

**BatteryStatus**

Get status of battery charger and voltage level

#include &lt;Power.h&gt;

**Power Manager**

**OSErr**            **BatteryStatus**(*Status*, *Power*);  
Byte            \**Status*            internal battery status (see below)  
Byte            \**Power*            power value (see below)  
**returns**            0 = noErr

The **BatteryStatus** function returns the status of the battery charger and the voltage level of the battery. The bits in the *Status* parameter are defined as follows:

Bit	Meaning
7	Reserved.
6	Reserved.
5	The charger connection has or has not changed state. If 1, the charger has been recently connected or disconnected.
4	The battery warning. If 1, the battery voltage is low.
3	The dead battery indicator. This bit is always 0.
2	The hicharge counter overflow. If 1, the hicharge counter has overflowed.
1	The charge rate. If 1, the battery is charging at the hicharge rate.
0	The charger is or is not connected. If 1, the charger is connected.

The **Power Manager** monitors the voltage level of the internal battery and warns the user when the voltage drops below a threshold value stored in parameter RAM. If the voltage continues to drop and falls below another, lower value stored in parameter RAM, the **Power Manager** puts the computer into the sleep state. The **Power Manager** provides a function that allows you to read the state of charge of the battery and the status of the battery charger.

You can use the constants shown **Power Mgr Data** to check the values of these bits.

Use the following formula to calculate the battery voltage, where *Power* is the value of the Power parameter returned by this function:

$$\text{voltage} = ((\text{Power}/100) + 5.12) \text{ volts}$$

Due to the nature of lead-acid batteries, the battery power remaining is difficult to measure accurately. Temperature, load, and other factors can alter the measured voltage by 30 percent or more. The **Power Manager** takes as many of these factors into account as possible, but the voltage measurement can still be in error by up to 10 percent. The measurement is most accurate when the Macintosh Portable has been in the sleep state for at least 30 minutes.

When the battery charger is connected to a Macintosh Portable computer with a low battery, the battery is charged at the hicharge rate (1.5 amps) until battery voltage reaches 7.2 volts. The **Power Manager** has a counter (the **hicharge counter**) that measures the time required to raise the battery voltage to this level.

After the 7.2 volt level is reached, the power management circuits maintain the hicharge connection until the hicharge counter counts down to 0. This

ensures that the battery is fully charged. At the end of that time, the power management circuits supply the battery with just enough current to replace the voltage lost through self-discharge. When the hicharge counter has overflowed, it indicates that the charging circuit is having trouble charging the battery.

Bit 5 is set when the charger connection is changed-either connected or disconnected. When this bit is set, the **Power Manager** sends an interrupt to the CPU.

The battery warning bit (bit 4) is set whenever battery voltage drops below the value set in parameter RAM. The **Power Manager** sends an interrupt to the CPU once every second when battery voltage is low.

If bit 3 were set, it would indicate a dead battery; however, the **Power Manager** automatically shuts the system down when the battery voltage drops below a preset level, so this bit is always 0.