Sunlight Readable Open Frame Kit with LED Backlight

8.4" High Brightness 1300 nit LCD kit w/LED Backlight (Model: LOPH0840-Kit-LED)

The LOPH0840-Kit-LED is an 8.4" sunlight readable LCD module. Themodule consists of an NEC NL8060BC21-03 TFT color LCD panel and a VHB (very high brightness) LED backlight. At the full brightness setting, the LCD screen lumiannce can reach about 1,300 Cd/m2 (nits). At this level, the total backlight power consumption is only 4.9 Watts including the LED driver board losses. In addition, it has an anti-reflective front surface.

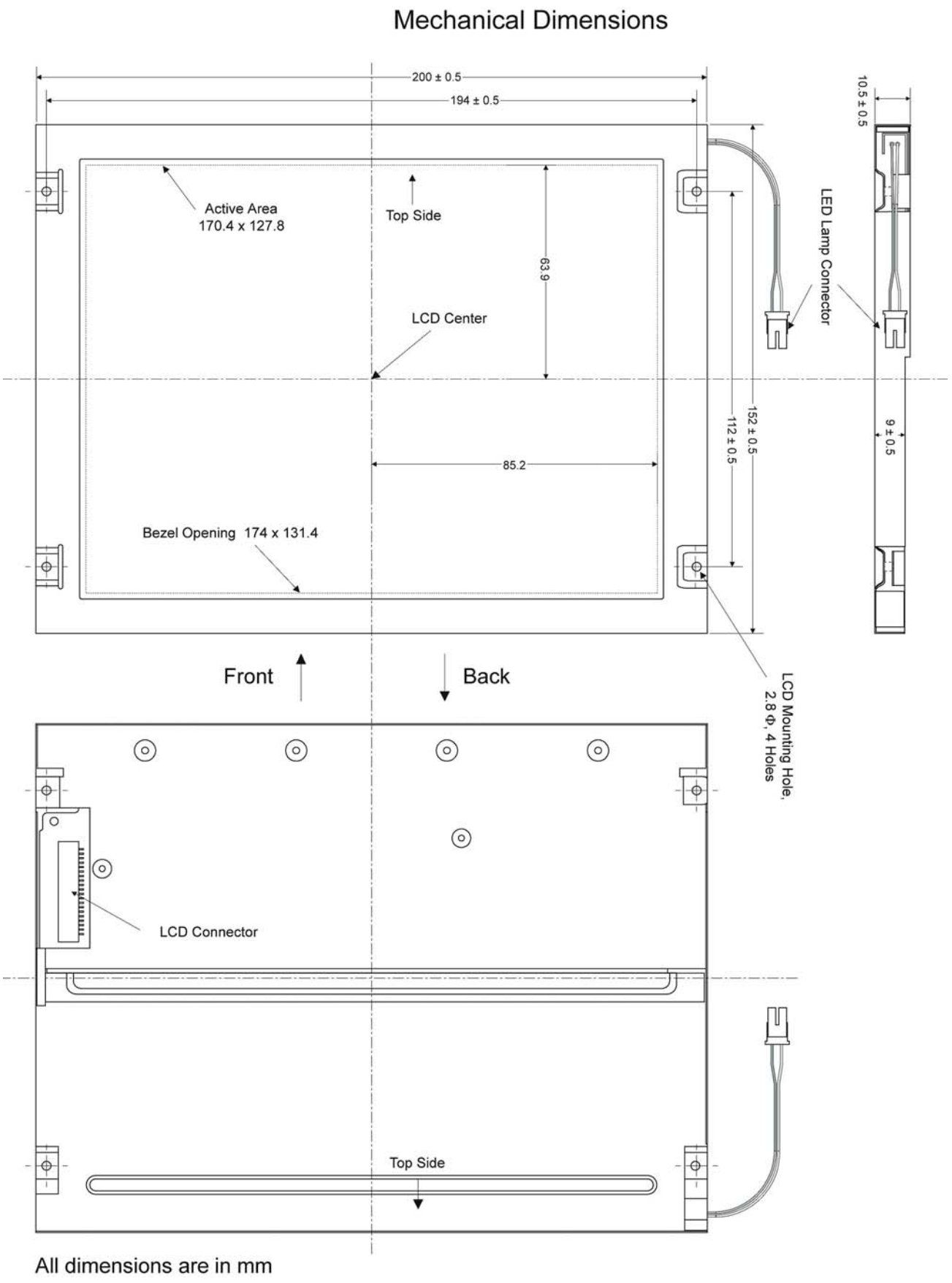
The LOPH0840-Kit-LED has an AR coated front polarizer. At 1,300 nits screen brightness, the display is highly readable under bright ambient lighting, including direct outdoor sunlight. In addition, the NEC NL8060BC21-03 has a wide operating temperature range, from -10 to +70oC, making this LCD module specifically suitable for demanding outdoor applications.

Specifications:

Parameters	Typical Value	Units	Conditions
LCD Screen Luminance	1300	Cd/m2	LCD in ON state (normally Black)
Luminance Uniformity	20% or better		Note 3
Backlight Power Consumption	4.9	Watts	Total power to the LED driver board
Screen Luminance Dimming Ratio	20:1		With LD200 LED driver board
Typical LCD Contrast Ratio	600:1		White vs. Black (measured in the dark along the normal direction)
Typical Viewing Angles			
3:00 directions	80	Degrees	Contrast ratio ≥ 10
9:00 direction	80	Degrees	Contrast ratio ≥ 10
6:00 direction	80	Degrees	Contrast ratio ≥ 10
12:00 direction	80	Degrees	Contrast ratio ≥ 10
LCD Screen Chromaticity (x, y)			
White	(0.301, 0.348)		Measured at the normal direction
Red	(0.549, 0.368)		Measured at the normal direction
Green	(0.339, 0.557)		Measured at the normal direction
Blue	(0.152, 0.141)		Measured at the normal direction
Response Speed			
Rise time	6	msec	White to Black, 10% - 90% transition
Fall time	19	msec	Black to White, 10% - 90% transition
LCD Module Weight	350	Grams	

Note 1: Please refer to NEC NL8060BC21-03 LCD Specification for detailed electrical specifications and general precautions.
Note 2: All data is measured at 25°C ± 2° C ambient temperature.
Note 3: Uniformity = (Lmax - Lmin) / (Lmax + Lmin) where Lmax (Lmin) is the maximum (minimum) luminance measured using a 10 mm diameter meter aperture over the LCD active area, except the last 10 mm area from the edges.

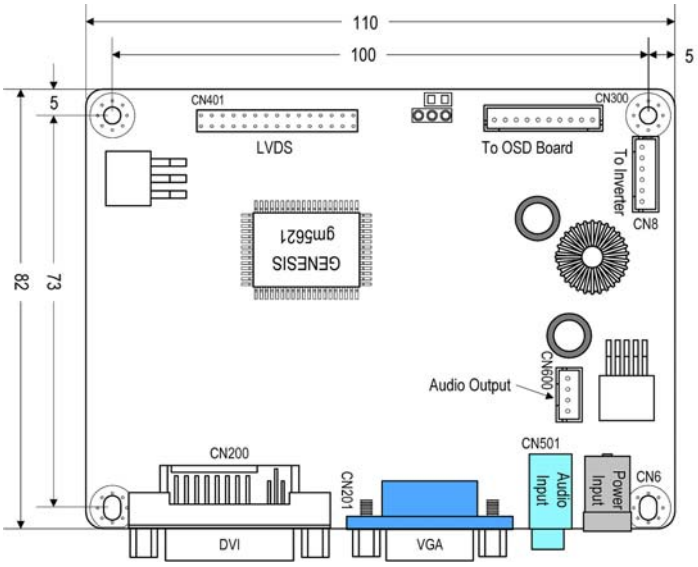
LOPH0840-Kit-LED Mechanical Drawings

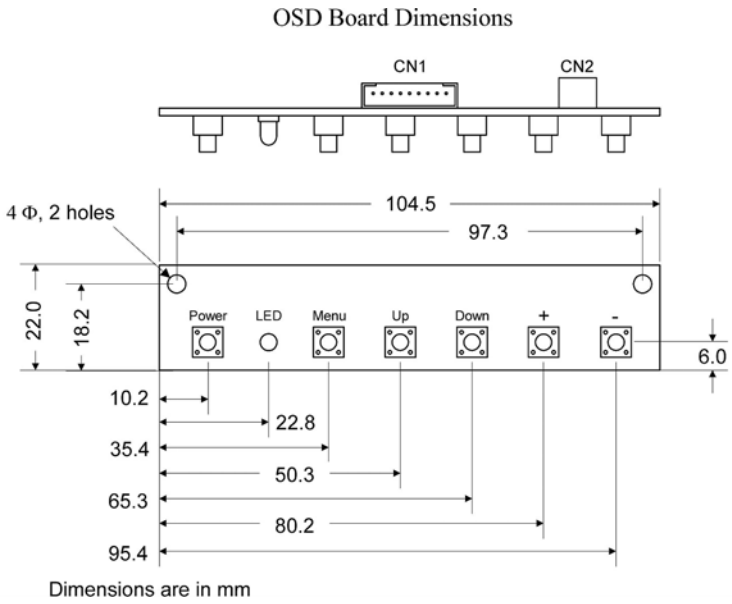


Controller Board MG21

MG21 is a compact size LCD controller with analog RGB (VGA) and DVI inputs. It uses the Genesis gm5621 chip and supports TFT LCD modules up to SXGA (1,280 x 1,024) native resolutions (1.31 MPixels) with 16,777,216 colors.

For video inputs beyond the SXGA (1280 x 1024) resolution, the MG21 down scales the input video to the native resolution of the LCD, and then displays the image over the screen. It supports video input all the way to WUXGA (1920 x 1200).





LED Driver LD200A

LD200A is a compact size, high efficiency LED driver board that operates the LED backlights in iTech 8.4" to 12.1" VHB (very high brightness) LCD modules. It can drive up to two LED strips with a maximum power of about 6 Watts per strip.

The LD200A operates at a 12V DC input voltage. The LCD screen brightness is controlled with a DC voltage that is in the same range as the dimming voltage(Vd) used in iTech Inverters. As a result, our standard dimming control circuits such as the ambient light sensor PS200 and the DP064 Digipot work seamlessly with the LD200A. Also, the brightness control LUT (look up table) in the BIOS code of iTech MG22 and MG21 LCD controller card work very well with the LD200A.