

# HI-DMPS

Approval

Rev. 01



Issue Date.

2017. 01. 18

Doc No.

DMPS BOARD 01

Note | Specification is subject to change without notice.  
Consequently it is better to contact to our company before proceeding with the design of your product incorporating this board

Prepared	Checked I	CheckedII	Approved
			
SW. OH	Samuel. Lee		YH. HAN

### Revision History

Rev.	ECN No.	Description of Changes	Date	Prepared
0		Initial Release	2013.09.23	J.C Park
1		Board Image, Dimension Update	2017.01.18	SW.OH

## 1. General Specification

No.	Item	Description		
1	Model Name	HI-DMPS		
2	LCD Module	LVDS 1920x1080		
3	Input	Analog RGB(R, G, B Separate H, V Sync), HDMI, USB, AUDIO		
4	Resolution Support	H: 31 ~ 80kHz		
		V: 55 ~ 76Hz		
5	OSD Control	Input, Menu, Left, Right, Down, Up, Power		7 keys
	Plug & Play	VESA DDC 2B Ver1.3		
6	Power Consumption	Supply Voltage	12Vdc	
		Power	2.5 Watt	Board Only
7	Signal Connector	Analog	DSUB 15P(R, G, B Separate H, V Sync)	
		Digital	HDMI(TMDS) / HDCP Ver1.2	
		Audio	5W + 5W	
8	Board Size	W x H x D(mm)	130 x 79 x 17	



## 2. ELECTRICAL SPECIFICATION

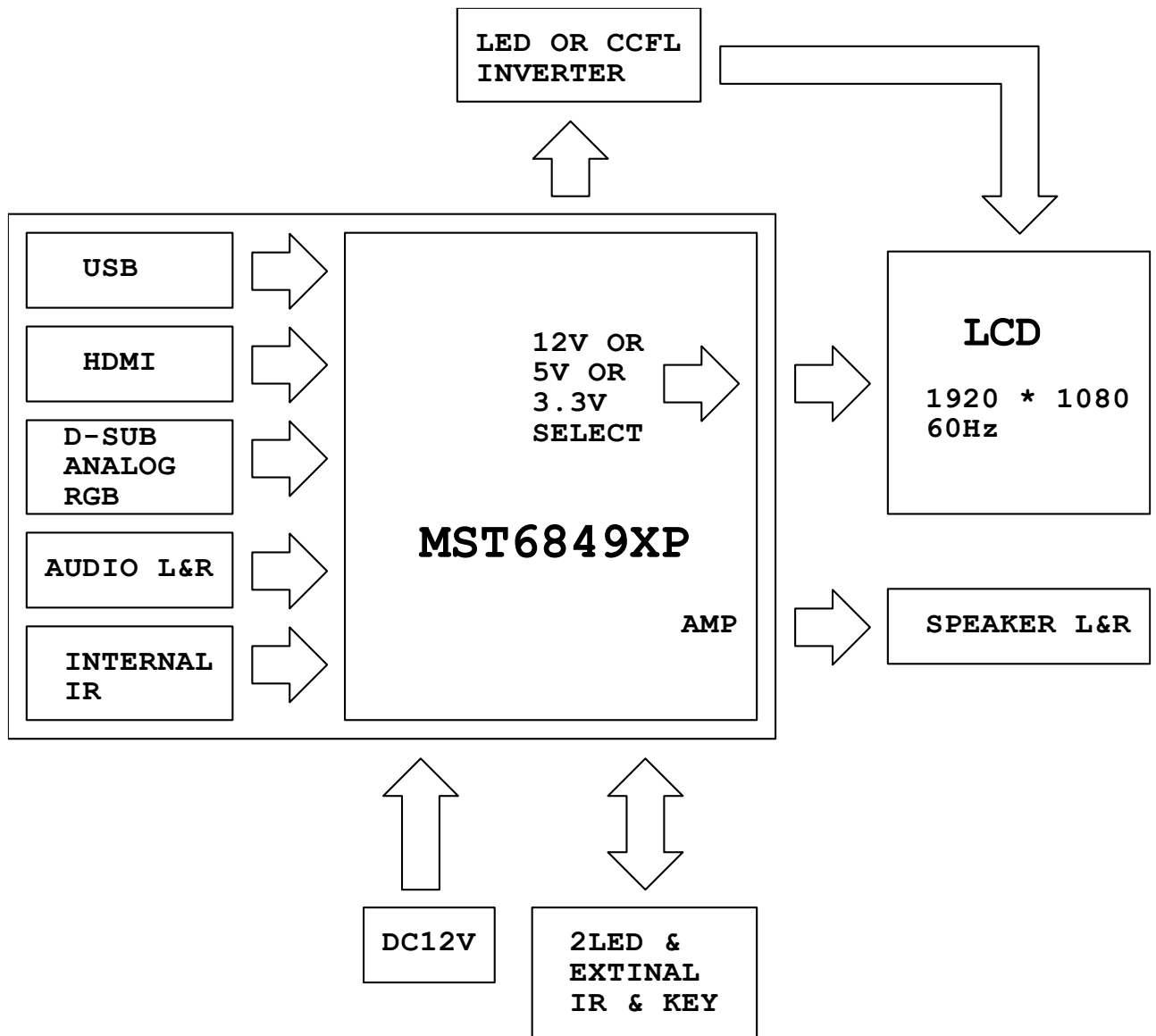
### 2.1. Input characteristic

Description	Signal	Unit	Min	Typical	Max	Remarks
Power In (12Vdc)						
	Input	12VDC	11.4	12	12.6	
	Consumption	Watt		2.5Watt		Board Only
RGB Input						
	Analog RGB	VPP	0	0.7	-	
	Sync	VDC	0	5	5.5	
	H Frequency	KHz	31		80	Depends on Mode
	V Frequency	Hz	55	75	77	Depends on Mode
DVI Input						
	TMDS	mVp-p	450		900	

### 2.2. Output characteristic

Description	Signal	Unit	Min	Typical	Max	Remarks
Panel Power						
	LCD Power(12V)	VDC	11.4	12	12.6	Jumper option
	LCD Power(5V)	VDC	4.5	5	5.5	Jumper option
	LCD Power(3.3V)	VDC	3.16	3.3	3.5	Jumper option
LVDS Interface						
	Differential output	Vp-p (mV)	250	350	450	Differential +/-
AUDIO Interface						
	Output	Watt		5	6	
	Frequence	Hz	700Hz		20KHz	
	THD	5% MAX AT 1500Hz 1.0W				
Inverter Interface						
	Power	V	11.4	12	12.6	Depends on Power
	On/Off control	V	0		3.3	L=off, H=on
	Brightness control	V	3.3		0	Option
			0		4.0	Option

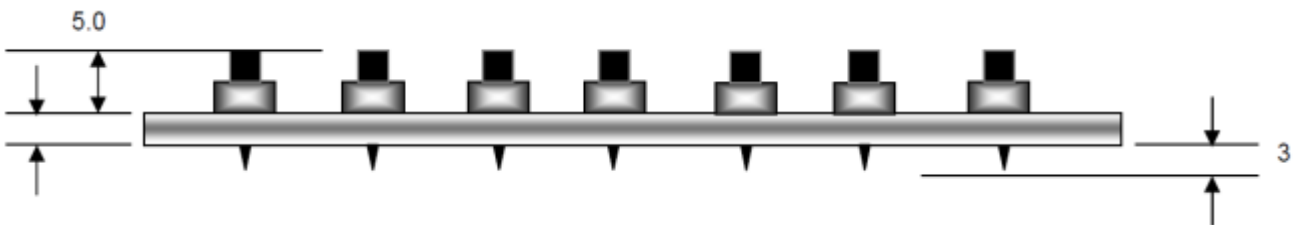
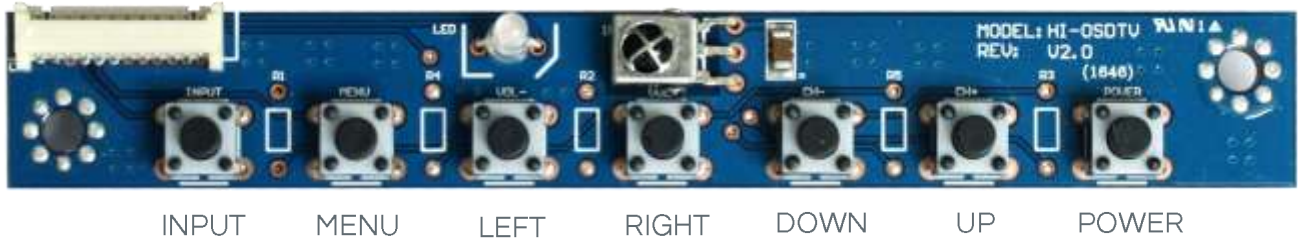
## 3. FUNCTIONAL BLOCK DIAGRAM



### 4. OSD Control Board

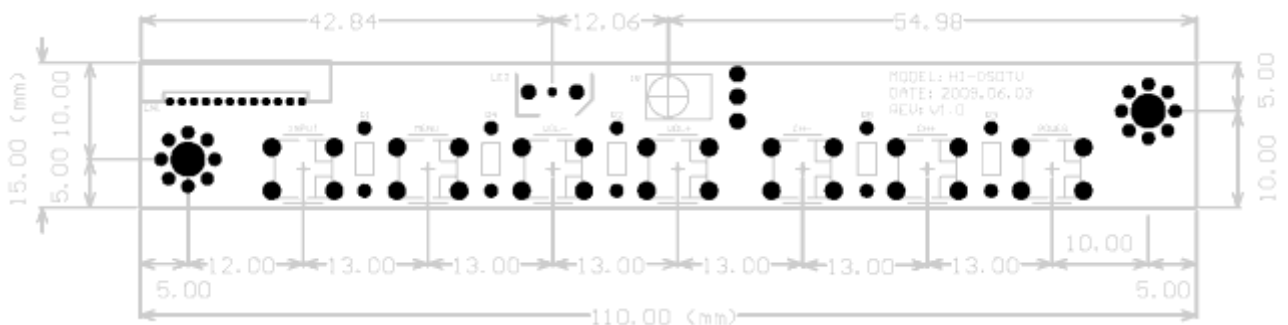
The OSD (On Screen Display) provides certain functions to have clear image and others. This board supports 7 buttons OSD operation as a standard. The control functions defined on OSD operation are as below. (Unit: mm)

#### Appearance



Board Size (W x H x D) : 110 x 15 x 6.6 mm

Button	Function	Status	HOT Key
LED	Indicates operation status	Green	On: Green Off: LED Off
POWER	Power on/off	On/Off	
MENU	Activate menu / Exit Menu		
INPUT	Input Select / Source		
LEFT	Cursor control Left		
RIGHT	Cursor control Right		
DOWN	Cursor control Down		
UP	Cursor control Up / Auto Adjust		

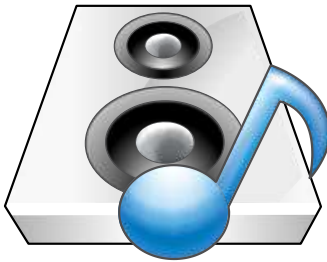


## 5. OSD FUNCTION



### Picture

1. Picture Mode
  - 1) User (All 0~100 Select)
    - ① Contrast ② Brightness ③ Color ④ Sharpness
  - 2) Dynamic 3) Standard 4) Mild
2. Color Temperature
  - 1) User (All 0~100 Select)
    - ① Red ② Green ③ Blue
  - 2) Cool 3) Medium 4) Warm
3. Aspect Ratio
  - 1) Auto 2) 4:3 3) 16:9
4. Noise Reduction
  - 1) Off 2) Low 3) Middle 4) High 5) Default
5. Backlight : 0~100 Select



### Audio

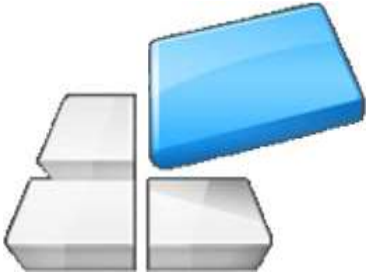
1. Sound Mode
  - 1) Use (All 0~100 Select)
    - ① Treble ② Bass
  - 2) Standard 2) Music 3) Movie 4) Sports
2. Balance (-50 ~ +50)
3. Auto Volume : On / Off
4. Surround Sound
  - 1) Off 2) Surround 3) SRS TruSurrounud XT
5. EQ (All 0~100 Select)
  - 1) 120Hz 2) 500Hz 3) 1.5KHz 4) 5KHz 5) 5KHz 6) 10KHz



### Time

1. Clock
  - 1) Date 2) Month 3) Year 4) Hour 5) Minute
2. Off Time (All Hour:0~23 Minute:0~59)
  - 1) Once 2) Every Day 3) Mon~Fri 4) Mon~Sat 5) Sat~Sun
  - 6) Sunday 7) Off
3. On Time (All Hour:0~23 Minute:0~59)
  - 1) Once 2) Every Day 3) Mon~Fri 4) Mon~Sat 5) Sat~Sun
  - 6) Sunday 7) Off
- ① PC-RGB ② HDMI ③ DMP (All Volume 0~100 Select)
4. Sleep Timer
  - 1) Off 2) 10min 3) 20min 4) 30min 5) 60min 6) 90min
  - 7) 120min 8) 180min 9) 240min
5. Auto Sleep : On/Off

## 5. OSD FUNCTION

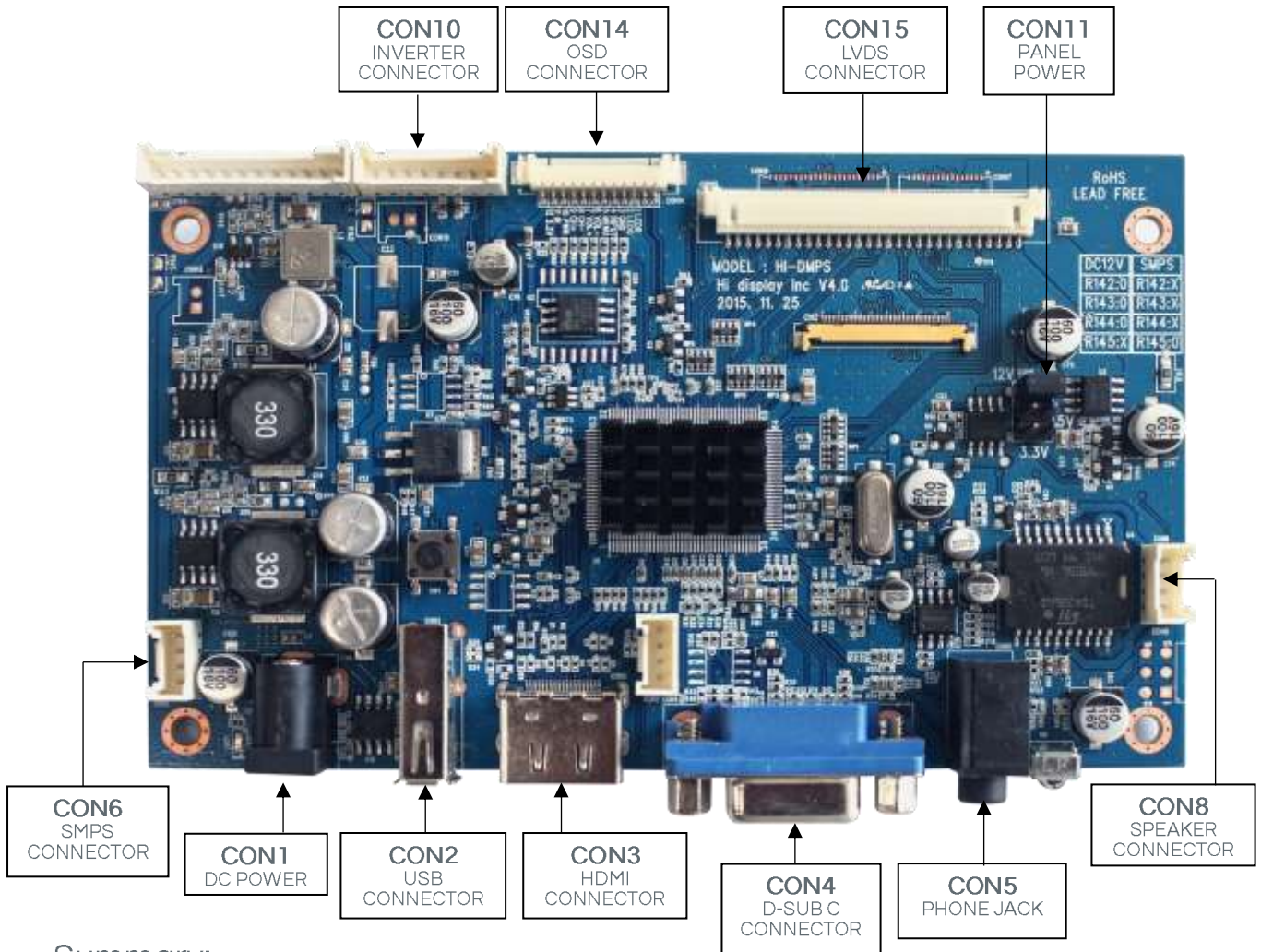


### Option

1. OSD Language
  - 1)esky 2)Densk 3)Deutsch 4)English 5)Espaol
  - 6)Franais 7)Hrvatski 8)Italiano 9)Magyar 10)Nederlands
  - 11)Norsk 12)Polski 13)Portugues 14)Romnete
  - 15)Slovenina 16)Srpski 17)Suomi 18)Svenska
  - 19)Slovak 20)Chinese
2. Restore Factory Default
3. Blending
  - 1)Off 2)Low 3)Middle 4)High
4. OSD Duration
  - 1)Off 2)5Sec 3)10Sec 4)15Sec
5. Software Update (USB)



6. CONNECTOR, PINOUT & JUMPERS



Summary:

Reference	Item	Description	Type	Manufacture
CON1	JACK	DC POWER JACK	2.5ø DC Jack	-
CON2	CONNECTOR	USB CONNECTOR	USB RIGHT ANGLE	-
CON3	CONNECTOR	HDMI CONNECTOR	HDMI 19P SMD	-
CON4	CONNECTOR	D-SUB CONNECTOR	DSH-15FR/A SHORT	-
CON5	JACK	PHONE JACK	AUDIO JACK PJ-325D	-
CON6	CONNECTOR	SMPS CONNECTOR	SMW200-04P-2.0mm	YEONHO
CON8	CONNECTOR	SPEAKER CONNECTOR	SMW200-04P-2.0mm	YEONHO
CON10	CONNECTOR	INVERTER CONNECTOR	SMW200-08P-2.0mm	YEONHO
CON11	JACK	PANEL POWER	H-3x2-6p	-
CON14	CONNECTOR	OSD CONNECTOR	12505WR-12P=1.25mm	YEONHO
CON15	CONNECTOR	LVDS CONNECTOR	12507WR-30P=1.25mm	YEONHO

## CON15: LVDS 8 Bit Dual Interface Connector

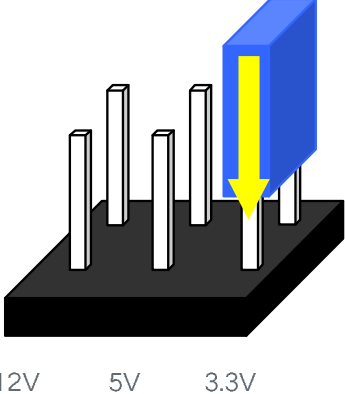
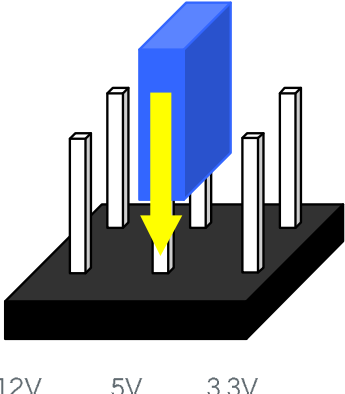
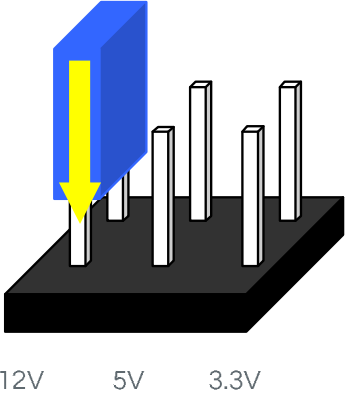
Pin No.	Symbol	Description
1~3	PANEL-VCC	Panel Power (12V/18V, 5V or 3.3V)
4~6	N.C	No Connection
7	GND	Ground
8	Y3P-EVEN	Positive(+) LVDS differential first 3 data(B port)
9	Y3M-EVEN	Negative(-) LVDS differential first 3 data(B port)
10	YCP-EVEN	Positive(+) LVDS differential first Clock(B port)
11	YCM-EVEN	Negative(-) LVDS differential first Clock(B port)
12	Y2P-EVEN	Positive(+) LVDS differential first 2 data(B port)
13	Y2M-EVEN	Negative(-) LVDS differential first 2 data(B port)
14	GND	Ground
15	Y1P-EVEN	Positive(+) LVDS differential first 1 data(B port)
16	Y1M-EVEN	Negative(-) LVDS differential first 1 data(B port)
17	GND	Ground
18	Y0P-EVEN	Positive(+) LVDS differential first 0 data(B port)
19	Y0M-EVEN	Negative(-) LVDS differential first 0 data(B port)
20	Y3P-ODD	Positive(+) LVDS differential second 3 data(A port)
21	Y3M-ODD	Negative(-) LVDS differential second 3 data(A port)
22	YCP-ODD	Positive(+) LVDS differential second Clock(A port)
23	YCM-ODD	Negative(-) LVDS differential second Clock(A port)
24	GND	Ground
25	Y2P-ODD	Positive(+) LVDS differential second 2 data(A port)
26	Y2M-ODD	Negative(-) LVDS differential second 2 data(A port)
27	Y1P-ODD	Positive(+) LVDS differential second 1 data(A port)
28	Y1M-ODD	Negative(-) LVDS differential second 1 data(A port)
29	Y0P-ODD	Positive(+) LVDS differential second 0 data(A port)
30	Y0M-ODD	Negative(-) LVDS differential second 0 data(A port)

\* You can use an even port for 1Ch LVDS

## CON14: OSD Connector

Pin No.	Symbol	Description
1	LED-Red	RED Color
2	LED-Green	GREEN Color
3	GND	Ground
4	SOURCE	For Source Switch
5	MENU	For Menu Switch
6	LEFT	For Left Switch
7	RIGHT	For Right Switch
8	DOWN	For Down Switch
9	UP	For Up Switch
10	POWER	For Power Switch
11	IRD	IR DATA
12	3.3V	IR POWER 3.3V

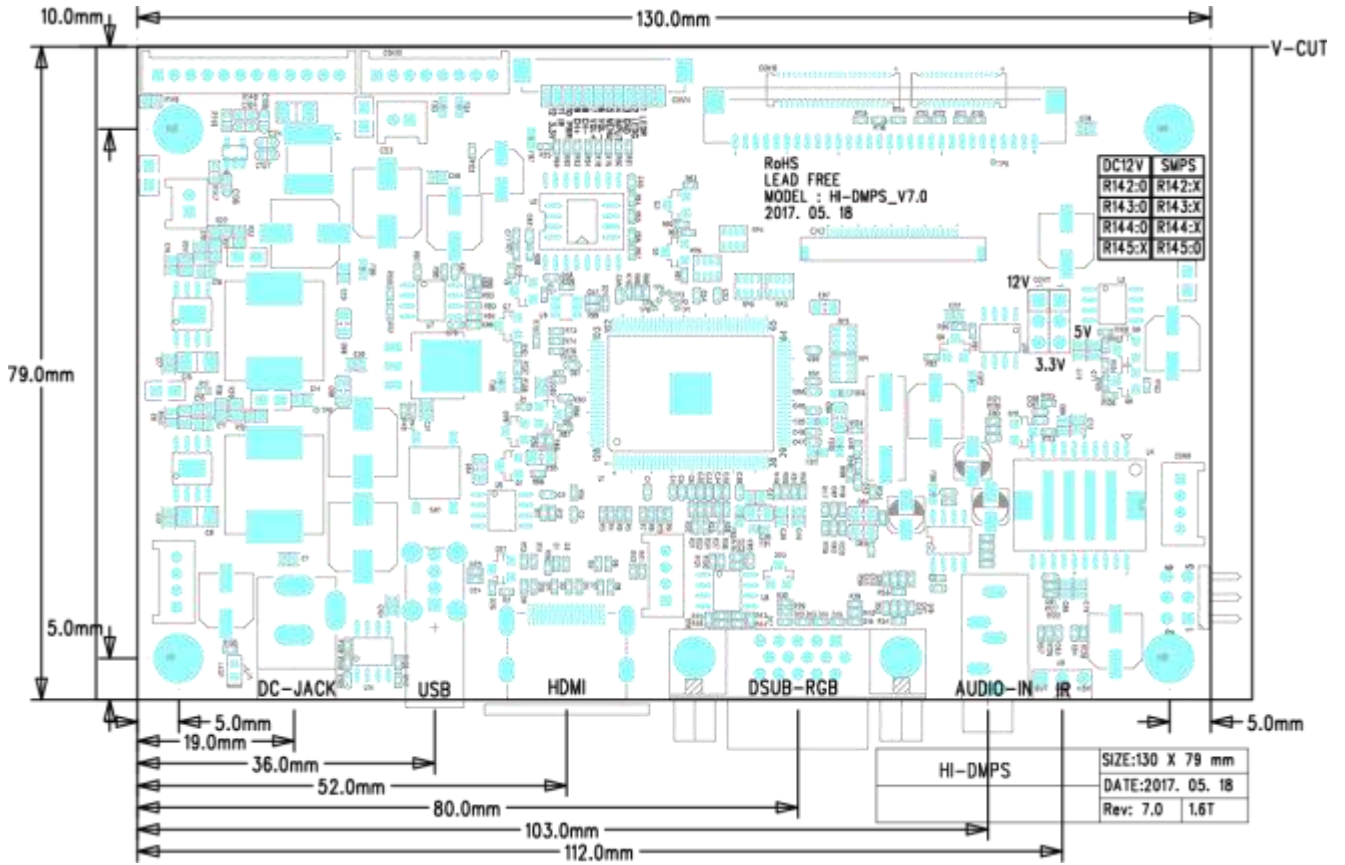
Summary: Panel Power setting

Reference	Description	Connector Type
	<p>3.3V panel power CAUTION: Incorrect setting can damage panel</p>	
<p>CON11</p>	<p>5.0V panel power CAUTION: Incorrect setting can damage panel</p>	
	<p>12V/18V panel power CAUTION: Incorrect setting can damage panel</p>	

CAUTION: Incorrect setting can damage panel

# HI-DMPS

## 7. CONTROLLER DIMENSIONS



[DIMENSION DOWNLOAD](#)

## 8. APPLICATION NOTES

### A. USING THE CONTROLLER WITHOUT BOTTONS ATTACHED:

This is very straightforward:

- ▷ Firstly setup the controller/display system with the buttons. With the attached controllers and display system active make any settings for color, contrast and image position as required then switch everything off.
- ▷ Remove the control switches, the 7-way cable.
- ▷ Refer to inverter specifications for details as to fixing brightness to a desired level, this may require a resistor, an open circuit or closed circuit depending on inverter

### B. INVERTER CONNECTION:

There are 3 potential issues to consider with inverter connection:

- ▷ Power
- ▷ ON/OFF
- ▷ Brightness (DIM-ADJ)

**Inverter power** : This should be matched with the inverter specification.

**Inverter ON/OFF** : This is a pin provided on some inverter for ON/OFF function and is used by this panel controller for VESA DPMS compliance. If the inverter does not have on/off pin or the on/off pin is not used DPMS will not operate. Pin5 should be matched to the inverter specification for the ON/OFF pin.

**Brightness Dimming control** : This controller boards are supported analog dimming and PWM dimming control method too. And it is important to consider the specifications for the inverter to be used.

## 9. APPLICABLE GRAPHIC MODE

The microprocessor measures the, H- sync V- sync and polarity for RGB Inputs, and uses this timing information to control all of the display operation to get the proper image on a screen. This board can detect all VESA standard Graphic modes shown on the table below and Provide mare clear and stable image on a screen.

PC input format

Mode \ Spec	Pixel Freq.	Horizontal Timing		Vertical Timing	
		Freq.	Active	Freq.	Active
		MHz	KHz	Hz	Line
640*350@70Hz	25.144	31.430	640	70.000	350
640*400@70Hz	28.287	31.430	640	70.000	400
720*400@ 70Hz	28.287	31.430	720	70.000	400
640*480@60Hz	28.175	31.469	640	59.940	480
640*480@72Hz	31.500	37.861	640	72.809	480
640*480@75Hz	31.500	37.500	640	75.000	480
800*600@56 Hz	36.000	35.156	800	56.250	600
800*600@60Hz	40.000	37.879	800	60.317	600
800*600@72Hz	50.000	48.077	800	72.188	600
800*600@75Hz	49.500	46.875	800	75.000	600
1024*768@60Hz	65.000	48.363	1024	60.005	768
1024*768@70Hz	75.000	56.476	1024	70.070	768
1024*768@75Hz	78.750	60.023	1024	75.030	768
1280*720@60Hz	74.500	44.772	1280	59.855	720
1280*720@75Hz	95.75	56.456	1280	74.777	720
1280*768@60Hz	80.14	47.7	1280	60	768
1280*768@75Hz	102.25	60.289	1280	74.893	768
1280*960@60Hz	101.25	59.699	1280	59.939	960
1280*960@75Hz	129.6	75	1280	75	960
1360*768@60Hz	84.75	47.72	1360	59.799	768
1280*1024@60Hz	108.000	63.981	1280	60.020	1024
1280*1024@75Hz	135.000	79.976	1280	75.035	1024
1600*1200@60Hz	162.000	75.000	1600	60.000	1200
1920*1080@60Hz	138.500	66.587	1920	59.934	1080

## HDMI input format

Mode \ Spec	Horizontal Timing		Vertical Timing	
	Freq.	Active	Freq.	Active
	KHz	Pixel	Hz	Line
720X480(P)	31.469	720	59.94	480
1280X720(P)	45	1280	60	720
1920X1080(I)	33.75	1920	60	540
720X480(I)	15.734	720	59.94	240
720X576(P)	31.25	720	50	576
1280X720(P)	37.50	720	50	720
1920X1080(I)	28.125	1920	50	540
720X576(I)	15.625	720	50	288
1920X1080(P)	67.432	1920	59.940	1080
1920X1080(P)	56.250	1920	50	1080
1920X1080(P)	26.973	1920	23.976	1080
1920X1080(P)	33.750	1920	30	1080



# HI-DMPS

## 10. ACCESSORY

### REMOCON

