

This module designed for light emitting display device.  
 Organize with 32×32 matrix combination with 1024 of  
 each Red,PGreen,Blue LED Chips, for Indoor use

**FEATURES**

- Active display size(x\*y) : 96mm × 96mm
- Dot pitch : 3mm
- Display color : RED,PGREEN,BLUE (full color)
- Duty rate : 1/8
- Dot matrix(x\*y) : 1024(32×32)
- Viewing angle : ±60 °
- Weight : 60g(Typ.)

**ABSOLUTE MAXIMUM RATINGS**

ITEM	SYMBOL	RATINGS	UNIT
Power dissipation	P	27.5	W
Supply voltage(DRIVE)	V <sub>DD</sub>	5	V
Supply voltage(LED)	V <sub>LED</sub>	5	V
Logic input power	V <sub>in</sub>	-0.5 ~ V <sub>DD</sub>	V
Junction Temp.	T <sub>j</sub>	115	°C
Operating Temp.	T <sub>opr</sub>	-20 ~ +65	°C
Storage Temp.	T <sub>stg</sub>	-20 ~ +70	°C

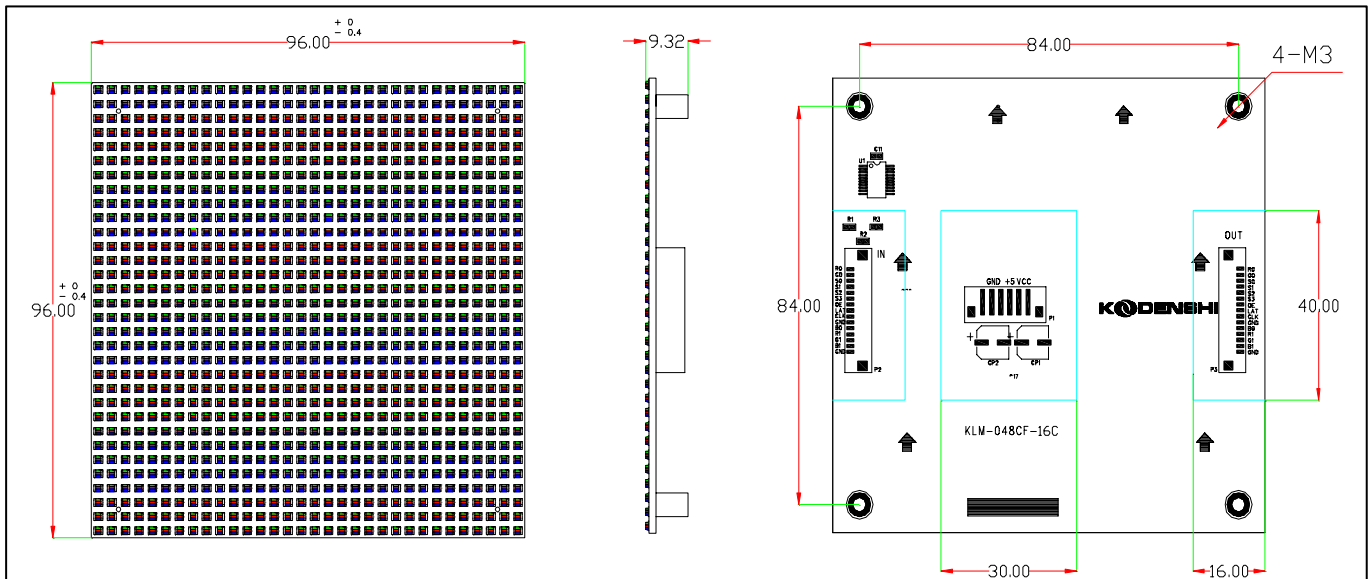
**OPTICAL CHARACTE RISTICS**

Ta=25°C

ITEM	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Brightness (16 * 16)	GREEN	I <sub>v<sub>g</sub></sub>	-	2,650	-	cd/m <sup>2</sup>
	RED	I <sub>v<sub>r</sub></sub>	-	1000	-	
	BLUE	I <sub>v<sub>b</sub></sub>	-	350	-	
	FULL	I <sub>v<sub>f</sub></sub>	-	4,000	-	
Supply-current(LED)	GREEN	I <sub>LEDg</sub>	-	1.5	-	A
	RED	I <sub>LEDr</sub>	-	2.5	-	
	BLUE	I <sub>LEDb</sub>	-	1.5	-	
	FULL	I <sub>LEDf</sub>	-	5.5	-	
Emisson Wavelength	GREEN	λ <sub>P<sub>g</sub></sub>	-	525	-	nm
	RED	λ <sub>P<sub>r</sub></sub>	-	625	-	
	BLUE	λ <sub>P<sub>b</sub></sub>	-	465	-	

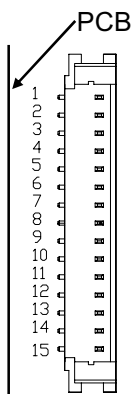
**DIMENSION**

(Unit : mm)



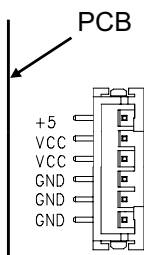
# KLM-048CF-16C

## INTERFACE



connector pin number & signal function

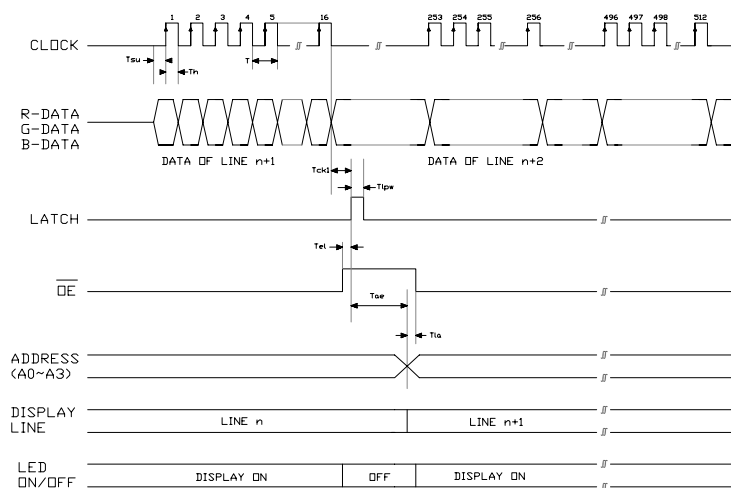
PIN NO	SIGNAL	SIGNAL-FUNCTIO
1	R0	RED DATA SIGNAL(HIGH)
2	G0	GREEN DATA SIGNAL(HIGH)
3	A0	LINE SELECT SIGNAL
4	A1	LINE SELECT SIGNAL
5	A2	LINE SELECT SIGNAL
6	A3	LINE SELECT SIGNAL
7	OE	DISPLAY ON/OFF SIGNAL
8	LAT	DATA LATCH SIGNAL
9	CLK	DATA SHIFT SIGNAL
10	GND	GROUND
11	B0	BLUE DATA SIGNAL(HIGH)
12	R1	RED DATA SIGNAL(LOW)
13	G1	GREEN DATA SIGNAL(LOW)
14	B1	BLUE DATA SIGNAL(LOW)
15	DIS	No signal



Power connector pin number & signal function

PIN NO	SIGNAL	LEVEL	SIGNAL-FUNCTION	WIRE COLOR
1	+5V	5[V]	LOGIC Voltage	WHITE
2	VCC		LED Voltage	
3				
4				
5	GND	0[V]	GROUND	BLACK
6				

## TIMING CHART MODULE(32 x 32) DISPLAY



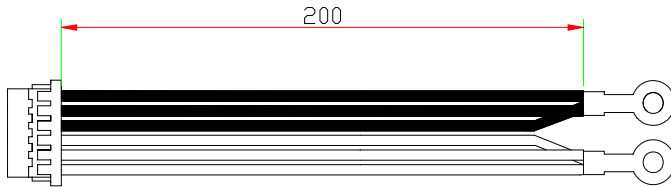
NO	ITEM	SYMBOL	MIN.	TYP.	MAX.	UNIT
1	CLOCK CYCLE	T	-	-	25	MHz
2	CLOCK-LATCH TIME	T <sub>ckl</sub>	50	-	-	ns
3	LATCH PULSE WIDTH	T <sub>lpw</sub>	100	-	-	ns
4	ENABLE- LATCH TIME	T <sub>el</sub>	100	-	-	μs
5	DATA SETUP TIME	T <sub>su</sub>	20	-	-	ns
6	DATA HOLD TIME	T <sub>h</sub>	25	-	-	ns
7	ADDRESS-ENABLE TIME	T <sub>ae</sub>	20	-	-	μs
8	LATCH-ADDRESS TIME	T <sub>la</sub>	20	-	-	ns

**KLM-048CF-16C**

**CONNECTOR SPECIFICATION**



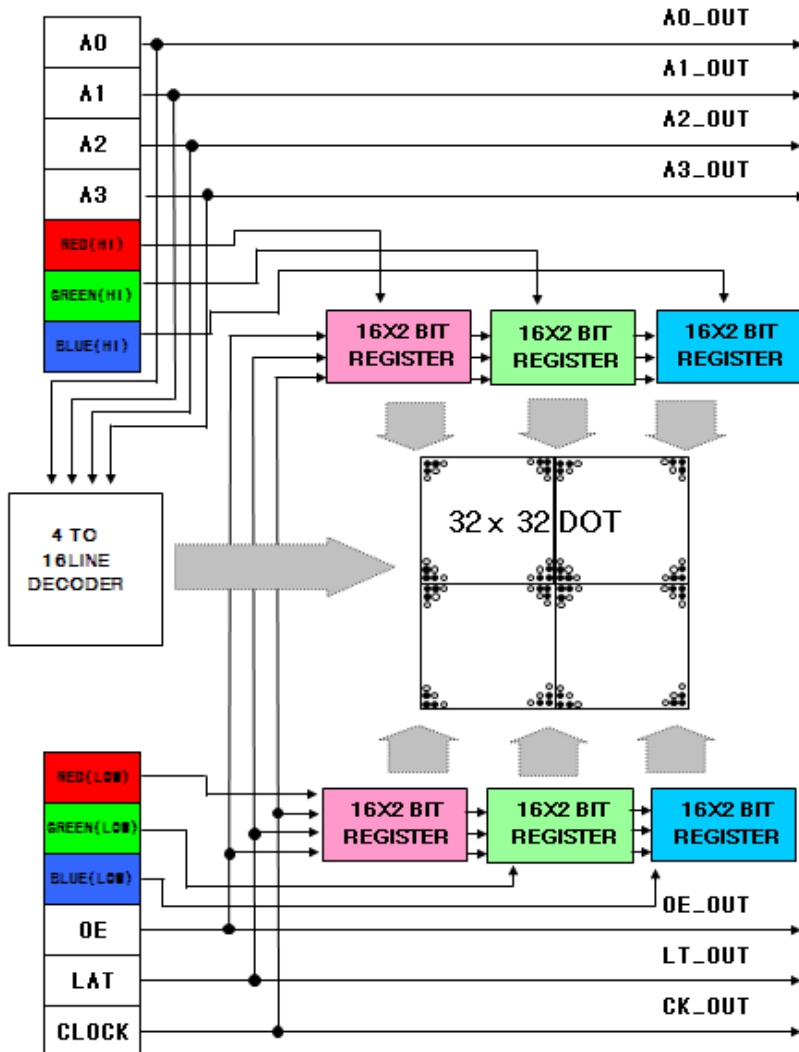
DATA CABLE



POWER CABLE

ITEM		VENDOR	MODEL NO.	NOTE
CONNECTOR	DATA	YEONHO	12505WS-15	
	POWER	YEONHO	20022WS-06	
CABLE	DATA	DAECHANG	12505HS-15	
	POWER	DAECHANG	20022HS-06	

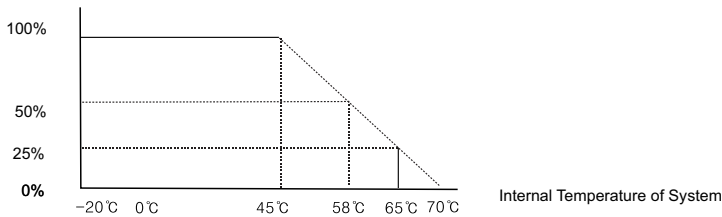
**BLOCK DIAGRAM**



## KLM-048CF-16C

## The rate of Display lights

Display light rate



- \* Please control Module Temperature with keeping Display Light Rate in mind and being compliant to the chart above.
- \* The proof measure for sufficient radiation is requisite in case of multi-units, such as using fan.  
Please keep an eye on the surface temperature not to rise over 70°C
- \* You can control Display Light Rate with Out Enable when your controlling fails to go with the chart above.

## INSTALLMENT NOTICES

- 1). Please apply this modules at a safe surrounding against noise because the error or mis-operation may occur at fragile place of noise. Therefore consider the place you will install.
- 2). Check surely the power condition previous to operation test in order to prevent module damage which might be caused by the excessive power.
- 3). Water proofing is not covered. Therefore we recommend water proofing at least in the front of modules.
- 4). Modules should be set up within the guarantee limitation and especially kept away from salt, dust, soot and **SO<sub>2</sub> GAS** etc.
- 5). When there is no data transmission at operation test, just turn power off immediately. Otherwise operating circuit gets damage.
- 6). Please apply this product under the range of guarantee, considering the sufficient radiation in case of the assembled multi-module.
- 7).  $V_{LED}$  is recommended the maximum of rating voltage for best result under the low temperature such as -15°C below.
- 8). Please check the insert direction when you attach SIGNAL CONNECTOR or link the power.  
(Refer to Harness wire colors of which the insert direction is same.)

## REFERENCES

- 1). Check **SYSTEM** weight before apply modules into housing
- 2). Operation test or anti-static electricity need for the **CMOS** attached in circuit board.
- 3). Sufficient power capability is necessary to deal with the excessive power which might be drastically caused depending on the condition of the on/off of unit.(Peak Current times 1.5 and higher)
- 4). Power for Logic or **LED** requires Switching Mode Power Supply.
- 5). Use power bus bar when connecting power.  
It helps power to keep from falling down.
- 6). Please don't change "switch for luminance adjustment".  
The switch was set as outgoing.
- 7). Any further question or trouble herein will be worked out mutually by customer and supplier through sales manager.