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Revision History

Rev.	Date	By	Summary	Remark
1.0	2026/4/27	Ken Hsu	1. New Release	

The PenMount PM1720 series control board is a high specification (Projected Capacitive, PCAP) touch panel controller product introduced by PenMount. The PenMount PM1720 series can be applied in the consumer, commercial and industrial fields.

The PenMount PM1720 series provides three types of interfaces—USB, I²C and UART—and supports PCAP touch panels sized from 15.6” to 32”. The PenMount PM1720 series also supports a wide range of operating systems such as Windows and Linux.

The PenMount PM1720 series was developed based on iBLab S1104 MCU and is paired with PenMount’s in-house hardware design and firmware algorithmic mechanism. It provides high performance computing and possesses excellent anti-noise capabilities.

There are three connectors on this board: 80 Pins & 50 Pins ZIF connectors for PCAP touch screen FPC cables, one USB connector for 4-pin USB cable, and one I²C/UART connector for 7-pin I²C cable.

2.0 Specifications

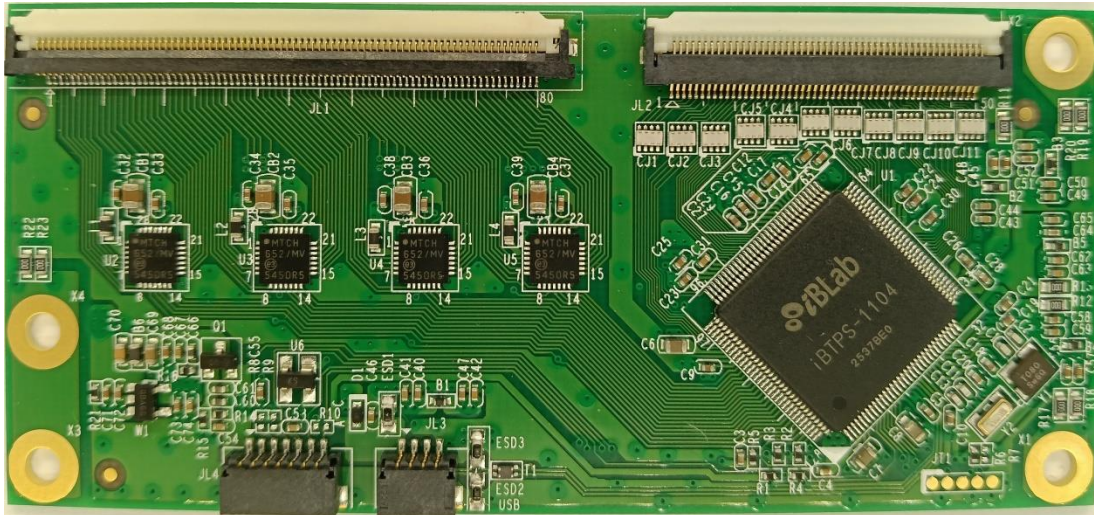
Parameter		feature
MCU		iBLab S1104
Number of sensing line		44 (Max)
Number of driving line		76 (Max)
Supporting touch panel		Projected capacitive type, from 15.6" to 32"
Interface	USB	Full-speed, 12Mbps
	UART	38400 baud rate / 8bit data / non parity / one stop bit / non-PnP
	I ² C	Slave, 400 kHz
Firmware resolution		4096 x 4096 (Typical)
Sampling Rate	1 finger touch	165 Hz(Typical)
	5 finger touch	150 Hz(Typical)
	10 finger touch	130 Hz(Typical)
Response time		Average < 30ms
Operating voltage		+5Vdc, ±5 %
Power consumption	Working mode	95mA @ 5Vdc
	Idle mode	88mA @ 5Vdc
	Sleep mode	5mA @ 5Vdc
Operating temperature		-40°C ~ +85°C
Storage temperature		-40°C ~ +85°C
Relative humidity range		95% RH at 60°C. RH Non-condensing
EMS specification	RS	IEC61000-4-3 Level 3 , Criteria A, dual touch points
	CS	IEC61000-4-6 Level 3 , Criteria A, dual touch points
Watchdog Timer		Support WDT function through firmware programming

Note :

1. Firmware resolution depends on the firmware version and settings. The maximum resolution can be configured up to 16384 x 16384.
2. CS and RS performance, power consumption and sample rate will vary according to different firmware versions.
3. Check release notes for details according to hardware and software versions.

3.0 Mechanical Drawing

3.1 Mechanical size.



*(The product pictures is subject to change without notice. Consult IB for the latest ones.)

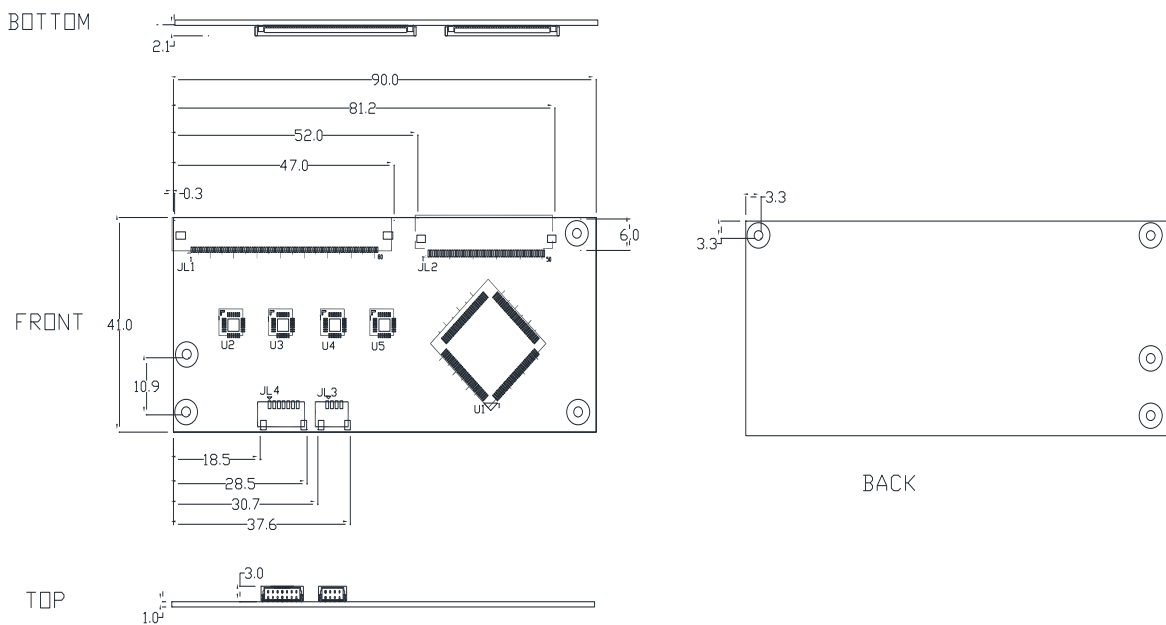


Figure 1. PM1720

3.2 Touch line pin definition

JL1 80Pin ZIF , PH 0.5mm ; ACES 50520-08001-001 or compatible							
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND	21	Cap Drive X19	41	Cap Drive X39	61	Cap Drive X59
2	GND	22	Cap Drive X20	42	Cap Drive X40	62	Cap Drive X60
3	Cap Drive X1	23	Cap Drive X21	43	Cap Drive X41	63	Cap Drive X61
4	Cap Drive X2	24	Cap Drive X22	44	Cap Drive X42	64	Cap Drive X62
5	Cap Drive X3	25	Cap Drive X23	45	Cap Drive X43	65	Cap Drive X63
6	Cap Drive X4	26	Cap Drive X24	46	Cap Drive X44	66	Cap Drive X64
7	Cap Drive X5	27	Cap Drive X25	47	Cap Drive X45	67	Cap Drive X65
8	Cap Drive X6	28	Cap Drive X26	48	Cap Drive X46	68	Cap Drive X66
9	Cap Drive X7	29	Cap Drive X27	49	Cap Drive X47	69	Cap Drive X67
10	Cap Drive X8	30	Cap Drive X28	50	Cap Drive X48	70	Cap Drive X68
11	Cap Drive X9	31	Cap Drive X29	51	Cap Drive X49	71	Cap Drive X69
12	Cap Drive X10	32	Cap Drive X30	52	Cap Drive X50	72	Cap Drive X70
13	Cap Drive X11	33	Cap Drive X31	53	Cap Drive X51	73	Cap Drive X71
14	Cap Drive X12	34	Cap Drive X32	54	Cap Drive X52	74	Cap Drive X72
15	Cap Drive X13	35	Cap Drive X33	55	Cap Drive X53	75	Cap Drive X73
16	Cap Drive X14	36	Cap Drive X34	56	Cap Drive X54	76	Cap Drive X74
17	Cap Drive X15	37	Cap Drive X35	57	Cap Drive X55	77	Cap Drive X75
18	Cap Drive X16	38	Cap Drive X36	58	Cap Drive X56	78	Cap Drive X76
19	Cap Drive X17	39	Cap Drive X37	59	Cap Drive X57	79	NC
20	Cap Drive X18	40	Cap Drive X38	60	Cap Drive X58	80	GND

JL2 50Pin ZIF , PH 0.5mm ; ACES 51619-05001-001 or compatible									
PIN	Description	PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND	11	Cap Sense Y9	21	Cap Sense Y19	31	Cap Sense Y29	41	Cap Sense Y39
2	NC	12	Cap Sense Y10	22	Cap Sense Y20	32	Cap Sense Y30	42	Cap Sense Y40
3	Cap Sense Y1	13	Cap Sense Y11	23	Cap Sense Y21	33	Cap Sense Y31	43	Cap Sense Y41
4	Cap Sense Y2	14	Cap Sense Y12	24	Cap Sense Y22	34	Cap Sense Y32	44	Cap Sense Y42
5	Cap Sense Y3	15	Cap Sense Y13	25	Cap Sense Y23	35	Cap Sense Y33	45	Cap Sense Y43
6	Cap Sense Y4	16	Cap Sense Y14	26	Cap Sense Y24	36	Cap Sense Y34	46	Cap Sense Y44
7	Cap Sense Y5	17	Cap Sense Y15	27	Cap Sense Y25	37	Cap Sense Y35	47	NC
8	Cap Sense Y6	18	Cap Sense Y16	28	Cap Sense Y26	38	Cap Sense Y36	48	NC
9	Cap Sense Y7	19	Cap Sense Y17	29	Cap Sense Y27	39	Cap Sense Y37	49	NC
10	Cap Sense Y8	20	Cap Sense Y18	30	Cap Sense Y28	40	Cap Sense Y38	50	GND

3.3 Interface pin definition

PM1720 includes USB/I2C/UART 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.	SYMBOL	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

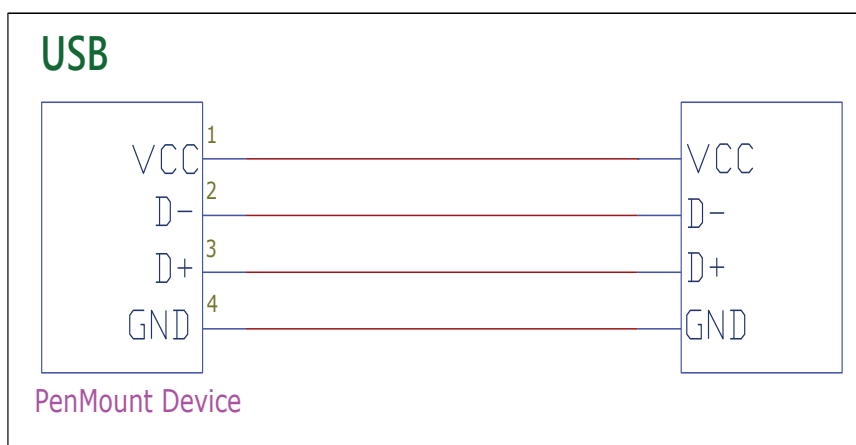


Figure 2. USB interface

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 / TXD	SCL	TXD*
4	SDA / RXD	SDA	RXD*
5	nRESET	N.C.	N.C.
6	nDetect	N.C.	Low
7	nINT	nINT	Low

* The TXD and RXD pins of the UART are opposite to those of the JL4 on PM1711.

SYMBOL	Type	Description	Min	Typ	Max	Unit
VCC	P	Positive power supply	3.3	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 PM1720 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

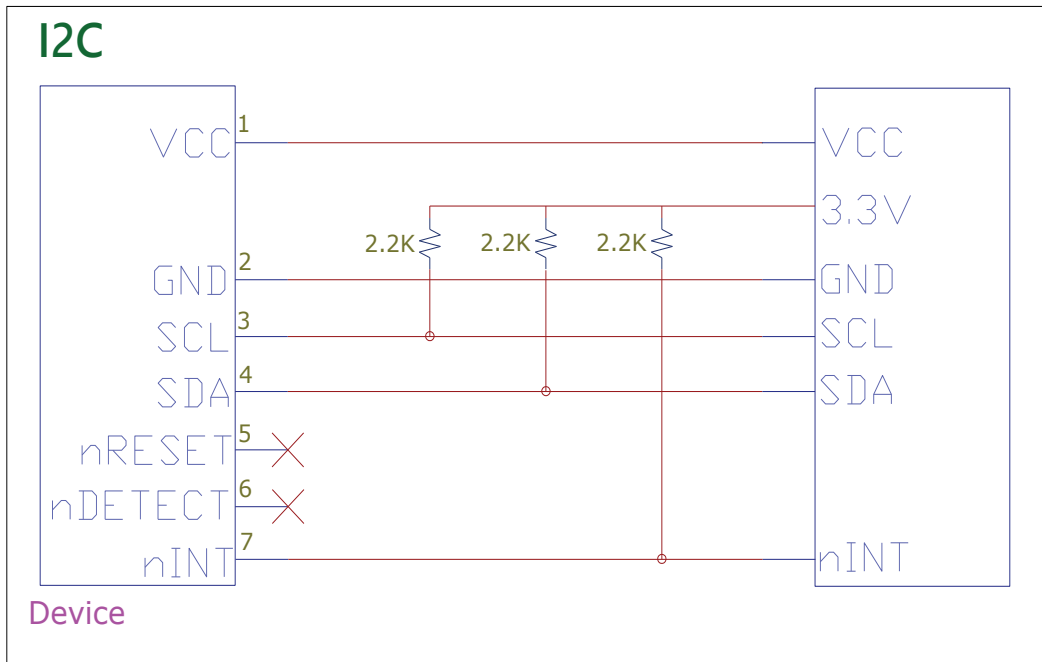


Figure 3. I2C interface

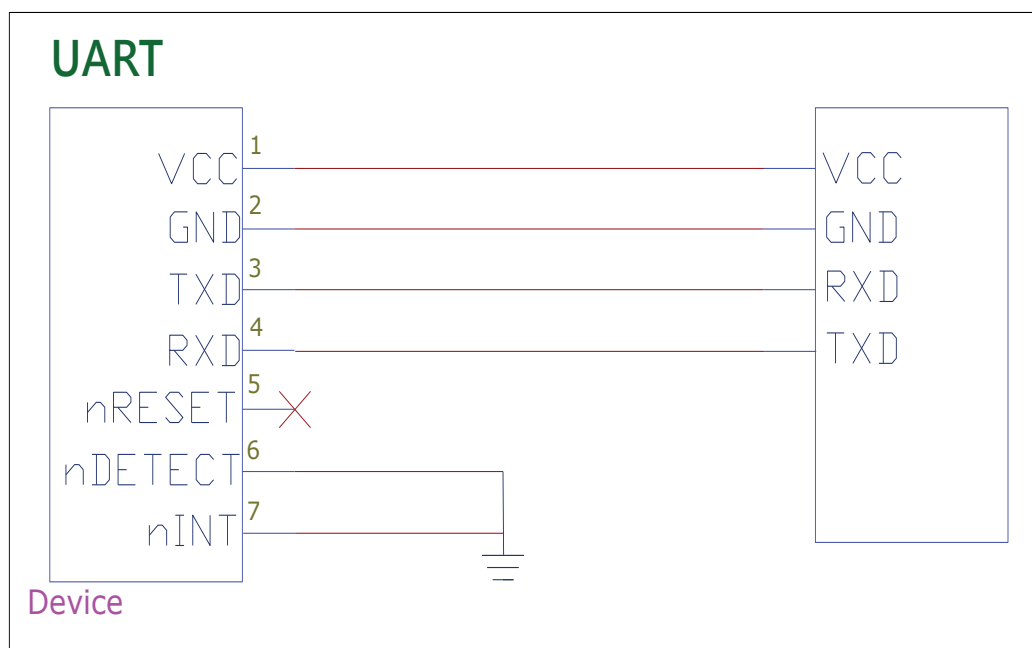
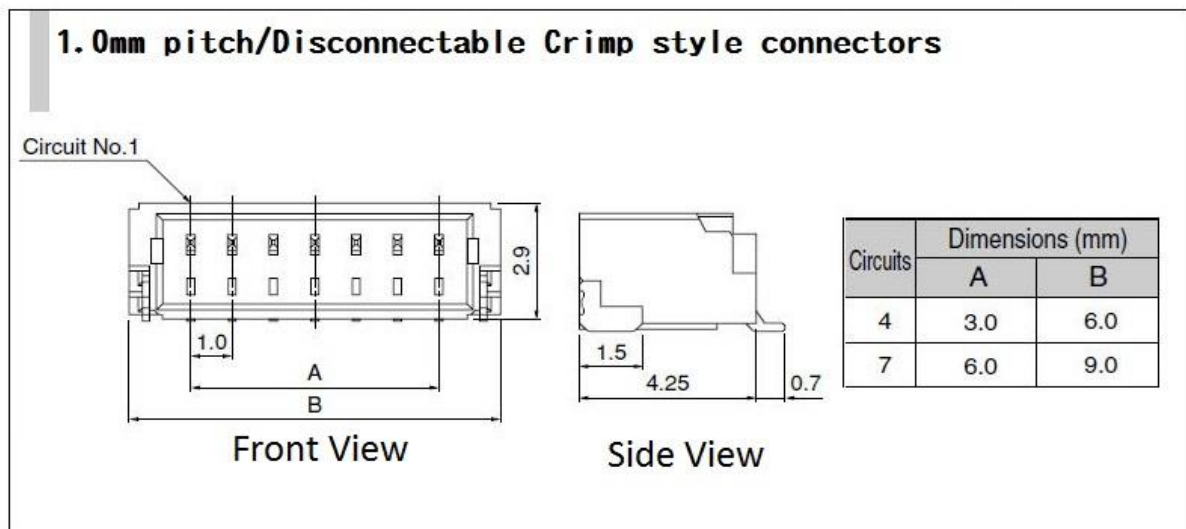


Figure 4. UART interface

3.4 Connector specifications

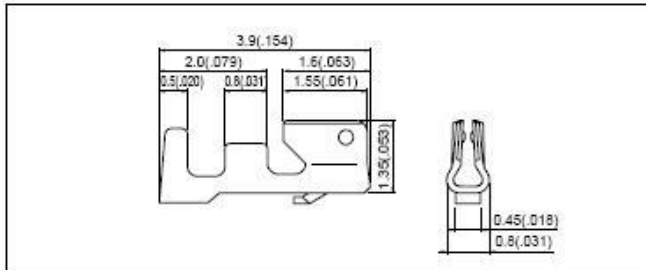
Connector name	Connector function	On-board Connector	Mating connector (JST)
JL3	USB	1 x 4 locking M pin header ACES p/n 50224-00401-001	JST p/n SHR-04V-S-B housing JST p/n SSH-003T-P0.2-H crimp pin
JL4	I2C/UART	1 x 7 locking M pin header ACES p/n 50224-00701-001	JST p/n SHR-07V-S-B housing JST p/n SSH-003T-P0.2-H crimp pin
JL1	80 – pin ZIF touch screen	1 x 80 FFC / FPC conn ACES p/n 50520-08001-001	
JL2	50 – pin ZIF touch screen	1 x 50 FFC / FPC conn ACES p/n 51619-05001-001	

JL3 、 JL4 On-board Connector Specification



JL3、JL4 Mating Connector (JST) Specification

Contact

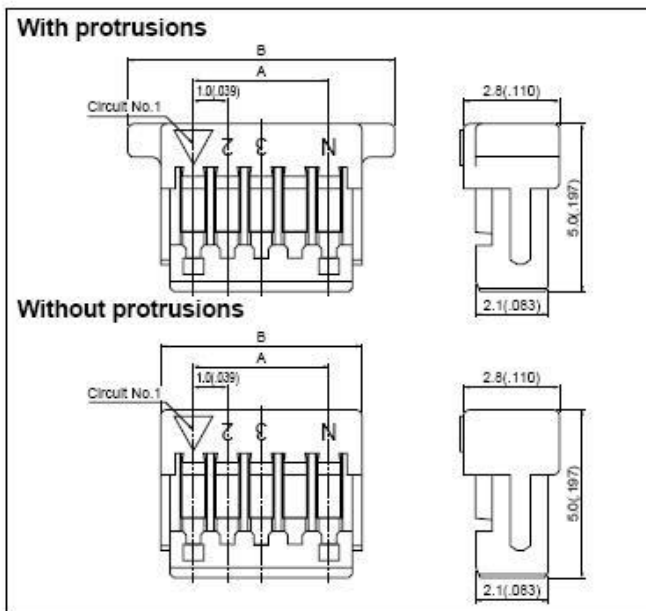


Model No.	Applicable wire			Q'ty / reel
	mm ²	AWG#	Insulation O.D. mm(in.)	
SSH-003T-P0.2-H	0.032 to 0.08	32 to 28	0.4 to 0.8(.016 to .031)	23,000

Material and Finish
Phosphor bronze, tin-plated

Note: Contact JST for gold-plated contacts.

Housing



Circuits	Model No.		Dimensions mm(in.)			Q'ty / box
			A	B		
	With protrusions	Without protrusions		With protrusions	Without protrusions	
2	SHR-02V-S-B	SHR-02V-S	1.0(.039)	5.0(.197)	3.0(.118)	2,000
3	SHR-03V-S-B	SHR-03V-S	2.0(.079)	6.0(.236)	4.0(.157)	2,000
4	SHR-04V-S-B	SHR-04V-S	3.0(.118)	7.0(.278)	5.0(.197)	2,000
5	SHR-05V-S-B	SHR-05V-S	4.0(.157)	8.0(.315)	6.0(.236)	2,000
6	SHR-06V-S-B	SHR-06V-S	5.0(.197)	9.0(.354)	7.0(.278)	2,000
7	SHR-07V-S-B	SHR-07V-S	6.0(.236)	10.0(.394)	8.0(.315)	2,000
8	SHR-08V-S-B	SHR-08V-S	7.0(.276)	11.0(.433)	9.0(.354)	2,000
9	SHR-09V-S-B	SHR-09V-S	8.0(.315)	12.0(.472)	10.0(.394)	2,000
10	SHR-10V-S-B	SHR-10V-S	9.0(.354)	13.0(.512)	11.0(.433)	2,000
11	SHR-11V-S-B	SHR-11V-S	10.0(.394)	14.0(.551)	12.0(.472)	2,000
12	SHR-12V-S-B	SHR-12V-S	11.0(.433)	15.0(.591)	13.0(.512)	2,000
13	SHR-13V-S-B	SHR-13V-S	12.0(.472)	16.0(.630)	14.0(.551)	2,000
14	SHR-14V-S-B	SHR-14V-S	13.0(.512)	17.0(.669)	15.0(.591)	2,000
15	SHR-15V-S-B	SHR-15V-S	14.0(.551)	18.0(.709)	16.0(.630)	2,000
20	SHR-20V-S-B	-	19.0(.748)	23.0(.906)	21.0(.827)	2,000

Material
PBT, UL94V-0, natural (white)

Note: SHR-20V-S-B is not CSA approved.

4.0 Drivers and Utilities

4.1 Drivers

For I²C

- Windows / Linux / Android :
HID over I2C protocol: Inbox driver support.
PenMount I2C protocol: Provide source code for integration.

For USB

- Windows XP / Vista: OS inbox single-touch driver support.
- Windows 7, 8, 10, 11: OS inbox multi-touch driver support.
- Linux / Android: OS inbox multi-touch driver support.

For UART

- Windows XP, Vista: PenMount single-touch driver support.
- Windows 7, 8, 10, 11: PenMount multi-touch driver support.
- Linux / Android: Provide source code for integration

Note:

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

4.2 Utilities

Firmware adjustment utility allows user to fine tune the touch panel performance, including set parameters, adjust sensitivity and noise handling, update firmware, etc.

5.0 Others

5.1 ROHS compliance

This control board is ROHS compliant

5.2 EMC protection recommendations

Please refer to AMT Projected Capacitive Touch Panel Integration Guide.

5.3 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.

