

# TV Technology Types

Technology continues to advance, and as it does, consumer electronics do as well. As a home electronics sales associate, it is very important for you to know the differences in TV technologies, sizes and prices. This is how you will serve your customers best and help them find the TV that is perfect for them, depending on the features they find most important.

## DIFFERENT TYPES OF SCREENS:

- **PLASMA** — Tiny gas-filled cells are held between two panels of glass. The gas in the cells is electrically turned into plasma, which produces light and displays images on the screen.
- **LCD: LIQUID CRYSTAL DISPLAY** — Made up of pixels arranged in front of a light source or reflector.



- **DLP: DIGITAL LIGHT PROCESSING** — Images are created by microscopic mirrors on a tiny chip. (For more information on DLP, review the February issue of *Sales Today*, pages 4-5.)
- **LCOS: LIQUID CRYSTAL ON SILICON** — Technology is similar to DLP projectors, but liquid crystals are used directly on the chip instead of images reflecting off mirrors. Most use three chips each with a resolution of 1080p.
- **CRT: CATHODE RAY TUBE** — A cathode ray tube is an electronic vacuum tube that carries a focused beam of electrons that create images.



## FLAT-PANEL TELEVISIONS

### PLASMA AND LCD

- Lifelike picture quality in an ultra-thin design, which saves space and offers a futuristic look and feel.
- Bright and incredibly crisp images with cutting-edge technology.
- Slim and lightweight, so flat-panel televisions can be mounted on the wall. Look great even when they are not on!

### PLASMA TELEVISIONS

- Larger screen sizes are available, up to 58".
- The wide viewing angle (up to 160 degrees) makes it easy to see from any position.
- Image contrast is enhanced; blacks and whites are crisp and focused and the colors are vivid.

### LCD TELEVISIONS

- Brightest, highest resolution (1920 x 1080) performance is available.
- Though smaller in size (ranges up to 52") high-quality pictures are still displayed, and remain detailed in varying light conditions.
- Lightweight and averaging 2" thick, the sets are perfect for wall mounting.



## REAR PROJECTION TELEVISIONS

### LCD, DLP, LCOS AND CRT

- The traditional "big screen" TV. Besides tube televisions, rear projection televisions have been around the longest. The realistic images are improved as technology continues to advance.
- Great for sports as well as major motion pictures.
- Smaller versions also available; some only 16" deep.
- Technological advancements have made it possible to create smaller and lighter units that can be placed nearly anywhere.

### LCD PROJECTION

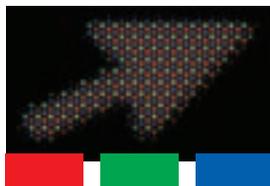
- Similar technology to LCD flat-panel displays to create clear and sharp images.

### DLP PROJECTION

- Uses a Digital Micromirror Device (DMD) microchip that creates slightly better reproduction of black and better color accuracy than LCD technology.

### LCOS PROJECTION

- Has the same number of pixels as LCD and DLP, but the distance between the pixels is smaller, creating a smoother picture.



### CRT PROJECTION

- Three picture tubes (red, green and blue) make up the color quality, although they are the largest and heaviest of projection televisions.

## DIRECT-VIEW CRT/TUBE TELEVISIONS

- CRT televisions are the standard televisions. They are affordable and produce bright, sharp images and lifelike picture quality.
- Screen sizes range up to 36", and televisions are available in analog, standard-definition television and high-definition television.
- The reliable picture display produces deep blacks, bright whites and a wide color spectrum due to the high contrast ratio.

### ! DID YOU KNOW?

As of February 17, 2009, analog broadcasting will stop and digital television (DTV) will take over. The transition to digital will allow broadcasters to provide a high-definition program or multiple standard-definition DTV programs simultaneously, instead of airing one analog program at a time as they do now. By "multicasting," which means airing several programs on one broadcast channel, DTV will provide interactive video and data services that cannot be done with today's television standards.

The transition only means programs will be *broadcasted* in digital. To take full advantage of this new technology, customers will need a high-definition television. If your customers do not wish to purchase a new television, they may have to buy a converter box (which will be available at the time of the transition). This box will change the digital signals to analog so older TVs will still recognize and play the programming. Or, if your customers have their analog TVs connected to a satellite service or cable company, they will not be affected. Until the switch, TV stations will continue to broadcast both analog and digital programming.



## WHAT YOUR CUSTOMER NEEDS TO KNOW ABOUT THE SIGNAL:

As technology continues to advance, there are new ways to broadcast signals. With the arrival of HDTV and digital televisions, there are new signal broadcasting requirements. Your customers need to be aware of these types of signals and their requirements in order to choose the TV that is best for them.

### HDTV (HIGH-DEFINITION TELEVISION)

- Incredibly detailed images and the true-to-life pictures enhance entertainment.
- Over-the-air high-definition and standard-definition broadcasts can be received without an additional set-top box. If not connected to a satellite or cable box, an HD-capable antenna is required. This antenna will pick up local television broadcasting in the customer's local viewing area. To see which stations (NBC, CBS, ABC, FOX) in your area broadcast in high-definition, check the station's web site. Like the analog signal, this HD programming is free.
- Displays a 16:9 aspect ratio and at least 720-line resolution images, so a great picture is always delivered.

### HD-READY TVS

- NTSC tuner is built-in, but an ATSC tuner is needed in order to receive high-definition signals.
- It is common to see a TV that is described as being an HDTV, but it is just HD-ready. Make sure there is indeed an ATSC tuner before a television is claimed as an HDTV; otherwise it is simply HD-ready.



### SDTV (STANDARD-DEFINITION TELEVISION)

- Over-the-air digital signals are picked up and displayed in a picture that is better than traditional analog TVs; there is no fuzzy reception or irregular coloration.
- Digital as well as analog programming is received with the built-in ATSC and NTSC tuners.
- Standard picture resolution is set at 480i (not HD).



### DIGITAL CABLE-READY TV

- Picture quality is improved with sharper images than standard analog television.
- Digital cable broadcasts can be received by putting a CableCARD into the slot; there is no need for an additional set-top box.
- It is best if the local cable company is contacted beforehand to make sure the correct CableCARD is purchased.



## DISCOVER QUESTION

**Q. How do you plan on getting your HD programming?** If your customers are unsure, elaborate a little. Do they plan on getting programming from a cable or phone company, satellite, over the air (with an antenna) or a combination? This is the point where you should ADVOCATE add-on sales, such as a DISH Network subscription. Let your customers know that DISH Network has the most HD programming in America.



## EVERYTHING YOU NEED TO KNOW ABOUT CONNECTIONS

With televisions now being designed to accept more connectivity options, your customers can do so much more. They can watch movies on Blu-ray, DVD or even VHS. They can use their TV as a computer monitor, play video games, view digital photographs and a lot more. What they need to know is that with the proper cables, wiring can be simplified and cables minimized.

## THE TOTAL SOLUTION

The following are things you should be sure to discuss with your customers during the ADVOCATE stage of the Customer Creating Enthusiasm selling process. All of these solutions will enhance your customer's purchase and make their HD television experience more enjoyable.



**Components:**

- DISH Network
- Home Theater Systems
- DVD Players
- Blu-ray Disc Players

**Accessories:**

- Cables
- Stands / Wall Mounts
- Digital Antenna
- Remote Controls
- Surge Protectors

**Services:**

- Master Protection Agreement
- Delivery
- Installation
- Credit



TYPE OF CABLE	WHAT THE CABLE DOES	BENEFIT FOR YOUR CUSTOMERS
<b>HDMI (High-Definition Multimedia Interface)</b> 	Uncompressed, all-digital audio and video carried in one single cable connection. Any HDMI-enabled audio/video source such as a DVD player or ATSC tuner can receive the signal.	To achieve the same results, multiple cables are necessary. HDMI delivers the best quality with the least wiring.
<b>DVI (Digital Visual Interface)</b> 	Direct digital-to-digital video hookup with compatible devices. (This is similar to a computer connection.)	The signal remains digital with outstanding clarity.
<b>Component Video</b> 	Color signals are delivered separately from brightness, so a DVD player (for example) will have the best possible output.	Picture quality is bright and sharp, in standard or high-definition.
<b>S-Video (Separate Video)</b> 	Though it cannot produce high-definition, S-Video is similar to Component Video cables, separating color information and brightness.	Signal interference is reduced so a clear picture is delivered.
<b>Composite Video</b> 	Color and brightness are transmitted at the same time, normally in a single RCA-type jack.	Provides a decent picture, just not as good as the cables above.

It is recommended that customers use an installer to help them with everything from using the right cables to wiring them through the wall. ADVOCATE Sears Professional Installation so your customers can take full advantage of their new television and home theater components.