

Introduction

The LM231-420WUB is a 42" high brightness LCD module for digital signage applications. The module uses the LG LD420WUB-SCA1 PID LCD panel and a backlight to achieve a maximum screen brightness of 1,050 nits. It has 1,920 x 1080 full HD resolution with a very high contrast ratio of 1,200:1.

The LM231 LCD module is specially suitable as a display for a storefront window digital sign. The beautiful, bright screen draws attention, bringing customers into the store.

Electrical & Optical Characteristics (notes 1, 2)

Parameters	Typical Value	Units	Conditions
LCD Screen Luminance	1,050	Cd/m ²	LCD displays the brightest White
Inverter Input Power	170	Watts	Note 3
Luminance Adjustment Range	260 to 1050	Cd/m ²	Details on Page 2
Typical LCD Contrast Ratio	1,200:1		White vs. Black (measured in the dark along the normal direction)
Typical Viewing Angles			
3:00 direction	89	Degrees	Contrast ratio ≥ 10
9:00 direction	89	Degrees	Contrast ratio ≥ 10
6:00 direction	89	Degrees	Contrast ratio ≥ 10
12:00 direction	89	Degrees	Contrast ratio ≥ 10
LCD Screen Chromaticity (x, y)			
White	(0.270, 0.292)		Measured at the normal direction
Red	(0.634, 0.338)		Measured at the normal direction
Green	(0.276, 0.624)		Measured at the normal direction
Blue	(0.143, 0.074)		Measured at the normal direction
LCD Module Weight	10,500	Grams	With Inverters and their cover

Note 1: Please refer to the LG LD420WUB-SCA1 LCD Specification for LCD electrical specifications & general precautions.

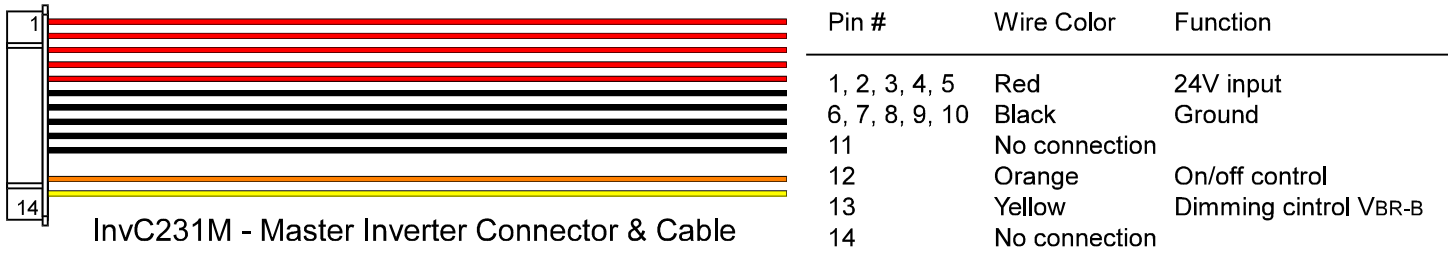
Note 2: All data is measured at 25° C ± 2° C ambient temperature.

Note 3: About 15 minutes after initial turn on.

Inverter Specification

The LM231-420WUB LCD has a master inverter and a slave inverter to operate the backlight. The master inverter contains the backlight On/Off and screen brightness adjustment functions.

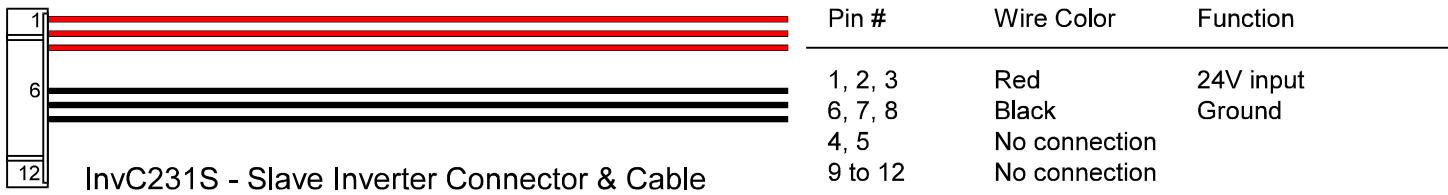
To operate the backlight, a master inverter and a slave inverter connector cables are required. The figure on the next page shows the pinout assignments and wiring colors of the two inverter cables. The cable length should be about 400 to 500 mm to cover the size of the LCD.



Backlight Control Voltage Input to Master Inverter

On/Off Control (Pin #12)
 Backlight on - 5V DC
 Backlight off - 0V DC

Screen Luminance (Brightness) Control (Pin #13)
 Max. brightness - 3.3V DC
 Min. brightness - 0V DC



Backlight Life

The rated half brightness life of the CCFLs used in the backlight is 50,000 hours. At the maximum LCD screen luminance of 1,050 nits, the operating half brightness backlight life is slightly lower than this rated lifetime. However, it should still be more than 30,000 hours, in particular, if the LCD screen luminance is adjusted (or dimmed) down during the night time.

Thermal Management

The total power consumption of the LM231 LCD module including the inverter losses is about 180 Watts at 1,050 nits screen brightness. This is about the same as the power of the original LCD, LD420WUB. Thus, there is no additional thermal management step required for this high brightness LM231 LCD.

For outdoor display applications, the sunlight exposure presents a major thermal issue. LCDs are suitable for outdoor applications because they have a low reflective, black front surface. However, a black surface is a good solar energy absorber. For example, under strong sunlight, the LM231 LCD module can absorb up to 500 Watts of solar power. This is nearly 3 times of the the maximum backlight power. As a result, the LCD temperature can rise very quickly and cause thermal problems.

It is recommended that the LCD screen temperature be measured at full brightness, in the equipment, under actual operating environments. The cooling measure should then be designed accordingly. Please ensure that the specified maximum LCD temperature is not exceeded.

Mechanical Dimesions

The exterior mechanical dimensions as well as the mounting hole locations of the LM231-420WUB LCD module are the same as those of the original LCD. Please refer to the LG LD420WUB-SCA1 LCD Data Sheet for details.

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