6 Sampling rate:>100sps
- 2.7 Operating Voltage: +5V DC
- 2.8 Power Consumption : Typical -- Working Mode : 41.6mA
Idle Mode : 30.4mA
Sleep Mode : 5.3mA
- 2.9 RS specification: IEC61000-4-3 Level 3 , Criteria A (For 1.8mm Top glass)
- 2.10 CS specification: IEC61000-4-6 Level 3 , Criteria A (For 1.8mm Top glass)
- 2.11 Operating temperature: -20°C ~ +70°C
- 2.12 Storage temperature: -40°C ~ +85°C

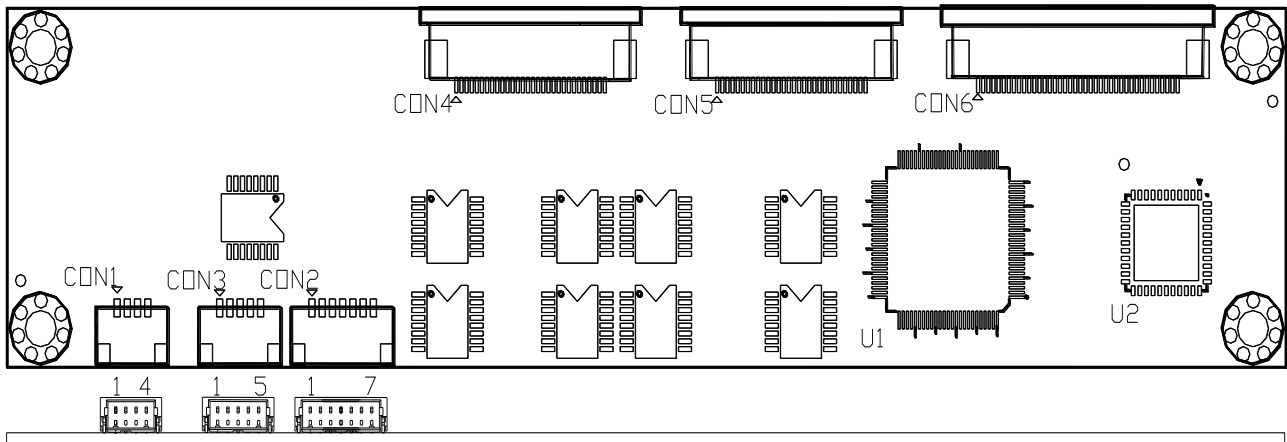
Note :

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

3.2 Touch line pin definition

| CON4 30Pin ZIF , PH 0.5mm ; ACES 88707-3001 | | | | | | | |
|---|---------------|-----|---------------|-----|---------------|-----|---------------|
| PIN | Description | PIN | Description | PIN | Description | PIN | Description |
| 1 | GND | 9 | Cap Drive X4 | 17 | Cap Drive X12 | 25 | Cap Drive X20 |
| 2 | GND | 10 | Cap Drive X5 | 18 | Cap Drive X13 | 26 | Cap Drive X21 |
| 3 | GND | 11 | Cap Drive X6 | 19 | Cap Drive X14 | 27 | Cap Drive X22 |
| 4 | NC | 12 | Cap Drive X7 | 20 | Cap Drive X15 | 28 | Cap Drive X23 |
| 5 | NC | 13 | Cap Drive X8 | 21 | Cap Drive X16 | 29 | NC |
| 6 | Cap Drive X1 | 14 | Cap Drive X9 | 22 | Cap Drive X17 | 30 | GND |
| 7 | Cap Drive X2 | 15 | Cap Drive X10 | 23 | Cap Drive X18 | | |
| 8 | Cap Drive X3 | 16 | Cap Drive X11 | 24 | Cap Drive X19 | | |
| CON5 30Pin ZIF , PH 0.5mm ; ACES 88707-3001 | | | | | | | |
| PIN | Description | PIN | Description | PIN | Description | PIN | Description |
| 1 | GND | 9 | Cap Drive X29 | 17 | Cap Drive X37 | 25 | Cap Drive X45 |
| 2 | NC | 10 | Cap Drive X30 | 18 | Cap Drive X38 | 26 | Cap Drive X46 |
| 3 | NC | 11 | Cap Drive X31 | 19 | Cap Drive X39 | 27 | NC |
| 4 | Cap Drive X24 | 12 | Cap Drive X32 | 20 | Cap Drive X40 | 28 | NC |
| 5 | Cap Drive X25 | 13 | Cap Drive X33 | 21 | Cap Drive X41 | 29 | GND |
| 6 | Cap Drive X26 | 14 | Cap Drive X34 | 22 | Cap Drive X42 | 30 | GND |
| 7 | Cap Drive X27 | 15 | Cap Drive X35 | 23 | Cap Drive X43 | | |
| 8 | Cap Drive X28 | 16 | Cap Drive X36 | 24 | Cap Drive X44 | | |
| CON6 40Pin ZIF , PH 0.5mm ; ACES 88707-4001 | | | | | | | |
| PIN | Description | PIN | Description | PIN | Description | PIN | Description |
| 1 | GND | 11 | Cap Sense Y27 | 21 | Cap Sense Y17 | 31 | Cap Sense Y7 |
| 2 | NC | 12 | Cap Sense Y26 | 22 | Cap Sense Y16 | 32 | Cap Sense Y6 |
| 3 | Cap Sense Y35 | 13 | Cap Sense Y25 | 23 | Cap Sense Y15 | 33 | Cap Sense Y5 |
| 4 | Cap Sense Y34 | 14 | Cap Sense Y24 | 24 | Cap Sense Y14 | 34 | Cap Sense Y4 |
| 5 | Cap Sense Y33 | 15 | Cap Sense Y23 | 25 | Cap Sense Y13 | 35 | Cap Sense Y3 |
| 6 | Cap Sense Y32 | 16 | Cap Sense Y22 | 26 | Cap Sense Y12 | 36 | Cap Sense Y2 |
| 7 | Cap Sense Y31 | 17 | Cap Sense Y21 | 27 | Cap Sense Y11 | 37 | Cap Sense Y1 |
| 8 | Cap Sense Y30 | 18 | Cap Sense Y20 | 28 | Cap Sense Y10 | 38 | NC |
| 9 | Cap Sense Y29 | 19 | Cap Sense Y19 | 29 | Cap Sense Y9 | 39 | GND |
| 10 | Cap Sense Y28 | 20 | Cap Sense Y18 | 30 | Cap Sense Y8 | 40 | GND |

3.3 Interface pin definition

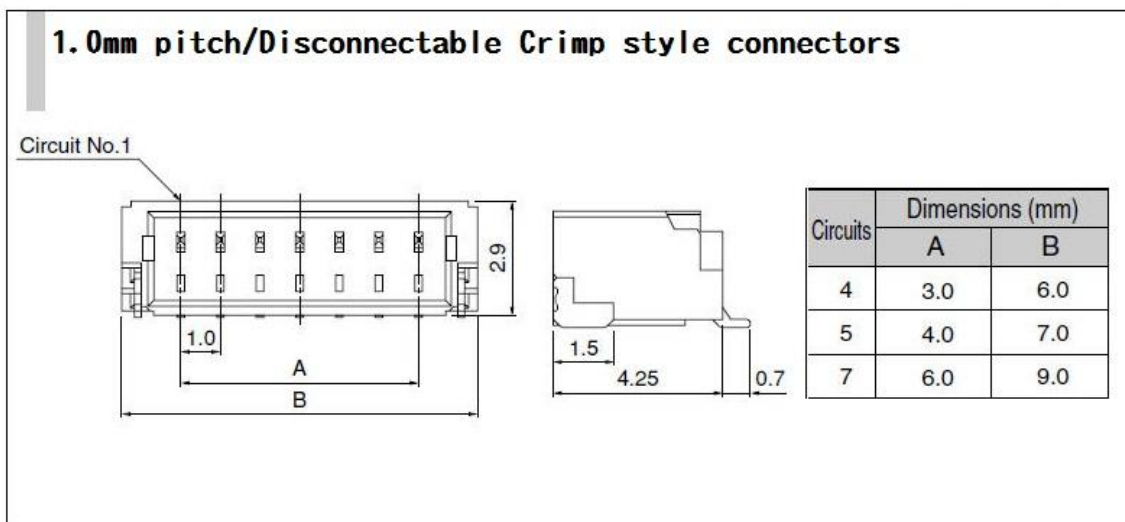


| CON1 / 4PIN / USB | |
|-------------------|-------------|
| PIN NO. | DESIGNATION |
| 1 | 5VIN |
| 2 | D- |
| 3 | D+ |
| 4 | Ground |

| CON3 / 5PIN / RS-232 | |
|----------------------|-------------|
| PIN NO. | DESIGNATION |
| 1 | 5VIN |
| 2 | RXD |
| 3 | TXD |
| 4 | Ground |
| 5 | Ground |

| CON2 / 7PIN / UART | |
|--------------------|-------------|
| PIN NO. | DESIGNATION |
| 1 | 5VIN |
| 2 | Ground |
| 3 | RXD |
| 4 | TXD |
| 5 | NC |
| 6 | NC |
| 7 | Detection |

3.4 Connector specification



3.5 Interface detection

PM1401 supports Interface detection. User can plug-in suitable cable to CON1 for USB interface, to CON2 for UART interface, and to CON3 for RS-232 interface. Firmware will use Detection to select UART. So user must setup Detection before PM1401 power-on. Please refer diagram below to select your desired interface for UART.

| | |
|------|----------------------|
| | Detection(CON2,Pin7) |
| UART | Low |

4.0 Drivers, Utilities

4.1 Drivers:

For USB / RS-232 / UART

Windows 2000, XP, 2003: single touch, mouse driver.

Windows Vista: single touch, inbox driver.

Windows 7,8: dual touch, Inbox driver.

Linux: Ubuntu, Android, other Linux distributions under development.

4.2 Utility:

Firmware adjustment utility is ready for user to fine tune the touch panel sensitivity.

Note :

Drivers, Utilities : all the drivers are available in AMT and PenMount website. The PenMount utilities is also available, contact us

5.0 Others

5.1 ROHS compliance: This control board is met ROHS compliance

5.2 For EMC protection recommendations please refer to the AMT touch screen integration guides.

5.3 Warranty: one year