

EMPEN 13.3” SENSOR CONTROL BOARD SPECIFICATION

Product Name: 13.3” DIGITIZER SENSOR/CONRTOL BOARD EMPEN

CUSTOMER P/N:

EMPEN P/N : 202206271001

Customer	Approved by
	empen

Revision History

Revision	Date	Description	Author /Revised by
01	2022/06/27	Initial	andy

1. Product Specifications

EM Touch Characteristics

Technology	Battery free Electro-magnetic
Effective Diagonal Size	13.3 inch
Sensor External Dimension	304(mm)X174(mm)
Active Area	293.76(mm)X165.24(mm)
Material	FR4
Resolution	1920X1080
Coordinate Accuracy	Center ± 0.5 mm/Edge ± 1 mm (Vertical) (see Note 1,2,3)
Coordinate Jitters	1-point max (see Note 1 and 2)
Detectable Pen tilt	Up to 60° from vertical
Detectable Height	3-15mm above the Sensor Film
Position Report Rate	266 PPS (max)
Pressure Resolution	8192 levels @ full scale
EM module Thickness	0.2or0.4mm(Max)
Double Pen	NO Support (Option)
EM Board External Dimension	88.7(mm)X39.95(mm) X \leq Max 2.00(mm)
Interface	USB/I2C/UART
VID & PID	VID:0x248A, PID:0x5011

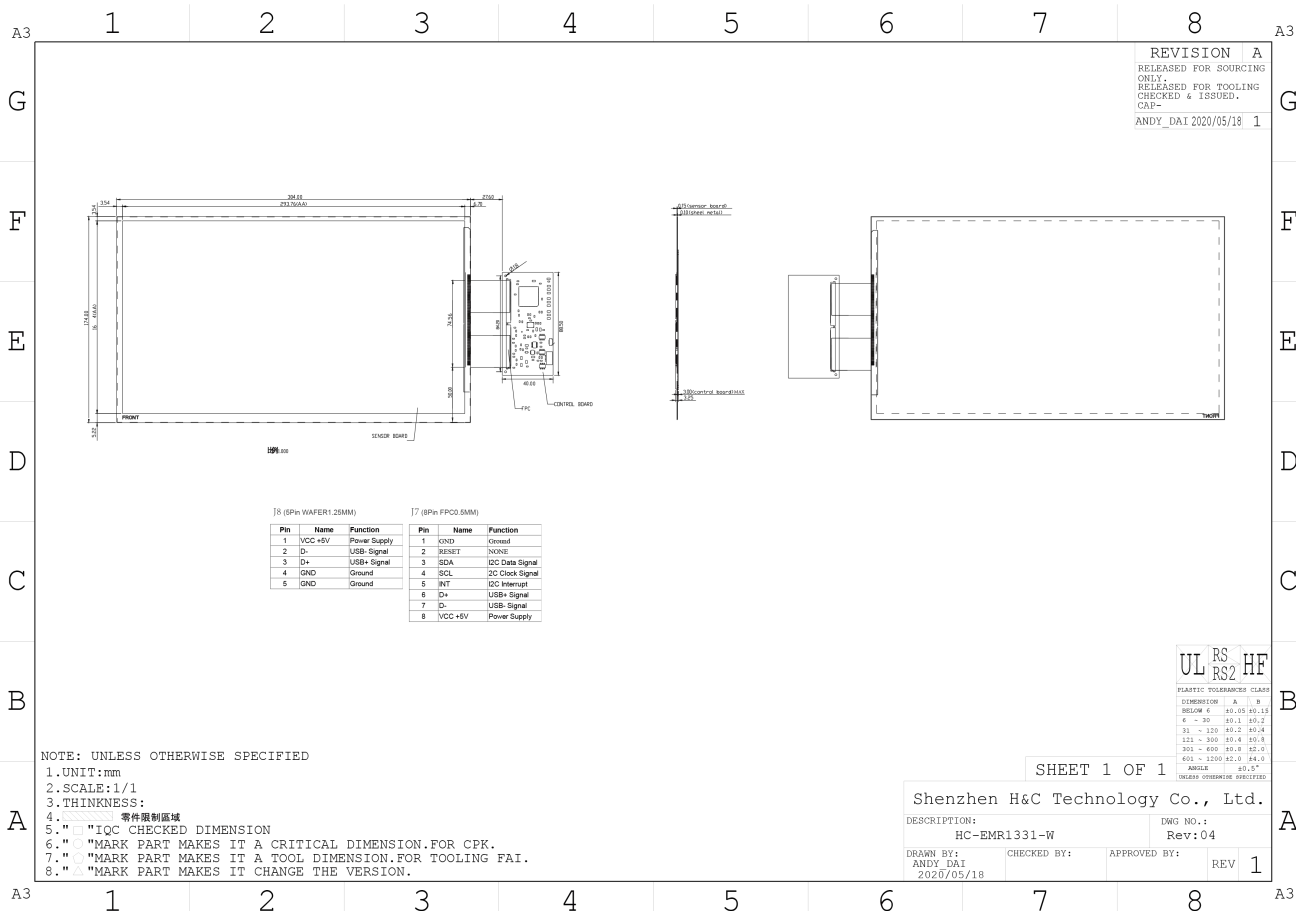
Note 1: The EM Sensor Board and Stylus at ordinary temperature.

Note 2: The pen held vertically at 0mm high from LCD.

Note 3: The pen held in the center of active area

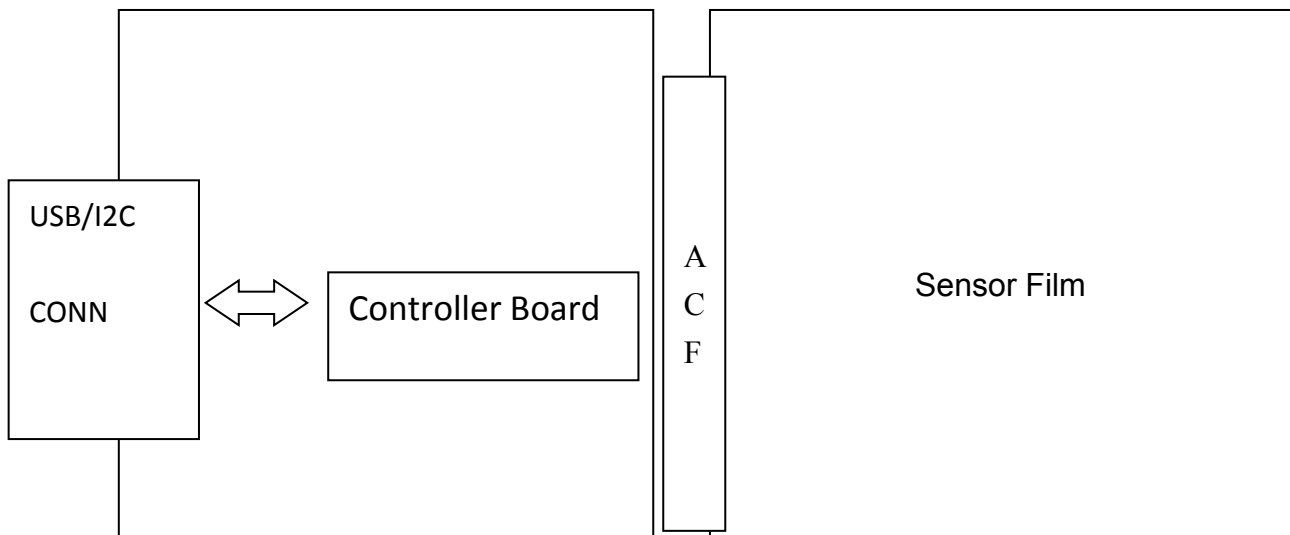
Note 4: This specification is for standard module. For better performance, it needs to be customized by customer's system.

2.EM SENSOR/CONTROL BOARD DRAWING



3.Electrical Specifications

Circuit Diagram



4. Test Conditions

- Ambient Temperature : $25 \pm 5^{\circ}\text{C}$
- Ambient Humidity : $65 \pm 16\%$ (RH)
- Supply Voltage : VDD +5V

DC Electrical Characteristics

Item	Min.	Typ.	Max.	Unit.	Remark
Supply Voltage	4.75	5.0	5.25	V	
Current Consumption Pen in touch	70	90	130	mA	
Current Consumption Pen@10mm	70	90	130	mA	
Current Consumption Standby mode	70	90	130	mA	Note 1
Low Scan mode	16 (400mSec)	45	130 (130mSec)	mA	Keep standby mode 40 min will entry low scan mode

*Note 1: The control Module can be sleep when the PC going to standby mode.

5. Electrical Characteristics

1. Absolute Maximum Ratings

Item	Symbol	Min	Max	Unit	Checked Terminal
Supply Voltage	V _{DD}	4.75	5.25	V	
Input Voltage of Signals	V _{IN}	4.75	5.25	V	
Operating Ambient Temperature	T _{OP}	-10	+60	°C	
Operating Ambient Humidity	H _{OP}	20	90	%(RH)	No condensing
Storage Temperature	T _{STG}	-20	+70	°C	
Storage Humidity	H _{STG}	20	95	%(RH)	No condensing

*Note 1: Do not exceed the maximum rating values under any conditions including the variations in supply voltage, input voltage, part constants, ambient temperature and so on; it may damage the single mode digitizer sensor unit.

1. Recommended Operating Conditions

Item	Symbol	Min	TYP	Max	Unit	Remarks
Supply voltage	V _{DD}	4.75	5.0	5.25	V	
Ambient temperature		0	25	60	°C	
Ambient humidity		40	60	80	%(RH)	

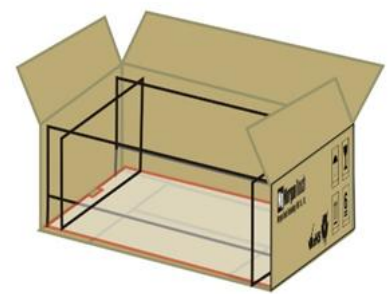
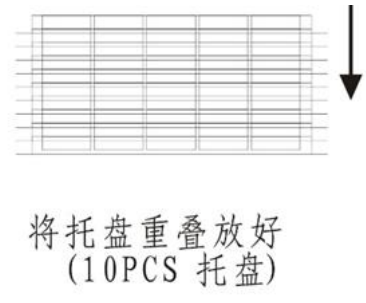
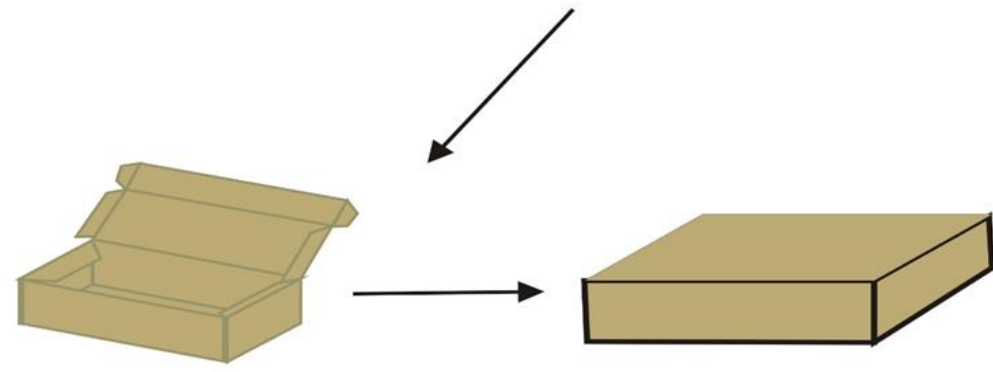
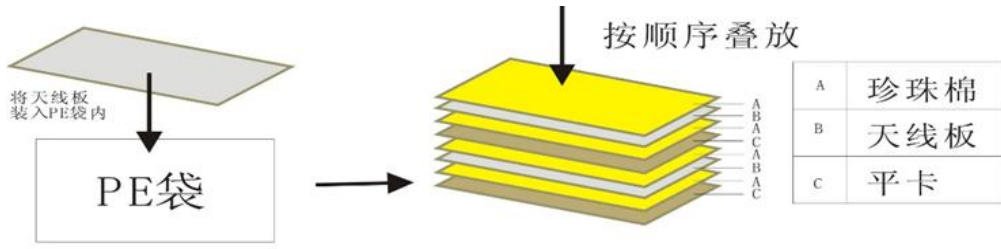
*Note : The Digitizer Sensor Unit should always be operated within these ranges.

“TYP” shows the recommended value.

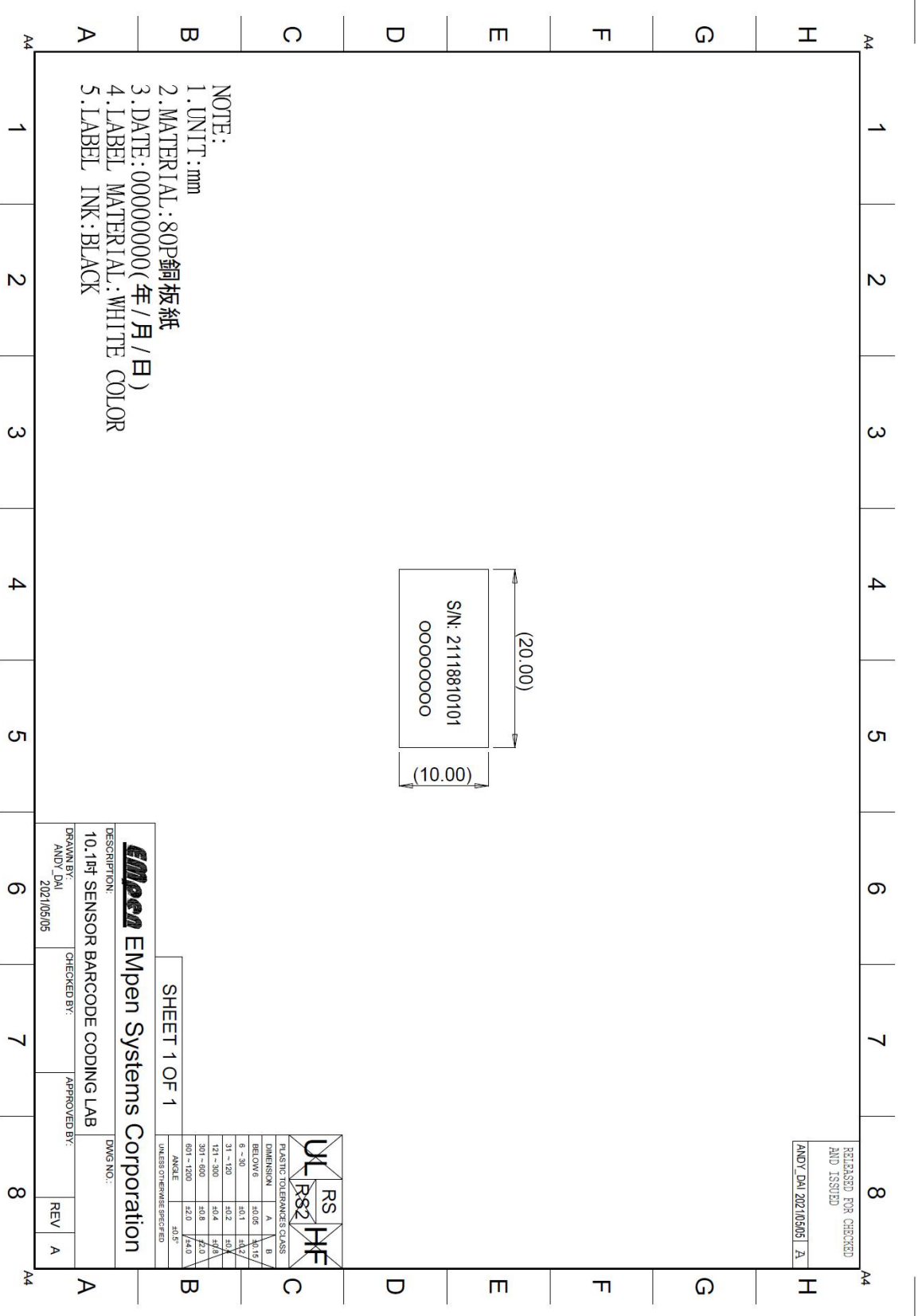
6. Reliability Test

Item	SPEC	Testing method	Criteria	Number of test samples
High Temperature /High Humidity Storage Test	30°C/95%~61°C/95%, 12 hours for 30°C /95%, 12 hours for 61°C/95%, one cycle is 24 hours , test time is 10days	MIL-STD-810G-507.5 Humidity Procedure – II Aggravated	1. All functions must be normally 2. No oxidation on screws. 3. No visual abnormal.	2
High Temperature Test (Operating)	61°C 96h	MIL-STD-810G-501.5 Procedure II Operation	4. There shall not be any cosmetic damage	2
High Temperature Test (Non-Operating)	33°C~71°C ,10days 12 hours for 31°C , 12 hours for 71°C one cycle is 24 hours, test time is 10days	MIL-STD-810G-501.5 Procedure I	5. T/S cannot allow the abnormal status like peel off, bubble .	2
Low Temperature Test (Operating)	-21°C 96h	MIL-STD-810G-502.5 Procedure II		2
Low Temperature Test (Non-Operating)	-40°C 96h	MIL-STD-810G-502.5 Procedure I		2
Temperature Shock Test	-41°C~71°C duration 1h, 10cycle ,total:10h	MIL-STD-810G-503.5 Procedure-I-C Multi-cycle shock.		2

7.Packing



9.Body Label Drawing



10. Carton Label Drawing

