LCD TV Video Connector Guide

Before you can sit down and start enjoying your brand new LCD, there are a few important things you need to do. One of the most important is connecting your LCD TV to your signal source devices, such as the cable, antenna, DVD player or gaming console. In general, an LCD TV will provide several video connector types for compatibility. In this guide we'll introduce the video connector types and what they do.

Video Connectors

Video connectors are used to transmit and receive video signals, which are then converted into images displayed on the LCD TV. Here are the most common:

RF (Radio Frequency)

Current LCD TVs provide at least one RF connector to receive TV signals from an analog cable or antenna. Of course, the RF connector can be used to connect with some VCRs or game consoles as well. The RF connector also carries the audio signal, thus the connection is simple, meaning that there is no need to connect separate video and audio cables separately. On the LCD TV, the RF connector is often labeled as "Antenna", "CATV", or "TV-in".

Composite Video

Composite video is an older, but still very frequently used analog connector on the LCD TV. When carrying video signals, the composite video connector combines the luminance (Y) and chrominance (C) signals in a single channel, thus the video quality is quite up to the level of the S-Video or component connector. The composite video connector is yellow, and is usually marked as "Video" on the LCD TV.

S-Video

As another very frequently used connector on the LCD TV, S-Video can provide cleaner video quality than composite video, as it separates the luminance (Y) and chrominance (C) signals in order to avoid possible interference between the two to enhance signal quality. The S-Video connector is a small, round input jack with four pins on it, and is usually marked "S-Video" on the TV. On the DVD player, game console, digital TV set-top box, and satellite receiver, the S-Video port is almost a must have connector, which is why most LCD TVs will provide this connector no questions asked.

Component Video

The component video connectors are three jacks colored green, blue and red, and often marked as Y, Pb, and Pr respectively on LCD TV. The component video signal is split and compressed into separate luminance ("Y") and (two) color values including red minus luminance (R-Y) and blue minus luminance (B-Y). Depending on that, component video can offer image quality exceeding S-Video. As a result, component video provides an interface to link the LCD TV with the high definition devices.

D-Sub

The D-Sub connector is a standard 15-pin computer monitor connector that carries an analog RGB (Red, Green, Blue) signal. This connector is easily recognized and is marked “PC”, “RGB”, “VGA”, or “D-Sub”. With the D-Sub connector, an LCD TV can be connected with not only the computer, but some game consoles, and digital TV set-top receivers.

DVI

The DVI (Digital Visual Interface) connector on the LCD TV is usually of the DVI-D variety, meaning it carries a 100% digital video signal. The image quality it can offer is certainly higher than D-Sub and component, as there is no need to convert the digital video signals to analog between the LCD TV and the digital source. In addition, the HDCP (High-bandwidth Digital Content Protection) technology is often applied on DVI to protect digital entertainment content, and only an HDCP licensed LCD TVs will be able to receive and display HDCP protected digital contents normally.

HDMI

The HDMI (High Definition Multimedia Interface) connector is a relatively new digital connector that carries both high definition digital video and a maximum of 8 channels of uncompressed digital audio signals, which are transferred over a single cable. HDMI will eventually replace DVI, and will be the standard connector on high definition devices, such as HD DVD and Blu-ray disc players, digital set-top boxes, and the Sony Playstation 3 game console. LCD TVs equipped with the HDMI connector are compatible with these high definition devices. HDCP is applied on HDMI as well, and only HDCP licensed LCD TVs can receive and display the HDCP protected digital contents normally.

IEEE 1394

IEEE 1394 is also called as “Firewire” or “i.Link”. IEEE 1394 is capable of carrying both digital video and audio signals. On the LCD TV, IEEE 1394 connectors can be used for input and output to compatible High Definition devices such as a DVD recorder or Digital Video Recorder.

Tips for choosing and using connectors

Connecting the LCD TV to other devices is easy. The basic principle is to use the proper cable to link the same type of connector on both the LCD TV and the device. For example, if an S-Video connector is available on both your LCD TV and the DVD player, then you can use an S-Video cable to connect the two S-Video connectors to achieve the connection between them. Most probably, you will find several connection methods available between the LCD TV and the device, which means you need to decide on which connection to best use.

For starters, choose the connector according to the resolution of the video to be displayed. The highest resolution supported by the composite and S-video connectors is 480i (interlaced),

thus if the video format is 480p (progressive) or higher, you will not be able to enjoy the picture at its best using these two connectors.

Component video supports 480i, 480p, 720p, and 1080i. This is a wide range of resolutions, but it is important to note that not every set of component video connectors on an LCD TV can support up to 1080i. For example, some LCD TVs may provide two sets of component video connectors, one set may support 480i/480p, and the other 720p/1080i. Therefore, please pay close attention to the product manual or connector descriptions.

The D-Sub, DVI, HDMI and IEEE 1394 can all support up to 1080p. Please refer to the following table as well:

Video Connector	**Supported Resolution**
Composite	480i
S-Video	480i
Component	480i/480p/720p/1080i
D-Sub	480i/480p/720p/1080i/1080p
DVI-D	480i/480p/720p/1080i/1080p
HDMI	480i/480p/720p/1080i/1080p
IEEE 1394	480i/480p/720p/1080i/1080p

If all the connectors available are able to match the resolution of the video output, then the connector providing the best picture quality should be used. Please refer to the Video Connector descriptions for full information, or refer to the table below for quick reference:

Video Connector	**Signal type**	**Video Quality Rating (higher is better)**
Composite	Analog	1
S-Video	Analog	2
Component	Analog	3
D-Sub	Analog	4
DVI-D	Digital	5
HDMI	Digital	5
IEEE 1394	Digital	5

Last but not least, it is important not mix up the input and output video connectors. The input connector on the LCD TV receives video signals from other devices - they are to be connected to the output connectors on other devices. Similarly, the output connector on an LCD TV transmits video signals to other devices, and should be connected to the input connector on other devices. Input and output connectors are usually marked “IN” and “OUT” respectively.