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# Your Guide To HDTV



T:9 in



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<sup>1</sup> National Association of Broadcasters reported figures as of March 2006.

<sup>2</sup> National Cable & Telecommunications Association reported figure as of March 2006.

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## Welcome To The World Of HDTV

It's a vivid world with picture and sound quality a full generation ahead of conventional television.

It's an exciting world with dozens of HD channels—and a growing range of home video HD sources.

And it's a world that's easy to join.

Once you make the move to HD, you'll never go back.

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## What Is HDTV?

HDTV stands for “High Definition TV,” which is worlds better than television as you’ve known it.

**Up to six times the detail.** HDTV means up to six times the picture detail of conventional, Standard Definition TV (SDTV). You see the stitches in the baseball as the pitcher takes the mound... the blades of grass as the golf pro drives for the green... strands of hair as the leading man takes the leading lady in his arms. With HDTV, live events become more immediate, sports become more exciting, and movies and concerts become more involving than you’ve ever seen at home.

**A different viewing experience.** Conventional televisions have a screen that’s almost square. HDTV has a screen that’s noticeably wider, closer in shape to a movie screen. Because this “widescreen” or “16:9” shape more closely resembles the human field of vision, you get TV entertainment that’s more like a window on the world.

**Enhanced sound quality.** With HDTV, the picture is just part of the story. HDTV immerses you in up to 5.1 channels of digital surround sound. Connect a home theater system and you’ll be immersed in the epic battles of space fleets. You’ll hear the quarterback call his signals, surrounded by the noise of the crowd. And you’ll enjoy concerts with true fidelity.

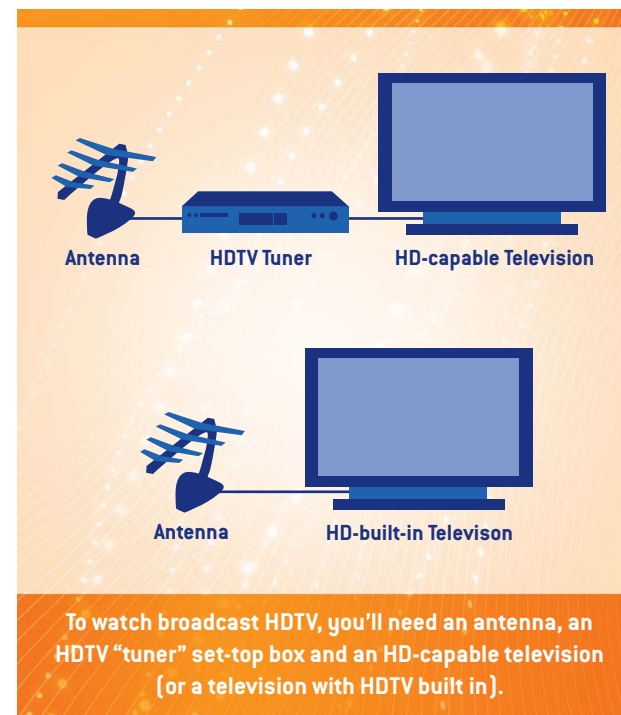


In technical terms, there are two principal types of HDTV programming in the U.S. Most broadcast networks and cable channels have chosen 1080-line interlaced (1080i), which delivers maximum resolution. Some have chosen 720-line progressive (720P), which delivers the smoothest motion. All HDTVs are designed to receive and display both systems.

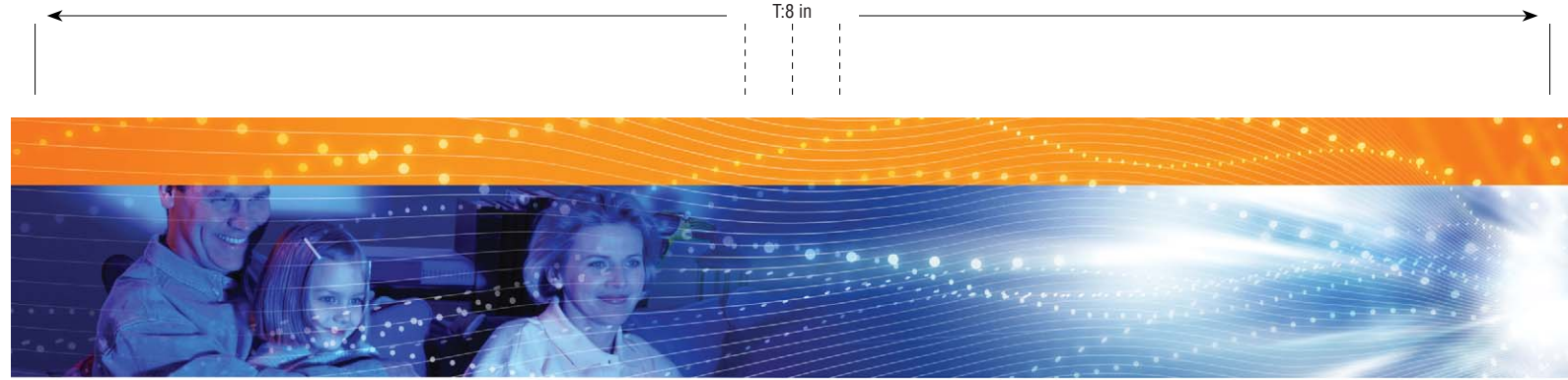
## What Can I Watch In HDTV?

You name it. There are dozens of channels available. And the numbers continue to grow. You can also choose from other ways to bring HD entertainment home—or even create HD home movies.

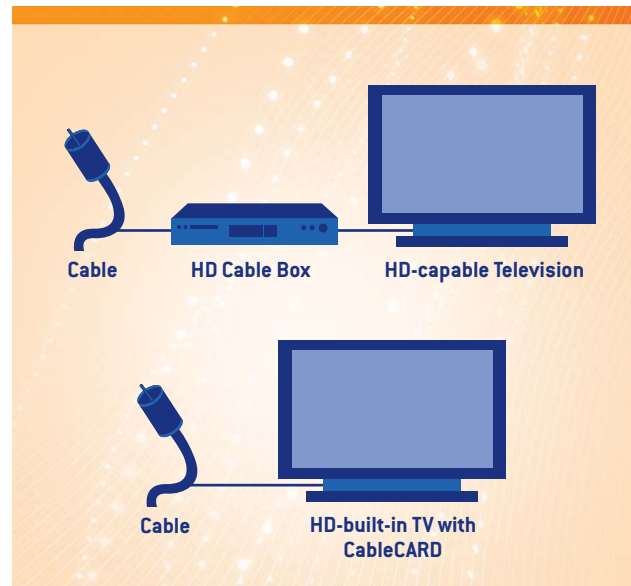
**Local, over-the-air HD.** CBS, NBC, ABC, Fox, the WB and PBS all provide local broadcasters entertainment in HD, including sitcoms, dramas, major specials and sports. From late night talk shows to morning national news, soaps and sitcoms, virtually anything you want to watch is available in HD. Leno, Letterman and Conan O’Brien have all gone HD. Chances are good that your local affiliates are broadcasting in HD right now. Nearly 1,600 local stations are broadcasting in digital, with service in more than 200 markets covering over 99% of U.S. TV households.<sup>1</sup>



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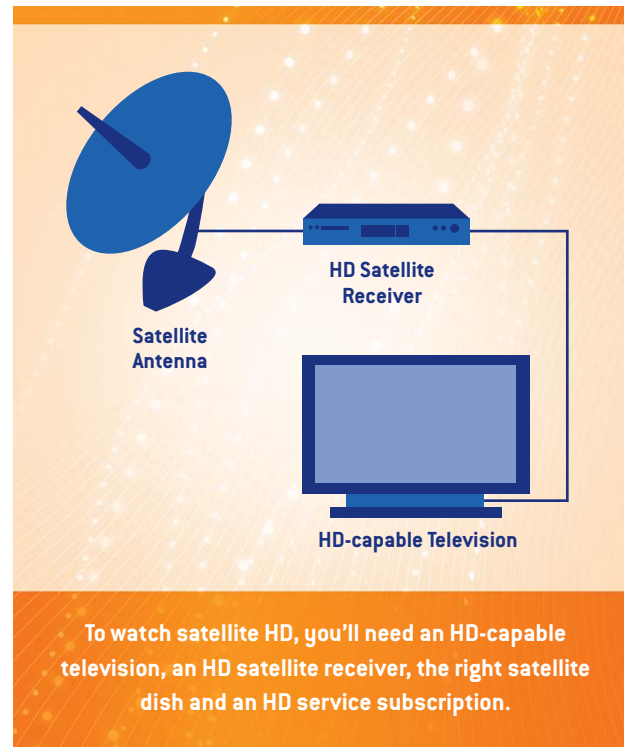


**HD Cable.** If you're a cable TV subscriber, the chances are good that your cable company has already begun to offer HD programming. Over 96 million TV households are "passed" by a cable system that offers HDTV.<sup>2</sup> And check out the programming. It starts with the major broadcast networks, and it continues with High Definition cable channels including Cinemax, Comcast SportsNet, Discovery, ESPN, FSN, HBO, NBA TV, NFL Network, Outdoor Channel, Showtime, STARZ!, The Movie Channel, TNT, Universal HD and YES-HD. There are even dedicated HD channels such as HDNet and INHD.

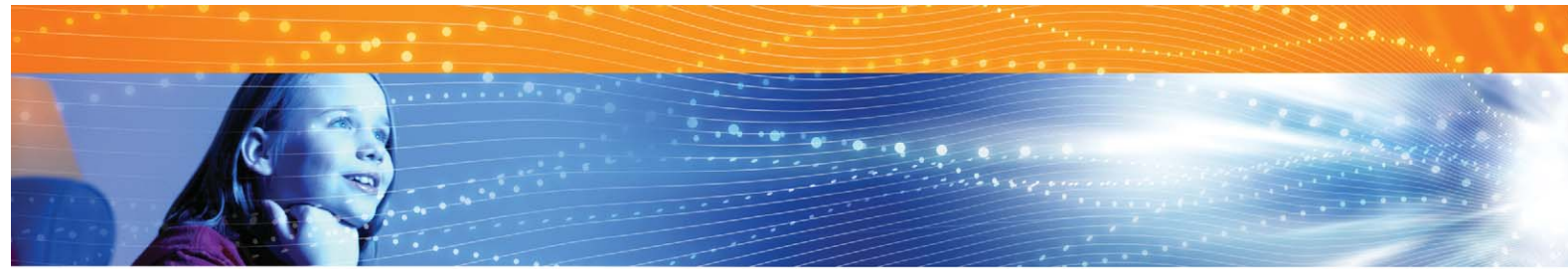


To watch cable HD, you'll need an HD cable service subscription, an HD cable box, and an HD-capable television. On some cable systems, you may be able to insert the CableCARD from your cable company directly into a compatible HDTV built-in television. This may eliminate the need for a cable box. (Check with your cable supplier for details and restrictions.)

**HD Satellite.** Much of the same cable content can also be seen in High Definition on the DISH Network and DIRECTV satellite services. DIRECTV also offers subscriptions to over 100 NFL games in HD, while DISH Network offers ten VOOM Originals channels in HD.



**HD personal videos.** Not all the High Definition stars are in Hollywood. A new generation of HD Video (HDV) camcorders enables you to capture your own precious moments in spectacular style and enjoy them on your HDTV. Imagine seeing those soccer games, school plays, recitals, vacations and birthdays, large as life in High Definition. You'll enjoy incredible detail, gorgeous color and lifelike digital sound, all captured on affordable DV cassettes.



**HD video discs.** To see High Definition at its very best and enjoy all the quality your HDTV can deliver, you really have to see it with next generation HD video discs. These discs will deliver incredible entertainment including major hit movies, Hollywood classics, concerts, interactive games and more. You'll also be able to record on HD media. Or save extraordinary amounts of PC data on HD disc drives. Or enjoy the hottest new video games on HD-based platforms.

## What Kind Of Television Do I Need For HDTV?

HDTV comes in a broad range of designs, display technologies and screen sizes. Screen size is particularly important. With older SDTV technology, when screens got too big, the illusion of a continuous picture fell apart. You could start to see individual scanning lines. HDTV enables you to watch a bigger screen and still enjoy a seamless, lifelike picture.

**Direct view CRT.** The CRT or "cathode ray tube" is the traditional television picture tube used in box-type televisions from the beginning. Direct view TVs are cost effective and available in smaller screen sizes, ideal for smaller rooms.

**Flat panel.** Ultra-thin wall-mounted televisions take up almost no space in a room. Most LCD panels are offered in the popular screen sizes between 20 and 40 inches diagonal, and are highly durable. Plasma panels tend to offer larger screen sizes and fast response. Both technologies continue to make strides with ever bigger screen sizes, better contrast and truer colors.

**Rear projection.** Modern rear projection televisions deliver great value with a variety of large-screen models. Their display technologies range from three CRTs (for red, green and blue) to microdisplay panels such as LCD, Digital Light Processing® (DLP®) and Liquid Crystal on Silicon (LCoS).

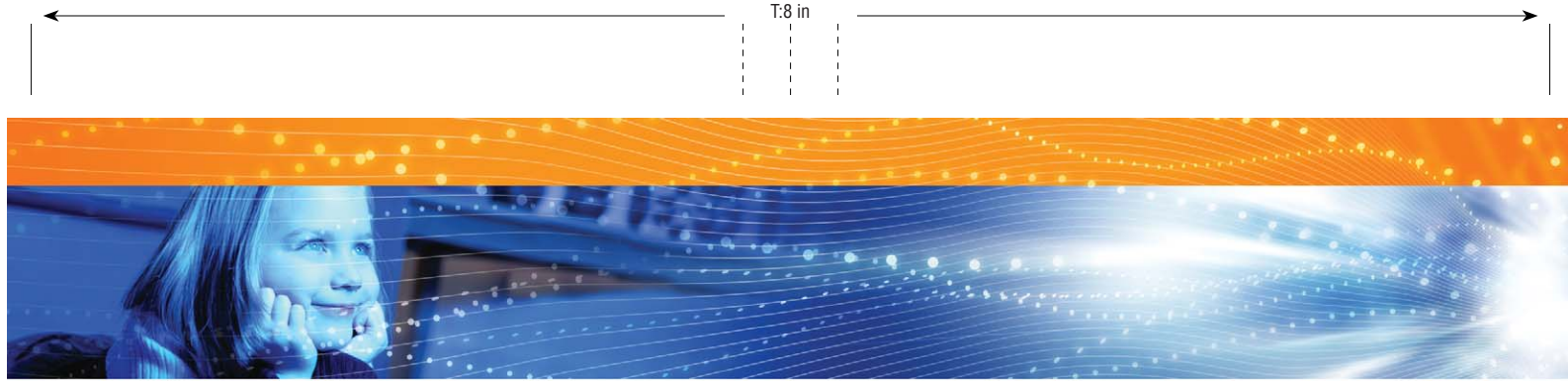
**Front projection.** The ultimate product for movie buffs, front projectors typically hang from the ceiling or sit the floor or table and project their pictures on a separate screen. Front projectors generally look better in low light, so they're ideal for turning television viewing into a special event. Front projectors use either DLP, LCD or LCoS microdisplay panels.

**Not all Digital TV is HDTV**

There are three broad categories of digital televisions. Standard Definition television (SDTV) delivers conventional picture and sound only. Enhanced Definition television (EDTV) will receive the new digital broadcasts but not display them in true HD. High Definition television (HDTV) both receives the new broadcasts and displays them with at least 720 scanning lines, for an exceptional viewing experience. And you won't miss any of your existing shows. The new HD televisions also receive conventional SDTV broadcasts.

**SDTV** STANDARD DEFINITION TELEVISION    **EDTV** ENHANCED DEFINITION TELEVISION    **HDTV** HIGH DEFINITION TELEVISION

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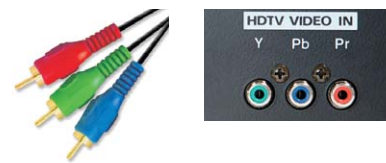
## How Do I Connect My HDTV?

Connecting High Definition can be even easier than conventional, Standard Definition TV.

### GOOD

**Component Y/Pb/Pr.** Component connectors preserve the integrity of the HD signal using three separate cables. There's one for the black-and-white signal (called "Y" or "luminance"), one for Blue (called "Pb" or "Cb"), and one for Red (called "Pr" or "Cr").

Component Y/Pb/Pr signals use three cables.



### BETTER

**RGB+HV and VGA.** RGB connections, used for PC devices, provide separate cables for the three primary video colors: Red, Green and Blue. These cables sometimes need additional connectors for Horizontal and Vertical Sync (RGB+HV). VGA D-sub 15-pin connectors enable this with the simplicity of a single cable.

RGB + HV cables are used in business projectors and some home HD equipment.



The VGA connector often appears in computer monitors and is also used in home HD equipment.



### BEST

**DVI and HDMI™ connections.** For the best connection, go digital. The Digital Visual Interface (DVI) connector carries the highest quality uncompressed digital video from an HD source component to an HD television, where you'll see a picture of exceptional quality. A similar alternative is the HDMI cable, which carries multi-channel digital audio along with digital HD video. Compatible products can even "talk" to each other over the HDMI connection, automatically selecting the correct audio and video settings required.

The Digital Visual Interface (DVI).



The HDMI™ cable is a single, digital connection that can carry High Definition video and multi-channel digital audio.



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# Glossary

**1080.** An HDTV signal with 1080 scanning lines.

**16:9.** The screen proportions of HDTV. The width is 16/9 or 1.778 times the height. Compared to conventional, 4:3 television, 16:9 "widescreen" viewing is closer to the proportions of a movie screen.

**4:3.** The screen proportions of conventional SDTV. The width is 4/3 or 1.333 times the height.

**480.** An SDTV signal with 480 active scanning lines.

**5.1.** Surround sound system with Left, Center, Right, Surround Left and Surround Right channels, plus a special "0.1" channel of Low Frequency Effects typically reproduced by a subwoofer. The Dolby Digital system of HDTV can support 5.1-channel surround sound.

**720.** An HDTV signal with 720 scanning lines.

**Analog.** System of storing or transmitting information as continuous variations or waves. Analog video subjects the picture to snow, ghosts and color degradation. Analog audio subjects the sound to background "hiss."

**Aspect Ratio.** The ratio of screen width to screen height. HDTV has a widescreen aspect ratio of 16:9. SDTV has an aspect ratio closer to square, 4:3.

**Broadcast.** Free, over-the-air, local distribution of television from a ground-based transmitter.

**Cable.** Method of TV distribution that requires a monthly subscription and a wired connection to a local "head end."

**Cable Box.** Set-top box that decodes cable signals for your television. Requires a monthly subscription and a hook up from your cable company.

**CableCARD.** Plastic card that inserts into compatible cable boxes or televisions. A CableCARD can be used to authenticate your cable subscription and enable you to enjoy programming that you subscribe to.

**Cable Subscription.** Fee-based service that entitles the subscriber to cable programming.

**Content Protection.** Many HD programming sources use sophisticated content protection systems to thwart digital piracy.

**CRT.** Short for Cathode Ray Tube, the picture tube of conventional, box-type televisions. An electron beam (the cathode ray) scans the phosphors on

the face of the picture tube, which glow to create the TV picture. While flat panels and projection TVs continue to gain ground, the majority of televisions still use CRTs. CRTs have also been used in projection televisions.

**Digital.** System of storing or transmitting information as computer 1s and 0s. Digital video protects the picture from snow, ghosts and color degradation. Digital audio protects the sound from background "hiss."

**Direct View.** Another name for CRT television. While flat panels and projection TVs continue to gain ground, the majority of televisions are still direct view.

**DLP microdisplay.** Short for Digital Light Processing® microdisplay. Light reflects off a DLP panel, which forms a picture by pivoting microscopic mirrors to reflect or displace light for each pixel.

**Dolby Digital® audio.** A system for convenient transmission of high-quality digital audio. Supports mono (1 channel), stereo (2 channels) and 5.1-channel surround sound, in addition to other configurations.

**DVI.** Digital Visual Interface. An extremely high quality method for connecting an HD source component to your HDTV. The DVI connector handles digital video only.

**Flat Panel.** Any of a new generation of thin televisions that can hang on a wall. Includes LCD and plasma.

**Front Projection.** Two-piece picture system that requires a projector that sits out in the room and a separate screen that hangs from the wall or ceiling. Modern front projectors use microdisplay panels, such as LCD, LCoS and DLP technologies.

**HD Video Disc.** New generation of home entertainment that delivers the highest picture quality available. HD video disc systems are capable of supporting home HD recording, rewritable PC disc drives, and interactive game consoles.

**HD-Capable Television.** Television that can display an HD picture of at least 720 scanning lines but cannot receive over-the-air HDTV broadcasts. An HD-capable television requires an HDTV tuner set-top box to receive HDTV broadcasts.

**HDMI™ connector.** The High-Definition Multimedia Interface™ connector is an extremely high quality method for connecting an HD source component to your HDTV. The single connector handles both digital video and digital audio.

**HDTV.** High Definition Television. HDTV delivers spectacular picture quality with

720 or 1080 scanning lines, instead of the usual 480 lines of Standard Definition Television (SDTV). Other advantages include digital pictures, digital sound and a wider, 16:9 screen.

**HDTV Built In.** Television that can display an HD picture of at least 720 scanning lines and can also receive over-the-air HDTV broadcasts. No additional HDTV tuner is necessary.

**HDTV Tuner.** A set-top box for receiving over-the-air HDTV broadcasts. An HDTV tuner typically connects to an HD-capable television.

**HDV.** High Definition Video cassette system. A camcorder format that shoots 1080 or 720-line High Definition and records it to standard mini-DV cassette tapes.

**I.** Abbreviation for "interlace," a TV scanning system that divides the picture into alternating fields of odd- and even-numbered lines.

**Interlace.** A TV scanning system that divides the picture into alternating fields of odd- and even-numbered lines.

**LCD.** Abbreviation for Liquid Crystal Display. LCD technology is used in both flat panel televisions and microdisplay projection televisions. Light shines through an LCD panel, which forms a picture by blocking or passing light for each pixel.

**LCoS.** Abbreviation for Liquid Crystal on Silicon, a microdisplay technology for projection televisions. Light reflects off an LCoS panel, which forms a picture by blocking or passing light for each pixel.

**Microdisplay.** Front and rear projection systems that use one or more semiconductor chips instead of CRTs. Microdisplay technologies include DLP, LCoS and LCD panels.

**Over the Air.** Free local distribution of television from a ground-based transmitter.

**P.** Abbreviation for "progressive," a TV scanning system that presents all the lines at the same time.

**Plasma.** A flat panel television technology that produces light when plasma gas is excited by electric voltage.

**Progressive.** A TV scanning system that presents all the lines at the same time.

**Projection.** Televisions that use an optical path to enlarge the picture. Types include front projectors that sit out in the room and self-contained rear projectors.

**Rear Projection.** Projection TV system where the projection assembly sits

behind the screen, inside the same cabinet as the screen. Rear projection technologies include CRTs and microdisplays such as LCD, LCoS and DLP panels.

**RGB.** Method of connecting video sources to a monitor, typically used for PCs but sometimes used for HDTV. Capable of high quality connection.

**Satellite.** Modern source of digital television programming. Geosynchronous satellites for the DISH Network and DIRECTV services orbit in the southern sky, above the Equator.

**Satellite Dish.** Part of a satellite TV reception system. Typically 18 to 24 inches in diameter, the dish must be pointed south, towards geosynchronous satellites that orbit above the Equator. Requires a clear line of sight to the satellite(s).

**Satellite Receiver.** Set-top box that decodes satellite TV signals for your television. Requires a monthly subscription from your satellite TV company.

**Satellite Subscription.** Fee-based service that entitles the subscriber to satellite programming.

**Subscription.** Fee-based service that entitles the subscriber to programming.

**Surround Sound.** Sound tracks that supply rear channels for more involving, more immersive entertainment. Modern surround sound uses 5.1 channels: Left, Center, Right, Surround Left, Surround Right and a special "0.1" channel of Low Frequency Effects typically reproduced by a subwoofer.

**Terrestrial.** A fancy word for "ground-based." In television, it stands for free, over-the-air, local distribution of television from a ground-based transmitter.



**VGA.** Method of connecting video sources to a monitor, typically used for PCs but sometimes used for HDTV. Capable of high quality connection.

**Widescreen.** The screen proportions of HDTV, also called 16:9. Compared to conventional television, widescreen viewing is closer to the proportions of a movie screen.

**Y/Pb/Pr.** Method of connecting an analog HDTV source to an HDTV television. The video picture is carried on three channels: "Y" for luminance (black-and-white), "Pb" for blue color difference and "Pr" for red color difference.

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