

# What is a monitor? essay sample

[Technology](#), [Computer](#)



Monitor (computer), in computer science, device connected to a computer that displays information on a screen. Modern computer monitors can display a wide variety of information, including text, icons (pictures representing commands), photographs, computer rendered graphics, video, and animation.

Most computer monitors use a cathode-ray tube (CRT) as the display device. A CRT is a glass tube that is narrow at one end and opens to a flat screen at the other end. The CRTs used for monitors have rectangular screens, but other types of CRTs may have circular or square screens. The narrow end of the CRT contains a single electron gun for a monochrome, or single-color monitor, and three electron guns for a color monitor—one electron gun for each of the three primary colors: red, green, and yellow. The display screen is covered with tiny phosphor dots that emit light when struck by electrons from an electron gun.

Monochrome monitors have only one type of phosphor dot while color monitors have three types of phosphor dots, each emitting either red, green, or blue light. One red, one green, and one blue phosphor dot are grouped together into a single unit called a picture element, or pixel. A pixel is the smallest unit that can be displayed on the screen. Pixels are arranged together in rows and columns and are small enough that they appear connected and continuous to the eye.

Electronic circuitry within the monitor controls an electromagnet that scans and focuses electron beams onto the display screen, illuminating the pixels. Image intensity is controlled by the number of electrons that hit a particular

pixel. The more electrons that hit a pixel, the more light the pixel emits. The pixels, illuminated by each pass of the beams, create images on the screen. Variety of color and shading in an image is produced by carefully controlling the intensity of the electron beams hitting each of the dots that make up the pixels. The speed at which the electron beams repeat a single scan over the pixels is known as the refresh rate. Refresh rates are usually about 60 times a second.

Monochrome monitors display one color for text and pictures, such as white, green, or amber, against a dark color, such as black, for the background. Gray-scale monitors are a type of monochrome monitor that can display between 16 and 256 different shades of gray.

Manufacturers describe the quality of a monitor's display by dot pitch, which is the amount of space between the centers of adjacent pixels. Smaller dot pitches mean the pixels are more closely spaced and the monitor will yield sharper images. Most monitors have dot pitches that range from 0.22 mm (0.008 in) to 0.39 mm (0.015 in).

The screen size of monitors is measured by the distance from one corner of the display to the diagonally opposite corner. A typical size is 38 cm (15 in), with most monitors ranging in size from 22.9 cm (9 in) to 53 cm (21 in). Standard monitors are wider than they are tall and are called landscape monitors. Monitors that have greater height than width are called portrait monitors.

The amount of detail, or resolution, that a monitor can display depends on the size of the screen, the dot pitch, and on the type of display adapter used. The display adapter is a circuit board that receives formatted information from the computer and then draws an image on the monitor, displaying the information to the user. Display adapters follow various standards governing the amount of resolution they can obtain. Most color monitors are compatible with Video Graphics Array (VGA) standards, which are 640 by 480 pixels (640 pixels on each of 480 rows), or about 300, 000 pixels. VGA yields 16 colors, but most modern monitors display far more colors and are considered high resolution in comparison. Super VGA (SVGA) monitors have 1024 by 768 pixels (about 800, 000) and are capable of displaying more than 60, 000 different colors. Some SVGA monitors can display more than 16 million different colors.

A monitor is one type of computer display, defined by its CRT screen. Other types of displays include flat, laptop computer screens that often use liquid-crystal displays (LCDs). Other thin, flat-screen monitors that do not employ CRTs are currently being developed.