

NEC LCD Technologies Announces New 5.7-inch LCD Modules Featuring White LED Backlight System for Industrial Display Applications

TOKYO, SANTA CLARA, Calif. U.S.A, DUESSELDORF, Germany, September 08, 2008 — NEC LCD Technologies, together with its sales and marketing channels in the Americas and Europe, NEC Electronics America, Inc., and NEC Electronics (Europe) GmbH, today introduced two new 5.7-inch (15 centimeters diagonal) amorphous-silicon thin-film-transistor (TFT) liquid crystal display (LCD) modules with video graphics array (VGA) resolution. These new modules are the latest additions to NEC LCD Technologies' lineup of LCD modules featuring white LED backlight systems. The NL6448BC18-01 module is a standard model with brightness of 400 candelas per square meter (cd/m^2), and the NL6448BC18-01F module is a high-luminance model with brightness of 800 cd/m^2 . Designed for diverse industrial display applications, the two new modules feature a white LED backlight system, low power consumption, and a slim-line package that, while lightweight, is highly resistant to shock and vibration.

The main characteristics of the new modules are as follows.

1. White LED backlight system

Incorporating highly luminescent, highly efficient white LEDs in the backlight system eliminates the need for an inverter circuit, reducing power consumption to 1.8 watts with brightness of 400 cd/m^2 in the standard model (NL6448BC18-01) and 3.3 watts with brightness of 800 cd/m^2 in the high-luminance model (NL6448BC18-01F), while attaining high density of 140 pixels per inch. Compared to conventional cold-cathode fluorescent lamp (CCFL) backlight systems, this latest technology reduces energy consumption by approximately 50 percent.

Since the white LED is face-mounted, the risk of damage to an LCD module due to shock and vibration is small compared to a CCFL with a glass tube structure. In addition, LCD modules with LED backlight systems are thinner, lighter and more reliable than CCFL LCD modules.

2. High levels of visibility

The new modules have wide viewing angles of 160 degrees both horizontally and vertically, a high contrast ratio of 1000:1 and a fast response time of 18 milliseconds. These features enable information to be reproduced on screen quickly, precisely and without visual stress to the user.

3. Wide operating-temperature range

A wide operating temperature range, from -20 to $+70$ degrees Celsius, guarantees operation even in the most extreme conditions.

Recently, the demand for LCD modules equipped with white LED backlight systems has risen rapidly in various industrial fields. Since most transportable terminals are battery-powered, they require low power consumption and compact, lightweight displays that are durable enough for use in severe environments, such as outdoors or in vehicles. The need for LCD modules with white LED-based backlight systems that can be used in measurement equipment is also increasing, because white LEDs do not require an inverter circuit, which generates high-frequency noise and harmonic current that can hinder precise testing results. NEC LCD Technologies' new 5.7-inch LCD modules have been developed to meet all of these requirements and more.

NEC LCD Technologies will continue to enhance its lineup of LCD modules featuring white LED-based backlight systems to address the needs of a variety of industrial applications. In addition, the company aims to improve the range of environments where LCD modules can be used through continued performance enhancement of its broad range of LCD modules.

The new LCD module will be showcased in NEC LCD Technologies' booth #4801 at "FPD International 2008," which is being held from October 29 to 31 in Pacifico Yokohama, Japan.

About NEC LCD Technologies, Ltd.

NEC LCD Technologies, Ltd. is one of the world's leading providers of high-quality, innovative, active-matrix liquid crystal display (AM-LCDs) modules for the industrial and high-end monitor markets. The company focuses its development on four core technology areas: ultra-wide

viewing angle SFT technology with high luminance, wide color gamut and fast response; NLT technology for high visibility in any kind of ambient light environment; VIT technology to add extra value to LCD modules; and adaptive design technology, which together meet a variety of specialized needs for the flat panel display markets. NEC LCD Technologies' worldwide support includes sales and marketing affiliates [NEC Electronics America, Inc.](#) and [NEC Electronics Europe](#) that offer specialized display solutions to their respective markets. NEC LCD Technologies employs approximately 1,200 people worldwide and offers one of the broadest product portfolios for the medical, factory automation, test and measurement, entertainment, kiosk, POS and ATM markets. Additional information can be found at <http://www.nec-lcd.com/en/index.html>

About NEC Electronics America, Inc.

NEC Electronics America, Inc., headquartered in Santa Clara, California, is a wholly owned subsidiary of NEC Electronics Corporation (TSE: 6723), a leading provider of semiconductor products encompassing advanced technology solutions for the broadband and communications markets; system solutions for the mobile, PC, automotive and digital consumer markets; and platform solutions for a wide range of customer applications. NEC Electronics America offers a local manufacturing facility in Roseville, California, and the global manufacturing capabilities of its parent company. NEC Electronics America is also the American marketing and sales channel, specializing in industrial applications, for active-matrix LCDs from NEC LCD Technologies, Ltd., a global leader in innovative display technologies. More information about the products offered by NEC Electronics America, Inc. can be found at <http://www.am.necel.com>.

About NEC Electronics (Europe) GmbH

NEC Electronics (Europe) GmbH, headquartered in Duesseldorf, Germany, is a leading developer and supplier of semiconductor products in Europe. Committed to meeting customers' cost, performance and time-to-market requirements, the company offers solutions ranging from standard products to system-on-a-chip (SoC) solutions, as well as customized products for next-generation designs. Our customers also benefit from state-of-the-art manufacturing from the global production network of our parent company, NEC Electronics Corporation. Additionally, NEC Electronics (Europe) GmbH is the exclusive European sales and marketing channel of LCD modules from NEC LCD Technologies Ltd. For more information, visit <http://www.eu.necel.com>.

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Main Specifications of the New 5.7-Inch LCD Module

Part number	NL6448BC18-01
Resolutio	640(H) × 480(V) pixels
Display area	116.16(H) × 87.12(V) mm Diagonal screen size of 5.7 inches (15cm)
Drive system	Amorphous-silicon TFT active-matrix
Display color	262K colors
Pixel arrangement	RGB vertical stripe
Pixel pitch	0.1815(H) × 0.1815(V) mm
Luminance	400cd/m ² (typ.)
Contrast ratio	10001 (typ.)
Viewing angle	Vertical Up 80 degrees, down 80 degrees Horizontal Left 80 degrees, right 80 degrees (contrast ratio at over 101)
Response time	18ms (typ.) (TON + TOFF from 10% to 90%)
Interface	CMOS (RGB 6 bits each)
Power supply voltage	3.3V
Power consumption	1.8W (typ.)
Operating temperature	-20 degrees C to +70 degrees C
Storage temperature	-30 degrees C to +80 degrees C
Polarizer surface	Clear
Module size	135.0 (typ.) × 104.6 (typ.) × 11.0 (max.) mm
Weight	160g (typ.)
Backlight	White LED (Replaceable)

Main Specifications of the New 5.7-Inch LCD Module

Part number	NL6448BC18-01F
Resolution	640(H) × 480(V) pixels
Display area	116.16(H) × 87.12(V) mm Diagonal screen size of 5.7 inches (15cm)
Drive system	Amorphous-silicon TFT active-matrix
Display color	262K colors
Pixel arrangement	RGB vertical stripe
Pixel pitch	0.1815(H) × 0.1815(V) mm
Luminance	800cd/m ² (typ.)
Contrast ratio	10001 (typ.)
Viewing angle	Vertical Up 80 degrees, down 80 degrees Horizontal Left 80 degrees, right 80 degrees (contrast ratio at over 101)
Response time	18ms (typ.) (TON + TOFF from 10% to 90%)
Interface	CMOS (RGB 6 bits each)
Power supply voltage	3.3V
Power consumption	3.3W (typ.)
Operating temperature	-20 degrees C to +70 degrees C
Storage temperature	-30 degrees C to +80 degrees C
Polarizer surface	Clear
Module size	135.0 (typ.) × 104.6 (typ.) × 11.0 (max.) mm
Weight	165g (typ.)
Backlight	White LED (Replaceable)