

THE BASICS OF COMPUTER MICE

Every computer user can hopefully identify their mouse and the importance it plays in the daily operation of their computer. Mice are nothing new and for the most part are nothing overly complex, but the average user may not be familiar with all of the options and technologies that may go into these little devices. This Tech Tip will take a look at some of the features of mice that people may take for granted, or may otherwise be unaware of.

Tracking Technologies



Mechanical mice - Mechanical mice were the first ones used on computers, and can still be found for sale, despite the advances of tracking technologies. These mice feature a hard ball on the underside that rolls as the mouse is moved, and rollers inside the mouse allow the physical motion to be translated to the pointer on the screen. Some “ball mice” are a bit more advanced and replace the internal rollers with optical sensors, but the same principle applies.

Mechanical mice require occasional maintenance to keep the ball and rollers free of lint and other debris, and with numerous moving parts there is always a potential for problems. The use of a mouse pad is recommended for these mice as they not only provide a clean surface to work on, but also provide the needed resistance for the ball to roll smoothly.

The precision of mechanical mice is not particularly good, and although they may be fine for typical desktop work, they were never quite up to the task of detailed graphics work or serious game playing.



Optical mice - Optical mice replace the whole ball/roller assembly of mechanical mice with a beam of a light and an optical sensor. The beam of light shines down on the surface below the mouse and the sensor uses the light to track the movement. The images included with the listing for this optical mouse provide a glimpse at the bottom of the mouse, where the light and sensor can be seen.

Optical mice have several advantages over mechanical mice. There are no moving parts to break or otherwise cause problems. The need for maintenance is greatly reduced as the

bottoms have no openings or rollers to collect lint. Although mice generally aren't heavy, the elimination of the ball and roller mechanism allows an optical mouse to be much lighter than a comparable mechanical mouse. The precision of optical mice is also much greater than mechanical mice, and the resolution can go from the low hundreds to the high hundreds (as measured in dpi, dots per inch).

Another advantage is that the need for a mouse pad may be eliminated with an optical mouse, as they do best while tracking on any smooth, flat surface. A clean desktop is generally good enough, but those looking to take the precision of optical mice to the highest level may opt for a performance "mousing surface." There are several precision mousing surface manufacturers, such as XRay Pads and FUNC Industries, that design pads to appeal to game players and others who demand the best performance.



Laser mice - Laser technology is the latest and greatest in computer mice tracking, and takes the advantages of optical to a new level. Most of the attributes of a laser mouse have been described in the optical mouse section, except for one. Instead of a fairly wide beam of light, it uses an extremely narrow beam of laser light.

The Logitech MX1000 laser mouse may be the mouse for you if you are looking for extreme precision. According to Logitech, the laser technology used in the MX1000 provides up to "20x more sensitivity to surface detail—or tracking power—than optical."

Hard Wired Connection Technologies



Serial – Serial mice are fairly difficult to come by these days, as are the ports they need in order to operate. This technology is quite old and slow, and the popularity and convenience of USB has all but eliminated the need for this interface on your typical PC. But, there were mice that sported the 9-pin connection needed to connect to a serial port, and many PS2 mice used to include an adaptor for Serial ports.



PS2 - PS2 mice were the standard for a long time, as all motherboards provided two PS2 ports for connecting a keyboard and a mouse. USB technology has become so widely used that the slower and less convenient PS2 ports are on the verge of extinction

with the Serial port. That said, not many mice are still sold that only support a PS2 connection, but there are still some available as with this unit from Genica.



USB – Most mice can now connect via USB, and include an adaptor to be used on a PS2 port, as well. It seems that just about any mouse now uses USB to connect, whether it is a wired mouse, or any variety of wireless mice that we are about to look at.

Wireless Connection Technologies



Radio Frequency – The most common type of wireless mouse uses radio frequencies to communicate motion to a receiver that is connected to the PC. This generic wireless mouse operates on the 27MHz frequency and the mouse itself is powered by AAA batteries which are not included. As you move up the price scale of RF (Radio Frequency) wireless mice, the packages will generally include an integrated rechargeable battery, as does the Logitech MX1000 discussed previously. Other features of higher end RF wireless mice include extended range, greater precision, and a receiver that doubles as a battery charger.



Bluetooth – The Tech Tip on Bluetooth discussed the basics of this wireless technology, and how it was a good fit for 'lower speed' devices, like a mouse. Logitech and IOGear are two manufacturers offering products for Bluetooth users, in addition to more traditional mice. The Bluetooth mice are also battery powered, and use the 2.4GHz radio frequency to communicate with an included receiver/charger or other Bluetooth adaptor.



RFID – A truly unique approach to wireless mice has been developed by a company called A4Tech. The A4Tech ND-30 RFID wireless mouse must be used with the included mouse pad in order to function, but there are no batteries in the mouse, and no cords on the mouse to get in the way. It works by using electromagnetic induction between the pad (which is plugged into a USB port) and the wireless, non-powered mouse. You never have to worry about replacing / charging batteries, and the weight of the mouse is greatly reduced since the power features are no longer necessary.

Features

Buttons – Most mice (except for a Macintosh's) include at least two buttons. The use of these

is fairly well understood, but other buttons may be featured on a mouse to further simplify common tasks. The Logitech MX 510 mouse features a total of 8 buttons which can be programmed to execute functions of the user's choosing.

Scroll wheels – Many mice now include a scroll wheel between the two main buttons which serves to allow up/down scrolling of documents and web pages. The scroll wheel may also serve as a third button on some mice, and clicking the scroll wheel will activate commands in many applications. More advanced scroll wheels are found on some mice that allow for left to right scrolling, which may be useful on a wide spreadsheet or large image.

Extra features – Many mice provide more than the basic functionality we have come to expect. Some provide a reduced footprint in order to make them more portable for use with a notebook computer. Some are designed for multi-tasking and provide an integrated flash memory card reader. Then, there are others that just look cool with a bit of a light show, or that actually keep you cool by including a small fan in the palm rest area.

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