


MONITOR DISPLAY MODULE

Product Specification

Customer	Standard		
Product Number	DM-215BD-MPGR01		
Ordering Part Number	DM-215BD-MPGR01		
Customer Approval		Date:	

Internal Approvals		
Product Mgr	Doc. Control	Electr. Eng.
Bazile Peter	Bazile Peter	Filip Kaczorowski
Date: 14/08/2018	Date: 14/08/2018	Date: 14/08/2018

Revision Record

Rev.	Date	Page	Chapt.	Comment	ECR no.
A	14/08/2018 07/11/2018	--	--	Preliminary Drawing updated with tolerance	



Table of Contents

1.0 GENERAL DESCRIPTIONS	4
1.1 Introduction	4
1.2 Main Features	4
1.3 eDP Output Clock	5
1.4 Input Resolution [HDMI, DP]	5
1.5 Input Signal	5
1.6 Output Signal	5
1.7 Power Supply Rating	6
1.8 User Controls	6
1.9 Key Button Function	6
2.0 MECHANICAL SPECIFICATION	7
2.1 Mechanical Characteristics	7
2.2 Mechanical Drawing	8
2.3 Block Diagram	9
3.0 ELECTRICAL SPECIFICATION	10
3.1 Power	10
4.0 OSD STRUCTURE	11
5.0 OPTICAL SPECIFICATION	12
5.1 Optical Characteristics	12
6.0 ENVIRONMENTAL SPECIFICATION	12
6.1 Environmental Characteristics	12
7.0 DENSITRON PART NUMBERING	13

1.0 General Descriptions

1.1 Introduction

This is a 21.5" bar cut Monitor, 3840 x 1080 resolution, 1.07B with 10 bit colour, 178-degree wide viewing angle, providing high image from the analogue DP.

1.2 Main Features

Item	Contents
Screen Size	21.55"
Display Format	3840(H) x 1080(V)
Colour	1.07B colours 10 bits
Overall Dimensions	547.60 (W) × 178.97 (H) × 47.00 (D) mm
Active Area	527.40 (W) x 148.23 (H) mm
Pixel Pitch	0.13725 (H) x 0.13725 (W) mm
Viewing Angle	L/R: 89/89° U/D: 89/89°
Contrast Ratio	1000: 1 (Typ.)
Brightness	300 cd/m ²
I/O	2 x HDMI, 1 x DP, 1 x DP TX
Backlight	LED
Response Time	14 ms (Rising + Falling)
Mechanism	Bezel Frame (Chassis Frame)
Plug & Play	DDC2B (VESA Standard)
Operating temperature	0°C ~ +50°C
Storage temperature	-20°C ~ +60°C

1.3 eDP Output Clock

Item	Symbol	Max.	Unit
Unit Interval for high bit	HBR	2.7	GHz
Unit Interval for high bit	HBR2	5.4	GHz

1.4 Input Resolution [HDMI, DP]

Item	Contents
Recommended Resolution	3840x2160@ 60Hz
Supported Input Resolution	640x480@60/72/75 Hz 800x600@56/60/72/75 Hz 1024x768@60/70/75 Hz 1280x1024@60/75 Hz 1920x1080@60 Hz 3840x2160@60 Hz

1.5 Input Signal

Item	Contents						
HDMI	Swing Voltage: $400\text{mV} \leq V_{\text{swing}} \leq 600\text{mV}$ Termination Resistance: $50 \pm 10\%$ ohm						
DP	Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
	Unit Interval for high bit rate (5.4Gbps / lane)	UI-HBR2	-	185	-	ps	
		Amplitude	0	-	0.5	%	
	Link Clock Down Spreading	Frequency	30	-	33	kHz	
	Differential peak-to-peak voltage at Sink side connector	$V_{\text{RX_DIFFp-p}}$	-	-	1.38	V	
	EYE width at Sing side connector	$T_{\text{RX_EYE-CONN}}$	0.38	-	-	UI	
	Lane-to-Lane skew	$L_{\text{RX_SKEW-INTER-PAIR}}$			4UI+500ps		
	Lane intra-pair skew	$L_{\text{RX_SKEW-INTER-PAIR}}$	-	-		ps	
AC Coupling Capacitor	$C_{\text{SOURCE_ML}}$	75			nF	Source side	

In HDMI mode, the latest HDMI2.0 (6GHz) supported HDMI (2.0), up to 4096x2160@60Hz, Display Port (1.2), up to 4096x2160@60Hz

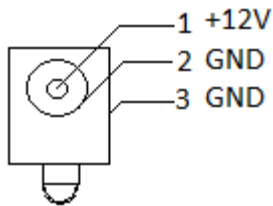
1.6 Output Signal

Output Signal Connector

- DP: DP-TX

1.7 Power Supply Rating

Power Input (DC Jack, Ø2.5)



Item	Contents
Power Consumption	20.3 Watt (Typ.) @Set
DC Output	12Vdc 5.0A
AC input	100~240Vac

1.8 User Controls

Item	Contents
OSD Key Button	5 Key
OSD Language	English

1.9 Key Button Function



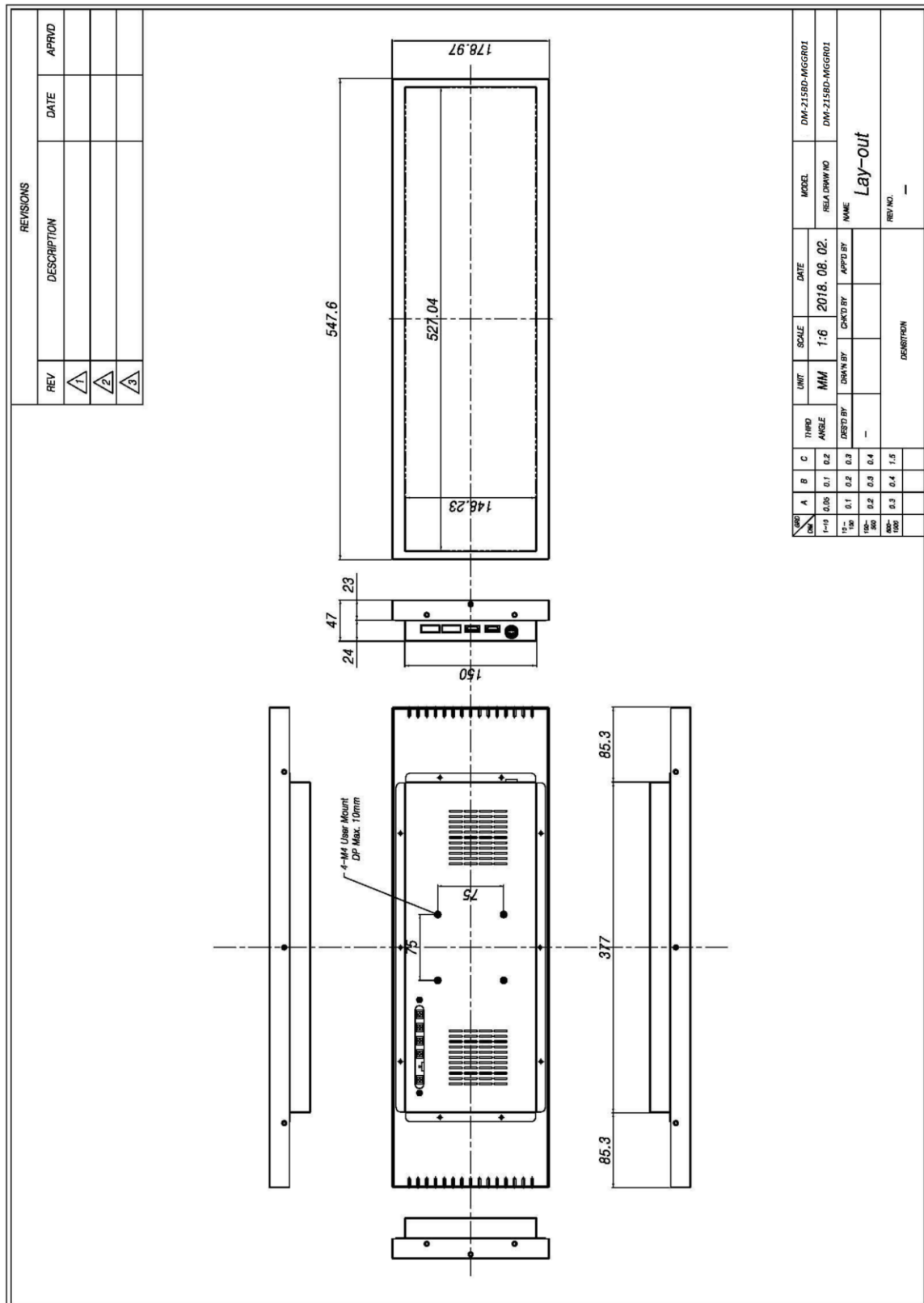
Button	Function
Power	Turns On/Off the system
Menu	Display the OSD menu on no menu status Select highlighted function
EXIT	Exit a menu of sub-menu
Up	Select next menu item Increase slider value
Down	Select previous menu item Decrease slider value

2.0 Mechanical Specification

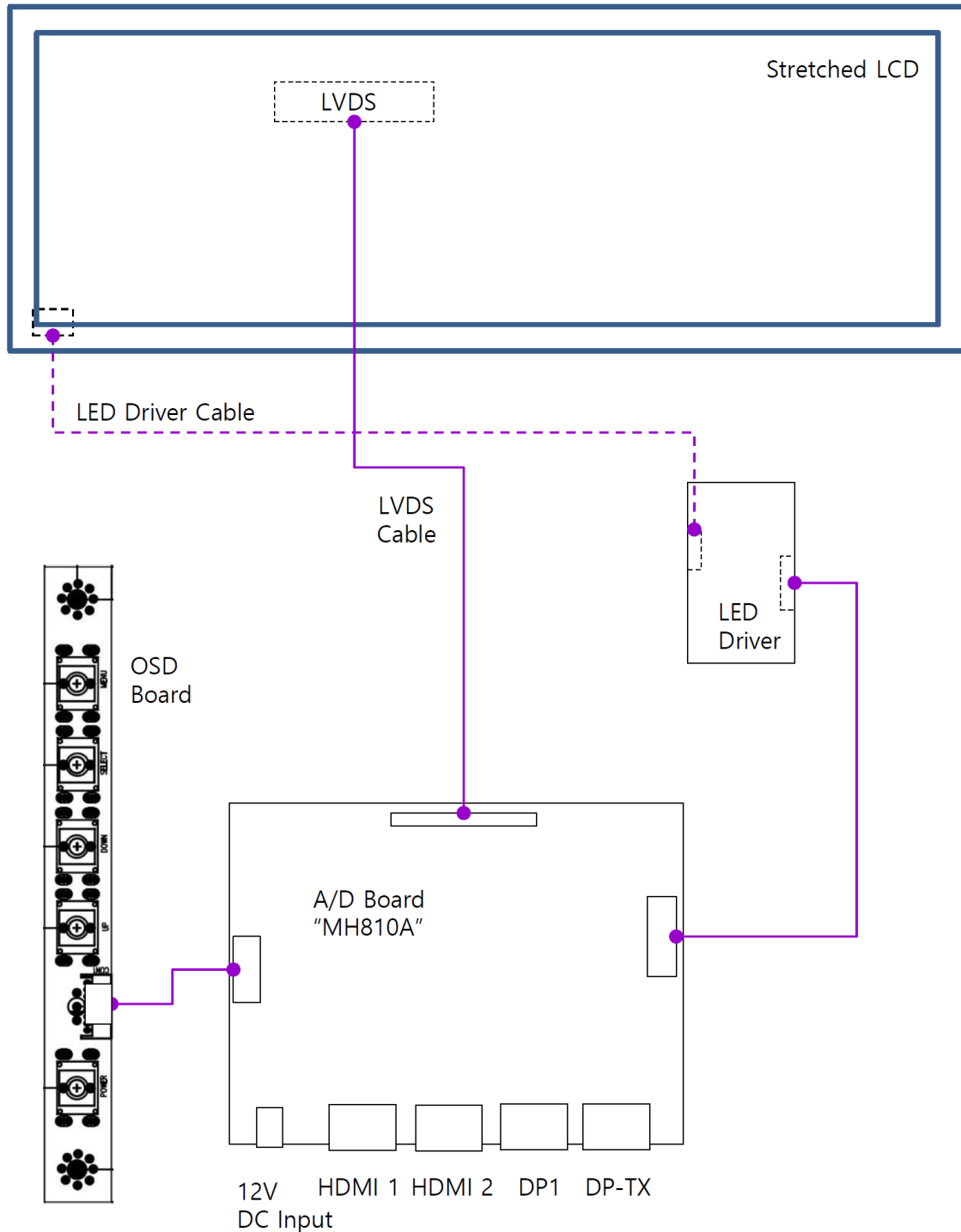
2.1 Mechanical Characteristics

Item	Characteristic	Unit
Display Format	3840(H) x 1080(V)	Dots
Overall Dimensions	547.6 (W) × 178.97 (H) × 47.0 (D)	mm
Active Area	527.04 (W) x 148.23 (H)	mm
Display colour	10.7M	colours
Mounting	User hole for M4 Screw depth max 10mm 75 x 75 mm	

2.2 Mechanical Drawing



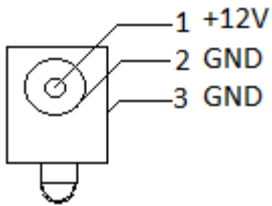
2.3 Block Diagram



3.0 Electrical Specification

3.1 Power

Power Input (DC Jack, $\varnothing 2.5$)



Item	Remark
Normal Input Voltage Range	12V DC $\pm 10\%$
Power Connector	Molex 5559-04P
Power Consumption	20.3 W Typical

4.0 OSD structure

Item	Sub Menu	Description	Default
Display	Display Rotate	0, 180, V mirror, H mirror	0
Picture	Backlight	0 ~ 100	100
	Brightness	0 ~ 100	50
	Contrast	0 ~ 100	50
	Sharpness	0 ~ 4	2
Colour	Gamma	OFF, 1.8, 2.0, 2.2, 2.4	OFF
	Colour Temp	9300, 7500, 6500, 5800, sRGB, USER	6500
	Colour Effect	Standard, Game, Movie, Photo, Vivid, User	Standard
	Hue	0 ~ 100	50
	Saturation	0 ~ 100	50
Advance	Aspect Ratio	Full, 16:9, 4:3, 5:5, 1:1, User	FULL
	Over scan	On, Off	ON
	Overdrive	On, Off OD Gain (0 ~ 100)	OFF
	DP Option	1.1, 1.2	
	DP TX	On, Off	OFF
Input	Input	Auto, DP, HDMI1, HDMI2	AUTO
Audio	Volume	0 ~ 100	50
	Mute	On, Off	OFF
Other	Reset	Reset to factory settings	
	Menu Time	10 ~ 60	11
	OSD H Position	0 ~ 100	50
	OSD V Position	0 ~ 100	50
	Language	Select OSD menu language	
	Transparency	0 ~ 255	0
	Rotate	0, 90, 270	0
Information	Information		



5.0 Optical Specification

5.1 Optical Characteristics

Characteristics	Symbol	Min.	Typ.	Max.	Unit
Brightness	L _{br}	-	300	-	cd/m ²
Dark Room Contrast	CR	-	1000:1	-	
View Angle(LR/UD)	Θ	-	178/178	-	degree

6.0 Environmental Specification

6.1 Environmental Characteristics

Item	Remark
Operating Temperature	0°C ~ +50°C
Storage Temperature	-20°C ~ +60°C
Storage Humidity	5~90% RH
Operating Humidity	10~80% RH

7.0 Densitron Part numbering

Ordering Part number	Description
DM-215BD-MPGR01	21.5" Button Deck, 300 Nits, Metal Bezel, Glass, Generic AD board

1	O	Densitron Monitor
2	M	
3	-	
4~6	0	TFT Size: 043=4.3", 057=5.7", 070=7", 101=10.1"
	4	
	3	
7~8	G	SKUs: GN: Generic, BD: Button deck, 3D:3D, TP: Transparent, WT: Wide temp, DP: Dual Side, NB: Narrow Bezel, FM: Floating monitor, PT: Player Tracker
	N	
9	-	
10	O	Bezel: O: Open frame, M: Metal bezel, P: Plastic bezel, F: Flat surface K: Display kit only
11	P	Touch Screen: G: Glass, R: Resistive, S: SCT, P: PCT, D: DST, A: Acoustic, N: No need
12	1	- Control Board(AD Board): ranges from 1 to 9 (a to z if needed) - G: Generic - X: X86 Platform - Y: Arm Platform
13	R	Revision
14~15	0	Code for different configuration, ranges from 01 to 99 (a to z if needed)
	1	