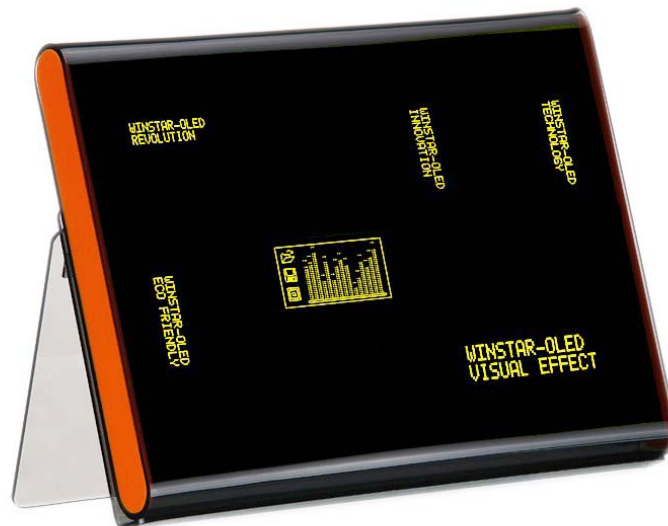


## What is Next Display ? !

No body would deny that the answer is “OLED”. OLED has featured with all the elements of “**ECO Friendly**”. It is a Green product; being environmentally friendly which means not wasting precious resource considered to have a lower impact on the environment since OLED required no backlight that OLED can be made very thin and low power consumption.

This is an exciting moment for Winstar Display! Winstar is the **1<sup>st</sup>** company that developed OLED Character in the filed. We released a new type of OLED demo box for our standard Character and Graphic OLED modules. This new demo box is featured with the elements of technology, design innovation, Eco friendly, visual effect and added values.



*Winstar OLED Demo Box*

### OLED Advantages

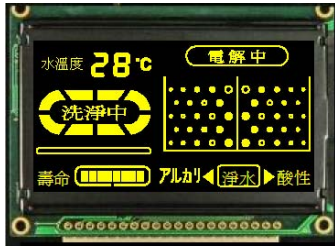
OLED technology will emerge as a leading next-generation technology for displays. OLEDs have been receiving a lot of attention over the world as a future display technology. OLEDs offer many significant advantages in relation to conventional LCD technologies:

- ▶ Faster response time “At +25 °C 10 μsec.”
- ▶ Unlimited viewing angle “Up to 160 degree”
- ▶ Extra Thin – No need of backlight
- ▶ High Brightness
- ▶ High contrast ratio “Up to 2000:1”
- ▶ Wide Operation Temperature “-40 °C ~ 80 °C”
- ▶ Lower power consumption



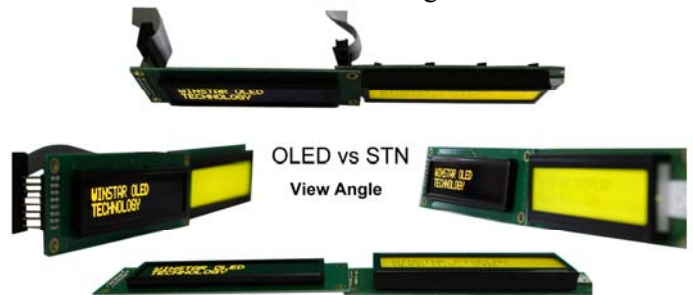
## 2000:1

Normally, the contrast ratio of STN is around 5:1 (for positive STN) to 10:1 (for negative FSTN). At to the contrast ratio for OLED panel we made can be over 2000:1. From our lab test report, the contrast ratio of OLED panel even without polarizer is excellent. After add the polarizer on the OLED panel, the contrast ratio is extremely good which is over 10000:1.



## 160 degree

We would like to name OLED display as the most safest display since it has almost unlimited viewing angle and faster response time. For example, if the devices on cars were with OLED displays, the drivers could be easily pay attention to the contents of the displays due to unlimited viewing angle and faster response time of OLEDs. The OLEDs have a wide viewing angle which is up to 160 degrees and which can be viewed from different angles.



## 10 μsec

OLEDs also have a faster response time than standard LCD displays. Whereas the normal LCD displays currently have a 200 ms response time, OLEDs can have less 10μsec at 25 °C.



## -40 °C ~ 80 °C

Comparing with conventional STN LCD modules, OLEDs featured with wider operation temperature range -40 °C ~ 80 °C. The nature of OLED technology is self-luminous; the display with OLEDs still can work at rugged environment. It is very obvious especially at lower operation temperature; the OLED display works excellent. Some STN LCD modules could be workable at lower temperature or with heater on LCD module, but the response time at lower temperature will be longer than normal temperature since the liquid crystal has been frozen.



## 0 no need backlight

A significant advantage of OLED displays over traditional liquid crystal displays (LCDs) is that OLEDs do not require a backlight to function. Thus, they can display deep black levels, draw far less power, and can be much thinner and lighter than an LCD panel.



## 10~30 mA

The nature of OLED technology is self-luminous, they require no backlight. This means OLED displays are thinner and use less power consumption.

Example: Character STN 16\*02 Yellow-Green Array LEDs V.S 16\*02 Character OLED as comparison:

STN LCD:  
Driven by 5V power supply will request around 100~300 mA.

OLED:  
Driven by 5V power supply will request around 10~30 mA only.

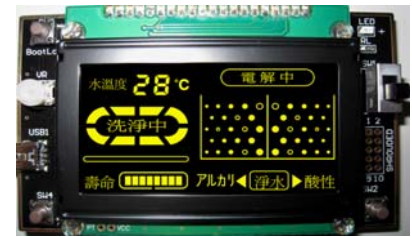


## Winstar OLEDs Sample Available

A lot of Winstar customers are expecting our OLED display. We are pleased to announce that Winstar is available for OLED samples. We will provide OLED demo USB kits, OLED modules and OLED Demo Box as options.

### 1. OLED Demo USB Kits

The OLED demo USB kits are optional for ICON Types and Character types. The outline dimension of the ICON demo kit is 102.6\*62\*22 mm and the dimension for USB Character is 110.8\*51\*22 mm.



*USB Demo Kit Example*

**The ICON samples are just for demo only to show the appearance / color as reference to imitate if the customer open ICON custom solution. Please note the ICON demo types can not for production. If the customer need OLED ICON solution, the customer will have to pay the tooling cost. As to the Character type, they will be available as our standard OLED items for production. Below are the part numbers and sample available schedule --**

USB Demo Kit Part Number	Type	Color	AA Size (mm)	Module Construction	VA Size (mm)	Sample Available Date
WVOLEDUSBDEMO-02#	Icon	Yellow	56.11*29.89	COB	58.8*31.4	2010/8/20-30
WVOLEDUSBDEMO-03#	Character 16x2	Yellow	56.2*11.5	COB	66*16	2010/8/20-30

### 2. OLED Modules

As to the OLED modules, we offer the standard character and graphic type for demo or testing. Below are the part numbers and sample available schedule --

Model Part Number	Type	Color	AA Size (mm)	Module Construction	VA Size (mm)	Sample Available Date
WEH001602ALPP5N00001	Character 16x2	Yellow	56.2*11.5	COB	66*16	2010/8/20-30
WEG010016ALPP5N00000	Graphic 100x16	Yellow	56.2*11.5	COB	66*16	2010/9/20-30

### 3. OLED Demo Box

The demo box will include OLED Character, Graphic and ICON types on it. It will not be acceptable to change the demo programs and items of the demo box. The external dimensions of this demo box are 310 x 236 mm with 31 mm thickness. The demo box can be delivered around in this October. Please note that the part numbers for ordering demo box package should include WWOLDEDEMOBOX-00# and WVOLEDDEMOBOX-01# (for accessories).



If you need the demonstration box or USB kit or OLED module, please contact with your Winstar sales rep. or mail to sales@winstar.com.tw.

### ► Custom Design Solution

Expect the standard OLED modules, Winstar also offers customized designs for Character, Graphic and ICON types to customers for very competitive tooling charge. Welcome to contact with us for custom design solution.

### ► Link to OLED Coding System