

Audio Connections:

Rule of thumb: Use Digital When Possible, but don't "freak" over it!

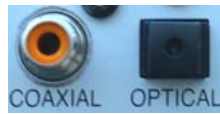
[More Connection types below](#)

(See [Advantages/Disadvantages - below](#))



Stereo Analog Audio connections use red and White color coded "RCA" connections. These support mono or stereo analog audio.

*[Stereo Cables](#)



Digital Audio connections, Coax on left, Toslink Optical on the right. Digital Coax uses orange color coded "RCA" connections. These support AC3, Dolby Digital (5.1, etc.), DTS, S/PDIF. Use either connection.

*[Coax Cables](#)
*[Toslink Cables](#)



Analog 5.1 (etc) Surround sound. The color coded "RCA" connectors are still red and White, designating "analog" but instead of "L" and "R", you have "C" (center), "FR" (front right), "FL" (front left), "SL" (surround left), "SR" (surround right), and "SW" (subwoofer). For Dolby Digital or DTS 6.1 or 7.1 there will be more! Surround sound analog connections on computer sound cards use "mini" phone plug connections instead of RCA's since they are smaller.

*[Analog 5.1 \(etc\) audio cables](#)





Connection Type - Advantages and Disadvantages Table

Connection Type	Advantages	Disadvantages
Toslink	Digital connection, not susceptible to electrical interference. Good for pretty much most types of Digital audio signals as long as your receiver and other device (DVD/Satellite Receiver/Digital Cable) has a Toslink connection. Supports Dolby Digital 5.1, 7.1, DTS etc.	Limited length of cables. Cables generally fragile. Repeaters or fiber optic cables are necessary for long cable runs. No SACD or DVD-A support. No locking connector and easily disconnected.
Coax Digital Audio (S/PDIF)	Digital connection, using Copper cables, usually Coax. Some experts prefer it to Toslink, and it is capable of longer cable lengths. More widely used than Toslink in professional applications. Supports Dolby Digital 5.1, 7.1, DTS etc.	Uses copper cables, so is more susceptible to electrical interference than Toslink. No SACD or DVD-A support.
Firewire	Digital connection. Great bandwidth for multichannel audio. Used on new receivers, DVD's and STB's and on DAW's (Digital Audio Workstations) and the occasional HTPC. Smart choice to have for future compatibility.	Many new Receivers and audio devices using this connection as an audio only interface. Generally also used for Audio/Video from/to camcorders, Digital VCR's, Set Top Boxes and HDTV's. Possible DVD-A and SACD support, now or in future versions. Make sure equipment specifically supports these formats. No locking connector and easily disconnected.
HDMI	Digital connection with both digital video and audio in one interface. Excellent quality electrical interface capable of exceptional 1080p video and 8 channels of 192kHz audio. Another excellent connectivity choice for future compatibility.	No locking connector. These things typically flop out of their connections more easily than a single RCA connector. Sometimes you want your audio and video connections to be separate. HDCP
Denon Link	Recently capable (DL3) of SACD and DVD-A in addition to the usual digital audio signals, Denon link is an excellent digital audio interface.	Only available on specific Denon equipment.
Stereo	Analog audio. Two channels, right and left. If your system does not support digital audio, then your best bet is analog stereo. Generally uses dual RCA plug cables.	No surround sound unless it is simulated. Analog rather than digital. Not that there is anything wrong with that.
Mono	Some TV's only have mono audio inputs and/or outputs. This is better than nothing.	Boring. Usually.

Video connections:

(See [Advantages/Disadvantages - below](#))



		
<p>DVI - This can be either a Digital only connection as seen above, or a Combination Digital and analog connection. For Home Theater it is typically Digital only. See our DVI page for more information. Many new DVD's and STB's (Set top Boxes) for Satellite (DSS) or Digital Cable TV have these connectors. Capable of high resolution 8-bit RGB video. *DVI Cables</p>	<p>HDMI HDMI has high resolution Digital Video and Digital Audio. Capable of RGB or Y-Pr-Pb digital video, depending on your equipment. HDMI is used on STB's (Set Top Boxes) , Receivers, Display devices such as HDTV's, LCD's, Projectors, Plasmas and now many DVD players with upconversion to HD resolution. * HDMI Cables</p>	<p>Component Video (Y-Pr-Pb) - This is used on most HDTV's and decent or better DVD players. Notice the Red, Green and Blue color coded connectors. Capable of very high resolutions, but these are slowly being phased out in favor of digital connections. Generally being phased out for copy protection issues. *Component Video Cables</p>
		
<p>RGB - This could be RGBHV, or a "VGA" (HD15) connection. This is used on computer video cards, Projectors and some HDTV's. Capable of very high resolutions despite the bad connector. *RGB (RGBHV) Cables</p>	<p>S-Video - Better than "composite video because it separates the luminance (white level) and chrominance (color information). Used on DVD's, TV's, Satellite receivers and Cable TV boxes. Also used on some Computers with TV outputs. *S-Video Cables</p>	<p>Composite Video - The old "AV" standard connector. This is color coded Yellow for Composite video. *Video Cables</p>

Connection Type***Advantages****Disadvantages**

HDMI	Digital connection for Video and 8-channels of Digital Audio as well as device control features. Electronically better potential for supporting longer cable lengths than DVI for digital video. Specification supports up to 12 bit Y-Pr-Pb video (rarely implemented on equipment) as opposed to 8 bit limit of DVI RGB.	Brand new and still not available on many devices. Easy to disconnect.
DVI	Digital connection*, Excellent Bandwidth, good separation of signals. Generally best connection for HDTV's and Set Top Boxes/Receivers that support it.	8-bit RGB.
Firewire	Digital connection, nice device control features, very high bandwidth in the future. Flexible topology in the future.	Found on relatively few Home Theater Devices. Best choice for future compatibility. Often Digital Audio only.
RGBHV	Analog, used on some high-end monitors and video equipment. Can use BNC, RCA or VGA type connectors. Used on some HDTV's and Set Top Boxes, but not DVD players.	Almost only used on high-end video equipment and a few assorted HDTV's. You often need expensive adapters to convert to Component video. Not used on DVD players. Not Digital.
Component Video	Analog, used on most quality TV's/HDTV's and DVD's. Capable of easily handling the usual formats of video. Not digital. No copy protection. Currently being phased out for Home Theater connections, for copy protection reasons...	Not digital. No copy protection.
S-Video	Analog, and uses a strange little connector with four pins. Better than Composite video due to separation of Luminance and Chrominance signals.	Small connectors and small cables tend to not be of great quality. Does not support HDTV, nor

Composite Video Better than nothing. All brightness and color information is transmitted using a single cable.

progressive scan DVD players.

All brightness and color information is transmitted using a single cable. Does not support HDTV, nor progressive scan DVD players.

** In many cases the quality of the cables used may be more important than a cable types inherent superiority. For example, Component video with an excellent quality cable is far superior to RGBHV with a poor quality cable.*

Video and Audio Connections:

"F" Connections:



(Cable TV / Satellite / Antenna)

These connections use a single cable (RG6) to transport both audio and video in their various formats. They are not interchangeable, and generally require some kind of Tuner or receiver to tune a specific frequency (channel) and decode the audio and video signals.

* [RG6 Cables](#)

DVD connections:

DVD Audio Connections



Use The "Bitstream/PCM" Digital connections on the right if you have a surround sound receiver. Use either the Coax or Toslink connection. Use the "2CH" analog stereo connection on the left to connect to a TV or stereo system.

* [Coax Digital Cables](#) - * [Toslink Cables](#)

DVD Video Connections:



Use the "Y Pb Pr" (green, blue and red) Component Video connection if your Television supports this connection. Use the S-Video connector as the next best if you can or the Yellow "Composite" connection if that is all you can use.

The "Select" Switch selects between "Progressive" and "Interlaced". You want it set to "P" if possible!

* [Component Video Cables](#) - [S-Video Cables](#) - [Video Cables](#)

Surround Sound Receiver Connections:



Component Video

Use the Component Video connection if you have more than one Component video capable source, and you want to use the Receiver as a Component video switcher. If you have only one Component Video source, skip the receiver and connect the source directly to your Television or projector.

* [Component Video Cables](#)

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S-Video

Use your Receiver to switch between S-Video Signals if your Television has only a single S-Video connection. If your Television has a number of Video inputs, it is better to go direct and not add extra cabling.

* [S-Video Cables](#)

Composite Video Connections



Use your Receiver to switch between Composite Video Signals if your Television has only a single Composite video connection. If your Television has a number of Video inputs, it is better to go direct and not add extra cabling.

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Surround Receiver Audio Connections



You will almost certainly need to use a combination of the analog (red and white color coded connections on the left) and the Digital connections on the right to connect all of your Home Theater/Stereo system devices to your Surround sound Receiver. This Receiver, like most has two Digital Audio inputs. One Coaxial and one Toslink. The second Toslink connector is for output. Use your DVD for one Digital input and either Digital Satellite Receiver, Digital Cable box, or CD player for the other. Which one uses Coax and which one uses Toslink depends on the capabilities of the devices you have to connect. Use the analog connections for devices with no Digital output.

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Surround Sound Receiver Subwoofer Connection



Use the Receivers Sub woofer "RCA" connector "Pre Out" (pre-amplifier) output to connect an amplified subwoofer. If your Subwoofer has no built-in amplification, use the Receivers Subwoofer Speaker connection

if it has one (really rare) or a separate amplifier. Almost any fairly new subwoofer is a "powered" subwoofer.

*[Subwoofer Cables](#)

Sub Woofer Connections



If possible use the single "RCA" Connector Connection to the above Receivers "Pre Out" Sub Woofer connection. This will use the Sub Woofers built in amplifier for best results. Using the "Speaker level" inputs requires some care, since this usually involves connecting it in "parallel" with other speakers, and therefore generally reduces the impedance of these connections putting more of a strain on your receivers amplifier.

*[Subwoofer Cables](#)

Television (TV/HDTV) Connections

"RF" or "F" Connections:



The "F" connector inputs on your TV are for connecting an antenna, Cable TV or Satellite Receiver. These connections carry modulated audio and video on the same cable. They can have HD capable tuners or satellite or digital cable capable or whatever. You may at some point need to know. You need to look at your manuals for Cable TV or Satellite TV receivers and the Television if you have questions about how to use these. You will need to look at your Television manual for instructions on how to "auto scan" for channels. RG6 cable is the current standard cable for these connections, using the oddly named "F" connector.

*[F Cables](#)

Television (TV/HDTV) Component Video/ Audio Connections



Most HDTV's and many new NTSC (non-HD) TV's have Component Video inputs as seen to the left. The top three "RCA" connectors (green, blue and red color coded) are for Component video. These should be connected directly to your DVD player, Satellite receiver or Cable TV box if they have component video outputs, or to your Surround sound receiver if you are using it as a component video switcher. The bottom two "RCA" (white and red) color coded connectors are for analog stereo audio connections. Generally no Televisions have Digital audio inputs, although there are exceptions. Normally, if you have a surround sound receiver you will not want to connect audio to the television since your surround sound system will handle all of the audio rather than the television. If you have no surround sound system, and are not using a stereo Hi-Fi system for your audio, then you would use these audio connections.

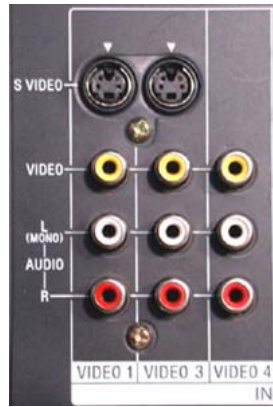
*[Component Cables](#) - [Audio Cables](#)

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Television (TV/HDTV) S-Video and Audio inputs

Use the S-Video connections seen on the left if possible, rather than the yellow color coded Video connections if the device you are connecting has these connectors. Use the white and red audio connections (L and R) for connecting devices with these outputs only if you are using the televisions speakers and are not connecting the device to a Surround Sound system.

*[S-Video Cables](#)



*[Stereo Cables](#)

*[AV Cables](#)

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Television (TV/HDTV) Audio and Video Outputs



Surprisingly you will usually need to use your Televisions Audio and possibly Video outputs even if you have a Surround Sound System. The Video output connector (Yellow color coded "RCA" Composite video) often connects to the VCR. The Stereo audio (red and white color coded "RCA" connectors) are often needed to connect to your surround Sound Receivers "TV" audio input if your cable TV box does not have its stereo output connected to the receivers audio input. You can fix this by connecting your Cable TV boxes analog stereo audio output connection to your surround sound receiver. If you are using an antenna for "regular" OTA (over the air) Television reception, you will need to use this connection for the audio to get to your receiver.

*[Audio Cables](#)

*[AV Cables](#)

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