SPECIFICATION FOR APPROVAL

MODEL NAME: INF-1503XTLIPC-U

Customer:

Revision	Date	History
V0.1	2015.11.18	Initial Release
V1.0	2019.01.15	Changed LCD Panel JL150AT256B V0 -→ JL150BH256B-V0

Draft _____ Date: _____

Checked: _____ Date: _____

Approved : _____ Date: _____

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1. General Description

1.1 Overview

SUZOHAPP Open frame LCD Monitor INF-1503XTLIPC-U is a high performance TFT LCD monitor providing high quality image from the analog RGB, DVI-D input.
This monitor supports wide range signal input from VGA to XGA resolution at vertical refresh rate of 60Hz.
It is designed for industrial use with Auto power on, up scaling performance adequate for low-resolution application and enhanced design margin for reliability.
It also gives versatile optional features like, Touch Screen and custom designed frame.

1.2 Referance table of characteristics

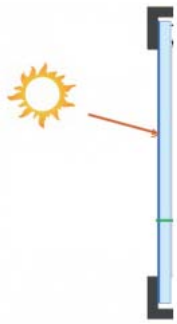
Panel	Size		15.0” (1/3) Diagonal
	Active Display Area		304.13mm(H) x 76.03mm(V)
	Type No.		JL150BH256B V0 (Base Panel HM150X01-N01)
	Number of Pixels		1024(H) x 256 (V) (T-CON Board : 1024 x 768)
	Pixel Arrangement		RGB Vertical Stripe
	Pixel Pitch		0.297mm x 0.297mm
	Color Depth		16.2M Colors (RGB 6Bits+FRC)
	Surface Treatments		Hardness 3H , Haze 25%
	Viewing Angle (CR>10)		Horizontal : ΘL 80 degrees ΘR 80 degrees Vertical : Φ H 80 degrees Φ L 80 degrees
	Contrast Ratio		Typ. 700 : 1
	Response Time(Typ.)		Rising + Falling : 8ms
	Average Brightness		Typ. 700 cd/ m^2
	Frame Rate		Typ. 60Hz
	Panel Dimension(WHD)		326.5mm(H) x 101.5mm(V) x 11.35mm(D)
	Backlight Type		LED
	Backlight MTBF		50,000Hours
	Environmental Conditions	Operating	Temperature : -20 to 70ºC / Humidity : 10 to 90%
		Storage	Temperature : -30 to 80ºC / Humidity : 10 to 90%
Resolution	Prime		1024 x 768@ 60 Hz
	Standard		720x400 @70 Hz, 640x480 @60/72/75 Hz 800x600 @56/60Hz, 1024x768@60Hz
Input signal	DVI		YEONHO 20010HR-12 Connector
	RGB		YEONHO 12507HS-20 Connector
	Power Jack		YEONHO 40006WR-02 Connector

PSU Power Spec	Input Voltage	AC 100 ~ 240V 50/60Hz
	Input Current	1.5A (Max)
	Output Voltage	DC 12V/5.0A
Scanning Frequency	Horizontal	31 ~ 80Khz
	Vertical	55 ~75Hz
OSD Control	5Keys at back side	Menu, Select, Up, Down, Power
Plug & Play		VESA DDC 2B Ver1.3
Touch Screen	Touch Panel	Projected Capacitive Touch : DP150FS025CL072-47
	Controller	ITP-S4061-MB_4101C
	Controller Interface	USB Type
RoHS		RoHS Compliance
Certification		TBD

Application Caution

1.Precautions for strong light exposure

Strong light exposure causes degradation of polarizer and color filter.

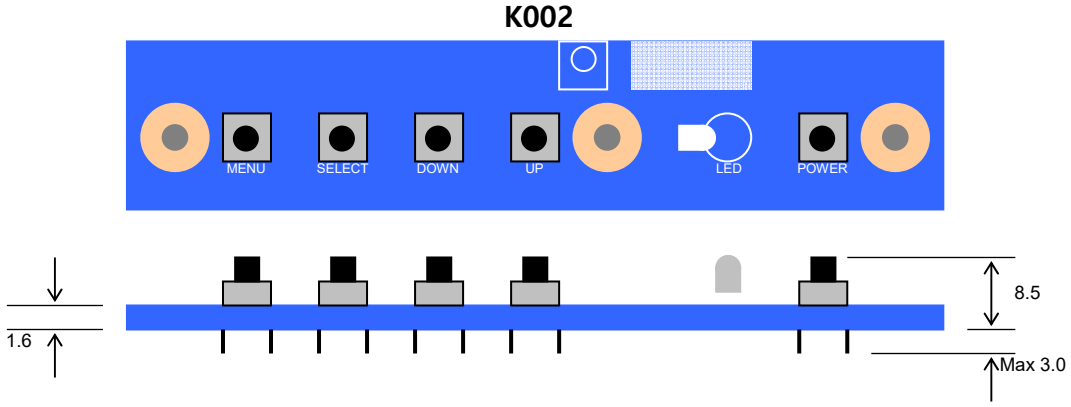


2. Using Conditions

- Temperature inside the cabinet should be controlled ‘at room temp’ (0 ~ 40ºC) by cooler and fan.

2. User control & OSD

2.1 Key control board



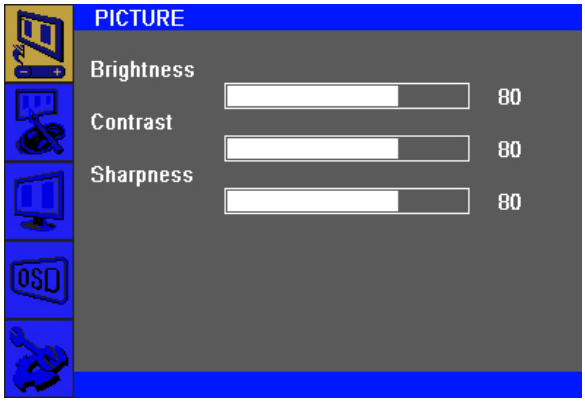
Button	Function	Status	HOT Key
LED	Indicates operation status	Green : Normal State Red : Off Mode Amber : DPMS Mode	
POWER	Power on/off		
MENU	Enable MENU Window Disable MENU Window Exit from Sub function		
SELECT	Select function		No OSD Window, Input Source Change
DOWN	Move to Down or Left		No OSD Window, Auto Color
UP	Move to Up or Right		No OSD Window, Auto Configuration

2.2 OSD Control function

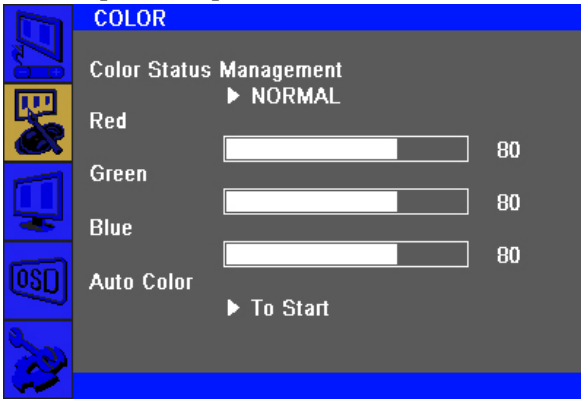
The chosen OSD settings will be stored in memory. The OSD menu can be cleared from the screen by pressing the **MENU** button otherwise it will be automatically cleared after a few second of non-use.

OSD MAIN MENU

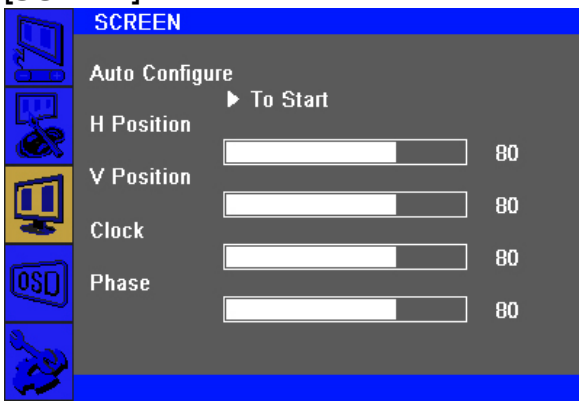
[PICTURE]



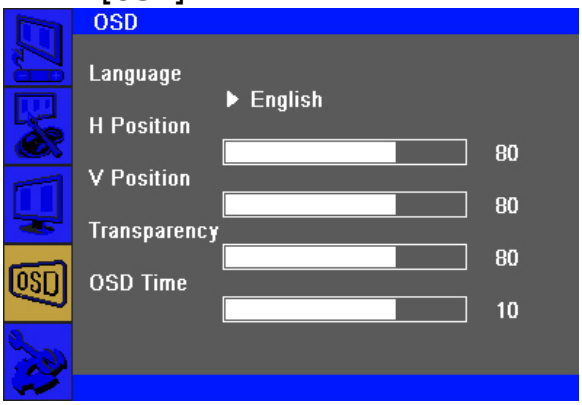
[COLOR]



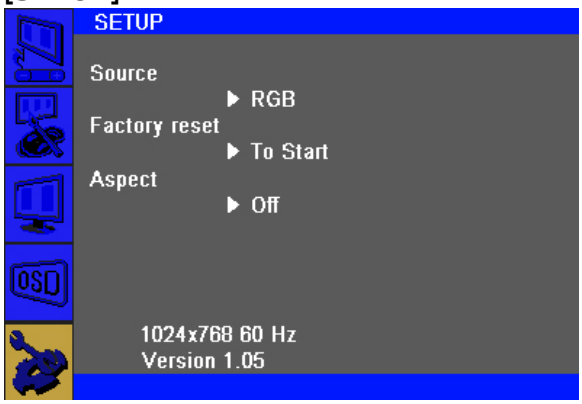
[SCREEN]



[OSD]



[SETUP]



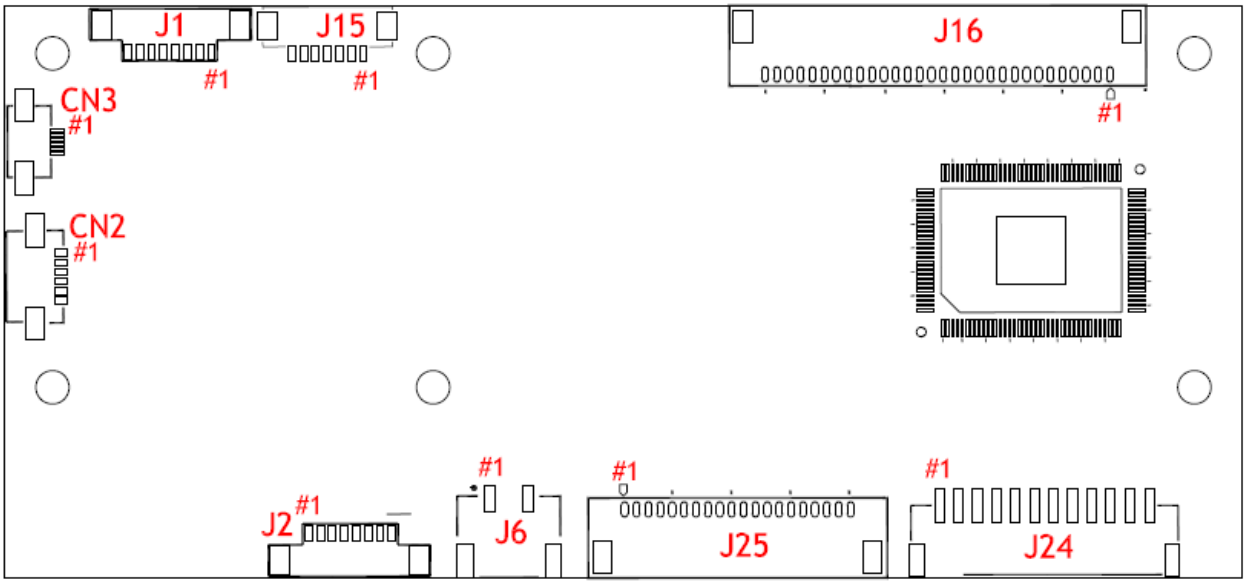
2.3 OSD GUI Control Table

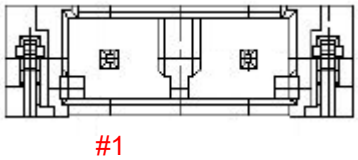
MAIN MENU	SUB MENU	CONTROL	
Picture	Brightness	50(0~100)	
	Contrast	50(0~100)	
	Sharpness	2(0 ~ 4)	
Color	Color Status Management	User(User, Warm, Normal, Cool)	
	Red	50(0~100)	PC ONLY
	Green	50(0~100)	
	Blue	50(0~100)	
	Auto Color	To Start	
SCREEN	Auto Configure	To start	
	H Position	50(0~100)	PC ONLY
	V Position	50(0~100)	
	Clock	50(0~100)	
	Phase	30(0~100)	
OSD	Language	English(English, Deutsh, Francais, Italiano, Espanol, Korean)	
	H Position	50(0~100)	
	V Position	50(0~100)	
	Transparency	33 (0~100)	
	OSD Time	10(3~30)	
SETUP	Source	RGB, HDMI, AUTO	
	Factory reset	To Start	
	Aspect	Off(On/Off)	

3. Connector Description

.1 Summary

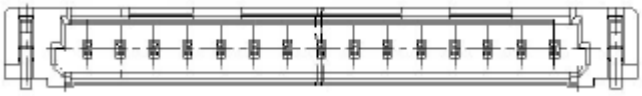
Reference	Item	Description	Type	Manufacture
J6	Connector	External 12V Power Input	40006WR-02	YEONHO
J11	Connector	DVI-D Input(TMDS) Connector	12507HR-20	YEONHO -
J24	Connector	Analog RGB Input Connector	20022HR-12	YEONHO -
J14	Connector	LCD Interface connector(2Ch LVDS)	12507HR-30	YEONHO
J15	Connector	OSD Board Connector	12505HR-07	YEONHO
J1	Connector	LED OUTPUT	12505HR-08	YEONHO
CN2	Connector	LED OUTPUT	05010HR-6P	YEONHO
CN3	Connector	LED OUTPUT	10019HR_10P	YEONHO
J2	Connector	External Backlight Control	12505HR-08	YEONHO





3.2 J6 : 12V Power Input

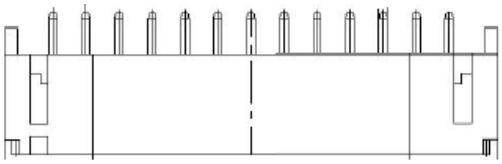
Pin No.	Symbol	Description
1	Vcc	+12V
2	Vcc	Ground



3.3 J25 : : DVI-D Input(TMDS) Connector

Pin No.	Symbol	Description
2	TMDS DATA2-	TMDS DATA2 Differential Negative Signal
1	TMDS DATA2+	TMDS DATA2 Differential Positive Signal
9	TMDS DATA2 Shield	Shield for TMDS Channel #2
15	DDC Clock	The Data Line for the DDC Interface
14	DDC Data	The Clock Line for the DDC Interface
4	TMDS DATA1-	TMDS DATA1 Differential Negative Signal
3	TMDS DATA1+	TMDS DATA1 Differential Positive Signal
10	TMDS DATA1 Shield	Shield for TMDS Channel #1
11	+5V Power	+5 Volt signal for EDID (Un-powered Monitor)
19	GND(for +5V)	Ground for +5 Volt Power pin, Sync return
12	HPD	Identify the presence of a monitor
6	TMDS DATA0-	TMDS DATA0 Differential Negative Signal
5	TMDS DATA0+	TMDS DATA0 Differential Positive Signal
17	TMDS DATA0 Shield	Shield for TMDS Channel #0
18	TMDS CLOCK Shield	Shield for TMDS Clock differential Pair
7	TMDS CLOCK+	TMDS DATA0 Differential Positive Signal
8	TMDS CLOCK-	TMDS DATA0 Differential Negative Signal

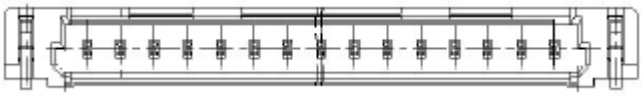
3.4 J24 : Analog RGB Input Connector



Pin No.	Symbol	Description
12	GND	Ground
11	Red	Red analog input
10	GND	Ground
9	Green	Green analog input
8	GND	Ground
7	Blue	Blue analog input

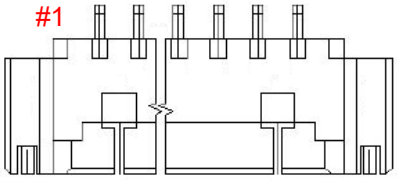
6	GND	Ground
5	HSYNC	Horizontal Sync
4	VSYNC	Vertical Sync
3	DETECT	RGB DETECT
2	DSDA	DDC-SDA
1	DSCL	Serial Clock Input

3.5 J16 : LCD Interface connector(8bit 2Ch LVDS)

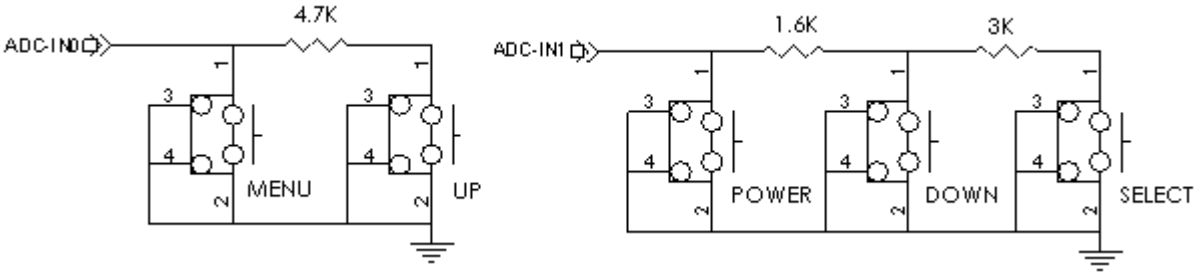


Pin No.	Symbol	Description
1	MOD_PWR	Panel Power (12V, 5V or 3.3V)
2	MOD_PWR	Panel Power (12V, 5V or 3.3V)
3	Option	High/Low for LCD Option
4	MOD_PWR	Panel Power (12V, 5V or 3.3V)
5	N,C	
6	N,C	
7	GND	Ground
8	GND	Ground
9	Y3N-ODD	Positive(-) LVDS differential second 3 data
10	Y3P-ODD	Negative(+) LVDS differential second 3 data
11	YCN-ODD	Positive(-) LVDS differential second Clock
12	YCP-ODD	Negative(+) LVDS differential second Clock
13	Y2N-ODD	Positive(-) LVDS differential second 2 data
14	Y2P-ODD	Negative(+) LVDS differential second 2 data
15	Y1N-ODD	Positive(-) LVDS differential second 1 data
16	Y1P-ODD	Negative(+) LVDS differential second 1 data
17	Y0N-ODD	Positive(-) LVDS differential second 0 data
18	Y0P-ODD	Negative(+) LVDS differential second 0 data
19	GND	Ground
20	GND	Ground
21	Y3N- EVEN	Positive(-) LVDS differential first 3 data
22	Y3P-EVEN	Negative(+) LVDS differential first 3 data
23	YCN- EVEN	Positive(-) LVDS differential first Clock
24	YCP- EVEN	Negative(+) LVDS differential first Clock
25	Y2N- EVEN	Positive(-) LVDS differential first 2 data
26	Y2P- EVEN	Negative(+) LVDS differential first 2 data
27	Y1N- EVEN	Positive(-) LVDS differential first 1 data
28	Y1P- EVEN	Negative(+) LVDS differential first 1 data
29	Y0N- EVEN	Positive(-) LVDS differential first 0 data
30	Y0P- EVEN	Negative(+) LVDS differential first 0 data

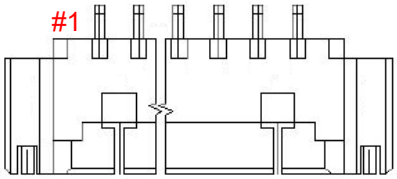
3.6 J15 : OSD Board connector



Pin No.	Symbol	Description
1	Vcc	+5V power for IR sensor
2	IRQ	Infrared rays signal line.
3	LED1	Green LED
4	LED2	Red LED
5	GND	Ground
6	ADC-IN0	Menu, Up
7	ADC-IN1	Power, Down, Up



3.7 J1, CN2, CN3 : LED Output connector



Pin No.	Symbol	Description	Remarks
1,2,3,4	VLED	LED Power	
5,6,7,8	FB	Channel1,2,3,4	

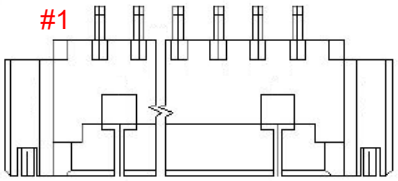
CN2: For 43V OUTPUT, Wafer

Pin No.	Symbol	Description	Remarks
3,4	**VLED**	**LED Power**	
1,2,7,8	**FB**	**Channel1,2,3,4**	

CN3: For 43V OUTPUT, Wafer

Pin No.	Symbol	Description	Remarks
5,6	VLED	LED Power	
3,4,7,8	FB	Channel1,2,3,4	
1,2,9,10	FB	Channel1,2,3,4	

3.8 Backlight Controll connector



Pin No.	Symbol	Description
8	DIM-ADJ	DIM-adjustment analog dimming control signal * make sure inverter specification
7	ON/OFF	Inverter digital ON(3.3V)/OFF(0V) signal
4,5	GND	Ground
1,2	B+	VCC 12V
6	5V	VCC 5V

4. STANDARD DISPLAY MODE

Spec / Mode	Pixel Freq.	Horizontal Timing				Vertical Timing			
		Sync Polar	Freq.	Total	Active	SP	Freq.	Total	Active
	MHz		KHz	Pixel	Pixel		Hz	Line	Lind
640*350@70Hz	25.144	P	31.430	800	640	N	70.000	449	350
640*400@70Hz	28.287	N	31.430	800	640	P	70.000	449	400
720*400@ 70Hz	28.287	N	31.430	900	720	P	70.000	449	400
640*480@60Hz	28.175	N	31.469	800	640	N	59.940	525	480
640*480@72Hz	31.500	N	37.861	832	640	N	72.809	520	480
640*480@75Hz	31.500	N	37.500	840	640	N	75.000	500	480
800*600@56 Hz	36.000	P	35.156	1024	800	P	56.250	625	600
800*600@60Hz	40.000	P	37.879	1056	800	P	60.317	628	600
800*600@72Hz	50.000	P	48.077	1040	800	P	72.188	666	600
800*600@75Hz	49.500	P	46.875	1056	800	P	75.000	625	600
1024*768@60Hz	65.000	N	48.363	1344	1024	N	60.005	806	768

5. LED Driver Spec

5.1 ELECTRICAL SPECIFICATION

Item	Symbol	Spec	Unit	Remarks
Input Voltage 1	Vin	10.8 ~13.2	V	
Input Voltage 2	ON / OFF	2.4 ~ 5.25	V	
Operating Temperature	TOP	0 ~ 50	℃	
Storage Temperature	Tstg	-20 ~60	℃	
Relative Humidity	RH	90	%	

5.2 Control Signal

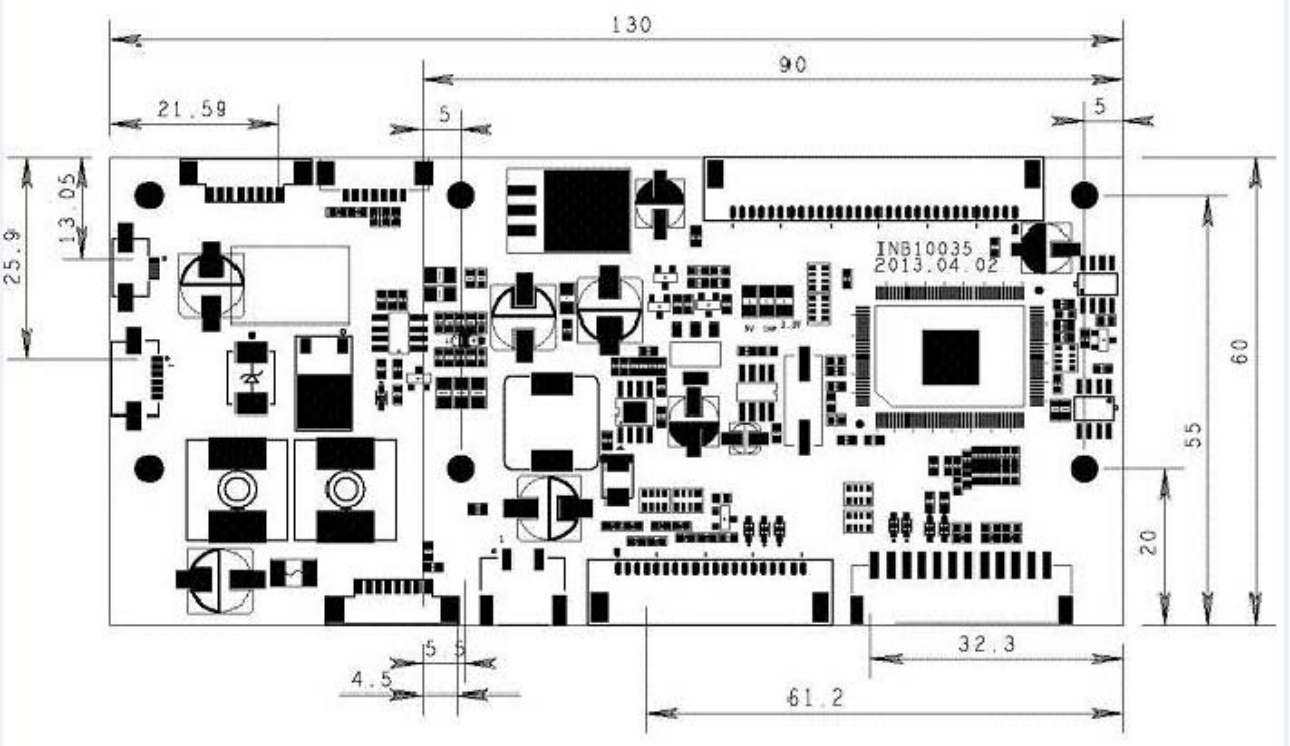
Item	Symbol	Status	Action	Remarks
J2 #8	ON/OFF	HIGH	LAMP-ON	2.4 ~ 5.25V
		LOW	LAMP-OFF	0.8V Max

5.3 Output Characteristics

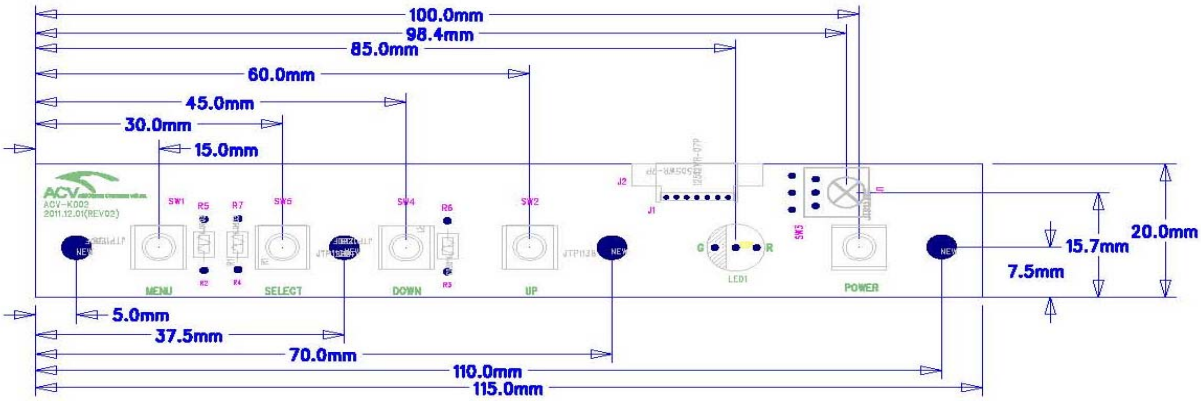
NO	Item	Symbol	Condition	Min.	Typ.	Max	Unit
1	Input Voltage	Vin	'-	10.8	12.0	13.2	V
2	Input Current	Iin	Vin=12V Dim=0V	-	-	3.0	A
3	Output Voltage	Vout	Vin=12V Dim=0V	-	-	-	Vdc
4	Output Current	Iout	Vin=12V Dim=0V	-	480	-	mA
5	Backlight On/Off Control	ON	'-	2.4		5.25	V
		OFF	'-	-0.3		0.8	V

6. Boards Dimension

6.1 AD Board (INB10035) Dimension (130mm x 60mm x 8mm)



6.2 OSD Board (K002) Dimension (115mm x 20mm x 8.7mm)



7. Projected Capacitive Touch Specification

7.1 Support Operation Systems

OS	Version	Interfaces
Windows	Windows 8(Need logo submission) Windows 7 Windows Vista, XP Windows XP Tablet PC edition – Partial	USB/I2C
Linux	*The new Linux driver supports most of the Linux distribution on 32/64 bit versions, including Kernel 2.4.x / 2.6.x with XFree86 4.X / Xorg 6.7 to 7.6 (Up to X server 1.9.x)* *CentOS, Debian, Fedora, Gentoo, Mandrake (Mandriva), Red Hat, Slackware, SuSE (OpenSuSE), Ubuntu (Xubuntu), Yellow Dog, Android and Meego etc.*	USB/I2C
Mac	Review required specifications	USB

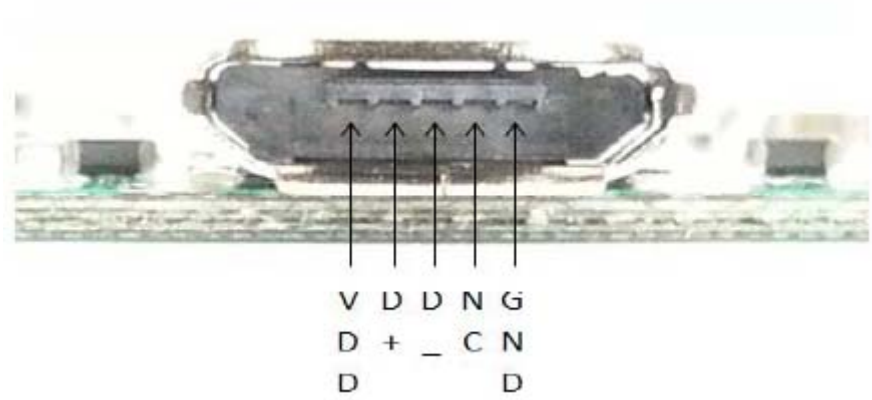
<Linux support table>

Kernel 2.4.X / 2.6.X with Xorg 6.7 ~7.6 (Up to X server 1.9.X)									
CentOS	Red Hat	Fedora	SlackWare	Yellow Dog	Gentoo	Mandriva	Ubuntu	OpenSuse	Debian
4.X	2.1	2.0	8.1	4.1	10.1	10.1	10.04LTS	10.2	4.X
5.X	3.X	3.0	9.0	5.0	11.0	10.2	10.1	10.3	5.X
6.X	4.X	4.0	9.1	5.0.1		2006		11.0	6.X
	5.X	5.0	10.0	5.0.2		2007		11.1	
	6.X	6.0	10.1	6.0		2008		11.2	
		7.0	10.2	6.1		2009		11.3	
		8.0	11.0	6.2		2010		11.4	
		9.0	12.0	6.2.1		2011			
		10.0	12.1	6.3					
		11.0	12.2	7.0					
		12.0	13.0						
		13.0	13.1						
		14.0	13.4						
		15.0							

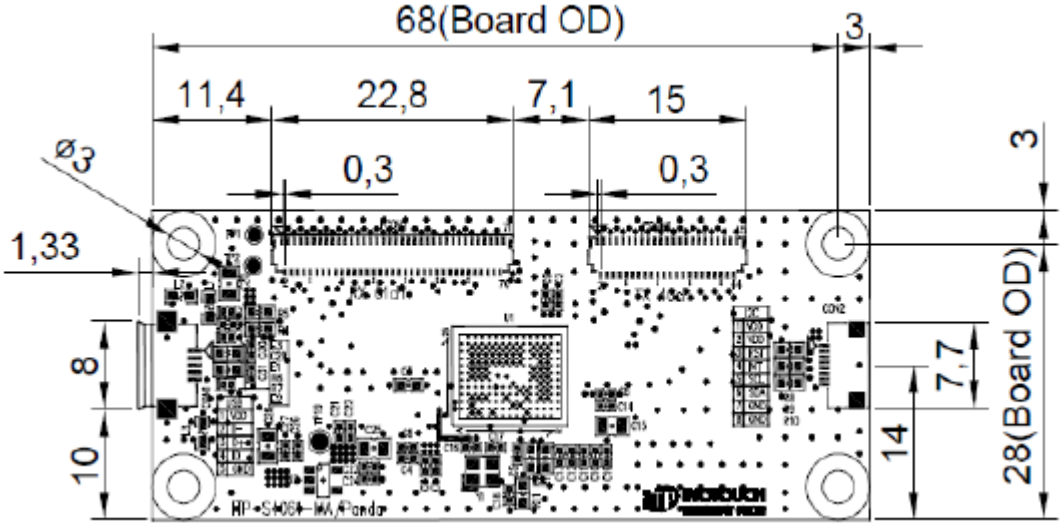
7.2 Specifications

USB & I2C Type Controller	
Circuit Board Dimension	68mm x 28mm
Channels of Panel	Max. Tx:40 Rx:61 channels
Power Requirements	D.C.+5V (150mW Power supply)
Operating Temperature	-30 to 70 ℃
Storage Temperature	-40 to 85 ℃
Relative Humidity	95% at 60 ℃, RH Non-condensing
Interface	USB : 2.0 Full Speed (12Mbit/s) I2C : 400kHz
Resolution	4096×4096 resolution
Report rate	Max. 100Hz(10 finger touch)
Pull force between FPC and Connector	Max. 1.2 kg/f

7.3 USB Interface Port



7.4 Touch Control Board Dimension (68mm x 28mm)



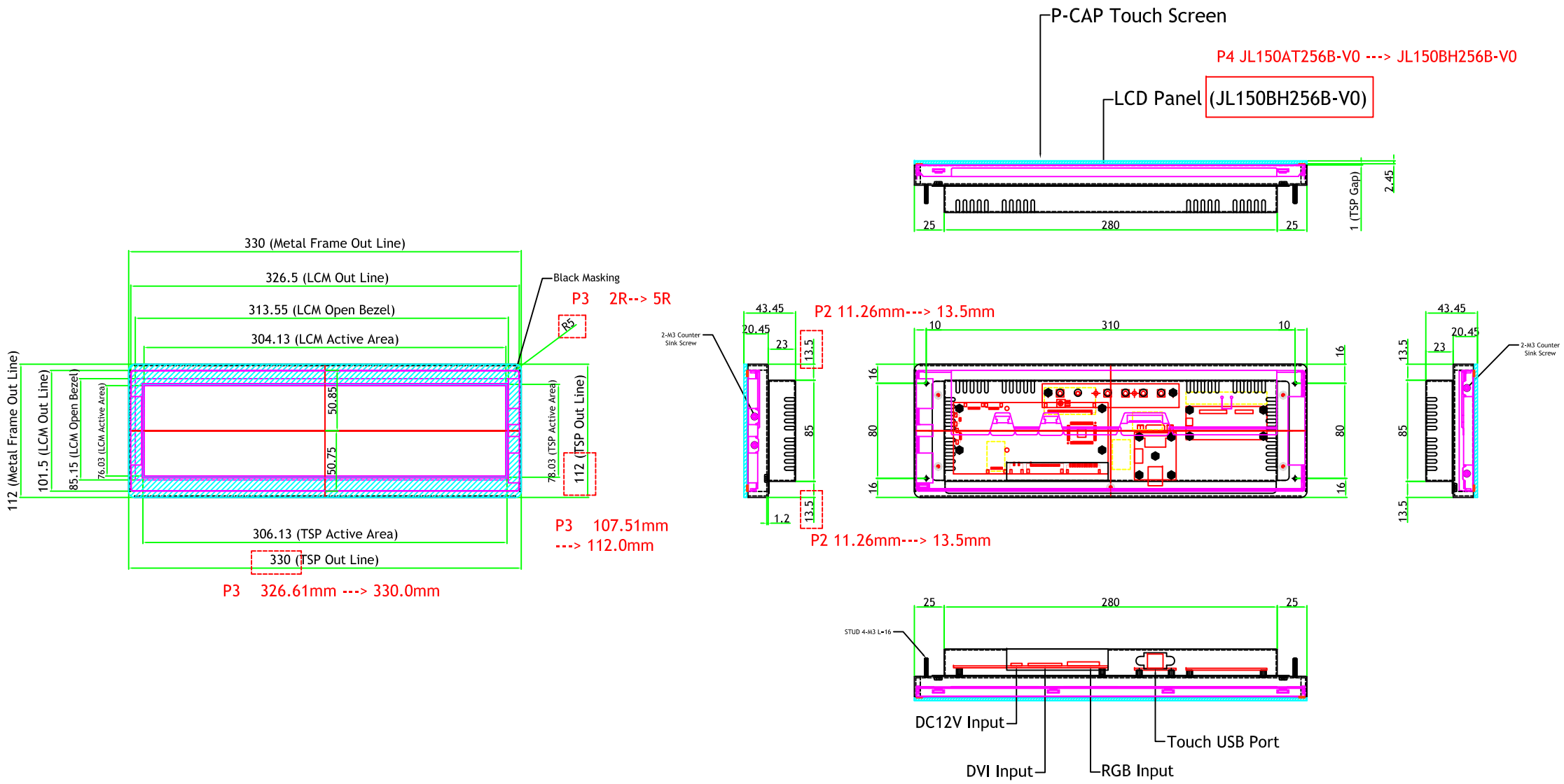
7.3 USB Interface Port

8. Packing Information

Item	Q'ty	Dimension (W x D x H)	Weight(Kg)	Remark
Open Frame	1Pcs	328.9mm x 107.51mm x43.45mm	TBD	
Box Packing		TBD	TBD	
Pallet Size		TBD	TBD	
Pallet Packing		TBD	TBD	

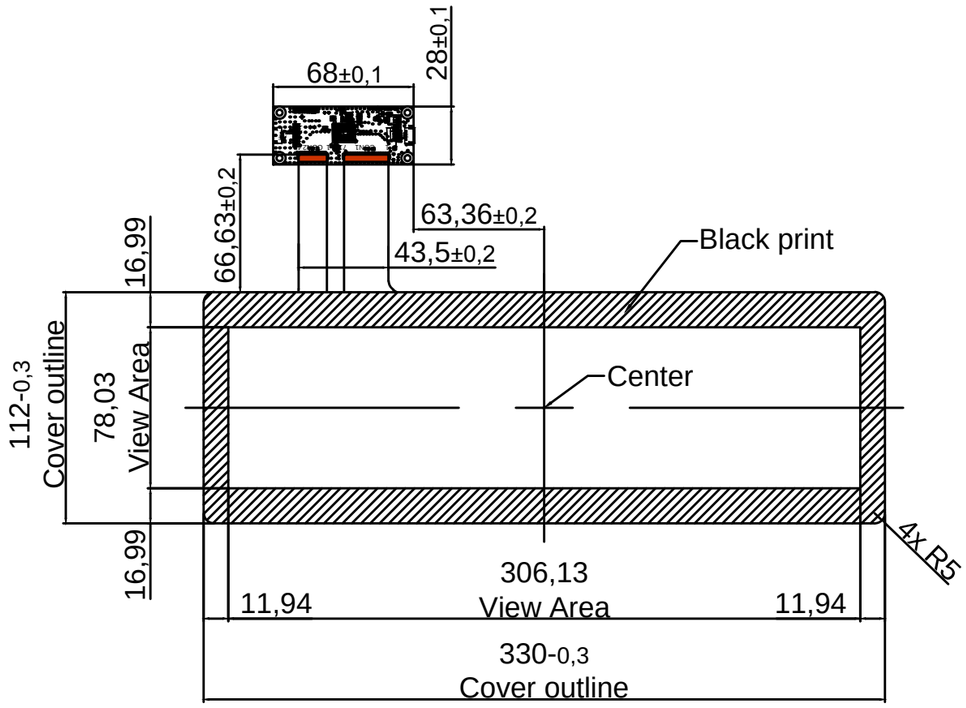
9. Mechanical structure

Rev	AMEND	DATE	CHECK	APPR.
P1	Proto	2015.11.10	H.I.Woo	H.Y.Sohn
P2	Changed AD Board INB1003 ---> INB10035	2015.11.18	H.I.Woo	H.Y.Sohn
P3	Changed Touch Screen Corner 2R ---> 5R	2016.02.29	H.I.Woo	H.Y.Sohn
P4	Changed LCD Panel JL150AT256B-V0 ---> JL150BH256B-V0	2019.01.15	H.I.Woo	H.Y.Sohn



SUZOHAPP			MODEL NO	INF-1503XTLIPC-U	VIEW :		UNIT : mm
			NAME	15.0" Open Frame	Q'ty	1	REV. P4
DRAWN	CHECKED	APPROVED	DWG. NO	4M1503004-03	SCALE	1 / 1	
H.I.Woo		H.Y.Sohn	MATERIAL / FINISH	GI T=1.2	DATE	2019.01.15	

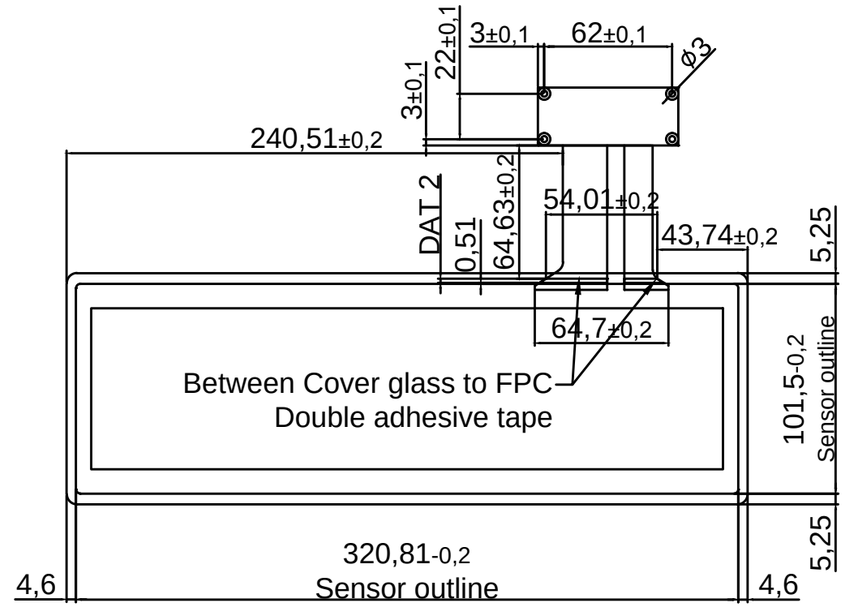
A1 (840 X 594)



Rx Pin map	
P/N	CON1
1	GND
2	X1
3	X2
4	X3
⋮	
49	X48
50	X49
51	X50
52	NC
53	NC
⋮	
61	NC
62	NC
63	GND
64	GND
⋮	
69	GND
70	GND
71	GND

Tx Pin map	
P/N	CON2
1	GND
2	Y1
3	Y2
4	Y3
⋮	
12	Y11
13	Y12
14	Y13
15	NC
16	NC
⋮	
40	NC
41	NC
42	GND
43	GND
44	GND
45	GND

Sensor thickness 0,45
Cover glass thickness 2
Touch panel thickness 2,45



FRONT VIEW

REAR VIEW

1. TOUCH PANEL THICKNESS : 2.45mm±10%
   COVER GLASS THICKNESS : 2mm±10%
   SENSOR THICKNESS : 0.45mm±10%
2. TAIL : FPC STYLE (COPPER TRACE)
3. CONTROLLER : ITP-S4061-MA_4101C
4. MATERIAL : AG NANO WIRE FILM

No.	m/d/y	Rev.	Description
8			
7			
6			
5			
4			
3			
2			
1	03/04/16	001	First Release

APPROVED BY

INOTOUCH TECHNOLOGY CO.,LTD.

DESIG'D H.J.KIM
CHK'D J.Y.KIM
DATE. 2016.03.04
DWG NO. DP150-52-001
SIZE A4
REF NO. NULL
PDT NO. DP150FS025CL072-52
SCALE NULL
UNIT MM[INCH]
UNDEFINED TOL. ±0.3
SHEET NO. 1/1