

Staying In Focus

You can now buy a dedicated screen for your computer, which will give you high quality display for graphics and games

As more and more people begin to use computers, videos, and other equipment which needs screens, the prices of specialised monitors are starting to fall.

Originally a good colour monitor would cost six or seven hundred pounds, but nowadays it is possible to buy one for about £350, or even less. Monochrome monitors are much cheaper, typically in the £100 to £150 range.

With the ever-expanding graphic capabilities of microcomputers, most of which have colour, it is a very good idea to get a colour monitor.

There are two main types of colour monitor, one type being known as RGB (standing for Red — Green — Blue), and the other as composite video. An RGB monitor is controlled directly, with the three guns which actually produce the colours being turned on and off by the computer. The pulses which are used to synchronise the computer with the monitor are also produced directly by the computer.

There are two types of sync-pulse, one for each line of the picture, and one for each complete picture. At the end of each frame, the monitor is sent a short pulse, which tells it that the frame is now complete, and that the electron-beam (and thus the dot which it produces) must be returned to the top left-hand corner of the frame.

A similar process occurs at the end of each line, indicating that this particular line is complete, and that the electron-beam must be returned to the left-hand side of the screen, ready for the next line. In an RGB monitor, each of these signals (Red gun, Green gun, Blue gun, line-sync and frame-sync) is sent to the monitor down its own individual wire.

A composite monitor, on the other hand, is a closer relation to a television, since all the signals are combined into one, then sent to the monitor via a co-axial cable. Once inside the monitor, the line-sync, frame-sync and the three colour signals are separated again and used to control the image.

A monitor is a television without a tuner. In fact, it's possible to turn a monitor into a television by adding a tuner, or to modify an ordinary television by taking the channel selection mechanism out.

However, this is definitely not recommended, because there are dangerously high voltages inside any piece of equipment that contains a cathode ray tube. Even professional technicians would approach this problem with trepidation.

Screen Grid

To ensure that the electron guns are pointed at exactly the right place on the screen, a grid or mask is incorporated into the surface of the tube

Screen Phosphor

The coloured image is made up (as shown in the diagram) of three colours. Different substances are laid on the glass. When irradiated by the electron beam, they glow in either red, green or blue, thus giving the coloured image, depending on the intensity of the beam at that point

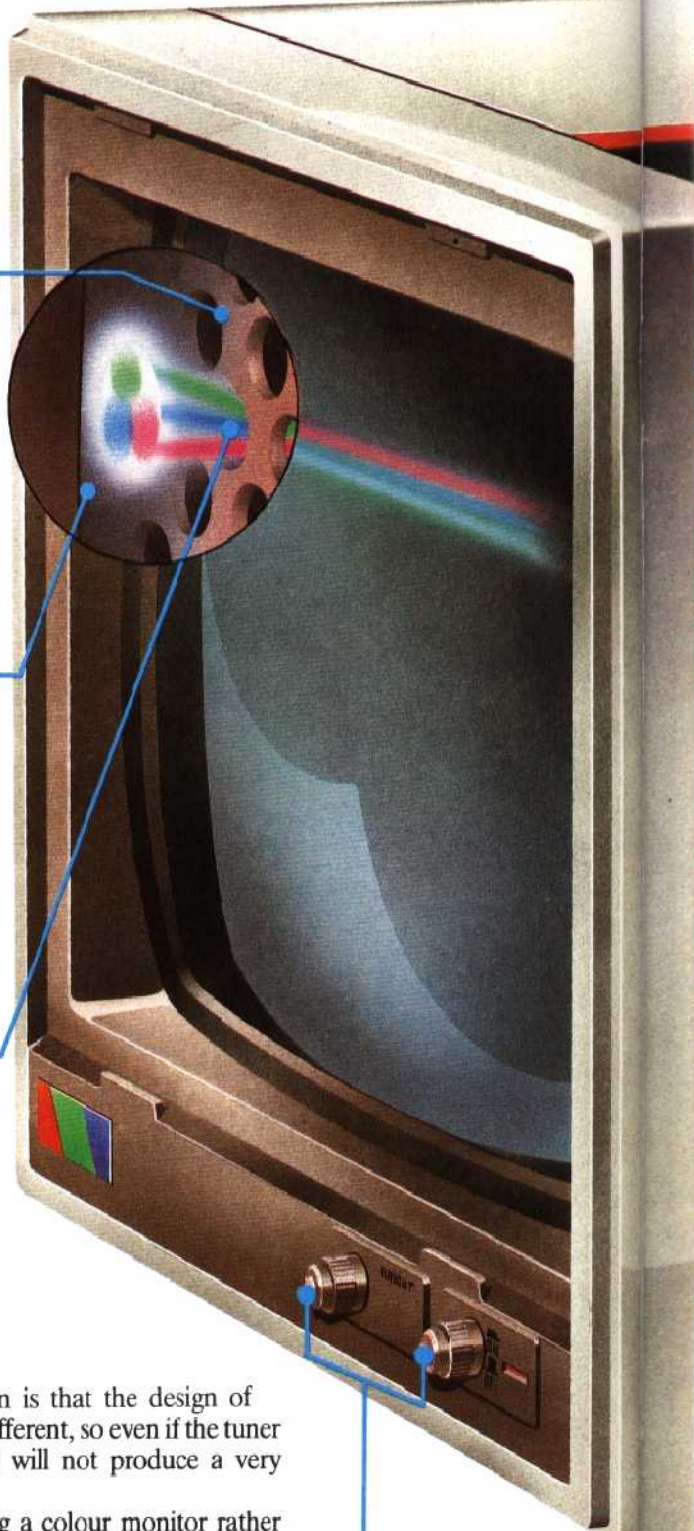
Electron Beams

There are three electron beams in the tube, each of which 'excites' a different phosphor to produce a coloured dot

The other main reason is that the design of the circuits is slightly different, so even if the tuner is removed, the result will not produce a very good monitor.

The reason for using a colour monitor rather than a television as the output device is that a television will only work with a signal which is overlaid with an Ultra-High Frequency carrier-wave, from which we get the acronym UHF. This means that the nice clean signal generated by the computer has to be encoded, sent down the wire, and then decoded again. Doing this results in a 'messy' signal, which gives a fuzzy picture.

A monitor, on the other hand, does not need the same modulation and de-modulation of the signal, and thus produces a cleaner, sharper picture. This is much easier on the eye, and makes your programs look much more professional.



Controls

As on a television, there are various controls. Vertical and horizontal hold are commonly accessible to the user. Colour intensity and other variables are usually not meant to be adjusted and are kept under the cover