

Dear Winstar News Readers:

In this issue No. 19, we will introduce a case history for Winstar helping our customers to solve the problems during the developing stages, as well as the new product released of Graphic Display WG24064K. We hope you enjoy this issue.

Cheers,

The staff of Winstar Sales & Marketing Dept.

Case History – from UK Distributor Plus Opto

A world leader in the design, manufacture and supply of plate processors and associated equipment to the graphics arts industry. With a wide product portfolio containing some of the most advanced equipment in the field, the equipment they deal with is photosensitive material, most notably in the Lithographic and Flexographic markets.

The customer was having trouble with their existing LCD as they have a need of a bright display, but at the same time the light should not have to interfere with the photosensitive materials. The customer also wanted a display to have dark characters/graphics on an amber background to keep with their corporate colors. The solution originally adopted by customer was to use a 5.7” QVGA graphic display with a CCFL backlight, which was then covered by an amber color filter. In this way the company was able to have a display that showed their corporate colors and the photosensitive materials were preserved, but the brightness was dramatically reduced due to the colour filter.

Plus Opto, the UK distributor, cooperated with both the customer and Winstar closely to find a solution. The customer also had the aim of reducing the overall cost of their display solution, Plus Opto managed to solve the customers problems by offering the same display size, but with an Amber LED backlight. This enabled the customer to have a display that presented their corporate colors whilst remaining crisp and bright, this solution also eliminated the need for both the color filter and the costly inverter that had previously been required, thus offering the customer a great cost saving.

Winstar features are always that of “problem solving” and, by working closer with customer and distributor, to stay at the forefront of the technology.



Production Capacity Affected by Labor Shortage in China

As we mentioned in February 2010 Issue of Winstar News, the labor shortage in China issue is becoming a biggest bottleneck for LCD products. A labor shortage in China? It seems unbelievable, but it is true. This is a serious problem to most of the China factories located in south and coast cities.

Strong economic growth has raised the cost of living in many cities in southern and eastern China where most of the LCD module lines and LCD end-products assembly lines are located. It is difficult to live in these cities on the base salary; so many migrant workers are choosing to go back to their hometowns. Also, it is become much easy for the workers to find jobs in their hometowns due to the China strong economic growth especially for the rural cities.

Winstar Display and our supply chain are suffering the problem too and that cause the lead-time for our orders much longer than before since lack of labors and raw materials (components, such as PCB, LCD glass, IC, LEDs, etc). Before the Chinese New Year holidays, Winstar factory and supply china were working through the holidays in order to ease the impact of delivery. We hope the customers could understand, the delivery issue caused by the shortage labor and components might be lasted to Q2. For getting a better delivery, please release orders or forecast as soon as possible to book product capacity. Thank you for your cooperation and understanding for this matter.

Winstar Technical Articles Adopted by Worldwide Media

Winstar as a professional display manufacturer, it is a great privilege for us to provide the information about our product, especially on technical info for the benefits to help our customers.

Winstar sent many technical articles to media for sharing our experience on displays. We would like to thank you those media who published these articles. As the vision of our company, WIN your life; STAR your eyes, we will continue our effort to provide more technical articles to help the customers.

Enclosed for you to download the articles as reference:

- ▶How to use Graphic LCD Modules
- ▶How to Avoid Image Persistence on LCDs
- ▶How to Use LEDs Backlight on LCD Modules
- ▶ECO Friendly Display – E Paper is Coming



How to Use RGB LEDs Backlight on LCD Modules

Growing trend in recently for LCD displays is to use RGB LEDs as backlighting, especially in industry devices. The article will help users to design RGB LED backlight on LCD display.

COURTESY: WINSTAR DISPLAY

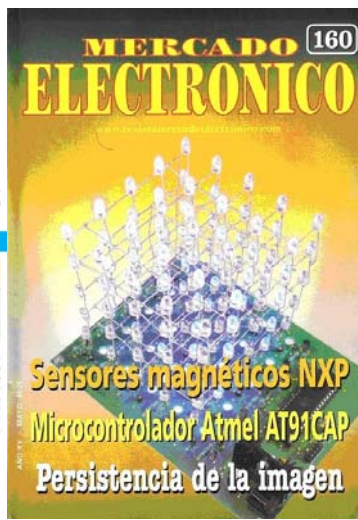
LEDs have increased in brightness and lifetime significantly since their introduction, and now provide many alternatives to LCD display solutions. One major use is single-color LEDs such as yellow-green, White, Blue, Red or Amber LEDs in consumer displays, or white LEDs with color filter applications. A growing trend in the LCD display is to use RGB LEDs as lighting, especially in industry devices.

Color Intensity

Zero intensity for each color gives the darkest color (no light source, which is black), and full intensity gives a white. When one color has the strongest intensity, the color has near the primary color (red, green, or blue), and when two colors have the same strongest intensity, then the color has a called secondary color (cyan, magenta or yellow). For example, cyan is green-blue, magenta is red-blue, and yellow is red-green.

Theory for RGB

Because the RGB backlight, it should meet with the RGB color theory. The RGB color model is define as primary color, and it's an additive color which the red, green, and blue light are added together in some ways to reproduce a broad array of colors. Human can see wide range colors because the primary color (RGB) is related to the physiology of the human eyes. Human vision is sensitive to the light of different wavelengths and form makes a large color triangle.



ECO Friendly Display – E Paper is Coming

Environmental degradation has made more and more people for ECO friendly things and activities. This is the reason why E Paper (Electronic Paper) has caught so much attention recently. The success of Amazon Kindle brings a rapid demand growth in the e-paper market. Winstar Display takes here a look on E Paper display technology in details.

COURTESY: WINSTAR DISPLAY

The reason for E Paper display taking off with consumers is because of their low power consumption and ease of design, especially sunlight readable, to compare with normal display. E paper does not need to be refreshed constantly, the water supply inside the reading easily to users. In fact, e-paper displays are great because they are paper consumption, and electronic labels are more and faster costs by enabling dynamic page refresh.

Super Category

is one several different technologies to build E paper in market such as electrochromic, microcapsules & electrowetting displays, monomers (LCDs and other flexible technologies). monomers (LCDs and other flexible technologies) are popular technologies in market are electrochromic display (electronic LCD), monomers paper is a display technology designed since the appearance of ordinary ink on paper for commercial flat-panel displays. E paper will require a backlight to illuminate its pixels. E paper reflects light from ordinary paper and a film of holding ink and images individual pixels. Having electricity, while allowing the image to be changed later.

E-Paper Technical Theory

E Paper is composed of charged particles. If environmental degradation has made more and more people for ECO friendly things and activities. This is the reason why E Paper (Electronic Paper) has caught so much attention recently. The success of Amazon Kindle brings a rapid demand growth in the e-paper market. Winstar Display takes here a look on E Paper display technology in details.

Charged particles is floating on the surface, the color will be white. On the other hand, if white particles is dropped to the bottom, the color will be black. White particles to be on the surface or bottom is controlled by conductor and transparent conductor with electrode. (As below diagram by Winstar)

E-Paper design per is including three parts, common, background and segment on below diagram.

- (1) Common: transparent conductor of E-Paper film.
- (2) Background: Background color of E-Paper, which is a big CMOS chip and the signal driving method is same as Segments.

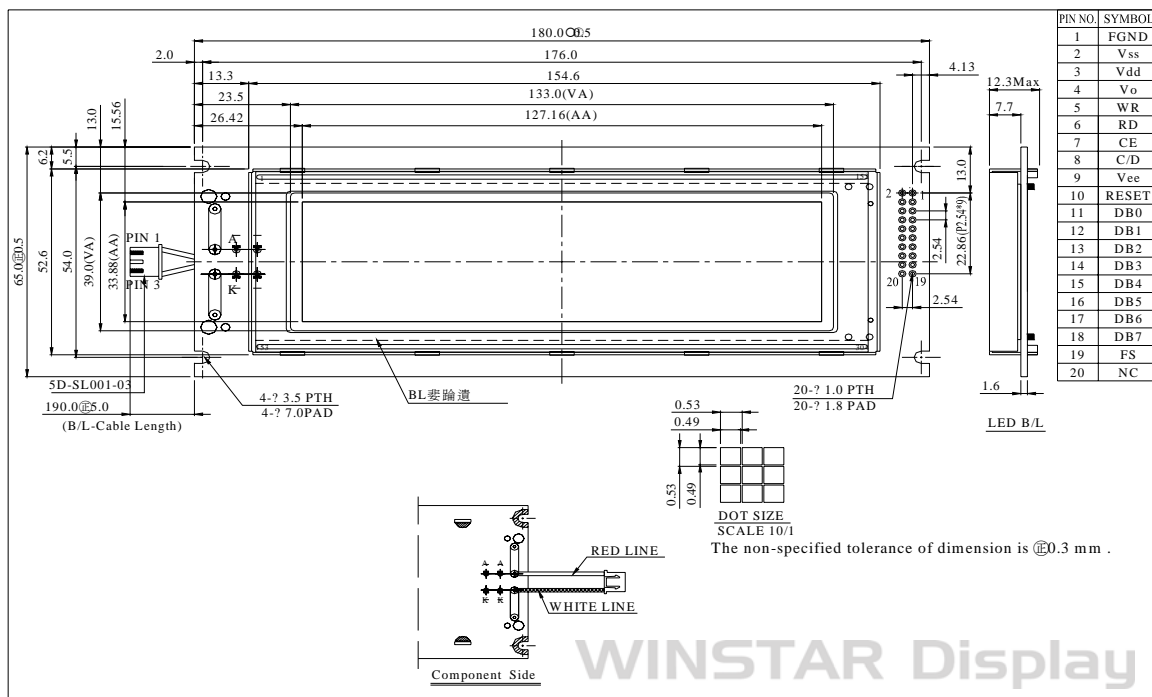
Product Release – Graphic Display WG24064K

Winstar Display released an upgraded version WG24064K for the monochrome graphic display WG24064A. Some customers have the difficulty to improve their designs or programs on their end to eliminate the transient scrambled image when initialing the LCD modules and the transient image of anti-static line while shutting down the LCD modules by using WG24064A type.

We offer an upgraded option of WG24064K which have better performance for the above transient image issues and better EMI performance. Please note the unit price for WG24064K will be a little higher than WG24064A type as additional function components on board. If you need further information, please contact with your Winstar sales rep. or mail to sales@winstar.com.tw.

This display is a passive LCD display with 240x64 pixels and a dot pitch of 0.53x0.53 mm. The external dimensions are 180.0x65.0 mm; the active display area has a surface of 127.16x33.88 mm. The display is with a 20-pin interface which has the same mechanical size as WG24064A.

The WG24064K model is built in with RA6963 controller. The display can be supplied with or without backlight. LED or CCFL light sources are available as background lighting. Furthermore, the LCD type STN or FSTN can be selected, each with a positive and negative mode display. This type of module can be operating at temperatures from -20°C to +70°C; its storage temperatures range from -30°C to +80°C. Below is the drawing and pin assignment as reference:



Block Diagram for WG24064K

Enclosed for you to download the datasheet:

- ▶WG24064K-FMI-VZ#
- ▶WG24064K-FTI-VZ#
- ▶WG24064K-NYG-VZ#
- ▶WG24064K-TFH-VZ#
- ▶WG24064K-YYH-VZ#
- ▶WG24064K-TMI-VZ#



WG24064K with White LED / Positive FSTN