

TO : _____

TECHNICAL SPECIFICATION**10.1 Inch EM Touch Board****MODEL NO.: TP-101W03-H1S1-YV**

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
马梁	高洋		姜海力

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1. Scope

This specification is applicable to HANVON Electromagnetic Touch Board designed for 10.1 inch Tablet PC.

This specification applies to HANVON TP-101W03-H1S1-YV only.

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

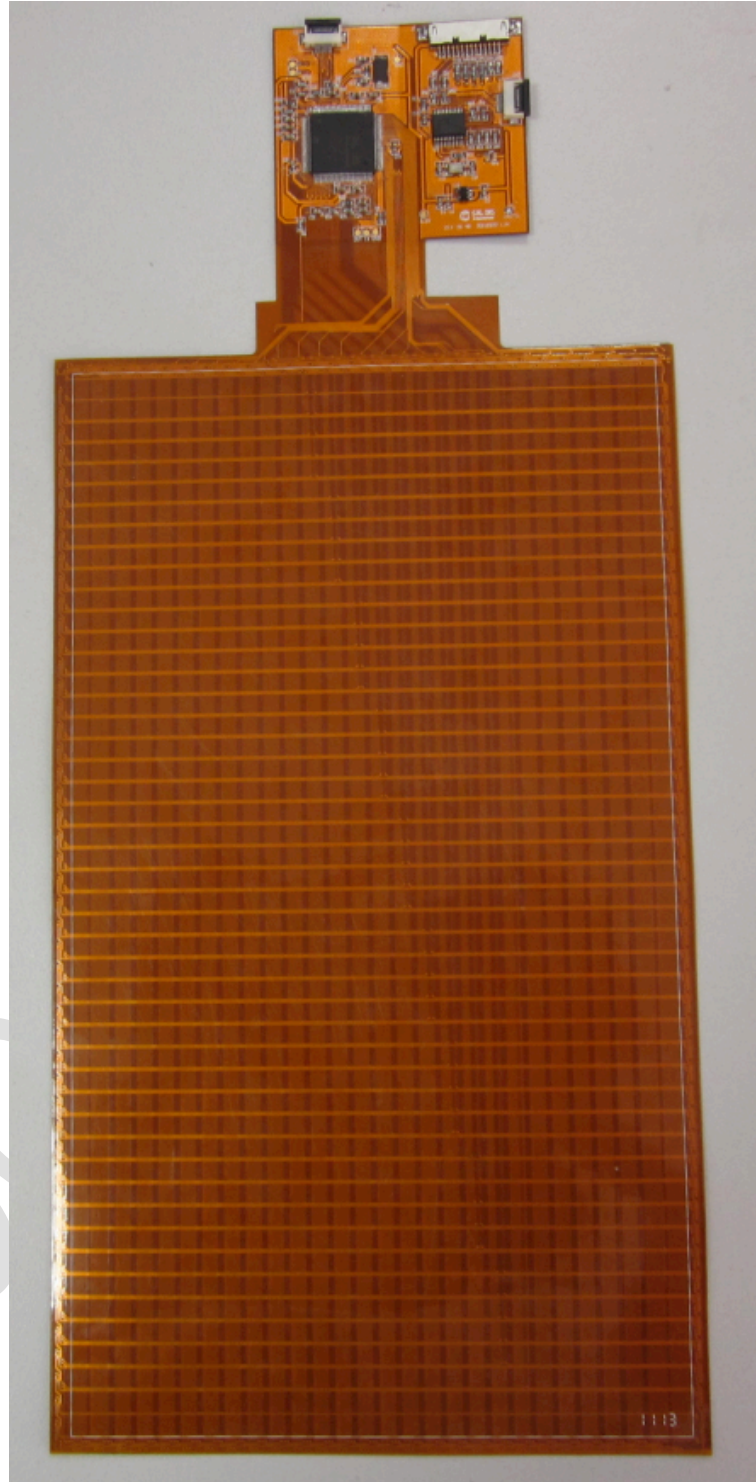
Parameter		Specifications	Unit	Note
Sensor Board	External Dimension	229.72(L)×133.28(W) ×0.4(H)	mm	±0.2mm(L,W) ±0.05mm(H)
	Effective Diagonal Size	10.1	inch	16:9
	Active Area	222.72(L) × 125.28(W)	mm	±0.2 mm
	Material	FPC	-	
	Resolution	10206*7422	-	
	Coordinate Accuracy	0.03	mm	
	Detectable Height	>3	mm	
Control Board	External Dimension	55.0(L) ×50(W) ×1.9(H)	mm	±0.2mm
	Material	FPC + Steel-plate	-	
	Physical Interface	8 Pins FPC/FCC Connectors	-	
	Pen Accuracy	±1.0/2.0	mm	Center /Edge
	Detectable Angle	±50°	-	

	Data Sending Rate	>130	dots/s	7Bytes/dot
	Response Time	<200	ms	
	Tracking speed	>1	m/s	
	Data Transferring Rate	19.2(adjustable)	kbps	UART
	Voltage/Current	3.3V/<20mA	-	
Others	Module Weight		g	

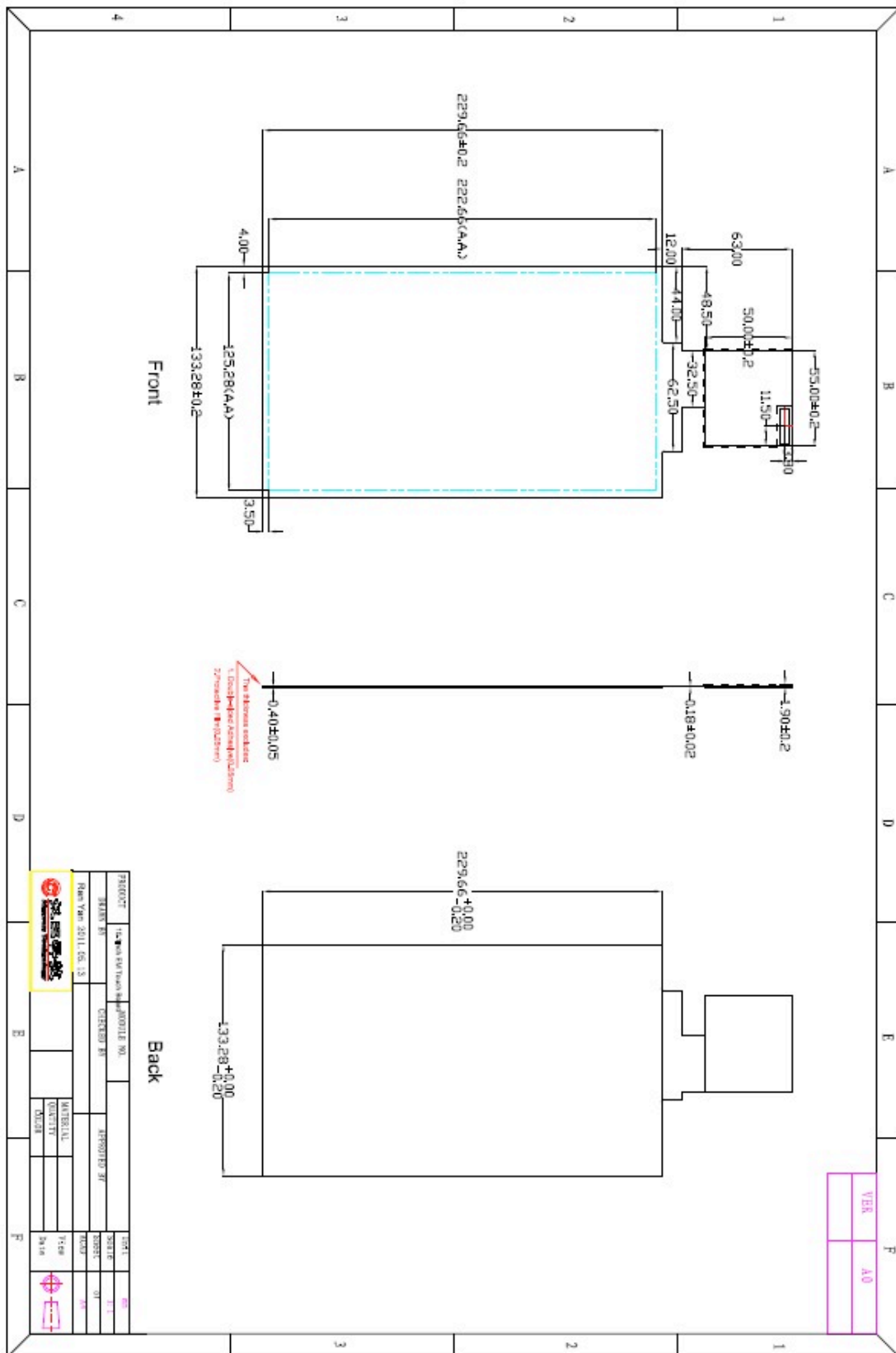
Note:

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

4. Appearance



5. Mechanical Drawing



6. Signal Assignment

Pin#	Signal	In/out	Description
1	GND		Ground
2	VDD		Power Supply(5V)
3	USB+	I/O	USB Data Input/Output Signal
4	USB-	I/O	USB Data Input /Output Signal
5	No use		No Function
6	Key_Up	O	Page up
7	Key_Down	O	Page down
8	Key_Shrink	O	Zoom in
9	Key_Amp	O	Zoom out
10	Key_1		Default
11	Key_2		Default
12	No use		No Function
13	No use		No Function
14	GND		Ground

Note:

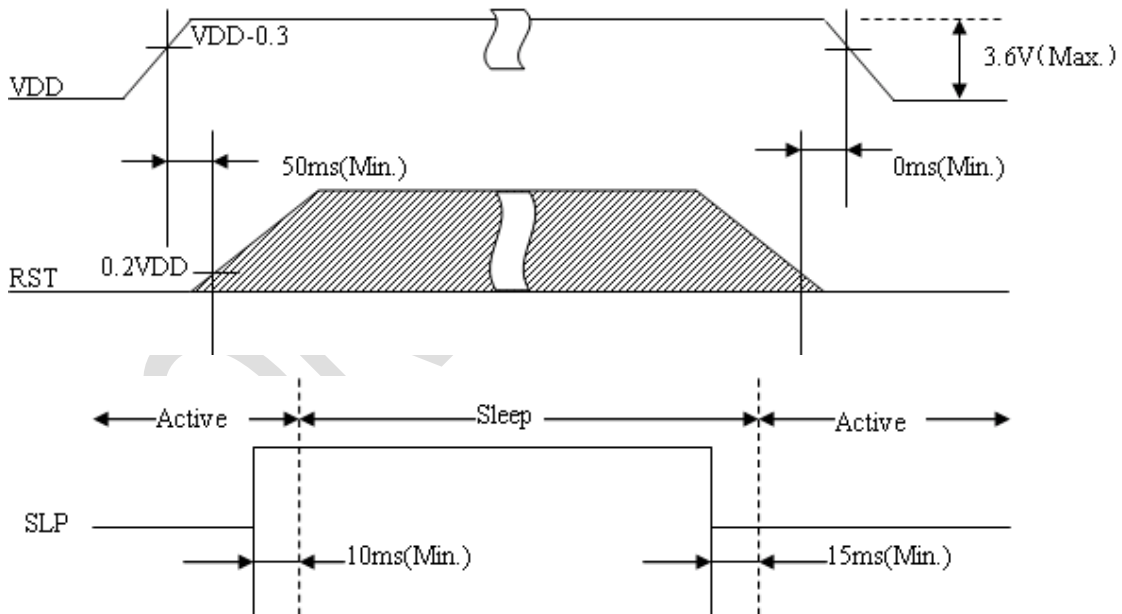
1 Logic Low: $0 < U_L < 0.2 \times V_{DD}$;

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

2 Connectors: 20268-014E-01# or equivalent;

7. Electrical Characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Ground	GND	-	-	0	-	V
Digital Power Supply	V_{DD}	-	-	5.0	-	V
	I_{VCC}	$V_{CC}=3.3V$	4	16	20	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 do not find the pen in 3 seconds, the board enters idle mode (Max. current < 10mA).

9. Sleep Mode*

When the board enters Sleep mode, the board current is less than 1mA.
The interval between two Sleep modes must be longer than 100ms.

SLP	State	Switch Time(Min.)	Note
0	Active	15ms	From Sleep to Active
1	Sleep	10ms	From Active to Sleep

Note*:

Idle mode and Sleep mode are not available for TP-101W03-H1S1-YV. They are optional functions, which can be customized by customer's system.

10. Asynchronous Serial Communication Protocol

19.2kbps, 1-bit start, 8bits data, 1-bit stop, parity none.

Data Format: 7bytes for a data packet (Data), as follows:

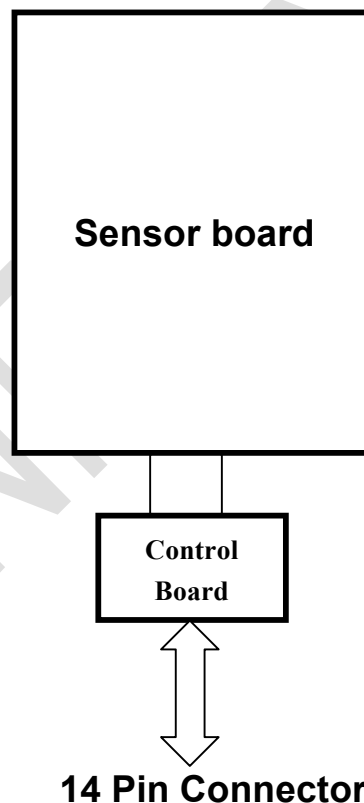
	7bit	6bit	5bit	4bit	3bit	2bit	1bit	0bit
Byte0:	1	D6	D5	D4	D3	D2	D1	D0
Byte1:	0	X ₁₅	X ₁₄	X ₁₃	X ₁₂	X ₁₁	X ₁₀	X ₉
Byte2:	0	X ₈	X ₇	X ₆	X ₅	X ₄	X ₃	X ₂
Byte3:	0	Y ₁₅	Y ₁₄	Y ₁₃	Y ₁₂	Y ₁₁	Y ₁₀	Y ₉
Byte4:	0	Y ₈	Y ₇	Y ₆	Y ₅	Y ₄	Y ₃	Y ₂
Byte5:	0	P ₆	P ₅	P ₄	P ₃	P ₂	P ₁	P ₀
Byte6:	0	X ₁	X ₀	Y ₁	Y ₀	P ₉	P ₈	P ₇

Note:

- 1 The MSB (most significant bit) of each Byte0 is always 1, indicating the start of a packet.
- 2 D0 = 1 indicates the pen has put pressure on the screen.
- 3 D1 = 1 indicates the programmable key has been pressed down.

- 4 D_2 、 D_3 、 D_4 default 0.
- 5 D_5 defaults 1.
- 6 $D_6 = 1$ indicates the pen has left the effective handwriting area. Under this situation, $D_0 = 0$, X_n and Y_n indicate the last known coordinates of the pen, $P_n = 0$.
- 7 When $D_6 = 0$, $D_4 = 0$, $D_0 = 0$, Data packets are not sent.
- 8 X_{0-15} indicates the n th bit of the X coordinate. The most left side of the screen corresponds to $X = 0$, and the most right side of the screen corresponds to $X = 0x27DE$
- 9 Y_{0-15} indicates the n th bit of the Y coordinate. The most above side of the screen corresponds to $Y = 0$, and the most below side of the screen corresponds to $Y = 0x1CFE$.
- 10 P_{0-9} indicates the n th bit of the pressure, which ranging from 0 to $0x3FF$.

11. Block Diagram



12. Pen Accuracy

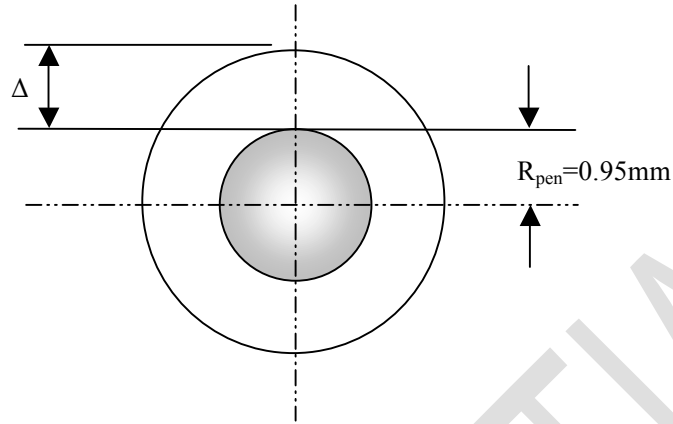


Figure 1 R_{pen} and Δ

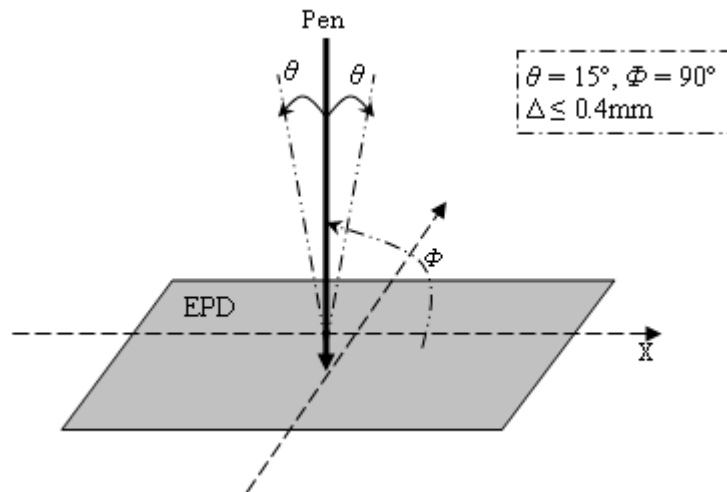


Figure 2 $\Phi = 90^\circ, \theta = 15^\circ: \Delta \leq 0.4\text{mm}$

Note 1: If noise exists, Δ will increase.

Note 2: At the edge of the sensor board, Δ will add to more than 0.4mm.

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

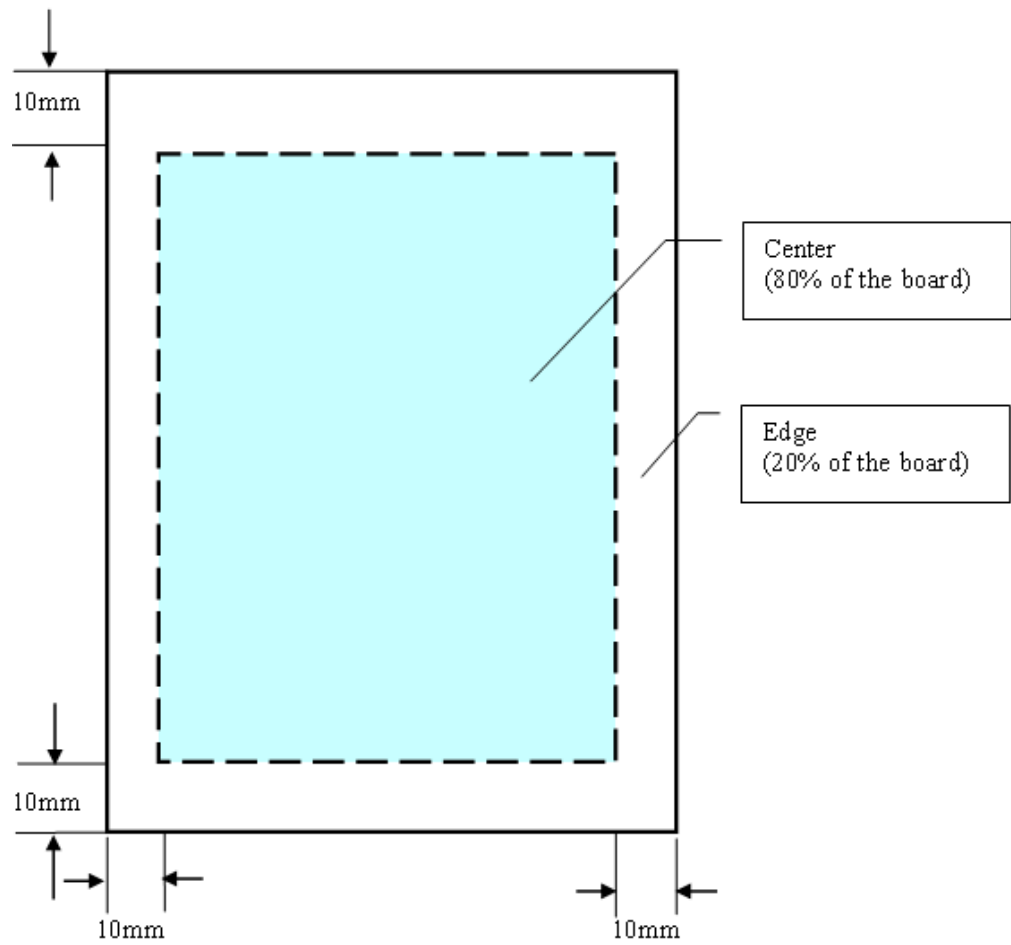


Figure 3 Center/Edge of the sensor board

13. RoHS Report

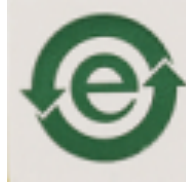
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14. Reliability Test

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15. Labels

15.1 Green Label

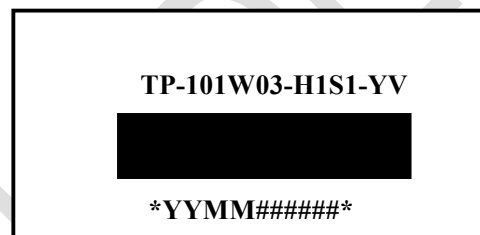


Label Material: White color

Label Ink: Green

Label Location: Paste on the middle of the board backside

15.2 Bar Code Label



Serial number: YY: Year produced

MM: Month produced

#####: Serial number in the month

Label Material: White color

Label Ink: Black

Label Location: Paste on the bottom of the board backside

15.3 Inner Box Label

CP No.	*****
Q'ty/Box (pcs):	
P No.	TP-101W03-H1S1-YV
<u>Hanwang Technology CO., LTD.</u>	
<u>MADE IN CHINA</u>	

Label Material: White color Label Ink: Black
Label Location: Paste on the upside of the inner carton

15.4 Shipping Mark Label

PRODUCT NAME: 10.1Inch EM Touch Board
CP NO.:
P NO.: TP-101W03-H1S1-YV
QTY:
CARTON NO.:
DIMENSION:
GROSS WEIGHT:
NET WEIGHT:
Hanwang Technology Co., Ltd.
MADE IN CHINA
Handle with Care Keep Upright

Label Material: White color Label Ink: Black
Label Location: Paste on the side face of the outer carton

16. Packing

