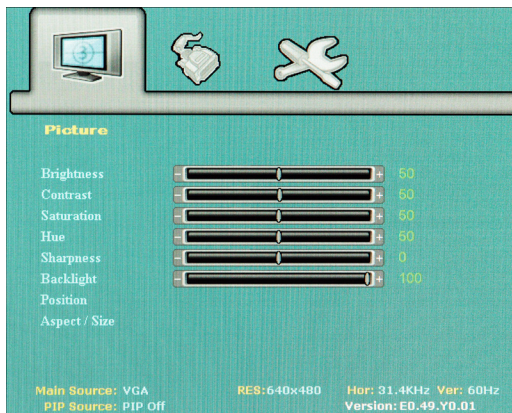


Not All Brightness is Created Equal

When searching for the correct liquid crystal display (LCD), one metric of concern is display brightness—how bright the display appears to the human eye.

Common Practice for the Rest of the Industry

The common practice for obtaining brightness measurements is to use a photometer to measure the center of an LCD to obtain a measurement in the unit of “nits” (the nickname for cd/m^2 or candelas per square meter) or “foot-lamberts” (3.426 nits equals 1 foot-lambert). This measurement approach is straightforward; however, there are a variety of LCD and backlight driving techniques that can dramatically affect the outcome of this measurement. Each LCD vendor is at liberty to choose its own driving technique that may portray the product in a good light; however, this creates discontinuity and can make cross comparisons of displays between vendors, or even intra-vendor, difficult. The following paragraphs will discuss and clarify the measurement schemes and differences.



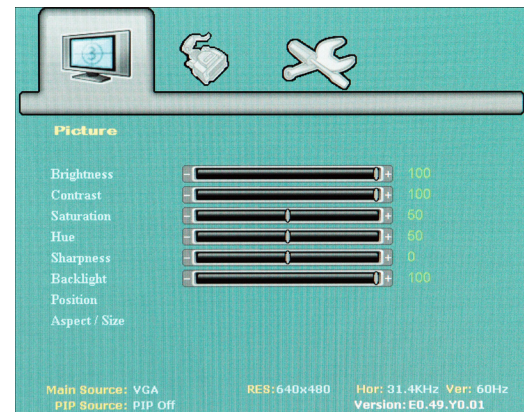
Common Driving Techniques

The three most commonly used driving techniques are **50/50**, **100/100** and **Backlight Only**.

50/50 refers to an LCD backlight being driven at its full capacity, and the LCD module being driven at an optimal brightness and contrast of 50% and 50%, respectively. “Optimal” in this case is described as “real world” or “field operating conditions,” which is a state that causes the display to accurately reproduce all color and grayscale levels to be the most readable in all conditions.

100/100 refers to an LCD backlight being driven at its full capacity, and the LCD module being driven at a suboptimal brightness and contrast of 100% and 100%, respectively. “Suboptimal” in this case is described as a state in which the LCD module is driven at its maximum brightness and contrast settings; this yields maximum brightness output on a white screen. This state renders the display washed out and virtually unreadable, displaying degrading color and grayscale reproduction.

Lastly, **Backlight Only** refers to an LCD backlight being driven at its full capacity with no LCD present during measurements. This gives data for the backlight unit only, and it may not accurately represent the product.



Conclusion

The 50/50 case is used primarily by General Digital as it gives the most accurate real world representation of the product, and does not mislead the customer by artificially inflating data in ways that other driving techniques may.

For your convenience, we supply not only 50/50 data, but data at 100/100 to allow cross comparison to other General Digital products and to other vendors. We go one step further and supply data at 1000 nits, and data at LED rail temperatures that enable the LCD to operate without active cooling, allowing for fully informed consideration of our product line.



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