

EMPEN 18.5” SENSOR CONTROL BOARD SPECIFICATION

Product Name: 18.5” DIGITIZER SENSOR/CONRTOL BOARD EMPEN

CUSTOMER P/N:

EMPEN P/N : 202506271006

| 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 | 18.5inch |
| Sensor External Dimension | 417(mm)X243(mm) |
| Active Area | 408.96(mm)X230.04(mm) |
| Material | FPC |
| 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 |

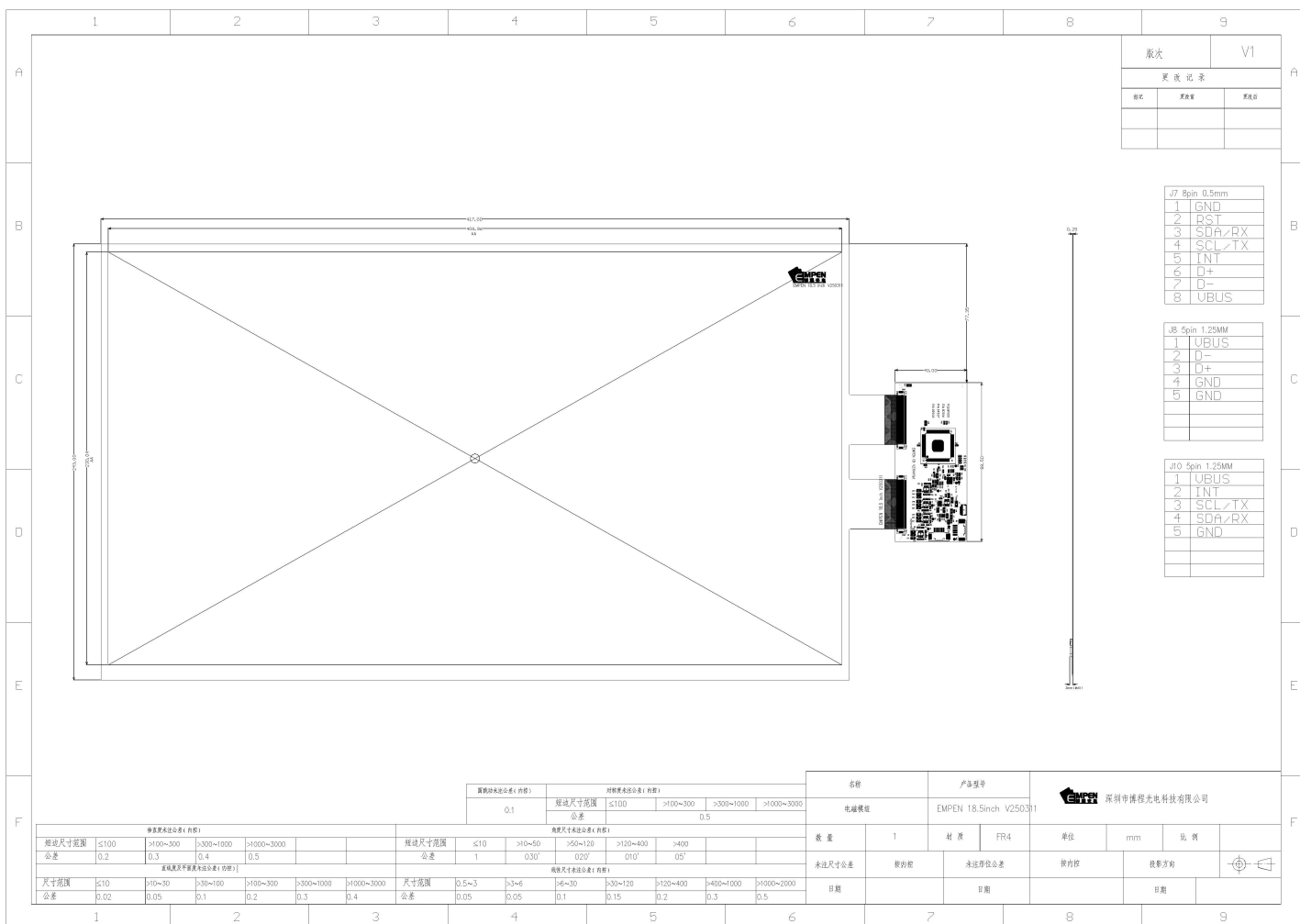
Note 1: The EM Sensor Board and Stylus at ordinary temperature.

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

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

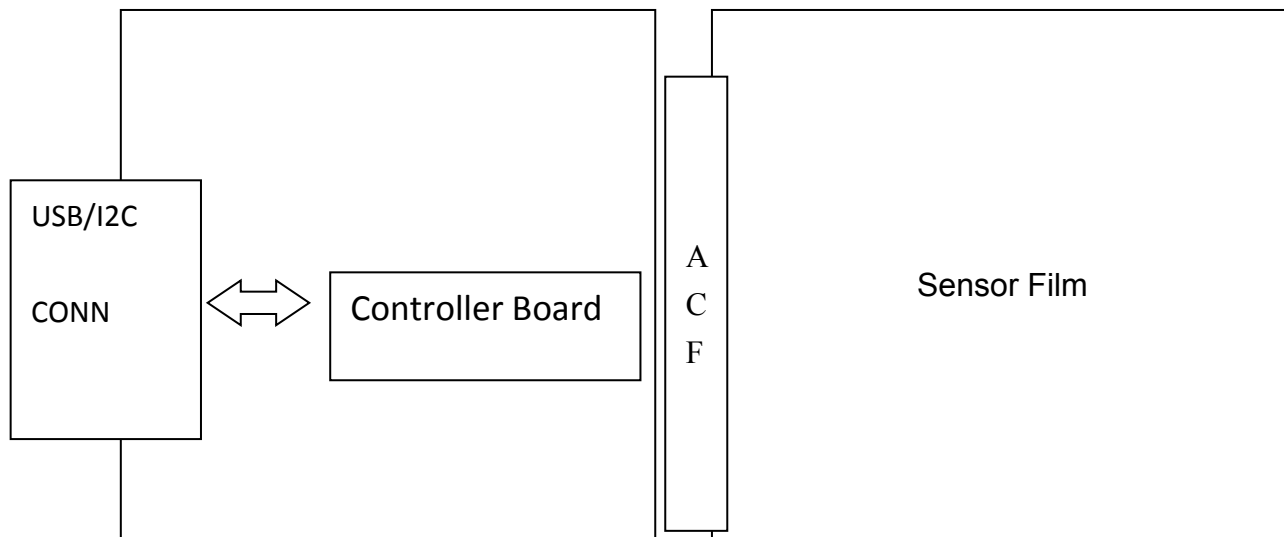
Note 4: This specification is for standard module. For better performance, it needs to be customized by customer's system.

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) | |

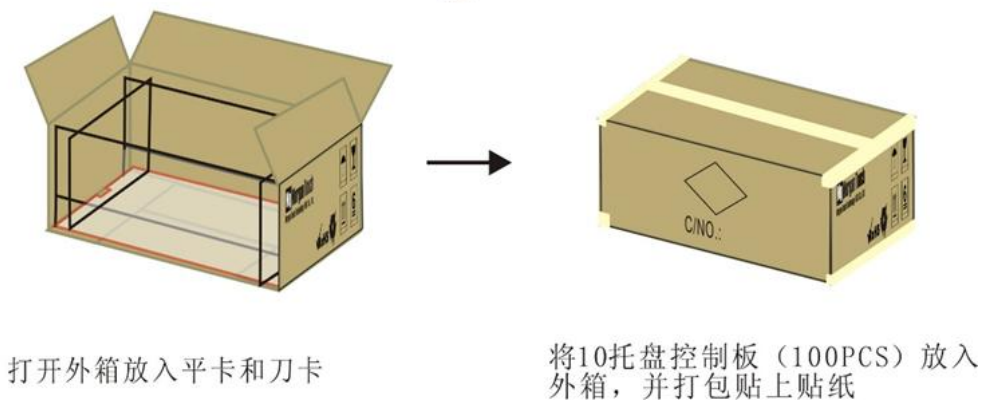
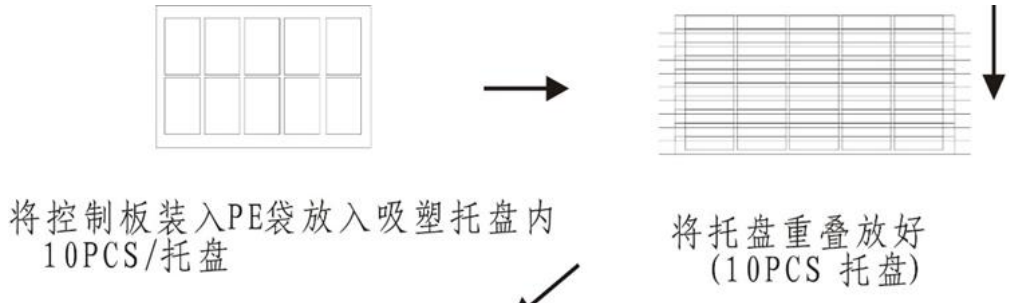
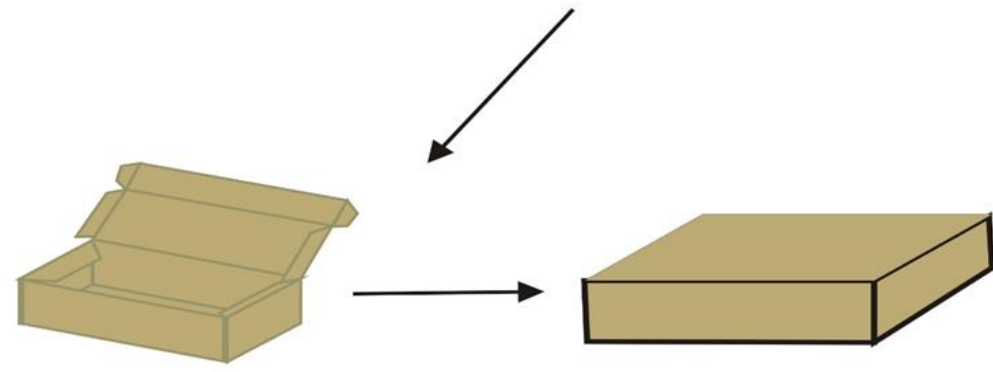
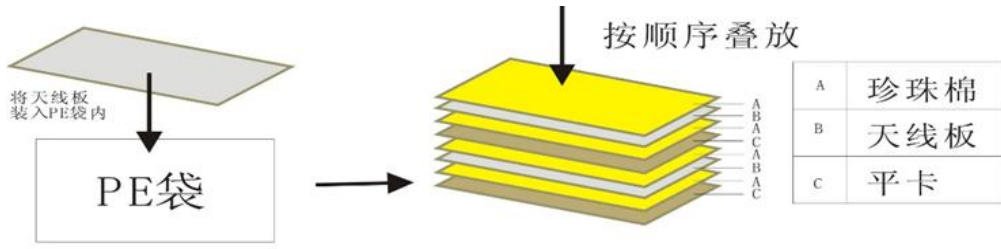
*Note : The Digitizer Sensor Unit should always be operated within these ranges.

“TYP” shows the recommended value.

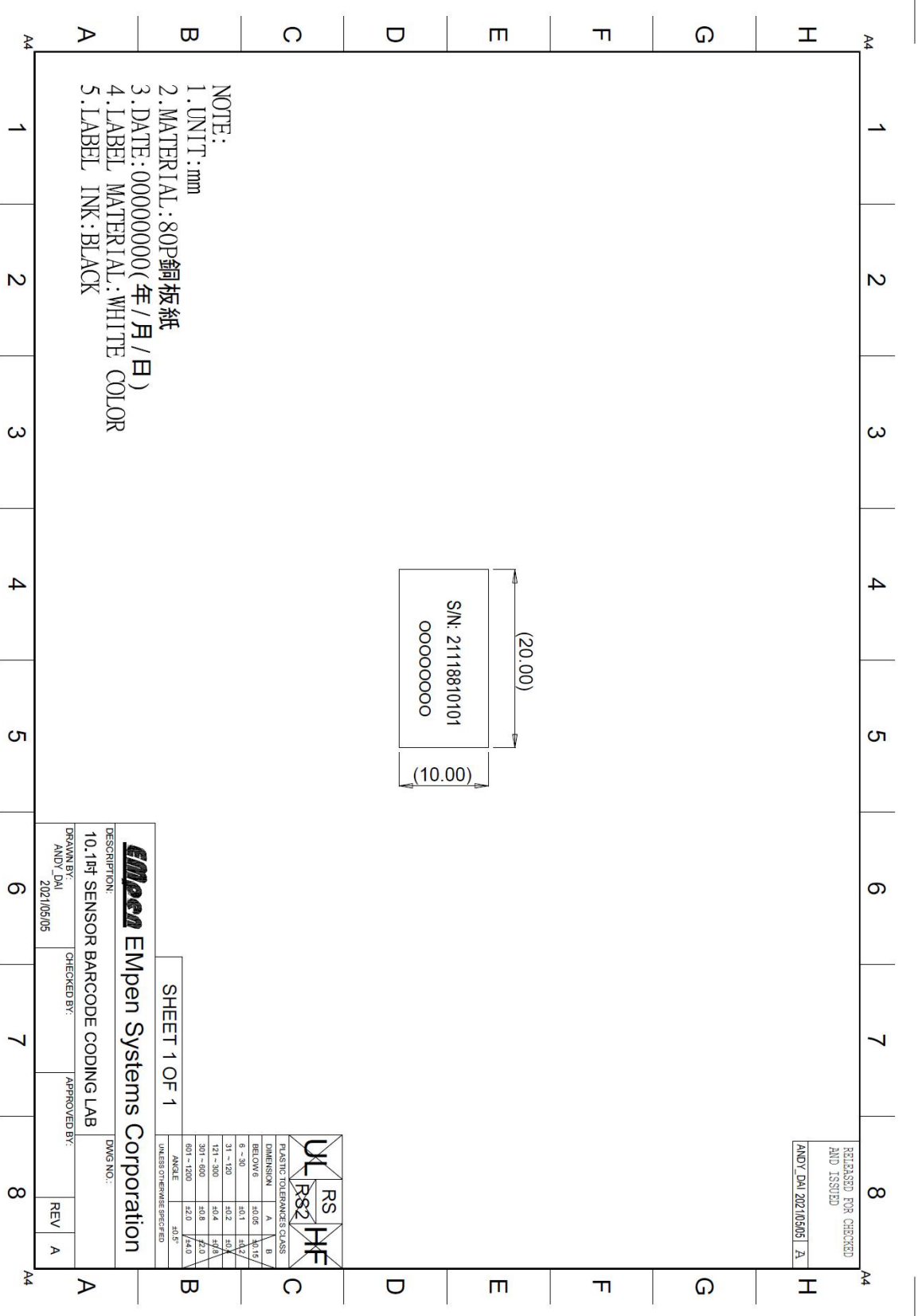
6. Reliability Test

| 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

