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| TO : _____ |
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| <h2>TECHNICAL SPECIFICATION</h2> <p>Name: 10.1 Inch EM Touch Board</p> <p>MODEL NO.: TP-101S01-H1S1-GT</p> <p>Material Code: 810011234</p> |
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The content of this information is subject to be changed without notice.
 Please contact HANVON or its agent for further information.

Customer's Confirmation

By _____

Date _____

HANVON's Confirmation

| APPROVED | CHECKED | CHECKED | DESIGNED |
|----------|---------|---------|----------|
| | | | |

Revision History

| Rev. | Issued Date | Revised Contents |
|------|-------------|------------------|
| 1.0 | 2016-6-8 | Preliminary |
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TECHNICAL SPECIFICATION

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1. Scope

This specification is applicable to Hanvon PenTech Electromagnetic Touch Board designed.

2. Features

- Without affecting the screen display
- High screen resolution
- High pressure levels
- High position accuracy
- Low power consumption
- Commercial temperature range
- Support battery-free, cordless and pressure sensitive pens

3. General Specifications

| | Parameter | Specifications | Unit | Note |
|--------------|-------------------------|----------------------------------|--------|---------------------------|
| Sensor Board | External Dimension | 256.73(L)×114.35(W)) ×3.2(H) | mm | ±0.2mm(L,W) ±0.05mm(H) |
| | Effective Diagonal Size | 10.1 | inch | |
| | Active Area | 217.59(L) × 136.36(W) | mm | |
| | Material | PI | - | |
| | Resolution | 10206*7422 | - | |
| | Coordinate Accuracy | ±0.5 (center) ±0.8 (Edge) | mm | |
| | Detectable Height | >10 | mm | |
| | Pressure Level | 1024 | | |
| | Physical Interface | 8 Pins Connectors | | |
| | Data Sending Rate | >150 | dots/s | 7Bytes/dot |
| | Response Time | <100 | ms | |
| | Voltage/Current | 3.3V/<60mA | - | USB |

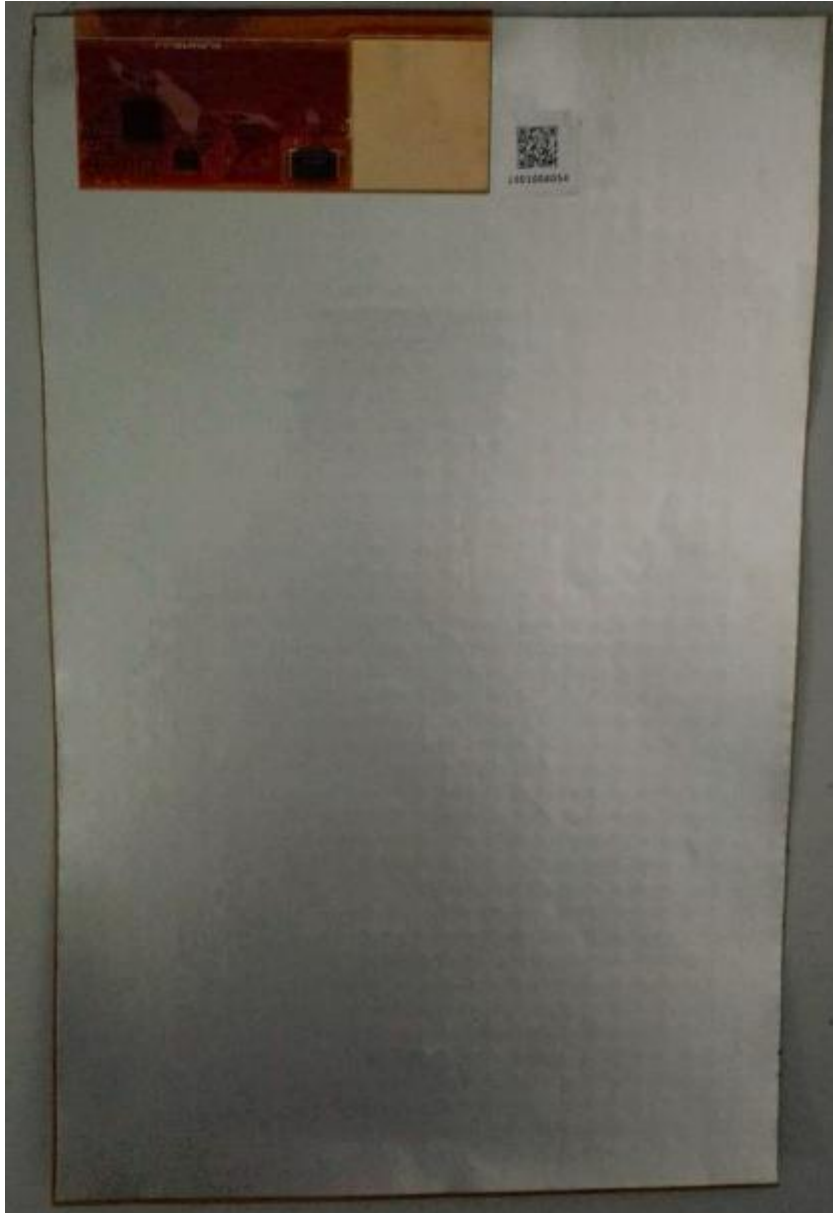
| | | | | |
|--------|---------------|--|---|-----|
| Others | Module Weight | | g | TBD |
|--------|---------------|--|---|-----|

Note:

- 1. This specification is for standard module. For better performance, it needs to be customized by customer's system.*
- 2. Maximum different error in pressure values < 2LSB*
- 3. Maximum Coordinate jitters < 1 point*

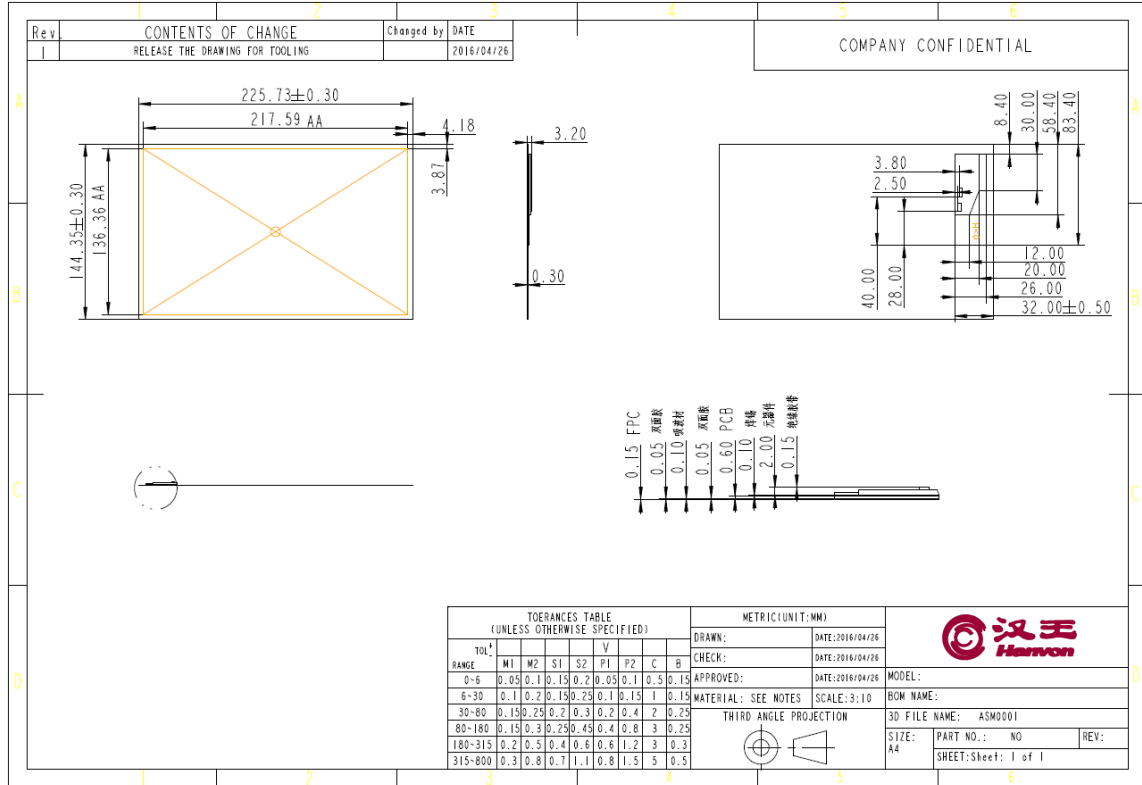
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4. Appearance





5. Mechanical Drawing



6. Signal Assignment

| NO. | J1(USB) |
|-----|----------|
| 1 | NC |
| 2 | USB- |
| 3 | USB+ |
| 4 | PDCT |
| 5 | SLEEP |
| 6 | NC |
| 7 | VCC+3.3V |
| 8 | GND |

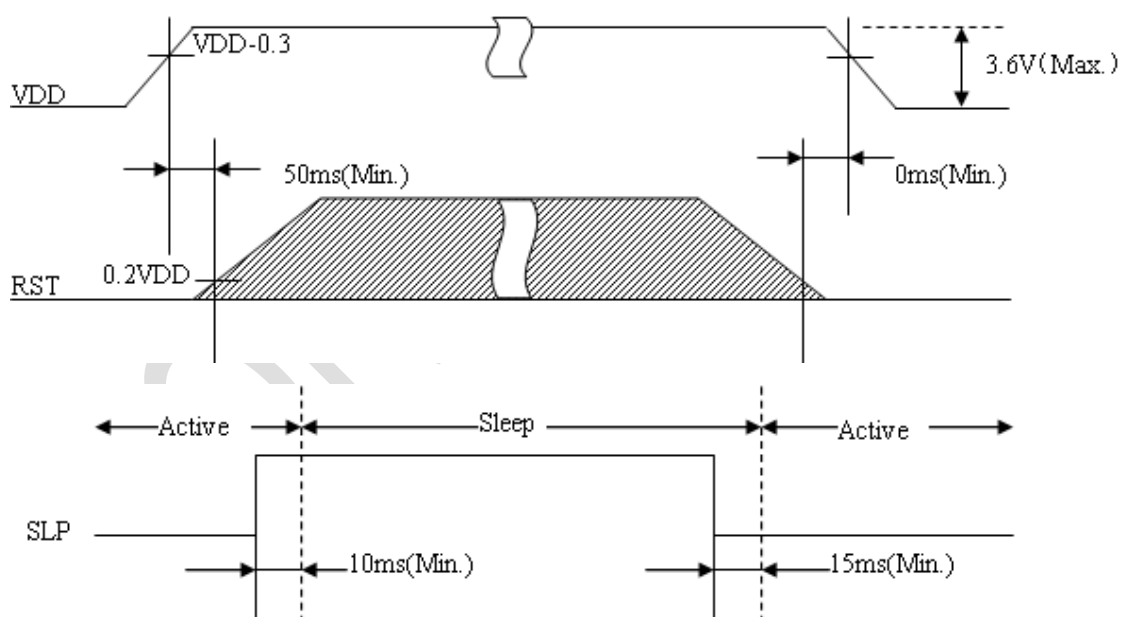
Note:

1 Logic Low: $0 < U_L < 0.2 \times V_{DD}$;

Logic High: $V_{DD} - 0.3 < U_H < V_{DD}$.

7. Electrical Characteristics

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|----------------------|-----------|-----------------------------|------|------|------|------|
| Ground | GND | - | - | 0 | - | V |
| Digital Power Supply | V_{DD} | - | - | 3.3 | - | V |
| | I_{VCC} | $V_{CC}=3.3V$ | 20 | 40 | 60 | mA |
| Sleep Power | SLP | SLP = '1'; $V_{CC}=3.3V$ | 0.10 | 0.33 | 0.70 | mW |
| Reset Time | RST | $I = 10mA$ | 50 | 70 | 100 | ms |
| Sleep Time | SLP | SLP = '1'; $V_{CC}=3.3V$ | 10 | 20 | 50 | ms |
| Awake Time | SLP | SLP = '0'; $V_{CC}=3.3V$ | 15 | 20 | 50 | ms |
| Power Cycle | - | $V_{CC}=3.3V$ | 50 | 100 | 150 | ms |

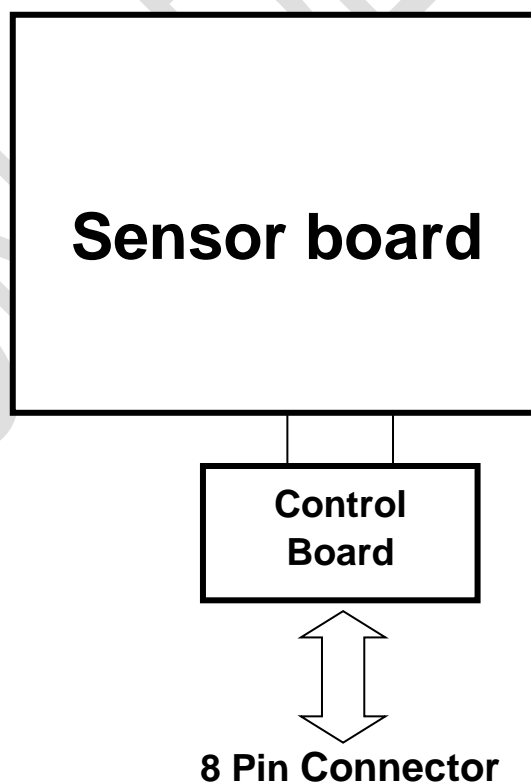


8. Idle Mode*

If the board does not find the pen in 5 seconds, the board enters idle mode (Max. current < 20mA), Support selective suspend mode, followed WHQL 8.0/8.1

Note: The power consumption in Idle mode and performance need to be defined after the joint debugging.

9. Block Diagram



10. Pen Accuracy

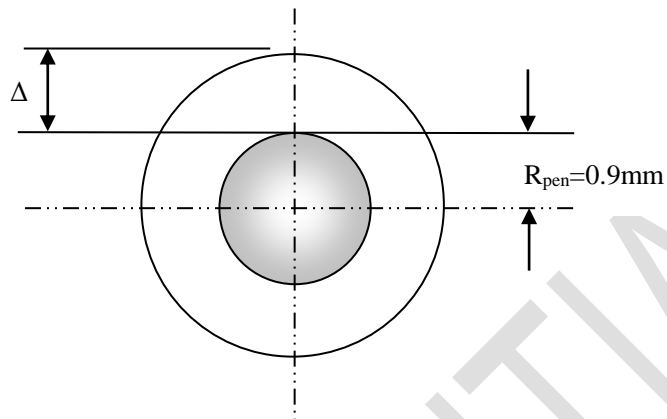


Figure 1 R_{pen} and Δ

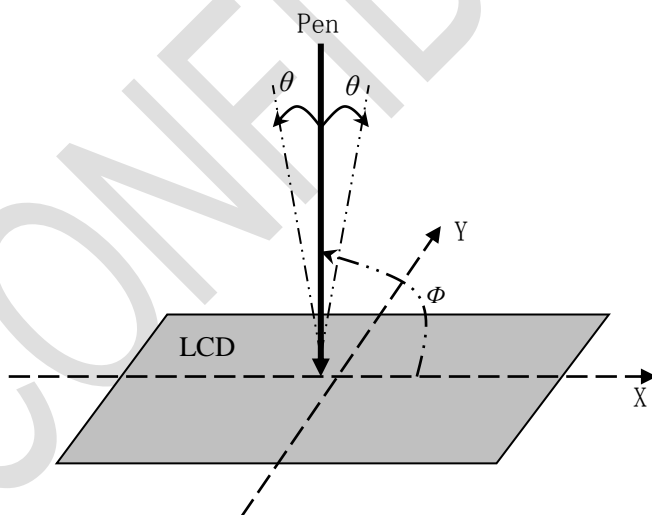


Figure 2 $\Phi = 90^\circ, \theta = 15^\circ: \Delta \leq 0.5\text{mm}$

Note 1: If noise exists, Δ will increase.

Note 2: At the edge of the sensor board, $\Delta \leq 0.8\text{mm}$.

Note 3: Writing angle(Φ) must be greater than 40 degrees.

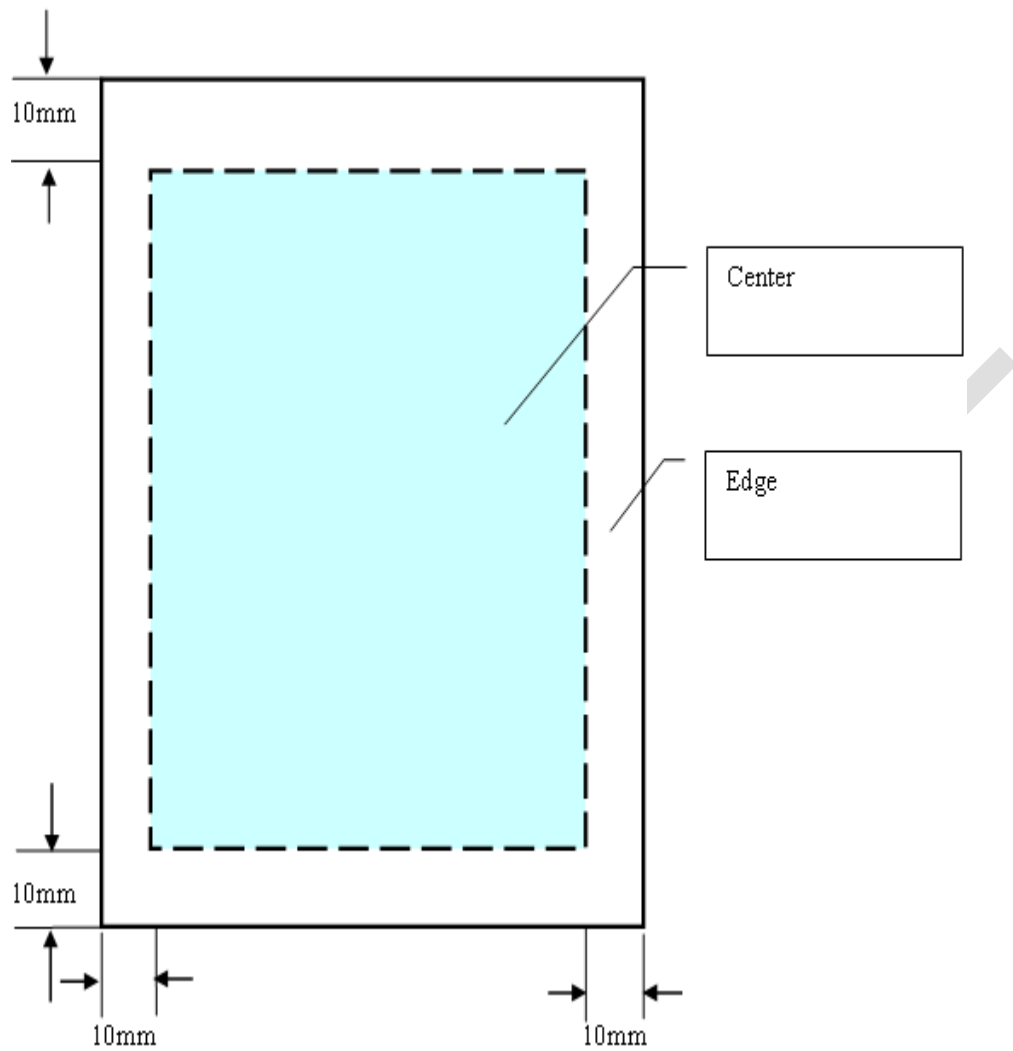


Figure 3 Center/Edge of the sensor board

11. Reliability test

(This is for your reference only. The final Reliability test for TP-101S01-H1S1-GT will be provided after we get final product)

Test Conditions:

1. The Electromagnetic Touch Board should be inspected as regular functional testing.
2. No condensing of water (moisture) is allowed on the Electromagnetic Touch Board.
3. For environmental tests, temperature gradient is 15°C/hour.
4. The number for the test samples is 10 units.

| Item | Test condition | Criterion |
|-----------------------|---|----------------|
| Operating Environment | (1) High temperature 50°C 72hrs (2) High humidity 90%, temperature 60°C 72hrs (3) Low temperature 0°C 72 hrs After changing the environment, condition is brought back to normal (15 - 35°C, 25-75 %(RH). Another one or more hours later, functional test is performed. | No malfunction |
| Storing Environment | (1) High temperature 75°C 72hrs (2) High humidity 85%, High temperature 75°C 72hrs (3) Low temperature -10°C 72hrs After changing the environment, condition is brought back to normal (15 - 35°C, 25-75 %(RH). Another one or more hours later, functional test is performed. | No malfunction |
| Package Drop | (1) Height : 80cm (2) Floor surface : Concrete (3) Number of drops : A corner of the bottom panel 1 An edge between bottom and end panels 1 An edge between bottom and side panels 1 An edge between side and end panels 1 All six panels 6 Total 10 drops | No malfunction |
| Package Vibration | (1) Z axis : 2G (2) X and Y axis : 1G (3) Frequency : 5~200Hz Sweep | No malfunction |

12. Labels

12.1 Green Label



Label Material: White color

Label Ink: Green

Label Location: Paste on the middle of the board backside

12.2 Bar Code Label



12.3 Shipping Mark Label

TBD

13. Packing

TBD