



AE1715 PCAP Control Board Datasheet

Version 1.3
2024/03/19

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Revision History

Rev.	Date	Summary	Remark
1.0	2021/11/30	First Edition	Carol
1.1	2022/05/13	Control Board L0 changed to L1 version: Added RSTN pin(JL6) and GPIO pin (JP9)	William_Tai
1.2	2022/08/12	Corrected Part Numbers for Accessory Cables 2.0 Specifications Delete RS232 data	Carol
1.3	2024/03/19	Revision 3.2 item: The PIN pitch of JL3 and JL6 connectors is 1.0mm	Carol

1.0 Introduction

This controller board is a high specification Projective Capacitive input (PCAP) touch panel controller product. It is developed based on the EETI MCU EXC80H84 ASIC. It can be applied in the consumer, commercial, and industrial fields.

The controller provides USB, I2C interfaces. It can support up to 24-inch PCAP touch screens. It also supports wide range of operating systems, such as Windows and Linux.

There are 4 connectors on this board: 80 Pins (JL1) & 50 Pins (JL2) ZIF connectors for PCAP touch screen FPC cables, 4 Pins USB (JL3) and 7 Pins I2C (JL6) connectors for host interface.

2.0 Specifications

Parameters	Features
Controller Part Number	AE1715-L1
Number of sensing line	78 (include shielding lines)
Number of driving Line	48 (include shielding lines)
Support touch panel size	Up to 24" (base on 7mm sensor channel pitch)
Input Voltage	5V +/-5%
Interface	USB: 1.1 Full Speed I2C: up to 400KHz, Voltage Level 3.3V
Linearity ¹	<= +/- 1mm (outside 3.5mm from edges) <= +/- 2mm (within 3.5mm of all edges)
Resolution	16384x16384
Sampling rate ²	>100 Hz
Reaction time	<25 ms
Operating Voltage	5.0 V (Typical)
Operating current	<100 mA
Operation Temperature	-40°C ~ +85°C
Storage Temperature	-40°C ~ +90°C
Operation humidity	95% at 60°C, RH Non-condensing
Operation systems support	Windows/Linux/Android
Utility Support	eGalaxTouchManager+
RoHS compliant	Yes
Water resistance	Yes

1 Requires a corresponding touch sensor design. (Sensor pitch<=5.5mm)

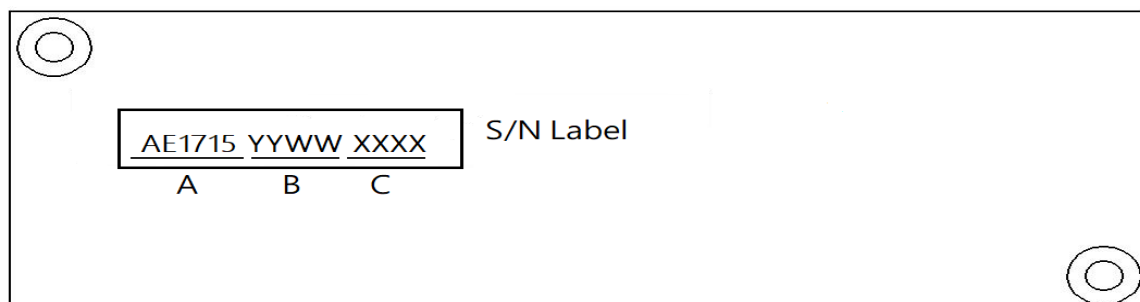
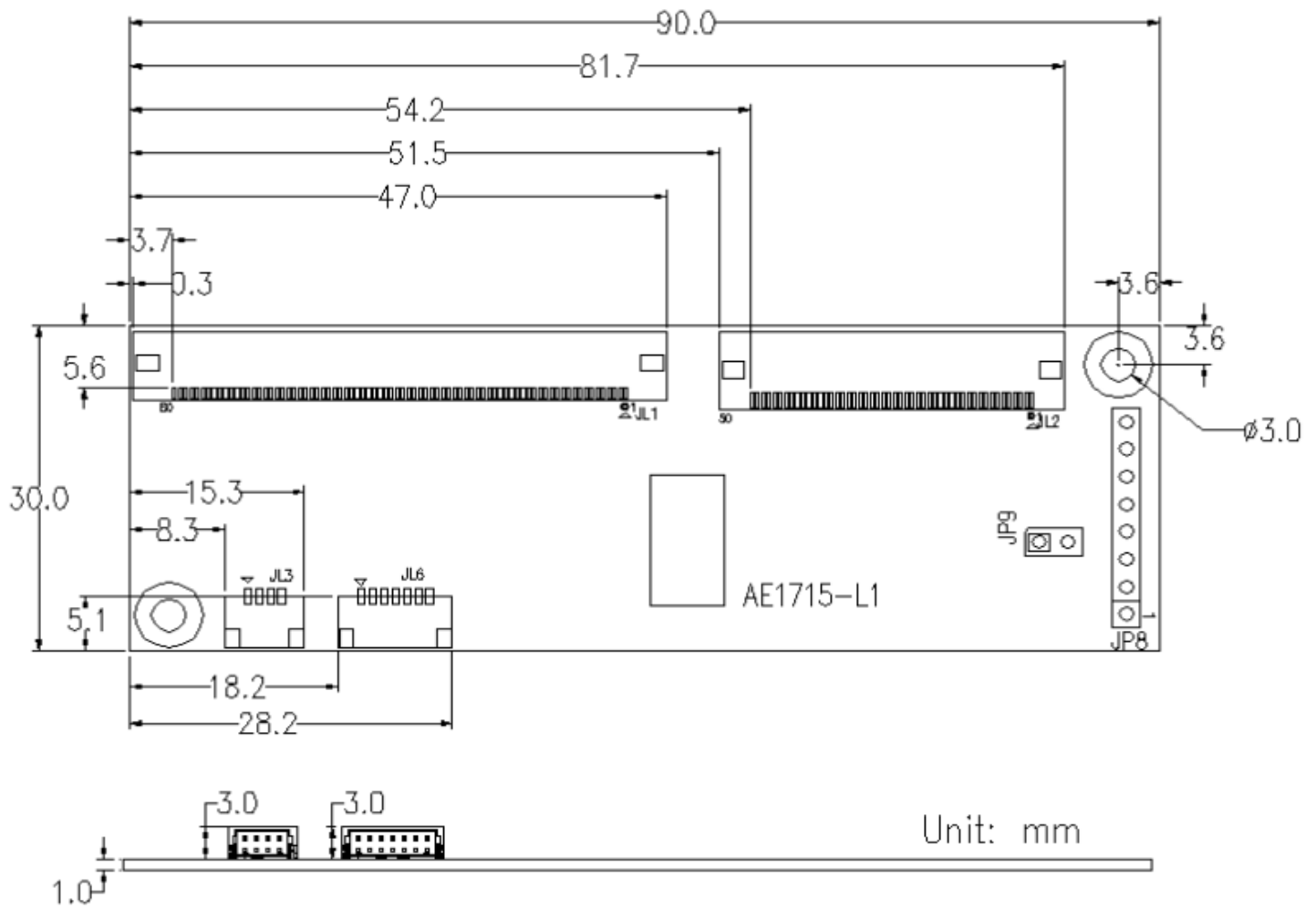
2 Report rate is varied by touch sensor channel number, cover thickness, system condition, and other parameters

Disclaimer

- Performance specification, such as report rate may be varied depends on touch sensor channel numbers, cover thickness, system condition and other parameters.
- Reference sensor channel pitch should be ranged from 5.0mm (Win10) to 8mm (Non-Win10).
- Special input performance may be influenced depends on module condition, contact material , and other operating environments, subjects including through thick glass touch, gloved-hand input, water resistance and noise immunity etc.
- Special features are required to pre-define and pre-tune during project development.

3.0 Mechanical Specification

3.1 Mechanical size



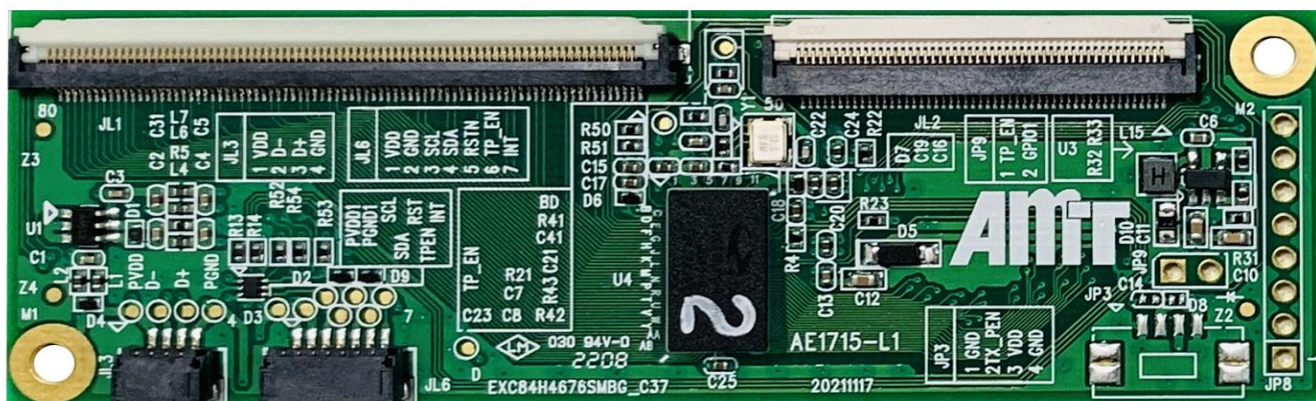
S/N Label:

A : Product name.

B : Last two digits of the year + week number.

C : Serial number.

3.2 Connector information



JL1: 0.5mm*80P, Sensing Channel, ACES 50520-08001-001

JL2: 0.5mm*50P, Driving Channel, ACES 51619-05001-001

JL3: 1.0mm*4P, USB Connector, ACES 50224-00401-001

JL6: 1.0mm*7P, I2C Connector, ACES 50224-00701-001

JP8: 2.54mm*8P, Engineering test pin, Pin Header (No connect)

JP9: 2.54mm*2P, GPIO pin, Pin Header (No connect)

Connector name	Connector function	On-board Connector	Mating connector (JST)
JL1	touch screen RX Signal	1 x 80 FFC / FPC conn ACES P/N: 50520-08001-001	FPC 80 Pin/0.5mm Pitch/0.3 t
JL2	touch screen TX Signal	1 x 50 FFC / FPC conn ACES P/N: 51619-05001-001	FPC 50 Pin/0.5mm Pitch/0.3 t
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
JL6	I2C	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
JP8	Debug Port	1x 8 Pin Header(No connect)	TBD
JP9	GPIO	1x 2 Pin Header(No connect)	TBD

Accessory Cables

- 94-53018-000, External USB cable
- 94-56002-000, Internal I2C cable

3.3 Pin Description

JL1 80 Pin ZIF , PH 0.5mm ; ACES 50520-08001-001									
PIN	Description	PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND_E	18	RX16	35	RX33	52	RX50	69	RX67
2	RX0	19	RX17	36	RX34	53	RX51	70	RX68
3	RX1	20	RX18	37	RX35	54	RX52	71	RX69
4	RX2	21	RX19	38	RX36	55	RX53	72	RX70
5	RX3	22	RX20	39	RX37	56	RX54	73	RX71
6	RX4	23	RX21	40	RX38	57	RX55	74	RX72
7	RX5	24	RX22	41	RX39	58	RX56	75	RX73
8	RX6	25	RX23	42	RX40	59	RX57	76	RX74
9	RX7	26	RX24	43	RX41	60	RX58	77	RX75
10	RX8	27	RX25	44	RX42	61	RX59	78	RX76
11	RX9	28	RX26	45	RX43	62	RX60	79	RX77
12	RX10	29	RX27	46	RX44	63	RX61	80	GND_E
13	RX11	30	RX28	47	RX45	64	RX62		
14	RX12	31	RX29	48	RX46	65	RX63		
15	RX13	32	RX30	49	RX47	66	RX64		
16	RX14	33	RX31	50	RX48	67	RX65		
17	RX15	34	RX32	51	RX49	68	RX66		

JL2 50 Pin ZIF , PH 0.5mm ; ACES 51619-05001-001									
PIN	Description	PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	GND_E	11	TX9	21	TX19	31	TX29	41	TX39
2	TX0	12	TX10	22	TX20	32	TX30	42	TX40
3	TX1	13	TX11	23	TX21	33	TX31	43	TX41
4	TX2	14	TX12	24	TX22	34	TX32	44	TX42
5	TX3	15	TX13	25	TX23	35	TX33	45	TX43
6	TX4	16	TX14	26	TX24	36	TX34	46	TX44
7	TX5	17	TX15	27	TX25	37	TX35	47	TX45
8	TX6	18	TX16	28	TX26	38	TX36	48	TX46
9	TX7	19	TX17	29	TX27	39	TX37	49	TX47
10	TX8	20	TX18	30	TX28	40	TX38	50	GND_E

JL3 / 4PIN / ACES 50224-00401-001		
PIN	USB	Description
1	VDD	Input Voltage (5V).
2	D-	D- pin of internal USB transceiver
3	D+	D+ pin of internal USB transceiver
4	GND_E	Ground

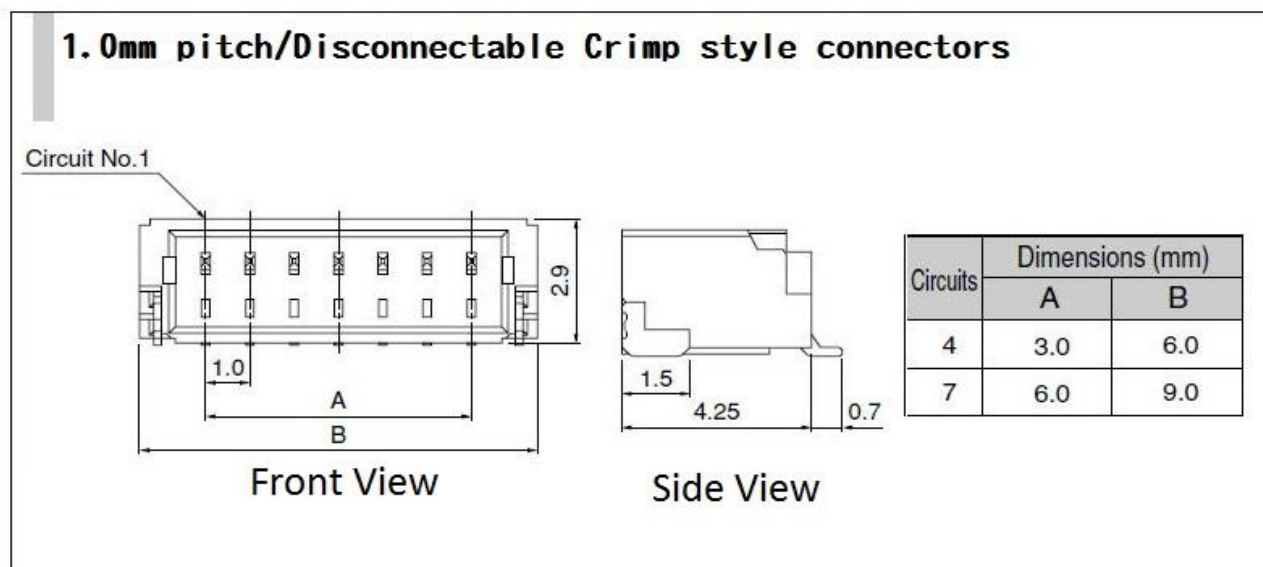
JL6 / 7PIN / ACES 50224-00701-001		
PIN	I2C	Description
1	VDD	Positive power supply (5V).
2	GND_E	Ground
3	I2C_SCL	Serial clock line for I ² C. Open drain requires an external pull-up to 3.3V.
4	I2C_SDA	Serial data line for I ² C. Open drain, requires an external pull-up to 3.3V
5	RSTN	Open-drain and active low to reset EXC80H84 and must be driven low for 1ms (min.) to be valid. Leave the pin unconnected if not used.
6	TP_EN	Pull low for disable touch function, release this pin will back to enable touch function, Leave the pin unconnected if not used.
7	I2C_INT	Processor Interrupt. This pin is active low, open drain requires an external pull-up to 3.3V.

JP8 / 8PIN (2.54mm*8P, Engineering test pin)		
PIN	Test pin	Description
1	VDD_D	VDD_Digital
2	TP1	Test pin 1
3	TP2	Test pin 2
4	TP3	Test pin 3
5	TP4	Test pin 4
6	TP5	Test pin 5
7	RSTN	Open-drain and active low to reset EXC80H84 and must be driven low for 1ms (min.) to be valid. Leave the pin unconnected if not used.
8	GND	Ground-Digital

JP9 / 2PIN (2.54mm*2P, GPIO pin)		
PIN	GPIO	Description
1	GPIO_0 (TP_EN)	Pull low for disable touch function, release this pin will back to enable touch function, Leave the pin unconnected if not used.
2	GPIO_1 (TBD)	With AP configurable function

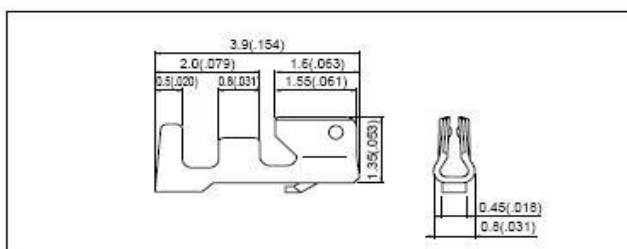
3.4 Remark

(1) JL3、JL6 Connector Specifications :



(2) JL3、JL6 Mating Connector (JST) Specification :

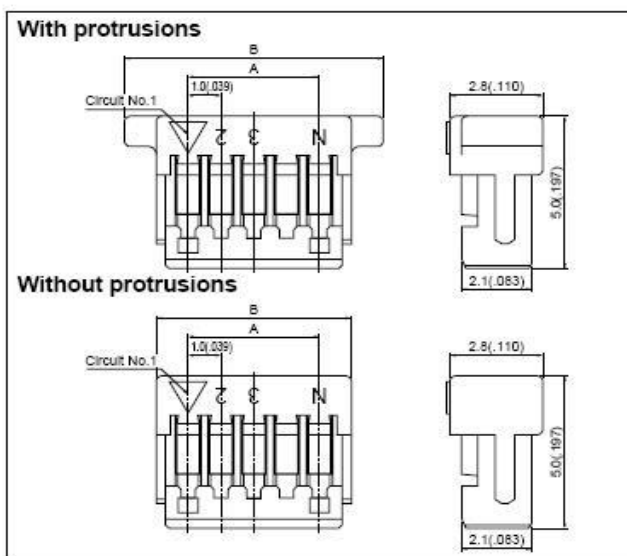
Contact



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(.276)	5.0(.187)	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(.276)	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(.908)	21.0(.827)	2,000
Material							
PBT, UL94V-0, natural (white)							

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