



# Tech Info Library

## PowerBook: Screen Power Consumption and Battery Life (7/92)

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### TOPIC -----

Does the use of white pixels draw more power than the use of black pixels on the PowerBooks (supertwist and active matrix)?

We're comparing the PowerBook 100 to several PC-compatible notebooks, and found that the PowerBook 100 doesn't have quite the battery life of some PC-compatibles. We're wondering about the screen's power consumption. We have some information on the PC-compatibles that says using the screens in inverse mode (black text on a white background) uses more power than their normal mode (white text on a black background). Is it worth setting the desktop pattern to all black or not?

### DISCUSSION -----

#### Screen Power Consumption

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The black screen and the white screen draw almost the same amount of power: the black slightly less than the white (approximately 300 mW versus 320 mW).

The real power draw is the backlight (approximately 2.5 watts). The backlight at maximum is the largest power consumer of the entire system. Because most customers really use the light at maximum, Apple quotes battery life with the light on full brightness. We can't speak for how other manufacturers quote their battery life. However, the black versus white background argument is not valid in discussing battery life.

#### Battery Size Versus Weight

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Not all batteries are exactly the same, but Apple uses a state-of-the-art NiCad battery. In this class of battery, capacity and weight are directly related. Competitors with higher system weight may have larger batteries, and therefore, longer battery life.

Truth in Testing

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Apple tries to provide a real battery life description. We hear many reports of portable computers not meeting their reported battery life. Sometimes we suspect the testing procedure. Additionally, every manufacturer tests with a fully charged battery. NiCad charging is somewhat tricky; therefore, consumer reports of less than expected battery life need to be interpreted as a function of the NiCad charging sequence, battery history, and other factors. Apple uses an intelligent charging system to provide the best recharging possible.

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