

LCD TV Buying Guide

The LCD TV is a flat-screen color TV featuring extremely flexible placement and mounting capabilities thanks to the LCD TV's fantastically slim profile. LCD TVs often feature High Definition picture resolutions and Digital TV readiness.

LCD TV Features

Space-saving Ultra-Slim Profile

What really sets the LCD TV apart from the standard tube TV is its thickness, or more specifically, its lack of it. The ultra-slim profile of the LCD TV means that despite the screen sizes exceeding 30 inches, thickness is never more than a few inches. This allows an LCD TV to be hung from a wall or even the ceiling, both of which are fashionable installation methods. This opens up more space in your living or bed room for other electronics, furnishings or toys.

Absolute flat screen

With the LCD TV's perfectly flat screen, picture distortions owing to screen curvature are a thing of the past.

Ready for DTV

DTV (Digital TV) is poised to gradually replace standard analog TV. The LCD TV can support DTV signals with a built-in or external digital tuner. Most LCD TVs can support at least EDTV (Enhanced Definition TV, 480p), which provides superior picture quality to regular analog TV.

HDTV Capability

The majority of new LCD TVs will easily display an HDTV picture as they are designed to be HDTV compatible or HDTV ready by featuring a 16:9 widescreen aspect ratio and very high native resolutions. Please refer to the Screen Resolution section below for more details.

The Parameters that Matter

Screen size

LCD TVs are offered in a very wide range of sizes. Newegg.com, for example, offers LCD TVs in sizes ranging from 15 to 42-inches. Larger screens (30-inches or more) generally provide more immersive, theatre-like viewing experiences, and are great for larger rooms such as the living room where your family or guests can watch a movie or be entertained together. Smaller sizes are more suited for placement in smaller rooms such as the bedroom. Please note that LCD TV pricing is to a certain degree directly influenced by screen size.

The relationship between Screen Size and Viewing Distance

Although many of us hope to purchase the largest TV we can afford, this actually isn't recommended. The proper size TV to purchase should be a function of the distance you sit in relation to the TV screen. For example, a 1 foot distance between you and a 40-inch LCD TV

will most likely feel very uncomfortable. A distance of 5 ~ 10 feet from the same 40-inch LCD TV will provide a much more comfortable viewing experience and still maintain the immersive qualities of the large screen.

The following table provides a quick reference for the relationship between screen size and the viewing distance, measured from the screen of the LCD TV.

| Screen size (in inch) | Viewing distance (in feet) |
|-----------------------|----------------------------|
| 20 | 2 ~ 5 |
| 23 | 2.5 ~ 5.5 |
| 26 | 3 ~ 6 |
| 27 | 3 ~ 6.5 |
| 32 | 4 ~ 8 |
| 37 | 4.5 ~ 9 |
| 40 | 5 ~ 10 |
| 42 | 5.5 ~ 11 |

These are only recommendations - please find a viewing distance that best suits your own preferences.

Response time

The response time measurement is the speed at which an LCD TV's pixels (the smallest unit of display on the LCD TV) are able to change from displaying full black to full white and back again. Response time is measured in ms (milliseconds). The quicker an LCD TV's response time, the less likelihood there is for ghosting or streaking (after images) appearing when displaying fast paced images (e.g. games or movies).

Screen Resolution

With tube TVs it wasn't necessary to know much about resolution, which is the term used for image detail. Tube TVs were compliant with the existing NTSC, PAL and SECAM TV formats and that was all we were needed to know. With HDTV, the resolution of a TV screen is extremely important because it determines whether or not a TV is capable of supporting HDTV levels of image detail. The detail level of an HDTV picture is what makes it so impressive to see.

The two most common HDTV standards are 720p and 1080i, which correspond to a resolution of 1280x720 and 1920x1080 respectively.

When the maximum resolution of an LCD TV equals or exceeds the above two standards, it is HDTV-ready. For example, an LCD TV with a resolution of 1366 x 768 is compliant with the 720p HDTV standard, while another LCD TV with a maximum resolution of 1920 x 1080 is compliant with both the 720p and 1080i HDTV standards.

| TV Standard | Resolution | HDTV | Widescreen |
|-------------|------------|------|------------|
|-------------|------------|------|------------|

| | | | |
|----------------------------|--------------------|-----|-----|
| 1080p | 1920 x 1080 pixels | Yes | Yes |
| 1080i | 1920 x 1080 pixels | Yes | Yes |
| 720p | 1280 x 720 pixels | Yes | Yes |
| Widescreen 480p: DVD, EDTV | 852 x 480 pixels | No | Yes |
| Standard Tube TV | 480 lines | No | No |

Note:

1. The "p" in "480p", "720p" and "1080p" stands for progressive scan, and the "i" in "1080i" stands for interlaced.
2. 1080p is not a TV broadcast standard yet

Aspect ratio

The aspect ratio is the width to height proportion of a TV screen. 4:3 is the aspect ratio for standard televisions. This corresponds to 3 inches of height for every 4 inches of screen width. HDTV and a portion of DVD movies are presented in 16:9 aspect ratio. LCD TVs are offered in both 4:3 and 16:9 aspect ratios, as well as 5:4. The 16:9 aspect ratio is also referred to as the widescreen format, which is perfect for HDTV display.

Brightness

Brightness is defined as the emitted luminous power over a specified area, often measured in cd/m^2 (candela per square meter) or nits (they are equal). Brightness is an important aspect of TV performance and a high level of brightness is beneficial as it helps to make a TV's picture more viewable from a distance and under intense lighting conditions.

Contrast ratio

In scientific terms, contrast is the ratio between the light intensity of the brightest and the darkest points in an image. What it does in practice is to allow a screen to show both light and dark details as well as possible. A higher contrast performance often allows darker details to show better and therefore improves picture quality.

Viewing angle

The viewing angle refers to the maximum horizontal and vertical viewing angles from which an LCD TV screen can be viewed at acceptable image quality. A wide viewing angle has various benefits, such as the ability to allow a group of people to view the screen at the same time. Currently, most LCD TVs are capable of at least $160^\circ/160^\circ$ (Horizontal / Vertical), and some are able to exceed $170^\circ/170^\circ$ (H / V), Viewing angles that are as close to 180° as possible are always preferable.

Connectivity

Every LCD TV offers several types of input connector allowing signal sources such as a TV antenna, cable TV line, and DVD player, or gaming console to connect and provide a picture. If, for example, you want to output your PC's picture to your LCD TV, you will need your LCD TV to come equipped with either a DVI or D-Sub port. For DVD players you can work with composite connectors, but component connectors are recommended for better image quality.

For in-depth information, please see our [LCD TV Connector Guide](#).

HDTV Capability

The future of TV is definitely Hi-Def. At the current time, only a portion of LCD TVs sold are **HDTV-ready** or **HDTV compatible**. This means that they are able to display an HDTV resolutions, but do not feature an HDTV tuner - this requires owners to purchase an external HDTV tuner separately in order to provide the TV with an HDTV picture signal.

HDTVs that are built with internal tuners are able to accept HDTV signals directly over the air (by connecting an antenna) without the help of an external tuner. These TVs are called **Integrated HDTVs**.

Some newer LCD TVs are not only integrated HDTVs but **Digital Cable Ready (DCR)** as well. These LCD TV sets are able to receive over the air HDTV programming, but more importantly, they are used to tune into digital cable programming by inserting a CableCard from the cable provider.

Please note that digital cable programs are broadcast digitally and are not automatically offered in HDTV resolution, but digital cable programming *can* include HDTV channels if the cable provider carries them.

Sound

LCD TVs are generally equipped with built-in speakers and are sometimes able to provide surround sound audio. This can be an attractive option for the budget user, but users interested in building a complete home theater system may want to look into a separate speaker system.

Important note: Certain LCD TV sets do not feature built-in speakers and may require the purchase of optional external speakers. Please be sure to look at each LCD TV's detailed specifications carefully.

Choosing the right LCD TV

Average Home User

The average home user may simply be looking for a replacement for an older analog TV. Moderate screen sizes with satisfying image quality and preferably HDTV compatibility are among the things home users can look for. LCD TV sets that fall into the range of specifications in the table below may be suitable choices:

| Key Features | Recommendations |
|---------------------|---------------------------------------|
| Screen size | 26" or above |
| Resolution | 1280 x 720, 1280 x 768, or 1366 x 768 |
| HDTV compatible | Yes |
| Widescreen | Yes |
| Response time | 16ms or less |

| | |
|----------------|--------------------------------|
| Aspect ratio | 16:9 |
| Brightness | 450 cd/m ² or above |
| Contrast ratio | 400:1 or above |

Movie Buffs

DVD movies look amazing on high-resolution LCD TVs which is why movie enthusiasts absolutely love to watch their movies on LCD screens. In addition to displaying HDTV programming, movie buffs also want to be able to connect to future HDTV movie players, such as HD-DVD or Blu-Ray disc players.

| Key Features | Recommendations |
|-----------------|---------------------------------|
| Screen size | 32" or above |
| Resolution | 1280 x 768, 1366 x 768 or above |
| HDTV compatible | Yes |
| Widescreen | Yes |
| Response time | 12ms or less |
| Aspect ratio | 16:9 |
| Brightness | 500 cd/m ² or above |
| Contrast ratio | 550:1 or above |
| Viewing angle | 170°/170° (H/V) or above |
| Connectivity | Component, DVI, HDMI |

Gamers

Microsoft's new Xbox 360 and the upcoming Sony PlayStation 3 both support HDTV output. To enjoy the picture quality offered by these next-gen consoles, a gamer's television set needs to provide high native resolutions and the proper input connectors. In addition, lower response times are important as they help to reduce ghosting or streaking during gameplay, especially during racing, or when displaying fast-paced images.

| Key Features | Recommendations |
|----------------|---|
| Screen size | 26" or above |
| Resolution | 1280 x 720, or 1366 x 768 recommended 1920 x 1080 best |
| Response time | 8ms or less |
| Aspect ratio | 16:9 |
| Brightness | 500 cd/m ² or above |
| Contrast ratio | 600:1 or above |
| Connectivity | Component, VGA, HDMI |

Computer/HTPC Users

LCD TVs are great choices for HTPC (Home Theater PC) users who use their computer primarily for movies and games. As a result, the recommended features and specs are similar to those for movie buffs and gamers. Of course, the LCD TV should provide standard

computer connectors, namely the DVI and D-Sub (VGA) ports.

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|---------------------|---------------------------------|
| Screen size | 32" or above |
| Resolution | 1280 x 768, 1366 x 768 or above |
| HDTV compatible? | Yes |
| Widescreen | Yes |
| Response time | 8ms or less |
| Aspect ratio | 16:9 |
| Brightness | 500 cd/m ² or above |
| Contrast ratio | 550:1 or above |
| Connectivity | Component, VGA, DVI, HDMI |

Office Users

Office users typically use TVs for video conferencing, presentations or training videos. A relatively large screen size and a wide viewing angle are beneficial for a sizeable audience, while computer connectors will allow it to receive picture signals from computers as well.

| Key Features | Recommendations |
|---------------------|---------------------------------|
| Screen size | 32" or above |
| Resolution | 1280 x 768, 1366 x 768 or above |
| Response time | 12ms or less |
| Brightness | 500 cd/m ² or above |
| Contrast ratio | 550:1 or above |
| Viewing angle | 170°/170° (H/V) or above |
| Connectivity | D-Sub, DVI |

Small Room/ On a Budget

A small TV in the kitchen or reading room can be pleasant additions to the house. What we are looking for are very thin profiles that allow flexible positioning that includes wall hanging. As smaller sized LCD TVs often come at less cost, the recommendations made here may also be considered by those who are currently on a limited budget.

| Key Features | Recommendations |
|---------------------|---------------------------------|
| Screen size | 15" or above |
| Resolution | 640 x 480, 800x 600 or 1024x768 |
| Response time | Less than 25ms |
| Aspect ratio | 4:3 |