

# Caring for your Flash Memory

## Recommendations

Kingston® Flash cards and DataTraveler USB Flash drives offer convenient and easily transportable storage for pictures, music, video and other important data files.

To minimize data loss and ensure the best results from your Kingston Flash storage device, follow these simple recommendations:

### **1. Replace or recharge batteries in devices after getting a low-battery warning.**

Battery discharge is one of the most common problems causing the loss of pictures or other data on Flash storage devices. If a battery dies in the middle of a write operation to the Flash storage device, not only can the file being written become corrupted, but the entire device may be damaged as well. For example, if the File Allocation Table (FAT) directory file update is incomplete and the FAT file is corrupted, some or all files on the Flash storage device may no longer be accessible.

However, it may be possible to repair the Flash storage device using commercially available disk recovery software. Even with these recovery programs, some data or files on the Flash storage device may still be lost, but the rest may be recoverable.

To avoid these problems, carry a spare battery if possible or stop using a device when battery power gets very low.

### **2. Properly remove your Flash storage device from the host device.**

It is important to wait until all operations are completed before removing a Flash storage device from a digital camera or other host device. If the Flash storage device is removed during a write operation, for example, the Flash storage device may be corrupted and data loss may occur.

Most digital cameras will show a blinking light during Flash write operations, so it is important to wait until all operations are completed.

On PCs, it is important to stop a DataTraveler's USB connection through Windows (In Windows XP, use the "Safely Remove Hardware" icon in the system tray). For DataTraveler Elite drives, you can use MyTraveler's Eject button. Computers often "cache" data into memory and may delay the write to USB Flash drives. As a rule of thumb, wait a minimum of two minutes after you finish writing data to a DataTraveler drive.

### **3. Properly store Flash cards in their plastic cases and close the cap on DataTraveler drives.**

Flash storage devices, while quite reliable, can be damaged when dropped on hard surfaces. When they are not in use, store Flash storage cards in their clear plastic cases. DataTraveler drives should be stored with their caps on.

In addition, static electricity can also damage Flash storage devices. For example, on dry days, a person can generate enough static electricity to cause a spark while touching a doorknob or other metal objects (this is called electro-static discharge or ESD).

Kingston Flash cards and DataTraveler drives are designed to resist high levels of electro-static discharge; however, extreme levels of ESD may cause damage.

### **4. Do not force Flash storage devices into connectors.**

Flash card or USB Flash drive connectors are unidirectional. This means that the Flash storage device must be inserted in one direction only; if you cannot insert the drive or card, do not force it in. This will prevent damage to the Flash storage device or the socket. For more information on proper insertion of Flash cards or USB Flash drives, consult your host device's user manual.

### **5. Pack Flash storage devices into carry-on luggage if possible.**

Tens of millions of Flash storage devices are in use worldwide and there have been no verifiable reports of Flash storage damage due to airport X-ray scanners.

A 2004 study by the International Imaging Industry Association (I3A) verified that today's airport X-ray machines do not appear to be a risk to flash memory cards.

As a precaution, Kingston recommends that Flash cards and DataTraveler drives be treated just like unprocessed film and stored in carry-on luggage, as the passenger screening radiation levels are much lower than those used by newer luggage scanning machines.

### **6. Avoid U.S. Postal Service radiation scanning of mailed packages.**

According to the CompactFlash Association, X-ray scanners at airports will not damage CompactFlash cards but radiation scanning by the U.S. Postal Service may damage them.<sup>1</sup> Because of this warning by the CompactFlash Association regarding mail irradiation by the U.S. Postal Service, it may be preferable to use a commercial service such as FedEx, UPS or other private carrier as an alternative to mailing Flash storage devices by U.S. mail.

### **7. Always make backups of your data.**

Flash storage devices are not infallible and can have their data damaged due to factors mentioned above. It is important to backup important information on multiple media or even print data on paper for long-term storage. Do not store important data solely on Flash storage devices.

