

Buying guide – TELEVISION

Introduction

If there is one piece of electronics that provides the most at home entertainment, it's our [televisions](#). Sufficient to say the television has come a long way since its inception, from the unwieldy cathode ray tube (CRT) televisions to the ultra thin plasma or liquid crystal display (LCD) monitors. Televisions are broadly classified into Standard Definition and High Definition. While televisions are mostly used for viewing television programs or DVDs, nowadays televisions resolutions have increased to the point they can be useful as computer monitors. While CRT televisions have a maximum screen size of around 34 inches, LCD and plasma televisions could have a much larger screen. Panasonic has even created a tradeshow show piece, a plasma display measuring 150 inches. The latest news in the HDTV realm is...that's right, ultra-high definition. Samsung is set to start offering 2160p resolution display, measuring a mere 82 inches. If you're one of the many customers looking to upgrade due to the DTV transition, welcome, unless otherwise stated in the product's listing, Etronics sells only televisions with digital tuners.

What's Available

Signals beamed from television stations before February 2009 are analog radio waves. After February 2009 these waves will become a digital signal. Initially, only over the air television signals will make this change to digital. Signals received through a satellite dish, or a cable will not be affected until 2012, (a more complete explanation can be found on our [blog](#)). In order to get a clearer understanding of what's available, let us consider the different kinds of televisions, in the market today:

CRT

This type of television was developed in the early 1930s. The technology, called the Cathode Ray Tube (CRT), offers the best overall picture quality and reliability for the cost. However, the aspect ratio, or the ratio of the horizontal measurement against the vertical one, is 4:3 (close to a square). It's great for viewing non-HD television programming, but for HDTV and movies a 16:9 wide screen is optimal. Many top TV manufactures have abandoned CRT technology altogether; JVC, SONY, Magnavox, Sharp and Toshiba have all stopped making tube televisions to focus on standard sized LCDs, huge high resolution plasmas, and super thin OLEDs. Note: CRT Televisions picture tubes contain lead, safe in the vacuum of the tube it's harmless, but when CRT TVs are discarded improperly or just put out on the curb for pickup, the tube is broken and the lead is released. Lead can then seep into our ground water. Please recycle your TV.

LCD TV

Thin Film Transistor LCD (TFT-LCD) televisions and monitors work by blocking the light produced by the displays backlight. A solution of liquid crystal is sandwiching between two perpendicularly aligned panes of polarized glass. The crystals allow the intensity of the backlight to be manipulated as it passes through the solution and out the display panel. Depending on the voltage of the electrical charge running through the solution, liquid crystals will untwist so that the intensity of light changes for the viewer. These displays use the twisting and untwisting of the crystals to switch between light and dark, and all shades in between. LCD use the most energy displaying black (here the crystals are fully untwisted and blocking all the backlight's light), therefore LCDs cannot give a true black. The crystals also make it harder to view their picture at an angle without losing some image integrity. Another drawback of LCD displays,

noted by users, is the somewhat unnatural color reproduction. On the other hand, LCDs offer great prices, high resolutions, large screen sizes, and light weight.

Micro-Display or Rear Projection TVs

While retaining the picture size, but not the cost, of a plasma television, the Rear Projection TV is capable of high resolution and big screen sizes (42"-71"). These TV sets are both slimmer and lighter than regular CRT televisions, but wider and heavier than LCD or Plasma televisions. Rear projection televisions incorporate a large number of pixels on a microchip using LCD, digital-light processing (DLP), or liquid crystal on silicon (LCoS) technology to create the image. A high-powered lamp directs light either off or through this array of pixels and onto a larger screen (very often via a magnifying lens or glass). Rear projection TVs produce high quality images at less cost, because the imaging component, a large number of pixels concentrated on a microchip, is less costly to produce. The high refresh rate, inherent with micro-displays, also adds to the overall image quality. Light sources will burn out and are expensive to replace, but rear projection TVs are a great compromise between a CRT and LCD.

Plasma TV

[Plasma TV](#) screens are created by containing xenon or neon gases in cells between two sheets of glass. The inside of the cells are coated with red, green, or blue phosphor; the three different colored cells constitute one pixel. These cells are surrounded by electrodes and when a current is passed through the cell gas molecules inside become excited. During this exposure to electricity, charged photons are created that collide with the colored phosphor coating causing the cell to glow. Activating cells to produce combinations of red, green, and blue, can make almost all the colors in the spectrum; Turning on or off these colors is what is responsible for color reproduction, while the intensity of the electrical current produces the tonal range. Illuminating the phosphor in millions of cells, at varying intensities, results in an image being created. Plasma displays can be made very large with sharp clarity, true to life color reproduction, and are also capable of an extreme contrast ratio. Because the plasma gas is in a vacuum, operating the TV in extremely high altitudes can effect color reproduction and produce display noise.

OLED

Organic Light Emitting Diodes is the newest display technology being implemented by Sony. The main advantage with OLED displays is they can be made without a backlight source so they are much thinner and use less power. Unfortunately, there is only one commercially available OLED television. It's a Sony, and is only 11" wide, but costs \$2500. Sufficient it to say, this technology isn't quite here yet, but it is the newest frontier in display tech.

What to look for in a television

Considering the various technical specifications involved, choosing the correct television may not be easy. However, by investing a little in time, you can be sure you're making the right choice. Below, we have listed a few main features of a television that you would need to consider at the time of making a purchase:

1. Number of colors

This could well be one of the main features of a television as it is the number of colors reproduced on the screen that determines the true-to-life quality of the image. Most

televisions nowadays offer around 20 billion to 550 billion distinct colors. High Definition video does true justice to this feature as this kind of video transmission can ensure that all the billions of colors are properly reproduced. With non- High Definition video, the viewer may not be able to see all colors in their true sharpness.

2. Screen Size

The screen size relates directly to the viewing experience that the television offers you. Generally, larger the screen better. Of course, the size of the television depends on the room in which it is placed. An approximately 12 feet by 16 feet room could accommodate a 42 inch television set, something that a smaller room would not be able to do. CRT televisions, whose maximum size may be around 34 inches, could do well for smaller rooms having dimensions of around 10 feet by 8 feet. TFT-LCD televisions come in sizes ranging from around 20 inches to almost 90 inches or more. Micro-Display televisions, being similar to CRT sets, occupy more space as compared to TFT-LCD or Plasma TVs. Plasma TVs are slim enough to be hung on walls, being both a space saver and a style accessory. With large-screen televisions, a minimum viewing distance of around 7 feet from the television should be maintained, as sitting closer to the television may make the picture look grainy or dull.

3. Contrast Ratio

Another feature for superior picture quality is the contrast ratio. This ratio signifies the difference between black and white. Higher the ratio, darker are the black portions and lighter the white portions. Most LCD TVs offer a minimum contrast ratio of 500:1. The greater the contrast ratio the more tonal detail the picture will have, lower contrast ratios make the image appear muddy and some darker image details are lost.

4. Resolution

Resolution is usually a factor of the screen size. An HDTV compliant TV usually supports a minimum resolution of 1280 X 720 pixels. The HDTV broadcasts have a resolution of around 1080 active pixel lines with a 16:9 wide-screen format. Most HDTV-compatible flat panels TVs have a maximum resolution of approximately 1920x1080 pixels. Making use of new media like Blu-ray discs that are recorded in 1080p (or a resolution of 1920 x 1080 pixels).

5. Dot-pitch

The "dot pitch" is the distance between two pixels of the same color. For an LCD or Plasma television, the dot pitch should be around 0.25 mm to 0.30 mm. The lower the dot pitch the better the picture quality. Most flat panel televisions support a minimum resolution of around 720 dots per inch (dpi) and a maximum one of around 1080 dpi. Also the larger the display the higher the dot pitch.

6. HDTV-compatibility

HDTV or High Definition Televisions read digital signals, usually through High Definition Multimedia interface or HDMI. This is quickly becoming the USB of HD, and it carries both audio and video signals. HDTVs require separate tuners to the analog signals such as those found with PAL, NTSC and SECAM. Also, HDTVs use progressive scan to draw their screen images instead of the interlaced scan method used in older CRT televisions.

7. Refresh rate

This is the amount of time required for the screen to be refreshed. A better response time converts into a better video quality even in high speed sequences. The images are sharper. Refresh rate is especially important when using the television as a gaming console or a computer monitor.

8. Audio quality

Stereo with a simulated surround sound is your best bet. The quality of sound is closer to a cinematic experience. Most AV heads will add a home theater system to their entertainment centers so sound output options are more important the speaker included on the set. HDMI or High Definition Multimedia Interface provides a digital audio and high definition video output through one port.

9. Cost

While CRT televisions are the most affordable, the cost goes up with LCD and plasma televisions. Of course, televisions having HDTV compatibility are more expensive compared to Standard Definition televisions, but you wouldn't replace your car with a horse, right? So it only makes sense to upgrade when you update you set.

Making the right decision

Check out the televisions on www.etrronics.com.

When buying a television, choosing a renowned brand such as Samsung, Sony, or Toshiba assures quality and durability. We offer a wide range of price options at Etronics, you can get more information by visiting the following links: [\\$100 - \\$200](#), [\\$200 - \\$300](#), [\\$300 - \\$500](#), [\\$500 - \\$1000](#), [\\$1000 - \\$2000](#).

Besides the quality and functionality of the television, you should also look up the after- sales service offered by the manufacturer. With proper care and maintenance the television you buy should give you years of uninterrupted service.