



## **Digital and High Definition Television Shopper's Guide: What You Should Know Before You Buy**

Digital Television (DTV) is a new type of broadcasting that will transform your television viewing experience. Images and sound are captured using digital technology, delivering a movie-quality experience, multicasting and interactive capabilities. That means better quality, more choices, and more control over your television.

Here's what you should know about Digital Television before you buy.

### **DTV Formats**

DTV comes in many formats, the most common are:

- **High Definition Television. HDTV** is DTV at it's finest. HDTV is the best option in the range of DTV transmission formats. With HDTV, you can enjoy a true home theater experience.  
  
HDTV offers visually stunning pictures, displayed in a wide screen format with a 16:9 aspect ratio (height to width), compared with analog's 4:3, or almost square, format. HDTV comes as either 1080i (1,080 interlaced scan lines) or 720p (720 progressively scanned lines). Plus, because HDTV is digital, you have the benefit of five-channel "surround sound."
- **Enhanced Definition Television. EDTV** is a step up from Analog Television. EDTV comes in 480p widescreen (16:9) or traditional (4:3) format and provides better picture quality than SDTV, but not as high as HDTV.
- **Standard Definition TV (SDTV)** - SDTV is the baseline display and resolution for both analog and digital. Transmission of SDTV may be in either the traditional (4:3) or wide-screen (16:9) format. 480i is the best resolution of analog TV, though it's often much lower.

### **DTV Equipment and Options**

DTV equipment can be purchased on an all-in-one basis or as separate components.

A "Monitor" is a television display. It is the screen you look at and the electronics to control it. Decoding digital television to view it on your monitor may be done a number of ways.

**"Integrated"** or all-in-one digital televisions have built-in tuners to receive over-the-air DTV broadcasts and a monitor to display the programming. Other than an an antenna, you don't need any other equipment to watch DTV.

A “**Component**” solution includes a DTV monitor (sometimes called HD-Ready or HD Compatible) that is separate from a DTV tuner. You must have both a monitor and either a stand-alone DTV tuner, cable set-top box, or satellite set-top box to watch DTV. HDTV requires special equipment, so make sure you talk to your cable or satellite provider to verify you have the proper set-top box if you want to view HDTV.

“**Digital cable ready**” (or “**plug-and-play**”) televisions are also available. These can be used to receive digital cable TV (and often HD over cable) without a separate set-top box. A CableCARD that can be plugged into the set is needed for certain expanded cable programming. These televisions do not work directly with satellite (you will still need a set-top box to view satellite).

### **HDTV Equipment**

Basically, for HDTV programming, you will need the same equipment you do for other DTV formats – a monitor and a digital tuner – on either an integrated or a component basis. Also, an antenna is required for over-the-air reception. A true HDTV will be able to display analog, SD, ED, and HDTV signals in their optimum format and quality, as intended by the original content provider.

### **DTV Display Technologies**

There are a number of different screen choices for DTVs. Here are the most common. Of course, technology changes all the time, but today, your primary options are:

- **Cathode ray tube (CRT) screens** – These are traditional color television screens updated for digital. Their resolution and color capabilities vary from model to model. These are very bright but limited in size.
- **Projection TVs** – Rear projection TVs can be much larger than standard CRTs. Traditionally, they created an image the same way a CRT did, but then reflect it off a mirror onto the back of the screen. This made the images dimmer and hard to see from extreme angles. New digital projection technologies like LCD, DLP and LCoS create brilliant, wide angle pictures on ever-larger screens.
- **LCD screens** - Liquid Crystal Displays use a screen full of colored pixels to block white light being shone from behind. LCD televisions are very thin and produce extremely clear pictures. LCD screens are currently expensive and limited in size and generally not as large as projection or Plasma TVs.
- **Plasma screens** - Plasma televisions produce images by lighting small pockets of colored gas. This allows them to create a bright, clear picture up to enormous sizes while remaining only a few inches thick.

**DTVs and Other Electronic Equipment (DVD Players, Camcorders, VCRs, Computers, Video Games and DVRs).**

One question frequently asked is whether your other electronic equipment will work with your new DTV. The general answer is “yes.” Here are the specifics:

- Your DVD player, camcorder, VCR and video games will work with your DTV or HDTV set. Most digital and digital-ready TVs have composite video inputs (for peripheral equipment) and coaxial antenna inputs (for receiving broadcast TV or analog cable signals).
- Digital Video Recorders (DVRs) are increasingly popular and will continue to work with digital TVs or digital set-top boxes. To record High Definition, however, you will need an HD capable DVR. These are already available off the shelf and from many cable and satellite providers. High Definition video files are much larger and will require bigger hard drives to store the same length programs.

### **DTV and HDTV Connectors**

The introduction of digital and high definition programming has required television manufacturers to use new ways to connect components to keep their pictures looking good. The most common connectors are listed below. You should make sure that whatever you buy, you can connect it to whatever you have.

- **Coaxial** – Coaxial inputs (sometime just called “cable”) used to be the most common way to transmit video. With Digital Cable Ready and Digital Over-The-Air Broadcasts, they can again carry the highest quality pictures.
- **Composite** – Also called “RCA” connectors, the most common way to connect peripherals or other components. It consists of one yellow connector for video and two audio connectors for “right” and “left”. You can’t transmit high definition pictures over a composite connector, so you need to use one of the options listed below.
- **Component** – Also noted as “Y Pb Pr,” this is a way to break the video signal into three parts. With two audio connections, this 5 wire solution is the most common way to connect EDTVs to DVD players and most HDTVs to their receivers or other set-top box.
- **DVI** – The Digital Video Interface (DVI) is the highest quality digital connector. Similar to “HDMI” (High Definition Multimedia Interface) and sometime with “HDCP” (High Definition Content Protection), this is the best way to transmit uncompressed high definition video. You will still need a separate way to connect audio with DVI, but not with 1394.
- **1394** – Also called Firewire or I-link, IEEE 1394 is a way to transmit compressed data between components. Using only one cable it’s possible to send high definition video, audio, and any other data securely between components.

## **DTV Programming**

Digital and HDTV programming is being offered by most major broadcast stations in virtually every market. More independent stations and small broadcasters are offering digital programming every day. Cable and satellite providers are offering more and more high definition networks. If digital programming is not available in your local area yet, it will be soon. For a list of available digital programming in your area, check out [www.dtv.gov](http://www.dtv.gov).

## **The DTV Transition and Your Analog Set**

Much confusion exists about whether all current TVs will be obsolete when the transition to DTV is complete. They won't be. Here are the facts.

- Your current TV will work once the DTV transition is complete if you have a digital set-top converter box. This converter box, much like your cable box, will receive the digital broadcast signal, convert it to an analog signal, and send it to your analog TV.
- DTV information is encoded in a different way than analog television signals and therefore requires a different kind of receiver, but not a different kind of antenna. If you already have a TV antenna, either indoors or on your roof, it will still work after the DTV transition is complete.
- Although a digital converter box will allow you to receive a picture, it won't be able to show high-definition pictures on your analog set or allow access to interactive programming or other digital services. To experience the full benefits of digital television, including HDTV, you will need a digital television set.

We hope this answers your questions regarding the digital transition, DTV, and HDTV. For more information, visit the Federal Communications Commission's new DTV website at [www.dtv.gov](http://www.dtv.gov).

*Digital Television*

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