How the Wacom cordless, batteryless pen works

The Wacom pen looks and feels just like a normal pen and does not contain batteries, cables or magnets, which have to be renewed. Instead it utilises the electro-magnetic resonance technology developed by Wacom, in which the tablet and pen communicate with each other via electromagnetic waves. Horizontal and vertical antennas under the tablet surface alternate between transmit and receive modes every 20 microseconds.

In transmit mode, an electromagnetic signal activates an oscillating circuit consisting of a coil and capacitor inside the pen. The oscillating circuit in the pen tip supplies power to the pen, while also functioning as a transmitter. The information from the pressure sensor and from the side switch is first of all transmitted to the chip via the modulator. Then the information is sent back to the modulator, which in turn transmits a signal to the oscillating circuit in the pen tip. In receive mode the signal is then sent to the tablet. The antennas in the tablet receive the oscillation energy that is generated by the oscillating circuit enabling the position, pressure and other information to be determined.

All required data is sent from the tablet via Bluetooth technology to the computer. The tablet and computer can be up to 10 m apart. Bluetooth is an industry standard for the wireless networking of devices over short distances. Data can be exchanged via a wireless interface between small mobile devices such as mobile phones and PDAs as well as between computers and peri-pheral devices. Wireless Pen Tablet from Wacom requires a Bluetooth receiver with the relevant software (Bluetooth-Stack) on your computer that conforms with Bluetooth specification 1.1 and supports the HID protocol. The Bluetooth support can be achieved either through an inbuilt Bluetooth interface or through an external Bluetooth USB dongle. The power supply for the tablet is delivered via a premium Lithium-Polymer rechargeable battery, which can be recharged at all times without suffering the 'memory effect' and enables up to 25 hours of continuous working. The tablet comes with an energy save function, which continually monitors the tablet's use and thus considerably increases the life of the battery. System requirements for the Wireless Pen Tablet are Windows 2000 or XP or Mac OS X 10.2.8 or higher. The Bluetooth dongle is not supplied with the Wireless Pen Tablet package.

Chip

Switch status

Data output
- Pressure
- Switch status

Modulator

Coil

Pressure

Bluetooth Module

Tablet sends and receives