

### Backlighting Technology

LCD is basically a Passive Optical Component. A number of backlighting technologies is used to illuminate LCD devices operating in low to no illumination environment. There are several backlighting technologies available.

### (LED) Light Emitted Diode

The LED is a common backlight source. There are two types of LED backlight types:

#### Array Style LED Backlight

LED dies is arranged on a thin circuit in a matrix array pattern with the light pointing directly into the back of LCD.



LED Y-G Array LED



LED Red Array LED

#### Edge-Lit LED Backlight

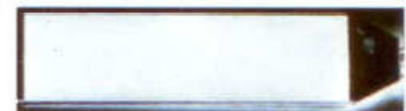


LED Blue Edge-Lit

This method of backlight uses a plastic light pipe to transmit and distribute light from a LED source that Points Parallel to the Plane of LCD.

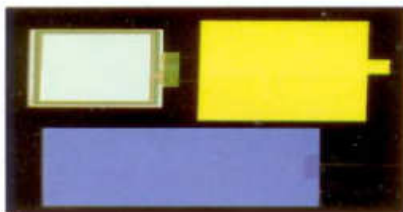


LED Y-G Edge-Lit



White Edge-Lit

#### Electroluminescent (EL) Backlight



The EL lamp is thin and mounts easily between the LCD glass and PCB assembly without increasing the thickness of the overall assembly. EL lamps require an AC power source, ordinarily 400~600Hz at 70~110VAC.

#### Cold Cathode Fluorescent Light (CCFL)

This lighting method uses considerably less power than the array style backlight. The light source is a fluorescent lamp that generates a white color backlight. CCFL is very bright, but requires an external lamp driver.



CCFL

	Array Style LED	Edge-Lit LED	Electroluminescent	CCFL
<b>Color</b>	Y-G, Red, Amber, White, Blue, Green, etc.		Y-G, White, Blue, Green	White
<b>intensity</b>	High	Moderate	Moderate	High
<b>Thickness</b>	High	Medium	Thin	Medium
<b>Voltage</b>	DC2.1V~ 4.2V		AC 100V, 400Hz	AC 1000Vmax, 80kHz
<b>Lifetime</b>	50000	hrs	5000 hrs	15000 hrs