

# IV-R1

## Full HD A/D Board Specification

Date : 2023.01.25



**IVIEWKOREA**

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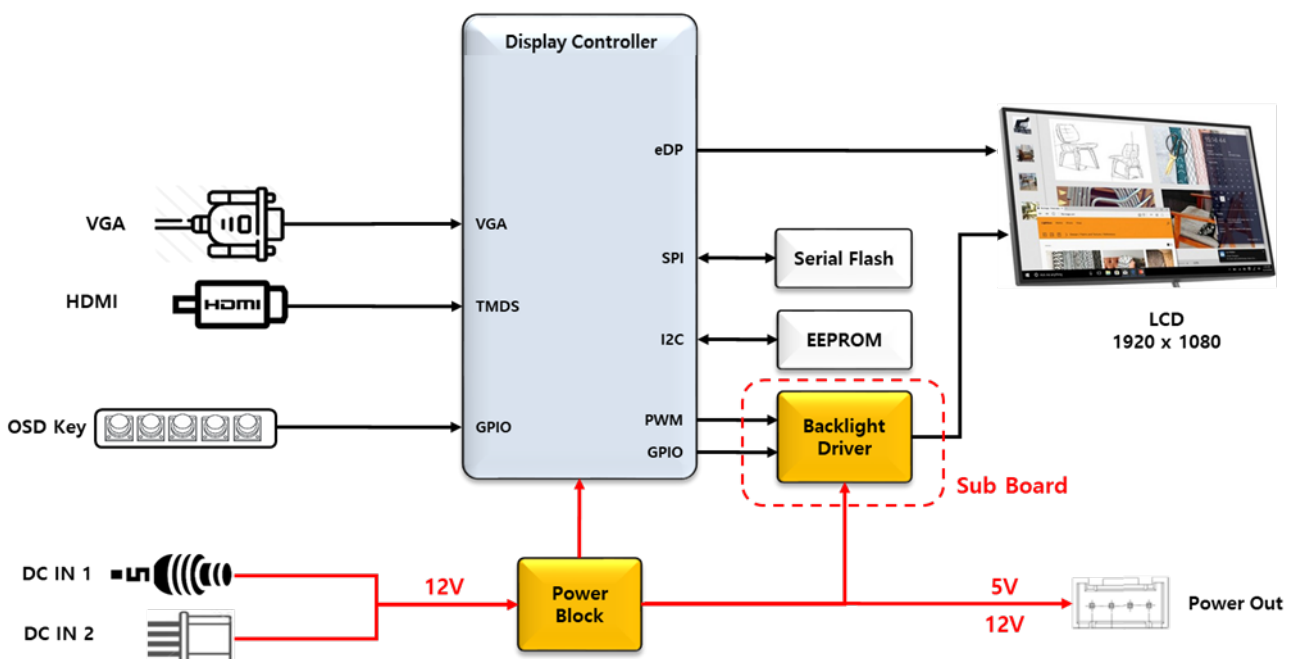
# 1. System Specification

Item		Description
System	MCU	Multi-Function Display Controller
	Flash	Serial NOR Flash, 16Mbit
Video Input	HDMI	Max Resolution 1920 x 1080@60Hz
	VGA	Max Resolution 1920 x 1080@60Hz
Video Output	eDP	Max Resolution 1920 x 1080@60Hz
Input/ Output Port	OSD Key Input	OSD 6 Key : POWER, MENU, UP, DOWN, SELECT, AUTO LED : Green LED
	Backlight Control	Power Supply Out, On/Off, Dimming(PWM)
	External Power	Power Supply 5V, 12V out
	DC IN 1	Power Supply Input
	DC IN 2	Power Supply Input
Temperature Range		Operating: 0 to +70°C Storage: -30 to +80°C
PCB		90 x 70mm, 1.6T, 2LAYER

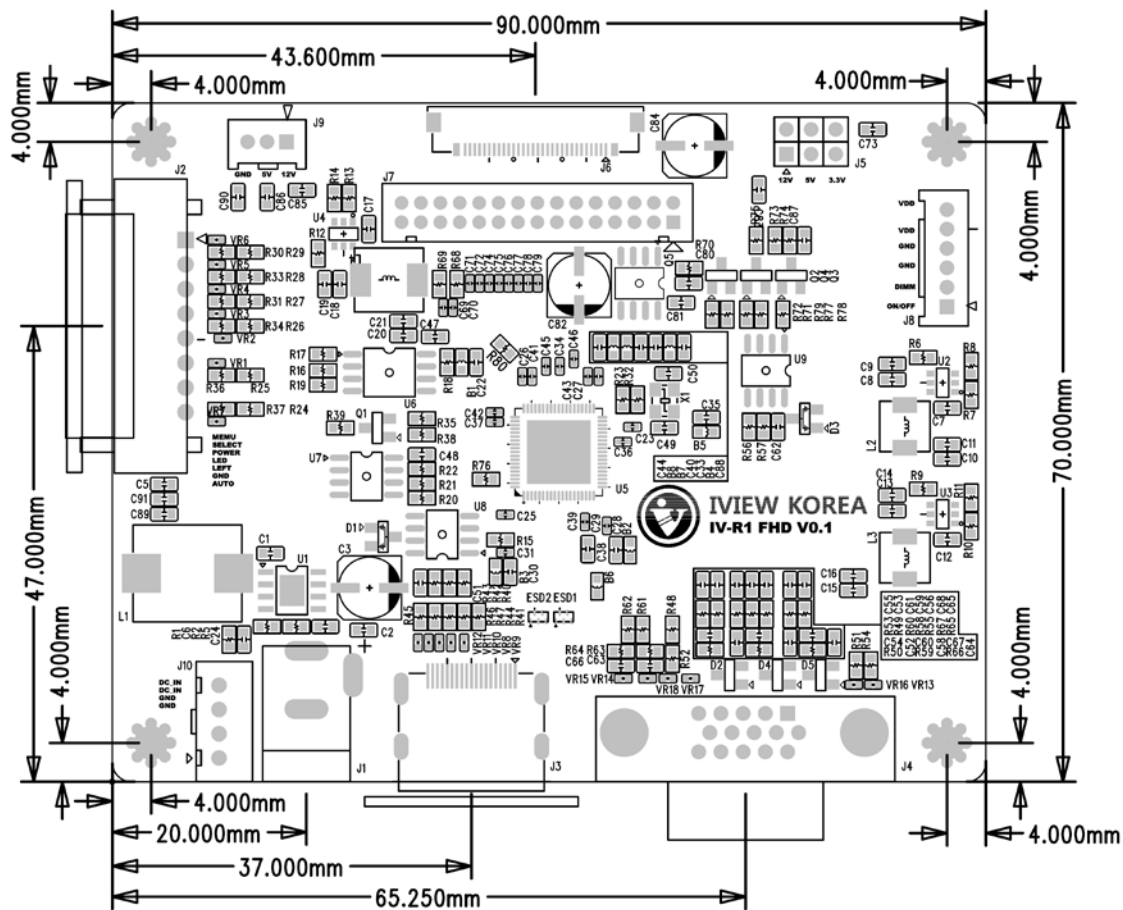
## 1-1. Electrical Specification

Description	Min	Typ.	Max	Unit	Remark
Power Supply Voltage	10.8	12	13.2	V	
LCD Power	3.3V	3.0	3.3	V	J5 Selectable
	5V	4.5	5.0	V	
	12V	10.8	12	V	
Power Consumption			2	W	Only board

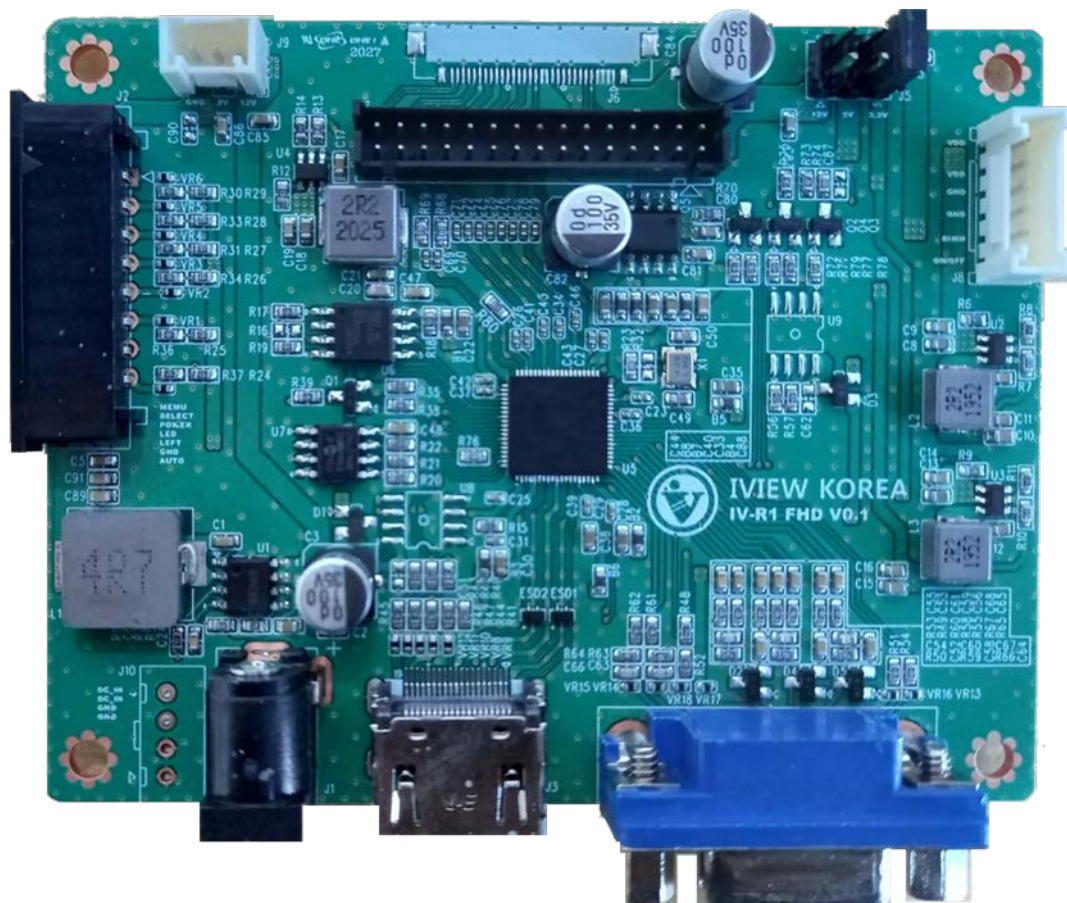
## 2. System Block Diagram



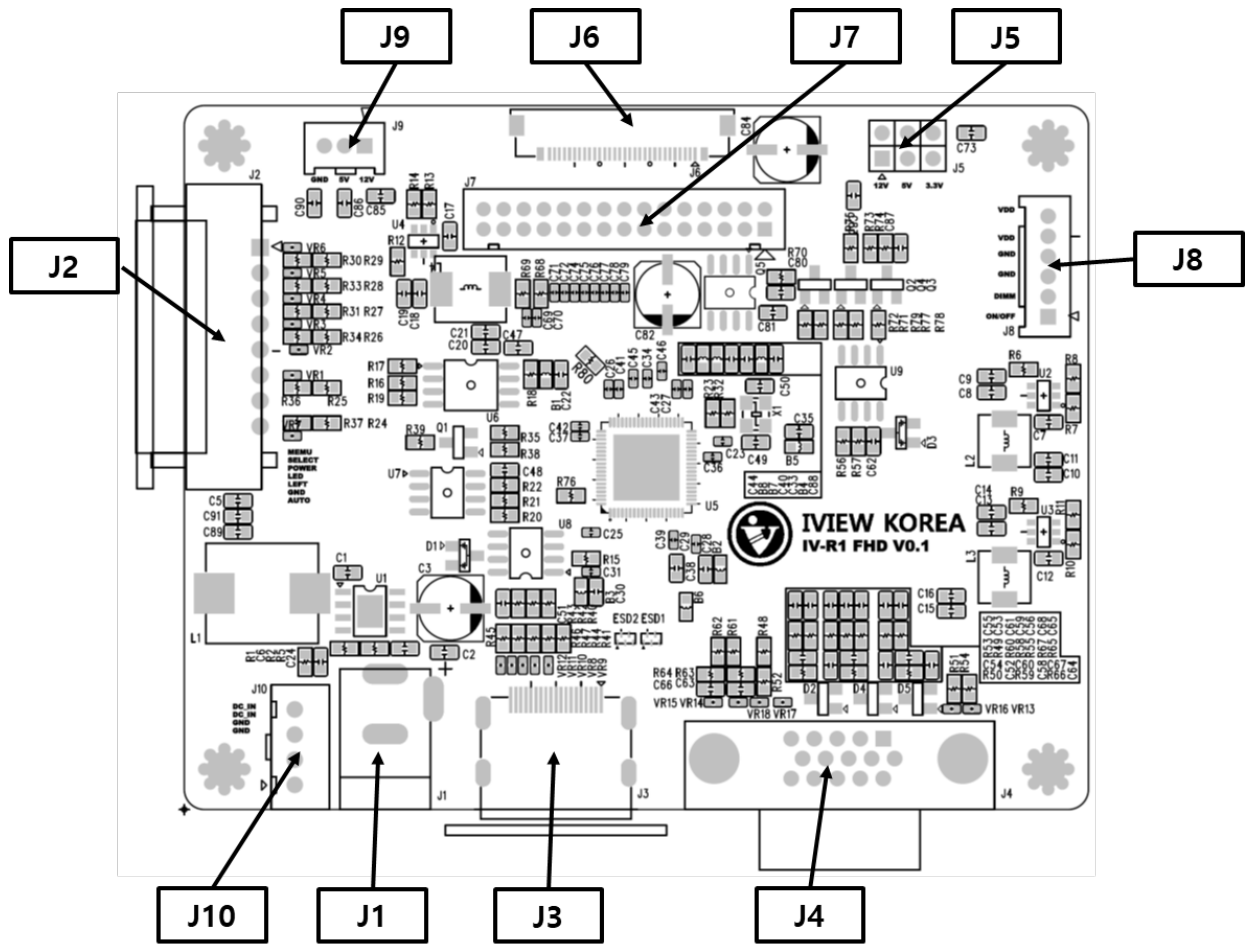
### 3. Board Layout Drawing



### 4. Board Picture



## 5. Connector Specification

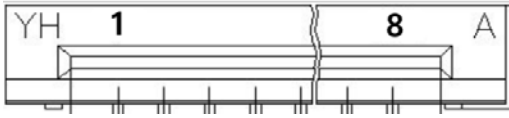


No.	Reference	Part Name	Description	Function	Housing
5-1	J1	DC-005Y/2.5	Right angle, DC Jack(Φ 2.5)	Power Supply Input 1	
5-2	J2	FCZ254-08R	Right angle, 8pin, 2.54mm, FPCB	OSD Key Input	
5-3	J3	IAF05-19613-S127R-M15	Right angle, HDMI Receptacle	HDMI Input	HDMI Cable
5-4	J4	HDR15F3.08	Right angle, 15pin D-Sub Connector	VGA Input	D-Sub Cable
5-5	J5	PH01-06DS	Straight, 2x3pin, 2.54mm	LCD Power Select	
5-6	J6	20455-030E-12	Right angle, 30pin, 0.5mm	eDP Output 1	20453-030T
5-7	J7	YDW200-30	Straight, 30pin, 2.00mm	eDP Output 2	YDH200-30
5-8	J8	SMW200-06P	Straight, 6Pin, 2.00mm	Backlight Interface	SMH200-06
5-9	J9	SMW200-03P	Straight, 3pin, 2.00mm	External Power Out	SMH200-03
5-10	J10	SMW250-04P	Straight, 4pin, 2.50mm	Power Supply Input 2	SMH250-04

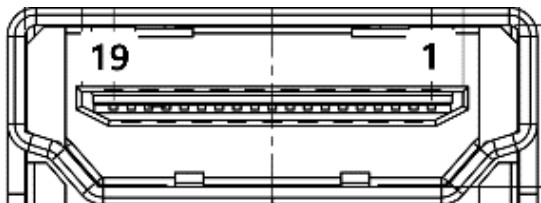
### 5-1. J1(Power Supply Input 1)

Pin no.	Signal	Description	Connector pin arrangement
1	DC_IN	Power Supply Input	
2	GND	GND	

## 5-2. J2(OSD Key Input 1)

Pin no.	Signal	Description	Connector pin arrangement
1	CON_MENU	Menu Key Input	
2	CON_SEL	Select Key Input	
3	CON_RIGHT	Right(Up) Key Input	
4	CON_POWER	Power Key Input	
5	EXT_LED	LED Green	
6	CON_LEFT	Left(Down) Key Input	
7	GND	GND	
8	CON_AUTO	Auto Key Input	

## 5-3. J3(HDMI Receptacle)

Pin no.	Signal	Description	Connector pin arrangement
1	HDMI_RX2P	TMDS Data 2 Positive Input	
2	GND	GND	
3	HDMI_RX2N	TMDS Data 2 Negative Input	
4	HDMI_RX1P	TMDS Data 1 Positive Input	
5	GND	GND	
6	HDMI_RX1N	TMDS Data 21Negative Input	
7	HDMI_RX0P	TMDS Data 0 Positive Input	
8	GND	GND	
9	HDMI_RX0N	TMDS Data 0 Negative Input	
10	HDMI_RXCP	TMDS Clock Positive Input	
11	HDMI_CABLE_DET	GND	
12	HDMI_RXCN	TMDS Clock Negative Input	
13	NC	No Connection	
14	NC	No Connection	
15	HDMI_SCL	DDC Serial Clock Input	
16	HDMI_SDA	DDC Serial Data Input	
17	GND	GND	
18	HDMI_5V	5V Power Input	
19	HDMI_HPD	HDMI Hot Plug Detect Signal	


## 5-4. J4(VGA Input)

Pin no.	Signal	Description	Connector pin arrangement
1	RED	VGA RED Input	
2	GREEN	VGA Green Input	
3	BLUE	VGA Blue Input	
4	NC	No Connection	
5	VGA_CABLE_DET	VGA Cable Detect Signal	
6	RED_M	GND	
7	GREEN_M	GND	
8	BLUE_M	GND	
9	VGA_5V	5V Power Input	
10	GND	GND	
11	NC	No Connection	
12	VGA_TX_SDA	DDC Serial Data Input	
13	HS	VGA Horizontal Sync Input	
14	VS	VGA Vertical Sync Input	
15	VGA_RX_SCL	DDC Serial Clock Input	

## 5-5. J5(LCD Power Select)

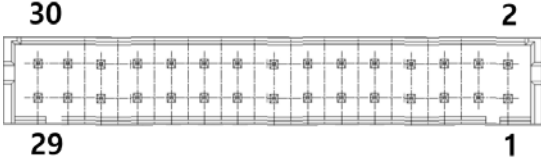
Pin no.	Signal	Description	Connector pin arrangement
1	12V	12V Power Out / Jumper 1-2 Connection	
2	LVDS_PWR	LCD Power Supply	
3	5V	5V Power Out / Jumper 3-4 Connection	
4	LVDS_PWR	LCD Power Supply	
5	3.3V	3.3V Power Out / Jumper 5-6 Connection	
6	LVDS_PWR	LCD Power Supply	

## 5-6. J6(eDP Output 1)

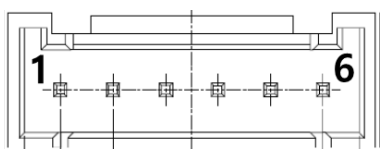
Pin no.	Signal	Description	Connector pin arrangement
1	BL_PWR	LCD Backlight Power Output	
2	BL_PWR	LCD Backlight Power Output	
3	BL_PWR	LCD Backlight Power Output	
4	BL_PWR	LCD Backlight Power Output	
5	ADJ_BLT	LCD Backlight Dimming PWM	
6	ON_BLT	LCD Backlight Enable	
7	GND	GND	
8	GND	GND	
9	GND	GND	
10	GND	GND	
11	GND	GND	
12	GND	GND	
13	LCD_VDD	LCD Power Supply Output	
14	LCD_VDD	LCD Power Supply Output	
15	EDPTX_HPD	eDP Hot Plug Detect	
16	GND	GND	
17	EDP_TX3P	eDP Lane 3 Positive Output	
18	EDP_TX3N	eDP Lane 3 Negative Output	
19	GND	GND	
20	EDP_TX2P	eDP Lane 2 Positive Output	
21	EDP_TX2N	eDP Lane 2 Negative Output	
22	GND	GND	
23	EDP_TX1P	eDP Lane 1 Positive Output	
24	EDP_TX1N	eDP Lane 1 Negative Output	
25	GND	GND	
26	EDP_TX0P	eDP Lane 0 Positive Output	
27	EDP_TX0N	eDP Lane 0 Negative Output	
28	GND	GND	
29	EDPTX_AUX_N	eDP Aux Channel Negative Output	
30	EDPTX_AUX_P	eDP Aux Channel Positive Output	



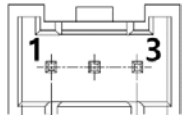
## 5-7. J7(eDP Output 2)

Pin no.	Signal	Description	Connector pin arrangement
1	BL_PWR	LCD Backlight Power Output	
2	BL_PWR	LCD Backlight Power Output	
3	BL_PWR	LCD Backlight Power Output	
4	BL_PWR	LCD Backlight Power Output	
5	ADJ_BLT	LCD Backlight Dimming PWM	
6	ON_BLT	LCD Backlight Enable	
7	GND	GND	
8	GND	GND	
9	GND	GND	
10	GND	GND	
11	GND	GND	
12	GND	GND	
13	LCD_VDD	LCD Power Supply Output	
14	LCD_VDD	LCD Power Supply Output	
15	EDPTX_HPD	eDP Hot Plug Detect	
16	GND	GND	
17	EDP_TX3P	eDP Lane 3 Positive Output	
18	EDP_TX3N	eDP Lane 3 Negative Output	
19	GND	GND	
20	EDP_TX2P	eDP Lane 2 Positive Output	
21	EDP_TX2N	eDP Lane 2 Negative Output	
22	GND	GND	
23	EDP_TX1P	eDP Lane 1 Positive Output	
24	EDP_TX1N	eDP Lane 1 Negative Output	
25	GND	GND	
26	EDP_TX0P	eDP Lane 0 Positive Output	
27	EDP_TX0N	eDP Lane 0 Negative Output	
28	GND	GND	
29	EDPTX_AUX_N	eDP Aux Channel Negative Output	
30	EDPTX_AUX_P	eDP Aux Channel Positive Output	

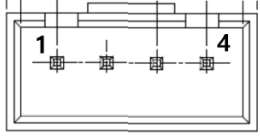
## 5-8. J8(Backlight Interface)

Pin no.	Signal	Description	Connector pin arrangement
1	ON_BLT	Backlight On/Off Control Signal	
2	ADJ_BLT	Backlight PWM Control Signal	
3	GND	GND	
4	GND	GND	
5	VDD	12V Backlight Power Out	
6	VDD	12V Backlight Power Out	

### 5-9. J9(External Power Out)

Pin no.	Signal	Description	Connector pin arrangement
1	12V	12V Power Out	
2	5V	5V Power Out	
3	GND	GND	

### 5-10. J10(Power Supply Input 2)

Pin no.	Signal	Description	Connector pin arrangement
1	GND	GND	
2	GND	GND	
3	DC_IN	Power Supply Input	
4	DC_IN	Power Supply Input	

## 6. Support Display Modes

Mode \ Spec.	Pixel Freq.		Horizontal Timing				Vertical Timing			
			Sync Polar	Freq.	Total	Active	Sync Polar	Freq.	Total	Active
	MHz			KHz	Pixel	Pixel		Hz	Line	Line
640x480 @60Hz	25.175	MAC	N	31.469	800	640	N	59.940	525	480
640x480 @60Hz	25.175	VESA	N	31.469	800	640	N	59.940	525	480
720x400 @70Hz	28.287	VESA	N	31.430	900	720	P	70.000	449	400
640x480 @67Hz	30.240	MAC	N	35.000	864	640	N	66.667	525	480
640x480 @72Hz	31.500	VESA	N	37.861	832	640	N	72.809	520	480
640x480 @75Hz	31.500	VESA	N	37.500	840	640	N	75.000	500	480
800x600 @56Hz	36.000	VESA	P	35.156	1024	800	P	56.250	625	600
800x600 @60Hz	40.000	VESA	P	37.879	1056	800	P	60.317	628	600
800x600 @75Hz	49.500	VESA	P	46.875	1056	800	P	75.000	625	600
800x600 @72Hz	50.000	VESA	P	48.077	1040	800	P	72.188	666	600
832x624 @75Hz	57.284	MAC	N	49.726	1152	832	N	74.551	667	624
1024x768 @60Hz	64.000	MAC	N	48.780	1312	1024	N	60.001	813	768
1024x768 @60Hz	65.000	VESA	N	48.363	1344	1024	N	60.005	806	768
1024x768 @70Hz	75.000	VESA	N	56.476	1328	1024	N	70.070	806	768
1024x768 @75Hz	78.750	VESA	P	60.023	1312	1024	P	75.030	800	768
1280x768 @60Hz	79.500	VESA	P	47.780	1664	1280	P	59.870	798	768
1024x768 @75Hz	80.000	MAC	N	60.241	1328	1024	N	74.927	804	768
1360x768 @60Hz	85.000	VESA	P	47.712	1792	1360	P	60.015	795	768
1280x1024 @60Hz	108.000	VESA	P	63.981	1688	1280	P	60.020	1066	1024
1280x1024 @75Hz	135.000	VESA	P	79.976	1688	1280	P	75.025	1066	1024
1680x1050 @60Hz	147.000	VESA	N	65.160	2256	1680	P	59.944	1087	1050
1600x1200 @60Hz	160.875	VESA	N	74.479	2160	1600	P	59.967	1242	1200
1920x1080 @60Hz	172.750	VESA	N	67.061	2576	1920	P	59.983	1118	1080
1920x1200 @60Hz	193.125	VESA	N	74.508	1292	1920	P	59.990	1242	1200

## 7. OSD Menu

Main Menu	Sub Menu	Description	Default	Remark
Picture	Backlight	0 ~ 100	100	Hot Key : Down
	Brightness	0 ~ 100	50	
	Contrast	0 ~ 100	50	
	Sharpness	0 ~ 4	2	
Display	Auto Adjustment			VGA Only
	H Position	0 ~ 100	50	VGA Only
	V Position	0 ~ 100	50	VGA Only
	Pixel Clock	0 ~ 100	50	VGA Only
	Phase	0 ~ 100	48	VGA Only
Color	Gamma	Off, 1.8, 2.0, 2.2, 2.4	Off	
	Color Temp	Off, sRGB, User(R:255, G:255, B:255)	Off	
	Color Effect	Standard, Game, Movie, Photo, Vivid, User	Standard	
Input	-	Auto Select, VGA, HDMI	Auto Select	
Other	Reset	Factory reset		
	Menu Time	0 ~ 60	10	
	OSD H Position	0 ~ 100	50	
	OSD V Position	0 ~ 100	50	
	Transparency	0 ~ 255	0	
	Rotate	0, 90, 270, 180	0	OSD 메뉴 회전